Application for Certification

Appendix 3A - System Impact Study

GWF Tracy Combined Cycle Power Plant Project

Submitted by

GWF®

With Technical Assistance by

CH2MHILL

July 2008

ES032008008SAC

California Independent
System Operator Corporation

May 19, 2008

Mr. Robert H. Moore
GWF Energy, LLC
4300 Railroad Avenue
Pittsburg, CA 94565

Subject: GWF Tracy Interconnection System Impact Study Report

Dear Mr. Moore:

Attached is the Interconnection System Impact Study (ISIS) Report for the interconnection of the proposed 145 MW GWF Tracy project (Project) to the Pacific Gas & Electric Company's (PG&E) Schulte 115 kV Switching Station in San Joaquin County, California. The ISIS was performed by PG&E under the direction of the California ISO (CAISO) in accordance with the CAISO's LGIP tariff. The Project's proposed Commercial Operation Date is April 1, 2013.

The results of this ISIS indicated that the Project will cause overloading of some transmission circuits in the CAISO Controlled Grid under Category B and Category C contingency conditions. The results further indicated that the Project causes no adverse voltage or transient stability impacts on the CAISO Controlled Grid. The Short Circuit analysis concluded that the Project would result in no overstressed equipment at the Schulte Switching Station or at nearby substations.

The non-binding cost estimate of the Interconnection Facilities to interconnect the Project would be approximately $650,000, exclusive of ITCC[1]. The non-binding cost estimate for the Network Upgrades to interconnect the Project would be approximately $6,700,000, also exclusive of ITCC.

Upon completion of the remaining Interconnection Studies, this project may interconnect to the CAISO Controlled Grid after making the required system upgrades and be eligible to deliver the project's output using available transmission. However, the interconnection studies do not establish the generation project's level of deliverability for purposes of determining its Net Qualifying Capacity under the CAISO Tariff and in accordance with CPUC-adopted Resource Adequacy Rules. Therefore, this letter makes no representation, and GWF Tracy, LLC cannot rely on any statements herein, regarding the ability, or amount, of the output of the project to be eligible to sell Resource Adequacy Capacity. Separate studies entitled "Deliverability Assessments" are being done by the CAISO which will determine whether or not the project is 100% deliverable to the Grid. If the project is found less than 100% deliverable, the study will recommend mitigation measures to make it 100% deliverable.

The ISIS results meeting will be coordinated and scheduled by the ISO Project Manager Ed Fishback (916) 608-5836 (EFishback@caiso.com) within 10 business days following receipt of this Interconnection System Impact Study Report.

[1] Income Tax Component of Contribution

Should you have questions regarding the Study, please contact Nisar Shah at (916) 608-7376 (nshah@caiso.com) or myself at (916) 608-5880 (GDeShazo@caiso.com).

Sincerely,

Original signed by Gary DeShazo

Gary DeShazo
Director of Regional Transmission - North

Attachment

Cc: Peter Lai
GWF Energy, LLC
4300 Railroad Avenue
Pittsburg, CA 94565

via e-mail:

Albert Wong (AYW1@pge.com)
Raymond Yazzolino (RJY1@pge.com)
Kaicheng Chen (Kxcj@pge.com)

CAISO via email:

Ed Fishback (EFishbackl@caiso.com)
ISO Regional Transmission North

Interconnection System Impact Study Report

Generation Interconnection

GWF Energy LLC

GWF Tracy Project

Final Report

May 19, 2008

This study has been completed in coordination with Pacific Gas & Electric per the Large Generator Interconnection Procedures.

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1. Executive Summary

GWF Energy LLC, an Interconnection Customer (IC), proposes to interconnect their GWF Tracy Project (Project) to the California Independent System Operator Corporation (CAISO) Controlled Grid. The Project adds one steam turbine generator to the existing two gas turbine generators to form a combined cycle (2X1) plant. The steam turbine generator is rated for a gross output of 154.7 MW. With 9.7 MW plant auxiliary load, the maximum output to the CAISO Controlled Grid is 145 MW. The proposed Commercial Operation Date of the Project is April 1, 2013. The Point of Interconnection (POI) is at Pacific Gas & Electric Company's (PG&E) Schulte Switching Station 115 kV bus in San Joaquin County, California. In addition, the Tesla – Manteca 115 kV Line will be looped into Schulte Switching Station. The IC has requested, and the CAISO and PG&E have concurred to waive the Interconnection Feasibility Study (IFS) and allow the IC to move into the Interconnection System Impact Study (ISIS) phase.

In accordance with the Federal Energy Regulatory Commission's (FERC) Large Generation Interconnection Procedures (LGIP), the IC elected, and the CAISO and PG&E performed an Interconnection System Impact Study (ISIS). The ISIS:

- Identified transmission system impacts caused solely by the addition of the Project,
- Identified system reinforcements necessary to mitigate the adverse impacts of the Project under various system conditions,
- Provided facilities required for system reinforcements with a non-binding good faith estimate of cost responsibility and a non-binding good faith estimate of time to construct, and
- Provided the level of deliverability of the Project by means of a Deliverability Assessment, conducted by CAISO per section 3.3.3 of the LGIP.

To determine the system impacts caused by the Project, studies were performed using the following full-loop base cases:

- 2013 Summer Peak
- 2013 Summer Off-Peak
- 2013 Spring Peak

The studies performed included:

- Steady State Power Flow Analyses
- System Fault Duty Analyses
- Dynamic Stability Analyses

- Reactive Power Deficiency Analyses
- Deliverability Assessment
- System Protection Requirements
- Substation Evaluation
- Transmission Line Evaluation
- Land/Environment Evaluation

Steady State Power Flow Analyses concluded that the interconnection of the Project to the CAISO Controlled Grid causes the following new transmission facilities to become overloaded:

- Vierra - Tracy - Kasson 115 kV Line section between Cross Rd Jct and Kasson Jct 2 (Category “B” emergency overload)
- Schulte - Lammers 115 kV Line section between Lammers Substation and Owens Tap 1 (Category “B” emergency overload)
- Kasson 115/60 kV Bank 1 (Category “C” emergency overload)
- Vierra - Tracy - Kasson 115 kV Line section between Kasson Jct 2 and Tracy Substation (Category “C” emergency overload)

The Project also exacerbates the following pre-project overloads:

- Tesla - Westley 230 kV Line (Normal and Category “B” emergency overload)
- Warnerville - Wilson 230 kV Line (Normal and Category “B” and “C” emergency overload)
- Schulte - Lammers 115 kV Line section between Schulte Switching Station and Owens Tap 1 (Category “B” emergency overload)
- Bellota - Warnerville 230 kV Line section between Bellota Substation and Cottle B (Category “B” and “C” emergency overload)

The analyses also determined that the Project causes no reactive power deficiencies and hence no adverse voltage impacts.

Dynamic Stability Study results indicate that the transmission system’s transient performance would not be significantly impacted by the Project following selected disturbances.

The substation evaluation found no overstressed breakers requiring mitigation by the Project.

The non-binding construction schedule to engineer and construct the facilities is approximately 18-24 months from the signing of the Large Generator Interconnection Agreement (LGIA).

The non-binding cost estimate of Interconnection Facilities[1] to interconnect the project would be approximately **$650,000** exclusive of ITCC[2].

The non-binding cost estimate for the Network Upgrades[3] to interconnect the project would be approximately **$6.7 million**.

[1] The transmission facilities necessary to physically and electrically interconnect the Project to the CAISO Controlled Grid at the point of interconnection.
[2] Income Tax Component of Contribution
[3] The transmission facilities, other than Interconnection Facilities, beyond the point of interconnection necessary to physically and electrically interconnect the Project safely and reliably to the CAISO Controlled Grid

2. Project and Interconnection Information

The Project adds one steam turbine generator to the existing two gas turbine generators to form a combined cycle (2X1) plant. The steam turbine generator is rated for a gross output of 154.7 MW. With 9.7 MW plant auxiliary load, the maximum output to the CAISO Controlled Grid is 145 MW.

The Point of Interconnection (POI) is at Pacific Gas & Electric Company's (PG&E) Schulte Switching Station 115 kV bus in San Joaquin County. In addition, The Tesla – Manteca 115 kV Line will be looped into Schulte Switching Station.

Figure 2-1 provides the map for the Project and the transmission facilities in the vicinity. A conceptual single line diagram of the Project is shown in Figure 2-2.

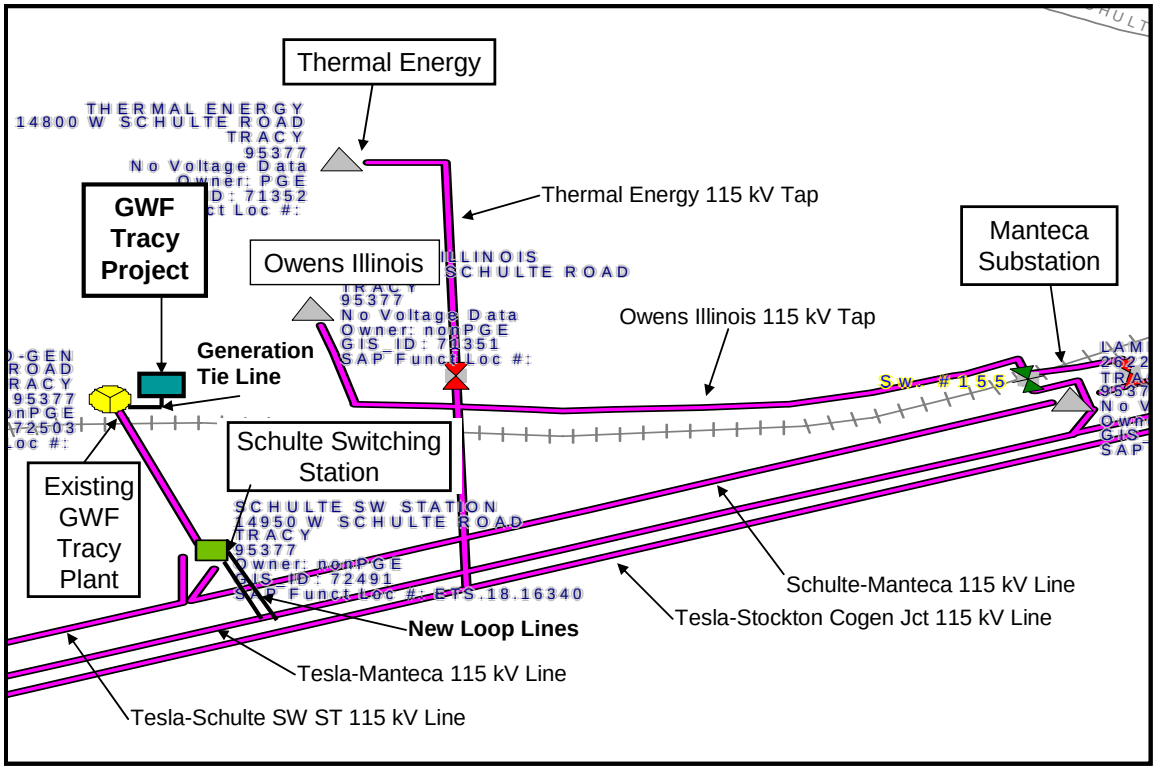

Figure 2-1: Map of the Project

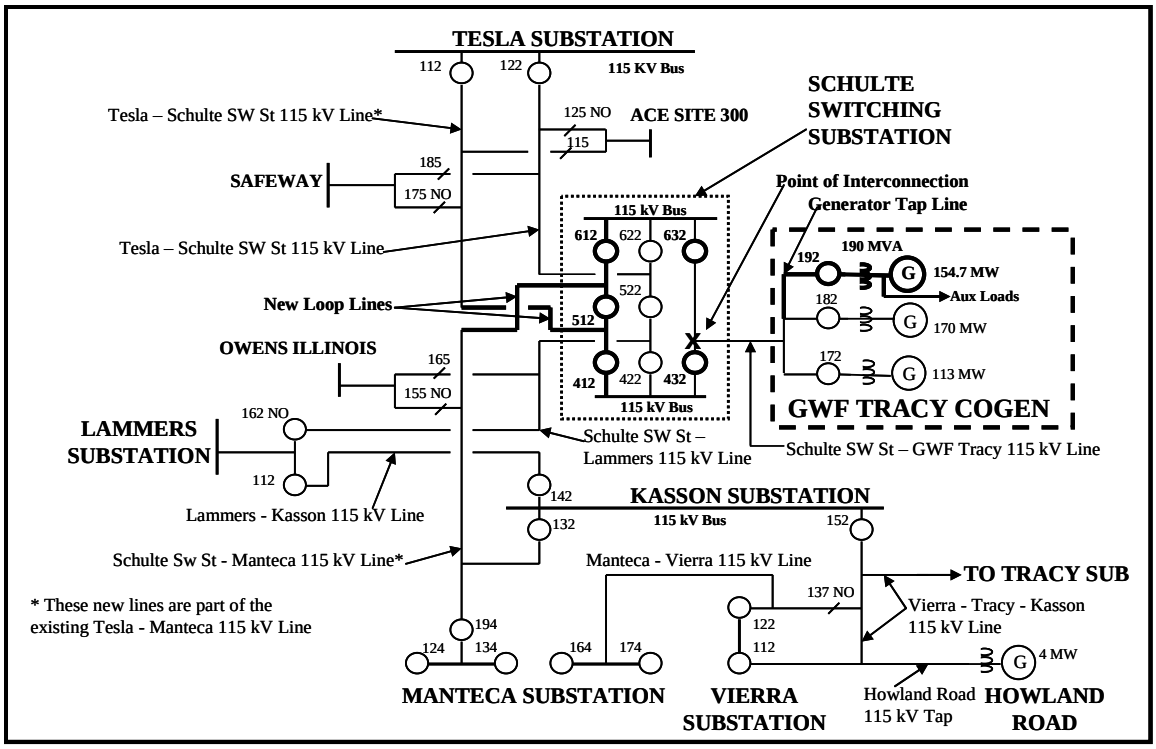

Figure 2-2: Conceptual One-Line Diagram

3. Study Assumptions

Under the direction of the CAISO, PG&E conducted the ISIS using the following assumptions:

1. The Project consists of one steam turbine generator rated for 154.7 MW with a total plant auxiliary load of 9.7 MW. The net output to the CAISO Controlled Grid is 145 MW.

2. The expected Commercial Operation Date is April1, 2013.

3. The Project uses one step-up transformer. It is a three-phase 13.8/115 kV transformer rated for 190 MVA @ 65 degree C temperature rise with an impedance of 8.7% at 190 MVA base.

4. The IC will engineer, procure, construct, own, and maintain its project facility including the generator tap line. The generator tap line from the Project to the existing GWF Tracy Peaker Switchyard is about 0.14 miles long with 1431 kcmil “Bobolink” ACSS conductors.

5. PG&E will engineer, procure, construct, own, and maintain the loop lines (from the Tesla – Manteca 115 kV Line to Schulte Switching Substation about 1000’ in length). The conductor size of loop line is the same as the Tesla – Manteca 115 kV Line or equivalent. PG&E will modify the 115 kV bus at Schulte Switching Substation with a breaker and a half (BAAH) configuration in order to accommodate the new loop lines. PG&E will also

evaluate the size adequacy of the existing generator tie line (from the GWF Tracy Peaker to the Schulte Switching Substation) with the interconnection of the Project.

4. Power Flow Study Base Cases

Three power flow base cases were used to evaluate the transmission system impacts of the Project. While it is impractical to study all combinations of system load and generation levels during all seasons and at all times of the day, these three base cases represent extreme loading and generation conditions for the study area.

The CAISO and PG&E cannot guarantee that the Project can operate at maximum rated output 24 hours a day, year round, without adverse system impacts, nor can the CAISO and PG&E guarantee that the Project will not have adverse system impacts during the times and seasons not studied in the ISIS. The following power flow base cases were used for the analysis in the ISIS:

- **2013 Summer Peak Full Loop Base Case:**

  Power flow analyses were performed using PG&E's 2013 summer peak full loop base case (in General Electric Power Flow format). This base case was developed from PG&E's 2007 base case series. It has a 1-in-10 year heat wave load forecast for PG&E's Sacramento, Sierra, Stockton, and Stanislaus areas.

- **2013 Spring Peak Full Loop Base Case:**

  Power flow analyses were performed using the 2013 spring peak full loop base case in order to evaluate the potential congestion on transmission facilities under reduced load and increased hydro generation levels during a typical spring season. Typical spring season loads were applied in this spring peak full loop base case. As an aggregate, the PG&E system load level in the spring case is about 70% of the summer peak. However, the spring 2013 loads in Sacramento, Stockton, Stanislaus, and Sierra are about 50% of the summer peak loads. Hydro generation was modeled at a very high level which is typical in the spring season.

- **2013 Summer Off-Peak Full Loop Base Case:**

  Power flow analyses were performed using the 2013 summer off peak full loop base case in order to evaluate the potential congestion on transmission facilities during the lightest loading conditions of the year. The summer 2013 off peak loads in Sacramento, Stockton, Stanislaus, and Sierra are about 30% - 35% of the summer peak loads. The rest of the PG&E system loads were modeled as 2013 Spring Peak loads. This base case was used to evaluate single element contingencies only on PG&E's 60 kV through 230 kV systems.

These base cases modeled all approved PG&E transmission reliability projects that would be operational by 2013. These base cases also modeled all proposed generation projects that would be operational by 2013. However, some generation projects that are electrically far from the proposed project were either turned off or modeled with reduced generation to balance the loads and resources in the power flow model. The major generation projects included are shown in Attachment 1 of Appendix A.

5. Study Criteria Summary

The CAISO Controlled Grid Reliability Criteria, which incorporate the Western Electricity Coordinating Council (WECC) and the North American Electric Reliability Council (NERC) planning criteria, were used to evaluate the impact of the Project on the CAISO Controlled Grid.

5.1 Steady State Study Criteria – Normal Overloads

Normal overloads are those that exceed 100 percent of normal ratings. The CAISO Controlled Grid Reliability Criteria requires the loading of all transmission system facilities be within their normal ratings.

5.2 Steady State Study Criteria – Emergency Overloads

Emergency overloads are those that exceed 100 percent of emergency ratings. The emergency overloads refer to overloads that occur during single element contingencies (Category “B”) and multiple element contingencies (Category “C”).

6. Steady State Power Flow Study and Results

6.1 Contingencies

The Category “B” and “C” contingencies used in this analysis are provided in Appendix B. The single (Category “B”) and selected multiple (Category “C”) contingencies include the following outages:

6.1.1 Category “B”

- All single generator outages within the study area
- All single (60 - 230 kV) transmission circuit outages within the study area
- All single (60 - 230 kV) transformer outages within the study area
- Selected overlapping of single generator and transmission circuit outages for the transmission lines and generators within the study area

6.1.2 Category "C"

- Selected bus (60-230 kV) outages within the study area
- Selected outages caused by selected breaker failures (excluding bus tie and sectionalizing breakers) at the same above bus section
- Selected combination of any two-generator/transmission line/transformer outages (except ones included above in Category "B") within the study area
- Selected outages of double circuit tower lines (60-230 kV) within the study area

6.2 Study Results

The overloads caused by the Project are detailed in Appendix C, and overload plots are shown in Appendix D.

6.2.1 Normal Overloads (Category "A")

Under projected 2013 summer peak, summer off peak and spring peak loading conditions, the Project causes no new normal overloads. However, the Project exacerbates pre-project overloads in each of these seasons. These pre-project overloads (shown shaded) are summarized in Table 6-1.

Table 6-1: Normal Overloads

Over Loaded Component	Rating (Amps)	Pre- Project Loading (Amps | %Rating)		Post-Project Loading (Amps |%Rating)		% Change from Pre-Project Loading
2013 Summer Peak						
Tesla - Westley 230 kV Line	1484	1501	101%	1523	103%	2%
Warnerville - Wilson 230 kV Line	675	888	132%	910	135%	3%
2013 Summer Off Peak						
Warnerville - Wilson 230 kV Line	675	827	122%	847	125%	3%
2013 Spring Peak						
Tesla - Westley 230 kV Line	1484	1610	108%	1631	110%	2%
Warnerville - Wilson 230 kV Line	675	700	104%	721	107%	3%

6.2.2 Emergency Overloads (Category "B")

Under projected 2013 summer peak loading conditions the Project causes three (3) new and exacerbates three (3) pre-project Category "B" emergency overloads. Under projected 2013 summer off peak loading conditions the Project exacerbates one (1) pre-project Category "B" emergency overload. Under projected 2013 spring peak loading conditions the Project exacerbates three (3)

pre-project Category "B" emergency overloads. The Category "B" emergency overloads are summarized in Table 6-2. The pre-project overloads are shown as shaded in the table.

Table 6-2: Category "B" Emergency Overloads

Over Loaded Component	Contingency	Rating (Amps)	Pre- Project Loading (Amps |%Rating)		Post-Project Loading (Amps |%Rating)		% Change from Pre-Project Loading
2013 Summer Peak							
Bellota - Warnerville 230 kV Line (Bellota - Cottle B)	Bellota - Melones 230 kV Line and Melones 1	793	778	98%	800	101%	3%
Vierra - Tracy - Kasson 115 kV Line (Cross Rd Jct - Kasson Jct 2)	Schulte - Manteca 115 kV Line and Stanislaus Powerhouse	884	831	94%	889	101%	7%
Schulte - Lammers 115 kV Line (Lammers - Owens Tap 1)	Schulte - Manteca 115 kV Line and Stanislaus Powerhouse	1125	1117	99%	1264	112%	13%
	Schulte - Manteca 115 kV Line	1125	1033	92%	1172	104%	12%
Schulte - Lammers 115 kV Line (Owens Tap 1 - Schulte)	Schulte - Manteca 115 kV Line and Stanislaus Powerhouse	1125	1179	105%	1325	118%	13%
	Schulte - Manteca 115 kV Line	1125	1094	97%	1232	110%	13%
	Schulte - Manteca 115 kV Line and GWF Tracy 1	1125	992	88%	1170	104%	16%
Tesla - Westley 230 kV Line	Tesla - Newark #1 230 kV Line	1600	1702	106%	1726	108%	2%
	Bellota - Warnerville 230 kV Line	1600	1637	102%	1664	103%	1%
	Bellota - Warnerville 230 kV Line and Melones 1	1600	1626	102%	1652	103%	1%
	Weber - Q172 230 kV Line	1600	1600	100%	1622	103%	3%
Warnerville - Wilson 230 kV Line	Bellota - Melones 230 kV Line and Melones 1	793	1108	140%	1134	143%	3%
	Bellota - Melones 230 kV Line	793	997	126%	1024	129%	3%
	Westley - Los Banos 230 kV Line	793	948	119%	974	123%	4%
2013 Summer Off Peak							
Warnerville - Wilson 230 kV Line	Bellota - Melones 230 kV Line and Melones 1	793	1007	127%	1031	130%	3%
	Bellota - Melones 230 kV Line	793	911	115%	935	118%	3%
2013 Spring Peak							
Bellota - Warnerville 230 kV Line (Bellota - Cottle B)	Bellota - Melones 230 kV Line and Melones 1	793	799	101%	822	104%	3%
	Tesla - Westley 230 kV Line	793	772	97%	792	100%	4%
Tesla - Westley 230 kV Line	Tesla - Newark #1 230 kV Line	1600	1855	116%	1878	117%	1%
	Bellota - Warnerville 230 kV Line	1600	1754	110%	1780	111%	1%
	Bellota - Warnerville 230 kV Line and Melones 1	1600	1737	109%	1763	110%	1%
Warnerville - Wilson 230 kV Line	Bellota - Melones 230 kV Line and Melones 1	793	897	113%	923	116%	3%

Over Loaded Component	Contingency	Rating (Amps)	Pre- Project Loading (Amps |%Rating)		Post-Project Loading (Amps |%Rating)		% Change from Pre-Project Loading
	Westley - Los Banos 230 kV Line	793	764	96%	790	100%	4%

6.2.3 Emergency Overloads (Category "C")

Under 2013 summer peak condition the Project causes two (2) new and exacerbates eleven (11) pre-project Category "C" emergency overloads. Under 2013 summer off peak conditions, the Project causes one (1) new and exacerbates one (1) pre-project Category "C" emergency overloads. Under 2013 spring peak condition the Project causes one (1) new and exacerbates four (4) pre-project Category "C" emergency overloads. The Category "C" emergency overloads are summarized in Table 6-3. The pre-project overloads are shown as shaded in the table.

Table 6-3: Category "C" Emergency Overloads

Over Loaded Component	Contingency	Rating (Amps)	Pre- Project Loading (Amps |%Rating)		Post-Project Loading (Amps |%Rating)		% Change from Pre-Project Loading
2013 Summer Peak							
Bellota - Warnerville 230 kV Line (Bellota - Cottle B)	Bellota - Rancho Seco PP #1 and #2 230 kV Lines	793	790	100%	809	102%	2%
Kasson 115/60 kV Bank 1	Schulte - Manteca and Manteca - Vierra 115 kV Lines	91 MVA	90 MVA	98%	95 MVA	104%	6%
Kasson - Louise 60 kV Line (Kasson – Calvo - Mossdale)	Schulte - Manteca and Manteca - Vierra 115 kV Lines	385	422	110%	467	121%	11%
Manteca - Louise 60 kV Line (Louise Jct - Manteca)	Schulte - Manteca and Manteca - Vierra 115 kV Lines	327	357	109%	402	123%	14%
Schulte - Lammers 115 kV Line (Lammers - Owens Tap 1)	Schulte - Manteca and Tesla - Salado - Manteca 115 kV Lines	1125	1166	104%	1310	117%	13%
Schulte - Lammers 115 kV Line (Owens Tap 1 - Schulte)	Schulte - Manteca and Tesla - Salado - Manteca 115 kV Lines	1125	1227	109%	1371	122%	13%
Tesla - Salado - Manteca 115 kV Line (Manteca - Ingraham Creek)	Schulte - Lammers and Schulte - Manteca 115 kV Lines	326	563	172%	576	176%	4%
	Schulte - Manteca and Manteca - Vierra 115 kV Lines	326	527	161%	535	164%	3%
	Kasson - Lammers and Schulte - Manteca 115 kV Lines	326	499	153%	511	157%	4%
Tesla - Tracy 115 kV Line (Tesla – Tracy Jct)	Kasson - Lammers and Schulte - Manteca 115 kV Lines	1125	1508	134%	1529	136%	2%
	Schulte - Lammers and Schulte - Manteca 115 kV Lines	1125	1303	116%	1324	118%	2%
Tesla - Tracy 115 kV Line (Tracy Jct - Tracy)	Kasson - Lammers and Schulte - Manteca 115 kV Lines	974	1564	161%	1586	163%	2%
	Schulte - Lammers and Schulte - Manteca 115 kV Lines	974	1489	153%	1511	155%	2%
Tesla - Westley 230 kV Line	Bellota - Q172 and Weber - Q172 230 kV Lines	1600	1875	117%	1898	119%	2%
	Q235 Sw Station - Tracy #1 and #2 230 kV Lines	1600	1790	112%	1828	114%	2%

Over Loaded Component	Contingency	Rating (Amps)	Pre- Project Loading (Amps |%Rating)		Post-Project Loading (Amps |%Rating)		% Change from Pre-Project Loading
	Bellota - Q172 and Bellota - Weber 230 kV Lines	1600	1768	110%	1790	112%	2%
	Tesla - Newark #1 and Tesla - Ravenswood 230 kV Lines	1600	1716	107%	1740	109%	2%
	Tesla 230 kV Bus Section 1E	1600	1717	107%	1740	109%	2%
	Bellota 230 kV Bus Section 2	1600	1702	106%	1728	108%	2%
	Q172 - Tesla #1 and #2 230 kV Lines	1600	1605	100%	1627	102%	2%
	Bellota 230 kV Bus Section 1	1600	1591	99%	1614	101%	2%
	Stagg 60 kV Bus	1600	1590	99%	1612	101%	2%
Vierra - Tracy - Kasson 115 kV Line (Cross Rd Jct - Kasson Jct 2)	Schulte - Manteca and Tesla - Salado - Manteca 115 kV Lines	884	918	104%	963	109%	5%
Vierra - Tracy - Kasson 115 kV Line (Kasson Jct - Heinz - Tracy)	Schulte - Lammers and Schulte - Manteca 115 kV Lines	603	956	156%	977	159%	3%
	Kasson - Lammers and Schulte - Manteca 115 kV Lines	603	760	124%	781	127%	3%
Warnerville - Wilson 230 kV Line	Bellota 230 kV Bus Section 1	793	978	123%	1004	127%	4%
	Bellota - Rancho Seco PP #1 and #2 230 kV Lines	793	974	123%	996	126%	3%
	Lockeford 60 kV Bus	793	941	119%	964	121%	2%
2013 Summer Off Peak							
Vierra - Tracy - Kasson 115 kV Line (Kasson Jct 2 - Heinz - Tracy)	Tesla - Schulte #1 and #2 115 kV Lines	613	312	51%	700	114%	63%
Warnerville - Wilson 230 kV Line	Bellota 230 kV Bus Section 1	793	916	115%	940	118%	3%
	Q172 - Tesla #1 and #2 230 kV Lines	793	918	116%	938	118%	2%
2013 Spring Peak							
Warnerville - Wilson 230 kV Line	Q172 - Tesla #1 and #2 230 kV Lines	793	776	98%	796	100%	2%
Tesla - Tracy 115 kV Line (Tracy Jct – Tracy)	Schulte - Lammers and Schulte - Manteca 115 kV Lines	974	984	101%	1001	103%	2%
Bellota - Warnerville 230 kV Line (Bellota - Cottle B)	Q172 - Tesla #1 and #2 230 kV Lines	793	815	103%	833	105%	2%
	Tesla 230 kV Bus Section 2E	793	799	101%	819	103%	2%
Tesla - Salado - Manteca 115 kV Line (Manteca - Ingraham Creek)	Schulte - Lammers and Schulte - Manteca 115 kV Lines	326	336	103%	348	107%	4%
Tesla - Westley 230 kV Line	Tesla - Newark #1 and Tesla - Ravenswood 230 kV Lines	1600	1868	117%	1892	118%	1%
	Tesla 230 kV Bus Section 1E	1600	1800	112%	1823	114%	2%
	Bellota 230 kV Bus Section 2	1600	1774	111%	1800	112%	1%
	Bellota - Q172 and Weber - Q172 230 kV Lines	1600	1737	109%	1759	110%	1%
	Tesla - Q235 Sw Station #1 and #2 230 kV Lines	1600	1705	107%	1742	109%	2%

Over Loaded Component	Contingency	Rating (Amps)	Pre- Project Loading (Amps |%Rating)		Post-Project Loading (Amps |%Rating)		% Change from Pre-Project Loading
	Q235 Sw Station - Tracy #1 and #2 230 kV Lines	1600	1705	107%	1742	109%	2%

7. Short Circuit Analysis

Short circuit studies were performed to determine the impact of adding the Project to the transmission system. The fault duties were calculated before and after the Project.

7.1 System Protection Study Input Data

The following input data provided by the Applicant was used in this study:

Fuji Electric System Co., Ltd. New Type Generator

- Positive Sequence subtransient reactance (X''_1)= 0.14 p.u on 35 MVA base
- Negative Sequence subtransient reactance (X''_2)= 0.15 p.u. on 35 MVA base
- Zero Sequence subtransient reactance (X''_0)= 0.09 p.u. on 35 MVA base

Step-up Transformer

- The step-up transformer is a three phase 13.8/115 kV transformer rated for 190 MVA at 65 degree C temperature rise with 8.7% impedance at 190 MVA base

7.2 Results

Table 7-1 lists the available short circuit duty at the buses electrically adjacent to the Project. This data was used to determine if any equipment would be overstressed by the interconnection of the Project.

Table 7-1: Short circuit study results

Fault Location	Pre-Project		Post-Project			
	3∅	L-G	3∅	% Increase	L-G	% Increase
GWF Tracy 115 kV Bus	18401	13,686	18,758	2%	19,785	45%
Schulte SW 115 kV Bus	18,401	13,686	18,758	2%	19,785	45%
Tesla 115 kV Bus	32,413	34,330	32,698	1%	35,580	4%
Lammers 115 kV Bus	16,637	12,219	16,918	2%	16,527	35%
Kasson 115 kV Bus	15,132	12,306	15,273	1%	13,003	6%
Manteca 115 kV Bus	11,666	10,102	11,728	1%	10,311	2%

Fault Location	Pre-Project		Post-Project			
	3∅	L-G	3∅	% Increase	L-G	% Increase
Tracy 115 kV Bus	13,875	11,768	13,952	1%	12,017	2%

Schulte 115 kV Bus - All breakers are rated 40,000 amps Interrupting Capacity or higher

Tesla 115 kV Bus - All breakers are rated 40,000 amps Interrupting Capacity or higher

Lammers 115 kV Bus - All breakers are rated 40,000 amps Interrupting Capacity or higher

Kasson 115 kV Bus - All breakers are rated 25,000 amps Interrupting Capacity or higher

Manteca 115 kV Bus - All breakers are rated 25,000 amps Interrupting Capacity or higher

Tracy 115 kV Bus - All breakers are rated 23,857 amps Interrupting Capacity or higher

8. Preliminary Protection Requirements

Per Section G2.1 of the PG&E Interconnection Handbook, PG&E protection requirements are designed and intended to protect PG&E's system only. The applicant is responsible for the protection of its own system and equipment and must meet the requirements in the PG&E Interconnection Handbook.

The Preliminary Protection Requirements are detailed in Appendix G.

9. Reactive Power Deficiency Analyses

The power flow studies of Category "B" and "C" contingencies indicated that the Project did not cause voltage drops of 5% or more from the pre-project levels, or cause the PG&E system to fail to meet applicable voltage criteria.

10. Dynamic Stability Analyses

Dynamic stability studies were conducted using the 2013 summer peak full loop base cases to ensure that the transmission system remains in operating equilibrium through abnormal operating conditions after the new facility begins operation. The generator dynamic data used for the study is shown in Appendix E.

10.1 Dynamic Stability Study Scenarios

Disturbance simulations were performed for a study period of up to 20 seconds to determine whether the Project will create any system instability during the following line and generator outages:

10.1.1 Category "B" Contingencies:

- Full load rejection of the 145 MW Project.
- A three-phase close-in fault on the new Tesla – Schulte SW ST 115 kV Line at the Tesla Substation 115 kV bus with normal clearing time followed by loss of the new Tesla – Schulte SW ST 115 kV Line
- A three-phase close-in fault on the new Tesla – Schulte SW ST 115 kV Line at the Schulte Substation 115 kV bus with normal clearing time followed by loss of the new Tesla – Schulte SW ST 115 kV Line
- A three-phase close-in fault on the Schulte SW ST - Manteca 115 kV Line at the Schulte Substation 115 kV bus with normal clearing time followed by loss of the Schulte SW ST - Manteca 115 kV Line
- A three-phase close-in fault on the Schulte SW ST - Manteca 115 kV Line at the Manteca Substation 115 kV bus with normal clearing time followed by loss of the Schulte SW ST- Manteca 115 kV Line

10.1.2 Category "C" Contingencies:

- A three-phase fault on the Tesla 115 kV bus with normal clearing time
- A three-phase fault on the new Schulte 115 kV bus with normal clearing time
- A three-phase fault on the Manteca 115 kV bus with normal clearing time
- A three-phase fault on the Tesla Substation 115 kV bus with normal clearing time followed by loss of the Tesla – Schulte and new Tesla – Schulte 115 kV lines
- A three-phase fault on the Schulte Substation 115 kV bus with normal clearing time followed by loss of the Tesla – Schulte and new Tesla – Schulte 115 kV lines

- A three-phase fault on the Schulte Substation 115 kV bus with normal clearing time followed by loss of the Schulte SW ST – Kasson and Schulte SW ST – Manteca 115 kV lines

- A three-phase fault on the Manteca Substation 115 kV bus with normal clearing time followed by loss of the Schulte SW ST – Kasson and Schulte SW ST – Manteca 115 kV lines

10.2 Parameters Monitored to Evaluate System Stability Performance

10.2.1 Rotor Angle

The rotor angle plots shown in Appendix F provide a measure for determining how the proposed generation units would swing with respect to one another. The plots also provide a measure of how the units would swing with respect to other generation units in the area.

10.2.2 Bus Voltage

The bus voltage plots, in conjunction with the relative rotor angle plots, also shown in Appendix F, provide a means of detecting out-of-step conditions. The bus voltage plots are useful in assessing the magnitude and the duration of post disturbance voltage dips and peak-to-peak voltage oscillations. The bus voltage plots also give an indication of system damping and the level to which voltages are expected to recover in steady state conditions.

10.2.3 Bus Frequency

The bus frequency plots, also shown in Appendix F, provide information on the magnitude and the duration of post fault frequency swings with the Project in service. These plots indicate the extent of possible over-frequency or under-frequency, which can occur because of the imbalance between the generation and load within an area.

10.2.4 Other Parameters

- Generator Terminal Power
- Generator Terminal Voltage
- Generator Rotor Speed
- Generator Field Voltage
- Bus Angle
- Line Flow

- Voltage Spread
- Frequency Spread

10.3 Results

Dynamic stability studies were conducted using the 2013 summer peak base cases described in Section 4 and the generator models shown in Appendix E to determine whether the transmission system would maintain operating equilibrium following selected outages.

This Project would have no adverse impact on the stable operation of the transmission system. Dynamic stability studies indicate that the transmission system's transient stability performance would not be impacted by the Project following the selected contingencies. The results of the study are provided in the form of plots in Appendix F.

11. Substation Evaluation

11.1 Overstressed Breakers

PG&E uses the following policy to allocate breaker replacement responsibility for projects that overstress or increase overstress[4] on existing circuit breakers:

- If a breaker is not overstressed before the project, and the project results in an overstressed condition of the breaker, then the project is responsible for the cost of replacement.
- If a breaker is already overstressed, and a project increases the overstress by 5% or more, or the post-project overstress level exceeds 25%, then the project is responsible for the cost of replacement.
- If the overstress level exceeds 25% before the project, and for all other circumstances, PG&E or other generation projects will be responsible for any replacement costs.

Using the short-circuit study results of the System Fault Duties Study in Section 7, an initial breaker evaluation found that the Project causes no overstressed breakers.

11.2 Substation Evaluation

The 115 kV bus at Schulte Switching Station is a breaker and a half bus with space for one extra bay. The Tesla – Manteca 115 kV Line will be looped in this new bay. Three new 115 kV breakers and their associated

[4] Overstressed Circuit Breaker – The percent of overstress, or level of overstress, is the percent of maximum fault current above the breaker's nameplate rating. For example, a breaker rated at 40,000 amps symmetrical current interrupting a 44,000 amp symmetrical fault is overstressed by 10%.

relays/instruments are needed. The non binding cost estimate for these Network Upgrades is included in this report.

12. Overload Mitigation

Mitigation alternatives have been developed for Category "A" (normal) and Category "B" emergency overloads identified in Section 6.

The preferred method to mitigate these normal as well as Category "B" emergency overloads is to re-conductor the overloaded lines with larger conductors. The alternative method to mitigate the normal overloads is by generation curtailment. The ISIS only provides cost estimates for the re-conductoring alterative.

For CAISO Category "C" contingencies (according to WECC reliability criteria), the overloads may be mitigated by load shedding or generation dropping. PG&E or CAISO or both may require new generators to take part in and be responsible for the costs of operating procedures and/or Special Protection Systems (SPS) for Category "C" emergency overloads caused by the project. Only new Category "C" overload mitigation alternatives have been provided in the ISIS.

Tables 12-1, 12-2, and 12-3 summarized the worst normal overloads, Category "B" emergency overloads, and Category "C" emergency overloads from Tables 6-1, 6-2, and 6-3 tables respectively. The pre-project overloads are shown as shaded in the table.

Table 12-1: Worst Normal Overloads

Over Loaded Component	Rating (Amps / MVA)	Pre- Project Loading (Amps | %Rating)		Post-Project Loading (Amps | %Rating)		% Change from Pre-Project Loading	Mitigation
Tesla - Westley 230 kV Line	1484	1610	108%	1631	110%	2%	12.1.1
Warnerville - Wilson 230 kV Line	675	888	132%	910	135%	3%	12.1.2

Table 12-2: Worst Category "B" Emergency Overloads

Over Loaded Component	Contingency	Rating (Amps)	Pre- Project Loading (Amps |%Rating)		Post-Project Loading (Amps |%Rating)		% Change from Pre-Project Loading	Mitigation
Vierra - Tracy - Kasson 115 kV Line (Cross Rd Jct - Kasson Jct 2)	Schulte - Manteca 115 kV Line and Stanislaus Powerhouse	884	831	94%	889	101%	7%	12.2.1
Schulte - Lammers 115 kV Line (Lammers - Owens Tap 1)	Schulte - Manteca 115 kV Line and Stanislaus Powerhouse	1125	1117	99%	1264	112%	13%	12.2.2
Schulte - Lammers 115 kV Line (Owens Tap 1 - Schulte)	Schulte - Manteca 115 kV Line and Stanislaus Powerhouse	1125	1179	105%	1325	118%	13%	12.3.1
Bellota - Warnerville 230 kV	Bellota - Melones 230 kV Line	793	799	101%	822	104%	3%	12.3.2

Over Loaded Component	Contingency	Rating (Amps)	Pre- Project Loading (Amps |%Rating)		Post-Project Loading (Amps |%Rating)		% Change from Pre-Project Loading	Mitigation
Line (Bellota - Cottle B)	and Melones 1							
Tesla - Westley 230 kV Line	Tesla - Newark #1 230 kV Line	1600	1855	116%	1878	117%	1%	12.1.1
Warnerville - Wilson 230 kV Line	Bellota - Melones 230 kV Line and Melones 1	793	1108	140%	1134	143%	3%	12.1.2

Table 12-3: Worst New Category "C" Emergency Overloads

Over Loaded Component	Contingency	Rating (Amps)	Pre- Project Loading (Amps |%Rating)		Post-Project Loading (Amps |%Rating)		% Change from Pre-Project Loading	Mitigation
Bellota - Warnerville 230 kV Line (Bellota - Cottle B)	Bellota - Rancho Seco PP #1 and #2 230 kV Lines	793	790	100%	809	102%	2%	12.3.2
Kasson 115/60 kV Bank 1	Schulte - Manteca and Manteca - Vierra 115 kV Lines	91 MVA	90 MVA	98%	95 MVA	104%	6%	12.4.1
Vierra - Tracy - Kasson 115 kV Line (Kasson Jct 2 - Heinz - Tracy)	Tesla - Schulte #1 and #2 115 kV Lines	613	312	51%	700	114%	63%	12.4.2
Warnerville - Wilson 230 kV Line	Q172 - Tesla #1 and #2 230 kV Lines	793	776	98%	796	100%	2%	12.1.2

12.1 Overload Mitigation for Pre-project Normal Overloads

12.1.1 Tesla – Westley 230 kV Line

Limiting Factor		Bundled 795 ACSR @ 2 fps wind speed rating: 1484/1700 Amps Normal/Emergency	
Pre-project Normal Loading	***1610 (108%)***	Post Project Normal Loading	***1631 (110%)***
Pre-project Emergency Loading	***1855 Amps (116%)***	Post-project Emergency Loading	***1878 Amps (117%)***
Worst Contingency		Tesla – Newark # 1 230 kV line	
Overload Condition		2013 Spring Peak	

Solution: This line overload is a result of a generation project that has a higher queue position and an earlier online date. That project has been assigned the responsibility for mitigating this overload. Should that project not materialize or the mitigation provided by that project did not resolve the overload contributed by this Project, the IC may be responsible for mitigating this overload**.**

12.1.2 Warnerville – Wilson 230 kV Line

Limiting Factor			
Pre-project Normal Loading	***888 (132%)***	Post Project Normal Loading	***910 (135%)***
Pre-project Emergency Loading	***1108 Amps (140%)***	Post-project Emergency Loading	***1134 Amps (143%)***
Worst Contingency		Bellota – Melones 230 kV Line and Melones 1	
Overload Condition		2013 Summer Peak	

Solution: This line overload is a result of a generation project that has a higher queue position and an earlier online date. That project has been assigned the responsibility for mitigating this overload. Should that project not materialize or the mitigation provided by that project did not resolve the overload contributed by this Project, the IC may be responsible for mitigating this overload**.**

12.2 Overload Mitigation for New Category "B" Emergency Overloads

12.2.1 Vierra – Tracy – Kasson 115 kV Line (Cross Road – Kasson Jct 2)

Limiting Factor		715..5 Al @ 4 fps wind speed rating: 884 Amps Emergency	
Pre-project Emergency Loading	831 Amps (94%)	Post-project Emergency Loading	889 Amps (101%)
Worst Contingency		Fulton - Lakeville and Fulton - Ignacio 230 kV Lines	
Overload Condition		2010 Summer Off Peak	

Solution: Re-conductor 2.5 mile of the Vierra – Tracy – Kasson 115 kV Line (Cross Road – Kasson Jct 2) with 1113 kcmil ACSR or equivalent conductors. The 1113 kcmil ACSR conductors are rated for 1048 Amps emergency respectively @ 2 fps wind speed. Substation terminal equipment will also be upgraded to match or exceed the ampacity rating of the new conductors.

12.2.2 Schulte – Lammers 115 kV Line (Lammers – Owens Tap 1)

Limiting Factor		477 ACSS @ 2 fps wind speed rating: 1125 Amps Emergency	
Pre-project Emergency Loading	1117 Amps (99%)	Post-project Emergency Loading	1264 Amps (112%)
Worst Contingency		Schulte – Manteca 115 kV Line abd Stanislaus Power house	
Overload Condition		2013 Summer Peak	

Solution: Re-conductor 0.7 mile of the Schulte – Lammers 115 kV Line (Lammers – Owens Tap 1) with 954 kcmil ACSS or equivalent conductors. The 954 kcmil ACSS conductors are rated for 1714 emergency respectively @ 2 fps wind speed. Substation terminal equipment will also be upgraded to match or exceed the ampacity rating of the new conductors.

Alternative Solution: Currently, PG&E Project T680B (Tesla Area 115 kV Re-conductoring Project) will re-conductor this section of the Schulte – Lammers 115 kV Line. The EDRO date for Project T680B is 2009. If Project T680B is not materialized, the IC will be responsible for the above re-conductor.

12.3 Overload Mitigation for Pre-project Category "B" Emergency Overloads

12.3.1 Schulte – Lammers 115 kV Line (Owens Tap 1 - Schulte)

Limiting Factor		477 ACSS @ 2 fps wind speed rating: 1125 Amps Emergency	
Pre-project Emergency Loading	***1179 Amps (105%)***	Post-project Emergency Loading	***1325 Amps (118%)***
Worst Contingency		Schulte – Manteca 115 kV Line abd Stanislaus Power house	
Overload Condition		2013 Summer Peak	

Solution: This line overload is a result of a generation project that has a higher queue position and an earlier online date. That project has been assigned the responsibility for mitigating this overload. Should that project not materialize or the mitigation provided by that project did not resolve the overload contributed by this Project, the IC may be responsible for mitigating this overload**.**

12.3.2 Bellota – Warnerville 230 kV Line (Bellota – Cottle B)

Limiting Factor		397.5 Al @ 2 fps wind speed rating: 517 Amps Emergency	
Pre-project Emergency Loading	***799 Amps (101%)***	Post-project Emergency Loading	***822 Amps (104%)***
Worst Contingency		Bellota – Melones 230 kV Line and Melones 1	
Overload Condition		2013 Spring Peak	

Solution: This line overload is a result of a generation project that has a higher queue position and an earlier online date. That project has been assigned the responsibility for mitigating this overload. Should that project not materialize or the mitigation provided by that project did not resolve the overload contributed by this Project, the IC may be responsible for mitigating this overload**.**

12.4 Overload Mitigation for New Category "C" Emergency Overloads

12.4.1 Kasson 115/60 kV Bank 1

Limiting Factor		91 MVA emergency rating	
Pre-project Emergency Loading	90 MVA (98%)	Post-project Emergency Loading	95 MVA (104%)
Worst Contingency		Schulte – Manteca and Manteca – Vierra 115 kV Lines	
Overload Condition		2013 Summer Peak	

Solution: Re-rate the bank.

12.4.2 Vierra - Tracy - Kasson 115 kV Line (Kasson Jct 2 - Heinz - Tracy)

Limiting Factor		397.5 Al @ 4 fps wind speed rating: 613 Amps Emergency (5 miles)	
Pre-project Emergency Loading	312 Amps (51%)	Post-project Emergency Loading	700 Amps (114%)
Worst Contingency		Tesla – Schulte #1 & #2 115 kV Lines	
Overload Condition		2013 Summer Off Peak	

Solution: This line overload is a result of a generation project that has a higher queue position and an earlier online date. That project has been assigned the responsibility for mitigating this overload. Should that project not materialize or the mitigation provided by that project did not resolve the overload contributed by this Project, the IC may be responsible for mitigating this overload**.**

13. Deliverability Assessment

Deliverability Assessment is being conducted along with several other qualified projects in the CAISO Generation queue and the results are not expected until approximately September 2008. The final results will be posted on the CAISO website after a joint review by the CAISO and the applicable Participating Transmission Owners (PTOs).

As required by LGIP tariff language, deliverability results need to provide the following information about this Project regarding deliverability:

1) The capacity that can be deliverable without additional upgrades.

2) The upgrades necessary for this project to be fully deliverable (Delivery Upgrades) if the study results identify transmission limitations that prevent the project from being fully deliverable.

14. Environmental Evaluation/ Permitting

14.1 CPUC General Order 131-D

Pacific Gas and Electric Company (PG&E) is subject to the jurisdiction of the California Public Utilities Commission (CPUC); and must comply with CPUC General Order 131-D (Order) on the construction, modification, alteration, or addition of all electric transmission facilities (i.e., lines, substations, etc.). This includes facilities to be constructed by others and deeded to PG&E. The Order exempts PG&E from obtaining a formal permit from the CPUC on facilities over 200 kV provided the planned facilities involve the replacement of existing facilities or supporting structures with equivalent facilities or structures, the minor relocation of existing facilities, the conversion of existing facilities to underground or the placing of new or additional conductors, insulators, or their accessories on or replacement of structures already built. These exemptions do not apply under certain circumstances when significant environmental impacts may be caused by the work. If the project does not qualify for an exemption, PG&E will need to seek formal approval from the CPUC (i.e., Certificate of Public Convenience and Necessity) taking as much as 18 months or more since the CPUC may decide to conduct its own environmental evaluation (i.e., Negative Declaration or Environmental Impact Report).

For cases where PG&E can claim a valid exemption, PG&E would file an Advice Letter with the CPUC and publish public notice of the proposed construction of the facilities. The noticing process takes about 90 days if no protests are filed, but should be done as early as possible so that a protest does not delay construction. PG&E has no control over the time it takes the CPUC to respond when issues arise. If the protest is granted, PG&E will then need to apply for a formal permit to construct the project (i.e., Certificate of Public Convenience and Necessity).

Facilities built or modified under this procedure must also be designed to include electric and magnetic field (EMF) mitigation measures pursuant to PG&E "EMF Design Guidelines of New Electrical Facilities: Transmission, Substation and Distribution".

Please see Section III, B.1 (f) in General Order 131-D. This document can be found in the CPUC's web page at:

http://www.cpuc.ca.gov/PUBLISHED/GENERAL_ORDER/589.htm

14.2 CPUC Section 851

Pacific Gas and Electric Company (PG&E) is subject to the jurisdiction of the California Public Utilities Commission (CPUC) and must comply with Public Utilities Code Section 851, which among other things requires CPUC approval of leases and licenses to use PG&E property. This includes

rights-of-way granted to third parties for interconnection facilities. Obtaining CPUC approval for a Section 851 application can take several months, and requires compliance with the California Environmental Quality Act (CEQA). PG&E recommends that Section 851 issues be identified as early as possible so that the necessary application can be prepared and processed.

15. Cost and Construction Schedule Estimates

A non-binding good faith cost estimates for the interconnection of the Project is **$**_____ exclusive of ITCC. The cost responsibility breakdown is provided in the sections below. These costs have no associated degree of accuracy and are provided for informational purpose only.

15.1 Interconnection Facilities Cost

Tables 15-1 detailed Interconnection Facilities cost to interconnect the Project.

Table 15-1 Interconnection Facilities Cost

Substation Work at Customer 's Substation	
Pre-parallel inspection, testing, SCADA/EMS setup, meters, etc.	
Subtotal Substation Work	
Transmission Work	
Install necessary structure and provide interconnection	
Subtotal Transmission Work	
Building & Land Work	
Land engineering support and permitting activities	
Subtotal Building & Land Work	
Total Interconnection Facilities Cost before ITCC	

15.2 Network Upgrades Cost

Table 15-2 detailed Network Upgrade cost to interconnect the Project.

Table 15-2 Network Upgrade Cost

Substation Work	
Adding a new BAAH bay at Schulte Switching Station	
Relay work in Tesla, Kasson, Lammers, and Manteca substations	
Install one SPS & re-rate transformer to mitigate new Cat "C" overloads	
Subtotal Substation Work	
Transmission Work	
Construct loop lines connecting the Tesla – Manteca 115 kV Line and Schulte Switching Station (about 0.5 circuit miles)	
Re-conductor 2.5 miles Portion of the Vierra – Tracy – Kasson 115 kV	

Line	
Re-conductor 0.7 miles Portion of the Schulte - Lammers 115 kV Line*	
Subtotal Transmission Work	
Communications Work	
SCADA/EMS, programming, testing, screening at TOC and Switching Center	
Subtotal Communications Work	
Total Network Upgrades Interconnection Cost	

* If PG&E Project T680B completes before the Project on-line date there is no need to re-conductor this line.

15.3 Construction Schedule Estimate

The non-binding construction schedule to engineer and construct the facilities based on the assumptions outlined in the ISIS is approximately 18-24 months from the signing of the Large Generator Interconnection Agreement (LGIA). This is based upon the assumption that the environmental permitting obtained by the IC is adequate for permitting all PG&E activities.

Note that if CPUC may require PG&E to obtain a Permit to Construct (PTC) or a Certificate of Public Convenience and Necessity (CPCN) for the tap line or any other work associated with the project, the project could require an additional one to two years to complete. The cost for obtaining any of this type of permitting is not included in the above estimates.

16. Standby Power

The ISIS did not address any requirements for standby power that the Project may require. The IC should contact their PG&E Generation Interconnection Services representative regarding this service.

Note: The IC is urged to contact their PG&E Generation Interconnection Services representative promptly regarding standby service in order to ensure its availability for the project's start up date.

17. Study Updates

The ISIS is performed according to the assumptions shown in the Sections titled "Study Assumptions" and "Power Flow Study Base Cases". If these assumptions are changed, a re-study according to the LGIP may be required to re-evaluate the Project's impact on the CAISO Controlled Grid. The IC would be responsible for paying for any such updating study.

Appendix A

Study Plan

Interconnection System Impact Study Plan

Generation Interconnection

GWF Energy LLC

GWF Tracy Project

(Revision 2)

January 15, 2008

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ATTACHMENT 1 – GENERATION PROJECTS 11
Attachment 1 – Generation Projects

1. Introduction

GWF Energy LLC, an Interconnection Customer (IC), has submitted a completed Interconnection Request (IR) to the California Independent System Operator Corporation (CAISO) for their proposed GWF Tracy Project (Project), interconnecting to the CAISO Controlled Grid. The Project adds one steam turbine generator to the existing two gas turbine generators and formed a combined cycle (2X1) plant. The steam turbine generator is rated for a gross output of 154.7 MW. With 9.7 MW plant auxiliary loads, the maximum output to the CAISO Controlled Grid is 145 MW. The proposed Commercial Operation Date of the Project is April 1, 2013. The Point of Interconnection (POI) is at Pacific Gas & Electric Company's (PG&E) Schulte Switching Station 115 kV bus in San Joaquin County. In addition, The Tesla – Manteca 115 kV Line will be looped into Schulte Switching Station. The Alternative Point of Interconnection is also the Schulte Switching Station but the Tesla-Manteca 115 kV line will not be looped. The IC has requested, and the CAISO and PG&E have concurred to waive the Interconnection Feasibility Study (IFS) and allow the IC to move into the Interconnection System Impact Study (ISIS) phase.

2. Interconnection System Impact Study Scope Summary

In accordance with the Federal Energy Regulatory Commission's (FERC) Large Generator Interconnection Agreement (LGIP), the IC, the CAISO, and PG&E have agreed that an ISIS is required to determine the impact of the Project on the CAISO Controlled Grid. This ISIS will:

1. Identify transmission system impacts on the CAISO Controlled Grid caused solely by the addition of the Project

2. Identify any system reinforcements necessary to mitigate the adverse impacts of the Project under various system conditions

3. Identify the level of deliverability of the Project by means of a Deliverability Assessment conducted by the CAISO per Section 3.3.3 of the LGIP

This ISIS Plan will form the basis for the ISIS Agreement (ISISA) by defining the scope, content, assumptions, and terms of reference of the ISISA.

3. Study Fee

The estimated study fee to perform the ISIS is $56,000. The final cost to complete the ISIS will be based on actual cost. According to the LGIP, a $50,000 deposit will be required when the IC returns the signed ISISA to the CAISO.

The CAISO will invoice the IC the remaining balance if the actual cost is higher than the collected deposit. If the actual cost is less than the collected deposit, the CAISO will refund the balance to the IC.

4. Schedule

Table 4-1 shows the tentative milestones/schedules associated with the ISIS.

Table 4-1: Study Schedule

Task	Milestone Description	Target Date
1	CAISO tenders an ISISA to the IC	November 30, 2007
2	The IC returns the signed ISISA and a deposit of $50,000 to CAISO	+ 30 CD
3	CAISO issues final ISIS report to the IC	+ 120 CD
4	ISIS Results Meeting	+10 BD

Per the LGIP, the IC must execute and return the attached ISISA with the deposit of $50,000 within 30 calendar days (CD) from the tendering of ISISA. If the IC fails to return an executed ISISA and the deposit within 30 CD, the IR will be deemed withdrawn and will be processed pursuant to Section 3.8 of the LGIP.

5. Project and Interconnection Information

Table 5-1 provides general information about the Project.

Table 5-1: GWF Tracy Project General Information

Project Location	14950 West Schulte Road, Tracy, San Joaquin County, California 95377
PG&E Planning Area	San Joaquin Valley Region Stockton Division
Number and Type of Generators	One Steam Turbine Generator (GE)
Maximum Generator Output	154.7 MW
Generator Auxiliary Load	9.7 MW
Maximum Net Output to Grid	145 MW
Power Factor Range	0.9 Lagging to 0.95 Leading
Step-up Transformer	One three phase, 13.8/115 kV 190 MVA Transformer
Description Of Interconnection Configuration	The Project will be interconnected at 115 kV Schulte Switching Station. Also, the Tesla – Manteca 115 kV Line will be looped into Schulte Switching Station
Connection Voltage	115 kV

Figure 5-1 provides the map for the Project and the transmission facilities in the vicinity. Figure 5-2 shows the conceptual single line diagram of the Project.

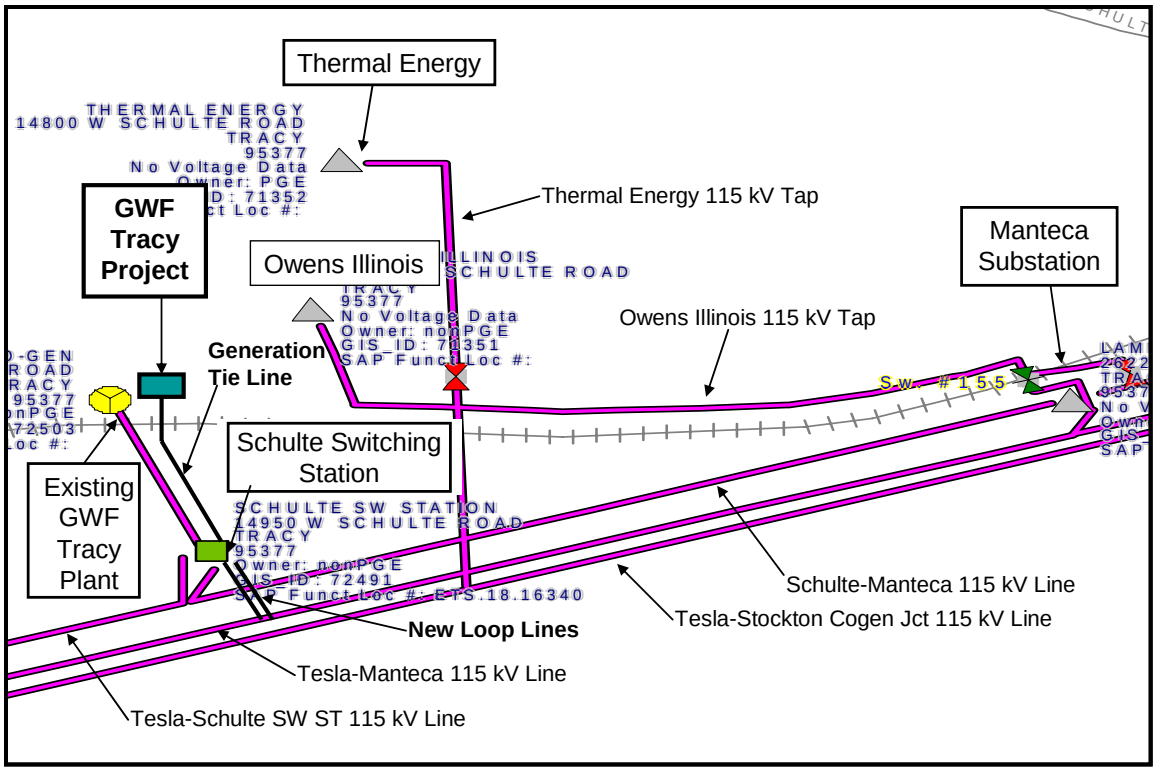

Figure 5-1: Map of the Project

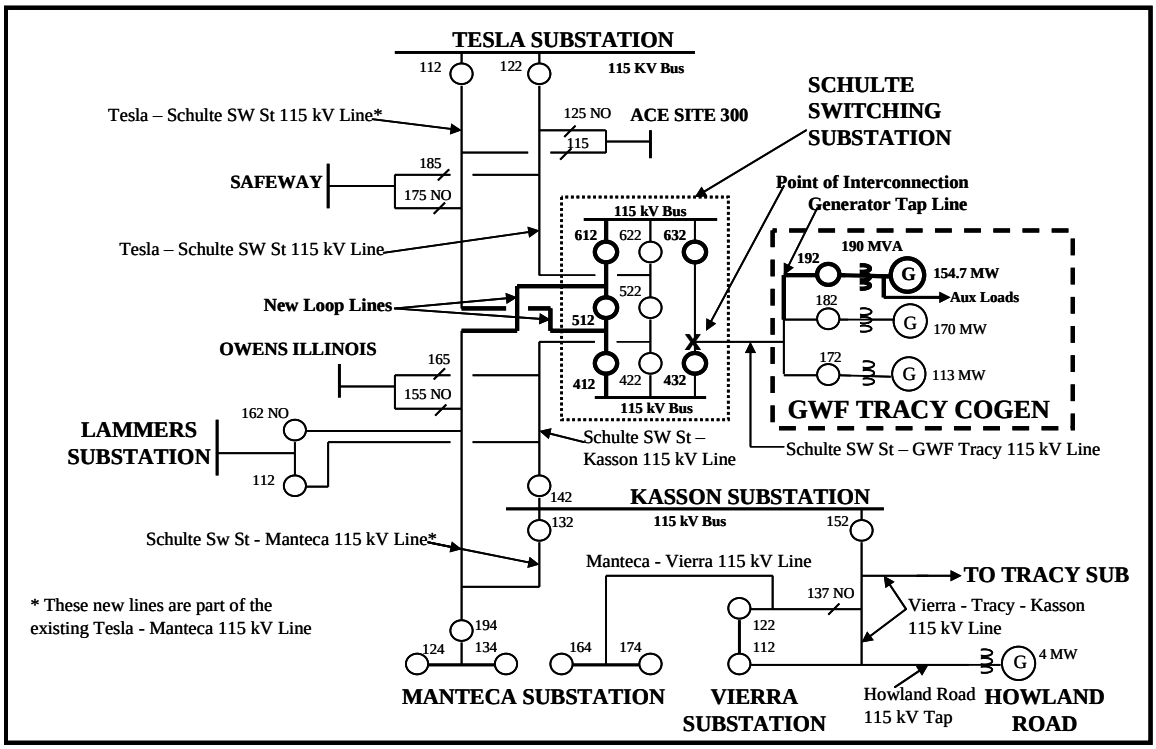

Figure 5-2: Conceptual One Line Diagram

6. Study Assumptions

The ISIS will be conducted under the following assumptions:

1) The Project consists of one steam turbine generator rated for 154.7 MW. With a total plant auxiliary load of 9.7 MW, the net output to the CAISO Controlled Grid is 145 MW.

2) The expected Commercial Operation Date is April1, 2013.

3) The Project uses one step-up transformer. It is a three-phase 13.8/115 kV transformer rated for 190 MVA @ 65 degree C temperature rise with an impedance of 8.7% at 190 MVA base.

4) The IC will engineer, procure, construct, own, and maintain its project facility including the generator tap line. The generator tap line from the Project to the existing GWF Tracy Peaker Switchyard is about 0.14 miles long with 1431 kcmil "Bobolink" ACSS conductors.

5) PG&E will engineer, procure, construct, own, and maintain the loop lines (from the Tesla – Manteca 115 kV Line to Schulte Switching Substation). The conductor size of loop line is the same as the Tesla – Manteca 115 kV Line or equivalent. PG&E will modify the 115 kV bus at Schulte Switching Substation with a breaker and a half (BAAH) configuration in order to accommodate the new loop lines. PG&E will also evaluate the size adequacy of the existing generator tie line (from the GWF Tracy Peaker to the Schulte Switching Substation with the interconnection of the Project.

7. Power Flow Study Base Cases

Three power flow base cases will be used to evaluate the transmission system impacts of the Project. While it is impractical to study all combinations of system load and generation levels during all seasons and at all times of the day, these three base cases represent extreme loading and generation conditions for the study area.

The CAISO and PG&E cannot guarantee that the Project can operate at maximum rated output 24 hours a day, year round, without adverse system impacts, nor can the CAISO and PG&E guarantee that the Project will not have adverse system impacts during the times and seasons not studied in the ISIS.

The following power flow base cases will be used for the analysis in the ISIS:

- **2013 Summer Peak Full Loop Base Case:**

  Power flow analysis will be performed using PG&E's 2013 summer peak full loop base case (in General Electric Power Flow format). This base case is developed from PG&E's 2007 base case series. It has a 1-in-10 year heat wave load forecast for PG&E's Sacramento, Sierra, Stockton, and Stanislaus areas.

- **2013 Spring Peak Full Loop Base Case:**

  Power flow analysis will be performed using the 2013 spring peak full loop base case in order to evaluate the potential congestion on transmission facilities under reduced load and increased hydro generation levels during a typical spring season. Typical spring season loads will be applied in this spring peak full loop base case. As an aggregate, the PG&E system load level in the spring case is about 70% of the summer peak. However, the spring 2013 loads in Sacramento, Stockton, Stanislaus, and Sierra are about 50% of the summer peak loads. Hydro generation will be modeled at a very high level which is typical in the spring season. This base case will be used to evaluate PG&E's 60 kV through 230 kV systems.

- **2013 Summer Off-Peak Full Loop Base Case:**

  Power flow analysis will be performed using the 2013 summer off peak full loop base case in order to evaluate the potential congestion on transmission facilities during the lightest loading conditions during the year. The summer 2013 off peak loads in Sacramento, Stockton, Stanislaus, and Sierra are about 30% - 35% of the summer peak loads. The rest of the PG&E system loads will be modeled as 2013 Spring Peak loads. This base case will be used to evaluate single element contingencies only on PG&E's 60 kV through 230 kV systems.

These base cases will model all approved PG&E transmission reliability projects that will be operational by 2013. These base cases will also model all proposed generation projects that would be operational by 2013. However, some generation projects that are electrically far from the proposed project will be either turned off or modeled with reduced generation to balance the loads and resources in the power flow model. The major generation projects included are shown in Attachment 1.

8. Detailed Interconnection System Impact Study Scope

The ISIS will determine the impact of the Project on the CAISO Controlled Grid. The specific studies conducted are outlined below:

8.1 Steady State Power Flow Analysis

Power Flow analysis will be performed using the three base cases described in Section 7. These base cases will be used to simulate the impact of the Project during normal operating conditions as well as during single (CAISO Category "B") and selected multiple (CAISO Category "C") contingency conditions. The study will cover the transmission facilities within PG&E's Sacramento, Sierra, Stockton, and Stanislaus areas.

The single (CAISO Category "B") and selected multiple (CAISO Category "C") contingencies include the following outages:

8.1.1 CAISO Category "B"

- All single generator outages within the study area.
- All single (60 - 230 kV) transmission circuit outages within the study area.
- All single (60-230 kV) transformer outages within the study area.
- Selected overlapping single generator and transmission circuit outages for the transmission lines and generators within the study area.

8.1.2 CAISO Category "C"

- Selected bus (60-230 kV) outages within the study area.
- Selected outages caused by selected breaker failures (excluding bus tie and sectionalizing breakers) at the same above bus section.
- Selected combination of any two-generator/transmission line/transformer outages (except ones included above in Category "B") within the study area.
- Selected outages of double circuit tower lines (60-230 kV) within the study area.

8.2 Reactive Power Deficiency Analysis

With the proposed project included in the system model, CAISO Category "B" and "C" contingencies will be analyzed to identify any reactive power deficiency:

- Whether the results show voltage drops of 5% or more from the pre-project levels, or
- Whether the results fail to meet applicable voltage criteria.

A post-transient power flow analysis will be performed, if necessary, after considering the network topology or power transfer paths involved when a significant amount of power transfer occurs.

8.3 Dynamic Stability Analysis

Dynamic stability studies will be conducted using the 2013 summer peak full loop base case to ensure that the transmission system remains in operating equilibrium through abnormal operating conditions after the Project begins operation.

Disturbance simulations will be performed for a study period of up to 20 seconds to determine whether the new facility will create any system instability during the following line and generator outages:

8.3.1 CAISO Category "B"

- Full load rejection of the 145 MW Project.
- A three-phase close-in fault on the new Tesla – Schulte SW ST 115 kV Line at the Tesla Substation 115 kV bus with normal clearing time followed by loss of the new Tesla – Schulte SW ST 115 kV Line
- A three-phase close-in fault on the new Tesla – Schulte SW ST 115 kV Line at the Schulte Substation 115 kV bus with normal clearing time followed by loss of the new Tesla – Schulte SW ST 115 kV Line
- A three-phase close-in fault on the Schulte SW ST - Manteca 115 kV Line at the Schulte Substation 115 kV bus with normal clearing time followed by loss of the Schulte SW ST - Manteca 115 kV Line
- A three-phase close-in fault on the Schulte SW ST - Manteca 115 kV Line at the Manteca Substation 115 kV bus with normal clearing time followed by loss of the Schulte SW ST- Manteca 115 kV Line

8.3.2 CAISO Category "C"

- A three-phase fault on the Tesla 115 kV bus with normal clearing time
- A three-phase fault on the new Schulte 115 kV bus with normal clearing time
- A three-phase fault on the Manteca 115 kV bus with normal clearing time
- A three-phase fault on the Tesla Substation 115 kV bus with normal clearing time followed by loss of the Tesla – Schulte and new Tesla – Schulte 115 kV lines
- A three-phase fault on the Schulte Substation 115 kV bus with normal clearing time followed by loss of the Tesla – Schulte and new Tesla – Schulte 115 kV lines
- A three-phase fault on the Schulte Substation 115 kV bus with normal clearing time followed by loss of the Schulte SW ST – Kasson and Schulte SW ST – Manteca 115 kV lines
- A three-phase fault on the Manteca Substation 115 kV bus with normal clearing time followed by loss of the Schulte SW ST – Kasson and Schulte SW ST – Manteca 115 kV lines

8.4 Deliverability Assessment

A Deliverability Assessment will be performed to determine the Project's ability to deliver its energy to the CAISO Controlled Grid under peak load conditions. The Deliverability Assessment will provide the IC with information as to the level of deliverability without Network Upgrades, and the required Network Upgrades for delivering the full output of the Project. The Deliverability Assessment will provide:

- Deliverability level with no Network Upgrades
- Required Network Upgrades to support 100% deliverability

CAISO will conduct the Deliverability Assessment in accordance with Section 3.3.3 of the LGIP.

8.5 Short Circuit Duty Analysis

Short circuit studies will be performed to determine the maximum fault currents on various transmission buses in the vicinity of the Project. This ISIS will assess the impact of increased fault duty resulting from the added generation. Equipment that may become overstressed as a result of increased fault duty will be identified.

8.6 System Protection Requirements

Preliminary system protection requirements will be provided based on the scope and assumptions outlined in this study plan and technical information provided by the IC.

8.7 Substation Evaluation

The substation evaluation will identify any existing equipment requiring upgrades to mitigate overstress or overload by the interconnection of the Project.

8.8 Transmission Line Evaluation

PG&E's transmission line evaluation will identify any existing transmission lines or equipment requiring upgrades to mitigate overload or overstress by the interconnection of the Project.

8.9 Land Evaluation

For the ISIS, PG&E's Corporate Real Estate Department will not perform an evaluation to determine if any new land rights are necessary to upgrade PG&E facilities that may be impacted by the Project such as, constructing the new generator tie line and re-conductoring of existing PG&E transmission lines, if required.

A land right evaluation will be provided when the Project progresses to the Interconnection Facilities Study (IFAS).

9. Costs and Construction Schedule Estimates

The ISIS will provide a list of required facilities and a non-binding good faith estimate of cost responsibility and a non-binding good faith estimate of time to construct.

10. Environmental Evaluation / Permitting

10.1 CPUC General Order 131-D

PG&E is subject to the jurisdiction of the California Public Utilities Commission (CPUC) and must comply with CPUC General Order 131-D (Order) on the construction, modification, alteration, or addition of all electric transmission facilities (i.e., lines, substations, etc.). This includes facilities to be constructed by others and deeded to PG&E. The Order exempts PG&E from obtaining a formal permit from the CPUC on facilities over 200 kV provided the planned facilities involve the replacement of existing facilities or supporting structures with equivalent facilities or structures, the minor relocation of existing facilities, the conversion of existing facilities to underground or the placing of new or additional conductors, insulators, or their accessories on or replacement of structures already built. These exemptions do not apply under certain circumstances when significant environmental impacts may be caused by the work. If the project does not qualify for an exemption, PG&E will need to seek formal approval from the CPUC (i.e., Certificate of Public Convenience and Necessity) taking as much as 18 months or more since the CPUC may decide to conduct its own environmental evaluation (i.e., Negative Declaration or Environmental Impact Report).

For cases where PG&E can claim a valid exemption, PG&E would file an Advice Letter with the CPUC and publish public notice of the proposed construction of the facilities. The noticing process takes about 90 days if no protests are filed, but should be done as early as possible so that a protest does not delay construction. PG&E has no control over the time it takes the CPUC to respond when issues arise. If the protest is granted, PG&E will then need to apply for a formal permit to construct the project (i.e., Certificate of Public Convenience and Necessity).

Facilities built or modified under this procedure must also be designed to include electric and magnetic field (EMF) mitigation measures pursuant to PG&E "EMF Design Guidelines of New Electrical Facilities: Transmission, Substation and Distribution".

Please see Section III, B.1(f) in General Order 131-D. This document can be found in the CPUC's web page at:

http://www.cpuc.ca.gov/PUBLISHED/GENERAL_ORDER/589.htm

10.2 CPUC Section 851

PG&E is subject to the jurisdiction of the California Public Utilities Commission (CPUC) and must comply with Public Utilities Code Section 851, which among other things requires CPUC approval of leases and licenses to use PG&E property. This includes rights-of-way granted to third parties for interconnection facilities. Obtaining CPUC approval for a Section 851 application can take several months, and requires compliance with the California Environmental Quality Act (CEQA). PG&E recommends that Section 851 issues be identified as early as possible so that the necessary application can be prepared and processed.

11. Standby Power

The ISIS will not address any requirements for standby power that the Project may require. The IC should contact their PG&E Generation Interconnection Services representative regarding this service.

Note: The IC is urged to contact their PG&E Generation Interconnection Services representative promptly regarding standby service in order to ensure its availability for the Project startup date.

12. Restudy

The ISIS will be performed according to the assumptions shown in the Section 6. If these assumptions are changed, a restudy according to the LGIP may be required to re-evaluate the Project's impact on the CAISO Controlled Grid. The IC would be responsible for paying for any such restudy.

ATTACHMENT 1 – GENERATION PROJECTS

PG&E Generation Projects					
Project ID #	**Project Name**	**Nearest Facility**	**Capacity (MW)**	**Latest Expected On-Line Date**	**Modeled In Study Cases**
1	Confidential	Russell	92	2007	Yes

Non-PG&E Generation Projects to Be Modeled in Base Case per On-line Year					
Project ID #	**Project Name**	**Nearest Facility**	**Capacity (MW)**	**Latest Expected On-Line Date**	**Modeled In Study Cases**
TID	Confidential	Walnut (TID)	250	2007	Yes
SVP	Confidential	SSS (SVP)	320	2008	Yes

PG&E Generation Projects - ISO Generation Interconnection Queue					
Project ID #	**Project Name**	**Nearest Facility**	**Capacity (MW)**	**Latest Expected On-Line Date**	**Modele d In Study Cases**
1	Confidential	Contra Costa	590	2009	Yes
2	Confidential	Tesla	1156	2010	Yes
3	Confidential	Morro Bay	1200	2008	Yes
P0302	Confidential	Cabrillo	120	2009	Yes
P0304	Confidential	New Birds Landing SW STA	38	12/2011	Yes
P0401	Confidential	Birds' Landing Switchyard	150	2008	Yes
P0402	Confidential	Potrero	145.1	2008	Yes

PG&E Generation Projects - ISO Generation Interconnection Queue					
Project ID #	**Project Name**	**Nearest Facility**	**Capacity (MW)**	**Latest Expected On-Line Date**	**Modeled In Study Cases**
P0403	Confidential	Collector Station at Geysers #17 & Fulton Line	201	2009	Yes
P0404	Confidential	San Francisco Airport	48.7	2008	Yes
P0409	Confidential	Tesla	74.9	2010	Yes
P0411	Confidential	Humboldt Power Plant Substation	146.4	2008	Yes
P0412	Confidential	Birds' Landing Switchyard	200	2009	Yes
P0413	Confidential	East Shore	118	2007	Yes
P0418	Confidential	McCall 115 kV Bus	300	2013	Yes
P0424	Confidential	East Shore	361	2010	Yes
P0429	Confidential	Herndon-Kearney 230 kV Line	200	2008	Yes
P0435	Confidential	Panoche Substation 230 kV Bus	401	2009	Yes
P0504	Confidential	Panoche Substation 115 kV Bus	120	2009	Yes
P0506	Confidential	Cottonwood-Vaca Dixon 230 kV lines	715	2010	Yes
P0513	Confidential	Kern Oil Substation (115 kV)	94	2009	Yes
P0526	Confidential	Eastshore 230 kV Bus	245	2008	Yes
P0528L	Confidential	Pit 3-Round Mountain 230 kV	102	2007	Yes
P0529	Confidential	Le Grand- Chowchilla 115 kV	10.5	2007	Yes
P0530	Confidential	Merced #1 70 kV	10.5	2007	Yes
P0532L	Confidential	PG&E Geysers #17 Fulton 230 kV Line	55	2007	Yes
P0605L	Confidential	Coburn 230 kV Bus	210	2008	Yes

PG&E Generation Projects - ISO Generation Interconnection Queue					
Project ID #	**Project Name**	**Nearest Facility**	**Capacity (MW)**	**Latest Expected On-Line Date**	**Modeled In Study Cases**
P0609L	Confidential	Lambie-Contra Costa 230 kV	128	3/2011	Yes
P0610L	Confidential	Chevron 70 kV Tap	20	2009	Yes
P0611L	Confidential	Birds' Landing Switchyard	30	2009	Yes
P0615L	Confidential	Mc Call 230 kV Bus	565/600	2010	Yes
P0616L	Confidential	Mesa-Divide #1 & #2 115 kV Lines	105	2009	Yes
P0617L	Confidential	Oakland C Substation 115 kV Bus	300	2010	Yes
P0701L	Confidential	Morro Bay – Midway 230 kV Line	210	2010	Yes
P0702L	Confidential	Vaca – Tesla 500 kV Line	500	12/2011	Yes
P0703L	Confidential	Tesla – Bellota 230 kV Line	508	5/2011	Yes
P0704L	Confidential	Bahia-Moraga 230 kV Line	100	12/2011	Yes
P0706	Confidential	Geysers #3 – Cloverdale 115 kV Line	35	2010	Yes
P0708	Confidential	Geysers – Fulton 230 kV Line	50	1/1/2011	Yes
P0709	Confidential	Loop 230kV Lines newar Carrizo Plain Substation	190	12/1/2011	Yes
P0710	Confidential	Border Substation 230 kV Bus	508	6/15/2011	Yes
P0711	Confidential	60 kV bus at Posdef QF Facility	50	12/31/2009	Yes
Q0211	Confidential	230 kV Bus at Caribou Substation	201	10/31/2008	Yes
Q0212	Confidential	Rio Dell 60 kV	50	10/30/2010	Yes
Q0222	Confidential	Birs Landing Substation	100.5	12/31/2010	Yes

PG&E Generation Projects - ISO Generation Interconnection Queue					
Project ID #	**Project Name**	**Nearest Facility**	**Capacity (MW)**	**Latest Expected On-Line Date**	**Modeled In Study Cases**
Q0227	Confidential	Fulton – Ignacio 230 kV # 2 Line	175.5	12/31/2010	Yes
Q0235	Confidential	Tesla-Tracy #1 230 kV Line	630	6/1/2011	Yes
Q0236	Confidential	Tesla Substation 230 kV Bus	630	6/1/2011	Yes
Q0238	Confidential	Temblor-San Luis Obispo 115 kV Line	45	12/1/2008	Yes
Q0239	Confidential	Morro Bay-Midway 230 kV Line	250	12/1/2010	Yes
Q0242	Confidential	Morro Bay-Midway 230 kV Line	390	9/1/2012	Yes
Q0247	Confidential	Borden Substation 230 kv Bus	67	6/15/2011	Yes
Q0248	Confidential	Tesla-Bellota 230 kV Line	67	5/15/2011	Yes
Q0249	Confidential	Moss Landing-Salinas-Soledad 115 kV #1 & #2	200	2/1/2010	Yes
Q0250	Confidential	Redbud-Cortina 115 kV Line	200	8/1/2009	Yes
Q0253	Confidential	Cabrillo Sdubstation 115 kV Bus	40	12/31/2011	Yes
Q0254	Confidential	230 kV bus at Gates Substation	600	6/1/2012	Yes
Q0257	Confidential	New Fairfield Substation 230 kV Bus	575	6/1/2011	Yes
Q0258	Confidential	Contra Costa Substation 230 kV Bus	520	2/1/2012	Yes
Q0259	Confidential	Rio Oso Substation 115 kV Bus	345	2/1/2012	Yes
Q0260	Confidential	Gold Hill – Eight Miles 230 kV Line	260	2/1/2012	Yes
Q0261A	Confidential	Mendota Biomass Substation 70 kV Bus	5	4/15/2009	Yes

PG&E Generation Projects - ISO Generation Interconnection Queue					
Project ID #	**Project Name**	**Nearest Facility**	**Capacity (MW)**	**Latest Expected On-Line Date**	**Modeled In Study Cases**
Q0262	Confidential	Birds Landing Substation 230 kV Bus	390.6	4/15/2012	Yes
Q0266	Confidential	Rio Oso Substation 230 kV Bus	325	2/1/2012	Yes
Q0267	Confidential	Gold Hill – Eight Miles 230 kV Line	280	4/16/2012	Yes

Appendix B

Contingency Lists for Outages

2013 SUMMER CATEGORY “B” CONTINGENCY LIST

```
# Q268 2013 summmer category b contingency list
# Sacramento, Sierra and Stockton-Stanislaus Divisions Zones 304, 305 and 311-312
#
 # 2013 summer category b contingency list
 # Sacramento Division Zone 304
 #
 #
 # (1)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30114 30450  "1 "    0     # line from  CPVSTA   230.00  BRKR to BRKR  CORTINA  230.00
0
 #
 #
 # (2)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30114 30460  "2 "    0     # line from  CPVSTA   230.00  BRKR to BRKR  VACA-DIX 230.00
0
 #
 #
 # (3)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30114 30460  "3 "    0     # line from  CPVSTA   230.00  BRKR to BRKR  VACA-DIX 230.00
0
 #
 #
 # (4)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30114 30460  "4 "    0     # line from  CPVSTA   230.00  BRKR to BRKR  VACA-DIX 230.00
0
 #
 #
 # (5)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30330 30348  "1 "    0     # line from  RIO OSO  230.00  BRKR to BRKR  BRIGHTON 230.00
0
 #
 #
 # (6)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30348 30500  "1 "    0     # line from  BRIGHTON 230.00  BRKR to BRKR  BELLOTA  230.00
0
 #
 #
 # (7)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30435 30460  "1 "    0     # line from  LAKEVILE 230.00  BRKR to BRKR  VACA-DIX 230.00
0
 #
 #
 # (8)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30440 30460  "1 "    0     # line from  TULUCAY  230.00  BRKR to BRKR  VACA-DIX 230.00
0
 #
 #
 # (9)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30450 30460  "1 "    0     # line from  CORTINA  230.00  BRKR to BRKR  VACA-DIX 230.00
0
 #
 #
 # (10)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30460 30468  "1 "    0     # line from  VACA-DIX 230.00  BRKR to BRKR  Q257SWST 230.00
0
 #
 #
 # (11)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30460 30468  "2 "    0     # line from  VACA-DIX 230.00  BRKR to BRKR  Q257SWST 230.00
0
 #
 #
 # (12)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
```

```
 #
1  30460 30472  "1 "    0     # line from  VACA-DIX 230.00  BRKR to BRKR  PEABODY  230.00
0
 #
 #
 # (13)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30460 30478  "1 "    0     # line from  VACA-DIX 230.00  BRKR to BRKR  LAMBIE   230.00
0
 #
 #
 # (14)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30461 30462  "1 "    0     # line from  Q171     230.00  BRKR to (4)   Q171CL1  230.00
1  30462 30463  "1 "    0     # line from  Q171CL1  230.00   (4) to (4)   Q171CL2  230.00
2  30462 32181  "1 "    0     # TRAN from  Q171CL1  230.00   (4) to (1)   Q171WG1   34.50
2  30462 32182  "1 "    0     # TRAN from  Q171CL1  230.00   (4) to (1)   Q171WG2   34.50
1  30463 30461  "1 "    0     # line from  Q171CL2  230.00   (4) to BRKR  Q171     230.00
2  30463 32183  "1 "    0     # TRAN from  Q171CL2  230.00   (4) to (1)   Q171WG3   34.50
2  30463 32184  "1 "    0     # TRAN from  Q171CL2  230.00   (4) to (1)   Q171WG4   34.50
3  32181     0  "1 "    0     # GEN-DROP    Q171WG1   34.50  GEN==125.00(-17.99)
3  32182     0  "2 "    0     # GEN-DROP    Q171WG2   34.50  GEN==125.00(-17.99)
3  32183     0  "3 "    0     # GEN-DROP    Q171WG3   34.50  GEN==125.00(-17.99)
3  32184     0  "4 "    0     # GEN-DROP    Q171WG4   34.50  GEN==125.00(-17.99)
0
 #
 #
 # (15)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30468 30465  "1 "    0     # line from  Q257SWST 230.00  BRKR to BRKR  BAHIA    230.00
0
 #
 #
 # (16)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30468 30467  "1 "    0     # line from  Q257SWST 230.00  BRKR to BRKR  PARKWAY  230.00
0
 #
 #
 # (17)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30472 30479  "1 "    0     # line from  PEABODY  230.00  BRKR to BRKR  BDLSWSTA 230.00
0
 #
 #
 # (18)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30474 30475  "1 "    0     # line from  Q222     230.00   (2) to BRKR  HIGHWND3 230.00
2  30474 32178  "1 "    0     # TRAN from  Q222     230.00   (2) to (2)   Q222      34.50
2  32178 32179  "1 "    0     # TRAN from  Q222      34.50   (2) to (1)   Q222       0.58
3  32179     0  "1 "    0     # GEN-DROP    Q222       0.58  GEN==100.50(15.45)
0
 #
 #
 # (19)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30475 30529  "1 "    0     # line from  HIGHWND3 230.00  BRKR to (3)   HIWD TAP 230.00
1  30529 30479  "1 "    0     # line from  HIWD TAP 230.00   (3) to BRKR  BDLSWSTA 230.00
2  30529 32172  "1 "    0     # TRAN from  HIWD TAP 230.00   (3) to (1)   HIGHWNDS  34.50
3  32172     0  "1 "    0     # GEN-DROP    HIGHWNDS  34.50  GEN==158.00(0.00)
0
 #
 #
 # (20)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30476 30479  "1 "    0     # line from  SHILO    230.00   (5) to BRKR  BDLSWSTA 230.00
1  30476 30483  "1 "    0     # line from  SHILO    230.00   (5) to (2)   P0611    230.00
2  30476 32177  "1 "    0     # TRAN from  SHILO    230.00   (5) to (1)   SHILO     34.50
2  30476 32189  "1 "    0     # TRAN from  SHILO    230.00   (5) to (3)   Q039      34.50
2  30476 32189  "2 "    0     # TRAN from  SHILO    230.00   (5) to (3)   Q039      34.50
2  30483 32188  "1 "    0     # TRAN from  P0611    230.00   (2) to (1)   P0611G    34.50
2  32189 32190  "1 "    0     # TRAN from  Q039      34.50   (3) to (1)   Q039       0.58
3  32177     0  "1 "    0     # GEN-DROP    SHILO     34.50  GEN==150.00(0.00)
3  32188     0  "1 "    0     # GEN-DROP    P0611G    34.50  GEN==30.00(3.78)
```

```
3  32190     0  "1 "    0     # GEN-DROP    Q039       0.58  GEN==200.00(16.08)
0
 #
 #
 # (21)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30477 30479  "1 "    0     # line from  SHILOHTP 230.00   (2) to BRKR  BDLSWSTA 230.00
2  30477 32176  "2 "    0     # TRAN from  SHILOHTP 230.00   (2) to (1)   SHILOH    34.50
3  32176     0  "1 "    0     # GEN-DROP    SHILOH    34.50  GEN==150.00(0.00)
0
 #
 #
 # (22)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30478 30479  "1 "    0     # line from  LAMBIE   230.00  BRKR to BRKR  BDLSWSTA 230.00
0
 #
 #
 # (23)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30479 30480  "1 "    0     # line from  BDLSWSTA 230.00  BRKR to (4)   USWP-RUS 230.00
1  30480 30481  "1 "    0     # line from  USWP-RUS 230.00   (4) to (2)   P0609    230.00
2  30480 32168  "1 "    0     # TRAN from  USWP-RUS 230.00   (4) to (1)   ENXCO      9.11
2  30480 32169  "1 "    0     # TRAN from  USWP-RUS 230.00   (4) to (1)   SOLANOWP  21.00
2  30481 32186  "1 "    0     # TRAN from  P0609    230.00   (2) to (1)   P0609     34.50
3  32168     0  "2 "    0     # GEN-DROP    ENXCO      9.11  GEN==49.00(0.00)
3  32169     0  "1 "    0     # GEN-DROP    SOLANOWP  21.00  GEN==95.00(0.00)
3  32186     0  "1 "    0     # GEN-DROP    P0609     34.50  GEN==128.00(15.11)
0
 #
 #
 # (24)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30479 30471  "2 "    0     # line from  BDLSWSTA 230.00  BRKR to BRKR  Q262SWST 230.00
0
 #
 #
 # (25)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30471 30523  "1 "    0     # line from  Q262SWST 230.00  BRKR to BRKR  CC SUB   230.00
0
 #
 #
 # (26)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30479 30471  "1 "    0     # line from  BDLSWSTA 230.00  BRKR to BRKR  Q262SWST 230.00
0
 #
 #
 # (27)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30471 30525  "1 "    0     # line from  Q262SWST 230.00  BRKR to BRKR  C.COSTA  230.00
0
 #
 #
 # (28)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  31231 31950  "1 "    0     # line from  Q250TAP1 115.00   (3) to BRKR  CORTINA  115.00
1  31231 31234  "1 "    0     # line from  Q250TAP1 115.00   (3) to (2)   Q250JCT  115.00
1  31231 31261  "1 "    0     # line from  Q250TAP1 115.00   (3) to (2)   CACHE J1 115.00
1  31234 31235  "1 "    0     # line from  Q250JCT  115.00   (2) to (3)   Q250     115.00
2  31235 31437  "1 "    0     # TRAN from  Q250     115.00   (3) to (2)   Q250EQ1   34.50
2  31235 31438  "1 "    0     # TRAN from  Q250     115.00   (3) to (2)   Q250EQ2   34.50
2  31437 31439  "1 "    0     # TRAN from  Q250EQ1   34.50   (2) to (1)   Q250EQ1    0.58
2  31438 31440  "1 "    0     # TRAN from  Q250EQ2   34.50   (2) to (1)   Q250EQ2    0.58
1  31261 31227  "1 "    0     # line from  CACHE J1 115.00   (2) to (3)   HGHLNDJ2 115.00
1  31227 31226  "1 "    0     # line from  HGHLNDJ2 115.00   (3) to (1)   HGHLAND  115.00
1  31227 31228  "1 "    0     # line from  HGHLNDJ2 115.00   (3) to (3)   HOMSTKTP 115.00
1  31228 31220  "1 "    0     # line from  HOMSTKTP 115.00   (3) to BRKR  EGLE RCK 115.00
1  31228 31230  "1 "    0     # line from  HOMSTKTP 115.00   (3) to (2)   HOMEPROC 115.00
1  31230 31232  "1 "    0     # line from  HOMEPROC 115.00   (2) to (1)   HOMEGRND 115.00
4  31439     0  "ss"    0     # LOAD-DROP    Q250EQ1    0.58  LOAD==0.50(0.28)
4  31440     0  "ss"    0     # LOAD-DROP    Q250EQ2    0.58  LOAD==0.50(0.28)
4  31226     0  "1 "    0     # LOAD-DROP    HGHLAND  115.00  LOAD==13.28(2.70)
```

```
4  31226     0  "2 "    0     # LOAD-DROP    HGHLAND  115.00  LOAD==7.81(1.59)
4  31230     0  "1 "    0     # LOAD-DROP    HOMEPROC 115.00  LOAD==0.80(0.16)
3  31439     0  "1 "    0     # GEN-DROP    Q250EQ1    0.58  GEN==100.50(8.48)
3  31440     0  "2 "    0     # GEN-DROP    Q250EQ2    0.58  GEN==100.50(8.48)
0
 #
 #
 # (29)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  31233 31950  "1 "    0     # line from  Q250TAP2 115.00   (2) to BRKR  CORTINA  115.00
1  31233 31224  "1 "    0     # line from  Q250TAP2 115.00   (2) to (3)   INDIN VL 115.00
1  31224 31215  "1 "    0     # line from  INDIN VL 115.00   (3) to (3)   LUCERNJ1 115.00
2  31224 31436  "1 "    0     # TRAN from  INDIN VL 115.00  BRKR to (1)   INDIAN V   9.11
1  31215 31200  "1 "    0     # line from  LUCERNJ1 115.00   (3) to BRKR  MENDOCNO 115.00
1  31215 31216  "1 "    0     # line from  LUCERNJ1 115.00   (3) to (1)   LUCERNE  115.00
4  31216     0  "1 "    0     # LOAD-DROP    LUCERNE  115.00  LOAD==12.24(2.48)
3  31436     0  "1 "    0     # GEN-DROP    INDIAN V   9.11  GEN==0.90(0.00)
1 31217 31216 "1 " 1      # close line from LCERNJ2  115.00 to LUCERNE 115.00
4 31216 0     "**" 1      # restore all loads to LUCERNE 115.00 (Cortina - Mendocino 115 kV)
0
 #
 #
 # (30)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  31253 31974  "1 "    0     # line from  FLTN JT2 115.00   (2) to (1)   MADISON  115.00
1  31253 31952  "1 "    0     # line from  FLTN JT2 115.00   (2) to (2)   PUTH CRK 115.00
1  31952 31998  "1 "    0     # line from  PUTH CRK 115.00   (2) to BRKR  VACA-DIX 115.00
4  31974     0  "1 "    0     # LOAD-DROP    MADISON  115.00  LOAD==8.25(0.37)
4  31974     0  "2 "    0     # LOAD-DROP    MADISON  115.00  LOAD==5.33(0.23)
4  31974     0  "3 "    0     # LOAD-DROP    MADISON  115.00  LOAD==15.02(0.68)
4  31952     0  "1 "    0     # LOAD-DROP    PUTH CRK 115.00  LOAD==16.83(0.75)
0
 #
 #
 # (31)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  31953 31256  "1 "    0     # line from  AMEGTAP  115.00   (3) to (1)   FLTN JCT 115.00
1  31953 31954  "1 "    0     # line from  AMEGTAP  115.00   (3) to (1)   AMERIGAS 115.00
1  31953 31998  "1 "    0     # line from  AMEGTAP  115.00   (3) to BRKR  VACA-DIX 115.00
4  31954     0  "1 "    0     # LOAD-DROP    AMERIGAS 115.00  LOAD==6.73(1.37)
0
 #
 #
 # (32)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  31958 32012  "1 "    0     # line from  CORDELIA 115.00   (1) to (2)   HALE J2  115.00
1  32012 32004  "1 "    0     # line from  HALE J2  115.00   (2) to (3)   VCVLLE2J 115.00
1  32004 31998  "1 "    0     # line from  VCVLLE2J 115.00   (3) to BRKR  VACA-DIX 115.00
1  32004 32002  "1 "    0     # line from  VCVLLE2J 115.00   (3) to BRKR  VACAVLL2 115.00
4  31958     0  "2 "    0     # LOAD-DROP    CORDELIA 115.00  LOAD==17.61(0.79)
4  32002     0  "2 "    0     # LOAD-DROP    VACAVLL2 115.00  LOAD==44.68(2.00)
4  32002     0  "3 "    0     # LOAD-DROP    VACAVLL2 115.00  LOAD==43.87(1.96)
1  32000 32002  "1"     1     #Transfer VACAVLL2 load to alternate
4  32002     0  "**"    1     #Restore VACAVLL2 load
0
 #
 #
 # (33)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  31960 31966  "1 "    0     # line from  MOBILCHE 115.00   (2) to (3)   WODLNDJ1 115.00
1  31960 31970  "1 "    0     # line from  MOBILCHE 115.00   (2) to BRKR  WOODLD   115.00
1  31966 31965  "1 "    0     # line from  WODLNDJ1 115.00   (3) to (3)   KNIGHT1  115.00
1  31966 31971  "1 "    0     # line from  WODLNDJ1 115.00   (3) to (1)   ZAMORA1  115.00
1  31965 31963  "1 "    0     # line from  KNIGHT1  115.00   (3) to (1)   KNIGHTLD 115.00
1  31965 32214  "1 "    0     # line from  KNIGHT1  115.00   (3) to BRKR  RIO OSO  115.00
4  31960     0  "1 "    0     # LOAD-DROP    MOBILCHE 115.00  LOAD==0.10(0.00)
4  31963     0  "1 "    0     # LOAD-DROP    KNIGHTLD 115.00  LOAD==8.57(0.38)
0
 #
 #
 # (34)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  31962 31970  "1 "    0     # line from  WDLND_BM 115.00   (3) to BRKR  WOODLD   115.00
1  31962 31992  "1 "    0     # line from  WDLND_BM 115.00   (3) to (2)   HUNT     115.00
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2  31962 32156  "1 "    0     # TRAN from  WDLND_BM 115.00   (3) to (1)   WOODLAND   9.11
1  31992 31990  "1 "    0     # line from  HUNT     115.00   (2) to BRKR  DAVIS    115.00
4  31992     0  "1 "    0     # LOAD-DROP    HUNT     115.00  LOAD==0.27(0.05)
4  32156     0  "SG"    0     # LOAD-DROP    WOODLAND   9.11  LOAD==1.49(0.34)
3  32156     0  "1 "    0     # GEN-DROP    WOODLAND   9.11  GEN==25.00(5.00)
0
 #
 #
 # (35)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  31964 31968  "2 "    0     # line from  KNIGHT2  115.00   (2) to (3)   WODLNDJ2 115.00
1  31964 32214  "2 "    0     # line from  KNIGHT2  115.00   (2) to BRKR  RIO OSO  115.00
1  31968 31970  "2 "    0     # line from  WODLNDJ2 115.00   (3) to BRKR  WOODLD   115.00
1  31968 31973  "2 "    0     # line from  WODLNDJ2 115.00   (3) to (2)   ZAMORA2  115.00
1  31973 31972  "2 "    0     # line from  ZAMORA2  115.00   (2) to (1)   ZAMORA   115.00
4  31972     0  "1 "    0     # LOAD-DROP    ZAMORA   115.00  LOAD==10.62(0.48)
0
 #
 #
 # (36)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  31976 31980  "1 "    0     # line from  POST     115.00   (1) to (3)   DPWTR_TP 115.00
1  31980 31986  "1 "    0     # line from  DPWTR_TP 115.00   (3) to BRKR  W.SCRMNO 115.00
1  31980 32003  "1 "    0     # line from  DPWTR_TP 115.00   (3) to (3)   UCD_TP1  115.00
1  32003 31990  "1 "    0     # line from  UCD_TP1  115.00   (3) to BRKR  DAVIS    115.00
1  32003 32103  "2 "    0     # line from  UCD_TP1  115.00   (3) to (2)   UCDAVSJ2 115.00
1  32103 32102  "1 "    0     # line from  UCDAVSJ2 115.00   (2) to (2)   CAMPUS   115.00
2  32102 32166  "1 "    0     # TRAN from  CAMPUS   115.00   (2) to (1)   UC DAVIS   9.11
4  31976     0  "1 "    0     # LOAD-DROP    POST     115.00  LOAD==1.31(0.19)
4  31976     0  "1A"    0     # LOAD-DROP    POST     115.00  LOAD==1.31(0.19)
4  32102     0  "1 "    0     # LOAD-DROP    CAMPUS   115.00  LOAD==36.56(8.33)
3  32166     0  "1 "    0     # GEN-DROP    UC DAVIS   9.11  GEN==3.50(1.80)
1  31988 31976  "1"     1     #Transfer POST to alternate Deepwater tap
4  31976     0  "**"    1     #Restore load to POST
0
 #
 #
 # (37)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  31978 31984  "1 "    0     # line from  DPWT_TP2 115.00   (3) to BRKR  BRIGHTN  115.00
1  31978 31986  "1 "    0     # line from  DPWT_TP2 115.00   (3) to BRKR  W.SCRMNO 115.00
1  31978 31988  "1 "    0     # line from  DPWT_TP2 115.00   (3) to (1)   DEEPWATR 115.00
4  31988     0  "2 "    0     # LOAD-DROP    DEEPWATR 115.00  LOAD==22.90(1.02)
4  31988     0  "3 "    0     # LOAD-DROP    DEEPWATR 115.00  LOAD==15.82(0.70)
1  31976 31988  "1"     1     #Transfer load to alternate Deepwater tap
4  31988     0  "**"    1     #Restore load at Deepwater
0
 #
 #
 # (38)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  31984 31993  "1 "    0     # line from  BRIGHTN  115.00  BRKR to (3)   BRKRJCT  115.00
1  31993 31991  "1 "    0     # line from  BRKRJCT  115.00   (3) to (2)   BRKR TP  115.00
1  31993 32001  "1 "    0     # line from  BRKRJCT  115.00   (3) to (3)   UCD_TP2  115.00
1  31991 31989  "1 "    0     # line from  BRKR TP  115.00   (2) to BRKR  BRKR SLG 115.00
1  32001 31990  "1 "    0     # line from  UCD_TP2  115.00   (3) to BRKR  DAVIS    115.00
1  32001 32116  "1 "    0     # line from  UCD_TP2  115.00   (3) to (1)   UCDAVSJ1 115.00
4  31989     0  "1 "    0     # LOAD-DROP    BRKR SLG 115.00  LOAD==1.75(0.00)
0
 #
 #
 # (39)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  31984 31994  "1 "    0     # line from  BRIGHTN  115.00  BRKR to BRKR  GRAND IS 115.00
1  31984 31994  "2"     1     #Transfer Grand Island to alternate source
4  31994     0  "**"    1     #Restore Grand Island load
0
 #
 #
 # (40)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  31995 32013  "1 "    0     # line from  HALE     115.00   (2) to (1)   HALE2    115.00
1  31995 31996  "1 "    0     # line from  HALE     115.00   (2) to (3)   HALE J1  115.00
1  31996 32006  "1 "    0     # line from  HALE J1  115.00   (3) to (3)   VCVLLE1J 115.00
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1  31996 32020  "1 "    0     # line from  HALE J1  115.00   (3) to (3)   JMSN JCT 115.00
1  32006 31998  "1 "    0     # line from  VCVLLE1J 115.00   (3) to BRKR  VACA-DIX 115.00
1  32006 32000  "1 "    0     # line from  VCVLLE1J 115.00   (3) to BRKR  VACAVLL1 115.00
1  32020 32010  "1 "    0     # line from  JMSN JCT 115.00   (3) to BRKR  JAMESON  115.00
1  32020 32618  "1 "    0     # line from  JMSN JCT 115.00   (3) to (1)   NTWRJCT1 115.00
4  31995     0  "1 "    0     # LOAD-DROP    HALE     115.00  LOAD==2.39(1.42)
4  32000     0  "1 "    0     # LOAD-DROP    VACAVLL1 115.00  LOAD==30.49(1.36)
4  32010     0  "1 "    0     # LOAD-DROP    JAMESON  115.00  LOAD==38.91(1.74)
1  32002 32000  "1"     1     #Line transfer VACAVLL1 115kV TO VACAVLL2 115kV
4  32000     0  "**"    1     #Restore VACAVLL1 load
1  31995 32013  "1"     1     #Transfer load to HALE alternate
1  32012 32013  "1"     1     #Transfer load to HALE alternate
4  31995     0  "**"    1     #Restore load at HALE
1  32010 32009  "1 "    1     # LINE-TRANSFER JMSN JCT 115.00 to JAMESN-A 115.00
4  32010     0  "**"    1     # RESTORE JAMESON load
0
 #
 #
 # (41)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  31998 31997  "1 "    0     # line from  VACA-DIX 115.00  BRKR to (3)   SCHMLBCH 115.00
1  31997 32008  "1 "    0     # line from  SCHMLBCH 115.00   (3) to BRKR  SUISUN   115.00
1  31997 32009  "1 "    0     # line from  SCHMLBCH 115.00   (3) to (1)   JAMESN-A 115.00
4  31997     0  "1 "    0     # LOAD-DROP    SCHMLBCH 115.00  LOAD==10.08(6.77)
0
 #
 #
 # (42)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  31998 32011  "1 "    0     # line from  VACA-DIX 115.00  BRKR to (3)   WEC      115.00
1  32011 32008  "1 "    0     # line from  WEC      115.00   (3) to BRKR  SUISUN   115.00
2  32011 32185  "1 "    0     # TRAN from  WEC      115.00   (3) to (1)   WOLFSKIL  13.80
4  32185     0  "ss"    0     # LOAD-DROP    WOLFSKIL  13.80  LOAD==1.30(0.81)
3  32185     0  "1 "    0     # GEN-DROP    WOLFSKIL  13.80  GEN==50.00(5.67)
0
 #
 #
 # (43)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  31999 31998  "1 "    0     # line from  VACA-CB  115.00   (3) to BRKR  VACA-DIX 115.00
2  31999 30460  "2 "    0     # TRAN from  VACA-CB  115.00   (3) to BRKR  VACA-DIX 230.00
2  31999 30460  "2A"    0     # TRAN from  VACA-CB  115.00   (3) to BRKR  VACA-DIX 230.00
0
 #
 #
 # (44)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32050 31740  "2 "    0     # line from  RICE      60.00   (1) to (2)   JACINTO   60.00
1  31740 31732  "2 "    0     # line from  JACINTO   60.00   (2) to (2)   HMLTN JT  60.00
1  31732 31734  "2 "    0     # line from  HMLTN JT  60.00   (2) to (2)   HAMILTON  60.00
1  31734 31722  "2 "    0     # line from  HAMILTON  60.00   (2) to BRKR  GLENN     60.00
4  32050     0  "1 "    0     # LOAD-DROP    RICE      60.00  LOAD==6.07(0.27)
4  32050     0  "2 "    0     # LOAD-DROP    RICE      60.00  LOAD==1.97(0.08)
4  31740     0  "1 "    0     # LOAD-DROP    JACINTO   60.00  LOAD==6.10(0.27)
4  31734     0  "1 "    0     # LOAD-DROP    HAMILTON  60.00  LOAD==5.61(0.25)
0
 #
 #
 # (45)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32052 32054  "4 "    0     # line from  CLSA CRS  60.00   (2) to (2)   MAXWELL   60.00
1  32052 32067  "4 "    0     # line from  CLSA CRS  60.00   (2) to (2)   WILSONAV  60.00
1  32054 32055  "4 "    0     # line from  MAXWELL   60.00   (2) to (3)   MAXTAP    60.00
1  32067 32068  "1 "    0     # line from  WILSONAV  60.00   (2) to (1)   COLUSA    60.00
1  32055 32053  "4 "    0     # line from  MAXTAP    60.00   (3) to (1)   DELEVAN   60.00
1  32055 32065  "4 "    0     # line from  MAXTAP    60.00   (3) to (2)   WILL JCT  60.00
1  32065 32056  "4 "    0     # line from  WILL JCT  60.00   (2) to BRKR  CORTINA   60.00
4  32054     0  "1 "    0     # LOAD-DROP    MAXWELL   60.00  LOAD==5.89(0.26)
4  32068     0  "1 "    0     # LOAD-DROP    COLUSA    60.00  LOAD==8.87(0.39)
4  32068     0  "2 "    0     # LOAD-DROP    COLUSA    60.00  LOAD==6.41(0.29)
0
 #
 #
 # (46)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
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 #
1  32056 32060  "1 "    0     # line from  CORTINA   60.00  BRKR to (2)   ARBUCKLE  60.00
1  32060 32058  "1 "    0     # line from  ARBUCKLE  60.00   (2) to (2)   HARINTON  60.00
1  32058 32062  "1 "    0     # line from  HARINTON  60.00   (2) to (2)   DRAKE     60.00
1  32062 32066  "1 "    0     # line from  DRAKE     60.00   (2) to (1)   DUNNIGAN  60.00
4  32060     0  "1 "    0     # LOAD-DROP    ARBUCKLE  60.00  LOAD==16.33(0.73)
4  32058     0  "1 "    0     # LOAD-DROP    HARINTON  60.00  LOAD==1.00(0.62)
4  32062     0  "1 "    0     # LOAD-DROP    DRAKE     60.00  LOAD==1.00(0.62)
4  32066     0  "1 "    0     # LOAD-DROP    DUNNIGAN  60.00  LOAD==8.65(0.38)
1  32061 32060  "1"     1     #Transfer Arbuckle to its alternate
4  32060     0  "**"    1     #Restore load at ARBUCKLE
4  32058     0  "**"    1     #Restore load at HARINTON
4  32062     0  "**"    1     #Restore load at DRAKE
4  32066     0  "**"    1     #Restore load at DUNNIGAN
0
 #
 #
 # (47)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32057 32056  "2 "    0     # line from  HUSTD     60.00   (2) to BRKR  CORTINA   60.00
1  32057 32063  "2 "    0     # line from  HUSTD     60.00   (2) to (3)   ARBJCT    60.00
1  32063 32061  "2 "    0     # line from  ARBJCT    60.00   (3) to (1)   ARBALT    60.00
1  32063 32078  "2 "    0     # line from  ARBJCT    60.00   (3) to (2)   WLKSLJCT  60.00
1  32078 32076  "2 "    0     # line from  WLKSLJCT  60.00   (2) to (2)   WILKINS   60.00
1  32076 32080  "2 "    0     # line from  WILKINS   60.00   (2) to (1)   DIST2047  60.00
4  32076     0  "1 "    0     # LOAD-DROP    WILKINS   60.00  LOAD==6.44(0.29)
0
 #
 #
 # (48)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32070 32071  "1 "    0     # line from  CLSA JCT  60.00  BRKR to (2)   MERIDJCT  60.00
1  32071 32072  "1 "    0     # line from  MERIDJCT  60.00   (2) to (1)   MERIDIAN  60.00
4  32072     0  "1 "    0     # LOAD-DROP    MERIDIAN  60.00  LOAD==4.55(0.21)
0
 #
 #
 # (49)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32070 32073  "3 "    0     # line from  CLSA JCT  60.00  BRKR to (2)   WESCOT1   60.00
1  32073 32075  "3 "    0     # line from  WESCOT1   60.00   (2) to (3)   WESCOT2   60.00
1  32075 32064  "3 "    0     # line from  WESCOT2   60.00   (3) to (1)   WILLIAMS  60.00
1  32075 32155  "3 "    0     # line from  WESCOT2   60.00   (3) to (3)   WADHMJCT  60.00
1  32155 32056  "3 "    0     # line from  WADHMJCT  60.00   (3) to BRKR  CORTINA   60.00
2  32155 32154  "1 "    0     # TRAN from  WADHMJCT  60.00   (3) to (1)   WADHAM     9.11
4  32064     0  "1 "    0     # LOAD-DROP    WILLIAMS  60.00  LOAD==6.27(0.28)
4  32064     0  "2 "    0     # LOAD-DROP    WILLIAMS  60.00  LOAD==10.36(0.46)
4  32154     0  "SG"    0     # LOAD-DROP    WADHAM     9.11  LOAD==1.08(0.25)
3  32154     0  "1 "    0     # GEN-DROP    WADHAM     9.11  GEN==22.80(3.70)
0
 #
 #
 # (50)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32077 32662  "1 "    0     # line from  CORD PMP  60.00   (1) to (4)   TULCY JT  60.00
1  32662 32655  "1 "    0     # line from  TULCY JT  60.00   (4) to (2)   TULCAY1   60.00
1  32662 32656  "1 "    0     # line from  TULCY JT  60.00   (4) to BRKR  NAPA      60.00
1  32662 32093  "1 "    0     # line from  TULCY JT  60.00   (4) to (3)   CRD-JCT   60.00
1  32655 32654  "1 "    0     # line from  TULCAY1   60.00   (2) to BRKR  TULUCAY   60.00
1  32093 32091  "1 "    0     # line from  CRD-JCT   60.00   (3) to (1)   CRD_INTR  60.00
1  32093 32074  "1 "    0     # line from  CRD-JCT   60.00   (3) to (1)   CORDELIA  60.00
4  32077     0  "1 "    0     # LOAD-DROP    CORD PMP  60.00  LOAD==4.74(1.56)
4  32091     0  "1 "    0     # LOAD-DROP    CRD_INTR  60.00  LOAD==2.80(0.90)
4  32074     0  "4 "    0     # LOAD-DROP    CORDELIA  60.00  LOAD==13.26(0.59)
1 32662 32656 "1 " 1      # close line from TULCY JT 60.00 to NAPA 60.00
1 32662 32077 "1 " 1      # close line from TULCY JT 60.00 to CORD PMP 60.00
1 32077 32074 "1 " 1      # close line from CORD PMP 60.00 to CORDELIA 60.00
4 32077 0     "**" 1      # restore all loads to CORD PMP 60.00
4 32074 0     "**" 1      # restore all loads to CORDELIA 60.00 (Tulucay - Napa #1 60 kV)
0
 #
 #
 # (51)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
```

```
1  32079 32083  "1 "    0     # line from  DST1001B  60.00   (3) to (1)   DIST1001  60.00
1  32079 32087  "1 "    0     # line from  DST1001B  60.00   (3) to (2)   KNTJALT   60.00
1  32079 32342  "1 "    0     # line from  DST1001B  60.00   (3) to BRKR  E.NICOLS  60.00
1  32087 32085  "1 "    0     # line from  KNTJALT   60.00   (2) to (2)   WOODJCT   60.00
1  32085 32084  "1 "    0     # line from  WOODJCT   60.00   (2) to (1)   WLLW SLJ  60.00
0
 #
 #
 # (52)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32081 32086  "1 "    0     # line from  DIST1500  60.00   (1) to (2)   KNGHTSLJ  60.00
1  32086 32089  "1 "    0     # line from  KNGHTSLJ  60.00   (2) to (2)   DST1001A  60.00
1  32089 32342  "1 "    0     # line from  DST1001A  60.00   (2) to BRKR  E.NICOLS  60.00
0
 #
 #
 # (53)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32082 32090  "1 "    0     # line from  PLFLDJCT  60.00   (2) to (2)   WINTERS   60.00
1  32082 32092  "1 "    0     # line from  PLFLDJCT  60.00   (2) to (1)   PLAINFLD  60.00
1  32090 32088  "1 "    0     # line from  WINTERS   60.00   (2) to BRKR  VACA-DXN  60.00
4  32090     0  "1 "    0     # LOAD-DROP    WINTERS   60.00  LOAD==6.18(0.27)
4  32092     0  "1 "    0     # LOAD-DROP    PLAINFLD  60.00  LOAD==12.16(0.54)
0
 #
 #
 # (54)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32088 32094  "2 "    0     # line from  VACA-DXN  60.00  BRKR to (2)   VACA-JT2  60.00
1  32094 32109  "2 "    0     # line from  VACA-JT2  60.00   (2) to (3)   CACHSLJ2  60.00
1  32109 32101  "2 "    0     # line from  CACHSLJ2  60.00   (3) to (2)   DIXON-J2  60.00
1  32109 32107  "2 "    0     # line from  CACHSLJ2  60.00   (3) to (2)   CACHSTAP  60.00
1  32101 32100  "2 "    0     # line from  DIXON-J2  60.00   (2) to BRKR  DIXON     60.00
1  32107 32113  "2 "    0     # line from  CACHSTAP  60.00   (2) to (2)   BTAV-JCT  60.00
1  32113 32112  "2 "    0     # line from  BTAV-JCT  60.00   (2) to (1)   MAINE-PR  60.00
4  32112     0  "1 "    0     # LOAD-DROP    MAINE-PR  60.00  LOAD==0.10(0.02)
0
 #
 #
 # (55)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32088 32096  "1 "    0     # line from  VACA-DXN  60.00  BRKR to (3)   VACA-JT1  60.00
1  32096 32098  "1 "    0     # line from  VACA-JT1  60.00   (3) to (3)   TRAVISJT  60.00
1  32096 32108  "1 "    0     # line from  VACA-JT1  60.00   (3) to (2)   CACHSLJ1  60.00
1  32098 32097  "1 "    0     # line from  TRAVISJT  60.00   (3) to (1)   TRAVIS    60.00
1  32098 32099  "1 "    0     # line from  TRAVISJT  60.00   (3) to (1)   TRVS_HPT  60.00
1  32108 32105  "1 "    0     # line from  CACHSLJ1  60.00   (2) to (3)   DIXON-J1  60.00
1  32105 32100  "1 "    0     # line from  DIXON-J1  60.00   (3) to BRKR  DIXON     60.00
1  32105 32106  "1 "    0     # line from  DIXON-J1  60.00   (3) to (1)   DIXONCAN  60.00
4  32097     0  "1 "    0     # LOAD-DROP    TRAVIS    60.00  LOAD==18.67(5.59)
4  32099     0  "1 "    0     # LOAD-DROP    TRVS_HPT  60.00  LOAD==4.82(1.41)
4  32106     0  "1 "    0     # LOAD-DROP    DIXONCAN  60.00  LOAD==3.50(0.80)
1  32094 32098  "1"     1     #Transfer load to alternate tap
4  32097     0  "**"    1     #Restore load at Travis AFB
4  32099     0  "**"    1     #Restore load at Travis Hospital
0
 #
 #
 # (56)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32214 31986  "1 "    0     # line from  RIO OSO  115.00  BRKR to BRKR  W.SCRMNO 115.00
0
 #
 #
 # (57)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32586 31956  "1 "    0     # line from  HGHWY J2 115.00   (3) to (2)   CORDELLT 115.00
1  32586 32578  "1 "    0     # line from  HGHWY J2 115.00   (3) to (2)   SKGGS J2 115.00
1  32586 32590  "1 "    0     # line from  HGHWY J2 115.00   (3) to BRKR  HIGHWAY  115.00
1  31956 32598  "1 "    0     # line from  CORDELLT 115.00   (2) to (2)   NTWR ALT 115.00
1  32578 32568  "1 "    0     # line from  SKGGS J2 115.00   (2) to BRKR  IGNACIO  115.00
1  32598 32608  "1 "    0     # line from  NTWR ALT 115.00   (2) to (2)   CRQNZTP2 115.00
1  32608 32616  "1 "    0     # line from  CRQNZTP2 115.00   (2) to (1)   MEYERTP2 115.00
4  32590     0  "1 "    0     # LOAD-DROP    HIGHWAY  115.00  LOAD==18.06(3.67)
```

```
4  32590     0  "2 "    0     # LOAD-DROP    HIGHWAY  115.00  LOAD==22.17(4.50)
1  32588 32590  "1 "    1     # LINE-TRANSFER HGHWY J2 115.00 to HGHWY J1 115.00
4  32590     0  "**"    1     # RESTORE HIGHWAY load
0
 #
 #
 # (58)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  30070 30461  "1 "    0     # TRAN from  Q171     500.00  BRKR to BRKR  Q171     230.00
0
 #
 #
 # (59)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  30450 30451  "1 "    0     # TRAN from  CORTINA  230.00  BRKR to (3)   CRTNA  M 230.00
2  30451 31951  "1 "    0     # TRAN from  CRTNA  M 230.00   (3) to (1)   CORT_D   115.00
2  30451 32056  "1 "    0     # TRAN from  CRTNA  M 230.00   (3) to BRKR  CORTINA   60.00
4  31951     0  "3 "    0     # LOAD-DROP    CORT_D   115.00  LOAD==7.98(0.36)
0
 #
 #
 # (60)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
#     **** 3-WINDING TRANSFORMER  30460  (30067)  30030  32152 :
2  30460 30030  "11"    0     # TRAN from  VACA-DIX 230.00  BRKR to (1)   VACA-DIX 500.00
0
 #
 #
 # (61)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
#     **** 3-WINDING TRANSFORMER  30460  (32158)  30030  32157 :
2  30460 30030  "12"    0     # TRAN from  VACA-DIX 230.00  BRKR to (1)   VACA-DIX 500.00
0
 #
 #
 # (62)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  31950 30450  "4 "    0     # TRAN from  CORTINA  115.00  BRKR to BRKR  CORTINA  230.00
0
 #
 #
 # (63)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  31984 30348  "10"    0     # TRAN from  BRIGHTN  115.00  BRKR to BRKR  BRIGHTON 230.00
0
 #
 #
 # (64)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  31984 30348  "9 "    0     # TRAN from  BRIGHTN  115.00  BRKR to BRKR  BRIGHTON 230.00
0
 #
 #
 # (65)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  31998 30460  "3 "    0     # TRAN from  VACA-DIX 115.00  BRKR to BRKR  VACA-DIX 230.00
0
 #
 #
 # (66)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  31998 30460  "4 "    0     # TRAN from  VACA-DIX 115.00  BRKR to BRKR  VACA-DIX 230.00
0
 #
 #
 # (67)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  32088 31998  "5 "    0     # TRAN from  VACA-DXN  60.00  BRKR to BRKR  VACA-DIX 115.00
0
 #
 #
 # (68)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  32088 31998  "9 "    0     # TRAN from  VACA-DXN  60.00  BRKR to BRKR  VACA-DIX 115.00
```

```
0
 #
 #
 # (69)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  32162 31994  "1 "    0     # TRAN from  RIV.DLTA   9.11   (1) to BRKR  GRAND IS 115.00
0
 #
 #
 # (70)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  32164 32008  "1 "    0     # TRAN from  CTY FAIR   9.11   (1) to BRKR  SUISUN   115.00
3  32164     0  "1 "    0     # GEN-DROP    CTY FAIR   9.11  GEN==0.80(0.07)
3  32164     0  "2 "    0     # GEN-DROP    CTY FAIR   9.11  GEN==1.50(0.13)
0
 #
 #
 # (71)  B1 GENERATOR OUTAGE
 #
3  32150     0  "1"     0     # DG_VADIX  13.80       PGEN=49.00  QGEN=8.01
0
 #
 #
 # (72)  B1 GENERATOR OUTAGE
 #
3  32154     0  "1"     0     # WADHAM     9.11       PGEN=22.84  QGEN=2.50
0
 #
 #
 # (73)  B1 GENERATOR OUTAGE
 #
3  32156     0  "1"     0     # WOODLAND   9.11       PGEN=25.00  QGEN=5.00
0
 #
 #
 # (74)  B1 GENERATOR OUTAGE
 #
3  32164     0  "1"     0     # CTY FAIR   9.11       PGEN=0.80  QGEN=0.07
0
 #
 #
 # (75)  B1 GENERATOR OUTAGE
 #
3  32164     0  "2"     0     # CTY FAIR   9.11       PGEN=1.50  QGEN=0.13
0
 #
 #
 # (76)  B1 GENERATOR OUTAGE
 #
3  32166     0  "1"     0     # UC DAVIS   9.11       PGEN=3.50  QGEN=-1.20
0
 #
 #
 # (77)  B1 GENERATOR OUTAGE
 #
3  32168     0  "2"     0     # ENXCO      9.11       PGEN=49.00  QGEN=0.00
0
 #
 #
 # (78)  B1 GENERATOR OUTAGE
 #
3  32169     0  "1"     0     # SOLANOWP  21.00       PGEN=150.00  QGEN=0.00
0
 #
 #
 # (79)  B1 GENERATOR OUTAGE
 #
3  32171     0  "1"     0     # HIGHWND3  34.50       PGEN=38.00  QGEN=0.00
0
 #
 #
 # (80)  B1 GENERATOR OUTAGE
 #
3  32172     0  "1"     0     # HIGHWNDS  34.50       PGEN=158.00  QGEN=0.00
```

```
0
 #
 #
 # (81)  B1 GENERATOR OUTAGE
 #
3  32173     0  "1"     0     # LAMBGT1   13.80       PGEN=46.30  QGEN=-7.63
0
 #
 #
 # (82)  B1 GENERATOR OUTAGE
 #
3  32174     0  "2"     0     # GOOSEHGT  13.80       PGEN=46.30  QGEN=-5.82
0
 #
 #
 # (83)  B1 GENERATOR OUTAGE
 #
3  32175     0  "3"     0     # CREEDGT1  13.80       PGEN=46.30  QGEN=-5.82
0
 #
 #
 # (84)  B1 GENERATOR OUTAGE
 #
3  32176     0  "1"     0     # SHILOH    34.50       PGEN=150.00  QGEN=0.00
0
 #
 #
 # (85)  B1 GENERATOR OUTAGE
 #
3  32177     0  "1"     0     # SHILO     34.50       PGEN=150.00  QGEN=0.00
0
 #
 #
 # (86)  B1 GENERATOR OUTAGE
 #
3  32185     0  "1"     0     # WOLFSKIL  13.80       PGEN=50.00  QGEN=5.90
0
 #
 #
 # (87)  B1 GENERATOR OUTAGE
 #
3  32186     0  "1"     0     # P0609     34.50       PGEN=128.00  QGEN=12.35
0
 #
 #
 # (88)  B1 GENERATOR OUTAGE
 #
3  32188     0  "1"     0     # P0611G    34.50       PGEN=30.00  QGEN=2.74
0
 #
 #
 # (89)  B1 GENERATOR OUTAGE
 #
3  32181     0  "1"     0     # Q171WG1   34.50       PGEN=125.00  QGEN=-17.99
0
 #
 #
 # (90)  B1 GENERATOR OUTAGE
 #
3  32179     0  "1"     0     # Q222      0.58       PGEN=100.50  QGEN=15.80
0
 #
 #
 # (91)  B1 GENERATOR OUTAGE
 #
3  32180     0  "1"     0     # Q262      13.80       PGEN=16.64  QGEN=2.33
0
 #
 #
 # (92)  B1 GENERATOR OUTAGE
 #
3  32190     0  "1"     0     # Q039      0.58       PGEN=200.00  QGEN=16.08
0
 #
```

```
 #
 # (93)  B1 GENERATOR OUTAGE
 #
3  32191     0  "1"     0     # Q257GT1   16.50       PGEN=218.00  QGEN=40.20
0
 #
 #
 # (94)  B1 GENERATOR OUTAGE
 #
3  32193     0  "3"     0     # Q257ST1   13.80       PGEN=77.00  QGEN=14.47
0
 #
 #
 # (95) Overlapping Outage (L-1/G-1)
 # Rio Oso - Brighton 230 kV Line and Woodland
1  30330 30348  "1 "    0     # line from  RIO OSO  230.00  BRKR to BRKR  BRIGHTON 230.00
 #
3  32156     0  "1"     0     # WOODLAND   9.11       PGEN=25.00  QGEN=5.00
0
 #
 #
 # (96) Overlapping Outage (L-1/G-1)
 # West Sacramento - Brighton 115 kV Line and Woodland
1  31978 31984  "1 "    0     # line from  DPWT_TP2 115.00   (3) to BRKR  BRIGHTN  115.00
1  31978 31986  "1 "    0     # line from  DPWT_TP2 115.00   (3) to BRKR  W.SCRMNO 115.00
1  31978 31988  "1 "    0     # line from  DPWT_TP2 115.00   (3) to (1)   DEEPWATR 115.00
4  31988     0  "2 "    0     # LOAD-DROP    DEEPWATR 115.00  LOAD==22.90(1.02)
4  31988     0  "3 "    0     # LOAD-DROP    DEEPWATR 115.00  LOAD==15.82(0.70)
1  31976 31988  "1"     1     #Transfer load to alternate Deepwater tap
4  31988     0  "**"    1     #Restore load at Deepwater
 #
3  32156     0  "1"     0     # WOODLAND   9.11       PGEN=25.00  QGEN=5.00
0
 #
 #
 # (97) Overlapping Outage (L-1/G-1)
 # Rio Oso - West Sacramento 115 kV Line and Woodland
1  32214 31986  "1 "    0     # line from  RIO OSO  115.00  BRKR to BRKR  W.SCRMNO 115.00
 #
3  32156     0  "1"     0     # WOODLAND   9.11       PGEN=25.00  QGEN=5.00
0
 #
 #
 # (98) Overlapping Outage (L-1/G-1)
 # West Sacramento - Davis 115 kV Line and Woodland
1  31976 31980  "1 "    0     # line from  POST     115.00   (1) to (3)   DPWTR_TP 115.00
1  31980 31986  "1 "    0     # line from  DPWTR_TP 115.00   (3) to BRKR  W.SCRMNO 115.00
1  31980 32003  "1 "    0     # line from  DPWTR_TP 115.00   (3) to (3)   UCD_TP1  115.00
1  32003 31990  "1 "    0     # line from  UCD_TP1  115.00   (3) to BRKR  DAVIS    115.00
1  32003 32103  "2 "    0     # line from  UCD_TP1  115.00   (3) to (2)   UCDAVSJ2 115.00
1  32103 32102  "1 "    0     # line from  UCDAVSJ2 115.00   (2) to (2)   CAMPUS   115.00
2  32102 32166  "1 "    0     # TRAN from  CAMPUS   115.00   (2) to (1)   UC DAVIS   9.11
4  31976     0  "1 "    0     # LOAD-DROP    POST     115.00  LOAD==1.31(0.19)
4  31976     0  "1A"    0     # LOAD-DROP    POST     115.00  LOAD==1.31(0.19)
4  32102     0  "1 "    0     # LOAD-DROP    CAMPUS   115.00  LOAD==36.56(8.33)
3  32166     0  "1 "    0     # GEN-DROP    UC DAVIS   9.11  GEN==3.50(1.80)
1  31988 31976  "1"     1     #Transfer POST to alternate Deepwater tap
4  31976     0  "**"    1     #Restore load to POST
 #
3  32156     0  "1"     0     # WOODLAND   9.11       PGEN=25.00  QGEN=5.00
0
 #
 #
 # (99) Overlapping Outage (L-1/G-1)
 # Rio Oso - Woodland #1 115 kV Line and Woodland
1  31960 31966  "1 "    0     # line from  MOBILCHE 115.00   (2) to (3)   WODLNDJ1 115.00
1  31960 31970  "1 "    0     # line from  MOBILCHE 115.00   (2) to BRKR  WOODLD   115.00
1  31966 31965  "1 "    0     # line from  WODLNDJ1 115.00   (3) to (3)   KNIGHT1  115.00
1  31966 31971  "1 "    0     # line from  WODLNDJ1 115.00   (3) to (1)   ZAMORA1  115.00
1  31965 31963  "1 "    0     # line from  KNIGHT1  115.00   (3) to (1)   KNIGHTLD 115.00
1  31965 32214  "1 "    0     # line from  KNIGHT1  115.00   (3) to BRKR  RIO OSO  115.00
4  31960     0  "1 "    0     # LOAD-DROP    MOBILCHE 115.00  LOAD==0.10(0.00)
4  31963     0  "1 "    0     # LOAD-DROP    KNIGHTLD 115.00  LOAD==8.57(0.38)
 #
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3  32156     0  "1"    0    # WOODLAND   9.11       PGEN=25.00  QGEN=5.00
0
 #
 #
 # (100) Overlapping Outage (L-1/G-1)
 # Vaca - Suisun - Jameson 115 kV Line and Wolfskill
1  31998 31997  "1 "    0    # line from  VACA-DIX 115.00  BRKR to (3)   SCHMLBCH 115.00
1  31997 32008  "1 "    0    # line from  SCHMLBCH 115.00   (3) to BRKR  SUISUN   115.00
1  31997 32009  "1 "    0    # line from  SCHMLBCH 115.00   (3) to (1)   JAMESN-A 115.00
4  31997     0  "1 "    0    # LOAD-DROP    SCHMLBCH 115.00  LOAD==10.08(6.77)
 #
3  32185     0  "1"    0    # WOLFSKIL  13.80       PGEN=50.00  QGEN=5.90
0
 #
 #
 # 2013 summer category b contingency list
 # Sierra Division Zone 305
 #
 #
 # (101)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30261 30300  "1 "    0    # line from  BELDENTP 230.00   (2) to BRKR  TBL MT D 230.00
1  30261 30250  "1 "    0    # line from  BELDENTP 230.00   (2) to BRKR  CARIBOU  230.00
3  31808     0  "1 "    0    # the RAS for Caribou-Table Mt 230 kV line loss will drop
3  31808     0  "2 "    0    # Caribou Units 2 & 3
3  31782     0  "1 "    0    # Caribou Units 4 & 5
3  31782     0  "2 "    0    # Caribou Units 4 & 5
3  31810     0  "1 "    0    # Caribou 1
3  31894     0  "1 "    0    # Collins Pine
3  31892     0  "1 "    0    # Lassen Power
3  31780     0  "1 "    0    # Butt Valley
2  31780 31490  "1 "    0    # Butt Valley transformer
1  31486 31490  "1 "    0    # Caribou - Butt Valley line
0
 #
 #
 # (102)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30275 30330  "1 "    0    # line from  CRESTA   230.00  BRKR to BRKR  RIO OSO  230.00
0
 #
 #
 # (103)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30280 30330  "1 "    0    # line from  POE      230.00  BRKR to BRKR  RIO OSO  230.00
2  30280 31792  "1 "    0    # Take the transformer out with Rio Oso-Poe 230 kV line outage
3  31792     0  "1 "    0    # Take the generator out with Rio Oso-Poe 230 kV line outage
0
 #
 #
 # (104)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30300 30330  "1 "    0    # line from  TBL MT D 230.00  BRKR to BRKR  RIO OSO  230.00
0
 #
 #
 # (105)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30325 30327  "1 "    0    # line from  PALERMO  230.00  BRKR to BRKR  COLGATE  230.00
2  30327 32450  "1 "    0    #Take one transformer out with Palermo-Colgate 230 kV line outage
3  32450     0  "1 "    0    #Take one generator out with Palermo-Colgate 230 kV line outage
0
 #
 #
 # (106)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30327 30330  "1 "    0    # line from  COLGATE  230.00  BRKR to BRKR  RIO OSO  230.00
2  30327 32452  "1 "    0    #Take one transformer out with Colgate-Rio Oso 230 kV line outage
3  32452     0  "1 "    0    #Take one generator out with Colgate-Rio Oso 230 kV line outage
0
 #
 #
 # (107)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
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1  30330 30335  "1 "    0     # line from  RIO OSO  230.00  BRKR to BRKR  ATLANTC  230.00
0
 #
 #
 # (108)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30330 30337  "1 "    0     # line from  RIO OSO  230.00  BRKR to BRKR  GOLDHILL 230.00
0
 #
 #
 # (109)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30330 30482  "1 "    0     # line from  RIO OSO  230.00  BRKR to BRKR  LOCKFORD 230.00
0
 #
 #
 # (110)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30331 30330  "1 "    0     # line from  Q266     230.00   (3) to BRKR  RIO OSO  230.00
2  30331 32517  "1 "    0     # TRAN from  Q266     230.00   (3) to (1)   Q266CT1   18.00
2  30331 32518  "1 "    0     # TRAN from  Q266     230.00   (3) to (1)   Q266ST1   18.00
4  32517     0  "ss"    0     # LOAD-DROP    Q266CT1   18.00  LOAD==36.00(19.92)
3  32517     0  "1 "    0     # GEN-DROP    Q266CT1   18.00  GEN==173.00(45.33)
3  32518     0  "1 "    0     # GEN-DROP    Q266ST1   18.00  GEN==188.00(30.71)
0
 #
 #
 # (111)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30335 30337  "1 "    0     # line from  ATLANTC  230.00  BRKR to BRKR  GOLDHILL 230.00
0
 #
 #
 # (112)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30337 30340  "1 "    0     # line from  GOLDHILL 230.00  BRKR to (3)   RALSTON  230.00
1  30340 30345  "1 "    0     # line from  RALSTON  230.00   (3) to BRKR  MIDLFORK 230.00
2  30340 32458  "1 "    0     # TRAN from  RALSTON  230.00   (3) to (1)   RALSTON   13.80
3  32458     0  "1 "    0     # GEN-DROP    RALSTON   13.80  GEN==83.00(15.12)
0
 #
 #
 # (113)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30337 30621  "1 "    0     # line from  GOLDHILL 230.00  BRKR to BRKR  Q260     230.00
0
 #
 #
 # (114)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30621 30622  "1 "    0     # line from  Q260     230.00  BRKR to BRKR  EIGHT MI 230.00
0
 #
 #
 # (115)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30337 37012  "1 "    0     # line from  GOLDHILL 230.00  BRKR to BRKR  LAKE     230.00
0
 #
 #
 # (116)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30337 38000  "1 "    0     # line from  GOLDHILL 230.00  BRKR to BRKR  LODI     230.00
0
 #
 #
 # (117)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30993 64109  "1 "    0     # line from  SUMMIT    60.00   (2) to BRKR  SUMMIT 3  60.00
1  30993 32365  "1 "    0     # line from  SUMMIT    60.00   (2) to (2)   TAMARACK  60.00
1  32365 32366  "1 "    0     # line from  TAMARACK  60.00   (2) to (3)   CISCO GR  60.00
1  32366 32363  "1 "    0     # line from  CISCO GR  60.00   (3) to (1)   CISCOTAP  60.00
1  32366 32372  "1 "    0     # line from  CISCO GR  60.00   (3) to BRKR  SPAULDNG  60.00
4  30993     0  "1 "    0     # LOAD-DROP    SUMMIT    60.00  LOAD==1.58(0.07)
```

```
4  32365     0  "1 "    0     # LOAD-DROP    TAMARACK  60.00  LOAD==1.05(0.04)
4  32363     0  "1 "    0     # LOAD-DROP    CISCOTAP  60.00  LOAD==1.00(0.47)
4  30993     0  "**"    0     #Drop Summit 3 load with outage
0
 #
 #
 # (118)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  31482 32280  "1 "    0     # line from  PALERMO  115.00  BRKR to (2)   E.MRY J2 115.00
1  32280 32212  "1 "    0     # line from  E.MRY J2 115.00   (2) to BRKR  E.NICOLS 115.00
0
 #
 #
 # (119)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  31508 32286  "1 "    0     # line from  HONC JT3 115.00   (3) to (2)   OLIVH J3 115.00
1  31508 31482  "1 "    0     # line from  HONC JT3 115.00   (3) to BRKR  PALERMO  115.00
1  31508 31484  "1 "    0     # line from  HONC JT3 115.00   (3) to (1)   HONCUT   115.00
1  32286 32206  "1 "    0     # line from  OLIVH J3 115.00   (2) to BRKR  BOGUE    115.00
4  31484     0  "1 "    0     # LOAD-DROP    HONCUT   115.00  LOAD==16.18(0.73)
0
 #
 #
 # (120)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  31656 31658  "1 "    0     # line from  PALERMO   60.00  BRKR to (1)   BANGOR    60.00
4  31658     0  "1 "    0     # LOAD-DROP    BANGOR    60.00  LOAD==6.68(0.30)
0
 #
 #
 # (121)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  31660 32309  "1 "    0     # line from  DOBBINS   60.00   (2) to (2)   CHLLNGEA  60.00
1  31660 32307  "1 "    0     # line from  DOBBINS   60.00   (2) to (2)   COLGATEA  60.00
1  32309 31662  "1 "    0     # line from  CHLLNGEA  60.00   (2) to (1)   CHALLNGE  60.00
1  32307 32308  "1 "    0     # line from  COLGATEA  60.00   (2) to BRKR  COLGATE   60.00
4  31660     0  "1 "    0     # LOAD-DROP    DOBBINS   60.00  LOAD==2.90(0.13)
4  31662     0  "1 "    0     # LOAD-DROP    CHALLNGE  60.00  LOAD==2.58(0.12)
0
 #
 #
 # (122)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32018 32229  "1 "    0     # line from  GOLDHILL 115.00  BRKR to (3)   HORSHE1  115.00
1  32229 32230  "1 "    0     # line from  HORSHE1  115.00   (3) to (1)   HORSESHE 115.00
1  32229 32233  "1 "    0     # line from  HORSHE1  115.00   (3) to (3)   NEWCSTL1 115.00
1  32233 32234  "1 "    0     # line from  NEWCSTL1 115.00   (3) to (2)   NEWCSTLE 115.00
1  32233 32236  "1 "    0     # line from  NEWCSTL1 115.00   (3) to (2)   FLINT1   115.00
2  32234 32460  "1 "    0     # TRAN from  NEWCSTLE 115.00   (2) to (1)   NEWCSTLE  13.20
1  32236 32228  "1 "    0     # line from  FLINT1   115.00   (2) to BRKR  PLACER   115.00
4  32230     0  "1 "    0     # LOAD-DROP    HORSESHE 115.00  LOAD==15.79(0.71)
4  32230     0  "2 "    0     # LOAD-DROP    HORSESHE 115.00  LOAD==36.15(1.61)
1  32230 32231  "1"     1     #Transfer load to alternate
4  32230     0  "**"    1     #Restore load at Horseshoe
0
 #
 #
 # (123)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32018 32231  "2 "    0     # line from  GOLDHILL 115.00  BRKR to (2)   HORSHE2  115.00
1  32231 32235  "2 "    0     # line from  HORSHE2  115.00   (2) to (2)   NEWCSTL2 115.00
1  32235 32239  "2 "    0     # line from  NEWCSTL2 115.00   (2) to (3)   FLINT2   115.00
1  32239 32228  "2 "    0     # line from  FLINT2   115.00   (3) to BRKR  PLACER   115.00
1  32239 32237  "1 "    0     # line from  FLINT2   115.00   (3) to (1)   FLINT    115.00
4  32237     0  "1 "    0     # LOAD-DROP    FLINT    115.00  LOAD==14.82(0.66)
0
 #
 #
 # (124)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32018 32263  "1 "    0     # line from  GOLDHILL 115.00  BRKR to (1)   CLRKSVLE 115.00
4  32263     0  "1 "    0     # LOAD-DROP    CLRKSVLE 115.00  LOAD==44.58(2.00)
4  32263     0  "2 "    0     # LOAD-DROP    CLRKSVLE 115.00  LOAD==47.39(2.12)
4  32263     0  "3 "    0     # LOAD-DROP    CLRKSVLE 115.00  LOAD==45.28(2.03)
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1  32264 32263  "1"    1     #Transfer Clarksville to alternate
4  32263     0  "**"    1     #Restore load at Clarksville
0
 #
 #
 # (125)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32018 32268  "2 "    0     # line from  GOLDHILL 115.00  BRKR to (3)   SHPRING2 115.00
1  32268 32259  "2 "    0     # line from  SHPRING2 115.00   (3) to (3)   DIMOND_2 115.00
1  32268 32265  "2 "    0     # line from  SHPRING2 115.00   (3) to (1)   SHPRING  115.00
1  32259 32258  "2 "    0     # line from  DIMOND_2 115.00   (3) to (1)   DMND SPR 115.00
1  32259 32260  "2 "    0     # line from  DIMOND_2 115.00   (3) to BRKR  MIZOU_T2 115.00
4  32265     0  "1 "    0     # LOAD-DROP    SHPRING  115.00  LOAD==19.57(0.88)
4  32265     0  "2 "    0     # LOAD-DROP    SHPRING  115.00  LOAD==21.49(0.96)
4  32258     0  "1 "    0     # LOAD-DROP    DMND SPR 115.00  LOAD==9.86(0.44)
4  32258     0  "2 "    0     # LOAD-DROP    DMND SPR 115.00  LOAD==28.07(1.25)
1  32262 32265  "1"    1     #Transfer Shingle Springs to alternate
4  32265     0  "**"    1     #Restore load at Shingle Springs
1  32258 32267  "1"    1     #Transfer Diamond Springs to alternate
4  32258     0  "**"    1     #Restore load at Diamond Springs
0
 #
 #
 # (126)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32018 32275  "1 "    0     # line from  GOLDHILL 115.00  BRKR to (3)   CPM TAP  115.00
1  32275 32264  "1 "    0     # line from  CPM TAP  115.00   (3) to (2)   CLRKSVLT 115.00
1  32275 32276  "1 "    0     # line from  CPM TAP  115.00   (3) to (1)   CPM      115.00
1  32264 32262  "1 "    0     # line from  CLRKSVLT 115.00   (2) to (2)   SHPRING1 115.00
1  32262 32267  "1 "    0     # line from  SHPRING1 115.00   (2) to (2)   DIMOND_1 115.00
1  32267 32261  "1 "    0     # line from  DIMOND_1 115.00   (2) to BRKR  MIZOU_T1 115.00
0
 #
 #
 # (127)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32110 32396  "1 "    0     # line from  GOLD HLL  60.00  BRKR to (2)   LIMESTNE  60.00
1  32396 33618  "1 "    0     # line from  LIMESTNE  60.00   (2) to (1)   OLETA     60.00
4  32396     0  "1 "    0     # LOAD-DROP    LIMESTNE  60.00  LOAD==0.02(0.00)
4  32396     0  "PW"    0     # LOAD-DROP    LIMESTNE  60.00  LOAD==2.55(2.18)
4  33618     0  "1 "    0     # LOAD-DROP    OLETA     60.00  LOAD==3.87(0.17)
4  33618     0  "2 "    0     # LOAD-DROP    OLETA     60.00  LOAD==3.45(0.16)
0
 #
 #
 # (128)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32200 31506  "1 "    0     # line from  PEASE    115.00  BRKR to (2)   HONC JT1 115.00
1  31506 31482  "1 "    0     # line from  HONC JT1 115.00   (2) to BRKR  PALERMO  115.00
0
 #
 #
 # (129)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32200 32288  "1 "    0     # line from  PEASE    115.00  BRKR to (3)   E.MRY J1 115.00
1  32288 32202  "1 "    0     # line from  E.MRY J1 115.00   (3) to (1)   E.MRYSVE 115.00
1  32288 32290  "1 "    0     # line from  E.MRY J1 115.00   (3) to (3)   OLIVH J1 115.00
1  32290 32204  "1 "    0     # line from  OLIVH J1 115.00   (3) to (1)   OLIVHRST 115.00
1  32290 32214  "1 "    0     # line from  OLIVH J1 115.00   (3) to BRKR  RIO OSO  115.00
4  32202     0  "2 "    0     # LOAD-DROP    E.MRYSVE 115.00  LOAD==10.55(0.47)
4  32202     0  "3 "    0     # LOAD-DROP    E.MRYSVE 115.00  LOAD==9.73(0.44)
4  32204     0  "1 "    0     # LOAD-DROP    OLIVHRST 115.00  LOAD==6.71(0.30)
4  32204     0  "2 "    0     # LOAD-DROP    OLIVHRST 115.00  LOAD==21.33(0.95)
1  32204 32286  "1"    1     #Transfer Olivehurst to alternate
4  32204     0  "**"    1     #Restore load Olivehurst
1  32280 32202  "1"    1     #Transfer load to E. Marysville Alt. 2 summer
4  32202     0  "**"    1     #Restore load at E. Marysville summer
0
 #
 #
 # (130)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32206 32208  "1 "    0     # line from  BOGUE    115.00  BRKR to (3)   GLEAF TP 115.00
1  32208 32210  "1 "    0     # line from  GLEAF TP 115.00   (3) to (2)   GLEAF 1  115.00
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1  32208 32214  "1 "    0     # line from  GLEAF TP 115.00   (3) to BRKR  RIO OSO  115.00
2  32210 32490  "1 "    0     # TRAN from  GLEAF 1  115.00  BRKR to (1)   GRNLEAF1  13.80
4  32490     0  "ss"    0     # LOAD-DROP    GRNLEAF1  13.80  LOAD==0.67(0.15)
3  32490     0  "1 "    0     # GEN-DROP    GRNLEAF1  13.80  GEN==40.00(-12.86)
3  32490     0  "2 "    0     # GEN-DROP    GRNLEAF1  13.80  GEN==9.50(-3.05)
0
 #
 #
 # (131)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32206 32292  "1 "    0     # line from  BOGUE    115.00  BRKR to (2)   FREC TAP 115.00
2  32292 32451  "1 "    0     # TRAN from  FREC TAP 115.00   (2) to (1)   FREC      13.80
4  32451     0  "ss"    0     # LOAD-DROP    FREC      13.80  LOAD==1.30(0.30)
3  32451     0  "1 "    0     # GEN-DROP    FREC      13.80  GEN==50.00(9.38)
0
 #
 #
 # (132)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32212 32214  "1 "    0     # line from  E.NICOLS 115.00  BRKR to BRKR  RIO OSO  115.00
0
 #
 #
 # (133)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32214 31964  "2 "    0     # line from  RIO OSO  115.00  BRKR to (2)   KNIGHT2  115.00
1  31964 31968  "2 "    0     # line from  KNIGHT2  115.00   (2) to (3)   WODLNDJ2 115.00
1  31968 31970  "2 "    0     # line from  WODLNDJ2 115.00   (3) to BRKR  WOODLD   115.00
1  31968 31973  "2 "    0     # line from  WODLNDJ2 115.00   (3) to (2)   ZAMORA2  115.00
1  31973 31972  "2 "    0     # line from  ZAMORA2  115.00   (2) to (1)   ZAMORA   115.00
4  31972     0  "1 "    0     # LOAD-DROP    ZAMORA   115.00  LOAD==8.47(0.38)
0
 #
 #
 # (134)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32214 31965  "1 "    0     # line from  RIO OSO  115.00  BRKR to (3)   KNIGHT1  115.00
1  31965 31963  "1 "    0     # line from  KNIGHT1  115.00   (3) to (1)   KNIGHTLD 115.00
1  31965 31966  "1 "    0     # line from  KNIGHT1  115.00   (3) to (3)   WODLNDJ1 115.00
1  31966 31960  "1 "    0     # line from  WODLNDJ1 115.00   (3) to (2)   MOBILCHE 115.00
1  31966 31971  "1 "    0     # line from  WODLNDJ1 115.00   (3) to (1)   ZAMORA1  115.00
1  31960 31970  "1 "    0     # line from  MOBILCHE 115.00   (2) to BRKR  WOODLD   115.00
4  31963     0  "1 "    0     # LOAD-DROP    KNIGHTLD 115.00  LOAD==6.84(0.31)
4  31960     0  "1 "    0     # LOAD-DROP    MOBILCHE 115.00  LOAD==0.10(0.00)
0
 #
 #
 # (135)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32214 32225  "1 "    0     # line from  RIO OSO  115.00  BRKR to (3)   BRNSWKTP 115.00
1  32225 32222  "1 "    0     # line from  BRNSWKTP 115.00   (3) to (3)   DTCH FL2 115.00
1  32225 32227  "2 "    0     # line from  BRNSWKTP 115.00   (3) to (1)   BRNSWALT 115.00
1  32222 32218  "1 "    0     # line from  DTCH FL2 115.00   (3) to BRKR  DRUM     115.00
2  32222 32502  "1 "    0     # TRAN from  DTCH FL2 115.00  BRKR to (1)   DTCHFLT2   6.90
4  32227     0  "1 "    0     # LOAD-DROP    BRNSWALT 115.00  LOAD==24.08(1.08)
3  32502     0  "1 "    0     # GEN-DROP    DTCHFLT2   6.90  GEN==24.50(9.66)
0
 #
 #
 # (136)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32214 32244  "2 "    0     # line from  RIO OSO  115.00  BRKR to (3)   BRNSWCKP 115.00
1  32244 32218  "2 "    0     # line from  BRNSWCKP 115.00   (3) to BRKR  DRUM     115.00
1  32244 32226  "2 "    0     # line from  BRNSWCKP 115.00   (3) to (1)   BRUNSWCK 115.00
4  32226     0  "2 "    0     # LOAD-DROP    BRUNSWCK 115.00  LOAD==30.46(1.37)
4  32226     0  "3 "    0     # LOAD-DROP    BRUNSWCK 115.00  LOAD==8.00(0.36)
0
 #
 #
 # (137)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32214 32356  "1 "    0     # line from  RIO OSO  115.00  BRKR to BRKR  LINCOLN  115.00
0
 #
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 #
 # (138)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32215 32214  "1 "    0     # line from  Q259     115.00   (3) to BRKR  RIO OSO  115.00
2  32215 32515  "1 "    0     # TRAN from  Q259     115.00   (3) to (1)   Q259CT1   18.00
2  32215 32516  "1 "    0     # TRAN from  Q259     115.00   (3) to (1)   Q259ST1   18.00
4  32515     0  "ss"    0     # LOAD-DROP    Q259CT1   18.00  LOAD==16.00(8.85)
3  32515     0  "1 "    0     # GEN-DROP    Q259CT1   18.00  GEN==173.00(33.36)
3  32516     0  "1 "    0     # GEN-DROP    Q259ST1   18.00  GEN==188.00(27.79)
0
 #
 #
 # (139)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32218 32220  "1 "    0     # line from  DRUM     115.00  BRKR to (3)   DTCH FL1 115.00
1  32220 32224  "1 "    0     # line from  DTCH FL1 115.00   (3) to (3)   CHCGO PK 115.00
2  32220 32464  "1 "    0     # TRAN from  DTCH FL1 115.00  BRKR to (1)   DTCHFLT1  11.00
1  32224 32232  "1 "    0     # line from  CHCGO PK 115.00   (3) to BRKR  HIGGINS  115.00
2  32224 32462  "1 "    0     # TRAN from  CHCGO PK 115.00  BRKR to (1)   CHI.PARK  11.50
3  32464     0  "1 "    0     # GEN-DROP    DTCHFLT1  11.00  GEN==22.00(12.70)
3  32462     0  "1 "    0     # GEN-DROP    CHI.PARK  11.50  GEN==37.90(14.75)
0
 #
 #
 # (140)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32228 32238  "1 "    0     # line from  PLACER   115.00  BRKR to BRKR  BELL PGE 115.00
0
 #
 #
 # (141)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32232 32238  "1 "    0     # line from  HIGGINS  115.00  BRKR to BRKR  BELL PGE 115.00
3  32464     0  "**"    0     #Drop Dutch Flat No. 1 generator during Higgins-Bell 115 kV outage
3  32462     0  "**"    0     #Drop Chicago Park generator during Higgins-Bell 115 kV outage
0
 #
 #
 # (142)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32248 32266  "1 "    0     # line from  ROCKLIN   60.00   (1) to (2)   TAYLOR    60.00
1  32266 32413  "1 "    0     # line from  TAYLOR    60.00   (2) to BRKR  ATLANTI   60.00
4  32248     0  "1 "    0     # LOAD-DROP    ROCKLIN   60.00  LOAD==18.53(0.00)
4  32248     0  "2 "    0     # LOAD-DROP    ROCKLIN   60.00  LOAD==7.80(0.00)
4  32266     0  "1 "    0     # LOAD-DROP    TAYLOR    60.00  LOAD==1.74(1.12)
0
 #
 #
 # (143)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32250 32481  "2 "    0     # line from  ELDORAD  115.00  BRKR to (2)   APLHTAP2 115.00
1  32481 32257  "2 "    0     # line from  APLHTAP2 115.00   (2) to (4)   PLCRVLT2 115.00
1  32257 32254  "2 "    0     # line from  PLCRVLT2 115.00   (4) to (2)   PLCRVLB2 115.00
1  32257 32260  "2 "    0     # line from  PLCRVLT2 115.00   (4) to BRKR  MIZOU_T2 115.00
2  32257 32510  "1 "    0     # TRAN from  PLCRVLT2 115.00   (4) to (1)   CHILIBAR   4.16
1  32254 32256  "1 "    0     # line from  PLCRVLB2 115.00   (2) to (1)   PLCRVLB3 115.00
4  32254     0  "2 "    0     # LOAD-DROP    PLCRVLB2 115.00  LOAD==9.02(0.41)
4  32256     0  "3 "    0     # LOAD-DROP    PLCRVLB3 115.00  LOAD==25.95(1.16)
3  32510     0  "1 "    0     # GEN-DROP    CHILIBAR   4.16  GEN==5.50(4.00)
1  32256 32255  "1 "    1     #Transfer Placerville to alternate
4  32256     0  "**"    1     #Restore load Bank 3 at Placerville
1  32254 32256  "1 "    1     #Transfer Placerville to alternate
4  32254     0  "**"    1     #Restore load Bank 2 at Placerville
0
 #
 #
 # (144)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32250 32482  "1 "    0     # line from  ELDORAD  115.00  BRKR to (3)   APLHTAP1 115.00
1  32482 32255  "1 "    0     # line from  APLHTAP1 115.00   (3) to (2)   PLCRVLT1 115.00
1  32482 32278  "1 "    0     # line from  APLHTAP1 115.00   (3) to (2)   SPICAMIN 115.00
1  32255 32261  "1 "    0     # line from  PLCRVLT1 115.00   (2) to BRKR  MIZOU_T1 115.00
1  32278 32252  "1 "    0     # line from  SPICAMIN 115.00   (2) to (1)   APPLE HL 115.00
4  32278     0  "1 "    0     # LOAD-DROP    SPICAMIN 115.00  LOAD==4.19(3.69)
```

```
4  32252     0  "1 "    0     # LOAD-DROP    APPLE HL 115.00  LOAD==14.65(0.65)
4  32252     0  "2 "    0     # LOAD-DROP    APPLE HL 115.00  LOAD==9.26(0.41)
1  32252 32481  "1"     1     #Transfer Apple Hill to alternate
4  32252     0  "**"    1     #Restore load at Apple Hill
0
 #
 #
 # (145)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32270 32274  "1 "    0     # line from  PENRYN    60.00   (2) to (1)   SIERRAPI  60.00
1  32270 32394  "1 "    0     # line from  PENRYN    60.00   (2) to BRKR  PLACER    60.00
4  32270     0  "1 "    0     # LOAD-DROP    PENRYN    60.00  LOAD==28.99(0.00)
4  32274     0  "1 "    0     # LOAD-DROP    SIERRAPI  60.00  LOAD==16.53(9.37)
0
 #
 #
 # (146)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32300 32301  "1 "    0     # line from  GLEAF2    60.00   (2) to (2)   GLEAF2TP  60.00
2  32300 32492  "1 "    0     # TRAN from  GLEAF2    60.00  BRKR to (1)   GRNLEAF2  13.80
1  32301 32328  "1 "    0     # line from  GLEAF2TP  60.00   (2) to (3)   YBA CTYJ  60.00
1  32328 32332  "1 "    0     # line from  YBA CTYJ  60.00   (3) to BRKR  PEASE     60.00
1  32328 32336  "1 "    0     # line from  YBA CTYJ  60.00   (3) to (1)   ALMENDRA  60.00
4  32492     0  "ss"    0     # LOAD-DROP    GRNLEAF2  13.80  LOAD==0.50(0.11)
3  32492     0  "1 "    0     # GEN-DROP    GRNLEAF2  13.80  GEN==49.00(20.05)
0
 #
 #
 # (147)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32302 32324  "1 "    0     # line from  YUBACITY  60.00   (4) to (1)   HARTER    60.00
1  32302 32333  "1 "    0     # line from  YUBACITY  60.00   (4) to (3)   PEASETP   60.00
2  32302 32496  "1 "    0     # TRAN from  YUBACITY  60.00   (4) to (1)   YCEC      13.80
2  32302 32494  "1 "    0     # TRAN from  YUBACITY  60.00  BRKR to (1)   YUBA CTY   9.11
1  32333 32320  "1 "    0     # line from  PEASETP   60.00   (3) to BRKR  MRYSVLLE  60.00
1  32333 32332  "1 "    0     # line from  PEASETP   60.00   (3) to BRKR  PEASE     60.00
4  32324     0  "1 "    0     # LOAD-DROP    HARTER    60.00  LOAD==22.66(1.01)
4  32324     0  "2 "    0     # LOAD-DROP    HARTER    60.00  LOAD==26.96(1.21)
4  32496     0  "ss"    0     # LOAD-DROP    YCEC      13.80  LOAD==1.39(0.32)
4  32494     0  "ss"    0     # LOAD-DROP    YUBA CTY   9.11  LOAD==0.32(0.07)
3  32496     0  "1 "    0     # GEN-DROP    YCEC      13.80  GEN==50.00(0.00)
3  32494     0  "1 "    0     # GEN-DROP    YUBA CTY   9.11  GEN==41.30(15.86)
0
 #
 #
 # (148)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32306 32342  "1 "    0     # line from  CATLETT   60.00   (1) to BRKR  E.NICOLS  60.00
4  32306     0  "1 "    0     # LOAD-DROP    CATLETT   60.00  LOAD==6.47(0.29)
0
 #
 #
 # (149)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32308 32311  "1 "    0     # line from  COLGATE   60.00  BRKR to (3)   NRRWS1TP  60.00
1  32311 32310  "1 "    0     # line from  NRRWS1TP  60.00   (3) to (2)   NARRWS 1  60.00
1  32311 32314  "1 "    0     # line from  NRRWS1TP  60.00   (3) to BRKR  SMRTSVLE  60.00
2  32310 32466  "1 "    0     # TRAN from  NARRWS 1  60.00   (2) to (1)   NARROWS1   9.11
4  32310     0  "1 "    0     # LOAD-DROP    NARRWS 1  60.00  LOAD==16.50(2.35)
3  32466     0  "1 "    0     # GEN-DROP    NARROWS1   9.11  GEN==10.00(5.30)
0
 #
 #
 # (150)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32308 32313  "2 "    0     # line from  COLGATE   60.00  BRKR to (3)   NRRWS2TP  60.00
1  32313 32312  "1 "    0     # line from  NRRWS2TP  60.00   (3) to (2)   NARRWS 2  60.00
1  32313 32314  "2 "    0     # line from  NRRWS2TP  60.00   (3) to BRKR  SMRTSVLE  60.00
2  32312 32468  "1 "    0     # TRAN from  NARRWS 2  60.00  BRKR to (1)   NARROWS2   9.11
4  32312     0  "2 "    0     # LOAD-DROP    NARRWS 2  60.00  LOAD==16.50(2.35)
3  32468     0  "1 "    0     # GEN-DROP    NARROWS2   9.11  GEN==45.00(5.23)
0
 #
 #
```

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 # (151)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32308 32358  "1 "    0     # line from  COLGATE   60.00  BRKR to (2)   CLMBA HL  60.00
1  32358 32360  "1 "    0     # line from  CLMBA HL  60.00   (2) to (2)   PIKE CTY  60.00
1  32360 32362  "1 "    0     # line from  PIKE CTY  60.00   (2) to (1)   ALLEGHNY  60.00
4  32358     0  "1 "    0     # LOAD-DROP    CLMBA HL  60.00  LOAD==2.01(0.09)
4  32360     0  "1 "    0     # LOAD-DROP    PIKE CTY  60.00  LOAD==0.62(0.03)
4  32362     0  "1 "    0     # LOAD-DROP    ALLEGHNY  60.00  LOAD==1.51(0.07)
0
 #
 #
 # (152)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32308 32364  "1 "    0     # line from  COLGATE   60.00  BRKR to BRKR  GRSS VLY  60.00
4  32364     0  "2 "    0     # LOAD-DROP    GRSS VLY  60.00  LOAD==14.20(0.64)
1  32377 32364  "1 "    1     #Transfer Grass Valley load to alternate
4  32364     0  "**"    1     #Restore load at Grass Valley
0
 #
 #
 # (153)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32314 32316  "1 "    0     # line from  SMRTSVLE  60.00  BRKR to (1)   YUBAGOLD  60.00
4  32316     0  "1 "    0     # LOAD-DROP    YUBAGOLD  60.00  LOAD==0.17(0.15)
0
 #
 #
 # (154)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32314 32341  "2 "    0     # line from  SMRTSVLE  60.00  BRKR to (2)   BEALE1J1  60.00
1  32341 32346  "2 "    0     # line from  BEALE1J1  60.00   (2) to (1)   BEALE_1   60.00
4  32346     0  "1 "    0     # LOAD-DROP    BEALE_1   60.00  LOAD==5.75(3.01)
0
 #
 #
 # (155)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32314 32348  "1 "    0     # line from  SMRTSVLE  60.00  BRKR to (2)   BEALE2J2  60.00
1  32348 32352  "1 "    0     # line from  BEALE2J2  60.00   (2) to (2)   WEST JCT  60.00
1  32352 32354  "1 "    0     # line from  WEST JCT  60.00   (2) to (2)   CMP FRWT  60.00
2  32354 32470  "1 "    0     # TRAN from  CMP FRWT  60.00   (2) to (1)   CMP.FARW   9.11
3  32470     0  "1 "    0     # GEN-DROP    CMP.FARW   9.11  GEN==4.60(-1.86)
0
 #
 #
 # (156)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32314 32349  "1 "    0     # line from  SMRTSVLE  60.00  BRKR to (3)   BEALE2J1  60.00
1  32349 32345  "1 "    0     # line from  BEALE2J1  60.00   (3) to (1)   BEALE1J2  60.00
1  32349 32347  "1 "    0     # line from  BEALE2J1  60.00   (3) to (1)   BEALE_2   60.00
4  32347     0  "1 "    0     # LOAD-DROP    BEALE_2   60.00  LOAD==17.25(3.93)
0
 #
 #
 # (157)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32318 32320  "1 "    0     # line from  BRWNS VY  60.00   (1) to BRKR  MRYSVLLE  60.00
4  32318     0  "1 "    0     # LOAD-DROP    BRWNS VY  60.00  LOAD==3.29(0.15)
0
 #
 #
 # (158)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32322 32326  "1 "    0     # line from  ENCINAL   60.00   (1) to (3)   ENCL TAP  60.00
1  32326 32332  "1 "    0     # line from  ENCL TAP  60.00   (3) to BRKR  PEASE     60.00
1  32326 32334  "1 "    0     # line from  ENCL TAP  60.00   (3) to (2)   LIVE OAK  60.00
1  32334 38054  "1 "    0     # line from  LIVE OAK  60.00   (2) to (2)   GRIDLEY   60.00
1  38054 31642  "1 "    0     # line from  GRIDLEY   60.00   (2) to BRKR  PEACHTON  60.00
4  32322     0  "1 "    0     # LOAD-DROP    ENCINAL   60.00  LOAD==0.70(0.16)
4  32334     0  "1 "    0     # LOAD-DROP    LIVE OAK  60.00  LOAD==10.09(0.45)
4  38054     0  "1 "    0     # LOAD-DROP    GRIDLEY   60.00  LOAD==13.84(1.89)
0
 #
 #
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 # (159)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32332 32320  "1 "    0     # line from  PEASE     60.00  BRKR to BRKR  MRYSVLLE  60.00
0
 #
 #
 # (160)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32338 32340  "1 "    0     # line from  BARRY     60.00   (1) to (2)   TUDOR     60.00
1  32340 32342  "1 "    0     # line from  TUDOR     60.00   (2) to BRKR  E.NICOLS  60.00
4  32338     0  "1 "    0     # LOAD-DROP    BARRY     60.00  LOAD==4.12(0.19)
4  32340     0  "1 "    0     # LOAD-DROP    TUDOR     60.00  LOAD==3.28(0.15)
0
 #
 #
 # (161)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32342 32079  "1 "    0     # line from  E.NICOLS  60.00  BRKR to (3)   DST1001B  60.00
1  32079 32083  "1 "    0     # line from  DST1001B  60.00   (3) to (1)   DIST1001  60.00
1  32079 32087  "1 "    0     # line from  DST1001B  60.00   (3) to (2)   KNTJALT   60.00
1  32087 32085  "1 "    0     # line from  KNTJALT   60.00   (2) to (2)   WOODJCT   60.00
1  32085 32084  "1 "    0     # line from  WOODJCT   60.00   (2) to (1)   WLLW SLJ  60.00
0
 #
 #
 # (162)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32342 32305  "2 "    0     # line from  E.NICOLS  60.00  BRKR to (2)   CATLETJT  60.00
1  32305 32351  "2 "    0     # line from  CATLETJT  60.00   (2) to (1)   WHTLNDAL  60.00
0
 #
 #
 # (163)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32342 32344  "1 "    0     # line from  E.NICOLS  60.00  BRKR to (1)   PLUMAS    60.00
4  32344     0  "1 "    0     # LOAD-DROP    PLUMAS    60.00  LOAD==24.70(1.10)
0
 #
 #
 # (164)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32342 32353  "1 "    0     # line from  E.NICOLS  60.00  BRKR to (2)   WHTLND1   60.00
1  32353 32350  "1 "    0     # line from  WHTLND1   60.00   (2) to (1)   WHEATLND  60.00
4  32350     0  "1 "    0     # LOAD-DROP    WHEATLND  60.00  LOAD==16.08(0.72)
1  32351 32350  "1"     1     #Transfer Wheatland to alternate
4  32350     0  "**"    1     #Restore load at Wheatland
0
 #
 #
 # (165)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32356 32404  "1 "    0     # line from  LINCOLN  115.00  BRKR to (3)   SPI  JCT 115.00
1  32404 32398  "1 "    0     # line from  SPI  JCT 115.00   (3) to (3)   ULTRA JT 115.00
1  32404 32400  "1 "    0     # line from  SPI  JCT 115.00   (3) to BRKR  SPI-LINC 115.00
1  32398 32402  "1 "    0     # line from  ULTRA JT 115.00   (3) to (2)   ULTR-RCK 115.00
1  32398 32414  "1 "    0     # line from  ULTRA JT 115.00   (3) to (2)   FORMICA  115.00
2  32402 32500  "1 "    0     # TRAN from  ULTR-RCK 115.00  BRKR to (1)   ULTR RCK   9.11
1  32414 32408  "1 "    0     # line from  FORMICA  115.00   (2) to BRKR  PLSNT GR 115.00
4  32500     0  "SG"    0     # LOAD-DROP    ULTR RCK   9.11  LOAD==1.42(0.32)
3  32500     0  "1 "    0     # GEN-DROP    ULTR RCK   9.11  GEN==22.10(-8.00)
0
 #
 #
 # (166)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32367 32369  "1 "    0     # line from  CPEHRNTP  60.00   (3) to (3)   COLFAXJT  60.00
1  32367 32368  "1 "    0     # line from  CPEHRNTP  60.00   (3) to (1)   CAPEHORN  60.00
1  32367 32376  "1 "    0     # line from  CPEHRNTP  60.00   (3) to (2)   BONNIE N  60.00
1  32369 32380  "1 "    0     # line from  COLFAXJT  60.00   (3) to BRKR  WEMR SWS  60.00
1  32369 32381  "1 "    0     # line from  COLFAXJT  60.00   (3) to (2)   SHADYGLN  60.00
1  32376 32374  "1 "    0     # line from  BONNIE N  60.00   (2) to BRKR  DRUM      60.00
1  32381 32377  "1 "    0     # line from  SHADYGLN  60.00   (2) to (2)   ROLLNSTP  60.00
1  32377 32378  "1 "    0     # line from  ROLLNSTP  60.00   (2) to BRKR  ROLLINS   60.00
4  32368     0  "1 "    0     # LOAD-DROP    CAPEHORN  60.00  LOAD==2.39(1.29)
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4  32376     0  "1 "    0     # LOAD-DROP    BONNIE N  60.00  LOAD==1.48(0.07)
4  32381     0  "1 "    0     # LOAD-DROP    SHADYGLN  60.00  LOAD==8.18(0.37)
0
 #
 #
 # (167)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32370 32382  "1 "    0     # line from  ENVRO_HY  60.00   (2) to (2)   FORST HL  60.00
1  32370 32384  "1 "    0     # line from  ENVRO_HY  60.00   (2) to BRKR  OXBOW     60.00
1  32382 32380  "1 "    0     # line from  FORST HL  60.00   (2) to BRKR  WEMR SWS  60.00
4  32382     0  "1 "    0     # LOAD-DROP    FORST HL  60.00  LOAD==8.27(0.37)
1  32384 32386  "1"     1     #Transfer to alternate
2  32384 32484  "1"     1     #Restore transformer
3  32484     0  "1"     1     #Restore generator
0
 #
 #
 # (168)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32372 32407  "1 "    0     # line from  SPAULDNG  60.00  BRKR to (3)   BOWMN TP  60.00
1  32407 32374  "1 "    0     # line from  BOWMN TP  60.00   (3) to BRKR  DRUM      60.00
1  32407 32406  "1 "    0     # line from  BOWMN TP  60.00   (3) to (3)   BOWMN PH  60.00
1  32406 32416  "1 "    0     # line from  BOWMN PH  60.00   (3) to (2)   HAYPRESS  60.00
2  32406 32480  "1 "    0     # TRAN from  BOWMN PH  60.00  BRKR to (1)   BOWMAN     9.11
2  32416 32488  "1 "    0     # TRAN from  HAYPRESS  60.00  BRKR to (1)   HAYPRES+   9.11
3  32480     0  "1 "    0     # GEN-DROP    BOWMAN     9.11  GEN==2.50(-1.00)
3  32488     0  "2 "    0     # GEN-DROP    HAYPRES+   9.11  GEN==1.90(-1.19)
0
 #
 #
 # (169)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32386 32388  "1 "    0     # line from  MDDLE FK  60.00  BRKR to BRKR  FRNCH MS  60.00
0
 #
 #
 # (170)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32390 32410  "1 "    0     # line from  HALSEY    60.00  BRKR to (3)   MTN_QJCT  60.00
1  32410 32392  "1 "    0     # line from  MTN_QJCT  60.00   (3) to (2)   AUBURN    60.00
1  32410 32411  "1 "    0     # line from  MTN_QJCT  60.00   (3) to (1)   MTN_QUAR  60.00
1  32392 32394  "1 "    0     # line from  AUBURN    60.00   (2) to BRKR  PLACER    60.00
4  32392     0  "1 "    0     # LOAD-DROP    AUBURN    60.00  LOAD==5.14(0.23)
4  32411     0  "1 "    0     # LOAD-DROP    MTN_QUAR  60.00  LOAD==14.25(0.64)
0
 #
 #
 # (171)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32412 32408  "1 "    0     # line from  ATLANTIC 115.00  BRKR to BRKR  PLSNT GR 115.00
0
 #
 #
 # (172)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32412 32408  "2 "    0     # line from  ATLANTIC 115.00  BRKR to BRKR  PLSNT GR 115.00
0
 #
 #
 # (173)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32413 32272  "1 "    0     # line from  ATLANTI   60.00  BRKR to (1)   DEL MAR   60.00
4  32272     0  "1 "    0     # LOAD-DROP    DEL MAR   60.00  LOAD==17.40(0.00)
4  32272     0  "2 "    0     # LOAD-DROP    DEL MAR   60.00  LOAD==34.13(0.00)
0
 #
 #
 # (174)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33729 33736  "1 "    0     # line from  LODI AUX  60.00  BRKR to (2)   LODI JCT  60.00
1  33736 33724  "1 "    0     # line from  LODI JCT  60.00   (2) to BRKR  LOCKEFRD  60.00
0
 #
 #
```

```
 # (175)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  64228 32218  "1 "    0     # line from  SUMMIT 1 115.00   (2) to BRKR  DRUM     115.00
2  64228 64107  "1 "    0     # TRAN from  SUMMIT 1 115.00   (2) to BRKR  SUMMIT 1 120.00
0
 #
 #
 # (176)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  64229 32218  "1 "    0     # line from  SUMMIT 2 115.00   (2) to BRKR  DRUM     115.00
2  64229 64108  "1 "    0     # TRAN from  SUMMIT 2 115.00   (2) to BRKR  SUMMIT 2 120.00
0
 #
 #
 # (177)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  30345 30346  "1 "    0     # TRAN from  MIDLFORK 230.00  BRKR to (3)   MDDLFK M 230.00
2  30346 32386  "4 "    0     # TRAN from  MDDLFK M 230.00   (3) to BRKR  MDDLE FK  60.00
2  30346 32456  "1 "    0     # TRAN from  MDDLFK M 230.00   (3) to (1)   MIDLFORK  13.80
3  32456     0  "1 "    0     # GEN-DROP    MIDLFORK  13.80  GEN==64.50(14.66)
3  32456     0  "2 "    0     # GEN-DROP    MIDLFORK  13.80  GEN==64.50(14.66)
1  30340 30345  "1 "    0     #Open Ralston-Middle Fork 230 kV section with outage
1  32386 32384  "1 "    0     #Open Ralston-Middle Fork 60 kV section with outage
1  32386 32388  "1 "    0     #Open French Meadows-Middle Fork 60 kV section with outage
0
 #
 #
 # (178)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  32018 30337  "1 "    0     # TRAN from  GOLDHILL 115.00  BRKR to BRKR  GOLDHILL 230.00
0
 #
 #
 # (179)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  32018 30337  "2 "    0     # TRAN from  GOLDHILL 115.00  BRKR to BRKR  GOLDHILL 230.00
0
 #
 #
 # (180)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  32110 32018  "5 "    0     # TRAN from  GOLD HLL  60.00  BRKR to BRKR  GOLDHILL 115.00
0
 #
 #
 # (181)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  32214 30330  "1 "    0     # TRAN from  RIO OSO  115.00  BRKR to BRKR  RIO OSO  230.00
0
 #
 #
 # (182)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  32214 30330  "2 "    0     # TRAN from  RIO OSO  115.00  BRKR to BRKR  RIO OSO  230.00
0
 #
 #
 # (183)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  32218 32242  "1 "    0     # TRAN from  DRUM     115.00  BRKR to (3)   DRUM  1M 115.00
2  32242 32374  "1 "    0     # TRAN from  DRUM  1M 115.00   (3) to BRKR  DRUM      60.00
2  32242 32504  "1 "    0     # TRAN from  DRUM  1M 115.00   (3) to (1)   DRUM 1-2   6.60
3  32504     0  "1 "    0     # GEN-DROP    DRUM 1-2   6.60  GEN==13.20(5.69)
3  32504     0  "2 "    0     # GEN-DROP    DRUM 1-2   6.60  GEN==12.60(5.43)
2  32218 32246  "1 "    0     # TRAN from  DRUM     115.00  BRKR to (3)   DRUM  2M 115.00
2  32246 32374  "2 "    0     # TRAN from  DRUM  2M 115.00   (3) to BRKR  DRUM      60.00
2  32246 32506  "1 "    0     # TRAN from  DRUM  2M 115.00   (3) to (1)   DRUM 3-4   6.60
3  32506     0  "1 "    0     # GEN-DROP    DRUM 3-4   6.60  GEN==13.20(5.58)
3  32506     0  "2 "    0     # GEN-DROP    DRUM 3-4   6.60  GEN==13.20(5.58)
0
 #
 #
 # (184)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
```

```
2  32308 30327  "3 "    0     # TRAN from  COLGATE   60.00  BRKR to BRKR  COLGATE  230.00
0
 #
 #
 # (185)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  32330 32200  "2 "    0     # TRAN from  PEAS RG   60.00   (2) to BRKR  PEASE    115.00
2  32330 32332  "1 "    0     # TRAN from  PEAS RG   60.00   (2) to BRKR  PEASE     60.00
1  32200 32288  "1 "    0     #Open Pease-East Marysville Jct1 line section
4  32200     0  "3 "    0     #Drop Pease Bank No. 3
0
 #
 #
 # (186)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  32342 32212  "2 "    0     # TRAN from  E.NICOLS  60.00  BRKR to BRKR  E.NICOLS 115.00
1  32212 32214  "1 "    0     #Open East Nicolaus-Rio Oso 115 kV line section
1  32212 32214  "1 "    0     #Open East Nicolaus-East Marysville Jct2 115 kV line section
0
 #
 #
 # (187)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  32394 32228  "1 "    0     # TRAN from  PLACER    60.00  BRKR to BRKR  PLACER   115.00
0
 #
 #
 # (188)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  32412 30335  "3 "    0     # TRAN from  ATLANTIC 115.00  BRKR to BRKR  ATLANTC  230.00
0
 #
 #
 # (189)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  32412 30335  "4 "    0     # TRAN from  ATLANTIC 115.00  BRKR to BRKR  ATLANTC  230.00
0
 #
 #
 # (190)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  32413 30335  "1 "    0     # TRAN from  ATLANTI   60.00  BRKR to BRKR  ATLANTC  230.00
0
 #
 #
 # (191)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  32472 32372  "1 "    0     # TRAN from  SPAULDG    9.11   (1) to BRKR  SPAULDNG  60.00
3  32472     0  "1 "    0     # GEN-DROP    SPAULDG    9.11  GEN==7.00(-0.72)
3  32472     0  "2 "    0     # GEN-DROP    SPAULDG    9.11  GEN==4.20(-0.43)
3  32472     0  "3 "    0     # GEN-DROP    SPAULDG    9.11  GEN==1.70(-0.18)
0
 #
 #
 # (192)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  32486 32388  "1 "    0     # TRAN from  HELLHOLE   9.11   (1) to BRKR  FRNCH MS  60.00
0
 #
 #
 # (193)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  32490 32210  "1 "    0     # TRAN from  GRNLEAF1  13.80   (1) to BRKR  GLEAF 1  115.00
4  32490     0  "ss"    0     # LOAD-DROP    GRNLEAF1  13.80  LOAD==0.67(0.15)
3  32490     0  "1 "    0     # GEN-DROP    GRNLEAF1  13.80  GEN==40.00(-12.86)
3  32490     0  "2 "    0     # GEN-DROP    GRNLEAF1  13.80  GEN==9.50(-3.05)
0
 #
 #
 # (194)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  32498 32400  "1 "    0     # TRAN from  SPILINCF  12.50   (1) to BRKR  SPI-LINC 115.00
4  32498     0  "1 "    0     # LOAD-DROP    SPILINCF  12.50  LOAD==7.50(7.65)
4  32498     0  "SG"    0     # LOAD-DROP    SPILINCF  12.50  LOAD==1.10(0.60)
```

```
3  32498    0  "1 "   0    # GEN-DROP   SPILINCF  12.50  GEN==18.30(2.45)
0
 #
 #
 # (195)  B1 GENERATOR OUTAGE
 #
3  32450    0  "1"    0    # COLGATE1  13.80      PGEN=147.00  QGEN=20.11
0
 #
 #
 # (196)  B1 GENERATOR OUTAGE
 #
3  32451    0  "1"    0    # FREC     13.80      PGEN=50.00  QGEN=8.28
0
 #
 #
 # (197)  B1 GENERATOR OUTAGE
 #
3  32452    0  "1"    0    # COLGATE2  13.80      PGEN=147.00  QGEN=20.11
0
 #
 #
 # (198)  B1 GENERATOR OUTAGE
 #
3  32454    0  "1"    0    # DRUM 5   13.80      PGEN=42.50  QGEN=15.00
0
 #
 #
 # (199)  B1 GENERATOR OUTAGE
 #
3  32456    0  "1"    0    # MIDLFORK  13.80      PGEN=64.50  QGEN=13.48
0
 #
 #
 # (200)  B1 GENERATOR OUTAGE
 #
3  32456    0  "2"    0    # MIDLFORK  13.80      PGEN=64.50  QGEN=13.48
0
 #
 #
 # (201)  B1 GENERATOR OUTAGE
 #
3  32458    0  "1"    0    # RALSTON   13.80      PGEN=83.00  QGEN=13.11
0
 #
 #
 # (202)  B1 GENERATOR OUTAGE
 #
3  32462    0  "1"    0    # CHI.PARK  11.50      PGEN=37.88  QGEN=11.50
0
 #
 #
 # (203)  B1 GENERATOR OUTAGE
 #
3  32464    0  "1"    0    # DTCHFLT1  11.00      PGEN=22.00  QGEN=11.45
0
 #
 #
 # (204)  B1 GENERATOR OUTAGE
 #
3  32466    0  "1"    0    # NARROWS1   9.11      PGEN=10.00  QGEN=5.30
0
 #
 #
 # (205)  B1 GENERATOR OUTAGE
 #
3  32468    0  "1"    0    # NARROWS2   9.11      PGEN=45.00  QGEN=1.30
0
 #
 #
 # (206)  B1 GENERATOR OUTAGE
 #
3  32470    0  "1"    0    # CMP.FARW   9.11      PGEN=4.60  QGEN=-2.29
0
```

```
 #
 #
 # (207)  B1 GENERATOR OUTAGE
 #
3  32472    0  "1"    0    # SPAULDG   9.11      PGEN=7.00  QGEN=-2.90
0
 #
 #
 # (208)  B1 GENERATOR OUTAGE
 #
3  32472    0  "2"    0    # SPAULDG   9.11      PGEN=4.16  QGEN=-1.00
0
 #
 #
 # (209)  B1 GENERATOR OUTAGE
 #
3  32472    0  "3"    0    # SPAULDG   9.11      PGEN=1.70  QGEN=-1.04
0
 #
 #
 # (210)  B1 GENERATOR OUTAGE
 #
3  32474    0  "1"    0    # DEER CRK  9.11      PGEN=3.07  QGEN=-2.20
0
 #
 #
 # (211)  B1 GENERATOR OUTAGE
 #
3  32476    0  "1"    0    # ROLLINSF  9.11      PGEN=12.00  QGEN=-0.00
0
 #
 #
 # (212)  B1 GENERATOR OUTAGE
 #
3  32478    0  "1"    0    # HALSEY F  9.11      PGEN=8.57  QGEN=1.34
0
 #
 #
 # (213)  B1 GENERATOR OUTAGE
 #
3  32480    0  "1"    0    # BOWMAN    9.11      PGEN=2.46  QGEN=-1.00
0
 #
 #
 # (214)  B1 GENERATOR OUTAGE
 #
3  32484    0  "1"    0    # OXBOW  F  9.11      PGEN=5.40  QGEN=2.00
0
 #
 #
 # (215)  B1 GENERATOR OUTAGE
 #
3  32488    0  "2"    0    # HAYPRES+  9.11      PGEN=1.90  QGEN=-2.50
0
 #
 #
 # (216)  B1 GENERATOR OUTAGE
 #
3  32490    0  "1"    0    # GRNLEAF1  13.80     PGEN=40.00  QGEN=-13.86
0
 #
 #
 # (217)  B1 GENERATOR OUTAGE
 #
3  32490    0  "2"    0    # GRNLEAF1  13.80     PGEN=9.50  QGEN=-3.29
0
 #
 #
 # (218)  B1 GENERATOR OUTAGE
 #
3  32492    0  "1"    0    # GRNLEAF2  13.80     PGEN=49.00  QGEN=16.68
0
 #
 #
```

```
 # (219)  B1 GENERATOR OUTAGE
 #
3  32494     0  "1"     0     # YUBA CTY   9.11       PGEN=41.31  QGEN=9.01
0
 #
 #
 # (220)  B1 GENERATOR OUTAGE
 #
3  32496     0  "1"     0     # YCEC      13.80       PGEN=50.00  QGEN=4.39
0
 #
 #
 # (221)  B1 GENERATOR OUTAGE
 #
3  32498     0  "1"     0     # SPILINCF  12.50       PGEN=18.30  QGEN=4.66
0
 #
 #
 # (222)  B1 GENERATOR OUTAGE
 #
3  32500     0  "1"     0     # ULTR RCK   9.11       PGEN=22.12  QGEN=12.00
0
 #
 #
 # (223)  B1 GENERATOR OUTAGE
 #
3  32502     0  "1"     0     # DTCHFLT2   6.90       PGEN=24.50  QGEN=5.88
0
 #
 #
 # (224)  B1 GENERATOR OUTAGE
 #
3  32504     0  "1"     0     # DRUM 1-2   6.60       PGEN=13.20  QGEN=5.15
0
 #
 #
 # (225)  B1 GENERATOR OUTAGE
 #
3  32504     0  "2"     0     # DRUM 1-2   6.60       PGEN=12.60  QGEN=4.92
0
 #
 #
 # (226)  B1 GENERATOR OUTAGE
 #
3  32506     0  "1"     0     # DRUM 3-4   6.60       PGEN=13.20  QGEN=5.06
0
 #
 #
 # (227)  B1 GENERATOR OUTAGE
 #
3  32506     0  "2"     0     # DRUM 3-4   6.60       PGEN=13.20  QGEN=5.06
0
 #
 #
 # (228)  B1 GENERATOR OUTAGE
 #
3  32508     0  "1"     0     # FRNCH MD   4.16       PGEN=16.40  QGEN=3.14
0
 #
 #
 # (229)  B1 GENERATOR OUTAGE
 #
3  32510     0  "1"     0     # CHILIBAR   4.16       PGEN=5.50  QGEN=4.00
0
 #
 #
 # (230)  B1 GENERATOR OUTAGE
 #
3  32512     0  "1"     0     # WISE      12.00       PGEN=11.15  QGEN=4.29
0
 #
 #
 # (231)  B1 GENERATOR OUTAGE
 #
```

```
3  32513    0  "1"    0    # ELDRADO1  21.60      PGEN=9.96  QGEN=-0.77
0
 #
 #
 # (232)  B1 GENERATOR OUTAGE
 #
3  32514    0  "1"    0    # ELDRADO2  21.60      PGEN=9.96  QGEN=-0.77
0
 #
 #
 # (233)  B1 GENERATOR OUTAGE
 #
3  32515    0  "1"    0    # Q259CT1   18.00      PGEN=173.00  QGEN=33.36
0
 #
 #
 # (234)  B1 GENERATOR OUTAGE
 #
3  32516    0  "1"    0    # Q259ST1   18.00      PGEN=188.00  QGEN=27.79
0
 #
 #
 # (235)  B1 GENERATOR OUTAGE
 #
3  32517    0  "1"    0    # Q266CT1   18.00      PGEN=173.00  QGEN=45.33
0
 #
 #
 # (236)  B1 GENERATOR OUTAGE
 #
3  32518    0  "1"    0    # Q266ST1   18.00      PGEN=188.00  QGEN=30.71
0
 #
 #
 # (237)  L-1/G-1 OVERLAPPING OUTAGE
 # Pease - Marysville - Harter 60 kV Line and Greenleaf 2
1  32302 32324  "1 "    0    # line from  YUBACITY  60.00   (4) to (1)   HARTER    60.00
1  32302 32333  "1 "    0    # line from  YUBACITY  60.00   (4) to (3)   PEASETP   60.00
2  32302 32496  "1 "    0    # TRAN from  YUBACITY  60.00   (4) to (1)   YCEC      13.80
2  32302 32494  "1 "    0    # TRAN from  YUBACITY  60.00  BRKR to (1)   YUBA CTY   9.11
1  32333 32320  "1 "    0    # line from  PEASETP   60.00   (3) to BRKR  MRYSVLLE  60.00
1  32333 32332  "1 "    0    # line from  PEASETP   60.00   (3) to BRKR  PEASE     60.00
4  32324    0  "1 "    0    # LOAD-DROP    HARTER    60.00  LOAD==22.66(1.01)
4  32324    0  "2 "    0    # LOAD-DROP    HARTER    60.00  LOAD==26.96(1.21)
4  32496    0  "ss"    0    # LOAD-DROP    YCEC      13.80  LOAD==1.39(0.32)
4  32494    0  "ss"    0    # LOAD-DROP    YUBA CTY   9.11  LOAD==0.32(0.07)
3  32496    0  "1 "    0    # GEN-DROP    YCEC      13.80  GEN==50.00(0.00)
3  32494    0  "1 "    0    # GEN-DROP    YUBA CTY   9.11  GEN==41.30(15.86)
 #
3  32492    0  "1"    0    # GRNLEAF2  13.80      PGEN=49.00  QGEN=16.68
0
 #
 #
 # (238)  L-1/G-1 OVERLAPPING OUTAGE
 # Colgate - Smartville #2 60 kV Line and Narrows 2
1  32308 32311  "1 "    0    # line from  COLGATE   60.00  BRKR to (3)   NRRWS1TP  60.00
1  32311 32310  "1 "    0    # line from  NRRWS1TP  60.00   (3) to (2)   NARRWS 1  60.00
1  32311 32314  "1 "    0    # line from  NRRWS1TP  60.00   (3) to BRKR  SMRTSVLE  60.00
2  32310 32466  "1 "    0    # TRAN from  NARRWS 1  60.00   (2) to (1)   NARROWS1   9.11
4  32310    0  "1 "    0    # LOAD-DROP    NARRWS 1  60.00  LOAD==16.50(2.35)
3  32466    0  "1 "    0    # GEN-DROP    NARROWS1   9.11  GEN==10.00(5.30)
 #
3  32468    0  "1"    0    # NARROWS2   9.11      PGEN=45.00  QGEN=1.30
0
 #
 #
 # (239)  L-1/G-1 OVERLAPPING OUTAGE
 # Colgate - Smartville #2 60 kV Line and Camp Far West
1  32308 32311  "1 "    0    # line from  COLGATE   60.00  BRKR to (3)   NRRWS1TP  60.00
1  32311 32310  "1 "    0    # line from  NRRWS1TP  60.00   (3) to (2)   NARRWS 1  60.00
1  32311 32314  "1 "    0    # line from  NRRWS1TP  60.00   (3) to BRKR  SMRTSVLE  60.00
2  32310 32466  "1 "    0    # TRAN from  NARRWS 1  60.00   (2) to (1)   NARROWS1   9.11
4  32310    0  "1 "    0    # LOAD-DROP    NARRWS 1  60.00  LOAD==16.50(2.35)
3  32466    0  "1 "    0    # GEN-DROP    NARROWS1   9.11  GEN==10.00(5.30)
```

```
 #
3  32470     0  "1"     0     # CMP.FARW   9.11       PGEN=4.60  QGEN=-2.29
0
 #
 #
 # (240) Overlapping Outage (L-1/G-1)
 # Palermo - Pease 115 kV Line and Greenleaf 2
1  32200 31506  "1 "    0     # line from  PEASE    115.00  BRKR to (2)   HONC JT1 115.00
1  31506 31482  "1 "    0     # line from  HONC JT1 115.00   (2) to BRKR  PALERMO  115.00
 #
3  32492     0  "1"     0     # GRNLEAF2  13.80       PGEN=49.00  QGEN=16.68
0
 #
 #
 # (241) Overlapping Outage (L-1/G-1)
 # Drum - Rio Oso #2 115 kV Line and Drum 5
1  32214 32244  "2 "    0     # line from  RIO OSO  115.00  BRKR to (3)   BRNSWCKP 115.00
1  32244 32218  "2 "    0     # line from  BRNSWCKP 115.00   (3) to BRKR  DRUM     115.00
1  32244 32226  "2 "    0     # line from  BRNSWCKP 115.00   (3) to (1)   BRUNSWCK 115.00
4  32226     0  "2 "    0     # LOAD-DROP    BRUNSWCK 115.00  LOAD==30.46(1.37)
4  32226     0  "3 "    0     # LOAD-DROP    BRUNSWCK 115.00  LOAD==8.00(0.36)
 #
3  32454     0  "1"     0     # DRUM 5    13.80       PGEN=42.50  QGEN=15.00
0
 #
 #
 # (242) Overlapping Outage (L-1/G-1)
 # Placer - Goldhill #1 115 kV Line and Wise PH
1  32018 32229  "1 "    0     # line from  GOLDHILL 115.00  BRKR to (3)   HORSHE1  115.00
1  32229 32230  "1 "    0     # line from  HORSHE1  115.00   (3) to (1)   HORSESHE 115.00
1  32229 32233  "1 "    0     # line from  HORSHE1  115.00   (3) to (3)   NEWCSTL1 115.00
1  32233 32234  "1 "    0     # line from  NEWCSTL1 115.00   (3) to (2)   NEWCSTLE 115.00
1  32233 32236  "1 "    0     # line from  NEWCSTL1 115.00   (3) to (2)   FLINT1   115.00
2  32234 32460  "1 "    0     # TRAN from  NEWCSTLE 115.00   (2) to (1)   NEWCSTLE  13.20
1  32236 32228  "1 "    0     # line from  FLINT1   115.00   (2) to BRKR  PLACER   115.00
4  32230     0  "1 "    0     # LOAD-DROP    HORSESHE 115.00  LOAD==15.79(0.71)
4  32230     0  "2 "    0     # LOAD-DROP    HORSESHE 115.00  LOAD==36.15(1.61)
1  32230 32231  "1"     1     #Transfer load to alternate
4  32230     0  "**"    1     #Restore load at Horseshoe
 #
3  32512     0  "1"     0     # WISE      12.00       PGEN=11.15  QGEN=4.29
0
 #
 #
 # (243) Overlapping Outage (L-1/G-1)
 # Palermo - E. Nicolaus 115 kV Line and Greenleaf 1 Unit 1
1  31482 32280  "1 "    0     # line from  PALERMO  115.00  BRKR to (2)   E.MRY J2 115.00
1  32280 32212  "1 "    0     # line from  E.MRY J2 115.00   (2) to BRKR  E.NICOLS 115.00
 #
3  32490     0  "1"     0     # GRNLEAF1  13.80       PGEN=40.00  QGEN=-13.86
0
 #
 #
 # (244) Overlapping Outage (L-1/G-1)
 # Rio Oso - Goldhill 230 kV Line and Ralston
1  30330 30337  "1 "    0     # line from  RIO OSO  230.00  BRKR to BRKR  GOLDHILL 230.00
 #
3  32458     0  "1"     0     # RALSTON   13.80       PGEN=83.00  QGEN=13.11
0
 #
 #
 # (245) Overlapping Outage (L-1/G-1)
 # Colgate - Rio Oso 230 kV Line and Greanleaf 1 Unit 1
1  30327 30330  "1 "    0     # line from  COLGATE  230.00  BRKR to BRKR  RIO OSO  230.00
2  30327 32452  "1 "    0     #Take one transformer out with Colgate-Rio Oso 230 kV line outage
3  32452     0  "1 "    0     #Take one generator out with Colgate-Rio Oso 230 kV line outage
 #
3  32490     0  "1"     0     # GRNLEAF1  13.80       PGEN=40.00  QGEN=-13.86
0
 #
 #
 # (246) Overlapping Outage (L-1/G-1)
 # Table Mountain - Rio Oso 230 kV Line and Greanleaf 1 Unit 1
1  30300 30330  "1 "    0     # line from  TBL MT D 230.00  BRKR to BRKR  RIO OSO  230.00
```

```
 #
3  32490     0  "1"    0    # GRNLEAF1  13.80      PGEN=40.00  QGEN=-13.86
0
 #
 #
 # (247) Overlapping Outage (L-1/G-1)
 # Palermo - Colgate 230 kV Line and Greanleaf 1 Unit 1
1  30325 30327  "1 "    0    # line from  PALERMO  230.00  BRKR to BRKR  COLGATE  230.00
2  30327 32450  "1 "    0    #Take one transformer out with Palermo-Colgate 230 kV line outage
3  32450     0  "1 "    0    #Take one generator out with Palermo-Colgate 230 kV line outage
 #
3  32490     0  "1"    0    # GRNLEAF1  13.80      PGEN=40.00  QGEN=-13.86
0
 #
 #
 # (248) Overlapping Outage (L-1/G-1)
 # Palermo - Bogue 115 kV Line and Greanleaf 1 Unit 1
1  31508 32286  "1 "    0    # line from  HONC JT3 115.00   (3) to (2)   OLIVH J3 115.00
1  31508 31482  "1 "    0    # line from  HONC JT3 115.00   (3) to BRKR  PALERMO  115.00
1  31508 31484  "1 "    0    # line from  HONC JT3 115.00   (3) to (1)   HONCUT   115.00
1  32286 32206  "1 "    0    # line from  OLIVH J3 115.00   (2) to BRKR  BOGUE    115.00
4  31484     0  "1 "    0    # LOAD-DROP    HONCUT   115.00  LOAD==16.18(0.73)
 #
3  32490     0  "1"    0    # GRNLEAF1  13.80      PGEN=40.00  QGEN=-13.86
0
 #
 #
 # (249) Overlapping Outage (L-1/G-1)
 # Pease - Rio Oso 115 kV Line and Greanleaf 1 Unit 1
1  32200 32288  "1 "    0    # line from  PEASE    115.00  BRKR to (3)   E.MRY J1 115.00
1  32288 32202  "1 "    0    # line from  E.MRY J1 115.00   (3) to (1)   E.MRYSVE 115.00
1  32288 32290  "1 "    0    # line from  E.MRY J1 115.00   (3) to (3)   OLIVH J1 115.00
1  32290 32204  "1 "    0    # line from  OLIVH J1 115.00   (3) to (1)   OLIVHRST 115.00
1  32290 32214  "1 "    0    # line from  OLIVH J1 115.00   (3) to BRKR  RIO OSO  115.00
4  32202     0  "2 "    0    # LOAD-DROP    E.MRYSVE 115.00  LOAD==10.55(0.47)
4  32202     0  "3 "    0    # LOAD-DROP    E.MRYSVE 115.00  LOAD==9.73(0.44)
4  32204     0  "1 "    0    # LOAD-DROP    OLIVHRST 115.00  LOAD==6.71(0.30)
4  32204     0  "2 "    0    # LOAD-DROP    OLIVHRST 115.00  LOAD==21.33(0.95)
1  32204 32286  "1"    1    #Transfer Olivehurst to alternate
4  32204     0  "**"    1    #Restore load Olivehurst
1  32280 32202  "1"    1    #Transfer load to E. Marysville Alt. 2 summer
4  32202     0  "**"    1    #Restore load at E. Marysville summer
 #
3  32490     0  "1"    0    # GRNLEAF1  13.80      PGEN=40.00  QGEN=-13.86
0
 #
 #
 # (250) Overlapping Outage (L-1/G-1)
 # Rio Oso - E. Nicolaus 115 kV Line and Greanleaf 1 Unit 1
1  32212 32214  "1 "    0    # line from  E.NICOLS 115.00  BRKR to BRKR  RIO OSO  115.00
 #
3  32490     0  "1"    0    # GRNLEAF1  13.80      PGEN=40.00  QGEN=-13.86
0
 #
 #
 # (251) Overlapping Outage (L-1/G-1)
 # Drum - Higgins 115 kV Line and Wise PH
1  32218 32220  "1 "    0    # line from  DRUM     115.00  BRKR to (3)   DTCH FL1 115.00
1  32220 32224  "1 "    0    # line from  DTCH FL1 115.00   (3) to (3)   CHCGO PK 115.00
2  32220 32464  "1 "    0    # TRAN from  DTCH FL1 115.00  BRKR to (1)   DTCHFLT1  11.00
1  32224 32232  "1 "    0    # line from  CHCGO PK 115.00   (3) to BRKR  HIGGINS  115.00
2  32224 32462  "1 "    0    # TRAN from  CHCGO PK 115.00  BRKR to (1)   CHI.PARK  11.50
3  32464     0  "1 "    0    # GEN-DROP    DTCHFLT1  11.00  GEN==22.00(12.70)
3  32462     0  "1 "    0    # GEN-DROP    CHI.PARK  11.50  GEN==37.90(14.75)
 #
3  32512     0  "1"    0    # WISE      12.00       PGEN=11.15  QGEN=4.29
0
 #
 #
 # (252) Overlapping Outage (L-1/G-1)
 # Higgins - Bell 115 kV Line and Wise PH
1  32232 32238  "1 "    0    # line from  HIGGINS  115.00  BRKR to BRKR  BELL PGE 115.00
3  32464     0  "**"    0    #Drop Dutch Flat No. 1 generator during Higgins-Bell 115 kV outage
3  32462     0  "**"    0    #Drop Chicago Park generator during Higgins-Bell 115 kV outage
```

```
 #
3  32512    0  "1"    0    # WISE     12.00      PGEN=11.15  QGEN=4.29
0
 #
 #
 # (253) Overlapping Outage (L-1/G-1)
 # Drum - Rio Oso #1 115 kV Line and Wise PH
1  32214 32225  "1 "    0    # line from  RIO OSO  115.00  BRKR to (3)   BRNSWKTP 115.00
1  32225 32222  "1 "    0    # line from  BRNSWKTP 115.00   (3) to (3)   DTCH FL2 115.00
1  32225 32227  "2 "    0    # line from  BRNSWKTP 115.00   (3) to (1)   BRNSWALT 115.00
1  32222 32218  "1 "    0    # line from  DTCH FL2 115.00   (3) to BRKR  DRUM     115.00
2  32222 32502  "1 "    0    # TRAN from  DTCH FL2 115.00  BRKR to (1)   DTCHFLT2   6.90
4  32227    0  "1 "    0    # LOAD-DROP    BRNSWALT 115.00  LOAD==24.08(1.08)
3  32502    0  "1 "    0    # GEN-DROP    DTCHFLT2   6.90  GEN==24.50(9.66)
 #
3  32512    0  "1"    0    # WISE     12.00      PGEN=11.15  QGEN=4.29
0
 #
 #
 # (254) Overlapping Outage (L-1/G-1)
 # Bogue - Rio Oso 115 kV Line and Greenleaf 2
1  32206 32208  "1 "    0    # line from  BOGUE    115.00  BRKR to (3)   GLEAF TP 115.00
1  32208 32210  "1 "    0    # line from  GLEAF TP 115.00   (3) to (2)   GLEAF 1  115.00
1  32208 32214  "1 "    0    # line from  GLEAF TP 115.00   (3) to BRKR  RIO OSO  115.00
2  32210 32490  "1 "    0    # TRAN from  GLEAF 1  115.00  BRKR to (1)   GRNLEAF1  13.80
4  32490    0  "ss"   0    # LOAD-DROP    GRNLEAF1  13.80  LOAD==0.67(0.15)
3  32490    0  "1 "    0    # GEN-DROP    GRNLEAF1  13.80  GEN==40.00(-12.86)
3  32490    0  "2 "    0    # GEN-DROP    GRNLEAF1  13.80  GEN==9.50(-3.05)
 #
3  32492    0  "1"    0    # GRNLEAF2  13.80      PGEN=49.00  QGEN=16.68
0
 #
 #
 # (255) Overlapping Outage (L-1/G-1)
 # Table Mountain - Pease 60 kV Line and Greenleaf 2
1  31640 31644  "1 "    0    # line from  TRES VIS  60.00   (2) to (3)   BIGGSJCT  60.00
1  31640 31718  "1 "    0    # line from  TRES VIS  60.00   (2) to BRKR  TBLE MTN  60.00
1  31644 31642  "1 "    0    # line from  BIGGSJCT  60.00   (3) to BRKR  PEACHTON  60.00
1  31644 38052  "1 "    0    # line from  BIGGSJCT  60.00   (3) to (1)   BIGGS     60.00
4  31640    0  "1 "    0    # LOAD-DROP    TRES VIS  60.00  LOAD==8.30(0.37)
4  38052    0  "1 "    0    # LOAD-DROP    BIGGS     60.00  LOAD==4.75(1.60)
 #
3  32492    0  "1"    0    # GRNLEAF2  13.80      PGEN=49.00  QGEN=16.68
0
 #
 #
 # (256) Overlapping Outage (L-1/G-1)
 # Pease - Marysville - Harter 60 kV Line and Narrows 2
1  32302 32324  "1 "    0    # line from  YUBACITY  60.00   (4) to (1)   HARTER    60.00
1  32302 32333  "1 "    0    # line from  YUBACITY  60.00   (4) to (3)   PEASETP   60.00
2  32302 32496  "1 "    0    # TRAN from  YUBACITY  60.00   (4) to (1)   YCEC      13.80
2  32302 32494  "1 "    0    # TRAN from  YUBACITY  60.00  BRKR to (1)   YUBA CTY   9.11
1  32333 32320  "1 "    0    # line from  PEASETP   60.00   (3) to BRKR  MRYSVLLE  60.00
1  32333 32332  "1 "    0    # line from  PEASETP   60.00   (3) to BRKR  PEASE     60.00
4  32324    0  "1 "    0    # LOAD-DROP    HARTER    60.00  LOAD==22.66(1.01)
4  32324    0  "2 "    0    # LOAD-DROP    HARTER    60.00  LOAD==26.96(1.21)
4  32496    0  "ss"   0    # LOAD-DROP    YCEC      13.80  LOAD==1.39(0.32)
4  32494    0  "ss"   0    # LOAD-DROP    YUBA CTY   9.11  LOAD==0.32(0.07)
3  32496    0  "1 "    0    # GEN-DROP    YCEC      13.80  GEN==50.00(0.00)
3  32494    0  "1 "    0    # GEN-DROP    YUBA CTY   9.11  GEN==41.30(15.86)
 #
3  32468    0  "1"    0    # NARROWS2   9.11      PGEN=45.00  QGEN=1.30
0
 #
 #
 # (257) Overlapping Outage (L-1/G-1)
 # Colgate - Rio Oso 230 kV Line and Belden
1  30327 30330  "1 "    0    # line from  COLGATE  230.00  BRKR to BRKR  RIO OSO  230.00
2  30327 32452  "1 "    0    #Take one transformer out with Colgate-Rio Oso 230 kV line outage
3  32452    0  "1 "    0    #Take one generator out with Colgate-Rio Oso 230 kV line outage
 #
3  31784    0  "1"    0    # BELDEN    13.80      PGEN=107.00  QGEN=27.77
0
 #
```

```
 #
 # (258) Overlapping Outage (L-1/G-1)
 # Bogue - Rio Oso 115 kV Line and FREC
1  32206 32208  "1 "    0     # line from  BOGUE    115.00  BRKR to (3)   GLEAF TP 115.00
1  32208 32210  "1 "    0     # line from  GLEAF TP 115.00   (3) to (2)   GLEAF 1  115.00
1  32208 32214  "1 "    0     # line from  GLEAF TP 115.00   (3) to BRKR  RIO OSO  115.00
2  32210 32490  "1 "    0     # TRAN from  GLEAF 1  115.00  BRKR to (1)   GRNLEAF1  13.80
4  32490     0  "ss"    0     # LOAD-DROP    GRNLEAF1  13.80  LOAD==0.67(0.15)
3  32490     0  "1 "    0     # GEN-DROP    GRNLEAF1  13.80  GEN==40.00(-12.86)
3  32490     0  "2 "    0     # GEN-DROP    GRNLEAF1  13.80  GEN==9.50(-3.05)
 #
3  32451     0  "1"     0     # FREC      13.80       PGEN=50.00  QGEN=8.28
0
 #
 #
 # (259) Overlapping Outage (L-1/G-1)
 # Woodleaf - Palermo 115 kV Line and Greenleaf 1 Unit 1
1  31470 31472  "1 "    0     # line from  SLYCREEK 115.00   (2) to (4)   WODLF TP 115.00
2  31470 31832  "1 "    0     # TRAN from  SLYCREEK 115.00  BRKR to (1)   SLY.CR.    9.11
1  31472 31474  "1 "    0     # line from  WODLF TP 115.00   (4) to (3)   FRBSTNTP 115.00
2  31472 31794  "1 "    0     # TRAN from  WODLF TP 115.00  BRKR to (1)   WOODLEAF  13.80
2  31472 31862  "1 "    0     # TRAN from  WODLF TP 115.00  BRKR to (1)   DEADWOOD   9.11
1  31474 31476  "1 "    0     # line from  FRBSTNTP 115.00   (3) to (3)   OWID     115.00
2  31474 31814  "1 "    0     # TRAN from  FRBSTNTP 115.00  BRKR to (1)   FORBSTWN  11.50
1  31476 31475  "1 "    0     # line from  OWID     115.00   (3) to (1)   KANAKAJT 115.00
1  31476 31482  "1 "    0     # line from  OWID     115.00   (3) to BRKR  PALERMO  115.00
4  31475     0  "KK"    0     # LOAD-DROP    KANAKAJT 115.00  LOAD==1.19(0.05)
3  31832     0  "1 "    0     # GEN-DROP    SLY.CR.    9.11  GEN==9.50(0.62)
3  31794     0  "1 "    0     # GEN-DROP    WOODLEAF  13.80  GEN==55.00(2.34)
3  31814     0  "1 "    0     # GEN-DROP    FORBSTWN  11.50  GEN==30.00(2.09)
 #
3  32490     0  "1"     0     # GRNLEAF1  13.80       PGEN=40.00  QGEN=-13.86
0
 #
 #
 # (260) Overlapping Outage (L-1/G-1)
 # Rio Oso - Atlantic 230 kV Line and Ralston
1  30330 30335  "1 "    0     # line from  RIO OSO  230.00  BRKR to BRKR  ATLANTC  230.00
 #
3  32458     0  "1"     0     # RALSTON   13.80       PGEN=83.00  QGEN=13.11
0
 #
 #
 # (261) Overlapping Outage (L-1/G-1)
 # Atlantic - Pleasant Grove #1 115 kV Line and Rio Bravoe
1  32412 32408  "1 "    0     # line from  ATLANTIC 115.00  BRKR to BRKR  PLSNT GR 115.00
 #
3  32500     0  "1"     0     # ULTR RCK   9.11       PGEN=22.12  QGEN=12.00
0
 #
 #
 # (262) Overlapping Outage (L-1/G-1)
 # Atlantic - Pleasant Grove #2 115 kV Line and Rio Bravoe
1  32412 32408  "2 "    0     # line from  ATLANTIC 115.00  BRKR to BRKR  PLSNT GR 115.00
 #
3  32500     0  "1"     0     # ULTR RCK   9.11       PGEN=22.12  QGEN=12.00
0
 #
 #
 # (263) Overlapping Outage (L-1/G-1)
 # El Dorado - Missouri Flat #2 115 kV Line and El Dorado PH1
1  32250 32481  "2 "    0     # line from  ELDORAD  115.00  BRKR to (2)   APLHTAP2 115.00
1  32481 32257  "2 "    0     # line from  APLHTAP2 115.00   (2) to (4)   PLCRVLT2 115.00
1  32257 32254  "2 "    0     # line from  PLCRVLT2 115.00   (4) to (2)   PLCRVLB2 115.00
1  32257 32260  "2 "    0     # line from  PLCRVLT2 115.00   (4) to BRKR  MIZOU_T2 115.00
2  32257 32510  "1 "    0     # TRAN from  PLCRVLT2 115.00   (4) to (1)   CHILIBAR   4.16
1  32254 32256  "1 "    0     # line from  PLCRVLB2 115.00   (2) to (1)   PLCRVLB3 115.00
4  32254     0  "2 "    0     # LOAD-DROP    PLCRVLB2 115.00  LOAD==9.02(0.41)
4  32256     0  "3 "    0     # LOAD-DROP    PLCRVLB3 115.00  LOAD==25.95(1.16)
3  32510     0  "1 "    0     # GEN-DROP    CHILIBAR   4.16  GEN==5.50(4.00)
1  32256 32255  "1 "    1     #Transfer Placerville to alternate
4  32256     0  "**"    1     #Restore load Bank 3 at Placerville
1  32254 32256  "1 "    1     #Transfer Placerville to alternate
4  32254     0  "**"    1     #Restore load Bank 2 at Placerville
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```
 #
3  32513     0  "1"     0     # ELDRADO1  21.60       PGEN=9.96  QGEN=-0.77
0
 #
 #
 # (264) Overlapping Outage (L-1/G-1)
 # Goldhill - Clarksville 115 kV Line and El Dorado PH1
1  32018 32263  "1 "    0     # line from  GOLDHILL 115.00  BRKR to (1)   CLRKSVLE 115.00
4  32263     0  "1 "    0     # LOAD-DROP    CLRKSVLE 115.00  LOAD==44.58(2.00)
4  32263     0  "2 "    0     # LOAD-DROP    CLRKSVLE 115.00  LOAD==47.39(2.12)
4  32263     0  "3 "    0     # LOAD-DROP    CLRKSVLE 115.00  LOAD==45.28(2.03)
1  32264 32263  "1"    1     #Transfer Clarksville to alternate
4  32263     0  "**"    1     #Restore load at Clarksville
 #
3  32513     0  "1"     0     # ELDRADO1  21.60       PGEN=9.96  QGEN=-0.77
0
 #
 #
 # (265) Overlapping Outage (L-1/G-1)
 # Placer - Gold Hill #2 115 kV Line and El Dorado PH1
1  32018 32231  "2 "    0     # line from  GOLDHILL 115.00  BRKR to (2)   HORSHE2  115.00
1  32231 32235  "2 "    0     # line from  HORSHE2  115.00   (2) to (2)   NEWCSTL2 115.00
1  32235 32239  "2 "    0     # line from  NEWCSTL2 115.00   (2) to (3)   FLINT2   115.00
1  32239 32228  "2 "    0     # line from  FLINT2   115.00   (3) to BRKR  PLACER   115.00
1  32239 32237  "1 "    0     # line from  FLINT2   115.00   (3) to (1)   FLINT    115.00
4  32237     0  "1 "    0     # LOAD-DROP    FLINT    115.00  LOAD==14.82(0.66)
 #
3  32513     0  "1"     0     # ELDRADO1  21.60       PGEN=9.96  QGEN=-0.77
0
 #
 #
 # (266) Overlapping Outage (L-1/G-1)
 # Table Mountain - Palermo 230 kV Line and Colgate 2
1  30300 30325  "1 "    0     # line from  TBL MT D 230.00  BRKR to BRKR  PALERMO  230.00
 #
3  32452     0  "1"     0     # COLGATE2  13.80       PGEN=147.00  QGEN=20.11
0
 #
 #
 # 2013 category b contingency list
 # Stockton/Stanislaus Divisions Zones 311/312
 #
 #
 # (267)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30482 30500  "1 "    0     # line from  LOCKFORD 230.00  BRKR to BRKR  BELLOTA  230.00
0
 #
 #
 # (268)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30485 30487  "1 "    0     # line from  TIGR CRK 230.00  BRKR to BRKR  ELECTRA  230.00
0
 #
 #
 # (269)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30485 30490  "1 "    0     # line from  TIGR CRK 230.00  BRKR to BRKR  VLLY SPS 230.00
0
 #
 #
 # (270)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30487 30500  "1 "    0     # line from  ELECTRA  230.00  BRKR to BRKR  BELLOTA  230.00
0
 #
 #
 # (271)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30489 30624  "1 "    0     # line from  STAGG-J2 230.00   (2) to BRKR  TESLA E  230.00
1  30489 30499  "1 "    0     # line from  STAGG-J2 230.00   (2) to BRKR  STAGG-E  230.00
0
 #
 #
```

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 # (272)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30490 30500  "1 "    0     # line from  VLLY SPS 230.00  BRKR to BRKR  BELLOTA  230.00
0
 #
 #
 # (273)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30500 30503  "1 "    0     # line from  BELLOTA  230.00  BRKR to BRKR  COLLERVL 230.00
0
 #
 #
 # (274)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30500 30503  "2 "    0     # line from  BELLOTA  230.00  BRKR to BRKR  COLLERVL 230.00
0
 #
 #
 # (275)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30500 30505  "1 "    0     # line from  BELLOTA  230.00  BRKR to BRKR  WEBER    230.00
0
 #
 #
 # (276)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30500 30888  "1 "    0     # line from  BELLOTA  230.00  BRKR to BRKR  P0703    230.00
0
 #
 #
 # (277)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30500 38206  "1 "    0     # line from  BELLOTA  230.00  BRKR to (2)   COTTLE A 230.00
1  38206 37563  "1 "    0     # line from  COTTLE A 230.00   (2) to BRKR  MELONES  230.00
4  38206     0  "1 "    0     # LOAD-DROP    COTTLE A 230.00  LOAD==27.63(1.24)
3  34604     0  "**"    0      # Drop unit#3 with a loss Bellota - Melones line
0
 #
 #
 # (278)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30500 38208  "1 "    0     # line from  BELLOTA  230.00  BRKR to (2)   COTTLE B 230.00
1  38208 30515  "1 "    0     # line from  COTTLE B 230.00   (2) to BRKR  WARNERVL 230.00
4  38208     0  "2 "    0     # LOAD-DROP    COTTLE B 230.00  LOAD==31.78(1.42)
3  34604     0  "**"    0      # Drop unit#3 with a loss Bellota - Warnerville line
0
 #
 #
 # (279)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30505 30888  "1 "    0     # line from  WEBER    230.00  BRKR to BRKR  P0703    230.00
0
 #
 #
 # (280)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30527 30595  "1 "    0     # line from  PITSBG E 230.00  BRKR to (3)   FLOWIND2 230.00
1  30595 30640  "1 "    0     # line from  FLOWIND2 230.00   (3) to BRKR  TESLA C  230.00
2  30595 33840  "1 "    0     # TRAN from  FLOWIND2 230.00   (3) to (1)   FLOWD3-6   9.11
4  33840     0  "SG"    0     # LOAD-DROP    FLOWD3-6   9.11  LOAD==0.70(0.34)
3  33840     0  "1 "    0     # GEN-DROP    FLOWD3-6   9.11  GEN==1.30(0.00)
3  33840     0  "4 "    0     # GEN-DROP    FLOWD3-6   9.11  GEN==1.10(0.00)
0
 #
 #
 # (281)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30565 30569  "1 "    0     # line from  BRENTWOD 230.00  BRKR to BRKR  KELSO    230.00
0
 #
 #
 # (282)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30569 30570  "1 "    0     # line from  KELSO    230.00  BRKR to (4)   USWP-RLF 230.00
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1  30570 30571  "1 "    0     # line from  USWP-RLF 230.00   (4) to (2)   ALTALAND 230.00
1  30570 30625  "1 "    0     # line from  USWP-RLF 230.00   (4) to BRKR  TESLA D  230.00
2  30570 33836  "1 "    0     # TRAN from  USWP-RLF 230.00   (4) to (1)   USWP_#4    9.11
2  30571 33832  "1 "    0     # TRAN from  ALTALAND 230.00   (2) to (1)   COG.CAPT   9.11
4  33836     0  "SG"    0     # LOAD-DROP    USWP_#4    9.11  LOAD==0.34(0.21)
3  33836     0  "3 "    0     # GEN-DROP    USWP_#4    9.11  GEN==4.50(0.00)
3  33832     0  "1 "    0     # GEN-DROP    COG.CAPT   9.11  GEN==4.30(6.60)
0
 #
 #
 # (283)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30580 30625  "1 "    0     # line from  ALTM MDW 230.00   (3) to BRKR  TESLA D  230.00
1  30580 38610  "1 "    0     # line from  ALTM MDW 230.00   (3) to BRKR  DELTAPMP 230.00
2  30580 33175  "1 "    0     # TRAN from  ALTM MDW 230.00   (3) to (1)   ALTAMONT   9.11
0
 #
 #
 # (284)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30600 30640  "2 "    0     # line from  TRES VAQ 230.00   (3) to BRKR  TESLA C  230.00
1  30600 30527  "2 "    0     # line from  TRES VAQ 230.00   (3) to BRKR  PITSBG E 230.00
2  30600 33171  "1 "    0     # TRAN from  TRES VAQ 230.00   (3) to (1)   TRSVQ+NW   9.11
0
 #
 #
 # (285)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30622 30495  "1 "    0     # line from  EIGHT MI 230.00  BRKR to BRKR  STAGG    230.00
0
 #
 #
 # (286)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30622 30624  "1 "    0     # line from  EIGHT MI 230.00  BRKR to BRKR  TESLA E  230.00
0
 #
 #
 # (287)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30624 30630  "1 "    0     # line from  TESLA E  230.00  BRKR to BRKR  NEWARK D 230.00
0
 #
 #
 # (288)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30624 30670  "1 "    0     # line from  TESLA E  230.00  BRKR to BRKR  WESTLEY  230.00
0
 #
 #
 # (289)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30624 30888  "1 "    0     # line from  TESLA E  230.00  BRKR to BRKR  P0703    230.00
0
 #
 #
 # (290)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30624 30888  "2 "    0     # line from  TESLA E  230.00  BRKR to BRKR  P0703    230.00
0
 #
 #
 # (291)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30625 30636  "1 "    0     # line from  TESLA D  230.00  BRKR to BRKR  Q235SWST 230.00
0
 #
 #
 # (292)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30625 30636  "2 "    0     # line from  TESLA D  230.00  BRKR to BRKR  Q235SWST 230.00
0
 #
 #
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 # (293)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30636 37585  "1 "    0     # line from  Q235SWST 230.00  BRKR to BRKR  TRCY PMP 230.00
0
 #
 #
 # (294)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30636 37585  "2 "    0     # line from  Q235SWST 230.00  BRKR to BRKR  TRCY PMP 230.00
0
 #
 #
 # (295)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30640 30641  "1 "    0     # line from  TESLA C  230.00  BRKR to BRKR  Q236BS1  230.00
0
 #
 #
 # (296)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30640 30642  "1 "    0     # line from  TESLA C  230.00  BRKR to BRKR  Q236BS2  230.00
0
 #
 #
 # (297)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30632 30624  "1 "    0     # line from  TESL_GEN 230.00  BRKR to BRKR  TESLA E  230.00
0
 #
 #
 # (298)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30632 30624  "2 "    0     # line from  TESL_GEN 230.00  BRKR to BRKR  TESLA E  230.00
0
 #
 #
 # (299)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30636 30637  "1 "    0     # line from  Q235SWST 230.00  BRKR to BRKR  Q235     230.00
0
 #
 #
 # (300)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30636 30637  "2 "    0     # line from  Q235SWST 230.00  BRKR to BRKR  Q235     230.00
0
 #
 #
 # (301)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30640 30655  "2 "    0     # line from  TESLA C  230.00  BRKR to (3)   ADCC     230.00
1  30655 30631  "2 "    0     # line from  ADCC     230.00   (3) to BRKR  NEWARK E 230.00
2  30655 35310  "1 "    0     # TRAN from  ADCC     230.00   (3) to (1)   LFC FIN+   9.11
0
 #
 #
 # (302)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30640 30703  "1 "    0     # line from  TESLA C  230.00  BRKR to BRKR  RAVENSWD 230.00
0
 #
 #
 # (303)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30670 30765  "1 "    0     # line from  WESTLEY  230.00  BRKR to BRKR  LOSBANOS 230.00
0
 #
 #
 # (304)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33083 33774  "1 "    0     # line from  MDLRVRJT  60.00   (2) to (3)   HRDLNJCT  60.00
1  33083 33084  "1 "    0     # line from  MDLRVRJT  60.00   (2) to (3)   BXLR_TAP  60.00
1  33774 33770  "1 "    0     # line from  HRDLNJCT  60.00   (3) to BRKR  HERDLYN   60.00
1  33774 33782  "1 "    0     # line from  HRDLNJCT  60.00   (3) to (1)   WEST SDE  60.00
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1  33084 33055  "1 "    0     # line from  BXLR_TAP  60.00   (3) to (1)   BIXLER    60.00
1  33084 33778  "1 "    0     # line from  BXLR_TAP  60.00   (3) to (2)   MDL_RIVR  60.00
1  33778 33780  "1 "    0     # line from  MDL_RIVR  60.00   (2) to (1)   MCD_ISLE  60.00
4  33782     0  "1 "    0     # LOAD-DROP    WEST SDE  60.00  LOAD==1.90(0.40)
4  33055     0  "1 "    0     # LOAD-DROP    BIXLER    60.00  LOAD==2.00(0.97)
4  33778     0  "1 "    0     # LOAD-DROP    MDL_RIVR  60.00  LOAD==4.98(0.22)
4  33780     0  "1 "    0     # LOAD-DROP    MCD_ISLE  60.00  LOAD==5.76(0.82)
0
 #
 #
 # (305)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33500 33509  "1 "    0     # line from  MELNS JA 115.00   (3) to (3)   AVENATP1 115.00
1  33500 33501  "1 "    0     # line from  MELNS JA 115.00   (3) to (3)   FRGTNTP1 115.00
1  33500 33932  "1 "    0     # line from  MELNS JA 115.00   (3) to BRKR  MELONES  115.00
1  33509 33510  "1 "    0     # line from  AVENATP1 115.00   (3) to (1)   AVENA    115.00
1  33509 33514  "1 "    0     # line from  AVENATP1 115.00   (3) to BRKR  MANTECA  115.00
1  33501 33502  "1 "    0     # line from  FRGTNTP1 115.00   (3) to (1)   FROGTOWN 115.00
1  33501 33506  "1 "    0     # line from  FRGTNTP1 115.00   (3) to BRKR  STANISLS 115.00
4  33510     0  "1 "    0     # LOAD-DROP    AVENA    115.00  LOAD==14.18(0.63)
4  33502     0  "1 "    0     # LOAD-DROP    FROGTOWN 115.00  LOAD==11.55(0.52)
4  33502     0  "2 "    0     # LOAD-DROP    FROGTOWN 115.00  LOAD==8.33(0.37)
1  33511 33510  "1 "    1      # Switches in Avenan SW 145 to transfer load
4  33510     0  "**"    1      # Restores Load at Avena
0
 #
 #
 # (306)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33503 33936  "1 "    0     # line from  FRGTNTP2 115.00   (2) to (3)   MELNS JB 115.00
1  33503 33504  "1 "    0     # line from  FRGTNTP2 115.00   (2) to (2)   CATARACT 115.00
1  33936 33932  "1 "    0     # line from  MELNS JB 115.00   (3) to BRKR  MELONES  115.00
1  33936 33947  "1 "    0     # line from  MELNS JB 115.00   (3) to BRKR  RIVRBKJT 115.00
1  33504 33506  "1 "    0     # line from  CATARACT 115.00   (2) to BRKR  STANISLS 115.00
0
 #
 #
 # (307)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33506 33948  "1 "    0     # line from  STANISLS 115.00  BRKR to (2)   RVRBK J2 115.00
1  33948 33953  "1 "    0     # line from  RVRBK J2 115.00   (2) to (2)   VLYHMTP2 115.00
1  33953 33511  "1 "    0     # line from  VLYHMTP2 115.00   (2) to (2)   AVENATP2 115.00
1  33511 33514  "1 "    0     # line from  AVENATP2 115.00   (2) to BRKR  MANTECA  115.00
0
 #
 #
 # (308)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 # pre-project outage
1  33514 33526  "1 "    0     # line from  MANTECA  115.00  BRKR to (3)   KSSN-JC1 115.00
1  33526 33528  "1 "    0     # line from  KSSN-JC1 115.00   (3) to BRKR  KASSON   115.00
1  33526 33533  "1 "    0     # line from  KSSN-JC1 115.00   (3) to (2)   OWENSTP2 115.00
1  33533 33535  "1 "    0     # line from  OWENSTP2 115.00   (2) to (2)   SFWY_TP2 115.00
1  33535 33543  "1 "    0     # line from  SFWY_TP2 115.00   (2) to (3)   AEC_TP2  115.00
1  33543 33540  "1 "    0     # line from  AEC_TP2  115.00   (3) to BRKR  TESLA    115.00
1  33543 33545  "1 "    0     # line from  AEC_TP2  115.00   (3) to (2)   AEC_JCT  115.00
1  33545 33547  "1 "    0     # line from  AEC_JCT  115.00   (2) to (1)   AEC_300  115.00
4  33547     0  "1 "    0     # LOAD-DROP    AEC_300  115.00  LOAD==3.00(9.54)
0
 #
 #
 # (309)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 # post-project outage
1  33535 33549  "2 "    0     # line from  SFWY_TP2 115.00   (2) to BRKR  SCHULTE  115.00
1  33535 33543  "1 "    0     # line from  SFWY_TP2 115.00   (2) to (3)   AEC_TP2  115.00
1  33543 33540  "1 "    0     # line from  AEC_TP2  115.00   (3) to BRKR  TESLA    115.00
1  33543 33545  "1 "    0     # line from  AEC_TP2  115.00   (3) to (2)   AEC_JCT  115.00
1  33545 33547  "1 "    0     # line from  AEC_JCT  115.00   (2) to (1)   AEC_300  115.00
4  33547     0  "1 "    0     # LOAD-DROP    AEC_300  115.00  LOAD==3.00(9.54)
0
 #
 #
 # (310)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 # post-project outage
1  33514 33526  "1 "    0     # line from  MANTECA  115.00  BRKR to (3)   KSSN-JC1 115.00
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1  33526 33528  "1 "    0     # line from  KSSN-JC1 115.00   (3) to BRKR  KASSON   115.00
1  33526 33533  "1 "    0     # line from  KSSN-JC1 115.00   (3) to (2)   OWENSTP2 115.00
1  33533 33549  "2 "    0     # line from  OWENSTP2 115.00   (2) to BRKR  SCHULTE  115.00
0
 #
 #
 # (311)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33514 33970  "1 "    0     # line from  MANTECA  115.00  BRKR to (3)   INGRM C. 115.00
1  33970 33959  "1 "    0     # line from  INGRM C. 115.00   (3) to (2)   TCHRT_T2 115.00
1  33970 33965  "1 "    0     # line from  INGRM C. 115.00   (3) to (2)   SALADO J 115.00
1  33959 33540  "1 "    0     # line from  TCHRT_T2 115.00   (2) to BRKR  TESLA    115.00
1  33965 33964  "1 "    0     # line from  SALADO J 115.00   (2) to BRKR  SALADO   115.00
4  33970     0  "1 "    0     # LOAD-DROP    INGRM C. 115.00  LOAD==3.60(1.74)
0
 #
 #
 # (312)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33516 33514  "1 "    0     # line from  RPN JNCN 115.00   (3) to BRKR  MANTECA  115.00
1  33516 33520  "1 "    0     # line from  RPN JNCN 115.00   (3) to (1)   RIPON    115.00
1  33516 33951  "1 "    0     # line from  RPN JNCN 115.00   (3) to (3)   VLYHMTP1 115.00
1  33951 33947  "1 "    0     # line from  VLYHMTP1 115.00   (3) to BRKR  RIVRBKJT 115.00
1  33951 33952  "1 "    0     # line from  VLYHMTP1 115.00   (3) to (1)   VALLY HM 115.00
4  33520     0  "2 "    0     # LOAD-DROP    RIPON    115.00  LOAD==29.97(1.34)
4  33952     0  "1 "    0     # LOAD-DROP    VALLY HM 115.00  LOAD==5.36(0.24)
0
 #
 #
 # (313)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33518 33514  "1 "    0     # line from  VIERRA   115.00  BRKR to BRKR  MANTECA  115.00
0
 #
 #
 # (314)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33518 33522  "1 "    0     # line from  VIERRA   115.00  BRKR to (3)   CROSRDJT 115.00
1  33522 33524  "1 "    0     # line from  CROSRDJT 115.00   (3) to (1)   CL AMMNA 115.00
1  33522 33530  "1 "    0     # line from  CROSRDJT 115.00   (3) to (3)   KSSN-JC2 115.00
1  33530 33528  "1 "    0     # line from  KSSN-JC2 115.00   (3) to BRKR  KASSON   115.00
1  33530 33550  "1 "    0     # line from  KSSN-JC2 115.00   (3) to (2)   HJ HEINZ 115.00
1  33550 33548  "1 "    0     # line from  HJ HEINZ 115.00   (2) to BRKR  TRACY    115.00
4  33524     0  "1 "    0     # LOAD-DROP    CL AMMNA 115.00  LOAD==1.68(1.22)
0
 #
 #
 # (315)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33528 33529  "1 "    0     # line from  KASSON   115.00  BRKR to BRKR  LAMMERS  115.00
0
 #
 #
 # (316)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33529 33531  "1 "    0     # line from  LAMMERS  115.00  BRKR to (3)   OWENSTP1 115.00
1  33531 33532  "1 "    0     # line from  OWENSTP1 115.00   (3) to (1)   OI GLASS 115.00
1  33531 33549  "1 "    0     # line from  OWENSTP1 115.00   (3) to BRKR  SCHULTE  115.00
4  33532     0  "1 "    0     # LOAD-DROP    OI GLASS 115.00  LOAD==11.34(7.03)
0
 #
 #
 # (317)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33537 33534  "1 "    0     # line from  SFWY_TP1 115.00   (3) to (1)   SAFEWAY  115.00
1  33537 33549  "1 "    0     # line from  SFWY_TP1 115.00   (3) to BRKR  SCHULTE  115.00
1  33537 33541  "1 "    0     # line from  SFWY_TP1 115.00   (3) to (2)   AEC_TP1  115.00
1  33541 33540  "1 "    0     # line from  AEC_TP1  115.00   (2) to BRKR  TESLA    115.00
4  33534     0  "1 "    0     # LOAD-DROP    SAFEWAY  115.00  LOAD==5.38(2.76)
0
 #
 #
 # (318)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
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1  33540 33544  "1 "    0     # line from  TESLA    115.00  BRKR to (2)   ELLS GTY 115.00
1  33544 33546  "1 "    0     # line from  ELLS GTY 115.00   (2) to (2)   TRACY JC 115.00
1  33546 33542  "1 "    0     # line from  TRACY JC 115.00   (2) to (2)   LEPRINO  115.00
1  33542 33548  "1 "    0     # line from  LEPRINO  115.00   (2) to BRKR  TRACY    115.00
4  33544     0  "1 "    0     # LOAD-DROP    ELLS GTY 115.00  LOAD==3.62(1.86)
4  33542     0  "1 "    0     # LOAD-DROP    LEPRINO  115.00  LOAD==3.67(2.37)
0
 #
 #
 # (319)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33540 33568  "1 "    0     # line from  TESLA    115.00  BRKR to (3)   TH.E.DV. 115.00
1  33568 33570  "1 "    0     # line from  TH.E.DV. 115.00   (3) to (3)   SPC JCT. 115.00
2  33568 33806  "1 "    0     # TRAN from  TH.E.DV. 115.00   (3) to (1)   TH.E.DV.  13.80
1  33570 33587  "1 "    0     # line from  SPC JCT. 115.00   (3) to (3)   P0409TP2 115.00
1  33570 33956  "1 "    0     # line from  SPC JCT. 115.00   (3) to (2)   SJ COGEN 115.00
1  33587 33572  "1 "    0     # line from  P0409TP2 115.00   (3) to (2)   SP CMPNY 115.00
1  33587 33588  "1 "    0     # line from  P0409TP2 115.00   (3) to (2)   P0409CG2 115.00
2  33572 33810  "1 "    0     # TRAN from  SP CMPNY 115.00   (2) to (1)   SP CMPNY  13.80
2  33588 33858  "1 "    0     # TRAN from  P0409CG2 115.00   (2) to (1)   P0409CG2  13.80
2  33956 33808  "1 "    0     # TRAN from  SJ COGEN 115.00   (2) to (1)   SJ COGEN  13.80
4  33858     0  "ss"    0     # LOAD-DROP    P0409CG2  13.80  LOAD==3.34(1.85)
3  33806     0  "1 "    0     # GEN-DROP    TH.E.DV.  13.80  GEN==19.60(6.00)
3  33810     0  "1 "    0     # GEN-DROP    SP CMPNY  13.80  GEN==37.70(0.52)
3  33858     0  "1 "    0     # GEN-DROP    P0409CG2  13.80  GEN==78.24(5.46)
3  33808     0  "1 "    0     # GEN-DROP    SJ COGEN  13.80  GEN==45.20(9.58)
0
 #
 #
 # (320)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33540 33574  "1 "    0     # line from  TESLA    115.00  BRKR to (2)   LLNL TAP 115.00
1  33574 37649  "1 "    0     # line from  LLNL TAP 115.00   (2) to BRKR  LLNLAB   115.00
0
 #
 #
 # (321)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33540 33576  "1 "    0     # line from  TESLA    115.00  BRKR to (3)   USWP-PAT 115.00
1  33576 33578  "1 "    0     # line from  USWP-PAT 115.00   (3) to (2)   FAYETTE  115.00
2  33576 33842  "1 "    0     # TRAN from  USWP-PAT 115.00   (3) to (1)   PATTERSN   9.11
1  33578 33580  "1 "    0     # line from  FAYETTE  115.00   (2) to (2)   ALTENRGY 115.00
2  33580 33834  "1 "    0     # TRAN from  ALTENRGY 115.00   (2) to (1)   KALINA     9.11
0
 #
 #
 # (322)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33540 33961  "1 "    0     # line from  TESLA    115.00  BRKR to (3)   TCHRT_T1 115.00
1  33961 33960  "1 "    0     # line from  TCHRT_T1 115.00   (3) to (2)   MDSTO CN 115.00
1  33961 33963  "1 "    0     # line from  TCHRT_T1 115.00   (3) to (2)   TCHRTJCT 115.00
1  33960 33962  "1 "    0     # line from  MDSTO CN 115.00   (2) to (3)   SALDO TP 115.00
1  33962 33964  "1 "    0     # line from  SALDO TP 115.00   (3) to BRKR  SALADO   115.00
1  33962 33967  "1 "    0     # line from  SALDO TP 115.00   (3) to (2)   MILER TP 115.00
1  33967 33966  "1 "    0     # line from  MILER TP 115.00   (2) to (1)   MILLER   115.00
1  33963 33968  "1 "    0     # line from  TCHRTJCT 115.00   (2) to (1)   TEICHERT 115.00
4  33966     0  "1 "    0     # LOAD-DROP    MILLER   115.00  LOAD==3.55(1.72)
4  33968     0  "1 "    0     # LOAD-DROP    TEICHERT 115.00  LOAD==7.44(6.56)
0
 #
 #
 # (323)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33551 33549  "1 "    0     # line from  GWFTRACY 115.00   (4) to BRKR  SCHULTE  115.00
2  33551 33805  "1 "    0     # TRAN from  GWFTRACY 115.00   (4) to (1)   GWFTRCY1  13.80
2  33551 33807  "1 "    0     # TRAN from  GWFTRACY 115.00   (4) to (1)   GWFTRCY2  13.80
2  33551 33809  "1 "    0     # TRAN from  GWFTRACY 115.00   (4) to (1)   Q268ST1   13.80
4  33809     0  "ss"    0     # LOAD-DROP    Q268ST1   13.80  LOAD==9.70(5.37)
3  33805     0  "1 "    0     # GEN-DROP    GWFTRCY1  13.80  GEN==85.90(18.01)
3  33807     0  "1 "    0     # GEN-DROP    GWFTRCY2  13.80  GEN==85.90(18.01)
3  33809     0  "1 "    0     # GEN-DROP    Q268ST1   13.80  GEN==154.70(14.72)
0
 #
 #
```

```
 # (324)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33552 33553  "1 "    0     # line from  STCKTNJB 115.00   (2) to BRKR  STKTON B 115.00
1  33552 33558  "1 "    0     # line from  STCKTNJB 115.00   (2) to (3)   LCKFRDJB 115.00
1  33558 33562  "1 "    0     # line from  LCKFRDJB 115.00   (3) to BRKR  BELLOTA  115.00
1  33558 33564  "1 "    0     # line from  LCKFRDJB 115.00   (3) to BRKR  LOCKFORD 115.00
4  33553     0  "3 "    0     # LOAD-DROP    STKTON B 115.00  LOAD==30.08(1.34)
1  33555 33553  "1 "    1      # Switches in Stockton 'A' SW 177 to transfer load
4  33553     0  "**"    1      # Restore Load at Stockton 'A' Bk  3
0
 #
 #
 # (325)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33556 33555  "1 "    0     # line from  STN COGN 115.00   (3) to (1)   STKTON A 115.00
1  33556 33560  "1 "    0     # line from  STN COGN 115.00   (3) to (2)   LCKFRDJA 115.00
1  33556 33958  "1 "    0     # line from  STN COGN 115.00   (3) to (2)   CPC STCN 115.00
1  33560 33562  "1 "    0     # line from  LCKFRDJA 115.00   (2) to BRKR  BELLOTA  115.00
2  33958 33814  "1 "    0     # TRAN from  CPC STCN 115.00   (2) to (1)   CPC STCN  12.47
4  33555     0  "4 "    0     # LOAD-DROP    STKTON A 115.00  LOAD==32.05(1.43)
4  33555     0  "5 "    0     # LOAD-DROP    STKTON A 115.00  LOAD==21.46(0.96)
4  33814     0  "SG"    0     # LOAD-DROP    CPC STCN  12.47  LOAD==6.19(1.41)
3  33814     0  "1 "    0     # GEN-DROP    CPC STCN  12.47  GEN==49.00(2.53)
0
 #
 #
 # (326)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33561 33562  "1 "    0     # line from  BLLTAJCT 115.00   (3) to BRKR  BELLOTA  115.00
1  33561 33564  "1 "    0     # line from  BLLTAJCT 115.00   (3) to BRKR  LOCKFORD 115.00
1  33561 33565  "1 "    0     # line from  BLLTAJCT 115.00   (3) to (2)   CMNCHETP 115.00
1  33565 33566  "1 "    0     # line from  CMNCHETP 115.00   (2) to BRKR  CAMANCHE 115.00
0
 #
 #
 # (327)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33562 33946  "1 "    0     # line from  BELLOTA  115.00  BRKR to (2)   RVRBK J1 115.00
1  33946 33944  "1 "    0     # line from  RVRBK J1 115.00   (2) to BRKR  RVRBANK  115.00
0
 #
 #
 # (328)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33562 33950  "1 "    0     # line from  BELLOTA  115.00  BRKR to (3)   RVRBK TP 115.00
1  33950 33934  "1 "    0     # line from  RVRBK TP 115.00   (3) to (3)   TULLOCH  115.00
1  33950 33944  "1 "    0     # line from  RVRBK TP 115.00   (3) to BRKR  RVRBANK  115.00
1  33934 33932  "1 "    0     # line from  TULLOCH  115.00   (3) to BRKR  MELONES  115.00
2  33934 34076  "1 "    0     # TRAN from  TULLOCH  115.00   (3) to (1)   TULLOCH    6.90
3  34076     0  "1 "    0     # GEN-DROP    TULLOCH    6.90  GEN==8.30(1.00)
3  34076     0  "2 "    0     # GEN-DROP    TULLOCH    6.90  GEN==8.30(1.00)
0
 #
 #
 # (329)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33582 33584  "1 "    0     # line from  SLT SPRG 115.00  BRKR to BRKR  TIGR CRK 115.00
0
 #
 #
 # (330)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33602 33670  "1 "    0     # line from  NEWARKS   60.00   (2) to BRKR  STCKTN A  60.00
1  33602 33672  "1 "    0     # line from  NEWARKS   60.00   (2) to (2)   CHRTRWYS  60.00
1  33672 33673  "1 "    0     # line from  CHRTRWYS  60.00   (2) to (2)   CAL CEDA  60.00
1  33673 33688  "1 "    0     # line from  CAL CEDA  60.00   (2) to (3)   ROB-LRNR  60.00
1  33688 33687  "1 "    0     # line from  ROB-LRNR  60.00   (3) to (2)   STKTN WW  60.00
1  33688 33696  "1 "    0     # line from  ROB-LRNR  60.00   (3) to (3)   Q199      60.00
1  33687 33689  "1 "    0     # line from  STKTN WW  60.00   (2) to (1)   LEARNER   60.00
1  33696 33690  "1 "    0     # line from  Q199      60.00   (3) to (2)   ROGH-RDY  60.00
2  33696 33818  "1 "    0     # TRAN from  Q199      60.00   (3) to (1)   Q199      13.80
1  33690 33692  "1 "    0     # line from  ROGH-RDY  60.00   (2) to (2)   CHANNEL   60.00
1  33692 33694  "1 "    0     # line from  CHANNEL   60.00   (2) to (1)   CHNNL JT  60.00
4  33673     0  "1 "    0     # LOAD-DROP    CAL CEDA  60.00  LOAD==1.49(1.24)
```

```
4  33687     0  "1 "    0     # LOAD-DROP    STKTN WW  60.00  LOAD==3.61(0.90)
4  33690     0  "1 "    0     # LOAD-DROP    ROGH-RDY  60.00  LOAD==12.05(0.54)
4  33818     0  "ss"    0     # LOAD-DROP    Q199      13.80  LOAD==11.00(6.09)
4  33692     0  "1 "    0     # LOAD-DROP    CHANNEL   60.00  LOAD==8.49(0.38)
3  33687     0  "1 "    0     # GEN-DROP    STKTN WW  60.00  GEN==1.50(0.15)
3  33818     0  "1 "    0     # GEN-DROP    Q199      13.80  GEN==60.50(4.13)
0
 #
 #
 # (331)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33604 33606  "1 "    0     # line from  WEST PNT  60.00   (2) to (3)   P.GRVEJ.  60.00
2  33604 33820  "1 "    0     # TRAN from  WEST PNT  60.00   (2) to (1)   WEST PNT  11.50
1  33606 33607  "1 "    0     # line from  P.GRVEJ.  60.00   (3) to (2)   ELECTRAJ  60.00
1  33606 33608  "1 "    0     # line from  P.GRVEJ.  60.00   (3) to (1)   PNE GRVE  60.00
1  33607 33610  "1 "    0     # line from  ELECTRAJ  60.00   (2) to BRKR  VLLY SPS  60.00
4  33604     0  "1 "    0     # LOAD-DROP    WEST PNT  60.00  LOAD==4.74(0.21)
4  33604     0  "3 "    0     # LOAD-DROP    WEST PNT  60.00  LOAD==4.45(0.20)
4  33607     0  "1 "    0     # LOAD-DROP    ELECTRAJ  60.00  LOAD==10.32(0.47)
4  33608     0  "1 "    0     # LOAD-DROP    PNE GRVE  60.00  LOAD==8.62(0.39)
4  33608     0  "2 "    0     # LOAD-DROP    PNE GRVE  60.00  LOAD==10.99(0.49)
3  33820     0  "1 "    0     # GEN-DROP    WEST PNT  11.50  GEN==13.60(7.00)
0
 #
 #
 # (332)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33610 33612  "1 "    0     # line from  VLLY SPS  60.00  BRKR to (2)   N BRANCH  60.00
1  33612 33614  "1 "    0     # line from  N BRANCH  60.00   (2) to BRKR  CAL CMNT  60.00
4  33612     0  "1 "    0     # LOAD-DROP    N BRANCH  60.00  LOAD==5.79(0.25)
4  33614     0  "1 "    0     # LOAD-DROP    CAL CMNT  60.00  LOAD==13.07(0.59)
0
 #
 #
 # (333)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33610 33619  "1 "    0     # line from  VLLY SPS  60.00  BRKR to (3)   AMFOR_SW  60.00
1  33619 33616  "1 "    0     # line from  AMFOR_SW  60.00   (3) to BRKR  MARTELL   60.00
1  33619 33620  "1 "    0     # line from  AMFOR_SW  60.00   (3) to (1)   AM FORST  60.00
4  33616     0  "1 "    0     # LOAD-DROP    MARTELL   60.00  LOAD==19.52(0.87)
4  33620     0  "1 "    0     # LOAD-DROP    AM FORST  60.00  LOAD==1.90(1.52)
0
 #
 #
 # (334)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33610 33630  "1 "    0     # line from  VLLY SPS  60.00  BRKR to (2)   PARDEE A  60.00
2  33630 33848  "1 "    0     # TRAN from  PARDEE A  60.00   (2) to (1)   PARDE 2    7.20
3  33848     0  "1 "    0     # GEN-DROP    PARDE 2    7.20  GEN==8.00(-1.28)
0
 #
 #
 # (335)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33610 33634  "1 "    0     # line from  VLLY SPS  60.00  BRKR to (3)   PRDE JCT  60.00
1  33634 33626  "1 "    0     # line from  PRDE JCT  60.00   (3) to (3)   I.NRGYJT  60.00
2  33634 33846  "1 "    0     # TRAN from  PRDE JCT  60.00   (3) to (1)   PRDE 1-3   7.20
1  33626 33622  "1 "    0     # line from  I.NRGYJT  60.00   (3) to (2)   CLAY      60.00
1  33626 33628  "1 "    0     # line from  I.NRGYJT  60.00   (3) to (2)   I.ENERGY  60.00
1  33622 33623  "1 "    0     # line from  CLAY      60.00   (2) to (3)   INE_TP    60.00
1  33623 33617  "1 "    0     # line from  INE_TP    60.00   (3) to (1)   MARTELTP  60.00
1  33623 33624  "1 "    0     # line from  INE_TP    60.00   (3) to (1)   INE PRSN  60.00
2  33628 33816  "1 "    0     # TRAN from  I.ENERGY  60.00   (2) to (1)   I.ENERGY  12.00
4  33622     0  "1 "    0     # LOAD-DROP    CLAY      60.00  LOAD==13.69(0.62)
4  33622     0  "2 "    0     # LOAD-DROP    CLAY      60.00  LOAD==4.09(0.18)
4  33624     0  "1 "    0     # LOAD-DROP    INE PRSN  60.00  LOAD==12.55(0.56)
3  33846     0  "2 "    0     # GEN-DROP    PRDE 1-3   7.20  GEN==8.00(2.00)
0
 #
 #
 # (336)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33610 33636  "1 "    0     # line from  VLLY SPS  60.00  BRKR to (3)   N.HGN JT  60.00
1  33636 33638  "1 "    0     # line from  N.HGN JT  60.00   (3) to (2)   N.HOGAN   60.00
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1  33636 33640  "1 "    0     # line from  N.HGN JT  60.00   (3) to (1)   CORRAL    60.00
2  33638 38365  "1 "    0     # TRAN from  N.HOGAN   60.00   (2) to (1)   N.HGN DM  12.00
4  33640     0  "1 "    0     # LOAD-DROP    CORRAL    60.00  LOAD==12.60(0.56)
4  33640     0  "2 "    0     # LOAD-DROP    CORRAL    60.00  LOAD==16.59(0.74)
3  38365     0  "1 "    0     # GEN-DROP    N.HGN DM  12.00  GEN==1.50(0.68)
3  38365     0  "2 "    0     # GEN-DROP    N.HGN DM  12.00  GEN==1.50(0.68)
0
 #
 #
 # (337)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33642 33644  "1 "    0     # line from  LINDEN    60.00   (1) to (2)   MRMN JCT  60.00
1  33644 33646  "1 "    0     # line from  MRMN JCT  60.00   (2) to (2)   MORMON    60.00
1  33646 33650  "1 "    0     # line from  MORMON    60.00   (2) to BRKR  WEBER 1   60.00
4  33642     0  "1 "    0     # LOAD-DROP    LINDEN    60.00  LOAD==18.79(0.84)
4  33646     0  "1 "    0     # LOAD-DROP    MORMON    60.00  LOAD==19.10(0.85)
1  33642 33640  "1 "    1      # Switches in Linden SW 27 to transfer load
4  33642     0  "**"    1      # Restore Load and Linden
0
 #
 #
 # (338)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33654 33664  "1 "    0     # line from  SNTA FEA  60.00   (3) to (2)   LIPTON    60.00
1  33654 33670  "1 "    0     # line from  SNTA FEA  60.00   (3) to BRKR  STCKTN A  60.00
1  33654 33662  "1 "    0     # line from  SNTA FEA  60.00   (3) to BRKR  WEBER 2   60.00
1  33664 33666  "1 "    0     # line from  LIPTON    60.00   (2) to (2)   CHEROKEE  60.00
1  33666 33668  "1 "    0     # line from  CHEROKEE  60.00   (2) to (1)   WATERLOO  60.00
4  33664     0  "1 "    0     # LOAD-DROP    LIPTON    60.00  LOAD==3.53(2.56)
4  33666     0  "1 "    0     # LOAD-DROP    CHEROKEE  60.00  LOAD==10.46(0.47)
4  33668     0  "2 "    0     # LOAD-DROP    WATERLOO  60.00  LOAD==11.35(0.51)
0
 #
 #
 # (339)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33658 33670  "1 "    0     # line from  SNTA FEB  60.00   (3) to BRKR  STCKTN A  60.00
1  33658 33678  "1 "    0     # line from  SNTA FEB  60.00   (3) to (2)   MONARCH   60.00
1  33658 33662  "1 "    0     # line from  SNTA FEB  60.00   (3) to BRKR  WEBER 2   60.00
1  33678 33684  "1 "    0     # line from  MONARCH   60.00   (2) to (2)   HARDING   60.00
1  33684 33686  "1 "    0     # line from  HARDING   60.00   (2) to (1)   STCKTNAR  60.00
4  33678     0  "2 "    0     # LOAD-DROP    MONARCH   60.00  LOAD==4.13(0.18)
4  33684     0  "1 "    0     # LOAD-DROP    HARDING   60.00  LOAD==4.75(0.21)
4  33684     0  "2 "    0     # LOAD-DROP    HARDING   60.00  LOAD==5.28(0.24)
4  33686     0  "1 "    0     # LOAD-DROP    STCKTNAR  60.00  LOAD==4.10(0.18)
0
 #
 #
 # (340)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33662 33674  "1 "    0     # line from  WEBER 2   60.00  BRKR to (4)   HAZLTN J  60.00
1  33674 33670  "1 "    0     # line from  HAZLTN J  60.00   (4) to BRKR  STCKTN A  60.00
1  33674 33676  "1 "    0     # line from  HAZLTN J  60.00   (4) to (1)   E.STCKTN  60.00
1  33674 33681  "1 "    0     # line from  HAZLTN J  60.00   (4) to (2)   N.ST_SW   60.00
1  33681 33682  "1 "    0     # line from  N.ST_SW   60.00   (2) to (2)   SUMIDEN   60.00
1  33682 33680  "1 "    0     # line from  SUMIDEN   60.00   (2) to (2)   OAK PARK  60.00
1  33680 33712  "1 "    0     # line from  OAK PARK  60.00   (2) to (1)   WESTLANE  60.00
4  33676     0  "1 "    0     # LOAD-DROP    E.STCKTN  60.00  LOAD==6.33(0.28)
4  33676     0  "3 "    0     # LOAD-DROP    E.STCKTN  60.00  LOAD==14.01(0.62)
4  33682     0  "1 "    0     # LOAD-DROP    SUMIDEN   60.00  LOAD==3.71(2.59)
4  33680     0  "1 "    0     # LOAD-DROP    OAK PARK  60.00  LOAD==2.44(0.11)
4  33712     0  "1 "    0     # LOAD-DROP    WESTLANE  60.00  LOAD==18.08(0.81)
0
 #
 #
 # (341)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33693 33704  "1 "    0     # line from  STAGG JT  60.00   (2) to BRKR  STAGG     60.00
1  33693 33719  "1 "    0     # line from  STAGG JT  60.00   (2) to (3)   TERMNS J  60.00
1  33719 33720  "1 "    0     # line from  TERMNS J  60.00   (3) to (1)   TERMNOUS  60.00
1  33719 33721  "1 "    0     # line from  TERMNS J  60.00   (3) to (2)   SEBASTIA  60.00
1  33721 33722  "1 "    0     # line from  SEBASTIA  60.00   (2) to (2)   NW HPE J  60.00
1  33722 33723  "1 "    0     # line from  NW HPE J  60.00   (2) to (1)   NEW HOPE  60.00
4  33720     0  "1 "    0     # LOAD-DROP    TERMNOUS  60.00  LOAD==4.85(0.22)
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4  33721     0  "1 "    0     # LOAD-DROP    SEBASTIA  60.00  LOAD==2.82(2.12)
4  33723     0  "1 "    0     # LOAD-DROP    NEW HOPE  60.00  LOAD==2.74(0.12)
0
 #
 #
 # (342)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33703 33702  "1 "    0     # line from  LOUISJCT  60.00   (3) to (1)   GRONMYER  60.00
1  33703 33746  "1 "    0     # line from  LOUISJCT  60.00   (3) to BRKR  LOUISE    60.00
1  33703 33742  "1 "    0     # line from  LOUISJCT  60.00   (3) to BRKR  MANTECA   60.00
4  33702     0  "1 "    0     # LOAD-DROP    GRONMYER  60.00  LOAD==4.20(0.96)
0
 #
 #
 # (343)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33704 33706  "1 "    0     # line from  STAGG     60.00  BRKR to BRKR  CNTRY CB  60.00
0
 #
 #
 # (344)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33704 33706  "2 "    0     # line from  STAGG     60.00  BRKR to BRKR  CNTRY CB  60.00
0
 #
 #
 # (345)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33704 33714  "1 "    0     # line from  STAGG     60.00  BRKR to BRKR  HAMMER    60.00
0
 #
 #
 # (346)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33706 33708  "1 "    0     # line from  CNTRY CB  60.00  BRKR to (2)   UOP       60.00
1  33708 33710  "1 "    0     # line from  UOP       60.00   (2) to (2)   WSTLNESW  60.00
1  33710 33716  "1 "    0     # line from  WSTLNESW  60.00   (2) to (3)   HMMR JCT  60.00
1  33716 33714  "1 "    0     # line from  HMMR JCT  60.00   (3) to BRKR  HAMMER    60.00
1  33716 33717  "1 "    0     # line from  HMMR JCT  60.00   (3) to (3)   MORADAJT  60.00
1  33717 33718  "1 "    0     # line from  MORADAJT  60.00   (3) to (1)   METTLER   60.00
1  33717 33740  "1 "    0     # line from  MORADAJT  60.00   (3) to BRKR  MSHR 60V  60.00
4  33708     0  "1 "    0     # LOAD-DROP    UOP       60.00  LOAD==5.99(4.18)
4  33718     0  "3 "    0     # LOAD-DROP    METTLER   60.00  LOAD==8.41(0.38)
4  33740     0  "1 "    0     # LOAD-DROP    MSHR 60V  60.00  LOAD==20.34(0.91)
4  33740     0  "2 "    0     # LOAD-DROP    MSHR 60V  60.00  LOAD==33.96(1.52)
1  33738 33740  "1"    1      # Switch in Mosher SW 67 to transfer load
4  33740     0  "2"    1      # Restore Mosher Bank 2 load
0
 #
 #
 # (347)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33724 33726  "1 "    0     # line from  LOCKEFRD  60.00  BRKR to (2)   VICTOR    60.00
1  33726 33731  "1 "    0     # line from  VICTOR    60.00   (2) to (2)   WODBRG J  60.00
1  33731 33735  "1 "    0     # line from  WODBRG J  60.00   (2) to (2)   INDSTR J  60.00
1  33735 38060  "1 "    0     # line from  INDSTR J  60.00   (2) to BRKR  INDUSTRL  60.00
4  33726     0  "1 "    0     # LOAD-DROP    VICTOR    60.00  LOAD==0.21(0.01)
4  33726     0  "2 "    0     # LOAD-DROP    VICTOR    60.00  LOAD==3.54(0.16)
0
 #
 #
 # (348)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33724 33738  "1 "    0     # line from  LOCKEFRD  60.00  BRKR to (1)   WATRLJCT  60.00
0
 #
 #
 # (349)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33724 38060  "1 "    0     # line from  LOCKEFRD  60.00  BRKR to BRKR  INDUSTRL  60.00
0
 #
 #
 # (350)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
```

```
 #
1  33725 33732  "1 "    0     # line from  LOCKFRD1  60.00  BRKR to (2)   COLONY    60.00
1  33732 33734  "1 "    0     # line from  COLONY    60.00   (2) to (2)   CLNY JCT  60.00
1  33734 33728  "1 "    0     # line from  CLNY JCT  60.00   (2) to BRKR  LODI      60.00
4  33732     0  "2 "    0     # LOAD-DROP    COLONY    60.00  LOAD==4.67(0.21)
0
 #
 #
 # (351)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33728 33729  "1 "    0     # line from  LODI      60.00  BRKR to BRKR  LODI AUX  60.00
0
 #
 #
 # (352)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33737 33727  "1 "    0     # line from  WINERY J  60.00   (2) to (1)   MONDAVI   60.00
1  33737 33728  "1 "    0     # line from  WINERY J  60.00   (2) to BRKR  LODI      60.00
4  33727     0  "1 "    0     # LOAD-DROP    MONDAVI   60.00  LOAD==2.48(2.06)
0
 #
 #
 # (353)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33743 33742  "1 "    0     # line from  LEE_JCT   60.00   (2) to BRKR  MANTECA   60.00
1  33743 33766  "1 "    0     # line from  LEE_JCT   60.00   (2) to (2)   MNTCA JT  60.00
1  33766 33768  "1 "    0     # line from  MNTCA JT  60.00   (2) to (2)   BNTA CRB  60.00
1  33768 34000  "1 "    0     # line from  BNTA CRB  60.00   (2) to (1)   WESTLEY   60.00
4  33768     0  "1 "    0     # LOAD-DROP    BNTA CRB  60.00  LOAD==3.34(0.76)
4  34000     0  "1 "    0     # LOAD-DROP    WESTLEY   60.00  LOAD==12.45(0.55)
4  34000     0  "3 "    0     # LOAD-DROP    WESTLEY   60.00  LOAD==4.01(0.18)
1  33742 33752  "1 "    0      # Must include Manteca - Lanthrop Jct in this outage
0
 #
 #
 # (354)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33746 33748  "1 "    0     # line from  LOUISE    60.00  BRKR to (2)   MSSDLESW  60.00
1  33748 33750  "1 "    0     # line from  MSSDLESW  60.00   (2) to (2)   CALVO     60.00
1  33750 33756  "1 "    0     # line from  CALVO     60.00   (2) to BRKR  KASSON    60.00
4  33750     0  "1 "    0     # LOAD-DROP    CALVO     60.00  LOAD==1.70(1.01)
0
 #
 #
 # (355)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33756 33758  "1 "    0     # line from  KASSON    60.00  BRKR to BRKR  BANTA     60.00
4  33758     0  "1 "    0     # LOAD-DROP    BANTA     60.00  LOAD==7.14(0.32)
0
 #
 #
 # (356)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33756 33760  "1 "    0     # line from  KASSON    60.00  BRKR to (3)   BNTA JCT  60.00
1  33760 33762  "1 "    0     # line from  BNTA JCT  60.00   (3) to (2)   LYOTH-SP  60.00
1  33760 33764  "1 "    0     # line from  BNTA JCT  60.00   (3) to (1)   CARBONA   60.00
1  33762 33763  "1 "    0     # line from  LYOTH-SP  60.00   (2) to (1)   CRBNA JC  60.00
4  33762     0  "1 "    0     # LOAD-DROP    LYOTH-SP  60.00  LOAD==3.00(0.68)
4  33764     0  "1 "    0     # LOAD-DROP    CARBONA   60.00  LOAD==24.58(1.10)
4  33764     0  "2 "    0     # LOAD-DROP    CARBONA   60.00  LOAD==7.60(0.34)
0
 #
 #
 # (357)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33770 33772  "1 "    0     # line from  HERDLYN   60.00  BRKR to (2)   B.BTHNY-  60.00
1  33772 33773  "1 "    0     # line from  B.BTHNY-  60.00   (2) to (2)   ALTA-CGE  60.00
1  33773 33775  "1 "    0     # line from  ALTA-CGE  60.00   (2) to (2)   TOSCO-PP  60.00
1  33775 33776  "1 "    0     # line from  TOSCO-PP  60.00   (2) to (2)   SOUTH BY  60.00
1  33776 35202  "1 "    0     # line from  SOUTH BY  60.00   (2) to (3)   USWP-WKR  60.00
1  35202 35211  "1 "    0     # line from  USWP-WKR  60.00   (3) to (1)   ALTAMONT  60.00
2  35202 35314  "1 "    0     # TRAN from  USWP-WKR  60.00   (3) to (1)   WALKER+    9.11
4  33772     0  "1 "    0     # LOAD-DROP    B.BTHNY-  60.00  LOAD==1.94(0.44)
4  33775     0  "1 "    0     # LOAD-DROP    TOSCO-PP  60.00  LOAD==0.98(0.89)
```

```
4  33776     0  "1 "    0     # LOAD-DROP    SOUTH BY  60.00  LOAD==23.00(0.00)
3  33773     0  "1 "    0     # GEN-DROP    ALTA-CGE  60.00  GEN==4.00(-1.00)
0
 #
 #
 # (358)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33900 33902  "1 "    0     # line from  DONNELLS 115.00   (2) to (3)   BRDSLY J 115.00
2  33900 34058  "1 "    0     # TRAN from  DONNELLS 115.00   (2) to (1)   DONNELLS  13.80
1  33902 33904  "1 "    0     # line from  BRDSLY J 115.00   (3) to (2)   BEARDSLY 115.00
1  33902 33912  "1 "    0     # line from  BRDSLY J 115.00   (3) to (3)   SPRNG GJ 115.00
2  33904 34074  "1 "    0     # TRAN from  BEARDSLY 115.00   (2) to (1)   BEARDSLY   6.90
1  33912 33910  "1 "    0     # line from  SPRNG GJ 115.00   (3) to (3)   SNDBR JT 115.00
1  33912 33914  "1 "    0     # line from  SPRNG GJ 115.00   (3) to (2)   MI-WUK   115.00
1  33910 33906  "1 "    0     # line from  SNDBR JT 115.00   (3) to BRKR  SPRNG GP 115.00
1  33910 33908  "1 "    0     # line from  SNDBR JT 115.00   (3) to (2)   SANDBAR  115.00
2  33908 34060  "1 "    0     # TRAN from  SANDBAR  115.00   (2) to (1)   SANDBAR   13.80
1  33914 33917  "1 "    0     # line from  MI-WUK   115.00   (2) to (2)   FBERBORD 115.00
1  33917 33916  "1 "    0     # line from  FBERBORD 115.00   (2) to BRKR  CURTISS  115.00
4  33914     0  "1 "    0     # LOAD-DROP    MI-WUK   115.00  LOAD==12.04(0.54)
4  33917     0  "SG"    0     # LOAD-DROP    FBERBORD 115.00  LOAD==2.25(0.51)
3  34058     0  "1 "    0     # GEN-DROP    DONNELLS  13.80  GEN==64.20(-0.09)
3  34074     0  "1 "    0     # GEN-DROP    BEARDSLY   6.90  GEN==10.60(2.00)
3  34060     0  "1 "    0     # GEN-DROP    SANDBAR   13.80  GEN==14.70(7.50)
3  33917     0  "1 "    0     # GEN-DROP    FBERBORD 115.00  GEN==3.20(-2.21)
0
 #
 #
 # (359)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33916 33920  "1 "    0     # line from  CURTISS  115.00  BRKR to (2)   RCTRK J. 115.00
1  33920 33926  "1 "    0     # line from  RCTRK J. 115.00   (2) to (3)   CH.STNJT 115.00
1  33926 33928  "1 "    0     # line from  CH.STNJT 115.00   (3) to (2)   CH.STN   115.00
1  33926 33930  "1 "    0     # line from  CH.STNJT 115.00   (3) to (2)   PEORIA   115.00
2  33928 34050  "1 "    0     # TRAN from  CH.STN   115.00   (2) to (1)   CH.STN.   13.80
1  33930 33932  "1 "    0     # line from  PEORIA   115.00   (2) to BRKR  MELONES  115.00
4  33928     0  "SP"    0     # LOAD-DROP    CH.STN   115.00  LOAD==2.81(0.64)
4  33930     0  "1 "    0     # LOAD-DROP    PEORIA   115.00  LOAD==26.77(1.19)
3  34050     0  "1 "    0     # GEN-DROP    CH.STN.   13.80  GEN==10.00(11.00)
0
 #
 #
 # (360)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33932 33922  "1 "    0     # line from  MELONES  115.00  BRKR to (1)   R.TRACK  115.00
4  33922     0  "1 "    0     # LOAD-DROP    R.TRACK  115.00  LOAD==17.06(0.76)
0
 #
 #
 # (361)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  34002 34004  "1 "    0     # line from  SALADO    60.00  BRKR to (2)   PTRSNFRZ  60.00
1  34004 34006  "1 "    0     # line from  PTRSNFRZ  60.00   (2) to BRKR  PATTERSN  60.00
0
 #
 #
 # (362)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  34002 34008  "1 "    0     # line from  SALADO    60.00  BRKR to (3)   STNSLSRP  60.00
1  34008 34016  "1 "    0     # line from  STNSLSRP  60.00   (3) to (2)   MEDLIN J  60.00
2  34008 34056  "1 "    0     # TRAN from  STNSLSRP  60.00   (3) to (1)   STNSLSRP  13.80
1  34016 34018  "1 "    0     # line from  MEDLIN J  60.00   (2) to (3)   NWMN JCT  60.00
1  34018 34014  "1 "    0     # line from  NWMN JCT  60.00   (3) to BRKR  NEWMAN    60.00
1  34018 34020  "1 "    0     # line from  NWMN JCT  60.00   (3) to (1)   GUSTINE   60.00
4  34020     0  "1 "    0     # LOAD-DROP    GUSTINE   60.00  LOAD==9.90(0.44)
4  34020     0  "2 "    0     # LOAD-DROP    GUSTINE   60.00  LOAD==10.83(0.49)
3  34056     0  "1 "    0     # GEN-DROP    STNSLSRP  13.80  GEN==16.30(6.29)
1  34012 34020  "1 "    1      # Switches in Gustine SW 19 to transfer load
4  34020 0      "**"    1      # Restore Load at Gustine
0
 #
 #
 # (363)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
```

```
1  34006 34010  "1 "    0     # line from  PATTERSN  60.00  BRKR to (3)   CRWS LDJ  60.00
1  34010 34012  "1 "    0     # line from  CRWS LDJ  60.00   (3) to (2)   GUSTN JT  60.00
1  34010 34017  "1 "    0     # line from  CRWS LDJ  60.00   (3) to (1)   CRWS LDG  60.00
1  34012 34014  "1 "    0     # line from  GUSTN JT  60.00   (2) to BRKR  NEWMAN    60.00
4  34017     0  "1 "    0     # LOAD-DROP    CRWS LDG  60.00  LOAD==3.92(0.18)
1  34016 34017  "1 "    1      # Switches in Crows Landing SW 57 to transfer load
4  34017     0  "**"    1      # Restore Load at Crows Landing
0
 #
 #
 # (364)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  37016 30500  "1 "    0     # line from  RNCHSECO 230.00  BRKR to BRKR  BELLOTA  230.00
0
 #
 #
 # (365)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  37016 30500  "2 "    0     # line from  RNCHSECO 230.00  BRKR to BRKR  BELLOTA  230.00
0
 #
 #
 # (366)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  38000 30622  "1 "    0     # line from  LODI     230.00  BRKR to BRKR  EIGHT MI 230.00
0
 #
 #
 # (367)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  38060 33729  "1 "    0     # line from  INDUSTRL  60.00  BRKR to BRKR  LODI AUX  60.00
0
 #
 #
 # (368)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  38060 33730  "1 "    0     # line from  INDUSTRL  60.00  BRKR to (2)   GENMILLS  60.00
2  33730 33830  "1 "    0     # TRAN from  GENMILLS  60.00   (2) to (1)   GEN.MILL   9.11
3  33830     0  "1 "    0     # GEN-DROP    GEN.MILL   9.11  GEN==2.50(1.50)
0
 #
 #
 # (369)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  30485 30486  "1 "    0     # TRAN from  TIGR CRK 230.00   (3) to (3)   TIGR CKM 230.00
1  30485 30487  "1 "    0     # line from  TIGR CRK 230.00  BRKR to BRKR  ELECTRA  230.00
1  30485 30490  "1 "    0     # line from  TIGR CRK 230.00  BRKR to BRKR  VLLY SPS 230.00
2  30486 33584  "1 "    0     # TRAN from  TIGR CKM 230.00   (3) to (2)   TIGR CRK 115.00
2  30486 33822  "1 "    0     # TRAN from  TIGR CKM 230.00   (3) to (1)   TIGR CRK  11.00
1  33584 33582  "1 "    0     # line from  TIGR CRK 115.00  BRKR to BRKR  SLT SPRG 115.00
4  33822     0  "1 "    0     # LOAD-DROP    TIGR CRK  11.00  LOAD==0.20(0.00)
3  33822     0  "1 "    0     # GEN-DROP    TIGR CRK  11.00  GEN==26.70(8.10)
3  33822     0  "2 "    0     # GEN-DROP    TIGR CRK  11.00  GEN==27.00(8.19)
0
 #
 #
 # (370)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  30487 33812  "1 "    0     # TRAN from  ELECTRA  230.00   (3) to (1)   ELECTRA   13.80
1  30487 30485  "1 "    0     # line from  ELECTRA  230.00  BRKR to BRKR  TIGR CRK 230.00
1  30487 30500  "1 "    0     # line from  ELECTRA  230.00  BRKR to BRKR  BELLOTA  230.00
4  33812     0  "1 "    0     # LOAD-DROP    ELECTRA   13.80  LOAD==14.20(2.49)
3  33812     0  "1 "    0     # GEN-DROP    ELECTRA   13.80  GEN==29.00(12.37)
3  33812     0  "2 "    0     # GEN-DROP    ELECTRA   13.80  GEN==29.00(12.37)
3  33812     0  "3 "    0     # GEN-DROP    ELECTRA   13.80  GEN==29.00(12.37)
0
 #
 #
 # (371)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  30500 30501  "1 "    0     # TRAN from  BELLOTA  230.00  BRKR to (3)   BLLTA 1M 230.00
2  30501 33562  "1 "    0     # TRAN from  BLLTA 1M 230.00   (3) to BRKR  BELLOTA  115.00
2  30501 33804  "1 "    0     # TRAN from  BLLTA 1M 230.00   (3) to (1)   BELLTA T  13.80
0
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 #
 #
 # (372)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
#     **** 3-WINDING TRANSFORMER  30624  (33852)  30040  33802 :
2  30624 30040  "2 "    0     # TRAN from  TESLA E  230.00  BRKR to (1)   TESLA    500.00
0
 #
 #
 # (373)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  30625 30040  "4 "    0     # TRAN from  TESLA D  230.00  BRKR to BRKR  TESLA    500.00
0
 #
 #
 # (374)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  30640 30040  "6 "    0     # TRAN from  TESLA C  230.00  BRKR to BRKR  TESLA    500.00
0
 #
 #
 # (375)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  33540 30625  "1 "    0     # TRAN from  TESLA    115.00  BRKR to BRKR  TESLA D  230.00
0
 #
 #
 # (376)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  33540 30625  "3 "    0     # TRAN from  TESLA    115.00  BRKR to BRKR  TESLA D  230.00
0
 #
 #
 # (377)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  33562 30500  "2 "    0     # TRAN from  BELLOTA  115.00  BRKR to BRKR  BELLOTA  230.00
0
 #
 #
 # (378)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  33610 30490  "1 "    0     # TRAN from  VLLY SPS  60.00  BRKR to (3)   VLLY SPS 230.00
1  30490 30485  "1 "    0     # line from  VLLY SPS 230.00  BRKR to BRKR  TIGR CRK 230.00
1  30490 30500  "1 "    0     # line from  VLLY SPS 230.00  BRKR to BRKR  BELLOTA  230.00
0
 #
 #
 # (379)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  33650 30505  "1 "    0     # TRAN from  WEBER 1   60.00  BRKR to BRKR  WEBER    230.00
0
 #
 #
 # (380)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  33662 30505  "2 "    0     # TRAN from  WEBER 2   60.00  BRKR to BRKR  WEBER    230.00
2  33662 30505  "2a"   0      # Bank 2 or 2a are tied to same breaker (CB 242,202&82)
0
 #
 #
 # (381)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  33704 30498  "1 "    0     # TRAN from  STAGG     60.00  BRKR to BRKR  STAGG-D  230.00
0
 #
 #
 # (382)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  33704 30499  "4 "    0     # TRAN from  STAGG     60.00  BRKR to BRKR  STAGG-E  230.00
1  30499 30489  "1 "    0      #Open Stagg-E-Stagg Jct2 line section
0
 #
 #
 # (383)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
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```
 #
2  33724 30482  "2 "    0     # TRAN from  LOCKEFRD  60.00  BRKR to BRKR  LOCKFORD 230.00
0
 #
 #
 # (384)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  33724 30482  "3 "    0     # TRAN from  LOCKEFRD  60.00  BRKR to BRKR  LOCKFORD 230.00
0
 #
 #
 # (385)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  33742 33514  "3 "    0     # TRAN from  MANTECA   60.00  BRKR to BRKR  MANTECA  115.00
0
 #
 #
 # (386)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  33756 33528  "1 "    0     # TRAN from  KASSON    60.00   (4) to BRKR  KASSON   115.00
1  33756 33750  "1 "    0     # line from  KASSON    60.00  BRKR to (1)   CALVO     60.00
1  33756 33758  "1 "    0     # line from  KASSON    60.00  BRKR to BRKR  BANTA     60.00
1  33756 33760  "1 "    0     # line from  KASSON    60.00  BRKR to (1)   BNTA JCT  60.00
4  33758     0  "1 "    0     # LOAD-DROP    BANTA     60.00  LOAD==7.14(0.32)
0
 #
 #
 # (387)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  33770 33600  "2 "    0     # TRAN from  HERDLYN   60.00  BRKR to BRKR  HERDLYN   70.00
1  33770 33772  "1 "    0      #Open Herdlyn-Byron Bethany line section
1  33770 33774  "1 "    0      #Open Herdlyn-Herdlyn Jct line section
4  33770     0  "**"    0      #Drop Herdlyn 60 kV load with outage
1  33600 37582  "1 "    0      #Open Herdlyn-Tracy 70 kV Line section
0
 #
 #
 # (388)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  33800 33582  "1 "    0     # TRAN from  SALT SPS  21.00   (2) to (2)   SLT SPRG 115.00
1  33800 38100  "1 "    0     # line from  SALT SPS  21.00  BRKR to (1)   SPICER    21.00
1  33582 33584  "1 "    0     # line from  SLT SPRG 115.00  BRKR to BRKR  TIGR CRK 115.00
4  33800     0  "1 "    0     # LOAD-DROP    SALT SPS  21.00  LOAD==12.04(0.54)
3  33800     0  "1 "    0     # GEN-DROP    SALT SPS  21.00  GEN==10.20(3.00)
3  33800     0  "2 "    0     # GEN-DROP    SALT SPS  21.00  GEN==32.00(12.40)
0
 #
 #
 # (389)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  33850 33566  "1 "    0     # TRAN from  CAMANCHE   4.16   (1) to BRKR  CAMANCHE 115.00
3  33850     0  "1 "    0     # GEN-DROP    CAMANCHE   4.16  GEN==3.50(1.41)
3  33850     0  "2 "    0     # GEN-DROP    CAMANCHE   4.16  GEN==3.50(0.00)
3  33850     0  "3 "    0     # GEN-DROP    CAMANCHE   4.16  GEN==3.50(0.00)
0
 #
 #
 # (390)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  33906 34078  "1 "    0     # TRAN from  SPRNG GP 115.00  BRKR to (1)   SPRNG GP   6.00
3  34078     0  "1 "    0     # GEN-DROP    SPRNG GP   6.00  GEN==3.90(3.70)
4  33906     0  "**"    0      # This outage will also drop distribution load Bk1
0
 #
 #
 # (391)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  34002 33964  "1 "    0     # TRAN from  SALADO    60.00  BRKR to (3)   SALADO   115.00
1  33964 33962  "1 "    0     # line from  SALADO   115.00  BRKR to (1)   SALDO TP 115.00
1  33964 33965  "1 "    0     # line from  SALADO   115.00  BRKR to (1)   SALADO J 115.00
0
 #
 #
 # (392)  B1 GENERATOR OUTAGE
```

```
 #
3  33687    0  "1"    0    # STKTN WW  60.00      PGEN=1.50  QGEN=0.15
0
 #
 #
 # (393)  B1 GENERATOR OUTAGE
 #
3  33773    0  "1"    0    # ALTA-CGE  60.00      PGEN=4.03  QGEN=-1.00
0
 #
 #
 # (394)  B1 GENERATOR OUTAGE
 #
3  33800    0  "1"    0    # SALT SPS  21.00      PGEN=10.18  QGEN=3.00
0
 #
 #
 # (395)  B1 GENERATOR OUTAGE
 #
3  33800    0  "2"    0    # SALT SPS  21.00      PGEN=32.00  QGEN=12.40
0
 #
 #
 # (396)  B1 GENERATOR OUTAGE
 #
3  33804    0  "1"    0    # BELLTA T  13.80      PGEN=0.00  QGEN=39.35
0
 #
 #
 # (397)  B1 GENERATOR OUTAGE
 #
3  33805    0  "1"    0    # GWFTRCY1  13.80      PGEN=85.90  QGEN=17.66
0
 #
 #
 # (398)  B1 GENERATOR OUTAGE
 #
3  33806    0  "1"    0    # TH.E.DV.  13.80      PGEN=19.65  QGEN=6.00
0
 #
 #
 # (399)  B1 GENERATOR OUTAGE
 #
3  33807    0  "1"    0    # GWFTRCY2  13.80      PGEN=85.90  QGEN=17.66
0
 #
 #
 # (400)  B1 GENERATOR OUTAGE
 #
3  33808    0  "1"    0    # SJ COGEN  13.80      PGEN=45.24  QGEN=27.41
0
 #
 #
 # (401)  B1 GENERATOR OUTAGE
 #
3  33810    0  "1"    0    # SP CMPNY  13.80      PGEN=37.70  QGEN=16.07
0
 #
 #
 # (402)  B1 GENERATOR OUTAGE
 #
3  33812    0  "1"    0    # ELECTRA   13.80      PGEN=29.00  QGEN=8.65
0
 #
 #
 # (403)  B1 GENERATOR OUTAGE
 #
3  33812    0  "2"    0    # ELECTRA   13.80      PGEN=29.00  QGEN=8.65
0
 #
 #
 # (404)  B1 GENERATOR OUTAGE
 #
3  33812    0  "3"    0    # ELECTRA   13.80      PGEN=29.00  QGEN=8.65
```

```
0
 #
 #
 # (405)  B1 GENERATOR OUTAGE
 #
3  33814     0  "1"     0     # CPC STCN  12.47       PGEN=49.00  QGEN=15.30
0
 #
 #
 # (406)  B1 GENERATOR OUTAGE
 #
3  33820     0  "1"     0     # WEST PNT  11.50       PGEN=13.60  QGEN=7.00
0
 #
 #
 # (407)  B1 GENERATOR OUTAGE
 #
3  33822     0  "1"     0     # TIGR CRK  11.00       PGEN=26.70  QGEN=4.18
0
 #
 #
 # (408)  B1 GENERATOR OUTAGE
 #
3  33822     0  "2"     0     # TIGR CRK  11.00       PGEN=27.00  QGEN=4.23
0
 #
 #
 # (409)  B1 GENERATOR OUTAGE
 #
3  33830     0  "1"     0     # GEN.MILL   9.11       PGEN=2.50  QGEN=1.50
0
 #
 #
 # (410)  B1 GENERATOR OUTAGE
 #
3  33832     0  "1"     0     # COG.CAPT   9.11       PGEN=4.30  QGEN=6.60
0
 #
 #
 # (411)  B1 GENERATOR OUTAGE
 #
3  33836     0  "3"     0     # USWP_#4    9.11       PGEN=4.50  QGEN=0.00
0
 #
 #
 # (412)  B1 GENERATOR OUTAGE
 #
3  33840     0  "1"     0     # FLOWD3-6   9.11       PGEN=1.25  QGEN=0.00
0
 #
 #
 # (413)  B1 GENERATOR OUTAGE
 #
3  33840     0  "4"     0     # FLOWD3-6   9.11       PGEN=1.13  QGEN=0.00
0
 #
 #
 # (414)  B1 GENERATOR OUTAGE
 #
3  33846     0  "2"     0     # PRDE 1-3   7.20       PGEN=8.00  QGEN=2.00
0
 #
 #
 # (415)  B1 GENERATOR OUTAGE
 #
3  33848     0  "1"     0     # PARDE 2    7.20       PGEN=8.00  QGEN=-1.50
0
 #
 #
 # (416)  B1 GENERATOR OUTAGE
 #
3  33850     0  "1"     0     # CAMANCHE   4.16       PGEN=3.50  QGEN=-2.00
0
 #
```

```
 #
 # (417)  B1 GENERATOR OUTAGE
 #
3  33850    0  "2"    0    # CAMANCHE   4.16      PGEN=3.50  QGEN=0.00
0
 #
 #
 # (418)  B1 GENERATOR OUTAGE
 #
3  33850    0  "3"    0    # CAMANCHE   4.16      PGEN=3.50  QGEN=0.00
0
 #
 #
 # (419)  B1 GENERATOR OUTAGE
 #
3  34050    0  "1"    0    # CH.STN.   13.80      PGEN=10.02  QGEN=10.00
0
 #
 #
 # (420)  B1 GENERATOR OUTAGE
 #
3  34056    0  "1"    0    # STNSLSRP  13.80      PGEN=16.27  QGEN=7.52
0
 #
 #
 # (421)  B1 GENERATOR OUTAGE
 #
3  34058    0  "1"    0    # DONNELLS  13.80      PGEN=64.15  QGEN=10.63
0
 #
 #
 # (422)  B1 GENERATOR OUTAGE
 #
3  34060    0  "1"    0    # SANDBAR   13.80      PGEN=14.68  QGEN=0.96
0
 #
 #
 # (423)  B1 GENERATOR OUTAGE
 #
3  34062    0  "1"    0    # STANISLS  13.80      PGEN=63.92  QGEN=15.00
0
 #
 #
 # (424)  B1 GENERATOR OUTAGE
 #
3  34074    0  "1"    0    # BEARDSLY   6.90      PGEN=10.58  QGEN=0.58
0
 #
 #
 # (425)  B1 GENERATOR OUTAGE
 #
3  34076    0  "1"    0    # TULLOCH    6.90      PGEN=8.25  QGEN=0.64
0
 #
 #
 # (426)  B1 GENERATOR OUTAGE
 #
3  34076    0  "2"    0    # TULLOCH    6.90      PGEN=8.25  QGEN=0.64
0
 #
 #
 # (427)  B1 GENERATOR OUTAGE
 #
3  34078    0  "1"    0    # SPRNG GP   6.00      PGEN=3.93  QGEN=1.41
0
 #
 #
 # (428)  B1 GENERATOR OUTAGE
 #
3  38102    0  "1"    0    # COLLRVL1  13.80      PGEN=89.35  QGEN=58.46
0
 #
 #
 # (429)  B1 GENERATOR OUTAGE
```

```
 #
3  38104     0  "1"     0     # COLLRVL2  13.80       PGEN=89.35  QGEN=58.46
0
 #
 #
 # (430)  B1 GENERATOR OUTAGE
 #
3  38365     0  "1"     0     # N.HGN DM  12.00       PGEN=1.50  QGEN=0.10
0
 #
 #
 # (431)  B1 GENERATOR OUTAGE
 #
3  38365     0  "2"     0     # N.HGN DM  12.00       PGEN=1.50  QGEN=0.10
0
 #
 #
 # (432)  B1 GENERATOR OUTAGE
 #
3  33818     0  "1"     0     # Q199      13.80       PGEN=60.50  QGEN=4.13
0
 #
 #
 # (433)  B1 GENERATOR OUTAGE
 #
3  33858     0  "1"     0     # P0409CG2  13.80       PGEN=78.24  QGEN=5.46
0
 #
 #
 # (434)  B1 GENERATOR OUTAGE
 #
3  33859     0  "2"     0     # P0703ST2  13.80       PGEN=65.28  QGEN=3.31
0
 #
 #
 # (435)  B1 GENERATOR OUTAGE
 #
3  33863     0  "1"     0     # Q235GT1   13.80       PGEN=109.00  QGEN=14.62
0
 #
 #
 # (436)  B1 GENERATOR OUTAGE
 #
3  33871     0  "1"     0     # Q236GT1   13.80       PGEN=109.00  QGEN=12.29
0
 #
 #
 # (437)  B1 GENERATOR OUTAGE
 #
3  33877     0  "1"     0     # Q260CT1   18.00       PGEN=174.00  QGEN=26.16
0
 #
 #
 # (438)  B1 GENERATOR OUTAGE
 #
3  33878     0  "1"     0     # Q260ST1   13.80       PGEN=94.00  QGEN=12.26
0
 #
 #
 # (439)  B1 GENERATOR OUTAGE
 #
3  33888     0  "1"     0     # P0703GT1  16.50       PGEN=184.50  QGEN=10.94
0
 #
 #
 # (440)  B1 GENERATOR OUTAGE
 #
3  33891     0  "1"     0     # TESL_GT1  18.00       PGEN=173.00  QGEN=59.83
0
 #
 #
 # (441)  B1 GENERATOR OUTAGE
 #
3  33895     0  "1"     0     # TESL_ST1  18.00       PGEN=232.00  QGEN=79.95
```

```
0
 #
 #
 # (442)  B1 GENERATOR OUTAGE
 #
3  33809     0  "1"    0    # Q268ST1   13.80      PGEN=154.70  QGEN=14.72
0
 #
 #
 # (443)  L-1/G-1 OVERLAPPING OUTAGE
 # Melones - Race Track 115 kV Line and Chinese Station
1  33932 33922  "1 "    0    # line from  MELONES  115.00  BRKR to (1)   R.TRACK  115.00
4  33922     0  "1 "    0    # LOAD-DROP    R.TRACK  115.00  LOAD==17.06(0.76)
 #
3  34050     0  "1"    0    # CH.STN.   13.80      PGEN=10.02  QGEN=10.00
0
 #
 #
 # (444)  L-1/G-1 OVERLAPPING OUTAGE
 # Tesla - Tracy 115 kV Line and Stanislaus Powerhouse
1  33540 33544  "1 "    0    # line from  TESLA    115.00  BRKR to (2)   ELLS GTY 115.00
1  33544 33546  "1 "    0    # line from  ELLS GTY 115.00   (2) to (2)   TRACY JC 115.00
1  33546 33542  "1 "    0    # line from  TRACY JC 115.00   (2) to (2)   LEPRINO  115.00
1  33542 33548  "1 "    0    # line from  LEPRINO  115.00   (2) to BRKR  TRACY    115.00
4  33544     0  "1 "    0    # LOAD-DROP    ELLS GTY 115.00  LOAD==3.62(1.86)
4  33542     0  "1 "    0    # LOAD-DROP    LEPRINO  115.00  LOAD==3.67(2.37)
 #
3  34062     0  "1"    0    # STANISLS  13.80      PGEN=63.92  QGEN=15.00
0
 #
 #
 # (445)  L-1/G-1 OVERLAPPING OUTAGE
 # Tesla - Manteca 115 kV Line and Stanislaus Powerhouse pre-project outage
1  33514 33526  "1 "    0    # line from  MANTECA  115.00  BRKR to (3)   KSSN-JC1 115.00
1  33526 33528  "1 "    0    # line from  KSSN-JC1 115.00   (3) to BRKR  KASSON   115.00
1  33526 33533  "1 "    0    # line from  KSSN-JC1 115.00   (3) to (2)   OWENSTP2 115.00
1  33533 33535  "1 "    0    # line from  OWENSTP2 115.00   (2) to (2)   SFWY_TP2 115.00
1  33535 33543  "1 "    0    # line from  SFWY_TP2 115.00   (2) to (3)   AEC_TP2  115.00
1  33543 33540  "1 "    0    # line from  AEC_TP2  115.00   (3) to BRKR  TESLA    115.00
1  33543 33545  "1 "    0    # line from  AEC_TP2  115.00   (3) to (2)   AEC_JCT  115.00
1  33545 33547  "1 "    0    # line from  AEC_JCT  115.00   (2) to (1)   AEC_300  115.00
4  33547     0  "1 "    0    # LOAD-DROP    AEC_300  115.00  LOAD==3.00(9.54)
 #
3  34062     0  "1"    0    # STANISLS  13.80      PGEN=63.92  QGEN=15.00
0
 #
 #
 # (446)  L-1/G-1 OVERLAPPING OUTAGE
 # Tesla - Schulte #2 115 kV Line and Stanislaus Powerhouse post-project outage
1  33535 33549  "2 "    0    # line from  SFWY_TP2 115.00   (2) to BRKR  SCHULTE  115.00
1  33535 33543  "1 "    0    # line from  SFWY_TP2 115.00   (2) to (3)   AEC_TP2  115.00
1  33543 33540  "1 "    0    # line from  AEC_TP2  115.00   (3) to BRKR  TESLA    115.00
1  33543 33545  "1 "    0    # line from  AEC_TP2  115.00   (3) to (2)   AEC_JCT  115.00
1  33545 33547  "1 "    0    # line from  AEC_JCT  115.00   (2) to (1)   AEC_300  115.00
4  33547     0  "1 "    0    # LOAD-DROP    AEC_300  115.00  LOAD==3.00(9.54)
 #
3  34062     0  "1"    0    # STANISLS  13.80      PGEN=63.92  QGEN=15.00
0
 #
 #
 # (447)  L-1/G-1 OVERLAPPING OUTAGE
 # Schulte - Manteca 115 kV Line and Stanislaus Powerhouse post-project outage
1  33514 33526  "1 "    0    # line from  MANTECA  115.00  BRKR to (3)   KSSN-JC1 115.00
1  33526 33528  "1 "    0    # line from  KSSN-JC1 115.00   (3) to BRKR  KASSON   115.00
1  33526 33533  "1 "    0    # line from  KSSN-JC1 115.00   (3) to (2)   OWENSTP2 115.00
1  33533 33549  "2 "    0    # line from  OWENSTP2 115.00   (2) to BRKR  SCHULTE  115.00
 #
3  34062     0  "1"    0    # STANISLS  13.80      PGEN=63.92  QGEN=15.00
0
 #
 #
 # (448)  L-1/G-1 OVERLAPPING OUTAGE
 # Bellota - Riverbank - Melones 115 kV Line and Stanislaus Powerhouse
1  33562 33950  "1 "    0    # line from  BELLOTA  115.00  BRKR to (3)   RVRBK TP 115.00
```

```
1  33950 33934  "1 "    0     # line from  RVRBK TP 115.00   (3) to (3)   TULLOCH  115.00
1  33950 33944  "1 "    0     # line from  RVRBK TP 115.00   (3) to BRKR  RVRBANK  115.00
1  33934 33932  "1 "    0     # line from  TULLOCH  115.00   (3) to BRKR  MELONES  115.00
2  33934 34076  "1 "    0     # TRAN from  TULLOCH  115.00   (3) to (1)   TULLOCH    6.90
3  34076     0  "1 "    0     # GEN-DROP    TULLOCH    6.90  GEN==8.30(1.00)
3  34076     0  "2 "    0     # GEN-DROP    TULLOCH    6.90  GEN==8.30(1.00)
 #
3  34062     0  "1"     0     # STANISLS  13.80       PGEN=63.92  QGEN=15.00
0
 #
 #
 # (449)  L-1/G-1 OVERLAPPING OUTAGE
 # Stanislaus - Manteca #2 115 kV Line and Stanislaus Powerhouse
1  33506 33948  "1 "    0     # line from  STANISLS 115.00  BRKR to (2)   RVRBK J2 115.00
1  33948 33953  "1 "    0     # line from  RVRBK J2 115.00   (2) to (2)   VLYHMTP2 115.00
1  33953 33511  "1 "    0     # line from  VLYHMTP2 115.00   (2) to (2)   AVENATP2 115.00
1  33511 33514  "1 "    0     # line from  AVENATP2 115.00   (2) to BRKR  MANTECA  115.00
 #
3  34062     0  "1"     0     # STANISLS  13.80       PGEN=63.92  QGEN=15.00
0
 #
 #
 # (450)  L-1/G-1 OVERLAPPING OUTAGE
 # Riverbank Jct Sw Sta - Manteca 115 kV Line and Stanislaus Powerhouse
1  33516 33514  "1 "    0     # line from  RPN JNCN 115.00   (3) to BRKR  MANTECA  115.00
1  33516 33520  "1 "    0     # line from  RPN JNCN 115.00   (3) to (1)   RIPON    115.00
1  33516 33951  "1 "    0     # line from  RPN JNCN 115.00   (3) to (3)   VLYHMTP1 115.00
1  33951 33947  "1 "    0     # line from  VLYHMTP1 115.00   (3) to BRKR  RIVRBKJT 115.00
1  33951 33952  "1 "    0     # line from  VLYHMTP1 115.00   (3) to (1)   VALLY HM 115.00
4  33520     0  "2 "    0     # LOAD-DROP    RIPON    115.00  LOAD==29.97(1.34)
4  33952     0  "1 "    0     # LOAD-DROP    VALLY HM 115.00  LOAD==5.36(0.24)
 #
3  34062     0  "1"     0     # STANISLS  13.80       PGEN=63.92  QGEN=15.00
0
 #
 #
 # (451)  L-1/G-1 OVERLAPPING OUTAGE
 # Stanislaus - Melones - Manteca #1 115 kV Line and Stanislaus Powerhouse
1  33500 33509  "1 "    0     # line from  MELNS JA 115.00   (3) to (3)   AVENATP1 115.00
1  33500 33501  "1 "    0     # line from  MELNS JA 115.00   (3) to (3)   FRGTNTP1 115.00
1  33500 33932  "1 "    0     # line from  MELNS JA 115.00   (3) to BRKR  MELONES  115.00
1  33509 33510  "1 "    0     # line from  AVENATP1 115.00   (3) to (1)   AVENA    115.00
1  33509 33514  "1 "    0     # line from  AVENATP1 115.00   (3) to BRKR  MANTECA  115.00
1  33501 33502  "1 "    0     # line from  FRGTNTP1 115.00   (3) to (1)   FROGTOWN 115.00
1  33501 33506  "1 "    0     # line from  FRGTNTP1 115.00   (3) to BRKR  STANISLS 115.00
4  33510     0  "1 "    0     # LOAD-DROP    AVENA    115.00  LOAD==13.67(0.61)
4  33502     0  "1 "    0     # LOAD-DROP    FROGTOWN 115.00  LOAD==11.14(0.50)
4  33502     0  "2 "    0     # LOAD-DROP    FROGTOWN 115.00  LOAD==8.04(0.36)
1  33511 33510  "1 "    1      # Switches in Avenan SW 145 to transfer load
4  33510     0  "**"    1      # Restores Load at Avena
 #
3  34062     0  "1"     0     # STANISLS  13.80       PGEN=63.92  QGEN=15.00
0
 #
 #
 # (452)  L-1/G-1 OVERLAPPING OUTAGE
 # Tesla - Stockton Cogen 115 kV Line and Stanislaus Powerhouse
1  33540 33568  "1 "    0     # line from  TESLA    115.00  BRKR to (3)   TH.E.DV. 115.00
1  33568 33570  "1 "    0     # line from  TH.E.DV. 115.00   (3) to (3)   SPC JCT. 115.00
2  33568 33806  "1 "    0     # TRAN from  TH.E.DV. 115.00   (3) to (1)   TH.E.DV.  13.80
1  33570 33587  "1 "    0     # line from  SPC JCT. 115.00   (3) to (3)   P0409TP2 115.00
1  33570 33956  "1 "    0     # line from  SPC JCT. 115.00   (3) to (2)   SJ COGEN 115.00
1  33587 33572  "1 "    0     # line from  P0409TP2 115.00   (3) to (2)   SP CMPNY 115.00
1  33587 33588  "1 "    0     # line from  P0409TP2 115.00   (3) to (2)   P0409CG2 115.00
2  33572 33810  "1 "    0     # TRAN from  SP CMPNY 115.00   (2) to (1)   SP CMPNY  13.80
2  33588 33858  "1 "    0     # TRAN from  P0409CG2 115.00   (2) to (1)   P0409CG2  13.80
2  33956 33808  "1 "    0     # TRAN from  SJ COGEN 115.00   (2) to (1)   SJ COGEN  13.80
4  33858     0  "ss"    0     # LOAD-DROP    P0409CG2  13.80  LOAD==3.34(1.85)
3  33806     0  "1 "    0     # GEN-DROP    TH.E.DV.  13.80  GEN==19.60(6.00)
3  33810     0  "1 "    0     # GEN-DROP    SP CMPNY  13.80  GEN==37.70(0.52)
3  33858     0  "1 "    0     # GEN-DROP    P0409CG2  13.80  GEN==78.24(5.46)
3  33808     0  "1 "    0     # GEN-DROP    SJ COGEN  13.80  GEN==45.20(9.58)
 #
3  34062     0  "1"     0     # STANISLS  13.80       PGEN=63.92  QGEN=15.00
```

```
0
 #
 #
 # (453)  L-1/G-1 OVERLAPPING OUTAGE
 # Stockton A - Weber #2 60 kV Line and POSDEF
1  33658 33670  "1 "    0    # line from  SNTA FEB  60.00   (3) to BRKR  STCKTN A  60.00
1  33658 33678  "1 "    0    # line from  SNTA FEB  60.00   (3) to (2)   MONARCH   60.00
1  33658 33662  "1 "    0    # line from  SNTA FEB  60.00   (3) to BRKR  WEBER 2   60.00
1  33678 33684  "1 "    0    # line from  MONARCH   60.00   (2) to (2)   HARDING   60.00
1  33684 33686  "1 "    0    # line from  HARDING   60.00   (2) to (1)   STCKTNAR  60.00
4  33678     0  "2 "    0    # LOAD-DROP    MONARCH   60.00  LOAD==4.13(0.18)
4  33684     0  "1 "    0    # LOAD-DROP    HARDING   60.00  LOAD==4.75(0.21)
4  33684     0  "2 "    0    # LOAD-DROP    HARDING   60.00  LOAD==5.28(0.24)
4  33686     0  "1 "    0    # LOAD-DROP    STCKTNAR  60.00  LOAD==4.10(0.18)
 #
3  33818     0  "1"    0    # Q199      13.80       PGEN=60.50  QGEN=4.13
0
 #
 #
 # (454)  L-1/G-1 OVERLAPPING OUTAGE
 # Salado - Patterson 60 kV Line and Stanislaus Waste Cogen
1  34002 34004  "1 "    0    # line from  SALADO    60.00  BRKR to (2)   PTRSNFRZ  60.00
1  34004 34006  "1 "    0    # line from  PTRSNFRZ  60.00   (2) to BRKR  PATTERSN  60.00
 #
3  34056     0  "1"    0    # STNSLSRP  13.80       PGEN=16.27  QGEN=7.52
0
 #
 #
 # (455)  L-1/G-1 OVERLAPPING OUTAGE
 # Salado - Newman #2 60 kV Line and Stanislaus Waste Cogen
1  34002 34008  "1 "    0    # line from  SALADO    60.00  BRKR to (3)   STNSLSRP  60.00
1  34008 34016  "1 "    0    # line from  STNSLSRP  60.00   (3) to (2)   MEDLIN J  60.00
2  34008 34056  "1 "    0    # TRAN from  STNSLSRP  60.00   (3) to (1)   STNSLSRP  13.80
1  34016 34018  "1 "    0    # line from  MEDLIN J  60.00   (2) to (3)   NWMN JCT  60.00
1  34018 34014  "1 "    0    # line from  NWMN JCT  60.00   (3) to BRKR  NEWMAN    60.00
1  34018 34020  "1 "    0    # line from  NWMN JCT  60.00   (3) to (1)   GUSTINE   60.00
4  34020     0  "1 "    0    # LOAD-DROP    GUSTINE   60.00  LOAD==9.90(0.44)
4  34020     0  "2 "    0    # LOAD-DROP    GUSTINE   60.00  LOAD==10.83(0.49)
3  34056     0  "1 "    0    # GEN-DROP    STNSLSRP  13.80  GEN==16.30(6.29)
1  34012 34020  "1 "    1     # Switches in Gustine SW 19 to transfer load
4  34020 0      "**"    1     # Restore Load at Gustine
 #
3  34056     0  "1"    0    # STNSLSRP  13.80       PGEN=16.27  QGEN=7.52
0
 #
 #
 # (456)  L-1/G-1 OVERLAPPING OUTAGE
 # Tesla - Salado #1 115 kV Line and Stanislaus Waste Cogen
1  33540 33961  "1 "    0    # line from  TESLA    115.00  BRKR to (3)   TCHRT_T1 115.00
1  33961 33960  "1 "    0    # line from  TCHRT_T1 115.00   (3) to (2)   MDSTO CN 115.00
1  33961 33963  "1 "    0    # line from  TCHRT_T1 115.00   (3) to (2)   TCHRTJCT 115.00
1  33960 33962  "1 "    0    # line from  MDSTO CN 115.00   (2) to (3)   SALDO TP 115.00
1  33962 33964  "1 "    0    # line from  SALDO TP 115.00   (3) to BRKR  SALADO   115.00
1  33962 33967  "1 "    0    # line from  SALDO TP 115.00   (3) to (2)   MILER TP 115.00
1  33967 33966  "1 "    0    # line from  MILER TP 115.00   (2) to (1)   MILLER   115.00
1  33963 33968  "1 "    0    # line from  TCHRTJCT 115.00   (2) to (1)   TEICHERT 115.00
4  33966     0  "1 "    0    # LOAD-DROP    MILLER   115.00  LOAD==3.55(1.72)
4  33968     0  "1 "    0    # LOAD-DROP    TEICHERT 115.00  LOAD==7.44(6.56)
 #
3  34056     0  "1"    0    # STNSLSRP  13.80       PGEN=16.27  QGEN=7.52
0
 #
 #
 # (457)  L-1/G-1 OVERLAPPING OUTAGE
 # Tesla - Salado - Manteca 115 kV Line and Stanislaus Waste Cogen
1  33514 33970  "1 "    0    # line from  MANTECA  115.00  BRKR to (3)   INGRM C. 115.00
1  33970 33959  "1 "    0    # line from  INGRM C. 115.00   (3) to (2)   TCHRT_T2 115.00
1  33970 33965  "1 "    0    # line from  INGRM C. 115.00   (3) to (2)   SALADO J 115.00
1  33959 33540  "1 "    0    # line from  TCHRT_T2 115.00   (2) to BRKR  TESLA    115.00
1  33965 33964  "1 "    0    # line from  SALADO J 115.00   (2) to BRKR  SALADO   115.00
4  33970     0  "1 "    0    # LOAD-DROP    INGRM C. 115.00  LOAD==3.60(1.74)
 #
3  34056     0  "1"    0    # STNSLSRP  13.80       PGEN=16.27  QGEN=7.52
0
```

```
 #
 #
 # (458)  L-1/G-1 OVERLAPPING OUTAGE
 # Tesla - Schulte #1 115 kV Line and GWF Tracy 1
1  33537 33534  "1 "    0     # line from  SFWY_TP1 115.00   (3) to (1)   SAFEWAY  115.00
1  33537 33549  "1 "    0     # line from  SFWY_TP1 115.00   (3) to BRKR  SCHULTE  115.00
1  33537 33541  "1 "    0     # line from  SFWY_TP1 115.00   (3) to (2)   AEC_TP1  115.00
1  33541 33540  "1 "    0     # line from  AEC_TP1  115.00   (2) to BRKR  TESLA    115.00
4  33534     0  "1 "    0     # LOAD-DROP    SAFEWAY  115.00  LOAD==5.38(2.76)
 #
3  33805     0  "1"     0     # GWFTRCY1  13.80       PGEN=85.90  QGEN=17.66
0
 #
 #
 # (459)  L-1/G-1 OVERLAPPING OUTAGE
 # Tesla - Manteca 115 kV Line and GWF Tracy 1 pre-project outage
1  33514 33526  "1 "    0     # line from  MANTECA  115.00  BRKR to (3)   KSSN-JC1 115.00
1  33526 33528  "1 "    0     # line from  KSSN-JC1 115.00   (3) to BRKR  KASSON   115.00
1  33526 33533  "1 "    0     # line from  KSSN-JC1 115.00   (3) to (2)   OWENSTP2 115.00
1  33533 33535  "1 "    0     # line from  OWENSTP2 115.00   (2) to (2)   SFWY_TP2 115.00
1  33535 33543  "1 "    0     # line from  SFWY_TP2 115.00   (2) to (3)   AEC_TP2  115.00
1  33543 33540  "1 "    0     # line from  AEC_TP2  115.00   (3) to BRKR  TESLA    115.00
1  33543 33545  "1 "    0     # line from  AEC_TP2  115.00   (3) to (2)   AEC_JCT  115.00
1  33545 33547  "1 "    0     # line from  AEC_JCT  115.00   (2) to (1)   AEC_300  115.00
4  33547     0  "1 "    0     # LOAD-DROP    AEC_300  115.00  LOAD==3.00(9.54)
 #
3  33805     0  "1"     0     # GWFTRCY1  13.80       PGEN=85.90  QGEN=17.66
0
 #
 #
 # (460)  L-1/G-1 OVERLAPPING OUTAGE
 # Tesla - Schulte #2 115 kV Line and GWF Tracy 1 post-project outage
1  33535 33549  "2 "    0     # line from  SFWY_TP2 115.00   (2) to BRKR  SCHULTE  115.00
1  33535 33543  "1 "    0     # line from  SFWY_TP2 115.00   (2) to (3)   AEC_TP2  115.00
1  33543 33540  "1 "    0     # line from  AEC_TP2  115.00   (3) to BRKR  TESLA    115.00
1  33543 33545  "1 "    0     # line from  AEC_TP2  115.00   (3) to (2)   AEC_JCT  115.00
1  33545 33547  "1 "    0     # line from  AEC_JCT  115.00   (2) to (1)   AEC_300  115.00
4  33547     0  "1 "    0     # LOAD-DROP    AEC_300  115.00  LOAD==3.00(9.54)
 #
3  33805     0  "1"     0     # GWFTRCY1  13.80       PGEN=85.90  QGEN=17.66
0
 #
 #
 # (461)  L-1/G-1 OVERLAPPING OUTAGE
 # Schulte - Manteca 115 kV Line and GWF Tracy 1 post-project outage
1  33514 33526  "1 "    0     # line from  MANTECA  115.00  BRKR to (3)   KSSN-JC1 115.00
1  33526 33528  "1 "    0     # line from  KSSN-JC1 115.00   (3) to BRKR  KASSON   115.00
1  33526 33533  "1 "    0     # line from  KSSN-JC1 115.00   (3) to (2)   OWENSTP2 115.00
1  33533 33549  "2 "    0     # line from  OWENSTP2 115.00   (2) to BRKR  SCHULTE  115.00
 #
3  33805     0  "1"     0     # GWFTRCY1  13.80       PGEN=85.90  QGEN=17.66
0
 #
 #
 # (462)  L-1/G-1 OVERLAPPING OUTAGE
 # Lockeford - Lodi #2 60 kV Line and Lodi CT
1  33724 33726  "1 "    0     # line from  LOCKEFRD  60.00  BRKR to (2)   VICTOR    60.00
1  33726 33731  "1 "    0     # line from  VICTOR    60.00   (2) to (2)   WODBRG J  60.00
1  33731 33735  "1 "    0     # line from  WODBRG J  60.00   (2) to (2)   INDSTR J  60.00
1  33735 38060  "1 "    0     # line from  INDSTR J  60.00   (2) to BRKR  INDUSTRL  60.00
4  33726     0  "1 "    0     # LOAD-DROP    VICTOR    60.00  LOAD==0.21(0.01)
4  33726     0  "2 "    0     # LOAD-DROP    VICTOR    60.00  LOAD==3.54(0.16)
 #
3  38120     0  "1"     0     # LODI CT   13.80       PGEN=21.01  QGEN=0.10
0
 #
 #
 # (463)  L-1/G-1 OVERLAPPING OUTAGE
 # Lockeford - Lodi #3 60 kV Line and Lodi CT
1  33724 33736  "1 "    0     # line from  LOCKEFRD  60.00  BRKR to (2)   LODI JCT  60.00
1  33736 33729  "1 "    0     # line from  LODI JCT  60.00   (2) to BRKR  LODI AUX  60.00
 #
3  38120     0  "1"     0     # LODI CT   13.80       PGEN=21.01  QGEN=0.10
0
```

```
 #
 #
 # (464)  L-1/G-1 OVERLAPPING OUTAGE
 # Lockeford #1 60 kV Line and Lodi CT
1  33724 33738  "1 "    0     # line from  LOCKEFRD  60.00  BRKR to (1)   WATRLJCT  60.00
 #
3  38120     0  "1"     0     # LODI CT   13.80       PGEN=21.01  QGEN=0.10
0
 #
 #
 # (465)  L-1/G-1 OVERLAPPING OUTAGE
 # Lockeford - Industrial 60 kV Line and Lodi CT
1  33724 38060  "1 "    0     # line from  LOCKEFRD  60.00  BRKR to BRKR  INDUSTRL  60.00
 #
3  38120     0  "1"     0     # LODI CT   13.80       PGEN=21.01  QGEN=0.10
0
 #
 #
 # (466)  L-1/G-1 OVERLAPPING OUTAGE
 # Stockton Jct Sw Sta - Lockeford - Bellota #2 115 kV Line and Stockton Cogen
1  33552 33553  "1 "    0     # line from  STCKTNJB 115.00   (2) to BRKR  STKTON B 115.00
1  33552 33558  "1 "    0     # line from  STCKTNJB 115.00   (2) to (3)   LCKFRDJB 115.00
1  33558 33562  "1 "    0     # line from  LCKFRDJB 115.00   (3) to BRKR  BELLOTA  115.00
1  33558 33564  "1 "    0     # line from  LCKFRDJB 115.00   (3) to BRKR  LOCKFORD 115.00
4  33553     0  "3 "    0     # LOAD-DROP    STKTON B 115.00  LOAD==30.08(1.34)
1  33555 33553  "1 "    1      # Switches in Stockton 'A' SW 177 to transfer load
4  33553     0  "**"    1      # Restore Load at Stockton 'A' Bk  3
 #
3  33814     0  "1"     0     # CPC STCN  12.47       PGEN=49.00  QGEN=13.80
0
 #
 #
 # (467)  L-1/G-1 OVERLAPPING OUTAGE
 # Bellota - Melones 230 kV Line and Melones 1
1  30500 38206  "1 "    0     # line from  BELLOTA  230.00  BRKR to (2)   COTTLE A 230.00
1  38206 37563  "1 "    0     # line from  COTTLE A 230.00   (2) to BRKR  MELONES  230.00
4  38206     0  "1 "    0     # LOAD-DROP    COTTLE A 230.00  LOAD==27.63(1.24)
3  34604     0  "**"    0      # Drop unit#3 with a loss Bellota - Melones line
 #
3  37561     0  "1"     0     # MELONE1   13.80       PGEN=119.0  QGEN=53.00
0
 #
 #
 # (468)  L-1/G-1 OVERLAPPING OUTAGE
 # Bellota - Warnerville 230 kV Line and Melones 1
1  30500 38208  "1 "    0     # line from  BELLOTA  230.00  BRKR to (2)   COTTLE B 230.00
1  38208 30515  "1 "    0     # line from  COTTLE B 230.00   (2) to BRKR  WARNERVL 230.00
4  38208     0  "2 "    0     # LOAD-DROP    COTTLE B 230.00  LOAD==31.78(1.42)
3  34604     0  "**"    0      # Drop unit#3 with a loss Bellota - Warnerville line
 #
3  37561     0  "1"     0     # MELONE1   13.80       PGEN=119.0  QGEN=53.00
0
 #
 #
-1
 # EOF
```

```
# Q268 2013 summer category c contingency list (dctl and bus outages)
# Sacramento, Sierra and Stockton-Stanislaus Divisions Zones 304, 305 and 311-312
#
 # 2013 category c contingency list (dctl and bus outages)
 # Sacramento Division Zone 304
 #
 #
 # (1) C5 DCTL OUTAGE
 # Vaca-Dixon - Peabody and Vaca-Dixon - Lambie 230 kV Lines
1  30460 30472  "1 "    0     # line from  VACA-DIX 230.00  BRKR to BRKR  PEABODY  230.00
 #
1  30460 30478  "1 "    0     # line from  VACA-DIX 230.00  BRKR to BRKR  LAMBIE   230.00
0
 #
 #
 # (2) C5 DCTL OUTAGE
 # Vaca-Dixon - Peabody and Peabody - Birds Landing 230 kV Lines
1  30460 30472  "1 "    0     # line from  VACA-DIX 230.00  BRKR to BRKR  PEABODY  230.00
 #
1  30472 30479  "1 "    0     # line from  PEABODY  230.00  BRKR to BRKR  BDLSWSTA 230.00
0
 #
 #
 # (3) C5 DCTL OUTAGE
 # Vaca-Dixon - Lambie and Peabody - Birds Landing 230 kV Lines
1  30460 30478  "1 "    0     # line from  VACA-DIX 230.00  BRKR to BRKR  LAMBIE   230.00
 #
1  30472 30479  "1 "    0     # line from  PEABODY  230.00  BRKR to BRKR  BDLSWSTA 230.00
0
 #
 #
 # (4) C5 DCTL OUTAGE
 # Lambie - Birds Landing and Peabody - Birds Landing 230 kV Lines
1  30478 30479  "1 "    0     # line from  LAMBIE   230.00  BRKR to BRKR  BDLSWSTA 230.00
 #
1  30472 30479  "1 "    0     # line from  PEABODY  230.00  BRKR to BRKR  BDLSWSTA 230.00
0
 #
 #
 # (5) C5 DCTL OUTAGE
 # Birds Landing - Q262 #1 and #2 230 kV Lines
1  30479 30471  "1 "    0     # line from  BDLSWSTA 230.00  BRKR to BRKR  Q262SWST 230.00
 #
1  30479 30471  "2 "    0     # line from  BDLSWSTA 230.00  BRKR to BRKR  Q262SWST 230.00
0
 #
 #
 # (6) C5 DCTL OUTAGE
 # Q262 - Contra Costa PP and Q262 - Contra Costa Sub 230 kV Lines
1  30471 30525  "1 "    0     # line from  Q262SWST 230.00  BRKR to BRKR  C.COSTA  230.00
 #
1  30471 30523  "1 "    0     # line from  Q262SWST 230.00  BRKR to BRKR  CC SUB   230.00
0
 #
 #
 # (7) C5 DCTL OUTAGE
 # Q171 - Tesla 500 kV and Peabody - Birds Landing 230 kV Lines
1  30070 30040  "1 "    0     # line from  Q171     500.00  BRKR to BRKR  TESLA    500.00
 #
1  30472 30479  "1 "    0     # line from  PEABODY  230.00  BRKR to BRKR  BDLSWSTA 230.00
0
 #
 #
 # (8) C5 DCTL OUTAGE
 # Vaca-Dixon - Q257 #1 and #2 230 kV Lines
1  30460 30468  "1 "    0     # line from  VACA-DIX 230.00  BRKR to BRKR  Q257SWST 230.00
 #
1  30460 30468  "2 "    0     # line from  VACA-DIX 230.00  BRKR to BRKR  Q257SWST 230.00
0
 #
 #
 # (9) C5 DCTL OUTAGE
 # Q257 - Bahia and Q257 - Parkway 230 kV Lines
1  30468 30465  "1 "    0     # line from  Q257SWST 230.00  BRKR to BRKR  BAHIA    230.00
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 #
1  30468 30467  "1 "    0     # line from  Q257SWST 230.00  BRKR to BRKR  PARKWAY  230.00
0
 #
 #
 # (10) C5 DCTL OUTAGE
 # Tulucay - Vaca-Dixon and Lakeville - Vaca-Dixon 230 kV Lines
1  30440 30460  "1 "    0     # line from  TULUCAY  230.00  BRKR to BRKR  VACA-DIX 230.00
 #
1  30435 30460  "1 "    0     # line from  LAKEVILE 230.00  BRKR to BRKR  VACA-DIX 230.00
0
 #
 #
 # (11) C5 DCTL OUTAGE
 # Glenn - CPV Colusa and Cottonwood - CPV Colusa #2 230 kV Lines
1  30110 30114  "4 "    0     # line from  GLENN    230.00  BRKR to BRKR  CPVSTA   230.00
 #
1  30106 30114  "2 "    0     # line from  COTWD_F  230.00  BRKR to BRKR  CPVSTA   230.00
0
 #
 #
 # (12) C5 DCTL OUTAGE
 # CPV Colusa - Vaca-Dixon #2 and #3 230 kV Lines
1  30114 30460  "2 "    0     # line from  CPVSTA   230.00  BRKR to BRKR  VACA-DIX 230.00
 #
1  30114 30460  "3 "    0     # line from  CPVSTA   230.00  BRKR to BRKR  VACA-DIX 230.00
0
 #
 #
 # (13) C5 DCTL OUTAGE
 # Cottonwood - CPV Colusa #1 and Cottonwood - Logan Creek 230 kV Lines
1  30105 30114  "1 "    0     # line from  COTWD_E  230.00  BRKR to BRKR  CPVSTA   230.00
 #
1  30105 30111  "1 "    0     # line from  COTWD_E  230.00  BRKR to BRKR  LOGAN CR 230.00
0
 #
 #
 # (14) C5 DCTL OUTAGE
 # CPV Colusa - Cortina and CPV Colusa - Vaca-Dixon #4 230 kV Lines
1  30114 30450  "1 "    0     # line from  CPVSTA   230.00  BRKR to BRKR  CORTINA  230.00
 #
1  30114 30460  "4 "    0     # line from  CPVSTA   230.00  BRKR to BRKR  VACA-DIX 230.00
0
 #
 #
 # (15) C5 DCTL OUTAGE
 # Brighton - Bellota and Rio Oso - Lockeford 230 kV Lines
1  30348 30500  "1 "    0     # line from  BRIGHTON 230.00  BRKR to BRKR  BELLOTA  230.00
 #
1  30330 30482  "1 "    0     # line from  RIO OSO  230.00  BRKR to BRKR  LOCKFORD 230.00
0
 #
 #
 # (16) C5 DCTL OUTAGE
 # Rio Oso - Brighton and Rio Oso - Lockeford 230 kV Lines
1  30330 30348  "1 "    0     # line from  RIO OSO  230.00  BRKR to BRKR  BRIGHTON 230.00
 #
1  30330 30482  "1 "    0     # line from  RIO OSO  230.00  BRKR to BRKR  LOCKFORD 230.00
0
 #
 #
 # (17) C5 DCTL OUTAGE
 # Fulton Jct - Vaca-Dixon and Madison - Vaca-Dixon 115 kV Lines
1  31953 31256  "1 "    0     # line from  AMEGTAP  115.00   (3) to (1)   FLTN JCT 115.00
1  31953 31954  "1 "    0     # line from  AMEGTAP  115.00   (3) to (1)   AMERIGAS 115.00
1  31953 31998  "1 "    0     # line from  AMEGTAP  115.00   (3) to BRKR  VACA-DIX 115.00
4  31954     0  "1 "    0     # LOAD-DROP    AMERIGAS 115.00  LOAD==6.73(1.37)
 #
1  31253 31974  "1 "    0     # line from  FLTN JT2 115.00   (2) to (1)   MADISON  115.00
1  31253 31952  "1 "    0     # line from  FLTN JT2 115.00   (2) to (2)   PUTH CRK 115.00
1  31952 31998  "1 "    0     # line from  PUTH CRK 115.00   (2) to BRKR  VACA-DIX 115.00
4  31974     0  "1 "    0     # LOAD-DROP    MADISON  115.00  LOAD==8.25(0.37)
4  31974     0  "2 "    0     # LOAD-DROP    MADISON  115.00  LOAD==5.33(0.23)
4  31974     0  "3 "    0     # LOAD-DROP    MADISON  115.00  LOAD==15.02(0.68)
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4  31952     0  "1 "    0     # LOAD-DROP    PUTH CRK 115.00  LOAD==16.83(0.75)
0
 #
 #
 # (18) C5 DCTL OUTAGE
 # Vaca-Vacaville-Jameson-North Tower and Vaca-Vacaville-Cordelia 115 kV Lines
1  31995 32013  "1 "    0     # line from  HALE     115.00   (2) to (1)   HALE2    115.00
1  31995 31996  "1 "    0     # line from  HALE     115.00   (2) to (3)   HALE J1  115.00
1  31996 32006  "1 "    0     # line from  HALE J1  115.00   (3) to (3)   VCVLLE1J 115.00
1  31996 32020  "1 "    0     # line from  HALE J1  115.00   (3) to (3)   JMSN JCT 115.00
1  32006 31998  "1 "    0     # line from  VCVLLE1J 115.00   (3) to BRKR  VACA-DIX 115.00
1  32006 32000  "1 "    0     # line from  VCVLLE1J 115.00   (3) to BRKR  VACAVLL1 115.00
1  32020 32010  "1 "    0     # line from  JMSN JCT 115.00   (3) to BRKR  JAMESON  115.00
1  32020 32618  "1 "    0     # line from  JMSN JCT 115.00   (3) to (1)   NTWRJCT1 115.00
4  31995     0  "1 "    0     # LOAD-DROP    HALE     115.00  LOAD==2.39(1.42)
4  32000     0  "1 "    0     # LOAD-DROP    VACAVLL1 115.00  LOAD==30.49(1.36)
4  32010     0  "1 "    0     # LOAD-DROP    JAMESON  115.00  LOAD==38.91(1.74)
1  32002 32000  "1"     1     #Line transfer VACAVLL1 115kV TO VACAVLL2 115kV
4  32000     0  "**"    1     #Restore VACAVLL1 load
1  31995 32013  "1"     1     #Transfer load to HALE alternate
1  32012 32013  "1"     1     #Transfer load to HALE alternate
4  31995     0  "**"    1     #Restore load at HALE
1  32010 32009  "1 "    1     # LINE-TRANSFER JMSN JCT 115.00 to JAMESN-A 115.00
4  32010     0  "**"    1     # RESTORE JAMESON load
 #
1  31958 32012  "1 "    0     # line from  CORDELIA 115.00   (1) to (2)   HALE J2  115.00
1  32012 32004  "1 "    0     # line from  HALE J2  115.00   (2) to (3)   VCVLLE2J 115.00
1  32004 31998  "1 "    0     # line from  VCVLLE2J 115.00   (3) to BRKR  VACA-DIX 115.00
1  32004 32002  "1 "    0     # line from  VCVLLE2J 115.00   (3) to BRKR  VACAVLL2 115.00
4  31958     0  "2 "    0     # LOAD-DROP    CORDELIA 115.00  LOAD==17.61(0.79)
4  32002     0  "2 "    0     # LOAD-DROP    VACAVLL2 115.00  LOAD==44.68(2.00)
4  32002     0  "3 "    0     # LOAD-DROP    VACAVLL2 115.00  LOAD==43.87(1.96)
1  32000 32002  "1"     1     #Transfer VACAVLL2 load to alternate
4  32002     0  "**"    1     #Restore VACAVLL2 load
0
 #
 #
 # (19) C5 DCTL OUTAGE
 # Rio Oso - Woodland #1 and #2 115 kV Lines
1  31960 31966  "1 "    0     # line from  MOBILCHE 115.00   (2) to (3)   WODLNDJ1 115.00
1  31960 31970  "1 "    0     # line from  MOBILCHE 115.00   (2) to BRKR  WOODLD   115.00
1  31966 31965  "1 "    0     # line from  WODLNDJ1 115.00   (3) to (3)   KNIGHT1  115.00
1  31966 31971  "1 "    0     # line from  WODLNDJ1 115.00   (3) to (1)   ZAMORA1  115.00
1  31965 31963  "1 "    0     # line from  KNIGHT1  115.00   (3) to (1)   KNIGHTLD 115.00
1  31965 32214  "1 "    0     # line from  KNIGHT1  115.00   (3) to BRKR  RIO OSO  115.00
4  31960     0  "1 "    0     # LOAD-DROP    MOBILCHE 115.00  LOAD==0.10(0.00)
4  31963     0  "1 "    0     # LOAD-DROP    KNIGHTLD 115.00  LOAD==8.57(0.38)
 #
1  31964 31968  "2 "    0     # line from  KNIGHT2  115.00   (2) to (3)   WODLNDJ2 115.00
1  31964 32214  "2 "    0     # line from  KNIGHT2  115.00   (2) to BRKR  RIO OSO  115.00
1  31968 31970  "2 "    0     # line from  WODLNDJ2 115.00   (3) to BRKR  WOODLD   115.00
1  31968 31973  "2 "    0     # line from  WODLNDJ2 115.00   (3) to (2)   ZAMORA2  115.00
1  31973 31972  "2 "    0     # line from  ZAMORA2  115.00   (2) to (1)   ZAMORA   115.00
4  31972     0  "1 "    0     # LOAD-DROP    ZAMORA   115.00  LOAD==10.62(0.48)
0
 #
 #
 # (20) C5 DCTL OUTAGE
 # Rio Oso - West Sacramento and West Sacramento - Brighton 115 kV Lines
1  32214 31986  "1 "    0     # line from  RIO OSO  115.00  BRKR to BRKR  W.SCRMNO 115.00
 #
1  31978 31984  "1 "    0     # line from  DPWT_TP2 115.00   (3) to BRKR  BRIGHTN  115.00
1  31978 31986  "1 "    0     # line from  DPWT_TP2 115.00   (3) to BRKR  W.SCRMNO 115.00
1  31978 31988  "1 "    0     # line from  DPWT_TP2 115.00   (3) to (1)   DEEPWATR 115.00
4  31988     0  "2 "    0     # LOAD-DROP    DEEPWATR 115.00  LOAD==22.90(1.02)
4  31988     0  "3 "    0     # LOAD-DROP    DEEPWATR 115.00  LOAD==15.82(0.70)
1  31976 31988  "1"     1     #Transfer load to alternate Deepwater tap
4  31988     0  "**"    1     #Restore load at Deepwater
0
 #
 #

 # (21) BUS FAULT  30460  "VACA-DIX" bus section 1F
 #
```

```
1  30460  30468  "1"    0     # LINE from  VACA-DIX 230.00  to  Q257SWST 230.00
1  30460  30435  "1"    0     # LINE from  VACA-DIX 230.00  to  LAKEVILE 230.00
1  30460  30450  "1"    0     # LINE from  VACA-DIX 230.00  to  CORTINA  230.00
6  30460     0  "v "    0     # SVD-DROP     VACA-DIX 230.00
0
 #
 #
 # (22) BUS FAULT  30460  "VACA-DIX" bus section 1E
 #
1  30460  30114  "2"    0     # LINE from  VACA-DIX 230.00  to  CPVSTA   230.00
1  30460  30478  "1"    0     # LINE from  VACA-DIX 230.00  to  LAMBIE   230.00
2  30460  31998  "3"    0     # TRAN from  VACA-DIX 230.00  to  VACA-DIX 115.00
0
 #
 #
 # (23) BUS FAULT  30460  "VACA-DIX" bus section 2F
 #
1  30460  30468  "2"    0     # LINE from  VACA-DIX 230.00  to  Q257SWST 230.00
1  30460  30440  "1"    0     # LINE from  VACA-DIX 230.00  to  TULUCAY  230.00
1  30460  30114  "3"    0     # LINE from  VACA-DIX 230.00  to  CPVSTA   230.00
0
 #
 #
 # (24) BUS FAULT  30460  "VACA-DIX" bus section 2E
 #
1  30460  30114  "4"    0     # LINE from  VACA-DIX 230.00  to  CPVSTA   230.00
1  30460  30472  "1"    0     # LINE from  VACA-DIX 230.00  to  PEABODY  230.00
2  30460  31998  "4"    0     # TRAN from  VACA-DIX 230.00  to  VACA-DIX 115.00
2  30460  31999  "2"    0     # TRAN from  VACA-DIX 230.00  to  VACA-CB  115.00
2  30460  31999  "2A"    0     # TRAN from  VACA-DIX 230.00  to  VACA-CB  115.00
0
 #
 #
 # (25) BUS FAULT  30461  "Q171"
 #
1  30461  30462  "1"    0     # LINE from  Q171     230.00  to  Q171CL1  230.00
1  30461  30463  "1"    0     # LINE from  Q171     230.00  to  Q171CL2  230.00
2  30461  30070  "1"    0     # TRAN from  Q171     230.00  to  Q171     500.00
0
 #
 #
 # (26) BUS FAULT  30472  "PEABODY"
 #
1  30472  30460  "1"    0     # LINE from  PEABODY  230.00  to  VACA-DIX 230.00
1  30472  30479  "1"    0     # LINE from  PEABODY  230.00  to  BDLSWSTA 230.00
4  30472     0  "1 "    0     # LOAD-DROP    PEABODY  230.00  LOAD==51.80(2.32)
4  30472     0  "2 "    0     # LOAD-DROP    PEABODY  230.00  LOAD==64.49(2.88)
4  30472     0  "3 "    0     # LOAD-DROP    PEABODY  230.00  LOAD==42.16(1.89)
0
 #
 #
 # (27) BUS FAULT  31970  "WOODLD"
 #
1  31970  31960  "1"    0     # LINE from  WOODLD   115.00  to  MOBILCHE 115.00
1  31970  31962  "1"    0     # LINE from  WOODLD   115.00  to  WDLND_BM 115.00
1  31970  31968  "2"    0     # LINE from  WOODLD   115.00  to  WODLNDJ2 115.00
4  31970     0  "1 "    0     # LOAD-DROP    WOODLD   115.00  LOAD==51.29(2.29)
4  31970     0  "2 "    0     # LOAD-DROP    WOODLD   115.00  LOAD==41.79(1.87)
4  31970     0  "3 "    0     # LOAD-DROP    WOODLD   115.00  LOAD==33.16(1.48)
0
 #
 #
 # (28) BUS FAULT  31984  "BRIGHTN"
 #
1  31984  31978  "1"    0     # LINE from  BRIGHTN  115.00  to  DPWT_TP2 115.00
1  31984  31993  "1"    0     # LINE from  BRIGHTN  115.00  to  BRKRJCT  115.00
1  31984  31994  "1"    0     # LINE from  BRIGHTN  115.00  to  GRAND IS 115.00
1  31984  31994  "2"    0     # LINE from  BRIGHTN  115.00  to  GRAND IS 115.00
2  31984  30348  "10"    0     # TRAN from  BRIGHTN  115.00  to  BRIGHTON 230.00
2  31984  30348  "9"    0     # TRAN from  BRIGHTN  115.00  to  BRIGHTON 230.00
0
 #
 #
 # (29) BUS FAULT  31986  "W.SCRMNO"
```

```
 #
1  31986  31978  "1"    0     # LINE from  W.SCRMNO 115.00  to  DPWT_TP2 115.00
1  31986  31980  "1"    0     # LINE from  W.SCRMNO 115.00  to  DPWTR_TP 115.00
1  31986  32214  "1"    0     # LINE from  W.SCRMNO 115.00  to  RIO OSO  115.00
4  31986     0  "1 "    0     # LOAD-DROP    W.SCRMNO 115.00  LOAD==27.70(1.24)
4  31986     0  "2 "    0     # LOAD-DROP    W.SCRMNO 115.00  LOAD==21.98(0.99)
4  31986     0  "3 "    0     # LOAD-DROP    W.SCRMNO 115.00  LOAD==38.46(1.72)
0
 #
 #
 # (30) BUS FAULT  31989  "BRKR SLG"
 #
1  31989  31991  "1"    0     # LINE from  BRKR SLG 115.00  to  BRKR TP  115.00
4  31989     0  "1 "    0     # LOAD-DROP    BRKR SLG 115.00  LOAD==1.75(0.00)
0
 #
 #
 # (31) BUS FAULT  31990  "DAVIS"
 #
1  31990  31992  "1"    0     # LINE from  DAVIS    115.00  to  HUNT     115.00
1  31990  32001  "1"    0     # LINE from  DAVIS    115.00  to  UCD_TP2  115.00
1  31990  32003  "1"    0     # LINE from  DAVIS    115.00  to  UCD_TP1  115.00
4  31990     0  "1 "    0     # LOAD-DROP    DAVIS    115.00  LOAD==33.77(1.51)
4  31990     0  "2 "    0     # LOAD-DROP    DAVIS    115.00  LOAD==36.35(1.63)
4  31990     0  "3 "    0     # LOAD-DROP    DAVIS    115.00  LOAD==43.58(1.95)
0
 #
 #
 # (32) BUS FAULT  31994  "GRAND IS"
 #
1  31994  31984  "1"    0     # LINE from  GRAND IS 115.00  to  BRIGHTN  115.00
1  31994  31984  "2"    0     # LINE from  GRAND IS 115.00  to  BRIGHTN  115.00
1  31994  33046  "1"    0     # LINE from  GRAND IS 115.00  to  FIBRJCT2 115.00
1  31994  33048  "1"    0     # LINE from  GRAND IS 115.00  to  RVECTP   115.00
2  31994  32162  "1"    0     # TRAN from  GRAND IS 115.00  to  RIV.DLTA   9.11
4  31994     0  "1 "    0     # LOAD-DROP    GRAND IS 115.00  LOAD==21.34(0.96)
4  31994     0  "2 "    0     # LOAD-DROP    GRAND IS 115.00  LOAD==16.67(0.74)
0
 #
 #
 # (33) BUS FAULT  31998  "VACA-DIX" bus section 1
 #
1  31998  31953  "1"    0     # LINE from  VACA-DIX 115.00  to  AMEGTAP  115.00
1  31998  31952  "1"    0     # LINE from  VACA-DIX 115.00  to  PUTH CRK 115.00
1  31998  32006  "1"    0     # LINE from  VACA-DIX 115.00  to  VCVLLE1J 115.00
1  31998  32011  "1"    0     # LINE from  VACA-DIX 115.00  to  WEC      115.00
2  31998  30460  "3"    0     # TRAN from  VACA-DIX 115.00  to  VACA-DIX 230.00
2  31998  32088  "5"    0     # TRAN from  VACA-DIX 115.00  to  VACA-DXN  60.00
4  31998     0  "8 "    0     # LOAD-DROP    VACA-DIX 115.00  LOAD==27.77(1.24)
0
 #
 #
 # (34) BUS FAULT  31998  "VACA-DIX" bus section 2
 #
1  31998  32004  "1"    0     # LINE from  VACA-DIX 115.00  to  VCVLLE2J 115.00
1  31998  31997  "1"    0     # LINE from  VACA-DIX 115.00  to  SCHMLBCH 115.00
1  31998  31999  "1"    0     # LINE from  VACA-DIX 115.00  to  VACA-CB  115.00
2  31998  30460  "4"    0     # TRAN from  VACA-DIX 115.00  to  VACA-DIX 230.00
2  31998  32150  "1"    0     # TRAN from  VACA-DIX 115.00  to  DG_VADIX  13.80
2  31998  32088  "9"    0     # TRAN from  VACA-DIX 115.00  to  VACA-DXN  60.00
4  31998     0  "6 "    0     # LOAD-DROP    VACA-DIX 115.00  LOAD==16.53(0.74)
4  31998     0  "7 "    0     # LOAD-DROP    VACA-DIX 115.00  LOAD==26.06(1.16)
0
 #
 #
 # (35) BUS FAULT  32000  "VACAVLL1"
 #
1  32000  32002  "1"    0     # LINE from  VACAVLL1 115.00  to  VACAVLL2 115.00
1  32000  32006  "1"    0     # LINE from  VACAVLL1 115.00  to  VCVLLE1J 115.00
4  32000     0  "1 "    0     # LOAD-DROP    VACAVLL1 115.00  LOAD==30.49(1.36)
0
 #
 #
 # (36) BUS FAULT  32002  "VACAVLL2"
```

```
 #
1  32002  32000  "1"    0     # LINE from  VACAVLL2 115.00  to  VACAVLL1 115.00
1  32002  32004  "1"    0     # LINE from  VACAVLL2 115.00  to  VCVLLE2J 115.00
4  32002     0  "2 "    0     # LOAD-DROP    VACAVLL2 115.00  LOAD==44.68(2.00)
4  32002     0  "3 "    0     # LOAD-DROP    VACAVLL2 115.00  LOAD==43.87(1.96)
0
 #
 #
 # (37) BUS FAULT  32008  "SUISUN"
 #
1  32008  31997  "1"    0     # LINE from  SUISUN   115.00  to  SCHMLBCH 115.00
1  32008  32011  "1"    0     # LINE from  SUISUN   115.00  to  WEC      115.00
2  32008  32164  "1"    0     # TRAN from  SUISUN   115.00  to  CTY FAIR   9.11
4  32008     0  "1 "    0     # LOAD-DROP    SUISUN   115.00  LOAD==29.64(1.32)
4  32008     0  "2 "    0     # LOAD-DROP    SUISUN   115.00  LOAD==32.19(1.44)
4  32008     0  "3 "    0     # LOAD-DROP    SUISUN   115.00  LOAD==26.23(1.17)
0
 #
 #
 # (38) BUS FAULT  32010  "JAMESON"
 #
1  32010  32009  "1"    0     # LINE from  JAMESON  115.00  to  JAMESN-A 115.00
1  32010  32020  "1"    0     # LINE from  JAMESON  115.00  to  JMSN JCT 115.00
4  32010     0  "1 "    0     # LOAD-DROP    JAMESON  115.00  LOAD==38.91(1.74)
0
 #
 #
 # (39) BUS FAULT  32056  "CORTINA"
 #
1  32056  32060  "1"    0     # LINE from  CORTINA   60.00  to  ARBUCKLE  60.00
1  32056  32065  "4"    0     # LINE from  CORTINA   60.00  to  WILL JCT  60.00
1  32056  32057  "2"    0     # LINE from  CORTINA   60.00  to  HUSTD     60.00
1  32056  32155  "3"    0     # LINE from  CORTINA   60.00  to  WADHMJCT  60.00
2  32056  30451  "1"    0     # TRAN from  CORTINA   60.00  to  CRTNA  M 230.00
0
 #
 #
 # (40) BUS FAULT  32070  "CLSA JCT"
 #
1  32070  32068  "1"    0     # LINE from  CLSA JCT  60.00  to  COLUSA    60.00
1  32070  32071  "1"    0     # LINE from  CLSA JCT  60.00  to  MERIDJCT  60.00
1  32070  32073  "3"    0     # LINE from  CLSA JCT  60.00  to  WESCOT1   60.00
4  32070     0  "1 "    0     # LOAD-DROP    CLSA JCT  60.00  LOAD==3.55(0.16)
0
 #
 #
 # (41) BUS FAULT  32088  "VACA-DXN"
 #
1  32088  32090  "1"    0     # LINE from  VACA-DXN  60.00  to  WINTERS   60.00
1  32088  32094  "2"    0     # LINE from  VACA-DXN  60.00  to  VACA-JT2  60.00
1  32088  32096  "1"    0     # LINE from  VACA-DXN  60.00  to  VACA-JT1  60.00
2  32088  31998  "5"    0     # TRAN from  VACA-DXN  60.00  to  VACA-DIX 115.00
2  32088  31998  "9"    0     # TRAN from  VACA-DXN  60.00  to  VACA-DIX 115.00
0
 #
 #
 # (42) BUS FAULT  32100  "DIXON"
 #
1  32100  32101  "2"    0     # LINE from  DIXON     60.00  to  DIXON-J2  60.00
1  32100  32105  "1"    0     # LINE from  DIXON     60.00  to  DIXON-J1  60.00
4  32100     0  "1 "    0     # LOAD-DROP    DIXON     60.00  LOAD==18.52(0.83)
4  32100     0  "2 "    0     # LOAD-DROP    DIXON     60.00  LOAD==15.49(0.69)
0
 #
 #
 # 2013 summer category c contingency list (dctl and bus outages)
 # Sierra Division Zone 305
 #
 #
 # (43) C5 DCTL OUTAGE
 # Palermo - Colgate and Colgate - Rio Oso 230 kV Lines
1  30325 30327  "1 "    0     # line from  PALERMO  230.00  BRKR to BRKR  COLGATE  230.00
2  30327 32450  "1 "    0     #Take one transformer out with Palermo-Colgate 230 kV line outage
3  32450     0  "1 "    0     #Take one generator out with Palermo-Colgate 230 kV line outage
```

```
 #
1  30327 30330  "1 "    0     # line from  COLGATE  230.00  BRKR to BRKR  RIO OSO  230.00
2  30327 32452  "1 "    0     #Take one transformer out with Colgate-Rio Oso 230 kV line outage
3  32452     0  "1 "    0     #Take one generator out with Colgate-Rio Oso 230 kV line outage
0
 #
 #
 # (44) C5 DCTL OUTAGE
 # Rio Oso - Atlantic and Rio Oso - Gold Hill 230 kV Lines
1  30330 30335  "1 "    0     # line from  RIO OSO  230.00  BRKR to BRKR  ATLANTC  230.00
 #
1  30330 30337  "1 "    0     # line from  RIO OSO  230.00  BRKR to BRKR  GOLDHILL 230.00
0
 #
 #
 # (45) C5 DCTL OUTAGE
 # Poe - Rio Oso and Cresta - Rio Oso 230 kV Lines
1  30280 30330  "1 "    0     # line from  POE      230.00  BRKR to BRKR  RIO OSO  230.00
2  30280 31792  "1 "    0     # Take the transformer out with Rio Oso-Poe 230 kV line outage
3  31792     0  "1 "    0     # Take the generator out with Rio Oso-Poe 230 kV line outage
 #
1  30275 30330  "1 "    0     # line from  CRESTA   230.00  BRKR to BRKR  RIO OSO  230.00
0
 #
 #
 # (46) C5 DCTL OUTAGE
 # Colgate - Rio Oso and Table Mountain - Rio Oso 230 kV Lines
1  30327 30330  "1 "    0     # line from  COLGATE  230.00  BRKR to BRKR  RIO OSO  230.00
2  30327 32452  "1 "    0     #Take one transformer out with Colgate-Rio Oso 230 kV line outage
3  32452     0  "1 "    0     #Take one generator out with Colgate-Rio Oso 230 kV line outage
 #
1  30300 30330  "1 "    0     # line from  TBL MT D 230.00  BRKR to BRKR  RIO OSO  230.00
0
 #
 #
 # (47) C5 DCTL OUTAGE
 # Palermo - Colgate and Table Mountain - Rio Oso 230 kV Lines
1  30325 30327  "1 "    0     # line from  PALERMO  230.00  BRKR to BRKR  COLGATE  230.00
2  30327 32450  "1 "    0     #Take one transformer out with Palermo-Colgate 230 kV line outage
3  32450     0  "1 "    0     #Take one generator out with Palermo-Colgate 230 kV line outage
 #
1  30300 30330  "1 "    0     # line from  TBL MT D 230.00  BRKR to BRKR  RIO OSO  230.00
0
 #
 #
 # (48) C5 DCTL OUTAGE
 # Atlantic - Gold Hill and Rio Oso - Gold Hill 230 kV Lines
1  30335 30337  "1 "    0     # line from  ATLANTC  230.00  BRKR to BRKR  GOLDHILL 230.00
 #
1  30330 30337  "1 "    0     # line from  RIO OSO  230.00  BRKR to BRKR  GOLDHILL 230.00
0
 #
 #
 # (49) C5 DCTL OUTAGE
 # Middle Fork - Gold Hill 230 kV and Placer - Gold Hill #1 115 kV Lines
1  30337 30340  "1 "    0     # line from  GOLDHILL 230.00  BRKR to (3)   RALSTON  230.00
1  30340 30345  "1 "    0     # line from  RALSTON  230.00   (3) to BRKR  MIDLFORK 230.00
2  30340 32458  "1 "    0     # TRAN from  RALSTON  230.00   (3) to (1)   RALSTON   13.80
3  32458     0  "1 "    0     # GEN-DROP    RALSTON   13.80  GEN==83.00(15.12)
 #
1  32018 32229  "1 "    0     # line from  GOLDHILL 115.00  BRKR to (3)   HORSHE1  115.00
1  32229 32230  "1 "    0     # line from  HORSHE1  115.00   (3) to (1)   HORSESHE 115.00
1  32229 32233  "1 "    0     # line from  HORSHE1  115.00   (3) to (3)   NEWCSTL1 115.00
1  32233 32234  "1 "    0     # line from  NEWCSTL1 115.00   (3) to (2)   NEWCSTLE 115.00
1  32233 32236  "1 "    0     # line from  NEWCSTL1 115.00   (3) to (2)   FLINT1   115.00
2  32234 32460  "1 "    0     # TRAN from  NEWCSTLE 115.00   (2) to (1)   NEWCSTLE  13.20
1  32236 32228  "1 "    0     # line from  FLINT1   115.00   (2) to BRKR  PLACER   115.00
4  32230     0  "1 "    0     # LOAD-DROP    HORSESHE 115.00  LOAD==15.79(0.71)
4  32230     0  "2 "    0     # LOAD-DROP    HORSESHE 115.00  LOAD==36.15(1.61)
1  32230 32231  "1"     1     #Transfer load to alternate
4  32230     0  "**"    1     #Restore load at Horseshoe
0
 #
 #
```

```
 # (50) C5 DCTL OUTAGE
 # Caribou - Palermo and Palermo - Pease 115 kV Lines
1  31482 31516  "2 "    0     # line from  PALERMO  115.00  BRKR to (2)   WYANDJT2 115.00
1  31516 31512  "2 "    0     # line from  WYANDJT2 115.00   (2) to (2)   BIG BEND 115.00
1  31512 31488  "1 "    0     # line from  BIG BEND 115.00   (2) to (3)   GRIZ JCT 115.00
1  31488 31486  "1 "    0     # line from  GRIZ JCT 115.00   (3) to BRKR  CARIBOU  115.00
1  31488 31492  "1 "    0     # line from  GRIZ JCT 115.00   (3) to (2)   GRIZZLY1 115.00
2  31492 31900  "1 "    0     # TRAN from  GRIZZLY1 115.00  BRKR to (1)   GRIZZLYG   6.90
3  31900     0  "1 "    0     # GEN-DROP    GRIZZLYG   6.90  GEN==16.80(-4.00)
 #
1  32200 31506  "1 "    0     # line from  PEASE    115.00  BRKR to (2)   HONC JT1 115.00
1  31506 31482  "1 "    0     # line from  HONC JT1 115.00   (2) to BRKR  PALERMO  115.00
0
 #
 #
 # (51) C5 DCTL OUTAGE
 # Palermo - Wyandotte and Palermo - Pease 115 kV Lines
1  31480 31518  "1 "    0     # line from  WYANDTTE 115.00   (1) to (2)   WYANDJT1 115.00
1  31518 31482  "1 "    0     # line from  WYANDJT1 115.00   (2) to BRKR  PALERMO  115.00
4  31480     0  "1 "    0     # LOAD-DROP    WYANDTTE 115.00  LOAD==10.93(0.49)
4  31480     0  "2 "    0     # LOAD-DROP    WYANDTTE 115.00  LOAD==20.57(0.92)
4  31480     0  "3 "    0     # LOAD-DROP    WYANDTTE 115.00  LOAD==31.49(1.41)
1  31480 31516  "1"     1     #Transfer load from PALERMO-WYANDOTTE to CARIBOU-PALERMO 115kV
4  31480     0  "**"    1     #Restore loads at Wyandotte
 #
1  32200 31506  "1 "    0     # line from  PEASE    115.00  BRKR to (2)   HONC JT1 115.00
1  31506 31482  "1 "    0     # line from  HONC JT1 115.00   (2) to BRKR  PALERMO  115.00
0
 #
 #
 # (52) C5 DCTL OUTAGE
 # Drum - Rio Oso #1 and #2 115 kV Lines
1  32214 32225  "1 "    0     # line from  RIO OSO  115.00  BRKR to (3)   BRNSWKTP 115.00
1  32225 32222  "1 "    0     # line from  BRNSWKTP 115.00   (3) to (3)   DTCH FL2 115.00
1  32225 32227  "2 "    0     # line from  BRNSWKTP 115.00   (3) to (1)   BRNSWALT 115.00
1  32222 32218  "1 "    0     # line from  DTCH FL2 115.00   (3) to BRKR  DRUM     115.00
2  32222 32502  "1 "    0     # TRAN from  DTCH FL2 115.00  BRKR to (1)   DTCHFLT2   6.90
4  32227     0  "1 "    0     # LOAD-DROP    BRNSWALT 115.00  LOAD==24.08(1.08)
3  32502     0  "1 "    0     # GEN-DROP    DTCHFLT2   6.90  GEN==24.50(9.66)
 #
1  32214 32244  "2 "    0     # line from  RIO OSO  115.00  BRKR to (3)   BRNSWCKP 115.00
1  32244 32218  "2 "    0     # line from  BRNSWCKP 115.00   (3) to BRKR  DRUM     115.00
1  32244 32226  "2 "    0     # line from  BRNSWCKP 115.00   (3) to (1)   BRUNSWCK 115.00
4  32226     0  "2 "    0     # LOAD-DROP    BRUNSWCK 115.00  LOAD==30.46(1.37)
4  32226     0  "3 "    0     # LOAD-DROP    BRUNSWCK 115.00  LOAD==8.00(0.36)
0
 #
 #
 # (53) C5 DCTL OUTAGE
 # Rio Oso - E. Nicolaus and Bogue - Rio Oso 115 kV Lines
1  32212 32214  "1 "    0     # line from  E.NICOLS 115.00  BRKR to BRKR  RIO OSO  115.00
 #
1  32206 32208  "1 "    0     # line from  BOGUE    115.00  BRKR to (3)   GLEAF TP 115.00
1  32208 32210  "1 "    0     # line from  GLEAF TP 115.00   (3) to (2)   GLEAF 1  115.00
1  32208 32214  "1 "    0     # line from  GLEAF TP 115.00   (3) to BRKR  RIO OSO  115.00
2  32210 32490  "1 "    0     # TRAN from  GLEAF 1  115.00  BRKR to (1)   GRNLEAF1  13.80
4  32490     0  "ss"    0     # LOAD-DROP    GRNLEAF1  13.80  LOAD==0.67(0.15)
3  32490     0  "1 "    0     # GEN-DROP    GRNLEAF1  13.80  GEN==40.00(-12.86)
3  32490     0  "2 "    0     # GEN-DROP    GRNLEAF1  13.80  GEN==9.50(-3.05)
0
 #
 #
 # (54) C5 DCTL OUTAGE
 # Palermo - E. Nicolaus and Bogue - Rio Oso 115 kV Lines
1  31482 32280  "1 "    0     # line from  PALERMO  115.00  BRKR to (2)   E.MRY J2 115.00
1  32280 32212  "1 "    0     # line from  E.MRY J2 115.00   (2) to BRKR  E.NICOLS 115.00
 #
1  32206 32208  "1 "    0     # line from  BOGUE    115.00  BRKR to (3)   GLEAF TP 115.00
1  32208 32210  "1 "    0     # line from  GLEAF TP 115.00   (3) to (2)   GLEAF 1  115.00
1  32208 32214  "1 "    0     # line from  GLEAF TP 115.00   (3) to BRKR  RIO OSO  115.00
2  32210 32490  "1 "    0     # TRAN from  GLEAF 1  115.00  BRKR to (1)   GRNLEAF1  13.80
4  32490     0  "ss"    0     # LOAD-DROP    GRNLEAF1  13.80  LOAD==0.67(0.15)
3  32490     0  "1 "    0     # GEN-DROP    GRNLEAF1  13.80  GEN==40.00(-12.86)
3  32490     0  "2 "    0     # GEN-DROP    GRNLEAF1  13.80  GEN==9.50(-3.05)
```

```
0
 #
 #
 # (55) C5 DCTL OUTAGE
 # Palermo - E. Nicolaus and Palermo - Bogue 115 kV Lines
1  31482 32280  "1 "    0     # line from  PALERMO  115.00  BRKR to (2)   E.MRY J2 115.00
1  32280 32212  "1 "    0     # line from  E.MRY J2 115.00   (2) to BRKR  E.NICOLS 115.00
 #
1  31508 32286  "1 "    0     # line from  HONC JT3 115.00   (3) to (2)   OLIVH J3 115.00
1  31508 31482  "1 "    0     # line from  HONC JT3 115.00   (3) to BRKR  PALERMO  115.00
1  31508 31484  "1 "    0     # line from  HONC JT3 115.00   (3) to (1)   HONCUT   115.00
1  32286 32206  "1 "    0     # line from  OLIVH J3 115.00   (2) to BRKR  BOGUE    115.00
4  31484     0  "1 "    0     # LOAD-DROP    HONCUT   115.00  LOAD==16.18(0.73)
0
 #
 #
 # (56) C5 DCTL OUTAGE
 # Rio Oso - Woodland #1 and #2 115 kV Lines
1  32214 31965  "1 "    0     # line from  RIO OSO  115.00  BRKR to (3)   KNIGHT1  115.00
1  31965 31963  "1 "    0     # line from  KNIGHT1  115.00   (3) to (1)   KNIGHTLD 115.00
1  31965 31966  "1 "    0     # line from  KNIGHT1  115.00   (3) to (3)   WODLNDJ1 115.00
1  31966 31960  "1 "    0     # line from  WODLNDJ1 115.00   (3) to (2)   MOBILCHE 115.00
1  31966 31971  "1 "    0     # line from  WODLNDJ1 115.00   (3) to (1)   ZAMORA1  115.00
1  31960 31970  "1 "    0     # line from  MOBILCHE 115.00   (2) to BRKR  WOODLD   115.00
4  31963     0  "1 "    0     # LOAD-DROP    KNIGHTLD 115.00  LOAD==6.84(0.31)
4  31960     0  "1 "    0     # LOAD-DROP    MOBILCHE 115.00  LOAD==0.10(0.00)
 #
1  32214 31964  "2 "    0     # line from  RIO OSO  115.00  BRKR to (2)   KNIGHT2  115.00
1  31964 31968  "2 "    0     # line from  KNIGHT2  115.00   (2) to (3)   WODLNDJ2 115.00
1  31968 31970  "2 "    0     # line from  WODLNDJ2 115.00   (3) to BRKR  WOODLD   115.00
1  31968 31973  "2 "    0     # line from  WODLNDJ2 115.00   (3) to (2)   ZAMORA2  115.00
1  31973 31972  "2 "    0     # line from  ZAMORA2  115.00   (2) to (1)   ZAMORA   115.00
4  31972     0  "1 "    0     # LOAD-DROP    ZAMORA   115.00  LOAD==8.47(0.38)
0
 #
 #
 # (57) C5 DCTL OUTAGE
 # Rio Oso - West Sacramento and Pease - Rio Oso 115 kV Lines
1  32214 31986  "1 "    0     # line from  RIO OSO  115.00  BRKR to BRKR  W.SCRMNO 115.00
 #
1  32200 32288  "1 "    0     # line from  PEASE    115.00  BRKR to (3)   E.MRY J1 115.00
1  32288 32202  "1 "    0     # line from  E.MRY J1 115.00   (3) to (1)   E.MRYSVE 115.00
1  32288 32290  "1 "    0     # line from  E.MRY J1 115.00   (3) to (3)   OLIVH J1 115.00
1  32290 32204  "1 "    0     # line from  OLIVH J1 115.00   (3) to (1)   OLIVHRST 115.00
1  32290 32214  "1 "    0     # line from  OLIVH J1 115.00   (3) to BRKR  RIO OSO  115.00
4  32202     0  "2 "    0     # LOAD-DROP    E.MRYSVE 115.00  LOAD==10.55(0.47)
4  32202     0  "3 "    0     # LOAD-DROP    E.MRYSVE 115.00  LOAD==9.73(0.44)
4  32204     0  "1 "    0     # LOAD-DROP    OLIVHRST 115.00  LOAD==6.71(0.30)
4  32204     0  "2 "    0     # LOAD-DROP    OLIVHRST 115.00  LOAD==21.33(0.95)
1  32204 32286  "1"     1     #Transfer Olivehurst to alternate
4  32204     0  "**"    1     #Restore load Olivehurst
1  32280 32202  "1"     1     #Transfer load to E. Marysville Alt. 2 summer
4  32202     0  "**"    1     #Restore load at E. Marysville summer
0
 #
 #
 # (58) C5 DCTL OUTAGE
 # Missouri Flat - Gold Hill #1 and #2 115 kV Lines
1  32018 32275  "1 "    0     # line from  GOLDHILL 115.00  BRKR to (3)   CPM TAP  115.00
1  32275 32264  "1 "    0     # line from  CPM TAP  115.00   (3) to (2)   CLRKSVLT 115.00
1  32275 32276  "1 "    0     # line from  CPM TAP  115.00   (3) to (1)   CPM      115.00
1  32264 32262  "1 "    0     # line from  CLRKSVLT 115.00   (2) to (2)   SHPRING1 115.00
1  32262 32267  "1 "    0     # line from  SHPRING1 115.00   (2) to (2)   DIMOND_1 115.00
1  32267 32261  "1 "    0     # line from  DIMOND_1 115.00   (2) to BRKR  MIZOU_T1 115.00
 #
1  32018 32268  "2 "    0     # line from  GOLDHILL 115.00  BRKR to (3)   SHPRING2 115.00
1  32268 32259  "2 "    0     # line from  SHPRING2 115.00   (3) to (3)   DIMOND_2 115.00
1  32268 32265  "2 "    0     # line from  SHPRING2 115.00   (3) to (1)   SHPRING  115.00
1  32259 32258  "2 "    0     # line from  DIMOND_2 115.00   (3) to (1)   DMND SPR 115.00
1  32259 32260  "2 "    0     # line from  DIMOND_2 115.00   (3) to BRKR  MIZOU_T2 115.00
4  32265     0  "1 "    0     # LOAD-DROP    SHPRING  115.00  LOAD==19.57(0.88)
4  32265     0  "2 "    0     # LOAD-DROP    SHPRING  115.00  LOAD==21.49(0.96)
4  32258     0  "1 "    0     # LOAD-DROP    DMND SPR 115.00  LOAD==9.86(0.44)
4  32258     0  "2 "    0     # LOAD-DROP    DMND SPR 115.00  LOAD==28.07(1.25)
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1  32262 32265  "1"     1     #Transfer Shingle Springs to alternate
4  32265     0  "**"    1     #Restore load at Shingle Springs
1  32258 32267  "1"     1     #Transfer Diamond Springs to alternate
4  32258     0  "**"    1     #Restore load at Diamond Springs
0
 #
 #
 # (59) C5 DCTL OUTAGE
 # El Dorado - Missouri Flat #1 and #2 115 kV Lines
1  32250 32482  "1 "    0     # line from  ELDORAD  115.00  BRKR to (3)   APLHTAP1 115.00
1  32482 32255  "1 "    0     # line from  APLHTAP1 115.00   (3) to (2)   PLCRVLT1 115.00
1  32482 32278  "1 "    0     # line from  APLHTAP1 115.00   (3) to (2)   SPICAMIN 115.00
1  32255 32261  "1 "    0     # line from  PLCRVLT1 115.00   (2) to BRKR  MIZOU_T1 115.00
1  32278 32252  "1 "    0     # line from  SPICAMIN 115.00   (2) to (1)   APPLE HL 115.00
4  32278     0  "1 "    0     # LOAD-DROP    SPICAMIN 115.00  LOAD==4.19(3.69)
4  32252     0  "1 "    0     # LOAD-DROP    APPLE HL 115.00  LOAD==14.65(0.65)
4  32252     0  "2 "    0     # LOAD-DROP    APPLE HL 115.00  LOAD==9.26(0.41)
1  32252 32481  "1"     1     #Transfer Apple Hill to alternate
4  32252     0  "**"    1     #Restore load at Apple Hill
 #
1  32250 32481  "2 "    0     # line from  ELDORAD  115.00  BRKR to (2)   APLHTAP2 115.00
1  32481 32257  "2 "    0     # line from  APLHTAP2 115.00   (2) to (4)   PLCRVLT2 115.00
1  32257 32254  "2 "    0     # line from  PLCRVLT2 115.00   (4) to (2)   PLCRVLB2 115.00
1  32257 32260  "2 "    0     # line from  PLCRVLT2 115.00   (4) to BRKR  MIZOU_T2 115.00
2  32257 32510  "1 "    0     # TRAN from  PLCRVLT2 115.00   (4) to (1)   CHILIBAR   4.16
1  32254 32256  "1 "    0     # line from  PLCRVLB2 115.00   (2) to (1)   PLCRVLB3 115.00
4  32254     0  "2 "    0     # LOAD-DROP    PLCRVLB2 115.00  LOAD==9.02(0.41)
4  32256     0  "3 "    0     # LOAD-DROP    PLCRVLB3 115.00  LOAD==25.95(1.16)
3  32510     0  "1 "    0     # GEN-DROP    CHILIBAR   4.16  GEN==5.50(4.00)
1  32256 32255  "1 "    1     #Transfer Placerville to alternate
4  32256     0  "**"    1     #Restore load Bank 3 at Placerville
1  32254 32256  "1 "    1     #Transfer Placerville to alternate
4  32254     0  "**"    1     #Restore load Bank 2 at Placerville
0
 #
 #
 # (60) C5 DCTL OUTAGE
 # Placer - Gold Hill #1 and #2 115 kV Lines
1  32018 32229  "1 "    0     # line from  GOLDHILL 115.00  BRKR to (3)   HORSHE1  115.00
1  32229 32230  "1 "    0     # line from  HORSHE1  115.00   (3) to (1)   HORSESHE 115.00
1  32229 32233  "1 "    0     # line from  HORSHE1  115.00   (3) to (3)   NEWCSTL1 115.00
1  32233 32234  "1 "    0     # line from  NEWCSTL1 115.00   (3) to (2)   NEWCSTLE 115.00
1  32233 32236  "1 "    0     # line from  NEWCSTL1 115.00   (3) to (2)   FLINT1   115.00
2  32234 32460  "1 "    0     # TRAN from  NEWCSTLE 115.00   (2) to (1)   NEWCSTLE  13.20
1  32236 32228  "1 "    0     # line from  FLINT1   115.00   (2) to BRKR  PLACER   115.00
4  32230     0  "1 "    0     # LOAD-DROP    HORSESHE 115.00  LOAD==15.79(0.71)
4  32230     0  "2 "    0     # LOAD-DROP    HORSESHE 115.00  LOAD==36.15(1.61)
1  32230 32231  "1"     1     #Transfer load to alternate
4  32230     0  "**"    1     #Restore load at Horseshoe
 #
1  32018 32231  "2 "    0     # line from  GOLDHILL 115.00  BRKR to (2)   HORSHE2  115.00
1  32231 32235  "2 "    0     # line from  HORSHE2  115.00   (2) to (2)   NEWCSTL2 115.00
1  32235 32239  "2 "    0     # line from  NEWCSTL2 115.00   (2) to (3)   FLINT2   115.00
1  32239 32228  "2 "    0     # line from  FLINT2   115.00   (3) to BRKR  PLACER   115.00
1  32239 32237  "1 "    0     # line from  FLINT2   115.00   (3) to (1)   FLINT    115.00
4  32237     0  "1 "    0     # LOAD-DROP    FLINT    115.00  LOAD==14.82(0.66)
0
 #
 #
 # (61) C5 DCTL OUTAGE
 # Palermo - Pease and Pease - Rio Oso 115 kV Lines
1  32200 31506  "1 "    0     # line from  PEASE    115.00  BRKR to (2)   HONC JT1 115.00
1  31506 31482  "1 "    0     # line from  HONC JT1 115.00   (2) to BRKR  PALERMO  115.00
 #
1  32200 32288  "1 "    0     # line from  PEASE    115.00  BRKR to (3)   E.MRY J1 115.00
1  32288 32202  "1 "    0     # line from  E.MRY J1 115.00   (3) to (1)   E.MRYSVE 115.00
1  32288 32290  "1 "    0     # line from  E.MRY J1 115.00   (3) to (3)   OLIVH J1 115.00
1  32290 32204  "1 "    0     # line from  OLIVH J1 115.00   (3) to (1)   OLIVHRST 115.00
1  32290 32214  "1 "    0     # line from  OLIVH J1 115.00   (3) to BRKR  RIO OSO  115.00
4  32202     0  "2 "    0     # LOAD-DROP    E.MRYSVE 115.00  LOAD==10.55(0.47)
4  32202     0  "3 "    0     # LOAD-DROP    E.MRYSVE 115.00  LOAD==9.73(0.44)
4  32204     0  "1 "    0     # LOAD-DROP    OLIVHRST 115.00  LOAD==6.71(0.30)
4  32204     0  "2 "    0     # LOAD-DROP    OLIVHRST 115.00  LOAD==21.33(0.95)
1  32204 32286  "1"     1     #Transfer Olivehurst to alternate
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4  32204     0  "**"    1     #Restore load Olivehurst
1  32280 32202  "1"     1     #Transfer load to E. Marysville Alt. 2 summer
4  32202     0  "**"    1     #Restore load at E. Marysville summer
0
 #
 #
 # (62) BUS FAULT  30335  "ATLANTC"
 #
1  30335  30330  "1"    0     # LINE from  ATLANTC  230.00  to  RIO OSO  230.00
1  30335  30337  "1"    0     # LINE from  ATLANTC  230.00  to  GOLDHILL 230.00
2  30335  32412  "3"    0     # TRAN from  ATLANTC  230.00  to  ATLANTIC 115.00
2  30335  32412  "4"    0     # TRAN from  ATLANTC  230.00  to  ATLANTIC 115.00
2  30335  32413  "1"    0     # TRAN from  ATLANTC  230.00  to  ATLANTI   60.00
0
 #
 #
 # (63) BUS FAULT  30337  "GOLDHILL" 230 kV bus section 1
 #
1  30337  30335  "1"    0     # LINE from  GOLDHILL 230.00  to  ATLANTC  230.00
1  30337  37012  "1"    0     # LINE from  GOLDHILL 230.00  to  LAKE     230.00
1  30337  38000  "1"    0     # LINE from  GOLDHILL 230.00  to  LODI     230.00
2  30337  32018  "1"    0     # TRAN from  GOLDHILL 230.00  to  GOLDHILL 115.00
0
 #
 #
 # (64) BUS FAULT  30337  "GOLDHILL" 230 kV bus section 2
 #
1  30337  30330  "1"    0     # LINE from  GOLDHILL 230.00  to  RIO OSO  230.00
1  30337  30340  "1"    0     # LINE from  GOLDHILL 230.00  to  RALSTON  230.00
1  30337  30621  "1"    0     # LINE from  GOLDHILL 230.00  to  Q260     230.00
2  30337  32018  "2"    0     # TRAN from  GOLDHILL 230.00  to  GOLDHILL 115.00
0
 #
 #
 # (65) BUS FAULT  30345  "MIDLFORK"
 #
1  30345  30340  "1"    0     # LINE from  MIDLFORK 230.00  to  RALSTON  230.00
2  30345  30346  "1"    0     # TRAN from  MIDLFORK 230.00  to  MDDLFK M 230.00
0
 #
 #
 # (66) BUS FAULT  32018  "GOLDHILL" 115 kV bus section 1
 #
1  32018  32229  "1"    0     # LINE from  GOLDHILL 115.00  to  HORSHE1  115.00
1  32018  32263  "1"    0     # LINE from  GOLDHILL 115.00  to  CLRKSVLE 115.00
1  32018  32275  "1"    0     # LINE from  GOLDHILL 115.00  to  CPM TAP  115.00
2  32018  30337  "1"    0     # TRAN from  GOLDHILL 115.00  to  GOLDHILL 230.00
0
 #
 #
 # (67) BUS FAULT  32018  "GOLDHILL" 115 kV bus section 2
 #
1  32018  32231  "2"    0     # LINE from  GOLDHILL 115.00  to  HORSHE2  115.00
1  32018  32268  "2"    0     # LINE from  GOLDHILL 115.00  to  SHPRING2 115.00
1  32018  33565  "1"    0     # LINE from  GOLDHILL 115.00  to  CMNCHETP 115.00
2  32018  30337  "2"    0     # TRAN from  GOLDHILL 115.00  to  GOLDHILL 230.00
2  32018  32110  "5"    0     # TRAN from  GOLDHILL 115.00  to  GOLD HLL  60.00
6  32018     0   "v "    0    # SVD-DROP   GOLDHILL 115
0
 #
 #
 # (68) BUS FAULT  32110  "GOLD HLL"
 #
1  32110  32396  "1"    0     # LINE from  GOLD HLL  60.00  to  LIMESTNE  60.00
2  32110  32018  "5"    0     # TRAN from  GOLD HLL  60.00  to  GOLDHILL 115.00
0
 #
 #
 # (69) BUS FAULT  32200  "PEASE" 115 kV Bus Section 1
 #
1  32200  31506  "1"    0     # LINE from  PEASE    115.00  to  HONC JT1 115.00
4  32200     0  "1 "    0     # LOAD-DROP    PEASE    115.00  LOAD==10.30(0.46)
4  32200     0  "4 "    0     # LOAD-DROP    PEASE    115.00  LOAD==10.47(0.47)
0
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 #
 #
 # (70) BUS FAULT  32200  "PEASE" 115 kV Bus Section 2
 #
1  32200  32288  "1"    0     # LINE from  PEASE    115.00  to  E.MRY J1 115.00
2  32200  32330  "2"    0     # TRAN from  PEASE    115.00  to  PEAS RG   60.00
4  32200     0  "3 "    0     # LOAD-DROP    PEASE    115.00  LOAD==9.78(0.44)
0
 #
 #
 # (71) BUS FAULT  32212  "E.NICOLS"
 #
1  32212  32214  "1"    0     # LINE from  E.NICOLS 115.00  to  RIO OSO  115.00
1  32212  32280  "1"    0     # LINE from  E.NICOLS 115.00  to  E.MRY J2 115.00
2  32212  32342  "2"    0     # TRAN from  E.NICOLS 115.00  to  E.NICOLS  60.00
0
 #
 #
 # (72) BUS FAULT  32228  "PLACER"
 #
1  32228  32238  "1"    0     # LINE from  PLACER   115.00  to  BELL PGE 115.00
1  32228  32239  "2"    0     # LINE from  PLACER   115.00  to  FLINT2   115.00
1  32228  32236  "1"    0     # LINE from  PLACER   115.00  to  FLINT1   115.00
2  32228  32512  "1"    0     # TRAN from  PLACER   115.00  to  WISE      12.00
2  32228  32394  "1"    0     # TRAN from  PLACER   115.00  to  PLACER    60.00
4  32228     0  "2 "    0     # LOAD-DROP    PLACER   115.00  LOAD==23.05(1.03)
4  32228     0  "3 "    0     # LOAD-DROP    PLACER   115.00  LOAD==10.02(0.45)
0
 #
 #
 # (73) BUS FAULT  32232  "HIGGINS"
 #
1  32232  32224  "1"    0     # LINE from  HIGGINS  115.00  to  CHCGO PK 115.00
1  32232  32238  "1"    0     # LINE from  HIGGINS  115.00  to  BELL PGE 115.00
4  32232     0  "2 "    0     # LOAD-DROP    HIGGINS  115.00  LOAD==14.63(0.65)
4  32232     0  "3 "    0     # LOAD-DROP    HIGGINS  115.00  LOAD==17.29(0.77)
0
 #
 #
 # (74) BUS FAULT  32238  "BELL PGE"
 #
1  32238  32228  "1"    0     # LINE from  BELL PGE 115.00  to  PLACER   115.00
1  32238  32232  "1"    0     # LINE from  BELL PGE 115.00  to  HIGGINS  115.00
4  32238     0  "2 "    0     # LOAD-DROP    BELL PGE 115.00  LOAD==22.61(1.01)
4  32238     0  "3 "    0     # LOAD-DROP    BELL PGE 115.00  LOAD==15.50(0.69)
0
 #
 #
 # (75) BUS FAULT  32250  "ELDORAD"
 #
1  32250  32481  "2"    0     # LINE from  ELDORAD  115.00  to  APLHTAP2 115.00
1  32250  32482  "1"    0     # LINE from  ELDORAD  115.00  to  APLHTAP1 115.00
2  32250  32513  "1"    0     # TRAN from  ELDORAD  115.00  to  ELDRADO1  21.60
2  32250  32514  "1"    0     # TRAN from  ELDORAD  115.00  to  ELDRADO2  21.60
4  32250     0  "1 "    0     # LOAD-DROP    ELDORAD  115.00  LOAD==9.35(0.42)
0
 #
 #
 # (76) BUS FAULT  32260  "MIZOU_T2"
 #
1  32260  32257  "2"    0     # LINE from  MIZOU_T2 115.00  to  PLCRVLT2 115.00
1  32260  32259  "2"    0     # LINE from  MIZOU_T2 115.00  to  DIMOND_2 115.00
0
 #
 #
 # (77) BUS FAULT  32261  "MIZOU_T1"
 #
1  32261  32255  "1"    0     # LINE from  MIZOU_T1 115.00  to  PLCRVLT1 115.00
1  32261  32267  "1"    0     # LINE from  MIZOU_T1 115.00  to  DIMOND_1 115.00
0
 #
 #
 # (78) BUS FAULT  32308  "COLGATE"
 #
```

```
1  32308  31658  "1"   0    # LINE from  COLGATE   60.00  to  BANGOR    60.00
1  32308  32307  "1"   0    # LINE from  COLGATE   60.00  to  COLGATEA  60.00
1  32308  32311  "1"   0    # LINE from  COLGATE   60.00  to  NRRWS1TP  60.00
1  32308  32313  "2"   0    # LINE from  COLGATE   60.00  to  NRRWS2TP  60.00
1  32308  32358  "1"   0    # LINE from  COLGATE   60.00  to  CLMBA HL  60.00
1  32308  32364  "1"   0    # LINE from  COLGATE   60.00  to  GRSS VLY  60.00
2  32308  30327  "3"   0    # TRAN from  COLGATE   60.00  to  COLGATE  230.00
0
 #
 #
 # (79) BUS FAULT  32314  "SMRTSVLE"
 #
1  32314  32311  "1"   0    # LINE from  SMRTSVLE  60.00  to  NRRWS1TP  60.00
1  32314  32313  "2"   0    # LINE from  SMRTSVLE  60.00  to  NRRWS2TP  60.00
1  32314  32316  "1"   0    # LINE from  SMRTSVLE  60.00  to  YUBAGOLD  60.00
1  32314  32341  "2"   0    # LINE from  SMRTSVLE  60.00  to  BEALE1J1  60.00
1  32314  32348  "1"   0    # LINE from  SMRTSVLE  60.00  to  BEALE2J2  60.00
1  32314  32349  "1"   0    # LINE from  SMRTSVLE  60.00  to  BEALE2J1  60.00
4  32314    0  "1 "   0    # LOAD-DROP    SMRTSVLE  60.00  LOAD==2.61(0.12)
0
 #
 #
 # (80) BUS FAULT  32320  "MRYSVLLE"
 #
1  32320  32318  "1"   0    # LINE from  MRYSVLLE  60.00  to  BRWNS VY  60.00
1  32320  32333  "1"   0    # LINE from  MRYSVLLE  60.00  to  PEASETP   60.00
1  32320  32344  "1"   0    # LINE from  MRYSVLLE  60.00  to  PLUMAS    60.00
1  32320  32332  "1"   0    # LINE from  MRYSVLLE  60.00  to  PEASE     60.00
4  32320    0  "1 "   0    # LOAD-DROP    MRYSVLLE  60.00  LOAD==18.85(0.84)
4  32320    0  "3 "   0    # LOAD-DROP    MRYSVLLE  60.00  LOAD==14.52(0.65)
0
 #
 #
 # (81) BUS FAULT  32332  "PEASE"
 #
1  32332  32326  "1"   0    # LINE from  PEASE     60.00  to  ENCL TAP  60.00
1  32332  32328  "1"   0    # LINE from  PEASE     60.00  to  YBA CTYJ  60.00
1  32332  32320  "1"   0    # LINE from  PEASE     60.00  to  MRYSVLLE  60.00
1  32332  32333  "1"   0    # LINE from  PEASE     60.00  to  PEASETP   60.00
2  32332  32330  "1"   0    # TRAN from  PEASE     60.00  to  PEAS RG   60.00
0
 #
 #
 # (82) BUS FAULT  32342  "E.NICOLS"
 #
1  32342  32306  "1"   0    # LINE from  E.NICOLS  60.00  to  CATLETT   60.00
1  32342  32340  "1"   0    # LINE from  E.NICOLS  60.00  to  TUDOR     60.00
1  32342  32079  "1"   0    # LINE from  E.NICOLS  60.00  to  DST1001B  60.00
1  32342  32089  "1"   0    # LINE from  E.NICOLS  60.00  to  DST1001A  60.00
1  32342  32305  "2"   0    # LINE from  E.NICOLS  60.00  to  CATLETJT  60.00
1  32342  32344  "1"   0    # LINE from  E.NICOLS  60.00  to  PLUMAS    60.00
1  32342  32353  "1"   0    # LINE from  E.NICOLS  60.00  to  WHTLND1   60.00
2  32342  32212  "2"   0    # TRAN from  E.NICOLS  60.00  to  E.NICOLS 115.00
4  32342    0  "1 "   0    # LOAD-DROP    E.NICOLS  60.00  LOAD==5.47(0.25)
0
 #
 #
 # (83) BUS FAULT  32356  "LINCOLN"
 #
1  32356  32214  "1"   0    # LINE from  LINCOLN  115.00  to  RIO OSO  115.00
1  32356  32404  "1"   0    # LINE from  LINCOLN  115.00  to  SPI  JCT 115.00
4  32356    0  "1 "   0    # LOAD-DROP    LINCOLN  115.00  LOAD==34.00(0.00)
4  32356    0  "2 "   0    # LOAD-DROP    LINCOLN  115.00  LOAD==8.02(0.00)
4  32356    0  "3 "   0    # LOAD-DROP    LINCOLN  115.00  LOAD==18.77(0.00)
0
 #
 #
 # (84) BUS FAULT  32364  "GRSS VLY"
 #
1  32364  32308  "1"   0    # LINE from  GRSS VLY  60.00  to  COLGATE   60.00
1  32364  32377  "1"   0    # LINE from  GRSS VLY  60.00  to  ROLLNSTP  60.00
4  32364    0  "2 "   0    # LOAD-DROP    GRSS VLY  60.00  LOAD==14.20(0.64)
0
 #
```

```
 #
 # (85) BUS FAULT  32372  "SPAULDNG"
 #
1  32372  32366  "1"    0     # LINE from  SPAULDNG  60.00  to  CISCO GR  60.00
1  32372  32407  "1"    0     # LINE from  SPAULDNG  60.00  to  BOWMN TP  60.00
2  32372  32472  "1"    0     # TRAN from  SPAULDNG  60.00  to  SPAULDG   9.11
4  32372     0  "1 "    0     # LOAD-DROP    SPAULDNG  60.00  LOAD==0.53(0.02)
0
 #
 #
 # (86) BUS FAULT  32374  "DRUM"
 #
1  32374  32376  "1"    0     # LINE from  DRUM      60.00  to  BONNIE N  60.00
1  32374  32407  "1"    0     # LINE from  DRUM      60.00  to  BOWMN TP  60.00
2  32374  32242  "1"    0     # TRAN from  DRUM      60.00  to  DRUM  1M 115.00
2  32374  32246  "2"    0     # TRAN from  DRUM      60.00  to  DRUM  2M 115.00
2  32374  32474  "1"    0     # TRAN from  DRUM      60.00  to  DEER CRK   9.11
4  32374     0  "1 "    0     # LOAD-DROP    DRUM      60.00  LOAD==0.35(0.01)
0
 #
 #
 # (87) BUS FAULT  32378  "ROLLINS"
 #
1  32378  32377  "1"    0     # LINE from  ROLLINS   60.00  to  ROLLNSTP  60.00
2  32378  32476  "1"    0     # TRAN from  ROLLINS   60.00  to  ROLLINSF   9.11
0
 #
 #
 # (88) BUS FAULT  32380  "WEMR SWS"
 #
1  32380  32369  "1"    0     # LINE from  WEMR SWS  60.00  to  COLFAXJT  60.00
1  32380  32382  "1"    0     # LINE from  WEMR SWS  60.00  to  FORST HL  60.00
1  32380  32390  "1"    0     # LINE from  WEMR SWS  60.00  to  HALSEY    60.00
4  32380     0  "1 "    0     # LOAD-DROP    WEMR SWS  60.00  LOAD==8.05(0.36)
0
 #
 #
 # (89) BUS FAULT  32384  "OXBOW"
 #
1  32384  32370  "1"    0     # LINE from  OXBOW     60.00  to  ENVRO_HY  60.00
1  32384  32386  "1"    0     # LINE from  OXBOW     60.00  to  MDDLE FK  60.00
2  32384  32484  "1"    0     # TRAN from  OXBOW     60.00  to  OXBOW  F   9.11
0
 #
 #
 # (90) BUS FAULT  32386  "MDDLE FK"
 #
1  32386  32384  "1"    0     # LINE from  MDDLE FK  60.00  to  OXBOW     60.00
1  32386  32388  "1"    0     # LINE from  MDDLE FK  60.00  to  FRNCH MS  60.00
2  32386  30346  "4"    0     # TRAN from  MDDLE FK  60.00  to  MDDLFK M 230.00
0
 #
 #
 # (91) BUS FAULT  32388  "FRNCH MS"
 #
1  32388  32386  "1"    0     # LINE from  FRNCH MS  60.00  to  MDDLE FK  60.00
2  32388  32486  "1"    0     # TRAN from  FRNCH MS  60.00  to  HELLHOLE   9.11
2  32388  32508  "1"    0     # TRAN from  FRNCH MS  60.00  to  FRNCH MD   4.16
0
 #
 #
 # (92) BUS FAULT  32390  "HALSEY"
 #
1  32390  32380  "1"    0     # LINE from  HALSEY    60.00  to  WEMR SWS  60.00
1  32390  32410  "1"    0     # LINE from  HALSEY    60.00  to  MTN_QJCT  60.00
2  32390  32478  "1"    0     # TRAN from  HALSEY    60.00  to  HALSEY F   9.11
4  32390     0  "1 "    0     # LOAD-DROP    HALSEY    60.00  LOAD==17.90(0.80)
0
 #
 #
 # (93) BUS FAULT  32394  "PLACER"
 #
1  32394  32392  "1"    0     # LINE from  PLACER    60.00  to  AUBURN    60.00
1  32394  32270  "1"    0     # LINE from  PLACER    60.00  to  PENRYN    60.00
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```
2  32394  32228  "1"   0    # TRAN from  PLACER    60.00  to  PLACER   115.00
0
 #
 #
 # (94) BUS FAULT  32400  "SPI-LINC"
 #
1  32400  32404  "1"   0    # LINE from  SPI-LINC 115.00  to  SPI  JCT 115.00
2  32400  32498  "1"   0    # TRAN from  SPI-LINC 115.00  to  SPILINCF  12.50
0
 #
 #
 # (95) BUS FAULT  32408  "PLSNT GR"
 #
1  32408  32414  "1"   0    # LINE from  PLSNT GR 115.00  to  FORMICA  115.00
1  32408  32412  "1"   0    # LINE from  PLSNT GR 115.00  to  ATLANTIC 115.00
1  32408  32412  "2"   0    # LINE from  PLSNT GR 115.00  to  ATLANTIC 115.00
4  32408     0  "1 "   0    # LOAD-DROP    PLSNT GR 115.00  LOAD==43.07(0.00)
4  32408     0  "2 "   0    # LOAD-DROP    PLSNT GR 115.00  LOAD==41.19(0.00)
4  32408     0  "3 "   0    # LOAD-DROP    PLSNT GR 115.00  LOAD==34.23(0.00)
0
 #
 #
 # (96) BUS FAULT  32412  "ATLANTIC"
 #
1  32412  32408  "1"   0    # LINE from  ATLANTIC 115.00  to  PLSNT GR 115.00
1  32412  32408  "2"   0    # LINE from  ATLANTIC 115.00  to  PLSNT GR 115.00
2  32412  30335  "3"   0    # TRAN from  ATLANTIC 115.00  to  ATLANTC  230.00
2  32412  30335  "4"   0    # TRAN from  ATLANTIC 115.00  to  ATLANTC  230.00
0
 #
 #
 # (97) BUS FAULT  32413  "ATLANTI"
 #
1  32413  32266  "1"   0    # LINE from  ATLANTI   60.00  to  TAYLOR    60.00
1  32413  32272  "1"   0    # LINE from  ATLANTI   60.00  to  DEL MAR   60.00
2  32413  30335  "1"   0    # TRAN from  ATLANTI   60.00  to  ATLANTC  230.00
0
 #
 #
 # 2013 category c contingency list (dctl and bus outages)
 # Stockton/Stanislaus Divisions Zones 311-312
 #
 #
 # (98) C5 DCTL OUTAGE
 # Valley Springs - Martell #1 and #2 60 kV Lines
1  33610 33619  "1 "   0    # line from  VLLY SPS  60.00  BRKR to (3)   AMFOR_SW  60.00
1  33619 33616  "1 "   0    # line from  AMFOR_SW  60.00   (3) to BRKR  MARTELL   60.00
1  33619 33620  "1 "   0    # line from  AMFOR_SW  60.00   (3) to (1)   AM FORST  60.00
4  33616     0  "1 "   0    # LOAD-DROP    MARTELL   60.00  LOAD==19.52(0.87)
4  33620     0  "1 "   0    # LOAD-DROP    AM FORST  60.00  LOAD==1.90(1.52)
 #
1  33610 33634  "1 "   0    # line from  VLLY SPS  60.00  BRKR to (3)   PRDE JCT  60.00
1  33634 33626  "1 "   0    # line from  PRDE JCT  60.00   (3) to (3)   I.NRGYJT  60.00
2  33634 33846  "1 "   0    # TRAN from  PRDE JCT  60.00   (3) to (1)   PRDE 1-3   7.20
1  33626 33622  "1 "   0    # line from  I.NRGYJT  60.00   (3) to (2)   CLAY      60.00
1  33626 33628  "1 "   0    # line from  I.NRGYJT  60.00   (3) to (2)   I.ENERGY  60.00
1  33622 33623  "1 "   0    # line from  CLAY      60.00   (2) to (3)   INE_TP    60.00
1  33623 33617  "1 "   0    # line from  INE_TP    60.00   (3) to (1)   MARTELTP  60.00
1  33623 33624  "1 "   0    # line from  INE_TP    60.00   (3) to (1)   INE PRSN  60.00
2  33628 33816  "1 "   0    # TRAN from  I.ENERGY  60.00   (2) to (1)   I.ENERGY  12.00
4  33622     0  "1 "   0    # LOAD-DROP    CLAY      60.00  LOAD==13.69(0.62)
4  33622     0  "2 "   0    # LOAD-DROP    CLAY      60.00  LOAD==4.09(0.18)
4  33624     0  "1 "   0    # LOAD-DROP    INE PRSN  60.00  LOAD==12.55(0.56)
3  33846     0  "2 "   0    # GEN-DROP    PRDE 1-3   7.20  GEN==8.00(2.00)
0
 #
 #
 # (99) C5 DCTL OUTAGE
 # Bellota - Riverbank - Melones and Bellota - Riverbank 115 kV Lines
1  33562 33950  "1 "   0    # line from  BELLOTA  115.00  BRKR to (3)   RVRBK TP 115.00
1  33950 33934  "1 "   0    # line from  RVRBK TP 115.00   (3) to (3)   TULLOCH  115.00
1  33950 33944  "1 "   0    # line from  RVRBK TP 115.00   (3) to BRKR  RVRBANK  115.00
1  33934 33932  "1 "   0    # line from  TULLOCH  115.00   (3) to BRKR  MELONES  115.00
2  33934 34076  "1 "   0    # TRAN from  TULLOCH  115.00   (3) to (1)   TULLOCH    6.90
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```
3  34076     0  "1 "    0     # GEN-DROP    TULLOCH    6.90  GEN==8.30(1.00)
3  34076     0  "2 "    0     # GEN-DROP    TULLOCH    6.90  GEN==8.30(1.00)
 #
1  33562 33946  "1 "    0     # line from  BELLOTA  115.00  BRKR to (2)   RVRBK J1 115.00
1  33946 33944  "1 "    0     # line from  RVRBK J1 115.00   (2) to BRKR  RVRBANK  115.00
0
 #
 #
 # (100) C5 DCTL OUTAGE
 # Stanislaus - Manteca #2 and Riverbank Jct Sw Sta - Manteca 115 kV Lines
1  33506 33948  "1 "    0     # line from  STANISLS 115.00  BRKR to (2)   RVRBK J2 115.00
1  33948 33953  "1 "    0     # line from  RVRBK J2 115.00   (2) to (2)   VLYHMTP2 115.00
1  33953 33511  "1 "    0     # line from  VLYHMTP2 115.00   (2) to (2)   AVENATP2 115.00
1  33511 33514  "1 "    0     # line from  AVENATP2 115.00   (2) to BRKR  MANTECA  115.00
 #
1  33516 33514  "1 "    0     # line from  RPN JNCN 115.00   (3) to BRKR  MANTECA  115.00
1  33516 33520  "1 "    0     # line from  RPN JNCN 115.00   (3) to (1)   RIPON    115.00
1  33516 33951  "1 "    0     # line from  RPN JNCN 115.00   (3) to (3)   VLYHMTP1 115.00
1  33951 33947  "1 "    0     # line from  VLYHMTP1 115.00   (3) to BRKR  RIVRBKJT 115.00
1  33951 33952  "1 "    0     # line from  VLYHMTP1 115.00   (3) to (1)   VALLY HM 115.00
4  33520     0  "2 "    0     # LOAD-DROP    RIPON    115.00  LOAD==29.97(1.34)
4  33952     0  "1 "    0     # LOAD-DROP    VALLY HM 115.00  LOAD==5.36(0.24)
0
 #
 #
 # (101) C5 DCTL OUTAGE
 # Stanislaus - Melones - Manteca #1 and Stanislaus - Manteca #2 115 kV Lines
1  33500 33509  "1 "    0     # line from  MELNS JA 115.00   (3) to (3)   AVENATP1 115.00
1  33500 33501  "1 "    0     # line from  MELNS JA 115.00   (3) to (3)   FRGTNTP1 115.00
1  33500 33932  "1 "    0     # line from  MELNS JA 115.00   (3) to BRKR  MELONES  115.00
1  33509 33510  "1 "    0     # line from  AVENATP1 115.00   (3) to (1)   AVENA    115.00
1  33509 33514  "1 "    0     # line from  AVENATP1 115.00   (3) to BRKR  MANTECA  115.00
1  33501 33502  "1 "    0     # line from  FRGTNTP1 115.00   (3) to (1)   FROGTOWN 115.00
1  33501 33506  "1 "    0     # line from  FRGTNTP1 115.00   (3) to BRKR  STANISLS 115.00
4  33510     0  "1 "    0     # LOAD-DROP    AVENA    115.00  LOAD==13.67(0.61)
4  33502     0  "1 "    0     # LOAD-DROP    FROGTOWN 115.00  LOAD==11.14(0.50)
4  33502     0  "2 "    0     # LOAD-DROP    FROGTOWN 115.00  LOAD==8.04(0.36)
1  33511 33510  "1 "    1      # Switches in Avenan SW 145 to transfer load
4  33510     0  "**"    1      # Restores Load at Avena
 #
1  33506 33948  "1 "    0     # line from  STANISLS 115.00  BRKR to (2)   RVRBK J2 115.00
1  33948 33953  "1 "    0     # line from  RVRBK J2 115.00   (2) to (2)   VLYHMTP2 115.00
1  33953 33511  "1 "    0     # line from  VLYHMTP2 115.00   (2) to (2)   AVENATP2 115.00
1  33511 33514  "1 "    0     # line from  AVENATP2 115.00   (2) to BRKR  MANTECA  115.00
0
 #
 #
 # (102) C5 DCTL OUTAGE
 # Tesla - Manteca and Tesla - Schulte 115 kV Lines pre-project outage
1  33514 33526  "1 "    0     # line from  MANTECA  115.00  BRKR to (3)   KSSN-JC1 115.00
1  33526 33528  "1 "    0     # line from  KSSN-JC1 115.00   (3) to BRKR  KASSON   115.00
1  33526 33533  "1 "    0     # line from  KSSN-JC1 115.00   (3) to (2)   OWENSTP2 115.00
1  33533 33535  "1 "    0     # line from  OWENSTP2 115.00   (2) to (2)   SFWY_TP2 115.00
1  33535 33543  "1 "    0     # line from  SFWY_TP2 115.00   (2) to (3)   AEC_TP2  115.00
1  33543 33540  "1 "    0     # line from  AEC_TP2  115.00   (3) to BRKR  TESLA    115.00
1  33543 33545  "1 "    0     # line from  AEC_TP2  115.00   (3) to (2)   AEC_JCT  115.00
1  33545 33547  "1 "    0     # line from  AEC_JCT  115.00   (2) to (1)   AEC_300  115.00
4  33547     0  "1 "    0     # LOAD-DROP    AEC_300  115.00  LOAD==3.00(9.54)
 #
1  33537 33534  "1 "    0     # line from  SFWY_TP1 115.00   (3) to (1)   SAFEWAY  115.00
1  33537 33549  "1 "    0     # line from  SFWY_TP1 115.00   (3) to BRKR  GWFTRACY 115.00
1  33537 33541  "1 "    0     # line from  SFWY_TP1 115.00   (3) to (2)   AEC_TP1  115.00
1  33541 33540  "1 "    0     # line from  AEC_TP1  115.00   (2) to BRKR  TESLA    115.00
4  33534     0  "1 "    0     # LOAD-DROP    SAFEWAY  115.00  LOAD==5.38(2.76)
0
 #
 #
 # (103) C5 DCTL OUTAGE
 # Tesla - Manteca and Schulte - Lammers 115 kV Lines pre-project outage
1  33514 33526  "1 "    0     # line from  MANTECA  115.00  BRKR to (3)   KSSN-JC1 115.00
1  33526 33528  "1 "    0     # line from  KSSN-JC1 115.00   (3) to BRKR  KASSON   115.00
1  33526 33533  "1 "    0     # line from  KSSN-JC1 115.00   (3) to (2)   OWENSTP2 115.00
1  33533 33535  "1 "    0     # line from  OWENSTP2 115.00   (2) to (2)   SFWY_TP2 115.00
1  33535 33543  "1 "    0     # line from  SFWY_TP2 115.00   (2) to (3)   AEC_TP2  115.00
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1  33543 33540  "1 "    0     # line from  AEC_TP2  115.00   (3) to BRKR  TESLA    115.00
1  33543 33545  "1 "    0     # line from  AEC_TP2  115.00   (3) to (2)   AEC_JCT  115.00
1  33545 33547  "1 "    0     # line from  AEC_JCT  115.00   (2) to (1)   AEC_300  115.00
4  33547     0  "1 "    0     # LOAD-DROP    AEC_300  115.00  LOAD==3.00(9.54)
 #
1  33529 33531  "1 "    0     # line from  LAMMERS  115.00  BRKR to (3)   OWENSTP1 115.00
1  33531 33532  "1 "    0     # line from  OWENSTP1 115.00   (3) to (1)   OI GLASS 115.00
1  33531 33549  "1 "    0     # line from  OWENSTP1 115.00   (3) to BRKR  GWFTRACY 115.00
4  33532     0  "1 "    0     # LOAD-DROP    OI GLASS 115.00  LOAD==11.34(7.03)
0
 #
 #
 # (104) C5 DCTL OUTAGE
 # Tesla - Schulte #1 and #2 115 kV Lines post-project outage
1  33537 33534  "1 "    0     # line from  SFWY_TP1 115.00   (3) to (1)   SAFEWAY  115.00
1  33537 33549  "1 "    0     # line from  SFWY_TP1 115.00   (3) to BRKR  SCHULTE  115.00
1  33537 33541  "1 "    0     # line from  SFWY_TP1 115.00   (3) to (2)   AEC_TP1  115.00
1  33541 33540  "1 "    0     # line from  AEC_TP1  115.00   (2) to BRKR  TESLA    115.00
4  33534     0  "1 "    0     # LOAD-DROP    SAFEWAY  115.00  LOAD==5.38(2.76)
 #
1  33535 33549  "2 "    0     # line from  SFWY_TP2 115.00   (2) to BRKR  SCHULTE  115.00
1  33535 33543  "1 "    0     # line from  SFWY_TP2 115.00   (2) to (3)   AEC_TP2  115.00
1  33543 33540  "1 "    0     # line from  AEC_TP2  115.00   (3) to BRKR  TESLA    115.00
1  33543 33545  "1 "    0     # line from  AEC_TP2  115.00   (3) to (2)   AEC_JCT  115.00
1  33545 33547  "1 "    0     # line from  AEC_JCT  115.00   (2) to (1)   AEC_300  115.00
4  33547     0  "1 "    0     # LOAD-DROP    AEC_300  115.00  LOAD==3.00(9.54)
0
 #
 #
 # (105) C5 DCTL OUTAGE
 # Schulte - Lammers and Schulte - Manteca 115 kV Lines post-project outage
1  33529 33531  "1 "    0     # line from  LAMMERS  115.00  BRKR to (3)   OWENSTP1 115.00
1  33531 33532  "1 "    0     # line from  OWENSTP1 115.00   (3) to (1)   OI GLASS 115.00
1  33531 33549  "1 "    0     # line from  OWENSTP1 115.00   (3) to BRKR  SCHULTE  115.00
4  33532     0  "1 "    0     # LOAD-DROP    OI GLASS 115.00  LOAD==11.34(7.03)
 #
1  33514 33526  "1 "    0     # line from  MANTECA  115.00  BRKR to (3)   KSSN-JC1 115.00
1  33526 33528  "1 "    0     # line from  KSSN-JC1 115.00   (3) to BRKR  KASSON   115.00
1  33526 33533  "1 "    0     # line from  KSSN-JC1 115.00   (3) to (2)   OWENSTP2 115.00
1  33533 33549  "2 "    0     # line from  OWENSTP2 115.00   (2) to BRKR  SCHULTE  115.00
0
 #
 #
 # (106) C5 DCTL OUTAGE
 # Tesla - Manteca and Manteca - Vierra 115 kV Lines pre-project outage
1  33514 33526  "1 "    0     # line from  MANTECA  115.00  BRKR to (3)   KSSN-JC1 115.00
1  33526 33528  "1 "    0     # line from  KSSN-JC1 115.00   (3) to BRKR  KASSON   115.00
1  33526 33533  "1 "    0     # line from  KSSN-JC1 115.00   (3) to (2)   OWENSTP2 115.00
1  33533 33535  "1 "    0     # line from  OWENSTP2 115.00   (2) to (2)   SFWY_TP2 115.00
1  33535 33543  "1 "    0     # line from  SFWY_TP2 115.00   (2) to (3)   AEC_TP2  115.00
1  33543 33540  "1 "    0     # line from  AEC_TP2  115.00   (3) to BRKR  TESLA    115.00
1  33543 33545  "1 "    0     # line from  AEC_TP2  115.00   (3) to (2)   AEC_JCT  115.00
1  33545 33547  "1 "    0     # line from  AEC_JCT  115.00   (2) to (1)   AEC_300  115.00
4  33547     0  "1 "    0     # LOAD-DROP    AEC_300  115.00  LOAD==3.00(9.54)
 #
1  33518 33514  "1 "    0     # line from  VIERRA   115.00  BRKR to BRKR  MANTECA  115.00
0
 #
 #
 # (107) C5 DCTL OUTAGE
 # Schulte - Manteca and Manteca - Vierra 115 kV Lines post-project outage
1  33514 33526  "1 "    0     # line from  MANTECA  115.00  BRKR to (3)   KSSN-JC1 115.00
1  33526 33528  "1 "    0     # line from  KSSN-JC1 115.00   (3) to BRKR  KASSON   115.00
1  33526 33533  "1 "    0     # line from  KSSN-JC1 115.00   (3) to (2)   OWENSTP2 115.00
1  33533 33549  "2 "    0     # line from  OWENSTP2 115.00   (2) to BRKR  SCHULTE  115.00
 #
1  33518 33514  "1 "    0     # line from  VIERRA   115.00  BRKR to BRKR  MANTECA  115.00
0
 #
 #
 # (108) C5 DCTL OUTAGE
 # Tesla - Manteca and Tesla - Salado - Manteca 115 kV Lines pre-project outage
1  33514 33526  "1 "    0     # line from  MANTECA  115.00  BRKR to (3)   KSSN-JC1 115.00
1  33526 33528  "1 "    0     # line from  KSSN-JC1 115.00   (3) to BRKR  KASSON   115.00
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1  33526 33533  "1 "    0     # line from  KSSN-JC1 115.00   (3) to (2)   OWENSTP2 115.00
1  33533 33535  "1 "    0     # line from  OWENSTP2 115.00   (2) to (2)   SFWY_TP2 115.00
1  33535 33543  "1 "    0     # line from  SFWY_TP2 115.00   (2) to (3)   AEC_TP2  115.00
1  33543 33540  "1 "    0     # line from  AEC_TP2  115.00   (3) to BRKR  TESLA    115.00
1  33543 33545  "1 "    0     # line from  AEC_TP2  115.00   (3) to (2)   AEC_JCT  115.00
1  33545 33547  "1 "    0     # line from  AEC_JCT  115.00   (2) to (1)   AEC_300  115.00
4  33547     0  "1 "    0     # LOAD-DROP    AEC_300  115.00  LOAD==3.00(9.54)
 #
1  33514 33970  "1 "    0     # line from  MANTECA  115.00  BRKR to (3)   INGRM C. 115.00
1  33970 33959  "1 "    0     # line from  INGRM C. 115.00   (3) to (2)   TCHRT_T2 115.00
1  33970 33965  "1 "    0     # line from  INGRM C. 115.00   (3) to (2)   SALADO J 115.00
1  33959 33540  "1 "    0     # line from  TCHRT_T2 115.00   (2) to BRKR  TESLA    115.00
1  33965 33964  "1 "    0     # line from  SALADO J 115.00   (2) to BRKR  SALADO   115.00
4  33970     0  "1 "    0     # LOAD-DROP    INGRM C. 115.00  LOAD==3.59(1.74)
0
 #
 #
 # (109) C5 DCTL OUTAGE
 # Schulte - Manteca and Tesla - Salado - Manteca 115 kV Lines post-project outage
1  33514 33526  "1 "    0     # line from  MANTECA  115.00  BRKR to (3)   KSSN-JC1 115.00
1  33526 33528  "1 "    0     # line from  KSSN-JC1 115.00   (3) to BRKR  KASSON   115.00
1  33526 33533  "1 "    0     # line from  KSSN-JC1 115.00   (3) to (2)   OWENSTP2 115.00
1  33533 33549  "2 "    0     # line from  OWENSTP2 115.00   (2) to BRKR  SCHULTE  115.00
 #
1  33514 33970  "1 "    0     # line from  MANTECA  115.00  BRKR to (3)   INGRM C. 115.00
1  33970 33959  "1 "    0     # line from  INGRM C. 115.00   (3) to (2)   TCHRT_T2 115.00
1  33970 33965  "1 "    0     # line from  INGRM C. 115.00   (3) to (2)   SALADO J 115.00
1  33959 33540  "1 "    0     # line from  TCHRT_T2 115.00   (2) to BRKR  TESLA    115.00
1  33965 33964  "1 "    0     # line from  SALADO J 115.00   (2) to BRKR  SALADO   115.00
4  33970     0  "1 "    0     # LOAD-DROP    INGRM C. 115.00  LOAD==3.59(1.74)
0
 #
 #
 # (110) C5 DCTL OUTAGE
 # Tesla - Salado #1 and Tesla - Salado - Manteca 115 kV Lines
1  33540 33961  "1 "    0     # line from  TESLA    115.00  BRKR to (3)   TCHRT_T1 115.00
1  33961 33960  "1 "    0     # line from  TCHRT_T1 115.00   (3) to (2)   MDSTO CN 115.00
1  33961 33963  "1 "    0     # line from  TCHRT_T1 115.00   (3) to (2)   TCHRTJCT 115.00
1  33960 33962  "1 "    0     # line from  MDSTO CN 115.00   (2) to (3)   SALDO TP 115.00
1  33962 33964  "1 "    0     # line from  SALDO TP 115.00   (3) to BRKR  SALADO   115.00
1  33962 33967  "1 "    0     # line from  SALDO TP 115.00   (3) to (2)   MILER TP 115.00
1  33967 33966  "1 "    0     # line from  MILER TP 115.00   (2) to (1)   MILLER   115.00
1  33963 33968  "1 "    0     # line from  TCHRTJCT 115.00   (2) to (1)   TEICHERT 115.00
4  33966     0  "1 "    0     # LOAD-DROP    MILLER   115.00  LOAD==3.54(1.71)
4  33968     0  "1 "    0     # LOAD-DROP    TEICHERT 115.00  LOAD==7.42(6.54)
 #
1  33514 33970  "1 "    0     # line from  MANTECA  115.00  BRKR to (3)   INGRM C. 115.00
1  33970 33959  "1 "    0     # line from  INGRM C. 115.00   (3) to (2)   TCHRT_T2 115.00
1  33970 33965  "1 "    0     # line from  INGRM C. 115.00   (3) to (2)   SALADO J 115.00
1  33959 33540  "1 "    0     # line from  TCHRT_T2 115.00   (2) to BRKR  TESLA    115.00
1  33965 33964  "1 "    0     # line from  SALADO J 115.00   (2) to BRKR  SALADO   115.00
4  33970     0  "1 "    0     # LOAD-DROP    INGRM C. 115.00  LOAD==3.59(1.74)
0
 #
 #
 # (111) C5 DCTL OUTAGE
 # Stockton Jct Sw Sta - Lockeford - Bellota #1 and #2 115 kV Lines
1  33556 33555  "1 "    0     # line from  STN COGN 115.00   (3) to (1)   STKTON A 115.00
1  33556 33560  "1 "    0     # line from  STN COGN 115.00   (3) to (2)   LCKFRDJA 115.00
1  33556 33958  "1 "    0     # line from  STN COGN 115.00   (3) to (2)   CPC STCN 115.00
1  33560 33562  "1 "    0     # line from  LCKFRDJA 115.00   (2) to BRKR  BELLOTA  115.00
2  33958 33814  "1 "    0     # TRAN from  CPC STCN 115.00   (2) to (1)   CPC STCN  12.47
4  33555     0  "4 "    0     # LOAD-DROP    STKTON A 115.00  LOAD==32.05(1.43)
4  33555     0  "5 "    0     # LOAD-DROP    STKTON A 115.00  LOAD==21.46(0.96)
4  33814     0  "SG"    0     # LOAD-DROP    CPC STCN  12.47  LOAD==6.19(1.41)
3  33814     0  "1 "    0     # GEN-DROP    CPC STCN  12.47  GEN==49.00(2.53)
 #
1  33552 33553  "1 "    0     # line from  STCKTNJB 115.00   (2) to BRKR  STKTON B 115.00
1  33552 33558  "1 "    0     # line from  STCKTNJB 115.00   (2) to (3)   LCKFRDJB 115.00
1  33558 33562  "1 "    0     # line from  LCKFRDJB 115.00   (3) to BRKR  BELLOTA  115.00
1  33558 33564  "1 "    0     # line from  LCKFRDJB 115.00   (3) to BRKR  LOCKFORD 115.00
4  33553     0  "3 "    0     # LOAD-DROP    STKTON B 115.00  LOAD==30.08(1.34)
1  33555 33553  "1 "    1      # Switches in Stockton 'A' SW 177 to transfer load
4  33553     0  "**"    1      # Restore Load at Stockton 'A' Bk  3
```

```
0
 #
 #
 # (112) C5 DCTL OUTAGE
 # Stanislaus - Manteca #2 and Stanislaus - Melones - Riverbank Jct Sw Sta 115 kV Lines
1  33506 33948  "1 "    0     # line from  STANISLS 115.00  BRKR to (2)   RVRBK J2 115.00
1  33948 33953  "1 "    0     # line from  RVRBK J2 115.00   (2) to (2)   VLYHMTP2 115.00
1  33953 33511  "1 "    0     # line from  VLYHMTP2 115.00   (2) to (2)   AVENATP2 115.00
1  33511 33514  "1 "    0     # line from  AVENATP2 115.00   (2) to BRKR  MANTECA  115.00
 #
1  33503 33936  "1 "    0     # line from  FRGTNTP2 115.00   (2) to (3)   MELNS JB 115.00
1  33503 33504  "1 "    0     # line from  FRGTNTP2 115.00   (2) to (2)   CATARACT 115.00
1  33936 33932  "1 "    0     # line from  MELNS JB 115.00   (3) to BRKR  MELONES  115.00
1  33936 33947  "1 "    0     # line from  MELNS JB 115.00   (3) to BRKR  RIVRBKJT 115.00
1  33504 33506  "1 "    0     # line from  CATARACT 115.00   (2) to BRKR  STANISLS 115.00
0
 #
 #
 # (113) C5 DCTL OUTAGE
 # Kasson - Lammers 115 kV Line and Tesla - Manteca 115 kV Line pre-project outage
1  33528 33529  "1 "    0     # line from  KASSON   115.00  BRKR to BRKR  LAMMERS  115.00
 #
1  33514 33526  "1 "    0     # line from  MANTECA  115.00  BRKR to (3)   KSSN-JC1 115.00
1  33526 33528  "1 "    0     # line from  KSSN-JC1 115.00   (3) to BRKR  KASSON   115.00
1  33526 33533  "1 "    0     # line from  KSSN-JC1 115.00   (3) to (2)   OWENSTP2 115.00
1  33533 33535  "1 "    0     # line from  OWENSTP2 115.00   (2) to (2)   SFWY_TP2 115.00
1  33535 33543  "1 "    0     # line from  SFWY_TP2 115.00   (2) to (3)   AEC_TP2  115.00
1  33543 33540  "1 "    0     # line from  AEC_TP2  115.00   (3) to BRKR  TESLA    115.00
1  33543 33545  "1 "    0     # line from  AEC_TP2  115.00   (3) to (2)   AEC_JCT  115.00
1  33545 33547  "1 "    0     # line from  AEC_JCT  115.00   (2) to (1)   AEC_300  115.00
4  33547     0  "1 "    0     # LOAD-DROP    AEC_300  115.00  LOAD==3.00(9.54)
0
 #
 #
 # (114) C5 DCTL OUTAGE
 # Kasson - Lammers 115 kV Line and Schulte - Manteca 115 kV Line post-project outage
1  33528 33529  "1 "    0     # line from  KASSON   115.00  BRKR to BRKR  LAMMERS  115.00
 #
1  33514 33526  "1 "    0     # line from  MANTECA  115.00  BRKR to (3)   KSSN-JC1 115.00
1  33526 33528  "1 "    0     # line from  KSSN-JC1 115.00   (3) to BRKR  KASSON   115.00
1  33526 33533  "1 "    0     # line from  KSSN-JC1 115.00   (3) to (2)   OWENSTP2 115.00
1  33533 33549  "2 "    0     # line from  OWENSTP2 115.00   (2) to BRKR  SCHULTE  115.00
0
 #
 #
 # (115) C5 DCTL OUTAGE
 # Tesla - Stagg and Tesla - Eight Mile 230 kV Lines
1  30489 30624  "1 "    0     # line from  STAGG-J2 230.00   (2) to BRKR  TESLA E  230.00
1  30489 30499  "1 "    0     # line from  STAGG-J2 230.00   (2) to BRKR  STAGG-E  230.00
 #
1  30622 30624  "1 "    0     # line from  EIGHT MI 230.00  BRKR to BRKR  TESLA E  230.00
0
 #
 #
 # (116) C5 DCTL OUTAGE
 # Stagg - Eight Mile and Tesla - Eight Mile 230 kV Lines
1  30622 30495  "1 "    0     # line from  EIGHT MI 230.00  BRKR to BRKR  STAGG    230.00
 #
1  30622 30624  "1 "    0     # line from  EIGHT MI 230.00  BRKR to BRKR  TESLA E  230.00
0
 #
 #
 # (117) C5 DCTL OUTAGE
 # Q260 - Eight Mile and Eight Mile - Lodi Stig 230 kV Lines
1  30621 30622  "1 "    0     # line from  Q260     230.00  BRKR to BRKR  EIGHT MI 230.00
 #
1  38000 30622  "1 "    0     # line from  LODI     230.00  BRKR to BRKR  EIGHT MI 230.00
0
 #
 #
 # (118) C5 DCTL OUTAGE
 # Gold Hill - Q260 and Lodi Stig - Gold Hill 230 kV Lines
1  30337 30621  "1 "    0     # line from  GOLDHILL 230.00  BRKR to BRKR  Q260     230.00
 #
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1  30337 38000  "1 "    0     # line from  GOLDHILL 230.00  BRKR to BRKR  LODI     230.00
0
 #
 #
 # (119) C5 DCTL OUTAGE
 # Q260 - Eight Mile and Lodi Stig - Gold Hill 230 kV Lines
1  30621 30622  "1 "    0     # line from  Q260     230.00  BRKR to BRKR  EIGHT MI 230.00
 #
1  30337 38000  "1 "    0     # line from  GOLDHILL 230.00  BRKR to BRKR  LODI     230.00
0
 #
 #
 # (120) C5 DCTL OUTAGE
 # Bellota - P0703 and Bellota - Weber 230 kV Lines
1  30500 30888  "1 "    0     # line from  BELLOTA  230.00  BRKR to BRKR  P0703    230.00
 #
1  30500 30505  "1 "    0     # line from  BELLOTA  230.00  BRKR to BRKR  WEBER    230.00
0
 #
 #
 # (121) C5 DCTL OUTAGE
 # Bellota - P0703 and Weber - P0703 230 kV Lines
1  30500 30888  "1 "    0     # line from  BELLOTA  230.00  BRKR to BRKR  P0703    230.00
 #
1  30624 30888  "2 "    0     # line from  TESLA E  230.00  BRKR to BRKR  P0703    230.00
0
 #
 #
 # (122) C5 DCTL OUTAGE
 # P0703 - Tesla #1 and #2 230 kV Lines
1  30624 30888  "1 "    0     # line from  TESLA E  230.00  BRKR to BRKR  P0703    230.00
 #
1  30624 30888  "2 "    0     # line from  TESLA E  230.00  BRKR to BRKR  P0703    230.00
0
 #
 #
 # (123) C5 DCTL OUTAGE
 # Tesla - Newark #1 and Tesla - Ravenswood 230 kV Lines
1  30624 30630  "1 "    0     # line from  TESLA E  230.00  BRKR to BRKR  NEWARK D 230.00
 #
1  30640 30703  "1 "    0     # line from  TESLA C  230.00  BRKR to BRKR  RAVENSWD 230.00
0
 #
 #
 # (124) C5 DCTL OUTAGE
 # Delta Switching Yard - Telsa and Kelso - Telsa 230 kV Lines
1  30580 30625  "1 "    0     # line from  ALTM MDW 230.00   (3) to BRKR  TESLA D  230.00
1  30580 38610  "1 "    0     # line from  ALTM MDW 230.00   (3) to BRKR  DELTAPMP 230.00
2  30580 33175  "1 "    0     # TRAN from  ALTM MDW 230.00   (3) to (1)   ALTAMONT   9.11
 #
1  30569 30570  "1 "    0     # line from  KELSO    230.00  BRKR to (4)   USWP-RLF 230.00
1  30570 30571  "1 "    0     # line from  USWP-RLF 230.00   (4) to (2)   ALTALAND 230.00
1  30570 30625  "1 "    0     # line from  USWP-RLF 230.00   (4) to BRKR  TESLA D  230.00
2  30570 33836  "1 "    0     # TRAN from  USWP-RLF 230.00   (4) to (1)   USWP_#4    9.11
2  30571 33832  "1 "    0     # TRAN from  ALTALAND 230.00   (2) to (1)   COG.CAPT   9.11
4  33836     0  "SG"    0     # LOAD-DROP    USWP_#4    9.11  LOAD==0.34(0.21)
3  33836     0  "3 "    0     # GEN-DROP    USWP_#4    9.11  GEN==4.50(0.00)
3  33832     0  "1 "    0     # GEN-DROP    COG.CAPT   9.11  GEN==4.30(6.60)
0
 #
 #
 # (125) C5 DCTL OUTAGE
 # Tesla - Q235 Sw Station #1 and #2 230 kV Lines
1  30625 30636  "1 "    0     # line from  TESLA D  230.00  BRKR to BRKR  Q235SWST 230.00
 #
1  30625 30636  "2 "    0     # line from  TESLA D  230.00  BRKR to BRKR  Q235SWST 230.00
0
 #
 #
 # (126) C5 DCTL OUTAGE
 # Q235 Sw Station - Tracy #1 and #2 230 kV Lines
1  30636 37585  "1 "    0     # line from  Q235SWST 230.00  BRKR to BRKR  TRCY PMP 230.00
 #
1  30636 37585  "2 "    0     # line from  Q235SWST 230.00  BRKR to BRKR  TRCY PMP 230.00
```

```
0
 #
 #
 # (127) C5 DCTL OUTAGE
 # Bellota - Rancho Seco PP #1 and #2 230 kV Lines
1  37016 30500  "1 "    0    # line from  RNCHSECO 230.00  BRKR to BRKR  BELLOTA  230.00
 #
1  37016 30500  "2 "    0    # line from  RNCHSECO 230.00  BRKR to BRKR  BELLOTA  230.00
0
 #
 #
 # (128) C5 DCTL OUTAGE
 # Lockeford - Bellota and Brighton - Bellota 230 kV Lines
1  30482 30500  "1 "    0    # line from  LOCKFORD 230.00  BRKR to BRKR  BELLOTA  230.00
 #
1  30348 30500  "1 "    0    # line from  BRIGHTON 230.00  BRKR to BRKR  BELLOTA  230.00
0
 #
 #
 # (129) BUS FAULT  30495  "STAGG"
 #
1  30495  30489  "1"    0    # LINE from  STAGG    230.00  to  STAGG-J2 230.00
1  30495  30496  "1"    0    # LINE from  STAGG    230.00  to  STAGG-H  230.00
1  30495  30622  "1"    0    # LINE from  STAGG    230.00  to  EIGHT MI 230.00
0
 #
 #
 # (130) BUS FAULT  30498  "STAGG-D"
 #
1  30498  30497  "1"    0    # LINE from  STAGG-D  230.00  to  STAGG-F  230.00
1  30498  30499  "1"    0    # LINE from  STAGG-D  230.00  to  STAGG-E  230.00
2  30498  33704  "1"    0    # TRAN from  STAGG-D  230.00  to  STAGG     60.00
0
 #
 #
 # (131) BUS FAULT  30499  "STAGG-E"
 #
1  30499  30498  "1"    0    # LINE from  STAGG-E  230.00  to  STAGG-D  230.00
1  30499  30489  "1"    0    # LINE from  STAGG-E  230.00  to  STAGG-J2 230.00
2  30499  33704  "4"    0    # TRAN from  STAGG-E  230.00  to  STAGG     60.00
0
 #
 #
 # (132) BUS FAULT  30500  "BELLOTA" 230 kV Bus Section 1
 #
1  30500  30348  "1"    0    # LINE from  BELLOTA  230.00  to  BRIGHTON 230.00
1  30500  30505  "1"    0    # LINE from  BELLOTA  230.00  to  WEBER    230.00
1  30500  38206  "1"    0    # LINE from  BELLOTA  230.00  to  COTTLE A 230.00
1  30500  37016  "1"    0    # LINE from  BELLOTA  230.00  to  RNCHSECO 230.00
1  30500  30487  "1"    0    # LINE from  BELLOTA  230.00  to  ELECTRA  230.00
1  30500  30503  "2"    0    # LINE from  BELLOTA  230.00  to  COLLERVL 230.00
2  30500  30501  "1"    0    # TRAN from  BELLOTA  230.00  to  BLLTA 1M 230.00
0
 #
 #
 # (133) BUS FAULT  30500  "BELLOTA" 230 kV Bus Section 2
 #
1  30500  30482  "1"    0    # LINE from  BELLOTA  230.00  to  LOCKFORD 230.00
1  30500  30490  "1"    0    # LINE from  BELLOTA  230.00  to  VLLY SPS 230.00
1  30500  30503  "1"    0    # LINE from  BELLOTA  230.00  to  COLLERVL 230.00
1  30500  30888  "1"    0    # LINE from  BELLOTA  230.00  to  P0703    230.00
1  30500  38208  "1"    0    # LINE from  BELLOTA  230.00  to  COTTLE B 230.00
1  30500  37016  "2"    0    # LINE from  BELLOTA  230.00  to  RNCHSECO 230.00
2  30500  33562  "2"    0    # TRAN from  BELLOTA  230.00  to  BELLOTA  115.00
0
 #
 #
 # (134) BUS FAULT  30503  "COLLERVL"
 #
1  30503  30500  "1"    0    # LINE from  COLLERVL 230.00  to  BELLOTA  230.00
1  30503  30500  "2"    0    # LINE from  COLLERVL 230.00  to  BELLOTA  230.00
2  30503  38102  "1"    0    # TRAN from  COLLERVL 230.00  to  COLLRVL1  13.80
2  30503  38104  "1"    0    # TRAN from  COLLERVL 230.00  to  COLLRVL2  13.80
0
```

```
 #
 #
 # (135) BUS FAULT  30569  "KELSO"
 #
1  30569  30565  "1"   0    # LINE from  KELSO    230.00  to  BRENTWOD 230.00
1  30569  30570  "1"   0    # LINE from  KELSO    230.00  to  USWP-RLF 230.00
4  30569    0  "1 "   0    # LOAD-DROP    KELSO    230.00  LOAD==11.86(7.35)
0
 #
 #
 # (136) BUS FAULT  30624  "TESLA E" 230 kV Bus Section 1E
 #
1  30624  30630  "1"   0    # LINE from  TESLA E  230.00  to  NEWARK D 230.00
1  30624  30622  "1"   0    # LINE from  TESLA E  230.00  to  EIGHT MI 230.00
1  30624  30888  "1"   0    # LINE from  TESLA E  230.00  to  P0703    230.00
1  30624  30632  "1"   0    # LINE from  TESLA E  230.00  to  TESL_GEN 230.00
0
 #
 #
 # (137) BUS FAULT  30624  "TESLA E" 230 kV Bus Section 1E
 #
1  30624  30489  "1"   0    # LINE from  TESLA E  230.00  to  STAGG-J2 230.00
1  30624  30670  "1"   0    # LINE from  TESLA E  230.00  to  WESTLEY  230.00
1  30624  30632  "2"   0    # LINE from  TESLA E  230.00  to  TESL_GEN 230.00
1  30624  30888  "2"   0    # LINE from  TESLA E  230.00  to  P0703    230.00
0
 #
 #
 # (138) BUS FAULT  30625  "TESLA D" 230 kV Bus Section 1D
 #
1  30625  30570  "1"   0    # LINE from  TESLA D  230.00  to  USWP-RLF 230.00
1  30625  37585  "1"   0    # LINE from  TESLA D  230.00  to  TRCY PMP 230.00
1  30625  30636  "1"   0    # LINE from  TESLA D  230.00  to  Q235SWST 230.00
2  30625  33540  "1"   0    # TRAN from  TESLA D  230.00  to  TESLA    115.00
0
 #
 #
 # (139) BUS FAULT  30625  "TESLA D" 230 kV Bus Section 2D
 #
1  30625  30580  "1"   0    # LINE from  TESLA D  230.00  to  ALTM MDW 230.00
1  30625  37585  "2"   0    # LINE from  TESLA D  230.00  to  TRCY PMP 230.00
1  30625  30636  "2"   0    # LINE from  TESLA D  230.00  to  Q235SWST 230.00
2  30625  33540  "3"   0    # TRAN from  TESLA D  230.00  to  TESLA    115.00
6  30625    0  "v "   0    # SVD-DROP     TESLA D  230.00
0
 #
 #
 # (140) BUS FAULT  30637  "Q235"
 #
1  30637  30636  "1"   0    # LINE from  Q235     230.00  to  Q235SWST 230.00
1  30637  30636  "2"   0    # LINE from  Q235     230.00  to  Q235SWST 230.00
2  30637  33863  "1"   0    # TRAN from  Q235     230.00  to  Q235GT1   13.80
2  30637  33864  "1"   0    # TRAN from  Q235     230.00  to  Q235GT2   13.80
2  30637  33865  "1"   0    # TRAN from  Q235     230.00  to  Q235GT3   13.80
2  30637  33866  "1"   0    # TRAN from  Q235     230.00  to  Q235GT4   13.80
2  30637  33867  "1"   0    # TRAN from  Q235     230.00  to  Q235GT5   13.80
2  30637  33868  "1"   0    # TRAN from  Q235     230.00  to  Q235GT6   13.80
0
 #
 #
 # (141) BUS FAULT  30641  "Q236BS1"
 #
1  30641  30640  "1"   0    # LINE from  Q236BS1  230.00  to  TESLA C  230.00
1  30641  30642  "1"   0    # LINE from  Q236BS1  230.00  to  Q236BS2  230.00
2  30641  33871  "1"   0    # TRAN from  Q236BS1  230.00  to  Q236GT1   13.80
2  30641  33872  "1"   0    # TRAN from  Q236BS1  230.00  to  Q236GT2   13.80
2  30641  33873  "1"   0    # TRAN from  Q236BS1  230.00  to  Q236GT3   13.80
0
 #
 #
 # (142) BUS FAULT  30642  "Q236BS2"
 #
1  30642  30640  "1"   0    # LINE from  Q236BS2  230.00  to  TESLA C  230.00
1  30642  30641  "1"   0    # LINE from  Q236BS2  230.00  to  Q236BS1  230.00
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2  30642  33874  "1"   0    # TRAN from  Q236BS2  230.00  to  Q236GT4   13.80
2  30642  33875  "1"   0    # TRAN from  Q236BS2  230.00  to  Q236GT5   13.80
2  30642  33876  "1"   0    # TRAN from  Q236BS2  230.00  to  Q236GT6   13.80
0
 #
 #
 # (143) BUS FAULT  33506  "STANISLS"
 #
1  33506  33501  "1"   0    # LINE from  STANISLS 115.00  to  FRGTNTP1 115.00
1  33506  33504  "1"   0    # LINE from  STANISLS 115.00  to  CATARACT 115.00
1  33506  33948  "1"   0    # LINE from  STANISLS 115.00  to  RVRBK J2 115.00
2  33506  34062  "1"   0    # TRAN from  STANISLS 115.00  to  STANISLS  13.80
4  33506     0  "1 "   0    # LOAD-DROP    STANISLS 115.00  LOAD==8.71(0.39)
0
 #
 #
 # (144) BUS FAULT  33518  "VIERRA"
 #
1  33518  33514  "1"   0    # LINE from  VIERRA   115.00  to  MANTECA  115.00
1  33518  33522  "1"   0    # LINE from  VIERRA   115.00  to  CROSRDJT 115.00
4  33518     0  "1 "   0    # LOAD-DROP    VIERRA   115.00  LOAD==34.06(1.52)
0
 #
 #
 # (145) BUS FAULT  33528  "KASSON"
 #
1  33528  33526  "1"   0    # LINE from  KASSON   115.00  to  KSSN-JC1 115.00
1  33528  33529  "1"   0    # LINE from  KASSON   115.00  to  LAMMERS  115.00
1  33528  33530  "1"   0    # LINE from  KASSON   115.00  to  KSSN-JC2 115.00
2  33528  33756  "1"   0    # TRAN from  KASSON   115.00  to  KASSON    60.00
0
 #
 #
 # (146) BUS FAULT  33529  "LAMMERS"
 #
1  33529  33528  "1"   0    # LINE from  LAMMERS  115.00  to  KASSON   115.00
1  33529  33531  "1"   0    # LINE from  LAMMERS  115.00  to  OWENSTP1 115.00
4  33529     0  "1 "   0    # LOAD-DROP    LAMMERS  115.00  LOAD==28.19(1.26)
4  33529     0  "2 "   0    # LOAD-DROP    LAMMERS  115.00  LOAD==9.54(0.43)
0
 #
 #
 # (147) BUS FAULT  33540  "TESLA" 115 kV Bus Section 1
 #
1  33540  33543  "1"   0    # LINE from  TESLA    115.00  to  AEC_TP2  115.00
2  33540  30625  "1"   0    # TRAN from  TESLA    115.00  to  TESLA D  230.00
1  33540  33961  "1"   0    # LINE from  TESLA    115.00  to  TCHRT_T1 115.00
0
 #
 #
 # (148) BUS FAULT  33540  "TESLA" 115 kV Bus Section 2
 #
1  33540  33541  "1"   0    # LINE from  TESLA    115.00  to  AEC_TP1  115.00
1  33540  33544  "1"   0    # LINE from  TESLA    115.00  to  ELLS GTY 115.00
1  33540  33574  "1"   0    # LINE from  TESLA    115.00  to  LLNL TAP 115.00
1  33540  33568  "1"   0    # LINE from  TESLA    115.00  to  TH.E.DV. 115.00
1  33540  33959  "1"   0    # LINE from  TESLA    115.00  to  TCHRT_T2 115.00
1  33540  33576  "1"   0    # LINE from  TESLA    115.00  to  USWP-PAT 115.00
2  33540  30625  "3"   0    # TRAN from  TESLA    115.00  to  TESLA D  230.00
0
 #
 #
 # (149) BUS FAULT  33562  "BELLOTA" 115 kV Bus Section 1
 #
1  33562  33561  "1"   0    # LINE from  BELLOTA  115.00  to  BLLTAJCT 115.00
1  33562  33558  "1"   0    # LINE from  BELLOTA  115.00  to  LCKFRDJB 115.00
1  33562  33946  "1"   0    # LINE from  BELLOTA  115.00  to  RVRBK J1 115.00
2  33562  30501  "1"   0    # TRAN from  BELLOTA  115.00  to  BLLTA 1M 230.00
0
 #
 #
 # (150) BUS FAULT  33562  "BELLOTA" 115 kV Bus Section 2
 #
1  33562  33560  "1"   0    # LINE from  BELLOTA  115.00  to  LCKFRDJA 115.00
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1  33562  33950  "1"   0    # LINE from  BELLOTA  115.00  to  RVRBK TP 115.00
2  33562  30500  "2"   0    # TRAN from  BELLOTA  115.00  to  BELLOTA  230.00
0
 #
 #
 # (151) BUS FAULT  33564  "LOCKFORD"
 #
1  33564  33558  "1"   0    # LINE from  LOCKFORD 115.00  to  LCKFRDJB 115.00
1  33564  33560  "1"   0    # LINE from  LOCKFORD 115.00  to  LCKFRDJA 115.00
1  33564  33561  "1"   0    # LINE from  LOCKFORD 115.00  to  BLLTAJCT 115.00
2  33564  33725  "1"   0    # TRAN from  LOCKFORD 115.00  to  LOCKFRD1  60.00
4  33564     0  "4 "   0    # LOAD-DROP    LOCKFORD 115.00  LOAD==21.90(0.98)
0
 #
 #
 # (152) BUS FAULT  33566  "CAMANCHE"
 #
1  33566  33565  "1"   0    # LINE from  CAMANCHE 115.00  to  CMNCHETP 115.00
2  33566  33850  "1"   0    # TRAN from  CAMANCHE 115.00  to  CAMANCHE   4.16
0
 #
 #
 # (153) BUS FAULT  33600  "HERDLYN"
 #
1  33600  37582  "1"   0    # LINE from  HERDLYN   70.00  to  TRACY YG  69.00
2  33600  33770  "2"   0    # TRAN from  HERDLYN   70.00  to  HERDLYN   60.00
0
 #
 #
 # (154) BUS FAULT  33610  "VLLY SPS"
 #
1  33610  33607  "1"   0    # LINE from  VLLY SPS  60.00  to  ELECTRAJ  60.00
1  33610  33612  "1"   0    # LINE from  VLLY SPS  60.00  to  N BRANCH  60.00
1  33610  33619  "1"   0    # LINE from  VLLY SPS  60.00  to  AMFOR_SW  60.00
1  33610  33630  "1"   0    # LINE from  VLLY SPS  60.00  to  PARDEE A  60.00
1  33610  33634  "1"   0    # LINE from  VLLY SPS  60.00  to  PRDE JCT  60.00
1  33610  33636  "1"   0    # LINE from  VLLY SPS  60.00  to  N.HGN JT  60.00
2  33610  30490  "1"   0    # TRAN from  VLLY SPS  60.00  to  VLLY SPS 230.00
0
 #
 #
 # (155) BUS FAULT  33616  "MARTELL"
 #
1  33616  33617  "1"   0    # LINE from  MARTELL   60.00  to  MARTELTP  60.00
1  33616  33619  "1"   0    # LINE from  MARTELL   60.00  to  AMFOR_SW  60.00
4  33616     0  "1 "   0    # LOAD-DROP    MARTELL   60.00  LOAD==14.75(0.66)
0
 #
 #
 # (156) BUS FAULT  33650  "WEBER 1"
 #
1  33650  33646  "1"   0    # LINE from  WEBER 1   60.00  to  MORMON    60.00
1  33650  33647  "1"   0    # LINE from  WEBER 1   60.00  to  WEBER016  60.00
1  33650  33662  "1"   0    # LINE from  WEBER 1   60.00  to  WEBER 2   60.00
1  33650  33672  "1"   0    # LINE from  WEBER 1   60.00  to  CHRTRWYS  60.00
1  33650  33698  "1"   0    # LINE from  WEBER 1   60.00  to  FRNCH CP  60.00
2  33650  30505  "1"   0    # TRAN from  WEBER 1   60.00  to  WEBER    230.00
4  33650     0  "3 "   0    # LOAD-DROP    WEBER 1   60.00  LOAD==16.37(0.73)
4  33650     0  "4 "   0    # LOAD-DROP    WEBER 1   60.00  LOAD==8.45(0.38)
0
 #
 #
 # (157) BUS FAULT  33662  "WEBER 2"
 #
1  33662  33650  "1"   0    # LINE from  WEBER 2   60.00  to  WEBER 1   60.00
1  33662  33654  "1"   0    # LINE from  WEBER 2   60.00  to  SNTA FEA  60.00
1  33662  33658  "1"   0    # LINE from  WEBER 2   60.00  to  SNTA FEB  60.00
1  33662  33674  "1"   0    # LINE from  WEBER 2   60.00  to  HAZLTN J  60.00
2  33662  30505  "2"   0    # TRAN from  WEBER 2   60.00  to  WEBER    230.00
2  33662  30505  "2a"   0    # TRAN from  WEBER 2   60.00  to  WEBER    230.00
0
 #
 #
 # (158) BUS FAULT  33670  "STCKTN A"
```

```
 #
1  33670  33602  "1"    0    # LINE from  STCKTN A  60.00  to  NEWARKS   60.00
1  33670  33654  "1"    0    # LINE from  STCKTN A  60.00  to  SNTA FEA  60.00
1  33670  33658  "1"    0    # LINE from  STCKTN A  60.00  to  SNTA FEB  60.00
1  33670  33674  "1"    0    # LINE from  STCKTN A  60.00  to  HAZLTN J  60.00
4  33670     0  "1 "   0    # LOAD-DROP    STCKTN A  60.00  LOAD==1.40(0.06)
4  33670     0  "2 "   0    # LOAD-DROP    STCKTN A  60.00  LOAD==0.93(0.04)
0
 #
 #
 # (159) BUS FAULT  33704  "STAGG"
 #
1  33704  33693  "1"    0    # LINE from  STAGG     60.00  to  STAGG JT  60.00
1  33704  33706  "1"    0    # LINE from  STAGG     60.00  to  CNTRY CB  60.00
1  33704  33706  "2"    0    # LINE from  STAGG     60.00  to  CNTRY CB  60.00
1  33704  33714  "1"    0    # LINE from  STAGG     60.00  to  HAMMER    60.00
2  33704  30498  "1"    0    # TRAN from  STAGG     60.00  to  STAGG-D  230.00
2  33704  30499  "4"    0    # TRAN from  STAGG     60.00  to  STAGG-E  230.00
4  33704     0  "2 "   0    # LOAD-DROP    STAGG     60.00  LOAD==14.47(0.64)
4  33704     0  "3 "   0    # LOAD-DROP    STAGG     60.00  LOAD==14.47(0.64)
0
 #
 #
 # (160) BUS FAULT  33706  "CNTRY CB"
 #
1  33706  33704  "1"    0    # LINE from  CNTRY CB  60.00  to  STAGG     60.00
1  33706  33704  "2"    0    # LINE from  CNTRY CB  60.00  to  STAGG     60.00
1  33706  33708  "1"    0    # LINE from  CNTRY CB  60.00  to  UOP       60.00
4  33706     0  "1 "   0    # LOAD-DROP    CNTRY CB  60.00  LOAD==4.55(0.21)
4  33706     0  "2 "   0    # LOAD-DROP    CNTRY CB  60.00  LOAD==7.46(0.33)
4  33706     0  "3 "   0    # LOAD-DROP    CNTRY CB  60.00  LOAD==8.28(0.37)
4  33706     0  "4 "   0    # LOAD-DROP    CNTRY CB  60.00  LOAD==12.69(0.56)
0
 #
 #
 # (161) BUS FAULT  33714  "HAMMER"
 #
1  33714  33704  "1"    0    # LINE from  HAMMER    60.00  to  STAGG     60.00
1  33714  33716  "1"    0    # LINE from  HAMMER    60.00  to  HMMR JCT  60.00
4  33714     0  "1 "   0    # LOAD-DROP    HAMMER    60.00  LOAD==14.55(0.65)
4  33714     0  "2 "   0    # LOAD-DROP    HAMMER    60.00  LOAD==13.96(0.62)
4  33714     0  "3 "   0    # LOAD-DROP    HAMMER    60.00  LOAD==15.23(0.68)
0
 #
 #
 # (162) BUS FAULT  33724  "LOCKEFRD"
 #
1  33724  33630  "1"    0    # LINE from  LOCKEFRD  60.00  to  PARDEE A  60.00
1  33724  33725  "1"    0    # LINE from  LOCKEFRD  60.00  to  LOCKFRD1  60.00
1  33724  33726  "1"    0    # LINE from  LOCKEFRD  60.00  to  VICTOR    60.00
1  33724  33736  "1"    0    # LINE from  LOCKEFRD  60.00  to  LODI JCT  60.00
1  33724  33738  "1"    0    # LINE from  LOCKEFRD  60.00  to  WATRLJCT  60.00
1  33724  38060  "1"    0    # LINE from  LOCKEFRD  60.00  to  INDUSTRL  60.00
2  33724  30482  "2"    0    # TRAN from  LOCKEFRD  60.00  to  LOCKFORD 230.00
2  33724  30482  "3"    0    # TRAN from  LOCKEFRD  60.00  to  LOCKFORD 230.00
0
 #
 #
 # (163) BUS FAULT  33725  "LOCKFRD1"
 #
1  33725  33724  "1"    0    # LINE from  LOCKFRD1  60.00  to  LOCKEFRD  60.00
1  33725  33732  "1"    0    # LINE from  LOCKFRD1  60.00  to  COLONY    60.00
2  33725  33564  "1"    0    # TRAN from  LOCKFRD1  60.00  to  LOCKFORD 115.00
0
 #
 #
 # (164) BUS FAULT  33728  "LODI"
 #
1  33728  33729  "1"    0    # LINE from  LODI      60.00  to  LODI AUX  60.00
1  33728  33734  "1"    0    # LINE from  LODI      60.00  to  CLNY JCT  60.00
1  33728  33737  "1"    0    # LINE from  LODI      60.00  to  WINERY J  60.00
4  33728     0  "1 "   0    # LOAD-DROP    LODI      60.00  LOAD==0.31(0.01)
4  33728     0  "2 "   0    # LOAD-DROP    LODI      60.00  LOAD==14.72(0.66)
0
```

```
 #
 #
 # (165) BUS FAULT  33729  "LODI AUX"
 #
1  33729  33728  "1"    0     # LINE from  LODI AUX  60.00  to  LODI      60.00
1  33729  33736  "1"    0     # LINE from  LODI AUX  60.00  to  LODI JCT  60.00
1  33729  38060  "1"    0     # LINE from  LODI AUX  60.00  to  INDUSTRL  60.00
0
 #
 #
 # (166) BUS FAULT  33740  "MSHR 60V"
 #
1  33740  33717  "1"    0     # LINE from  MSHR 60V  60.00  to  MORADAJT  60.00
1  33740  33738  "1"    0     # LINE from  MSHR 60V  60.00  to  WATRLJCT  60.00
4  33740     0  "1 "    0     # LOAD-DROP    MSHR 60V  60.00  LOAD==15.38(0.69)
4  33740     0  "2 "    0     # LOAD-DROP    MSHR 60V  60.00  LOAD==25.67(1.15)
0
 #
 #
 # (167) BUS FAULT  33742  "MANTECA"
 #
1  33742  33703  "1"    0     # LINE from  MANTECA   60.00  to  LOUISJCT  60.00
1  33742  33752  "1"    0     # LINE from  MANTECA   60.00  to  LTHRP JT  60.00
1  33742  33743  "1"    0     # LINE from  MANTECA   60.00  to  LEE_JCT   60.00
2  33742  33514  "3"    0     # TRAN from  MANTECA   60.00  to  MANTECA  115.00
0
 #
 #
 # (168) BUS FAULT  33746  "LOUISE"
 #
1  33746  33703  "1"    0     # LINE from  LOUISE    60.00  to  LOUISJCT  60.00
1  33746  33748  "1"    0     # LINE from  LOUISE    60.00  to  MSSDLESW  60.00
4  33746     0  "1 "    0     # LOAD-DROP    LOUISE    60.00  LOAD==1.27(1.02)
0
 #
 #
 # (169) BUS FAULT  33770  "HERDLYN"
 #
1  33770  33772  "1"    0     # LINE from  HERDLYN   60.00  to  B.BTHNY-  60.00
1  33770  33774  "1"    0     # LINE from  HERDLYN   60.00  to  HRDLNJCT  60.00
2  33770  33600  "2"    0     # TRAN from  HERDLYN   60.00  to  HERDLYN   70.00
4  33770     0  "1 "    0     # LOAD-DROP    HERDLYN   60.00  LOAD==4.67(0.21)
0
 #
 #
 # (170) BUS FAULT  33906  "SPRNG GP"
 #
1  33906  33910  "1"    0     # LINE from  SPRNG GP 115.00  to  SNDBR JT 115.00
2  33906  34078  "1"    0     # TRAN from  SPRNG GP 115.00  to  SPRNG GP   6.00
4  33906     0  "1 "    0     # LOAD-DROP    SPRNG GP 115.00  LOAD==2.01(0.09)
0
 #
 #
 # (171) BUS FAULT  33916  "CURTISS"
 #
1  33916  33917  "1"    0     # LINE from  CURTISS  115.00  to  FBERBORD 115.00
1  33916  33920  "1"    0     # LINE from  CURTISS  115.00  to  RCTRK J. 115.00
4  33916     0  "1 "    0     # LOAD-DROP    CURTISS  115.00  LOAD==36.54(1.63)
4  33916     0  "2 "    0     # LOAD-DROP    CURTISS  115.00  LOAD==17.25(0.77)
0
 #
 #
 # (172) BUS FAULT  33932  "MELONES"
 #
1  33932  33930  "1"    0     # LINE from  MELONES  115.00  to  PEORIA   115.00
1  33932  33500  "1"    0     # LINE from  MELONES  115.00  to  MELNS JA 115.00
1  33932  33922  "1"    0     # LINE from  MELONES  115.00  to  R.TRACK  115.00
1  33932  33934  "1"    0     # LINE from  MELONES  115.00  to  TULLOCH  115.00
1  33932  33936  "1"    0     # LINE from  MELONES  115.00  to  MELNS JB 115.00
0
 #
 #
 # (173) BUS FAULT  33944  "RVRBANK"
 #
```

```
1  33944  33946  "1"    0     # LINE from  RVRBANK  115.00  to  RVRBK J1 115.00
1  33944  33950  "1"    0     # LINE from  RVRBANK  115.00  to  RVRBK TP 115.00
4  33944     0  "1 "    0     # LOAD-DROP    RVRBANK  115.00  LOAD==24.45(1.10)
4  33944     0  "2 "    0     # LOAD-DROP    RVRBANK  115.00  LOAD==21.90(0.98)
0
 #
 #
 # (174) BUS FAULT  33947  "RIVRBKJT"
 #
1  33947  33936  "1"    0     # LINE from  RIVRBKJT 115.00  to  MELNS JB 115.00
1  33947  33951  "1"    0     # LINE from  RIVRBKJT 115.00  to  VLYHMTP1 115.00
0
 #
 #
 # (175) BUS FAULT  34002  "SALADO"
 #
1  34002  34004  "1"    0     # LINE from  SALADO    60.00  to  PTRSNFRZ  60.00
1  34002  34008  "1"    0     # LINE from  SALADO    60.00  to  STNSLSRP  60.00
2  34002  33964  "1"    0     # TRAN from  SALADO    60.00  to  SALADO   115.00
0
 #
 #
 # (176) BUS FAULT  34006  "PATTERSN"
 #
1  34006  34000  "1"    0     # LINE from  PATTERSN  60.00  to  WESTLEY   60.00
1  34006  34004  "1"    0     # LINE from  PATTERSN  60.00  to  PTRSNFRZ  60.00
1  34006  34010  "1"    0     # LINE from  PATTERSN  60.00  to  CRWS LDJ  60.00
0
 #
 #
 # (177) BUS FAULT  34014  "NEWMAN"
 #
1  34014  34012  "1"    0     # LINE from  NEWMAN    60.00  to  GUSTN JT  60.00
1  34014  34018  "1"    0     # LINE from  NEWMAN    60.00  to  NWMN JCT  60.00
4  34014     0  "1 "    0     # LOAD-DROP    NEWMAN    60.00  LOAD==9.08(0.41)
4  34014     0  "2 "    0     # LOAD-DROP    NEWMAN    60.00  LOAD==6.32(0.28)
6  34014     0  "v "    0     # SVD-DROP     NEWMAN    60.0
0
 #
 #
-1
 # EOF
```

```
# Q268 2013 spring category b contingency list
# Sacramento, Sierra and Stockton-Stanislaus Divisions Zones 304, 305 and 311-312
#
 # 2013 spring category b contingency list
 # Sacramento Division Zone 304
 #
 #
 # (1)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30114 30450  "1 "    0     # line from  CPVSTA   230.00  BRKR to BRKR  CORTINA  230.00
0
 #
 #
 # (2)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30114 30460  "2 "    0     # line from  CPVSTA   230.00  BRKR to BRKR  VACA-DIX 230.00
0
 #
 #
 # (3)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30114 30460  "3 "    0     # line from  CPVSTA   230.00  BRKR to BRKR  VACA-DIX 230.00
0
 #
 #
 # (4)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30114 30460  "4 "    0     # line from  CPVSTA   230.00  BRKR to BRKR  VACA-DIX 230.00
0
 #
 #
 # (5)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30330 30348  "1 "    0     # line from  RIO OSO  230.00  BRKR to BRKR  BRIGHTON 230.00
0
 #
 #
 # (6)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30348 30500  "1 "    0     # line from  BRIGHTON 230.00  BRKR to BRKR  BELLOTA  230.00
0
 #
 #
 # (7)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30435 30460  "1 "    0     # line from  LAKEVILE 230.00  BRKR to BRKR  VACA-DIX 230.00
0
 #
 #
 # (8)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30440 30460  "1 "    0     # line from  TULUCAY  230.00  BRKR to BRKR  VACA-DIX 230.00
0
 #
 #
 # (9)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30450 30460  "1 "    0     # line from  CORTINA  230.00  BRKR to BRKR  VACA-DIX 230.00
0
 #
 #
 # (10)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30460 30468  "1 "    0     # line from  VACA-DIX 230.00  BRKR to BRKR  Q257SWST 230.00
0
 #
 #
 # (11)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30460 30468  "2 "    0     # line from  VACA-DIX 230.00  BRKR to BRKR  Q257SWST 230.00
0
 #
 #
 # (12)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
```

```
 #
1  30460 30472  "1 "    0     # line from  VACA-DIX 230.00  BRKR to BRKR  PEABODY  230.00
0
 #
 #
 # (13)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30460 30478  "1 "    0     # line from  VACA-DIX 230.00  BRKR to BRKR  LAMBIE   230.00
0
 #
 #
 # (14)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30461 30462  "1 "    0     # line from  Q171     230.00  BRKR to (4)   Q171CL1  230.00
1  30462 30463  "1 "    0     # line from  Q171CL1  230.00   (4) to (4)   Q171CL2  230.00
2  30462 32181  "1 "    0     # TRAN from  Q171CL1  230.00   (4) to (1)   Q171WG1   34.50
2  30462 32182  "1 "    0     # TRAN from  Q171CL1  230.00   (4) to (1)   Q171WG2   34.50
1  30463 30461  "1 "    0     # line from  Q171CL2  230.00   (4) to BRKR  Q171     230.00
2  30463 32183  "1 "    0     # TRAN from  Q171CL2  230.00   (4) to (1)   Q171WG3   34.50
2  30463 32184  "1 "    0     # TRAN from  Q171CL2  230.00   (4) to (1)   Q171WG4   34.50
3  32181     0  "1 "    0     # GEN-DROP    Q171WG1   34.50  GEN==125.00(-17.99)
3  32182     0  "2 "    0     # GEN-DROP    Q171WG2   34.50  GEN==125.00(-17.99)
3  32183     0  "3 "    0     # GEN-DROP    Q171WG3   34.50  GEN==125.00(-17.99)
3  32184     0  "4 "    0     # GEN-DROP    Q171WG4   34.50  GEN==125.00(-17.99)
0
 #
 #
 # (15)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30468 30465  "1 "    0     # line from  Q257SWST 230.00  BRKR to BRKR  BAHIA    230.00
0
 #
 #
 # (16)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30468 30467  "1 "    0     # line from  Q257SWST 230.00  BRKR to BRKR  PARKWAY  230.00
0
 #
 #
 # (17)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30472 30479  "1 "    0     # line from  PEABODY  230.00  BRKR to BRKR  BDLSWSTA 230.00
0
 #
 #
 # (18)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30474 30475  "1 "    0     # line from  Q222     230.00   (2) to BRKR  HIGHWND3 230.00
2  30474 32178  "1 "    0     # TRAN from  Q222     230.00   (2) to (2)   Q222      34.50
2  32178 32179  "1 "    0     # TRAN from  Q222      34.50   (2) to (1)   Q222       0.58
3  32179     0  "1 "    0     # GEN-DROP    Q222       0.58  GEN==100.50(15.45)
0
 #
 #
 # (19)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30475 30529  "1 "    0     # line from  HIGHWND3 230.00  BRKR to (3)   HIWD TAP 230.00
1  30529 30479  "1 "    0     # line from  HIWD TAP 230.00   (3) to BRKR  BDLSWSTA 230.00
2  30529 32172  "1 "    0     # TRAN from  HIWD TAP 230.00   (3) to (1)   HIGHWNDS  34.50
3  32172     0  "1 "    0     # GEN-DROP    HIGHWNDS  34.50  GEN==158.00(0.00)
0
 #
 #
 # (20)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30476 30479  "1 "    0     # line from  SHILO    230.00   (5) to BRKR  BDLSWSTA 230.00
1  30476 30483  "1 "    0     # line from  SHILO    230.00   (5) to (2)   P0611    230.00
2  30476 32177  "1 "    0     # TRAN from  SHILO    230.00   (5) to (1)   SHILO     34.50
2  30476 32189  "1 "    0     # TRAN from  SHILO    230.00   (5) to (3)   Q039      34.50
2  30476 32189  "2 "    0     # TRAN from  SHILO    230.00   (5) to (3)   Q039      34.50
2  30483 32188  "1 "    0     # TRAN from  P0611    230.00   (2) to (1)   P0611G    34.50
2  32189 32190  "1 "    0     # TRAN from  Q039      34.50   (3) to (1)   Q039       0.58
3  32177     0  "1 "    0     # GEN-DROP    SHILO     34.50  GEN==150.00(0.00)
3  32188     0  "1 "    0     # GEN-DROP    P0611G    34.50  GEN==30.00(3.78)
```

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3  32190     0  "1 "    0     # GEN-DROP    Q039       0.58  GEN==200.00(16.08)
0
 #
 #
 # (21)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30477 30479  "1 "    0     # line from  SHILOHTP 230.00   (2) to BRKR  BDLSWSTA 230.00
2  30477 32176  "2 "    0     # TRAN from  SHILOHTP 230.00   (2) to (1)   SHILOH    34.50
3  32176     0  "1 "    0     # GEN-DROP    SHILOH    34.50  GEN==150.00(0.00)
0
 #
 #
 # (22)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30478 30479  "1 "    0     # line from  LAMBIE   230.00  BRKR to BRKR  BDLSWSTA 230.00
0
 #
 #
 # (23)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30479 30480  "1 "    0     # line from  BDLSWSTA 230.00  BRKR to (4)   USWP-RUS 230.00
1  30480 30481  "1 "    0     # line from  USWP-RUS 230.00   (4) to (2)   P0609    230.00
2  30480 32168  "1 "    0     # TRAN from  USWP-RUS 230.00   (4) to (1)   ENXCO      9.11
2  30480 32169  "1 "    0     # TRAN from  USWP-RUS 230.00   (4) to (1)   SOLANOWP  21.00
2  30481 32186  "1 "    0     # TRAN from  P0609    230.00   (2) to (1)   P0609     34.50
3  32168     0  "2 "    0     # GEN-DROP    ENXCO      9.11  GEN==49.00(0.00)
3  32169     0  "1 "    0     # GEN-DROP    SOLANOWP  21.00  GEN==95.00(0.00)
3  32186     0  "1 "    0     # GEN-DROP    P0609     34.50  GEN==128.00(15.11)
0
 #
 #
 # (24)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30479 30471  "2 "    0     # line from  BDLSWSTA 230.00  BRKR to BRKR  Q262SWST 230.00
0
 #
 #
 # (25)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30471 30523  "1 "    0     # line from  Q262SWST 230.00  BRKR to BRKR  CC SUB   230.00
0
 #
 #
 # (26)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30479 30471  "1 "    0     # line from  BDLSWSTA 230.00  BRKR to BRKR  Q262SWST 230.00
0
 #
 #
 # (27)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30471 30525  "1 "    0     # line from  Q262SWST 230.00  BRKR to BRKR  C.COSTA  230.00
0
 #
 #
 # (28)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  31231 31950  "1 "    0     # line from  Q250TAP1 115.00   (3) to BRKR  CORTINA  115.00
1  31231 31234  "1 "    0     # line from  Q250TAP1 115.00   (3) to (2)   Q250JCT  115.00
1  31231 31261  "1 "    0     # line from  Q250TAP1 115.00   (3) to (2)   CACHE J1 115.00
1  31234 31235  "1 "    0     # line from  Q250JCT  115.00   (2) to (3)   Q250     115.00
2  31235 31437  "1 "    0     # TRAN from  Q250     115.00   (3) to (2)   Q250EQ1   34.50
2  31235 31438  "1 "    0     # TRAN from  Q250     115.00   (3) to (2)   Q250EQ2   34.50
2  31437 31439  "1 "    0     # TRAN from  Q250EQ1   34.50   (2) to (1)   Q250EQ1    0.58
2  31438 31440  "1 "    0     # TRAN from  Q250EQ2   34.50   (2) to (1)   Q250EQ2    0.58
1  31261 31227  "1 "    0     # line from  CACHE J1 115.00   (2) to (3)   HGHLNDJ2 115.00
1  31227 31226  "1 "    0     # line from  HGHLNDJ2 115.00   (3) to (1)   HGHLAND  115.00
1  31227 31228  "1 "    0     # line from  HGHLNDJ2 115.00   (3) to (3)   HOMSTKTP 115.00
1  31228 31220  "1 "    0     # line from  HOMSTKTP 115.00   (3) to BRKR  EGLE RCK 115.00
1  31228 31230  "1 "    0     # line from  HOMSTKTP 115.00   (3) to (2)   HOMEPROC 115.00
1  31230 31232  "1 "    0     # line from  HOMEPROC 115.00   (2) to (1)   HOMEGRND 115.00
4  31439     0  "ss"    0     # LOAD-DROP    Q250EQ1    0.58  LOAD==0.50(0.28)
4  31440     0  "ss"    0     # LOAD-DROP    Q250EQ2    0.58  LOAD==0.50(0.28)
4  31226     0  "1 "    0     # LOAD-DROP    HGHLAND  115.00  LOAD==13.28(2.70)
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4  31226     0  "2 "    0     # LOAD-DROP    HGHLAND  115.00  LOAD==7.81(1.59)
4  31230     0  "1 "    0     # LOAD-DROP    HOMEPROC 115.00  LOAD==0.80(0.16)
3  31439     0  "1 "    0     # GEN-DROP    Q250EQ1    0.58  GEN==100.50(8.48)
3  31440     0  "2 "    0     # GEN-DROP    Q250EQ2    0.58  GEN==100.50(8.48)
0
 #
 #
 # (29)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  31233 31950  "1 "    0     # line from  Q250TAP2 115.00   (2) to BRKR  CORTINA  115.00
1  31233 31224  "1 "    0     # line from  Q250TAP2 115.00   (2) to (3)   INDIN VL 115.00
1  31224 31215  "1 "    0     # line from  INDIN VL 115.00   (3) to (3)   LUCERNJ1 115.00
2  31224 31436  "1 "    0     # TRAN from  INDIN VL 115.00  BRKR to (1)   INDIAN V   9.11
1  31215 31200  "1 "    0     # line from  LUCERNJ1 115.00   (3) to BRKR  MENDOCNO 115.00
1  31215 31216  "1 "    0     # line from  LUCERNJ1 115.00   (3) to (1)   LUCERNE  115.00
4  31216     0  "1 "    0     # LOAD-DROP    LUCERNE  115.00  LOAD==12.24(2.48)
3  31436     0  "1 "    0     # GEN-DROP    INDIAN V   9.11  GEN==0.90(0.00)
1 31217 31216 "1 " 1      # close line from LCERNJ2  115.00 to LUCERNE 115.00
4 31216 0     "**" 1      # restore all loads to LUCERNE 115.00 (Cortina - Mendocino 115 kV)
0
 #
 #
 # (30)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  31253 31974  "1 "    0     # line from  FLTN JT2 115.00   (2) to (1)   MADISON  115.00
1  31253 31952  "1 "    0     # line from  FLTN JT2 115.00   (2) to (2)   PUTH CRK 115.00
1  31952 31998  "1 "    0     # line from  PUTH CRK 115.00   (2) to BRKR  VACA-DIX 115.00
4  31974     0  "1 "    0     # LOAD-DROP    MADISON  115.00  LOAD==8.25(0.37)
4  31974     0  "2 "    0     # LOAD-DROP    MADISON  115.00  LOAD==5.33(0.23)
4  31974     0  "3 "    0     # LOAD-DROP    MADISON  115.00  LOAD==15.02(0.68)
4  31952     0  "1 "    0     # LOAD-DROP    PUTH CRK 115.00  LOAD==16.83(0.75)
0
 #
 #
 # (31)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  31953 31256  "1 "    0     # line from  AMEGTAP  115.00   (3) to (1)   FLTN JCT 115.00
1  31953 31954  "1 "    0     # line from  AMEGTAP  115.00   (3) to (1)   AMERIGAS 115.00
1  31953 31998  "1 "    0     # line from  AMEGTAP  115.00   (3) to BRKR  VACA-DIX 115.00
4  31954     0  "1 "    0     # LOAD-DROP    AMERIGAS 115.00  LOAD==6.73(1.37)
0
 #
 #
 # (32)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  31958 32012  "1 "    0     # line from  CORDELIA 115.00   (1) to (2)   HALE J2  115.00
1  32012 32004  "1 "    0     # line from  HALE J2  115.00   (2) to (3)   VCVLLE2J 115.00
1  32004 31998  "1 "    0     # line from  VCVLLE2J 115.00   (3) to BRKR  VACA-DIX 115.00
1  32004 32002  "1 "    0     # line from  VCVLLE2J 115.00   (3) to BRKR  VACAVLL2 115.00
4  31958     0  "2 "    0     # LOAD-DROP    CORDELIA 115.00  LOAD==17.61(0.79)
4  32002     0  "2 "    0     # LOAD-DROP    VACAVLL2 115.00  LOAD==44.68(2.00)
4  32002     0  "3 "    0     # LOAD-DROP    VACAVLL2 115.00  LOAD==43.87(1.96)
1  32000 32002  "1"     1     #Transfer VACAVLL2 load to alternate
4  32002     0  "**"    1     #Restore VACAVLL2 load
0
 #
 #
 # (33)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  31960 31966  "1 "    0     # line from  MOBILCHE 115.00   (2) to (3)   WODLNDJ1 115.00
1  31960 31970  "1 "    0     # line from  MOBILCHE 115.00   (2) to BRKR  WOODLD   115.00
1  31966 31965  "1 "    0     # line from  WODLNDJ1 115.00   (3) to (3)   KNIGHT1  115.00
1  31966 31971  "1 "    0     # line from  WODLNDJ1 115.00   (3) to (1)   ZAMORA1  115.00
1  31965 31963  "1 "    0     # line from  KNIGHT1  115.00   (3) to (1)   KNIGHTLD 115.00
1  31965 32214  "1 "    0     # line from  KNIGHT1  115.00   (3) to BRKR  RIO OSO  115.00
4  31960     0  "1 "    0     # LOAD-DROP    MOBILCHE 115.00  LOAD==0.10(0.00)
4  31963     0  "1 "    0     # LOAD-DROP    KNIGHTLD 115.00  LOAD==8.57(0.38)
0
 #
 #
 # (34)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  31962 31970  "1 "    0     # line from  WDLND_BM 115.00   (3) to BRKR  WOODLD   115.00
1  31962 31992  "1 "    0     # line from  WDLND_BM 115.00   (3) to (2)   HUNT     115.00
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```
2  31962 32156  "1 "    0     # TRAN from  WDLND_BM 115.00   (3) to (1)   WOODLAND   9.11
1  31992 31990  "1 "    0     # line from  HUNT     115.00   (2) to BRKR  DAVIS    115.00
4  31992     0  "1 "    0     # LOAD-DROP    HUNT     115.00  LOAD==0.27(0.05)
4  32156     0  "SG"    0     # LOAD-DROP    WOODLAND   9.11  LOAD==1.49(0.34)
3  32156     0  "1 "    0     # GEN-DROP    WOODLAND   9.11  GEN==25.00(5.00)
0
 #
 #
 # (35)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  31964 31968  "2 "    0     # line from  KNIGHT2  115.00   (2) to (3)   WODLNDJ2 115.00
1  31964 32214  "2 "    0     # line from  KNIGHT2  115.00   (2) to BRKR  RIO OSO  115.00
1  31968 31970  "2 "    0     # line from  WODLNDJ2 115.00   (3) to BRKR  WOODLD   115.00
1  31968 31973  "2 "    0     # line from  WODLNDJ2 115.00   (3) to (2)   ZAMORA2  115.00
1  31973 31972  "2 "    0     # line from  ZAMORA2  115.00   (2) to (1)   ZAMORA   115.00
4  31972     0  "1 "    0     # LOAD-DROP    ZAMORA   115.00  LOAD==10.62(0.48)
0
 #
 #
 # (36)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  31976 31980  "1 "    0     # line from  POST     115.00   (1) to (3)   DPWTR_TP 115.00
1  31980 31986  "1 "    0     # line from  DPWTR_TP 115.00   (3) to BRKR  W.SCRMNO 115.00
1  31980 32003  "1 "    0     # line from  DPWTR_TP 115.00   (3) to (3)   UCD_TP1  115.00
1  32003 31990  "1 "    0     # line from  UCD_TP1  115.00   (3) to BRKR  DAVIS    115.00
1  32003 32103  "2 "    0     # line from  UCD_TP1  115.00   (3) to (2)   UCDAVSJ2 115.00
1  32103 32102  "1 "    0     # line from  UCDAVSJ2 115.00   (2) to (2)   CAMPUS   115.00
2  32102 32166  "1 "    0     # TRAN from  CAMPUS   115.00   (2) to (1)   UC DAVIS   9.11
4  31976     0  "1 "    0     # LOAD-DROP    POST     115.00  LOAD==1.31(0.19)
4  31976     0  "1A"    0     # LOAD-DROP    POST     115.00  LOAD==1.31(0.19)
4  32102     0  "1 "    0     # LOAD-DROP    CAMPUS   115.00  LOAD==36.56(8.33)
3  32166     0  "1 "    0     # GEN-DROP    UC DAVIS   9.11  GEN==3.50(1.80)
1  31988 31976  "1"     1     #Transfer POST to alternate Deepwater tap
4  31976     0  "**"    1     #Restore load to POST
0
 #
 #
 # (37)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  31978 31984  "1 "    0     # line from  DPWT_TP2 115.00   (3) to BRKR  BRIGHTN  115.00
1  31978 31986  "1 "    0     # line from  DPWT_TP2 115.00   (3) to BRKR  W.SCRMNO 115.00
1  31978 31988  "1 "    0     # line from  DPWT_TP2 115.00   (3) to (1)   DEEPWATR 115.00
4  31988     0  "2 "    0     # LOAD-DROP    DEEPWATR 115.00  LOAD==22.90(1.02)
4  31988     0  "3 "    0     # LOAD-DROP    DEEPWATR 115.00  LOAD==15.82(0.70)
1  31976 31988  "1"     1     #Transfer load to alternate Deepwater tap
4  31988     0  "**"    1     #Restore load at Deepwater
0
 #
 #
 # (38)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  31984 31993  "1 "    0     # line from  BRIGHTN  115.00  BRKR to (3)   BRKRJCT  115.00
1  31993 31991  "1 "    0     # line from  BRKRJCT  115.00   (3) to (2)   BRKR TP  115.00
1  31993 32001  "1 "    0     # line from  BRKRJCT  115.00   (3) to (3)   UCD_TP2  115.00
1  31991 31989  "1 "    0     # line from  BRKR TP  115.00   (2) to BRKR  BRKR SLG 115.00
1  32001 31990  "1 "    0     # line from  UCD_TP2  115.00   (3) to BRKR  DAVIS    115.00
1  32001 32116  "1 "    0     # line from  UCD_TP2  115.00   (3) to (1)   UCDAVSJ1 115.00
4  31989     0  "1 "    0     # LOAD-DROP    BRKR SLG 115.00  LOAD==1.75(0.00)
0
 #
 #
 # (39)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  31984 31994  "1 "    0     # line from  BRIGHTN  115.00  BRKR to BRKR  GRAND IS 115.00
1  31984 31994  "2"     1     #Transfer Grand Island to alternate source
4  31994     0  "**"    1     #Restore Grand Island load
0
 #
 #
 # (40)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  31995 32013  "1 "    0     # line from  HALE     115.00   (2) to (1)   HALE2    115.00
1  31995 31996  "1 "    0     # line from  HALE     115.00   (2) to (3)   HALE J1  115.00
1  31996 32006  "1 "    0     # line from  HALE J1  115.00   (3) to (3)   VCVLLE1J 115.00
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1  31996 32020  "1 "    0     # line from  HALE J1  115.00   (3) to (3)   JMSN JCT 115.00
1  32006 31998  "1 "    0     # line from  VCVLLE1J 115.00   (3) to BRKR  VACA-DIX 115.00
1  32006 32000  "1 "    0     # line from  VCVLLE1J 115.00   (3) to BRKR  VACAVLL1 115.00
1  32020 32010  "1 "    0     # line from  JMSN JCT 115.00   (3) to BRKR  JAMESON  115.00
1  32020 32618  "1 "    0     # line from  JMSN JCT 115.00   (3) to (1)   NTWRJCT1 115.00
4  31995     0  "1 "    0     # LOAD-DROP    HALE     115.00  LOAD==2.39(1.42)
4  32000     0  "1 "    0     # LOAD-DROP    VACAVLL1 115.00  LOAD==30.49(1.36)
4  32010     0  "1 "    0     # LOAD-DROP    JAMESON  115.00  LOAD==38.91(1.74)
1  32002 32000  "1"     1     #Line transfer VACAVLL1 115kV TO VACAVLL2 115kV
4  32000     0  "**"    1     #Restore VACAVLL1 load
1  31995 32013  "1"     1     #Transfer load to HALE alternate
1  32012 32013  "1"     1     #Transfer load to HALE alternate
4  31995     0  "**"    1     #Restore load at HALE
1  32010 32009  "1 "    1     # LINE-TRANSFER JMSN JCT 115.00 to JAMESN-A 115.00
4  32010     0  "**"    1     # RESTORE JAMESON load
0
 #
 #
 # (41)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  31998 31997  "1 "    0     # line from  VACA-DIX 115.00  BRKR to (3)   SCHMLBCH 115.00
1  31997 32008  "1 "    0     # line from  SCHMLBCH 115.00   (3) to BRKR  SUISUN   115.00
1  31997 32009  "1 "    0     # line from  SCHMLBCH 115.00   (3) to (1)   JAMESN-A 115.00
4  31997     0  "1 "    0     # LOAD-DROP    SCHMLBCH 115.00  LOAD==10.08(6.77)
0
 #
 #
 # (42)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  31998 32011  "1 "    0     # line from  VACA-DIX 115.00  BRKR to (3)   WEC      115.00
1  32011 32008  "1 "    0     # line from  WEC      115.00   (3) to BRKR  SUISUN   115.00
2  32011 32185  "1 "    0     # TRAN from  WEC      115.00   (3) to (1)   WOLFSKIL  13.80
4  32185     0  "ss"    0     # LOAD-DROP    WOLFSKIL  13.80  LOAD==1.30(0.81)
3  32185     0  "1 "    0     # GEN-DROP    WOLFSKIL  13.80  GEN==50.00(5.67)
0
 #
 #
 # (43)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  31999 31998  "1 "    0     # line from  VACA-CB  115.00   (3) to BRKR  VACA-DIX 115.00
2  31999 30460  "2 "    0     # TRAN from  VACA-CB  115.00   (3) to BRKR  VACA-DIX 230.00
2  31999 30460  "2A"    0     # TRAN from  VACA-CB  115.00   (3) to BRKR  VACA-DIX 230.00
0
 #
 #
 # (44)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 # spring outage
1  31740 31732  "2 "    0     # line from  JACINTO   60.00   (2) to (2)   HMLTN JT  60.00
1  31732 31734  "2 "    0     # line from  HMLTN JT  60.00   (2) to (2)   HAMILTON  60.00
1  31734 31722  "2 "    0     # line from  HAMILTON  60.00   (2) to BRKR  GLENN     60.00
4  31740     0  "1 "    0     # LOAD-DROP    JACINTO   60.00  LOAD==6.10(0.27)
4  31734     0  "1 "    0     # LOAD-DROP    HAMILTON  60.00  LOAD==5.61(0.25)
0
 #
 #
 # (45)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 # spring outage
1  32050 32052  "4 "    0     # line from  RICE      60.00   (1) to (3)   CLSA CRS  60.00
1  32052 32054  "4 "    0     # line from  CLSA CRS  60.00   (3) to (2)   MAXWELL   60.00
1  32052 32067  "4 "    0     # line from  CLSA CRS  60.00   (3) to (1)   WILSONAV  60.00
1  32054 32055  "4 "    0     # line from  MAXWELL   60.00   (2) to (3)   MAXTAP    60.00
1  32055 32053  "4 "    0     # line from  MAXTAP    60.00   (3) to (1)   DELEVAN   60.00
1  32055 32065  "4 "    0     # line from  MAXTAP    60.00   (3) to (2)   WILL JCT  60.00
1  32065 32056  "4 "    0     # line from  WILL JCT  60.00   (2) to BRKR  CORTINA   60.00
4  32050     0  "1 "    0     # LOAD-DROP    RICE      60.00  LOAD==4.09(0.18)
4  32050     0  "2 "    0     # LOAD-DROP    RICE      60.00  LOAD==1.33(0.06)
4  32054     0  "1 "    0     # LOAD-DROP    MAXWELL   60.00  LOAD==3.97(0.18)
0
 #
 #
 # (46)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32056 32060  "1 "    0     # line from  CORTINA   60.00  BRKR to (2)   ARBUCKLE  60.00
1  32060 32058  "1 "    0     # line from  ARBUCKLE  60.00   (2) to (2)   HARINTON  60.00
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1  32058 32062  "1 "    0     # line from  HARINTON  60.00   (2) to (2)   DRAKE     60.00
1  32062 32066  "1 "    0     # line from  DRAKE     60.00   (2) to (1)   DUNNIGAN  60.00
4  32060     0  "1 "    0     # LOAD-DROP    ARBUCKLE  60.00  LOAD==16.33(0.73)
4  32058     0  "1 "    0     # LOAD-DROP    HARINTON  60.00  LOAD==1.00(0.62)
4  32062     0  "1 "    0     # LOAD-DROP    DRAKE     60.00  LOAD==1.00(0.62)
4  32066     0  "1 "    0     # LOAD-DROP    DUNNIGAN  60.00  LOAD==8.65(0.38)
1  32061 32060  "1"     1     #Transfer Arbuckle to its alternate
4  32060     0  "**"    1     #Restore load at ARBUCKLE
4  32058     0  "**"    1     #Restore load at HARINTON
4  32062     0  "**"    1     #Restore load at DRAKE
4  32066     0  "**"    1     #Restore load at DUNNIGAN
0
 #
 #
 # (47)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32057 32056  "2 "    0     # line from  HUSTD     60.00   (2) to BRKR  CORTINA   60.00
1  32057 32063  "2 "    0     # line from  HUSTD     60.00   (2) to (3)   ARBJCT    60.00
1  32063 32061  "2 "    0     # line from  ARBJCT    60.00   (3) to (1)   ARBALT    60.00
1  32063 32078  "2 "    0     # line from  ARBJCT    60.00   (3) to (2)   WLKSLJCT  60.00
1  32078 32076  "2 "    0     # line from  WLKSLJCT  60.00   (2) to (2)   WILKINS   60.00
1  32076 32080  "2 "    0     # line from  WILKINS   60.00   (2) to (1)   DIST2047  60.00
4  32076     0  "1 "    0     # LOAD-DROP    WILKINS   60.00  LOAD==6.44(0.29)
0
 #
 #
 # (48)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 # spring outage
1  32070 32071  "1 "    0     # line from  CLSA JCT  60.00  BRKR to (2)   MERIDJCT  60.00
1  32071 32072  "1 "    0     # line from  MERIDJCT  60.00   (2) to (1)   MERIDIAN  60.00
1  32068 32070  "1 "    0     # line from  COLUSA    60.00   (1) to BRKR  CLSA JCT  60.00
4  32072     0  "1 "    0     # LOAD-DROP    MERIDIAN  60.00  LOAD==4.55(0.21)
4  32068     0  "1 "    0     # LOAD-DROP    COLUSA    60.00  LOAD==5.98(0.27)
4  32068     0  "2 "    0     # LOAD-DROP    COLUSA    60.00  LOAD==4.32(0.20)
1  32067 32068  "1 "     1     #Transfer Colusa to alternate
4  32068     0  "**"     1     #Restore Colusa load
0
 #
 #
 # (49)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32070 32073  "3 "    0     # line from  CLSA JCT  60.00  BRKR to (2)   WESCOT1   60.00
1  32073 32075  "3 "    0     # line from  WESCOT1   60.00   (2) to (3)   WESCOT2   60.00
1  32075 32064  "3 "    0     # line from  WESCOT2   60.00   (3) to (1)   WILLIAMS  60.00
1  32075 32155  "3 "    0     # line from  WESCOT2   60.00   (3) to (3)   WADHMJCT  60.00
1  32155 32056  "3 "    0     # line from  WADHMJCT  60.00   (3) to BRKR  CORTINA   60.00
2  32155 32154  "1 "    0     # TRAN from  WADHMJCT  60.00   (3) to (1)   WADHAM     9.11
4  32064     0  "1 "    0     # LOAD-DROP    WILLIAMS  60.00  LOAD==6.27(0.28)
4  32064     0  "2 "    0     # LOAD-DROP    WILLIAMS  60.00  LOAD==10.36(0.46)
4  32154     0  "SG"    0     # LOAD-DROP    WADHAM     9.11  LOAD==1.08(0.25)
3  32154     0  "1 "    0     # GEN-DROP    WADHAM     9.11  GEN==22.80(3.70)
0
 #
 #
 # (50)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32077 32662  "1 "    0     # line from  CORD PMP  60.00   (1) to (4)   TULCY JT  60.00
1  32662 32655  "1 "    0     # line from  TULCY JT  60.00   (4) to (2)   TULCAY1   60.00
1  32662 32656  "1 "    0     # line from  TULCY JT  60.00   (4) to BRKR  NAPA      60.00
1  32662 32093  "1 "    0     # line from  TULCY JT  60.00   (4) to (3)   CRD-JCT   60.00
1  32655 32654  "1 "    0     # line from  TULCAY1   60.00   (2) to BRKR  TULUCAY   60.00
1  32093 32091  "1 "    0     # line from  CRD-JCT   60.00   (3) to (1)   CRD_INTR  60.00
1  32093 32074  "1 "    0     # line from  CRD-JCT   60.00   (3) to (1)   CORDELIA  60.00
4  32077     0  "1 "    0     # LOAD-DROP    CORD PMP  60.00  LOAD==4.74(1.56)
4  32091     0  "1 "    0     # LOAD-DROP    CRD_INTR  60.00  LOAD==2.80(0.90)
4  32074     0  "4 "    0     # LOAD-DROP    CORDELIA  60.00  LOAD==13.26(0.59)
1 32662 32656 "1 " 1      # close line from TULCY JT 60.00 to NAPA 60.00
1 32662 32077 "1 " 1      # close line from TULCY JT 60.00 to CORD PMP 60.00
1 32077 32074 "1 " 1      # close line from CORD PMP 60.00 to CORDELIA 60.00
4 32077 0     "**" 1      # restore all loads to CORD PMP 60.00
4 32074 0     "**" 1      # restore all loads to CORDELIA 60.00 (Tulucay - Napa #1 60 kV)
0
 #
 #
```

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 # (51)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32079 32083  "1 "    0     # line from  DST1001B  60.00   (3) to (1)   DIST1001  60.00
1  32079 32087  "1 "    0     # line from  DST1001B  60.00   (3) to (2)   KNTJALT   60.00
1  32079 32342  "1 "    0     # line from  DST1001B  60.00   (3) to BRKR  E.NICOLS  60.00
1  32087 32085  "1 "    0     # line from  KNTJALT   60.00   (2) to (2)   WOODJCT   60.00
1  32085 32084  "1 "    0     # line from  WOODJCT   60.00   (2) to (1)   WLLW SLJ  60.00
0
 #
 #
 # (52)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32081 32086  "1 "    0     # line from  DIST1500  60.00   (1) to (2)   KNGHTSLJ  60.00
1  32086 32089  "1 "    0     # line from  KNGHTSLJ  60.00   (2) to (2)   DST1001A  60.00
1  32089 32342  "1 "    0     # line from  DST1001A  60.00   (2) to BRKR  E.NICOLS  60.00
0
 #
 #
 # (53)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32082 32090  "1 "    0     # line from  PLFLDJCT  60.00   (2) to (2)   WINTERS   60.00
1  32082 32092  "1 "    0     # line from  PLFLDJCT  60.00   (2) to (1)   PLAINFLD  60.00
1  32090 32088  "1 "    0     # line from  WINTERS   60.00   (2) to BRKR  VACA-DXN  60.00
4  32090     0  "1 "    0     # LOAD-DROP    WINTERS   60.00  LOAD==6.18(0.27)
4  32092     0  "1 "    0     # LOAD-DROP    PLAINFLD  60.00  LOAD==12.16(0.54)
0
 #
 #
 # (54)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32088 32094  "2 "    0     # line from  VACA-DXN  60.00  BRKR to (2)   VACA-JT2  60.00
1  32094 32109  "2 "    0     # line from  VACA-JT2  60.00   (2) to (3)   CACHSLJ2  60.00
1  32109 32101  "2 "    0     # line from  CACHSLJ2  60.00   (3) to (2)   DIXON-J2  60.00
1  32109 32107  "2 "    0     # line from  CACHSLJ2  60.00   (3) to (2)   CACHSTAP  60.00
1  32101 32100  "2 "    0     # line from  DIXON-J2  60.00   (2) to BRKR  DIXON     60.00
1  32107 32113  "2 "    0     # line from  CACHSTAP  60.00   (2) to (2)   BTAV-JCT  60.00
1  32113 32112  "2 "    0     # line from  BTAV-JCT  60.00   (2) to (1)   MAINE-PR  60.00
4  32112     0  "1 "    0     # LOAD-DROP    MAINE-PR  60.00  LOAD==0.10(0.02)
0
 #
 #
 # (55)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32088 32096  "1 "    0     # line from  VACA-DXN  60.00  BRKR to (3)   VACA-JT1  60.00
1  32096 32098  "1 "    0     # line from  VACA-JT1  60.00   (3) to (3)   TRAVISJT  60.00
1  32096 32108  "1 "    0     # line from  VACA-JT1  60.00   (3) to (2)   CACHSLJ1  60.00
1  32098 32097  "1 "    0     # line from  TRAVISJT  60.00   (3) to (1)   TRAVIS    60.00
1  32098 32099  "1 "    0     # line from  TRAVISJT  60.00   (3) to (1)   TRVS_HPT  60.00
1  32108 32105  "1 "    0     # line from  CACHSLJ1  60.00   (2) to (3)   DIXON-J1  60.00
1  32105 32100  "1 "    0     # line from  DIXON-J1  60.00   (3) to BRKR  DIXON     60.00
1  32105 32106  "1 "    0     # line from  DIXON-J1  60.00   (3) to (1)   DIXONCAN  60.00
4  32097     0  "1 "    0     # LOAD-DROP    TRAVIS    60.00  LOAD==18.67(5.59)
4  32099     0  "1 "    0     # LOAD-DROP    TRVS_HPT  60.00  LOAD==4.82(1.41)
4  32106     0  "1 "    0     # LOAD-DROP    DIXONCAN  60.00  LOAD==3.50(0.80)
1  32094 32098  "1"     1     #Transfer load to alternate tap
4  32097     0  "**"    1     #Restore load at Travis AFB
4  32099     0  "**"    1     #Restore load at Travis Hospital
0
 #
 #
 # (56)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32214 31986  "1 "    0     # line from  RIO OSO  115.00  BRKR to BRKR  W.SCRMNO 115.00
0
 #
 #
 # (57)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32586 31956  "1 "    0     # line from  HGHWY J2 115.00   (3) to (2)   CORDELLT 115.00
1  32586 32578  "1 "    0     # line from  HGHWY J2 115.00   (3) to (2)   SKGGS J2 115.00
1  32586 32590  "1 "    0     # line from  HGHWY J2 115.00   (3) to BRKR  HIGHWAY  115.00
1  31956 32598  "1 "    0     # line from  CORDELLT 115.00   (2) to (2)   NTWR ALT 115.00
1  32578 32568  "1 "    0     # line from  SKGGS J2 115.00   (2) to BRKR  IGNACIO  115.00
1  32598 32608  "1 "    0     # line from  NTWR ALT 115.00   (2) to (2)   CRQNZTP2 115.00
```

```
1  32608 32616  "1 "    0     # line from  CRQNZTP2 115.00   (2) to (1)   MEYERTP2 115.00
4  32590     0  "1 "    0     # LOAD-DROP    HIGHWAY  115.00  LOAD==18.06(3.67)
4  32590     0  "2 "    0     # LOAD-DROP    HIGHWAY  115.00  LOAD==22.17(4.50)
1  32588 32590  "1 "    1     # LINE-TRANSFER HGHWY J2 115.00 to HGHWY J1 115.00
4  32590     0  "**"    1     # RESTORE HIGHWAY load
0
 #
 #
 # (58)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  30070 30461  "1 "    0     # TRAN from  Q171     500.00  BRKR to BRKR  Q171     230.00
0
 #
 #
 # (59)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  30450 30451  "1 "    0     # TRAN from  CORTINA  230.00  BRKR to (3)   CRTNA  M 230.00
2  30451 31951  "1 "    0     # TRAN from  CRTNA  M 230.00   (3) to (1)   CORT_D   115.00
2  30451 32056  "1 "    0     # TRAN from  CRTNA  M 230.00   (3) to BRKR  CORTINA   60.00
4  31951     0  "3 "    0     # LOAD-DROP    CORT_D   115.00  LOAD==7.98(0.36)
0
 #
 #
 # (60)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
#     **** 3-WINDING TRANSFORMER  30460  (30067)  30030  32152 :
2  30460 30030  "11"    0     # TRAN from  VACA-DIX 230.00  BRKR to (1)   VACA-DIX 500.00
0
 #
 #
 # (61)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
#     **** 3-WINDING TRANSFORMER  30460  (32158)  30030  32157 :
2  30460 30030  "12"    0     # TRAN from  VACA-DIX 230.00  BRKR to (1)   VACA-DIX 500.00
0
 #
 #
 # (62)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  31950 30450  "4 "    0     # TRAN from  CORTINA  115.00  BRKR to BRKR  CORTINA  230.00
0
 #
 #
 # (63)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  31984 30348  "10"    0     # TRAN from  BRIGHTN  115.00  BRKR to BRKR  BRIGHTON 230.00
0
 #
 #
 # (64)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  31984 30348  "9 "    0     # TRAN from  BRIGHTN  115.00  BRKR to BRKR  BRIGHTON 230.00
0
 #
 #
 # (65)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  31998 30460  "3 "    0     # TRAN from  VACA-DIX 115.00  BRKR to BRKR  VACA-DIX 230.00
0
 #
 #
 # (66)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  31998 30460  "4 "    0     # TRAN from  VACA-DIX 115.00  BRKR to BRKR  VACA-DIX 230.00
0
 #
 #
 # (67)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  32088 31998  "5 "    0     # TRAN from  VACA-DXN  60.00  BRKR to BRKR  VACA-DIX 115.00
0
 #
 #
 # (68)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
```

```
 #
2  32088 31998  "9 "    0     # TRAN from  VACA-DXN  60.00  BRKR to BRKR  VACA-DIX 115.00
0
 #
 #
 # (69)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  32162 31994  "1 "    0     # TRAN from  RIV.DLTA   9.11   (1) to BRKR  GRAND IS 115.00
0
 #
 #
 # (70)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  32164 32008  "1 "    0     # TRAN from  CTY FAIR   9.11   (1) to BRKR  SUISUN   115.00
3  32164     0  "1 "    0     # GEN-DROP    CTY FAIR   9.11  GEN==0.80(0.07)
3  32164     0  "2 "    0     # GEN-DROP    CTY FAIR   9.11  GEN==1.50(0.13)
0
 #
 #
 # (71)  B1 GENERATOR OUTAGE
 #
3  32150     0  "1"    0     # DG_VADIX  13.80      PGEN=49.00  QGEN=8.01
0
 #
 #
 # (72)  B1 GENERATOR OUTAGE
 #
3  32154     0  "1"    0     # WADHAM     9.11      PGEN=22.84  QGEN=2.50
0
 #
 #
 # (73)  B1 GENERATOR OUTAGE
 #
3  32156     0  "1"    0     # WOODLAND   9.11      PGEN=25.00  QGEN=5.00
0
 #
 #
 # (74)  B1 GENERATOR OUTAGE
 #
3  32164     0  "1"    0     # CTY FAIR   9.11      PGEN=0.80  QGEN=0.07
0
 #
 #
 # (75)  B1 GENERATOR OUTAGE
 #
3  32164     0  "2"    0     # CTY FAIR   9.11      PGEN=1.50  QGEN=0.13
0
 #
 #
 # (76)  B1 GENERATOR OUTAGE
 #
3  32166     0  "1"    0     # UC DAVIS   9.11      PGEN=3.50  QGEN=-1.20
0
 #
 #
 # (77)  B1 GENERATOR OUTAGE
 #
3  32168     0  "2"    0     # ENXCO      9.11      PGEN=49.00  QGEN=0.00
0
 #
 #
 # (78)  B1 GENERATOR OUTAGE
 #
3  32169     0  "1"    0     # SOLANOWP  21.00      PGEN=150.00  QGEN=0.00
0
 #
 #
 # (79)  B1 GENERATOR OUTAGE
 #
3  32171     0  "1"    0     # HIGHWND3  34.50      PGEN=38.00  QGEN=0.00
0
 #
 #
 # (80)  B1 GENERATOR OUTAGE
```

```
 #
3  32172    0  "1"    0    # HIGHWNDS  34.50      PGEN=158.00  QGEN=0.00
0
 #
 #
 # (81)  B1 GENERATOR OUTAGE
 #
3  32173    0  "1"    0    # LAMBGT1   13.80      PGEN=46.30  QGEN=-7.63
0
 #
 #
 # (82)  B1 GENERATOR OUTAGE
 #
3  32174    0  "2"    0    # GOOSEHGT  13.80      PGEN=46.30  QGEN=-5.82
0
 #
 #
 # (83)  B1 GENERATOR OUTAGE
 #
3  32175    0  "3"    0    # CREEDGT1  13.80      PGEN=46.30  QGEN=-5.82
0
 #
 #
 # (84)  B1 GENERATOR OUTAGE
 #
3  32176    0  "1"    0    # SHILOH    34.50      PGEN=150.00  QGEN=0.00
0
 #
 #
 # (85)  B1 GENERATOR OUTAGE
 #
3  32177    0  "1"    0    # SHILO     34.50      PGEN=150.00  QGEN=0.00
0
 #
 #
 # (86)  B1 GENERATOR OUTAGE
 #
3  32185    0  "1"    0    # WOLFSKIL  13.80      PGEN=50.00  QGEN=5.90
0
 #
 #
 # (87)  B1 GENERATOR OUTAGE
 #
3  32186    0  "1"    0    # P0609     34.50      PGEN=128.00  QGEN=12.35
0
 #
 #
 # (88)  B1 GENERATOR OUTAGE
 #
3  32188    0  "1"    0    # P0611G    34.50      PGEN=30.00  QGEN=2.74
0
 #
 #
 # (89)  B1 GENERATOR OUTAGE
 #
3  32181    0  "1"    0    # Q171WG1   34.50      PGEN=125.00  QGEN=-17.99
0
 #
 #
 # (90)  B1 GENERATOR OUTAGE
 #
3  32179    0  "1"    0    # Q222      0.58      PGEN=100.50  QGEN=15.80
0
 #
 #
 # (91)  B1 GENERATOR OUTAGE
 #
3  32180    0  "1"    0    # Q262      13.80      PGEN=16.64  QGEN=2.33
0
 #
 #
 # (92)  B1 GENERATOR OUTAGE
 #
3  32190    0  "1"    0    # Q039      0.58      PGEN=200.00  QGEN=16.08
```

```
0
 #
 #
 # (93)  B1 GENERATOR OUTAGE
 #
3  32191     0  "1"     0     # Q257GT1   16.50       PGEN=218.00  QGEN=40.20
0
 #
 #
 # (94)  B1 GENERATOR OUTAGE
 #
3  32193     0  "3"     0     # Q257ST1   13.80       PGEN=77.00  QGEN=14.47
0
 #
 #
 # (95) Overlapping Outage (L-1/G-1)
 # Rio Oso - Brighton 230 kV Line and Woodland
1  30330 30348  "1 "    0     # line from  RIO OSO  230.00  BRKR to BRKR  BRIGHTON 230.00
 #
3  32156     0  "1"     0     # WOODLAND   9.11       PGEN=25.00  QGEN=5.00
0
 #
 #
 # (96) Overlapping Outage (L-1/G-1)
 # West Sacramento - Brighton 115 kV Line and Woodland
1  31978 31984  "1 "    0     # line from  DPWT_TP2 115.00   (3) to BRKR  BRIGHTN  115.00
1  31978 31986  "1 "    0     # line from  DPWT_TP2 115.00   (3) to BRKR  W.SCRMNO 115.00
1  31978 31988  "1 "    0     # line from  DPWT_TP2 115.00   (3) to (1)   DEEPWATR 115.00
4  31988     0  "2 "    0     # LOAD-DROP    DEEPWATR 115.00  LOAD==22.90(1.02)
4  31988     0  "3 "    0     # LOAD-DROP    DEEPWATR 115.00  LOAD==15.82(0.70)
1  31976 31988  "1"     1     #Transfer load to alternate Deepwater tap
4  31988     0  "**"    1     #Restore load at Deepwater
 #
3  32156     0  "1"     0     # WOODLAND   9.11       PGEN=25.00  QGEN=5.00
0
 #
 #
 # (97) Overlapping Outage (L-1/G-1)
 # Rio Oso - West Sacramento 115 kV Line and Woodland
1  32214 31986  "1 "    0     # line from  RIO OSO  115.00  BRKR to BRKR  W.SCRMNO 115.00
 #
3  32156     0  "1"     0     # WOODLAND   9.11       PGEN=25.00  QGEN=5.00
0
 #
 #
 # (98) Overlapping Outage (L-1/G-1)
 # West Sacramento - Davis 115 kV Line and Woodland
1  31976 31980  "1 "    0     # line from  POST     115.00   (1) to (3)   DPWTR_TP 115.00
1  31980 31986  "1 "    0     # line from  DPWTR_TP 115.00   (3) to BRKR  W.SCRMNO 115.00
1  31980 32003  "1 "    0     # line from  DPWTR_TP 115.00   (3) to (3)   UCD_TP1  115.00
1  32003 31990  "1 "    0     # line from  UCD_TP1  115.00   (3) to BRKR  DAVIS    115.00
1  32003 32103  "2 "    0     # line from  UCD_TP1  115.00   (3) to (2)   UCDAVSJ2 115.00
1  32103 32102  "1 "    0     # line from  UCDAVSJ2 115.00   (2) to (2)   CAMPUS   115.00
2  32102 32166  "1 "    0     # TRAN from  CAMPUS   115.00   (2) to (1)   UC DAVIS   9.11
4  31976     0  "1 "    0     # LOAD-DROP    POST     115.00  LOAD==1.31(0.19)
4  31976     0  "1A"    0     # LOAD-DROP    POST     115.00  LOAD==1.31(0.19)
4  32102     0  "1 "    0     # LOAD-DROP    CAMPUS   115.00  LOAD==36.56(8.33)
3  32166     0  "1 "    0     # GEN-DROP    UC DAVIS   9.11  GEN==3.50(1.80)
1  31988 31976  "1"     1     #Transfer POST to alternate Deepwater tap
4  31976     0  "**"    1     #Restore load to POST
 #
3  32156     0  "1"     0     # WOODLAND   9.11       PGEN=25.00  QGEN=5.00
0
 #
 #
 # (99) Overlapping Outage (L-1/G-1)
 # Rio Oso - Woodland #1 115 kV Line and Woodland
1  31960 31966  "1 "    0     # line from  MOBILCHE 115.00   (2) to (3)   WODLNDJ1 115.00
1  31960 31970  "1 "    0     # line from  MOBILCHE 115.00   (2) to BRKR  WOODLD   115.00
1  31966 31965  "1 "    0     # line from  WODLNDJ1 115.00   (3) to (3)   KNIGHT1  115.00
1  31966 31971  "1 "    0     # line from  WODLNDJ1 115.00   (3) to (1)   ZAMORA1  115.00
1  31965 31963  "1 "    0     # line from  KNIGHT1  115.00   (3) to (1)   KNIGHTLD 115.00
1  31965 32214  "1 "    0     # line from  KNIGHT1  115.00   (3) to BRKR  RIO OSO  115.00
4  31960     0  "1 "    0     # LOAD-DROP    MOBILCHE 115.00  LOAD==0.10(0.00)
```

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4  31963     0  "1 "    0     # LOAD-DROP    KNIGHTLD 115.00  LOAD==8.57(0.38)
 #
3  32156     0  "1"     0     # WOODLAND   9.11       PGEN=25.00  QGEN=5.00
0
 #
 #
 # (100) Overlapping Outage (L-1/G-1)
 # Vaca - Suisun - Jameson 115 kV Line and Wolfskill
1  31998 31997  "1 "    0     # line from  VACA-DIX 115.00  BRKR to (3)   SCHMLBCH 115.00
1  31997 32008  "1 "    0     # line from  SCHMLBCH 115.00   (3) to BRKR  SUISUN   115.00
1  31997 32009  "1 "    0     # line from  SCHMLBCH 115.00   (3) to (1)   JAMESN-A 115.00
4  31997     0  "1 "    0     # LOAD-DROP    SCHMLBCH 115.00  LOAD==10.08(6.77)
 #
3  32185     0  "1"     0     # WOLFSKIL  13.80       PGEN=50.00  QGEN=5.90
0
 #
 #
 # 2013 spring category b contingency list
 # Sierra Division Zone 305
 #
 #
 # (101)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30261 30300  "1 "    0     # line from  BELDENTP 230.00   (2) to BRKR  TBL MT D 230.00
1  30261 30250  "1 "    0     # line from  BELDENTP 230.00   (2) to BRKR  CARIBOU  230.00
3  31808     0  "1 "    0     # the RAS for Caribou-Table Mt 230 kV line loss will drop
3  31808     0  "2 "    0     # Caribou Units 2 & 3
3  31782     0  "1 "    0     # Caribou Units 4 & 5
3  31782     0  "2 "    0     # Caribou Units 4 & 5
3  31810     0  "1 "    0     # Caribou 1
3  31894     0  "1 "    0     # Collins Pine
3  31892     0  "1 "    0     # Lassen Power
3  31780     0  "1 "    0     # Butt Valley
2  31780 31490  "1 "    0     # Butt Valley transformer
1  31486 31490  "1 "    0     # Caribou - Butt Valley line
0
 #
 #
 # (102)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30275 30330  "1 "    0     # line from  CRESTA   230.00  BRKR to BRKR  RIO OSO  230.00
0
 #
 #
 # (103)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30280 30330  "1 "    0     # line from  POE      230.00  BRKR to BRKR  RIO OSO  230.00
2  30280 31792  "1 "    0     # Take the transformer out with Rio Oso-Poe 230 kV line outage
3  31792     0  "1 "    0     # Take the generator out with Rio Oso-Poe 230 kV line outage
0
 #
 #
 # (104)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30300 30330  "1 "    0     # line from  TBL MT D 230.00  BRKR to BRKR  RIO OSO  230.00
0
 #
 #
 # (105)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30325 30327  "1 "    0     # line from  PALERMO  230.00  BRKR to BRKR  COLGATE  230.00
2  30327 32450  "1 "    0     #Take one transformer out with Palermo-Colgate 230 kV line outage
3  32450     0  "1 "    0     #Take one generator out with Palermo-Colgate 230 kV line outage
0
 #
 #
 # (106)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30327 30330  "1 "    0     # line from  COLGATE  230.00  BRKR to BRKR  RIO OSO  230.00
2  30327 32452  "1 "    0     #Take one transformer out with Colgate-Rio Oso 230 kV line outage
3  32452     0  "1 "    0     #Take one generator out with Colgate-Rio Oso 230 kV line outage
0
 #
 #
```

```
 # (107)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30330 30335  "1 "    0     # line from  RIO OSO  230.00  BRKR to BRKR  ATLANTC  230.00
0
 #
 #
 # (108)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30330 30337  "1 "    0     # line from  RIO OSO  230.00  BRKR to BRKR  GOLDHILL 230.00
0
 #
 #
 # (109)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30330 30482  "1 "    0     # line from  RIO OSO  230.00  BRKR to BRKR  LOCKFORD 230.00
0
 #
 #
 # (110)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30331 30330  "1 "    0     # line from  Q266     230.00   (3) to BRKR  RIO OSO  230.00
2  30331 32517  "1 "    0     # TRAN from  Q266     230.00   (3) to (1)   Q266CT1   18.00
2  30331 32518  "1 "    0     # TRAN from  Q266     230.00   (3) to (1)   Q266ST1   18.00
4  32517     0  "ss"    0     # LOAD-DROP    Q266CT1   18.00  LOAD==36.00(19.92)
3  32517     0  "1 "    0     # GEN-DROP    Q266CT1   18.00  GEN==173.00(45.33)
3  32518     0  "1 "    0     # GEN-DROP    Q266ST1   18.00  GEN==188.00(30.71)
0
 #
 #
 # (111)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30335 30337  "1 "    0     # line from  ATLANTC  230.00  BRKR to BRKR  GOLDHILL 230.00
0
 #
 #
 # (112)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30337 30340  "1 "    0     # line from  GOLDHILL 230.00  BRKR to (3)   RALSTON  230.00
1  30340 30345  "1 "    0     # line from  RALSTON  230.00   (3) to BRKR  MIDLFORK 230.00
2  30340 32458  "1 "    0     # TRAN from  RALSTON  230.00   (3) to (1)   RALSTON   13.80
3  32458     0  "1 "    0     # GEN-DROP    RALSTON   13.80  GEN==83.00(15.12)
0
 #
 #
 # (113)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30337 30621  "1 "    0     # line from  GOLDHILL 230.00  BRKR to BRKR  Q260     230.00
0
 #
 #
 # (114)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30621 30622  "1 "    0     # line from  Q260     230.00  BRKR to BRKR  EIGHT MI 230.00
0
 #
 #
 # (115)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30337 37012  "1 "    0     # line from  GOLDHILL 230.00  BRKR to BRKR  LAKE     230.00
0
 #
 #
 # (116)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30337 38000  "1 "    0     # line from  GOLDHILL 230.00  BRKR to BRKR  LODI     230.00
0
 #
 #
 # (117)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30993 64109  "1 "    0     # line from  SUMMIT    60.00   (2) to BRKR  SUMMIT 3  60.00
1  30993 32365  "1 "    0     # line from  SUMMIT    60.00   (2) to (2)   TAMARACK  60.00
1  32365 32366  "1 "    0     # line from  TAMARACK  60.00   (2) to (3)   CISCO GR  60.00
1  32366 32363  "1 "    0     # line from  CISCO GR  60.00   (3) to (1)   CISCOTAP  60.00
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1  32366 32372  "1 "    0     # line from  CISCO GR  60.00   (3) to BRKR  SPAULDNG  60.00
4  30993     0  "1 "    0     # LOAD-DROP    SUMMIT    60.00  LOAD==1.58(0.07)
4  32365     0  "1 "    0     # LOAD-DROP    TAMARACK  60.00  LOAD==1.05(0.04)
4  32363     0  "1 "    0     # LOAD-DROP    CISCOTAP  60.00  LOAD==1.00(0.47)
4  30993     0  "**"    0     #Drop Summit 3 load with outage
0
 #
 #
 # (118)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 # spring outage
1  31482 32280  "1 "    0     # line from  PALERMO  115.00  BRKR to (3)   E.MRY J2 115.00
1  32280 32202  "1 "    0     # line from  E.MRY J2 115.00   (3) to (1)   E.MRYSVE 115.00
1  32280 32212  "1 "    0     # line from  E.MRY J2 115.00   (3) to BRKR  E.NICOLS 115.00
4  32202     0  "2 "    0     # LOAD-DROP    E.MRYSVE 115.00  LOAD==10.55(0.47)
4  32202     0  "3 "    0     # LOAD-DROP    E.MRYSVE 115.00  LOAD==9.73(0.44)
1  32288 32202  "1"     1     #Transfer load to E. Marysville Alt. 1 spring
4  32202     0  "**"    1     #Restore load at E. Marysville spring
0
 #
 #
 # (119)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  31508 32286  "1 "    0     # line from  HONC JT3 115.00   (3) to (2)   OLIVH J3 115.00
1  31508 31482  "1 "    0     # line from  HONC JT3 115.00   (3) to BRKR  PALERMO  115.00
1  31508 31484  "1 "    0     # line from  HONC JT3 115.00   (3) to (1)   HONCUT   115.00
1  32286 32206  "1 "    0     # line from  OLIVH J3 115.00   (2) to BRKR  BOGUE    115.00
4  31484     0  "1 "    0     # LOAD-DROP    HONCUT   115.00  LOAD==16.18(0.73)
0
 #
 #
 # (120)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  31656 31658  "1 "    0     # line from  PALERMO   60.00  BRKR to (1)   BANGOR    60.00
4  31658     0  "1 "    0     # LOAD-DROP    BANGOR    60.00  LOAD==6.68(0.30)
0
 #
 #
 # (121)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  31660 32309  "1 "    0     # line from  DOBBINS   60.00   (2) to (2)   CHLLNGEA  60.00
1  31660 32307  "1 "    0     # line from  DOBBINS   60.00   (2) to (2)   COLGATEA  60.00
1  32309 31662  "1 "    0     # line from  CHLLNGEA  60.00   (2) to (1)   CHALLNGE  60.00
1  32307 32308  "1 "    0     # line from  COLGATEA  60.00   (2) to BRKR  COLGATE   60.00
4  31660     0  "1 "    0     # LOAD-DROP    DOBBINS   60.00  LOAD==2.90(0.13)
4  31662     0  "1 "    0     # LOAD-DROP    CHALLNGE  60.00  LOAD==2.58(0.12)
0
 #
 #
 # (122)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32018 32229  "1 "    0     # line from  GOLDHILL 115.00  BRKR to (3)   HORSHE1  115.00
1  32229 32230  "1 "    0     # line from  HORSHE1  115.00   (3) to (1)   HORSESHE 115.00
1  32229 32233  "1 "    0     # line from  HORSHE1  115.00   (3) to (3)   NEWCSTL1 115.00
1  32233 32234  "1 "    0     # line from  NEWCSTL1 115.00   (3) to (2)   NEWCSTLE 115.00
1  32233 32236  "1 "    0     # line from  NEWCSTL1 115.00   (3) to (2)   FLINT1   115.00
2  32234 32460  "1 "    0     # TRAN from  NEWCSTLE 115.00   (2) to (1)   NEWCSTLE  13.20
1  32236 32228  "1 "    0     # line from  FLINT1   115.00   (2) to BRKR  PLACER   115.00
4  32230     0  "1 "    0     # LOAD-DROP    HORSESHE 115.00  LOAD==15.79(0.71)
4  32230     0  "2 "    0     # LOAD-DROP    HORSESHE 115.00  LOAD==36.15(1.61)
1  32230 32231  "1"     1     #Transfer load to alternate
4  32230     0  "**"    1     #Restore load at Horseshoe
0
 #
 #
 # (123)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32018 32231  "2 "    0     # line from  GOLDHILL 115.00  BRKR to (2)   HORSHE2  115.00
1  32231 32235  "2 "    0     # line from  HORSHE2  115.00   (2) to (2)   NEWCSTL2 115.00
1  32235 32239  "2 "    0     # line from  NEWCSTL2 115.00   (2) to (3)   FLINT2   115.00
1  32239 32228  "2 "    0     # line from  FLINT2   115.00   (3) to BRKR  PLACER   115.00
1  32239 32237  "1 "    0     # line from  FLINT2   115.00   (3) to (1)   FLINT    115.00
4  32237     0  "1 "    0     # LOAD-DROP    FLINT    115.00  LOAD==14.82(0.66)
0
 #
```

```
 #
 # (124)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32018 32263  "1 "    0     # line from  GOLDHILL 115.00  BRKR to (1)   CLRKSVLE 115.00
4  32263     0  "1 "    0     # LOAD-DROP    CLRKSVLE 115.00  LOAD==44.58(2.00)
4  32263     0  "2 "    0     # LOAD-DROP    CLRKSVLE 115.00  LOAD==47.39(2.12)
4  32263     0  "3 "    0     # LOAD-DROP    CLRKSVLE 115.00  LOAD==45.28(2.03)
1  32264 32263  "1"    1     #Transfer Clarksville to alternate
4  32263     0  "**"    1     #Restore load at Clarksville
0
 #
 #
 # (125)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32018 32268  "2 "    0     # line from  GOLDHILL 115.00  BRKR to (3)   SHPRING2 115.00
1  32268 32259  "2 "    0     # line from  SHPRING2 115.00   (3) to (3)   DIMOND_2 115.00
1  32268 32265  "2 "    0     # line from  SHPRING2 115.00   (3) to (1)   SHPRING  115.00
1  32259 32258  "2 "    0     # line from  DIMOND_2 115.00   (3) to (1)   DMND SPR 115.00
1  32259 32260  "2 "    0     # line from  DIMOND_2 115.00   (3) to BRKR  MIZOU_T2 115.00
4  32265     0  "1 "    0     # LOAD-DROP    SHPRING  115.00  LOAD==19.57(0.88)
4  32265     0  "2 "    0     # LOAD-DROP    SHPRING  115.00  LOAD==21.49(0.96)
4  32258     0  "1 "    0     # LOAD-DROP    DMND SPR 115.00  LOAD==9.86(0.44)
4  32258     0  "2 "    0     # LOAD-DROP    DMND SPR 115.00  LOAD==28.07(1.25)
1  32262 32265  "1"    1     #Transfer Shingle Springs to alternate
4  32265     0  "**"    1     #Restore load at Shingle Springs
1  32258 32267  "1"    1     #Transfer Diamond Springs to alternate
4  32258     0  "**"    1     #Restore load at Diamond Springs
0
 #
 #
 # (126)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32018 32275  "1 "    0     # line from  GOLDHILL 115.00  BRKR to (3)   CPM TAP  115.00
1  32275 32264  "1 "    0     # line from  CPM TAP  115.00   (3) to (2)   CLRKSVLT 115.00
1  32275 32276  "1 "    0     # line from  CPM TAP  115.00   (3) to (1)   CPM      115.00
1  32264 32262  "1 "    0     # line from  CLRKSVLT 115.00   (2) to (2)   SHPRING1 115.00
1  32262 32267  "1 "    0     # line from  SHPRING1 115.00   (2) to (2)   DIMOND_1 115.00
1  32267 32261  "1 "    0     # line from  DIMOND_1 115.00   (2) to BRKR  MIZOU_T1 115.00
0
 #
 #
 # (127)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32110 32396  "1 "    0     # line from  GOLD HLL  60.00  BRKR to (2)   LIMESTNE  60.00
1  32396 33618  "1 "    0     # line from  LIMESTNE  60.00   (2) to (1)   OLETA     60.00
4  32396     0  "1 "    0     # LOAD-DROP    LIMESTNE  60.00  LOAD==0.02(0.00)
4  32396     0  "PW"    0     # LOAD-DROP    LIMESTNE  60.00  LOAD==2.55(2.18)
4  33618     0  "1 "    0     # LOAD-DROP    OLETA     60.00  LOAD==3.87(0.17)
4  33618     0  "2 "    0     # LOAD-DROP    OLETA     60.00  LOAD==3.45(0.16)
0
 #
 #
 # (128)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32200 31506  "1 "    0     # line from  PEASE    115.00  BRKR to (2)   HONC JT1 115.00
1  31506 31482  "1 "    0     # line from  HONC JT1 115.00   (2) to BRKR  PALERMO  115.00
0
 #
 #
 # (129)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 # spring outage
1  32200 32288  "1 "    0     # line from  PEASE    115.00  BRKR to (3)   E.MRY J1 115.00
1  32288 32290  "1 "    0     # line from  E.MRY J1 115.00   (3) to (3)   OLIVH J1 115.00
1  32290 32204  "1 "    0     # line from  OLIVH J1 115.00   (3) to (1)   OLIVHRST 115.00
1  32290 32214  "1 "    0     # line from  OLIVH J1 115.00   (3) to BRKR  RIO OSO  115.00
4  32204     0  "1 "    0     # LOAD-DROP    OLIVHRST 115.00  LOAD==6.71(0.30)
4  32204     0  "2 "    0     # LOAD-DROP    OLIVHRST 115.00  LOAD==21.33(0.95)
1  32204 32286  "1"    1     #Transfer Olivehurst to alternate
4  32204     0  "**"    1     #Restore load Olivehurst
0
 #
 #
 # (130)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
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1  32206 32208  "1 "    0     # line from  BOGUE    115.00  BRKR to (3)   GLEAF TP 115.00
1  32208 32210  "1 "    0     # line from  GLEAF TP 115.00   (3) to (2)   GLEAF 1  115.00
1  32208 32214  "1 "    0     # line from  GLEAF TP 115.00   (3) to BRKR  RIO OSO  115.00
2  32210 32490  "1 "    0     # TRAN from  GLEAF 1  115.00  BRKR to (1)   GRNLEAF1  13.80
4  32490     0  "ss"    0     # LOAD-DROP    GRNLEAF1  13.80  LOAD==0.67(0.15)
3  32490     0  "1 "    0     # GEN-DROP    GRNLEAF1  13.80  GEN==40.00(-12.86)
3  32490     0  "2 "    0     # GEN-DROP    GRNLEAF1  13.80  GEN==9.50(-3.05)
0
 #
 #
 # (131)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32206 32292  "1 "    0     # line from  BOGUE    115.00  BRKR to (2)   FREC TAP 115.00
2  32292 32451  "1 "    0     # TRAN from  FREC TAP 115.00   (2) to (1)   FREC      13.80
4  32451     0  "ss"    0     # LOAD-DROP    FREC      13.80  LOAD==1.30(0.30)
3  32451     0  "1 "    0     # GEN-DROP    FREC      13.80  GEN==50.00(9.38)
0
 #
 #
 # (132)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32212 32214  "1 "    0     # line from  E.NICOLS 115.00  BRKR to BRKR  RIO OSO  115.00
0
 #
 #
 # (133)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32214 31964  "2 "    0     # line from  RIO OSO  115.00  BRKR to (2)   KNIGHT2  115.00
1  31964 31968  "2 "    0     # line from  KNIGHT2  115.00   (2) to (3)   WODLNDJ2 115.00
1  31968 31970  "2 "    0     # line from  WODLNDJ2 115.00   (3) to BRKR  WOODLD   115.00
1  31968 31973  "2 "    0     # line from  WODLNDJ2 115.00   (3) to (2)   ZAMORA2  115.00
1  31973 31972  "2 "    0     # line from  ZAMORA2  115.00   (2) to (1)   ZAMORA   115.00
4  31972     0  "1 "    0     # LOAD-DROP    ZAMORA   115.00  LOAD==8.47(0.38)
0
 #
 #
 # (134)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32214 31965  "1 "    0     # line from  RIO OSO  115.00  BRKR to (3)   KNIGHT1  115.00
1  31965 31963  "1 "    0     # line from  KNIGHT1  115.00   (3) to (1)   KNIGHTLD 115.00
1  31965 31966  "1 "    0     # line from  KNIGHT1  115.00   (3) to (3)   WODLNDJ1 115.00
1  31966 31960  "1 "    0     # line from  WODLNDJ1 115.00   (3) to (2)   MOBILCHE 115.00
1  31966 31971  "1 "    0     # line from  WODLNDJ1 115.00   (3) to (1)   ZAMORA1  115.00
1  31960 31970  "1 "    0     # line from  MOBILCHE 115.00   (2) to BRKR  WOODLD   115.00
4  31963     0  "1 "    0     # LOAD-DROP    KNIGHTLD 115.00  LOAD==6.84(0.31)
4  31960     0  "1 "    0     # LOAD-DROP    MOBILCHE 115.00  LOAD==0.10(0.00)
0
 #
 #
 # (135)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32214 32225  "1 "    0     # line from  RIO OSO  115.00  BRKR to (3)   BRNSWKTP 115.00
1  32225 32222  "1 "    0     # line from  BRNSWKTP 115.00   (3) to (3)   DTCH FL2 115.00
1  32225 32227  "2 "    0     # line from  BRNSWKTP 115.00   (3) to (1)   BRNSWALT 115.00
1  32222 32218  "1 "    0     # line from  DTCH FL2 115.00   (3) to BRKR  DRUM     115.00
2  32222 32502  "1 "    0     # TRAN from  DTCH FL2 115.00  BRKR to (1)   DTCHFLT2   6.90
4  32227     0  "1 "    0     # LOAD-DROP    BRNSWALT 115.00  LOAD==24.08(1.08)
3  32502     0  "1 "    0     # GEN-DROP    DTCHFLT2   6.90  GEN==24.50(9.66)
0
 #
 #
 # (136)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32214 32244  "2 "    0     # line from  RIO OSO  115.00  BRKR to (3)   BRNSWCKP 115.00
1  32244 32218  "2 "    0     # line from  BRNSWCKP 115.00   (3) to BRKR  DRUM     115.00
1  32244 32226  "2 "    0     # line from  BRNSWCKP 115.00   (3) to (1)   BRUNSWCK 115.00
4  32226     0  "2 "    0     # LOAD-DROP    BRUNSWCK 115.00  LOAD==30.46(1.37)
4  32226     0  "3 "    0     # LOAD-DROP    BRUNSWCK 115.00  LOAD==8.00(0.36)
0
 #
 #
 # (137)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32214 32356  "1 "    0     # line from  RIO OSO  115.00  BRKR to BRKR  LINCOLN  115.00
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0
 #
 #
 # (138)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32215 32214  "1 "    0     # line from  Q259     115.00   (3) to BRKR  RIO OSO  115.00
2  32215 32515  "1 "    0     # TRAN from  Q259     115.00   (3) to (1)   Q259CT1   18.00
2  32215 32516  "1 "    0     # TRAN from  Q259     115.00   (3) to (1)   Q259ST1   18.00
4  32515     0  "ss"    0     # LOAD-DROP    Q259CT1   18.00  LOAD==16.00(8.85)
3  32515     0  "1 "    0     # GEN-DROP    Q259CT1   18.00  GEN==173.00(33.36)
3  32516     0  "1 "    0     # GEN-DROP    Q259ST1   18.00  GEN==188.00(27.79)
0
 #
 #
 # (139)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32218 32220  "1 "    0     # line from  DRUM     115.00  BRKR to (3)   DTCH FL1 115.00
1  32220 32224  "1 "    0     # line from  DTCH FL1 115.00   (3) to (3)   CHCGO PK 115.00
2  32220 32464  "1 "    0     # TRAN from  DTCH FL1 115.00  BRKR to (1)   DTCHFLT1  11.00
1  32224 32232  "1 "    0     # line from  CHCGO PK 115.00   (3) to BRKR  HIGGINS  115.00
2  32224 32462  "1 "    0     # TRAN from  CHCGO PK 115.00  BRKR to (1)   CHI.PARK  11.50
3  32464     0  "1 "    0     # GEN-DROP    DTCHFLT1  11.00  GEN==22.00(12.70)
3  32462     0  "1 "    0     # GEN-DROP    CHI.PARK  11.50  GEN==37.90(14.75)
0
 #
 #
 # (140)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32228 32238  "1 "    0     # line from  PLACER   115.00  BRKR to BRKR  BELL PGE 115.00
0
 #
 #
 # (141)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32232 32238  "1 "    0     # line from  HIGGINS  115.00  BRKR to BRKR  BELL PGE 115.00
3  32464     0  "**"    0     #Drop Dutch Flat No. 1 generator during Higgins-Bell 115 kV outage
3  32462     0  "**"    0     #Drop Chicago Park generator during Higgins-Bell 115 kV outage
0
 #
 #
 # (142)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32248 32266  "1 "    0     # line from  ROCKLIN   60.00   (1) to (2)   TAYLOR    60.00
1  32266 32413  "1 "    0     # line from  TAYLOR    60.00   (2) to BRKR  ATLANTI   60.00
4  32248     0  "1 "    0     # LOAD-DROP    ROCKLIN   60.00  LOAD==18.53(0.00)
4  32248     0  "2 "    0     # LOAD-DROP    ROCKLIN   60.00  LOAD==7.80(0.00)
4  32266     0  "1 "    0     # LOAD-DROP    TAYLOR    60.00  LOAD==1.74(1.12)
0
 #
 #
 # (143)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32250 32481  "2 "    0     # line from  ELDORAD  115.00  BRKR to (2)   APLHTAP2 115.00
1  32481 32257  "2 "    0     # line from  APLHTAP2 115.00   (2) to (4)   PLCRVLT2 115.00
1  32257 32254  "2 "    0     # line from  PLCRVLT2 115.00   (4) to (2)   PLCRVLB2 115.00
1  32257 32260  "2 "    0     # line from  PLCRVLT2 115.00   (4) to BRKR  MIZOU_T2 115.00
2  32257 32510  "1 "    0     # TRAN from  PLCRVLT2 115.00   (4) to (1)   CHILIBAR   4.16
1  32254 32256  "1 "    0     # line from  PLCRVLB2 115.00   (2) to (1)   PLCRVLB3 115.00
4  32254     0  "2 "    0     # LOAD-DROP    PLCRVLB2 115.00  LOAD==9.02(0.41)
4  32256     0  "3 "    0     # LOAD-DROP    PLCRVLB3 115.00  LOAD==25.95(1.16)
3  32510     0  "1 "    0     # GEN-DROP    CHILIBAR   4.16  GEN==5.50(4.00)
1  32256 32255  "1 "    1     #Transfer Placerville to alternate
4  32256     0  "**"    1     #Restore load Bank 3 at Placerville
1  32254 32256  "1 "    1     #Transfer Placerville to alternate
4  32254     0  "**"    1     #Restore load Bank 2 at Placerville
0
 #
 #
 # (144)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32250 32482  "1 "    0     # line from  ELDORAD  115.00  BRKR to (3)   APLHTAP1 115.00
1  32482 32255  "1 "    0     # line from  APLHTAP1 115.00   (3) to (2)   PLCRVLT1 115.00
1  32482 32278  "1 "    0     # line from  APLHTAP1 115.00   (3) to (2)   SPICAMIN 115.00
1  32255 32261  "1 "    0     # line from  PLCRVLT1 115.00   (2) to BRKR  MIZOU_T1 115.00
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1  32278 32252  "1 "    0     # line from  SPICAMIN 115.00   (2) to (1)   APPLE HL 115.00
4  32278     0  "1 "    0     # LOAD-DROP    SPICAMIN 115.00  LOAD==4.19(3.69)
4  32252     0  "1 "    0     # LOAD-DROP    APPLE HL 115.00  LOAD==14.65(0.65)
4  32252     0  "2 "    0     # LOAD-DROP    APPLE HL 115.00  LOAD==9.26(0.41)
1  32252 32481  "1"     1     #Transfer Apple Hill to alternate
4  32252     0  "**"    1     #Restore load at Apple Hill
0
 #
 #
 # (145)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32270 32274  "1 "    0     # line from  PENRYN    60.00   (2) to (1)   SIERRAPI  60.00
1  32270 32394  "1 "    0     # line from  PENRYN    60.00   (2) to BRKR  PLACER    60.00
4  32270     0  "1 "    0     # LOAD-DROP    PENRYN    60.00  LOAD==28.99(0.00)
4  32274     0  "1 "    0     # LOAD-DROP    SIERRAPI  60.00  LOAD==16.53(9.37)
0
 #
 #
 # (146)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32300 32301  "1 "    0     # line from  GLEAF2    60.00   (2) to (2)   GLEAF2TP  60.00
2  32300 32492  "1 "    0     # TRAN from  GLEAF2    60.00  BRKR to (1)   GRNLEAF2  13.80
1  32301 32328  "1 "    0     # line from  GLEAF2TP  60.00   (2) to (3)   YBA CTYJ  60.00
1  32328 32332  "1 "    0     # line from  YBA CTYJ  60.00   (3) to BRKR  PEASE     60.00
1  32328 32336  "1 "    0     # line from  YBA CTYJ  60.00   (3) to (1)   ALMENDRA  60.00
4  32492     0  "ss"    0     # LOAD-DROP    GRNLEAF2  13.80  LOAD==0.50(0.11)
3  32492     0  "1 "    0     # GEN-DROP    GRNLEAF2  13.80  GEN==49.00(20.05)
0
 #
 #
 # (147)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32302 32324  "1 "    0     # line from  YUBACITY  60.00   (4) to (1)   HARTER    60.00
1  32302 32333  "1 "    0     # line from  YUBACITY  60.00   (4) to (3)   PEASETP   60.00
2  32302 32496  "1 "    0     # TRAN from  YUBACITY  60.00   (4) to (1)   YCEC      13.80
2  32302 32494  "1 "    0     # TRAN from  YUBACITY  60.00  BRKR to (1)   YUBA CTY   9.11
1  32333 32320  "1 "    0     # line from  PEASETP   60.00   (3) to BRKR  MRYSVLLE  60.00
1  32333 32332  "1 "    0     # line from  PEASETP   60.00   (3) to BRKR  PEASE     60.00
4  32324     0  "1 "    0     # LOAD-DROP    HARTER    60.00  LOAD==22.66(1.01)
4  32324     0  "2 "    0     # LOAD-DROP    HARTER    60.00  LOAD==26.96(1.21)
4  32496     0  "ss"    0     # LOAD-DROP    YCEC      13.80  LOAD==1.39(0.32)
4  32494     0  "ss"    0     # LOAD-DROP    YUBA CTY   9.11  LOAD==0.32(0.07)
3  32496     0  "1 "    0     # GEN-DROP    YCEC      13.80  GEN==50.00(0.00)
3  32494     0  "1 "    0     # GEN-DROP    YUBA CTY   9.11  GEN==41.30(15.86)
0
 #
 #
 # (148)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32306 32342  "1 "    0     # line from  CATLETT   60.00   (1) to BRKR  E.NICOLS  60.00
4  32306     0  "1 "    0     # LOAD-DROP    CATLETT   60.00  LOAD==6.47(0.29)
0
 #
 #
 # (149)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32308 32311  "1 "    0     # line from  COLGATE   60.00  BRKR to (3)   NRRWS1TP  60.00
1  32311 32310  "1 "    0     # line from  NRRWS1TP  60.00   (3) to (2)   NARRWS 1  60.00
1  32311 32314  "1 "    0     # line from  NRRWS1TP  60.00   (3) to BRKR  SMRTSVLE  60.00
2  32310 32466  "1 "    0     # TRAN from  NARRWS 1  60.00   (2) to (1)   NARROWS1   9.11
4  32310     0  "1 "    0     # LOAD-DROP    NARRWS 1  60.00  LOAD==16.50(2.35)
3  32466     0  "1 "    0     # GEN-DROP    NARROWS1   9.11  GEN==10.00(5.30)
0
 #
 #
 # (150)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32308 32313  "2 "    0     # line from  COLGATE   60.00  BRKR to (3)   NRRWS2TP  60.00
1  32313 32312  "1 "    0     # line from  NRRWS2TP  60.00   (3) to (2)   NARRWS 2  60.00
1  32313 32314  "2 "    0     # line from  NRRWS2TP  60.00   (3) to BRKR  SMRTSVLE  60.00
2  32312 32468  "1 "    0     # TRAN from  NARRWS 2  60.00  BRKR to (1)   NARROWS2   9.11
4  32312     0  "2 "    0     # LOAD-DROP    NARRWS 2  60.00  LOAD==16.50(2.35)
3  32468     0  "1 "    0     # GEN-DROP    NARROWS2   9.11  GEN==45.00(5.23)
0
```

```
 #
 #
 # (151)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32308 32358  "1 "    0     # line from  COLGATE   60.00  BRKR to (2)   CLMBA HL  60.00
1  32358 32360  "1 "    0     # line from  CLMBA HL  60.00   (2) to (2)   PIKE CTY  60.00
1  32360 32362  "1 "    0     # line from  PIKE CTY  60.00   (2) to (1)   ALLEGHNY  60.00
4  32358     0  "1 "    0     # LOAD-DROP    CLMBA HL  60.00  LOAD==2.01(0.09)
4  32360     0  "1 "    0     # LOAD-DROP    PIKE CTY  60.00  LOAD==0.62(0.03)
4  32362     0  "1 "    0     # LOAD-DROP    ALLEGHNY  60.00  LOAD==1.51(0.07)
0
 #
 #
 # (152)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32308 32364  "1 "    0     # line from  COLGATE   60.00  BRKR to BRKR  GRSS VLY  60.00
4  32364     0  "2 "    0     # LOAD-DROP    GRSS VLY  60.00  LOAD==14.20(0.64)
1  32377 32364  "1 "    1     #Transfer Grass Valley load to alternate
4  32364     0  "**"    1     #Restore load at Grass Valley
0
 #
 #
 # (153)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32314 32316  "1 "    0     # line from  SMRTSVLE  60.00  BRKR to (1)   YUBAGOLD  60.00
4  32316     0  "1 "    0     # LOAD-DROP    YUBAGOLD  60.00  LOAD==0.17(0.15)
0
 #
 #
 # (154)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32314 32341  "2 "    0     # line from  SMRTSVLE  60.00  BRKR to (2)   BEALE1J1  60.00
1  32341 32346  "2 "    0     # line from  BEALE1J1  60.00   (2) to (1)   BEALE_1   60.00
4  32346     0  "1 "    0     # LOAD-DROP    BEALE_1   60.00  LOAD==5.75(3.01)
0
 #
 #
 # (155)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32314 32348  "1 "    0     # line from  SMRTSVLE  60.00  BRKR to (2)   BEALE2J2  60.00
1  32348 32352  "1 "    0     # line from  BEALE2J2  60.00   (2) to (2)   WEST JCT  60.00
1  32352 32354  "1 "    0     # line from  WEST JCT  60.00   (2) to (2)   CMP FRWT  60.00
2  32354 32470  "1 "    0     # TRAN from  CMP FRWT  60.00   (2) to (1)   CMP.FARW   9.11
3  32470     0  "1 "    0     # GEN-DROP    CMP.FARW   9.11  GEN==4.60(-1.86)
0
 #
 #
 # (156)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32314 32349  "1 "    0     # line from  SMRTSVLE  60.00  BRKR to (3)   BEALE2J1  60.00
1  32349 32345  "1 "    0     # line from  BEALE2J1  60.00   (3) to (1)   BEALE1J2  60.00
1  32349 32347  "1 "    0     # line from  BEALE2J1  60.00   (3) to (1)   BEALE_2   60.00
4  32347     0  "1 "    0     # LOAD-DROP    BEALE_2   60.00  LOAD==17.25(3.93)
0
 #
 #
 # (157)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32318 32320  "1 "    0     # line from  BRWNS VY  60.00   (1) to BRKR  MRYSVLLE  60.00
4  32318     0  "1 "    0     # LOAD-DROP    BRWNS VY  60.00  LOAD==3.29(0.15)
0
 #
 #
 # (158)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32322 32326  "1 "    0     # line from  ENCINAL   60.00   (1) to (3)   ENCL TAP  60.00
1  32326 32332  "1 "    0     # line from  ENCL TAP  60.00   (3) to BRKR  PEASE     60.00
1  32326 32334  "1 "    0     # line from  ENCL TAP  60.00   (3) to (2)   LIVE OAK  60.00
1  32334 38054  "1 "    0     # line from  LIVE OAK  60.00   (2) to (2)   GRIDLEY   60.00
1  38054 31642  "1 "    0     # line from  GRIDLEY   60.00   (2) to BRKR  PEACHTON  60.00
4  32322     0  "1 "    0     # LOAD-DROP    ENCINAL   60.00  LOAD==0.70(0.16)
4  32334     0  "1 "    0     # LOAD-DROP    LIVE OAK  60.00  LOAD==10.09(0.45)
4  38054     0  "1 "    0     # LOAD-DROP    GRIDLEY   60.00  LOAD==13.84(1.89)
0
```

```
 #
 #
 # (159)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32332 32320  "1 "    0    # line from  PEASE     60.00  BRKR to BRKR  MRYSVLLE  60.00
0
 #
 #
 # (160)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32338 32340  "1 "    0    # line from  BARRY     60.00   (1) to (2)   TUDOR     60.00
1  32340 32342  "1 "    0    # line from  TUDOR     60.00   (2) to BRKR  E.NICOLS  60.00
4  32338     0  "1 "    0    # LOAD-DROP    BARRY     60.00  LOAD==4.12(0.19)
4  32340     0  "1 "    0    # LOAD-DROP    TUDOR     60.00  LOAD==3.28(0.15)
0
 #
 #
 # (161)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32342 32079  "1 "    0    # line from  E.NICOLS  60.00  BRKR to (3)   DST1001B  60.00
1  32079 32083  "1 "    0    # line from  DST1001B  60.00   (3) to (1)   DIST1001  60.00
1  32079 32087  "1 "    0    # line from  DST1001B  60.00   (3) to (2)   KNTJALT   60.00
1  32087 32085  "1 "    0    # line from  KNTJALT   60.00   (2) to (2)   WOODJCT   60.00
1  32085 32084  "1 "    0    # line from  WOODJCT   60.00   (2) to (1)   WLLW SLJ  60.00
0
 #
 #
 # (162)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32342 32305  "2 "    0    # line from  E.NICOLS  60.00  BRKR to (2)   CATLETJT  60.00
1  32305 32351  "2 "    0    # line from  CATLETJT  60.00   (2) to (1)   WHTLNDAL  60.00
0
 #
 #
 # (163)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32342 32344  "1 "    0    # line from  E.NICOLS  60.00  BRKR to (1)   PLUMAS    60.00
4  32344     0  "1 "    0    # LOAD-DROP    PLUMAS    60.00  LOAD==24.70(1.10)
0
 #
 #
 # (164)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32342 32353  "1 "    0    # line from  E.NICOLS  60.00  BRKR to (2)   WHTLND1   60.00
1  32353 32350  "1 "    0    # line from  WHTLND1   60.00   (2) to (1)   WHEATLND  60.00
4  32350     0  "1 "    0    # LOAD-DROP    WHEATLND  60.00  LOAD==16.08(0.72)
1  32351 32350  "1"     1    #Transfer Wheatland to alternate
4  32350     0  "**"    1    #Restore load at Wheatland
0
 #
 #
 # (165)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32356 32404  "1 "    0    # line from  LINCOLN  115.00  BRKR to (3)   SPI  JCT 115.00
1  32404 32398  "1 "    0    # line from  SPI  JCT 115.00   (3) to (3)   ULTRA JT 115.00
1  32404 32400  "1 "    0    # line from  SPI  JCT 115.00   (3) to BRKR  SPI-LINC 115.00
1  32398 32402  "1 "    0    # line from  ULTRA JT 115.00   (3) to (2)   ULTR-RCK 115.00
1  32398 32414  "1 "    0    # line from  ULTRA JT 115.00   (3) to (2)   FORMICA  115.00
2  32402 32500  "1 "    0    # TRAN from  ULTR-RCK 115.00  BRKR to (1)   ULTR RCK   9.11
1  32414 32408  "1 "    0    # line from  FORMICA  115.00   (2) to BRKR  PLSNT GR 115.00
4  32500     0  "SG"    0    # LOAD-DROP    ULTR RCK   9.11  LOAD==1.42(0.32)
3  32500     0  "1 "    0    # GEN-DROP    ULTR RCK   9.11  GEN==22.10(-8.00)
0
 #
 #
 # (166)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32367 32369  "1 "    0    # line from  CPEHRNTP  60.00   (3) to (3)   COLFAXJT  60.00
1  32367 32368  "1 "    0    # line from  CPEHRNTP  60.00   (3) to (1)   CAPEHORN  60.00
1  32367 32376  "1 "    0    # line from  CPEHRNTP  60.00   (3) to (2)   BONNIE N  60.00
1  32369 32380  "1 "    0    # line from  COLFAXJT  60.00   (3) to BRKR  WEMR SWS  60.00
1  32369 32381  "1 "    0    # line from  COLFAXJT  60.00   (3) to (2)   SHADYGLN  60.00
1  32376 32374  "1 "    0    # line from  BONNIE N  60.00   (2) to BRKR  DRUM      60.00
1  32381 32377  "1 "    0    # line from  SHADYGLN  60.00   (2) to (2)   ROLLNSTP  60.00
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1  32377 32378  "1 "    0     # line from  ROLLNSTP  60.00   (2) to BRKR  ROLLINS   60.00
4  32368     0  "1 "    0     # LOAD-DROP    CAPEHORN  60.00  LOAD==2.39(1.29)
4  32376     0  "1 "    0     # LOAD-DROP    BONNIE N  60.00  LOAD==1.48(0.07)
4  32381     0  "1 "    0     # LOAD-DROP    SHADYGLN  60.00  LOAD==8.18(0.37)
0
 #
 #
 # (167)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32370 32382  "1 "    0     # line from  ENVRO_HY  60.00   (2) to (2)   FORST HL  60.00
1  32370 32384  "1 "    0     # line from  ENVRO_HY  60.00   (2) to BRKR  OXBOW     60.00
1  32382 32380  "1 "    0     # line from  FORST HL  60.00   (2) to BRKR  WEMR SWS  60.00
4  32382     0  "1 "    0     # LOAD-DROP    FORST HL  60.00  LOAD==8.27(0.37)
1  32384 32386  "1"     1     #Transfer to alternate
2  32384 32484  "1"     1     #Restore transformer
3  32484     0  "1"     1     #Restore generator
0
 #
 #
 # (168)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32372 32407  "1 "    0     # line from  SPAULDNG  60.00  BRKR to (3)   BOWMN TP  60.00
1  32407 32374  "1 "    0     # line from  BOWMN TP  60.00   (3) to BRKR  DRUM      60.00
1  32407 32406  "1 "    0     # line from  BOWMN TP  60.00   (3) to (3)   BOWMN PH  60.00
1  32406 32416  "1 "    0     # line from  BOWMN PH  60.00   (3) to (2)   HAYPRESS  60.00
2  32406 32480  "1 "    0     # TRAN from  BOWMN PH  60.00  BRKR to (1)   BOWMAN     9.11
2  32416 32488  "1 "    0     # TRAN from  HAYPRESS  60.00  BRKR to (1)   HAYPRES+   9.11
3  32480     0  "1 "    0     # GEN-DROP    BOWMAN     9.11  GEN==2.50(-1.00)
3  32488     0  "2 "    0     # GEN-DROP    HAYPRES+   9.11  GEN==1.90(-1.19)
0
 #
 #
 # (169)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32386 32388  "1 "    0     # line from  MDDLE FK  60.00  BRKR to BRKR  FRNCH MS  60.00
0
 #
 #
 # (170)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32390 32410  "1 "    0     # line from  HALSEY    60.00  BRKR to (3)   MTN_QJCT  60.00
1  32410 32392  "1 "    0     # line from  MTN_QJCT  60.00   (3) to (2)   AUBURN    60.00
1  32410 32411  "1 "    0     # line from  MTN_QJCT  60.00   (3) to (1)   MTN_QUAR  60.00
1  32392 32394  "1 "    0     # line from  AUBURN    60.00   (2) to BRKR  PLACER    60.00
4  32392     0  "1 "    0     # LOAD-DROP    AUBURN    60.00  LOAD==5.14(0.23)
4  32411     0  "1 "    0     # LOAD-DROP    MTN_QUAR  60.00  LOAD==14.25(0.64)
0
 #
 #
 # (171)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32412 32408  "1 "    0     # line from  ATLANTIC 115.00  BRKR to BRKR  PLSNT GR 115.00
0
 #
 #
 # (172)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32412 32408  "2 "    0     # line from  ATLANTIC 115.00  BRKR to BRKR  PLSNT GR 115.00
0
 #
 #
 # (173)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  32413 32272  "1 "    0     # line from  ATLANTI   60.00  BRKR to (1)   DEL MAR   60.00
4  32272     0  "1 "    0     # LOAD-DROP    DEL MAR   60.00  LOAD==17.40(0.00)
4  32272     0  "2 "    0     # LOAD-DROP    DEL MAR   60.00  LOAD==34.13(0.00)
0
 #
 #
 # (174)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33729 33736  "1 "    0     # line from  LODI AUX  60.00  BRKR to (2)   LODI JCT  60.00
1  33736 33724  "1 "    0     # line from  LODI JCT  60.00   (2) to BRKR  LOCKEFRD  60.00
0
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 #
 #
 # (175)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  64228 32218  "1 "    0     # line from  SUMMIT 1 115.00   (2) to BRKR  DRUM     115.00
2  64228 64107  "1 "    0     # TRAN from  SUMMIT 1 115.00   (2) to BRKR  SUMMIT 1 120.00
0
 #
 #
 # (176)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  64229 32218  "1 "    0     # line from  SUMMIT 2 115.00   (2) to BRKR  DRUM     115.00
2  64229 64108  "1 "    0     # TRAN from  SUMMIT 2 115.00   (2) to BRKR  SUMMIT 2 120.00
0
 #
 #
 # (177)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  30345 30346  "1 "    0     # TRAN from  MIDLFORK 230.00  BRKR to (3)   MDDLFK M 230.00
2  30346 32386  "4 "    0     # TRAN from  MDDLFK M 230.00   (3) to BRKR  MDDLE FK  60.00
2  30346 32456  "1 "    0     # TRAN from  MDDLFK M 230.00   (3) to (1)   MIDLFORK  13.80
3  32456     0  "1 "    0     # GEN-DROP    MIDLFORK  13.80  GEN==64.50(14.66)
3  32456     0  "2 "    0     # GEN-DROP    MIDLFORK  13.80  GEN==64.50(14.66)
1  30340 30345  "1 "    0     #Open Ralston-Middle Fork 230 kV section with outage
1  32386 32384  "1 "    0     #Open Ralston-Middle Fork 60 kV section with outage
1  32386 32388  "1 "    0     #Open French Meadows-Middle Fork 60 kV section with outage
0
 #
 #
 # (178)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  32018 30337  "1 "    0     # TRAN from  GOLDHILL 115.00  BRKR to BRKR  GOLDHILL 230.00
0
 #
 #
 # (179)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  32018 30337  "2 "    0     # TRAN from  GOLDHILL 115.00  BRKR to BRKR  GOLDHILL 230.00
0
 #
 #
 # (180)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  32110 32018  "5 "    0     # TRAN from  GOLD HLL  60.00  BRKR to BRKR  GOLDHILL 115.00
0
 #
 #
 # (181)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  32214 30330  "1 "    0     # TRAN from  RIO OSO  115.00  BRKR to BRKR  RIO OSO  230.00
0
 #
 #
 # (182)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  32214 30330  "2 "    0     # TRAN from  RIO OSO  115.00  BRKR to BRKR  RIO OSO  230.00
0
 #
 #
 # (183)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  32218 32242  "1 "    0     # TRAN from  DRUM     115.00  BRKR to (3)   DRUM  1M 115.00
2  32242 32374  "1 "    0     # TRAN from  DRUM  1M 115.00   (3) to BRKR  DRUM      60.00
2  32242 32504  "1 "    0     # TRAN from  DRUM  1M 115.00   (3) to (1)   DRUM 1-2   6.60
3  32504     0  "1 "    0     # GEN-DROP    DRUM 1-2   6.60  GEN==13.20(5.69)
3  32504     0  "2 "    0     # GEN-DROP    DRUM 1-2   6.60  GEN==12.60(5.43)
2  32218 32246  "1 "    0     # TRAN from  DRUM     115.00  BRKR to (3)   DRUM  2M 115.00
2  32246 32374  "2 "    0     # TRAN from  DRUM  2M 115.00   (3) to BRKR  DRUM      60.00
2  32246 32506  "1 "    0     # TRAN from  DRUM  2M 115.00   (3) to (1)   DRUM 3-4   6.60
3  32506     0  "1 "    0     # GEN-DROP    DRUM 3-4   6.60  GEN==13.20(5.58)
3  32506     0  "2 "    0     # GEN-DROP    DRUM 3-4   6.60  GEN==13.20(5.58)
0
 #
 #
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 # (184)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  32308 30327  "3 "    0     # TRAN from  COLGATE   60.00  BRKR to BRKR  COLGATE  230.00
0
 #
 #
 # (185)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  32330 32200  "2 "    0     # TRAN from  PEAS RG   60.00   (2) to BRKR  PEASE    115.00
2  32330 32332  "1 "    0     # TRAN from  PEAS RG   60.00   (2) to BRKR  PEASE     60.00
1  32200 32288  "1 "    0     #Open Pease-East Marysville Jct1 line section
4  32200     0  "3 "    0     #Drop Pease Bank No. 3
0
 #
 #
 # (186)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  32342 32212  "2 "    0     # TRAN from  E.NICOLS  60.00  BRKR to BRKR  E.NICOLS 115.00
1  32212 32214  "1 "    0     #Open East Nicolaus-Rio Oso 115 kV line section
1  32212 32214  "1 "    0     #Open East Nicolaus-East Marysville Jct2 115 kV line section
0
 #
 #
 # (187)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  32394 32228  "1 "    0     # TRAN from  PLACER    60.00  BRKR to BRKR  PLACER   115.00
0
 #
 #
 # (188)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  32412 30335  "3 "    0     # TRAN from  ATLANTIC 115.00  BRKR to BRKR  ATLANTC  230.00
0
 #
 #
 # (189)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  32412 30335  "4 "    0     # TRAN from  ATLANTIC 115.00  BRKR to BRKR  ATLANTC  230.00
0
 #
 #
 # (190)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  32413 30335  "1 "    0     # TRAN from  ATLANTI   60.00  BRKR to BRKR  ATLANTC  230.00
0
 #
 #
 # (191)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  32472 32372  "1 "    0     # TRAN from  SPAULDG    9.11   (1) to BRKR  SPAULDNG  60.00
3  32472     0  "1 "    0     # GEN-DROP    SPAULDG    9.11  GEN==7.00(-0.72)
3  32472     0  "2 "    0     # GEN-DROP    SPAULDG    9.11  GEN==4.20(-0.43)
3  32472     0  "3 "    0     # GEN-DROP    SPAULDG    9.11  GEN==1.70(-0.18)
0
 #
 #
 # (192)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  32486 32388  "1 "    0     # TRAN from  HELLHOLE   9.11   (1) to BRKR  FRNCH MS  60.00
0
 #
 #
 # (193)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  32490 32210  "1 "    0     # TRAN from  GRNLEAF1  13.80   (1) to BRKR  GLEAF 1  115.00
4  32490     0  "ss"    0     # LOAD-DROP    GRNLEAF1  13.80  LOAD==0.67(0.15)
3  32490     0  "1 "    0     # GEN-DROP    GRNLEAF1  13.80  GEN==40.00(-12.86)
3  32490     0  "2 "    0     # GEN-DROP    GRNLEAF1  13.80  GEN==9.50(-3.05)
0
 #
 #
 # (194)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  32498 32400  "1 "    0     # TRAN from  SPILINCF  12.50   (1) to BRKR  SPI-LINC 115.00
```

```
4  32498    0  "1 "   0    # LOAD-DROP    SPILINCF  12.50  LOAD==7.50(7.65)
4  32498    0  "SG"   0    # LOAD-DROP    SPILINCF  12.50  LOAD==1.10(0.60)
3  32498    0  "1 "   0    # GEN-DROP    SPILINCF  12.50  GEN==18.30(2.45)
0
 #
 #
 # (195)  B1 GENERATOR OUTAGE
 #
3  32450    0  "1"    0    # COLGATE1  13.80      PGEN=147.00  QGEN=20.11
0
 #
 #
 # (196)  B1 GENERATOR OUTAGE
 #
3  32451    0  "1"    0    # FREC      13.80      PGEN=50.00  QGEN=8.28
0
 #
 #
 # (197)  B1 GENERATOR OUTAGE
 #
3  32452    0  "1"    0    # COLGATE2  13.80      PGEN=147.00  QGEN=20.11
0
 #
 #
 # (198)  B1 GENERATOR OUTAGE
 #
3  32454    0  "1"    0    # DRUM 5    13.80      PGEN=42.50  QGEN=15.00
0
 #
 #
 # (199)  B1 GENERATOR OUTAGE
 #
3  32456    0  "1"    0    # MIDLFORK  13.80      PGEN=64.50  QGEN=13.48
0
 #
 #
 # (200)  B1 GENERATOR OUTAGE
 #
3  32456    0  "2"    0    # MIDLFORK  13.80      PGEN=64.50  QGEN=13.48
0
 #
 #
 # (201)  B1 GENERATOR OUTAGE
 #
3  32458    0  "1"    0    # RALSTON   13.80      PGEN=83.00  QGEN=13.11
0
 #
 #
 # (202)  B1 GENERATOR OUTAGE
 #
3  32462    0  "1"    0    # CHI.PARK  11.50      PGEN=37.88  QGEN=11.50
0
 #
 #
 # (203)  B1 GENERATOR OUTAGE
 #
3  32464    0  "1"    0    # DTCHFLT1  11.00      PGEN=22.00  QGEN=11.45
0
 #
 #
 # (204)  B1 GENERATOR OUTAGE
 #
3  32466    0  "1"    0    # NARROWS1   9.11      PGEN=10.00  QGEN=5.30
0
 #
 #
 # (205)  B1 GENERATOR OUTAGE
 #
3  32468    0  "1"    0    # NARROWS2   9.11      PGEN=45.00  QGEN=1.30
0
 #
 #
 # (206)  B1 GENERATOR OUTAGE
 #
```

```
3  32470    0  "1"    0    # CMP.FARW   9.11      PGEN=4.60  QGEN=-2.29
0
 #
 #
 # (207)  B1 GENERATOR OUTAGE
 #
3  32472    0  "1"    0    # SPAULDG    9.11      PGEN=7.00  QGEN=-2.90
0
 #
 #
 # (208)  B1 GENERATOR OUTAGE
 #
3  32472    0  "2"    0    # SPAULDG    9.11      PGEN=4.16  QGEN=-1.00
0
 #
 #
 # (209)  B1 GENERATOR OUTAGE
 #
3  32472    0  "3"    0    # SPAULDG    9.11      PGEN=1.70  QGEN=-1.04
0
 #
 #
 # (210)  B1 GENERATOR OUTAGE
 #
3  32474    0  "1"    0    # DEER CRK   9.11      PGEN=3.07  QGEN=-2.20
0
 #
 #
 # (211)  B1 GENERATOR OUTAGE
 #
3  32476    0  "1"    0    # ROLLINSF   9.11      PGEN=12.00  QGEN=-0.00
0
 #
 #
 # (212)  B1 GENERATOR OUTAGE
 #
3  32478    0  "1"    0    # HALSEY F   9.11      PGEN=8.57  QGEN=1.34
0
 #
 #
 # (213)  B1 GENERATOR OUTAGE
 #
3  32480    0  "1"    0    # BOWMAN     9.11      PGEN=2.46  QGEN=-1.00
0
 #
 #
 # (214)  B1 GENERATOR OUTAGE
 #
3  32484    0  "1"    0    # OXBOW  F   9.11      PGEN=5.40  QGEN=2.00
0
 #
 #
 # (215)  B1 GENERATOR OUTAGE
 #
3  32488    0  "2"    0    # HAYPRES+   9.11      PGEN=1.90  QGEN=-2.50
0
 #
 #
 # (216)  B1 GENERATOR OUTAGE
 #
3  32490    0  "1"    0    # GRNLEAF1  13.80      PGEN=40.00  QGEN=-13.86
0
 #
 #
 # (217)  B1 GENERATOR OUTAGE
 #
3  32490    0  "2"    0    # GRNLEAF1  13.80      PGEN=9.50  QGEN=-3.29
0
 #
 #
 # (218)  B1 GENERATOR OUTAGE
 #
3  32492    0  "1"    0    # GRNLEAF2  13.80      PGEN=49.00  QGEN=16.68
0
```

```
 #
 #
 # (219)  B1 GENERATOR OUTAGE
 #
3  32494     0  "1"     0     # YUBA CTY   9.11       PGEN=41.31  QGEN=9.01
0
 #
 #
 # (220)  B1 GENERATOR OUTAGE
 #
3  32496     0  "1"     0     # YCEC      13.80       PGEN=50.00  QGEN=4.39
0
 #
 #
 # (221)  B1 GENERATOR OUTAGE
 #
3  32498     0  "1"     0     # SPILINCF  12.50       PGEN=18.30  QGEN=4.66
0
 #
 #
 # (222)  B1 GENERATOR OUTAGE
 #
3  32500     0  "1"     0     # ULTR RCK   9.11       PGEN=22.12  QGEN=12.00
0
 #
 #
 # (223)  B1 GENERATOR OUTAGE
 #
3  32502     0  "1"     0     # DTCHFLT2   6.90       PGEN=24.50  QGEN=5.88
0
 #
 #
 # (224)  B1 GENERATOR OUTAGE
 #
3  32504     0  "1"     0     # DRUM 1-2   6.60       PGEN=13.20  QGEN=5.15
0
 #
 #
 # (225)  B1 GENERATOR OUTAGE
 #
3  32504     0  "2"     0     # DRUM 1-2   6.60       PGEN=12.60  QGEN=4.92
0
 #
 #
 # (226)  B1 GENERATOR OUTAGE
 #
3  32506     0  "1"     0     # DRUM 3-4   6.60       PGEN=13.20  QGEN=5.06
0
 #
 #
 # (227)  B1 GENERATOR OUTAGE
 #
3  32506     0  "2"     0     # DRUM 3-4   6.60       PGEN=13.20  QGEN=5.06
0
 #
 #
 # (228)  B1 GENERATOR OUTAGE
 #
3  32508     0  "1"     0     # FRNCH MD   4.16       PGEN=16.40  QGEN=3.14
0
 #
 #
 # (229)  B1 GENERATOR OUTAGE
 #
3  32510     0  "1"     0     # CHILIBAR   4.16       PGEN=5.50  QGEN=4.00
0
 #
 #
 # (230)  B1 GENERATOR OUTAGE
 #
3  32512     0  "1"     0     # WISE      12.00       PGEN=11.15  QGEN=4.29
0
 #
 #
```

```
 # (231)  B1 GENERATOR OUTAGE
 #
3  32513     0  "1"     0     # ELDRADO1  21.60       PGEN=9.96  QGEN=-0.77
0
 #
 #
 # (232)  B1 GENERATOR OUTAGE
 #
3  32514     0  "1"     0     # ELDRADO2  21.60       PGEN=9.96  QGEN=-0.77
0
 #
 #
 # (233)  B1 GENERATOR OUTAGE
 #
3  32515     0  "1"     0     # Q259CT1   18.00       PGEN=173.00  QGEN=33.36
0
 #
 #
 # (234)  B1 GENERATOR OUTAGE
 #
3  32516     0  "1"     0     # Q259ST1   18.00       PGEN=188.00  QGEN=27.79
0
 #
 #
 # (235)  B1 GENERATOR OUTAGE
 #
3  32517     0  "1"     0     # Q266CT1   18.00       PGEN=173.00  QGEN=45.33
0
 #
 #
 # (236)  B1 GENERATOR OUTAGE
 #
3  32518     0  "1"     0     # Q266ST1   18.00       PGEN=188.00  QGEN=30.71
0
 #
 #
 # (237)  L-1/G-1 OVERLAPPING OUTAGE
 # Pease - Marysville - Harter 60 kV Line and Greenleaf 2
1  32302 32324  "1 "    0     # line from  YUBACITY  60.00   (4) to (1)   HARTER    60.00
1  32302 32333  "1 "    0     # line from  YUBACITY  60.00   (4) to (3)   PEASETP   60.00
2  32302 32496  "1 "    0     # TRAN from  YUBACITY  60.00   (4) to (1)   YCEC      13.80
2  32302 32494  "1 "    0     # TRAN from  YUBACITY  60.00  BRKR to (1)   YUBA CTY   9.11
1  32333 32320  "1 "    0     # line from  PEASETP   60.00   (3) to BRKR  MRYSVLLE  60.00
1  32333 32332  "1 "    0     # line from  PEASETP   60.00   (3) to BRKR  PEASE     60.00
4  32324     0  "1 "    0     # LOAD-DROP    HARTER    60.00  LOAD==22.66(1.01)
4  32324     0  "2 "    0     # LOAD-DROP    HARTER    60.00  LOAD==26.96(1.21)
4  32496     0  "ss"    0     # LOAD-DROP    YCEC      13.80  LOAD==1.39(0.32)
4  32494     0  "ss"    0     # LOAD-DROP    YUBA CTY   9.11  LOAD==0.32(0.07)
3  32496     0  "1 "    0     # GEN-DROP    YCEC      13.80  GEN==50.00(0.00)
3  32494     0  "1 "    0     # GEN-DROP    YUBA CTY   9.11  GEN==41.30(15.86)
 #
3  32492     0  "1"     0     # GRNLEAF2  13.80       PGEN=49.00  QGEN=16.68
0
 #
 #
 # (238)  L-1/G-1 OVERLAPPING OUTAGE
 # Colgate - Smartville #2 60 kV Line and Narrows 2
1  32308 32311  "1 "    0     # line from  COLGATE   60.00  BRKR to (3)   NRRWS1TP  60.00
1  32311 32310  "1 "    0     # line from  NRRWS1TP  60.00   (3) to (2)   NARRWS 1  60.00
1  32311 32314  "1 "    0     # line from  NRRWS1TP  60.00   (3) to BRKR  SMRTSVLE  60.00
2  32310 32466  "1 "    0     # TRAN from  NARRWS 1  60.00   (2) to (1)   NARROWS1   9.11
4  32310     0  "1 "    0     # LOAD-DROP    NARRWS 1  60.00  LOAD==16.50(2.35)
3  32466     0  "1 "    0     # GEN-DROP    NARROWS1   9.11  GEN==10.00(5.30)
 #
3  32468     0  "1"     0     # NARROWS2   9.11       PGEN=45.00  QGEN=1.30
0
 #
 #
 # (239)  L-1/G-1 OVERLAPPING OUTAGE
 # Colgate - Smartville #2 60 kV Line and Camp Far West
1  32308 32311  "1 "    0     # line from  COLGATE   60.00  BRKR to (3)   NRRWS1TP  60.00
1  32311 32310  "1 "    0     # line from  NRRWS1TP  60.00   (3) to (2)   NARRWS 1  60.00
1  32311 32314  "1 "    0     # line from  NRRWS1TP  60.00   (3) to BRKR  SMRTSVLE  60.00
2  32310 32466  "1 "    0     # TRAN from  NARRWS 1  60.00   (2) to (1)   NARROWS1   9.11
```

```
4  32310    0  "1 "   0    # LOAD-DROP    NARRWS 1  60.00  LOAD==16.50(2.35)
3  32466    0  "1 "   0    # GEN-DROP    NARROWS1   9.11  GEN==10.00(5.30)
 #
3  32470    0  "1"    0    # CMP.FARW   9.11      PGEN=4.60  QGEN=-2.29
0
 #
 #
 # (240) Overlapping Outage (L-1/G-1)
 # Palermo - Pease 115 kV Line and Greenleaf 2
1  32200 31506  "1 "   0    # line from  PEASE    115.00  BRKR to (2)   HONC JT1 115.00
1  31506 31482  "1 "   0    # line from  HONC JT1 115.00   (2) to BRKR  PALERMO  115.00
 #
3  32492    0  "1"    0    # GRNLEAF2  13.80      PGEN=49.00  QGEN=16.68
0
 #
 #
 # (241) Overlapping Outage (L-1/G-1)
 # Drum - Rio Oso #2 115 kV Line and Drum 5
1  32214 32244  "2 "   0    # line from  RIO OSO  115.00  BRKR to (3)   BRNSWCKP 115.00
1  32244 32218  "2 "   0    # line from  BRNSWCKP 115.00   (3) to BRKR  DRUM     115.00
1  32244 32226  "2 "   0    # line from  BRNSWCKP 115.00   (3) to (1)   BRUNSWCK 115.00
4  32226    0  "2 "   0    # LOAD-DROP    BRUNSWCK 115.00  LOAD==30.46(1.37)
4  32226    0  "3 "   0    # LOAD-DROP    BRUNSWCK 115.00  LOAD==8.00(0.36)
 #
3  32454    0  "1"    0    # DRUM 5    13.80      PGEN=42.50  QGEN=15.00
0
 #
 #
 # (242) Overlapping Outage (L-1/G-1)
 # Placer - Goldhill #1 115 kV Line and Wise PH
1  32018 32229  "1 "   0    # line from  GOLDHILL 115.00  BRKR to (3)   HORSHE1  115.00
1  32229 32230  "1 "   0    # line from  HORSHE1  115.00   (3) to (1)   HORSESHE 115.00
1  32229 32233  "1 "   0    # line from  HORSHE1  115.00   (3) to (3)   NEWCSTL1 115.00
1  32233 32234  "1 "   0    # line from  NEWCSTL1 115.00   (3) to (2)   NEWCSTLE 115.00
1  32233 32236  "1 "   0    # line from  NEWCSTL1 115.00   (3) to (2)   FLINT1   115.00
2  32234 32460  "1 "   0    # TRAN from  NEWCSTLE 115.00   (2) to (1)   NEWCSTLE  13.20
1  32236 32228  "1 "   0    # line from  FLINT1   115.00   (2) to BRKR  PLACER   115.00
4  32230    0  "1 "   0    # LOAD-DROP    HORSESHE 115.00  LOAD==15.79(0.71)
4  32230    0  "2 "   0    # LOAD-DROP    HORSESHE 115.00  LOAD==36.15(1.61)
1  32230 32231  "1"    1    #Transfer load to alternate
4  32230    0  "**"   1    #Restore load at Horseshoe
 #
3  32512    0  "1"    0    # WISE      12.00      PGEN=11.15  QGEN=4.29
0
 #
 #
 # (243) Overlapping Outage (L-1/G-1)
 # Palermo - E. Nicolaus 115 kV Line and Greenleaf 1 Unit 1 spring outage
1  31482 32280  "1 "   0    # line from  PALERMO  115.00  BRKR to (3)   E.MRY J2 115.00
1  32280 32202  "1 "   0    # line from  E.MRY J2 115.00   (3) to (1)   E.MRYSVE 115.00
1  32280 32212  "1 "   0    # line from  E.MRY J2 115.00   (3) to BRKR  E.NICOLS 115.00
4  32202    0  "2 "   0    # LOAD-DROP    E.MRYSVE 115.00  LOAD==10.55(0.47)
4  32202    0  "3 "   0    # LOAD-DROP    E.MRYSVE 115.00  LOAD==9.73(0.44)
1  32288 32202  "1"    1    #Transfer load to E. Marysville Alt. 1 spring
4  32202    0  "**"   1    #Restore load at E. Marysville spring
 #
3  32490    0  "1"    0    # GRNLEAF1  13.80      PGEN=40.00  QGEN=-13.86
0
 #
 #
 # (244) Overlapping Outage (L-1/G-1)
 # Rio Oso - Goldhill 230 kV Line and Ralston
1  30330 30337  "1 "   0    # line from  RIO OSO  230.00  BRKR to BRKR  GOLDHILL 230.00
 #
3  32458    0  "1"    0    # RALSTON   13.80      PGEN=83.00  QGEN=13.11
0
 #
 #
 # (245) Overlapping Outage (L-1/G-1)
 # Colgate - Rio Oso 230 kV Line and Greanleaf 1 Unit 1
1  30327 30330  "1 "   0    # line from  COLGATE  230.00  BRKR to BRKR  RIO OSO  230.00
2  30327 32452  "1 "   0    #Take one transformer out with Colgate-Rio Oso 230 kV line outage
3  32452    0  "1 "   0    #Take one generator out with Colgate-Rio Oso 230 kV line outage
 #
```

```
3  32490     0  "1"    0    # GRNLEAF1  13.80      PGEN=40.00  QGEN=-13.86
0
 #
 #
 # (246) Overlapping Outage (L-1/G-1)
 # Table Mountain - Rio Oso 230 kV Line and Greanleaf 1 Unit 1
1  30300 30330  "1 "    0    # line from  TBL MT D 230.00  BRKR to BRKR  RIO OSO  230.00
 #
3  32490     0  "1"    0    # GRNLEAF1  13.80      PGEN=40.00  QGEN=-13.86
0
 #
 #
 # (247) Overlapping Outage (L-1/G-1)
 # Palermo - Colgate 230 kV Line and Greanleaf 1 Unit 1
1  30325 30327  "1 "    0    # line from  PALERMO  230.00  BRKR to BRKR  COLGATE  230.00
2  30327 32450  "1 "    0    #Take one transformer out with Palermo-Colgate 230 kV line outage
3  32450     0  "1 "    0    #Take one generator out with Palermo-Colgate 230 kV line outage
 #
3  32490     0  "1"    0    # GRNLEAF1  13.80      PGEN=40.00  QGEN=-13.86
0
 #
 #
 # (248) Overlapping Outage (L-1/G-1)
 # Palermo - Bogue 115 kV Line and Greanleaf 1 Unit 1
1  31508 32286  "1 "    0    # line from  HONC JT3 115.00   (3) to (2)   OLIVH J3 115.00
1  31508 31482  "1 "    0    # line from  HONC JT3 115.00   (3) to BRKR  PALERMO  115.00
1  31508 31484  "1 "    0    # line from  HONC JT3 115.00   (3) to (1)   HONCUT   115.00
1  32286 32206  "1 "    0    # line from  OLIVH J3 115.00   (2) to BRKR  BOGUE    115.00
4  31484     0  "1 "    0    # LOAD-DROP    HONCUT   115.00  LOAD==16.18(0.73)
 #
3  32490     0  "1"    0    # GRNLEAF1  13.80      PGEN=40.00  QGEN=-13.86
0
 #
 #
 # (249) Overlapping Outage (L-1/G-1)
 # Pease - Rio Oso 115 kV Line and Greanleaf 1 Unit 1 spring outage
1  32200 32288  "1 "    0    # line from  PEASE    115.00  BRKR to (3)   E.MRY J1 115.00
1  32288 32290  "1 "    0    # line from  E.MRY J1 115.00   (3) to (3)   OLIVH J1 115.00
1  32290 32204  "1 "    0    # line from  OLIVH J1 115.00   (3) to (1)   OLIVHRST 115.00
1  32290 32214  "1 "    0    # line from  OLIVH J1 115.00   (3) to BRKR  RIO OSO  115.00
4  32204     0  "1 "    0    # LOAD-DROP    OLIVHRST 115.00  LOAD==6.71(0.30)
4  32204     0  "2 "    0    # LOAD-DROP    OLIVHRST 115.00  LOAD==21.33(0.95)
1  32204 32286  "1"     1    #Transfer Olivehurst to alternate
4  32204     0  "**"    1    #Restore load Olivehurst
 #
3  32490     0  "1"    0    # GRNLEAF1  13.80      PGEN=40.00  QGEN=-13.86
0
 #
 #
 # (250) Overlapping Outage (L-1/G-1)
 # Rio Oso - E. Nicolaus 115 kV Line and Greanleaf 1 Unit 1
1  32212 32214  "1 "    0    # line from  E.NICOLS 115.00  BRKR to BRKR  RIO OSO  115.00
 #
3  32490     0  "1"    0    # GRNLEAF1  13.80      PGEN=40.00  QGEN=-13.86
0
 #
 #
 # (251) Overlapping Outage (L-1/G-1)
 # Drum - Higgins 115 kV Line and Wise PH
1  32218 32220  "1 "    0    # line from  DRUM     115.00  BRKR to (3)   DTCH FL1 115.00
1  32220 32224  "1 "    0    # line from  DTCH FL1 115.00   (3) to (3)   CHCGO PK 115.00
2  32220 32464  "1 "    0    # TRAN from  DTCH FL1 115.00  BRKR to (1)   DTCHFLT1  11.00
1  32224 32232  "1 "    0    # line from  CHCGO PK 115.00   (3) to BRKR  HIGGINS  115.00
2  32224 32462  "1 "    0    # TRAN from  CHCGO PK 115.00  BRKR to (1)   CHI.PARK  11.50
3  32464     0  "1 "    0    # GEN-DROP    DTCHFLT1  11.00  GEN==22.00(12.70)
3  32462     0  "1 "    0    # GEN-DROP    CHI.PARK  11.50  GEN==37.90(14.75)
 #
3  32512     0  "1"    0    # WISE      12.00       PGEN=11.15  QGEN=4.29
0
 #
 #
 # (252) Overlapping Outage (L-1/G-1)
 # Higgins - Bell 115 kV Line and Wise PH
1  32232 32238  "1 "    0    # line from  HIGGINS  115.00  BRKR to BRKR  BELL PGE 115.00
```

```
3  32464    0  "**"   0    #Drop Dutch Flat No. 1 generator during Higgins-Bell 115 kV outage
3  32462    0  "**"   0    #Drop Chicago Park generator during Higgins-Bell 115 kV outage
 #
3  32512    0  "1"    0    # WISE     12.00      PGEN=11.15  QGEN=4.29
0
 #
 #
 # (253) Overlapping Outage (L-1/G-1)
 # Drum - Rio Oso #1 115 kV Line and Wise PH
1  32214 32225  "1 "   0    # line from  RIO OSO  115.00  BRKR to (3)   BRNSWKTP 115.00
1  32225 32222  "1 "   0    # line from  BRNSWKTP 115.00   (3) to (3)   DTCH FL2 115.00
1  32225 32227  "2 "   0    # line from  BRNSWKTP 115.00   (3) to (1)   BRNSWALT 115.00
1  32222 32218  "1 "   0    # line from  DTCH FL2 115.00   (3) to BRKR  DRUM     115.00
2  32222 32502  "1 "   0    # TRAN from  DTCH FL2 115.00  BRKR to (1)   DTCHFLT2   6.90
4  32227    0  "1 "   0    # LOAD-DROP    BRNSWALT 115.00  LOAD==24.08(1.08)
3  32502    0  "1 "   0    # GEN-DROP    DTCHFLT2   6.90  GEN==24.50(9.66)
 #
3  32512    0  "1"    0    # WISE     12.00      PGEN=11.15  QGEN=4.29
0
 #
 #
 # (254) Overlapping Outage (L-1/G-1)
 # Bogue - Rio Oso 115 kV Line and Greenleaf 2
1  32206 32208  "1 "   0    # line from  BOGUE    115.00  BRKR to (3)   GLEAF TP 115.00
1  32208 32210  "1 "   0    # line from  GLEAF TP 115.00   (3) to (2)   GLEAF 1  115.00
1  32208 32214  "1 "   0    # line from  GLEAF TP 115.00   (3) to BRKR  RIO OSO  115.00
2  32210 32490  "1 "   0    # TRAN from  GLEAF 1  115.00  BRKR to (1)   GRNLEAF1  13.80
4  32490    0  "ss"   0    # LOAD-DROP    GRNLEAF1  13.80  LOAD==0.67(0.15)
3  32490    0  "1 "   0    # GEN-DROP    GRNLEAF1  13.80  GEN==40.00(-12.86)
3  32490    0  "2 "   0    # GEN-DROP    GRNLEAF1  13.80  GEN==9.50(-3.05)
 #
3  32492    0  "1"    0    # GRNLEAF2  13.80      PGEN=49.00  QGEN=16.68
0
 #
 #
 # (255) Overlapping Outage (L-1/G-1)
 # Table Mountain - Pease 60 kV Line and Greenleaf 2
1  31640 31644  "1 "   0    # line from  TRES VIS  60.00   (2) to (3)   BIGGSJCT  60.00
1  31640 31718  "1 "   0    # line from  TRES VIS  60.00   (2) to BRKR  TBLE MTN  60.00
1  31644 31642  "1 "   0    # line from  BIGGSJCT  60.00   (3) to BRKR  PEACHTON  60.00
1  31644 38052  "1 "   0    # line from  BIGGSJCT  60.00   (3) to (1)   BIGGS     60.00
4  31640    0  "1 "   0    # LOAD-DROP    TRES VIS  60.00  LOAD==8.30(0.37)
4  38052    0  "1 "   0    # LOAD-DROP    BIGGS     60.00  LOAD==4.75(1.60)
 #
3  32492    0  "1"    0    # GRNLEAF2  13.80      PGEN=49.00  QGEN=16.68
0
 #
 #
 # (256) Overlapping Outage (L-1/G-1)
 # Pease - Marysville - Harter 60 kV Line and Narrows 2
1  32302 32324  "1 "   0    # line from  YUBACITY  60.00   (4) to (1)   HARTER    60.00
1  32302 32333  "1 "   0    # line from  YUBACITY  60.00   (4) to (3)   PEASETP   60.00
2  32302 32496  "1 "   0    # TRAN from  YUBACITY  60.00   (4) to (1)   YCEC      13.80
2  32302 32494  "1 "   0    # TRAN from  YUBACITY  60.00  BRKR to (1)   YUBA CTY   9.11
1  32333 32320  "1 "   0    # line from  PEASETP   60.00   (3) to BRKR  MRYSVLLE  60.00
1  32333 32332  "1 "   0    # line from  PEASETP   60.00   (3) to BRKR  PEASE     60.00
4  32324    0  "1 "   0    # LOAD-DROP    HARTER    60.00  LOAD==22.66(1.01)
4  32324    0  "2 "   0    # LOAD-DROP    HARTER    60.00  LOAD==26.96(1.21)
4  32496    0  "ss"   0    # LOAD-DROP    YCEC      13.80  LOAD==1.39(0.32)
4  32494    0  "ss"   0    # LOAD-DROP    YUBA CTY   9.11  LOAD==0.32(0.07)
3  32496    0  "1 "   0    # GEN-DROP    YCEC      13.80  GEN==50.00(0.00)
3  32494    0  "1 "   0    # GEN-DROP    YUBA CTY   9.11  GEN==41.30(15.86)
 #
3  32468    0  "1"    0    # NARROWS2   9.11      PGEN=45.00  QGEN=1.30
0
 #
 #
 # (257) Overlapping Outage (L-1/G-1)
 # Colgate - Rio Oso 230 kV Line and Belden
1  30327 30330  "1 "   0    # line from  COLGATE  230.00  BRKR to BRKR  RIO OSO  230.00
2  30327 32452  "1 "   0    #Take one transformer out with Colgate-Rio Oso 230 kV line outage
3  32452    0  "1 "   0    #Take one generator out with Colgate-Rio Oso 230 kV line outage
 #
3  31784    0  "1"    0    # BELDEN    13.80      PGEN=107.00  QGEN=27.77
```

```
0
 #
 #
 # (258) Overlapping Outage (L-1/G-1)
 # Bogue - Rio Oso 115 kV Line and FREC
1  32206 32208  "1 "    0     # line from  BOGUE    115.00  BRKR to (3)   GLEAF TP 115.00
1  32208 32210  "1 "    0     # line from  GLEAF TP 115.00   (3) to (2)   GLEAF 1  115.00
1  32208 32214  "1 "    0     # line from  GLEAF TP 115.00   (3) to BRKR  RIO OSO  115.00
2  32210 32490  "1 "    0     # TRAN from  GLEAF 1  115.00  BRKR to (1)   GRNLEAF1  13.80
4  32490     0  "ss"    0     # LOAD-DROP    GRNLEAF1  13.80  LOAD==0.67(0.15)
3  32490     0  "1 "    0     # GEN-DROP    GRNLEAF1  13.80  GEN==40.00(-12.86)
3  32490     0  "2 "    0     # GEN-DROP    GRNLEAF1  13.80  GEN==9.50(-3.05)
 #
3  32451     0  "1"     0     # FREC      13.80       PGEN=50.00  QGEN=8.28
0
 #
 #
 # (259) Overlapping Outage (L-1/G-1)
 # Woodleaf - Palermo 115 kV Line and Greenleaf 1 Unit 1
1  31470 31472  "1 "    0     # line from  SLYCREEK 115.00   (2) to (4)   WODLF TP 115.00
2  31470 31832  "1 "    0     # TRAN from  SLYCREEK 115.00  BRKR to (1)   SLY.CR.    9.11
1  31472 31474  "1 "    0     # line from  WODLF TP 115.00   (4) to (3)   FRBSTNTP 115.00
2  31472 31794  "1 "    0     # TRAN from  WODLF TP 115.00  BRKR to (1)   WOODLEAF  13.80
2  31472 31862  "1 "    0     # TRAN from  WODLF TP 115.00  BRKR to (1)   DEADWOOD   9.11
1  31474 31476  "1 "    0     # line from  FRBSTNTP 115.00   (3) to (3)   OWID     115.00
2  31474 31814  "1 "    0     # TRAN from  FRBSTNTP 115.00  BRKR to (1)   FORBSTWN  11.50
1  31476 31475  "1 "    0     # line from  OWID     115.00   (3) to (1)   KANAKAJT 115.00
1  31476 31482  "1 "    0     # line from  OWID     115.00   (3) to BRKR  PALERMO  115.00
4  31475     0  "KK"    0     # LOAD-DROP    KANAKAJT 115.00  LOAD==1.19(0.05)
3  31832     0  "1 "    0     # GEN-DROP    SLY.CR.    9.11  GEN==9.50(0.62)
3  31794     0  "1 "    0     # GEN-DROP    WOODLEAF  13.80  GEN==55.00(2.34)
3  31814     0  "1 "    0     # GEN-DROP    FORBSTWN  11.50  GEN==30.00(2.09)
 #
3  32490     0  "1"     0     # GRNLEAF1  13.80       PGEN=40.00  QGEN=-13.86
0
 #
 #
 # (260) Overlapping Outage (L-1/G-1)
 # Rio Oso - Atlantic 230 kV Line and Ralston
1  30330 30335  "1 "    0     # line from  RIO OSO  230.00  BRKR to BRKR  ATLANTC  230.00
 #
3  32458     0  "1"     0     # RALSTON   13.80       PGEN=83.00  QGEN=13.11
0
 #
 #
 # (261) Overlapping Outage (L-1/G-1)
 # Atlantic - Pleasant Grove #1 115 kV Line and Rio Bravoe
1  32412 32408  "1 "    0     # line from  ATLANTIC 115.00  BRKR to BRKR  PLSNT GR 115.00
 #
3  32500     0  "1"     0     # ULTR RCK   9.11       PGEN=22.12  QGEN=12.00
0
 #
 #
 # (262) Overlapping Outage (L-1/G-1)
 # Atlantic - Pleasant Grove #2 115 kV Line and Rio Bravoe
1  32412 32408  "2 "    0     # line from  ATLANTIC 115.00  BRKR to BRKR  PLSNT GR 115.00
 #
3  32500     0  "1"     0     # ULTR RCK   9.11       PGEN=22.12  QGEN=12.00
0
 #
 #
 # (263) Overlapping Outage (L-1/G-1)
 # El Dorado - Missouri Flat #2 115 kV Line and El Dorado PH1
1  32250 32481  "2 "    0     # line from  ELDORAD  115.00  BRKR to (2)   APLHTAP2 115.00
1  32481 32257  "2 "    0     # line from  APLHTAP2 115.00   (2) to (4)   PLCRVLT2 115.00
1  32257 32254  "2 "    0     # line from  PLCRVLT2 115.00   (4) to (2)   PLCRVLB2 115.00
1  32257 32260  "2 "    0     # line from  PLCRVLT2 115.00   (4) to BRKR  MIZOU_T2 115.00
2  32257 32510  "1 "    0     # TRAN from  PLCRVLT2 115.00   (4) to (1)   CHILIBAR   4.16
1  32254 32256  "1 "    0     # line from  PLCRVLB2 115.00   (2) to (1)   PLCRVLB3 115.00
4  32254     0  "2 "    0     # LOAD-DROP    PLCRVLB2 115.00  LOAD==9.02(0.41)
4  32256     0  "3 "    0     # LOAD-DROP    PLCRVLB3 115.00  LOAD==25.95(1.16)
3  32510     0  "1 "    0     # GEN-DROP    CHILIBAR   4.16  GEN==5.50(4.00)
1  32256 32255  "1 "    1     #Transfer Placerville to alternate
4  32256     0  "**"    1     #Restore load Bank 3 at Placerville
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1  32254 32256  "1 "    1     #Transfer Placerville to alternate
4  32254     0  "**"    1     #Restore load Bank 2 at Placerville
 #
3  32513     0  "1"     0     # ELDRADO1  21.60       PGEN=9.96  QGEN=-0.77
0
 #
 #
 # (264) Overlapping Outage (L-1/G-1)
 # Goldhill - Clarksville 115 kV Line and El Dorado PH1
1  32018 32263  "1 "    0     # line from  GOLDHILL 115.00  BRKR to (1)   CLRKSVLE 115.00
4  32263     0  "1 "    0     # LOAD-DROP    CLRKSVLE 115.00  LOAD==44.58(2.00)
4  32263     0  "2 "    0     # LOAD-DROP    CLRKSVLE 115.00  LOAD==47.39(2.12)
4  32263     0  "3 "    0     # LOAD-DROP    CLRKSVLE 115.00  LOAD==45.28(2.03)
1  32264 32263  "1"    1     #Transfer Clarksville to alternate
4  32263     0  "**"    1     #Restore load at Clarksville
 #
3  32513     0  "1"     0     # ELDRADO1  21.60       PGEN=9.96  QGEN=-0.77
0
 #
 #
 # (265) Overlapping Outage (L-1/G-1)
 # Placer - Gold Hill #2 115 kV Line and El Dorado PH1
1  32018 32231  "2 "    0     # line from  GOLDHILL 115.00  BRKR to (2)   HORSHE2  115.00
1  32231 32235  "2 "    0     # line from  HORSHE2  115.00   (2) to (2)   NEWCSTL2 115.00
1  32235 32239  "2 "    0     # line from  NEWCSTL2 115.00   (2) to (3)   FLINT2   115.00
1  32239 32228  "2 "    0     # line from  FLINT2   115.00   (3) to BRKR  PLACER   115.00
1  32239 32237  "1 "    0     # line from  FLINT2   115.00   (3) to (1)   FLINT    115.00
4  32237     0  "1 "    0     # LOAD-DROP    FLINT    115.00  LOAD==14.82(0.66)
 #
3  32513     0  "1"     0     # ELDRADO1  21.60       PGEN=9.96  QGEN=-0.77
0
 #
 #
 # (266) Overlapping Outage (L-1/G-1)
 # Table Mountain - Palermo 230 kV Line and Colgate 2
1  30300 30325  "1 "    0     # line from  TBL MT D 230.00  BRKR to BRKR  PALERMO  230.00
 #
3  32452     0  "1"     0     # COLGATE2  13.80       PGEN=147.00  QGEN=20.11
0
 #
 #
 # 2013 category b contingency list
 # Stockton/Stanislaus Divisions Zones 311/312
 #
 #
 # (267)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30482 30500  "1 "    0     # line from  LOCKFORD 230.00  BRKR to BRKR  BELLOTA  230.00
0
 #
 #
 # (268)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30485 30487  "1 "    0     # line from  TIGR CRK 230.00  BRKR to BRKR  ELECTRA  230.00
0
 #
 #
 # (269)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30485 30490  "1 "    0     # line from  TIGR CRK 230.00  BRKR to BRKR  VLLY SPS 230.00
0
 #
 #
 # (270)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30487 30500  "1 "    0     # line from  ELECTRA  230.00  BRKR to BRKR  BELLOTA  230.00
0
 #
 #
 # (271)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30489 30624  "1 "    0     # line from  STAGG-J2 230.00   (2) to BRKR  TESLA E  230.00
1  30489 30499  "1 "    0     # line from  STAGG-J2 230.00   (2) to BRKR  STAGG-E  230.00
0
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```
 #
 #
 # (272)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30490 30500  "1 "    0     # line from  VLLY SPS 230.00  BRKR to BRKR  BELLOTA  230.00
0
 #
 #
 # (273)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30500 30503  "1 "    0     # line from  BELLOTA  230.00  BRKR to BRKR  COLLERVL 230.00
0
 #
 #
 # (274)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30500 30503  "2 "    0     # line from  BELLOTA  230.00  BRKR to BRKR  COLLERVL 230.00
0
 #
 #
 # (275)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30500 30505  "1 "    0     # line from  BELLOTA  230.00  BRKR to BRKR  WEBER    230.00
0
 #
 #
 # (276)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30500 30888  "1 "    0     # line from  BELLOTA  230.00  BRKR to BRKR  P0703    230.00
0
 #
 #
 # (277)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30500 38206  "1 "    0     # line from  BELLOTA  230.00  BRKR to (2)   COTTLE A 230.00
1  38206 37563  "1 "    0     # line from  COTTLE A 230.00   (2) to BRKR  MELONES  230.00
4  38206     0  "1 "    0     # LOAD-DROP    COTTLE A 230.00  LOAD==27.63(1.24)
3  34604     0  "**"    0      # Drop unit#3 with a loss Bellota - Melones line
0
 #
 #
 # (278)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30500 38208  "1 "    0     # line from  BELLOTA  230.00  BRKR to (2)   COTTLE B 230.00
1  38208 30515  "1 "    0     # line from  COTTLE B 230.00   (2) to BRKR  WARNERVL 230.00
4  38208     0  "2 "    0     # LOAD-DROP    COTTLE B 230.00  LOAD==31.78(1.42)
3  34604     0  "**"    0      # Drop unit#3 with a loss Bellota - Warnerville line
0
 #
 #
 # (279)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30505 30888  "1 "    0     # line from  WEBER    230.00  BRKR to BRKR  P0703    230.00
0
 #
 #
 # (280)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30527 30595  "1 "    0     # line from  PITSBG E 230.00  BRKR to (3)   FLOWIND2 230.00
1  30595 30640  "1 "    0     # line from  FLOWIND2 230.00   (3) to BRKR  TESLA C  230.00
2  30595 33840  "1 "    0     # TRAN from  FLOWIND2 230.00   (3) to (1)   FLOWD3-6   9.11
4  33840     0  "SG"    0     # LOAD-DROP    FLOWD3-6   9.11  LOAD==0.70(0.34)
3  33840     0  "1 "    0     # GEN-DROP    FLOWD3-6   9.11  GEN==1.30(0.00)
3  33840     0  "4 "    0     # GEN-DROP    FLOWD3-6   9.11  GEN==1.10(0.00)
0
 #
 #
 # (281)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30565 30569  "1 "    0     # line from  BRENTWOD 230.00  BRKR to BRKR  KELSO    230.00
0
 #
 #
 # (282)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
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```
 #
1  30569 30570  "1 "    0     # line from  KELSO    230.00  BRKR to (4)   USWP-RLF 230.00
1  30570 30571  "1 "    0     # line from  USWP-RLF 230.00   (4) to (2)   ALTALAND 230.00
1  30570 30625  "1 "    0     # line from  USWP-RLF 230.00   (4) to BRKR  TESLA D  230.00
2  30570 33836  "1 "    0     # TRAN from  USWP-RLF 230.00   (4) to (1)   USWP_#4    9.11
2  30571 33832  "1 "    0     # TRAN from  ALTALAND 230.00   (2) to (1)   COG.CAPT   9.11
4  33836     0  "SG"    0     # LOAD-DROP    USWP_#4    9.11  LOAD==0.34(0.21)
3  33836     0  "3 "    0     # GEN-DROP    USWP_#4    9.11  GEN==4.50(0.00)
3  33832     0  "1 "    0     # GEN-DROP    COG.CAPT   9.11  GEN==4.30(6.60)
0
 #
 #
 # (283)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30580 30625  "1 "    0     # line from  ALTM MDW 230.00   (3) to BRKR  TESLA D  230.00
1  30580 38610  "1 "    0     # line from  ALTM MDW 230.00   (3) to BRKR  DELTAPMP 230.00
2  30580 33175  "1 "    0     # TRAN from  ALTM MDW 230.00   (3) to (1)   ALTAMONT   9.11
0
 #
 #
 # (284)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30600 30640  "2 "    0     # line from  TRES VAQ 230.00   (3) to BRKR  TESLA C  230.00
1  30600 30527  "2 "    0     # line from  TRES VAQ 230.00   (3) to BRKR  PITSBG E 230.00
2  30600 33171  "1 "    0     # TRAN from  TRES VAQ 230.00   (3) to (1)   TRSVQ+NW   9.11
0
 #
 #
 # (285)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30622 30495  "1 "    0     # line from  EIGHT MI 230.00  BRKR to BRKR  STAGG    230.00
0
 #
 #
 # (286)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30622 30624  "1 "    0     # line from  EIGHT MI 230.00  BRKR to BRKR  TESLA E  230.00
0
 #
 #
 # (287)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30624 30630  "1 "    0     # line from  TESLA E  230.00  BRKR to BRKR  NEWARK D 230.00
0
 #
 #
 # (288)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30624 30670  "1 "    0     # line from  TESLA E  230.00  BRKR to BRKR  WESTLEY  230.00
0
 #
 #
 # (289)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30624 30888  "1 "    0     # line from  TESLA E  230.00  BRKR to BRKR  P0703    230.00
0
 #
 #
 # (290)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30624 30888  "2 "    0     # line from  TESLA E  230.00  BRKR to BRKR  P0703    230.00
0
 #
 #
 # (291)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30625 30636  "1 "    0     # line from  TESLA D  230.00  BRKR to BRKR  Q235SWST 230.00
0
 #
 #
 # (292)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30625 30636  "2 "    0     # line from  TESLA D  230.00  BRKR to BRKR  Q235SWST 230.00
0
```

```
 #
 #
 # (293)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30636 37585  "1 "    0     # line from  Q235SWST 230.00  BRKR to BRKR  TRCY PMP 230.00
0
 #
 #
 # (294)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30636 37585  "2 "    0     # line from  Q235SWST 230.00  BRKR to BRKR  TRCY PMP 230.00
0
 #
 #
 # (295)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30640 30641  "1 "    0     # line from  TESLA C  230.00  BRKR to BRKR  Q236BS1  230.00
0
 #
 #
 # (296)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30640 30642  "1 "    0     # line from  TESLA C  230.00  BRKR to BRKR  Q236BS2  230.00
0
 #
 #
 # (297)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30632 30624  "1 "    0     # line from  TESL_GEN 230.00  BRKR to BRKR  TESLA E  230.00
0
 #
 #
 # (298)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30632 30624  "2 "    0     # line from  TESL_GEN 230.00  BRKR to BRKR  TESLA E  230.00
0
 #
 #
 # (299)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30636 30637  "1 "    0     # line from  Q235SWST 230.00  BRKR to BRKR  Q235     230.00
0
 #
 #
 # (300)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30636 30637  "2 "    0     # line from  Q235SWST 230.00  BRKR to BRKR  Q235     230.00
0
 #
 #
 # (301)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30640 30655  "2 "    0     # line from  TESLA C  230.00  BRKR to (3)   ADCC     230.00
1  30655 30631  "2 "    0     # line from  ADCC     230.00   (3) to BRKR  NEWARK E 230.00
2  30655 35310  "1 "    0     # TRAN from  ADCC     230.00   (3) to (1)   LFC FIN+   9.11
0
 #
 #
 # (302)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30640 30703  "1 "    0     # line from  TESLA C  230.00  BRKR to BRKR  RAVENSWD 230.00
0
 #
 #
 # (303)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  30670 30765  "1 "    0     # line from  WESTLEY  230.00  BRKR to BRKR  LOSBANOS 230.00
0
 #
 #
 # (304)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33083 33774  "1 "    0     # line from  MDLRVRJT  60.00   (2) to (3)   HRDLNJCT  60.00
1  33083 33084  "1 "    0     # line from  MDLRVRJT  60.00   (2) to (3)   BXLR_TAP  60.00
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```
1  33774 33770  "1 "    0     # line from  HRDLNJCT  60.00   (3) to BRKR  HERDLYN   60.00
1  33774 33782  "1 "    0     # line from  HRDLNJCT  60.00   (3) to (1)   WEST SDE  60.00
1  33084 33055  "1 "    0     # line from  BXLR_TAP  60.00   (3) to (1)   BIXLER    60.00
1  33084 33778  "1 "    0     # line from  BXLR_TAP  60.00   (3) to (2)   MDL_RIVR  60.00
1  33778 33780  "1 "    0     # line from  MDL_RIVR  60.00   (2) to (1)   MCD_ISLE  60.00
4  33782     0  "1 "    0     # LOAD-DROP    WEST SDE  60.00  LOAD==1.90(0.40)
4  33055     0  "1 "    0     # LOAD-DROP    BIXLER    60.00  LOAD==2.00(0.97)
4  33778     0  "1 "    0     # LOAD-DROP    MDL_RIVR  60.00  LOAD==4.98(0.22)
4  33780     0  "1 "    0     # LOAD-DROP    MCD_ISLE  60.00  LOAD==5.76(0.82)
0
 #
 #
 # (305)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33500 33509  "1 "    0     # line from  MELNS JA 115.00   (3) to (3)   AVENATP1 115.00
1  33500 33501  "1 "    0     # line from  MELNS JA 115.00   (3) to (3)   FRGTNTP1 115.00
1  33500 33932  "1 "    0     # line from  MELNS JA 115.00   (3) to BRKR  MELONES  115.00
1  33509 33510  "1 "    0     # line from  AVENATP1 115.00   (3) to (1)   AVENA    115.00
1  33509 33514  "1 "    0     # line from  AVENATP1 115.00   (3) to BRKR  MANTECA  115.00
1  33501 33502  "1 "    0     # line from  FRGTNTP1 115.00   (3) to (1)   FROGTOWN 115.00
1  33501 33506  "1 "    0     # line from  FRGTNTP1 115.00   (3) to BRKR  STANISLS 115.00
4  33510     0  "1 "    0     # LOAD-DROP    AVENA    115.00  LOAD==14.18(0.63)
4  33502     0  "1 "    0     # LOAD-DROP    FROGTOWN 115.00  LOAD==11.55(0.52)
4  33502     0  "2 "    0     # LOAD-DROP    FROGTOWN 115.00  LOAD==8.33(0.37)
1  33511 33510  "1 "    1      # Switches in Avenan SW 145 to transfer load
4  33510     0  "**"    1      # Restores Load at Avena
0
 #
 #
 # (306)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33503 33936  "1 "    0     # line from  FRGTNTP2 115.00   (2) to (3)   MELNS JB 115.00
1  33503 33504  "1 "    0     # line from  FRGTNTP2 115.00   (2) to (2)   CATARACT 115.00
1  33936 33932  "1 "    0     # line from  MELNS JB 115.00   (3) to BRKR  MELONES  115.00
1  33936 33947  "1 "    0     # line from  MELNS JB 115.00   (3) to BRKR  RIVRBKJT 115.00
1  33504 33506  "1 "    0     # line from  CATARACT 115.00   (2) to BRKR  STANISLS 115.00
0
 #
 #
 # (307)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33506 33948  "1 "    0     # line from  STANISLS 115.00  BRKR to (2)   RVRBK J2 115.00
1  33948 33953  "1 "    0     # line from  RVRBK J2 115.00   (2) to (2)   VLYHMTP2 115.00
1  33953 33511  "1 "    0     # line from  VLYHMTP2 115.00   (2) to (2)   AVENATP2 115.00
1  33511 33514  "1 "    0     # line from  AVENATP2 115.00   (2) to BRKR  MANTECA  115.00
0
 #
 #
 # (308)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 # pre-project outage
1  33514 33526  "1 "    0     # line from  MANTECA  115.00  BRKR to (3)   KSSN-JC1 115.00
1  33526 33528  "1 "    0     # line from  KSSN-JC1 115.00   (3) to BRKR  KASSON   115.00
1  33526 33533  "1 "    0     # line from  KSSN-JC1 115.00   (3) to (2)   OWENSTP2 115.00
1  33533 33535  "1 "    0     # line from  OWENSTP2 115.00   (2) to (2)   SFWY_TP2 115.00
1  33535 33543  "1 "    0     # line from  SFWY_TP2 115.00   (2) to (3)   AEC_TP2  115.00
1  33543 33540  "1 "    0     # line from  AEC_TP2  115.00   (3) to BRKR  TESLA    115.00
1  33543 33545  "1 "    0     # line from  AEC_TP2  115.00   (3) to (2)   AEC_JCT  115.00
1  33545 33547  "1 "    0     # line from  AEC_JCT  115.00   (2) to (1)   AEC_300  115.00
4  33547     0  "1 "    0     # LOAD-DROP    AEC_300  115.00  LOAD==3.00(9.54)
0
 #
 #
 # (309)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 # post-project outage
1  33535 33549  "2 "    0     # line from  SFWY_TP2 115.00   (2) to BRKR  SCHULTE  115.00
1  33535 33543  "1 "    0     # line from  SFWY_TP2 115.00   (2) to (3)   AEC_TP2  115.00
1  33543 33540  "1 "    0     # line from  AEC_TP2  115.00   (3) to BRKR  TESLA    115.00
1  33543 33545  "1 "    0     # line from  AEC_TP2  115.00   (3) to (2)   AEC_JCT  115.00
1  33545 33547  "1 "    0     # line from  AEC_JCT  115.00   (2) to (1)   AEC_300  115.00
4  33547     0  "1 "    0     # LOAD-DROP    AEC_300  115.00  LOAD==3.00(9.54)
0
 #
 #
 # (310)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
```

```
 # post-project outage
1  33514 33526  "1 "    0     # line from  MANTECA  115.00  BRKR to (3)   KSSN-JC1 115.00
1  33526 33528  "1 "    0     # line from  KSSN-JC1 115.00   (3) to BRKR  KASSON   115.00
1  33526 33533  "1 "    0     # line from  KSSN-JC1 115.00   (3) to (2)   OWENSTP2 115.00
1  33533 33549  "2 "    0     # line from  OWENSTP2 115.00   (2) to BRKR  SCHULTE  115.00
0
 #
 #
 # (311)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33514 33970  "1 "    0     # line from  MANTECA  115.00  BRKR to (3)   INGRM C. 115.00
1  33970 33959  "1 "    0     # line from  INGRM C. 115.00   (3) to (2)   TCHRT_T2 115.00
1  33970 33965  "1 "    0     # line from  INGRM C. 115.00   (3) to (2)   SALADO J 115.00
1  33959 33540  "1 "    0     # line from  TCHRT_T2 115.00   (2) to BRKR  TESLA    115.00
1  33965 33964  "1 "    0     # line from  SALADO J 115.00   (2) to BRKR  SALADO   115.00
4  33970     0  "1 "    0     # LOAD-DROP    INGRM C. 115.00  LOAD==3.60(1.74)
0
 #
 #
 # (312)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33516 33514  "1 "    0     # line from  RPN JNCN 115.00   (3) to BRKR  MANTECA  115.00
1  33516 33520  "1 "    0     # line from  RPN JNCN 115.00   (3) to (1)   RIPON    115.00
1  33516 33951  "1 "    0     # line from  RPN JNCN 115.00   (3) to (3)   VLYHMTP1 115.00
1  33951 33947  "1 "    0     # line from  VLYHMTP1 115.00   (3) to BRKR  RIVRBKJT 115.00
1  33951 33952  "1 "    0     # line from  VLYHMTP1 115.00   (3) to (1)   VALLY HM 115.00
4  33520     0  "2 "    0     # LOAD-DROP    RIPON    115.00  LOAD==29.97(1.34)
4  33952     0  "1 "    0     # LOAD-DROP    VALLY HM 115.00  LOAD==5.36(0.24)
0
 #
 #
 # (313)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33518 33514  "1 "    0     # line from  VIERRA   115.00  BRKR to BRKR  MANTECA  115.00
0
 #
 #
 # (314)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33518 33522  "1 "    0     # line from  VIERRA   115.00  BRKR to (3)   CROSRDJT 115.00
1  33522 33524  "1 "    0     # line from  CROSRDJT 115.00   (3) to (1)   CL AMMNA 115.00
1  33522 33530  "1 "    0     # line from  CROSRDJT 115.00   (3) to (3)   KSSN-JC2 115.00
1  33530 33528  "1 "    0     # line from  KSSN-JC2 115.00   (3) to BRKR  KASSON   115.00
1  33530 33550  "1 "    0     # line from  KSSN-JC2 115.00   (3) to (2)   HJ HEINZ 115.00
1  33550 33548  "1 "    0     # line from  HJ HEINZ 115.00   (2) to BRKR  TRACY    115.00
4  33524     0  "1 "    0     # LOAD-DROP    CL AMMNA 115.00  LOAD==1.68(1.22)
0
 #
 #
 # (315)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33528 33529  "1 "    0     # line from  KASSON   115.00  BRKR to BRKR  LAMMERS  115.00
0
 #
 #
 # (316)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33529 33531  "1 "    0     # line from  LAMMERS  115.00  BRKR to (3)   OWENSTP1 115.00
1  33531 33532  "1 "    0     # line from  OWENSTP1 115.00   (3) to (1)   OI GLASS 115.00
1  33531 33549  "1 "    0     # line from  OWENSTP1 115.00   (3) to BRKR  SCHULTE  115.00
4  33532     0  "1 "    0     # LOAD-DROP    OI GLASS 115.00  LOAD==11.34(7.03)
0
 #
 #
 # (317)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33537 33534  "1 "    0     # line from  SFWY_TP1 115.00   (3) to (1)   SAFEWAY  115.00
1  33537 33549  "1 "    0     # line from  SFWY_TP1 115.00   (3) to BRKR  SCHULTE  115.00
1  33537 33541  "1 "    0     # line from  SFWY_TP1 115.00   (3) to (2)   AEC_TP1  115.00
1  33541 33540  "1 "    0     # line from  AEC_TP1  115.00   (2) to BRKR  TESLA    115.00
4  33534     0  "1 "    0     # LOAD-DROP    SAFEWAY  115.00  LOAD==5.38(2.76)
0
 #
 #
```

```
 # (318)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33540 33544  "1 "    0     # line from  TESLA    115.00  BRKR to (2)   ELLS GTY 115.00
1  33544 33546  "1 "    0     # line from  ELLS GTY 115.00   (2) to (2)   TRACY JC 115.00
1  33546 33542  "1 "    0     # line from  TRACY JC 115.00   (2) to (2)   LEPRINO  115.00
1  33542 33548  "1 "    0     # line from  LEPRINO  115.00   (2) to BRKR  TRACY    115.00
4  33544     0  "1 "    0     # LOAD-DROP    ELLS GTY 115.00  LOAD==3.62(1.86)
4  33542     0  "1 "    0     # LOAD-DROP    LEPRINO  115.00  LOAD==3.67(2.37)
0
 #
 #
 # (319)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33540 33568  "1 "    0     # line from  TESLA    115.00  BRKR to (3)   TH.E.DV. 115.00
1  33568 33570  "1 "    0     # line from  TH.E.DV. 115.00   (3) to (3)   SPC JCT. 115.00
2  33568 33806  "1 "    0     # TRAN from  TH.E.DV. 115.00   (3) to (1)   TH.E.DV.  13.80
1  33570 33587  "1 "    0     # line from  SPC JCT. 115.00   (3) to (3)   P0409TP2 115.00
1  33570 33956  "1 "    0     # line from  SPC JCT. 115.00   (3) to (2)   SJ COGEN 115.00
1  33587 33572  "1 "    0     # line from  P0409TP2 115.00   (3) to (2)   SP CMPNY 115.00
1  33587 33588  "1 "    0     # line from  P0409TP2 115.00   (3) to (2)   P0409CG2 115.00
2  33572 33810  "1 "    0     # TRAN from  SP CMPNY 115.00   (2) to (1)   SP CMPNY  13.80
2  33588 33858  "1 "    0     # TRAN from  P0409CG2 115.00   (2) to (1)   P0409CG2  13.80
2  33956 33808  "1 "    0     # TRAN from  SJ COGEN 115.00   (2) to (1)   SJ COGEN  13.80
4  33858     0  "ss"    0     # LOAD-DROP    P0409CG2  13.80  LOAD==3.34(1.85)
3  33806     0  "1 "    0     # GEN-DROP    TH.E.DV.  13.80  GEN==19.60(6.00)
3  33810     0  "1 "    0     # GEN-DROP    SP CMPNY  13.80  GEN==37.70(0.52)
3  33858     0  "1 "    0     # GEN-DROP    P0409CG2  13.80  GEN==78.24(5.46)
3  33808     0  "1 "    0     # GEN-DROP    SJ COGEN  13.80  GEN==45.20(9.58)
0
 #
 #
 # (320)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33540 33574  "1 "    0     # line from  TESLA    115.00  BRKR to (2)   LLNL TAP 115.00
1  33574 37649  "1 "    0     # line from  LLNL TAP 115.00   (2) to BRKR  LLNLAB   115.00
0
 #
 #
 # (321)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33540 33576  "1 "    0     # line from  TESLA    115.00  BRKR to (3)   USWP-PAT 115.00
1  33576 33578  "1 "    0     # line from  USWP-PAT 115.00   (3) to (2)   FAYETTE  115.00
2  33576 33842  "1 "    0     # TRAN from  USWP-PAT 115.00   (3) to (1)   PATTERSN   9.11
1  33578 33580  "1 "    0     # line from  FAYETTE  115.00   (2) to (2)   ALTENRGY 115.00
2  33580 33834  "1 "    0     # TRAN from  ALTENRGY 115.00   (2) to (1)   KALINA     9.11
0
 #
 #
 # (322)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33540 33961  "1 "    0     # line from  TESLA    115.00  BRKR to (3)   TCHRT_T1 115.00
1  33961 33960  "1 "    0     # line from  TCHRT_T1 115.00   (3) to (2)   MDSTO CN 115.00
1  33961 33963  "1 "    0     # line from  TCHRT_T1 115.00   (3) to (2)   TCHRTJCT 115.00
1  33960 33962  "1 "    0     # line from  MDSTO CN 115.00   (2) to (3)   SALDO TP 115.00
1  33962 33964  "1 "    0     # line from  SALDO TP 115.00   (3) to BRKR  SALADO   115.00
1  33962 33967  "1 "    0     # line from  SALDO TP 115.00   (3) to (2)   MILER TP 115.00
1  33967 33966  "1 "    0     # line from  MILER TP 115.00   (2) to (1)   MILLER   115.00
1  33963 33968  "1 "    0     # line from  TCHRTJCT 115.00   (2) to (1)   TEICHERT 115.00
4  33966     0  "1 "    0     # LOAD-DROP    MILLER   115.00  LOAD==3.55(1.72)
4  33968     0  "1 "    0     # LOAD-DROP    TEICHERT 115.00  LOAD==7.44(6.56)
0
 #
 #
 # (323)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33551 33549  "1 "    0     # line from  GWFTRACY 115.00   (4) to BRKR  SCHULTE  115.00
2  33551 33805  "1 "    0     # TRAN from  GWFTRACY 115.00   (4) to (1)   GWFTRCY1  13.80
2  33551 33807  "1 "    0     # TRAN from  GWFTRACY 115.00   (4) to (1)   GWFTRCY2  13.80
2  33551 33809  "1 "    0     # TRAN from  GWFTRACY 115.00   (4) to (1)   Q268ST1   13.80
4  33809     0  "ss"    0     # LOAD-DROP    Q268ST1   13.80  LOAD==9.70(5.37)
3  33805     0  "1 "    0     # GEN-DROP    GWFTRCY1  13.80  GEN==85.90(18.01)
3  33807     0  "1 "    0     # GEN-DROP    GWFTRCY2  13.80  GEN==85.90(18.01)
3  33809     0  "1 "    0     # GEN-DROP    Q268ST1   13.80  GEN==154.70(14.72)
0
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 #
 #
 # (324)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33552 33553  "1 "    0     # line from  STCKTNJB 115.00   (2) to BRKR  STKTON B 115.00
1  33552 33558  "1 "    0     # line from  STCKTNJB 115.00   (2) to (3)   LCKFRDJB 115.00
1  33558 33562  "1 "    0     # line from  LCKFRDJB 115.00   (3) to BRKR  BELLOTA  115.00
1  33558 33564  "1 "    0     # line from  LCKFRDJB 115.00   (3) to BRKR  LOCKFORD 115.00
4  33553     0  "3 "    0     # LOAD-DROP    STKTON B 115.00  LOAD==30.08(1.34)
1  33555 33553  "1 "    1      # Switches in Stockton 'A' SW 177 to transfer load
4  33553     0  "**"    1      # Restore Load at Stockton 'A' Bk  3
0
 #
 #
 # (325)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33556 33555  "1 "    0     # line from  STN COGN 115.00   (3) to (1)   STKTON A 115.00
1  33556 33560  "1 "    0     # line from  STN COGN 115.00   (3) to (2)   LCKFRDJA 115.00
1  33556 33958  "1 "    0     # line from  STN COGN 115.00   (3) to (2)   CPC STCN 115.00
1  33560 33562  "1 "    0     # line from  LCKFRDJA 115.00   (2) to BRKR  BELLOTA  115.00
2  33958 33814  "1 "    0     # TRAN from  CPC STCN 115.00   (2) to (1)   CPC STCN  12.47
4  33555     0  "4 "    0     # LOAD-DROP    STKTON A 115.00  LOAD==32.05(1.43)
4  33555     0  "5 "    0     # LOAD-DROP    STKTON A 115.00  LOAD==21.46(0.96)
4  33814     0  "SG"    0     # LOAD-DROP    CPC STCN  12.47  LOAD==6.19(1.41)
3  33814     0  "1 "    0     # GEN-DROP    CPC STCN  12.47  GEN==49.00(2.53)
0
 #
 #
 # (326)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33561 33562  "1 "    0     # line from  BLLTAJCT 115.00   (3) to BRKR  BELLOTA  115.00
1  33561 33564  "1 "    0     # line from  BLLTAJCT 115.00   (3) to BRKR  LOCKFORD 115.00
1  33561 33565  "1 "    0     # line from  BLLTAJCT 115.00   (3) to (2)   CMNCHETP 115.00
1  33565 33566  "1 "    0     # line from  CMNCHETP 115.00   (2) to BRKR  CAMANCHE 115.00
0
 #
 #
 # (327)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33562 33946  "1 "    0     # line from  BELLOTA  115.00  BRKR to (2)   RVRBK J1 115.00
1  33946 33944  "1 "    0     # line from  RVRBK J1 115.00   (2) to BRKR  RVRBANK  115.00
0
 #
 #
 # (328)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33562 33950  "1 "    0     # line from  BELLOTA  115.00  BRKR to (3)   RVRBK TP 115.00
1  33950 33934  "1 "    0     # line from  RVRBK TP 115.00   (3) to (3)   TULLOCH  115.00
1  33950 33944  "1 "    0     # line from  RVRBK TP 115.00   (3) to BRKR  RVRBANK  115.00
1  33934 33932  "1 "    0     # line from  TULLOCH  115.00   (3) to BRKR  MELONES  115.00
2  33934 34076  "1 "    0     # TRAN from  TULLOCH  115.00   (3) to (1)   TULLOCH    6.90
3  34076     0  "1 "    0     # GEN-DROP    TULLOCH    6.90  GEN==8.30(1.00)
3  34076     0  "2 "    0     # GEN-DROP    TULLOCH    6.90  GEN==8.30(1.00)
0
 #
 #
 # (329)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33582 33584  "1 "    0     # line from  SLT SPRG 115.00  BRKR to BRKR  TIGR CRK 115.00
0
 #
 #
 # (330)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33602 33670  "1 "    0     # line from  NEWARKS   60.00   (2) to BRKR  STCKTN A  60.00
1  33602 33672  "1 "    0     # line from  NEWARKS   60.00   (2) to (2)   CHRTRWYS  60.00
1  33672 33673  "1 "    0     # line from  CHRTRWYS  60.00   (2) to (2)   CAL CEDA  60.00
1  33673 33688  "1 "    0     # line from  CAL CEDA  60.00   (2) to (3)   ROB-LRNR  60.00
1  33688 33687  "1 "    0     # line from  ROB-LRNR  60.00   (3) to (2)   STKTN WW  60.00
1  33688 33696  "1 "    0     # line from  ROB-LRNR  60.00   (3) to (3)   Q199      60.00
1  33687 33689  "1 "    0     # line from  STKTN WW  60.00   (2) to (1)   LEARNER   60.00
1  33696 33690  "1 "    0     # line from  Q199      60.00   (3) to (2)   ROGH-RDY  60.00
2  33696 33818  "1 "    0     # TRAN from  Q199      60.00   (3) to (1)   Q199      13.80
1  33690 33692  "1 "    0     # line from  ROGH-RDY  60.00   (2) to (2)   CHANNEL   60.00
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1  33692 33694  "1 "    0     # line from  CHANNEL   60.00   (2) to (1)   CHNNL JT  60.00
4  33673     0  "1 "    0     # LOAD-DROP    CAL CEDA  60.00  LOAD==1.49(1.24)
4  33687     0  "1 "    0     # LOAD-DROP    STKTN WW  60.00  LOAD==3.61(0.90)
4  33690     0  "1 "    0     # LOAD-DROP    ROGH-RDY  60.00  LOAD==12.05(0.54)
4  33818     0  "ss"    0     # LOAD-DROP    Q199      13.80  LOAD==11.00(6.09)
4  33692     0  "1 "    0     # LOAD-DROP    CHANNEL   60.00  LOAD==8.49(0.38)
3  33687     0  "1 "    0     # GEN-DROP    STKTN WW  60.00  GEN==1.50(0.15)
3  33818     0  "1 "    0     # GEN-DROP    Q199      13.80  GEN==60.50(4.13)
0
 #
 #
 # (331)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33604 33606  "1 "    0     # line from  WEST PNT  60.00   (2) to (3)   P.GRVEJ.  60.00
2  33604 33820  "1 "    0     # TRAN from  WEST PNT  60.00   (2) to (1)   WEST PNT  11.50
1  33606 33607  "1 "    0     # line from  P.GRVEJ.  60.00   (3) to (2)   ELECTRAJ  60.00
1  33606 33608  "1 "    0     # line from  P.GRVEJ.  60.00   (3) to (1)   PNE GRVE  60.00
1  33607 33610  "1 "    0     # line from  ELECTRAJ  60.00   (2) to BRKR  VLLY SPS  60.00
4  33604     0  "1 "    0     # LOAD-DROP    WEST PNT  60.00  LOAD==4.74(0.21)
4  33604     0  "3 "    0     # LOAD-DROP    WEST PNT  60.00  LOAD==4.45(0.20)
4  33607     0  "1 "    0     # LOAD-DROP    ELECTRAJ  60.00  LOAD==10.32(0.47)
4  33608     0  "1 "    0     # LOAD-DROP    PNE GRVE  60.00  LOAD==8.62(0.39)
4  33608     0  "2 "    0     # LOAD-DROP    PNE GRVE  60.00  LOAD==10.99(0.49)
3  33820     0  "1 "    0     # GEN-DROP    WEST PNT  11.50  GEN==13.60(7.00)
0
 #
 #
 # (332)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33610 33612  "1 "    0     # line from  VLLY SPS  60.00  BRKR to (2)   N BRANCH  60.00
1  33612 33614  "1 "    0     # line from  N BRANCH  60.00   (2) to BRKR  CAL CMNT  60.00
4  33612     0  "1 "    0     # LOAD-DROP    N BRANCH  60.00  LOAD==5.79(0.25)
4  33614     0  "1 "    0     # LOAD-DROP    CAL CMNT  60.00  LOAD==13.07(0.59)
0
 #
 #
 # (333)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33610 33619  "1 "    0     # line from  VLLY SPS  60.00  BRKR to (3)   AMFOR_SW  60.00
1  33619 33616  "1 "    0     # line from  AMFOR_SW  60.00   (3) to BRKR  MARTELL   60.00
1  33619 33620  "1 "    0     # line from  AMFOR_SW  60.00   (3) to (1)   AM FORST  60.00
4  33616     0  "1 "    0     # LOAD-DROP    MARTELL   60.00  LOAD==19.52(0.87)
4  33620     0  "1 "    0     # LOAD-DROP    AM FORST  60.00  LOAD==1.90(1.52)
0
 #
 #
 # (334)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33610 33630  "1 "    0     # line from  VLLY SPS  60.00  BRKR to (2)   PARDEE A  60.00
2  33630 33848  "1 "    0     # TRAN from  PARDEE A  60.00   (2) to (1)   PARDE 2    7.20
3  33848     0  "1 "    0     # GEN-DROP    PARDE 2    7.20  GEN==8.00(-1.28)
0
 #
 #
 # (335)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33610 33634  "1 "    0     # line from  VLLY SPS  60.00  BRKR to (3)   PRDE JCT  60.00
1  33634 33626  "1 "    0     # line from  PRDE JCT  60.00   (3) to (3)   I.NRGYJT  60.00
2  33634 33846  "1 "    0     # TRAN from  PRDE JCT  60.00   (3) to (1)   PRDE 1-3   7.20
1  33626 33622  "1 "    0     # line from  I.NRGYJT  60.00   (3) to (2)   CLAY      60.00
1  33626 33628  "1 "    0     # line from  I.NRGYJT  60.00   (3) to (2)   I.ENERGY  60.00
1  33622 33623  "1 "    0     # line from  CLAY      60.00   (2) to (3)   INE_TP    60.00
1  33623 33617  "1 "    0     # line from  INE_TP    60.00   (3) to (1)   MARTELTP  60.00
1  33623 33624  "1 "    0     # line from  INE_TP    60.00   (3) to (1)   INE PRSN  60.00
2  33628 33816  "1 "    0     # TRAN from  I.ENERGY  60.00   (2) to (1)   I.ENERGY  12.00
4  33622     0  "1 "    0     # LOAD-DROP    CLAY      60.00  LOAD==13.69(0.62)
4  33622     0  "2 "    0     # LOAD-DROP    CLAY      60.00  LOAD==4.09(0.18)
4  33624     0  "1 "    0     # LOAD-DROP    INE PRSN  60.00  LOAD==12.55(0.56)
3  33846     0  "2 "    0     # GEN-DROP    PRDE 1-3   7.20  GEN==8.00(2.00)
0
 #
 #
 # (336)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
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1  33610 33636  "1 "    0     # line from  VLLY SPS  60.00  BRKR to (3)   N.HGN JT  60.00
1  33636 33638  "1 "    0     # line from  N.HGN JT  60.00   (3) to (2)   N.HOGAN   60.00
1  33636 33640  "1 "    0     # line from  N.HGN JT  60.00   (3) to (1)   CORRAL    60.00
2  33638 38365  "1 "    0     # TRAN from  N.HOGAN   60.00   (2) to (1)   N.HGN DM  12.00
4  33640     0  "1 "    0     # LOAD-DROP    CORRAL    60.00  LOAD==12.60(0.56)
4  33640     0  "2 "    0     # LOAD-DROP    CORRAL    60.00  LOAD==16.59(0.74)
3  38365     0  "1 "    0     # GEN-DROP    N.HGN DM  12.00  GEN==1.50(0.68)
3  38365     0  "2 "    0     # GEN-DROP    N.HGN DM  12.00  GEN==1.50(0.68)
0
 #
 #
 # (337)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33642 33644  "1 "    0     # line from  LINDEN    60.00   (1) to (2)   MRMN JCT  60.00
1  33644 33646  "1 "    0     # line from  MRMN JCT  60.00   (2) to (2)   MORMON    60.00
1  33646 33650  "1 "    0     # line from  MORMON    60.00   (2) to BRKR  WEBER 1   60.00
4  33642     0  "1 "    0     # LOAD-DROP    LINDEN    60.00  LOAD==18.79(0.84)
4  33646     0  "1 "    0     # LOAD-DROP    MORMON    60.00  LOAD==19.10(0.85)
1  33642 33640  "1 "    1      # Switches in Linden SW 27 to transfer load
4  33642     0  "**"    1      # Restore Load and Linden
0
 #
 #
 # (338)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33654 33664  "1 "    0     # line from  SNTA FEA  60.00   (3) to (2)   LIPTON    60.00
1  33654 33670  "1 "    0     # line from  SNTA FEA  60.00   (3) to BRKR  STCKTN A  60.00
1  33654 33662  "1 "    0     # line from  SNTA FEA  60.00   (3) to BRKR  WEBER 2   60.00
1  33664 33666  "1 "    0     # line from  LIPTON    60.00   (2) to (2)   CHEROKEE  60.00
1  33666 33668  "1 "    0     # line from  CHEROKEE  60.00   (2) to (1)   WATERLOO  60.00
4  33664     0  "1 "    0     # LOAD-DROP    LIPTON    60.00  LOAD==3.53(2.56)
4  33666     0  "1 "    0     # LOAD-DROP    CHEROKEE  60.00  LOAD==10.46(0.47)
4  33668     0  "2 "    0     # LOAD-DROP    WATERLOO  60.00  LOAD==11.35(0.51)
0
 #
 #
 # (339)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33658 33670  "1 "    0     # line from  SNTA FEB  60.00   (3) to BRKR  STCKTN A  60.00
1  33658 33678  "1 "    0     # line from  SNTA FEB  60.00   (3) to (2)   MONARCH   60.00
1  33658 33662  "1 "    0     # line from  SNTA FEB  60.00   (3) to BRKR  WEBER 2   60.00
1  33678 33684  "1 "    0     # line from  MONARCH   60.00   (2) to (2)   HARDING   60.00
1  33684 33686  "1 "    0     # line from  HARDING   60.00   (2) to (1)   STCKTNAR  60.00
4  33678     0  "2 "    0     # LOAD-DROP    MONARCH   60.00  LOAD==4.13(0.18)
4  33684     0  "1 "    0     # LOAD-DROP    HARDING   60.00  LOAD==4.75(0.21)
4  33684     0  "2 "    0     # LOAD-DROP    HARDING   60.00  LOAD==5.28(0.24)
4  33686     0  "1 "    0     # LOAD-DROP    STCKTNAR  60.00  LOAD==4.10(0.18)
0
 #
 #
 # (340)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33662 33674  "1 "    0     # line from  WEBER 2   60.00  BRKR to (4)   HAZLTN J  60.00
1  33674 33670  "1 "    0     # line from  HAZLTN J  60.00   (4) to BRKR  STCKTN A  60.00
1  33674 33676  "1 "    0     # line from  HAZLTN J  60.00   (4) to (1)   E.STCKTN  60.00
1  33674 33681  "1 "    0     # line from  HAZLTN J  60.00   (4) to (2)   N.ST_SW   60.00
1  33681 33682  "1 "    0     # line from  N.ST_SW   60.00   (2) to (2)   SUMIDEN   60.00
1  33682 33680  "1 "    0     # line from  SUMIDEN   60.00   (2) to (2)   OAK PARK  60.00
1  33680 33712  "1 "    0     # line from  OAK PARK  60.00   (2) to (1)   WESTLANE  60.00
4  33676     0  "1 "    0     # LOAD-DROP    E.STCKTN  60.00  LOAD==6.33(0.28)
4  33676     0  "3 "    0     # LOAD-DROP    E.STCKTN  60.00  LOAD==14.01(0.62)
4  33682     0  "1 "    0     # LOAD-DROP    SUMIDEN   60.00  LOAD==3.71(2.59)
4  33680     0  "1 "    0     # LOAD-DROP    OAK PARK  60.00  LOAD==2.44(0.11)
4  33712     0  "1 "    0     # LOAD-DROP    WESTLANE  60.00  LOAD==18.08(0.81)
0
 #
 #
 # (341)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33693 33704  "1 "    0     # line from  STAGG JT  60.00   (2) to BRKR  STAGG     60.00
1  33693 33719  "1 "    0     # line from  STAGG JT  60.00   (2) to (3)   TERMNS J  60.00
1  33719 33720  "1 "    0     # line from  TERMNS J  60.00   (3) to (1)   TERMNOUS  60.00
1  33719 33721  "1 "    0     # line from  TERMNS J  60.00   (3) to (2)   SEBASTIA  60.00
1  33721 33722  "1 "    0     # line from  SEBASTIA  60.00   (2) to (2)   NW HPE J  60.00
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1  33722 33723  "1 "    0     # line from  NW HPE J  60.00   (2) to (1)   NEW HOPE  60.00
4  33720     0  "1 "    0     # LOAD-DROP    TERMNOUS  60.00  LOAD==4.85(0.22)
4  33721     0  "1 "    0     # LOAD-DROP    SEBASTIA  60.00  LOAD==2.82(2.12)
4  33723     0  "1 "    0     # LOAD-DROP    NEW HOPE  60.00  LOAD==2.74(0.12)
0
 #
 #
 # (342)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33703 33702  "1 "    0     # line from  LOUISJCT  60.00   (3) to (1)   GRONMYER  60.00
1  33703 33746  "1 "    0     # line from  LOUISJCT  60.00   (3) to BRKR  LOUISE    60.00
1  33703 33742  "1 "    0     # line from  LOUISJCT  60.00   (3) to BRKR  MANTECA   60.00
4  33702     0  "1 "    0     # LOAD-DROP    GRONMYER  60.00  LOAD==4.20(0.96)
0
 #
 #
 # (343)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33704 33706  "1 "    0     # line from  STAGG     60.00  BRKR to BRKR  CNTRY CB  60.00
0
 #
 #
 # (344)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33704 33706  "2 "    0     # line from  STAGG     60.00  BRKR to BRKR  CNTRY CB  60.00
0
 #
 #
 # (345)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33704 33714  "1 "    0     # line from  STAGG     60.00  BRKR to BRKR  HAMMER    60.00
0
 #
 #
 # (346)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33706 33708  "1 "    0     # line from  CNTRY CB  60.00  BRKR to (2)   UOP       60.00
1  33708 33710  "1 "    0     # line from  UOP       60.00   (2) to (2)   WSTLNESW  60.00
1  33710 33716  "1 "    0     # line from  WSTLNESW  60.00   (2) to (3)   HMMR JCT  60.00
1  33716 33714  "1 "    0     # line from  HMMR JCT  60.00   (3) to BRKR  HAMMER    60.00
1  33716 33717  "1 "    0     # line from  HMMR JCT  60.00   (3) to (3)   MORADAJT  60.00
1  33717 33718  "1 "    0     # line from  MORADAJT  60.00   (3) to (1)   METTLER   60.00
1  33717 33740  "1 "    0     # line from  MORADAJT  60.00   (3) to BRKR  MSHR 60V  60.00
4  33708     0  "1 "    0     # LOAD-DROP    UOP       60.00  LOAD==5.99(4.18)
4  33718     0  "3 "    0     # LOAD-DROP    METTLER   60.00  LOAD==8.41(0.38)
4  33740     0  "1 "    0     # LOAD-DROP    MSHR 60V  60.00  LOAD==20.34(0.91)
4  33740     0  "2 "    0     # LOAD-DROP    MSHR 60V  60.00  LOAD==33.96(1.52)
1  33738 33740  "1"    1     # Switch in Mosher SW 67 to transfer load
4  33740     0  "2"    1     # Restore Mosher Bank 2 load
0
 #
 #
 # (347)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33724 33726  "1 "    0     # line from  LOCKEFRD  60.00  BRKR to (2)   VICTOR    60.00
1  33726 33731  "1 "    0     # line from  VICTOR    60.00   (2) to (2)   WODBRG J  60.00
1  33731 33735  "1 "    0     # line from  WODBRG J  60.00   (2) to (2)   INDSTR J  60.00
1  33735 38060  "1 "    0     # line from  INDSTR J  60.00   (2) to BRKR  INDUSTRL  60.00
4  33726     0  "1 "    0     # LOAD-DROP    VICTOR    60.00  LOAD==0.21(0.01)
4  33726     0  "2 "    0     # LOAD-DROP    VICTOR    60.00  LOAD==3.54(0.16)
0
 #
 #
 # (348)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33724 33738  "1 "    0     # line from  LOCKEFRD  60.00  BRKR to (1)   WATRLJCT  60.00
0
 #
 #
 # (349)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33724 38060  "1 "    0     # line from  LOCKEFRD  60.00  BRKR to BRKR  INDUSTRL  60.00
0
 #
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 #
 # (350)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33725 33732  "1 "    0     # line from  LOCKFRD1  60.00  BRKR to (2)   COLONY    60.00
1  33732 33734  "1 "    0     # line from  COLONY    60.00   (2) to (2)   CLNY JCT  60.00
1  33734 33728  "1 "    0     # line from  CLNY JCT  60.00   (2) to BRKR  LODI     60.00
4  33732     0  "2 "    0     # LOAD-DROP    COLONY    60.00  LOAD==4.67(0.21)
0
 #
 #
 # (351)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33728 33729  "1 "    0     # line from  LODI      60.00  BRKR to BRKR  LODI AUX  60.00
0
 #
 #
 # (352)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33737 33727  "1 "    0     # line from  WINERY J  60.00   (2) to (1)   MONDAVI   60.00
1  33737 33728  "1 "    0     # line from  WINERY J  60.00   (2) to BRKR  LODI     60.00
4  33727     0  "1 "    0     # LOAD-DROP    MONDAVI   60.00  LOAD==2.48(2.06)
0
 #
 #
 # (353)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33743 33742  "1 "    0     # line from  LEE_JCT   60.00   (2) to BRKR  MANTECA   60.00
1  33743 33766  "1 "    0     # line from  LEE_JCT   60.00   (2) to (2)   MNTCA JT  60.00
1  33766 33768  "1 "    0     # line from  MNTCA JT  60.00   (2) to (2)   BNTA CRB  60.00
1  33768 34000  "1 "    0     # line from  BNTA CRB  60.00   (2) to (1)   WESTLEY   60.00
4  33768     0  "1 "    0     # LOAD-DROP    BNTA CRB  60.00  LOAD==3.34(0.76)
4  34000     0  "1 "    0     # LOAD-DROP    WESTLEY   60.00  LOAD==12.45(0.55)
4  34000     0  "3 "    0     # LOAD-DROP    WESTLEY   60.00  LOAD==4.01(0.18)
1  33742 33752  "1 "    0      # Must include Manteca - Lanthrop Jct in this outage
0
 #
 #
 # (354)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33746 33748  "1 "    0     # line from  LOUISE    60.00  BRKR to (2)   MSSDLESW  60.00
1  33748 33750  "1 "    0     # line from  MSSDLESW  60.00   (2) to (2)   CALVO     60.00
1  33750 33756  "1 "    0     # line from  CALVO     60.00   (2) to BRKR  KASSON    60.00
4  33750     0  "1 "    0     # LOAD-DROP    CALVO     60.00  LOAD==1.70(1.01)
0
 #
 #
 # (355)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33756 33758  "1 "    0     # line from  KASSON    60.00  BRKR to BRKR  BANTA     60.00
4  33758     0  "1 "    0     # LOAD-DROP    BANTA     60.00  LOAD==7.14(0.32)
0
 #
 #
 # (356)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33756 33760  "1 "    0     # line from  KASSON    60.00  BRKR to (3)   BNTA JCT  60.00
1  33760 33762  "1 "    0     # line from  BNTA JCT  60.00   (3) to (2)   LYOTH-SP  60.00
1  33760 33764  "1 "    0     # line from  BNTA JCT  60.00   (3) to (1)   CARBONA   60.00
1  33762 33763  "1 "    0     # line from  LYOTH-SP  60.00   (2) to (1)   CRBNA JC  60.00
4  33762     0  "1 "    0     # LOAD-DROP    LYOTH-SP  60.00  LOAD==3.00(0.68)
4  33764     0  "1 "    0     # LOAD-DROP    CARBONA   60.00  LOAD==24.58(1.10)
4  33764     0  "2 "    0     # LOAD-DROP    CARBONA   60.00  LOAD==7.60(0.34)
0
 #
 #
 # (357)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33770 33772  "1 "    0     # line from  HERDLYN   60.00  BRKR to (2)   B.BTHNY-  60.00
1  33772 33773  "1 "    0     # line from  B.BTHNY-  60.00   (2) to (2)   ALTA-CGE  60.00
1  33773 33775  "1 "    0     # line from  ALTA-CGE  60.00   (2) to (2)   TOSCO-PP  60.00
1  33775 33776  "1 "    0     # line from  TOSCO-PP  60.00   (2) to (2)   SOUTH BY  60.00
1  33776 35202  "1 "    0     # line from  SOUTH BY  60.00   (2) to (3)   USWP-WKR  60.00
1  35202 35211  "1 "    0     # line from  USWP-WKR  60.00   (3) to (1)   ALTAMONT  60.00
2  35202 35314  "1 "    0     # TRAN from  USWP-WKR  60.00   (3) to (1)   WALKER+    9.11
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4  33772     0  "1 "    0     # LOAD-DROP    B.BTHNY-  60.00  LOAD==1.94(0.44)
4  33775     0  "1 "    0     # LOAD-DROP    TOSCO-PP  60.00  LOAD==0.98(0.89)
4  33776     0  "1 "    0     # LOAD-DROP    SOUTH BY  60.00  LOAD==23.00(0.00)
3  33773     0  "1 "    0     # GEN-DROP    ALTA-CGE  60.00  GEN==4.00(-1.00)
0
 #
 #
 # (358)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33900 33902  "1 "    0     # line from  DONNELLS 115.00   (2) to (3)   BRDSLY J 115.00
2  33900 34058  "1 "    0     # TRAN from  DONNELLS 115.00   (2) to (1)   DONNELLS  13.80
1  33902 33904  "1 "    0     # line from  BRDSLY J 115.00   (3) to (2)   BEARDSLY 115.00
1  33902 33912  "1 "    0     # line from  BRDSLY J 115.00   (3) to (3)   SPRNG GJ 115.00
2  33904 34074  "1 "    0     # TRAN from  BEARDSLY 115.00   (2) to (1)   BEARDSLY   6.90
1  33912 33910  "1 "    0     # line from  SPRNG GJ 115.00   (3) to (3)   SNDBR JT 115.00
1  33912 33914  "1 "    0     # line from  SPRNG GJ 115.00   (3) to (2)   MI-WUK   115.00
1  33910 33906  "1 "    0     # line from  SNDBR JT 115.00   (3) to BRKR  SPRNG GP 115.00
1  33910 33908  "1 "    0     # line from  SNDBR JT 115.00   (3) to (2)   SANDBAR  115.00
2  33908 34060  "1 "    0     # TRAN from  SANDBAR  115.00   (2) to (1)   SANDBAR   13.80
1  33914 33917  "1 "    0     # line from  MI-WUK   115.00   (2) to (2)   FBERBORD 115.00
1  33917 33916  "1 "    0     # line from  FBERBORD 115.00   (2) to BRKR  CURTISS  115.00
4  33914     0  "1 "    0     # LOAD-DROP    MI-WUK   115.00  LOAD==12.04(0.54)
4  33917     0  "SG"    0     # LOAD-DROP    FBERBORD 115.00  LOAD==2.25(0.51)
3  34058     0  "1 "    0     # GEN-DROP    DONNELLS  13.80  GEN==64.20(-0.09)
3  34074     0  "1 "    0     # GEN-DROP    BEARDSLY   6.90  GEN==10.60(2.00)
3  34060     0  "1 "    0     # GEN-DROP    SANDBAR   13.80  GEN==14.70(7.50)
3  33917     0  "1 "    0     # GEN-DROP    FBERBORD 115.00  GEN==3.20(-2.21)
0
 #
 #
 # (359)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33916 33920  "1 "    0     # line from  CURTISS  115.00  BRKR to (2)   RCTRK J. 115.00
1  33920 33926  "1 "    0     # line from  RCTRK J. 115.00   (2) to (3)   CH.STNJT 115.00
1  33926 33928  "1 "    0     # line from  CH.STNJT 115.00   (3) to (2)   CH.STN   115.00
1  33926 33930  "1 "    0     # line from  CH.STNJT 115.00   (3) to (2)   PEORIA   115.00
2  33928 34050  "1 "    0     # TRAN from  CH.STN   115.00   (2) to (1)   CH.STN.   13.80
1  33930 33932  "1 "    0     # line from  PEORIA   115.00   (2) to BRKR  MELONES  115.00
4  33928     0  "SP"    0     # LOAD-DROP    CH.STN   115.00  LOAD==2.81(0.64)
4  33930     0  "1 "    0     # LOAD-DROP    PEORIA   115.00  LOAD==26.77(1.19)
3  34050     0  "1 "    0     # GEN-DROP    CH.STN.   13.80  GEN==10.00(11.00)
0
 #
 #
 # (360)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  33932 33922  "1 "    0     # line from  MELONES  115.00  BRKR to (1)   R.TRACK  115.00
4  33922     0  "1 "    0     # LOAD-DROP    R.TRACK  115.00  LOAD==17.06(0.76)
0
 #
 #
 # (361)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  34002 34004  "1 "    0     # line from  SALADO    60.00  BRKR to (2)   PTRSNFRZ  60.00
1  34004 34006  "1 "    0     # line from  PTRSNFRZ  60.00   (2) to BRKR  PATTERSN  60.00
0
 #
 #
 # (362)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  34002 34008  "1 "    0     # line from  SALADO    60.00  BRKR to (3)   STNSLSRP  60.00
1  34008 34016  "1 "    0     # line from  STNSLSRP  60.00   (3) to (2)   MEDLIN J  60.00
2  34008 34056  "1 "    0     # TRAN from  STNSLSRP  60.00   (3) to (1)   STNSLSRP  13.80
1  34016 34018  "1 "    0     # line from  MEDLIN J  60.00   (2) to (3)   NWMN JCT  60.00
1  34018 34014  "1 "    0     # line from  NWMN JCT  60.00   (3) to BRKR  NEWMAN    60.00
1  34018 34020  "1 "    0     # line from  NWMN JCT  60.00   (3) to (1)   GUSTINE   60.00
4  34020     0  "1 "    0     # LOAD-DROP    GUSTINE   60.00  LOAD==9.90(0.44)
4  34020     0  "2 "    0     # LOAD-DROP    GUSTINE   60.00  LOAD==10.83(0.49)
3  34056     0  "1 "    0     # GEN-DROP    STNSLSRP  13.80  GEN==16.30(6.29)
1  34012 34020  "1 "    1     # Switches in Gustine SW 19 to transfer load
4  34020 0      "**"    1     # Restore Load at Gustine
0
 #
 #
```

```
 # (363)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  34006 34010  "1 "    0     # line from  PATTERSN  60.00  BRKR to (3)   CRWS LDJ  60.00
1  34010 34012  "1 "    0     # line from  CRWS LDJ  60.00   (3) to (2)   GUSTN JT  60.00
1  34010 34017  "1 "    0     # line from  CRWS LDJ  60.00   (3) to (1)   CRWS LDG  60.00
1  34012 34014  "1 "    0     # line from  GUSTN JT  60.00   (2) to BRKR  NEWMAN    60.00
4  34017     0  "1 "    0     # LOAD-DROP    CRWS LDG  60.00  LOAD==3.92(0.18)
1  34016 34017  "1 "    1      # Switches in Crows Landing SW 57 to transfer load
4  34017     0  "**"    1      # Restore Load at Crows Landing
0
 #
 #
 # (364)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  37016 30500  "1 "    0     # line from  RNCHSECO 230.00  BRKR to BRKR  BELLOTA  230.00
0
 #
 #
 # (365)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  37016 30500  "2 "    0     # line from  RNCHSECO 230.00  BRKR to BRKR  BELLOTA  230.00
0
 #
 #
 # (366)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  38000 30622  "1 "    0     # line from  LODI     230.00  BRKR to BRKR  EIGHT MI 230.00
0
 #
 #
 # (367)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  38060 33729  "1 "    0     # line from  INDUSTRL  60.00  BRKR to BRKR  LODI AUX  60.00
0
 #
 #
 # (368)  B2 LINE OUTAGE (BREAKER-TO-BREAKER)
 #
1  38060 33730  "1 "    0     # line from  INDUSTRL  60.00  BRKR to (2)   GENMILLS  60.00
2  33730 33830  "1 "    0     # TRAN from  GENMILLS  60.00   (2) to (1)   GEN.MILL   9.11
3  33830     0  "1 "    0     # GEN-DROP    GEN.MILL   9.11  GEN==2.50(1.50)
0
 #
 #
 # (369)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  30485 30486  "1 "    0     # TRAN from  TIGR CRK 230.00   (3) to (3)   TIGR CKM 230.00
1  30485 30487  "1 "    0     # line from  TIGR CRK 230.00  BRKR to BRKR  ELECTRA  230.00
1  30485 30490  "1 "    0     # line from  TIGR CRK 230.00  BRKR to BRKR  VLLY SPS 230.00
2  30486 33584  "1 "    0     # TRAN from  TIGR CKM 230.00   (3) to (2)   TIGR CRK 115.00
2  30486 33822  "1 "    0     # TRAN from  TIGR CKM 230.00   (3) to (1)   TIGR CRK  11.00
1  33584 33582  "1 "    0     # line from  TIGR CRK 115.00  BRKR to BRKR  SLT SPRG 115.00
4  33822     0  "1 "    0     # LOAD-DROP    TIGR CRK  11.00  LOAD==0.20(0.00)
3  33822     0  "1 "    0     # GEN-DROP    TIGR CRK  11.00  GEN==26.70(8.10)
3  33822     0  "2 "    0     # GEN-DROP    TIGR CRK  11.00  GEN==27.00(8.19)
0
 #
 #
 # (370)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  30487 33812  "1 "    0     # TRAN from  ELECTRA  230.00   (3) to (1)   ELECTRA   13.80
1  30487 30485  "1 "    0     # line from  ELECTRA  230.00  BRKR to BRKR  TIGR CRK 230.00
1  30487 30500  "1 "    0     # line from  ELECTRA  230.00  BRKR to BRKR  BELLOTA  230.00
4  33812     0  "1 "    0     # LOAD-DROP    ELECTRA   13.80  LOAD==14.20(2.49)
3  33812     0  "1 "    0     # GEN-DROP    ELECTRA   13.80  GEN==29.00(12.37)
3  33812     0  "2 "    0     # GEN-DROP    ELECTRA   13.80  GEN==29.00(12.37)
3  33812     0  "3 "    0     # GEN-DROP    ELECTRA   13.80  GEN==29.00(12.37)
0
 #
 #
 # (371)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  30500 30501  "1 "    0     # TRAN from  BELLOTA  230.00  BRKR to (3)   BLLTA 1M 230.00
2  30501 33562  "1 "    0     # TRAN from  BLLTA 1M 230.00   (3) to BRKR  BELLOTA  115.00
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```
2  30501 33804  "1 "    0     # TRAN from  BLLTA 1M 230.00   (3) to (1)   BELLTA T  13.80
0
 #
 #
 # (372)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
#     **** 3-WINDING TRANSFORMER  30624  (33852)  30040  33802 :
2  30624 30040  "2 "    0     # TRAN from  TESLA E  230.00  BRKR to (1)   TESLA    500.00
0
 #
 #
 # (373)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  30625 30040  "4 "    0     # TRAN from  TESLA D  230.00  BRKR to BRKR  TESLA    500.00
0
 #
 #
 # (374)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  30640 30040  "6 "    0     # TRAN from  TESLA C  230.00  BRKR to BRKR  TESLA    500.00
0
 #
 #
 # (375)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  33540 30625  "1 "    0     # TRAN from  TESLA    115.00  BRKR to BRKR  TESLA D  230.00
0
 #
 #
 # (376)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  33540 30625  "3 "    0     # TRAN from  TESLA    115.00  BRKR to BRKR  TESLA D  230.00
0
 #
 #
 # (377)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  33562 30500  "2 "    0     # TRAN from  BELLOTA  115.00  BRKR to BRKR  BELLOTA  230.00
0
 #
 #
 # (378)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  33610 30490  "1 "    0     # TRAN from  VLLY SPS  60.00  BRKR to (3)   VLLY SPS 230.00
1  30490 30485  "1 "    0     # line from  VLLY SPS 230.00  BRKR to BRKR  TIGR CRK 230.00
1  30490 30500  "1 "    0     # line from  VLLY SPS 230.00  BRKR to BRKR  BELLOTA  230.00
0
 #
 #
 # (379)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  33650 30505  "1 "    0     # TRAN from  WEBER 1   60.00  BRKR to BRKR  WEBER    230.00
0
 #
 #
 # (380)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  33662 30505  "2 "    0     # TRAN from  WEBER 2   60.00  BRKR to BRKR  WEBER    230.00
2  33662 30505  "2a"   0      # Bank 2 or 2a are tied to same breaker (CB 242,202&82)
0
 #
 #
 # (381)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  33704 30498  "1 "    0     # TRAN from  STAGG     60.00  BRKR to BRKR  STAGG-D  230.00
0
 #
 #
 # (382)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  33704 30499  "4 "    0     # TRAN from  STAGG     60.00  BRKR to BRKR  STAGG-E  230.00
1  30499 30489  "1 "    0      #Open Stagg-E-Stagg Jct2 line section
0
 #
```

```
 #
 # (383)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  33724 30482  "2 "    0     # TRAN from  LOCKEFRD  60.00  BRKR to BRKR  LOCKFORD 230.00
0
 #
 #
 # (384)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  33724 30482  "3 "    0     # TRAN from  LOCKEFRD  60.00  BRKR to BRKR  LOCKFORD 230.00
0
 #
 #
 # (385)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  33742 33514  "3 "    0     # TRAN from  MANTECA   60.00  BRKR to BRKR  MANTECA  115.00
0
 #
 #
 # (386)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  33756 33528  "1 "    0     # TRAN from  KASSON    60.00   (4) to BRKR  KASSON   115.00
1  33756 33750  "1 "    0     # line from  KASSON    60.00  BRKR to (1)   CALVO     60.00
1  33756 33758  "1 "    0     # line from  KASSON    60.00  BRKR to BRKR  BANTA     60.00
1  33756 33760  "1 "    0     # line from  KASSON    60.00  BRKR to (1)   BNTA JCT  60.00
4  33758     0  "1 "    0     # LOAD-DROP    BANTA     60.00  LOAD==7.14(0.32)
0
 #
 #
 # (387)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  33770 33600  "2 "    0     # TRAN from  HERDLYN   60.00  BRKR to BRKR  HERDLYN   70.00
1  33770 33772  "1 "    0      #Open Herdlyn-Byron Bethany line section
1  33770 33774  "1 "    0      #Open Herdlyn-Herdlyn Jct line section
4  33770     0  "**"    0      #Drop Herdlyn 60 kV load with outage
1  33600 37582  "1 "    0      #Open Herdlyn-Tracy 70 kV Line section
0
 #
 #
 # (388)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  33800 33582  "1 "    0     # TRAN from  SALT SPS  21.00   (2) to (2)   SLT SPRG 115.00
1  33800 38100  "1 "    0     # line from  SALT SPS  21.00  BRKR to (1)   SPICER    21.00
1  33582 33584  "1 "    0     # line from  SLT SPRG 115.00  BRKR to BRKR  TIGR CRK 115.00
4  33800     0  "1 "    0     # LOAD-DROP    SALT SPS  21.00  LOAD==12.04(0.54)
3  33800     0  "1 "    0     # GEN-DROP    SALT SPS  21.00  GEN==10.20(3.00)
3  33800     0  "2 "    0     # GEN-DROP    SALT SPS  21.00  GEN==32.00(12.40)
0
 #
 #
 # (389)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  33850 33566  "1 "    0     # TRAN from  CAMANCHE   4.16   (1) to BRKR  CAMANCHE 115.00
3  33850     0  "1 "    0     # GEN-DROP    CAMANCHE   4.16  GEN==3.50(1.41)
3  33850     0  "2 "    0     # GEN-DROP    CAMANCHE   4.16  GEN==3.50(0.00)
3  33850     0  "3 "    0     # GEN-DROP    CAMANCHE   4.16  GEN==3.50(0.00)
0
 #
 #
 # (390)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  33906 34078  "1 "    0     # TRAN from  SPRNG GP 115.00  BRKR to (1)   SPRNG GP   6.00
3  34078     0  "1 "    0     # GEN-DROP    SPRNG GP   6.00  GEN==3.90(3.70)
4  33906     0  "**"    0      # This outage will also drop distribution load Bk1
0
 #
 #
 # (391)  B3 TRANSFORMER OUTAGE (BREAKER-TO-BREAKER)
 #
2  34002 33964  "1 "    0     # TRAN from  SALADO    60.00  BRKR to (3)   SALADO   115.00
1  33964 33962  "1 "    0     # line from  SALADO   115.00  BRKR to (1)   SALDO TP 115.00
1  33964 33965  "1 "    0     # line from  SALADO   115.00  BRKR to (1)   SALADO J 115.00
0
 #
```

```
 #
 # (392)  B1 GENERATOR OUTAGE
 #
3  33687     0  "1"     0     # STKTN WW  60.00       PGEN=1.50  QGEN=0.15
0
 #
 #
 # (393)  B1 GENERATOR OUTAGE
 #
3  33773     0  "1"     0     # ALTA-CGE  60.00       PGEN=4.03  QGEN=-1.00
0
 #
 #
 # (394)  B1 GENERATOR OUTAGE
 #
3  33800     0  "1"     0     # SALT SPS  21.00       PGEN=10.18  QGEN=3.00
0
 #
 #
 # (395)  B1 GENERATOR OUTAGE
 #
3  33800     0  "2"     0     # SALT SPS  21.00       PGEN=32.00  QGEN=12.40
0
 #
 #
 # (396)  B1 GENERATOR OUTAGE
 #
3  33804     0  "1"     0     # BELLTA T  13.80       PGEN=0.00  QGEN=39.35
0
 #
 #
 # (397)  B1 GENERATOR OUTAGE
 #
3  33805     0  "1"     0     # GWFTRCY1  13.80       PGEN=85.90  QGEN=17.66
0
 #
 #
 # (398)  B1 GENERATOR OUTAGE
 #
3  33806     0  "1"     0     # TH.E.DV.  13.80       PGEN=19.65  QGEN=6.00
0
 #
 #
 # (399)  B1 GENERATOR OUTAGE
 #
3  33807     0  "1"     0     # GWFTRCY2  13.80       PGEN=85.90  QGEN=17.66
0
 #
 #
 # (400)  B1 GENERATOR OUTAGE
 #
3  33808     0  "1"     0     # SJ COGEN  13.80       PGEN=45.24  QGEN=27.41
0
 #
 #
 # (401)  B1 GENERATOR OUTAGE
 #
3  33810     0  "1"     0     # SP CMPNY  13.80       PGEN=37.70  QGEN=16.07
0
 #
 #
 # (402)  B1 GENERATOR OUTAGE
 #
3  33812     0  "1"     0     # ELECTRA   13.80       PGEN=29.00  QGEN=8.65
0
 #
 #
 # (403)  B1 GENERATOR OUTAGE
 #
3  33812     0  "2"     0     # ELECTRA   13.80       PGEN=29.00  QGEN=8.65
0
 #
 #
 # (404)  B1 GENERATOR OUTAGE
```

```
 #
3  33812    0  "3"    0    # ELECTRA   13.80      PGEN=29.00  QGEN=8.65
0
 #
 #
 # (405)  B1 GENERATOR OUTAGE
 #
3  33814    0  "1"    0    # CPC STCN  12.47      PGEN=49.00  QGEN=15.30
0
 #
 #
 # (406)  B1 GENERATOR OUTAGE
 #
3  33820    0  "1"    0    # WEST PNT  11.50      PGEN=13.60  QGEN=7.00
0
 #
 #
 # (407)  B1 GENERATOR OUTAGE
 #
3  33822    0  "1"    0    # TIGR CRK  11.00      PGEN=26.70  QGEN=4.18
0
 #
 #
 # (408)  B1 GENERATOR OUTAGE
 #
3  33822    0  "2"    0    # TIGR CRK  11.00      PGEN=27.00  QGEN=4.23
0
 #
 #
 # (409)  B1 GENERATOR OUTAGE
 #
3  33830    0  "1"    0    # GEN.MILL   9.11      PGEN=2.50  QGEN=1.50
0
 #
 #
 # (410)  B1 GENERATOR OUTAGE
 #
3  33832    0  "1"    0    # COG.CAPT   9.11      PGEN=4.30  QGEN=6.60
0
 #
 #
 # (411)  B1 GENERATOR OUTAGE
 #
3  33836    0  "3"    0    # USWP_#4    9.11      PGEN=4.50  QGEN=0.00
0
 #
 #
 # (412)  B1 GENERATOR OUTAGE
 #
3  33840    0  "1"    0    # FLOWD3-6   9.11      PGEN=1.25  QGEN=0.00
0
 #
 #
 # (413)  B1 GENERATOR OUTAGE
 #
3  33840    0  "4"    0    # FLOWD3-6   9.11      PGEN=1.13  QGEN=0.00
0
 #
 #
 # (414)  B1 GENERATOR OUTAGE
 #
3  33846    0  "2"    0    # PRDE 1-3   7.20      PGEN=8.00  QGEN=2.00
0
 #
 #
 # (415)  B1 GENERATOR OUTAGE
 #
3  33848    0  "1"    0    # PARDE 2    7.20      PGEN=8.00  QGEN=-1.50
0
 #
 #
 # (416)  B1 GENERATOR OUTAGE
 #
3  33850    0  "1"    0    # CAMANCHE   4.16      PGEN=3.50  QGEN=-2.00
```

```
0
 #
 #
 # (417)  B1 GENERATOR OUTAGE
 #
3  33850    0  "2"    0    # CAMANCHE   4.16      PGEN=3.50  QGEN=0.00
0
 #
 #
 # (418)  B1 GENERATOR OUTAGE
 #
3  33850    0  "3"    0    # CAMANCHE   4.16      PGEN=3.50  QGEN=0.00
0
 #
 #
 # (419)  B1 GENERATOR OUTAGE
 #
3  34050    0  "1"    0    # CH.STN.   13.80      PGEN=10.02  QGEN=10.00
0
 #
 #
 # (420)  B1 GENERATOR OUTAGE
 #
3  34056    0  "1"    0    # STNSLSRP  13.80      PGEN=16.27  QGEN=7.52
0
 #
 #
 # (421)  B1 GENERATOR OUTAGE
 #
3  34058    0  "1"    0    # DONNELLS  13.80      PGEN=64.15  QGEN=10.63
0
 #
 #
 # (422)  B1 GENERATOR OUTAGE
 #
3  34060    0  "1"    0    # SANDBAR   13.80      PGEN=14.68  QGEN=0.96
0
 #
 #
 # (423)  B1 GENERATOR OUTAGE
 #
3  34062    0  "1"    0    # STANISLS  13.80      PGEN=63.92  QGEN=15.00
0
 #
 #
 # (424)  B1 GENERATOR OUTAGE
 #
3  34074    0  "1"    0    # BEARDSLY   6.90      PGEN=10.58  QGEN=0.58
0
 #
 #
 # (425)  B1 GENERATOR OUTAGE
 #
3  34076    0  "1"    0    # TULLOCH    6.90      PGEN=8.25  QGEN=0.64
0
 #
 #
 # (426)  B1 GENERATOR OUTAGE
 #
3  34076    0  "2"    0    # TULLOCH    6.90      PGEN=8.25  QGEN=0.64
0
 #
 #
 # (427)  B1 GENERATOR OUTAGE
 #
3  34078    0  "1"    0    # SPRNG GP   6.00      PGEN=3.93  QGEN=1.41
0
 #
 #
 # (428)  B1 GENERATOR OUTAGE
 #
3  38102    0  "1"    0    # COLLRVL1  13.80      PGEN=89.35  QGEN=58.46
0
 #
```

```
 #
 # (429)  B1 GENERATOR OUTAGE
 #
3  38104     0  "1"     0     # COLLRVL2  13.80       PGEN=89.35  QGEN=58.46
0
 #
 #
 # (430)  B1 GENERATOR OUTAGE
 #
3  38365     0  "1"     0     # N.HGN DM  12.00       PGEN=1.50  QGEN=0.10
0
 #
 #
 # (431)  B1 GENERATOR OUTAGE
 #
3  38365     0  "2"     0     # N.HGN DM  12.00       PGEN=1.50  QGEN=0.10
0
 #
 #
 # (432)  B1 GENERATOR OUTAGE
 #
3  33818     0  "1"     0     # Q199      13.80       PGEN=60.50  QGEN=4.13
0
 #
 #
 # (433)  B1 GENERATOR OUTAGE
 #
3  33858     0  "1"     0     # P0409CG2  13.80       PGEN=78.24  QGEN=5.46
0
 #
 #
 # (434)  B1 GENERATOR OUTAGE
 #
3  33859     0  "2"     0     # P0703ST2  13.80       PGEN=65.28  QGEN=3.31
0
 #
 #
 # (435)  B1 GENERATOR OUTAGE
 #
3  33863     0  "1"     0     # Q235GT1   13.80       PGEN=109.00  QGEN=14.62
0
 #
 #
 # (436)  B1 GENERATOR OUTAGE
 #
3  33871     0  "1"     0     # Q236GT1   13.80       PGEN=109.00  QGEN=12.29
0
 #
 #
 # (437)  B1 GENERATOR OUTAGE
 #
3  33877     0  "1"     0     # Q260CT1   18.00       PGEN=174.00  QGEN=26.16
0
 #
 #
 # (438)  B1 GENERATOR OUTAGE
 #
3  33878     0  "1"     0     # Q260ST1   13.80       PGEN=94.00  QGEN=12.26
0
 #
 #
 # (439)  B1 GENERATOR OUTAGE
 #
3  33888     0  "1"     0     # P0703GT1  16.50       PGEN=184.50  QGEN=10.94
0
 #
 #
 # (440)  B1 GENERATOR OUTAGE
 #
3  33891     0  "1"     0     # TESL_GT1  18.00       PGEN=173.00  QGEN=59.83
0
 #
 #
 # (441)  B1 GENERATOR OUTAGE
```

```
 #
3  33895     0  "1"    0    # TESL_ST1  18.00      PGEN=232.00  QGEN=79.95
0
 #
 #
 # (442)  B1 GENERATOR OUTAGE
 #
3  33809     0  "1"    0    # Q268ST1   13.80      PGEN=154.70  QGEN=14.72
0
 #
 #
 # (443)  L-1/G-1 OVERLAPPING OUTAGE
 # Melones - Race Track 115 kV Line and Chinese Station
1  33932 33922  "1 "    0    # line from  MELONES  115.00  BRKR to (1)   R.TRACK  115.00
4  33922     0  "1 "    0    # LOAD-DROP    R.TRACK  115.00  LOAD==17.06(0.76)
 #
3  34050     0  "1"    0    # CH.STN.   13.80      PGEN=10.02  QGEN=10.00
0
 #
 #
 # (444)  L-1/G-1 OVERLAPPING OUTAGE
 # Tesla - Tracy 115 kV Line and Stanislaus Powerhouse
1  33540 33544  "1 "    0    # line from  TESLA    115.00  BRKR to (2)   ELLS GTY 115.00
1  33544 33546  "1 "    0    # line from  ELLS GTY 115.00   (2) to (2)   TRACY JC 115.00
1  33546 33542  "1 "    0    # line from  TRACY JC 115.00   (2) to (2)   LEPRINO  115.00
1  33542 33548  "1 "    0    # line from  LEPRINO  115.00   (2) to BRKR  TRACY    115.00
4  33544     0  "1 "    0    # LOAD-DROP    ELLS GTY 115.00  LOAD==3.62(1.86)
4  33542     0  "1 "    0    # LOAD-DROP    LEPRINO  115.00  LOAD==3.67(2.37)
 #
3  34062     0  "1"    0    # STANISLS  13.80      PGEN=63.92  QGEN=15.00
0
 #
 #
 # (445)  L-1/G-1 OVERLAPPING OUTAGE
 # Tesla - Manteca 115 kV Line and Stanislaus Powerhouse pre-project outage
1  33514 33526  "1 "    0    # line from  MANTECA  115.00  BRKR to (3)   KSSN-JC1 115.00
1  33526 33528  "1 "    0    # line from  KSSN-JC1 115.00   (3) to BRKR  KASSON   115.00
1  33526 33533  "1 "    0    # line from  KSSN-JC1 115.00   (3) to (2)   OWENSTP2 115.00
1  33533 33535  "1 "    0    # line from  OWENSTP2 115.00   (2) to (2)   SFWY_TP2 115.00
1  33535 33543  "1 "    0    # line from  SFWY_TP2 115.00   (2) to (3)   AEC_TP2  115.00
1  33543 33540  "1 "    0    # line from  AEC_TP2  115.00   (3) to BRKR  TESLA    115.00
1  33543 33545  "1 "    0    # line from  AEC_TP2  115.00   (3) to (2)   AEC_JCT  115.00
1  33545 33547  "1 "    0    # line from  AEC_JCT  115.00   (2) to (1)   AEC_300  115.00
4  33547     0  "1 "    0    # LOAD-DROP    AEC_300  115.00  LOAD==3.00(9.54)
 #
3  34062     0  "1"    0    # STANISLS  13.80      PGEN=63.92  QGEN=15.00
0
 #
 #
 # (446)  L-1/G-1 OVERLAPPING OUTAGE
 # Tesla - Schulte #2 115 kV Line and Stanislaus Powerhouse post-project outage
1  33535 33549  "2 "    0    # line from  SFWY_TP2 115.00   (2) to BRKR  SCHULTE  115.00
1  33535 33543  "1 "    0    # line from  SFWY_TP2 115.00   (2) to (3)   AEC_TP2  115.00
1  33543 33540  "1 "    0    # line from  AEC_TP2  115.00   (3) to BRKR  TESLA    115.00
1  33543 33545  "1 "    0    # line from  AEC_TP2  115.00   (3) to (2)   AEC_JCT  115.00
1  33545 33547  "1 "    0    # line from  AEC_JCT  115.00   (2) to (1)   AEC_300  115.00
4  33547     0  "1 "    0    # LOAD-DROP    AEC_300  115.00  LOAD==3.00(9.54)
 #
3  34062     0  "1"    0    # STANISLS  13.80      PGEN=63.92  QGEN=15.00
0
 #
 #
 # (447)  L-1/G-1 OVERLAPPING OUTAGE
 # Schulte - Manteca 115 kV Line and Stanislaus Powerhouse post-project outage
1  33514 33526  "1 "    0    # line from  MANTECA  115.00  BRKR to (3)   KSSN-JC1 115.00
1  33526 33528  "1 "    0    # line from  KSSN-JC1 115.00   (3) to BRKR  KASSON   115.00
1  33526 33533  "1 "    0    # line from  KSSN-JC1 115.00   (3) to (2)   OWENSTP2 115.00
1  33533 33549  "2 "    0    # line from  OWENSTP2 115.00   (2) to BRKR  SCHULTE  115.00
 #
3  34062     0  "1"    0    # STANISLS  13.80      PGEN=63.92  QGEN=15.00
0
 #
 #
 # (448)  L-1/G-1 OVERLAPPING OUTAGE
```

```
 # Bellota - Riverbank - Melones 115 kV Line and Stanislaus Powerhouse
1  33562 33950  "1 "    0     # line from  BELLOTA  115.00  BRKR to (3)   RVRBK TP 115.00
1  33950 33934  "1 "    0     # line from  RVRBK TP 115.00   (3) to (3)   TULLOCH  115.00
1  33950 33944  "1 "    0     # line from  RVRBK TP 115.00   (3) to BRKR  RVRBANK  115.00
1  33934 33932  "1 "    0     # line from  TULLOCH  115.00   (3) to BRKR  MELONES  115.00
2  33934 34076  "1 "    0     # TRAN from  TULLOCH  115.00   (3) to (1)   TULLOCH    6.90
3  34076     0  "1 "    0     # GEN-DROP    TULLOCH    6.90  GEN==8.30(1.00)
3  34076     0  "2 "    0     # GEN-DROP    TULLOCH    6.90  GEN==8.30(1.00)
 #
3  34062     0  "1"     0     # STANISLS  13.80       PGEN=63.92  QGEN=15.00
0
 #
 #
 # (449)  L-1/G-1 OVERLAPPING OUTAGE
 # Stanislaus - Manteca #2 115 kV Line and Stanislaus Powerhouse
1  33506 33948  "1 "    0     # line from  STANISLS 115.00  BRKR to (2)   RVRBK J2 115.00
1  33948 33953  "1 "    0     # line from  RVRBK J2 115.00   (2) to (2)   VLYHMTP2 115.00
1  33953 33511  "1 "    0     # line from  VLYHMTP2 115.00   (2) to (2)   AVENATP2 115.00
1  33511 33514  "1 "    0     # line from  AVENATP2 115.00   (2) to BRKR  MANTECA  115.00
 #
3  34062     0  "1"     0     # STANISLS  13.80       PGEN=63.92  QGEN=15.00
0
 #
 #
 # (450)  L-1/G-1 OVERLAPPING OUTAGE
 # Riverbank Jct Sw Sta - Manteca 115 kV Line and Stanislaus Powerhouse
1  33516 33514  "1 "    0     # line from  RPN JNCN 115.00   (3) to BRKR  MANTECA  115.00
1  33516 33520  "1 "    0     # line from  RPN JNCN 115.00   (3) to (1)   RIPON    115.00
1  33516 33951  "1 "    0     # line from  RPN JNCN 115.00   (3) to (3)   VLYHMTP1 115.00
1  33951 33947  "1 "    0     # line from  VLYHMTP1 115.00   (3) to BRKR  RIVRBKJT 115.00
1  33951 33952  "1 "    0     # line from  VLYHMTP1 115.00   (3) to (1)   VALLY HM 115.00
4  33520     0  "2 "    0     # LOAD-DROP    RIPON    115.00  LOAD==29.97(1.34)
4  33952     0  "1 "    0     # LOAD-DROP    VALLY HM 115.00  LOAD==5.36(0.24)
 #
3  34062     0  "1"     0     # STANISLS  13.80       PGEN=63.92  QGEN=15.00
0
 #
 #
 # (451)  L-1/G-1 OVERLAPPING OUTAGE
 # Stanislaus - Melones - Manteca #1 115 kV Line and Stanislaus Powerhouse
1  33500 33509  "1 "    0     # line from  MELNS JA 115.00   (3) to (3)   AVENATP1 115.00
1  33500 33501  "1 "    0     # line from  MELNS JA 115.00   (3) to (3)   FRGTNTP1 115.00
1  33500 33932  "1 "    0     # line from  MELNS JA 115.00   (3) to BRKR  MELONES  115.00
1  33509 33510  "1 "    0     # line from  AVENATP1 115.00   (3) to (1)   AVENA    115.00
1  33509 33514  "1 "    0     # line from  AVENATP1 115.00   (3) to BRKR  MANTECA  115.00
1  33501 33502  "1 "    0     # line from  FRGTNTP1 115.00   (3) to (1)   FROGTOWN 115.00
1  33501 33506  "1 "    0     # line from  FRGTNTP1 115.00   (3) to BRKR  STANISLS 115.00
4  33510     0  "1 "    0     # LOAD-DROP    AVENA    115.00  LOAD==13.67(0.61)
4  33502     0  "1 "    0     # LOAD-DROP    FROGTOWN 115.00  LOAD==11.14(0.50)
4  33502     0  "2 "    0     # LOAD-DROP    FROGTOWN 115.00  LOAD==8.04(0.36)
1  33511 33510  "1 "    1      # Switches in Avenan SW 145 to transfer load
4  33510     0  "**"    1      # Restores Load at Avena
 #
3  34062     0  "1"     0     # STANISLS  13.80       PGEN=63.92  QGEN=15.00
0
 #
 #
 # (452)  L-1/G-1 OVERLAPPING OUTAGE
 # Tesla - Stockton Cogen 115 kV Line and Stanislaus Powerhouse
1  33540 33568  "1 "    0     # line from  TESLA    115.00  BRKR to (3)   TH.E.DV. 115.00
1  33568 33570  "1 "    0     # line from  TH.E.DV. 115.00   (3) to (3)   SPC JCT. 115.00
2  33568 33806  "1 "    0     # TRAN from  TH.E.DV. 115.00   (3) to (1)   TH.E.DV.  13.80
1  33570 33587  "1 "    0     # line from  SPC JCT. 115.00   (3) to (3)   P0409TP2 115.00
1  33570 33956  "1 "    0     # line from  SPC JCT. 115.00   (3) to (2)   SJ COGEN 115.00
1  33587 33572  "1 "    0     # line from  P0409TP2 115.00   (3) to (2)   SP CMPNY 115.00
1  33587 33588  "1 "    0     # line from  P0409TP2 115.00   (3) to (2)   P0409CG2 115.00
2  33572 33810  "1 "    0     # TRAN from  SP CMPNY 115.00   (2) to (1)   SP CMPNY  13.80
2  33588 33858  "1 "    0     # TRAN from  P0409CG2 115.00   (2) to (1)   P0409CG2  13.80
2  33956 33808  "1 "    0     # TRAN from  SJ COGEN 115.00   (2) to (1)   SJ COGEN  13.80
4  33858     0  "ss"    0     # LOAD-DROP    P0409CG2  13.80  LOAD==3.34(1.85)
3  33806     0  "1 "    0     # GEN-DROP    TH.E.DV.  13.80  GEN==19.60(6.00)
3  33810     0  "1 "    0     # GEN-DROP    SP CMPNY  13.80  GEN==37.70(0.52)
3  33858     0  "1 "    0     # GEN-DROP    P0409CG2  13.80  GEN==78.24(5.46)
3  33808     0  "1 "    0     # GEN-DROP    SJ COGEN  13.80  GEN==45.20(9.58)
```

```
 #
3  34062     0  "1"    0    # STANISLS  13.80       PGEN=63.92  QGEN=15.00
0
 #
 #
 # (453)  L-1/G-1 OVERLAPPING OUTAGE
 # Stockton A - Weber #2 60 kV Line and POSDEF
1  33658 33670  "1 "    0    # line from  SNTA FEB  60.00   (3) to BRKR  STCKTN A  60.00
1  33658 33678  "1 "    0    # line from  SNTA FEB  60.00   (3) to (2)   MONARCH   60.00
1  33658 33662  "1 "    0    # line from  SNTA FEB  60.00   (3) to BRKR  WEBER 2   60.00
1  33678 33684  "1 "    0    # line from  MONARCH   60.00   (2) to (2)   HARDING   60.00
1  33684 33686  "1 "    0    # line from  HARDING   60.00   (2) to (1)   STCKTNAR  60.00
4  33678     0  "2 "    0    # LOAD-DROP    MONARCH   60.00  LOAD==4.13(0.18)
4  33684     0  "1 "    0    # LOAD-DROP    HARDING   60.00  LOAD==4.75(0.21)
4  33684     0  "2 "    0    # LOAD-DROP    HARDING   60.00  LOAD==5.28(0.24)
4  33686     0  "1 "    0    # LOAD-DROP    STCKTNAR  60.00  LOAD==4.10(0.18)
 #
3  33818     0  "1"    0    # Q199      13.80       PGEN=60.50  QGEN=4.13
0
 #
 #
 # (454)  L-1/G-1 OVERLAPPING OUTAGE
 # Salado - Patterson 60 kV Line and Stanislaus Waste Cogen
1  34002 34004  "1 "    0    # line from  SALADO    60.00  BRKR to (2)   PTRSNFRZ  60.00
1  34004 34006  "1 "    0    # line from  PTRSNFRZ  60.00   (2) to BRKR  PATTERSN  60.00
 #
3  34056     0  "1"    0    # STNSLSRP  13.80       PGEN=16.27  QGEN=7.52
0
 #
 #
 # (455)  L-1/G-1 OVERLAPPING OUTAGE
 # Salado - Newman #2 60 kV Line and Stanislaus Waste Cogen
1  34002 34008  "1 "    0    # line from  SALADO    60.00  BRKR to (3)   STNSLSRP  60.00
1  34008 34016  "1 "    0    # line from  STNSLSRP  60.00   (3) to (2)   MEDLIN J  60.00
2  34008 34056  "1 "    0    # TRAN from  STNSLSRP  60.00   (3) to (1)   STNSLSRP  13.80
1  34016 34018  "1 "    0    # line from  MEDLIN J  60.00   (2) to (3)   NWMN JCT  60.00
1  34018 34014  "1 "    0    # line from  NWMN JCT  60.00   (3) to BRKR  NEWMAN    60.00
1  34018 34020  "1 "    0    # line from  NWMN JCT  60.00   (3) to (1)   GUSTINE   60.00
4  34020     0  "1 "    0    # LOAD-DROP    GUSTINE   60.00  LOAD==9.90(0.44)
4  34020     0  "2 "    0    # LOAD-DROP    GUSTINE   60.00  LOAD==10.83(0.49)
3  34056     0  "1 "    0    # GEN-DROP    STNSLSRP  13.80  GEN==16.30(6.29)
1  34012 34020  "1 "    1     # Switches in Gustine SW 19 to transfer load
4  34020 0      "**"    1     # Restore Load at Gustine
 #
3  34056     0  "1"    0    # STNSLSRP  13.80       PGEN=16.27  QGEN=7.52
0
 #
 #
 # (456)  L-1/G-1 OVERLAPPING OUTAGE
 # Tesla - Salado #1 115 kV Line and Stanislaus Waste Cogen
1  33540 33961  "1 "    0    # line from  TESLA    115.00  BRKR to (3)   TCHRT_T1 115.00
1  33961 33960  "1 "    0    # line from  TCHRT_T1 115.00   (3) to (2)   MDSTO CN 115.00
1  33961 33963  "1 "    0    # line from  TCHRT_T1 115.00   (3) to (2)   TCHRTJCT 115.00
1  33960 33962  "1 "    0    # line from  MDSTO CN 115.00   (2) to (3)   SALDO TP 115.00
1  33962 33964  "1 "    0    # line from  SALDO TP 115.00   (3) to BRKR  SALADO   115.00
1  33962 33967  "1 "    0    # line from  SALDO TP 115.00   (3) to (2)   MILER TP 115.00
1  33967 33966  "1 "    0    # line from  MILER TP 115.00   (2) to (1)   MILLER   115.00
1  33963 33968  "1 "    0    # line from  TCHRTJCT 115.00   (2) to (1)   TEICHERT 115.00
4  33966     0  "1 "    0    # LOAD-DROP    MILLER   115.00  LOAD==3.55(1.72)
4  33968     0  "1 "    0    # LOAD-DROP    TEICHERT 115.00  LOAD==7.44(6.56)
 #
3  34056     0  "1"    0    # STNSLSRP  13.80       PGEN=16.27  QGEN=7.52
0
 #
 #
 # (457)  L-1/G-1 OVERLAPPING OUTAGE
 # Tesla - Salado - Manteca 115 kV Line and Stanislaus Waste Cogen
1  33514 33970  "1 "    0    # line from  MANTECA  115.00  BRKR to (3)   INGRM C. 115.00
1  33970 33959  "1 "    0    # line from  INGRM C. 115.00   (3) to (2)   TCHRT_T2 115.00
1  33970 33965  "1 "    0    # line from  INGRM C. 115.00   (3) to (2)   SALADO J 115.00
1  33959 33540  "1 "    0    # line from  TCHRT_T2 115.00   (2) to BRKR  TESLA    115.00
1  33965 33964  "1 "    0    # line from  SALADO J 115.00   (2) to BRKR  SALADO   115.00
4  33970     0  "1 "    0    # LOAD-DROP    INGRM C. 115.00  LOAD==3.60(1.74)
 #
```

```
3  34056     0  "1"    0    # STNSLSRP  13.80      PGEN=16.27  QGEN=7.52
0
 #
 #
 # (458)  L-1/G-1 OVERLAPPING OUTAGE
 # Tesla - Schulte #1 115 kV Line and GWF Tracy 1
1  33537 33534  "1 "    0    # line from  SFWY_TP1 115.00   (3) to (1)   SAFEWAY  115.00
1  33537 33549  "1 "    0    # line from  SFWY_TP1 115.00   (3) to BRKR  SCHULTE  115.00
1  33537 33541  "1 "    0    # line from  SFWY_TP1 115.00   (3) to (2)   AEC_TP1  115.00
1  33541 33540  "1 "    0    # line from  AEC_TP1  115.00   (2) to BRKR  TESLA    115.00
4  33534     0  "1 "    0    # LOAD-DROP    SAFEWAY  115.00  LOAD==5.38(2.76)
 #
3  33805     0  "1"    0    # GWFTRCY1  13.80      PGEN=85.90  QGEN=17.66
0
 #
 #
 # (459)  L-1/G-1 OVERLAPPING OUTAGE
 # Tesla - Manteca 115 kV Line and GWF Tracy 1 pre-project outage
1  33514 33526  "1 "    0    # line from  MANTECA  115.00  BRKR to (3)   KSSN-JC1 115.00
1  33526 33528  "1 "    0    # line from  KSSN-JC1 115.00   (3) to BRKR  KASSON   115.00
1  33526 33533  "1 "    0    # line from  KSSN-JC1 115.00   (3) to (2)   OWENSTP2 115.00
1  33533 33535  "1 "    0    # line from  OWENSTP2 115.00   (2) to (2)   SFWY_TP2 115.00
1  33535 33543  "1 "    0    # line from  SFWY_TP2 115.00   (2) to (3)   AEC_TP2  115.00
1  33543 33540  "1 "    0    # line from  AEC_TP2  115.00   (3) to BRKR  TESLA    115.00
1  33543 33545  "1 "    0    # line from  AEC_TP2  115.00   (3) to (2)   AEC_JCT  115.00
1  33545 33547  "1 "    0    # line from  AEC_JCT  115.00   (2) to (1)   AEC_300  115.00
4  33547     0  "1 "    0    # LOAD-DROP    AEC_300  115.00  LOAD==3.00(9.54)
 #
3  33805     0  "1"    0    # GWFTRCY1  13.80      PGEN=85.90  QGEN=17.66
0
 #
 #
 # (460)  L-1/G-1 OVERLAPPING OUTAGE
 # Tesla - Schulte #2 115 kV Line and GWF Tracy 1 post-project outage
1  33535 33549  "2 "    0    # line from  SFWY_TP2 115.00   (2) to BRKR  SCHULTE  115.00
1  33535 33543  "1 "    0    # line from  SFWY_TP2 115.00   (2) to (3)   AEC_TP2  115.00
1  33543 33540  "1 "    0    # line from  AEC_TP2  115.00   (3) to BRKR  TESLA    115.00
1  33543 33545  "1 "    0    # line from  AEC_TP2  115.00   (3) to (2)   AEC_JCT  115.00
1  33545 33547  "1 "    0    # line from  AEC_JCT  115.00   (2) to (1)   AEC_300  115.00
4  33547     0  "1 "    0    # LOAD-DROP    AEC_300  115.00  LOAD==3.00(9.54)
 #
3  33805     0  "1"    0    # GWFTRCY1  13.80      PGEN=85.90  QGEN=17.66
0
 #
 #
 # (461)  L-1/G-1 OVERLAPPING OUTAGE
 # Schulte - Manteca 115 kV Line and GWF Tracy 1 post-project outage
1  33514 33526  "1 "    0    # line from  MANTECA  115.00  BRKR to (3)   KSSN-JC1 115.00
1  33526 33528  "1 "    0    # line from  KSSN-JC1 115.00   (3) to BRKR  KASSON   115.00
1  33526 33533  "1 "    0    # line from  KSSN-JC1 115.00   (3) to (2)   OWENSTP2 115.00
1  33533 33549  "2 "    0    # line from  OWENSTP2 115.00   (2) to BRKR  SCHULTE  115.00
 #
3  33805     0  "1"    0    # GWFTRCY1  13.80      PGEN=85.90  QGEN=17.66
0
 #
 #
 # (462)  L-1/G-1 OVERLAPPING OUTAGE
 # Lockeford - Lodi #2 60 kV Line and Lodi CT
1  33724 33726  "1 "    0    # line from  LOCKEFRD  60.00  BRKR to (2)   VICTOR    60.00
1  33726 33731  "1 "    0    # line from  VICTOR    60.00   (2) to (2)   WODBRG J  60.00
1  33731 33735  "1 "    0    # line from  WODBRG J  60.00   (2) to (2)   INDSTR J  60.00
1  33735 38060  "1 "    0    # line from  INDSTR J  60.00   (2) to BRKR  INDUSTRL  60.00
4  33726     0  "1 "    0    # LOAD-DROP    VICTOR    60.00  LOAD==0.21(0.01)
4  33726     0  "2 "    0    # LOAD-DROP    VICTOR    60.00  LOAD==3.54(0.16)
 #
3  38120     0  "1"    0    # LODI CT   13.80      PGEN=21.01  QGEN=0.10
0
 #
 #
 # (463)  L-1/G-1 OVERLAPPING OUTAGE
 # Lockeford - Lodi #3 60 kV Line and Lodi CT
1  33724 33736  "1 "    0    # line from  LOCKEFRD  60.00  BRKR to (2)   LODI JCT  60.00
1  33736 33729  "1 "    0    # line from  LODI JCT  60.00   (2) to BRKR  LODI AUX  60.00
 #
```

```
3  38120     0  "1"    0    # LODI CT   13.80       PGEN=21.01  QGEN=0.10
0
 #
 #
 # (464)  L-1/G-1 OVERLAPPING OUTAGE
 # Lockeford #1 60 kV Line and Lodi CT
1  33724 33738  "1 "    0    # line from  LOCKEFRD  60.00  BRKR to (1)   WATRLJCT  60.00
 #
3  38120     0  "1"    0    # LODI CT   13.80       PGEN=21.01  QGEN=0.10
0
 #
 #
 # (465)  L-1/G-1 OVERLAPPING OUTAGE
 # Lockeford - Industrial 60 kV Line and Lodi CT
1  33724 38060  "1 "    0    # line from  LOCKEFRD  60.00  BRKR to BRKR  INDUSTRL  60.00
 #
3  38120     0  "1"    0    # LODI CT   13.80       PGEN=21.01  QGEN=0.10
0
 #
 #
 # (466)  L-1/G-1 OVERLAPPING OUTAGE
 # Stockton Jct Sw Sta - Lockeford - Bellota #2 115 kV Line and Stockton Cogen
1  33552 33553  "1 "    0    # line from  STCKTNJB 115.00   (2) to BRKR  STKTON B 115.00
1  33552 33558  "1 "    0    # line from  STCKTNJB 115.00   (2) to (3)   LCKFRDJB 115.00
1  33558 33562  "1 "    0    # line from  LCKFRDJB 115.00   (3) to BRKR  BELLOTA  115.00
1  33558 33564  "1 "    0    # line from  LCKFRDJB 115.00   (3) to BRKR  LOCKFORD 115.00
4  33553     0  "3 "    0    # LOAD-DROP    STKTON B 115.00  LOAD==30.08(1.34)
1  33555 33553  "1 "    1     # Switches in Stockton 'A' SW 177 to transfer load
4  33553     0  "**"    1     # Restore Load at Stockton 'A' Bk  3
 #
3  33814     0  "1"    0    # CPC STCN  12.47       PGEN=49.00  QGEN=13.80
0
 #
 #
 # (467)  L-1/G-1 OVERLAPPING OUTAGE
 # Bellota - Melones 230 kV Line and Melones 1
1  30500 38206  "1 "    0    # line from  BELLOTA  230.00  BRKR to (2)   COTTLE A 230.00
1  38206 37563  "1 "    0    # line from  COTTLE A 230.00   (2) to BRKR  MELONES  230.00
4  38206     0  "1 "    0    # LOAD-DROP    COTTLE A 230.00  LOAD==27.63(1.24)
3  34604     0  "**"    0     # Drop unit#3 with a loss Bellota - Melones line
 #
3  37561     0  "1"    0    # MELONE1   13.80       PGEN=119.0  QGEN=53.00
0
 #
 #
 # (468)  L-1/G-1 OVERLAPPING OUTAGE
 # Bellota - Warnerville 230 kV Line and Melones 1
1  30500 38208  "1 "    0    # line from  BELLOTA  230.00  BRKR to (2)   COTTLE B 230.00
1  38208 30515  "1 "    0    # line from  COTTLE B 230.00   (2) to BRKR  WARNERVL 230.00
4  38208     0  "2 "    0    # LOAD-DROP    COTTLE B 230.00  LOAD==31.78(1.42)
3  34604     0  "**"    0     # Drop unit#3 with a loss Bellota - Warnerville line
 #
3  37561     0  "1"    0    # MELONE1   13.80       PGEN=119.0  QGEN=53.00
0
 #
 #
-1
 # EOF
```

```
# Q268 2013 spring category c contingency list (dctl and bus outages)
# Sacramento, Sierra and Stockton-Stanislaus Divisions Zones 304, 305 and 311-312
#
 # 2013 category c contingency list (dctl and bus outages)
 # Sacramento Division Zone 304
 #
 #
 # (1) C5 DCTL OUTAGE
 # Vaca-Dixon - Peabody and Vaca-Dixon - Lambie 230 kV Lines
1  30460 30472  "1 "    0     # line from  VACA-DIX 230.00  BRKR to BRKR  PEABODY  230.00
 #
1  30460 30478  "1 "    0     # line from  VACA-DIX 230.00  BRKR to BRKR  LAMBIE   230.00
0
 #
 #
 # (2) C5 DCTL OUTAGE
 # Vaca-Dixon - Peabody and Peabody - Birds Landing 230 kV Lines
1  30460 30472  "1 "    0     # line from  VACA-DIX 230.00  BRKR to BRKR  PEABODY  230.00
 #
1  30472 30479  "1 "    0     # line from  PEABODY  230.00  BRKR to BRKR  BDLSWSTA 230.00
0
 #
 #
 # (3) C5 DCTL OUTAGE
 # Vaca-Dixon - Lambie and Peabody - Birds Landing 230 kV Lines
1  30460 30478  "1 "    0     # line from  VACA-DIX 230.00  BRKR to BRKR  LAMBIE   230.00
 #
1  30472 30479  "1 "    0     # line from  PEABODY  230.00  BRKR to BRKR  BDLSWSTA 230.00
0
 #
 #
 # (4) C5 DCTL OUTAGE
 # Lambie - Birds Landing and Peabody - Birds Landing 230 kV Lines
1  30478 30479  "1 "    0     # line from  LAMBIE   230.00  BRKR to BRKR  BDLSWSTA 230.00
 #
1  30472 30479  "1 "    0     # line from  PEABODY  230.00  BRKR to BRKR  BDLSWSTA 230.00
0
 #
 #
 # (5) C5 DCTL OUTAGE
 # Birds Landing - Q262 #1 and #2 230 kV Lines
1  30479 30471  "1 "    0     # line from  BDLSWSTA 230.00  BRKR to BRKR  Q262SWST 230.00
 #
1  30479 30471  "2 "    0     # line from  BDLSWSTA 230.00  BRKR to BRKR  Q262SWST 230.00
0
 #
 #
 # (6) C5 DCTL OUTAGE
 # Q262 - Contra Costa PP and Q262 - Contra Costa Sub 230 kV Lines
1  30471 30525  "1 "    0     # line from  Q262SWST 230.00  BRKR to BRKR  C.COSTA  230.00
 #
1  30471 30523  "1 "    0     # line from  Q262SWST 230.00  BRKR to BRKR  CC SUB   230.00
0
 #
 #
 # (7) C5 DCTL OUTAGE
 # Q171 - Tesla 500 kV and Peabody - Birds Landing 230 kV Lines
1  30070 30040  "1 "    0     # line from  Q171     500.00  BRKR to BRKR  TESLA    500.00
 #
1  30472 30479  "1 "    0     # line from  PEABODY  230.00  BRKR to BRKR  BDLSWSTA 230.00
0
 #
 #
 # (8) C5 DCTL OUTAGE
 # Vaca-Dixon - Q257 #1 and #2 230 kV Lines
1  30460 30468  "1 "    0     # line from  VACA-DIX 230.00  BRKR to BRKR  Q257SWST 230.00
 #
1  30460 30468  "2 "    0     # line from  VACA-DIX 230.00  BRKR to BRKR  Q257SWST 230.00
0
 #
 #
 # (9) C5 DCTL OUTAGE
 # Q257 - Bahia and Q257 - Parkway 230 kV Lines
1  30468 30465  "1 "    0     # line from  Q257SWST 230.00  BRKR to BRKR  BAHIA    230.00
```

```
 #
1  30468 30467  "1 "    0     # line from  Q257SWST 230.00  BRKR to BRKR  PARKWAY  230.00
0
 #
 #
 # (10) C5 DCTL OUTAGE
 # Tulucay - Vaca-Dixon and Lakeville - Vaca-Dixon 230 kV Lines
1  30440 30460  "1 "    0     # line from  TULUCAY  230.00  BRKR to BRKR  VACA-DIX 230.00
 #
1  30435 30460  "1 "    0     # line from  LAKEVILE 230.00  BRKR to BRKR  VACA-DIX 230.00
0
 #
 #
 # (11) C5 DCTL OUTAGE
 # Glenn - CPV Colusa and Cottonwood - CPV Colusa #2 230 kV Lines
1  30110 30114  "4 "    0     # line from  GLENN    230.00  BRKR to BRKR  CPVSTA   230.00
 #
1  30106 30114  "2 "    0     # line from  COTWD_F  230.00  BRKR to BRKR  CPVSTA   230.00
0
 #
 #
 # (12) C5 DCTL OUTAGE
 # CPV Colusa - Vaca-Dixon #2 and #3 230 kV Lines
1  30114 30460  "2 "    0     # line from  CPVSTA   230.00  BRKR to BRKR  VACA-DIX 230.00
 #
1  30114 30460  "3 "    0     # line from  CPVSTA   230.00  BRKR to BRKR  VACA-DIX 230.00
0
 #
 #
 # (13) C5 DCTL OUTAGE
 # Cottonwood - CPV Colusa #1 and Cottonwood - Logan Creek 230 kV Lines
1  30105 30114  "1 "    0     # line from  COTWD_E  230.00  BRKR to BRKR  CPVSTA   230.00
 #
1  30105 30111  "1 "    0     # line from  COTWD_E  230.00  BRKR to BRKR  LOGAN CR 230.00
0
 #
 #
 # (14) C5 DCTL OUTAGE
 # CPV Colusa - Cortina and CPV Colusa - Vaca-Dixon #4 230 kV Lines
1  30114 30450  "1 "    0     # line from  CPVSTA   230.00  BRKR to BRKR  CORTINA  230.00
 #
1  30114 30460  "4 "    0     # line from  CPVSTA   230.00  BRKR to BRKR  VACA-DIX 230.00
0
 #
 #
 # (15) C5 DCTL OUTAGE
 # Brighton - Bellota and Rio Oso - Lockeford 230 kV Lines
1  30348 30500  "1 "    0     # line from  BRIGHTON 230.00  BRKR to BRKR  BELLOTA  230.00
 #
1  30330 30482  "1 "    0     # line from  RIO OSO  230.00  BRKR to BRKR  LOCKFORD 230.00
0
 #
 #
 # (16) C5 DCTL OUTAGE
 # Rio Oso - Brighton and Rio Oso - Lockeford 230 kV Lines
1  30330 30348  "1 "    0     # line from  RIO OSO  230.00  BRKR to BRKR  BRIGHTON 230.00
 #
1  30330 30482  "1 "    0     # line from  RIO OSO  230.00  BRKR to BRKR  LOCKFORD 230.00
0
 #
 #
 # (17) C5 DCTL OUTAGE
 # Fulton Jct - Vaca-Dixon and Madison - Vaca-Dixon 115 kV Lines
1  31953 31256  "1 "    0     # line from  AMEGTAP  115.00   (3) to (1)   FLTN JCT 115.00
1  31953 31954  "1 "    0     # line from  AMEGTAP  115.00   (3) to (1)   AMERIGAS 115.00
1  31953 31998  "1 "    0     # line from  AMEGTAP  115.00   (3) to BRKR  VACA-DIX 115.00
4  31954     0  "1 "    0     # LOAD-DROP    AMERIGAS 115.00  LOAD==6.73(1.37)
 #
1  31253 31974  "1 "    0     # line from  FLTN JT2 115.00   (2) to (1)   MADISON  115.00
1  31253 31952  "1 "    0     # line from  FLTN JT2 115.00   (2) to (2)   PUTH CRK 115.00
1  31952 31998  "1 "    0     # line from  PUTH CRK 115.00   (2) to BRKR  VACA-DIX 115.00
4  31974     0  "1 "    0     # LOAD-DROP    MADISON  115.00  LOAD==8.25(0.37)
4  31974     0  "2 "    0     # LOAD-DROP    MADISON  115.00  LOAD==5.33(0.23)
4  31974     0  "3 "    0     # LOAD-DROP    MADISON  115.00  LOAD==15.02(0.68)
```

```
4  31952     0  "1 "    0     # LOAD-DROP    PUTH CRK 115.00  LOAD==16.83(0.75)
0
 #
 #
 # (18) C5 DCTL OUTAGE
 # Vaca-Vacaville-Jameson-North Tower and Vaca-Vacaville-Cordelia 115 kV Lines
1  31995 32013  "1 "    0     # line from  HALE     115.00   (2) to (1)   HALE2    115.00
1  31995 31996  "1 "    0     # line from  HALE     115.00   (2) to (3)   HALE J1  115.00
1  31996 32006  "1 "    0     # line from  HALE J1  115.00   (3) to (3)   VCVLLE1J 115.00
1  31996 32020  "1 "    0     # line from  HALE J1  115.00   (3) to (3)   JMSN JCT 115.00
1  32006 31998  "1 "    0     # line from  VCVLLE1J 115.00   (3) to BRKR  VACA-DIX 115.00
1  32006 32000  "1 "    0     # line from  VCVLLE1J 115.00   (3) to BRKR  VACAVLL1 115.00
1  32020 32010  "1 "    0     # line from  JMSN JCT 115.00   (3) to BRKR  JAMESON  115.00
1  32020 32618  "1 "    0     # line from  JMSN JCT 115.00   (3) to (1)   NTWRJCT1 115.00
4  31995     0  "1 "    0     # LOAD-DROP    HALE     115.00  LOAD==2.39(1.42)
4  32000     0  "1 "    0     # LOAD-DROP    VACAVLL1 115.00  LOAD==30.49(1.36)
4  32010     0  "1 "    0     # LOAD-DROP    JAMESON  115.00  LOAD==38.91(1.74)
1  32002 32000  "1"     1     #Line transfer VACAVLL1 115kV TO VACAVLL2 115kV
4  32000     0  "**"    1     #Restore VACAVLL1 load
1  31995 32013  "1"     1     #Transfer load to HALE alternate
1  32012 32013  "1"     1     #Transfer load to HALE alternate
4  31995     0  "**"    1     #Restore load at HALE
1  32010 32009  "1 "    1     # LINE-TRANSFER JMSN JCT 115.00 to JAMESN-A 115.00
4  32010     0  "**"    1     # RESTORE JAMESON load
 #
1  31958 32012  "1 "    0     # line from  CORDELIA 115.00   (1) to (2)   HALE J2  115.00
1  32012 32004  "1 "    0     # line from  HALE J2  115.00   (2) to (3)   VCVLLE2J 115.00
1  32004 31998  "1 "    0     # line from  VCVLLE2J 115.00   (3) to BRKR  VACA-DIX 115.00
1  32004 32002  "1 "    0     # line from  VCVLLE2J 115.00   (3) to BRKR  VACAVLL2 115.00
4  31958     0  "2 "    0     # LOAD-DROP    CORDELIA 115.00  LOAD==17.61(0.79)
4  32002     0  "2 "    0     # LOAD-DROP    VACAVLL2 115.00  LOAD==44.68(2.00)
4  32002     0  "3 "    0     # LOAD-DROP    VACAVLL2 115.00  LOAD==43.87(1.96)
1  32000 32002  "1"     1     #Transfer VACAVLL2 load to alternate
4  32002     0  "**"    1     #Restore VACAVLL2 load
0
 #
 #
 # (19) C5 DCTL OUTAGE
 # Rio Oso - Woodland #1 and #2 115 kV Lines
1  31960 31966  "1 "    0     # line from  MOBILCHE 115.00   (2) to (3)   WODLNDJ1 115.00
1  31960 31970  "1 "    0     # line from  MOBILCHE 115.00   (2) to BRKR  WOODLD   115.00
1  31966 31965  "1 "    0     # line from  WODLNDJ1 115.00   (3) to (3)   KNIGHT1  115.00
1  31966 31971  "1 "    0     # line from  WODLNDJ1 115.00   (3) to (1)   ZAMORA1  115.00
1  31965 31963  "1 "    0     # line from  KNIGHT1  115.00   (3) to (1)   KNIGHTLD 115.00
1  31965 32214  "1 "    0     # line from  KNIGHT1  115.00   (3) to BRKR  RIO OSO  115.00
4  31960     0  "1 "    0     # LOAD-DROP    MOBILCHE 115.00  LOAD==0.10(0.00)
4  31963     0  "1 "    0     # LOAD-DROP    KNIGHTLD 115.00  LOAD==8.57(0.38)
 #
1  31964 31968  "2 "    0     # line from  KNIGHT2  115.00   (2) to (3)   WODLNDJ2 115.00
1  31964 32214  "2 "    0     # line from  KNIGHT2  115.00   (2) to BRKR  RIO OSO  115.00
1  31968 31970  "2 "    0     # line from  WODLNDJ2 115.00   (3) to BRKR  WOODLD   115.00
1  31968 31973  "2 "    0     # line from  WODLNDJ2 115.00   (3) to (2)   ZAMORA2  115.00
1  31973 31972  "2 "    0     # line from  ZAMORA2  115.00   (2) to (1)   ZAMORA   115.00
4  31972     0  "1 "    0     # LOAD-DROP    ZAMORA   115.00  LOAD==10.62(0.48)
0
 #
 #
 # (20) C5 DCTL OUTAGE
 # Rio Oso - West Sacramento and West Sacramento - Brighton 115 kV Lines
1  32214 31986  "1 "    0     # line from  RIO OSO  115.00  BRKR to BRKR  W.SCRMNO 115.00
 #
1  31978 31984  "1 "    0     # line from  DPWT_TP2 115.00   (3) to BRKR  BRIGHTN  115.00
1  31978 31986  "1 "    0     # line from  DPWT_TP2 115.00   (3) to BRKR  W.SCRMNO 115.00
1  31978 31988  "1 "    0     # line from  DPWT_TP2 115.00   (3) to (1)   DEEPWATR 115.00
4  31988     0  "2 "    0     # LOAD-DROP    DEEPWATR 115.00  LOAD==22.90(1.02)
4  31988     0  "3 "    0     # LOAD-DROP    DEEPWATR 115.00  LOAD==15.82(0.70)
1  31976 31988  "1"     1     #Transfer load to alternate Deepwater tap
4  31988     0  "**"    1     #Restore load at Deepwater
0
 #
 #

 # (21) BUS FAULT  30460  "VACA-DIX" bus section 1F
 #
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```
1  30460  30468  "1"    0     # LINE from  VACA-DIX 230.00  to  Q257SWST 230.00
1  30460  30435  "1"    0     # LINE from  VACA-DIX 230.00  to  LAKEVILE 230.00
1  30460  30450  "1"    0     # LINE from  VACA-DIX 230.00  to  CORTINA  230.00
6  30460     0  "v "    0     # SVD-DROP     VACA-DIX 230.00
0
 #
 #
 # (22) BUS FAULT  30460  "VACA-DIX" bus section 1E
 #
1  30460  30114  "2"    0     # LINE from  VACA-DIX 230.00  to  CPVSTA   230.00
1  30460  30478  "1"    0     # LINE from  VACA-DIX 230.00  to  LAMBIE   230.00
2  30460  31998  "3"    0     # TRAN from  VACA-DIX 230.00  to  VACA-DIX 115.00
0
 #
 #
 # (23) BUS FAULT  30460  "VACA-DIX" bus section 2F
 #
1  30460  30468  "2"    0     # LINE from  VACA-DIX 230.00  to  Q257SWST 230.00
1  30460  30440  "1"    0     # LINE from  VACA-DIX 230.00  to  TULUCAY  230.00
1  30460  30114  "3"    0     # LINE from  VACA-DIX 230.00  to  CPVSTA   230.00
0
 #
 #
 # (24) BUS FAULT  30460  "VACA-DIX" bus section 2E
 #
1  30460  30114  "4"    0     # LINE from  VACA-DIX 230.00  to  CPVSTA   230.00
1  30460  30472  "1"    0     # LINE from  VACA-DIX 230.00  to  PEABODY  230.00
2  30460  31998  "4"    0     # TRAN from  VACA-DIX 230.00  to  VACA-DIX 115.00
2  30460  31999  "2"    0     # TRAN from  VACA-DIX 230.00  to  VACA-CB  115.00
2  30460  31999  "2A"    0     # TRAN from  VACA-DIX 230.00  to  VACA-CB  115.00
0
 #
 #
 # (25) BUS FAULT  30461  "Q171"
 #
1  30461  30462  "1"    0     # LINE from  Q171     230.00  to  Q171CL1  230.00
1  30461  30463  "1"    0     # LINE from  Q171     230.00  to  Q171CL2  230.00
2  30461  30070  "1"    0     # TRAN from  Q171     230.00  to  Q171     500.00
0
 #
 #
 # (26) BUS FAULT  30472  "PEABODY"
 #
1  30472  30460  "1"    0     # LINE from  PEABODY  230.00  to  VACA-DIX 230.00
1  30472  30479  "1"    0     # LINE from  PEABODY  230.00  to  BDLSWSTA 230.00
4  30472     0  "1 "    0     # LOAD-DROP    PEABODY  230.00  LOAD==51.80(2.32)
4  30472     0  "2 "    0     # LOAD-DROP    PEABODY  230.00  LOAD==64.49(2.88)
4  30472     0  "3 "    0     # LOAD-DROP    PEABODY  230.00  LOAD==42.16(1.89)
0
 #
 #
 # (27) BUS FAULT  31970  "WOODLD"
 #
1  31970  31960  "1"    0     # LINE from  WOODLD   115.00  to  MOBILCHE 115.00
1  31970  31962  "1"    0     # LINE from  WOODLD   115.00  to  WDLND_BM 115.00
1  31970  31968  "2"    0     # LINE from  WOODLD   115.00  to  WODLNDJ2 115.00
4  31970     0  "1 "    0     # LOAD-DROP    WOODLD   115.00  LOAD==51.29(2.29)
4  31970     0  "2 "    0     # LOAD-DROP    WOODLD   115.00  LOAD==41.79(1.87)
4  31970     0  "3 "    0     # LOAD-DROP    WOODLD   115.00  LOAD==33.16(1.48)
0
 #
 #
 # (28) BUS FAULT  31984  "BRIGHTN"
 #
1  31984  31978  "1"    0     # LINE from  BRIGHTN  115.00  to  DPWT_TP2 115.00
1  31984  31993  "1"    0     # LINE from  BRIGHTN  115.00  to  BRKRJCT  115.00
1  31984  31994  "1"    0     # LINE from  BRIGHTN  115.00  to  GRAND IS 115.00
1  31984  31994  "2"    0     # LINE from  BRIGHTN  115.00  to  GRAND IS 115.00
2  31984  30348  "10"    0     # TRAN from  BRIGHTN  115.00  to  BRIGHTON 230.00
2  31984  30348  "9"    0     # TRAN from  BRIGHTN  115.00  to  BRIGHTON 230.00
0
 #
 #
 # (29) BUS FAULT  31986  "W.SCRMNO"
```

```
 #
1  31986  31978  "1"    0     # LINE from  W.SCRMNO 115.00  to  DPWT_TP2 115.00
1  31986  31980  "1"    0     # LINE from  W.SCRMNO 115.00  to  DPWTR_TP 115.00
1  31986  32214  "1"    0     # LINE from  W.SCRMNO 115.00  to  RIO OSO  115.00
4  31986     0  "1 "    0     # LOAD-DROP    W.SCRMNO 115.00  LOAD==27.70(1.24)
4  31986     0  "2 "    0     # LOAD-DROP    W.SCRMNO 115.00  LOAD==21.98(0.99)
4  31986     0  "3 "    0     # LOAD-DROP    W.SCRMNO 115.00  LOAD==38.46(1.72)
0
 #
 #
 # (30) BUS FAULT  31989  "BRKR SLG"
 #
1  31989  31991  "1"    0     # LINE from  BRKR SLG 115.00  to  BRKR TP  115.00
4  31989     0  "1 "    0     # LOAD-DROP    BRKR SLG 115.00  LOAD==1.75(0.00)
0
 #
 #
 # (31) BUS FAULT  31990  "DAVIS"
 #
1  31990  31992  "1"    0     # LINE from  DAVIS    115.00  to  HUNT     115.00
1  31990  32001  "1"    0     # LINE from  DAVIS    115.00  to  UCD_TP2  115.00
1  31990  32003  "1"    0     # LINE from  DAVIS    115.00  to  UCD_TP1  115.00
4  31990     0  "1 "    0     # LOAD-DROP    DAVIS    115.00  LOAD==33.77(1.51)
4  31990     0  "2 "    0     # LOAD-DROP    DAVIS    115.00  LOAD==36.35(1.63)
4  31990     0  "3 "    0     # LOAD-DROP    DAVIS    115.00  LOAD==43.58(1.95)
0
 #
 #
 # (32) BUS FAULT  31994  "GRAND IS"
 #
1  31994  31984  "1"    0     # LINE from  GRAND IS 115.00  to  BRIGHTN  115.00
1  31994  31984  "2"    0     # LINE from  GRAND IS 115.00  to  BRIGHTN  115.00
1  31994  33046  "1"    0     # LINE from  GRAND IS 115.00  to  FIBRJCT2 115.00
1  31994  33048  "1"    0     # LINE from  GRAND IS 115.00  to  RVECTP   115.00
2  31994  32162  "1"    0     # TRAN from  GRAND IS 115.00  to  RIV.DLTA   9.11
4  31994     0  "1 "    0     # LOAD-DROP    GRAND IS 115.00  LOAD==21.34(0.96)
4  31994     0  "2 "    0     # LOAD-DROP    GRAND IS 115.00  LOAD==16.67(0.74)
0
 #
 #
 # (33) BUS FAULT  31998  "VACA-DIX" bus section 1
 #
1  31998  31953  "1"    0     # LINE from  VACA-DIX 115.00  to  AMEGTAP  115.00
1  31998  31952  "1"    0     # LINE from  VACA-DIX 115.00  to  PUTH CRK 115.00
1  31998  32006  "1"    0     # LINE from  VACA-DIX 115.00  to  VCVLLE1J 115.00
1  31998  32011  "1"    0     # LINE from  VACA-DIX 115.00  to  WEC      115.00
2  31998  30460  "3"    0     # TRAN from  VACA-DIX 115.00  to  VACA-DIX 230.00
2  31998  32088  "5"    0     # TRAN from  VACA-DIX 115.00  to  VACA-DXN  60.00
4  31998     0  "8 "    0     # LOAD-DROP    VACA-DIX 115.00  LOAD==27.77(1.24)
0
 #
 #
 # (34) BUS FAULT  31998  "VACA-DIX" bus section 2
 #
1  31998  32004  "1"    0     # LINE from  VACA-DIX 115.00  to  VCVLLE2J 115.00
1  31998  31997  "1"    0     # LINE from  VACA-DIX 115.00  to  SCHMLBCH 115.00
1  31998  31999  "1"    0     # LINE from  VACA-DIX 115.00  to  VACA-CB  115.00
2  31998  30460  "4"    0     # TRAN from  VACA-DIX 115.00  to  VACA-DIX 230.00
2  31998  32150  "1"    0     # TRAN from  VACA-DIX 115.00  to  DG_VADIX  13.80
2  31998  32088  "9"    0     # TRAN from  VACA-DIX 115.00  to  VACA-DXN  60.00
4  31998     0  "6 "    0     # LOAD-DROP    VACA-DIX 115.00  LOAD==16.53(0.74)
4  31998     0  "7 "    0     # LOAD-DROP    VACA-DIX 115.00  LOAD==26.06(1.16)
0
 #
 #
 # (35) BUS FAULT  32000  "VACAVLL1"
 #
1  32000  32002  "1"    0     # LINE from  VACAVLL1 115.00  to  VACAVLL2 115.00
1  32000  32006  "1"    0     # LINE from  VACAVLL1 115.00  to  VCVLLE1J 115.00
4  32000     0  "1 "    0     # LOAD-DROP    VACAVLL1 115.00  LOAD==30.49(1.36)
0
 #
 #
 # (36) BUS FAULT  32002  "VACAVLL2"
```

```
 #
1  32002  32000  "1"    0     # LINE from  VACAVLL2 115.00  to  VACAVLL1 115.00
1  32002  32004  "1"    0     # LINE from  VACAVLL2 115.00  to  VCVLLE2J 115.00
4  32002     0  "2 "    0     # LOAD-DROP    VACAVLL2 115.00  LOAD==44.68(2.00)
4  32002     0  "3 "    0     # LOAD-DROP    VACAVLL2 115.00  LOAD==43.87(1.96)
0
 #
 #
 # (37) BUS FAULT  32008  "SUISUN"
 #
1  32008  31997  "1"    0     # LINE from  SUISUN   115.00  to  SCHMLBCH 115.00
1  32008  32011  "1"    0     # LINE from  SUISUN   115.00  to  WEC      115.00
2  32008  32164  "1"    0     # TRAN from  SUISUN   115.00  to  CTY FAIR   9.11
4  32008     0  "1 "    0     # LOAD-DROP    SUISUN   115.00  LOAD==29.64(1.32)
4  32008     0  "2 "    0     # LOAD-DROP    SUISUN   115.00  LOAD==32.19(1.44)
4  32008     0  "3 "    0     # LOAD-DROP    SUISUN   115.00  LOAD==26.23(1.17)
0
 #
 #
 # (38) BUS FAULT  32010  "JAMESON"
 #
1  32010  32009  "1"    0     # LINE from  JAMESON  115.00  to  JAMESN-A 115.00
1  32010  32020  "1"    0     # LINE from  JAMESON  115.00  to  JMSN JCT 115.00
4  32010     0  "1 "    0     # LOAD-DROP    JAMESON  115.00  LOAD==38.91(1.74)
0
 #
 #
 # (39) BUS FAULT  32056  "CORTINA"
 #
1  32056  32060  "1"    0     # LINE from  CORTINA   60.00  to  ARBUCKLE  60.00
1  32056  32065  "4"    0     # LINE from  CORTINA   60.00  to  WILL JCT  60.00
1  32056  32057  "2"    0     # LINE from  CORTINA   60.00  to  HUSTD     60.00
1  32056  32155  "3"    0     # LINE from  CORTINA   60.00  to  WADHMJCT  60.00
2  32056  30451  "1"    0     # TRAN from  CORTINA   60.00  to  CRTNA  M 230.00
0
 #
 #
 # (40) BUS FAULT  32070  "CLSA JCT"
 #
1  32070  32068  "1"    0     # LINE from  CLSA JCT  60.00  to  COLUSA    60.00
1  32070  32071  "1"    0     # LINE from  CLSA JCT  60.00  to  MERIDJCT  60.00
1  32070  32073  "3"    0     # LINE from  CLSA JCT  60.00  to  WESCOT1   60.00
4  32070     0  "1 "    0     # LOAD-DROP    CLSA JCT  60.00  LOAD==3.55(0.16)
0
 #
 #
 # (41) BUS FAULT  32088  "VACA-DXN"
 #
1  32088  32090  "1"    0     # LINE from  VACA-DXN  60.00  to  WINTERS   60.00
1  32088  32094  "2"    0     # LINE from  VACA-DXN  60.00  to  VACA-JT2  60.00
1  32088  32096  "1"    0     # LINE from  VACA-DXN  60.00  to  VACA-JT1  60.00
2  32088  31998  "5"    0     # TRAN from  VACA-DXN  60.00  to  VACA-DIX 115.00
2  32088  31998  "9"    0     # TRAN from  VACA-DXN  60.00  to  VACA-DIX 115.00
0
 #
 #
 # (42) BUS FAULT  32100  "DIXON"
 #
1  32100  32101  "2"    0     # LINE from  DIXON     60.00  to  DIXON-J2  60.00
1  32100  32105  "1"    0     # LINE from  DIXON     60.00  to  DIXON-J1  60.00
4  32100     0  "1 "    0     # LOAD-DROP    DIXON     60.00  LOAD==18.52(0.83)
4  32100     0  "2 "    0     # LOAD-DROP    DIXON     60.00  LOAD==15.49(0.69)
0
 #
 #
 # 2013 spring category c contingency list (dctl and bus outages)
 # Sierra Division Zone 305
 #
 #
 # (43) C5 DCTL OUTAGE
 # Palermo - Colgate and Colgate - Rio Oso 230 kV Lines
1  30325 30327  "1 "    0     # line from  PALERMO  230.00  BRKR to BRKR  COLGATE  230.00
2  30327 32450  "1 "    0     #Take one transformer out with Palermo-Colgate 230 kV line outage
3  32450     0  "1 "    0     #Take one generator out with Palermo-Colgate 230 kV line outage
```

```
 #
1  30327 30330  "1 "    0     # line from  COLGATE  230.00  BRKR to BRKR  RIO OSO  230.00
2  30327 32452  "1 "    0     #Take one transformer out with Colgate-Rio Oso 230 kV line outage
3  32452     0  "1 "    0     #Take one generator out with Colgate-Rio Oso 230 kV line outage
0
 #
 #
 # (44) C5 DCTL OUTAGE
 # Rio Oso - Atlantic and Rio Oso - Gold Hill 230 kV Lines
1  30330 30335  "1 "    0     # line from  RIO OSO  230.00  BRKR to BRKR  ATLANTC  230.00
 #
1  30330 30337  "1 "    0     # line from  RIO OSO  230.00  BRKR to BRKR  GOLDHILL 230.00
0
 #
 #
 # (45) C5 DCTL OUTAGE
 # Poe - Rio Oso and Cresta - Rio Oso 230 kV Lines
1  30280 30330  "1 "    0     # line from  POE      230.00  BRKR to BRKR  RIO OSO  230.00
2  30280 31792  "1 "    0     # Take the transformer out with Rio Oso-Poe 230 kV line outage
3  31792     0  "1 "    0     # Take the generator out with Rio Oso-Poe 230 kV line outage
 #
1  30275 30330  "1 "    0     # line from  CRESTA   230.00  BRKR to BRKR  RIO OSO  230.00
0
 #
 #
 # (46) C5 DCTL OUTAGE
 # Colgate - Rio Oso and Table Mountain - Rio Oso 230 kV Lines
1  30327 30330  "1 "    0     # line from  COLGATE  230.00  BRKR to BRKR  RIO OSO  230.00
2  30327 32452  "1 "    0     #Take one transformer out with Colgate-Rio Oso 230 kV line outage
3  32452     0  "1 "    0     #Take one generator out with Colgate-Rio Oso 230 kV line outage
 #
1  30300 30330  "1 "    0     # line from  TBL MT D 230.00  BRKR to BRKR  RIO OSO  230.00
0
 #
 #
 # (47) C5 DCTL OUTAGE
 # Palermo - Colgate and Table Mountain - Rio Oso 230 kV Lines
1  30325 30327  "1 "    0     # line from  PALERMO  230.00  BRKR to BRKR  COLGATE  230.00
2  30327 32450  "1 "    0     #Take one transformer out with Palermo-Colgate 230 kV line outage
3  32450     0  "1 "    0     #Take one generator out with Palermo-Colgate 230 kV line outage
 #
1  30300 30330  "1 "    0     # line from  TBL MT D 230.00  BRKR to BRKR  RIO OSO  230.00
0
 #
 #
 # (48) C5 DCTL OUTAGE
 # Atlantic - Gold Hill and Rio Oso - Gold Hill 230 kV Lines
1  30335 30337  "1 "    0     # line from  ATLANTC  230.00  BRKR to BRKR  GOLDHILL 230.00
 #
1  30330 30337  "1 "    0     # line from  RIO OSO  230.00  BRKR to BRKR  GOLDHILL 230.00
0
 #
 #
 # (49) C5 DCTL OUTAGE
 # Middle Fork - Gold Hill 230 kV and Placer - Gold Hill #1 115 kV Lines
1  30337 30340  "1 "    0     # line from  GOLDHILL 230.00  BRKR to (3)   RALSTON  230.00
1  30340 30345  "1 "    0     # line from  RALSTON  230.00   (3) to BRKR  MIDLFORK 230.00
2  30340 32458  "1 "    0     # TRAN from  RALSTON  230.00   (3) to (1)   RALSTON   13.80
3  32458     0  "1 "    0     # GEN-DROP    RALSTON   13.80  GEN==83.00(15.12)
 #
1  32018 32229  "1 "    0     # line from  GOLDHILL 115.00  BRKR to (3)   HORSHE1  115.00
1  32229 32230  "1 "    0     # line from  HORSHE1  115.00   (3) to (1)   HORSESHE 115.00
1  32229 32233  "1 "    0     # line from  HORSHE1  115.00   (3) to (3)   NEWCSTL1 115.00
1  32233 32234  "1 "    0     # line from  NEWCSTL1 115.00   (3) to (2)   NEWCSTLE 115.00
1  32233 32236  "1 "    0     # line from  NEWCSTL1 115.00   (3) to (2)   FLINT1   115.00
2  32234 32460  "1 "    0     # TRAN from  NEWCSTLE 115.00   (2) to (1)   NEWCSTLE  13.20
1  32236 32228  "1 "    0     # line from  FLINT1   115.00   (2) to BRKR  PLACER   115.00
4  32230     0  "1 "    0     # LOAD-DROP    HORSESHE 115.00  LOAD==15.79(0.71)
4  32230     0  "2 "    0     # LOAD-DROP    HORSESHE 115.00  LOAD==36.15(1.61)
1  32230 32231  "1"     1     #Transfer load to alternate
4  32230     0  "**"    1     #Restore load at Horseshoe
0
 #
 #
```

```
 # (50) C5 DCTL OUTAGE
 # Caribou - Palermo and Palermo - Pease 115 kV Lines
1  31482 31516  "2 "    0     # line from  PALERMO  115.00  BRKR to (2)   WYANDJT2 115.00
1  31516 31512  "2 "    0     # line from  WYANDJT2 115.00   (2) to (2)   BIG BEND 115.00
1  31512 31488  "1 "    0     # line from  BIG BEND 115.00   (2) to (3)   GRIZ JCT 115.00
1  31488 31486  "1 "    0     # line from  GRIZ JCT 115.00   (3) to BRKR  CARIBOU  115.00
1  31488 31492  "1 "    0     # line from  GRIZ JCT 115.00   (3) to (2)   GRIZZLY1 115.00
2  31492 31900  "1 "    0     # TRAN from  GRIZZLY1 115.00  BRKR to (1)   GRIZZLYG   6.90
3  31900     0  "1 "    0     # GEN-DROP    GRIZZLYG   6.90  GEN==16.80(-4.00)
 #
1  32200 31506  "1 "    0     # line from  PEASE    115.00  BRKR to (2)   HONC JT1 115.00
1  31506 31482  "1 "    0     # line from  HONC JT1 115.00   (2) to BRKR  PALERMO  115.00
0
 #
 #
 # (51) C5 DCTL OUTAGE
 # Palermo - Wyandotte and Palermo - Pease 115 kV Lines
1  31480 31518  "1 "    0     # line from  WYANDTTE 115.00   (1) to (2)   WYANDJT1 115.00
1  31518 31482  "1 "    0     # line from  WYANDJT1 115.00   (2) to BRKR  PALERMO  115.00
4  31480     0  "1 "    0     # LOAD-DROP    WYANDTTE 115.00  LOAD==10.93(0.49)
4  31480     0  "2 "    0     # LOAD-DROP    WYANDTTE 115.00  LOAD==20.57(0.92)
4  31480     0  "3 "    0     # LOAD-DROP    WYANDTTE 115.00  LOAD==31.49(1.41)
1  31480 31516  "1"     1     #Transfer load from PALERMO-WYANDOTTE to CARIBOU-PALERMO 115kV
4  31480     0  "**"    1     #Restore loads at Wyandotte
 #
1  32200 31506  "1 "    0     # line from  PEASE    115.00  BRKR to (2)   HONC JT1 115.00
1  31506 31482  "1 "    0     # line from  HONC JT1 115.00   (2) to BRKR  PALERMO  115.00
0
 #
 #
 # (52) C5 DCTL OUTAGE
 # Drum - Rio Oso #1 and #2 115 kV Lines
1  32214 32225  "1 "    0     # line from  RIO OSO  115.00  BRKR to (3)   BRNSWKTP 115.00
1  32225 32222  "1 "    0     # line from  BRNSWKTP 115.00   (3) to (3)   DTCH FL2 115.00
1  32225 32227  "2 "    0     # line from  BRNSWKTP 115.00   (3) to (1)   BRNSWALT 115.00
1  32222 32218  "1 "    0     # line from  DTCH FL2 115.00   (3) to BRKR  DRUM     115.00
2  32222 32502  "1 "    0     # TRAN from  DTCH FL2 115.00  BRKR to (1)   DTCHFLT2   6.90
4  32227     0  "1 "    0     # LOAD-DROP    BRNSWALT 115.00  LOAD==24.08(1.08)
3  32502     0  "1 "    0     # GEN-DROP    DTCHFLT2   6.90  GEN==24.50(9.66)
 #
1  32214 32244  "2 "    0     # line from  RIO OSO  115.00  BRKR to (3)   BRNSWCKP 115.00
1  32244 32218  "2 "    0     # line from  BRNSWCKP 115.00   (3) to BRKR  DRUM     115.00
1  32244 32226  "2 "    0     # line from  BRNSWCKP 115.00   (3) to (1)   BRUNSWCK 115.00
4  32226     0  "2 "    0     # LOAD-DROP    BRUNSWCK 115.00  LOAD==30.46(1.37)
4  32226     0  "3 "    0     # LOAD-DROP    BRUNSWCK 115.00  LOAD==8.00(0.36)
0
 #
 #
 # (53) C5 DCTL OUTAGE
 # Rio Oso - E. Nicolaus and Bogue - Rio Oso 115 kV Lines
1  32212 32214  "1 "    0     # line from  E.NICOLS 115.00  BRKR to BRKR  RIO OSO  115.00
 #
1  32206 32208  "1 "    0     # line from  BOGUE    115.00  BRKR to (3)   GLEAF TP 115.00
1  32208 32210  "1 "    0     # line from  GLEAF TP 115.00   (3) to (2)   GLEAF 1  115.00
1  32208 32214  "1 "    0     # line from  GLEAF TP 115.00   (3) to BRKR  RIO OSO  115.00
2  32210 32490  "1 "    0     # TRAN from  GLEAF 1  115.00  BRKR to (1)   GRNLEAF1  13.80
4  32490     0  "ss"    0     # LOAD-DROP    GRNLEAF1  13.80  LOAD==0.67(0.15)
3  32490     0  "1 "    0     # GEN-DROP    GRNLEAF1  13.80  GEN==40.00(-12.86)
3  32490     0  "2 "    0     # GEN-DROP    GRNLEAF1  13.80  GEN==9.50(-3.05)
0
 #
 #
 # (54) C5 DCTL OUTAGE
 # Palermo - E. Nicolaus and Bogue - Rio Oso 115 kV Lines spring outage
1  31482 32280  "1 "    0     # line from  PALERMO  115.00  BRKR to (3)   E.MRY J2 115.00
1  32280 32202  "1 "    0     # line from  E.MRY J2 115.00   (3) to (1)   E.MRYSVE 115.00
1  32280 32212  "1 "    0     # line from  E.MRY J2 115.00   (3) to BRKR  E.NICOLS 115.00
4  32202     0  "2 "    0     # LOAD-DROP    E.MRYSVE 115.00  LOAD==10.55(0.47)
4  32202     0  "3 "    0     # LOAD-DROP    E.MRYSVE 115.00  LOAD==9.73(0.44)
1  32288 32202  "1"     1     #Transfer load to E. Marysville Alt. 1 spring
4  32202     0  "**"    1     #Restore load at E. Marysville spring
 #
1  32206 32208  "1 "    0     # line from  BOGUE    115.00  BRKR to (3)   GLEAF TP 115.00
1  32208 32210  "1 "    0     # line from  GLEAF TP 115.00   (3) to (2)   GLEAF 1  115.00
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1  32208 32214  "1 "    0     # line from  GLEAF TP 115.00   (3) to BRKR  RIO OSO  115.00
2  32210 32490  "1 "    0     # TRAN from  GLEAF 1  115.00  BRKR to (1)   GRNLEAF1  13.80
4  32490     0  "ss"    0     # LOAD-DROP    GRNLEAF1  13.80  LOAD==0.67(0.15)
3  32490     0  "1 "    0     # GEN-DROP    GRNLEAF1  13.80  GEN==40.00(-12.86)
3  32490     0  "2 "    0     # GEN-DROP    GRNLEAF1  13.80  GEN==9.50(-3.05)
0
 #
 #
 # (55) C5 DCTL OUTAGE
 # Palermo - E. Nicolaus and Palermo - Bogue 115 kV Lines spring outage
1  31482 32280  "1 "    0     # line from  PALERMO  115.00  BRKR to (3)   E.MRY J2 115.00
1  32280 32202  "1 "    0     # line from  E.MRY J2 115.00   (3) to (1)   E.MRYSVE 115.00
1  32280 32212  "1 "    0     # line from  E.MRY J2 115.00   (3) to BRKR  E.NICOLS 115.00
4  32202     0  "2 "    0     # LOAD-DROP    E.MRYSVE 115.00  LOAD==10.55(0.47)
4  32202     0  "3 "    0     # LOAD-DROP    E.MRYSVE 115.00  LOAD==9.73(0.44)
1  32288 32202  "1"     1     #Transfer load to E. Marysville Alt. 1 spring
4  32202     0  "**"    1     #Restore load at E. Marysville spring
 #
1  31508 32286  "1 "    0     # line from  HONC JT3 115.00   (3) to (2)   OLIVH J3 115.00
1  31508 31482  "1 "    0     # line from  HONC JT3 115.00   (3) to BRKR  PALERMO  115.00
1  31508 31484  "1 "    0     # line from  HONC JT3 115.00   (3) to (1)   HONCUT   115.00
1  32286 32206  "1 "    0     # line from  OLIVH J3 115.00   (2) to BRKR  BOGUE    115.00
4  31484     0  "1 "    0     # LOAD-DROP    HONCUT   115.00  LOAD==16.18(0.73)
0
 #
 #
 # (56) C5 DCTL OUTAGE
 # Rio Oso - Woodland #1 and #2 115 kV Lines
1  32214 31965  "1 "    0     # line from  RIO OSO  115.00  BRKR to (3)   KNIGHT1  115.00
1  31965 31963  "1 "    0     # line from  KNIGHT1  115.00   (3) to (1)   KNIGHTLD 115.00
1  31965 31966  "1 "    0     # line from  KNIGHT1  115.00   (3) to (3)   WODLNDJ1 115.00
1  31966 31960  "1 "    0     # line from  WODLNDJ1 115.00   (3) to (2)   MOBILCHE 115.00
1  31966 31971  "1 "    0     # line from  WODLNDJ1 115.00   (3) to (1)   ZAMORA1  115.00
1  31960 31970  "1 "    0     # line from  MOBILCHE 115.00   (2) to BRKR  WOODLD   115.00
4  31963     0  "1 "    0     # LOAD-DROP    KNIGHTLD 115.00  LOAD==6.84(0.31)
4  31960     0  "1 "    0     # LOAD-DROP    MOBILCHE 115.00  LOAD==0.10(0.00)
 #
1  32214 31964  "2 "    0     # line from  RIO OSO  115.00  BRKR to (2)   KNIGHT2  115.00
1  31964 31968  "2 "    0     # line from  KNIGHT2  115.00   (2) to (3)   WODLNDJ2 115.00
1  31968 31970  "2 "    0     # line from  WODLNDJ2 115.00   (3) to BRKR  WOODLD   115.00
1  31968 31973  "2 "    0     # line from  WODLNDJ2 115.00   (3) to (2)   ZAMORA2  115.00
1  31973 31972  "2 "    0     # line from  ZAMORA2  115.00   (2) to (1)   ZAMORA   115.00
4  31972     0  "1 "    0     # LOAD-DROP    ZAMORA   115.00  LOAD==8.47(0.38)
0
 #
 #
 # (57) C5 DCTL OUTAGE
 # Rio Oso - West Sacramento and Pease - Rio Oso 115 kV Lines spring outage
1  32214 31986  "1 "    0     # line from  RIO OSO  115.00  BRKR to BRKR  W.SCRMNO 115.00
 #
1  32200 32288  "1 "    0     # line from  PEASE    115.00  BRKR to (3)   E.MRY J1 115.00
1  32288 32290  "1 "    0     # line from  E.MRY J1 115.00   (3) to (3)   OLIVH J1 115.00
1  32290 32204  "1 "    0     # line from  OLIVH J1 115.00   (3) to (1)   OLIVHRST 115.00
1  32290 32214  "1 "    0     # line from  OLIVH J1 115.00   (3) to BRKR  RIO OSO  115.00
4  32204     0  "1 "    0     # LOAD-DROP    OLIVHRST 115.00  LOAD==6.71(0.30)
4  32204     0  "2 "    0     # LOAD-DROP    OLIVHRST 115.00  LOAD==21.33(0.95)
1  32204 32286  "1"     1     #Transfer Olivehurst to alternate
4  32204     0  "**"    1     #Restore load Olivehurst
0
 #
 #
 # (58) C5 DCTL OUTAGE
 # Missouri Flat - Gold Hill #1 and #2 115 kV Lines
1  32018 32275  "1 "    0     # line from  GOLDHILL 115.00  BRKR to (3)   CPM TAP  115.00
1  32275 32264  "1 "    0     # line from  CPM TAP  115.00   (3) to (2)   CLRKSVLT 115.00
1  32275 32276  "1 "    0     # line from  CPM TAP  115.00   (3) to (1)   CPM      115.00
1  32264 32262  "1 "    0     # line from  CLRKSVLT 115.00   (2) to (2)   SHPRING1 115.00
1  32262 32267  "1 "    0     # line from  SHPRING1 115.00   (2) to (2)   DIMOND_1 115.00
1  32267 32261  "1 "    0     # line from  DIMOND_1 115.00   (2) to BRKR  MIZOU_T1 115.00
 #
1  32018 32268  "2 "    0     # line from  GOLDHILL 115.00  BRKR to (3)   SHPRING2 115.00
1  32268 32259  "2 "    0     # line from  SHPRING2 115.00   (3) to (3)   DIMOND_2 115.00
1  32268 32265  "2 "    0     # line from  SHPRING2 115.00   (3) to (1)   SHPRING  115.00
1  32259 32258  "2 "    0     # line from  DIMOND_2 115.00   (3) to (1)   DMND SPR 115.00
```

```
1  32259 32260  "2 "    0     # line from  DIMOND_2 115.00   (3) to BRKR  MIZOU_T2 115.00
4  32265     0  "1 "    0     # LOAD-DROP    SHPRING  115.00  LOAD==19.57(0.88)
4  32265     0  "2 "    0     # LOAD-DROP    SHPRING  115.00  LOAD==21.49(0.96)
4  32258     0  "1 "    0     # LOAD-DROP    DMND SPR 115.00  LOAD==9.86(0.44)
4  32258     0  "2 "    0     # LOAD-DROP    DMND SPR 115.00  LOAD==28.07(1.25)
1  32262 32265  "1"     1     #Transfer Shingle Springs to alternate
4  32265     0  "**"    1     #Restore load at Shingle Springs
1  32258 32267  "1"     1     #Transfer Diamond Springs to alternate
4  32258     0  "**"    1     #Restore load at Diamond Springs
0
 #
 #
 # (59) C5 DCTL OUTAGE
 # El Dorado - Missouri Flat #1 and #2 115 kV Lines
1  32250 32482  "1 "    0     # line from  ELDORAD  115.00  BRKR to (3)   APLHTAP1 115.00
1  32482 32255  "1 "    0     # line from  APLHTAP1 115.00   (3) to (2)   PLCRVLT1 115.00
1  32482 32278  "1 "    0     # line from  APLHTAP1 115.00   (3) to (2)   SPICAMIN 115.00
1  32255 32261  "1 "    0     # line from  PLCRVLT1 115.00   (2) to BRKR  MIZOU_T1 115.00
1  32278 32252  "1 "    0     # line from  SPICAMIN 115.00   (2) to (1)   APPLE HL 115.00
4  32278     0  "1 "    0     # LOAD-DROP    SPICAMIN 115.00  LOAD==4.19(3.69)
4  32252     0  "1 "    0     # LOAD-DROP    APPLE HL 115.00  LOAD==14.65(0.65)
4  32252     0  "2 "    0     # LOAD-DROP    APPLE HL 115.00  LOAD==9.26(0.41)
1  32252 32481  "1"     1     #Transfer Apple Hill to alternate
4  32252     0  "**"    1     #Restore load at Apple Hill
 #
1  32250 32481  "2 "    0     # line from  ELDORAD  115.00  BRKR to (2)   APLHTAP2 115.00
1  32481 32257  "2 "    0     # line from  APLHTAP2 115.00   (2) to (4)   PLCRVLT2 115.00
1  32257 32254  "2 "    0     # line from  PLCRVLT2 115.00   (4) to (2)   PLCRVLB2 115.00
1  32257 32260  "2 "    0     # line from  PLCRVLT2 115.00   (4) to BRKR  MIZOU_T2 115.00
2  32257 32510  "1 "    0     # TRAN from  PLCRVLT2 115.00   (4) to (1)   CHILIBAR   4.16
1  32254 32256  "1 "    0     # line from  PLCRVLB2 115.00   (2) to (1)   PLCRVLB3 115.00
4  32254     0  "2 "    0     # LOAD-DROP    PLCRVLB2 115.00  LOAD==9.02(0.41)
4  32256     0  "3 "    0     # LOAD-DROP    PLCRVLB3 115.00  LOAD==25.95(1.16)
3  32510     0  "1 "    0     # GEN-DROP    CHILIBAR   4.16  GEN==5.50(4.00)
1  32256 32255  "1 "    1     #Transfer Placerville to alternate
4  32256     0  "**"    1     #Restore load Bank 3 at Placerville
1  32254 32256  "1 "    1     #Transfer Placerville to alternate
4  32254     0  "**"    1     #Restore load Bank 2 at Placerville
0
 #
 #
 # (60) C5 DCTL OUTAGE
 # Placer - Gold Hill #1 and #2 115 kV Lines
1  32018 32229  "1 "    0     # line from  GOLDHILL 115.00  BRKR to (3)   HORSHE1  115.00
1  32229 32230  "1 "    0     # line from  HORSHE1  115.00   (3) to (1)   HORSESHE 115.00
1  32229 32233  "1 "    0     # line from  HORSHE1  115.00   (3) to (3)   NEWCSTL1 115.00
1  32233 32234  "1 "    0     # line from  NEWCSTL1 115.00   (3) to (2)   NEWCSTLE 115.00
1  32233 32236  "1 "    0     # line from  NEWCSTL1 115.00   (3) to (2)   FLINT1   115.00
2  32234 32460  "1 "    0     # TRAN from  NEWCSTLE 115.00   (2) to (1)   NEWCSTLE  13.20
1  32236 32228  "1 "    0     # line from  FLINT1   115.00   (2) to BRKR  PLACER   115.00
4  32230     0  "1 "    0     # LOAD-DROP    HORSESHE 115.00  LOAD==15.79(0.71)
4  32230     0  "2 "    0     # LOAD-DROP    HORSESHE 115.00  LOAD==36.15(1.61)
1  32230 32231  "1"     1     #Transfer load to alternate
4  32230     0  "**"    1     #Restore load at Horseshoe
 #
1  32018 32231  "2 "    0     # line from  GOLDHILL 115.00  BRKR to (2)   HORSHE2  115.00
1  32231 32235  "2 "    0     # line from  HORSHE2  115.00   (2) to (2)   NEWCSTL2 115.00
1  32235 32239  "2 "    0     # line from  NEWCSTL2 115.00   (2) to (3)   FLINT2   115.00
1  32239 32228  "2 "    0     # line from  FLINT2   115.00   (3) to BRKR  PLACER   115.00
1  32239 32237  "1 "    0     # line from  FLINT2   115.00   (3) to (1)   FLINT    115.00
4  32237     0  "1 "    0     # LOAD-DROP    FLINT    115.00  LOAD==14.82(0.66)
0
 #
 #
 # (61) C5 DCTL OUTAGE
 # Palermo - Pease and Pease - Rio Oso 115 kV Lines spring outage
1  32200 31506  "1 "    0     # line from  PEASE    115.00  BRKR to (2)   HONC JT1 115.00
1  31506 31482  "1 "    0     # line from  HONC JT1 115.00   (2) to BRKR  PALERMO  115.00
 #
1  32200 32288  "1 "    0     # line from  PEASE    115.00  BRKR to (3)   E.MRY J1 115.00
1  32288 32290  "1 "    0     # line from  E.MRY J1 115.00   (3) to (3)   OLIVH J1 115.00
1  32290 32204  "1 "    0     # line from  OLIVH J1 115.00   (3) to (1)   OLIVHRST 115.00
1  32290 32214  "1 "    0     # line from  OLIVH J1 115.00   (3) to BRKR  RIO OSO  115.00
4  32204     0  "1 "    0     # LOAD-DROP    OLIVHRST 115.00  LOAD==6.71(0.30)
```

```
4  32204     0  "2 "    0     # LOAD-DROP    OLIVHRST 115.00  LOAD==21.33(0.95)
1  32204 32286  "1"     1     #Transfer Olivehurst to alternate
4  32204     0  "**"    1     #Restore load Olivehurst
0
 #
 #
 # (62) BUS FAULT  30335  "ATLANTC"
 #
1  30335  30330  "1"    0     # LINE from  ATLANTC  230.00  to  RIO OSO  230.00
1  30335  30337  "1"    0     # LINE from  ATLANTC  230.00  to  GOLDHILL 230.00
2  30335  32412  "3"    0     # TRAN from  ATLANTC  230.00  to  ATLANTIC 115.00
2  30335  32412  "4"    0     # TRAN from  ATLANTC  230.00  to  ATLANTIC 115.00
2  30335  32413  "1"    0     # TRAN from  ATLANTC  230.00  to  ATLANTI   60.00
0
 #
 #
 # (63) BUS FAULT  30337  "GOLDHILL" 230 kV bus section 1
 #
1  30337  30335  "1"    0     # LINE from  GOLDHILL 230.00  to  ATLANTC  230.00
1  30337  37012  "1"    0     # LINE from  GOLDHILL 230.00  to  LAKE     230.00
1  30337  38000  "1"    0     # LINE from  GOLDHILL 230.00  to  LODI     230.00
2  30337  32018  "1"    0     # TRAN from  GOLDHILL 230.00  to  GOLDHILL 115.00
0
 #
 #
 # (64) BUS FAULT  30337  "GOLDHILL" 230 kV bus section 2
 #
1  30337  30330  "1"    0     # LINE from  GOLDHILL 230.00  to  RIO OSO  230.00
1  30337  30340  "1"    0     # LINE from  GOLDHILL 230.00  to  RALSTON  230.00
1  30337  30621  "1"    0     # LINE from  GOLDHILL 230.00  to  Q260     230.00
2  30337  32018  "2"    0     # TRAN from  GOLDHILL 230.00  to  GOLDHILL 115.00
0
 #
 #
 # (65) BUS FAULT  30345  "MIDLFORK"
 #
1  30345  30340  "1"    0     # LINE from  MIDLFORK 230.00  to  RALSTON  230.00
2  30345  30346  "1"    0     # TRAN from  MIDLFORK 230.00  to  MDDLFK M 230.00
0
 #
 #
 # (66) BUS FAULT  32018  "GOLDHILL" 115 kV bus section 1
 #
1  32018  32229  "1"    0     # LINE from  GOLDHILL 115.00  to  HORSHE1  115.00
1  32018  32263  "1"    0     # LINE from  GOLDHILL 115.00  to  CLRKSVLE 115.00
1  32018  32275  "1"    0     # LINE from  GOLDHILL 115.00  to  CPM TAP  115.00
2  32018  30337  "1"    0     # TRAN from  GOLDHILL 115.00  to  GOLDHILL 230.00
0
 #
 #
 # (67) BUS FAULT  32018  "GOLDHILL" 115 kV bus section 2
 #
1  32018  32231  "2"    0     # LINE from  GOLDHILL 115.00  to  HORSHE2  115.00
1  32018  32268  "2"    0     # LINE from  GOLDHILL 115.00  to  SHPRING2 115.00
1  32018  33565  "1"    0     # LINE from  GOLDHILL 115.00  to  CMNCHETP 115.00
2  32018  30337  "2"    0     # TRAN from  GOLDHILL 115.00  to  GOLDHILL 230.00
2  32018  32110  "5"    0     # TRAN from  GOLDHILL 115.00  to  GOLD HLL  60.00
6  32018     0   "v "    0    # SVD-DROP   GOLDHILL 115
0
 #
 #
 # (68) BUS FAULT  32110  "GOLD HLL"
 #
1  32110  32396  "1"    0     # LINE from  GOLD HLL  60.00  to  LIMESTNE  60.00
2  32110  32018  "5"    0     # TRAN from  GOLD HLL  60.00  to  GOLDHILL 115.00
0
 #
 #
 # (69) BUS FAULT  32200  "PEASE" 115 kV Bus Section 1
 #
1  32200  31506  "1"    0     # LINE from  PEASE    115.00  to  HONC JT1 115.00
4  32200     0  "1 "    0     # LOAD-DROP    PEASE    115.00  LOAD==10.30(0.46)
4  32200     0  "4 "    0     # LOAD-DROP    PEASE    115.00  LOAD==10.47(0.47)
0
```

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 #
 #
 # (70) BUS FAULT  32200  "PEASE" 115 kV Bus Section 2
 #
1  32200  32288  "1"    0     # LINE from  PEASE    115.00  to  E.MRY J1 115.00
2  32200  32330  "2"    0     # TRAN from  PEASE    115.00  to  PEAS RG   60.00
4  32200     0  "3 "    0     # LOAD-DROP    PEASE    115.00  LOAD==9.78(0.44)
0
 #
 #
 # (71) BUS FAULT  32212  "E.NICOLS"
 #
1  32212  32214  "1"    0     # LINE from  E.NICOLS 115.00  to  RIO OSO  115.00
1  32212  32280  "1"    0     # LINE from  E.NICOLS 115.00  to  E.MRY J2 115.00
2  32212  32342  "2"    0     # TRAN from  E.NICOLS 115.00  to  E.NICOLS  60.00
0
 #
 #
 # (72) BUS FAULT  32228  "PLACER"
 #
1  32228  32238  "1"    0     # LINE from  PLACER   115.00  to  BELL PGE 115.00
1  32228  32239  "2"    0     # LINE from  PLACER   115.00  to  FLINT2   115.00
1  32228  32236  "1"    0     # LINE from  PLACER   115.00  to  FLINT1   115.00
2  32228  32512  "1"    0     # TRAN from  PLACER   115.00  to  WISE      12.00
2  32228  32394  "1"    0     # TRAN from  PLACER   115.00  to  PLACER    60.00
4  32228     0  "2 "    0     # LOAD-DROP    PLACER   115.00  LOAD==23.05(1.03)
4  32228     0  "3 "    0     # LOAD-DROP    PLACER   115.00  LOAD==10.02(0.45)
0
 #
 #
 # (73) BUS FAULT  32232  "HIGGINS"
 #
1  32232  32224  "1"    0     # LINE from  HIGGINS  115.00  to  CHCGO PK 115.00
1  32232  32238  "1"    0     # LINE from  HIGGINS  115.00  to  BELL PGE 115.00
4  32232     0  "2 "    0     # LOAD-DROP    HIGGINS  115.00  LOAD==14.63(0.65)
4  32232     0  "3 "    0     # LOAD-DROP    HIGGINS  115.00  LOAD==17.29(0.77)
0
 #
 #
 # (74) BUS FAULT  32238  "BELL PGE"
 #
1  32238  32228  "1"    0     # LINE from  BELL PGE 115.00  to  PLACER   115.00
1  32238  32232  "1"    0     # LINE from  BELL PGE 115.00  to  HIGGINS  115.00
4  32238     0  "2 "    0     # LOAD-DROP    BELL PGE 115.00  LOAD==22.61(1.01)
4  32238     0  "3 "    0     # LOAD-DROP    BELL PGE 115.00  LOAD==15.50(0.69)
0
 #
 #
 # (75) BUS FAULT  32250  "ELDORAD"
 #
1  32250  32481  "2"    0     # LINE from  ELDORAD  115.00  to  APLHTAP2 115.00
1  32250  32482  "1"    0     # LINE from  ELDORAD  115.00  to  APLHTAP1 115.00
2  32250  32513  "1"    0     # TRAN from  ELDORAD  115.00  to  ELDRADO1  21.60
2  32250  32514  "1"    0     # TRAN from  ELDORAD  115.00  to  ELDRADO2  21.60
4  32250     0  "1 "    0     # LOAD-DROP    ELDORAD  115.00  LOAD==9.35(0.42)
0
 #
 #
 # (76) BUS FAULT  32260  "MIZOU_T2"
 #
1  32260  32257  "2"    0     # LINE from  MIZOU_T2 115.00  to  PLCRVLT2 115.00
1  32260  32259  "2"    0     # LINE from  MIZOU_T2 115.00  to  DIMOND_2 115.00
0
 #
 #
 # (77) BUS FAULT  32261  "MIZOU_T1"
 #
1  32261  32255  "1"    0     # LINE from  MIZOU_T1 115.00  to  PLCRVLT1 115.00
1  32261  32267  "1"    0     # LINE from  MIZOU_T1 115.00  to  DIMOND_1 115.00
0
 #
 #
 # (78) BUS FAULT  32308  "COLGATE"
 #
```

```
1  32308  31658  "1"   0    # LINE from  COLGATE   60.00  to  BANGOR    60.00
1  32308  32307  "1"   0    # LINE from  COLGATE   60.00  to  COLGATEA  60.00
1  32308  32311  "1"   0    # LINE from  COLGATE   60.00  to  NRRWS1TP  60.00
1  32308  32313  "2"   0    # LINE from  COLGATE   60.00  to  NRRWS2TP  60.00
1  32308  32358  "1"   0    # LINE from  COLGATE   60.00  to  CLMBA HL  60.00
1  32308  32364  "1"   0    # LINE from  COLGATE   60.00  to  GRSS VLY  60.00
2  32308  30327  "3"   0    # TRAN from  COLGATE   60.00  to  COLGATE  230.00
0
 #
 #
 # (79) BUS FAULT  32314  "SMRTSVLE"
 #
1  32314  32311  "1"   0    # LINE from  SMRTSVLE  60.00  to  NRRWS1TP  60.00
1  32314  32313  "2"   0    # LINE from  SMRTSVLE  60.00  to  NRRWS2TP  60.00
1  32314  32316  "1"   0    # LINE from  SMRTSVLE  60.00  to  YUBAGOLD  60.00
1  32314  32341  "2"   0    # LINE from  SMRTSVLE  60.00  to  BEALE1J1  60.00
1  32314  32348  "1"   0    # LINE from  SMRTSVLE  60.00  to  BEALE2J2  60.00
1  32314  32349  "1"   0    # LINE from  SMRTSVLE  60.00  to  BEALE2J1  60.00
4  32314     0  "1 "   0    # LOAD-DROP    SMRTSVLE  60.00  LOAD==2.61(0.12)
0
 #
 #
 # (80) BUS FAULT  32320  "MRYSVLLE"
 #
1  32320  32318  "1"   0    # LINE from  MRYSVLLE  60.00  to  BRWNS VY  60.00
1  32320  32333  "1"   0    # LINE from  MRYSVLLE  60.00  to  PEASETP   60.00
1  32320  32344  "1"   0    # LINE from  MRYSVLLE  60.00  to  PLUMAS    60.00
1  32320  32332  "1"   0    # LINE from  MRYSVLLE  60.00  to  PEASE     60.00
4  32320     0  "1 "   0    # LOAD-DROP    MRYSVLLE  60.00  LOAD==18.85(0.84)
4  32320     0  "3 "   0    # LOAD-DROP    MRYSVLLE  60.00  LOAD==14.52(0.65)
0
 #
 #
 # (81) BUS FAULT  32332  "PEASE"
 #
1  32332  32326  "1"   0    # LINE from  PEASE     60.00  to  ENCL TAP  60.00
1  32332  32328  "1"   0    # LINE from  PEASE     60.00  to  YBA CTYJ  60.00
1  32332  32320  "1"   0    # LINE from  PEASE     60.00  to  MRYSVLLE  60.00
1  32332  32333  "1"   0    # LINE from  PEASE     60.00  to  PEASETP   60.00
2  32332  32330  "1"   0    # TRAN from  PEASE     60.00  to  PEAS RG   60.00
0
 #
 #
 # (82) BUS FAULT  32342  "E.NICOLS"
 #
1  32342  32306  "1"   0    # LINE from  E.NICOLS  60.00  to  CATLETT   60.00
1  32342  32340  "1"   0    # LINE from  E.NICOLS  60.00  to  TUDOR     60.00
1  32342  32079  "1"   0    # LINE from  E.NICOLS  60.00  to  DST1001B  60.00
1  32342  32089  "1"   0    # LINE from  E.NICOLS  60.00  to  DST1001A  60.00
1  32342  32305  "2"   0    # LINE from  E.NICOLS  60.00  to  CATLETJT  60.00
1  32342  32344  "1"   0    # LINE from  E.NICOLS  60.00  to  PLUMAS    60.00
1  32342  32353  "1"   0    # LINE from  E.NICOLS  60.00  to  WHTLND1   60.00
2  32342  32212  "2"   0    # TRAN from  E.NICOLS  60.00  to  E.NICOLS 115.00
4  32342     0  "1 "   0    # LOAD-DROP    E.NICOLS  60.00  LOAD==5.47(0.25)
0
 #
 #
 # (83) BUS FAULT  32356  "LINCOLN"
 #
1  32356  32214  "1"   0    # LINE from  LINCOLN  115.00  to  RIO OSO  115.00
1  32356  32404  "1"   0    # LINE from  LINCOLN  115.00  to  SPI  JCT 115.00
4  32356     0  "1 "   0    # LOAD-DROP    LINCOLN  115.00  LOAD==34.00(0.00)
4  32356     0  "2 "   0    # LOAD-DROP    LINCOLN  115.00  LOAD==8.02(0.00)
4  32356     0  "3 "   0    # LOAD-DROP    LINCOLN  115.00  LOAD==18.77(0.00)
0
 #
 #
 # (84) BUS FAULT  32364  "GRSS VLY"
 #
1  32364  32308  "1"   0    # LINE from  GRSS VLY  60.00  to  COLGATE   60.00
1  32364  32377  "1"   0    # LINE from  GRSS VLY  60.00  to  ROLLNSTP  60.00
4  32364     0  "2 "   0    # LOAD-DROP    GRSS VLY  60.00  LOAD==14.20(0.64)
0
 #
```

```
 #
 # (85) BUS FAULT  32372  "SPAULDNG"
 #
1  32372  32366  "1"    0     # LINE from  SPAULDNG  60.00  to  CISCO GR  60.00
1  32372  32407  "1"    0     # LINE from  SPAULDNG  60.00  to  BOWMN TP  60.00
2  32372  32472  "1"    0     # TRAN from  SPAULDNG  60.00  to  SPAULDG   9.11
4  32372     0  "1 "    0     # LOAD-DROP    SPAULDNG  60.00  LOAD==0.53(0.02)
0
 #
 #
 # (86) BUS FAULT  32374  "DRUM"
 #
1  32374  32376  "1"    0     # LINE from  DRUM      60.00  to  BONNIE N  60.00
1  32374  32407  "1"    0     # LINE from  DRUM      60.00  to  BOWMN TP  60.00
2  32374  32242  "1"    0     # TRAN from  DRUM      60.00  to  DRUM  1M 115.00
2  32374  32246  "2"    0     # TRAN from  DRUM      60.00  to  DRUM  2M 115.00
2  32374  32474  "1"    0     # TRAN from  DRUM      60.00  to  DEER CRK   9.11
4  32374     0  "1 "    0     # LOAD-DROP    DRUM      60.00  LOAD==0.35(0.01)
0
 #
 #
 # (87) BUS FAULT  32378  "ROLLINS"
 #
1  32378  32377  "1"    0     # LINE from  ROLLINS   60.00  to  ROLLNSTP  60.00
2  32378  32476  "1"    0     # TRAN from  ROLLINS   60.00  to  ROLLINSF   9.11
0
 #
 #
 # (88) BUS FAULT  32380  "WEMR SWS"
 #
1  32380  32369  "1"    0     # LINE from  WEMR SWS  60.00  to  COLFAXJT  60.00
1  32380  32382  "1"    0     # LINE from  WEMR SWS  60.00  to  FORST HL  60.00
1  32380  32390  "1"    0     # LINE from  WEMR SWS  60.00  to  HALSEY    60.00
4  32380     0  "1 "    0     # LOAD-DROP    WEMR SWS  60.00  LOAD==8.05(0.36)
0
 #
 #
 # (89) BUS FAULT  32384  "OXBOW"
 #
1  32384  32370  "1"    0     # LINE from  OXBOW     60.00  to  ENVRO_HY  60.00
1  32384  32386  "1"    0     # LINE from  OXBOW     60.00  to  MDDLE FK  60.00
2  32384  32484  "1"    0     # TRAN from  OXBOW     60.00  to  OXBOW  F   9.11
0
 #
 #
 # (90) BUS FAULT  32386  "MDDLE FK"
 #
1  32386  32384  "1"    0     # LINE from  MDDLE FK  60.00  to  OXBOW     60.00
1  32386  32388  "1"    0     # LINE from  MDDLE FK  60.00  to  FRNCH MS  60.00
2  32386  30346  "4"    0     # TRAN from  MDDLE FK  60.00  to  MDDLFK M 230.00
0
 #
 #
 # (91) BUS FAULT  32388  "FRNCH MS"
 #
1  32388  32386  "1"    0     # LINE from  FRNCH MS  60.00  to  MDDLE FK  60.00
2  32388  32486  "1"    0     # TRAN from  FRNCH MS  60.00  to  HELLHOLE   9.11
2  32388  32508  "1"    0     # TRAN from  FRNCH MS  60.00  to  FRNCH MD   4.16
0
 #
 #
 # (92) BUS FAULT  32390  "HALSEY"
 #
1  32390  32380  "1"    0     # LINE from  HALSEY    60.00  to  WEMR SWS  60.00
1  32390  32410  "1"    0     # LINE from  HALSEY    60.00  to  MTN_QJCT  60.00
2  32390  32478  "1"    0     # TRAN from  HALSEY    60.00  to  HALSEY F   9.11
4  32390     0  "1 "    0     # LOAD-DROP    HALSEY    60.00  LOAD==17.90(0.80)
0
 #
 #
 # (93) BUS FAULT  32394  "PLACER"
 #
1  32394  32392  "1"    0     # LINE from  PLACER    60.00  to  AUBURN    60.00
1  32394  32270  "1"    0     # LINE from  PLACER    60.00  to  PENRYN    60.00
```

```
2  32394  32228  "1"   0    # TRAN from  PLACER    60.00  to  PLACER   115.00
0
 #
 #
 # (94) BUS FAULT  32400  "SPI-LINC"
 #
1  32400  32404  "1"   0    # LINE from  SPI-LINC 115.00  to  SPI  JCT 115.00
2  32400  32498  "1"   0    # TRAN from  SPI-LINC 115.00  to  SPILINCF  12.50
0
 #
 #
 # (95) BUS FAULT  32408  "PLSNT GR"
 #
1  32408  32414  "1"   0    # LINE from  PLSNT GR 115.00  to  FORMICA  115.00
1  32408  32412  "1"   0    # LINE from  PLSNT GR 115.00  to  ATLANTIC 115.00
1  32408  32412  "2"   0    # LINE from  PLSNT GR 115.00  to  ATLANTIC 115.00
4  32408     0  "1 "   0    # LOAD-DROP    PLSNT GR 115.00  LOAD==43.07(0.00)
4  32408     0  "2 "   0    # LOAD-DROP    PLSNT GR 115.00  LOAD==41.19(0.00)
4  32408     0  "3 "   0    # LOAD-DROP    PLSNT GR 115.00  LOAD==34.23(0.00)
0
 #
 #
 # (96) BUS FAULT  32412  "ATLANTIC"
 #
1  32412  32408  "1"   0    # LINE from  ATLANTIC 115.00  to  PLSNT GR 115.00
1  32412  32408  "2"   0    # LINE from  ATLANTIC 115.00  to  PLSNT GR 115.00
2  32412  30335  "3"   0    # TRAN from  ATLANTIC 115.00  to  ATLANTC  230.00
2  32412  30335  "4"   0    # TRAN from  ATLANTIC 115.00  to  ATLANTC  230.00
0
 #
 #
 # (97) BUS FAULT  32413  "ATLANTI"
 #
1  32413  32266  "1"   0    # LINE from  ATLANTI   60.00  to  TAYLOR    60.00
1  32413  32272  "1"   0    # LINE from  ATLANTI   60.00  to  DEL MAR   60.00
2  32413  30335  "1"   0    # TRAN from  ATLANTI   60.00  to  ATLANTC  230.00
0
 #
 #
 # 2013 category c contingency list (dctl and bus outages)
 # Stockton/Stanislaus Divisions Zones 311-312
 #
 #
 # (98) C5 DCTL OUTAGE
 # Valley Springs - Martell #1 and #2 60 kV Lines
1  33610 33619  "1 "   0    # line from  VLLY SPS  60.00  BRKR to (3)   AMFOR_SW  60.00
1  33619 33616  "1 "   0    # line from  AMFOR_SW  60.00   (3) to BRKR  MARTELL   60.00
1  33619 33620  "1 "   0    # line from  AMFOR_SW  60.00   (3) to (1)   AM FORST  60.00
4  33616     0  "1 "   0    # LOAD-DROP    MARTELL   60.00  LOAD==19.52(0.87)
4  33620     0  "1 "   0    # LOAD-DROP    AM FORST  60.00  LOAD==1.90(1.52)
 #
1  33610 33634  "1 "   0    # line from  VLLY SPS  60.00  BRKR to (3)   PRDE JCT  60.00
1  33634 33626  "1 "   0    # line from  PRDE JCT  60.00   (3) to (3)   I.NRGYJT  60.00
2  33634 33846  "1 "   0    # TRAN from  PRDE JCT  60.00   (3) to (1)   PRDE 1-3   7.20
1  33626 33622  "1 "   0    # line from  I.NRGYJT  60.00   (3) to (2)   CLAY      60.00
1  33626 33628  "1 "   0    # line from  I.NRGYJT  60.00   (3) to (2)   I.ENERGY  60.00
1  33622 33623  "1 "   0    # line from  CLAY      60.00   (2) to (3)   INE_TP    60.00
1  33623 33617  "1 "   0    # line from  INE_TP    60.00   (3) to (1)   MARTELTP  60.00
1  33623 33624  "1 "   0    # line from  INE_TP    60.00   (3) to (1)   INE PRSN  60.00
2  33628 33816  "1 "   0    # TRAN from  I.ENERGY  60.00   (2) to (1)   I.ENERGY  12.00
4  33622     0  "1 "   0    # LOAD-DROP    CLAY      60.00  LOAD==13.69(0.62)
4  33622     0  "2 "   0    # LOAD-DROP    CLAY      60.00  LOAD==4.09(0.18)
4  33624     0  "1 "   0    # LOAD-DROP    INE PRSN  60.00  LOAD==12.55(0.56)
3  33846     0  "2 "   0    # GEN-DROP    PRDE 1-3   7.20  GEN==8.00(2.00)
0
 #
 #
 # (99) C5 DCTL OUTAGE
 # Bellota - Riverbank - Melones and Bellota - Riverbank 115 kV Lines
1  33562 33950  "1 "   0    # line from  BELLOTA  115.00  BRKR to (3)   RVRBK TP 115.00
1  33950 33934  "1 "   0    # line from  RVRBK TP 115.00   (3) to (3)   TULLOCH  115.00
1  33950 33944  "1 "   0    # line from  RVRBK TP 115.00   (3) to BRKR  RVRBANK  115.00
1  33934 33932  "1 "   0    # line from  TULLOCH  115.00   (3) to BRKR  MELONES  115.00
2  33934 34076  "1 "   0    # TRAN from  TULLOCH  115.00   (3) to (1)   TULLOCH    6.90
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3  34076     0  "1 "    0     # GEN-DROP    TULLOCH    6.90  GEN==8.30(1.00)
3  34076     0  "2 "    0     # GEN-DROP    TULLOCH    6.90  GEN==8.30(1.00)
 #
1  33562 33946  "1 "    0     # line from  BELLOTA  115.00  BRKR to (2)   RVRBK J1 115.00
1  33946 33944  "1 "    0     # line from  RVRBK J1 115.00   (2) to BRKR  RVRBANK  115.00
0
 #
 #
 # (100) C5 DCTL OUTAGE
 # Stanislaus - Manteca #2 and Riverbank Jct Sw Sta - Manteca 115 kV Lines
1  33506 33948  "1 "    0     # line from  STANISLS 115.00  BRKR to (2)   RVRBK J2 115.00
1  33948 33953  "1 "    0     # line from  RVRBK J2 115.00   (2) to (2)   VLYHMTP2 115.00
1  33953 33511  "1 "    0     # line from  VLYHMTP2 115.00   (2) to (2)   AVENATP2 115.00
1  33511 33514  "1 "    0     # line from  AVENATP2 115.00   (2) to BRKR  MANTECA  115.00
 #
1  33516 33514  "1 "    0     # line from  RPN JNCN 115.00   (3) to BRKR  MANTECA  115.00
1  33516 33520  "1 "    0     # line from  RPN JNCN 115.00   (3) to (1)   RIPON    115.00
1  33516 33951  "1 "    0     # line from  RPN JNCN 115.00   (3) to (3)   VLYHMTP1 115.00
1  33951 33947  "1 "    0     # line from  VLYHMTP1 115.00   (3) to BRKR  RIVRBKJT 115.00
1  33951 33952  "1 "    0     # line from  VLYHMTP1 115.00   (3) to (1)   VALLY HM 115.00
4  33520     0  "2 "    0     # LOAD-DROP    RIPON    115.00  LOAD==29.97(1.34)
4  33952     0  "1 "    0     # LOAD-DROP    VALLY HM 115.00  LOAD==5.36(0.24)
0
 #
 #
 # (101) C5 DCTL OUTAGE
 # Stanislaus - Melones - Manteca #1 and Stanislaus - Manteca #2 115 kV Lines
1  33500 33509  "1 "    0     # line from  MELNS JA 115.00   (3) to (3)   AVENATP1 115.00
1  33500 33501  "1 "    0     # line from  MELNS JA 115.00   (3) to (3)   FRGTNTP1 115.00
1  33500 33932  "1 "    0     # line from  MELNS JA 115.00   (3) to BRKR  MELONES  115.00
1  33509 33510  "1 "    0     # line from  AVENATP1 115.00   (3) to (1)   AVENA    115.00
1  33509 33514  "1 "    0     # line from  AVENATP1 115.00   (3) to BRKR  MANTECA  115.00
1  33501 33502  "1 "    0     # line from  FRGTNTP1 115.00   (3) to (1)   FROGTOWN 115.00
1  33501 33506  "1 "    0     # line from  FRGTNTP1 115.00   (3) to BRKR  STANISLS 115.00
4  33510     0  "1 "    0     # LOAD-DROP    AVENA    115.00  LOAD==13.67(0.61)
4  33502     0  "1 "    0     # LOAD-DROP    FROGTOWN 115.00  LOAD==11.14(0.50)
4  33502     0  "2 "    0     # LOAD-DROP    FROGTOWN 115.00  LOAD==8.04(0.36)
1  33511 33510  "1 "    1      # Switches in Avenan SW 145 to transfer load
4  33510     0  "**"    1      # Restores Load at Avena
 #
1  33506 33948  "1 "    0     # line from  STANISLS 115.00  BRKR to (2)   RVRBK J2 115.00
1  33948 33953  "1 "    0     # line from  RVRBK J2 115.00   (2) to (2)   VLYHMTP2 115.00
1  33953 33511  "1 "    0     # line from  VLYHMTP2 115.00   (2) to (2)   AVENATP2 115.00
1  33511 33514  "1 "    0     # line from  AVENATP2 115.00   (2) to BRKR  MANTECA  115.00
0
 #
 #
 # (102) C5 DCTL OUTAGE
 # Tesla - Manteca and Tesla - Schulte 115 kV Lines pre-project outage
1  33514 33526  "1 "    0     # line from  MANTECA  115.00  BRKR to (3)   KSSN-JC1 115.00
1  33526 33528  "1 "    0     # line from  KSSN-JC1 115.00   (3) to BRKR  KASSON   115.00
1  33526 33533  "1 "    0     # line from  KSSN-JC1 115.00   (3) to (2)   OWENSTP2 115.00
1  33533 33535  "1 "    0     # line from  OWENSTP2 115.00   (2) to (2)   SFWY_TP2 115.00
1  33535 33543  "1 "    0     # line from  SFWY_TP2 115.00   (2) to (3)   AEC_TP2  115.00
1  33543 33540  "1 "    0     # line from  AEC_TP2  115.00   (3) to BRKR  TESLA    115.00
1  33543 33545  "1 "    0     # line from  AEC_TP2  115.00   (3) to (2)   AEC_JCT  115.00
1  33545 33547  "1 "    0     # line from  AEC_JCT  115.00   (2) to (1)   AEC_300  115.00
4  33547     0  "1 "    0     # LOAD-DROP    AEC_300  115.00  LOAD==3.00(9.54)
 #
1  33537 33534  "1 "    0     # line from  SFWY_TP1 115.00   (3) to (1)   SAFEWAY  115.00
1  33537 33549  "1 "    0     # line from  SFWY_TP1 115.00   (3) to BRKR  GWFTRACY 115.00
1  33537 33541  "1 "    0     # line from  SFWY_TP1 115.00   (3) to (2)   AEC_TP1  115.00
1  33541 33540  "1 "    0     # line from  AEC_TP1  115.00   (2) to BRKR  TESLA    115.00
4  33534     0  "1 "    0     # LOAD-DROP    SAFEWAY  115.00  LOAD==5.38(2.76)
0
 #
 #
 # (103) C5 DCTL OUTAGE
 # Tesla - Manteca and Schulte - Lammers 115 kV Lines pre-project outage
1  33514 33526  "1 "    0     # line from  MANTECA  115.00  BRKR to (3)   KSSN-JC1 115.00
1  33526 33528  "1 "    0     # line from  KSSN-JC1 115.00   (3) to BRKR  KASSON   115.00
1  33526 33533  "1 "    0     # line from  KSSN-JC1 115.00   (3) to (2)   OWENSTP2 115.00
1  33533 33535  "1 "    0     # line from  OWENSTP2 115.00   (2) to (2)   SFWY_TP2 115.00
1  33535 33543  "1 "    0     # line from  SFWY_TP2 115.00   (2) to (3)   AEC_TP2  115.00
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1  33543 33540  "1 "    0     # line from  AEC_TP2  115.00   (3) to BRKR  TESLA    115.00
1  33543 33545  "1 "    0     # line from  AEC_TP2  115.00   (3) to (2)   AEC_JCT  115.00
1  33545 33547  "1 "    0     # line from  AEC_JCT  115.00   (2) to (1)   AEC_300  115.00
4  33547     0  "1 "    0     # LOAD-DROP    AEC_300  115.00  LOAD==3.00(9.54)
 #
1  33529 33531  "1 "    0     # line from  LAMMERS  115.00  BRKR to (3)   OWENSTP1 115.00
1  33531 33532  "1 "    0     # line from  OWENSTP1 115.00   (3) to (1)   OI GLASS 115.00
1  33531 33549  "1 "    0     # line from  OWENSTP1 115.00   (3) to BRKR  GWFTRACY 115.00
4  33532     0  "1 "    0     # LOAD-DROP    OI GLASS 115.00  LOAD==11.34(7.03)
0
 #
 #
 # (104) C5 DCTL OUTAGE
 # Tesla - Schulte #1 and #2 115 kV Lines post-project outage
1  33537 33534  "1 "    0     # line from  SFWY_TP1 115.00   (3) to (1)   SAFEWAY  115.00
1  33537 33549  "1 "    0     # line from  SFWY_TP1 115.00   (3) to BRKR  SCHULTE  115.00
1  33537 33541  "1 "    0     # line from  SFWY_TP1 115.00   (3) to (2)   AEC_TP1  115.00
1  33541 33540  "1 "    0     # line from  AEC_TP1  115.00   (2) to BRKR  TESLA    115.00
4  33534     0  "1 "    0     # LOAD-DROP    SAFEWAY  115.00  LOAD==5.38(2.76)
 #
1  33535 33549  "2 "    0     # line from  SFWY_TP2 115.00   (2) to BRKR  SCHULTE  115.00
1  33535 33543  "1 "    0     # line from  SFWY_TP2 115.00   (2) to (3)   AEC_TP2  115.00
1  33543 33540  "1 "    0     # line from  AEC_TP2  115.00   (3) to BRKR  TESLA    115.00
1  33543 33545  "1 "    0     # line from  AEC_TP2  115.00   (3) to (2)   AEC_JCT  115.00
1  33545 33547  "1 "    0     # line from  AEC_JCT  115.00   (2) to (1)   AEC_300  115.00
4  33547     0  "1 "    0     # LOAD-DROP    AEC_300  115.00  LOAD==3.00(9.54)
0
 #
 #
 # (105) C5 DCTL OUTAGE
 # Schulte - Lammers and Schulte - Manteca 115 kV Lines post-project outage
1  33529 33531  "1 "    0     # line from  LAMMERS  115.00  BRKR to (3)   OWENSTP1 115.00
1  33531 33532  "1 "    0     # line from  OWENSTP1 115.00   (3) to (1)   OI GLASS 115.00
1  33531 33549  "1 "    0     # line from  OWENSTP1 115.00   (3) to BRKR  SCHULTE  115.00
4  33532     0  "1 "    0     # LOAD-DROP    OI GLASS 115.00  LOAD==11.34(7.03)
 #
1  33514 33526  "1 "    0     # line from  MANTECA  115.00  BRKR to (3)   KSSN-JC1 115.00
1  33526 33528  "1 "    0     # line from  KSSN-JC1 115.00   (3) to BRKR  KASSON   115.00
1  33526 33533  "1 "    0     # line from  KSSN-JC1 115.00   (3) to (2)   OWENSTP2 115.00
1  33533 33549  "2 "    0     # line from  OWENSTP2 115.00   (2) to BRKR  SCHULTE  115.00
0
 #
 #
 # (106) C5 DCTL OUTAGE
 # Tesla - Manteca and Manteca - Vierra 115 kV Lines pre-project outage
1  33514 33526  "1 "    0     # line from  MANTECA  115.00  BRKR to (3)   KSSN-JC1 115.00
1  33526 33528  "1 "    0     # line from  KSSN-JC1 115.00   (3) to BRKR  KASSON   115.00
1  33526 33533  "1 "    0     # line from  KSSN-JC1 115.00   (3) to (2)   OWENSTP2 115.00
1  33533 33535  "1 "    0     # line from  OWENSTP2 115.00   (2) to (2)   SFWY_TP2 115.00
1  33535 33543  "1 "    0     # line from  SFWY_TP2 115.00   (2) to (3)   AEC_TP2  115.00
1  33543 33540  "1 "    0     # line from  AEC_TP2  115.00   (3) to BRKR  TESLA    115.00
1  33543 33545  "1 "    0     # line from  AEC_TP2  115.00   (3) to (2)   AEC_JCT  115.00
1  33545 33547  "1 "    0     # line from  AEC_JCT  115.00   (2) to (1)   AEC_300  115.00
4  33547     0  "1 "    0     # LOAD-DROP    AEC_300  115.00  LOAD==3.00(9.54)
 #
1  33518 33514  "1 "    0     # line from  VIERRA   115.00  BRKR to BRKR  MANTECA  115.00
0
 #
 #
 # (107) C5 DCTL OUTAGE
 # Schulte - Manteca and Manteca - Vierra 115 kV Lines post-project outage
1  33514 33526  "1 "    0     # line from  MANTECA  115.00  BRKR to (3)   KSSN-JC1 115.00
1  33526 33528  "1 "    0     # line from  KSSN-JC1 115.00   (3) to BRKR  KASSON   115.00
1  33526 33533  "1 "    0     # line from  KSSN-JC1 115.00   (3) to (2)   OWENSTP2 115.00
1  33533 33549  "2 "    0     # line from  OWENSTP2 115.00   (2) to BRKR  SCHULTE  115.00
 #
1  33518 33514  "1 "    0     # line from  VIERRA   115.00  BRKR to BRKR  MANTECA  115.00
0
 #
 #
 # (108) C5 DCTL OUTAGE
 # Tesla - Manteca and Tesla - Salado - Manteca 115 kV Lines pre-project outage
1  33514 33526  "1 "    0     # line from  MANTECA  115.00  BRKR to (3)   KSSN-JC1 115.00
1  33526 33528  "1 "    0     # line from  KSSN-JC1 115.00   (3) to BRKR  KASSON   115.00
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1  33526 33533  "1 "    0     # line from  KSSN-JC1 115.00   (3) to (2)   OWENSTP2 115.00
1  33533 33535  "1 "    0     # line from  OWENSTP2 115.00   (2) to (2)   SFWY_TP2 115.00
1  33535 33543  "1 "    0     # line from  SFWY_TP2 115.00   (2) to (3)   AEC_TP2  115.00
1  33543 33540  "1 "    0     # line from  AEC_TP2  115.00   (3) to BRKR  TESLA    115.00
1  33543 33545  "1 "    0     # line from  AEC_TP2  115.00   (3) to (2)   AEC_JCT  115.00
1  33545 33547  "1 "    0     # line from  AEC_JCT  115.00   (2) to (1)   AEC_300  115.00
4  33547     0  "1 "    0     # LOAD-DROP    AEC_300  115.00  LOAD==3.00(9.54)
 #
1  33514 33970  "1 "    0     # line from  MANTECA  115.00  BRKR to (3)   INGRM C. 115.00
1  33970 33959  "1 "    0     # line from  INGRM C. 115.00   (3) to (2)   TCHRT_T2 115.00
1  33970 33965  "1 "    0     # line from  INGRM C. 115.00   (3) to (2)   SALADO J 115.00
1  33959 33540  "1 "    0     # line from  TCHRT_T2 115.00   (2) to BRKR  TESLA    115.00
1  33965 33964  "1 "    0     # line from  SALADO J 115.00   (2) to BRKR  SALADO   115.00
4  33970     0  "1 "    0     # LOAD-DROP    INGRM C. 115.00  LOAD==3.59(1.74)
0
 #
 #
 # (109) C5 DCTL OUTAGE
 # Schulte - Manteca and Tesla - Salado - Manteca 115 kV Lines post-project outage
1  33514 33526  "1 "    0     # line from  MANTECA  115.00  BRKR to (3)   KSSN-JC1 115.00
1  33526 33528  "1 "    0     # line from  KSSN-JC1 115.00   (3) to BRKR  KASSON   115.00
1  33526 33533  "1 "    0     # line from  KSSN-JC1 115.00   (3) to (2)   OWENSTP2 115.00
1  33533 33549  "2 "    0     # line from  OWENSTP2 115.00   (2) to BRKR  SCHULTE  115.00
 #
1  33514 33970  "1 "    0     # line from  MANTECA  115.00  BRKR to (3)   INGRM C. 115.00
1  33970 33959  "1 "    0     # line from  INGRM C. 115.00   (3) to (2)   TCHRT_T2 115.00
1  33970 33965  "1 "    0     # line from  INGRM C. 115.00   (3) to (2)   SALADO J 115.00
1  33959 33540  "1 "    0     # line from  TCHRT_T2 115.00   (2) to BRKR  TESLA    115.00
1  33965 33964  "1 "    0     # line from  SALADO J 115.00   (2) to BRKR  SALADO   115.00
4  33970     0  "1 "    0     # LOAD-DROP    INGRM C. 115.00  LOAD==3.59(1.74)
0
 #
 #
 # (110) C5 DCTL OUTAGE
 # Tesla - Salado #1 and Tesla - Salado - Manteca 115 kV Lines
1  33540 33961  "1 "    0     # line from  TESLA    115.00  BRKR to (3)   TCHRT_T1 115.00
1  33961 33960  "1 "    0     # line from  TCHRT_T1 115.00   (3) to (2)   MDSTO CN 115.00
1  33961 33963  "1 "    0     # line from  TCHRT_T1 115.00   (3) to (2)   TCHRTJCT 115.00
1  33960 33962  "1 "    0     # line from  MDSTO CN 115.00   (2) to (3)   SALDO TP 115.00
1  33962 33964  "1 "    0     # line from  SALDO TP 115.00   (3) to BRKR  SALADO   115.00
1  33962 33967  "1 "    0     # line from  SALDO TP 115.00   (3) to (2)   MILER TP 115.00
1  33967 33966  "1 "    0     # line from  MILER TP 115.00   (2) to (1)   MILLER   115.00
1  33963 33968  "1 "    0     # line from  TCHRTJCT 115.00   (2) to (1)   TEICHERT 115.00
4  33966     0  "1 "    0     # LOAD-DROP    MILLER   115.00  LOAD==3.54(1.71)
4  33968     0  "1 "    0     # LOAD-DROP    TEICHERT 115.00  LOAD==7.42(6.54)
 #
1  33514 33970  "1 "    0     # line from  MANTECA  115.00  BRKR to (3)   INGRM C. 115.00
1  33970 33959  "1 "    0     # line from  INGRM C. 115.00   (3) to (2)   TCHRT_T2 115.00
1  33970 33965  "1 "    0     # line from  INGRM C. 115.00   (3) to (2)   SALADO J 115.00
1  33959 33540  "1 "    0     # line from  TCHRT_T2 115.00   (2) to BRKR  TESLA    115.00
1  33965 33964  "1 "    0     # line from  SALADO J 115.00   (2) to BRKR  SALADO   115.00
4  33970     0  "1 "    0     # LOAD-DROP    INGRM C. 115.00  LOAD==3.59(1.74)
0
 #
 #
 # (111) C5 DCTL OUTAGE
 # Stockton Jct Sw Sta - Lockeford - Bellota #1 and #2 115 kV Lines
1  33556 33555  "1 "    0     # line from  STN COGN 115.00   (3) to (1)   STKTON A 115.00
1  33556 33560  "1 "    0     # line from  STN COGN 115.00   (3) to (2)   LCKFRDJA 115.00
1  33556 33958  "1 "    0     # line from  STN COGN 115.00   (3) to (2)   CPC STCN 115.00
1  33560 33562  "1 "    0     # line from  LCKFRDJA 115.00   (2) to BRKR  BELLOTA  115.00
2  33958 33814  "1 "    0     # TRAN from  CPC STCN 115.00   (2) to (1)   CPC STCN  12.47
4  33555     0  "4 "    0     # LOAD-DROP    STKTON A 115.00  LOAD==32.05(1.43)
4  33555     0  "5 "    0     # LOAD-DROP    STKTON A 115.00  LOAD==21.46(0.96)
4  33814     0  "SG"    0     # LOAD-DROP    CPC STCN  12.47  LOAD==6.19(1.41)
3  33814     0  "1 "    0     # GEN-DROP    CPC STCN  12.47  GEN==49.00(2.53)
 #
1  33552 33553  "1 "    0     # line from  STCKTNJB 115.00   (2) to BRKR  STKTON B 115.00
1  33552 33558  "1 "    0     # line from  STCKTNJB 115.00   (2) to (3)   LCKFRDJB 115.00
1  33558 33562  "1 "    0     # line from  LCKFRDJB 115.00   (3) to BRKR  BELLOTA  115.00
1  33558 33564  "1 "    0     # line from  LCKFRDJB 115.00   (3) to BRKR  LOCKFORD 115.00
4  33553     0  "3 "    0     # LOAD-DROP    STKTON B 115.00  LOAD==30.08(1.34)
1  33555 33553  "1 "    1      # Switches in Stockton 'A' SW 177 to transfer load
4  33553     0  "**"    1      # Restore Load at Stockton 'A' Bk  3
```

```
0
 #
 #
 # (112) C5 DCTL OUTAGE
 # Stanislaus - Manteca #2 and Stanislaus - Melones - Riverbank Jct Sw Sta 115 kV Lines
1  33506 33948  "1 "    0     # line from  STANISLS 115.00  BRKR to (2)   RVRBK J2 115.00
1  33948 33953  "1 "    0     # line from  RVRBK J2 115.00   (2) to (2)   VLYHMTP2 115.00
1  33953 33511  "1 "    0     # line from  VLYHMTP2 115.00   (2) to (2)   AVENATP2 115.00
1  33511 33514  "1 "    0     # line from  AVENATP2 115.00   (2) to BRKR  MANTECA  115.00
 #
1  33503 33936  "1 "    0     # line from  FRGTNTP2 115.00   (2) to (3)   MELNS JB 115.00
1  33503 33504  "1 "    0     # line from  FRGTNTP2 115.00   (2) to (2)   CATARACT 115.00
1  33936 33932  "1 "    0     # line from  MELNS JB 115.00   (3) to BRKR  MELONES  115.00
1  33936 33947  "1 "    0     # line from  MELNS JB 115.00   (3) to BRKR  RIVRBKJT 115.00
1  33504 33506  "1 "    0     # line from  CATARACT 115.00   (2) to BRKR  STANISLS 115.00
0
 #
 #
 # (113) C5 DCTL OUTAGE
 # Kasson - Lammers 115 kV Line and Tesla - Manteca 115 kV Line pre-project outage
1  33528 33529  "1 "    0     # line from  KASSON   115.00  BRKR to BRKR  LAMMERS  115.00
 #
1  33514 33526  "1 "    0     # line from  MANTECA  115.00  BRKR to (3)   KSSN-JC1 115.00
1  33526 33528  "1 "    0     # line from  KSSN-JC1 115.00   (3) to BRKR  KASSON   115.00
1  33526 33533  "1 "    0     # line from  KSSN-JC1 115.00   (3) to (2)   OWENSTP2 115.00
1  33533 33535  "1 "    0     # line from  OWENSTP2 115.00   (2) to (2)   SFWY_TP2 115.00
1  33535 33543  "1 "    0     # line from  SFWY_TP2 115.00   (2) to (3)   AEC_TP2  115.00
1  33543 33540  "1 "    0     # line from  AEC_TP2  115.00   (3) to BRKR  TESLA    115.00
1  33543 33545  "1 "    0     # line from  AEC_TP2  115.00   (3) to (2)   AEC_JCT  115.00
1  33545 33547  "1 "    0     # line from  AEC_JCT  115.00   (2) to (1)   AEC_300  115.00
4  33547     0  "1 "    0     # LOAD-DROP    AEC_300  115.00  LOAD==3.00(9.54)
0
 #
 #
 # (114) C5 DCTL OUTAGE
 # Kasson - Lammers 115 kV Line and Schulte - Manteca 115 kV Line post-project outage
1  33528 33529  "1 "    0     # line from  KASSON   115.00  BRKR to BRKR  LAMMERS  115.00
 #
1  33514 33526  "1 "    0     # line from  MANTECA  115.00  BRKR to (3)   KSSN-JC1 115.00
1  33526 33528  "1 "    0     # line from  KSSN-JC1 115.00   (3) to BRKR  KASSON   115.00
1  33526 33533  "1 "    0     # line from  KSSN-JC1 115.00   (3) to (2)   OWENSTP2 115.00
1  33533 33549  "2 "    0     # line from  OWENSTP2 115.00   (2) to BRKR  SCHULTE  115.00
0
 #
 #
 # (115) C5 DCTL OUTAGE
 # Tesla - Stagg and Tesla - Eight Mile 230 kV Lines
1  30489 30624  "1 "    0     # line from  STAGG-J2 230.00   (2) to BRKR  TESLA E  230.00
1  30489 30499  "1 "    0     # line from  STAGG-J2 230.00   (2) to BRKR  STAGG-E  230.00
 #
1  30622 30624  "1 "    0     # line from  EIGHT MI 230.00  BRKR to BRKR  TESLA E  230.00
0
 #
 #
 # (116) C5 DCTL OUTAGE
 # Stagg - Eight Mile and Tesla - Eight Mile 230 kV Lines
1  30622 30495  "1 "    0     # line from  EIGHT MI 230.00  BRKR to BRKR  STAGG    230.00
 #
1  30622 30624  "1 "    0     # line from  EIGHT MI 230.00  BRKR to BRKR  TESLA E  230.00
0
 #
 #
 # (117) C5 DCTL OUTAGE
 # Q260 - Eight Mile and Eight Mile - Lodi Stig 230 kV Lines
1  30621 30622  "1 "    0     # line from  Q260     230.00  BRKR to BRKR  EIGHT MI 230.00
 #
1  38000 30622  "1 "    0     # line from  LODI     230.00  BRKR to BRKR  EIGHT MI 230.00
0
 #
 #
 # (118) C5 DCTL OUTAGE
 # Gold Hill - Q260 and Lodi Stig - Gold Hill 230 kV Lines
1  30337 30621  "1 "    0     # line from  GOLDHILL 230.00  BRKR to BRKR  Q260     230.00
 #
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1  30337 38000  "1 "    0     # line from  GOLDHILL 230.00  BRKR to BRKR  LODI     230.00
0
 #
 #
 # (119) C5 DCTL OUTAGE
 # Q260 - Eight Mile and Lodi Stig - Gold Hill 230 kV Lines
1  30621 30622  "1 "    0     # line from  Q260     230.00  BRKR to BRKR  EIGHT MI 230.00
 #
1  30337 38000  "1 "    0     # line from  GOLDHILL 230.00  BRKR to BRKR  LODI     230.00
0
 #
 #
 # (120) C5 DCTL OUTAGE
 # Bellota - P0703 and Bellota - Weber 230 kV Lines
1  30500 30888  "1 "    0     # line from  BELLOTA  230.00  BRKR to BRKR  P0703    230.00
 #
1  30500 30505  "1 "    0     # line from  BELLOTA  230.00  BRKR to BRKR  WEBER    230.00
0
 #
 #
 # (121) C5 DCTL OUTAGE
 # Bellota - P0703 and Weber - P0703 230 kV Lines
1  30500 30888  "1 "    0     # line from  BELLOTA  230.00  BRKR to BRKR  P0703    230.00
 #
1  30505 30888  "1 "    0     # line from  WEBER    230.00  BRKR to BRKR  P0703    230.00
0
 #
 #
 # (122) C5 DCTL OUTAGE
 # P0703 - Tesla #1 and #2 230 kV Lines
1  30624 30888  "1 "    0     # line from  TESLA E  230.00  BRKR to BRKR  P0703    230.00
 #
1  30624 30888  "2 "    0     # line from  TESLA E  230.00  BRKR to BRKR  P0703    230.00
0
 #
 #
 # (123) C5 DCTL OUTAGE
 # Tesla - Newark #1 and Tesla - Ravenswood 230 kV Lines
1  30624 30630  "1 "    0     # line from  TESLA E  230.00  BRKR to BRKR  NEWARK D 230.00
 #
1  30640 30703  "1 "    0     # line from  TESLA C  230.00  BRKR to BRKR  RAVENSWD 230.00
0
 #
 #
 # (124) C5 DCTL OUTAGE
 # Delta Switching Yard - Telsa and Kelso - Telsa 230 kV Lines
1  30580 30625  "1 "    0     # line from  ALTM MDW 230.00   (3) to BRKR  TESLA D  230.00
1  30580 38610  "1 "    0     # line from  ALTM MDW 230.00   (3) to BRKR  DELTAPMP 230.00
2  30580 33175  "1 "    0     # TRAN from  ALTM MDW 230.00   (3) to (1)   ALTAMONT   9.11
 #
1  30569 30570  "1 "    0     # line from  KELSO    230.00  BRKR to (4)   USWP-RLF 230.00
1  30570 30571  "1 "    0     # line from  USWP-RLF 230.00   (4) to (2)   ALTALAND 230.00
1  30570 30625  "1 "    0     # line from  USWP-RLF 230.00   (4) to BRKR  TESLA D  230.00
2  30570 33836  "1 "    0     # TRAN from  USWP-RLF 230.00   (4) to (1)   USWP_#4    9.11
2  30571 33832  "1 "    0     # TRAN from  ALTALAND 230.00   (2) to (1)   COG.CAPT   9.11
4  33836     0  "SG"    0     # LOAD-DROP    USWP_#4    9.11  LOAD==0.34(0.21)
3  33836     0  "3 "    0     # GEN-DROP    USWP_#4    9.11  GEN==4.50(0.00)
3  33832     0  "1 "    0     # GEN-DROP    COG.CAPT   9.11  GEN==4.30(6.60)
0
 #
 #
 # (125) C5 DCTL OUTAGE
 # Tesla - Q235 Sw Station #1 and #2 230 kV Lines
1  30625 30636  "1 "    0     # line from  TESLA D  230.00  BRKR to BRKR  Q235SWST 230.00
 #
1  30625 30636  "2 "    0     # line from  TESLA D  230.00  BRKR to BRKR  Q235SWST 230.00
0
 #
 #
 # (126) C5 DCTL OUTAGE
 # Q235 Sw Station - Tracy #1 and #2 230 kV Lines
1  30636 37585  "1 "    0     # line from  Q235SWST 230.00  BRKR to BRKR  TRCY PMP 230.00
 #
1  30636 37585  "2 "    0     # line from  Q235SWST 230.00  BRKR to BRKR  TRCY PMP 230.00
```

```
0
 #
 #
 # (127) C5 DCTL OUTAGE
 # Bellota - Rancho Seco PP #1 and #2 230 kV Lines
1  37016 30500  "1 "    0    # line from  RNCHSECO 230.00  BRKR to BRKR  BELLOTA  230.00
 #
1  37016 30500  "2 "    0    # line from  RNCHSECO 230.00  BRKR to BRKR  BELLOTA  230.00
0
 #
 #
 # (128) C5 DCTL OUTAGE
 # Lockeford - Bellota and Brighton - Bellota 230 kV Lines
1  30482 30500  "1 "    0    # line from  LOCKFORD 230.00  BRKR to BRKR  BELLOTA  230.00
 #
1  30348 30500  "1 "    0    # line from  BRIGHTON 230.00  BRKR to BRKR  BELLOTA  230.00
0
 #
 #
 # (129) BUS FAULT  30495  "STAGG"
 #
1  30495  30489  "1"    0    # LINE from  STAGG    230.00  to  STAGG-J2 230.00
1  30495  30496  "1"    0    # LINE from  STAGG    230.00  to  STAGG-H  230.00
1  30495  30622  "1"    0    # LINE from  STAGG    230.00  to  EIGHT MI 230.00
0
 #
 #
 # (130) BUS FAULT  30498  "STAGG-D"
 #
1  30498  30497  "1"    0    # LINE from  STAGG-D  230.00  to  STAGG-F  230.00
1  30498  30499  "1"    0    # LINE from  STAGG-D  230.00  to  STAGG-E  230.00
2  30498  33704  "1"    0    # TRAN from  STAGG-D  230.00  to  STAGG     60.00
0
 #
 #
 # (131) BUS FAULT  30499  "STAGG-E"
 #
1  30499  30498  "1"    0    # LINE from  STAGG-E  230.00  to  STAGG-D  230.00
1  30499  30489  "1"    0    # LINE from  STAGG-E  230.00  to  STAGG-J2 230.00
2  30499  33704  "4"    0    # TRAN from  STAGG-E  230.00  to  STAGG     60.00
0
 #
 #
 # (132) BUS FAULT  30500  "BELLOTA" 230 kV Bus Section 1
 #
1  30500  30348  "1"    0    # LINE from  BELLOTA  230.00  to  BRIGHTON 230.00
1  30500  30505  "1"    0    # LINE from  BELLOTA  230.00  to  WEBER    230.00
1  30500  38206  "1"    0    # LINE from  BELLOTA  230.00  to  COTTLE A 230.00
1  30500  37016  "1"    0    # LINE from  BELLOTA  230.00  to  RNCHSECO 230.00
1  30500  30487  "1"    0    # LINE from  BELLOTA  230.00  to  ELECTRA  230.00
1  30500  30503  "2"    0    # LINE from  BELLOTA  230.00  to  COLLERVL 230.00
2  30500  30501  "1"    0    # TRAN from  BELLOTA  230.00  to  BLLTA 1M 230.00
0
 #
 #
 # (133) BUS FAULT  30500  "BELLOTA" 230 kV Bus Section 2
 #
1  30500  30482  "1"    0    # LINE from  BELLOTA  230.00  to  LOCKFORD 230.00
1  30500  30490  "1"    0    # LINE from  BELLOTA  230.00  to  VLLY SPS 230.00
1  30500  30503  "1"    0    # LINE from  BELLOTA  230.00  to  COLLERVL 230.00
1  30500  30888  "1"    0    # LINE from  BELLOTA  230.00  to  P0703    230.00
1  30500  38208  "1"    0    # LINE from  BELLOTA  230.00  to  COTTLE B 230.00
1  30500  37016  "2"    0    # LINE from  BELLOTA  230.00  to  RNCHSECO 230.00
2  30500  33562  "2"    0    # TRAN from  BELLOTA  230.00  to  BELLOTA  115.00
0
 #
 #
 # (134) BUS FAULT  30503  "COLLERVL"
 #
1  30503  30500  "1"    0    # LINE from  COLLERVL 230.00  to  BELLOTA  230.00
1  30503  30500  "2"    0    # LINE from  COLLERVL 230.00  to  BELLOTA  230.00
2  30503  38102  "1"    0    # TRAN from  COLLERVL 230.00  to  COLLRVL1  13.80
2  30503  38104  "1"    0    # TRAN from  COLLERVL 230.00  to  COLLRVL2  13.80
0
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 #
 #
 # (135) BUS FAULT  30569  "KELSO"
 #
1  30569  30565  "1"    0     # LINE from  KELSO    230.00  to  BRENTWOD 230.00
1  30569  30570  "1"    0     # LINE from  KELSO    230.00  to  USWP-RLF 230.00
4  30569     0  "1 "    0     # LOAD-DROP    KELSO    230.00  LOAD==11.86(7.35)
0
 #
 #
 # (136) BUS FAULT  30624  "TESLA E" 230 kV Bus Section 1E
 #
1  30624  30630  "1"    0     # LINE from  TESLA E  230.00  to  NEWARK D 230.00
1  30624  30622  "1"    0     # LINE from  TESLA E  230.00  to  EIGHT MI 230.00
1  30624  30888  "1"    0     # LINE from  TESLA E  230.00  to  P0703    230.00
1  30624  30632  "1"    0     # LINE from  TESLA E  230.00  to  TESL_GEN 230.00
0
 #
 #
 # (137) BUS FAULT  30624  "TESLA E" 230 kV Bus Section 1E
 #
1  30624  30489  "1"    0     # LINE from  TESLA E  230.00  to  STAGG-J2 230.00
1  30624  30670  "1"    0     # LINE from  TESLA E  230.00  to  WESTLEY  230.00
1  30624  30632  "2"    0     # LINE from  TESLA E  230.00  to  TESL_GEN 230.00
1  30624  30888  "2"    0     # LINE from  TESLA E  230.00  to  P0703    230.00
0
 #
 #
 # (138) BUS FAULT  30625  "TESLA D" 230 kV Bus Section 1D
 #
1  30625  30570  "1"    0     # LINE from  TESLA D  230.00  to  USWP-RLF 230.00
1  30625  37585  "1"    0     # LINE from  TESLA D  230.00  to  TRCY PMP 230.00
1  30625  30636  "1"    0     # LINE from  TESLA D  230.00  to  Q235SWST 230.00
2  30625  33540  "1"    0     # TRAN from  TESLA D  230.00  to  TESLA    115.00
0
 #
 #
 # (139) BUS FAULT  30625  "TESLA D" 230 kV Bus Section 2D
 #
1  30625  30580  "1"    0     # LINE from  TESLA D  230.00  to  ALTM MDW 230.00
1  30625  37585  "2"    0     # LINE from  TESLA D  230.00  to  TRCY PMP 230.00
1  30625  30636  "2"    0     # LINE from  TESLA D  230.00  to  Q235SWST 230.00
2  30625  33540  "3"    0     # TRAN from  TESLA D  230.00  to  TESLA    115.00
6  30625     0  "v "    0     # SVD-DROP     TESLA D  230.00
0
 #
 #
 # (140) BUS FAULT  30637  "Q235"
 #
1  30637  30636  "1"    0     # LINE from  Q235     230.00  to  Q235SWST 230.00
1  30637  30636  "2"    0     # LINE from  Q235     230.00  to  Q235SWST 230.00
2  30637  33863  "1"    0     # TRAN from  Q235     230.00  to  Q235GT1   13.80
2  30637  33864  "1"    0     # TRAN from  Q235     230.00  to  Q235GT2   13.80
2  30637  33865  "1"    0     # TRAN from  Q235     230.00  to  Q235GT3   13.80
2  30637  33866  "1"    0     # TRAN from  Q235     230.00  to  Q235GT4   13.80
2  30637  33867  "1"    0     # TRAN from  Q235     230.00  to  Q235GT5   13.80
2  30637  33868  "1"    0     # TRAN from  Q235     230.00  to  Q235GT6   13.80
0
 #
 #
 # (141) BUS FAULT  30641  "Q236BS1"
 #
1  30641  30640  "1"    0     # LINE from  Q236BS1  230.00  to  TESLA C  230.00
1  30641  30642  "1"    0     # LINE from  Q236BS1  230.00  to  Q236BS2  230.00
2  30641  33871  "1"    0     # TRAN from  Q236BS1  230.00  to  Q236GT1   13.80
2  30641  33872  "1"    0     # TRAN from  Q236BS1  230.00  to  Q236GT2   13.80
2  30641  33873  "1"    0     # TRAN from  Q236BS1  230.00  to  Q236GT3   13.80
0
 #
 #
 # (142) BUS FAULT  30642  "Q236BS2"
 #
1  30642  30640  "1"    0     # LINE from  Q236BS2  230.00  to  TESLA C  230.00
1  30642  30641  "1"    0     # LINE from  Q236BS2  230.00  to  Q236BS1  230.00
```

```
2  30642  33874  "1"   0    # TRAN from  Q236BS2  230.00  to  Q236GT4   13.80
2  30642  33875  "1"   0    # TRAN from  Q236BS2  230.00  to  Q236GT5   13.80
2  30642  33876  "1"   0    # TRAN from  Q236BS2  230.00  to  Q236GT6   13.80
0
 #
 #
 # (143) BUS FAULT  33506  "STANISLS"
 #
1  33506  33501  "1"   0    # LINE from  STANISLS 115.00  to  FRGTNTP1 115.00
1  33506  33504  "1"   0    # LINE from  STANISLS 115.00  to  CATARACT 115.00
1  33506  33948  "1"   0    # LINE from  STANISLS 115.00  to  RVRBK J2 115.00
2  33506  34062  "1"   0    # TRAN from  STANISLS 115.00  to  STANISLS  13.80
4  33506     0  "1 "   0    # LOAD-DROP    STANISLS 115.00  LOAD==8.71(0.39)
0
 #
 #
 # (144) BUS FAULT  33518  "VIERRA"
 #
1  33518  33514  "1"   0    # LINE from  VIERRA   115.00  to  MANTECA  115.00
1  33518  33522  "1"   0    # LINE from  VIERRA   115.00  to  CROSRDJT 115.00
4  33518     0  "1 "   0    # LOAD-DROP    VIERRA   115.00  LOAD==34.06(1.52)
0
 #
 #
 # (145) BUS FAULT  33528  "KASSON"
 #
1  33528  33526  "1"   0    # LINE from  KASSON   115.00  to  KSSN-JC1 115.00
1  33528  33529  "1"   0    # LINE from  KASSON   115.00  to  LAMMERS  115.00
1  33528  33530  "1"   0    # LINE from  KASSON   115.00  to  KSSN-JC2 115.00
2  33528  33756  "1"   0    # TRAN from  KASSON   115.00  to  KASSON    60.00
0
 #
 #
 # (146) BUS FAULT  33529  "LAMMERS"
 #
1  33529  33528  "1"   0    # LINE from  LAMMERS  115.00  to  KASSON   115.00
1  33529  33531  "1"   0    # LINE from  LAMMERS  115.00  to  OWENSTP1 115.00
4  33529     0  "1 "   0    # LOAD-DROP    LAMMERS  115.00  LOAD==28.19(1.26)
4  33529     0  "2 "   0    # LOAD-DROP    LAMMERS  115.00  LOAD==9.54(0.43)
0
 #
 #
 # (147) BUS FAULT  33540  "TESLA" 115 kV Bus Section 1
 #
1  33540  33543  "1"   0    # LINE from  TESLA    115.00  to  AEC_TP2  115.00
2  33540  30625  "1"   0    # TRAN from  TESLA    115.00  to  TESLA D  230.00
1  33540  33961  "1"   0    # LINE from  TESLA    115.00  to  TCHRT_T1 115.00
0
 #
 #
 # (148) BUS FAULT  33540  "TESLA" 115 kV Bus Section 2
 #
1  33540  33541  "1"   0    # LINE from  TESLA    115.00  to  AEC_TP1  115.00
1  33540  33544  "1"   0    # LINE from  TESLA    115.00  to  ELLS GTY 115.00
1  33540  33574  "1"   0    # LINE from  TESLA    115.00  to  LLNL TAP 115.00
1  33540  33568  "1"   0    # LINE from  TESLA    115.00  to  TH.E.DV. 115.00
1  33540  33959  "1"   0    # LINE from  TESLA    115.00  to  TCHRT_T2 115.00
1  33540  33576  "1"   0    # LINE from  TESLA    115.00  to  USWP-PAT 115.00
2  33540  30625  "3"   0    # TRAN from  TESLA    115.00  to  TESLA D  230.00
0
 #
 #
 # (149) BUS FAULT  33562  "BELLOTA" 115 kV Bus Section 1
 #
1  33562  33561  "1"   0    # LINE from  BELLOTA  115.00  to  BLLTAJCT 115.00
1  33562  33558  "1"   0    # LINE from  BELLOTA  115.00  to  LCKFRDJB 115.00
1  33562  33946  "1"   0    # LINE from  BELLOTA  115.00  to  RVRBK J1 115.00
2  33562  30501  "1"   0    # TRAN from  BELLOTA  115.00  to  BLLTA 1M 230.00
0
 #
 #
 # (150) BUS FAULT  33562  "BELLOTA" 115 kV Bus Section 2
 #
1  33562  33560  "1"   0    # LINE from  BELLOTA  115.00  to  LCKFRDJA 115.00
```

```
1  33562  33950  "1"    0     # LINE from  BELLOTA  115.00  to  RVRBK TP 115.00
2  33562  30500  "2"    0     # TRAN from  BELLOTA  115.00  to  BELLOTA  230.00
0
 #
 #
 # (151) BUS FAULT  33564  "LOCKFORD"
 #
1  33564  33558  "1"    0     # LINE from  LOCKFORD 115.00  to  LCKFRDJB 115.00
1  33564  33560  "1"    0     # LINE from  LOCKFORD 115.00  to  LCKFRDJA 115.00
1  33564  33561  "1"    0     # LINE from  LOCKFORD 115.00  to  BLLTAJCT 115.00
2  33564  33725  "1"    0     # TRAN from  LOCKFORD 115.00  to  LOCKFRD1  60.00
4  33564     0  "4 "    0     # LOAD-DROP    LOCKFORD 115.00  LOAD==21.90(0.98)
0
 #
 #
 # (152) BUS FAULT  33566  "CAMANCHE"
 #
1  33566  33565  "1"    0     # LINE from  CAMANCHE 115.00  to  CMNCHETP 115.00
2  33566  33850  "1"    0     # TRAN from  CAMANCHE 115.00  to  CAMANCHE   4.16
0
 #
 #
 # (153) BUS FAULT  33600  "HERDLYN"
 #
1  33600  37582  "1"    0     # LINE from  HERDLYN   70.00  to  TRACY YG  69.00
2  33600  33770  "2"    0     # TRAN from  HERDLYN   70.00  to  HERDLYN   60.00
0
 #
 #
 # (154) BUS FAULT  33610  "VLLY SPS"
 #
1  33610  33607  "1"    0     # LINE from  VLLY SPS  60.00  to  ELECTRAJ  60.00
1  33610  33612  "1"    0     # LINE from  VLLY SPS  60.00  to  N BRANCH  60.00
1  33610  33619  "1"    0     # LINE from  VLLY SPS  60.00  to  AMFOR_SW  60.00
1  33610  33630  "1"    0     # LINE from  VLLY SPS  60.00  to  PARDEE A  60.00
1  33610  33634  "1"    0     # LINE from  VLLY SPS  60.00  to  PRDE JCT  60.00
1  33610  33636  "1"    0     # LINE from  VLLY SPS  60.00  to  N.HGN JT  60.00
2  33610  30490  "1"    0     # TRAN from  VLLY SPS  60.00  to  VLLY SPS 230.00
0
 #
 #
 # (155) BUS FAULT  33616  "MARTELL"
 #
1  33616  33617  "1"    0     # LINE from  MARTELL   60.00  to  MARTELTP  60.00
1  33616  33619  "1"    0     # LINE from  MARTELL   60.00  to  AMFOR_SW  60.00
4  33616     0  "1 "    0     # LOAD-DROP    MARTELL   60.00  LOAD==14.75(0.66)
0
 #
 #
 # (156) BUS FAULT  33650  "WEBER 1"
 #
1  33650  33646  "1"    0     # LINE from  WEBER 1   60.00  to  MORMON    60.00
1  33650  33647  "1"    0     # LINE from  WEBER 1   60.00  to  WEBER016  60.00
1  33650  33662  "1"    0     # LINE from  WEBER 1   60.00  to  WEBER 2   60.00
1  33650  33672  "1"    0     # LINE from  WEBER 1   60.00  to  CHRTRWYS  60.00
1  33650  33698  "1"    0     # LINE from  WEBER 1   60.00  to  FRNCH CP  60.00
2  33650  30505  "1"    0     # TRAN from  WEBER 1   60.00  to  WEBER    230.00
4  33650     0  "3 "    0     # LOAD-DROP    WEBER 1   60.00  LOAD==16.37(0.73)
4  33650     0  "4 "    0     # LOAD-DROP    WEBER 1   60.00  LOAD==8.45(0.38)
0
 #
 #
 # (157) BUS FAULT  33662  "WEBER 2"
 #
1  33662  33650  "1"    0     # LINE from  WEBER 2   60.00  to  WEBER 1   60.00
1  33662  33654  "1"    0     # LINE from  WEBER 2   60.00  to  SNTA FEA  60.00
1  33662  33658  "1"    0     # LINE from  WEBER 2   60.00  to  SNTA FEB  60.00
1  33662  33674  "1"    0     # LINE from  WEBER 2   60.00  to  HAZLTN J  60.00
2  33662  30505  "2"    0     # TRAN from  WEBER 2   60.00  to  WEBER    230.00
2  33662  30505  "2a"    0     # TRAN from  WEBER 2   60.00  to  WEBER    230.00
0
 #
 #
 # (158) BUS FAULT  33670  "STCKTN A"
```

```
 #
1  33670  33602  "1"    0    # LINE from  STCKTN A  60.00  to  NEWARKS   60.00
1  33670  33654  "1"    0    # LINE from  STCKTN A  60.00  to  SNTA FEA  60.00
1  33670  33658  "1"    0    # LINE from  STCKTN A  60.00  to  SNTA FEB  60.00
1  33670  33674  "1"    0    # LINE from  STCKTN A  60.00  to  HAZLTN J  60.00
4  33670     0  "1 "   0    # LOAD-DROP    STCKTN A  60.00  LOAD==1.40(0.06)
4  33670     0  "2 "   0    # LOAD-DROP    STCKTN A  60.00  LOAD==0.93(0.04)
0
 #
 #
 # (159) BUS FAULT  33704  "STAGG"
 #
1  33704  33693  "1"    0    # LINE from  STAGG     60.00  to  STAGG JT  60.00
1  33704  33706  "1"    0    # LINE from  STAGG     60.00  to  CNTRY CB  60.00
1  33704  33706  "2"    0    # LINE from  STAGG     60.00  to  CNTRY CB  60.00
1  33704  33714  "1"    0    # LINE from  STAGG     60.00  to  HAMMER    60.00
2  33704  30498  "1"    0    # TRAN from  STAGG     60.00  to  STAGG-D  230.00
2  33704  30499  "4"    0    # TRAN from  STAGG     60.00  to  STAGG-E  230.00
4  33704     0  "2 "   0    # LOAD-DROP    STAGG     60.00  LOAD==14.47(0.64)
4  33704     0  "3 "   0    # LOAD-DROP    STAGG     60.00  LOAD==14.47(0.64)
0
 #
 #
 # (160) BUS FAULT  33706  "CNTRY CB"
 #
1  33706  33704  "1"    0    # LINE from  CNTRY CB  60.00  to  STAGG     60.00
1  33706  33704  "2"    0    # LINE from  CNTRY CB  60.00  to  STAGG     60.00
1  33706  33708  "1"    0    # LINE from  CNTRY CB  60.00  to  UOP       60.00
4  33706     0  "1 "   0    # LOAD-DROP    CNTRY CB  60.00  LOAD==4.55(0.21)
4  33706     0  "2 "   0    # LOAD-DROP    CNTRY CB  60.00  LOAD==7.46(0.33)
4  33706     0  "3 "   0    # LOAD-DROP    CNTRY CB  60.00  LOAD==8.28(0.37)
4  33706     0  "4 "   0    # LOAD-DROP    CNTRY CB  60.00  LOAD==12.69(0.56)
0
 #
 #
 # (161) BUS FAULT  33714  "HAMMER"
 #
1  33714  33704  "1"    0    # LINE from  HAMMER    60.00  to  STAGG     60.00
1  33714  33716  "1"    0    # LINE from  HAMMER    60.00  to  HMMR JCT  60.00
4  33714     0  "1 "   0    # LOAD-DROP    HAMMER    60.00  LOAD==14.55(0.65)
4  33714     0  "2 "   0    # LOAD-DROP    HAMMER    60.00  LOAD==13.96(0.62)
4  33714     0  "3 "   0    # LOAD-DROP    HAMMER    60.00  LOAD==15.23(0.68)
0
 #
 #
 # (162) BUS FAULT  33724  "LOCKEFRD"
 #
1  33724  33630  "1"    0    # LINE from  LOCKEFRD  60.00  to  PARDEE A  60.00
1  33724  33725  "1"    0    # LINE from  LOCKEFRD  60.00  to  LOCKFRD1  60.00
1  33724  33726  "1"    0    # LINE from  LOCKEFRD  60.00  to  VICTOR    60.00
1  33724  33736  "1"    0    # LINE from  LOCKEFRD  60.00  to  LODI JCT  60.00
1  33724  33738  "1"    0    # LINE from  LOCKEFRD  60.00  to  WATRLJCT  60.00
1  33724  38060  "1"    0    # LINE from  LOCKEFRD  60.00  to  INDUSTRL  60.00
2  33724  30482  "2"    0    # TRAN from  LOCKEFRD  60.00  to  LOCKFORD 230.00
2  33724  30482  "3"    0    # TRAN from  LOCKEFRD  60.00  to  LOCKFORD 230.00
0
 #
 #
 # (163) BUS FAULT  33725  "LOCKFRD1"
 #
1  33725  33724  "1"    0    # LINE from  LOCKFRD1  60.00  to  LOCKEFRD  60.00
1  33725  33732  "1"    0    # LINE from  LOCKFRD1  60.00  to  COLONY    60.00
2  33725  33564  "1"    0    # TRAN from  LOCKFRD1  60.00  to  LOCKFORD 115.00
0
 #
 #
 # (164) BUS FAULT  33728  "LODI"
 #
1  33728  33729  "1"    0    # LINE from  LODI      60.00  to  LODI AUX  60.00
1  33728  33734  "1"    0    # LINE from  LODI      60.00  to  CLNY JCT  60.00
1  33728  33737  "1"    0    # LINE from  LODI      60.00  to  WINERY J  60.00
4  33728     0  "1 "   0    # LOAD-DROP    LODI      60.00  LOAD==0.31(0.01)
4  33728     0  "2 "   0    # LOAD-DROP    LODI      60.00  LOAD==14.72(0.66)
0
```

```
 #
 #
 # (165) BUS FAULT  33729  "LODI AUX"
 #
1  33729  33728  "1"    0     # LINE from  LODI AUX  60.00  to  LODI      60.00
1  33729  33736  "1"    0     # LINE from  LODI AUX  60.00  to  LODI JCT  60.00
1  33729  38060  "1"    0     # LINE from  LODI AUX  60.00  to  INDUSTRL  60.00
0
 #
 #
 # (166) BUS FAULT  33740  "MSHR 60V"
 #
1  33740  33717  "1"    0     # LINE from  MSHR 60V  60.00  to  MORADAJT  60.00
1  33740  33738  "1"    0     # LINE from  MSHR 60V  60.00  to  WATRLJCT  60.00
4  33740     0  "1 "    0     # LOAD-DROP    MSHR 60V  60.00  LOAD==15.38(0.69)
4  33740     0  "2 "    0     # LOAD-DROP    MSHR 60V  60.00  LOAD==25.67(1.15)
0
 #
 #
 # (167) BUS FAULT  33742  "MANTECA"
 #
1  33742  33703  "1"    0     # LINE from  MANTECA   60.00  to  LOUISJCT  60.00
1  33742  33752  "1"    0     # LINE from  MANTECA   60.00  to  LTHRP JT  60.00
1  33742  33743  "1"    0     # LINE from  MANTECA   60.00  to  LEE_JCT   60.00
2  33742  33514  "3"    0     # TRAN from  MANTECA   60.00  to  MANTECA  115.00
0
 #
 #
 # (168) BUS FAULT  33746  "LOUISE"
 #
1  33746  33703  "1"    0     # LINE from  LOUISE    60.00  to  LOUISJCT  60.00
1  33746  33748  "1"    0     # LINE from  LOUISE    60.00  to  MSSDLESW  60.00
4  33746     0  "1 "    0     # LOAD-DROP    LOUISE    60.00  LOAD==1.27(1.02)
0
 #
 #
 # (169) BUS FAULT  33770  "HERDLYN"
 #
1  33770  33772  "1"    0     # LINE from  HERDLYN   60.00  to  B.BTHNY-  60.00
1  33770  33774  "1"    0     # LINE from  HERDLYN   60.00  to  HRDLNJCT  60.00
2  33770  33600  "2"    0     # TRAN from  HERDLYN   60.00  to  HERDLYN   70.00
4  33770     0  "1 "    0     # LOAD-DROP    HERDLYN   60.00  LOAD==4.67(0.21)
0
 #
 #
 # (170) BUS FAULT  33906  "SPRNG GP"
 #
1  33906  33910  "1"    0     # LINE from  SPRNG GP 115.00  to  SNDBR JT 115.00
2  33906  34078  "1"    0     # TRAN from  SPRNG GP 115.00  to  SPRNG GP   6.00
4  33906     0  "1 "    0     # LOAD-DROP    SPRNG GP 115.00  LOAD==2.01(0.09)
0
 #
 #
 # (171) BUS FAULT  33916  "CURTISS"
 #
1  33916  33917  "1"    0     # LINE from  CURTISS  115.00  to  FBERBORD 115.00
1  33916  33920  "1"    0     # LINE from  CURTISS  115.00  to  RCTRK J. 115.00
4  33916     0  "1 "    0     # LOAD-DROP    CURTISS  115.00  LOAD==36.54(1.63)
4  33916     0  "2 "    0     # LOAD-DROP    CURTISS  115.00  LOAD==17.25(0.77)
0
 #
 #
 # (172) BUS FAULT  33932  "MELONES"
 #
1  33932  33930  "1"    0     # LINE from  MELONES  115.00  to  PEORIA   115.00
1  33932  33500  "1"    0     # LINE from  MELONES  115.00  to  MELNS JA 115.00
1  33932  33922  "1"    0     # LINE from  MELONES  115.00  to  R.TRACK  115.00
1  33932  33934  "1"    0     # LINE from  MELONES  115.00  to  TULLOCH  115.00
1  33932  33936  "1"    0     # LINE from  MELONES  115.00  to  MELNS JB 115.00
0
 #
 #
 # (173) BUS FAULT  33944  "RVRBANK"
 #
```

```
1  33944  33946  "1"    0     # LINE from  RVRBANK  115.00  to  RVRBK J1 115.00
1  33944  33950  "1"    0     # LINE from  RVRBANK  115.00  to  RVRBK TP 115.00
4  33944     0  "1 "    0     # LOAD-DROP    RVRBANK  115.00  LOAD==24.45(1.10)
4  33944     0  "2 "    0     # LOAD-DROP    RVRBANK  115.00  LOAD==21.90(0.98)
0
 #
 #
 # (174) BUS FAULT  33947  "RIVRBKJT"
 #
1  33947  33936  "1"    0     # LINE from  RIVRBKJT 115.00  to  MELNS JB 115.00
1  33947  33951  "1"    0     # LINE from  RIVRBKJT 115.00  to  VLYHMTP1 115.00
0
 #
 #
 # (175) BUS FAULT  34002  "SALADO"
 #
1  34002  34004  "1"    0     # LINE from  SALADO    60.00  to  PTRSNFRZ  60.00
1  34002  34008  "1"    0     # LINE from  SALADO    60.00  to  STNSLSRP  60.00
2  34002  33964  "1"    0     # TRAN from  SALADO    60.00  to  SALADO   115.00
0
 #
 #
 # (176) BUS FAULT  34006  "PATTERSN"
 #
1  34006  34000  "1"    0     # LINE from  PATTERSN  60.00  to  WESTLEY   60.00
1  34006  34004  "1"    0     # LINE from  PATTERSN  60.00  to  PTRSNFRZ  60.00
1  34006  34010  "1"    0     # LINE from  PATTERSN  60.00  to  CRWS LDJ  60.00
0
 #
 #
 # (177) BUS FAULT  34014  "NEWMAN"
 #
1  34014  34012  "1"    0     # LINE from  NEWMAN    60.00  to  GUSTN JT  60.00
1  34014  34018  "1"    0     # LINE from  NEWMAN    60.00  to  NWMN JCT  60.00
4  34014     0  "1 "    0     # LOAD-DROP    NEWMAN    60.00  LOAD==9.08(0.41)
4  34014     0  "2 "    0     # LOAD-DROP    NEWMAN    60.00  LOAD==6.32(0.28)
6  34014     0  "v "    0     # SVD-DROP     NEWMAN    60.0
0
 #
 #
-1
 # EOF
```

Appendix C

Steady State Power Flow Results

APPENDIX C - STEADY STATE POWER FLOW RESULTS
AUTCON OUTPUT FILES FOR 2013 SUMMER PEAK **NORMAL** OPERATING CONDITIONS

--------FROM BUS--------			----------TO BUS----------					---BASE---		LOADING			------CASE------
Bus #	NAME	KV AREA	Bus #	NAME	KV AREA	ID	MW	MVAR	P.U.	FLOW	RATING		
"CARIBOU "	230 30	30261	"BELDENTP"	230 30	"1 "	342	12	1.10**	816 AMPS	743.03 AMPS	2013sumpk_q268_pre_catb		
30250 "CARIBOU "	230 30	30261	"BELDENTP"	230 30	"1 "	342	12	1.10**	816 AMPS	743.03 AMPS	2013sumpk_q268_pst_catb		
30261 "BELDENTP"	230 30	30300	"TBL MT D"	230 30	"1 "	339	2	1.10**	816 AMPS	743.03 AMPS	2013sumpk_q268_pre_catb		
30261 "BELDENTP"	230 30	30300	"TBL MT D"	230 30	"1 "	339	2	1.10**	816 AMPS	743.03 AMPS	2013sumpk_q268_pst_catb		
30330 "RIO OSO "	230 30	30335	"ATLANTC "	230 30	"1 "	316	58	1.00	823 AMPS	825.86 AMPS	2013sumpk_q268_pre_catb		
30330 "RIO OSO "	230 30	30335	"ATLANTC "	230 30	"1 "	316	58	0.99	822 AMPS	825.86 AMPS	2013sumpk_q268_pst_catb		
30330 "RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "	327	-15	0.95	838 AMPS	886.11 AMPS	2013sumpk_q268_pre_catb		
30330 "RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "	327	-15	0.94	837 AMPS	886.11 AMPS	2013sumpk_q268_pst_catb		
30345 "MIDLFORK"	230 30	30346	"MDDLFK M"	230 30	"1 "	144	25	0.92**	146 MVA	159.90 MVA	2013sumpk_q268_pre_catb		
30345 "MIDLFORK"	230 30	30346	"MDDLFK M"	230 30	"1 "	144	25	0.92**	146 MVA	159.90 MVA	2013sumpk_q268_pst_catb		
30495 "STAGG "	230 30	30622	"EIGHT MI"	230 30	"1 "	304	-5	0.93	770 AMPS	825.86 AMPS	2013sumpk_q268_pre_catb		
30495 "STAGG "	230 30	30622	"EIGHT MI"	230 30	"1 "	304	-5	0.93	768 AMPS	825.86 AMPS	2013sumpk_q268_pst_catb		
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30500 "BELLOTA "	230 30	38208	"COTTLE B"	230 30	"1 "	243	-30	0.92	618 AMPS	675.25 AMPS	2013sumpk_q268_pst_catb		
30505 "WEBER "	230 30	30888	"P0703 "	230 30	"1 "	-471	-16	0.99**	1187 AMPS	1199.89 AMPS	2013sumpk_q268_pre_catb		
30505 "WEBER "	230 30	30888	"P0703 "	230 30	"1 "	-471	-16	0.99**	1189 AMPS	1199.89 AMPS	2013sumpk_q268_pst_catb		
30515 "WARNERVL"	230 30	30800	"WILSON "	230 30	"1 "	351	0	1.32**	888 AMPS	675.25 AMPS	2013sumpk_q268_pre_catb		
30515 "WARNERVL"	230 30	30800	"WILSON "	230 30	"1 "	360	2	1.35**	910 AMPS	675.25 AMPS	2013sumpk_q268_pst_catb		
30526 "PITSBG D"	230 30	38950	"VSC_PTSB"	181 30	"1 "	415	149	1.03**	441 MVA	430.00 MVA	2013sumpk_q268_pre_catb		
30526 "PITSBG D"	230 30	38950	"VSC_PTSB"	181 30	"1 "	415	149	1.03**	441 MVA	430.00 MVA	2013sumpk_q268_pst_catb		
30624 "TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "	605	-22	1.01**	1501 AMPS	1484.04 AMPS	2013sumpk_q268_pre_catb		
30624 "TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "	614	-19	1.03**	1523 AMPS	1484.04 AMPS	2013sumpk_q268_pst_catb		
31468 "CASCADE "	115 30	45087	"DELTA "	115 40	"1 "	81	-25	0.98	410 AMPS	416.70 AMPS	2013sumpk_q268_pre_catb		
31468 "CASCADE "	115 30	45087	"DELTA "	115 40	"1 "	81	-25	0.98	410 AMPS	416.70 AMPS	2013sumpk_q268_pst_catb		
32212 "E.NICOLS"	115 30	32342	"E.NICOLS"	60 30	"2 "	76	38	1.46**	85 MVA	58.50 MVA	2013sumpk_q268_pre_catb		
32212 "E.NICOLS"	115 30	32342	"E.NICOLS"	60 30	"2 "	76	38	1.46**	85 MVA	58.50 MVA	2013sumpk_q268_pst_catb		
32224 "CHCGO PK"	115 30	32232	"HIGGINS "	115 30	"1 "	142	8	1.05	682 AMPS	652.66 AMPS	2013sumpk_q268_pre_catb		
32224 "CHCGO PK"	115 30	32232	"HIGGINS "	115 30	"1 "	141	8	1.04	680 AMPS	652.66 AMPS	2013sumpk_q268_pst_catb		
32228 "PLACER "	115 30	32394	"PLACER "	60 30	"1 "	89	18	1.18**	90 MVA	77.00 MVA	2013sumpk_q268_pre_catb		
32228 "PLACER "	115 30	32394	"PLACER "	60 30	"1 "	89	18	1.18**	90 MVA	77.00 MVA	2013sumpk_q268_pst_catb		
32229 "HORSHE1 "	115 30	32230	"HORSESHE"	115 30	"1 "	62	3	0.97	312 AMPS	321.31 AMPS	2013sumpk_q268_pre_catb		
32229 "HORSHE1 "	115 30	32230	"HORSESHE"	115 30	"1 "	62	3	0.97	312 AMPS	321.31 AMPS	2013sumpk_q268_pst_catb		

APPENDIX C - STEADY STATE POWER FLOW RESULTS
AUTCON OUTPUT FILES FOR 2013 SUMMER PEAK **NORMAL** OPERATING CONDITIONS

--------FROM BUS--------				----------TO BUS----------					---BASE---		LOADING			
Bus #	NAME	KV	AREA	Bus #	NAME	KV	AREA	ID	MW	MVAR	P.U.	FLOW	RATING	------CASE------
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	31	3	1.04	309 AMPS	296.37 AMPS	2013sumpk_q268_pre_catb
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	31	3	1.04	309 AMPS	296.37 AMPS	2013sumpk_q268_pst_catb
33204	"POTRERO "	115	30	38951	"VSC_POTR"	181	30	"1 "	-400	122	0.97**	418 MVA	430.00 MVA	2013sumpk_q268_pre_catb
33204	"POTRERO "	115	30	38951	"VSC_POTR"	181	30	"1 "	-400	121	0.97**	418 MVA	430.00 MVA	2013sumpk_q268_pst_catb
33646	"MORMON "	60	30	33650	"WEBER 1 "	60	30	"1 "	-39	-2	0.96	378 AMPS	394.52 AMPS	2013sumpk_q268_pre_catb
33646	"MORMON "	60	30	33650	"WEBER 1 "	60	30	"1 "	-39	-2	0.96	378 AMPS	394.52 AMPS	2013sumpk_q268_pst_catb
33704	"STAGG "	60	30	33714	"HAMMER "	60	30	"1 "	77	7	0.95	722 AMPS	760.18 AMPS	2013sumpk_q268_pre_catb
33704	"STAGG "	60	30	33714	"HAMMER "	60	30	"1 "	77	7	0.95	722 AMPS	760.18 AMPS	2013sumpk_q268_pst_catb
34126	"CORSGOLD"	115	30	34128	"OAKH_JCT"	115	30	"1 "	-54	-11	0.96	285 AMPS	296.21 AMPS	2013sumpk_q268_pre_catb
34126	"CORSGOLD"	115	30	34128	"OAKH_JCT"	115	30	"1 "	-54	-11	0.96	286 AMPS	296.21 AMPS	2013sumpk_q268_pst_catb
34176	"EXCHQRTP"	115	30	34306	"EXCHQUER"	14	30	"1 "	94	18	0.96**	96 MVA	100.00 MVA	2013sumpk_q268_pre_catb
34176	"EXCHQRTP"	115	30	34306	"EXCHQUER"	14	30	"1 "	95	18	0.96**	96 MVA	100.00 MVA	2013sumpk_q268_pst_catb
34208	"CHEVPIPE"	70	30	34210	"SNTA NLA"	70	30	"1 "	72	13	0.93	582 AMPS	626.84 AMPS	2013sumpk_q268_pre_catb
34208	"CHEVPIPE"	70	30	34210	"SNTA NLA"	70	30	"1 "	72	13	0.93	585 AMPS	626.84 AMPS	2013sumpk_q268_pst_catb
34208	"CHEVPIPE"	70	30	34214	"LOS BANS"	70	30	"1 "	-73	-14	0.94	587 AMPS	627.66 AMPS	2013sumpk_q268_pre_catb
34208	"CHEVPIPE"	70	30	34214	"LOS BANS"	70	30	"1 "	-73	-14	0.94	590 AMPS	627.66 AMPS	2013sumpk_q268_pst_catb
37010	"HURLEY S"	230	30	37109	"HURLEY 2"	69	30	"2 "	195	75	0.93**	209 MVA	224.00 MVA	2013sumpk_q268_pre_catb
37010	"HURLEY S"	230	30	37109	"HURLEY 2"	69	30	"2 "	195	75	0.93**	209 MVA	224.00 MVA	2013sumpk_q268_pst_catb
37012	"LAKE "	230	30	37122	"LAKE 2 "	69	30	"1 "	171	23	1.08**	173 MVA	160.00 MVA	2013sumpk_q268_pre_catb
37012	"LAKE "	230	30	37122	"LAKE 2 "	69	30	"1 "	171	23	1.08**	173 MVA	160.00 MVA	2013sumpk_q268_pst_catb
38260	"PRESCOTT"	69	30	38316	"WOODLMID"	69	30	"1 "	46	-12	1.07**	396 AMPS	370.68 AMPS	2013sumpk_q268_pre_catb
38260	"PRESCOTT"	69	30	38316	"WOODLMID"	69	30	"1 "	46	-12	1.07**	398 AMPS	370.68 AMPS	2013sumpk_q268_pst_catb

--------FROM BUS--------			----------TO BUS----------					(RATE 1)	(RATE 2)	---------OUTAGE----------			(RATE 2)		
Bus #	NAME	KV AREA	Bus #	NAME	KV AREA	ID		BASE	OUTAGE	MW	MVAR	FLOW	RATING	FILE	OUTAGE #
30330	"RIO OSO "	230 30	30335	"ATLANTC "	230 30	"1 "		1.00	1.07	446.26	77.00	1157.38 AMPS	1076.88 AMPS	2013sumpk_q268_pre_catb	108
30330	"RIO OSO "	230 30	30335	"ATLANTC "	230 30	"1 "		0.99	1.07	445.63	76.99	1155.79 AMPS	1076.88 AMPS	2013sumpk_q268_pst_catb	108
30330	"RIO OSO "	230 30	30335	"ATLANTC "	230 30	"1 "		1.00	0.91	381.40	39.82	981.20 AMPS	1076.88 AMPS	2013sumpk_q268_pre_catb	137
30330	"RIO OSO "	230 30	30335	"ATLANTC "	230 30	"1 "		0.99	0.91	380.93	39.85	980.03 AMPS	1076.88 AMPS	2013sumpk_q268_pst_catb	137
30330	"RIO OSO "	230 30	30335	"ATLANTC "	230 30	"1 "		1.00	1.13	470.63	78.92	1220.17 AMPS	1076.88 AMPS	2013sumpk_q268_pre_catb	244
30330	"RIO OSO "	230 30	30335	"ATLANTC "	230 30	"1 "		0.99	1.13	470.00	78.91	1218.59 AMPS	1076.88 AMPS	2013sumpk_q268_pst_catb	244
30330	"RIO OSO "	230 30	30337	"GOLDHILL"	230 30	"1 "		0.78	0.94	395.15	52.96	1017.23 AMPS	1076.88 AMPS	2013sumpk_q268_pre_catb	107
30330	"RIO OSO "	230 30	30337	"GOLDHILL"	230 30	"1 "		0.78	0.94	394.51	52.97	1015.63 AMPS	1076.88 AMPS	2013sumpk_q268_pst_catb	107
30330	"RIO OSO "	230 30	30337	"GOLDHILL"	230 30	"1 "		0.78	1.00	419.40	55.03	1079.81 AMPS	1076.88 AMPS	2013sumpk_q268_pre_catb	260
30330	"RIO OSO "	230 30	30337	"GOLDHILL"	230 30	"1 "		0.78	1.00	418.76	55.04	1078.22 AMPS	1076.88 AMPS	2013sumpk_q268_pst_catb	260
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "		0.95	0.98	383.85	-8.67	983.39 AMPS	1004.09 AMPS	2013sumpk_q268_pre_catb	109
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "		0.94	0.98	383.32	-8.44	982.01 AMPS	1004.09 AMPS	2013sumpk_q268_pst_catb	109
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "		0.95	0.92	361.32	-4.79	921.42 AMPS	1004.09 AMPS	2013sumpk_q268_pre_catb	115
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "		0.94	0.92	360.87	-4.59	920.28 AMPS	1004.09 AMPS	2013sumpk_q268_pst_catb	115
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "		0.95	0.90	354.36	-4.77	907.48 AMPS	1004.09 AMPS	2013sumpk_q268_pre_catb	133
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "		0.94	0.90	353.93	-4.53	906.39 AMPS	1004.09 AMPS	2013sumpk_q268_pst_catb	133
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "		0.95	0.90	354.52	-4.74	907.94 AMPS	1004.09 AMPS	2013sumpk_q268_pre_catb	134
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "		0.94	0.90	354.09	-4.50	906.84 AMPS	1004.09 AMPS	2013sumpk_q268_pst_catb	134
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "		0.95	0.90	352.42	-6.78	904.20 AMPS	1004.09 AMPS	2013sumpk_q268_pre_catb	279
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30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "		0.95	0.90	354.52	-4.74	907.94 AMPS	1004.09 AMPS	2013sumpk_q268_pre_catb	33
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "		0.94	0.90	354.09	-4.50	906.84 AMPS	1004.09 AMPS	2013sumpk_q268_pst_catb	33
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "		0.95	0.95	373.83	-0.34	957.42 AMPS	1004.09 AMPS	2013sumpk_q268_pre_catb	34
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "		0.94	0.95	373.38	-0.09	956.28 AMPS	1004.09 AMPS	2013sumpk_q268_pst_catb	34
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "		0.95	0.90	354.36	-4.77	907.48 AMPS	1004.09 AMPS	2013sumpk_q268_pre_catb	35
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "		0.94	0.90	353.93	-4.53	906.39 AMPS	1004.09 AMPS	2013sumpk_q268_pst_catb	35
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "		0.95	0.92	361.82	-13.13	926.80 AMPS	1004.09 AMPS	2013sumpk_q268_pre_catb	56
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "		0.94	0.92	361.39	-12.88	925.70 AMPS	1004.09 AMPS	2013sumpk_q268_pst_catb	56
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "		0.95	0.93	364.96	-10.24	935.48 AMPS	1004.09 AMPS	2013sumpk_q268_pre_catb	97
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "		0.94	0.93	364.53	-9.99	934.37 AMPS	1004.09 AMPS	2013sumpk_q268_pst_catb	97
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "		0.95	0.92	358.95	-0.33	920.26 AMPS	1004.09 AMPS	2013sumpk_q268_pre_catb	99

--------FROM BUS--------			----------TO BUS----------				(RATE 1)	(RATE 2)	---------OUTAGE----------			(RATE 2)		
Bus #	NAME	KV AREA	Bus #	NAME	KV AREA	ID	BASE	OUTAGE	MW	MVAR	FLOW	RATING	FILE	OUTAGE #
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "	0.94	0.92	358.52	-0.09	919.20 AMPS	1004.09 AMPS	2013sumpk_q268_pst_catb	99
30337	"GOLDHILL"	230 30	32018	"GOLDHILL"	115 30	"1 "	0.59	1.02	467.58	39.67	469.26 MVA	462.00 MVA	2013sumpk_q268_pre_catb	179
30337	"GOLDHILL"	230 30	32018	"GOLDHILL"	115 30	"1 "	0.59	1.02	467.95	39.60	469.63 MVA	462.00 MVA	2013sumpk_q268_pst_catb	179
30337	"GOLDHILL"	230 30	32018	"GOLDHILL"	115 30	"2 "	0.56	1.01	466.36	42.32	468.28 MVA	462.00 MVA	2013sumpk_q268_pre_catb	178
30337	"GOLDHILL"	230 30	32018	"GOLDHILL"	115 30	"2 "	0.56	1.01	466.73	42.26	468.64 MVA	462.00 MVA	2013sumpk_q268_pst_catb	178
30451	"CRTNA M"	230 30	32056	"CORTINA "	60 30	"1 "	0.73	1.02	84.81	12.09	85.67 MVA	84.00 MVA	2013sumpk_q268_pre_catb	72
30451	"CRTNA M"	230 30	32056	"CORTINA "	60 30	"1 "	0.73	1.02	84.81	12.09	85.67 MVA	84.00 MVA	2013sumpk_q268_pst_catb	72
30489	"STAGG-J2"	230 30	30624	"TESLA E "	230 30	"1 "	0.26	0.93	-342.89	-65.30	904.09 AMPS	976.48 AMPS	2013sumpk_q268_pre_catb	285
30489	"STAGG-J2"	230 30	30624	"TESLA E "	230 30	"1 "	0.26	0.93	-342.89	-65.32	904.32 AMPS	976.48 AMPS	2013sumpk_q268_pst_catb	285
30490	"VLLY SPS"	230 30	33610	"VLLY SPS"	60 30	"1 "	0.85	0.98	127.40	30.76	131.07 MVA	134.40 MVA	2013sumpk_q268_pre_catb	406
30490	"VLLY SPS"	230 30	33610	"VLLY SPS"	60 30	"1 "	0.85	0.98	127.41	30.75	131.07 MVA	134.40 MVA	2013sumpk_q268_pst_catb	406
30490	"VLLY SPS"	230 30	33610	"VLLY SPS"	60 30	"1 "	0.85	0.92	121.42	23.43	123.66 MVA	134.40 MVA	2013sumpk_q268_pre_catb	414
30490	"VLLY SPS"	230 30	33610	"VLLY SPS"	60 30	"1 "	0.85	0.92	121.43	23.41	123.66 MVA	134.40 MVA	2013sumpk_q268_pst_catb	414
30490	"VLLY SPS"	230 30	33610	"VLLY SPS"	60 30	"1 "	0.85	0.91	120.73	19.02	122.22 MVA	134.40 MVA	2013sumpk_q268_pre_catb	415
30490	"VLLY SPS"	230 30	33610	"VLLY SPS"	60 30	"1 "	0.85	0.91	120.73	19.02	122.22 MVA	134.40 MVA	2013sumpk_q268_pst_catb	415
30495	"STAGG "	230 30	30622	"EIGHT MI"	230 30	"1 "	0.93	0.92	345.01	76.04	902.63 AMPS	976.48 AMPS	2013sumpk_q268_pre_catb	271
30495	"STAGG "	230 30	30622	"EIGHT MI"	230 30	"1 "	0.93	0.92	345.01	76.05	902.71 AMPS	976.48 AMPS	2013sumpk_q268_pst_catb	271
30495	"STAGG "	230 30	30622	"EIGHT MI"	230 30	"1 "	0.93	0.91	349.19	-27.76	892.84 AMPS	976.48 AMPS	2013sumpk_q268_pre_catb	286
30495	"STAGG "	230 30	30622	"EIGHT MI"	230 30	"1 "	0.93	0.91	348.33	-27.31	890.62 AMPS	976.48 AMPS	2013sumpk_q268_pst_catb	286
30495	"STAGG "	230 30	30622	"EIGHT MI"	230 30	"1 "	0.93	0.93	345.42	83.72	908.91 AMPS	976.48 AMPS	2013sumpk_q268_pre_catb	382
30495	"STAGG "	230 30	30622	"EIGHT MI"	230 30	"1 "	0.93	0.93	345.42	83.74	908.99 AMPS	976.48 AMPS	2013sumpk_q268_pst_catb	382
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30500	"BELLOTA "	230 30	38208	"COTTLE B"	230 30	"1 "	0.92	0.92	285.62	-37.43	729.35 AMPS	793.23 AMPS	2013sumpk_q268_pst_catb	277
30500	"BELLOTA "	230 30	38208	"COTTLE B"	230 30	"1 "	0.89	0.91	282.79	-32.44	720.62 AMPS	793.23 AMPS	2013sumpk_q268_pre_catb	288
30500	"BELLOTA "	230 30	38208	"COTTLE B"	230 30	"1 "	0.92	0.93	290.79	-31.25	740.70 AMPS	793.23 AMPS	2013sumpk_q268_pst_catb	288
30500	"BELLOTA "	230 30	38208	"COTTLE B"	230 30	"1 "	0.89	0.98	305.44	-26.50	777.65 AMPS	793.23 AMPS	2013sumpk_q268_pre_catb	467
30500	"BELLOTA "	230 30	38208	"COTTLE B"	230 30	"1 "	0.92	1.01	314.45	-24.90	800.29 AMPS	793.23 AMPS	2013sumpk_q268_pst_catb	467
30505	"WEBER "	230 30	30888	"P0703 "	230 30	"1 "	0.99	1.07	-508.83	-7.33	1284.06 AMPS	1199.89 AMPS	2013sumpk_q268_pre_catb	109
30505	"WEBER "	230 30	30888	"P0703 "	230 30	"1 "	0.99	1.07	-509.32	-7.45	1285.70 AMPS	1199.89 AMPS	2013sumpk_q268_pst_catb	109
30505	"WEBER "	230 30	30888	"P0703 "	230 30	"1 "	0.99	1.36	-645.76	-5.20	1636.01 AMPS	1199.89 AMPS	2013sumpk_q268_pre_catb	276
30505	"WEBER "	230 30	30888	"P0703 "	230 30	"1 "	0.99	1.37	-646.63	-5.33	1638.69 AMPS	1199.89 AMPS	2013sumpk_q268_pst_catb	276

--------FROM BUS--------			----------TO BUS----------				(RATE 1)	(RATE 2)	---------OUTAGE----------			(RATE 2)		
Bus #	NAME	KV AREA	Bus #	NAME	KV AREA	ID	BASE	OUTAGE	MW	MVAR	FLOW	RATING	FILE	OUTAGE #
30505	"WEBER "	230 30	30888	"P0703 "	230 30	"1 "	0.99	1.06	-503.51	-11.42	1272.30 AMPS	1199.89 AMPS	2013sumpk_q268_pre_catb	288
30505	"WEBER "	230 30	30888	"P0703 "	230 30	"1 "	0.99	1.06	-504.54	-11.55	1275.34 AMPS	1199.89 AMPS	2013sumpk_q268_pst_catb	288
30505	"WEBER "	230 30	30888	"P0703 "	230 30	"1 "	0.99	1.07	-509.05	-22.65	1288.67 AMPS	1199.89 AMPS	2013sumpk_q268_pre_catb	432
30505	"WEBER "	230 30	30888	"P0703 "	230 30	"1 "	0.99	1.08	-509.59	-22.76	1290.45 AMPS	1199.89 AMPS	2013sumpk_q268_pst_catb	432
30505	"WEBER "	230 30	30888	"P0703 "	230 30	"1 "	0.99	1.05	-497.39	-22.22	1258.28 AMPS	1199.89 AMPS	2013sumpk_q268_pre_catb	453
30505	"WEBER "	230 30	30888	"P0703 "	230 30	"1 "	0.99	1.05	-497.94	-22.34	1260.08 AMPS	1199.89 AMPS	2013sumpk_q268_pst_catb	453
30505	"WEBER "	230 30	30888	"P0703 "	230 30	"1 "	0.99	1.07	-509.27	-9.18	1286.31 AMPS	1199.89 AMPS	2013sumpk_q268_pre_catb	5
30505	"WEBER "	230 30	30888	"P0703 "	230 30	"1 "	0.99	1.07	-509.77	-9.29	1287.98 AMPS	1199.89 AMPS	2013sumpk_q268_pst_catb	5
30505	"WEBER "	230 30	30888	"P0703 "	230 30	"1 "	0.99	1.05	-499.69	-4.78	1258.03 AMPS	1199.89 AMPS	2013sumpk_q268_pre_catb	6
30505	"WEBER "	230 30	30888	"P0703 "	230 30	"1 "	0.99	1.05	-500.16	-4.91	1259.62 AMPS	1199.89 AMPS	2013sumpk_q268_pst_catb	6
30505	"WEBER "	230 30	30888	"P0703 "	230 30	"1 "	0.99	1.08	-511.76	-9.32	1292.93 AMPS	1199.89 AMPS	2013sumpk_q268_pre_catb	95
30505	"WEBER "	230 30	30888	"P0703 "	230 30	"1 "	0.99	1.08	-512.26	-9.43	1294.60 AMPS	1199.89 AMPS	2013sumpk_q268_pst_catb	95
30515	"WARNERVL"	230 30	30800	"WILSON "	230 30	"1 "	1.32	1.26	393.92	-11.70	997.05 AMPS	793.23 AMPS	2013sumpk_q268_pre_catb	277
30515	"WARNERVL"	230 30	30800	"WILSON "	230 30	"1 "	1.35	1.29	404.16	-10.57	1023.81 AMPS	793.23 AMPS	2013sumpk_q268_pst_catb	277
30515	"WARNERVL"	230 30	30800	"WILSON "	230 30	"1 "	1.32	1.19	374.60	-0.79	947.55 AMPS	793.23 AMPS	2013sumpk_q268_pre_catb	303
30515	"WARNERVL"	230 30	30800	"WILSON "	230 30	"1 "	1.35	1.23	384.56	0.31	974.28 AMPS	793.23 AMPS	2013sumpk_q268_pst_catb	303
30515	"WARNERVL"	230 30	30800	"WILSON "	230 30	"1 "	1.32	1.40	434.54	8.54	1107.04 AMPS	793.23 AMPS	2013sumpk_q268_pre_catb	467
30515	"WARNERVL"	230 30	30800	"WILSON "	230 30	"1 "	1.35	1.43	444.51	9.98	1133.64 AMPS	793.23 AMPS	2013sumpk_q268_pst_catb	467
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30515	"WARNERVL"	230 30	38208	"COTTLE B"	230 30	"1 "	0.79	0.91	277.09	-50.00	717.91 AMPS	793.23 AMPS	2013sumpk_q268_pst_catb	467
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "	1.01	1.02	659.41	-14.83	1637.09 AMPS	1600.01 AMPS	2013sumpk_q268_pre_catb	278
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "	1.03	1.04	670.02	-11.56	1663.67 AMPS	1600.01 AMPS	2013sumpk_q268_pst_catb	278
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "	1.01	1.00	644.70	-16.75	1599.66 AMPS	1600.01 AMPS	2013sumpk_q268_pre_catb	279
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "	1.03	1.01	653.51	-14.12	1621.68 AMPS	1600.01 AMPS	2013sumpk_q268_pst_catb	279
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "	1.01	1.06	687.03	-15.74	1701.79 AMPS	1600.01 AMPS	2013sumpk_q268_pre_catb	287
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "	1.03	1.08	696.40	-13.02	1725.26 AMPS	1600.01 AMPS	2013sumpk_q268_pst_catb	287
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "	1.01	1.02	654.57	-14.28	1625.92 AMPS	1600.01 AMPS	2013sumpk_q268_pre_catb	468
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "	1.03	1.03	665.13	-11.30	1652.33 AMPS	1600.01 AMPS	2013sumpk_q268_pst_catb	468
31482	"PALERMO "	115 30	31506	"HONC JT1"	115 30	"1 "	0.72	0.91	105.51	6.04	513.51 AMPS	567.31 AMPS	2013sumpk_q268_pre_catb	255
31482	"PALERMO "	115 30	31506	"HONC JT1"	115 30	"1 "	0.72	0.90	105.40	6.04	513.03 AMPS	567.31 AMPS	2013sumpk_q268_pst_catb	255
31506	"HONC JT1"	115 30	32200	"PEASE "	115 30	"1 "	0.70	0.91	-99.64	7.01	513.46 AMPS	562.29 AMPS	2013sumpk_q268_pre_catb	255
31506	"HONC JT1"	115 30	32200	"PEASE "	115 30	"1 "	0.70	0.91	-99.55	6.98	512.99 AMPS	562.29 AMPS	2013sumpk_q268_pst_catb	255

--------FROM BUS--------			----------TO BUS----------				(RATE 1)	(RATE 2)	---------OUTAGE----------			(RATE 2)		
Bus #	NAME	KV AREA	Bus #	NAME	KV AREA	ID	BASE	OUTAGE	MW	MVAR	FLOW	RATING	FILE	OUTAGE #
31960	"MOBILCHE"	115 30	31966	"WODLNDJ1"	115 30	"1 "	0.78	0.92	-146.51	9.23	756.69 AMPS	818.33 AMPS	2013sumpk_q268_pre_catb	133
31960	"MOBILCHE"	115 30	31966	"WODLNDJ1"	115 30	"1 "	0.78	0.92	-146.45	9.18	756.42 AMPS	818.33 AMPS	2013sumpk_q268_pst_catb	133
31960	"MOBILCHE"	115 30	31966	"WODLNDJ1"	115 30	"1 "	0.78	0.92	-146.51	9.23	756.69 AMPS	818.33 AMPS	2013sumpk_q268_pre_catb	35
31960	"MOBILCHE"	115 30	31966	"WODLNDJ1"	115 30	"1 "	0.78	0.92	-146.45	9.18	756.42 AMPS	818.33 AMPS	2013sumpk_q268_pst_catb	35
31960	"MOBILCHE"	115 30	31970	"WOODLD "	115 30	"1 "	0.78	0.92	146.41	-9.23	756.17 AMPS	818.33 AMPS	2013sumpk_q268_pre_catb	133
31960	"MOBILCHE"	115 30	31970	"WOODLD "	115 30	"1 "	0.78	0.92	146.35	-9.18	755.91 AMPS	818.33 AMPS	2013sumpk_q268_pst_catb	133
31960	"MOBILCHE"	115 30	31970	"WOODLD "	115 30	"1 "	0.78	0.92	146.41	-9.23	756.17 AMPS	818.33 AMPS	2013sumpk_q268_pre_catb	35
31960	"MOBILCHE"	115 30	31970	"WOODLD "	115 30	"1 "	0.78	0.92	146.35	-9.18	755.91 AMPS	818.33 AMPS	2013sumpk_q268_pst_catb	35
31962	"WDLND_BM"	115 30	31970	"WOODLD "	115 30	"1 "	0.55	0.96	-135.79	25.43	708.45 AMPS	739.01 AMPS	2013sumpk_q268_pre_catb	5
31962	"WDLND_BM"	115 30	31970	"WOODLD "	115 30	"1 "	0.55	0.96	-135.63	25.30	707.59 AMPS	739.01 AMPS	2013sumpk_q268_pst_catb	5
31962	"WDLND_BM"	115 30	31970	"WOODLD "	115 30	"1 "	0.55	1.06	-149.99	24.07	785.93 AMPS	739.01 AMPS	2013sumpk_q268_pre_catb	95
31962	"WDLND_BM"	115 30	31970	"WOODLD "	115 30	"1 "	0.55	1.06	-149.85	23.95	785.12 AMPS	739.01 AMPS	2013sumpk_q268_pst_catb	95
31962	"WDLND_BM"	115 30	31992	"HUNT "	115 30	"1 "	0.73	1.12	159.30	-21.71	824.46 AMPS	738.00 AMPS	2013sumpk_q268_pre_catb	5
31962	"WDLND_BM"	115 30	31992	"HUNT "	115 30	"1 "	0.73	1.12	159.14	-21.59	823.64 AMPS	738.00 AMPS	2013sumpk_q268_pst_catb	5
31962	"WDLND_BM"	115 30	31992	"HUNT "	115 30	"1 "	0.73	1.06	148.50	-24.41	778.60 AMPS	738.00 AMPS	2013sumpk_q268_pre_catb	95
31962	"WDLND_BM"	115 30	31992	"HUNT "	115 30	"1 "	0.73	1.05	148.36	-24.29	777.79 AMPS	738.00 AMPS	2013sumpk_q268_pst_catb	95
31964	"KNIGHT2 "	115 30	31968	"WODLNDJ2"	115 30	"2 "	0.86	0.99	159.31	2.58	807.39 AMPS	818.33 AMPS	2013sumpk_q268_pre_catb	134
31964	"KNIGHT2 "	115 30	31968	"WODLNDJ2"	115 30	"2 "	0.86	0.99	159.25	2.62	807.12 AMPS	818.33 AMPS	2013sumpk_q268_pst_catb	134
31964	"KNIGHT2 "	115 30	31968	"WODLNDJ2"	115 30	"2 "	0.86	0.99	159.31	2.58	807.39 AMPS	818.33 AMPS	2013sumpk_q268_pre_catb	33
31964	"KNIGHT2 "	115 30	31968	"WODLNDJ2"	115 30	"2 "	0.86	0.99	159.25	2.62	807.12 AMPS	818.33 AMPS	2013sumpk_q268_pst_catb	33
31964	"KNIGHT2 "	115 30	31968	"WODLNDJ2"	115 30	"2 "	0.86	0.92	116.29	2.59	581.66 AMPS	632.58 AMPS	2013sumpk_q268_pre_catb	73
31964	"KNIGHT2 "	115 30	31968	"WODLNDJ2"	115 30	"2 "	0.86	0.92	116.25	2.61	581.48 AMPS	632.58 AMPS	2013sumpk_q268_pst_catb	73
31964	"KNIGHT2 "	115 30	31968	"WODLNDJ2"	115 30	"2 "	0.86	0.94	151.95	3.89	772.24 AMPS	818.33 AMPS	2013sumpk_q268_pre_catb	95
31964	"KNIGHT2 "	115 30	31968	"WODLNDJ2"	115 30	"2 "	0.86	0.94	151.87	3.94	771.87 AMPS	818.33 AMPS	2013sumpk_q268_pst_catb	95
31964	"KNIGHT2 "	115 30	31968	"WODLNDJ2"	115 30	"2 "	0.86	1.07	170.40	6.40	872.09 AMPS	818.33 AMPS	2013sumpk_q268_pre_catb	99
31964	"KNIGHT2 "	115 30	31968	"WODLNDJ2"	115 30	"2 "	0.86	1.07	170.35	6.44	871.84 AMPS	818.33 AMPS	2013sumpk_q268_pst_catb	99
31964	"KNIGHT2 "	115 30	32214	"RIO OSO "	115 30	"2 "	0.86	0.99	164.10	23.96	806.80 AMPS	818.33 AMPS	2013sumpk_q268_pre_catb	134
31964	"KNIGHT2 "	115 30	32214	"RIO OSO "	115 30	"2 "	0.86	0.99	164.04	23.99	806.53 AMPS	818.33 AMPS	2013sumpk_q268_pst_catb	134
31964	"KNIGHT2 "	115 30	32214	"RIO OSO "	115 30	"2 "	0.86	0.99	164.10	23.96	806.80 AMPS	818.33 AMPS	2013sumpk_q268_pre_catb	33
31964	"KNIGHT2 "	115 30	32214	"RIO OSO "	115 30	"2 "	0.86	0.99	164.04	23.99	806.53 AMPS	818.33 AMPS	2013sumpk_q268_pst_catb	33
31964	"KNIGHT2 "	115 30	32214	"RIO OSO "	115 30	"2 "	0.86	0.92	118.78	12.97	581.18 AMPS	632.58 AMPS	2013sumpk_q268_pre_catb	73

--------FROM BUS--------			----------TO BUS----------				(RATE 1)	(RATE 2)	---------OUTAGE----------			(RATE 2)		
Bus #	NAME	KV AREA	Bus #	NAME	KV AREA	ID	BASE	OUTAGE	MW	MVAR	FLOW	RATING	FILE	OUTAGE #
31964	"KNIGHT2 "	115 30	32214	"RIO OSO "	115 30	"2 "	0.86	0.92	118.74	12.99	581.00 AMPS	632.58 AMPS	2013sumpk_q268_pst_catb	73
31964	"KNIGHT2 "	115 30	32214	"RIO OSO "	115 30	"2 "	0.86	0.94	156.33	23.33	771.61 AMPS	818.33 AMPS	2013sumpk_q268_pre_catb	95
31964	"KNIGHT2 "	115 30	32214	"RIO OSO "	115 30	"2 "	0.86	0.94	156.25	23.36	771.24 AMPS	818.33 AMPS	2013sumpk_q268_pst_catb	95
31964	"KNIGHT2 "	115 30	32214	"RIO OSO "	115 30	"2 "	0.86	1.06	176.00	31.60	871.31 AMPS	818.33 AMPS	2013sumpk_q268_pre_catb	99
31964	"KNIGHT2 "	115 30	32214	"RIO OSO "	115 30	"2 "	0.86	1.06	175.94	31.62	871.07 AMPS	818.33 AMPS	2013sumpk_q268_pst_catb	99
31965	"KNIGHT1 "	115 30	31966	"WODLNDJ1"	115 30	"1 "	0.78	0.92	149.46	1.86	756.78 AMPS	818.33 AMPS	2013sumpk_q268_pre_catb	133
31965	"KNIGHT1 "	115 30	31966	"WODLNDJ1"	115 30	"1 "	0.78	0.92	149.40	1.90	756.51 AMPS	818.33 AMPS	2013sumpk_q268_pst_catb	133
31965	"KNIGHT1 "	115 30	31966	"WODLNDJ1"	115 30	"1 "	0.78	0.92	149.46	1.86	756.78 AMPS	818.33 AMPS	2013sumpk_q268_pre_catb	35
31965	"KNIGHT1 "	115 30	31966	"WODLNDJ1"	115 30	"1 "	0.78	0.92	149.40	1.90	756.51 AMPS	818.33 AMPS	2013sumpk_q268_pst_catb	35
31965	"KNIGHT1 "	115 30	32214	"RIO OSO "	115 30	"1 "	0.85	0.98	162.85	23.27	800.20 AMPS	818.33 AMPS	2013sumpk_q268_pre_catb	133
31965	"KNIGHT1 "	115 30	32214	"RIO OSO "	115 30	"1 "	0.85	0.98	162.79	23.30	799.93 AMPS	818.33 AMPS	2013sumpk_q268_pst_catb	133
31965	"KNIGHT1 "	115 30	32214	"RIO OSO "	115 30	"1 "	0.85	0.98	162.85	23.27	800.20 AMPS	818.33 AMPS	2013sumpk_q268_pre_catb	35
31965	"KNIGHT1 "	115 30	32214	"RIO OSO "	115 30	"1 "	0.85	0.98	162.79	23.30	799.93 AMPS	818.33 AMPS	2013sumpk_q268_pst_catb	35
31965	"KNIGHT1 "	115 30	32214	"RIO OSO "	115 30	"1 "	0.85	0.91	118.21	12.50	578.16 AMPS	632.58 AMPS	2013sumpk_q268_pre_catb	73
31965	"KNIGHT1 "	115 30	32214	"RIO OSO "	115 30	"1 "	0.85	0.91	118.17	12.52	577.98 AMPS	632.58 AMPS	2013sumpk_q268_pst_catb	73
31965	"KNIGHT1 "	115 30	32214	"RIO OSO "	115 30	"1 "	0.85	0.94	155.74	22.71	768.33 AMPS	818.33 AMPS	2013sumpk_q268_pre_catb	95
31965	"KNIGHT1 "	115 30	32214	"RIO OSO "	115 30	"1 "	0.85	0.94	155.66	22.74	767.96 AMPS	818.33 AMPS	2013sumpk_q268_pst_catb	95
31968	"WODLNDJ2"	115 30	31970	"WOODLD "	115 30	"2 "	0.77	0.92	148.23	1.30	752.62 AMPS	818.33 AMPS	2013sumpk_q268_pre_catb	134
31968	"WODLNDJ2"	115 30	31970	"WOODLD "	115 30	"2 "	0.77	0.92	148.18	1.34	752.36 AMPS	818.33 AMPS	2013sumpk_q268_pst_catb	134
31968	"WODLNDJ2"	115 30	31970	"WOODLD "	115 30	"2 "	0.77	0.92	148.23	1.30	752.62 AMPS	818.33 AMPS	2013sumpk_q268_pre_catb	33
31968	"WODLNDJ2"	115 30	31970	"WOODLD "	115 30	"2 "	0.77	0.92	148.18	1.34	752.36 AMPS	818.33 AMPS	2013sumpk_q268_pst_catb	33
31968	"WODLNDJ2"	115 30	31970	"WOODLD "	115 30	"2 "	0.77	1.00	159.28	4.87	816.83 AMPS	818.33 AMPS	2013sumpk_q268_pre_catb	99
31968	"WODLNDJ2"	115 30	31970	"WOODLD "	115 30	"2 "	0.77	1.00	159.23	4.91	816.59 AMPS	818.33 AMPS	2013sumpk_q268_pst_catb	99
31978	"DPWT_TP2"	115 30	31984	"BRIGHTN "	115 30	"1 "	0.84	0.92	-81.71	2.63	406.12 AMPS	441.80 AMPS	2013sumpk_q268_pre_catb	233
31978	"DPWT_TP2"	115 30	31984	"BRIGHTN "	115 30	"1 "	0.84	0.92	-81.78	2.69	406.52 AMPS	441.80 AMPS	2013sumpk_q268_pst_catb	233
31978	"DPWT_TP2"	115 30	31984	"BRIGHTN "	115 30	"1 "	0.84	0.92	-82.19	3.18	408.07 AMPS	441.80 AMPS	2013sumpk_q268_pre_catb	234
31978	"DPWT_TP2"	115 30	31984	"BRIGHTN "	115 30	"1 "	0.84	0.92	-82.26	3.24	408.47 AMPS	441.80 AMPS	2013sumpk_q268_pst_catb	234
31978	"DPWT_TP2"	115 30	31984	"BRIGHTN "	115 30	"1 "	0.84	0.94	-114.27	14.64	573.10 AMPS	607.47 AMPS	2013sumpk_q268_pre_catb	56
31978	"DPWT_TP2"	115 30	31984	"BRIGHTN "	115 30	"1 "	0.84	0.94	-114.31	14.67	573.41 AMPS	607.47 AMPS	2013sumpk_q268_pst_catb	56
31978	"DPWT_TP2"	115 30	31984	"BRIGHTN "	115 30	"1 "	0.84	0.99	-119.51	13.09	601.22 AMPS	607.47 AMPS	2013sumpk_q268_pre_catb	97
31978	"DPWT_TP2"	115 30	31984	"BRIGHTN "	115 30	"1 "	0.84	0.99	-119.56	13.13	601.53 AMPS	607.47 AMPS	2013sumpk_q268_pst_catb	97

--------FROM BUS--------			----------TO BUS----------				(RATE 1)	(RATE 2)	---------OUTAGE----------			(RATE 2)		
Bus #	NAME	KV AREA	Bus #	NAME	KV AREA	ID	BASE	OUTAGE	MW	MVAR	FLOW	RATING	FILE	OUTAGE #
31986	"W.SCRMNO"	115 30	32214	"RIO OSO "	115 30	"1 "	0.86	0.97	100.93	-5.59	491.55 AMPS	507.06 AMPS	2013sumpk_q268_pre_catb	34
31986	"W.SCRMNO"	115 30	32214	"RIO OSO "	115 30	"1 "	0.86	0.97	100.86	-5.55	491.23 AMPS	507.06 AMPS	2013sumpk_q268_pst_catb	34
31986	"W.SCRMNO"	115 30	32214	"RIO OSO "	115 30	"1 "	0.86	0.98	102.25	-4.03	498.53 AMPS	507.06 AMPS	2013sumpk_q268_pre_catb	37
31986	"W.SCRMNO"	115 30	32214	"RIO OSO "	115 30	"1 "	0.86	0.98	102.23	-4.01	498.43 AMPS	507.06 AMPS	2013sumpk_q268_pst_catb	37
31986	"W.SCRMNO"	115 30	32214	"RIO OSO "	115 30	"1 "	0.86	1.18	122.75	-8.99	599.91 AMPS	507.06 AMPS	2013sumpk_q268_pre_catb	5
31986	"W.SCRMNO"	115 30	32214	"RIO OSO "	115 30	"1 "	0.86	1.18	122.65	-8.94	599.40 AMPS	507.06 AMPS	2013sumpk_q268_pst_catb	5
31986	"W.SCRMNO"	115 30	32214	"RIO OSO "	115 30	"1 "	0.86	1.20	124.73	-7.50	610.00 AMPS	507.06 AMPS	2013sumpk_q268_pre_catb	95
31986	"W.SCRMNO"	115 30	32214	"RIO OSO "	115 30	"1 "	0.86	1.20	124.64	-7.45	609.51 AMPS	507.06 AMPS	2013sumpk_q268_pst_catb	95
31986	"W.SCRMNO"	115 30	32214	"RIO OSO "	115 30	"1 "	0.86	1.02	105.56	-1.73	515.23 AMPS	507.06 AMPS	2013sumpk_q268_pre_catb	96
31986	"W.SCRMNO"	115 30	32214	"RIO OSO "	115 30	"1 "	0.86	1.02	105.54	-1.71	515.13 AMPS	507.06 AMPS	2013sumpk_q268_pst_catb	96
31986	"W.SCRMNO"	115 30	32214	"RIO OSO "	115 30	"1 "	0.86	0.90	93.61	-5.17	456.82 AMPS	507.06 AMPS	2013sumpk_q268_pre_catb	99
31986	"W.SCRMNO"	115 30	32214	"RIO OSO "	115 30	"1 "	0.86	0.90	93.56	-5.13	456.57 AMPS	507.06 AMPS	2013sumpk_q268_pst_catb	99
31990	"DAVIS "	115 30	31992	"HUNT "	115 30	"1 "	0.73	1.11	-156.28	34.63	822.50 AMPS	738.00 AMPS	2013sumpk_q268_pre_catb	5
31990	"DAVIS "	115 30	31992	"HUNT "	115 30	"1 "	0.73	1.11	-156.13	34.48	821.67 AMPS	738.00 AMPS	2013sumpk_q268_pst_catb	5
31990	"DAVIS "	115 30	31992	"HUNT "	115 30	"1 "	0.73	1.05	-145.78	35.87	776.55 AMPS	738.00 AMPS	2013sumpk_q268_pre_catb	95
31990	"DAVIS "	115 30	31992	"HUNT "	115 30	"1 "	0.73	1.05	-145.64	35.72	775.74 AMPS	738.00 AMPS	2013sumpk_q268_pst_catb	95
31998	"VACA-DIX"	115 30	32004	"VCVLLE2J"	115 30	"1 "	0.81	0.90	141.95	10.28	667.92 AMPS	739.01 AMPS	2013sumpk_q268_pre_catb	40
31998	"VACA-DIX"	115 30	32004	"VCVLLE2J"	115 30	"1 "	0.81	0.90	141.95	10.29	668.06 AMPS	739.01 AMPS	2013sumpk_q268_pst_catb	40
31998	"VACA-DIX"	115 30	32088	"VACA-DXN"	60 30	"5 "	0.34	0.94	82.31	21.18	84.99 MVA	90.80 MVA	2013sumpk_q268_pre_catb	68
31998	"VACA-DIX"	115 30	32088	"VACA-DXN"	60 30	"5 "	0.34	0.94	82.31	21.19	84.99 MVA	90.80 MVA	2013sumpk_q268_pst_catb	68
32018	"GOLDHILL"	115 30	32229	"HORSHE1 "	115 30	"1 "	0.72	1.11	161.17	27.86	818.99 AMPS	738.00 AMPS	2013sumpk_q268_pre_catb	139
32018	"GOLDHILL"	115 30	32229	"HORSHE1 "	115 30	"1 "	0.72	1.11	161.17	27.86	819.02 AMPS	738.00 AMPS	2013sumpk_q268_pst_catb	139
32018	"GOLDHILL"	115 30	32229	"HORSHE1 "	115 30	"1 "	0.72	0.96	141.04	21.14	709.64 AMPS	738.00 AMPS	2013sumpk_q268_pre_catb	141
32018	"GOLDHILL"	115 30	32229	"HORSHE1 "	115 30	"1 "	0.72	0.96	141.04	21.14	709.67 AMPS	738.00 AMPS	2013sumpk_q268_pst_catb	141
32018	"GOLDHILL"	115 30	32229	"HORSHE1 "	115 30	"1 "	0.72	1.16	167.07	34.49	857.93 AMPS	738.00 AMPS	2013sumpk_q268_pre_catb	251
32018	"GOLDHILL"	115 30	32229	"HORSHE1 "	115 30	"1 "	0.72	1.16	167.07	34.50	857.96 AMPS	738.00 AMPS	2013sumpk_q268_pst_catb	251
32018	"GOLDHILL"	115 30	32229	"HORSHE1 "	115 30	"1 "	0.72	1.01	146.85	27.17	746.01 AMPS	738.00 AMPS	2013sumpk_q268_pre_catb	252
32018	"GOLDHILL"	115 30	32229	"HORSHE1 "	115 30	"1 "	0.72	1.01	146.85	27.17	746.04 AMPS	738.00 AMPS	2013sumpk_q268_pst_catb	252
32018	"GOLDHILL"	115 30	32231	"HORSHE2 "	115 30	"2 "	0.45	0.92	133.58	33.91	680.37 AMPS	738.00 AMPS	2013sumpk_q268_pre_catb	122
32018	"GOLDHILL"	115 30	32231	"HORSHE2 "	115 30	"2 "	0.45	0.92	133.91	33.83	681.88 AMPS	738.00 AMPS	2013sumpk_q268_pst_catb	122
32018	"GOLDHILL"	115 30	32231	"HORSHE2 "	115 30	"2 "	0.45	0.99	141.44	42.63	731.26 AMPS	738.00 AMPS	2013sumpk_q268_pre_catb	242
32018	"GOLDHILL"	115 30	32231	"HORSHE2 "	115 30	"2 "	0.45	0.99	141.76	42.55	732.68 AMPS	738.00 AMPS	2013sumpk_q268_pst_catb	242

--------FROM BUS--------			----------TO BUS----------				(RATE 1)	(RATE 2)	---------OUTAGE----------			(RATE 2)		
Bus #	NAME	KV AREA	Bus #	NAME	KV AREA	ID	BASE	OUTAGE	MW	MVAR	FLOW	RATING	FILE	OUTAGE #
32018	"GOLDHILL"	115 30	32231	"HORSHE2 "	115 30	"2 "	0.45	0.92	131.22	32.17	679.45 AMPS	738.00 AMPS	2013sumpk_q268_pre_catb	251
32018	"GOLDHILL"	115 30	32231	"HORSHE2 "	115 30	"2 "	0.45	0.92	131.22	32.17	679.48 AMPS	738.00 AMPS	2013sumpk_q268_pst_catb	251
32018	"GOLDHILL"	115 30	32268	"SHPRING2"	115 30	"2 "	0.72	0.90	159.82	20.07	795.48 AMPS	881.09 AMPS	2013sumpk_q268_pre_catb	126
32018	"GOLDHILL"	115 30	32268	"SHPRING2"	115 30	"2 "	0.72	0.90	159.82	20.07	795.50 AMPS	881.09 AMPS	2013sumpk_q268_pst_catb	126
32018	"GOLDHILL"	115 30	32275	"CPM TAP "	115 30	"1 "	0.31	1.14	202.26	18.77	1002.56 AMPS	881.09 AMPS	2013sumpk_q268_pre_catb	124
32018	"GOLDHILL"	115 30	32275	"CPM TAP "	115 30	"1 "	0.31	1.14	202.26	18.76	1002.59 AMPS	881.09 AMPS	2013sumpk_q268_pst_catb	124
32018	"GOLDHILL"	115 30	32275	"CPM TAP "	115 30	"1 "	0.31	0.91	161.23	22.61	804.58 AMPS	881.09 AMPS	2013sumpk_q268_pre_catb	125
32018	"GOLDHILL"	115 30	32275	"CPM TAP "	115 30	"1 "	0.31	0.91	161.23	22.61	804.61 AMPS	881.09 AMPS	2013sumpk_q268_pst_catb	125
32018	"GOLDHILL"	115 30	32275	"CPM TAP "	115 30	"1 "	0.31	1.17	207.53	20.05	1030.26 AMPS	881.09 AMPS	2013sumpk_q268_pre_catb	264
32018	"GOLDHILL"	115 30	32275	"CPM TAP "	115 30	"1 "	0.31	1.17	207.53	20.05	1030.29 AMPS	881.09 AMPS	2013sumpk_q268_pst_catb	264
32212	"E.NICOLS"	115 30	32214	"RIO OSO "	115 30	"1 "	0.64	1.03	-76.51	-40.00	430.50 AMPS	416.70 AMPS	2013sumpk_q268_pre_catb	118
32212	"E.NICOLS"	115 30	32214	"RIO OSO "	115 30	"1 "	0.64	1.03	-76.51	-40.00	430.51 AMPS	416.70 AMPS	2013sumpk_q268_pst_catb	118
32212	"E.NICOLS"	115 30	32214	"RIO OSO "	115 30	"1 "	0.64	1.03	-76.48	-39.80	429.39 AMPS	416.70 AMPS	2013sumpk_q268_pre_catb	243
32212	"E.NICOLS"	115 30	32214	"RIO OSO "	115 30	"1 "	0.64	1.03	-76.48	-39.80	429.40 AMPS	416.70 AMPS	2013sumpk_q268_pst_catb	243
32214	"RIO OSO "	115 30	32290	"OLIVH J1"	115 30	"1 "	0.20	0.97	-96.31	-10.33	493.70 AMPS	507.06 AMPS	2013sumpk_q268_pre_catb	240
32214	"RIO OSO "	115 30	32290	"OLIVH J1"	115 30	"1 "	0.20	0.97	-96.36	-10.33	493.94 AMPS	507.06 AMPS	2013sumpk_q268_pst_catb	240
32218	"DRUM "	115 30	32220	"DTCH FL1"	115 30	"1 "	0.82	1.01	103.24	-3.24	495.77 AMPS	491.00 AMPS	2013sumpk_q268_pre_catb	202
32218	"DRUM "	115 30	32220	"DTCH FL1"	115 30	"1 "	0.81	1.01	102.82	-3.21	493.80 AMPS	491.00 AMPS	2013sumpk_q268_pst_catb	202
32218	"DRUM "	115 30	32220	"DTCH FL1"	115 30	"1 "	0.82	0.94	96.63	-3.86	463.25 AMPS	491.00 AMPS	2013sumpk_q268_pre_catb	203
32218	"DRUM "	115 30	32220	"DTCH FL1"	115 30	"1 "	0.81	0.94	96.21	-3.83	461.27 AMPS	491.00 AMPS	2013sumpk_q268_pst_catb	203
32220	"DTCH FL1"	115 30	32224	"CHCGO PK"	115 30	"1 "	0.80	0.96	124.06	5.06	601.32 AMPS	628.06 AMPS	2013sumpk_q268_pre_catb	202
32220	"DTCH FL1"	115 30	32224	"CHCGO PK"	115 30	"1 "	0.79	0.95	123.65	5.12	599.36 AMPS	628.06 AMPS	2013sumpk_q268_pst_catb	202
32228	"PLACER "	115 30	32394	"PLACER "	60 30	"1 "	1.18	1.31	97.52	24.67	100.59 MVA	77.00 MVA	2013sumpk_q268_pre_catb	212
32228	"PLACER "	115 30	32394	"PLACER "	60 30	"1 "	1.18	1.31	97.52	24.67	100.59 MVA	77.00 MVA	2013sumpk_q268_pst_catb	212
32262	"SHPRING1"	115 30	32264	"CLRKSVLT"	115 30	"1 "	0.31	0.91	-156.86	-2.34	805.07 AMPS	881.09 AMPS	2013sumpk_q268_pre_catb	125
32262	"SHPRING1"	115 30	32264	"CLRKSVLT"	115 30	"1 "	0.31	0.91	-156.86	-2.33	805.10 AMPS	881.09 AMPS	2013sumpk_q268_pst_catb	125
32264	"CLRKSVLT"	115 30	32275	"CPM TAP "	115 30	"1 "	0.31	1.14	200.45	10.18	1002.68 AMPS	881.09 AMPS	2013sumpk_q268_pre_catb	124
32264	"CLRKSVLT"	115 30	32275	"CPM TAP "	115 30	"1 "	0.31	1.14	200.45	10.18	1002.71 AMPS	881.09 AMPS	2013sumpk_q268_pst_catb	124
32264	"CLRKSVLT"	115 30	32275	"CPM TAP "	115 30	"1 "	0.31	0.91	160.06	17.21	804.79 AMPS	881.09 AMPS	2013sumpk_q268_pre_catb	125
32264	"CLRKSVLT"	115 30	32275	"CPM TAP "	115 30	"1 "	0.31	0.91	160.06	17.20	804.82 AMPS	881.09 AMPS	2013sumpk_q268_pst_catb	125
32264	"CLRKSVLT"	115 30	32275	"CPM TAP "	115 30	"1 "	0.31	1.17	205.62	10.97	1030.38 AMPS	881.09 AMPS	2013sumpk_q268_pre_catb	264

--------FROM BUS--------			----------TO BUS----------					(RATE 1)	(RATE 2)	---------OUTAGE----------			(RATE 2)		
Bus #	NAME	KV AREA	Bus #	NAME	KV AREA	ID		BASE	OUTAGE	MW	MVAR	FLOW	RATING	FILE	OUTAGE #
32264	"CLRKSVLT"	115 30	32275	"CPM TAP "	115 30	"1 "		0.31	1.17	205.62	10.96	1030.42 AMPS	881.09 AMPS	2013sumpk_q268_pst_catb	264
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.60	2.69	310.90 AMPS	344.49 AMPS	2013sumpk_q268_pre_catb	102
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.60	2.69	310.90 AMPS	344.49 AMPS	2013sumpk_q268_pst_catb	102
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.59	2.69	310.74 AMPS	344.49 AMPS	2013sumpk_q268_pre_catb	103
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.59	2.69	310.73 AMPS	344.49 AMPS	2013sumpk_q268_pst_catb	103
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.59	2.69	310.31 AMPS	344.49 AMPS	2013sumpk_q268_pre_catb	104
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.59	2.69	310.32 AMPS	344.49 AMPS	2013sumpk_q268_pst_catb	104
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.59	2.69	310.64 AMPS	344.49 AMPS	2013sumpk_q268_pre_catb	110
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.59	2.69	310.63 AMPS	344.49 AMPS	2013sumpk_q268_pst_catb	110
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.59	2.69	310.37 AMPS	344.49 AMPS	2013sumpk_q268_pre_catb	112
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.59	2.69	310.37 AMPS	344.49 AMPS	2013sumpk_q268_pst_catb	112
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.59	2.69	310.34 AMPS	344.49 AMPS	2013sumpk_q268_pre_catb	113
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.59	2.69	310.35 AMPS	344.49 AMPS	2013sumpk_q268_pst_catb	113
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.59	2.69	310.41 AMPS	344.49 AMPS	2013sumpk_q268_pre_catb	116
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.59	2.69	310.42 AMPS	344.49 AMPS	2013sumpk_q268_pst_catb	116
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.92	30.63	2.75	316.46 AMPS	344.49 AMPS	2013sumpk_q268_pre_catb	118
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.92	30.63	2.75	316.46 AMPS	344.49 AMPS	2013sumpk_q268_pst_catb	118
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.59	2.68	310.09 AMPS	344.49 AMPS	2013sumpk_q268_pre_catb	133
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.59	2.68	310.10 AMPS	344.49 AMPS	2013sumpk_q268_pst_catb	133
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.59	2.68	310.15 AMPS	344.49 AMPS	2013sumpk_q268_pre_catb	134
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.59	2.68	310.16 AMPS	344.49 AMPS	2013sumpk_q268_pst_catb	134
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.59	2.68	310.05 AMPS	344.49 AMPS	2013sumpk_q268_pre_catb	135
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.59	2.68	310.06 AMPS	344.49 AMPS	2013sumpk_q268_pst_catb	135
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.60	2.70	311.35 AMPS	344.49 AMPS	2013sumpk_q268_pre_catb	137
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.60	2.70	311.37 AMPS	344.49 AMPS	2013sumpk_q268_pst_catb	137
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.60	2.70	311.22 AMPS	344.49 AMPS	2013sumpk_q268_pre_catb	138
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.60	2.69	311.19 AMPS	344.49 AMPS	2013sumpk_q268_pst_catb	138
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.91	30.60	2.70	311.90 AMPS	344.49 AMPS	2013sumpk_q268_pre_catb	139
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.91	30.60	2.70	311.90 AMPS	344.49 AMPS	2013sumpk_q268_pst_catb	139
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32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.59	2.68	310.04 AMPS	344.49 AMPS	2013sumpk_q268_pst_catb	140

--------FROM BUS--------				----------TO BUS----------				(RATE 1)	(RATE 2)	---------OUTAGE----------			(RATE 2)		
Bus #	NAME	KV	AREA	Bus #	NAME	KV	AREA	ID	BASE	OUTAGE	MW	MVAR	FLOW	RATING	FILE	OUTAGE #
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.90	30.60	2.69	310.85 AMPS	344.49 AMPS	2013sumpk_q268_pre_catb	141
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.90	30.60	2.69	310.86 AMPS	344.49 AMPS	2013sumpk_q268_pst_catb	141
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.90	30.59	2.69	310.72 AMPS	344.49 AMPS	2013sumpk_q268_pre_catb	161
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.90	30.59	2.69	310.73 AMPS	344.49 AMPS	2013sumpk_q268_pst_catb	161
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.90	30.59	2.69	310.45 AMPS	344.49 AMPS	2013sumpk_q268_pre_catb	164
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.90	30.59	2.69	310.47 AMPS	344.49 AMPS	2013sumpk_q268_pst_catb	164
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.90	30.60	2.69	310.89 AMPS	344.49 AMPS	2013sumpk_q268_pre_catb	165
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.90	30.60	2.69	310.90 AMPS	344.49 AMPS	2013sumpk_q268_pst_catb	165
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.90	30.59	2.69	310.28 AMPS	344.49 AMPS	2013sumpk_q268_pre_catb	237
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.90	30.59	2.69	310.29 AMPS	344.49 AMPS	2013sumpk_q268_pst_catb	237
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.92	30.63	2.74	315.63 AMPS	344.49 AMPS	2013sumpk_q268_pre_catb	243
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.92	30.63	2.74	315.63 AMPS	344.49 AMPS	2013sumpk_q268_pst_catb	243
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.91	30.61	2.71	312.32 AMPS	344.49 AMPS	2013sumpk_q268_pre_catb	251
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.91	30.61	2.71	312.31 AMPS	344.49 AMPS	2013sumpk_q268_pst_catb	251
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.90	30.60	2.70	311.22 AMPS	344.49 AMPS	2013sumpk_q268_pre_catb	252
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.90	30.60	2.70	311.22 AMPS	344.49 AMPS	2013sumpk_q268_pst_catb	252
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.90	30.59	2.69	310.32 AMPS	344.49 AMPS	2013sumpk_q268_pre_catb	253
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.90	30.59	2.69	310.34 AMPS	344.49 AMPS	2013sumpk_q268_pst_catb	253
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.90	30.60	2.69	310.87 AMPS	344.49 AMPS	2013sumpk_q268_pre_catb	255
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.90	30.60	2.69	310.88 AMPS	344.49 AMPS	2013sumpk_q268_pst_catb	255
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.90	30.60	2.69	310.80 AMPS	344.49 AMPS	2013sumpk_q268_pre_catb	266
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.90	30.60	2.69	310.81 AMPS	344.49 AMPS	2013sumpk_q268_pst_catb	266
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.90	30.60	2.70	311.56 AMPS	344.49 AMPS	2013sumpk_q268_pre_catb	267
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.90	30.60	2.70	311.57 AMPS	344.49 AMPS	2013sumpk_q268_pst_catb	267
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.90	30.59	2.69	310.34 AMPS	344.49 AMPS	2013sumpk_q268_pre_catb	276
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.90	30.59	2.69	310.35 AMPS	344.49 AMPS	2013sumpk_q268_pst_catb	276
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.90	30.60	2.69	310.77 AMPS	344.49 AMPS	2013sumpk_q268_pre_catb	279
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.90	30.60	2.69	310.79 AMPS	344.49 AMPS	2013sumpk_q268_pst_catb	279
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.90	30.59	2.68	310.15 AMPS	344.49 AMPS	2013sumpk_q268_pre_catb	33
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.90	30.59	2.68	310.16 AMPS	344.49 AMPS	2013sumpk_q268_pst_catb	33
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.90	30.59	2.68	310.09 AMPS	344.49 AMPS	2013sumpk_q268_pre_catb	35
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.90	30.59	2.68	310.10 AMPS	344.49 AMPS	2013sumpk_q268_pst_catb	35

--------FROM BUS--------			----------TO BUS----------					(RATE 1)	(RATE 2)	---------OUTAGE----------			(RATE 2)		
Bus #	NAME	KV AREA	Bus #	NAME	KV AREA	ID		BASE	OUTAGE	MW	MVAR	FLOW	RATING	FILE	OUTAGE #
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.60	2.69	310.86 AMPS	344.49 AMPS	2013sumpk_q268_pre_catb	37
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.60	2.69	310.88 AMPS	344.49 AMPS	2013sumpk_q268_pst_catb	37
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.59	2.68	310.06 AMPS	344.49 AMPS	2013sumpk_q268_pre_catb	38
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.59	2.68	310.07 AMPS	344.49 AMPS	2013sumpk_q268_pst_catb	38
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.60	2.70	311.40 AMPS	344.49 AMPS	2013sumpk_q268_pre_catb	5
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.60	2.70	311.40 AMPS	344.49 AMPS	2013sumpk_q268_pst_catb	5
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.59	2.69	310.72 AMPS	344.49 AMPS	2013sumpk_q268_pre_catb	51
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.59	2.69	310.73 AMPS	344.49 AMPS	2013sumpk_q268_pst_catb	51
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.59	2.68	310.25 AMPS	344.49 AMPS	2013sumpk_q268_pre_catb	52
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.59	2.69	310.27 AMPS	344.49 AMPS	2013sumpk_q268_pst_catb	52
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.59	2.68	310.26 AMPS	344.49 AMPS	2013sumpk_q268_pre_catb	56
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.59	2.69	310.27 AMPS	344.49 AMPS	2013sumpk_q268_pst_catb	56
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.91	30.61	2.71	312.28 AMPS	344.49 AMPS	2013sumpk_q268_pre_catb	95
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.91	30.61	2.71	312.28 AMPS	344.49 AMPS	2013sumpk_q268_pst_catb	95
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.91	30.60	2.70	311.89 AMPS	344.49 AMPS	2013sumpk_q268_pre_catb	96
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.91	30.60	2.70	311.90 AMPS	344.49 AMPS	2013sumpk_q268_pst_catb	96
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.60	2.69	311.06 AMPS	344.49 AMPS	2013sumpk_q268_pre_catb	97
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.60	2.69	311.07 AMPS	344.49 AMPS	2013sumpk_q268_pst_catb	97
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.60	2.69	311.10 AMPS	344.49 AMPS	2013sumpk_q268_pre_catb	99
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.60	2.69	311.11 AMPS	344.49 AMPS	2013sumpk_q268_pst_catb	99
32367	"CPEHRNTP"	60 30	32376	"BONNIE N"	60 30	"1 "		0.50	0.95	33.21	-1.65	309.77 AMPS	327.17 AMPS	2013sumpk_q268_pre_catb	152
32367	"CPEHRNTP"	60 30	32376	"BONNIE N"	60 30	"1 "		0.50	0.95	33.21	-1.65	309.77 AMPS	327.17 AMPS	2013sumpk_q268_pst_catb	152
32367	"CPEHRNTP"	60 30	32376	"BONNIE N"	60 30	"1 "		0.50	0.92	27.43	1.73	256.24 AMPS	279.05 AMPS	2013sumpk_q268_pre_catb	211
32367	"CPEHRNTP"	60 30	32376	"BONNIE N"	60 30	"1 "		0.50	0.92	27.43	1.73	256.24 AMPS	279.05 AMPS	2013sumpk_q268_pst_catb	211
32374	"DRUM "	60 30	32376	"BONNIE N"	60 30	"1 "		0.55	1.00	35.66	-0.56	326.25 AMPS	326.20 AMPS	2013sumpk_q268_pre_catb	152
32374	"DRUM "	60 30	32376	"BONNIE N"	60 30	"1 "		0.55	1.00	35.66	-0.56	326.25 AMPS	326.20 AMPS	2013sumpk_q268_pst_catb	152
32374	"DRUM "	60 30	32376	"BONNIE N"	60 30	"1 "		0.55	0.97	29.67	2.49	272.70 AMPS	280.98 AMPS	2013sumpk_q268_pre_catb	211
32374	"DRUM "	60 30	32376	"BONNIE N"	60 30	"1 "		0.55	0.97	29.67	2.49	272.70 AMPS	280.98 AMPS	2013sumpk_q268_pst_catb	211
32392	"AUBURN "	60 30	32394	"PLACER "	60 30	"1 "		0.78	0.97	-44.88	-2.46	426.85 AMPS	437.82 AMPS	2013sumpk_q268_pre_catb	212
32392	"AUBURN "	60 30	32394	"PLACER "	60 30	"1 "		0.78	0.97	-44.88	-2.46	426.84 AMPS	437.82 AMPS	2013sumpk_q268_pst_catb	212

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--------FROM BUS--------  ----------TO BUS-----------     (RATE 1) (RATE 2)   ---------OUTAGE------------   (RATE 2)
Bus #    NAME     KV AREA  Bus #   NAME     KV AREA ID      BASE   OUTAGE     MW      MVAR      FLOW         RATING            FILE        OUTAGE #

33514 "MANTECA "  115 30  33516 "RPN JNCN"  115 30  "1 "    0.67    0.92    -49.57    13.75   258.94 AMPS  281.14 AMPS   2013sumpk_q268_pst_catb 421

33514 "MANTECA "  115 30  33516 "RPN JNCN"  115 30  "1 "    0.60    0.91    -56.70     7.94   296.18 AMPS  326.33 AMPS   2013sumpk_q268_pre_catb 448
=2=2=2
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--------FROM BUS--------  ----------TO BUS-----------     (RATE 1) (RATE 2)   ---------OUTAGE------------   (RATE 2)
Bus #    NAME     KV AREA  Bus #   NAME     KV AREA ID      BASE   OUTAGE     MW      MVAR      FLOW         RATING            FILE        OUTAGE #

33522 "CROSRDJT"  115 30  33530 "KSSN-JC2"  115 30  "1 "    0.68    0.94   -161.21    -4.00   831.08 AMPS  883.60 AMPS   2013sumpk_q268_pre_catb 447
33522 "CROSRDJT"  115 30  33530 "KSSN-JC2"  115 30  "1 "    0.72    1.01   -173.59    -3.77   889.32 AMPS  883.60 AMPS   2013sumpk_q268_pst_catb 447

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33526 "KSSN-JC1"  115 30  33533 "OWENSTP2"  115 30  "1 "    0.52    0.99    226.49    20.98  1111.59 AMPS 1124.58 AMPS   2013sumpk_q268_pst_catb 316

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33528 "KASSON  "  115 30  33529 "LAMMERS "  115 30  "1 "    0.56    0.93   -206.36   -19.91  1042.49 AMPS 1124.58 AMPS   2013sumpk_q268_pst_catb 445

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33528 "KASSON  "  115 30  33529 "LAMMERS "  115 30  "1 "    0.56    0.90   -200.78   -23.14  1016.85 AMPS 1124.58 AMPS   2013sumpk_q268_pst_catb 447

33529 "LAMMERS "  115 30  33531 "OWENSTP1"  115 30  "1 "    0.81    0.92   -206.92   -29.04  1032.97 AMPS 1124.58 AMPS   2013sumpk_q268_pre_catb 308
33529 "LAMMERS "  115 30  33531 "OWENSTP1"  115 30  "1 "    0.78    1.07   -243.78   -32.29  1208.23 AMPS 1124.58 AMPS   2013sumpk_q268_pst_catb 308

33529 "LAMMERS "  115 30  33531 "OWENSTP1"  115 30  "1 "    0.81    0.96   -217.42   -26.26  1082.31 AMPS 1124.58 AMPS   2013sumpk_q268_pre_catb 309
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33529 "LAMMERS "  115 30  33531 "OWENSTP1"  115 30  "1 "    0.81    0.92   -206.86   -29.18  1033.80 AMPS 1124.58 AMPS   2013sumpk_q268_pre_catb 310
33529 "LAMMERS "  115 30  33531 "OWENSTP1"  115 30  "1 "    0.78    1.04   -236.12   -34.35  1171.90 AMPS 1124.58 AMPS   2013sumpk_q268_pst_catb 310

33529 "LAMMERS "  115 30  33531 "OWENSTP1"  115 30  "1 "    0.81    1.02   -229.17   -33.08  1148.78 AMPS 1124.58 AMPS   2013sumpk_q268_pre_catb 318
33529 "LAMMERS "  115 30  33531 "OWENSTP1"  115 30  "1 "    0.78    0.97   -218.95   -35.39  1091.68 AMPS 1124.58 AMPS   2013sumpk_q268_pst_catb 318

33529 "LAMMERS "  115 30  33531 "OWENSTP1"  115 30  "1 "    0.81    1.11   -246.23   -41.49  1246.44 AMPS 1124.58 AMPS   2013sumpk_q268_pre_catb 444
33529 "LAMMERS "  115 30  33531 "OWENSTP1"  115 30  "1 "    0.78    1.06   -236.21   -43.86  1187.30 AMPS 1124.58 AMPS   2013sumpk_q268_pst_catb 444

33529 "LAMMERS "  115 30  33531 "OWENSTP1"  115 30  "1 "    0.81    0.99   -221.56   -37.20  1117.05 AMPS 1124.58 AMPS   2013sumpk_q268_pre_catb 445
33529 "LAMMERS "  115 30  33531 "OWENSTP1"  115 30  "1 "    0.78    1.15   -258.34   -42.06  1290.68 AMPS 1124.58 AMPS   2013sumpk_q268_pst_catb 445

33529 "LAMMERS "  115 30  33531 "OWENSTP1"  115 30  "1 "    0.81    1.05   -234.28   -33.97  1176.60 AMPS 1124.58 AMPS   2013sumpk_q268_pre_catb 446
=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=

33529 "LAMMERS "  115 30  33531 "OWENSTP1"  115 30  "1 "    0.81    0.99   -221.47   -37.27  1117.79 AMPS 1124.58 AMPS   2013sumpk_q268_pre_catb 447
33529 "LAMMERS "  115 30  33531 "OWENSTP1"  115 30  "1 "    0.78    1.12   -252.71   -44.30  1264.39 AMPS 1124.58 AMPS   2013sumpk_q268_pst_catb 447

33529 "LAMMERS "  115 30  33531 "OWENSTP1"  115 30  "1 "    0.81    0.92   -205.82   -33.49  1036.64 AMPS 1124.58 AMPS   2013sumpk_q268_pre_catb 448
=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=

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33529 "LAMMERS "  115 30  33531 "OWENSTP1"  115 30  "1 "    0.78    0.98   -222.02   -30.48  1104.43 AMPS 1124.58 AMPS   2013sumpk_q268_pst_catb 459

=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=
33529 "LAMMERS "  115 30  33531 "OWENSTP1"  115 30  "1 "    0.78    0.99   -222.85   -32.77  1109.16 AMPS 1124.58 AMPS   2013sumpk_q268_pst_catb 461

33531 "OWENSTP1"  115 30  33549 "SCHULTE "  115 30  "1 "    0.86    0.97    218.91    37.65  1093.56 AMPS 1124.58 AMPS   2013sumpk_q268_pre_catb 308
33531 "OWENSTP1"  115 30  33549 "SCHULTE "  115 30  "1 "    0.83    1.13    255.99    41.46  1268.13 AMPS 1124.58 AMPS   2013sumpk_q268_pst_catb 308
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--------FROM BUS--------  ----------TO BUS-----------     (RATE 1) (RATE 2)   ---------OUTAGE------------   (RATE 2)
Bus #    NAME     KV AREA  Bus #   NAME     KV AREA ID      BASE   OUTAGE     MW      MVAR      FLOW         RATING            FILE        OUTAGE #


33531 "OWENSTP1"  115 30  33549 "SCHULTE "  115 30  "1 "    0.86    1.02    229.46    35.01  1142.29 AMPS 1124.58 AMPS   2013sumpk_q268_pre_catb 309
=2=2=2
```

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--------FROM BUS--------  ----------TO BUS-----------     (RATE 1) (RATE 2)   ---------OUTAGE------------   (RATE 2)
Bus #    NAME     KV AREA  Bus #   NAME     KV AREA ID      BASE   OUTAGE     MW      MVAR      FLOW         RATING            FILE        OUTAGE #

33531 "OWENSTP1"  115 30  33549 "SCHULTE "  115 30  "1 "    0.83    1.04    234.09    39.30  1164.68 AMPS 1124.58 AMPS   2013sumpk_q268_pst_catb 459

33531 "OWENSTP1"  115 30  33549 "SCHULTE "  115 30  "1 "    0.86    0.92    206.36    30.87  1036.33 AMPS 1124.58 AMPS   2013sumpk_q268_pre_catb 460
=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=

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33531 "OWENSTP1"  115 30  33549 "SCHULTE "  115 30  "1 "    0.83    1.04    234.93    41.62  1169.58 AMPS 1124.58 AMPS   2013sumpk_q268_pst_catb 461

=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=
33533 "OWENSTP2"  115 30  33549 "SCHULTE "  115 30  "2 "    0.52    0.99    226.85    22.24  1111.57 AMPS 1124.58 AMPS   2013sumpk_q268_pst_catb 316

33540 "TESLA   "  115 30  33541 "AEC_TP1 "  115 30  "1 "    0.26    0.92   -163.80    11.25   804.47 AMPS  878.58 AMPS   2013sumpk_q268_pre_catb 316
=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=

33540 "TESLA   "  115 30  33543 "AEC_TP2 "  115 30  "1 "    0.69    0.92    162.43    31.33   810.55 AMPS  881.09 AMPS   2013sumpk_q268_pre_catb 316
=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=

33542 "LEPRINO "  115 30  33546 "TRACY JC"  115 30  "1 "    0.71    0.99   -188.13   -10.41   963.46 AMPS  973.97 AMPS   2013sumpk_q268_pre_catb 316
=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=

33542 "LEPRINO "  115 30  33548 "TRACY   "  115 30  "1 "    0.69    0.97    184.46     8.04   944.12 AMPS  973.97 AMPS   2013sumpk_q268_pre_catb 316
=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=

33555 "STKTON A"  115 30  33556 "STN COGN"  115 30  "1 "    0.69    0.93     85.99     5.77   417.63 AMPS  446.82 AMPS   2013sumpk_q268_pre_catb 324
33555 "STKTON A"  115 30  33556 "STN COGN"  115 30  "1 "    0.69    0.93     85.99     5.77   417.74 AMPS  446.82 AMPS   2013sumpk_q268_pst_catb 324

33555 "STKTON A"  115 30  33556 "STN COGN"  115 30  "1 "    0.69    0.96     86.04     5.94   430.29 AMPS  446.82 AMPS   2013sumpk_q268_pre_catb 466
33555 "STKTON A"  115 30  33556 "STN COGN"  115 30  "1 "    0.69    0.96     86.04     5.95   430.57 AMPS  446.82 AMPS   2013sumpk_q268_pst_catb 466

33560 "LCKFRDJA"  115 30  33562 "BELLOTA "  115 30  "1 "    0.13    0.90    -92.89   -10.02   461.33 AMPS  512.08 AMPS   2013sumpk_q268_pre_catb 466
33560 "LCKFRDJA"  115 30  33562 "BELLOTA "  115 30  "1 "    0.13    0.90    -92.89   -10.03   461.63 AMPS  512.08 AMPS   2013sumpk_q268_pst_catb 466

33600 "HERDLYN "   70 30  33770 "HERDLYN "   60 30  "2 "    0.87    0.95     47.67    -0.45    47.67 MVA    50.00 MVA    2013sumpk_q268_pre_catb 393
33600 "HERDLYN "   70 30  33770 "HERDLYN "   60 30  "2 "    0.87    0.95     47.67    -0.44    47.68 MVA    50.00 MVA    2013sumpk_q268_pst_catb 393

33602 "NEWARKS "   60 30  33670 "STCKTN A"   60 30  "1 "    0.73    1.11    -35.72    -9.73   361.59 AMPS  327.17 AMPS   2013sumpk_q268_pre_catb 432
33602 "NEWARKS "   60 30  33670 "STCKTN A"   60 30  "1 "    0.73    1.11    -35.72    -9.73   361.71 AMPS  327.17 AMPS   2013sumpk_q268_pst_catb 432

33602 "NEWARKS "   60 30  33670 "STCKTN A"   60 30  "1 "    0.73    0.97    -35.72    -9.74   363.17 AMPS  375.28 AMPS   2013sumpk_q268_pre_catb 453
33602 "NEWARKS "   60 30  33670 "STCKTN A"   60 30  "1 "    0.73    0.97    -35.72    -9.74   363.29 AMPS  375.28 AMPS   2013sumpk_q268_pst_catb 453

33602 "NEWARKS "   60 30  33672 "CHRTRWYS"   60 30  "1 "    0.80    1.21     35.72     9.73   361.59 AMPS  298.30 AMPS   2013sumpk_q268_pre_catb 432
33602 "NEWARKS "   60 30  33672 "CHRTRWYS"   60 30  "1 "    0.80    1.21     35.72     9.73   361.71 AMPS  298.30 AMPS   2013sumpk_q268_pst_catb 432

33602 "NEWARKS "   60 30  33672 "CHRTRWYS"   60 30  "1 "    0.80    1.05     35.72     9.73   363.16 AMPS  346.41 AMPS   2013sumpk_q268_pre_catb 453
33602 "NEWARKS "   60 30  33672 "CHRTRWYS"   60 30  "1 "    0.80    1.05     35.72     9.74   363.30 AMPS  346.41 AMPS   2013sumpk_q268_pst_catb 453
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--------FROM BUS--------			----------TO BUS----------				(RATE 1)	(RATE 2)	---------OUTAGE----------			(RATE 2)		
Bus #	NAME	KV AREA	Bus #	NAME	KV AREA	ID	BASE	OUTAGE	MW	MVAR	FLOW	RATING	FILE	OUTAGE #
33610	"VLLY SPS"	60 30	33634	"PRDE JCT"	60 30	"1 "	0.67	0.93	32.51	4.61	311.97 AMPS	336.79 AMPS	2013sumpk_q268_pre_catb	414
33610	"VLLY SPS"	60 30	33634	"PRDE JCT"	60 30	"1 "	0.67	0.93	32.51	4.61	312.08 AMPS	336.79 AMPS	2013sumpk_q268_pst_catb	414
33610	"VLLY SPS"	60 30	33636	"N.HGN JT"	60 30	"1 "	0.68	1.09	49.89	8.97	485.84 AMPS	447.45 AMPS	2013sumpk_q268_pre_catb	337
33610	"VLLY SPS"	60 30	33636	"N.HGN JT"	60 30	"1 "	0.68	1.09	49.89	8.98	486.04 AMPS	447.45 AMPS	2013sumpk_q268_pst_catb	337
33636	"N.HGN JT"	60 30	33640	"CORRAL "	60 30	"1 "	0.75	1.16	51.33	7.23	517.92 AMPS	447.45 AMPS	2013sumpk_q268_pre_catb	337
33636	"N.HGN JT"	60 30	33640	"CORRAL "	60 30	"1 "	0.75	1.16	51.33	7.23	518.14 AMPS	447.45 AMPS	2013sumpk_q268_pst_catb	337
33650	"WEBER 1 "	60 30	33662	"WEBER 2 "	60 30	"1 "	0.53	0.93	-115.57	-12.62	1116.30 AMPS	1199.93 AMPS	2013sumpk_q268_pre_catb	379
33650	"WEBER 1 "	60 30	33662	"WEBER 2 "	60 30	"1 "	0.53	0.93	-115.56	-12.58	1111.18 AMPS	1199.93 AMPS	2013sumpk_q268_pst_catb	379
33654	"SNTA FEA"	60 30	33662	"WEBER 2 "	60 30	"1 "	0.60	1.10	45.28	5.75	435.81 AMPS	394.52 AMPS	2013sumpk_q268_pre_catb	432
33654	"SNTA FEA"	60 30	33662	"WEBER 2 "	60 30	"1 "	0.60	1.11	45.28	5.75	435.96 AMPS	394.52 AMPS	2013sumpk_q268_pst_catb	432
33654	"SNTA FEA"	60 30	33662	"WEBER 2 "	60 30	"1 "	0.60	1.19	57.17	6.42	548.58 AMPS	461.88 AMPS	2013sumpk_q268_pre_catb	453
33654	"SNTA FEA"	60 30	33662	"WEBER 2 "	60 30	"1 "	0.60	1.19	57.17	6.42	548.77 AMPS	461.88 AMPS	2013sumpk_q268_pst_catb	453
33654	"SNTA FEA"	60 30	33670	"STCKTN A"	60 30	"1 "	0.06	0.90	30.44	0.86	295.03 AMPS	326.20 AMPS	2013sumpk_q268_pre_catb	453
33654	"SNTA FEA"	60 30	33670	"STCKTN A"	60 30	"1 "	0.06	0.90	30.44	0.86	295.13 AMPS	326.20 AMPS	2013sumpk_q268_pst_catb	453
33658	"SNTA FEB"	60 30	33662	"WEBER 2 "	60 30	"1 "	0.52	1.03	42.16	4.14	404.52 AMPS	394.52 AMPS	2013sumpk_q268_pre_catb	432
33658	"SNTA FEB"	60 30	33662	"WEBER 2 "	60 30	"1 "	0.52	1.03	42.17	4.15	404.65 AMPS	394.52 AMPS	2013sumpk_q268_pst_catb	432
33704	"STAGG "	60 30	33706	"CNTRY CB"	60 30	"1 "	0.62	0.96	88.49	16.29	844.86 AMPS	875.65 AMPS	2013sumpk_q268_pre_catb	344
33704	"STAGG "	60 30	33706	"CNTRY CB"	60 30	"1 "	0.62	0.96	88.49	16.29	844.99 AMPS	875.65 AMPS	2013sumpk_q268_pst_catb	344
33704	"STAGG "	60 30	33706	"CNTRY CB"	60 30	"1 "	0.62	0.97	88.28	18.62	850.19 AMPS	875.65 AMPS	2013sumpk_q268_pre_catb	345
33704	"STAGG "	60 30	33706	"CNTRY CB"	60 30	"1 "	0.62	0.97	88.28	18.63	850.33 AMPS	875.65 AMPS	2013sumpk_q268_pst_catb	345
33704	"STAGG "	60 30	33706	"CNTRY CB"	60 30	"2 "	0.62	0.96	88.49	16.29	844.86 AMPS	875.65 AMPS	2013sumpk_q268_pre_catb	343
33704	"STAGG "	60 30	33706	"CNTRY CB"	60 30	"2 "	0.62	0.96	88.49	16.29	844.99 AMPS	875.65 AMPS	2013sumpk_q268_pst_catb	343
33704	"STAGG "	60 30	33706	"CNTRY CB"	60 30	"2 "	0.62	0.97	88.28	18.62	850.19 AMPS	875.65 AMPS	2013sumpk_q268_pre_catb	345
33704	"STAGG "	60 30	33706	"CNTRY CB"	60 30	"2 "	0.62	0.97	88.28	18.63	850.33 AMPS	875.65 AMPS	2013sumpk_q268_pst_catb	345
33704	"STAGG "	60 30	33714	"HAMMER "	60 30	"1 "	0.95	0.94	87.64	10.19	828.53 AMPS	885.27 AMPS	2013sumpk_q268_pre_catb	343
33704	"STAGG "	60 30	33714	"HAMMER "	60 30	"1 "	0.95	0.94	87.64	10.19	828.65 AMPS	885.27 AMPS	2013sumpk_q268_pst_catb	343
33704	"STAGG "	60 30	33714	"HAMMER "	60 30	"1 "	0.95	0.94	87.64	10.19	828.53 AMPS	885.27 AMPS	2013sumpk_q268_pre_catb	344
33704	"STAGG "	60 30	33714	"HAMMER "	60 30	"1 "	0.95	0.94	87.64	10.19	828.65 AMPS	885.27 AMPS	2013sumpk_q268_pst_catb	344
33706	"CNTRY CB"	60 30	33708	"UOP "	60 30	"1 "	0.47	1.14	130.66	27.46	1278.75 AMPS	1125.83 AMPS	2013sumpk_q268_pre_catb	345
33706	"CNTRY CB"	60 30	33708	"UOP "	60 30	"1 "	0.47	1.14	130.66	27.47	1278.97 AMPS	1125.83 AMPS	2013sumpk_q268_pst_catb	345
33708	"UOP "	60 30	33710	"WSTLNESW"	60 30	"1 "	0.41	1.08	124.59	22.40	1214.76 AMPS	1125.83 AMPS	2013sumpk_q268_pre_catb	345
33708	"UOP "	60 30	33710	"WSTLNESW"	60 30	"1 "	0.41	1.08	124.59	22.41	1214.96 AMPS	1125.83 AMPS	2013sumpk_q268_pst_catb	345

--------FROM BUS--------			----------TO BUS----------				(RATE 1)	(RATE 2)	---------OUTAGE----------			(RATE 2)		
Bus #	NAME	KV AREA	Bus #	NAME	KV AREA	ID	BASE	OUTAGE	MW	MVAR	FLOW	RATING	FILE	OUTAGE #
33710	"WSTLNESW"	60 30	33716	"HMMR JCT"	60 30	"1 "	0.41	1.08	124.24	16.50	1214.83 AMPS	1125.83 AMPS	2013sumpk_q268_pre_catb	345
33710	"WSTLNESW"	60 30	33716	"HMMR JCT"	60 30	"1 "	0.41	1.08	124.24	16.51	1215.03 AMPS	1125.83 AMPS	2013sumpk_q268_pst_catb	345
33724	"LOCKEFRD"	60 30	33726	"VICTOR "	60 30	"1 "	0.73	1.00	93.16	17.26	883.26 AMPS	885.27 AMPS	2013sumpk_q268_pre_catb	349
33724	"LOCKEFRD"	60 30	33726	"VICTOR "	60 30	"1 "	0.73	1.00	93.16	17.27	883.57 AMPS	885.27 AMPS	2013sumpk_q268_pst_catb	349
33724	"LOCKEFRD"	60 30	33726	"VICTOR "	60 30	"1 "	0.73	1.00	93.16	17.26	883.26 AMPS	885.27 AMPS	2013sumpk_q268_pre_catb	465
33724	"LOCKEFRD"	60 30	33726	"VICTOR "	60 30	"1 "	0.73	1.00	93.16	17.27	883.57 AMPS	885.27 AMPS	2013sumpk_q268_pst_catb	465
33724	"LOCKEFRD"	60 30	33736	"LODI JCT"	60 30	"1 "	0.70	0.90	57.36	7.78	538.75 AMPS	596.60 AMPS	2013sumpk_q268_pre_catb	347
33724	"LOCKEFRD"	60 30	33736	"LODI JCT"	60 30	"1 "	0.70	0.90	57.36	7.79	538.94 AMPS	596.60 AMPS	2013sumpk_q268_pst_catb	347
33724	"LOCKEFRD"	60 30	33736	"LODI JCT"	60 30	"1 "	0.70	0.99	62.47	9.68	589.34 AMPS	596.60 AMPS	2013sumpk_q268_pre_catb	349
33724	"LOCKEFRD"	60 30	33736	"LODI JCT"	60 30	"1 "	0.70	0.99	62.47	9.68	589.54 AMPS	596.60 AMPS	2013sumpk_q268_pst_catb	349
33724	"LOCKEFRD"	60 30	33736	"LODI JCT"	60 30	"1 "	0.70	0.90	57.36	7.78	538.75 AMPS	596.60 AMPS	2013sumpk_q268_pre_catb	462
33724	"LOCKEFRD"	60 30	33736	"LODI JCT"	60 30	"1 "	0.70	0.90	57.36	7.79	538.94 AMPS	596.60 AMPS	2013sumpk_q268_pst_catb	462
33724	"LOCKEFRD"	60 30	33736	"LODI JCT"	60 30	"1 "	0.70	0.99	62.47	9.68	589.34 AMPS	596.60 AMPS	2013sumpk_q268_pre_catb	465
33724	"LOCKEFRD"	60 30	33736	"LODI JCT"	60 30	"1 "	0.70	0.99	62.47	9.68	589.54 AMPS	596.60 AMPS	2013sumpk_q268_pst_catb	465
33724	"LOCKEFRD"	60 30	33738	"WATRLJCT"	60 30	"1 "	0.01	1.04	36.17	4.42	340.34 AMPS	327.17 AMPS	2013sumpk_q268_pre_catb	346
33724	"LOCKEFRD"	60 30	33738	"WATRLJCT"	60 30	"1 "	0.01	1.03	36.15	4.38	338.07 AMPS	327.17 AMPS	2013sumpk_q268_pst_catb	346
33724	"LOCKEFRD"	60 30	38060	"INDUSTRL"	60 30	"1 "	0.81	1.03	96.53	17.21	912.58 AMPS	885.27 AMPS	2013sumpk_q268_pre_catb	347
33724	"LOCKEFRD"	60 30	38060	"INDUSTRL"	60 30	"1 "	0.81	1.03	96.53	17.22	912.89 AMPS	885.27 AMPS	2013sumpk_q268_pst_catb	347
33724	"LOCKEFRD"	60 30	38060	"INDUSTRL"	60 30	"1 "	0.81	1.03	96.53	17.21	912.58 AMPS	885.27 AMPS	2013sumpk_q268_pre_catb	462
33724	"LOCKEFRD"	60 30	38060	"INDUSTRL"	60 30	"1 "	0.81	1.03	96.53	17.22	912.89 AMPS	885.27 AMPS	2013sumpk_q268_pst_catb	462
33725	"LOCKFRD1"	60 30	33732	"COLONY "	60 30	"1 "	0.75	0.90	33.27	-5.14	313.30 AMPS	346.41 AMPS	2013sumpk_q268_pre_catb	347
33725	"LOCKFRD1"	60 30	33732	"COLONY "	60 30	"1 "	0.75	0.90	33.27	-5.14	313.40 AMPS	346.41 AMPS	2013sumpk_q268_pst_catb	347
33725	"LOCKFRD1"	60 30	33732	"COLONY "	60 30	"1 "	0.75	0.98	36.17	-4.99	340.36 AMPS	346.41 AMPS	2013sumpk_q268_pre_catb	349
33725	"LOCKFRD1"	60 30	33732	"COLONY "	60 30	"1 "	0.75	0.98	36.17	-4.99	340.48 AMPS	346.41 AMPS	2013sumpk_q268_pst_catb	349
33725	"LOCKFRD1"	60 30	33732	"COLONY "	60 30	"1 "	0.75	0.90	33.27	-5.14	313.30 AMPS	346.41 AMPS	2013sumpk_q268_pre_catb	462
33725	"LOCKFRD1"	60 30	33732	"COLONY "	60 30	"1 "	0.75	0.90	33.27	-5.14	313.40 AMPS	346.41 AMPS	2013sumpk_q268_pst_catb	462
33725	"LOCKFRD1"	60 30	33732	"COLONY "	60 30	"1 "	0.75	0.98	36.17	-4.99	340.36 AMPS	346.41 AMPS	2013sumpk_q268_pre_catb	465
33725	"LOCKFRD1"	60 30	33732	"COLONY "	60 30	"1 "	0.75	0.98	36.17	-4.99	340.48 AMPS	346.41 AMPS	2013sumpk_q268_pst_catb	465
33726	"VICTOR "	60 30	33731	"WODBRG J"	60 30	"1 "	0.68	0.96	88.60	13.77	847.39 AMPS	885.27 AMPS	2013sumpk_q268_pre_catb	349
33726	"VICTOR "	60 30	33731	"WODBRG J"	60 30	"1 "	0.68	0.96	88.60	13.77	847.68 AMPS	885.27 AMPS	2013sumpk_q268_pst_catb	349
33726	"VICTOR "	60 30	33731	"WODBRG J"	60 30	"1 "	0.68	0.96	88.60	13.77	847.39 AMPS	885.27 AMPS	2013sumpk_q268_pre_catb	465

--------FROM BUS--------				----------TO BUS----------					(RATE 1)	(RATE 2)	---------OUTAGE----------			(RATE 2)		
Bus #	NAME	KV	AREA	Bus #	NAME	KV	AREA	ID	BASE	OUTAGE	MW	MVAR	FLOW	RATING	FILE	OUTAGE #
33726	"VICTOR "	60	30	33731	"WODBRG J"	60	30	"1 "	0.68	0.96	88.60	13.77	847.68 AMPS	885.27 AMPS	2013sumpk_q268_pst_catb	465
33728	"LODI "	60	30	33734	"CLNY JCT"	60	30	"1 "	0.64	0.91	-29.47	7.82	295.81 AMPS	326.20 AMPS	2013sumpk_q268_pre_catb	349
33728	"LODI "	60	30	33734	"CLNY JCT"	60	30	"1 "	0.64	0.91	-29.47	7.82	295.91 AMPS	326.20 AMPS	2013sumpk_q268_pst_catb	349
33728	"LODI "	60	30	33734	"CLNY JCT"	60	30	"1 "	0.64	0.91	-29.47	7.82	295.81 AMPS	326.20 AMPS	2013sumpk_q268_pre_catb	465
33728	"LODI "	60	30	33734	"CLNY JCT"	60	30	"1 "	0.64	0.91	-29.47	7.82	295.91 AMPS	326.20 AMPS	2013sumpk_q268_pst_catb	465
33731	"WODBRG J"	60	30	33735	"INDSTR J"	60	30	"1 "	0.68	0.96	87.47	8.75	847.49 AMPS	885.27 AMPS	2013sumpk_q268_pre_catb	349
33731	"WODBRG J"	60	30	33735	"INDSTR J"	60	30	"1 "	0.68	0.96	87.47	8.75	847.78 AMPS	885.27 AMPS	2013sumpk_q268_pst_catb	349
33731	"WODBRG J"	60	30	33735	"INDSTR J"	60	30	"1 "	0.68	0.96	87.47	8.75	847.49 AMPS	885.27 AMPS	2013sumpk_q268_pre_catb	465
33731	"WODBRG J"	60	30	33735	"INDSTR J"	60	30	"1 "	0.68	0.96	87.47	8.75	847.78 AMPS	885.27 AMPS	2013sumpk_q268_pst_catb	465
33735	"INDSTR J"	60	30	38060	"INDUSTRL"	60	30	"1 "	0.68	0.96	87.31	8.05	847.50 AMPS	885.27 AMPS	2013sumpk_q268_pre_catb	349
33735	"INDSTR J"	60	30	38060	"INDUSTRL"	60	30	"1 "	0.68	0.96	87.31	8.05	847.79 AMPS	885.27 AMPS	2013sumpk_q268_pst_catb	349
33735	"INDSTR J"	60	30	38060	"INDUSTRL"	60	30	"1 "	0.68	0.96	87.31	8.05	847.50 AMPS	885.27 AMPS	2013sumpk_q268_pre_catb	465
33735	"INDSTR J"	60	30	38060	"INDUSTRL"	60	30	"1 "	0.68	0.96	87.31	8.05	847.79 AMPS	885.27 AMPS	2013sumpk_q268_pst_catb	465
34002	"SALADO "	60	30	34008	"STNSLSRP"	60	30	"1 "	0.29	1.03	50.77	0.16	484.02 AMPS	471.50 AMPS	2013sumpk_q268_pre_catb	454
34002	"SALADO "	60	30	34008	"STNSLSRP"	60	30	"1 "	0.29	1.02	50.73	0.03	482.58 AMPS	471.50 AMPS	2013sumpk_q268_pst_catb	454
34006	"PATTERSN"	60	30	34010	"CRWS LDJ"	60	30	"1 "	0.46	0.91	48.20	-3.09	463.83 AMPS	511.92 AMPS	2013sumpk_q268_pre_catb	362
34006	"PATTERSN"	60	30	34010	"CRWS LDJ"	60	30	"1 "	0.46	0.90	48.19	-3.20	462.63 AMPS	511.92 AMPS	2013sumpk_q268_pst_catb	362
34006	"PATTERSN"	60	30	34010	"CRWS LDJ"	60	30	"1 "	0.46	0.91	48.20	-3.09	463.83 AMPS	511.92 AMPS	2013sumpk_q268_pre_catb	455
34006	"PATTERSN"	60	30	34010	"CRWS LDJ"	60	30	"1 "	0.46	0.90	48.19	-3.20	462.63 AMPS	511.92 AMPS	2013sumpk_q268_pst_catb	455
34008	"STNSLSRP"	60	30	34016	"MEDLIN J"	60	30	"1 "	0.58	0.98	49.68	-1.78	463.87 AMPS	471.50 AMPS	2013sumpk_q268_pre_catb	361
34008	"STNSLSRP"	60	30	34016	"MEDLIN J"	60	30	"1 "	0.58	0.98	49.67	-1.82	463.45 AMPS	471.50 AMPS	2013sumpk_q268_pst_catb	361
34008	"STNSLSRP"	60	30	34016	"MEDLIN J"	60	30	"1 "	0.58	0.97	49.16	-1.20	459.00 AMPS	471.50 AMPS	2013sumpk_q268_pre_catb	363
34008	"STNSLSRP"	60	30	34016	"MEDLIN J"	60	30	"1 "	0.58	0.97	49.15	-1.23	458.59 AMPS	471.50 AMPS	2013sumpk_q268_pst_catb	363
34008	"STNSLSRP"	60	30	34016	"MEDLIN J"	60	30	"1 "	0.58	1.03	50.03	-1.30	484.02 AMPS	471.50 AMPS	2013sumpk_q268_pre_catb	454
34008	"STNSLSRP"	60	30	34016	"MEDLIN J"	60	30	"1 "	0.58	1.02	50.01	-1.42	482.57 AMPS	471.50 AMPS	2013sumpk_q268_pst_catb	454
34016	"MEDLIN J"	60	30	34018	"NWMN JCT"	60	30	"1 "	0.58	0.98	48.68	-3.76	463.83 AMPS	471.50 AMPS	2013sumpk_q268_pre_catb	361
34016	"MEDLIN J"	60	30	34018	"NWMN JCT"	60	30	"1 "	0.58	0.98	48.68	-3.79	463.40 AMPS	471.50 AMPS	2013sumpk_q268_pst_catb	361
34016	"MEDLIN J"	60	30	34018	"NWMN JCT"	60	30	"1 "	0.58	1.03	48.95	-3.46	483.98 AMPS	471.50 AMPS	2013sumpk_q268_pre_catb	454
34016	"MEDLIN J"	60	30	34018	"NWMN JCT"	60	30	"1 "	0.58	1.02	48.93	-3.57	482.53 AMPS	471.50 AMPS	2013sumpk_q268_pst_catb	454
38260	"PRESCOTT"	69	30	38316	"WOODLMID"	69	30	"1 "	1.07	0.99	48.38	-13.00	417.07 AMPS	422.55 AMPS	2013sumpk_q268_pre_catb	275
38260	"PRESCOTT"	69	30	38316	"WOODLMID"	69	30	"1 "	1.07	0.99	48.59	-12.97	418.84 AMPS	422.55 AMPS	2013sumpk_q268_pst_catb	275

--------FROM BUS--------				----------TO BUS----------					(RATE 1)	(RATE 2)	---------OUTAGE----------			(RATE 2)		
Bus #	NAME	KV	AREA	Bus #	NAME	KV	AREA	ID	BASE	OUTAGE	MW	MVAR	FLOW	RATING	FILE	OUTAGE #
38260	"PRESCOTT"	69	30	38316	"WOODLMID"	69	30	"1 "	1.07	1.00	49.28	-12.87	424.33 AMPS	422.55 AMPS	2013sumpk_q268_pre_catb	276
38260	"PRESCOTT"	69	30	38316	"WOODLMID"	69	30	"1 "	1.07	1.01	49.48	-12.84	426.10 AMPS	422.55 AMPS	2013sumpk_q268_pst_catb	276
38260	"PRESCOTT"	69	30	38316	"WOODLMID"	69	30	"1 "	1.07	1.22	59.64	-17.52	517.56 AMPS	422.55 AMPS	2013sumpk_q268_pre_catb	278
38260	"PRESCOTT"	69	30	38316	"WOODLMID"	69	30	"1 "	1.07	1.24	60.34	-17.60	523.70 AMPS	422.55 AMPS	2013sumpk_q268_pst_catb	278
38260	"PRESCOTT"	69	30	38316	"WOODLMID"	69	30	"1 "	1.07	1.04	50.89	-13.22	438.08 AMPS	422.55 AMPS	2013sumpk_q268_pre_catb	279
38260	"PRESCOTT"	69	30	38316	"WOODLMID"	69	30	"1 "	1.07	1.04	51.10	-13.19	439.87 AMPS	422.55 AMPS	2013sumpk_q268_pst_catb	279
38260	"PRESCOTT"	69	30	38316	"WOODLMID"	69	30	"1 "	1.07	1.01	49.40	-13.34	426.79 AMPS	422.55 AMPS	2013sumpk_q268_pre_catb	303
38260	"PRESCOTT"	69	30	38316	"WOODLMID"	69	30	"1 "	1.07	1.02	50.19	-12.02	430.48 AMPS	422.55 AMPS	2013sumpk_q268_pst_catb	303
38260	"PRESCOTT"	69	30	38316	"WOODLMID"	69	30	"1 "	1.07	0.99	48.63	-11.74	417.16 AMPS	422.55 AMPS	2013sumpk_q268_pre_catb	467
38260	"PRESCOTT"	69	30	38316	"WOODLMID"	69	30	"1 "	1.07	0.99	48.86	-11.69	419.12 AMPS	422.55 AMPS	2013sumpk_q268_pst_catb	467
38260	"PRESCOTT"	69	30	38316	"WOODLMID"	69	30	"1 "	1.07	1.26	61.24	-17.34	530.39 AMPS	422.55 AMPS	2013sumpk_q268_pre_catb	468
38260	"PRESCOTT"	69	30	38316	"WOODLMID"	69	30	"1 "	1.07	1.27	61.93	-17.43	536.45 AMPS	422.55 AMPS	2013sumpk_q268_pst_catb	468
38264	"ENSLEN "	69	30	38266	"WOODROW "	69	30	"1 "	0.59	0.91	47.61	-16.54	420.68 AMPS	460.21 AMPS	2013sumpk_q268_pre_catb	468
38264	"ENSLEN "	69	30	38266	"WOODROW "	69	30	"1 "	0.60	0.93	48.51	-16.69	428.42 AMPS	460.21 AMPS	2013sumpk_q268_pst_catb	468

APPENDIX C - STEADY STATE POWER FLOW RESULTS
AUTCON OUTPUT FILES FOR 2013 SPRING PEAK **NORMAL** OPERATING CONDITIONS

--------FROM BUS--------			----------TO BUS----------					---BASE---		LOADING			
Bus #	NAME	KV AREA	Bus #	NAME	KV AREA	ID		MW	MVAR	P.U.	FLOW	RATING	------CASE------
30495	"STAGG "	230 30	30622	"EIGHT MI"	230 30	"1 "		377	-15	1.15**	949 AMPS	825.86 AMPS	2013sprpk_q268_pre_catb
30495	"STAGG "	230 30	30622	"EIGHT MI"	230 30	"1 "		376	-15	1.15**	948 AMPS	825.86 AMPS	2013sprpk_q268_pst_catb
30500	"BELLOTA "	230 30	38208	"COTTLE B"	230 30	"1 "		258	17	0.96	645 AMPS	675.25 AMPS	2013sprpk_q268_pre_catb
30500	"BELLOTA "	230 30	38208	"COTTLE B"	230 30	"1 "		266	18	0.98	664 AMPS	675.25 AMPS	2013sprpk_q268_pst_catb
30515	"WARNERVL"	230 30	30800	"WILSON "	230 30	"1 "		273	-44	1.04	700 AMPS	675.25 AMPS	2013sprpk_q268_pre_catb
30515	"WARNERVL"	230 30	30800	"WILSON "	230 30	"1 "		281	-43	1.07**	721 AMPS	675.25 AMPS	2013sprpk_q268_pst_catb
30526	"PITSBG D"	230 30	38950	"VSC_PTSB"	181 30	"1 "		-413	208	1.08**	462 MVA	430.00 MVA	2013sprpk_q268_pre_catb
30526	"PITSBG D"	230 30	38950	"VSC_PTSB"	181 30	"1 "		-413	208	1.08**	462 MVA	430.00 MVA	2013sprpk_q268_pst_catb
30621	"Q260 "	230 30	30622	"EIGHT MI"	230 30	"1 "		303	-29	0.93	766 AMPS	825.86 AMPS	2013sprpk_q268_pre_catb
30621	"Q260 "	230 30	30622	"EIGHT MI"	230 30	"1 "		302	-28	0.93	765 AMPS	825.86 AMPS	2013sprpk_q268_pst_catb
30622	"EIGHT MI"	230 30	38000	"LODI "	230 30	"1 "		355	-32	1.09**	897 AMPS	825.86 AMPS	2013sprpk_q268_pre_catb
30622	"EIGHT MI"	230 30	38000	"LODI "	230 30	"1 "		354	-32	1.08**	896 AMPS	825.86 AMPS	2013sprpk_q268_pst_catb
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "		645	-28	1.08**	1610 AMPS	1484.04 AMPS	2013sprpk_q268_pre_catb
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "		654	-25	1.10**	1631 AMPS	1484.04 AMPS	2013sprpk_q268_pst_catb
31636	"BURNEY "	60 30	31638	"BURNEYQF"	60 30	"1 "		-10	3	0.96**	97 AMPS	101.04 AMPS	2013sprpk_q268_pre_catb
31636	"BURNEY "	60 30	31638	"BURNEYQF"	60 30	"1 "		-10	3	0.96**	97 AMPS	101.04 AMPS	2013sprpk_q268_pst_catb
32224	"CHCGO PK"	115 30	32232	"HIGGINS "	115 30	"1 "		124	-6	0.91	593 AMPS	652.66 AMPS	2013sprpk_q268_pre_catb
32224	"CHCGO PK"	115 30	32232	"HIGGINS "	115 30	"1 "		124	-6	0.91	591 AMPS	652.66 AMPS	2013sprpk_q268_pst_catb
33204	"POTRERO "	115 30	38951	"VSC_POTR"	181 30	"1 "		-400	71	0.94**	406 MVA	430.00 MVA	2013sprpk_q268_pre_catb
33204	"POTRERO "	115 30	38951	"VSC_POTR"	181 30	"1 "		-400	70	0.94**	406 MVA	430.00 MVA	2013sprpk_q268_pst_catb
33602	"NEWARKS "	60 30	33672	"CHRTRWYS"	60 30	"1 "		-28	7	0.92	274 AMPS	298.30 AMPS	2013sprpk_q268_pre_catb
33602	"NEWARKS "	60 30	33672	"CHRTRWYS"	60 30	"1 "		-28	7	0.92	274 AMPS	298.30 AMPS	2013sprpk_q268_pst_catb
34176	"EXCHQRTP"	115 30	34306	"EXCHQUER"	14 30	"1 "		90	9	0.90**	90 MVA	100.00 MVA	2013sprpk_q268_pre_catb
34176	"EXCHQRTP"	115 30	34306	"EXCHQUER"	14 30	"1 "		90	9	0.90**	90 MVA	100.00 MVA	2013sprpk_q268_pst_catb
35907	"PAUL SWT"	115 30	36218	"M "	115 30	"1 "		0	-40	0.92**	199 AMPS	215.88 AMPS	2013sprpk_q268_pre_catb
35907	"PAUL SWT"	115 30	36218	"M "	115 30	"1 "		0	-40	0.92**	199 AMPS	215.88 AMPS	2013sprpk_q268_pst_catb

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--------FROM BUS--------  ----------TO BUS-----------     (RATE 1) (RATE 2)   ---------OUTAGE------------   (RATE 2)
Bus #    NAME     KV AREA  Bus #   NAME     KV AREA ID      BASE   OUTAGE     MW      MVAR      FLOW         RATING            FILE        OUTAGE #


30330 "RIO OSO "  230 30  30335 "ATLANTC "  230 30  "1 "    0.81    0.91    386.58    29.20   975.65 AMPS 1076.88 AMPS   2013sprpk_q268_pre_catb 108
30330 "RIO OSO "  230 30  30335 "ATLANTC "  230 30  "1 "    0.81    0.90    385.96    29.22   974.14 AMPS 1076.88 AMPS   2013sprpk_q268_pst_catb 108

30330 "RIO OSO "  230 30  30335 "ATLANTC "  230 30  "1 "    0.81    0.96    410.57    27.29  1035.33 AMPS 1076.88 AMPS   2013sprpk_q268_pre_catb 244
30330 "RIO OSO "  230 30  30335 "ATLANTC "  230 30  "1 "    0.81    0.96    409.95    27.31  1033.80 AMPS 1076.88 AMPS   2013sprpk_q268_pst_catb 244

30495 "STAGG   "  230 30  30622 "EIGHT MI"  230 30  "1 "    1.15    1.03    396.72   -19.11  1002.12 AMPS  976.48 AMPS   2013sprpk_q268_pre_catb 109
30495 "STAGG   "  230 30  30622 "EIGHT MI"  230 30  "1 "    1.15    1.03    396.26   -18.56  1001.07 AMPS  976.48 AMPS   2013sprpk_q268_pst_catb 109

30495 "STAGG   "  230 30  30622 "EIGHT MI"  230 30  "1 "    1.15    1.05    407.83   -16.79  1028.50 AMPS  976.48 AMPS   2013sprpk_q268_pre_catb 115
30495 "STAGG   "  230 30  30622 "EIGHT MI"  230 30  "1 "    1.15    1.05    407.36   -16.24  1027.44 AMPS  976.48 AMPS   2013sprpk_q268_pst_catb 115

30495 "STAGG   "  230 30  30622 "EIGHT MI"  230 30  "1 "    1.15    1.35    521.93   -29.58  1322.89 AMPS  976.48 AMPS   2013sprpk_q268_pre_catb 286
30495 "STAGG   "  230 30  30622 "EIGHT MI"  230 30  "1 "    1.15    1.35    521.13   -28.88  1320.91 AMPS  976.48 AMPS   2013sprpk_q268_pst_catb 286

30496 "STAGG-H "  230 30  30497 "STAGG-F "  230 30  "1 "    0.70    1.01    474.59   -62.99  1217.59 AMPS 1199.89 AMPS   2013sprpk_q268_pre_catb 286
30496 "STAGG-H "  230 30  30497 "STAGG-F "  230 30  "1 "    0.70    1.01    473.81   -62.22  1215.57 AMPS 1199.89 AMPS   2013sprpk_q268_pst_catb 286

30497 "STAGG-F "  230 30  30498 "STAGG-D "  230 30  "1 "    0.60    0.92    425.06   -73.90  1099.20 AMPS 1199.89 AMPS   2013sprpk_q268_pre_catb 286
30497 "STAGG-F "  230 30  30498 "STAGG-D "  230 30  "1 "    0.60    0.91    424.28   -73.12  1097.09 AMPS 1199.89 AMPS   2013sprpk_q268_pst_catb 286

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30500 "BELLOTA "  230 30  38208 "COTTLE B"  230 30  "1 "    0.98    0.91    287.08    11.65   718.03 AMPS  793.23 AMPS   2013sprpk_q268_pst_catb 277

30500 "BELLOTA "  230 30  38208 "COTTLE B"  230 30  "1 "    0.96    0.97    308.64    20.50   772.16 AMPS  793.23 AMPS   2013sprpk_q268_pre_catb 288
30500 "BELLOTA "  230 30  38208 "COTTLE B"  230 30  "1 "    0.98    1.00    315.82    26.17   791.62 AMPS  793.23 AMPS   2013sprpk_q268_pst_catb 288

30500 "BELLOTA "  230 30  38208 "COTTLE B"  230 30  "1 "    0.96    1.01    319.14    16.04   799.16 AMPS  793.23 AMPS   2013sprpk_q268_pre_catb 467
30500 "BELLOTA "  230 30  38208 "COTTLE B"  230 30  "1 "    0.98    1.04    328.18    17.18   822.06 AMPS  793.23 AMPS   2013sprpk_q268_pst_catb 467

30515 "WARNERVL"  230 30  30800 "WILSON  "  230 30  "1 "    1.04    0.95    292.27   -51.19   753.03 AMPS  793.23 AMPS   2013sprpk_q268_pre_catb 277
30515 "WARNERVL"  230 30  30800 "WILSON  "  230 30  "1 "    1.07    0.98    302.43   -50.99   778.93 AMPS  793.23 AMPS   2013sprpk_q268_pst_catb 277

30515 "WARNERVL"  230 30  30800 "WILSON  "  230 30  "1 "    1.04    0.91    282.21   -43.69   724.51 AMPS  793.23 AMPS   2013sprpk_q268_pre_catb 287
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30515 "WARNERVL"  230 30  30800 "WILSON  "  230 30  "1 "    1.04    0.96    297.85   -45.02   764.08 AMPS  793.23 AMPS   2013sprpk_q268_pre_catb 303
30515 "WARNERVL"  230 30  30800 "WILSON  "  230 30  "1 "    1.07    1.00    307.85   -44.12   789.45 AMPS  793.23 AMPS   2013sprpk_q268_pst_catb 303

30515 "WARNERVL"  230 30  30800 "WILSON  "  230 30  "1 "    1.04    0.91    281.36   -44.02   722.62 AMPS  793.23 AMPS   2013sprpk_q268_pre_catb 378
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30515 "WARNERVL"  230 30  30800 "WILSON  "  230 30  "1 "    1.04    1.13    349.17   -44.91   896.75 AMPS  793.23 AMPS   2013sprpk_q268_pre_catb 467
30515 "WARNERVL"  230 30  30800 "WILSON  "  230 30  "1 "    1.07    1.16    359.17   -44.52   922.62 AMPS  793.23 AMPS   2013sprpk_q268_pst_catb 467

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--------FROM BUS--------			----------TO BUS----------				(RATE 1)	(RATE 2)	---------OUTAGE----------			(RATE 2)		
Bus #	NAME	KV AREA	Bus #	NAME	KV AREA	ID	BASE	OUTAGE	MW	MVAR	FLOW	RATING	FILE	OUTAGE #
30515	"WARNERVL"	230 30	38208	"COTTLE B"	230 30	"1 "	0.89	0.92	285.34	2.02	727.21 AMPS	793.23 AMPS	2013sprpk_q268_pst_catb	288
30515	"WARNERVL"	230 30	38208	"COTTLE B"	230 30	"1 "	0.86	0.93	288.57	-8.64	734.49 AMPS	793.23 AMPS	2013sprpk_q268_pre_catb	467
30515	"WARNERVL"	230 30	38208	"COTTLE B"	230 30	"1 "	0.89	0.95	297.32	-9.22	757.36 AMPS	793.23 AMPS	2013sprpk_q268_pst_catb	467
30621	"Q260 "	230 30	30622	"EIGHT MI"	230 30	"1 "	0.93	1.18	453.53	-52.97	1155.09 AMPS	976.48 AMPS	2013sprpk_q268_pre_catb	366
30621	"Q260 "	230 30	30622	"EIGHT MI"	230 30	"1 "	0.93	1.18	452.83	-52.14	1153.32 AMPS	976.48 AMPS	2013sprpk_q268_pst_catb	366
30622	"EIGHT MI"	230 30	30624	"TESLA E "	230 30	"1 "	0.75	1.28	492.63	-52.08	1247.45 AMPS	976.48 AMPS	2013sprpk_q268_pre_catb	285
30622	"EIGHT MI"	230 30	30624	"TESLA E "	230 30	"1 "	0.74	1.28	491.72	-51.27	1245.12 AMPS	976.48 AMPS	2013sprpk_q268_pst_catb	285
30622	"EIGHT MI"	230 30	38000	"LODI "	230 30	"1 "	1.09	0.98	379.62	-35.79	961.23 AMPS	976.48 AMPS	2013sprpk_q268_pre_catb	109
30622	"EIGHT MI"	230 30	38000	"LODI "	230 30	"1 "	1.08	0.98	379.04	-35.10	959.76 AMPS	976.48 AMPS	2013sprpk_q268_pst_catb	109
30622	"EIGHT MI"	230 30	38000	"LODI "	230 30	"1 "	1.09	0.97	374.90	-41.91	949.05 AMPS	976.48 AMPS	2013sprpk_q268_pre_catb	113
30622	"EIGHT MI"	230 30	38000	"LODI "	230 30	"1 "	1.08	0.97	374.14	-41.10	947.08 AMPS	976.48 AMPS	2013sprpk_q268_pst_catb	113
30622	"EIGHT MI"	230 30	38000	"LODI "	230 30	"1 "	1.09	1.28	490.90	-63.03	1248.64 AMPS	976.48 AMPS	2013sprpk_q268_pre_catb	114
30622	"EIGHT MI"	230 30	38000	"LODI "	230 30	"1 "	1.08	1.28	490.16	-62.03	1246.74 AMPS	976.48 AMPS	2013sprpk_q268_pst_catb	114
30622	"EIGHT MI"	230 30	38000	"LODI "	230 30	"1 "	1.09	1.02	393.22	-32.55	993.19 AMPS	976.48 AMPS	2013sprpk_q268_pre_catb	115
30622	"EIGHT MI"	230 30	38000	"LODI "	230 30	"1 "	1.08	1.02	392.62	-31.85	991.71 AMPS	976.48 AMPS	2013sprpk_q268_pst_catb	115
30622	"EIGHT MI"	230 30	38000	"LODI "	230 30	"1 "	1.09	0.98	376.57	-35.56	953.38 AMPS	976.48 AMPS	2013sprpk_q268_pre_catb	5
30622	"EIGHT MI"	230 30	38000	"LODI "	230 30	"1 "	1.08	0.97	376.00	-34.87	951.94 AMPS	976.48 AMPS	2013sprpk_q268_pst_catb	5
30622	"EIGHT MI"	230 30	38000	"LODI "	230 30	"1 "	1.09	0.98	377.59	-35.71	955.88 AMPS	976.48 AMPS	2013sprpk_q268_pre_catb	6
30622	"EIGHT MI"	230 30	38000	"LODI "	230 30	"1 "	1.08	0.98	376.99	-35.02	954.36 AMPS	976.48 AMPS	2013sprpk_q268_pst_catb	6
30622	"EIGHT MI"	230 30	38000	"LODI "	230 30	"1 "	1.09	0.97	374.13	-35.64	947.20 AMPS	976.48 AMPS	2013sprpk_q268_pre_catb	95
30622	"EIGHT MI"	230 30	38000	"LODI "	230 30	"1 "	1.08	0.97	373.56	-34.96	945.76 AMPS	976.48 AMPS	2013sprpk_q268_pst_catb	95
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "	1.08	1.10	702.82	-20.30	1753.84 AMPS	1600.01 AMPS	2013sprpk_q268_pre_catb	278
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "	1.10	1.11	713.02	-16.87	1779.89 AMPS	1600.01 AMPS	2013sprpk_q268_pst_catb	278
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "	1.08	1.16	744.92	-18.47	1855.00 AMPS	1600.01 AMPS	2013sprpk_q268_pre_catb	287
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "	1.10	1.17	753.98	-15.41	1878.20 AMPS	1600.01 AMPS	2013sprpk_q268_pst_catb	287
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "	1.08	1.09	696.09	-20.10	1736.72 AMPS	1600.01 AMPS	2013sprpk_q268_pre_catb	468
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "	1.10	1.10	706.22	-18.02	1762.53 AMPS	1600.01 AMPS	2013sprpk_q268_pst_catb	468
31962	"WDLND_BM"	115 30	31970	"WOODLD "	115 30	"1 "	0.45	0.91	-130.07	31.22	669.68 AMPS	739.01 AMPS	2013sprpk_q268_pre_catb	95
31962	"WDLND_BM"	115 30	31970	"WOODLD "	115 30	"1 "	0.45	0.91	-129.91	31.14	668.85 AMPS	739.01 AMPS	2013sprpk_q268_pst_catb	95
31962	"WDLND_BM"	115 30	31992	"HUNT "	115 30	"1 "	0.63	0.96	139.30	-29.00	707.36 AMPS	738.00 AMPS	2013sprpk_q268_pre_catb	5
31962	"WDLND_BM"	115 30	31992	"HUNT "	115 30	"1 "	0.63	0.96	139.15	-28.92	706.55 AMPS	738.00 AMPS	2013sprpk_q268_pst_catb	5

--------FROM BUS--------			----------TO BUS----------				(RATE 1)	(RATE 2)	---------OUTAGE----------			(RATE 2)		
Bus #	NAME	KV AREA	Bus #	NAME	KV AREA	ID	BASE	OUTAGE	MW	MVAR	FLOW	RATING	FILE	OUTAGE #
31986	"W.SCRMNO"	115 30	32214	"RIO OSO "	115 30	"1 "	0.66	0.95	96.64	-21.13	481.37 AMPS	507.06 AMPS	2013sprpk_q268_pre_catb	5
31986	"W.SCRMNO"	115 30	32214	"RIO OSO "	115 30	"1 "	0.66	0.95	96.54	-21.10	480.88 AMPS	507.06 AMPS	2013sprpk_q268_pst_catb	5
31986	"W.SCRMNO"	115 30	32214	"RIO OSO "	115 30	"1 "	0.66	0.97	98.56	-20.11	490.01 AMPS	507.06 AMPS	2013sprpk_q268_pre_catb	95
31986	"W.SCRMNO"	115 30	32214	"RIO OSO "	115 30	"1 "	0.66	0.97	98.46	-20.08	489.51 AMPS	507.06 AMPS	2013sprpk_q268_pst_catb	95
31990	"DAVIS "	115 30	31992	"HUNT "	115 30	"1 "	0.63	0.96	-137.04	38.26	705.36 AMPS	738.00 AMPS	2013sprpk_q268_pre_catb	5
31990	"DAVIS "	115 30	31992	"HUNT "	115 30	"1 "	0.62	0.95	-136.89	38.16	704.54 AMPS	738.00 AMPS	2013sprpk_q268_pst_catb	5
32228	"PLACER "	115 30	32394	"PLACER "	60 30	"1 "	0.84	0.92	69.11	16.26	70.99 MVA	77.00 MVA	2013sprpk_q268_pre_catb	212
32228	"PLACER "	115 30	32394	"PLACER "	60 30	"1 "	0.84	0.92	69.11	16.26	70.99 MVA	77.00 MVA	2013sprpk_q268_pst_catb	212
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33531	"OWENSTP1"	115 30	33549	"SCHULTE "	115 30	"1 "	0.62	0.95	215.44	31.98	1063.16 AMPS	1124.58 AMPS	2013sprpk_q268_pst_catb	445
33540	"TESLA "	115 30	33541	"AEC_TP1 "	115 30	"1 "	0.16	0.92	-164.18	12.94	805.12 AMPS	878.58 AMPS	2013sprpk_q268_pre_catb	316
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33602	"NEWARKS "	60 30	33670	"STCKTN A"	60 30	"1 "	0.84	0.99	-32.30	-9.40	322.77 AMPS	327.17 AMPS	2013sprpk_q268_pre_catb	432
33602	"NEWARKS "	60 30	33670	"STCKTN A"	60 30	"1 "	0.84	0.99	-32.30	-9.40	322.87 AMPS	327.17 AMPS	2013sprpk_q268_pst_catb	432
33602	"NEWARKS "	60 30	33672	"CHRTRWYS"	60 30	"1 "	0.92	1.08	32.30	9.40	322.76 AMPS	298.30 AMPS	2013sprpk_q268_pre_catb	432
33602	"NEWARKS "	60 30	33672	"CHRTRWYS"	60 30	"1 "	0.92	1.08	32.31	9.40	322.88 AMPS	298.30 AMPS	2013sprpk_q268_pst_catb	432
33602	"NEWARKS "	60 30	33672	"CHRTRWYS"	60 30	"1 "	0.92	0.94	32.31	9.40	324.08 AMPS	346.41 AMPS	2013sprpk_q268_pre_catb	453
33602	"NEWARKS "	60 30	33672	"CHRTRWYS"	60 30	"1 "	0.92	0.94	32.31	9.40	324.18 AMPS	346.41 AMPS	2013sprpk_q268_pst_catb	453
33654	"SNTA FEA"	60 30	33662	"WEBER 2 "	60 30	"1 "	0.42	0.97	47.52	5.65	450.07 AMPS	461.88 AMPS	2013sprpk_q268_pre_catb	453
33654	"SNTA FEA"	60 30	33662	"WEBER 2 "	60 30	"1 "	0.42	0.97	47.52	5.66	450.21 AMPS	461.88 AMPS	2013sprpk_q268_pst_catb	453

--------FROM BUS--------			----------TO BUS----------					---BASE---		LOADING			
Bus #	NAME	KV AREA	Bus #	NAME	KV AREA	ID		MW	MVAR	P.U.	FLOW	RATING	------CASE------
30515	"WARNERVL"	230 30	30800	"WILSON "	230 30	"1 "		334	12	1.22**	827 AMPS	675.25 AMPS	2013sumop_q268_pre_catb
30515	"WARNERVL"	230 30	30800	"WILSON "	230 30	"1 "		341	12	1.25**	847 AMPS	675.25 AMPS	2013sumop_q268_pst_catb
30526	"PITSBG D"	230 30	38950	"VSC_PTSB"	181 30	"1 "		415	152	1.03**	442 MVA	430.00 MVA	2013sumop_q268_pre_catb
30526	"PITSBG D"	230 30	38950	"VSC_PTSB"	181 30	"1 "		415	152	1.03**	442 MVA	430.00 MVA	2013sumop_q268_pst_catb
31101	"SCOTIATP"	60 30	31105	"RIODLLTP"	60 30	"1 "		28	0	0.92	248 AMPS	269.43 AMPS	2013sumop_q268_pre_catb
31101	"SCOTIATP"	60 30	31105	"RIODLLTP"	60 30	"1 "		28	0	0.92	248 AMPS	269.43 AMPS	2013sumop_q268_pst_catb
31463	"WHEELBR "	115 30	31464	"COTWDPGE"	115 30	"1 "		-90	34	1.02	449 AMPS	441.80 AMPS	2013sumop_q268_pre_catb
31463	"WHEELBR "	115 30	31464	"COTWDPGE"	115 30	"1 "		-90	34	1.02	449 AMPS	441.80 AMPS	2013sumop_q268_pst_catb
31636	"BURNEY "	60 30	31638	"BURNEYQF"	60 30	"1 "		-10	4	0.99**	100 AMPS	101.04 AMPS	2013sumop_q268_pre_catb
31636	"BURNEY "	60 30	31638	"BURNEYQF"	60 30	"1 "		-10	4	0.99**	100 AMPS	101.04 AMPS	2013sumop_q268_pst_catb
33204	"POTRERO "	115 30	38951	"VSC_POTR"	181 30	"1 "		-400	179	1.02**	438 MVA	430.00 MVA	2013sumop_q268_pre_catb
33204	"POTRERO "	115 30	38951	"VSC_POTR"	181 30	"1 "		-400	179	1.02**	438 MVA	430.00 MVA	2013sumop_q268_pst_catb
33602	"NEWARKS "	60 30	33670	"STCKTN A"	60 30	"1 "		38	-12	1.13**	368 AMPS	327.17 AMPS	2013sumop_q268_pre_catb
33602	"NEWARKS "	60 30	33670	"STCKTN A"	60 30	"1 "		38	-12	1.13**	368 AMPS	327.17 AMPS	2013sumop_q268_pst_catb
33602	"NEWARKS "	60 30	33672	"CHRTRWYS"	60 30	"1 "		-38	12	1.23**	368 AMPS	298.30 AMPS	2013sumop_q268_pre_catb
33602	"NEWARKS "	60 30	33672	"CHRTRWYS"	60 30	"1 "		-38	12	1.23**	368 AMPS	298.30 AMPS	2013sumop_q268_pst_catb
33912	"SPRNG GJ"	115 30	33914	"MI-WUK "	115 30	"1 "		94	-19	0.95	465 AMPS	491.00 AMPS	2013sumop_q268_pre_catb
33912	"SPRNG GJ"	115 30	33914	"MI-WUK "	115 30	"1 "		94	-19	0.95	465 AMPS	491.00 AMPS	2013sumop_q268_pst_catb
33916	"CURTISS "	115 30	33917	"FBERBORD"	115 30	"1 "		-87	30	0.91	448 AMPS	492.00 AMPS	2013sumop_q268_pre_catb
33916	"CURTISS "	115 30	33917	"FBERBORD"	115 30	"1 "		-87	30	0.91	448 AMPS	492.00 AMPS	2013sumop_q268_pst_catb
37010	"HURLEY S"	230 30	37015	"PROCTER "	230 30	"1 "		293	-135	1.00	760 AMPS	760.09 AMPS	2013sumop_q268_pre_catb
37010	"HURLEY S"	230 30	37015	"PROCTER "	230 30	"1 "		293	-135	1.00	759 AMPS	760.09 AMPS	2013sumop_q268_pst_catb

--------FROM BUS--------			----------TO BUS----------				(RATE 1)	(RATE 2)	---------OUTAGE----------			(RATE 2)		
Bus #	NAME	KV AREA	Bus #	NAME	KV AREA	ID	BASE	OUTAGE	MW	MVAR	FLOW	RATING	FILE	OUTAGE #
30495	"STAGG "	230 30	30622	"EIGHT MI"	230 30	"1 "	0.83	1.05	409.36	-41.91	1021.50 AMPS	976.48 AMPS	2013sumop_q268_pre_catb	286
30495	"STAGG "	230 30	30622	"EIGHT MI"	230 30	"1 "	0.83	1.04	408.50	-41.90	1019.37 AMPS	976.48 AMPS	2013sumop_q268_pst_catb	286
30515	"WARNERVL"	230 30	30800	"WILSON "	230 30	"1 "	1.22	1.15	367.32	11.87	910.86 AMPS	793.23 AMPS	2013sumop_q268_pre_catb	277
30515	"WARNERVL"	230 30	30800	"WILSON "	230 30	"1 "	1.25	1.18	376.87	11.65	934.87 AMPS	793.23 AMPS	2013sumop_q268_pst_catb	277
30515	"WARNERVL"	230 30	30800	"WILSON "	230 30	"1 "	1.22	1.27	405.47	12.41	1007.08 AMPS	793.23 AMPS	2013sumop_q268_pre_catb	467
30515	"WARNERVL"	230 30	30800	"WILSON "	230 30	"1 "	1.25	1.30	414.93	12.06	1030.88 AMPS	793.23 AMPS	2013sumop_q268_pst_catb	467
30621	"Q260 "	230 30	30622	"EIGHT MI"	230 30	"1 "	0.71	0.91	358.44	-36.50	888.40 AMPS	976.48 AMPS	2013sumop_q268_pre_catb	366
30621	"Q260 "	230 30	30622	"EIGHT MI"	230 30	"1 "	0.71	0.91	357.67	-36.43	886.48 AMPS	976.48 AMPS	2013sumop_q268_pst_catb	366
30622	"EIGHT MI"	230 30	30624	"TESLA E "	230 30	"1 "	0.67	1.03	403.81	-53.26	1009.02 AMPS	976.48 AMPS	2013sumop_q268_pre_catb	285
30622	"EIGHT MI"	230 30	30624	"TESLA E "	230 30	"1 "	0.67	1.03	402.87	-53.27	1006.67 AMPS	976.48 AMPS	2013sumop_q268_pst_catb	285
30622	"EIGHT MI"	230 30	38000	"LODI "	230 30	"1 "	0.87	1.01	388.90	-74.37	983.06 AMPS	976.48 AMPS	2013sumop_q268_pre_catb	114
30622	"EIGHT MI"	230 30	38000	"LODI "	230 30	"1 "	0.86	1.00	388.10	-74.28	981.02 AMPS	976.48 AMPS	2013sumop_q268_pst_catb	114
30622	"EIGHT MI"	230 30	38000	"LODI "	230 30	"1 "	0.87	0.91	297.30	-60.31	751.73 AMPS	825.86 AMPS	2013sumop_q268_pre_catb	437
30622	"EIGHT MI"	230 30	38000	"LODI "	230 30	"1 "	0.86	0.91	296.74	-60.41	750.38 AMPS	825.86 AMPS	2013sumop_q268_pst_catb	437
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--------FROM BUS--------			----------TO BUS----------				(RATE 1)	(RATE 2)	---------OUTAGE----------			(RATE 2)		
Bus #	NAME	KV AREA	Bus #	NAME	KV AREA	ID	BASE	OUTAGE	MW	MVAR	FLOW	RATING	FILE	OUTAGE #
30015	"TABLE MT"	500 30	30040	"TESLA "	500 30	"1 "	0.76	0.93	2328.05	-3.57	2539.42 AMPS	2730.06 AMPS	2013sumpk_q268_pre_catc	7
30015	"TABLE MT"	500 30	30040	"TESLA "	500 30	"1 "	0.76	0.93	2328.69	0.31	2540.34 AMPS	2730.06 AMPS	2013sumpk_q268_pst_catc	7
30114	"CPVSTA "	230 30	30450	"CORTINA "	230 30	"1 "	0.86	0.96	382.92	40.55	919.99 AMPS	953.88 AMPS	2013sumpk_q268_pre_catc	12
30114	"CPVSTA "	230 30	30450	"CORTINA "	230 30	"1 "	0.86	0.96	382.65	40.65	919.42 AMPS	953.88 AMPS	2013sumpk_q268_pst_catc	12
30250	"CARIBOU "	230 30	30261	"BELDENTP"	230 30	"1 "	1.10	1.05	372.09	13.61	889.83 AMPS	850.96 AMPS	2013sumpk_q268_pre_catc	50
30250	"CARIBOU "	230 30	30261	"BELDENTP"	230 30	"1 "	1.10	1.05	372.05	13.70	889.81 AMPS	850.96 AMPS	2013sumpk_q268_pst_catc	50
30261	"BELDENTP"	230 30	30300	"TBL MT D"	230 30	"1 "	1.10	1.05	369.50	1.58	889.97 AMPS	850.96 AMPS	2013sumpk_q268_pre_catc	50
30261	"BELDENTP"	230 30	30300	"TBL MT D"	230 30	"1 "	1.10	1.05	369.47	1.67	889.94 AMPS	850.96 AMPS	2013sumpk_q268_pst_catc	50
30330	"RIO OSO "	230 30	30335	"ATLANTC "	230 30	"1 "	1.00	0.97	400.96	69.00	1042.74 AMPS	1076.88 AMPS	2013sumpk_q268_pre_catc	15
30330	"RIO OSO "	230 30	30335	"ATLANTC "	230 30	"1 "	0.99	0.97	400.34	68.98	1041.15 AMPS	1076.88 AMPS	2013sumpk_q268_pst_catc	15
30330	"RIO OSO "	230 30	30335	"ATLANTC "	230 30	"1 "	1.00	1.00	413.19	68.03	1075.48 AMPS	1076.88 AMPS	2013sumpk_q268_pre_catc	16
30330	"RIO OSO "	230 30	30335	"ATLANTC "	230 30	"1 "	0.99	1.00	412.63	68.01	1074.03 AMPS	1076.88 AMPS	2013sumpk_q268_pst_catc	16
30330	"RIO OSO "	230 30	30335	"ATLANTC "	230 30	"1 "	1.00	1.33	538.94	131.13	1429.12 AMPS	1076.88 AMPS	2013sumpk_q268_pre_catc	64
30330	"RIO OSO "	230 30	30335	"ATLANTC "	230 30	"1 "	0.99	1.33	538.42	131.10	1427.80 AMPS	1076.88 AMPS	2013sumpk_q268_pst_catc	64
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "	0.95	0.98	382.55	-8.48	981.53 AMPS	1004.09 AMPS	2013sumpk_q268_pre_catc	116
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "	0.94	0.98	381.94	-8.31	979.96 AMPS	1004.09 AMPS	2013sumpk_q268_pst_catc	116
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "	0.95	1.00	390.02	-7.53	1001.49 AMPS	1004.09 AMPS	2013sumpk_q268_pre_catc	117
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "	0.94	1.00	389.41	-7.37	999.92 AMPS	1004.09 AMPS	2013sumpk_q268_pst_catc	117
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "	0.95	1.01	394.96	-2.91	1016.56 AMPS	1004.09 AMPS	2013sumpk_q268_pre_catc	120
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "	0.94	1.01	394.72	-2.69	1015.94 AMPS	1004.09 AMPS	2013sumpk_q268_pst_catc	120
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "	0.95	1.09	421.60	11.57	1091.02 AMPS	1004.09 AMPS	2013sumpk_q268_pre_catc	121
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "	0.94	1.09	421.39	11.85	1090.56 AMPS	1004.09 AMPS	2013sumpk_q268_pst_catc	121
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "	0.95	0.90	353.65	-12.29	906.60 AMPS	1004.09 AMPS	2013sumpk_q268_pre_catc	122
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "	0.94	0.90	353.38	-12.04	905.92 AMPS	1004.09 AMPS	2013sumpk_q268_pst_catc	122
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "	0.95	1.13	438.94	58.47	1138.55 AMPS	1004.09 AMPS	2013sumpk_q268_pre_catc	19
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "	0.94	1.13	438.48	58.71	1137.51 AMPS	1004.09 AMPS	2013sumpk_q268_pst_catc	19
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "	0.95	0.97	379.99	-4.72	970.79 AMPS	1004.09 AMPS	2013sumpk_q268_pre_catc	27
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "	0.94	0.97	379.52	-4.44	969.62 AMPS	1004.09 AMPS	2013sumpk_q268_pst_catc	27
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "	0.95	1.05	414.38	5.39	1052.97 AMPS	1004.09 AMPS	2013sumpk_q268_pre_catc	44
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "	0.94	1.05	413.80	5.54	1051.50 AMPS	1004.09 AMPS	2013sumpk_q268_pst_catc	44
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "	0.95	1.03	403.56	-0.16	1030.81 AMPS	1004.09 AMPS	2013sumpk_q268_pre_catc	48

--------FROM BUS--------			----------TO BUS----------				(RATE 1)	(RATE 2)	---------OUTAGE----------			(RATE 2)		
Bus #	NAME	KV AREA	Bus #	NAME	KV AREA	ID	BASE	OUTAGE	MW	MVAR	FLOW	RATING	FILE	OUTAGE #
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "	0.94	1.02	402.92	-0.03	1029.19 AMPS	1004.09 AMPS	2013sumpk_q268_pst_catc	48
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "	0.95	1.13	438.94	58.47	1138.55 AMPS	1004.09 AMPS	2013sumpk_q268_pre_catc	56
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "	0.94	1.13	438.48	58.71	1137.51 AMPS	1004.09 AMPS	2013sumpk_q268_pst_catc	56
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "	0.95	0.92	360.98	-13.25	924.14 AMPS	1004.09 AMPS	2013sumpk_q268_pre_catc	57
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "	0.94	0.92	360.55	-13.00	923.02 AMPS	1004.09 AMPS	2013sumpk_q268_pst_catc	57
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "	0.95	0.91	357.93	-7.76	913.09 AMPS	1004.09 AMPS	2013sumpk_q268_pre_catc	62
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "	0.94	0.91	357.46	-7.53	911.91 AMPS	1004.09 AMPS	2013sumpk_q268_pst_catc	62
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "	0.95	0.93	364.60	-7.06	934.13 AMPS	1004.09 AMPS	2013sumpk_q268_pre_catc	63
30330	"RIO OSO "	230 30	30348	"BRIGHTON"	230 30	"1 "	0.94	0.93	364.07	-6.87	932.78 AMPS	1004.09 AMPS	2013sumpk_q268_pst_catc	63
30330	"RIO OSO "	230 30	30482	"LOCKFORD"	230 30	"1 "	0.79	0.98	322.43	5.13	834.16 AMPS	849.96 AMPS	2013sumpk_q268_pre_catc	121
30330	"RIO OSO "	230 30	30482	"LOCKFORD"	230 30	"1 "	0.79	0.98	322.20	5.43	833.65 AMPS	849.96 AMPS	2013sumpk_q268_pst_catc	121
30330	"RIO OSO "	230 30	30482	"LOCKFORD"	230 30	"1 "	0.79	0.91	304.14	-0.94	772.77 AMPS	849.96 AMPS	2013sumpk_q268_pre_catc	44
30330	"RIO OSO "	230 30	30482	"LOCKFORD"	230 30	"1 "	0.79	0.91	303.55	-0.78	771.29 AMPS	849.96 AMPS	2013sumpk_q268_pst_catc	44
30330	"RIO OSO "	230 30	30482	"LOCKFORD"	230 30	"1 "	0.79	0.90	300.84	-5.58	768.55 AMPS	849.96 AMPS	2013sumpk_q268_pre_catc	48
30330	"RIO OSO "	230 30	30482	"LOCKFORD"	230 30	"1 "	0.79	0.90	300.19	-5.43	766.90 AMPS	849.96 AMPS	2013sumpk_q268_pst_catc	48
30335	"ATLANTC "	230 30	30337	"GOLDHILL"	230 30	"1 "	0.46	1.09	395.42	-10.59	1064.88 AMPS	976.48 AMPS	2013sumpk_q268_pre_catc	64
30335	"ATLANTC "	230 30	30337	"GOLDHILL"	230 30	"1 "	0.46	1.09	394.79	-10.44	1063.15 AMPS	976.48 AMPS	2013sumpk_q268_pst_catc	64
30337	"GOLDHILL"	230 30	32018	"GOLDHILL"	115 30	"1 "	0.59	0.96	439.23	43.39	441.37 MVA	462.00 MVA	2013sumpk_q268_pre_catc	64
30337	"GOLDHILL"	230 30	32018	"GOLDHILL"	115 30	"1 "	0.59	0.96	439.57	43.29	441.70 MVA	462.00 MVA	2013sumpk_q268_pst_catc	64
30337	"GOLDHILL"	230 30	32018	"GOLDHILL"	115 30	"2 "	0.56	1.03	471.86	42.55	473.78 MVA	462.00 MVA	2013sumpk_q268_pre_catc	63
30337	"GOLDHILL"	230 30	32018	"GOLDHILL"	115 30	"2 "	0.56	1.03	472.22	42.51	474.13 MVA	462.00 MVA	2013sumpk_q268_pst_catc	63
30337	"GOLDHILL"	230 30	37012	"LAKE "	230 30	"1 "	0.80	0.97	319.55	47.70	850.63 AMPS	879.83 AMPS	2013sumpk_q268_pre_catc	116
30337	"GOLDHILL"	230 30	37012	"LAKE "	230 30	"1 "	0.80	0.97	319.05	47.65	849.30 AMPS	879.83 AMPS	2013sumpk_q268_pst_catc	116
30337	"GOLDHILL"	230 30	37012	"LAKE "	230 30	"1 "	0.80	1.00	330.99	50.94	883.81 AMPS	879.83 AMPS	2013sumpk_q268_pre_catc	117
30337	"GOLDHILL"	230 30	37012	"LAKE "	230 30	"1 "	0.80	1.00	330.49	50.88	882.48 AMPS	879.83 AMPS	2013sumpk_q268_pst_catc	117
30337	"GOLDHILL"	230 30	37012	"LAKE "	230 30	"1 "	0.80	1.09	349.59	101.85	960.58 AMPS	879.83 AMPS	2013sumpk_q268_pre_catc	127
30337	"GOLDHILL"	230 30	37012	"LAKE "	230 30	"1 "	0.80	1.09	349.41	101.70	960.02 AMPS	879.83 AMPS	2013sumpk_q268_pst_catc	127
30337	"GOLDHILL"	230 30	37012	"LAKE "	230 30	"1 "	0.80	0.90	299.03	44.09	794.01 AMPS	879.83 AMPS	2013sumpk_q268_pre_catc	16
30337	"GOLDHILL"	230 30	37012	"LAKE "	230 30	"1 "	0.80	0.90	298.70	44.13	793.15 AMPS	879.83 AMPS	2013sumpk_q268_pst_catc	16
30460	"VACA-DIX"	230 30	30468	"Q257SWST"	230 30	"1 "	0.66	0.92	325.67	58.71	813.92 AMPS	886.11 AMPS	2013sumpk_q268_pre_catc	23
30460	"VACA-DIX"	230 30	30468	"Q257SWST"	230 30	"1 "	0.66	0.92	324.68	58.42	811.58 AMPS	886.11 AMPS	2013sumpk_q268_pst_catc	23

--------FROM BUS--------				----------TO BUS----------				(RATE 1)	(RATE 2)	---------OUTAGE----------			(RATE 2)		
Bus #	NAME	KV	AREA	Bus #	NAME	KV	AREA	ID	BASE	OUTAGE	MW	MVAR	FLOW	RATING	FILE	OUTAGE #
30460	"VACA-DIX"	230	30	30468	"Q257SWST"	230	30	"2 "	0.66	0.91	321.34	48.63	805.23 AMPS	886.11 AMPS	2013sumpk_q268_pre_catc	21
30460	"VACA-DIX"	230	30	30468	"Q257SWST"	230	30	"2 "	0.66	0.91	320.35	48.35	802.88 AMPS	886.11 AMPS	2013sumpk_q268_pst_catc	21
30489	"STAGG-J2"	230	30	30624	"TESLA E "	230	30	"1 "	0.26	0.92	-342.87	-65.12	902.19 AMPS	976.48 AMPS	2013sumpk_q268_pre_catc	116
30489	"STAGG-J2"	230	30	30624	"TESLA E "	230	30	"1 "	0.26	0.92	-342.87	-65.15	902.44 AMPS	976.48 AMPS	2013sumpk_q268_pst_catc	116
30489	"STAGG-J2"	230	30	30624	"TESLA E "	230	30	"1 "	0.26	0.93	-342.89	-65.30	904.09 AMPS	976.48 AMPS	2013sumpk_q268_pre_catc	129
30489	"STAGG-J2"	230	30	30624	"TESLA E "	230	30	"1 "	0.26	0.93	-342.89	-65.32	904.32 AMPS	976.48 AMPS	2013sumpk_q268_pst_catc	129
30495	"STAGG "	230	30	30622	"EIGHT MI"	230	30	"1 "	0.93	0.94	345.07	77.16	919.46 AMPS	976.48 AMPS	2013sumpk_q268_pre_catc	115
30495	"STAGG "	230	30	30622	"EIGHT MI"	230	30	"1 "	0.93	0.94	345.07	77.16	919.47 AMPS	976.48 AMPS	2013sumpk_q268_pst_catc	115
30495	"STAGG "	230	30	30622	"EIGHT MI"	230	30	"1 "	0.93	0.90	351.21	3.54	881.89 AMPS	976.48 AMPS	2013sumpk_q268_pre_catc	118
30495	"STAGG "	230	30	30622	"EIGHT MI"	230	30	"1 "	0.93	0.90	351.22	3.78	882.03 AMPS	976.48 AMPS	2013sumpk_q268_pst_catc	118
30495	"STAGG "	230	30	30622	"EIGHT MI"	230	30	"1 "	0.93	0.93	345.42	83.72	908.91 AMPS	976.48 AMPS	2013sumpk_q268_pre_catc	131
30495	"STAGG "	230	30	30622	"EIGHT MI"	230	30	"1 "	0.93	0.93	345.42	83.74	908.99 AMPS	976.48 AMPS	2013sumpk_q268_pst_catc	131
30495	"STAGG "	230	30	30622	"EIGHT MI"	230	30	"1 "	0.93	0.93	345.02	76.13	903.33 AMPS	976.48 AMPS	2013sumpk_q268_pre_catc	137
30495	"STAGG "	230	30	30622	"EIGHT MI"	230	30	"1 "	0.93	0.93	345.02	76.14	903.40 AMPS	976.48 AMPS	2013sumpk_q268_pst_catc	137
30495	"STAGG "	230	30	30622	"EIGHT MI"	230	30	"1 "	0.93	0.93	355.88	-13.71	903.24 AMPS	976.48 AMPS	2013sumpk_q268_pre_catc	15
30495	"STAGG "	230	30	30622	"EIGHT MI"	230	30	"1 "	0.93	0.92	355.27	-13.37	901.74 AMPS	976.48 AMPS	2013sumpk_q268_pst_catc	15
30495	"STAGG "	230	30	30622	"EIGHT MI"	230	30	"1 "	0.93	0.93	356.64	-13.78	905.82 AMPS	976.48 AMPS	2013sumpk_q268_pre_catc	16
30495	"STAGG "	230	30	30622	"EIGHT MI"	230	30	"1 "	0.93	0.93	356.07	-13.46	904.42 AMPS	976.48 AMPS	2013sumpk_q268_pst_catc	16
30500	"BELLOTA "	230	30	38208	"COTTLE B"	230	30	"1 "	0.89	1.00	317.80	-2.24	790.12 AMPS	793.23 AMPS	2013sumpk_q268_pre_catc	127
30500	"BELLOTA "	230	30	38208	"COTTLE B"	230	30	"1 "	0.92	1.02	325.14	-0.91	808.68 AMPS	793.23 AMPS	2013sumpk_q268_pst_catc	127
30505	"WEBER "	230	30	30888	"P0703 "	230	30	"1 "	0.99	1.08	-517.67	12.13	1297.48 AMPS	1199.89 AMPS	2013sumpk_q268_pre_catc	128
30505	"WEBER "	230	30	30888	"P0703 "	230	30	"1 "	0.99	1.08	-518.02	11.90	1298.78 AMPS	1199.89 AMPS	2013sumpk_q268_pst_catc	128
30505	"WEBER "	230	30	30888	"P0703 "	230	30	"1 "	0.99	1.14	-540.75	-12.79	1365.55 AMPS	1199.89 AMPS	2013sumpk_q268_pre_catc	133
30505	"WEBER "	230	30	30888	"P0703 "	230	30	"1 "	0.99	1.13	-539.03	-12.93	1361.40 AMPS	1199.89 AMPS	2013sumpk_q268_pst_catc	133
30505	"WEBER "	230	30	30888	"P0703 "	230	30	"1 "	0.99	1.07	-505.04	-26.50	1284.98 AMPS	1199.89 AMPS	2013sumpk_q268_pre_catc	134
30505	"WEBER "	230	30	30888	"P0703 "	230	30	"1 "	0.99	1.07	-505.55	-26.59	1286.61 AMPS	1199.89 AMPS	2013sumpk_q268_pst_catc	134
30505	"WEBER "	230	30	30888	"P0703 "	230	30	"1 "	0.99	1.18	-562.53	13.42	1417.74 AMPS	1199.89 AMPS	2013sumpk_q268_pre_catc	15
30505	"WEBER "	230	30	30888	"P0703 "	230	30	"1 "	0.99	1.18	-562.88	13.18	1419.07 AMPS	1199.89 AMPS	2013sumpk_q268_pst_catc	15
30505	"WEBER "	230	30	30888	"P0703 "	230	30	"1 "	0.99	1.19	-566.45	6.36	1432.45 AMPS	1199.89 AMPS	2013sumpk_q268_pre_catc	16
30505	"WEBER "	230	30	30888	"P0703 "	230	30	"1 "	0.99	1.20	-566.85	6.17	1433.91 AMPS	1199.89 AMPS	2013sumpk_q268_pst_catc	16
30505	"WEBER "	230	30	30888	"P0703 "	230	30	"1 "	0.99	1.04	-497.28	-10.39	1252.47 AMPS	1199.89 AMPS	2013sumpk_q268_pre_catc	45
30505	"WEBER "	230	30	30888	"P0703 "	230	30	"1 "	0.99	1.04	-497.75	-10.45	1253.87 AMPS	1199.89 AMPS	2013sumpk_q268_pst_catc	45

--------FROM BUS--------			----------TO BUS----------					(RATE 1)	(RATE 2)	---------OUTAGE----------			(RATE 2)		
Bus #	NAME	KV AREA	Bus #	NAME	KV AREA	ID		BASE	OUTAGE	MW	MVAR	FLOW	RATING	FILE	OUTAGE #
30505	"WEBER "	230 30	30888	"P0703 "	230 30	"1 "		0.99	1.07	-509.94	-4.86	1284.57 AMPS	1199.89 AMPS	2013sumpk_q268_pre_catc	46
30505	"WEBER "	230 30	30888	"P0703 "	230 30	"1 "		0.99	1.07	-510.38	-4.97	1286.01 AMPS	1199.89 AMPS	2013sumpk_q268_pst_catc	46
30505	"WEBER "	230 30	30888	"P0703 "	230 30	"1 "		0.99	1.05	-500.65	-6.90	1260.62 AMPS	1199.89 AMPS	2013sumpk_q268_pre_catc	47
30505	"WEBER "	230 30	30888	"P0703 "	230 30	"1 "		0.99	1.05	-501.09	-7.00	1262.07 AMPS	1199.89 AMPS	2013sumpk_q268_pst_catc	47
30515	"WARNERVL"	230 30	30800	"WILSON "	230 30	"1 "		1.32	1.23	386.85	7.74	973.83 AMPS	793.23 AMPS	2013sumpk_q268_pre_catc	127
30515	"WARNERVL"	230 30	30800	"WILSON "	230 30	"1 "		1.35	1.26	395.08	9.38	995.63 AMPS	793.23 AMPS	2013sumpk_q268_pst_catc	127
30515	"WARNERVL"	230 30	30800	"WILSON "	230 30	"1 "		1.32	1.23	385.73	-14.89	977.62 AMPS	793.23 AMPS	2013sumpk_q268_pre_catc	132
30515	"WARNERVL"	230 30	30800	"WILSON "	230 30	"1 "		1.35	1.27	395.94	-13.89	1004.21 AMPS	793.23 AMPS	2013sumpk_q268_pst_catc	132
30515	"WARNERVL"	230 30	30800	"WILSON "	230 30	"1 "		1.32	1.19	372.42	4.24	941.22 AMPS	793.23 AMPS	2013sumpk_q268_pre_catc	162
30515	"WARNERVL"	230 30	30800	"WILSON "	230 30	"1 "		1.35	1.21	380.81	6.13	963.52 AMPS	793.23 AMPS	2013sumpk_q268_pst_catc	162
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30515	"WARNERVL"	230 30	38208	"COTTLE B"	230 30	"1 "		0.79	0.92	287.67	-26.47	727.30 AMPS	793.23 AMPS	2013sumpk_q268_pst_catc	127
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "		1.01	1.10	711.39	-14.84	1767.56 AMPS	1600.01 AMPS	2013sumpk_q268_pre_catc	120
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "		1.03	1.12	720.28	-12.02	1789.80 AMPS	1600.01 AMPS	2013sumpk_q268_pst_catc	120
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "		1.01	1.17	754.79	-4.07	1875.36 AMPS	1600.01 AMPS	2013sumpk_q268_pre_catc	121
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "		1.03	1.19	763.59	1.68	1897.72 AMPS	1600.01 AMPS	2013sumpk_q268_pst_catc	121
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "		1.01	1.00	647.02	-16.75	1604.72 AMPS	1600.01 AMPS	2013sumpk_q268_pre_catc	122
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "		1.03	1.02	655.98	-14.03	1627.08 AMPS	1600.01 AMPS	2013sumpk_q268_pst_catc	122
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "		1.01	1.07	692.66	-14.85	1716.29 AMPS	1600.01 AMPS	2013sumpk_q268_pre_catc	123
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "		1.03	1.09	702.06	-12.16	1739.87 AMPS	1600.01 AMPS	2013sumpk_q268_pst_catc	123
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "		1.01	1.12	721.51	1.46	1790.18 AMPS	1600.01 AMPS	2013sumpk_q268_pre_catc	126
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "		1.03	1.14	736.35	5.36	1827.58 AMPS	1600.01 AMPS	2013sumpk_q268_pst_catc	126
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "		1.01	0.99	640.32	-19.77	1591.32 AMPS	1600.01 AMPS	2013sumpk_q268_pre_catc	132
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "		1.03	1.01	649.42	-17.05	1614.00 AMPS	1600.01 AMPS	2013sumpk_q268_pst_catc	132
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "		1.01	1.06	684.92	-14.12	1702.27 AMPS	1600.01 AMPS	2013sumpk_q268_pre_catc	133
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "		1.03	1.08	695.38	-11.68	1728.46 AMPS	1600.01 AMPS	2013sumpk_q268_pst_catc	133
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "		1.01	1.07	693.60	-12.12	1716.45 AMPS	1600.01 AMPS	2013sumpk_q268_pre_catc	136
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "		1.03	1.09	703.06	-9.41	1740.19 AMPS	1600.01 AMPS	2013sumpk_q268_pst_catc	136
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "		1.01	0.99	640.73	-17.37	1589.83 AMPS	1600.01 AMPS	2013sumpk_q268_pre_catc	159
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "		1.03	1.01	649.55	-14.16	1611.98 AMPS	1600.01 AMPS	2013sumpk_q268_pst_catc	159
30630	"NEWARK D"	230 30	30631	"NEWARK E"	230 30	"1 "		0.10	1.00	-631.55	38.48	1604.15 AMPS	1599.01 AMPS	2013sumpk_q268_pre_catc	123

--------FROM BUS--------				----------TO BUS----------					(RATE 1)	(RATE 2)	---------OUTAGE----------			(RATE 2)		
Bus #	NAME	KV	AREA	Bus #	NAME	KV	AREA	ID	BASE	OUTAGE	MW	MVAR	FLOW	RATING	FILE	OUTAGE #
30630	"NEWARK D"	230	30	30631	"NEWARK E"	230	30	"1 "	0.09	1.00	-630.78	38.36	1602.64 AMPS	1599.01 AMPS	2013sumpk_q268_pst_catc	123
31960	"MOBILCHE"	115	30	31966	"WODLNDJ1"	115	30	"1 "	0.78	0.92	-144.66	8.40	750.34 AMPS	818.33 AMPS	2013sumpk_q268_pre_catc	16
31960	"MOBILCHE"	115	30	31966	"WODLNDJ1"	115	30	"1 "	0.78	0.92	-144.56	8.34	749.80 AMPS	818.33 AMPS	2013sumpk_q268_pst_catc	16
31960	"MOBILCHE"	115	30	31970	"WOODLD "	115	30	"1 "	0.78	0.92	144.56	-8.39	749.82 AMPS	818.33 AMPS	2013sumpk_q268_pre_catc	16
31960	"MOBILCHE"	115	30	31970	"WOODLD "	115	30	"1 "	0.78	0.92	144.46	-8.34	749.29 AMPS	818.33 AMPS	2013sumpk_q268_pst_catc	16
31962	"WDLND_BM"	115	30	31970	"WOODLD "	115	30	"1 "	0.55	1.13	-159.23	27.28	836.94 AMPS	739.01 AMPS	2013sumpk_q268_pre_catc	16
31962	"WDLND_BM"	115	30	31970	"WOODLD "	115	30	"1 "	0.55	1.13	-159.03	27.15	835.83 AMPS	739.01 AMPS	2013sumpk_q268_pst_catc	16
31962	"WDLND_BM"	115	30	31970	"WOODLD "	115	30	"1 "	0.55	0.90	128.19	6.84	667.21 AMPS	739.01 AMPS	2013sumpk_q268_pre_catc	19
31962	"WDLND_BM"	115	30	31970	"WOODLD "	115	30	"1 "	0.55	0.90	128.19	6.84	667.30 AMPS	739.01 AMPS	2013sumpk_q268_pst_catc	19
31962	"WDLND_BM"	115	30	31970	"WOODLD "	115	30	"1 "	0.55	1.04	-145.24	3.49	767.04 AMPS	739.01 AMPS	2013sumpk_q268_pre_catc	20
31962	"WDLND_BM"	115	30	31970	"WOODLD "	115	30	"1 "	0.55	1.04	-145.18	3.42	766.78 AMPS	739.01 AMPS	2013sumpk_q268_pst_catc	20
31962	"WDLND_BM"	115	30	31970	"WOODLD "	115	30	"1 "	0.55	1.05	-144.73	-9.40	777.83 AMPS	739.01 AMPS	2013sumpk_q268_pre_catc	28
31962	"WDLND_BM"	115	30	31970	"WOODLD "	115	30	"1 "	0.55	1.05	-144.73	-9.40	777.84 AMPS	739.01 AMPS	2013sumpk_q268_pst_catc	28
31962	"WDLND_BM"	115	30	31970	"WOODLD "	115	30	"1 "	0.55	0.90	128.19	6.84	667.21 AMPS	739.01 AMPS	2013sumpk_q268_pre_catc	56
31962	"WDLND_BM"	115	30	31970	"WOODLD "	115	30	"1 "	0.55	0.90	128.19	6.84	667.30 AMPS	739.01 AMPS	2013sumpk_q268_pst_catc	56
31962	"WDLND_BM"	115	30	31992	"HUNT "	115	30	"1 "	0.73	1.29	182.74	-23.58	954.57 AMPS	738.00 AMPS	2013sumpk_q268_pre_catc	16
31962	"WDLND_BM"	115	30	31992	"HUNT "	115	30	"1 "	0.73	1.29	182.54	-23.46	953.48 AMPS	738.00 AMPS	2013sumpk_q268_pst_catc	16
31962	"WDLND_BM"	115	30	31992	"HUNT "	115	30	"1 "	0.73	1.21	168.74	0.17	890.95 AMPS	738.00 AMPS	2013sumpk_q268_pre_catc	20
31962	"WDLND_BM"	115	30	31992	"HUNT "	115	30	"1 "	0.73	1.21	168.69	0.23	890.70 AMPS	738.00 AMPS	2013sumpk_q268_pst_catc	20
31962	"WDLND_BM"	115	30	31992	"HUNT "	115	30	"1 "	0.73	1.23	168.24	13.03	904.98 AMPS	738.00 AMPS	2013sumpk_q268_pre_catc	28
31962	"WDLND_BM"	115	30	31992	"HUNT "	115	30	"1 "	0.73	1.23	168.24	13.03	904.99 AMPS	738.00 AMPS	2013sumpk_q268_pst_catc	28
31964	"KNIGHT2 "	115	30	31968	"WODLNDJ2"	115	30	"2 "	0.86	0.98	156.78	3.35	797.91 AMPS	818.33 AMPS	2013sumpk_q268_pre_catc	16
31964	"KNIGHT2 "	115	30	31968	"WODLNDJ2"	115	30	"2 "	0.86	0.97	156.68	3.39	797.38 AMPS	818.33 AMPS	2013sumpk_q268_pst_catc	16
31964	"KNIGHT2 "	115	30	31968	"WODLNDJ2"	115	30	"2 "	0.86	0.94	149.54	14.17	772.15 AMPS	818.33 AMPS	2013sumpk_q268_pre_catc	20
31964	"KNIGHT2 "	115	30	31968	"WODLNDJ2"	115	30	"2 "	0.86	0.94	149.51	14.20	772.04 AMPS	818.33 AMPS	2013sumpk_q268_pst_catc	20
31964	"KNIGHT2 "	115	30	31968	"WODLNDJ2"	115	30	"2 "	0.86	0.96	149.37	21.06	782.70 AMPS	818.33 AMPS	2013sumpk_q268_pre_catc	28
31964	"KNIGHT2 "	115	30	31968	"WODLNDJ2"	115	30	"2 "	0.86	0.96	149.37	21.06	782.71 AMPS	818.33 AMPS	2013sumpk_q268_pst_catc	28
31964	"KNIGHT2 "	115	30	32214	"RIO OSO "	115	30	"2 "	0.86	0.97	161.47	24.21	797.30 AMPS	818.33 AMPS	2013sumpk_q268_pre_catc	16
31964	"KNIGHT2 "	115	30	32214	"RIO OSO "	115	30	"2 "	0.86	0.97	161.36	24.22	796.76 AMPS	818.33 AMPS	2013sumpk_q268_pst_catc	16
31964	"KNIGHT2 "	115	30	32214	"RIO OSO "	115	30	"2 "	0.86	0.94	153.93	33.62	771.05 AMPS	818.33 AMPS	2013sumpk_q268_pre_catc	20
31964	"KNIGHT2 "	115	30	32214	"RIO OSO "	115	30	"2 "	0.86	0.94	153.90	33.64	770.94 AMPS	818.33 AMPS	2013sumpk_q268_pst_catc	20

--------FROM BUS--------			----------TO BUS----------				(RATE 1)	(RATE 2)	---------OUTAGE----------			(RATE 2)		
Bus #	NAME	KV AREA	Bus #	NAME	KV AREA	ID	BASE	OUTAGE	MW	MVAR	FLOW	RATING	FILE	OUTAGE #
31964	"KNIGHT2 "	115 30	32214	"RIO OSO "	115 30	"2 "	0.86	0.95	153.87	41.09	781.29 AMPS	818.33 AMPS	2013sumpk_q268_pre_catc	28
31964	"KNIGHT2 "	115 30	32214	"RIO OSO "	115 30	"2 "	0.86	0.95	153.87	41.09	781.30 AMPS	818.33 AMPS	2013sumpk_q268_pst_catc	28
31965	"KNIGHT1 "	115 30	31966	"WODLNDJ1"	115 30	"1 "	0.78	0.92	147.56	2.50	750.39 AMPS	818.33 AMPS	2013sumpk_q268_pre_catc	16
31965	"KNIGHT1 "	115 30	31966	"WODLNDJ1"	115 30	"1 "	0.78	0.92	147.46	2.54	749.85 AMPS	818.33 AMPS	2013sumpk_q268_pst_catc	16
31965	"KNIGHT1 "	115 30	32214	"RIO OSO "	115 30	"1 "	0.85	0.97	160.88	23.57	793.98 AMPS	818.33 AMPS	2013sumpk_q268_pre_catc	16
31965	"KNIGHT1 "	115 30	32214	"RIO OSO "	115 30	"1 "	0.85	0.97	160.77	23.58	793.44 AMPS	818.33 AMPS	2013sumpk_q268_pst_catc	16
31965	"KNIGHT1 "	115 30	32214	"RIO OSO "	115 30	"1 "	0.85	0.94	153.36	32.99	767.70 AMPS	818.33 AMPS	2013sumpk_q268_pre_catc	20
31965	"KNIGHT1 "	115 30	32214	"RIO OSO "	115 30	"1 "	0.85	0.94	153.33	33.02	767.59 AMPS	818.33 AMPS	2013sumpk_q268_pst_catc	20
31965	"KNIGHT1 "	115 30	32214	"RIO OSO "	115 30	"1 "	0.85	0.95	153.32	40.45	777.89 AMPS	818.33 AMPS	2013sumpk_q268_pre_catc	28
31965	"KNIGHT1 "	115 30	32214	"RIO OSO "	115 30	"1 "	0.85	0.95	153.32	40.46	777.90 AMPS	818.33 AMPS	2013sumpk_q268_pst_catc	28
31968	"WODLNDJ2"	115 30	31970	"WOODLD "	115 30	"2 "	0.77	0.91	145.72	2.10	742.93 AMPS	818.33 AMPS	2013sumpk_q268_pre_catc	16
31968	"WODLNDJ2"	115 30	31970	"WOODLD "	115 30	"2 "	0.77	0.91	145.61	2.14	742.40 AMPS	818.33 AMPS	2013sumpk_q268_pst_catc	16
31978	"DPWT_TP2"	115 30	31984	"BRIGHTN "	115 30	"1 "	0.84	1.24	-146.81	-34.60	751.34 AMPS	607.47 AMPS	2013sumpk_q268_pre_catc	19
31978	"DPWT_TP2"	115 30	31984	"BRIGHTN "	115 30	"1 "	0.84	1.24	-146.85	-34.55	751.56 AMPS	607.47 AMPS	2013sumpk_q268_pst_catc	19
31978	"DPWT_TP2"	115 30	31984	"BRIGHTN "	115 30	"1 "	0.84	1.24	-146.81	-34.60	751.34 AMPS	607.47 AMPS	2013sumpk_q268_pre_catc	56
31978	"DPWT_TP2"	115 30	31984	"BRIGHTN "	115 30	"1 "	0.84	1.24	-146.85	-34.55	751.56 AMPS	607.47 AMPS	2013sumpk_q268_pst_catc	56
31978	"DPWT_TP2"	115 30	31984	"BRIGHTN "	115 30	"1 "	0.84	0.95	-114.53	15.01	574.10 AMPS	607.47 AMPS	2013sumpk_q268_pre_catc	57
31978	"DPWT_TP2"	115 30	31984	"BRIGHTN "	115 30	"1 "	0.84	0.95	-114.58	15.04	574.42 AMPS	607.47 AMPS	2013sumpk_q268_pst_catc	57
31980	"DPWTR_TP"	115 30	31986	"W.SCRMNO"	115 30	"1 "	0.22	0.91	-131.69	-29.40	677.85 AMPS	743.03 AMPS	2013sumpk_q268_pre_catc	19
31980	"DPWTR_TP"	115 30	31986	"W.SCRMNO"	115 30	"1 "	0.22	0.91	-131.68	-29.43	677.90 AMPS	743.03 AMPS	2013sumpk_q268_pst_catc	19
31980	"DPWTR_TP"	115 30	31986	"W.SCRMNO"	115 30	"1 "	0.22	0.91	-131.69	-29.40	677.85 AMPS	743.03 AMPS	2013sumpk_q268_pre_catc	56
31980	"DPWTR_TP"	115 30	31986	"W.SCRMNO"	115 30	"1 "	0.22	0.91	-131.68	-29.43	677.90 AMPS	743.03 AMPS	2013sumpk_q268_pst_catc	56
31980	"DPWTR_TP"	115 30	32003	"UCD_TP1 "	115 30	"1 "	0.21	0.97	-131.34	39.07	722.59 AMPS	743.03 AMPS	2013sumpk_q268_pre_catc	20
31980	"DPWTR_TP"	115 30	32003	"UCD_TP1 "	115 30	"1 "	0.21	0.97	-131.34	39.06	722.65 AMPS	743.03 AMPS	2013sumpk_q268_pst_catc	20
31984	"BRIGHTN "	115 30	31993	"BRKRJCT "	115 30	"1 "	0.51	1.08	136.87	22.03	653.49 AMPS	602.45 AMPS	2013sumpk_q268_pre_catc	19
31984	"BRIGHTN "	115 30	31993	"BRKRJCT "	115 30	"1 "	0.51	1.08	136.89	22.02	653.64 AMPS	602.45 AMPS	2013sumpk_q268_pst_catc	19
31984	"BRIGHTN "	115 30	31993	"BRKRJCT "	115 30	"1 "	0.51	1.04	125.24	19.06	625.67 AMPS	602.45 AMPS	2013sumpk_q268_pre_catc	20
31984	"BRIGHTN "	115 30	31993	"BRKRJCT "	115 30	"1 "	0.51	1.04	125.31	19.02	626.03 AMPS	602.45 AMPS	2013sumpk_q268_pst_catc	20
31984	"BRIGHTN "	115 30	31993	"BRKRJCT "	115 30	"1 "	0.51	1.08	136.87	22.03	653.49 AMPS	602.45 AMPS	2013sumpk_q268_pre_catc	56
31984	"BRIGHTN "	115 30	31993	"BRKRJCT "	115 30	"1 "	0.51	1.08	136.89	22.02	653.64 AMPS	602.45 AMPS	2013sumpk_q268_pst_catc	56
31986	"W.SCRMNO"	115 30	32214	"RIO OSO "	115 30	"1 "	0.86	1.34	138.82	-5.72	678.46 AMPS	507.06 AMPS	2013sumpk_q268_pre_catc	16
31986	"W.SCRMNO"	115 30	32214	"RIO OSO "	115 30	"1 "	0.86	1.34	138.69	-5.68	677.79 AMPS	507.06 AMPS	2013sumpk_q268_pst_catc	16

--------FROM BUS--------			----------TO BUS----------				(RATE 1)	(RATE 2)	---------OUTAGE----------			(RATE 2)		
Bus #	NAME	KV AREA	Bus #	NAME	KV AREA	ID	BASE	OUTAGE	MW	MVAR	FLOW	RATING	FILE	OUTAGE #
31986	"W.SCRMNO"	115 30	32214	"RIO OSO "	115 30	"1 "	0.86	1.23	127.58	-12.40	623.65 AMPS	507.06 AMPS	2013sumpk_q268_pre_catc	19
31986	"W.SCRMNO"	115 30	32214	"RIO OSO "	115 30	"1 "	0.86	1.23	127.52	-12.35	623.31 AMPS	507.06 AMPS	2013sumpk_q268_pst_catc	19
31986	"W.SCRMNO"	115 30	32214	"RIO OSO "	115 30	"1 "	0.86	0.97	100.93	-8.54	490.47 AMPS	507.06 AMPS	2013sumpk_q268_pre_catc	27
31986	"W.SCRMNO"	115 30	32214	"RIO OSO "	115 30	"1 "	0.86	0.97	100.86	-8.49	490.13 AMPS	507.06 AMPS	2013sumpk_q268_pst_catc	27
31986	"W.SCRMNO"	115 30	32214	"RIO OSO "	115 30	"1 "	0.86	1.28	131.57	15.00	649.65 AMPS	507.06 AMPS	2013sumpk_q268_pre_catc	28
31986	"W.SCRMNO"	115 30	32214	"RIO OSO "	115 30	"1 "	0.86	1.28	131.57	15.00	649.66 AMPS	507.06 AMPS	2013sumpk_q268_pst_catc	28
31986	"W.SCRMNO"	115 30	32214	"RIO OSO "	115 30	"1 "	0.86	1.23	127.58	-12.40	623.65 AMPS	507.06 AMPS	2013sumpk_q268_pre_catc	56
31986	"W.SCRMNO"	115 30	32214	"RIO OSO "	115 30	"1 "	0.86	1.23	127.52	-12.35	623.31 AMPS	507.06 AMPS	2013sumpk_q268_pst_catc	56
31990	"DAVIS "	115 30	31992	"HUNT "	115 30	"1 "	0.73	1.29	-178.78	41.15	952.60 AMPS	738.00 AMPS	2013sumpk_q268_pre_catc	16
31990	"DAVIS "	115 30	31992	"HUNT "	115 30	"1 "	0.73	1.29	-178.59	40.98	951.51 AMPS	738.00 AMPS	2013sumpk_q268_pst_catc	16
31990	"DAVIS "	115 30	31992	"HUNT "	115 30	"1 "	0.73	1.21	-165.26	15.09	889.37 AMPS	738.00 AMPS	2013sumpk_q268_pre_catc	20
31990	"DAVIS "	115 30	31992	"HUNT "	115 30	"1 "	0.73	1.20	-165.21	15.02	889.12 AMPS	738.00 AMPS	2013sumpk_q268_pst_catc	20
31990	"DAVIS "	115 30	31992	"HUNT "	115 30	"1 "	0.73	1.22	-164.65	2.77	903.61 AMPS	738.00 AMPS	2013sumpk_q268_pre_catc	28
31990	"DAVIS "	115 30	31992	"HUNT "	115 30	"1 "	0.73	1.22	-164.65	2.77	903.62 AMPS	738.00 AMPS	2013sumpk_q268_pst_catc	28
31990	"DAVIS "	115 30	32001	"UCD_TP2 "	115 30	"1 "	0.37	1.07	126.10	0.36	645.94 AMPS	602.45 AMPS	2013sumpk_q268_pre_catc	19
31990	"DAVIS "	115 30	32001	"UCD_TP2 "	115 30	"1 "	0.37	1.07	126.11	0.33	646.07 AMPS	602.45 AMPS	2013sumpk_q268_pst_catc	19
31990	"DAVIS "	115 30	32001	"UCD_TP2 "	115 30	"1 "	0.37	1.02	115.23	-0.80	617.47 AMPS	602.45 AMPS	2013sumpk_q268_pre_catc	20
31990	"DAVIS "	115 30	32001	"UCD_TP2 "	115 30	"1 "	0.37	1.03	115.28	-0.87	617.81 AMPS	602.45 AMPS	2013sumpk_q268_pst_catc	20
31990	"DAVIS "	115 30	32001	"UCD_TP2 "	115 30	"1 "	0.37	1.07	126.10	0.36	645.94 AMPS	602.45 AMPS	2013sumpk_q268_pre_catc	56
31990	"DAVIS "	115 30	32001	"UCD_TP2 "	115 30	"1 "	0.37	1.07	126.11	0.33	646.07 AMPS	602.45 AMPS	2013sumpk_q268_pst_catc	56
31990	"DAVIS "	115 30	32003	"UCD_TP1 "	115 30	"1 "	0.19	1.20	-165.23	21.30	892.77 AMPS	743.03 AMPS	2013sumpk_q268_pre_catc	20
31990	"DAVIS "	115 30	32003	"UCD_TP1 "	115 30	"1 "	0.19	1.20	-165.23	21.28	892.84 AMPS	743.03 AMPS	2013sumpk_q268_pst_catc	20
31993	"BRKRJCT "	115 30	32001	"UCD_TP2 "	115 30	"1 "	0.36	1.07	127.82	7.65	645.81 AMPS	602.45 AMPS	2013sumpk_q268_pre_catc	19
31993	"BRKRJCT "	115 30	32001	"UCD_TP2 "	115 30	"1 "	0.36	1.07	127.83	7.64	645.96 AMPS	602.45 AMPS	2013sumpk_q268_pst_catc	19
31993	"BRKRJCT "	115 30	32001	"UCD_TP2 "	115 30	"1 "	0.36	1.02	116.80	5.88	617.40 AMPS	602.45 AMPS	2013sumpk_q268_pre_catc	20
31993	"BRKRJCT "	115 30	32001	"UCD_TP2 "	115 30	"1 "	0.36	1.03	116.85	5.82	617.74 AMPS	602.45 AMPS	2013sumpk_q268_pst_catc	20
31993	"BRKRJCT "	115 30	32001	"UCD_TP2 "	115 30	"1 "	0.36	1.07	127.82	7.65	645.81 AMPS	602.45 AMPS	2013sumpk_q268_pre_catc	56
31993	"BRKRJCT "	115 30	32001	"UCD_TP2 "	115 30	"1 "	0.36	1.07	127.83	7.64	645.96 AMPS	602.45 AMPS	2013sumpk_q268_pst_catc	56
31998	"VACA-DIX"	115 30	32088	"VACA-DXN"	60 30	"5 "	0.34	0.94	82.34	21.40	85.08 MVA	90.80 MVA	2013sumpk_q268_pre_catc	34
31998	"VACA-DIX"	115 30	32088	"VACA-DXN"	60 30	"5 "	0.34	0.94	82.35	21.40	85.08 MVA	90.80 MVA	2013sumpk_q268_pst_catc	34
32018	"GOLDHILL"	115 30	32229	"HORSHE1 "	115 30	"1 "	0.72	0.96	141.05	21.20	710.55 AMPS	738.00 AMPS	2013sumpk_q268_pre_catc	73

--------FROM BUS--------			----------TO BUS----------				(RATE 1)	(RATE 2)	---------OUTAGE----------			(RATE 2)		
Bus #	NAME	KV AREA	Bus #	NAME	KV AREA	ID	BASE	OUTAGE	MW	MVAR	FLOW	RATING	FILE	OUTAGE #
32018	"GOLDHILL"	115 30	32229	"HORSHE1 "	115 30	"1 "	0.72	0.96	141.05	21.20	710.58 AMPS	738.00 AMPS	2013sumpk_q268_pst_catc	73
32018	"GOLDHILL"	115 30	32268	"SHPRING2"	115 30	"2 "	0.72	0.90	159.82	20.24	795.31 AMPS	881.09 AMPS	2013sumpk_q268_pre_catc	77
32018	"GOLDHILL"	115 30	32268	"SHPRING2"	115 30	"2 "	0.72	0.90	159.82	20.24	795.33 AMPS	881.09 AMPS	2013sumpk_q268_pst_catc	77
32208	"GLEAF TP"	115 30	32214	"RIO OSO "	115 30	"1 "	0.71	0.94	94.65	-27.45	480.84 AMPS	512.08 AMPS	2013sumpk_q268_pre_catc	46
32208	"GLEAF TP"	115 30	32214	"RIO OSO "	115 30	"1 "	0.71	0.94	94.45	-27.40	479.83 AMPS	512.08 AMPS	2013sumpk_q268_pst_catc	46
32212	"E.NICOLS"	115 30	32214	"RIO OSO "	115 30	"1 "	0.64	1.03	-76.46	-39.60	428.29 AMPS	416.70 AMPS	2013sumpk_q268_pre_catc	54
32212	"E.NICOLS"	115 30	32214	"RIO OSO "	115 30	"1 "	0.64	1.03	-76.46	-39.60	428.29 AMPS	416.70 AMPS	2013sumpk_q268_pst_catc	54
32212	"E.NICOLS"	115 30	32214	"RIO OSO "	115 30	"1 "	0.64	1.03	-76.50	-39.95	430.23 AMPS	416.70 AMPS	2013sumpk_q268_pre_catc	55
32212	"E.NICOLS"	115 30	32214	"RIO OSO "	115 30	"1 "	0.64	1.03	-76.50	-39.95	430.24 AMPS	416.70 AMPS	2013sumpk_q268_pst_catc	55
32214	"RIO OSO "	115 30	32356	"LINCOLN "	115 30	"1 "	0.50	1.27	294.66	-18.89	1430.91 AMPS	1124.58 AMPS	2013sumpk_q268_pre_catc	44
32214	"RIO OSO "	115 30	32356	"LINCOLN "	115 30	"1 "	0.50	1.27	294.27	-18.91	1429.00 AMPS	1124.58 AMPS	2013sumpk_q268_pst_catc	44
32218	"DRUM "	115 30	32220	"DTCH FL1"	115 30	"1 "	0.82	1.22	140.74	-5.57	682.26 AMPS	560.78 AMPS	2013sumpk_q268_pre_catc	44
32218	"DRUM "	115 30	32220	"DTCH FL1"	115 30	"1 "	0.81	1.21	140.23	-5.59	679.78 AMPS	560.78 AMPS	2013sumpk_q268_pst_catc	44
32218	"DRUM "	115 30	32220	"DTCH FL1"	115 30	"1 "	0.82	1.23	142.13	-15.84	689.84 AMPS	560.78 AMPS	2013sumpk_q268_pre_catc	48
32218	"DRUM "	115 30	32220	"DTCH FL1"	115 30	"1 "	0.81	1.23	141.55	-15.85	687.04 AMPS	560.78 AMPS	2013sumpk_q268_pst_catc	48
32218	"DRUM "	115 30	32220	"DTCH FL1"	115 30	"1 "	0.82	0.93	107.99	-3.25	519.24 AMPS	560.78 AMPS	2013sumpk_q268_pre_catc	49
32218	"DRUM "	115 30	32220	"DTCH FL1"	115 30	"1 "	0.81	0.92	107.62	-3.26	517.47 AMPS	560.78 AMPS	2013sumpk_q268_pst_catc	49
32218	"DRUM "	115 30	32220	"DTCH FL1"	115 30	"1 "	0.82	1.16	133.77	-0.84	649.45 AMPS	560.78 AMPS	2013sumpk_q268_pre_catc	64
32218	"DRUM "	115 30	32220	"DTCH FL1"	115 30	"1 "	0.81	1.15	133.36	-0.86	647.44 AMPS	560.78 AMPS	2013sumpk_q268_pst_catc	64
32218	"DRUM "	115 30	32220	"DTCH FL1"	115 30	"1 "	0.82	0.93	108.38	-2.10	521.28 AMPS	560.78 AMPS	2013sumpk_q268_pre_catc	66
32218	"DRUM "	115 30	32220	"DTCH FL1"	115 30	"1 "	0.81	0.93	108.01	-2.09	519.52 AMPS	560.78 AMPS	2013sumpk_q268_pst_catc	66
32220	"DTCH FL1"	115 30	32224	"CHCGO PK"	115 30	"1 "	0.80	1.07	160.62	0.14	787.33 AMPS	739.01 AMPS	2013sumpk_q268_pre_catc	44
32220	"DTCH FL1"	115 30	32224	"CHCGO PK"	115 30	"1 "	0.79	1.06	160.13	0.15	784.85 AMPS	739.01 AMPS	2013sumpk_q268_pst_catc	44
32220	"DTCH FL1"	115 30	32224	"CHCGO PK"	115 30	"1 "	0.80	1.07	161.97	-10.24	789.98 AMPS	739.01 AMPS	2013sumpk_q268_pre_catc	48
32220	"DTCH FL1"	115 30	32224	"CHCGO PK"	115 30	"1 "	0.79	1.07	161.40	-10.20	787.16 AMPS	739.01 AMPS	2013sumpk_q268_pst_catc	48
32220	"DTCH FL1"	115 30	32224	"CHCGO PK"	115 30	"1 "	0.80	1.02	153.83	5.36	756.82 AMPS	739.01 AMPS	2013sumpk_q268_pre_catc	64
32220	"DTCH FL1"	115 30	32224	"CHCGO PK"	115 30	"1 "	0.79	1.02	153.44	5.37	754.80 AMPS	739.01 AMPS	2013sumpk_q268_pst_catc	64
32224	"CHCGO PK"	115 30	32232	"HIGGINS "	115 30	"1 "	1.05	1.09	196.82	5.32	973.39 AMPS	893.64 AMPS	2013sumpk_q268_pre_catc	44
32224	"CHCGO PK"	115 30	32232	"HIGGINS "	115 30	"1 "	1.04	1.09	196.34	5.39	970.91 AMPS	893.64 AMPS	2013sumpk_q268_pst_catc	44
32224	"CHCGO PK"	115 30	32232	"HIGGINS "	115 30	"1 "	1.05	1.09	198.17	-5.02	970.30 AMPS	893.64 AMPS	2013sumpk_q268_pre_catc	48
32224	"CHCGO PK"	115 30	32232	"HIGGINS "	115 30	"1 "	1.04	1.08	197.61	-4.93	967.48 AMPS	893.64 AMPS	2013sumpk_q268_pst_catc	48

--------FROM BUS--------			----------TO BUS----------				(RATE 1)	(RATE 2)	---------OUTAGE----------			(RATE 2)		
Bus #	NAME	KV AREA	Bus #	NAME	KV AREA	ID	BASE	OUTAGE	MW	MVAR	FLOW	RATING	FILE	OUTAGE #
32224	"CHCGO PK"	115 30	32232	"HIGGINS "	115 30	"1 "	1.05	0.91	165.46	12.70	811.76 AMPS	893.64 AMPS	2013sumpk_q268_pre_catc	49
32224	"CHCGO PK"	115 30	32232	"HIGGINS "	115 30	"1 "	1.04	0.91	165.11	12.74	809.99 AMPS	893.64 AMPS	2013sumpk_q268_pst_catc	49
32224	"CHCGO PK"	115 30	32232	"HIGGINS "	115 30	"1 "	1.05	1.06	190.15	11.06	945.65 AMPS	893.64 AMPS	2013sumpk_q268_pre_catc	64
32224	"CHCGO PK"	115 30	32232	"HIGGINS "	115 30	"1 "	1.04	1.06	189.76	11.10	943.64 AMPS	893.64 AMPS	2013sumpk_q268_pst_catc	64
32224	"CHCGO PK"	115 30	32232	"HIGGINS "	115 30	"1 "	1.05	0.91	165.85	13.78	815.02 AMPS	893.64 AMPS	2013sumpk_q268_pre_catc	66
32224	"CHCGO PK"	115 30	32232	"HIGGINS "	115 30	"1 "	1.04	0.91	165.49	13.83	813.29 AMPS	893.64 AMPS	2013sumpk_q268_pst_catc	66
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "	1.04	0.90	30.59	2.69	310.39 AMPS	344.49 AMPS	2013sumpk_q268_pre_catc	115
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "	1.04	0.90	30.59	2.69	310.41 AMPS	344.49 AMPS	2013sumpk_q268_pst_catc	115
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "	1.04	0.90	30.60	2.69	311.06 AMPS	344.49 AMPS	2013sumpk_q268_pre_catc	116
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "	1.04	0.90	30.60	2.69	311.07 AMPS	344.49 AMPS	2013sumpk_q268_pst_catc	116
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "	1.04	0.90	30.60	2.70	311.55 AMPS	344.49 AMPS	2013sumpk_q268_pre_catc	117
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "	1.04	0.90	30.60	2.70	311.55 AMPS	344.49 AMPS	2013sumpk_q268_pst_catc	117
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "	1.04	0.91	30.61	2.71	312.51 AMPS	344.49 AMPS	2013sumpk_q268_pre_catc	118
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "	1.04	0.91	30.61	2.71	312.52 AMPS	344.49 AMPS	2013sumpk_q268_pst_catc	118
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "	1.04	0.90	30.60	2.70	311.32 AMPS	344.49 AMPS	2013sumpk_q268_pre_catc	119
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "	1.04	0.90	30.60	2.70	311.32 AMPS	344.49 AMPS	2013sumpk_q268_pst_catc	119
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "	1.04	0.91	30.61	2.71	312.49 AMPS	344.49 AMPS	2013sumpk_q268_pre_catc	120
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "	1.04	0.91	30.61	2.71	312.50 AMPS	344.49 AMPS	2013sumpk_q268_pst_catc	120
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "	1.04	0.91	30.62	2.74	315.15 AMPS	344.49 AMPS	2013sumpk_q268_pre_catc	121
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "	1.04	0.91	30.62	2.74	315.18 AMPS	344.49 AMPS	2013sumpk_q268_pst_catc	121
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "	1.04	0.90	30.59	2.68	310.15 AMPS	344.49 AMPS	2013sumpk_q268_pre_catc	122
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "	1.04	0.90	30.59	2.68	310.17 AMPS	344.49 AMPS	2013sumpk_q268_pst_catc	122
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "	1.04	0.91	30.61	2.71	312.71 AMPS	344.49 AMPS	2013sumpk_q268_pre_catc	128
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "	1.04	0.91	30.61	2.71	312.71 AMPS	344.49 AMPS	2013sumpk_q268_pst_catc	128
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "	1.04	0.90	30.60	2.69	310.79 AMPS	344.49 AMPS	2013sumpk_q268_pre_catc	132
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "	1.04	0.90	30.60	2.69	310.77 AMPS	344.49 AMPS	2013sumpk_q268_pst_catc	132
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "	1.04	0.91	30.61	2.71	312.32 AMPS	344.49 AMPS	2013sumpk_q268_pre_catc	133
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "	1.04	0.91	30.61	2.71	312.29 AMPS	344.49 AMPS	2013sumpk_q268_pst_catc	133
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "	1.04	0.90	30.59	2.69	310.57 AMPS	344.49 AMPS	2013sumpk_q268_pre_catc	134
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "	1.04	0.90	30.59	2.69	310.57 AMPS	344.49 AMPS	2013sumpk_q268_pst_catc	134
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "	1.04	0.90	30.59	2.68	310.17 AMPS	344.49 AMPS	2013sumpk_q268_pre_catc	137
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "	1.04	0.90	30.59	2.68	310.19 AMPS	344.49 AMPS	2013sumpk_q268_pst_catc	137

--------FROM BUS--------			----------TO BUS----------					(RATE 1)	(RATE 2)	---------OUTAGE----------			(RATE 2)		
Bus #	NAME	KV AREA	Bus #	NAME	KV AREA	ID		BASE	OUTAGE	MW	MVAR	FLOW	RATING	FILE	OUTAGE #
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.59	2.69	310.34 AMPS	344.49 AMPS	2013sumpk_q268_pre_catc	15
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.59	2.69	310.34 AMPS	344.49 AMPS	2013sumpk_q268_pst_catc	15
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.91	30.61	2.71	312.95 AMPS	344.49 AMPS	2013sumpk_q268_pre_catc	16
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.91	30.61	2.71	312.94 AMPS	344.49 AMPS	2013sumpk_q268_pst_catc	16
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.59	2.69	310.42 AMPS	344.49 AMPS	2013sumpk_q268_pre_catc	19
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.59	2.69	310.43 AMPS	344.49 AMPS	2013sumpk_q268_pst_catc	19
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.91	30.61	2.72	313.70 AMPS	344.49 AMPS	2013sumpk_q268_pre_catc	20
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.91	30.61	2.72	313.72 AMPS	344.49 AMPS	2013sumpk_q268_pst_catc	20
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.91	30.62	2.74	315.08 AMPS	344.49 AMPS	2013sumpk_q268_pre_catc	28
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.91	30.62	2.74	315.10 AMPS	344.49 AMPS	2013sumpk_q268_pst_catc	28
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.60	2.69	311.03 AMPS	344.49 AMPS	2013sumpk_q268_pre_catc	29
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.60	2.69	311.05 AMPS	344.49 AMPS	2013sumpk_q268_pst_catc	29
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.91	30.61	2.71	313.03 AMPS	344.49 AMPS	2013sumpk_q268_pre_catc	45
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.91	30.61	2.71	313.01 AMPS	344.49 AMPS	2013sumpk_q268_pst_catc	45
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.59	2.69	310.73 AMPS	344.49 AMPS	2013sumpk_q268_pre_catc	46
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.59	2.69	310.73 AMPS	344.49 AMPS	2013sumpk_q268_pst_catc	46
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.59	2.69	310.53 AMPS	344.49 AMPS	2013sumpk_q268_pre_catc	49
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.59	2.69	310.52 AMPS	344.49 AMPS	2013sumpk_q268_pst_catc	49
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.60	2.69	310.92 AMPS	344.49 AMPS	2013sumpk_q268_pre_catc	52
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.60	2.69	310.95 AMPS	344.49 AMPS	2013sumpk_q268_pst_catc	52
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.91	30.62	2.73	314.80 AMPS	344.49 AMPS	2013sumpk_q268_pre_catc	54
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.91	30.62	2.73	314.81 AMPS	344.49 AMPS	2013sumpk_q268_pst_catc	54
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.92	30.63	2.75	316.26 AMPS	344.49 AMPS	2013sumpk_q268_pre_catc	55
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.92	30.63	2.75	316.26 AMPS	344.49 AMPS	2013sumpk_q268_pst_catc	55
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.59	2.69	310.42 AMPS	344.49 AMPS	2013sumpk_q268_pre_catc	56
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.59	2.69	310.43 AMPS	344.49 AMPS	2013sumpk_q268_pst_catc	56
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.59	2.69	310.61 AMPS	344.49 AMPS	2013sumpk_q268_pre_catc	57
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.59	2.69	310.62 AMPS	344.49 AMPS	2013sumpk_q268_pst_catc	57
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.60	2.69	310.90 AMPS	344.49 AMPS	2013sumpk_q268_pre_catc	62
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.60	2.69	310.92 AMPS	344.49 AMPS	2013sumpk_q268_pst_catc	62
32342	"E.NICOLS"	60 30	32344	"PLUMAS "	60 30	"1 "		1.04	0.90	30.59	2.68	310.23 AMPS	344.49 AMPS	2013sumpk_q268_pre_catc	63

--------FROM BUS--------				----------TO BUS----------					(RATE 1)	(RATE 2)	---------OUTAGE----------				(RATE 2)		
Bus #	NAME	KV	AREA	Bus #	NAME	KV	AREA	ID	BASE	OUTAGE	MW	MVAR	FLOW		RATING	FILE	OUTAGE #
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.90	30.59	2.68	310.24	AMPS	344.49 AMPS	2013sumpk_q268_pst_catc	63
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.91	30.61	2.71	313.05	AMPS	344.49 AMPS	2013sumpk_q268_pre_catc	64
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.91	30.61	2.71	313.04	AMPS	344.49 AMPS	2013sumpk_q268_pst_catc	64
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.90	30.59	2.69	310.67	AMPS	344.49 AMPS	2013sumpk_q268_pre_catc	7
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.90	30.59	2.69	310.67	AMPS	344.49 AMPS	2013sumpk_q268_pst_catc	7
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.91	30.60	2.70	312.01	AMPS	344.49 AMPS	2013sumpk_q268_pre_catc	73
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.91	30.60	2.70	312.01	AMPS	344.49 AMPS	2013sumpk_q268_pst_catc	73
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.90	30.59	2.69	310.68	AMPS	344.49 AMPS	2013sumpk_q268_pre_catc	74
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.90	30.59	2.69	310.68	AMPS	344.49 AMPS	2013sumpk_q268_pst_catc	74
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.90	30.60	2.69	310.85	AMPS	344.49 AMPS	2013sumpk_q268_pre_catc	83
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.90	30.60	2.69	310.87	AMPS	344.49 AMPS	2013sumpk_q268_pst_catc	83
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.90	30.60	2.70	311.73	AMPS	344.49 AMPS	2013sumpk_q268_pre_catc	96
32342	"E.NICOLS"	60	30	32344	"PLUMAS "	60	30	"1 "	1.04	0.90	30.60	2.70	311.74	AMPS	344.49 AMPS	2013sumpk_q268_pst_catc	96
32356	"LINCOLN "	115	30	32404	"SPI JCT"	115	30	"1 "	0.26	0.96	209.13	-64.28	1082.24	AMPS	1124.58 AMPS	2013sumpk_q268_pre_catc	44
32356	"LINCOLN "	115	30	32404	"SPI JCT"	115	30	"1 "	0.26	0.96	208.77	-64.17	1080.35	AMPS	1124.58 AMPS	2013sumpk_q268_pst_catc	44
32398	"ULTRA JT"	115	30	32404	"SPI JCT"	115	30	"1 "	0.30	1.00	-212.79	87.55	1129.79	AMPS	1124.58 AMPS	2013sumpk_q268_pre_catc	44
32398	"ULTRA JT"	115	30	32404	"SPI JCT"	115	30	"1 "	0.30	1.00	-212.45	87.39	1127.89	AMPS	1124.58 AMPS	2013sumpk_q268_pst_catc	44
32398	"ULTRA JT"	115	30	32414	"FORMICA "	115	30	"1 "	0.39	1.07	233.44	-76.75	1206.53	AMPS	1124.58 AMPS	2013sumpk_q268_pre_catc	44
32398	"ULTRA JT"	115	30	32414	"FORMICA "	115	30	"1 "	0.38	1.07	233.10	-76.58	1204.65	AMPS	1124.58 AMPS	2013sumpk_q268_pst_catc	44
32408	"PLSNT GR"	115	30	32414	"FORMICA "	115	30	"1 "	0.39	1.07	-232.08	81.55	1206.35	AMPS	1124.58 AMPS	2013sumpk_q268_pre_catc	44
32408	"PLSNT GR"	115	30	32414	"FORMICA "	115	30	"1 "	0.38	1.07	-231.74	81.38	1204.46	AMPS	1124.58 AMPS	2013sumpk_q268_pst_catc	44
33514	"MANTECA "	115	30	33742	"MANTECA "	60	30	"3 "	0.64	2.06	74.12	21.49	77.17	MVA	37.50 MVA	2013sumpk_q268_pre_catc	145
33514	"MANTECA "	115	30	33742	"MANTECA "	60	30	"3 "	0.62	2.06	74.09	21.27	77.08	MVA	37.50 MVA	2013sumpk_q268_pst_catc	145
33514	"MANTECA "	115	30	33970	"INGRM C."	115	30	"1 "	0.75	1.14	-71.36	15.37	373.59	AMPS	326.33 AMPS	2013sumpk_q268_pre_catc	102
=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=																	
33514	"MANTECA "	115	30	33970	"INGRM C."	115	30	"1 "	0.75	1.72	-102.09	18.69	562.61	AMPS	326.33 AMPS	2013sumpk_q268_pre_catc	103
33514	"MANTECA "	115	30	33970	"INGRM C."	115	30	"1 "	0.68	1.77	-103.76	20.31	576.26	AMPS	326.33 AMPS	2013sumpk_q268_pst_catc	103
33514	"MANTECA "	115	30	33970	"INGRM C."	115	30	"1 "	0.75	1.03	-64.80	13.65	336.85	AMPS	326.33 AMPS	2013sumpk_q268_pre_catc	104
=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=																	
33514	"MANTECA "	115	30	33970	"INGRM C."	115	30	"1 "	0.75	1.72	-101.99	18.73	562.85	AMPS	326.33 AMPS	2013sumpk_q268_pre_catc	105
33514	"MANTECA "	115	30	33970	"INGRM C."	115	30	"1 "	0.68	1.76	-103.96	20.07	575.28	AMPS	326.33 AMPS	2013sumpk_q268_pst_catc	105

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--------FROM BUS--------  ----------TO BUS-----------     (RATE 1) (RATE 2)   ---------OUTAGE------------   (RATE 2)
Bus #    NAME     KV AREA  Bus #   NAME     KV AREA ID      BASE   OUTAGE     MW      MVAR      FLOW         RATING            FILE        OUTAGE #

33514 "MANTECA "  115 30  33970 "INGRM C."  115 30  "1 "    0.75    1.61    -97.38    18.95   526.80 AMPS  326.33 AMPS   2013sumpk_q268_pre_catc 106
33514 "MANTECA "  115 30  33970 "INGRM C."  115 30  "1 "    0.68    1.62    -97.95    20.06   530.25 AMPS  326.33 AMPS   2013sumpk_q268_pst_catc 106

33514 "MANTECA "  115 30  33970 "INGRM C."  115 30  "1 "    0.75    1.61    -97.20    19.12   526.45 AMPS  326.33 AMPS   2013sumpk_q268_pre_catc 107
33514 "MANTECA "  115 30  33970 "INGRM C."  115 30  "1 "    0.68    1.64    -98.62    20.72   534.97 AMPS  326.33 AMPS   2013sumpk_q268_pst_catc 107

33514 "MANTECA "  115 30  33970 "INGRM C."  115 30  "1 "    0.75    1.53    -92.21    17.01   498.90 AMPS  326.33 AMPS   2013sumpk_q268_pre_catc 113
33514 "MANTECA "  115 30  33970 "INGRM C."  115 30  "1 "    0.68    1.57    -94.00    18.78   511.42 AMPS  326.33 AMPS   2013sumpk_q268_pst_catc 113

33514 "MANTECA "  115 30  33970 "INGRM C."  115 30  "1 "    0.75    1.53    -92.10    17.10   498.94 AMPS  326.33 AMPS   2013sumpk_q268_pre_catc 114
33514 "MANTECA "  115 30  33970 "INGRM C."  115 30  "1 "    0.68    1.57    -94.07    18.63   511.02 AMPS  326.33 AMPS   2013sumpk_q268_pst_catc 114

33514 "MANTECA "  115 30  33970 "INGRM C."  115 30  "1 "    0.75    1.01    -63.02     7.74   329.06 AMPS  326.33 AMPS   2013sumpk_q268_pre_catc 145
=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=

33514 "MANTECA "  115 30  33970 "INGRM C."  115 30  "1 "    0.75    0.95    -59.81     9.71   310.88 AMPS  326.33 AMPS   2013sumpk_q268_pre_catc 146
=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=

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33522 "CROSRDJT"  115 30  33530 "KSSN-JC2"  115 30  "1 "    0.72    0.95   -166.10     8.55   840.76 AMPS  883.60 AMPS   2013sumpk_q268_pst_catc 102

33522 "CROSRDJT"  115 30  33530 "KSSN-JC2"  115 30  "1 "    0.68    1.04   -179.12     7.23   918.34 AMPS  883.60 AMPS   2013sumpk_q268_pre_catc 108
33522 "CROSRDJT"  115 30  33530 "KSSN-JC2"  115 30  "1 "    0.72    1.09   -189.72     8.37   966.76 AMPS  883.60 AMPS   2013sumpk_q268_pst_catc 108

33522 "CROSRDJT"  115 30  33530 "KSSN-JC2"  115 30  "1 "    0.68    1.04   -178.89     7.45   918.12 AMPS  883.60 AMPS   2013sumpk_q268_pre_catc 109
33522 "CROSRDJT"  115 30  33530 "KSSN-JC2"  115 30  "1 "    0.72    1.09   -188.87     8.28   962.84 AMPS  883.60 AMPS   2013sumpk_q268_pst_catc 109

=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=
33528 "KASSON  "  115 30  33529 "LAMMERS "  115 30  "1 "    0.56    1.12   -251.28     8.66  1255.78 AMPS 1124.58 AMPS   2013sumpk_q268_pst_catc 102

=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=
33528 "KASSON  "  115 30  33529 "LAMMERS "  115 30  "1 "    0.56    0.96   -215.20   -14.03  1081.01 AMPS 1124.58 AMPS   2013sumpk_q268_pst_catc 108

=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=
33528 "KASSON  "  115 30  33529 "LAMMERS "  115 30  "1 "    0.56    0.94   -211.11   -16.71  1061.94 AMPS 1124.58 AMPS   2013sumpk_q268_pst_catc 109

33528 "KASSON  "  115 30  33756 "KASSON  "   60 30  "1 "    0.71    0.98     89.16     9.17    89.63 MVA    91.20 MVA    2013sumpk_q268_pre_catc 106
33528 "KASSON  "  115 30  33756 "KASSON  "   60 30  "1 "    0.72    1.06     95.83    10.17    96.36 MVA    91.20 MVA    2013sumpk_q268_pst_catc 106

33528 "KASSON  "  115 30  33756 "KASSON  "   60 30  "1 "    0.71    0.98     89.09     9.09    89.55 MVA    91.20 MVA    2013sumpk_q268_pre_catc 107
33528 "KASSON  "  115 30  33756 "KASSON  "   60 30  "1 "    0.72    1.04     94.17    10.11    94.71 MVA    91.20 MVA    2013sumpk_q268_pst_catc 107

=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=
33529 "LAMMERS "  115 30  33531 "OWENSTP1"  115 30  "1 "    0.78    1.34   -303.79   -22.80  1507.26 AMPS 1124.58 AMPS   2013sumpk_q268_pst_catc 102

=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=
33529 "LAMMERS "  115 30  33531 "OWENSTP1"  115 30  "1 "    0.78    0.92   -209.30   -24.73  1032.53 AMPS 1124.58 AMPS   2013sumpk_q268_pst_catc 106
```

```
--------FROM BUS--------  ----------TO BUS-----------     (RATE 1) (RATE 2)   ---------OUTAGE------------   (RATE 2)
Bus #    NAME     KV AREA  Bus #   NAME     KV AREA ID      BASE   OUTAGE     MW      MVAR      FLOW         RATING            FILE        OUTAGE #


33529 "LAMMERS "  115 30  33531 "OWENSTP1"  115 30  "1 "    0.81    1.04   -232.30   -33.52  1165.63 AMPS 1124.58 AMPS   2013sumpk_q268_pre_catc 108
33529 "LAMMERS "  115 30  33531 "OWENSTP1"  115 30  "1 "    0.78    1.18   -267.26   -37.74  1329.81 AMPS 1124.58 AMPS   2013sumpk_q268_pst_catc 108

33529 "LAMMERS "  115 30  33531 "OWENSTP1"  115 30  "1 "    0.81    1.04   -232.19   -33.61  1166.32 AMPS 1124.58 AMPS   2013sumpk_q268_pre_catc 109
33529 "LAMMERS "  115 30  33531 "OWENSTP1"  115 30  "1 "    0.78    1.17   -263.12   -39.64  1310.20 AMPS 1124.58 AMPS   2013sumpk_q268_pst_catc 109

33529 "LAMMERS "  115 30  33531 "OWENSTP1"  115 30  "1 "    0.81    1.00   -222.78   -31.54  1120.49 AMPS 1124.58 AMPS   2013sumpk_q268_pre_catc 147
=2=2=2
```

```
--------FROM BUS--------  ----------TO BUS-----------     (RATE 1) (RATE 2)   ---------OUTAGE------------   (RATE 2)
Bus #    NAME     KV AREA  Bus #   NAME     KV AREA ID      BASE   OUTAGE     MW      MVAR      FLOW         RATING            FILE        OUTAGE #

=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=

33531 "OWENSTP1"  115 30  33549 "SCHULTE "  115 30  "1 "    0.86    0.93    209.65    32.17  1044.58 AMPS 1124.58 AMPS   2013sumpk_q268_pre_catc 121
33531 "OWENSTP1"  115 30  33549 "SCHULTE "  115 30  "1 "    0.83    0.90    204.47    34.84  1015.37 AMPS 1124.58 AMPS   2013sumpk_q268_pst_catc 121

33531 "OWENSTP1"  115 30  33549 "SCHULTE "  115 30  "1 "    0.86    0.90    203.67    34.34  1016.89 AMPS 1124.58 AMPS   2013sumpk_q268_pre_catc 143
=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=

33531 "OWENSTP1"  115 30  33549 "SCHULTE "  115 30  "1 "    0.86    1.05    234.89    40.44  1181.57 AMPS 1124.58 AMPS   2013sumpk_q268_pre_catc 147
=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=

=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=
33531 "OWENSTP1"  115 30  33549 "SCHULTE "  115 30  "1 "    0.83    1.06    236.84    46.31  1192.11 AMPS 1124.58 AMPS   2013sumpk_q268_pst_catc 148

=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=
33537 "SFWY_TP1"  115 30  33541 "AEC_TP1 "  115 30  "1 "    0.06    1.34   -306.34    30.38  1511.76 AMPS 1124.58 AMPS   2013sumpk_q268_pst_catc 103

=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=
33537 "SFWY_TP1"  115 30  33541 "AEC_TP1 "  115 30  "1 "    0.06    1.08   -245.82    31.25  1213.30 AMPS 1124.58 AMPS   2013sumpk_q268_pst_catc 113

=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=
33537 "SFWY_TP1"  115 30  33549 "SCHULTE "  115 30  "1 "    0.06    1.37   -314.56    17.68  1537.21 AMPS 1124.58 AMPS   2013sumpk_q268_pst_catc 103

=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=
33537 "SFWY_TP1"  115 30  33549 "SCHULTE "  115 30  "1 "    0.06    1.10   -253.03    22.16  1238.26 AMPS 1124.58 AMPS   2013sumpk_q268_pst_catc 113

33540 "TESLA   "  115 30  33541 "AEC_TP1 "  115 30  "1 "    0.26    0.92   -163.79     9.11   805.95 AMPS  878.58 AMPS   2013sumpk_q268_pre_catc 103
33540 "TESLA   "  115 30  33541 "AEC_TP1 "  115 30  "1 "    0.11    1.72   -302.86    45.68  1511.60 AMPS  878.58 AMPS   2013sumpk_q268_pst_catc 103

33540 "TESLA   "  115 30  33541 "AEC_TP1 "  115 30  "1 "    0.26    0.92   -163.79     8.05   806.74 AMPS  878.58 AMPS   2013sumpk_q268_pre_catc 105
=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=

=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=
33540 "TESLA   "  115 30  33541 "AEC_TP1 "  115 30  "1 "    0.11    1.38   -243.58    41.02  1213.12 AMPS  878.58 AMPS   2013sumpk_q268_pst_catc 113

33540 "TESLA   "  115 30  33543 "AEC_TP2 "  115 30  "1 "    0.69    1.13    199.72    26.71   992.61 AMPS  881.09 AMPS   2013sumpk_q268_pre_catc 148
=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=

33540 "TESLA   "  115 30  33544 "ELLS GTY"  115 30  "1 "    0.54    1.34    296.89    77.19  1507.12 AMPS 1124.58 AMPS   2013sumpk_q268_pre_catc 103
33540 "TESLA   "  115 30  33544 "ELLS GTY"  115 30  "1 "    0.48    1.36    300.69    78.12  1533.22 AMPS 1124.58 AMPS   2013sumpk_q268_pst_catc 103

33540 "TESLA   "  115 30  33544 "ELLS GTY"  115 30  "1 "    0.54    1.34    296.73    77.10  1508.23 AMPS 1124.58 AMPS   2013sumpk_q268_pre_catc 105
33540 "TESLA   "  115 30  33544 "ELLS GTY"  115 30  "1 "    0.48    1.36    300.86    78.18  1529.52 AMPS 1124.58 AMPS   2013sumpk_q268_pst_catc 105

33540 "TESLA   "  115 30  33544 "ELLS GTY"  115 30  "1 "    0.54    1.16    259.43    58.61  1302.06 AMPS 1124.58 AMPS   2013sumpk_q268_pre_catc 113
33540 "TESLA   "  115 30  33544 "ELLS GTY"  115 30  "1 "    0.48    1.18    263.30    58.85  1325.03 AMPS 1124.58 AMPS   2013sumpk_q268_pst_catc 113
```

```
--------FROM BUS--------  ----------TO BUS-----------     (RATE 1) (RATE 2)   ---------OUTAGE------------   (RATE 2)
Bus #    NAME     KV AREA  Bus #   NAME     KV AREA ID      BASE   OUTAGE     MW      MVAR      FLOW         RATING            FILE        OUTAGE #

33540 "TESLA   "  115 30  33544 "ELLS GTY"  115 30  "1 "    0.54    1.16    259.25    58.37  1302.63 AMPS 1124.58 AMPS   2013sumpk_q268_pre_catc 114
33540 "TESLA   "  115 30  33544 "ELLS GTY"  115 30  "1 "    0.48    1.18    263.40    59.11  1323.74 AMPS 1124.58 AMPS   2013sumpk_q268_pst_catc 114

33542 "LEPRINO "  115 30  33546 "TRACY JC"  115 30  "1 "    0.71    0.90   -174.54    -5.15   878.05 AMPS  973.97 AMPS   2013sumpk_q268_pre_catc 102
=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=

33542 "LEPRINO "  115 30  33546 "TRACY JC"  115 30  "1 "    0.71    1.53   -279.63   -21.72  1488.24 AMPS  973.97 AMPS   2013sumpk_q268_pre_catc 103
33542 "LEPRINO "  115 30  33546 "TRACY JC"  115 30  "1 "    0.63    1.55   -282.94   -20.73  1514.24 AMPS  973.97 AMPS   2013sumpk_q268_pst_catc 103

33542 "LEPRINO "  115 30  33546 "TRACY JC"  115 30  "1 "    0.71    0.96   -185.61    -0.58   932.69 AMPS  973.97 AMPS   2013sumpk_q268_pre_catc 104
=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=

33542 "LEPRINO "  115 30  33546 "TRACY JC"  115 30  "1 "    0.71    1.53   -279.44   -21.54  1489.32 AMPS  973.97 AMPS   2013sumpk_q268_pre_catc 105
33542 "LEPRINO "  115 30  33546 "TRACY JC"  115 30  "1 "    0.63    1.55   -283.19   -21.06  1510.60 AMPS  973.97 AMPS   2013sumpk_q268_pst_catc 105

33542 "LEPRINO "  115 30  33546 "TRACY JC"  115 30  "1 "    0.71    1.32   -245.66   -17.10  1283.35 AMPS  973.97 AMPS   2013sumpk_q268_pre_catc 113
33542 "LEPRINO "  115 30  33546 "TRACY JC"  115 30  "1 "    0.63    1.34   -249.16   -15.88  1306.25 AMPS  973.97 AMPS   2013sumpk_q268_pst_catc 113

33542 "LEPRINO "  115 30  33546 "TRACY JC"  115 30  "1 "    0.71    1.32   -245.47   -16.82  1283.90 AMPS  973.97 AMPS   2013sumpk_q268_pre_catc 114
33542 "LEPRINO "  115 30  33546 "TRACY JC"  115 30  "1 "    0.63    1.34   -249.28   -16.22  1304.99 AMPS  973.97 AMPS   2013sumpk_q268_pst_catc 114

33542 "LEPRINO "  115 30  33546 "TRACY JC"  115 30  "1 "    0.71    0.93   -176.83   -12.31   904.23 AMPS  973.97 AMPS   2013sumpk_q268_pre_catc 145
=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=

33542 "LEPRINO "  115 30  33548 "TRACY   "  115 30  "1 "    0.69    1.51    275.96    19.35  1467.90 AMPS  973.97 AMPS   2013sumpk_q268_pre_catc 103
33542 "LEPRINO "  115 30  33548 "TRACY   "  115 30  "1 "    0.61    1.53    279.28    18.36  1493.83 AMPS  973.97 AMPS   2013sumpk_q268_pst_catc 103

33542 "LEPRINO "  115 30  33548 "TRACY   "  115 30  "1 "    0.69    0.94    181.95    -1.80   914.29 AMPS  973.97 AMPS   2013sumpk_q268_pre_catc 104
=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=

33542 "LEPRINO "  115 30  33548 "TRACY   "  115 30  "1 "    0.69    1.51    275.77    19.17  1468.96 AMPS  973.97 AMPS   2013sumpk_q268_pre_catc 105
33542 "LEPRINO "  115 30  33548 "TRACY   "  115 30  "1 "    0.61    1.53    279.52    18.69  1490.25 AMPS  973.97 AMPS   2013sumpk_q268_pst_catc 105

33542 "LEPRINO "  115 30  33548 "TRACY   "  115 30  "1 "    0.69    1.30    241.99    14.73  1263.46 AMPS  973.97 AMPS   2013sumpk_q268_pre_catc 113
33542 "LEPRINO "  115 30  33548 "TRACY   "  115 30  "1 "    0.61    1.32    245.50    13.51  1286.35 AMPS  973.97 AMPS   2013sumpk_q268_pst_catc 113

33542 "LEPRINO "  115 30  33548 "TRACY   "  115 30  "1 "    0.69    1.30    241.80    14.45  1264.00 AMPS  973.97 AMPS   2013sumpk_q268_pre_catc 114
33542 "LEPRINO "  115 30  33548 "TRACY   "  115 30  "1 "    0.61    1.32    245.61    13.85  1285.11 AMPS  973.97 AMPS   2013sumpk_q268_pst_catc 114

33542 "LEPRINO "  115 30  33548 "TRACY   "  115 30  "1 "    0.69    0.91    173.16     9.94   884.79 AMPS  973.97 AMPS   2013sumpk_q268_pre_catc 145
=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=

33544 "ELLS GTY"  115 30  33546 "TRACY JC"  115 30  "1 "    0.52    1.32    291.86    70.37  1487.63 AMPS 1124.58 AMPS   2013sumpk_q268_pre_catc 103
33544 "ELLS GTY"  115 30  33546 "TRACY JC"  115 30  "1 "    0.46    1.35    295.60    71.12  1513.63 AMPS 1124.58 AMPS   2013sumpk_q268_pst_catc 103

33544 "ELLS GTY"  115 30  33546 "TRACY JC"  115 30  "1 "    0.52    1.32    291.69    70.27  1488.71 AMPS 1124.58 AMPS   2013sumpk_q268_pre_catc 105
33544 "ELLS GTY"  115 30  33546 "TRACY JC"  115 30  "1 "    0.46    1.34    295.79    71.20  1509.99 AMPS 1124.58 AMPS   2013sumpk_q268_pst_catc 105
```

--------FROM BUS--------			----------TO BUS----------				(RATE 1)	(RATE 2)	---------OUTAGE----------			(RATE 2)		
Bus #	NAME	KV AREA	Bus #	NAME	KV AREA	ID	BASE	OUTAGE	MW	MVAR	FLOW	RATING	FILE	OUTAGE #
33544	"ELLS GTY"	115 30	33546	"TRACY JC"	115 30	"1 "	0.52	1.14	254.75	53.07	1282.80 AMPS	1124.58 AMPS	2013sumpk_q268_pre_catc	113
33544	"ELLS GTY"	115 30	33546	"TRACY JC"	115 30	"1 "	0.46	1.16	258.59	53.18	1305.72 AMPS	1124.58 AMPS	2013sumpk_q268_pst_catc	113
33544	"ELLS GTY"	115 30	33546	"TRACY JC"	115 30	"1 "	0.52	1.14	254.57	52.83	1283.35 AMPS	1124.58 AMPS	2013sumpk_q268_pre_catc	114
33544	"ELLS GTY"	115 30	33546	"TRACY JC"	115 30	"1 "	0.46	1.16	258.69	53.45	1304.46 AMPS	1124.58 AMPS	2013sumpk_q268_pst_catc	114
33548	"TRACY "	115 30	33550	"HJ HEINZ"	115 30	"1 "	0.18	1.56	179.28	11.83	955.56 AMPS	612.49 AMPS	2013sumpk_q268_pre_catc	103
33548	"TRACY "	115 30	33550	"HJ HEINZ"	115 30	"1 "	0.06	1.60	182.58	10.72	978.42 AMPS	612.49 AMPS	2013sumpk_q268_pst_catc	103
33548	"TRACY "	115 30	33550	"HJ HEINZ"	115 30	"1 "	0.18	1.56	179.09	11.65	955.88 AMPS	612.49 AMPS	2013sumpk_q268_pre_catc	105
33548	"TRACY "	115 30	33550	"HJ HEINZ"	115 30	"1 "	0.06	1.59	182.83	11.07	976.58 AMPS	612.49 AMPS	2013sumpk_q268_pst_catc	105
33548	"TRACY "	115 30	33550	"HJ HEINZ"	115 30	"1 "	0.18	1.24	145.42	8.06	760.44 AMPS	612.49 AMPS	2013sumpk_q268_pre_catc	113
33548	"TRACY "	115 30	33550	"HJ HEINZ"	115 30	"1 "	0.06	1.28	148.91	6.75	781.34 AMPS	612.49 AMPS	2013sumpk_q268_pst_catc	113
33548	"TRACY "	115 30	33550	"HJ HEINZ"	115 30	"1 "	0.18	1.24	145.23	7.77	760.31 AMPS	612.49 AMPS	2013sumpk_q268_pre_catc	114
33548	"TRACY "	115 30	33550	"HJ HEINZ"	115 30	"1 "	0.06	1.27	149.03	7.09	780.85 AMPS	612.49 AMPS	2013sumpk_q268_pst_catc	114
33703	"LOUISJCT"	60 30	33742	"MANTECA "	60 30	"1 "	0.14	1.09	-36.82	7.75	357.19 AMPS	327.17 AMPS	2013sumpk_q268_pre_catc	106
33703	"LOUISJCT"	60 30	33742	"MANTECA "	60 30	"1 "	0.16	1.28	-43.05	8.85	417.15 AMPS	327.17 AMPS	2013sumpk_q268_pst_catc	106
33703	"LOUISJCT"	60 30	33742	"MANTECA "	60 30	"1 "	0.14	1.09	-36.75	7.83	356.99 AMPS	327.17 AMPS	2013sumpk_q268_pre_catc	107
33703	"LOUISJCT"	60 30	33742	"MANTECA "	60 30	"1 "	0.16	1.23	-41.51	8.36	402.05 AMPS	327.17 AMPS	2013sumpk_q268_pst_catc	107
33703	"LOUISJCT"	60 30	33742	"MANTECA "	60 30	"1 "	0.14	1.53	52.36	10.99	500.29 AMPS	327.17 AMPS	2013sumpk_q268_pre_catc	145
33703	"LOUISJCT"	60 30	33742	"MANTECA "	60 30	"1 "	0.16	1.52	52.35	10.95	498.77 AMPS	327.17 AMPS	2013sumpk_q268_pst_catc	145
33704	"STAGG "	60 30	33714	"HAMMER "	60 30	"1 "	0.95	1.44	132.87	28.75	1274.60 AMPS	885.27 AMPS	2013sumpk_q268_pre_catc	160
33704	"STAGG "	60 30	33714	"HAMMER "	60 30	"1 "	0.95	1.44	132.88	28.76	1274.82 AMPS	885.27 AMPS	2013sumpk_q268_pst_catc	160
33748	"MSSDLESW"	60 30	33750	"CALVO "	60 30	"1 "	0.23	1.06	-42.79	3.92	406.75 AMPS	384.90 AMPS	2013sumpk_q268_pre_catc	106
33748	"MSSDLESW"	60 30	33750	"CALVO "	60 30	"1 "	0.25	1.21	-49.15	4.37	466.79 AMPS	384.90 AMPS	2013sumpk_q268_pst_catc	106
33748	"MSSDLESW"	60 30	33750	"CALVO "	60 30	"1 "	0.23	1.06	-42.72	4.00	406.54 AMPS	384.90 AMPS	2013sumpk_q268_pre_catc	107
33748	"MSSDLESW"	60 30	33750	"CALVO "	60 30	"1 "	0.25	1.17	-47.57	4.06	451.80 AMPS	384.90 AMPS	2013sumpk_q268_pst_catc	107
33748	"MSSDLESW"	60 30	33750	"CALVO "	60 30	"1 "	0.23	1.16	46.22	6.28	445.49 AMPS	384.90 AMPS	2013sumpk_q268_pre_catc	145
33748	"MSSDLESW"	60 30	33750	"CALVO "	60 30	"1 "	0.25	1.15	46.21	6.25	444.13 AMPS	384.90 AMPS	2013sumpk_q268_pst_catc	145
33750	"CALVO "	60 30	33756	"KASSON "	60 30	"1 "	0.27	1.10	-45.10	1.91	422.14 AMPS	384.90 AMPS	2013sumpk_q268_pre_catc	106
33750	"CALVO "	60 30	33756	"KASSON "	60 30	"1 "	0.30	1.25	-51.65	2.04	482.18 AMPS	384.90 AMPS	2013sumpk_q268_pst_catc	106
33750	"CALVO "	60 30	33756	"KASSON "	60 30	"1 "	0.27	1.10	-45.03	1.99	421.92 AMPS	384.90 AMPS	2013sumpk_q268_pre_catc	107
33750	"CALVO "	60 30	33756	"KASSON "	60 30	"1 "	0.30	1.21	-50.02	1.81	467.23 AMPS	384.90 AMPS	2013sumpk_q268_pst_catc	107
33750	"CALVO "	60 30	33756	"KASSON "	60 30	"1 "	0.27	1.11	43.79	4.06	428.09 AMPS	384.90 AMPS	2013sumpk_q268_pre_catc	145

--------FROM BUS--------				----------TO BUS----------					(RATE 1)	(RATE 2)	---------OUTAGE----------			(RATE 2)		
Bus #	NAME	KV	AREA	Bus #	NAME	KV	AREA	ID	BASE	OUTAGE	MW	MVAR	FLOW	RATING	FILE	OUTAGE #
33750	"CALVO "	60	30	33756	"KASSON "	60	30	"1 "	0.30	1.11	43.78	4.05	426.77 AMPS	384.90 AMPS	2013sumpk_q268_pst_catc	145
34008	"STNSLSRP"	60	30	34016	"MEDLIN J"	60	30	"1 "	0.58	0.98	49.68	-1.68	463.86 AMPS	471.50 AMPS	2013sumpk_q268_pre_catc	176
34008	"STNSLSRP"	60	30	34016	"MEDLIN J"	60	30	"1 "	0.58	0.98	49.67	-1.71	463.44 AMPS	471.50 AMPS	2013sumpk_q268_pst_catc	176
34016	"MEDLIN J"	60	30	34018	"NWMN JCT"	60	30	"1 "	0.58	0.98	48.68	-3.65	463.82 AMPS	471.50 AMPS	2013sumpk_q268_pre_catc	176
34016	"MEDLIN J"	60	30	34018	"NWMN JCT"	60	30	"1 "	0.58	0.98	48.68	-3.68	463.40 AMPS	471.50 AMPS	2013sumpk_q268_pst_catc	176
37009	"HEDGE "	230	30	37015	"PROCTER "	230	30	"1 "	0.45	1.19	381.92	-49.64	1048.34 AMPS	879.83 AMPS	2013sumpk_q268_pre_catc	127
37009	"HEDGE "	230	30	37015	"PROCTER "	230	30	"1 "	0.45	1.19	382.05	-50.14	1048.82 AMPS	879.83 AMPS	2013sumpk_q268_pst_catc	127
37010	"HURLEY S"	230	30	37585	"TRCY PMP"	230	30	"1 "	0.72	1.04	399.80	105.72	1034.06 AMPS	991.54 AMPS	2013sumpk_q268_pre_catc	127
37010	"HURLEY S"	230	30	37585	"TRCY PMP"	230	30	"1 "	0.72	1.04	400.53	105.42	1036.15 AMPS	991.54 AMPS	2013sumpk_q268_pst_catc	127
37545	"COTWDWAP"	230	30	37567	"ROSEVILL"	230	30	"1 "	0.73	0.90	280.94	92.76	723.88 AMPS	800.01 AMPS	2013sumpk_q268_pre_catc	127
37545	"COTWDWAP"	230	30	37567	"ROSEVILL"	230	30	"1 "	0.73	0.90	280.52	92.45	722.72 AMPS	800.01 AMPS	2013sumpk_q268_pst_catc	127
37558	"KESWICK "	230	30	37641	"SPRINGCR"	230	30	"2 "	0.89	0.90	-181.21	-38.51	450.53 AMPS	500.04 AMPS	2013sumpk_q268_pre_catc	127
37558	"KESWICK "	230	30	37641	"SPRINGCR"	230	30	"2 "	0.89	0.90	-181.21	-38.54	450.55 AMPS	500.04 AMPS	2013sumpk_q268_pst_catc	127
38260	"PRESCOTT"	69	30	38316	"WOODLMID"	69	30	"1 "	1.07	1.20	59.02	-14.61	507.07 AMPS	422.55 AMPS	2013sumpk_q268_pre_catc	120
38260	"PRESCOTT"	69	30	38316	"WOODLMID"	69	30	"1 "	1.07	1.20	59.24	-14.60	509.04 AMPS	422.55 AMPS	2013sumpk_q268_pst_catc	120
38260	"PRESCOTT"	69	30	38316	"WOODLMID"	69	30	"1 "	1.07	1.31	64.04	-18.21	554.28 AMPS	422.55 AMPS	2013sumpk_q268_pre_catc	121
38260	"PRESCOTT"	69	30	38316	"WOODLMID"	69	30	"1 "	1.07	1.32	64.29	-18.10	555.82 AMPS	422.55 AMPS	2013sumpk_q268_pst_catc	121
38260	"PRESCOTT"	69	30	38316	"WOODLMID"	69	30	"1 "	1.07	1.04	50.82	-13.83	438.50 AMPS	422.55 AMPS	2013sumpk_q268_pre_catc	122
38260	"PRESCOTT"	69	30	38316	"WOODLMID"	69	30	"1 "	1.07	1.04	51.04	-13.82	440.44 AMPS	422.55 AMPS	2013sumpk_q268_pst_catc	122
38260	"PRESCOTT"	69	30	38316	"WOODLMID"	69	30	"1 "	1.07	1.01	49.47	-12.98	426.23 AMPS	422.55 AMPS	2013sumpk_q268_pre_catc	132
38260	"PRESCOTT"	69	30	38316	"WOODLMID"	69	30	"1 "	1.07	1.01	49.70	-12.97	428.27 AMPS	422.55 AMPS	2013sumpk_q268_pst_catc	132
38260	"PRESCOTT"	69	30	38316	"WOODLMID"	69	30	"1 "	1.07	1.28	62.14	-17.98	539.25 AMPS	422.55 AMPS	2013sumpk_q268_pre_catc	133
38260	"PRESCOTT"	69	30	38316	"WOODLMID"	69	30	"1 "	1.07	1.29	63.17	-16.68	544.81 AMPS	422.55 AMPS	2013sumpk_q268_pst_catc	133
38260	"PRESCOTT"	69	30	38316	"WOODLMID"	69	30	"1 "	1.07	1.03	50.42	-14.27	436.26 AMPS	422.55 AMPS	2013sumpk_q268_pre_catc	15
38260	"PRESCOTT"	69	30	38316	"WOODLMID"	69	30	"1 "	1.07	1.04	50.61	-14.23	437.86 AMPS	422.55 AMPS	2013sumpk_q268_pst_catc	15
38260	"PRESCOTT"	69	30	38316	"WOODLMID"	69	30	"1 "	1.07	1.04	50.77	-13.96	438.57 AMPS	422.55 AMPS	2013sumpk_q268_pre_catc	16
38260	"PRESCOTT"	69	30	38316	"WOODLMID"	69	30	"1 "	1.07	1.04	50.95	-13.93	440.19 AMPS	422.55 AMPS	2013sumpk_q268_pst_catc	16
38264	"ENSLEN "	69	30	38266	"WOODROW "	69	30	"1 "	0.59	0.98	51.52	-16.86	451.80 AMPS	460.21 AMPS	2013sumpk_q268_pre_catc	121
38264	"ENSLEN "	69	30	38266	"WOODROW "	69	30	"1 "	0.60	0.99	51.91	-16.39	453.48 AMPS	460.21 AMPS	2013sumpk_q268_pst_catc	121
38264	"ENSLEN "	69	30	38266	"WOODROW "	69	30	"1 "	0.59	0.94	48.84	-17.35	432.64 AMPS	460.21 AMPS	2013sumpk_q268_pre_catc	133
38264	"ENSLEN "	69	30	38266	"WOODROW "	69	30	"1 "	0.60	0.95	50.19	-15.44	438.45 AMPS	460.21 AMPS	2013sumpk_q268_pst_catc	133

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--------FROM BUS--------  ----------TO BUS-----------     (RATE 1) (RATE 2)   ---------OUTAGE------------   (RATE 2)
Bus #    NAME     KV AREA  Bus #   NAME     KV AREA ID      BASE   OUTAGE     MW      MVAR      FLOW         RATING            FILE        OUTAGE #


30495 "STAGG   "  230 30  30622 "EIGHT MI"  230 30  "1 "    1.15    1.33    511.05   -28.85  1294.87 AMPS  976.48 AMPS   2013sprpk_q268_pre_catc 136
30495 "STAGG   "  230 30  30622 "EIGHT MI"  230 30  "1 "    1.15    1.32    510.10   -28.07  1292.51 AMPS  976.48 AMPS   2013sprpk_q268_pst_catc 136

30495 "STAGG   "  230 30  30622 "EIGHT MI"  230 30  "1 "    1.15    1.12    429.59   -25.28  1088.92 AMPS  976.48 AMPS   2013sprpk_q268_pre_catc  15
30495 "STAGG   "  230 30  30622 "EIGHT MI"  230 30  "1 "    1.15    1.11    429.05   -24.72  1087.65 AMPS  976.48 AMPS   2013sprpk_q268_pst_catc  15

30495 "STAGG   "  230 30  30622 "EIGHT MI"  230 30  "1 "    1.15    1.10    423.75   -24.38  1073.77 AMPS  976.48 AMPS   2013sprpk_q268_pre_catc  16
30495 "STAGG   "  230 30  30622 "EIGHT MI"  230 30  "1 "    1.15    1.10    423.25   -23.83  1072.60 AMPS  976.48 AMPS   2013sprpk_q268_pst_catc  16

30496 "STAGG-H "  230 30  30497 "STAGG-F "  230 30  "1 "    0.70    0.99    463.92   -61.05  1189.58 AMPS 1199.89 AMPS   2013sprpk_q268_pre_catc 136
30496 "STAGG-H "  230 30  30497 "STAGG-F "  230 30  "1 "    0.70    0.99    462.98   -60.18  1187.15 AMPS 1199.89 AMPS   2013sprpk_q268_pst_catc 136

30500 "BELLOTA "  230 30  38208 "COTTLE B"  230 30  "1 "    0.96    0.91    287.82    11.45   721.81 AMPS  793.23 AMPS   2013sprpk_q268_pre_catc 116
30500 "BELLOTA "  230 30  38208 "COTTLE B"  230 30  "1 "    0.98    0.93    295.10    12.39   740.31 AMPS  793.23 AMPS   2013sprpk_q268_pst_catc 116

30500 "BELLOTA "  230 30  38208 "COTTLE B"  230 30  "1 "    0.96    0.92    289.53    10.92   726.36 AMPS  793.23 AMPS   2013sprpk_q268_pre_catc 117
30500 "BELLOTA "  230 30  38208 "COTTLE B"  230 30  "1 "    0.98    0.94    296.80    11.87   744.86 AMPS  793.23 AMPS   2013sprpk_q268_pst_catc 117

30500 "BELLOTA "  230 30  38208 "COTTLE B"  230 30  "1 "    0.96    1.03    325.99    22.00   815.16 AMPS  793.23 AMPS   2013sprpk_q268_pre_catc 122
30500 "BELLOTA "  230 30  38208 "COTTLE B"  230 30  "1 "    0.98    1.05    333.09    23.21   833.22 AMPS  793.23 AMPS   2013sprpk_q268_pst_catc 122

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30500 "BELLOTA "  230 30  38208 "COTTLE B"  230 30  "1 "    0.98    0.92    293.80    27.35   732.24 AMPS  793.23 AMPS   2013sprpk_q268_pst_catc 127

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30500 "BELLOTA "  230 30  38208 "COTTLE B"  230 30  "1 "    0.98    0.92    292.92    20.15   732.35 AMPS  793.23 AMPS   2013sprpk_q268_pst_catc 136

30500 "BELLOTA "  230 30  38208 "COTTLE B"  230 30  "1 "    0.96    1.01    319.42    21.80   799.25 AMPS  793.23 AMPS   2013sprpk_q268_pre_catc 137
30500 "BELLOTA "  230 30  38208 "COTTLE B"  230 30  "1 "    0.98    1.03    326.49    27.48   818.49 AMPS  793.23 AMPS   2013sprpk_q268_pst_catc 137

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30500 "BELLOTA "  230 30  38208 "COTTLE B"  230 30  "1 "    0.98    0.91    290.45    23.36   725.08 AMPS  793.23 AMPS   2013sprpk_q268_pst_catc 162

30515 "WARNERVL"  230 30  30800 "WILSON  "  230 30  "1 "    1.04    0.90    278.63   -45.03   716.61 AMPS  793.23 AMPS   2013sprpk_q268_pre_catc 115
=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=

30515 "WARNERVL"  230 30  30800 "WILSON  "  230 30  "1 "    1.04    0.92    281.65   -46.97   727.17 AMPS  793.23 AMPS   2013sprpk_q268_pre_catc 116
=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=

30515 "WARNERVL"  230 30  30800 "WILSON  "  230 30  "1 "    1.04    0.92    282.10   -47.19   728.62 AMPS  793.23 AMPS   2013sprpk_q268_pre_catc 117
=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=

30515 "WARNERVL"  230 30  30800 "WILSON  "  230 30  "1 "    1.04    0.91    278.86   -45.49   717.88 AMPS  793.23 AMPS   2013sprpk_q268_pre_catc 119
=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=

30515 "WARNERVL"  230 30  30800 "WILSON  "  230 30  "1 "    1.04    0.98    301.30   -45.10   775.72 AMPS  793.23 AMPS   2013sprpk_q268_pre_catc 122
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--------FROM BUS--------  ----------TO BUS-----------     (RATE 1) (RATE 2)   ---------OUTAGE------------   (RATE 2)
Bus #    NAME     KV AREA  Bus #   NAME     KV AREA ID      BASE   OUTAGE     MW      MVAR      FLOW         RATING            FILE        OUTAGE #

30515 "WARNERVL"  230 30  30800 "WILSON  "  230 30  "1 "    1.07    1.00    309.39   -44.33   796.41 AMPS  793.23 AMPS   2013sprpk_q268_pst_catc 122

30515 "WARNERVL"  230 30  30800 "WILSON  "  230 30  "1 "    1.04    0.91    282.46   -43.72   725.24 AMPS  793.23 AMPS   2013sprpk_q268_pre_catc 123
=2=2=2
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--------FROM BUS--------			----------TO BUS----------				(RATE 1)	(RATE 2)	---------OUTAGE----------			(RATE 2)		
Bus #	NAME	KV AREA	Bus #	NAME	KV AREA	ID	BASE	OUTAGE	MW	MVAR	FLOW	RATING	FILE	OUTAGE #
30621	"Q260 "	230 30	30622	"EIGHT MI"	230 30	"1 "	0.93	0.94	361.77	-35.64	919.62 AMPS	976.48 AMPS	2013sprpk_q268_pre_catc	15
30621	"Q260 "	230 30	30622	"EIGHT MI"	230 30	"1 "	0.93	0.94	361.15	-35.14	918.05 AMPS	976.48 AMPS	2013sprpk_q268_pst_catc	15
30621	"Q260 "	230 30	30622	"EIGHT MI"	230 30	"1 "	0.93	0.92	355.30	-35.14	903.00 AMPS	976.48 AMPS	2013sprpk_q268_pre_catc	16
30621	"Q260 "	230 30	30622	"EIGHT MI"	230 30	"1 "	0.93	0.92	354.73	-34.64	901.54 AMPS	976.48 AMPS	2013sprpk_q268_pst_catc	16
30621	"Q260 "	230 30	30622	"EIGHT MI"	230 30	"1 "	0.93	0.97	373.47	-39.87	945.83 AMPS	976.48 AMPS	2013sprpk_q268_pre_catc	63
30621	"Q260 "	230 30	30622	"EIGHT MI"	230 30	"1 "	0.93	0.97	372.72	-39.25	943.93 AMPS	976.48 AMPS	2013sprpk_q268_pst_catc	63
30622	"EIGHT MI"	230 30	30624	"TESLA E "	230 30	"1 "	0.75	1.28	492.63	-52.08	1247.45 AMPS	976.48 AMPS	2013sprpk_q268_pre_catc	129
30622	"EIGHT MI"	230 30	30624	"TESLA E "	230 30	"1 "	0.74	1.28	491.72	-51.27	1245.12 AMPS	976.48 AMPS	2013sprpk_q268_pst_catc	129
30622	"EIGHT MI"	230 30	30624	"TESLA E "	230 30	"1 "	0.75	1.12	430.94	-61.65	1097.98 AMPS	976.48 AMPS	2013sprpk_q268_pre_catc	130
30622	"EIGHT MI"	230 30	30624	"TESLA E "	230 30	"1 "	0.74	1.12	430.04	-60.83	1095.58 AMPS	976.48 AMPS	2013sprpk_q268_pst_catc	130
30622	"EIGHT MI"	230 30	38000	"LODI "	230 30	"1 "	1.09	0.98	379.72	-33.72	960.16 AMPS	976.48 AMPS	2013sprpk_q268_pre_catc	122
30622	"EIGHT MI"	230 30	38000	"LODI "	230 30	"1 "	1.08	0.98	379.12	-32.99	958.66 AMPS	976.48 AMPS	2013sprpk_q268_pst_catc	122
30622	"EIGHT MI"	230 30	38000	"LODI "	230 30	"1 "	1.09	1.03	395.18	-39.83	1002.50 AMPS	976.48 AMPS	2013sprpk_q268_pre_catc	128
30622	"EIGHT MI"	230 30	38000	"LODI "	230 30	"1 "	1.08	1.02	394.50	-39.12	1000.76 AMPS	976.48 AMPS	2013sprpk_q268_pst_catc	128
30622	"EIGHT MI"	230 30	38000	"LODI "	230 30	"1 "	1.09	0.98	376.25	-34.26	952.84 AMPS	976.48 AMPS	2013sprpk_q268_pre_catc	132
30622	"EIGHT MI"	230 30	38000	"LODI "	230 30	"1 "	1.08	0.97	375.68	-33.54	951.40 AMPS	976.48 AMPS	2013sprpk_q268_pst_catc	132
30622	"EIGHT MI"	230 30	38000	"LODI "	230 30	"1 "	1.09	1.09	419.96	-41.81	1067.01 AMPS	976.48 AMPS	2013sprpk_q268_pre_catc	15
30622	"EIGHT MI"	230 30	38000	"LODI "	230 30	"1 "	1.08	1.09	419.29	-41.11	1065.28 AMPS	976.48 AMPS	2013sprpk_q268_pst_catc	15
30622	"EIGHT MI"	230 30	38000	"LODI "	230 30	"1 "	1.09	1.07	412.79	-40.96	1048.50 AMPS	976.48 AMPS	2013sprpk_q268_pre_catc	16
30622	"EIGHT MI"	230 30	38000	"LODI "	230 30	"1 "	1.08	1.07	412.16	-40.28	1046.89 AMPS	976.48 AMPS	2013sprpk_q268_pst_catc	16
30622	"EIGHT MI"	230 30	38000	"LODI "	230 30	"1 "	1.09	0.98	377.97	-31.10	954.44 AMPS	976.48 AMPS	2013sprpk_q268_pre_catc	58
30622	"EIGHT MI"	230 30	38000	"LODI "	230 30	"1 "	1.08	0.98	377.44	-30.34	953.12 AMPS	976.48 AMPS	2013sprpk_q268_pst_catc	58
30622	"EIGHT MI"	230 30	38000	"LODI "	230 30	"1 "	1.09	0.98	378.29	-31.42	955.37 AMPS	976.48 AMPS	2013sprpk_q268_pre_catc	66
30622	"EIGHT MI"	230 30	38000	"LODI "	230 30	"1 "	1.08	0.98	377.76	-30.67	954.06 AMPS	976.48 AMPS	2013sprpk_q268_pst_catc	66
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "	1.08	1.09	696.33	-26.99	1737.37 AMPS	1600.01 AMPS	2013sprpk_q268_pre_catc	121
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "	1.10	1.10	704.93	-24.02	1759.26 AMPS	1600.01 AMPS	2013sprpk_q268_pst_catc	121
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "	1.08	1.17	750.23	-17.21	1868.32 AMPS	1600.01 AMPS	2013sprpk_q268_pre_catc	123
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "	1.10	1.18	759.30	-14.17	1891.55 AMPS	1600.01 AMPS	2013sprpk_q268_pst_catc	123
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "	1.08	1.07	684.91	-5.84	1705.17 AMPS	1600.01 AMPS	2013sprpk_q268_pre_catc	125
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "	1.10	1.09	699.30	-1.77	1741.66 AMPS	1600.01 AMPS	2013sprpk_q268_pst_catc	125
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "	1.08	1.07	684.92	-5.63	1705.16 AMPS	1600.01 AMPS	2013sprpk_q268_pre_catc	126
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "	1.10	1.09	699.32	-1.56	1741.65 AMPS	1600.01 AMPS	2013sprpk_q268_pst_catc	126

--------FROM BUS--------			----------TO BUS----------				(RATE 1)	(RATE 2)	---------OUTAGE----------			(RATE 2)		
Bus #	NAME	KV AREA	Bus #	NAME	KV AREA	ID	BASE	OUTAGE	MW	MVAR	FLOW	RATING	FILE	OUTAGE #
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "	1.08	1.11	709.84	-21.81	1773.51 AMPS	1600.01 AMPS	2013sprpk_q268_pre_catc	133
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "	1.10	1.12	719.99	-20.17	1799.46 AMPS	1600.01 AMPS	2013sprpk_q268_pst_catc	133
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "	1.08	1.12	722.25	-20.29	1799.95 AMPS	1600.01 AMPS	2013sprpk_q268_pre_catc	136
30624	"TESLA E "	230 30	30670	"WESTLEY "	230 30	"1 "	1.10	1.14	731.39	-17.40	1823.35 AMPS	1600.01 AMPS	2013sprpk_q268_pst_catc	136
30630	"NEWARK D"	230 30	30631	"NEWARK E"	230 30	"1 "	0.12	0.91	-578.37	41.38	1462.46 AMPS	1599.01 AMPS	2013sprpk_q268_pre_catc	123
30630	"NEWARK D"	230 30	30631	"NEWARK E"	230 30	"1 "	0.12	0.91	-577.81	38.51	1460.56 AMPS	1599.01 AMPS	2013sprpk_q268_pst_catc	123
31962	"WDLND_BM"	115 30	31970	"WOODLD "	115 30	"1 "	0.45	0.97	-138.84	34.57	717.43 AMPS	739.01 AMPS	2013sprpk_q268_pre_catc	16
31962	"WDLND_BM"	115 30	31970	"WOODLD "	115 30	"1 "	0.45	0.97	-138.65	34.50	716.41 AMPS	739.01 AMPS	2013sprpk_q268_pst_catc	16
31962	"WDLND_BM"	115 30	31992	"HUNT "	115 30	"1 "	0.63	1.12	162.53	-30.79	829.42 AMPS	738.00 AMPS	2013sprpk_q268_pre_catc	16
31962	"WDLND_BM"	115 30	31992	"HUNT "	115 30	"1 "	0.63	1.12	162.34	-30.72	828.41 AMPS	738.00 AMPS	2013sprpk_q268_pst_catc	16
31986	"W.SCRMNO"	115 30	32214	"RIO OSO "	115 30	"1 "	0.66	1.09	111.94	-19.47	554.18 AMPS	507.06 AMPS	2013sprpk_q268_pre_catc	16
31986	"W.SCRMNO"	115 30	32214	"RIO OSO "	115 30	"1 "	0.66	1.09	111.82	-19.45	553.57 AMPS	507.06 AMPS	2013sprpk_q268_pst_catc	16
31986	"W.SCRMNO"	115 30	32214	"RIO OSO "	115 30	"1 "	0.66	0.92	94.78	-13.49	465.86 AMPS	507.06 AMPS	2013sprpk_q268_pre_catc	19
31986	"W.SCRMNO"	115 30	32214	"RIO OSO "	115 30	"1 "	0.66	0.92	94.72	-13.48	465.54 AMPS	507.06 AMPS	2013sprpk_q268_pst_catc	19
31986	"W.SCRMNO"	115 30	32214	"RIO OSO "	115 30	"1 "	0.66	0.92	94.78	-13.49	465.86 AMPS	507.06 AMPS	2013sprpk_q268_pre_catc	56
31986	"W.SCRMNO"	115 30	32214	"RIO OSO "	115 30	"1 "	0.66	0.92	94.72	-13.48	465.54 AMPS	507.06 AMPS	2013sprpk_q268_pst_catc	56
31990	"DAVIS "	115 30	31992	"HUNT "	115 30	"1 "	0.63	1.12	-159.51	43.83	827.45 AMPS	738.00 AMPS	2013sprpk_q268_pre_catc	16
31990	"DAVIS "	115 30	31992	"HUNT "	115 30	"1 "	0.62	1.12	-159.32	43.72	826.44 AMPS	738.00 AMPS	2013sprpk_q268_pst_catc	16
32214	"RIO OSO "	115 30	32356	"LINCOLN "	115 30	"1 "	0.37	1.03	239.55	-13.98	1163.26 AMPS	1124.58 AMPS	2013sprpk_q268_pre_catc	44
32214	"RIO OSO "	115 30	32356	"LINCOLN "	115 30	"1 "	0.37	1.03	239.19	-13.98	1161.54 AMPS	1124.58 AMPS	2013sprpk_q268_pst_catc	44
32218	"DRUM "	115 30	32220	"DTCH FL1"	115 30	"1 "	0.64	0.99	116.13	-13.13	557.40 AMPS	560.78 AMPS	2013sprpk_q268_pre_catc	44
32218	"DRUM "	115 30	32220	"DTCH FL1"	115 30	"1 "	0.64	0.99	115.65	-13.11	555.13 AMPS	560.78 AMPS	2013sprpk_q268_pst_catc	44
32218	"DRUM "	115 30	32220	"DTCH FL1"	115 30	"1 "	0.64	1.08	125.88	-19.12	607.52 AMPS	560.78 AMPS	2013sprpk_q268_pre_catc	48
32218	"DRUM "	115 30	32220	"DTCH FL1"	115 30	"1 "	0.64	1.08	125.34	-19.09	604.97 AMPS	560.78 AMPS	2013sprpk_q268_pst_catc	48
32220	"DTCH FL1"	115 30	32224	"CHCGO PK"	115 30	"1 "	0.66	0.96	146.20	-16.66	706.71 AMPS	739.01 AMPS	2013sprpk_q268_pre_catc	48
32220	"DTCH FL1"	115 30	32224	"CHCGO PK"	115 30	"1 "	0.66	0.95	145.67	-16.60	704.16 AMPS	739.01 AMPS	2013sprpk_q268_pst_catc	48
32224	"CHCGO PK"	115 30	32232	"HIGGINS "	115 30	"1 "	0.91	0.93	172.48	-10.31	833.81 AMPS	893.64 AMPS	2013sprpk_q268_pre_catc	44
32224	"CHCGO PK"	115 30	32232	"HIGGINS "	115 30	"1 "	0.91	0.93	172.02	-10.24	831.56 AMPS	893.64 AMPS	2013sprpk_q268_pst_catc	44
32224	"CHCGO PK"	115 30	32232	"HIGGINS "	115 30	"1 "	0.91	0.99	181.82	-18.57	880.46 AMPS	893.64 AMPS	2013sprpk_q268_pre_catc	48
32224	"CHCGO PK"	115 30	32232	"HIGGINS "	115 30	"1 "	0.91	0.98	181.31	-18.48	877.92 AMPS	893.64 AMPS	2013sprpk_q268_pst_catc	48
32250	"ELDORAD "	115 30	32481	"APLHTAP2"	115 30	"2 "	0.13	1.33	89.04	6.83	500.34 AMPS	376.53 AMPS	2013sprpk_q268_pre_catc	67

--------FROM BUS--------			----------TO BUS----------				(RATE 1)	(RATE 2)	---------OUTAGE----------			(RATE 2)		
Bus #	NAME	KV AREA	Bus #	NAME	KV AREA	ID	BASE	OUTAGE	MW	MVAR	FLOW	RATING	FILE	OUTAGE #
32250	"ELDORAD "	115 30	32481	"APLHTAP2"	115 30	"2 "	0.13	1.33	89.04	6.83	500.37 AMPS	376.53 AMPS	2013sprpk_q268_pst_catc	67
32250	"ELDORAD "	115 30	32482	"APLHTAP1"	115 30	"1 "	0.19	1.22	-96.65	-7.18	543.02 AMPS	446.82 AMPS	2013sprpk_q268_pre_catc	67
32250	"ELDORAD "	115 30	32482	"APLHTAP1"	115 30	"1 "	0.19	1.22	-96.65	-7.19	543.05 AMPS	446.82 AMPS	2013sprpk_q268_pst_catc	67
32255	"PLCRVLT1"	115 30	32261	"MIZOU_T1"	115 30	"1 "	0.30	0.91	-124.13	-20.37	671.35 AMPS	739.01 AMPS	2013sprpk_q268_pre_catc	67
32255	"PLCRVLT1"	115 30	32261	"MIZOU_T1"	115 30	"1 "	0.30	0.91	-124.14	-20.37	671.38 AMPS	739.01 AMPS	2013sprpk_q268_pst_catc	67
32255	"PLCRVLT1"	115 30	32482	"APLHTAP1"	115 30	"1 "	0.48	1.50	-121.07	-14.04	671.64 AMPS	446.82 AMPS	2013sprpk_q268_pre_catc	67
32255	"PLCRVLT1"	115 30	32482	"APLHTAP1"	115 30	"1 "	0.48	1.50	-121.07	-14.04	671.67 AMPS	446.82 AMPS	2013sprpk_q268_pst_catc	67
32257	"PLCRVLT2"	115 30	32481	"APLHTAP2"	115 30	"2 "	0.12	1.33	87.38	3.54	500.46 AMPS	376.53 AMPS	2013sprpk_q268_pre_catc	67
32257	"PLCRVLT2"	115 30	32481	"APLHTAP2"	115 30	"2 "	0.12	1.33	87.38	3.54	500.48 AMPS	376.53 AMPS	2013sprpk_q268_pst_catc	67
32398	"ULTRA JT"	115 30	32414	"FORMICA "	115 30	"1 "	0.32	0.96	208.70	-63.54	1076.43 AMPS	1124.58 AMPS	2013sprpk_q268_pre_catc	44
32398	"ULTRA JT"	115 30	32414	"FORMICA "	115 30	"1 "	0.32	0.96	208.38	-63.39	1074.70 AMPS	1124.58 AMPS	2013sprpk_q268_pst_catc	44
32408	"PLSNT GR"	115 30	32414	"FORMICA "	115 30	"1 "	0.32	0.96	-207.62	67.35	1076.26 AMPS	1124.58 AMPS	2013sprpk_q268_pre_catc	44
32408	"PLSNT GR"	115 30	32414	"FORMICA "	115 30	"1 "	0.32	0.96	-207.30	67.18	1074.53 AMPS	1124.58 AMPS	2013sprpk_q268_pst_catc	44
33514	"MANTECA "	115 30	33742	"MANTECA "	60 30	"3 "	0.61	1.64	59.67	15.03	61.53 MVA	37.50 MVA	2013sprpk_q268_pre_catc	145
33514	"MANTECA "	115 30	33742	"MANTECA "	60 30	"3 "	0.58	1.64	59.63	14.86	61.45 MVA	37.50 MVA	2013sprpk_q268_pst_catc	145
33514	"MANTECA "	115 30	33970	"INGRM C."	115 30	"1 "	0.39	1.03	-64.16	9.37	335.64 AMPS	326.33 AMPS	2013sprpk_q268_pre_catc	103
33514	"MANTECA "	115 30	33970	"INGRM C."	115 30	"1 "	0.32	1.07	-66.08	10.72	348.26 AMPS	326.33 AMPS	2013sprpk_q268_pst_catc	103
33514	"MANTECA "	115 30	33970	"INGRM C."	115 30	"1 "	0.39	1.03	-64.08	9.44	335.59 AMPS	326.33 AMPS	2013sprpk_q268_pre_catc	105
33514	"MANTECA "	115 30	33970	"INGRM C."	115 30	"1 "	0.32	1.07	-66.21	10.41	348.03 AMPS	326.33 AMPS	2013sprpk_q268_pst_catc	105
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--------FROM BUS--------  ----------TO BUS-----------     (RATE 1) (RATE 2)   ---------OUTAGE------------   (RATE 2)
Bus #    NAME     KV AREA  Bus #   NAME     KV AREA ID      BASE   OUTAGE     MW      MVAR      FLOW         RATING            FILE        OUTAGE #

33530 "KSSN-JC2"  115 30  33550 "HJ HEINZ"  115 30  "1 "    0.05    0.96   -111.10    -5.32   577.21 AMPS  602.45 AMPS   2013sprpk_q268_pre_catc 105
33530 "KSSN-JC2"  115 30  33550 "HJ HEINZ"  115 30  "1 "    0.17    0.99   -114.56    -2.13   594.37 AMPS  602.45 AMPS   2013sprpk_q268_pst_catc 105

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33531 "OWENSTP1"  115 30  33549 "SCHULTE "  115 30  "1 "    0.62    1.38    316.47    19.50  1553.71 AMPS 1124.58 AMPS   2013sprpk_q268_pst_catc 102

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33531 "OWENSTP1"  115 30  33549 "SCHULTE "  115 30  "1 "    0.62    0.93    212.72    27.85  1046.35 AMPS 1124.58 AMPS   2013sprpk_q268_pst_catc 108

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33537 "SFWY_TP1"  115 30  33541 "AEC_TP1 "  115 30  "1 "    0.19    1.34   -306.72    36.61  1512.26 AMPS 1124.58 AMPS   2013sprpk_q268_pst_catc 103

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33537 "SFWY_TP1"  115 30  33541 "AEC_TP1 "  115 30  "1 "    0.19    1.13   -257.67    35.65  1271.76 AMPS 1124.58 AMPS   2013sprpk_q268_pst_catc 113

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33537 "SFWY_TP1"  115 30  33549 "SCHULTE "  115 30  "1 "    0.20    1.37   -314.57    24.10  1535.61 AMPS 1124.58 AMPS   2013sprpk_q268_pst_catc 103

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33537 "SFWY_TP1"  115 30  33549 "SCHULTE "  115 30  "1 "    0.20    1.15   -264.69    26.12  1294.79 AMPS 1124.58 AMPS   2013sprpk_q268_pst_catc 113

33540 "TESLA   "  115 30  33541 "AEC_TP1 "  115 30  "1 "    0.16    0.92   -164.18    12.65   805.29 AMPS  878.58 AMPS   2013sprpk_q268_pre_catc 103
33540 "TESLA   "  115 30  33541 "AEC_TP1 "  115 30  "1 "    0.33    1.72   -303.24    51.93  1512.08 AMPS  878.58 AMPS   2013sprpk_q268_pst_catc 103

33540 "TESLA   "  115 30  33541 "AEC_TP1 "  115 30  "1 "    0.16    0.92   -164.18    11.73   805.87 AMPS  878.58 AMPS   2013sprpk_q268_pre_catc 105
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33540 "TESLA   "  115 30  33541 "AEC_TP1 "  115 30  "1 "    0.33    1.45   -255.22    46.41  1271.56 AMPS  878.58 AMPS   2013sprpk_q268_pst_catc 113

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33540 "TESLA   "  115 30  33544 "ELLS GTY"  115 30  "1 "    0.28    0.91    204.11    37.26  1019.73 AMPS 1124.58 AMPS   2013sprpk_q268_pst_catc 103

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33540 "TESLA   "  115 30  33544 "ELLS GTY"  115 30  "1 "    0.28    0.91    204.23    37.54  1017.87 AMPS 1124.58 AMPS   2013sprpk_q268_pst_catc 105

33542 "LEPRINO "  115 30  33546 "TRACY JC"  115 30  "1 "    0.45    1.01   -191.31   -15.22   983.18 AMPS  973.97 AMPS   2013sprpk_q268_pre_catc 103
33542 "LEPRINO "  115 30  33546 "TRACY JC"  115 30  "1 "    0.37    1.03   -194.55   -11.65  1002.44 AMPS  973.97 AMPS   2013sprpk_q268_pst_catc 103

33542 "LEPRINO "  115 30  33546 "TRACY JC"  115 30  "1 "    0.45    1.01   -191.18   -14.98   983.47 AMPS  973.97 AMPS   2013sprpk_q268_pre_catc 105
33542 "LEPRINO "  115 30  33546 "TRACY JC"  115 30  "1 "    0.37    1.03   -194.70   -12.03  1000.63 AMPS  973.97 AMPS   2013sprpk_q268_pst_catc 105

33542 "LEPRINO "  115 30  33548 "TRACY   "  115 30  "1 "    0.43    0.99    187.90    13.01   964.93 AMPS  973.97 AMPS   2013sprpk_q268_pre_catc 103
33542 "LEPRINO "  115 30  33548 "TRACY   "  115 30  "1 "    0.34    1.01    191.14     9.45   984.31 AMPS  973.97 AMPS   2013sprpk_q268_pst_catc 103

33542 "LEPRINO "  115 30  33548 "TRACY   "  115 30  "1 "    0.43    0.99    187.77    12.78   965.21 AMPS  973.97 AMPS   2013sprpk_q268_pre_catc 105
33542 "LEPRINO "  115 30  33548 "TRACY   "  115 30  "1 "    0.34    1.01    191.29     9.82   982.53 AMPS  973.97 AMPS   2013sprpk_q268_pst_catc 105
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--------FROM BUS--------			----------TO BUS----------				(RATE 1)	(RATE 2)	---------OUTAGE----------			(RATE 2)		
Bus #	NAME	KV AREA	Bus #	NAME	KV AREA	ID	BASE	OUTAGE	MW	MVAR	FLOW	RATING	FILE	OUTAGE #
33548	"TRACY "	115 30	33550	"HJ HEINZ"	115 30	"1 "	0.05	0.94	112.22	8.27	577.29 AMPS	612.49 AMPS	2013sprpk_q268_pre_catc	103
33548	"TRACY "	115 30	33550	"HJ HEINZ"	115 30	"1 "	0.17	0.97	115.45	4.66	595.08 AMPS	612.49 AMPS	2013sprpk_q268_pst_catc	103
33548	"TRACY "	115 30	33550	"HJ HEINZ"	115 30	"1 "	0.05	0.94	112.08	8.03	577.13 AMPS	612.49 AMPS	2013sprpk_q268_pre_catc	105
33548	"TRACY "	115 30	33550	"HJ HEINZ"	115 30	"1 "	0.17	0.97	115.60	5.03	594.33 AMPS	612.49 AMPS	2013sprpk_q268_pst_catc	105
33703	"LOUISJCT"	60 30	33742	"MANTECA "	60 30	"1 "	0.11	1.25	42.26	8.20	407.70 AMPS	327.17 AMPS	2013sprpk_q268_pre_catc	145
33703	"LOUISJCT"	60 30	33742	"MANTECA "	60 30	"1 "	0.11	1.24	42.24	8.13	404.32 AMPS	327.17 AMPS	2013sprpk_q268_pst_catc	145
33704	"STAGG "	60 30	33714	"HAMMER "	60 30	"1 "	0.74	1.12	104.34	19.47	990.00 AMPS	885.27 AMPS	2013sprpk_q268_pre_catc	160
33704	"STAGG "	60 30	33714	"HAMMER "	60 30	"1 "	0.74	1.12	104.34	19.48	990.28 AMPS	885.27 AMPS	2013sprpk_q268_pst_catc	160
33748	"MSSDLESW"	60 30	33750	"CALVO "	60 30	"1 "	0.12	0.93	36.71	4.61	356.32 AMPS	384.90 AMPS	2013sprpk_q268_pre_catc	145
33748	"MSSDLESW"	60 30	33750	"CALVO "	60 30	"1 "	0.15	0.92	36.69	4.57	353.35 AMPS	384.90 AMPS	2013sprpk_q268_pst_catc	145

--------FROM BUS--------			----------TO BUS----------				(RATE 1)	(RATE 2)	---------OUTAGE----------			(RATE 2)		
Bus #	NAME	KV AREA	Bus #	NAME	KV AREA	ID	BASE	OUTAGE	MW	MVAR	FLOW	RATING	FILE	OUTAGE #
30495	"STAGG "	230 30	30622	"EIGHT MI"	230 30	"1 "	0.83	1.04	405.12	-41.67	1011.01 AMPS	976.48 AMPS	2013sumop_q268_pre_catc	136
30495	"STAGG "	230 30	30622	"EIGHT MI"	230 30	"1 "	0.83	1.03	404.12	-41.66	1008.53 AMPS	976.48 AMPS	2013sumop_q268_pst_catc	136
30515	"WARNERVL"	230 30	30800	"WILSON "	230 30	"1 "	1.22	1.16	368.81	10.90	918.27 AMPS	793.23 AMPS	2013sumop_q268_pre_catc	122
30515	"WARNERVL"	230 30	30800	"WILSON "	230 30	"1 "	1.25	1.18	376.62	11.03	938.05 AMPS	793.23 AMPS	2013sumop_q268_pst_catc	122
30515	"WARNERVL"	230 30	30800	"WILSON "	230 30	"1 "	1.22	1.15	368.87	9.79	915.57 AMPS	793.23 AMPS	2013sumop_q268_pre_catc	132
30515	"WARNERVL"	230 30	30800	"WILSON "	230 30	"1 "	1.25	1.18	378.47	9.54	939.73 AMPS	793.23 AMPS	2013sumop_q268_pst_catc	132
30622	"EIGHT MI"	230 30	30624	"TESLA E "	230 30	"1 "	0.67	1.03	403.81	-53.26	1009.01 AMPS	976.48 AMPS	2013sumop_q268_pre_catc	129
30622	"EIGHT MI"	230 30	30624	"TESLA E "	230 30	"1 "	0.67	1.03	402.87	-53.27	1006.67 AMPS	976.48 AMPS	2013sumop_q268_pst_catc	129
30622	"EIGHT MI"	230 30	30624	"TESLA E "	230 30	"1 "	0.67	0.95	369.59	-55.99	926.46 AMPS	976.48 AMPS	2013sumop_q268_pre_catc	130
30622	"EIGHT MI"	230 30	30624	"TESLA E "	230 30	"1 "	0.67	0.95	368.64	-55.98	924.12 AMPS	976.48 AMPS	2013sumop_q268_pst_catc	130
32206	"BOGUE "	115 30	32208	"GLEAF TP"	115 30	"1 "	0.68	0.92	-93.87	9.79	470.47 AMPS	512.08 AMPS	2013sumop_q268_pre_catc	47
32206	"BOGUE "	115 30	32208	"GLEAF TP"	115 30	"1 "	0.68	0.92	-94.10	9.80	471.64 AMPS	512.08 AMPS	2013sumop_q268_pst_catc	47
32212	"E.NICOLS"	115 30	32214	"RIO OSO "	115 30	"1 "	0.81	0.98	-82.73	2.48	406.44 AMPS	416.70 AMPS	2013sumop_q268_pre_catc	46
32212	"E.NICOLS"	115 30	32214	"RIO OSO "	115 30	"1 "	0.81	0.98	-83.02	2.47	407.88 AMPS	416.70 AMPS	2013sumop_q268_pst_catc	46
32212	"E.NICOLS"	115 30	32214	"RIO OSO "	115 30	"1 "	0.81	1.13	-95.28	3.42	470.00 AMPS	416.70 AMPS	2013sumop_q268_pre_catc	47
32212	"E.NICOLS"	115 30	32214	"RIO OSO "	115 30	"1 "	0.81	1.13	-95.57	3.40	471.43 AMPS	416.70 AMPS	2013sumop_q268_pst_catc	47
33514	"MANTECA "	115 30	33742	"MANTECA "	60 30	"3 "	0.42	0.99	36.28	7.10	36.97 MVA	37.50 MVA	2013sumop_q268_pre_catc	145
33514	"MANTECA "	115 30	33742	"MANTECA "	60 30	"3 "	0.39	0.99	36.28	7.07	36.96 MVA	37.50 MVA	2013sumop_q268_pst_catc	145
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--------FROM BUS--------  ----------TO BUS-----------     (RATE 1) (RATE 2)   ---------OUTAGE------------   (RATE 2)
Bus #    NAME     KV AREA  Bus #   NAME     KV AREA ID      BASE   OUTAGE     MW      MVAR      FLOW         RATING            FILE        OUTAGE #

33537 "SFWY_TP1"  115 30  33541 "AEC_TP1 "  115 30  "1 "    0.37    1.33   -307.76    45.75  1501.24 AMPS 1124.58 AMPS   2013sumop_q268_pst_catc 103

=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=1=
33537 "SFWY_TP1"  115 30  33541 "AEC_TP1 "  115 30  "1 "    0.37    1.21   -277.67    44.70  1356.64 AMPS 1124.58 AMPS   2013sumop_q268_pst_catc 113

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33537 "SFWY_TP1"  115 30  33549 "SCHULTE "  115 30  "1 "    0.39    1.35   -314.61    33.89  1519.59 AMPS 1124.58 AMPS   2013sumop_q268_pst_catc 103

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33537 "SFWY_TP1"  115 30  33549 "SCHULTE "  115 30  "1 "    0.39    1.22   -284.01    34.67  1374.83 AMPS 1124.58 AMPS   2013sumop_q268_pst_catc 113

33540 "TESLA   "  115 30  33541 "AEC_TP1 "  115 30  "1 "    0.54    0.92   -165.15    24.97   804.36 AMPS  878.58 AMPS   2013sumop_q268_pre_catc 103
33540 "TESLA   "  115 30  33541 "AEC_TP1 "  115 30  "1 "    0.66    1.71   -304.33    60.84  1501.02 AMPS  878.58 AMPS   2013sumop_q268_pst_catc 103

33540 "TESLA   "  115 30  33541 "AEC_TP1 "  115 30  "1 "    0.54    0.92   -165.15    24.23   804.54 AMPS  878.58 AMPS   2013sumop_q268_pre_catc 105
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33540 "TESLA   "  115 30  33541 "AEC_TP1 "  115 30  "1 "    0.66    1.00   -177.78    40.98   878.58 AMPS  878.58 AMPS   2013sumop_q268_pst_catc 106

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33540 "TESLA   "  115 30  33541 "AEC_TP1 "  115 30  "1 "    0.66    0.95   -168.60    41.25   836.10 AMPS  878.58 AMPS   2013sumop_q268_pst_catc 108

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33540 "TESLA   "  115 30  33541 "AEC_TP1 "  115 30  "1 "    0.66    1.54   -274.88    56.97  1356.41 AMPS  878.58 AMPS   2013sumop_q268_pst_catc 113

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33548 "TRACY   "  115 30  33550 "HJ HEINZ"  115 30  "1 "    0.29    1.24   -151.83    35.25   759.92 AMPS  612.49 AMPS   2013sumop_q268_pst_catc 102

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33548 "TRACY   "  115 30  33550 "HJ HEINZ"  115 30  "1 "    0.29    1.14   -140.85    29.94   699.99 AMPS  612.49 AMPS   2013sumop_q268_pst_catc 104

37010 "HURLEY S"  230 30  37015 "PROCTER "  230 30  "1 "    1.00    0.90    306.66  -136.03   791.92 AMPS  879.83 AMPS   2013sumop_q268_pre_catc 116
=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=2=

37010 "HURLEY S"  230 30  37015 "PROCTER "  230 30  "1 "    1.00    0.90    307.25  -136.08   793.34 AMPS  879.83 AMPS   2013sumop_q268_pre_catc 117
37010 "HURLEY S"  230 30  37015 "PROCTER "  230 30  "1 "    1.00    0.90    307.05  -135.91   792.79 AMPS  879.83 AMPS   2013sumop_q268_pst_catc 117

37010 "HURLEY S"  230 30  37015 "PROCTER "  230 30  "1 "    1.00    1.07    371.42  -146.80   942.72 AMPS  879.83 AMPS   2013sumop_q268_pre_catc 122
37010 "HURLEY S"  230 30  37015 "PROCTER "  230 30  "1 "    1.00    1.07    371.05  -146.64   941.83 AMPS  879.83 AMPS   2013sumop_q268_pst_catc 122

37010 "HURLEY S"  230 30  37015 "PROCTER "  230 30  "1 "    1.00    0.91    309.95  -137.69   799.12 AMPS  879.83 AMPS   2013sumop_q268_pre_catc 126
37010 "HURLEY S"  230 30  37015 "PROCTER "  230 30  "1 "    1.00    0.91    310.91  -137.42   801.07 AMPS  879.83 AMPS   2013sumop_q268_pst_catc 126

37010 "HURLEY S"  230 30  37015 "PROCTER "  230 30  "1 "    1.00    0.93    317.93  -137.49   816.64 AMPS  879.83 AMPS   2013sumop_q268_pre_catc 136
37010 "HURLEY S"  230 30  37015 "PROCTER "  230 30  "1 "    1.00    0.93    317.78  -137.30   816.20 AMPS  879.83 AMPS   2013sumop_q268_pst_catc 136
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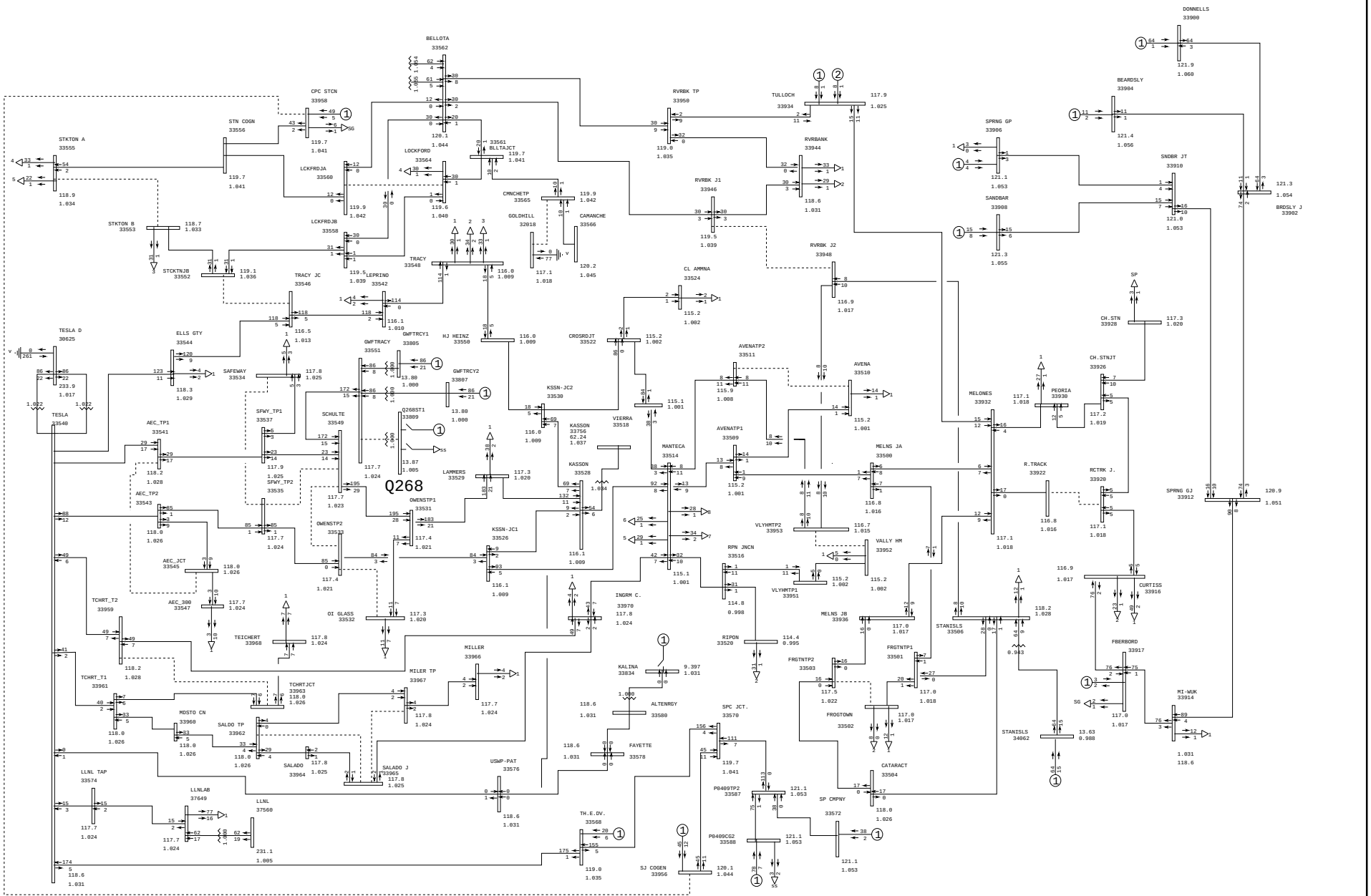
--------FROM BUS--------			----------TO BUS----------				(RATE 1)	(RATE 2)	---------OUTAGE----------			(RATE 2)		
Bus #	NAME	KV AREA	Bus #	NAME	KV AREA	ID	BASE	OUTAGE	MW	MVAR	FLOW	RATING	FILE	OUTAGE #
37010	"HURLEY S"	230 30	37015	"PROCTER "	230 30	"1 "	1.00	0.91	311.07	-137.72	801.70 AMPS	879.83 AMPS	2013sumop_q268_pre_catc	137
37010	"HURLEY S"	230 30	37015	"PROCTER "	230 30	"1 "	1.00	0.91	310.95	-137.54	801.35 AMPS	879.83 AMPS	2013sumop_q268_pst_catc	137
37010	"HURLEY S"	230 30	37015	"PROCTER "	230 30	"1 "	1.00	0.91	310.67	-137.09	800.70 AMPS	879.83 AMPS	2013sumop_q268_pre_catc	47
37010	"HURLEY S"	230 30	37015	"PROCTER "	230 30	"1 "	1.00	0.91	310.60	-136.93	800.45 AMPS	879.83 AMPS	2013sumop_q268_pst_catc	47

Appendix D

Steady State Power Flow Plots

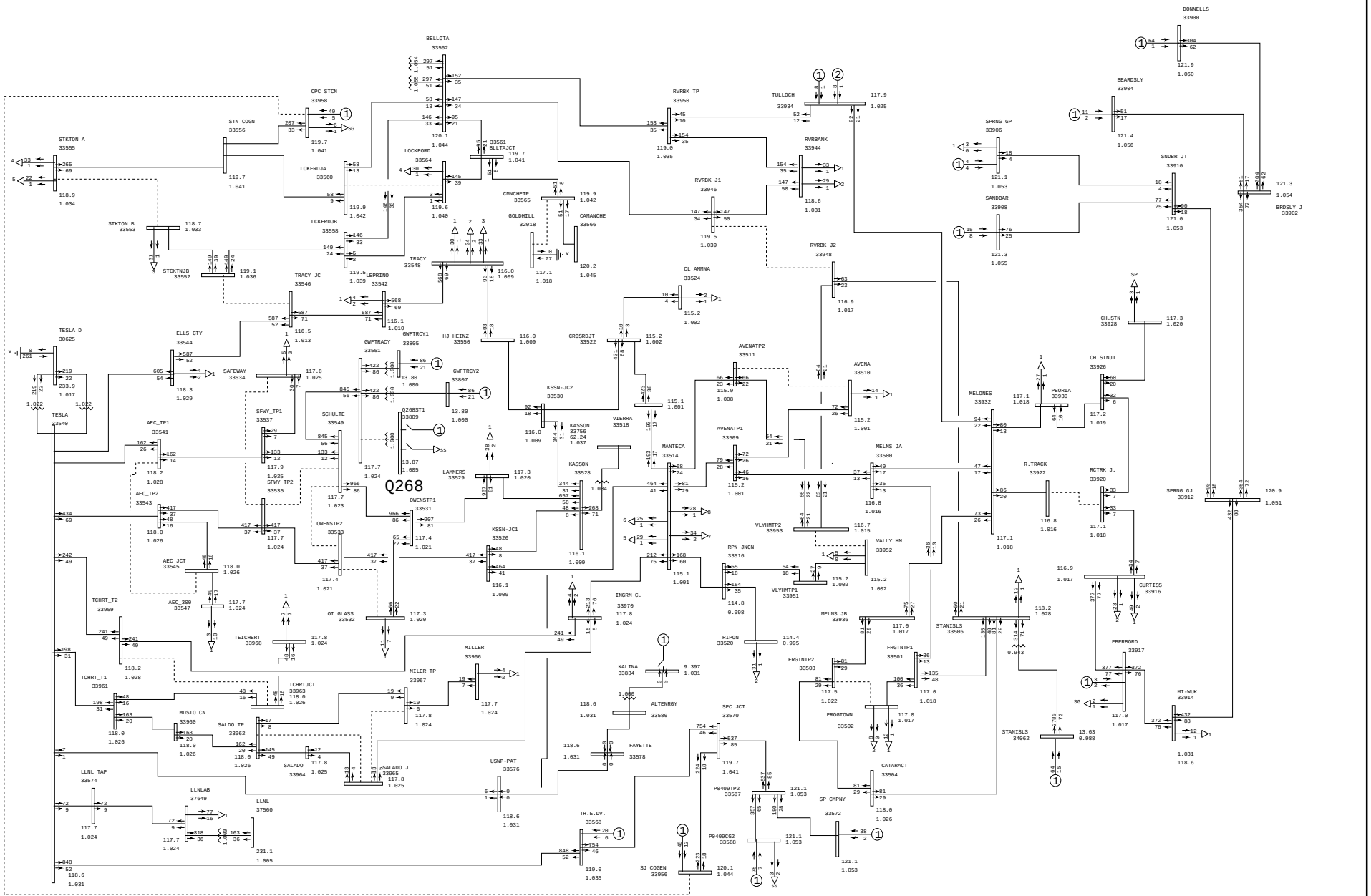
Q268 GWF Tracy SIS Power Flow Plots

Plot	Description
Plot #1	2013 Summer Peak FY Pre-Project: Normal Conditions (MW/MVAr)
Plot #2	2013 Summer Peak FY Pre-Project: Normal Conditions (Amps/% Rate)
Plot #3	2013 Summer Peak FY Post-Project: Normal Conditions (MW/MVAr)
Plot #4	2013 Summer Peak FY Post-Project: Normal Conditions (Amps/% Rate)
Plot #5	2013 Spring Peak FY Pre-Project: Normal Conditions (MW/MVAr)
Plot #6	2013 Spring Peak FY Pre-Project: Normal Conditions (Amps/% Rate)
Plot #7	2013 Spring Peak FY Post-Project: Normal Conditions (MW/MVAr)
Plot #8	2013 Spring Peak FY Post-Project: Normal Conditions (Amps/% Rate)
Plot #9	2013 Summer Off Peak FY Pre-Project: Normal Conditions (MW/MVAr)
Plot #10	2013 Summer Off Peak FY Pre-Project: Normal Conditions (Amps/% Rate)
Plot #11	2013 Summer Off Peak FY Post-Project: Normal Conditions (MW/MVAr)
Plot #12	2013 Summer Off Peak FY Post-Project: Normal Conditions (Amps/% Rate)
Plot #13	2013 Summer Peak FY Pre-Project: Tesla/Schulte - Manteca 115 kV Line and Stanislaus PH Outage (MW/MVAr)
Plot #14	2013 Summer Peak FY Pre-Project: Tesla/Schulte - Manteca 115 kV Line and Stanislaus PH Outage (Amps/% Rate)
Plot #15	2013 Summer Peak FY Post-Project: Tesla/Schulte - Manteca 115 kV Line and Stanislaus PH Outage (MW/MVAr)
Plot #16	2013 Summer Peak FY Post-Project: Tesla/Schulte - Manteca 115 kV Line and Stanislaus PH Outage (Amps/% Rate)
Plot #17	2013 Summer Peak FY Post-Project Mitigation 1: Normal Conditions (MW/MVAr)
Plot #	2013 Summer Peak FY Post-Project Mitigation 1: Normal Conditions (Amps/% Rate)
Plot #	2013 Spring Peak FY Post-Project Mitigation 1: Normal Conditions (MW/MVAr)
Plot #	2013 Spring Peak FY Post-Project Mitigation 1: Normal Conditions (Amps/% Rate)
Plot #	2013 Summer Off Peak FY Post-Project Mitigation 1: Normal Conditions (MW/MVAr)
Plot #	2013 Summer Off Peak FY Post-Project Mitigation 1: Normal Conditions (Amps/% Rate)
Plot #	2013 Summer Peak FY Post-Project Mitigation 1: Tesla/Schulte - Manteca 115 kV Line and Stanislaus PH Outage (MW/MVAr)
Plot #	2013 Summer Peak FY Post-Project Mitigation 1: Tesla/Schulte - Manteca 115 kV Line and Stanislaus PH Outage (Amps/% Rate)



General Electric International, Inc. PSLF Program Fri Apr 18 09:09:44 2008 cases\sumpk\2013sumpk_q268_pre.sav

Pacific Gas and Electric Company	PG&E 2007 CASE SERIES: 2013 Central Valley Summer Peak Pre-Project Case PATH15=-2464 MW(S-N) PATH26= 3838 MW(N-S) PDCI= 2500 MW(N-S) COI= 4638 MW(N-S) Q268 145 MW at GWF Tracy 115 kV SIS - 2013 Summer Peak Pre-Project FY/COD	Plot 001: Normal Conditions	MW/MVAR draw\q268.drw Rating = 1



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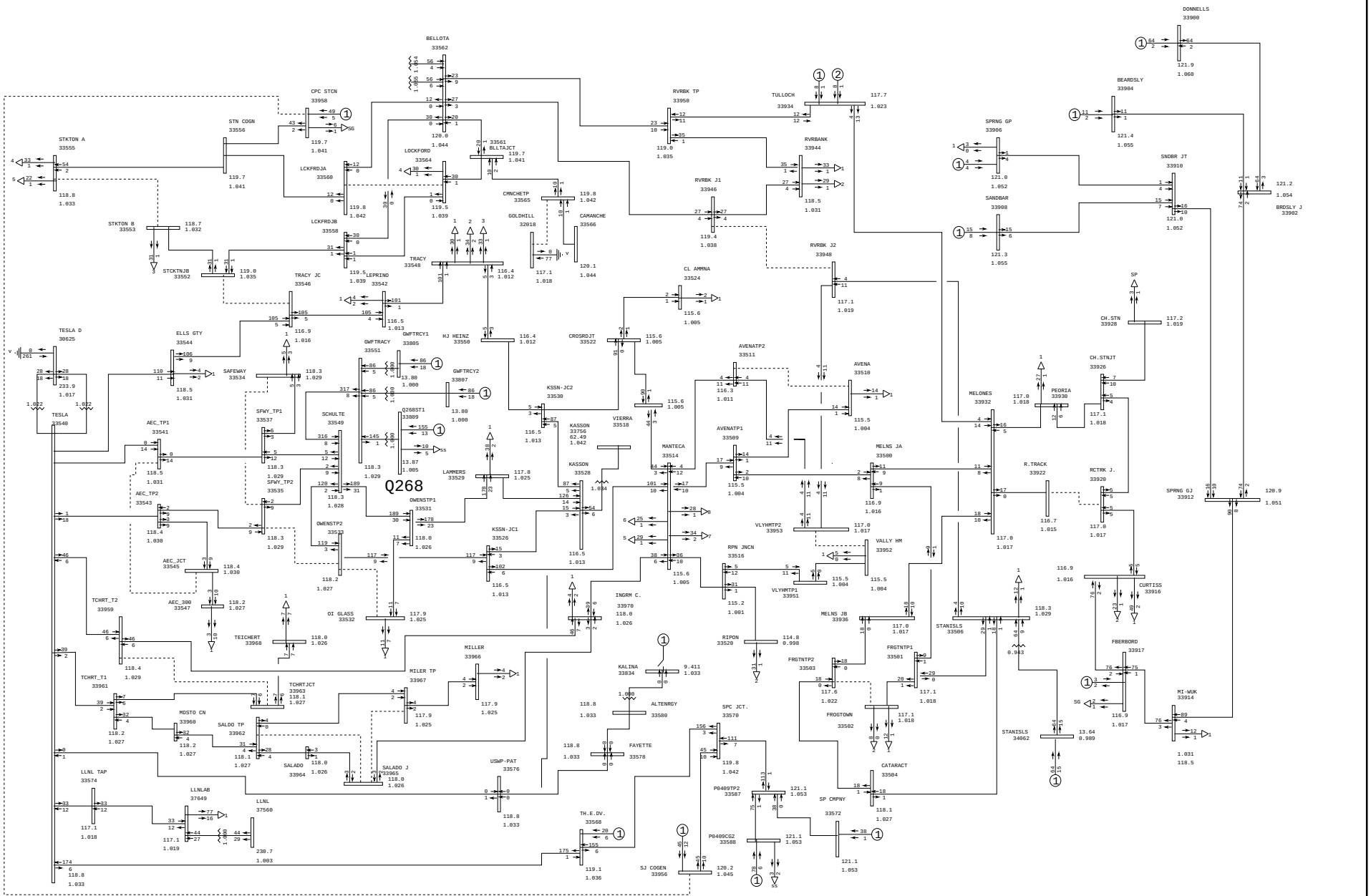
Pacific Gas and Electric Company	PG&E 2007 CASE SERIES: 2013 Central Valley Summer Peak Pre-Project Case PATH15=-2464 MW(S-N) PATH26= 3838 MW(N-S) PDCI= 2500 MW(N-S) COI= 4638 MW(N-S) Q268 145 MW at GWF Tracy 115 kV SIS - 2013 Summer Peak Pre-Project FY/COD	Plot 002: Normal Conditions	amps/rate draw\q268.drw Rating = 1



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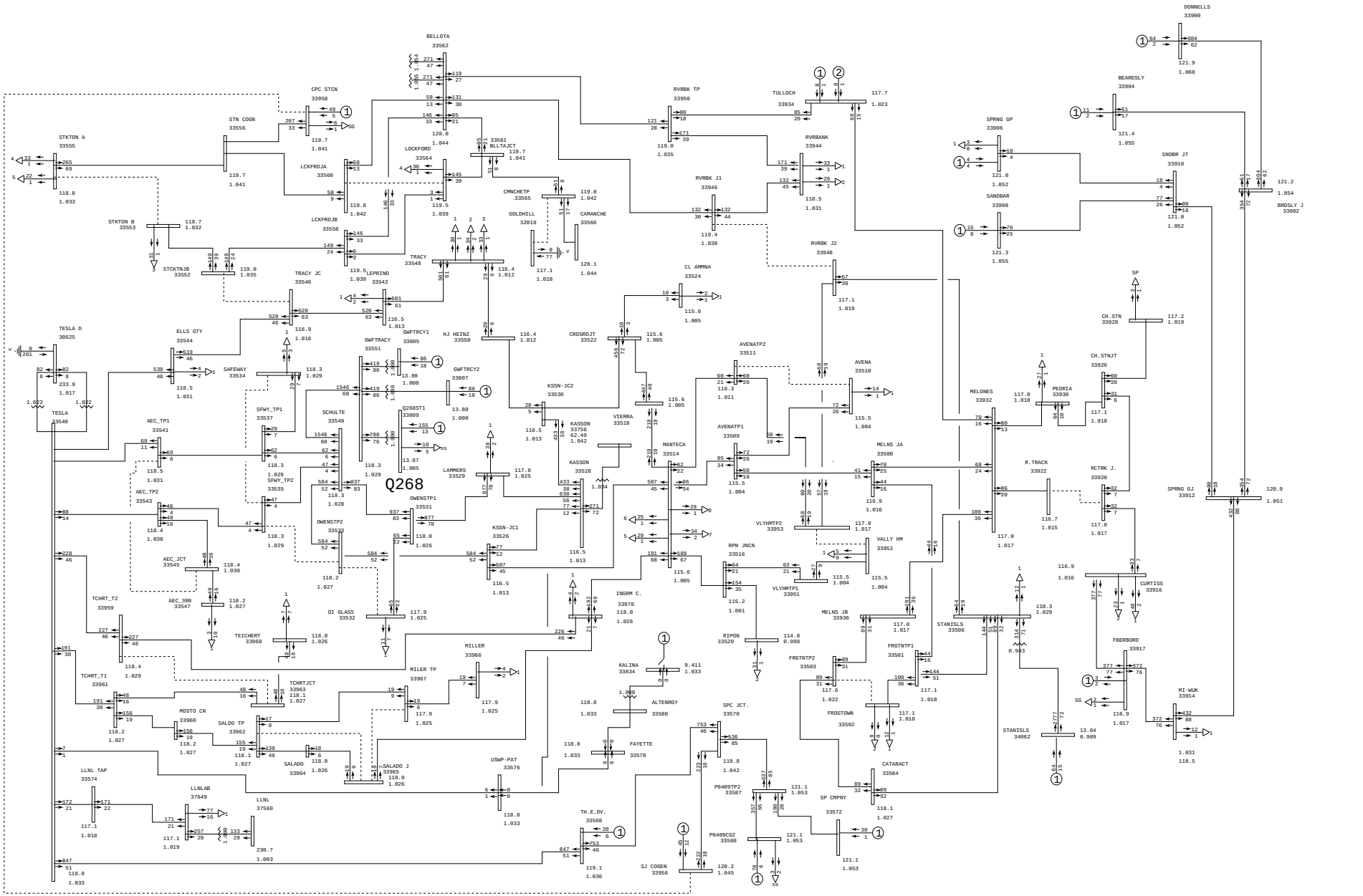
Pacific Gas and Electric Company	PG&E 2007 CASE SERIES: 2013 Central Valley Summer Peak Post-Project Case PATH15=-2594 MW(S-N) PATH26= 3830 MW(N-S) PDCI= 2500 MW(N-S) COI= 4630 MW(N-S) Q268 145 MW at GWF Tracy 115 kV SIS - 2013 Summer Peak Post-Project FY/COD	Plot 003: Normal Conditions	MW/MVAR draw\q268.drw Rating = 1



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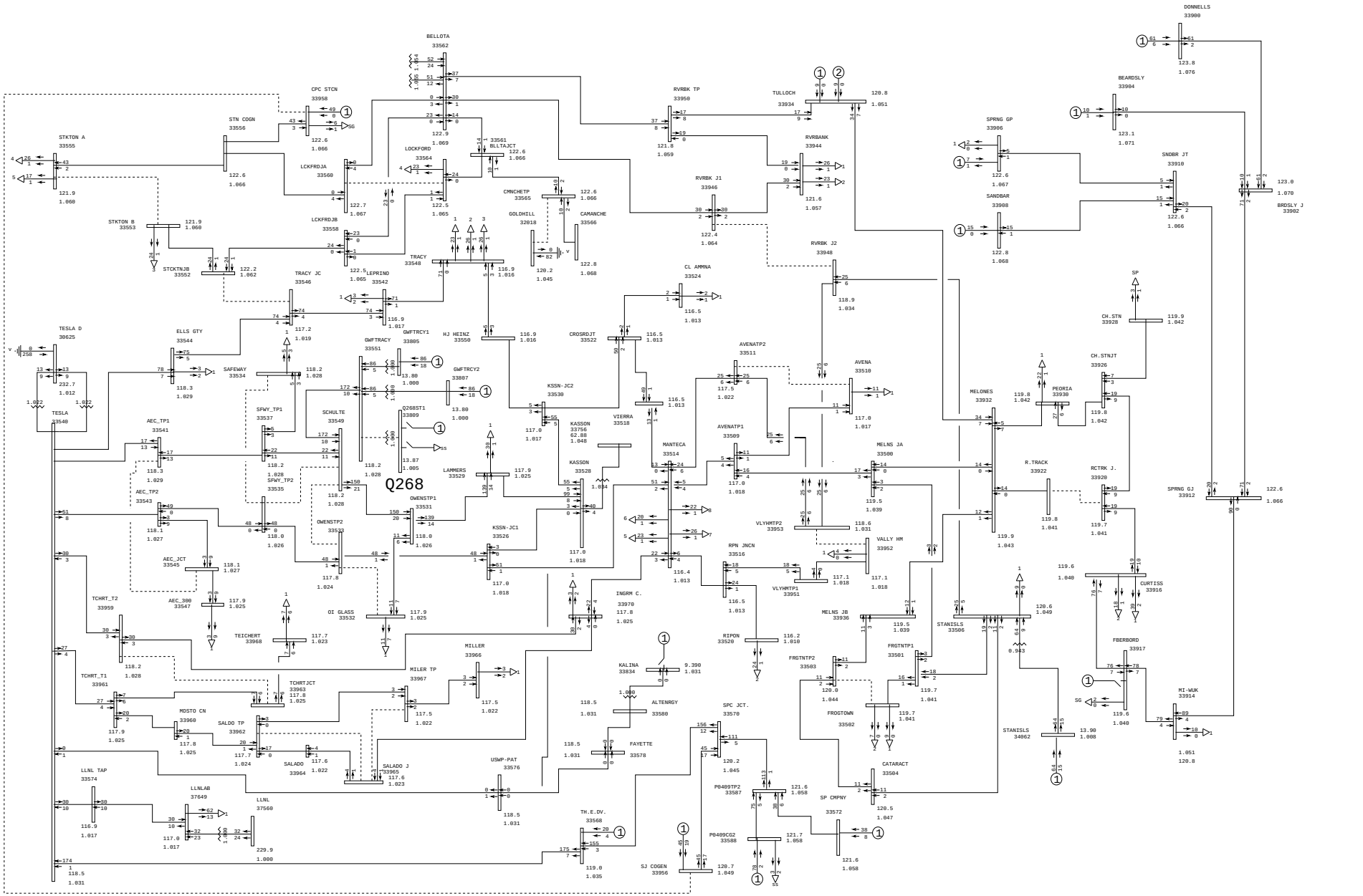
Pacific Gas and Electric Company	PG&E 2007 CASE SERIES: 2013 Central Valley Summer Peak Post-Project Case PATH15=-2594 MW(S-N) PATH26= 3830 MW(N-S) PDCI= 2500 MW(N-S) COI= 4630 MW(N-S) Q268 145 MW at GWF Tracy 115 kV SIS - 2013 Summer Peak Post-Project FY/COD	Plot 004: Normal Conditions	amps/rate draw\q268.drw Rating = 1



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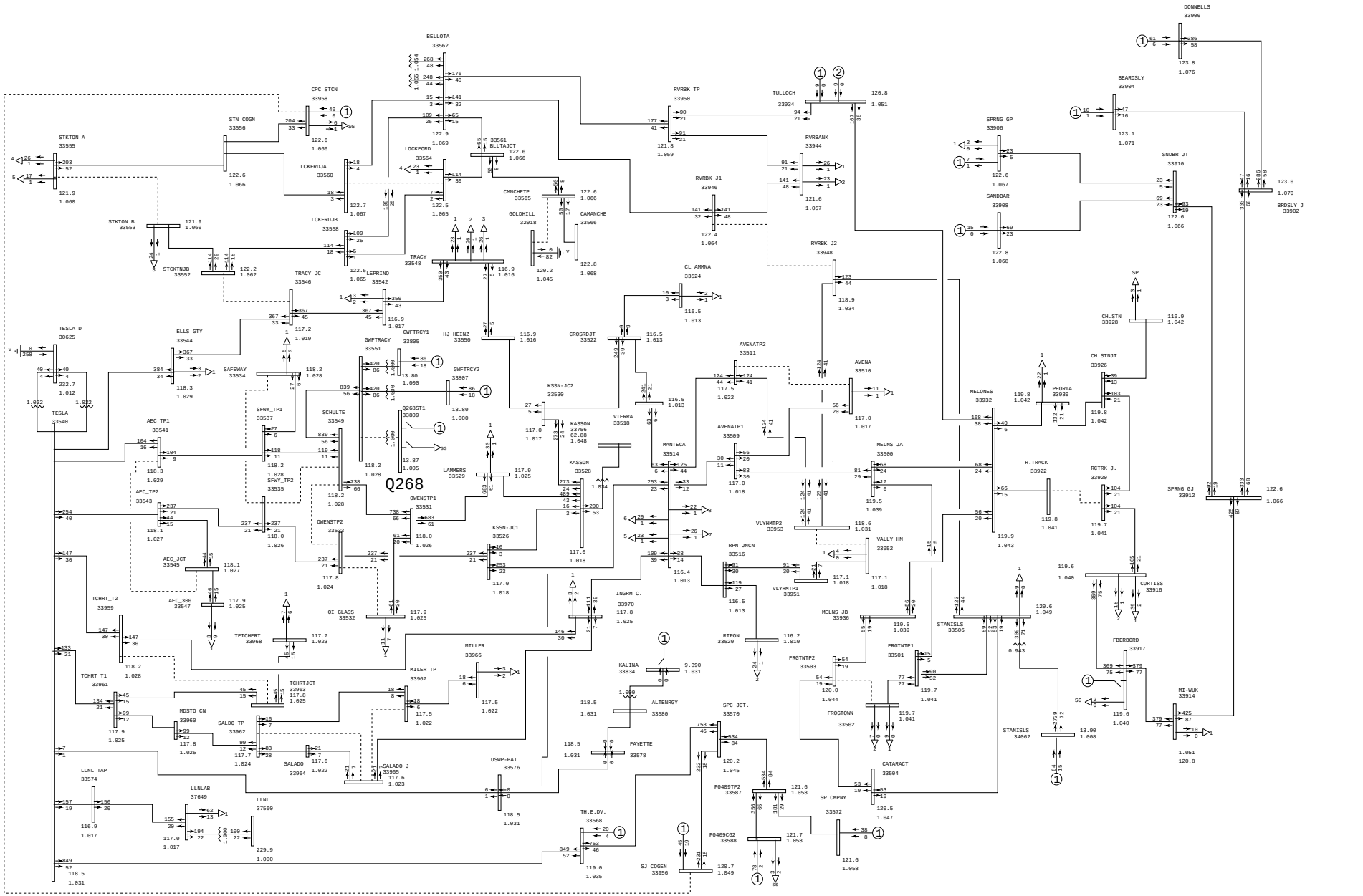
Pacific Gas and Electric Company	PG&E 2007 CASE SERIES: 2013 Spring Peak Pre-Project Case PATH15=-2311 MW(S-N) PATH26= 2600 MW(N-S) PDCI= 3097 MW(N-S) COI= 4417 MW(N-S) Q268 145 MW at GWF Tracy 115 kV SIS - 2013 Spring Peak Pre-Project FY/COD	Plot 005: Normal Conditions	MW/MVAR draw\q268.drw Rating = 1



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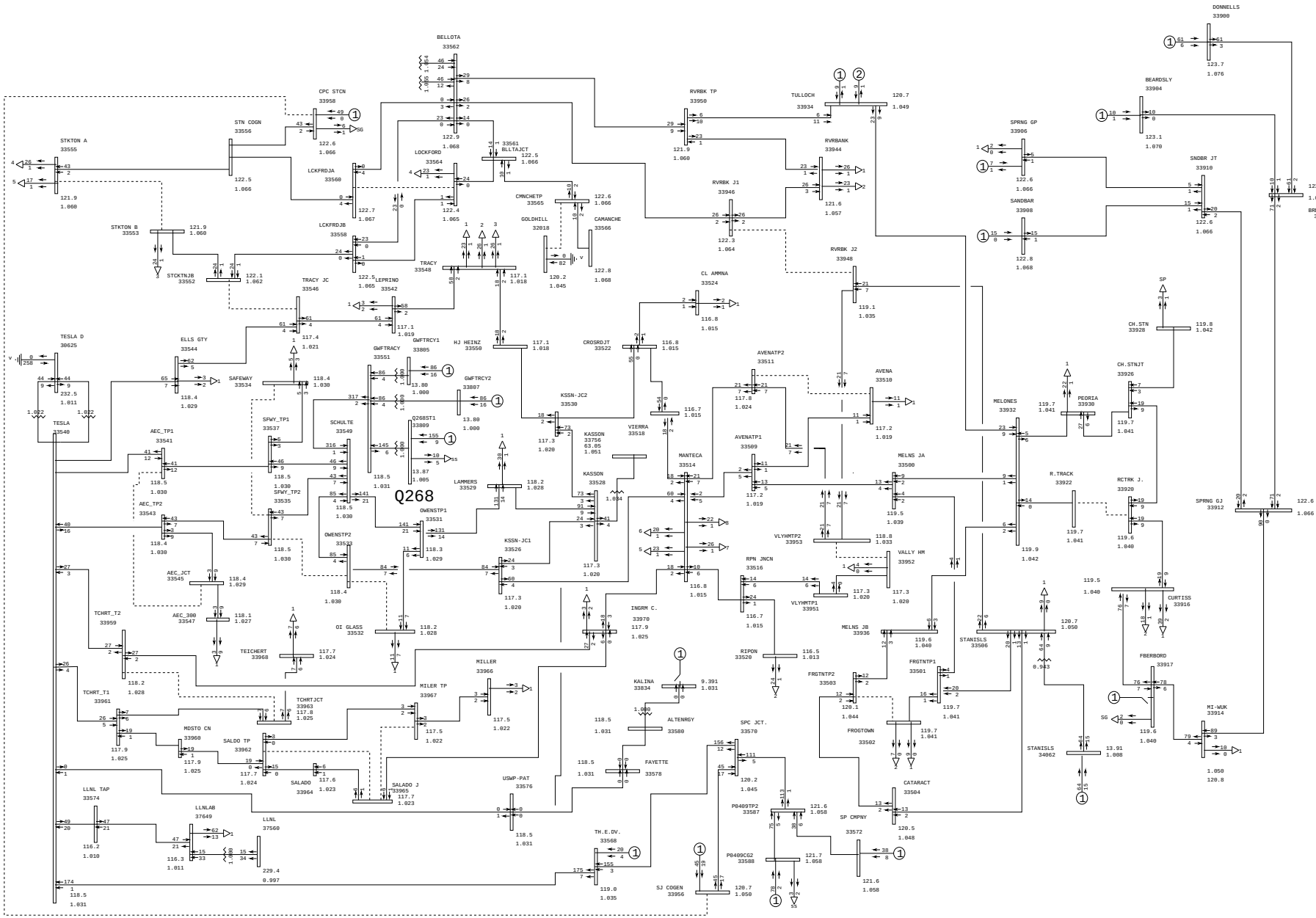
Pacific Gas and Electric Company	PG&E 2007 CASE SERIES: 2013 Spring Peak Pre-Project Case PATH15=-2311 MW(S-N) PATH26= 2600 MW(N-S) PDCI= 3097 MW(N-S) COI= 4417 MW(N-S) Q268 145 MW at GWF Tracy 115 kV SIS - 2013 Spring Peak Pre-Project FY/COD	Plot 006: Normal Conditions	amps/rate draw\q268.drw Rating = 1



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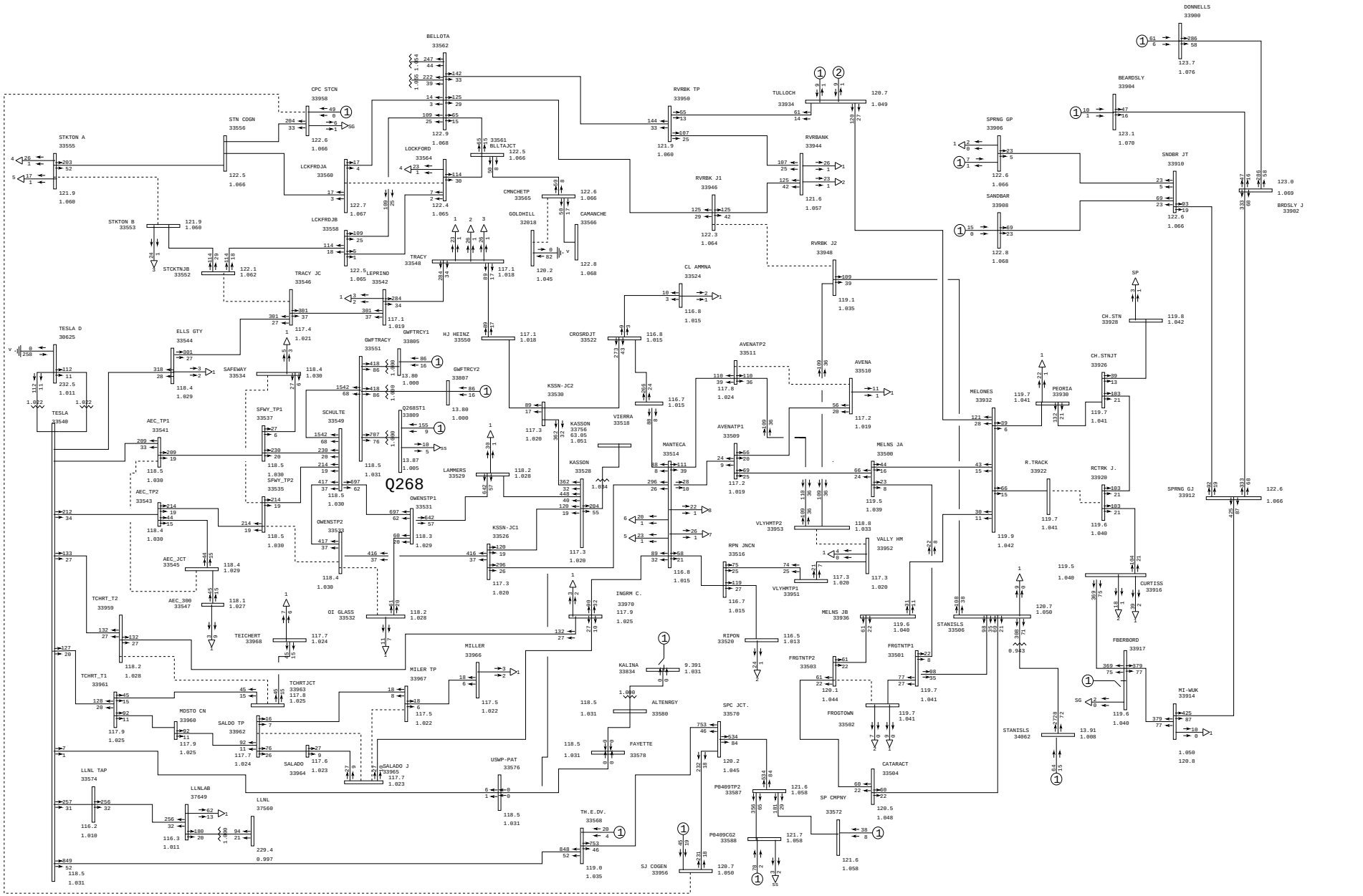
Pacific Gas and Electric Company	PG&E 2007 CASE SERIES: 2013 Spring Peak Post-Project Case PATH15=-2441 MW(S-N) PATH26= 2593 MW(N-S) PDCI= 3097 MW(N-S) COI= 4410 MW(N-S) Q268 145 MW at GWF Tracy 115 kV SIS - 2013 Spring Peak Post-Project FY/COD	Plot 007: Normal Conditions	MW/MVAR draw\q268.drw Rating = 1



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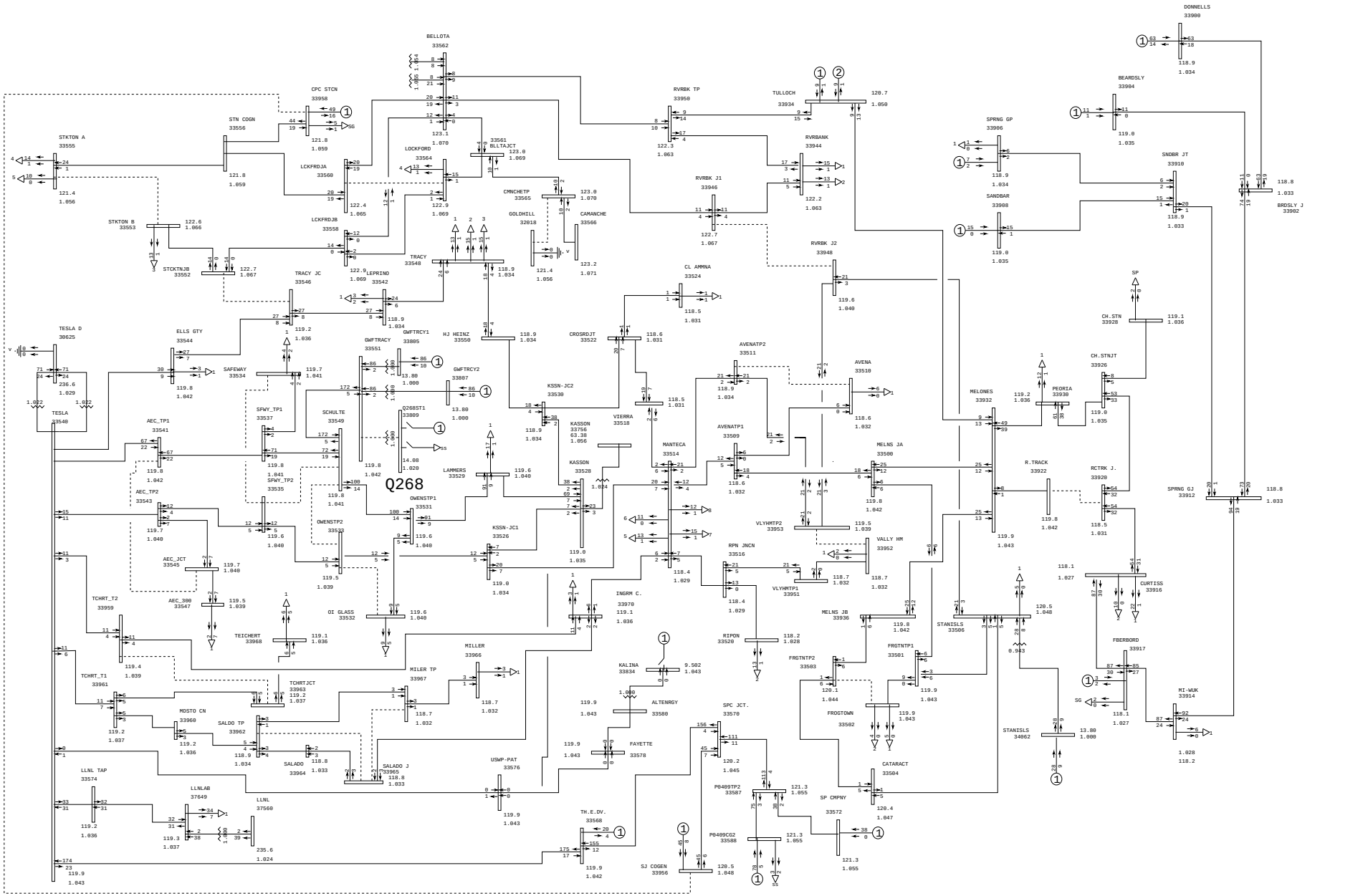
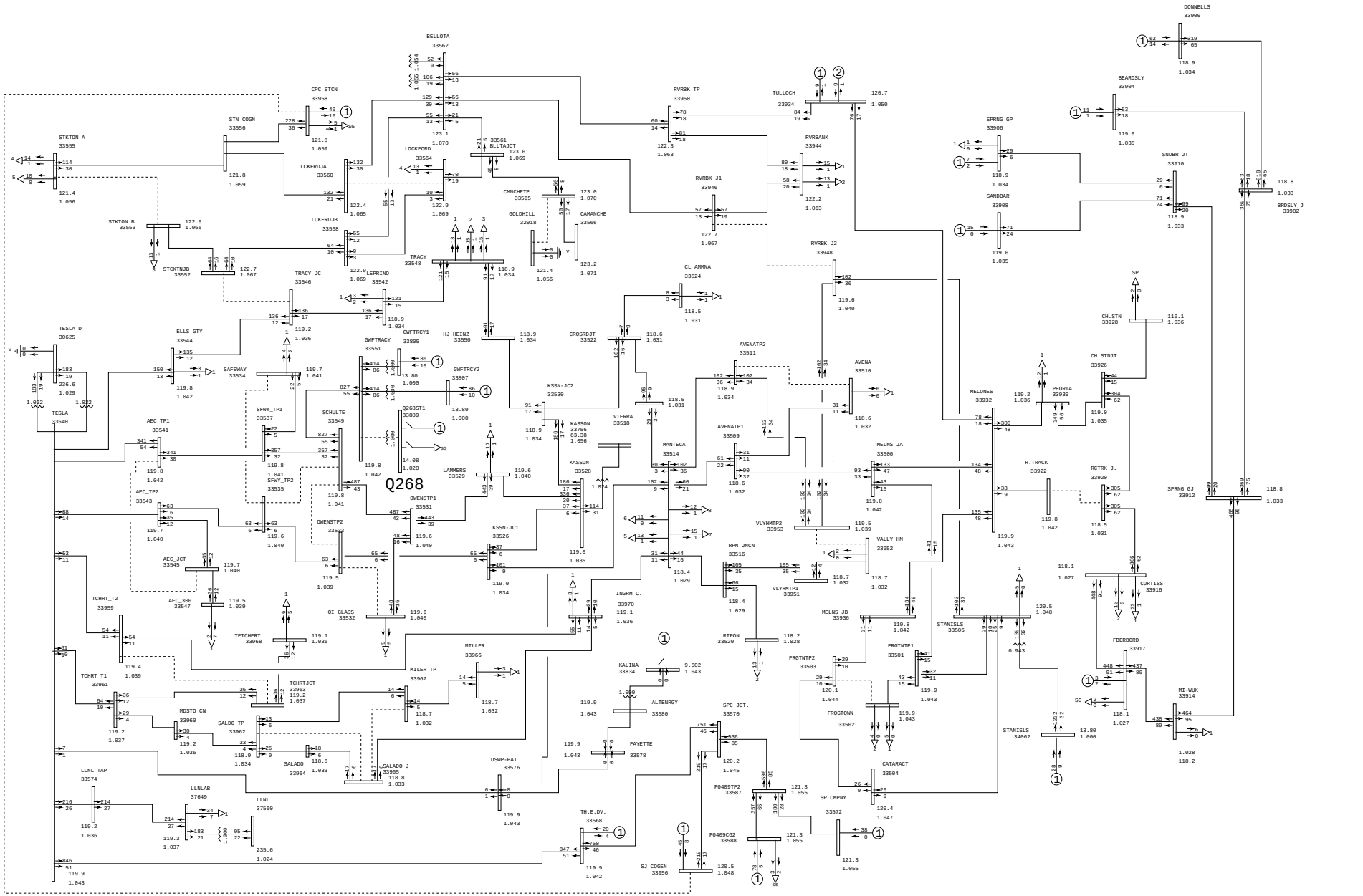
Pacific Gas and Electric Company	PG&E 2007 CASE SERIES: 2013 Spring Peak Post-Project Case PATH15=-2441 MW(S-N) PATH26= 2593 MW(N-S) PDCI= 3097 MW(N-S) COI= 4410 MW(N-S) Q268 145 MW at GWF Tracy 115 kV SIS - 2013 Spring Peak Post-Project FY/COD	Plot 008: Normal Conditions	amps/rate draw\q268.drw Rating = 1



General Electric International, Inc. PSLF Program Fri Apr 18 09:09:54 2008 cases\sumop\2013sumop_q268_pre.sav

Pacific Gas and Electric Company	PG&E 2007 CASE SERIES: 2013 Summer Off Peak Pre-Project Case PATH15= 2898 MW(S-N) PATH26= -704 MW(N-S) PDCI=-1846 MW(N-S) COI=-3638 MW(N-S) Q268 145 MW at GWF Tracy 115 kV SIS - 2013 Summer Off Peak Pre-Project FY/COD	Plot 009: Normal Conditions	MW/MVAR draw\q268.drw Rating = 1



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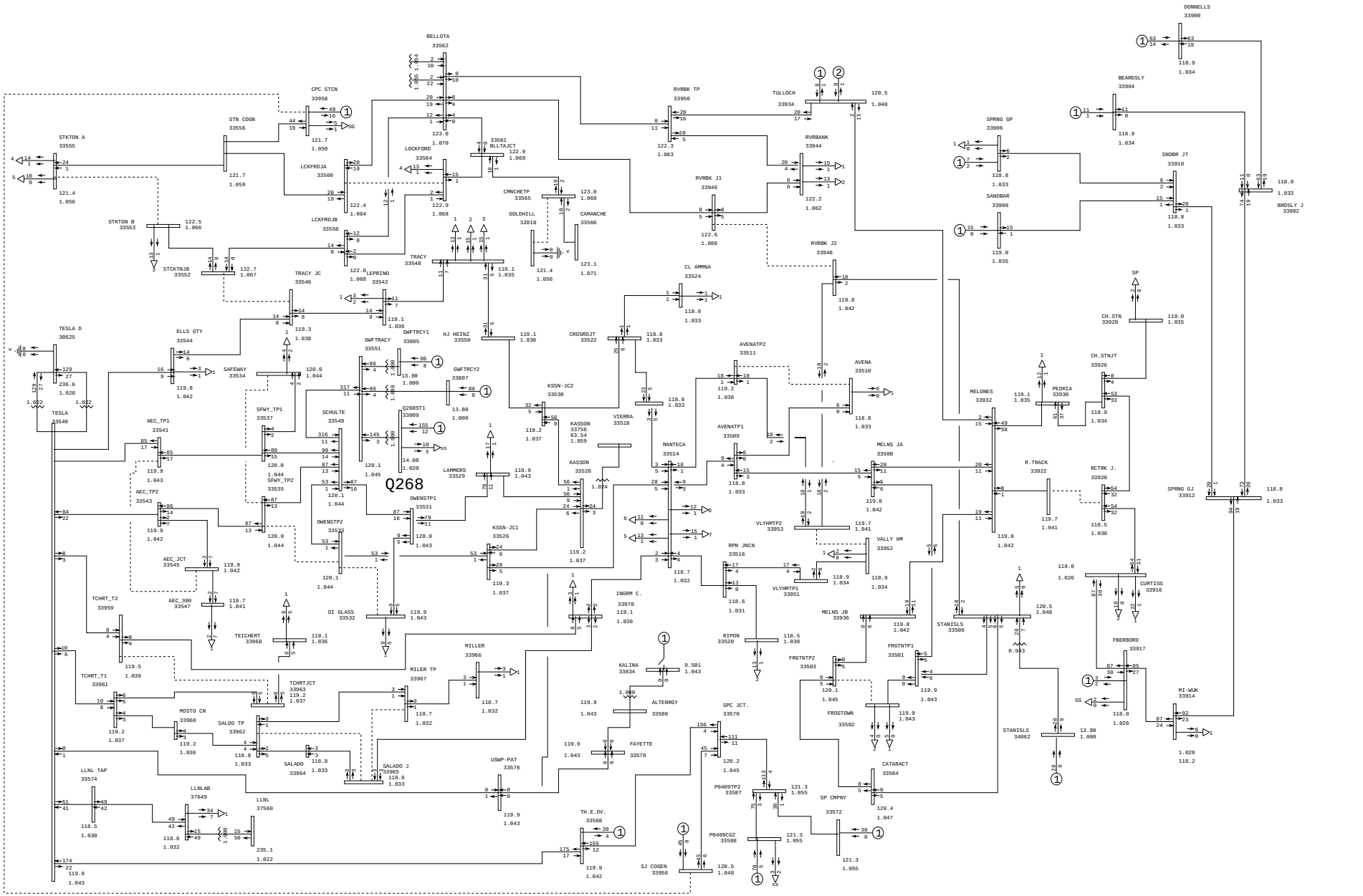
Pacific Gas and Electric Company	PG&E 2007 CASE SERIES: 2013 Summer Off Peak Pre-Project Case PATH15= 2898 MW(S-N) PATH26= -704 MW(N-S) PDCI=-1846 MW(N-S) COI=-3638 MW(N-S) Q268 145 MW at GWF Tracy 115 kV SIS - 2013 Summer Off Peak Pre-Project FY/COD	Plot 010: Normal Conditions	amps/rate draw\q268.drw Rating = 1



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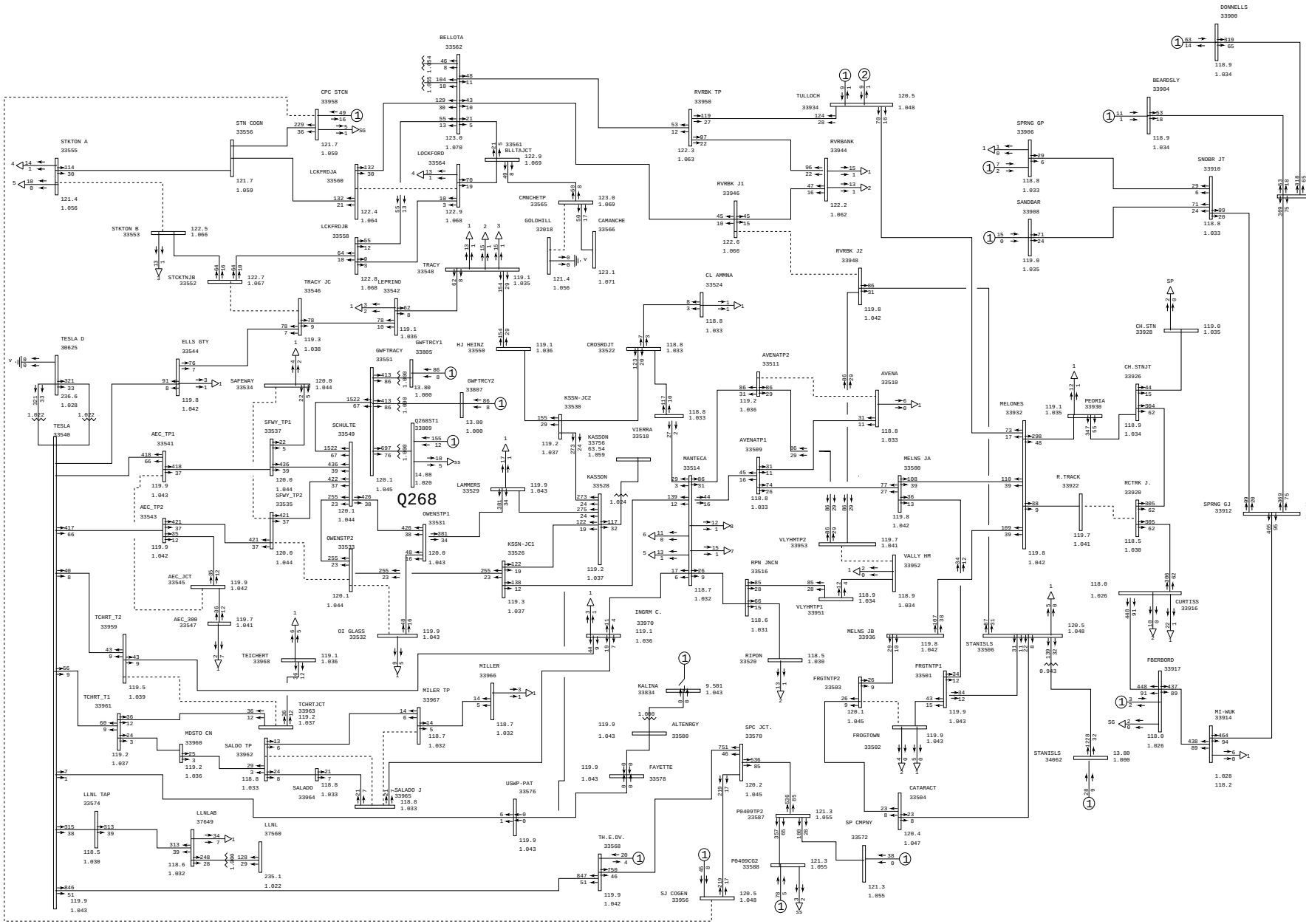
Pacific Gas and Electric Company	PG&E 2007 CASE SERIES: 2013 Summer Off Peak Post-Project Case PATH15= 2765 MW(S-N) PATH26= -712 MW(N-S) PDCI=-1846 MW(N-S) COI=-3645 MW(N-S) Q268 145 MW at GWF Tracy 115 kV SIS - 2013 Summer Off Peak Post-Project FY/COD	Plot 011: Normal Conditions	MW/MVAR draw\q268.drw Rating = 1



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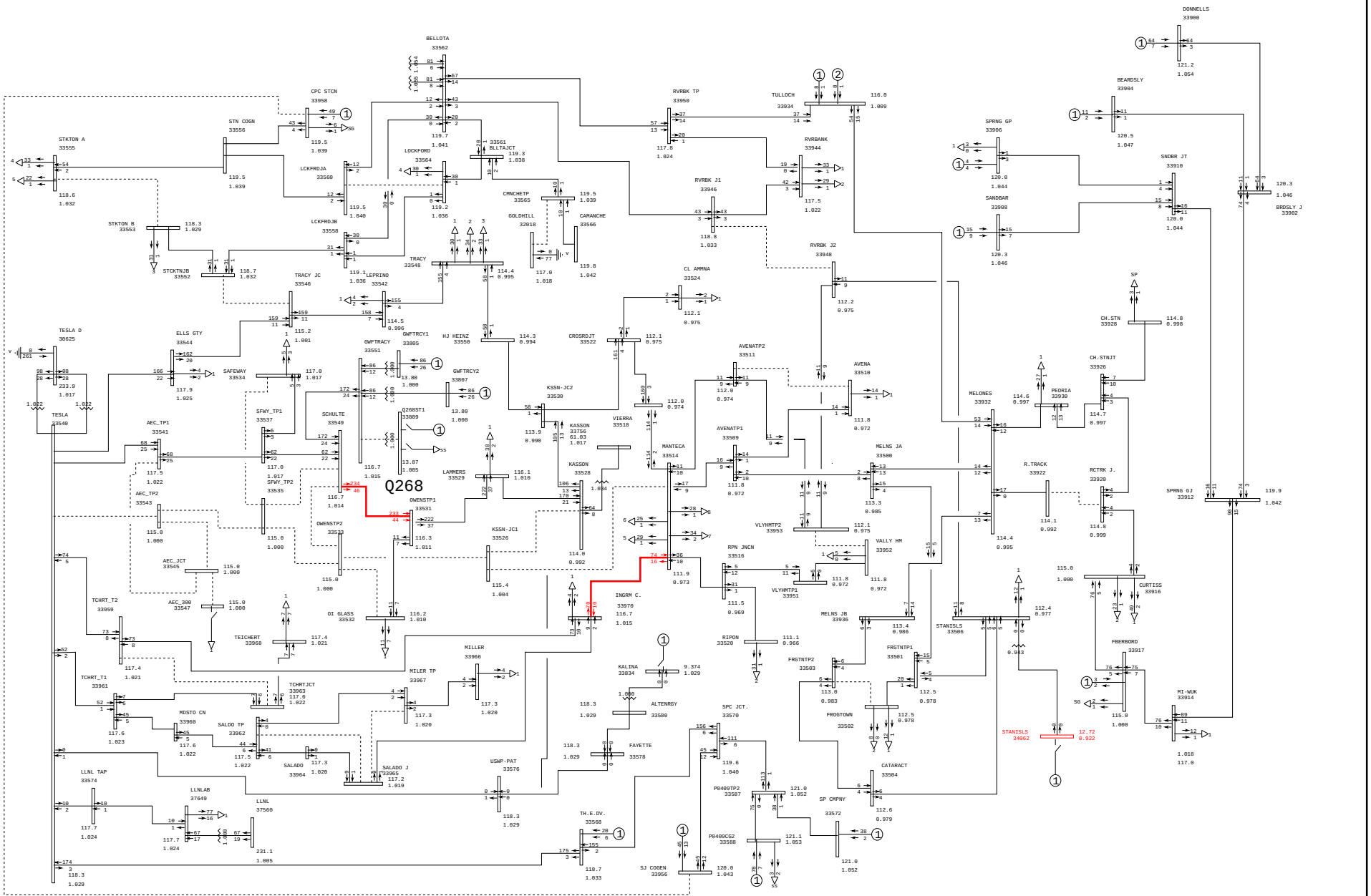
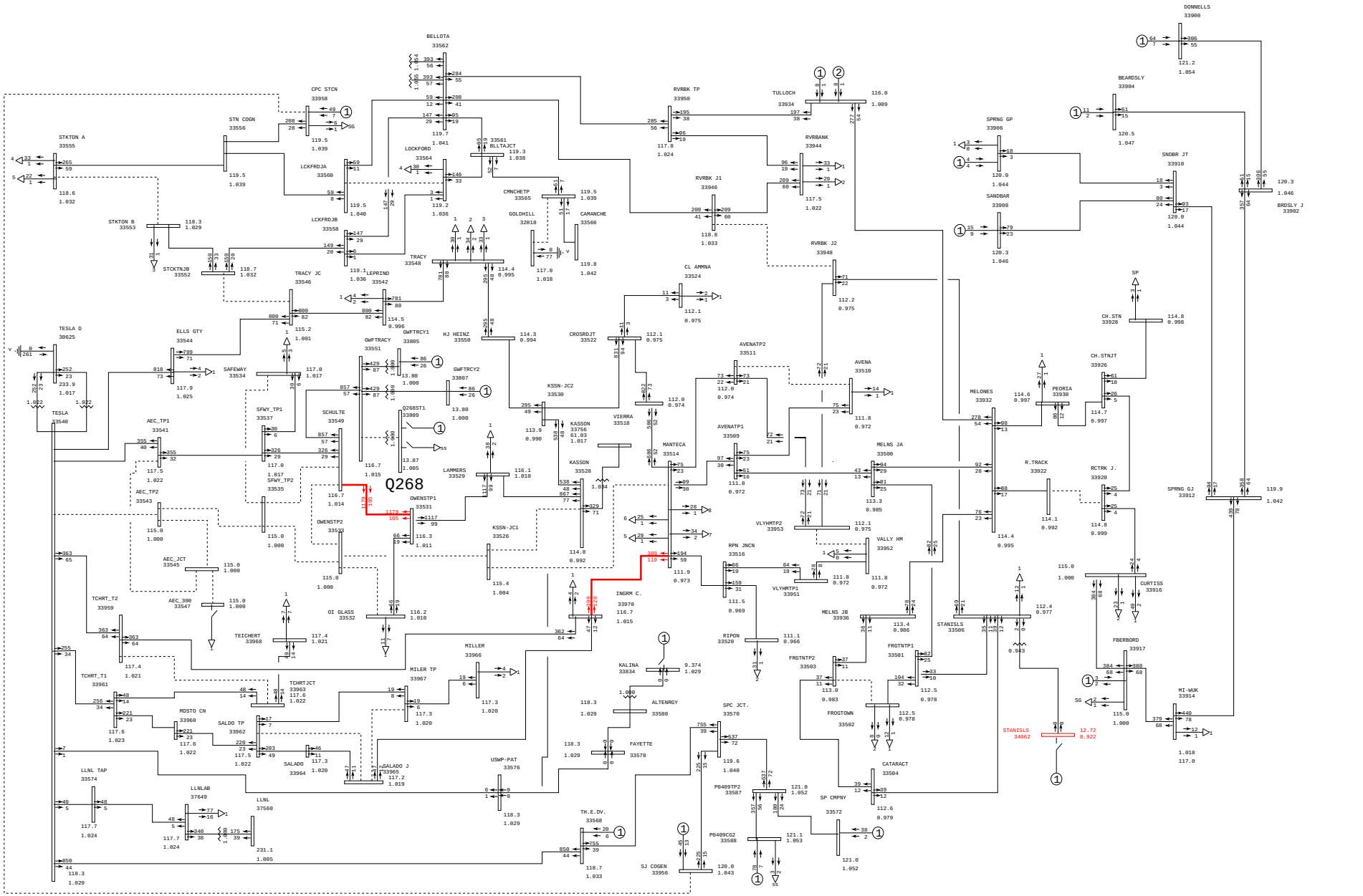
Pacific Gas and Electric Company	PG&E 2007 CASE SERIES: 2013 Summer Off Peak Post-Project Case PATH15= 2765 MW(S-N) PATH26= -712 MW(N-S) PDCI=-1846 MW(N-S) COI=-3645 MW(N-S) Q268 145 MW at GWF Tracy 115 kV SIS - 2013 Summer Off Peak Post-Project FY/COD	Plot 012: Normal Conditions	amps/rate draw\q268.drw Rating = 1



General Electric International, Inc. PSLF Program Fri Apr 18 09:10:00 2008 cases\sumpk\2013sumpk_q268_pre.sav

Pacific Gas and Electric Company	PG&E 2007 CASE SERIES: 2013 Central Valley Summer Peak Pre-Project Case PATH15=-2464 MW(S-N) PATH26= 3838 MW(N-S) PDCI= 2500 MW(N-S) COI= 4638 MW(N-S) Q268 145 MW at GWF Tracy 115 kV SIS - 2013 Summer Peak Pre-Project FY/COD	Plot 013: Tesla/Schulte - Manteca 115 kV Line and Stanislaus PH Outage	MW/MVAR draw\q268.drw Rating = 2



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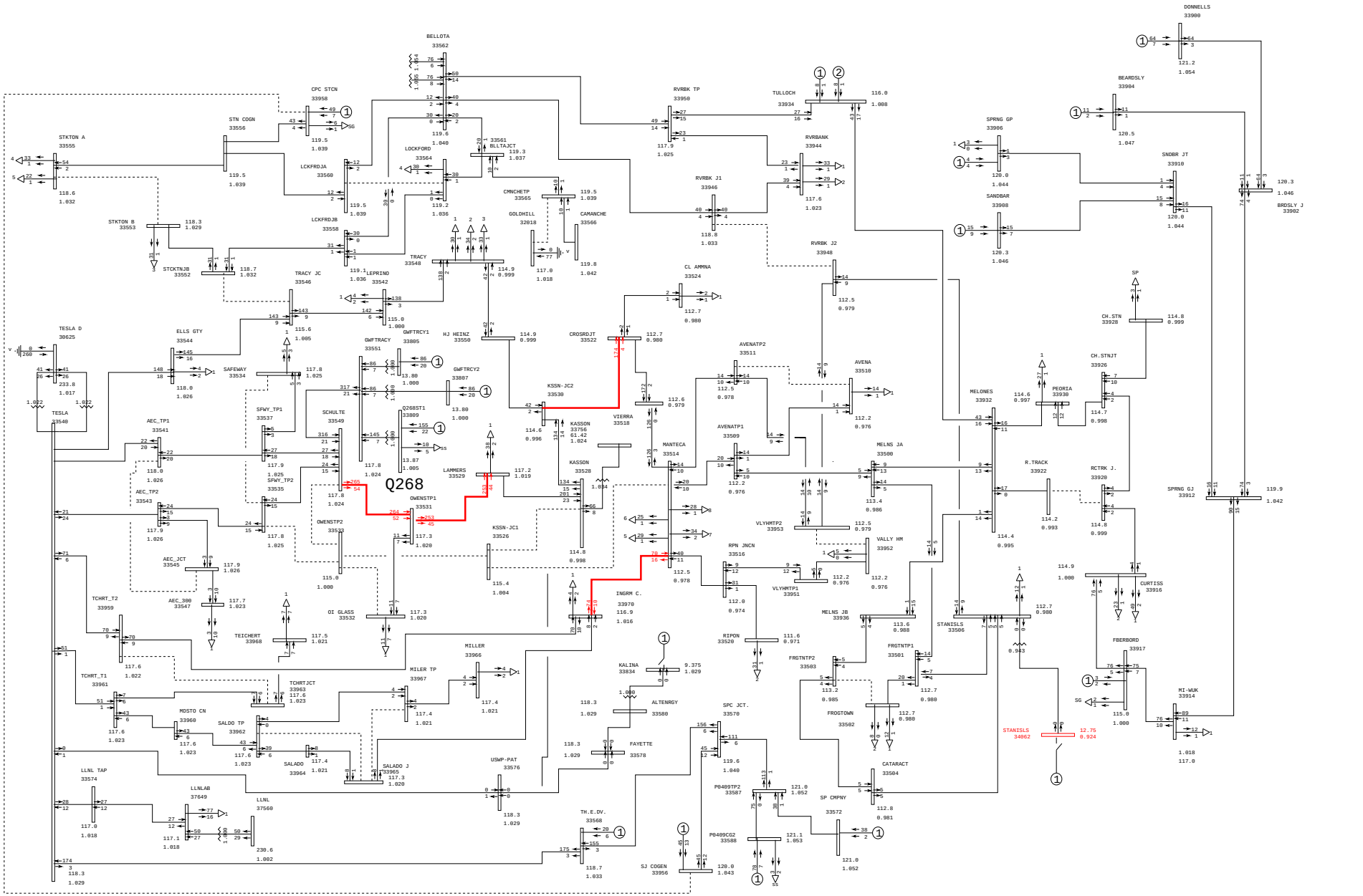
Pacific Gas and Electric Company	PG&E 2007 CASE SERIES: 2013 Central Valley Summer Peak Pre-Project Case PATH15=-2464 MW(S-N) PATH26= 3838 MW(N-S) PDCI= 2500 MW(N-S) COI= 4638 MW(N-S) Q268 145 MW at GWF Tracy 115 kV SIS - 2013 Summer Peak Pre-Project FY/COD	Plot 014: Tesla/Schulte - Manteca 115 kV Line and Stanislaus PH Outage	amps/rate draw\q268.drw Rating = 2



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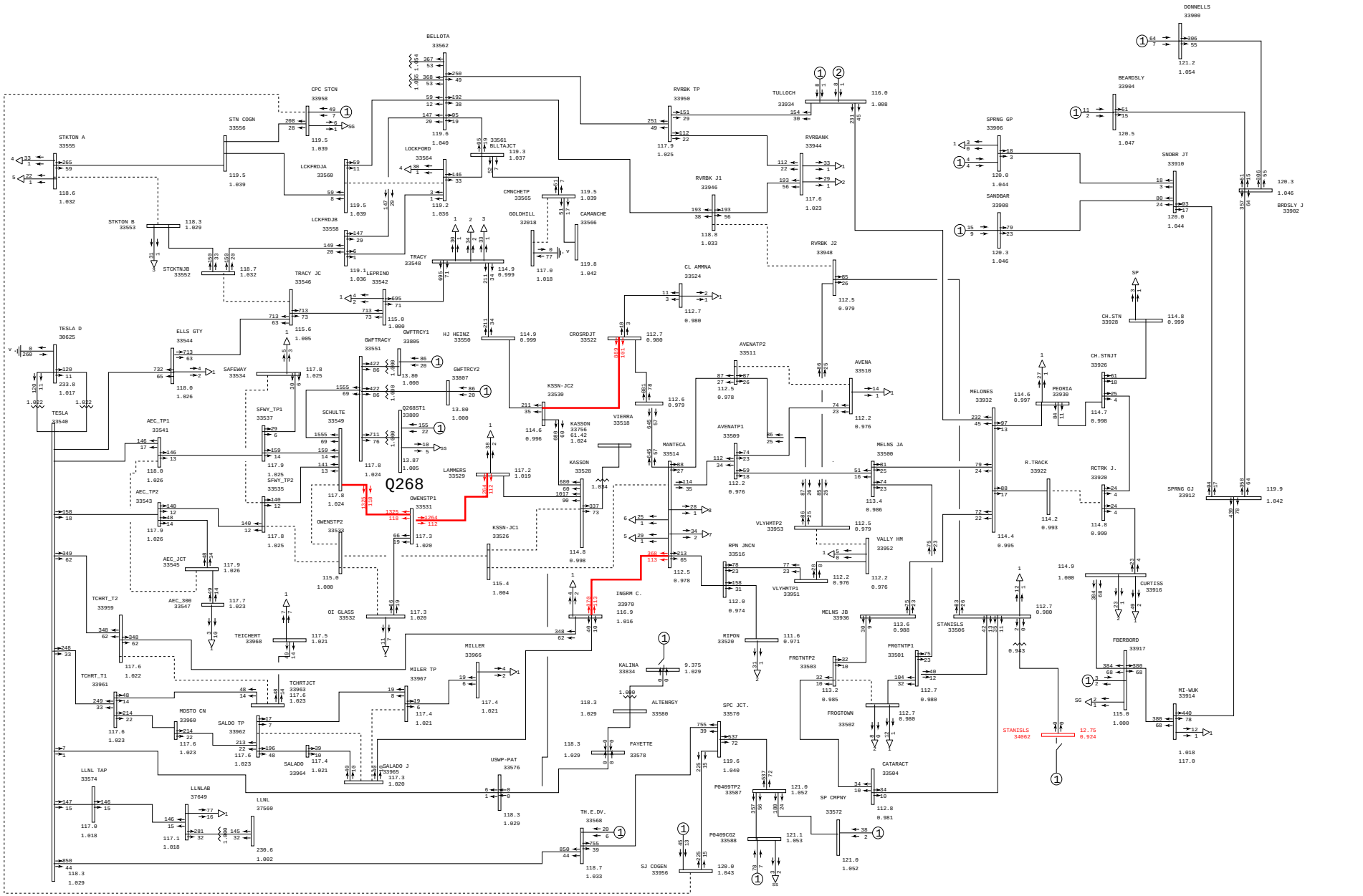
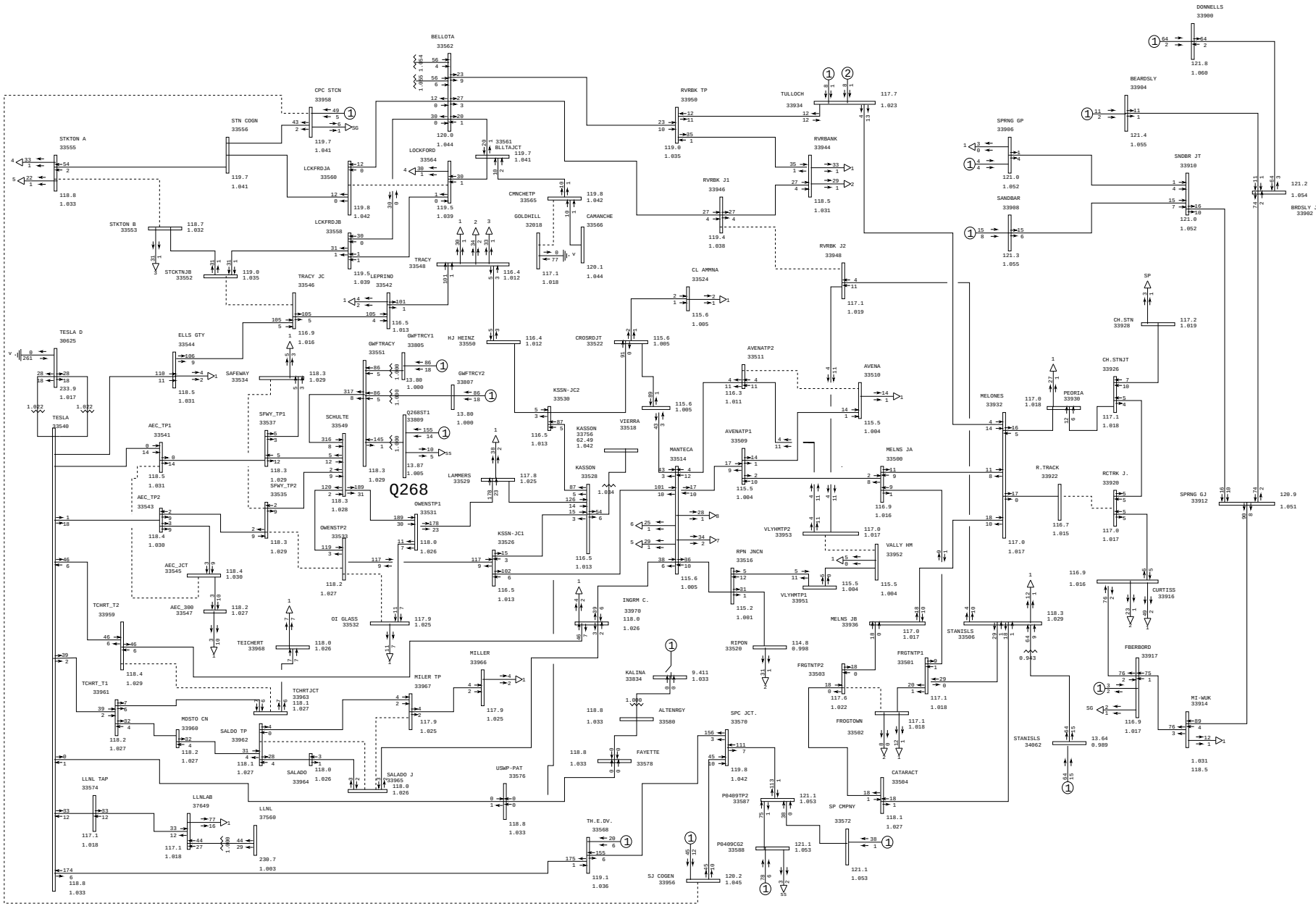
Pacific Gas and Electric Company	PG&E 2007 CASE SERIES: 2013 Central Valley Summer Peak Post-Project Case PATH15=-2594 MW(S-N) PATH26= 3830 MW(N-S) PDCI= 2500 MW(N-S) COI= 4630 MW(N-S) Q268 145 MW at GWF Tracy 115 kV SIS - 2013 Summer Peak Post-Project FY/COD	Plot 015: Tesla/Schulte - Manteca 115 kV Line and Stanislaus PH Outage	MW/MVAR draw\q268.drw Rating = 2



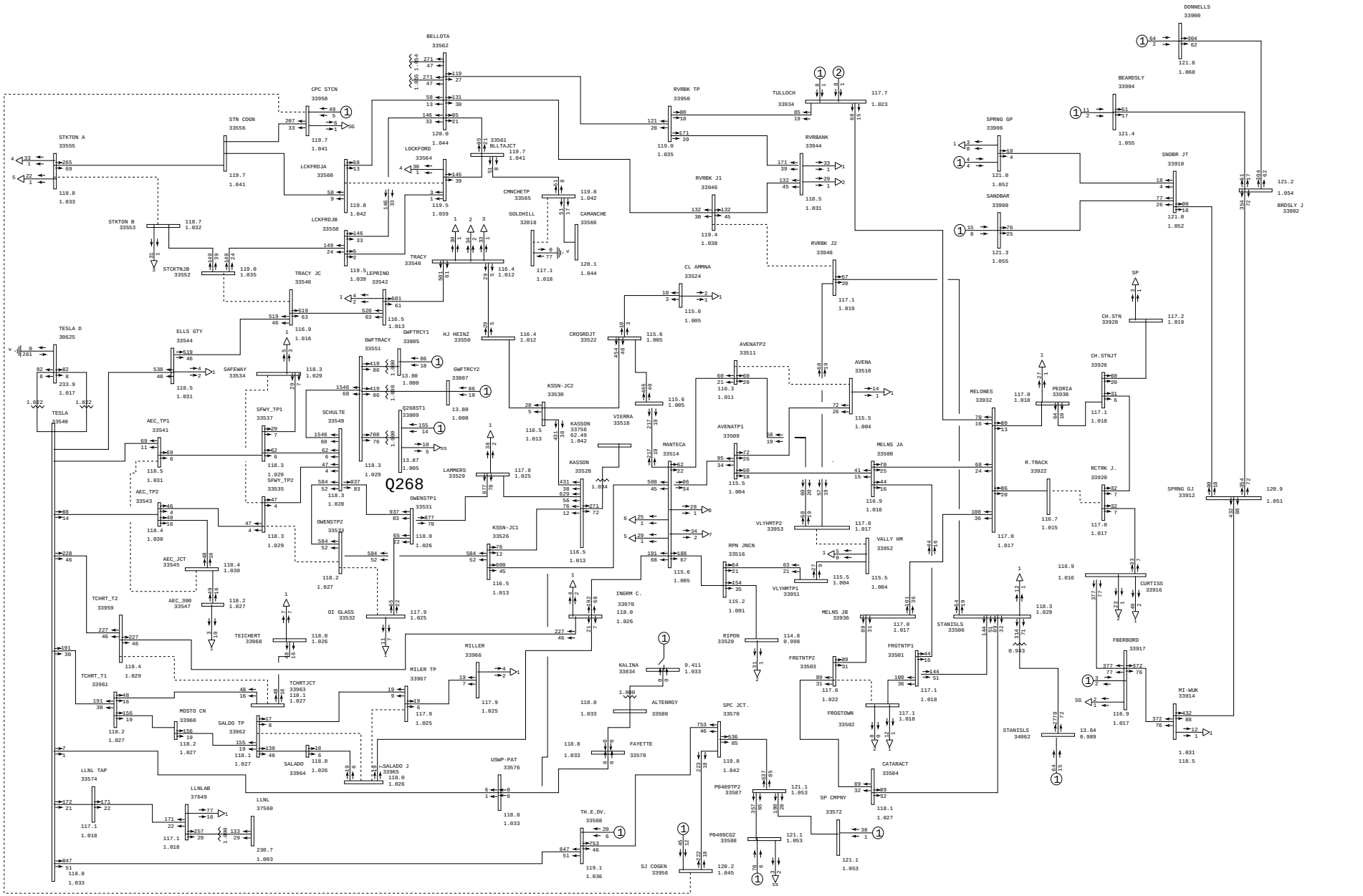
General Electric International, Inc. PSLF Program Fri Apr 18 09:10:04 2008 cases\sumpk\2013sumpk_q268_pst.sav

Pacific Gas and Electric Company	PG&E 2007 CASE SERIES: 2013 Central Valley Summer Peak Post-Project Case PATH15=-2594 MW(S-N) PATH26= 3830 MW(N-S) PDCI= 2500 MW(N-S) COI= 4630 MW(N-S) Q268 145 MW at GWF Tracy 115 kV SIS - 2013 Summer Peak Post-Project FY/COD	Plot 016: Tesla/Schulte - Manteca 115 kV Line and Stanislaus PH Outage	amps/rate draw\q268.drw Rating = 2



General Electric International, Inc. PSLF Program Fri Apr 18 09:10:05 2008 cases\sumpk\2013sumpk_q268_pst_m1.sav

Pacific Gas and Electric Company	PG&E 2007 CASE SERIES: 2013 Central Valley Summer Peak Post-Project Case PATH15=-2594 MW(S-N) PATH26= 3830 MW(N-S) PDCI= 2500 MW(N-S) COI= 4630 MW(N-S) Q268 145 MW at GWF Tracy 115 kV SIS - 2013 Summer Peak Post-Project FY/COD M1	Plot 017: Mitigation 1 Normal Conditions	MW/MVAR draw\q268.drw Rating = 1



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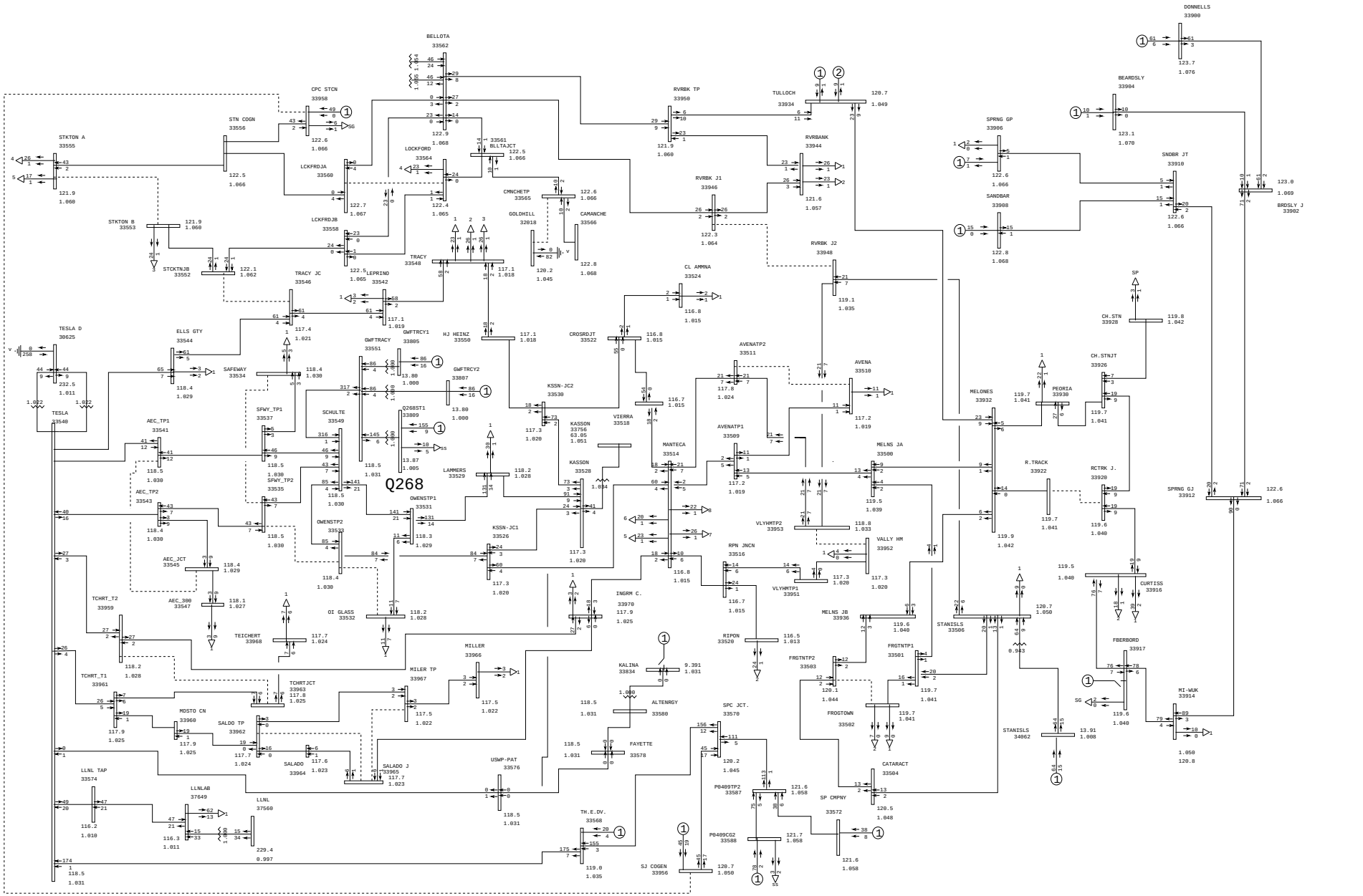
Pacific Gas and Electric Company	PG&E 2007 CASE SERIES: 2013 Central Valley Summer Peak Post-Project Case PATH15=-2594 MW(S-N) PATH26= 3830 MW(N-S) PDCI= 2500 MW(N-S) COI= 4630 MW(N-S) Q268 145 MW at GWF Tracy 115 kV SIS - 2013 Summer Peak Post-Project FY/COD M1	Plot 018: Mitigation 1 Normal Conditions	amps/rate draw\q268.drw Rating = 1



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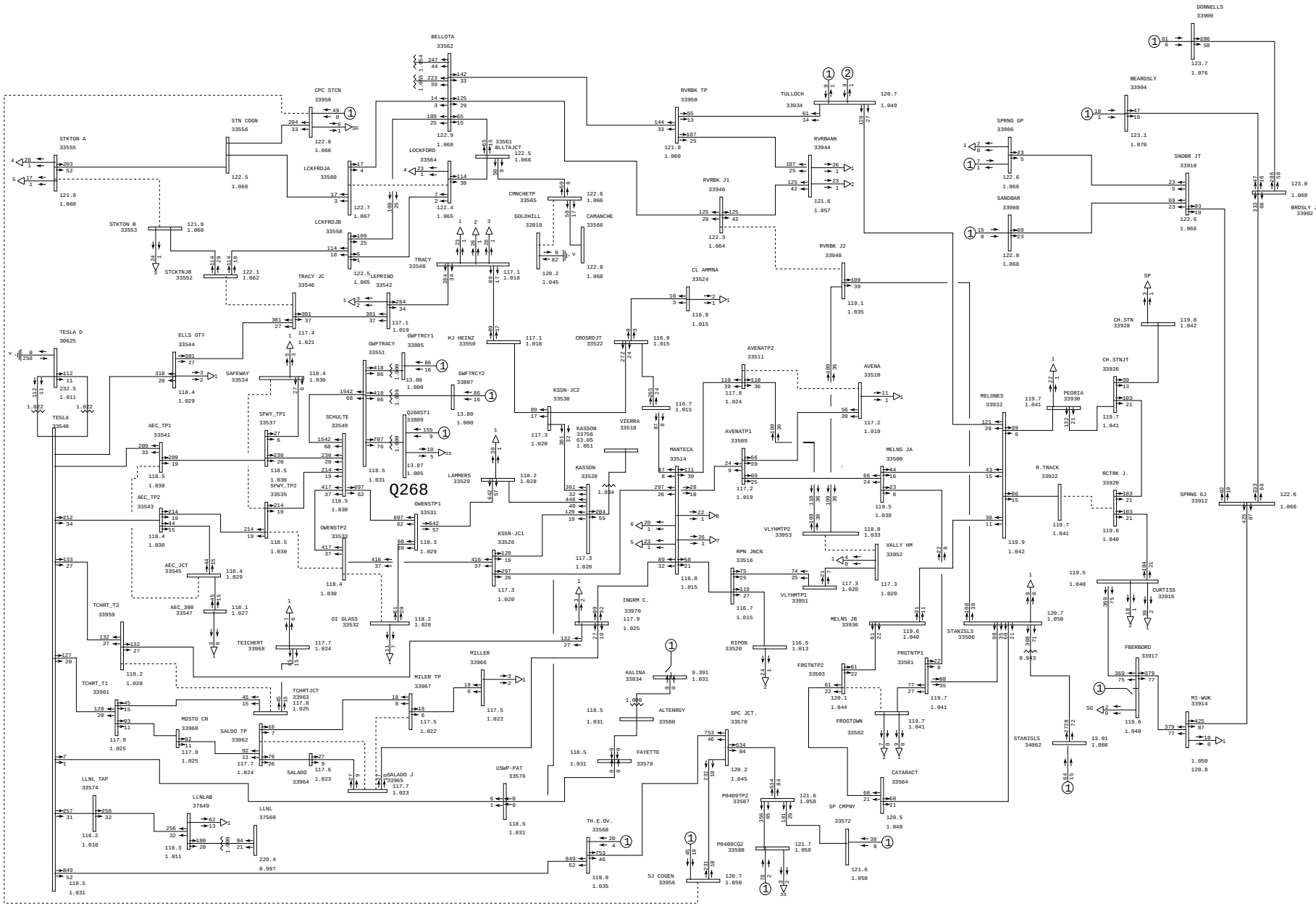
Pacific Gas and Electric Company	PG&E 2007 CASE SERIES: 2013 Spring Peak Post-Project Case PATH15=-2441 MW(S-N) PATH26= 2593 MW(N-S) PDCI= 3097 MW(N-S) COI= 4410 MW(N-S) Q268 145 MW at GWF Tracy 115 kV SIS - 2013 Spring Peak Post-Project FY/COD M1	Plot 019: Mitigation 1 Normal Conditions	MW/MVAR draw\q268.drw Rating = 1



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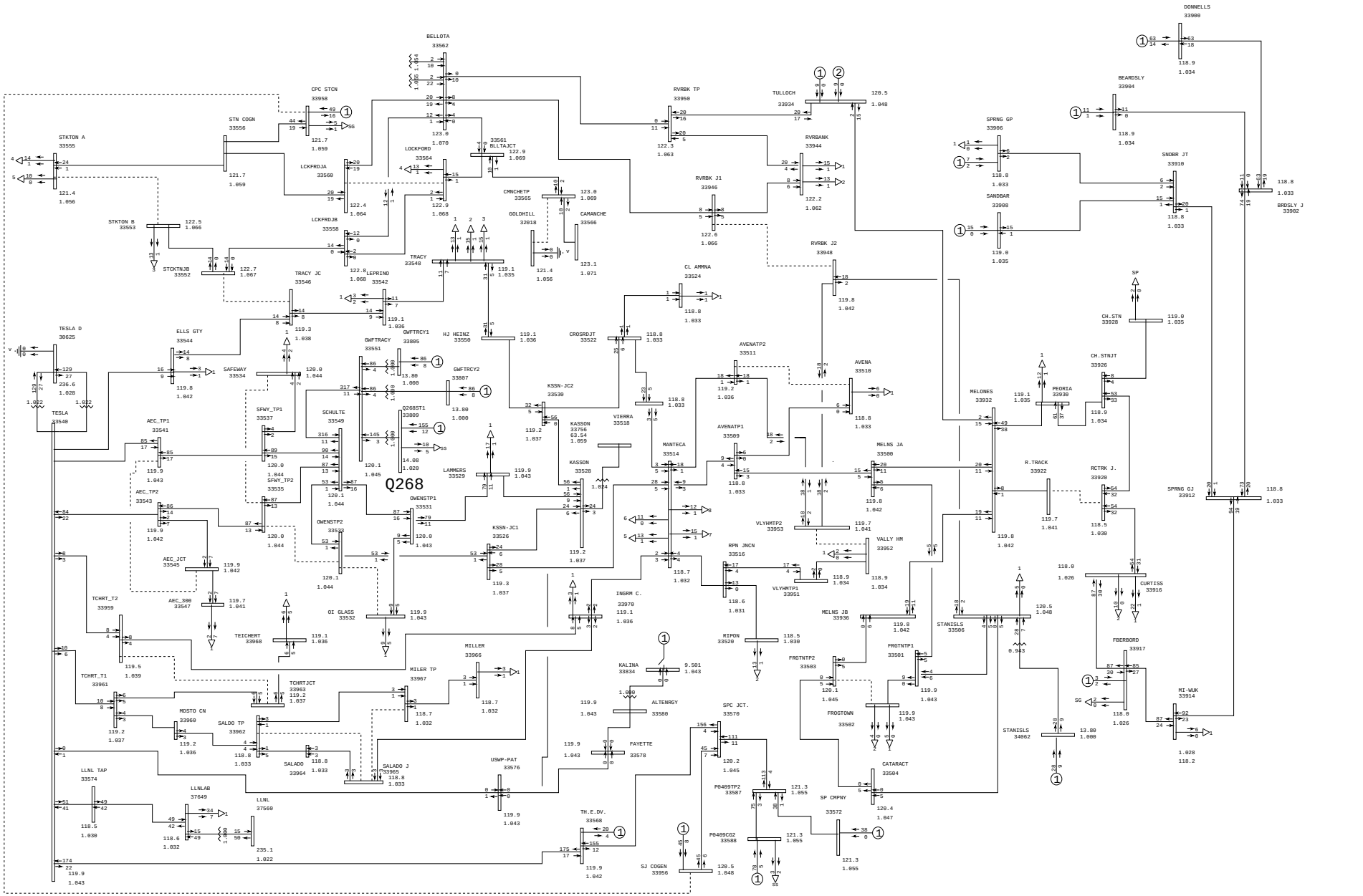
Pacific Gas and Electric Company	PG&E 2007 CASE SERIES: 2013 Spring Peak Post-Project Case PATH15=-2441 MW(S-N) PATH26= 2593 MW(N-S) PDCI= 3097 MW(N-S) COI= 4410 MW(N-S) Q268 145 MW at GWF Tracy 115 kV SIS - 2013 Spring Peak Post-Project FY/COD M1	Plot 020: Mitigation 1 Normal Conditions	amps/rate draw\q268.drw Rating = 1



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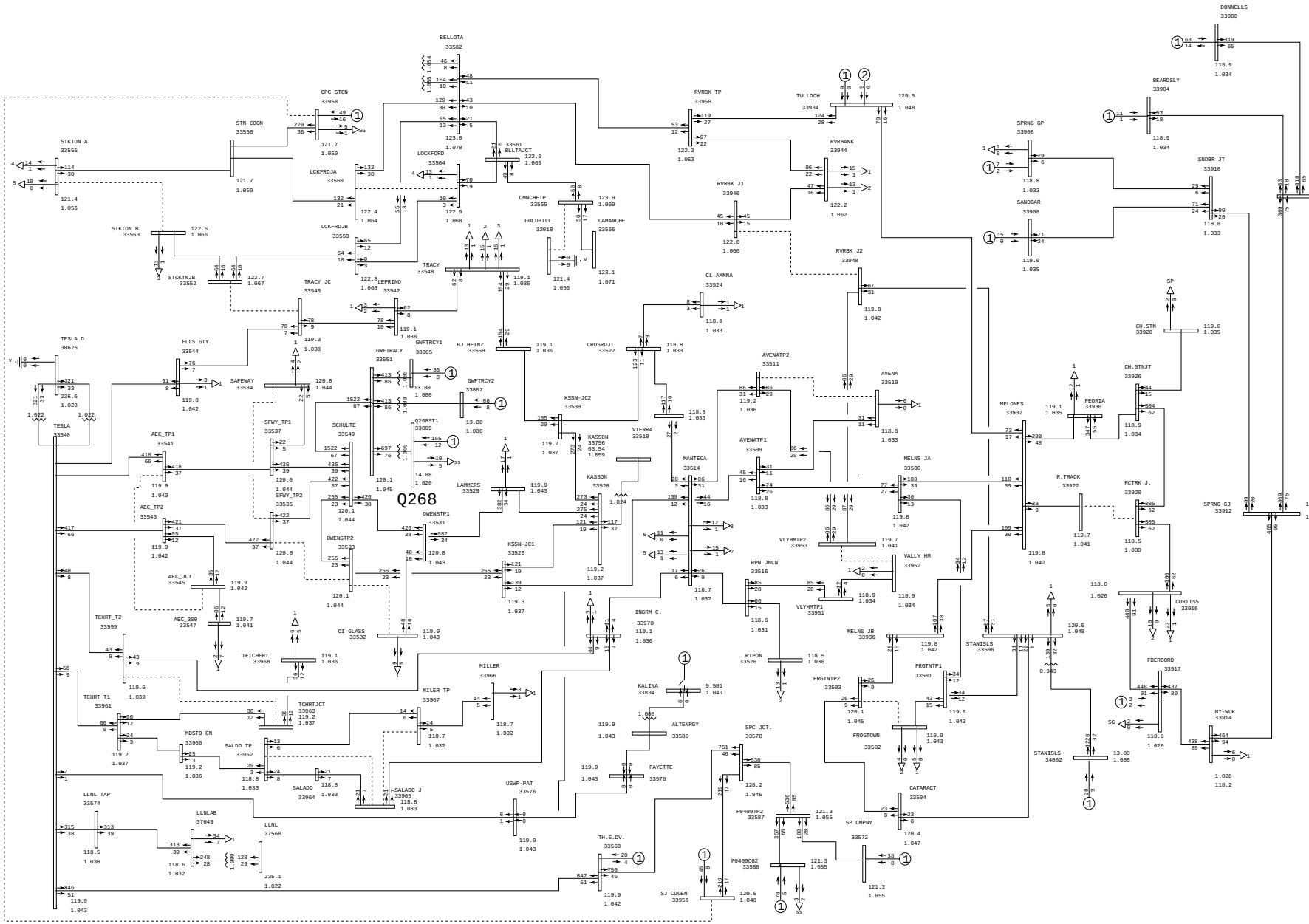
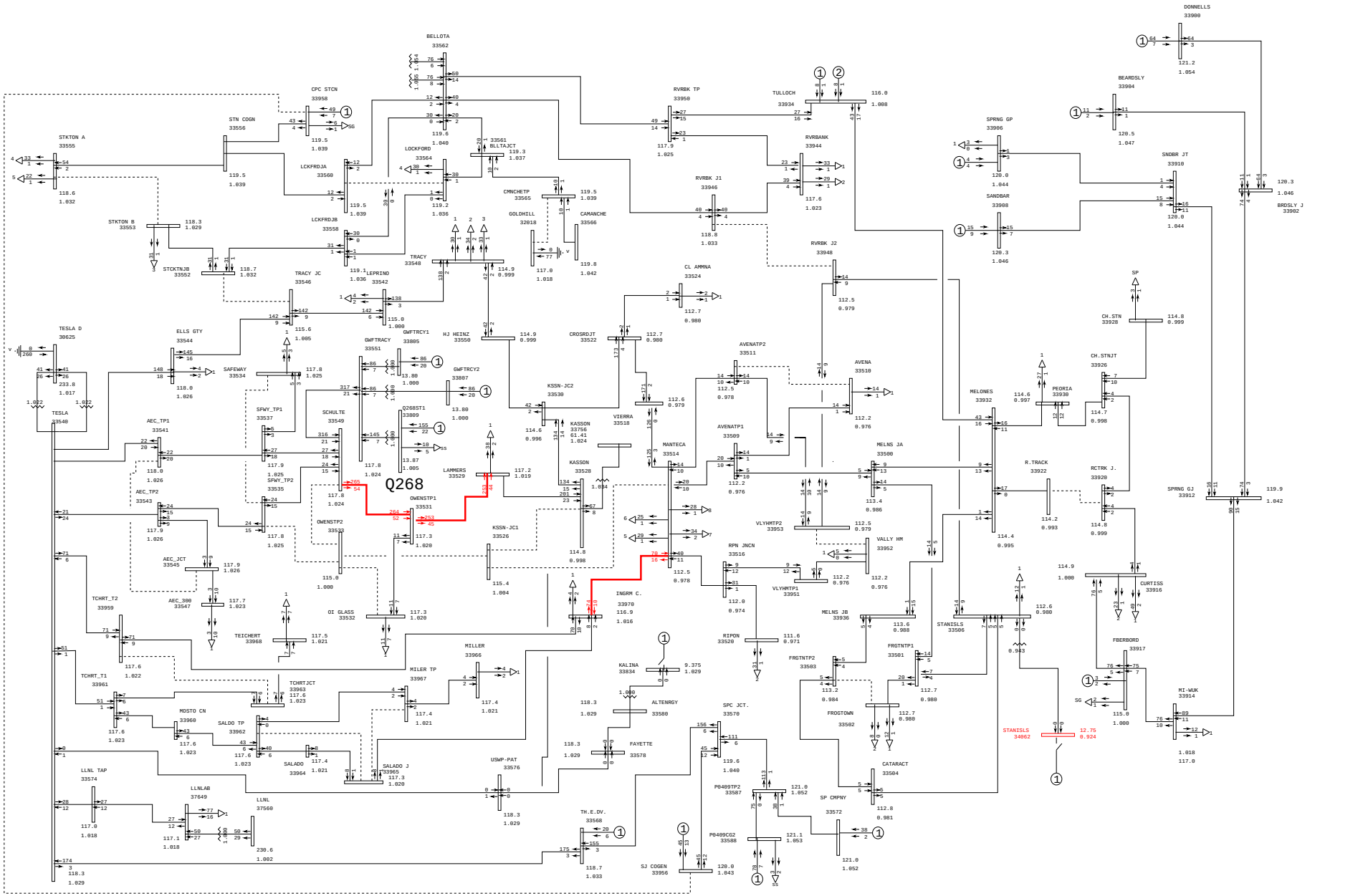
Pacific Gas and Electric Company	PG&E 2007 CASE SERIES: 2013 Summer Off Peak Post-Project Case PATH15= 2765 MW(S-N) PATH26= -712 MW(N-S) PDCI=-1846 MW(N-S) COI=-3645 MW(N-S) Q268 145 MW at GWF Tracy 115 kV SIS-2013 Summer Off Peak Post-Project FY/COD M1	Plot 021: Mitigation 1 Normal Conditions	MW/MVAR draw\q268.drw Rating = 1



General Electric International, Inc. PSLF Program Fri Apr 18 09:10:11 2008 cases\sumop\2013sumop_q268_pst_m1.sav

Pacific Gas and Electric Company	PG&E 2007 CASE SERIES: 2013 Summer Off Peak Post-Project Case PATH15= 2765 MW(S-N) PATH26= -712 MW(N-S) PDCI=-1846 MW(N-S) COI=-3645 MW(N-S) Q268 145 MW at GWF Tracy 115 kV SIS-2013 Summer Off Peak Post-Project FY/COD M1	Plot 022: Mitigation 1 Normal Conditions	amps/rate draw\q268.drw Rating = 1



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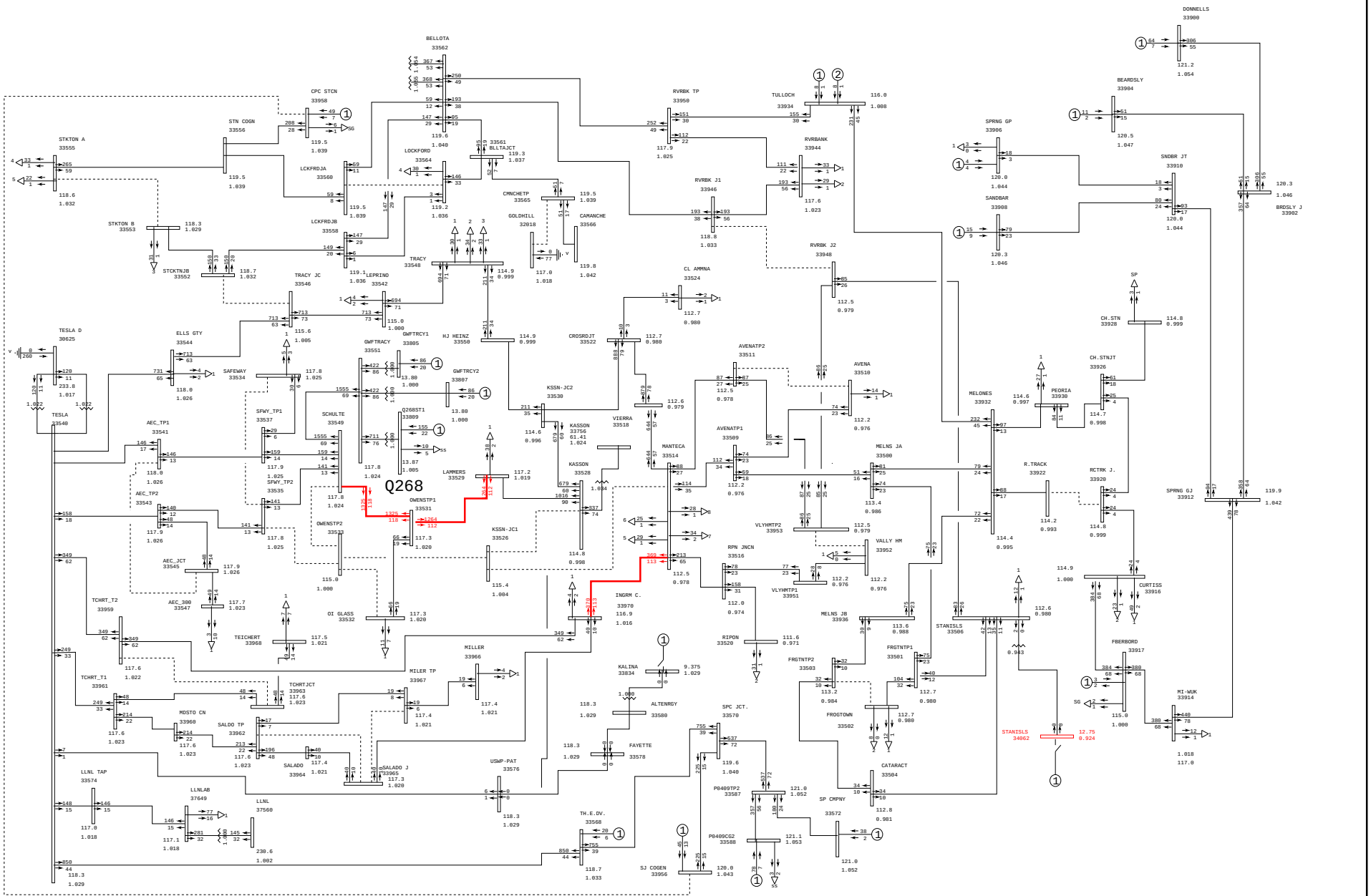
Pacific Gas and Electric Company	PG&E 2007 CASE SERIES: 2013 Central Valley Summer Peak Post-Project Case PATH15=-2594 MW(S-N) PATH26= 3830 MW(N-S) PDCI= 2500 MW(N-S) COI= 4630 MW(N-S) Q268 145 MW at GWF Tracy 115 kV SIS - 2013 Summer Peak Post-Project FY/COD M1	Plot 023: Mitigation 1 Tesla/Schulte - Manteca 115 kV Line and Stanislaus PH Outage	MW/MVAR draw\q268.drw Rating = 2



General Electric International, Inc. PSLF Program Fri Apr 18 09:10:14 2008 cases\sumpk\2013sumpk_q268_pst_m1.sav

Pacific Gas and Electric Company	PG&E 2007 CASE SERIES: 2013 Central Valley Summer Peak Post-Project Case PATH15=-2594 MW(S-N) PATH26= 3830 MW(N-S) PDCI= 2500 MW(N-S) COI= 4630 MW(N-S) Q268 145 MW at GWF Tracy 115 kV SIS - 2013 Summer Peak Post-Project FY/COD M1	Plot 024: Mitigation 1 Tesla/Schulte - Manteca 115 kV Line and Stanislaus PH Outage	amps/rate draw\q268.drw Rating = 2

Appendix E

Generator Machine Dynamic Data

Machine Data: Model: GENTPF

Variable	Description	Value
Tdop	D-axis transient rotor time constant, sec	10
Tppdo	D-axis sub-transient rotor time constant, sec	.035
Tpqo	Q-axis transient rotor time constant, sec	1.5
Tppqo	Q-axis sub-transient rotor time constant, sec	0.10
H	Inertia constant, sec	4.11
D	Damping factor, pu	0.00
Ld	D-axis synchronous reactance, pu	1.832
Lq	Q-axis synchronous reactance, pu	1.59
Lpd	D-axis transient reactance, pu	0.2156
Lpq	Q-axis transient reactance, pu	0.70
Lppd	D-axis subtransient reactance, pu	0.1654
Lppq	Q-axis subtransient reactance, pu	0.1654
Ll	Stator leakage reactance, pu	0.104
s1	Saturation factor at 1 pu flux	0.2075
s12	Saturation factor at 1.2 pu flux	0.501
Ra	Stator resistance, pu	0.0058
Rcomp	Compounding resistance voltage control, pu	0.00
Xcomp	Compounding reactance voltage control, pu	0.00

Excitation Data: Model: EXAC1

Variable	Description	Value
Tr	Voltage transducer time constant, sec	0.01
Tb	Lag time constant, sec	.01667
Tc	Lead time constant, sec	0.01
Ka	Voltage regulator gain	600.000
Ta	Voltage regulator time constant, sec	.04
Vamax	Maximum control element, p.u.	5.0
Vamin	Minimum control element, p.u.	-5.0
Te	Exciter time constant, sec	0.15
Kf	Rate feedback gain	0.04
Tf	Rate feedback time constant, sec	2.0
Kc	Rectifier regulation factor, p.u.	0.0
Kd	Exciter internal reactance, p.u.	0.137
Ke	Exciter field resistance constant, p.u.	0.863
E1	Exciter flux at knee of curve, p.u.	4.0
Se1	Saturation factor at knee	0.01
E2	Maximum exciter, p.u.	5.0
Se2	Saturation factor at max flux	0.02
Vrmax	Maximum controller output, p.u.	5.0
Vrmin	Minimum controller output, p.u.	-5.0

PSS Data: Model: PSS2a

Variable	Description	Value
j1	Input signal #1 code	1
k1	Input signal #1 remote bus number	0
j2	Input signal #2 code	3
k2	Input signal #2 remote bus number	0
tw1	First washout on signal #1, sec	2.0
tw2	First washout on signal #1, sec	2.0
tw3	First washout on signal #2, sec	2.0
tw4	First washout on signal #2, sec	0.00
t6	Time constant on signal #1, sec	0.00
t7	Time constant on signal #2, sec	2.0
ks2	Gain signal #2	0.379
ks3	Gain signal #2	1.0
ks4	Gain signal #2	1.0
t8	Lead of ramp tracking filter	0.5
t9	Lag of ramp tracking filter	0.1
N	Order of ramp tracking filter	1
M	Order of ramp tracking filter	5
ks1	Stabilizer gain	3.0
t1	Lead/lag time constants, sec	0.15
t2	Lead/lag time constants, sec	0.03
t3	Lead/lag time constants, sec	0.15
t4	Lead/lag time constants, sec	0.03
vstmax	Stabilizer output max limit, p.u.	0.1
vstmin	Stabilizer output min limit, p.u.	-0.1
a	Lead/lag num. gain.	0.0
Ta	Lead/lag time constant, sec	2.0
Tb	Lead/lag time constant, sec	2.0

Governor: TGOV1

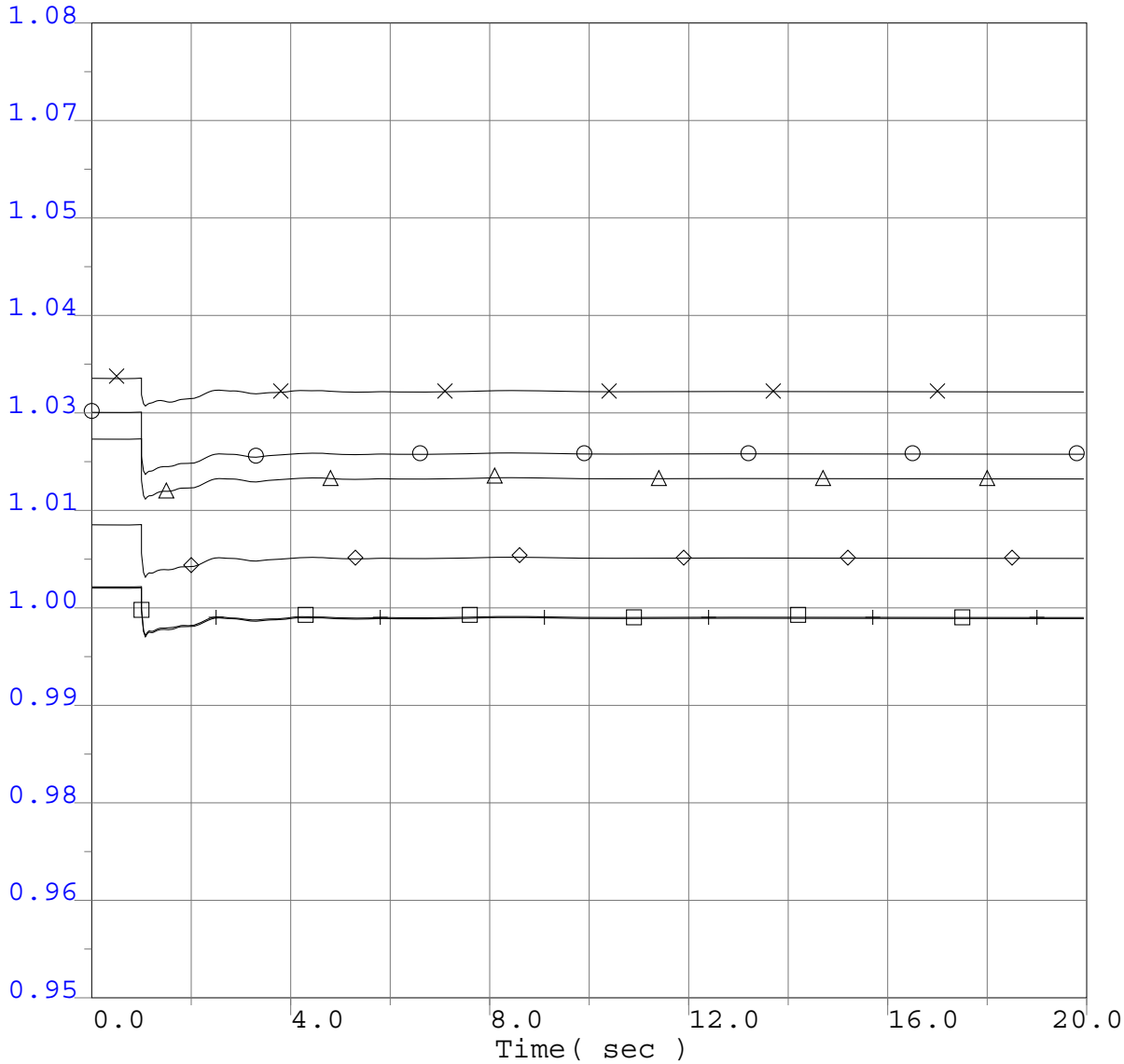
Variable	Description	Value
R	Permanent droop, p.u.	0.05
T1	Steam bowl time constant, sec	0.50
Vmax	Maximum valve position, p.u. of mwcap	1.0
Vmin	Minimum valve position, p.u. of mwcap	0.0
T2	Numerator time constant of T2, T3 block, sec	3.0
T3	Reheater time constant, sec	10.0
Dt	Turbine damping coefficient, p.u.	0

Appendix F

Dynamic Stability Plots

Q268 Project Interconnection System Impact Study

Selected PG&E Bus Voltage Plots Adjacent to Fault

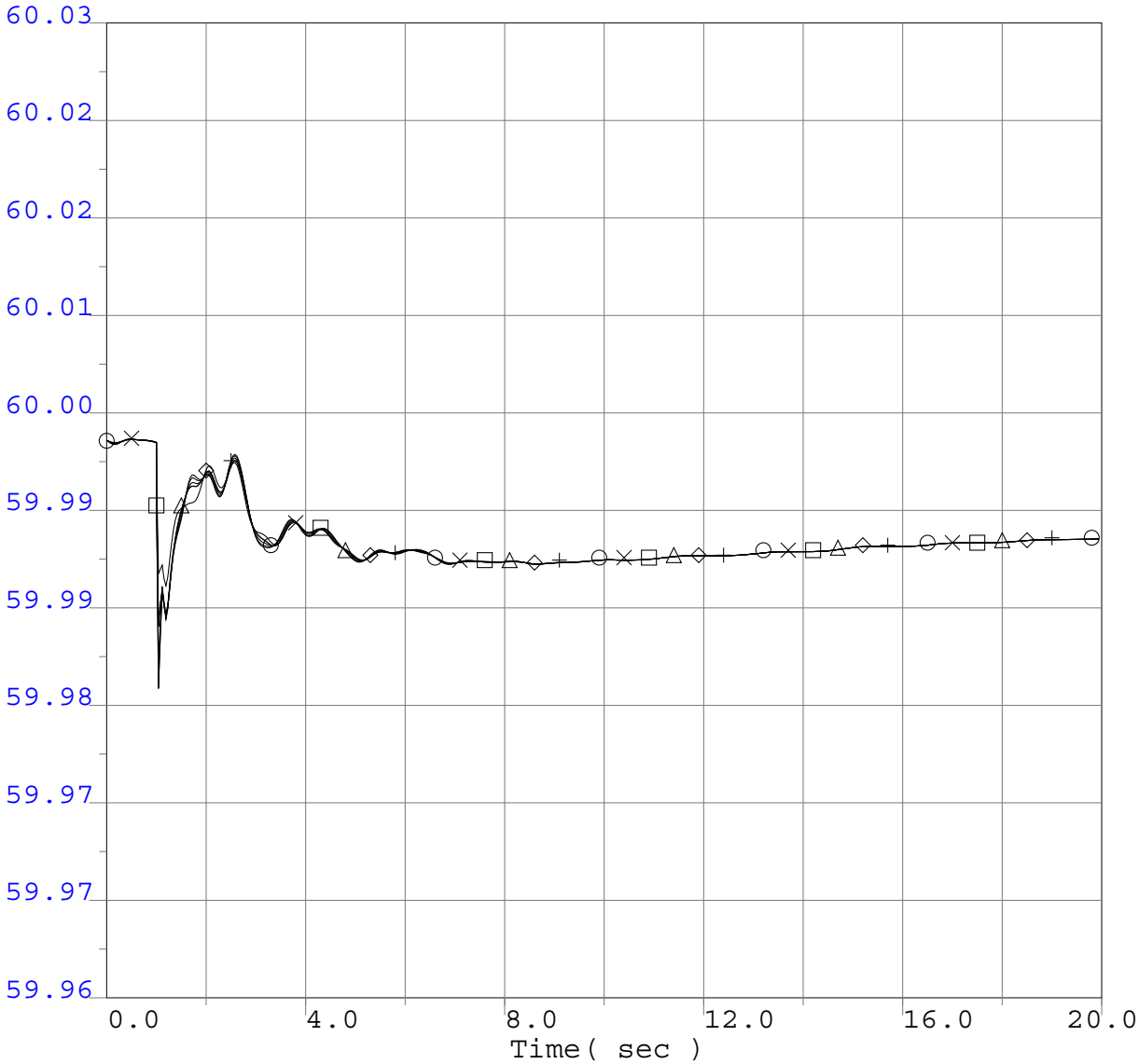


0.9500	vbus	33549	SCHULTE	115.0	0	0.0 "*"	1	1.0800
0.9500	vbus	33540	TESLA	115.0	0	0.0 "*"	1	1.0800
0.9500	vbul	33514	MANTECA	115.0	0	0.0 "*"	1	1.0800
0.9500	vbul	33529	LAMMERS	115.0	0	0.0 "*"	1	1.0800
0.9500	vbus	33528	KASSON	115.0	0	0.0 "*"	1	1.0800
0.9500	vbul	33518	VIERRA	115.0	0	0.0 "*"	1	1.0800

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Q268 Load Rejection
No Fault Load Rejection

Q268 Project Interconnection System Impact Study

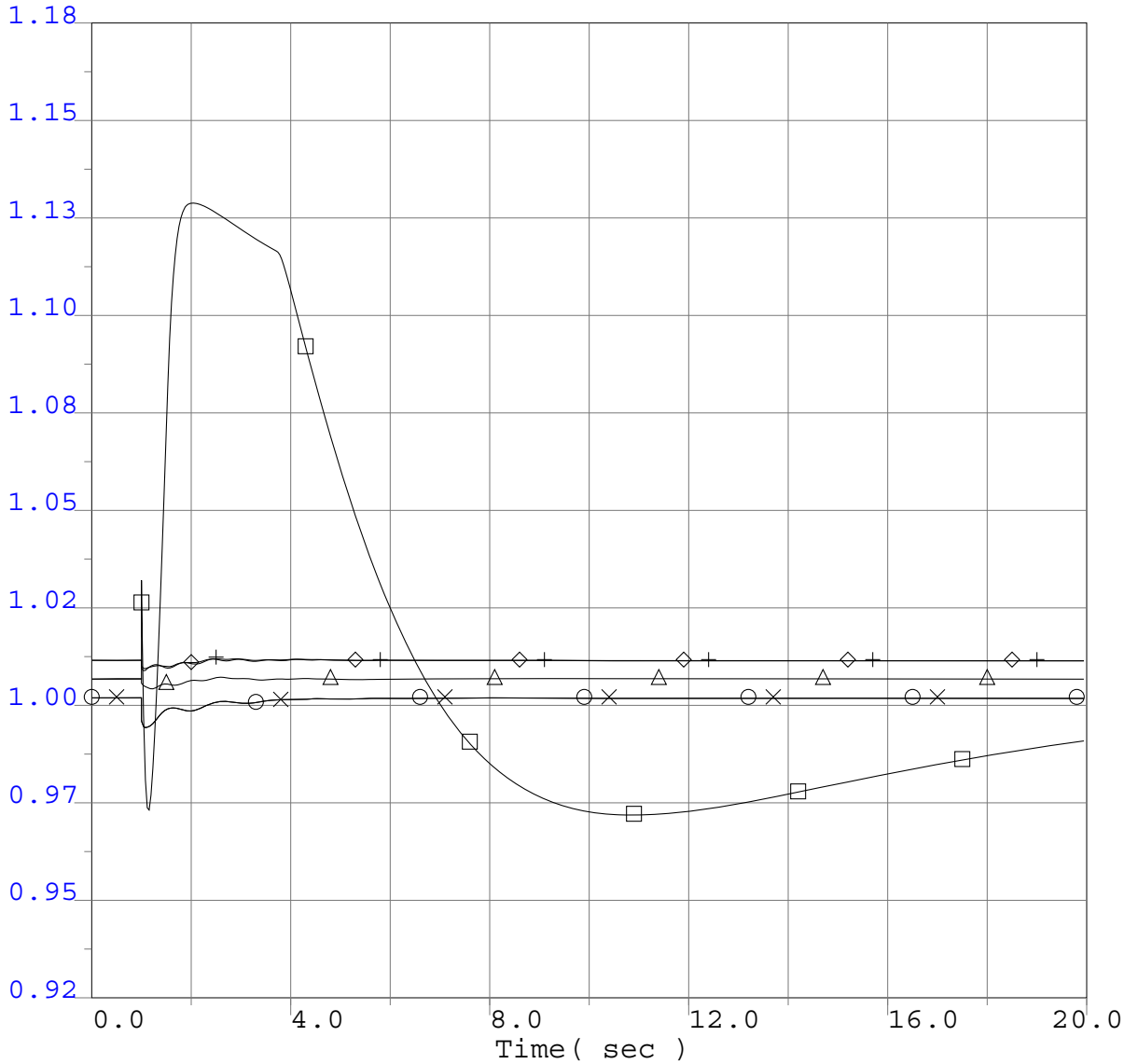
Selected PG&E Bus Frequency Plots Adjacent to Fault



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Q268 Load Rejection
No Fault Load Rejection

Q268 Project Interconnection System Impact Study

Project Generator Terminal Voltages

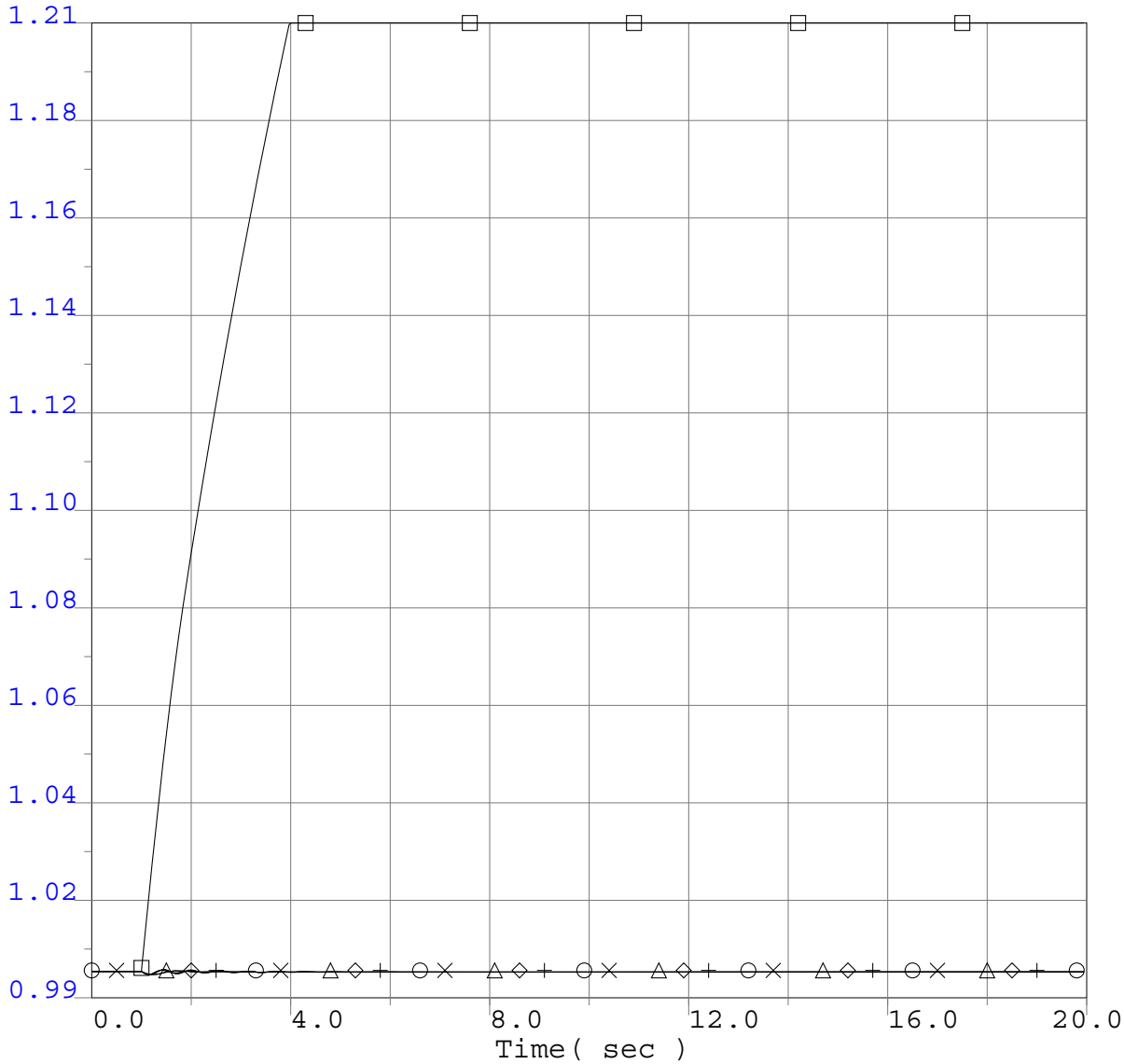


0.9200 vt	33805	GWFTRCY1	13.8	0	0.0 "1"	1	1.1800
0.9200 vt	33807	GWFTRCY2	13.8	0	0.0 "1"	1	1.1800
0.9200 vt	33809	Q268ST1	13.8	0	0.0 "1"	1	1.1800
0.9200 vt	33858	P0409CG2	13.8	0	0.0 "1"	1	1.1800
0.9200 vt	33808	SJ COGEN	13.8	0	0.0 "1"	1	1.1800
0.9200 vt	33810	SP CMPNY	13.8	0	0.0 "1"	1	1.1800

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Q268 Load Rejection
No Fault Load Rejection

Q268 Project Interconnection System Impact Study

Project Generator Rotor Speed

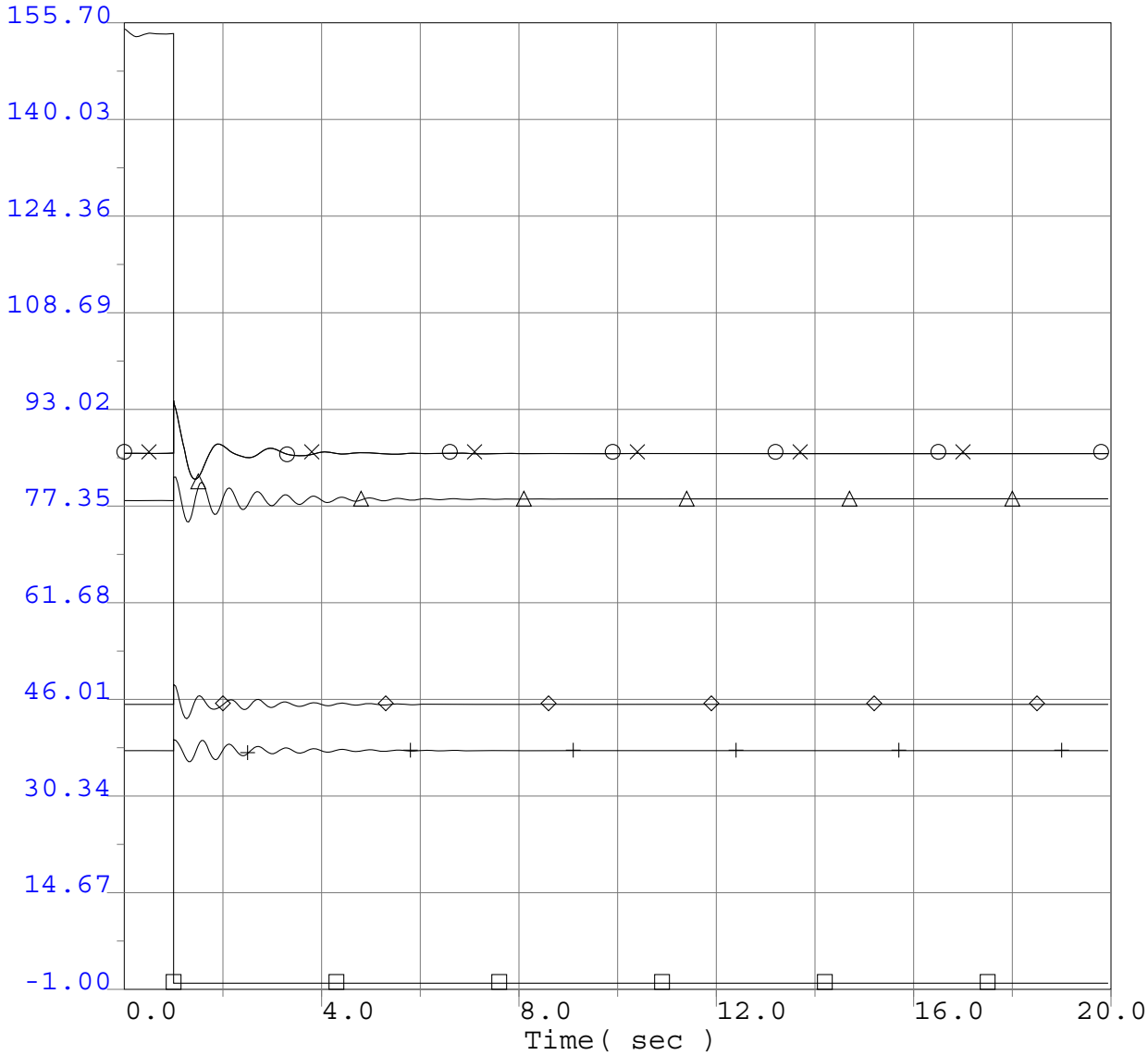


0.9943 spd	33805	GWFTRCY1	13.8	0	0.0 "1"	1	1.2050
0.9943 spd	33807	GWFTRCY2	13.8	0	0.0 "1"	1	1.2050
0.9943 spd	33809	Q268ST1	13.8	0	0.0 "1"	1	1.2050
0.9943 spd	33858	P0409CG2	13.8	0	0.0 "1"	1	1.2050
0.9943 spd	33808	SJ COGEN	13.8	0	0.0 "1"	1	1.2050
0.9943 spd	33810	SP CMPNY	13.8	0	0.0 "1"	1	1.2050

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Q268 Load Rejection
No Fault Load Rejection

Q268 Project Interconnection System Impact Study

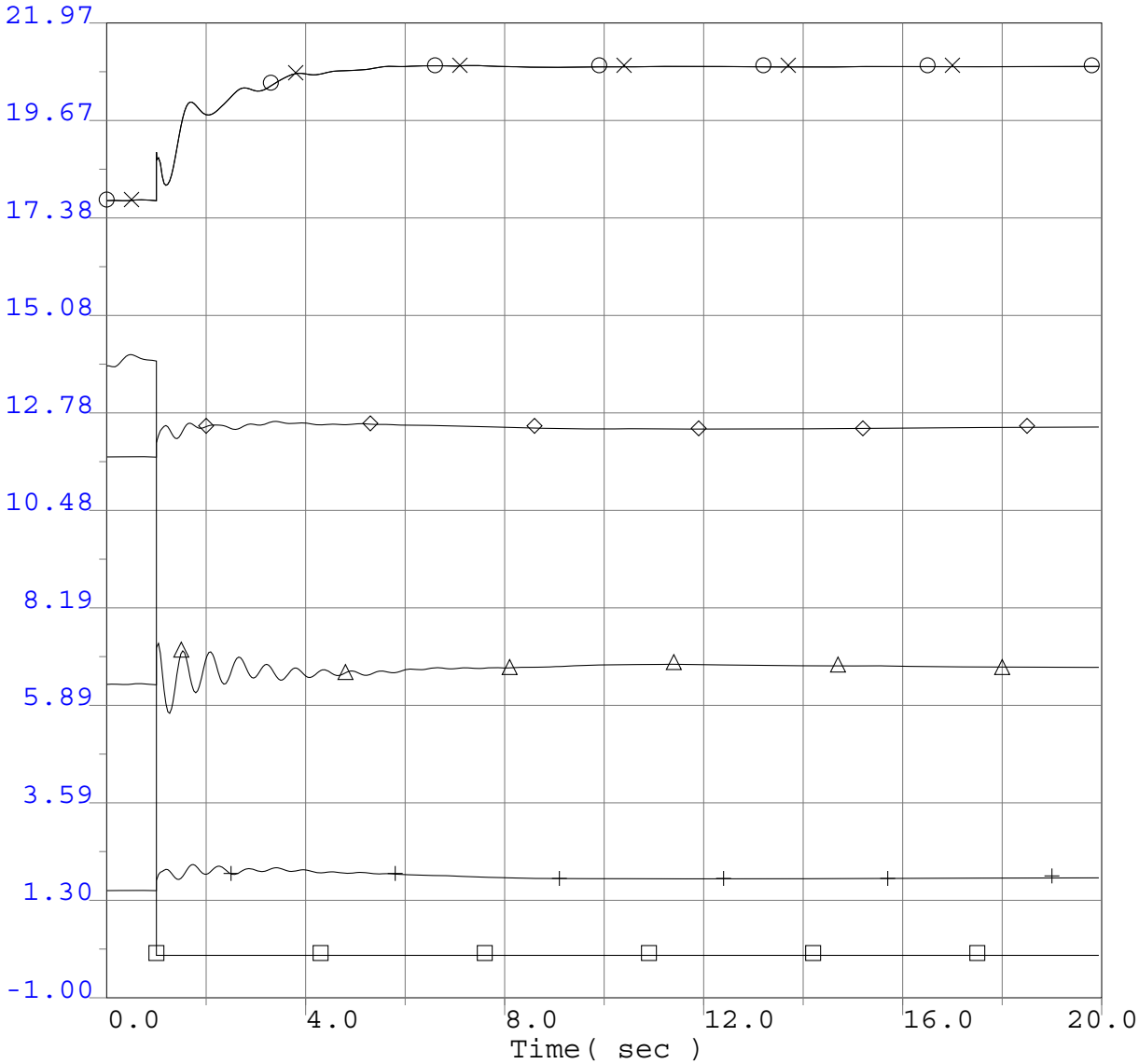
Project Generator Terminal Power



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Q268 Load Rejection
No Fault Load Rejection

Q268 Project Interconnection System Impact Study

Project Generator Terminal Reactive Power

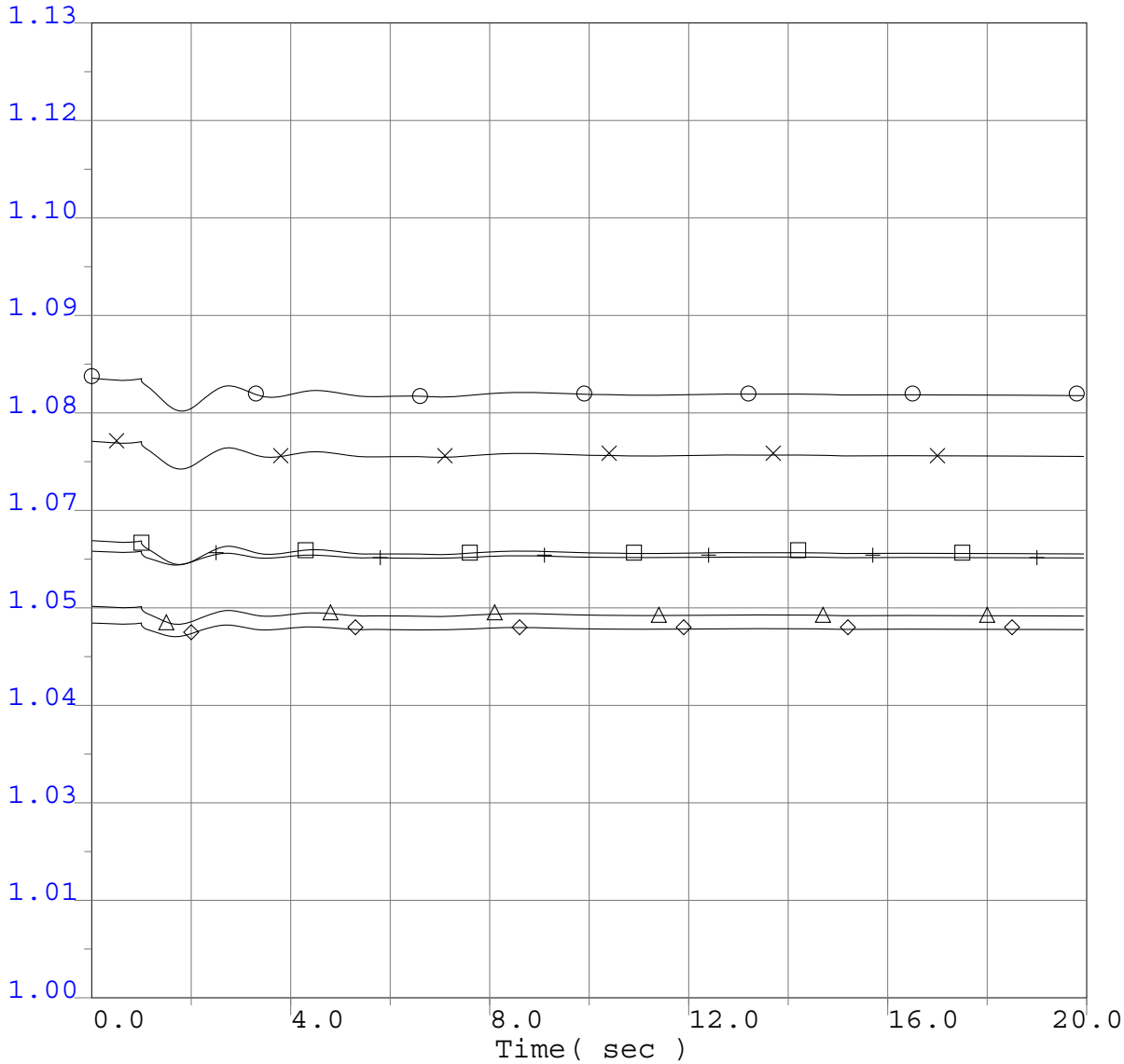


-1.0000 qg	33805	GWFTRCY1	13.8	0	0.0 "1"	1	21.9700
-1.0000 qg	33807	GWFTRCY2	13.8	0	0.0 "1"	1	21.9700
-1.0000 qg	33809	Q268ST1	13.8	0	0.0 "1"	1	21.9700
-1.0000 qg	33858	P0409CG2	13.8	0	0.0 "1"	1	21.9700
-1.0000 qg	33808	SJ COGEN	13.8	0	0.0 "1"	1	21.9700
-1.0000 qg	33810	SP CMPNY	13.8	0	0.0 "1"	1	21.9700

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Q268 Load Rejection
No Fault Load Rejection

Q268 Project Interconnection System Impact Study

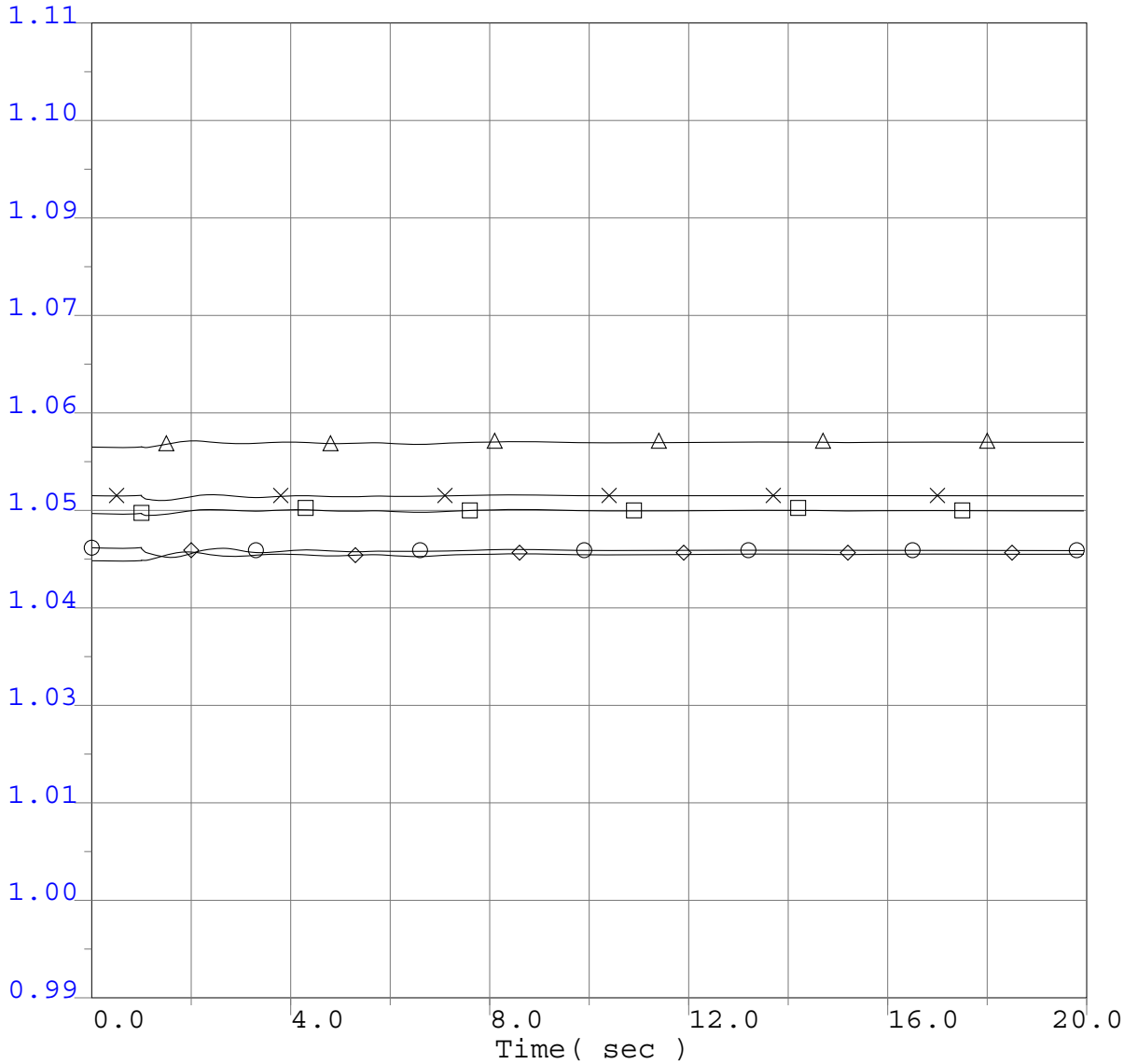
Selected WECC Bus Voltage Plots



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Q268 Load Rejection
No Fault Load Rejection

Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots

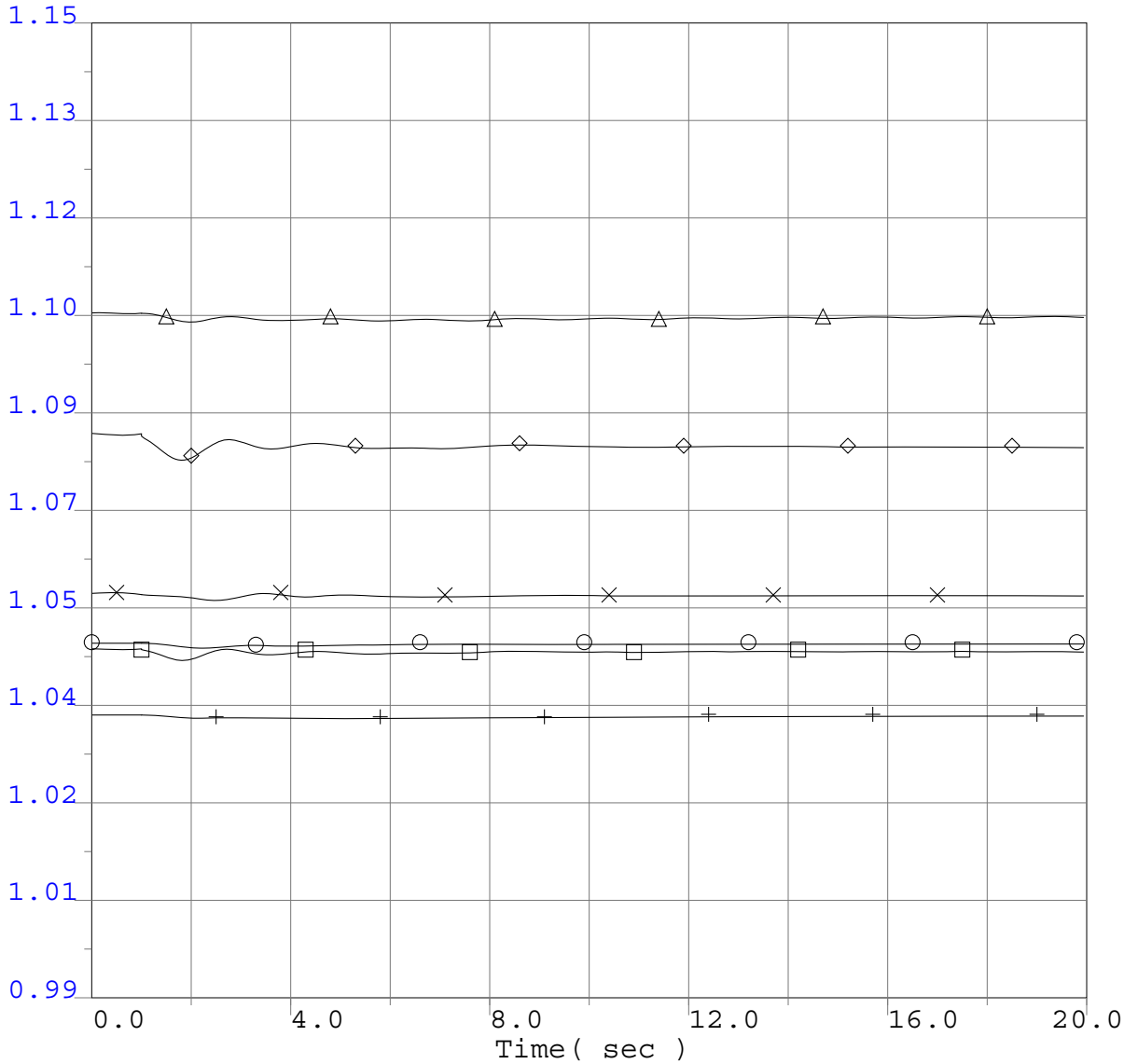


0.9900	vbus	30042	METCALF	500.0	0	0.0 "*"	1	1.1100
0.9900	vbus	30045	MOSSLAND	500.0	0	0.0 "*"	1	1.1100
0.9900	vbus	30050	LOSBANOS	500.0	0	0.0 "*"	1	1.1100
0.9900	vbus	30055	GATES	500.0	0	0.0 "*"	1	1.1100
0.9900	vbus	30060	MIDWAY	500.0	0	0.0 "*"	1	1.1100

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Q268 Load Rejection
No Fault Load Rejection

Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots

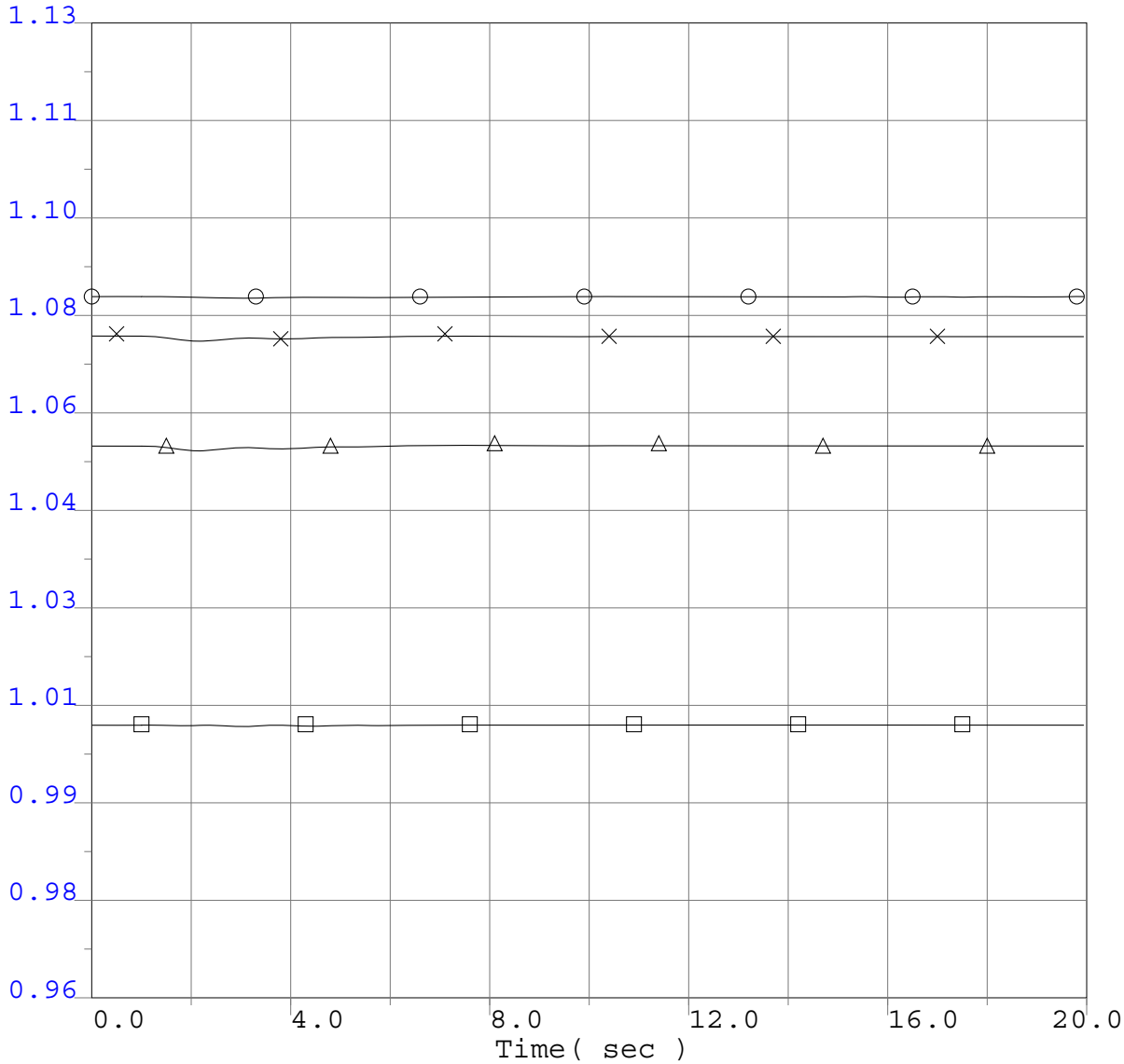


0.9900	vbus	14001	FOURCORN	500.0	0	0.0 "*"	1	1.1500
0.9900	vbus	50703	NIC500	500.0	0	0.0 "*"	1	1.1500
0.9900	vbus	60240	MIDPOINT	500.0	0	0.0 "*"	1	1.1500
0.9900	vbus	62012	TOWN2	500.0	0	0.0 "*"	1	1.1500
0.9900	vbus	40687	MALIN	500.0	0	0.0 "*"	1	1.1500
0.9900	vbus	66340	SIGURD	345.0	0	0.0 "*"	1	1.1500

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Q268 Load Rejection
No Fault Load Rejection

Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots

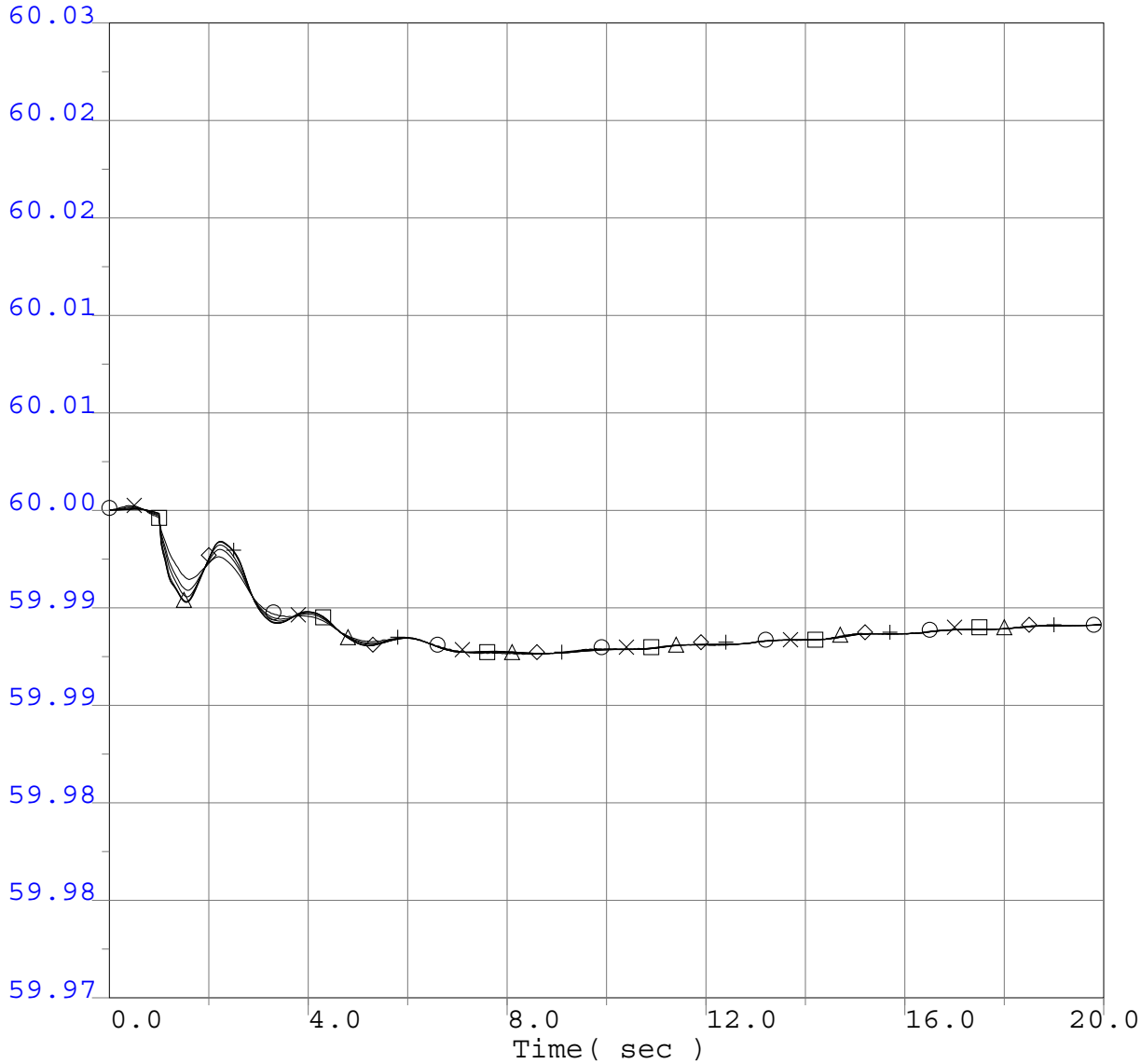


0.9600	vbul	54150	WILLESD9	240.0	0	0.0	"*"	1	1.1300
0.9600	vbus	14003	NAVAJO	500.0	0	0.0	"*"	1	1.1300
0.9600	vbus	24153	VESTAL	230.0	0	0.0	"*"	1	1.1300
0.9600	vbus	22360	IMPRLVLY	500.0	0	0.0	"*"	1	1.1300

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Q268 Load Rejection
No Fault Load Rejection

Q268 Project Interconnection System Impact Study

Selected WECC Bus Frequency Plots

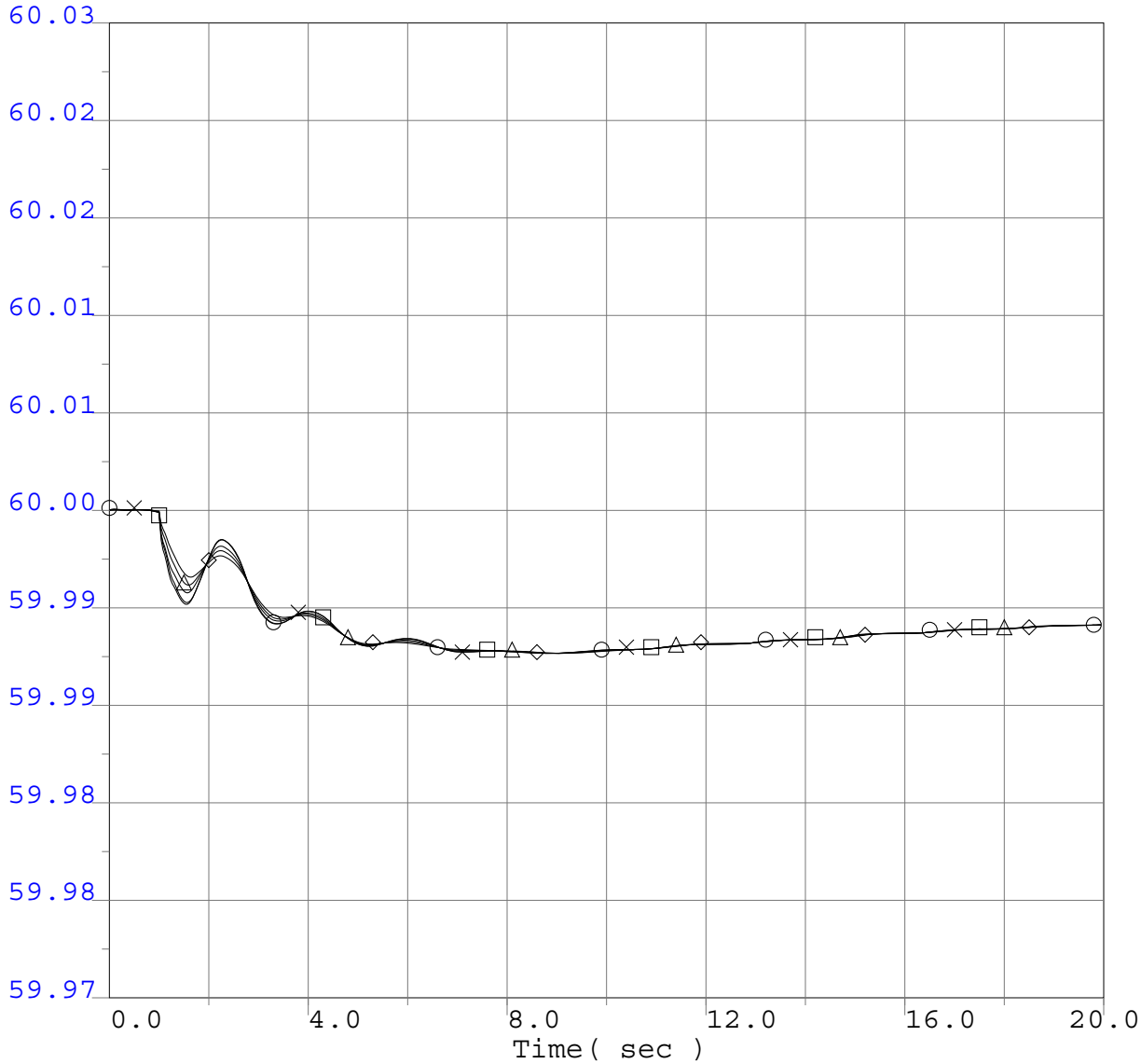


○	59.9700 fbus	40687	MALIN 500.0	0	0.0 "*"	1	60.0300
×	59.9700 fbus	30005	ROUND MT 500.0	0	0.0 "*"	1	60.0300
□	59.9700 fbus	30015	TABLE MT 500.0	0	0.0 "*"	1	60.0300
△	59.9700 fbus	30030	VACA-DIX 500.0	0	0.0 "*"	1	60.0300
◇	59.9700 fbus	30040	TESLA 500.0	0	0.0 "*"	1	60.0300
+	59.9700 fbus	30035	TRACY 500.0	0	0.0 "*"	1	60.0300

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Q268 Load Rejection
No Fault Load Rejection

Q268 Project Interconnection System Impact Study

Selected WECC Bus Frequency Plots

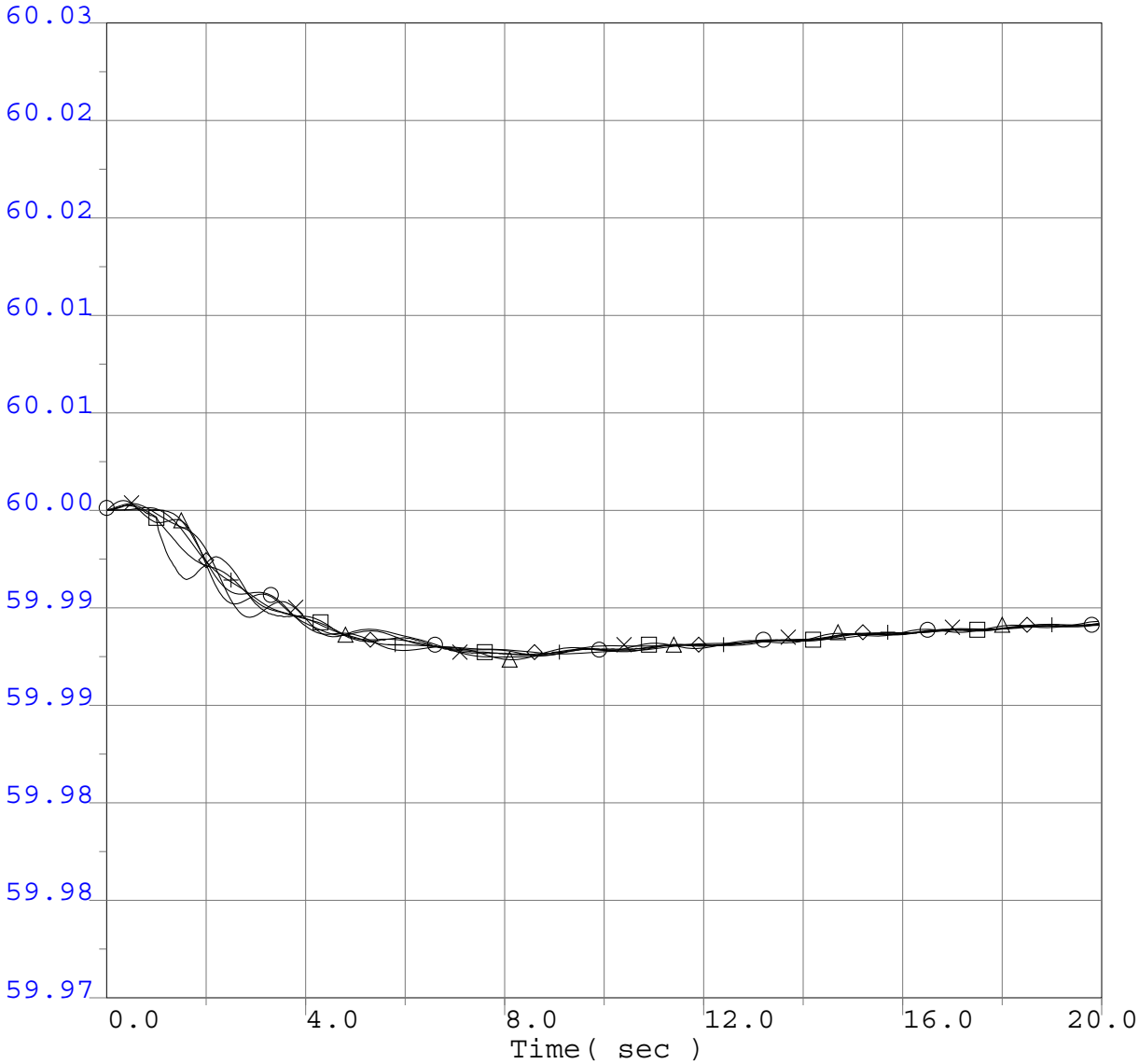


○	59.9700 fbus	30042	METCALF 500.0	0	0.0 "*"	1	60.0300
×	59.9700 fbus	30045	MOSSLAND 500.0	0	0.0 "*"	1	60.0300
□	59.9700 fbus	30050	LOSBANOS 500.0	0	0.0 "*"	1	60.0300
△	59.9700 fbus	30055	GATES 500.0	0	0.0 "*"	1	60.0300
◇	59.9700 fbus	30060	MIDWAY 500.0	0	0.0 "*"	1	60.0300

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Q268 Load Rejection
No Fault Load Rejection

Q268 Project Interconnection System Impact Study

Selected WECC Bus Frequency Plots

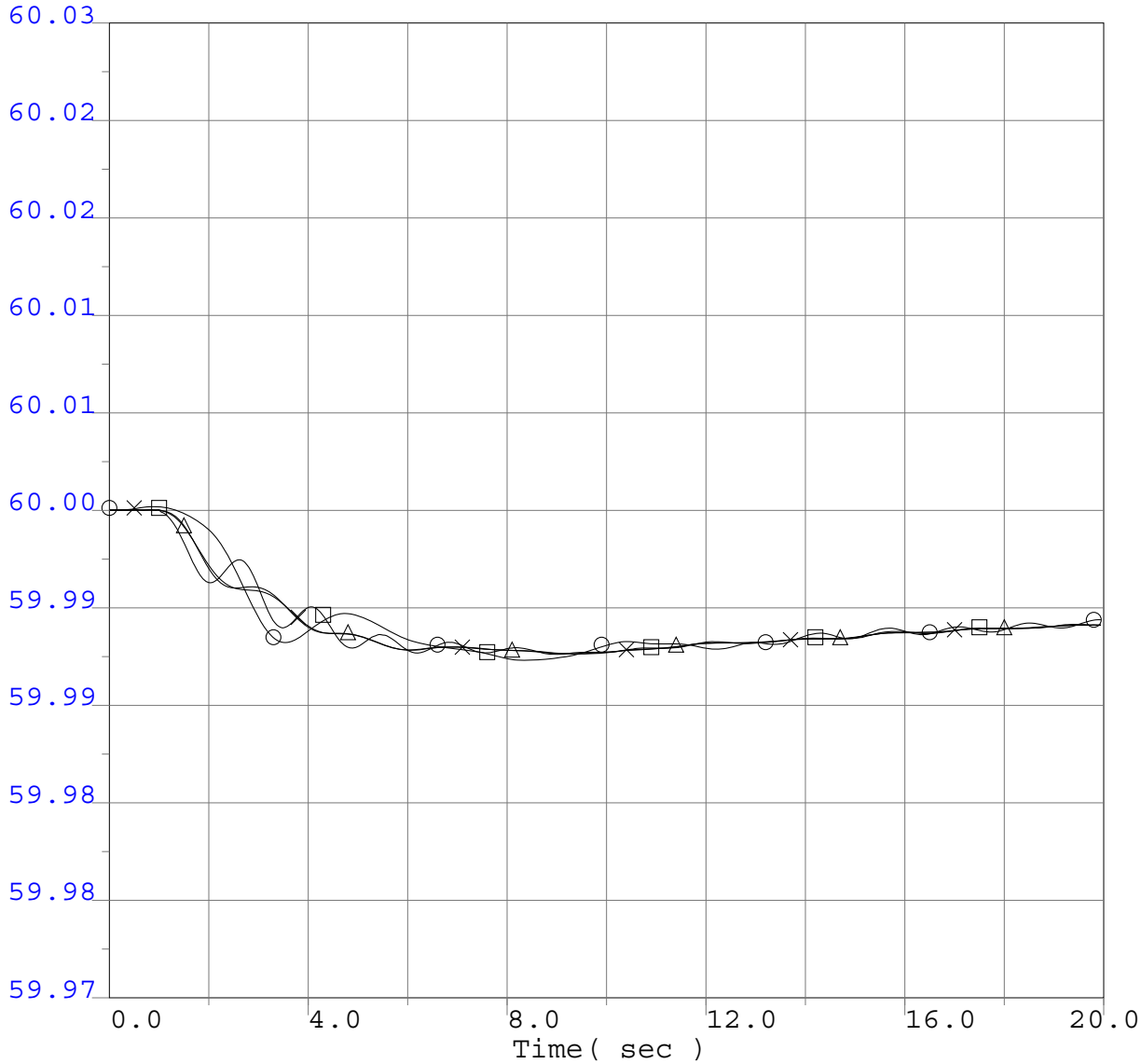


59.9700	fbus	14001	FOURCORN	500.0	0	0.0	"*"	1	60.0300
59.9700	fbus	50703	NIC500	500.0	0	0.0	"*"	1	60.0300
59.9700	fbus	60240	MIDPOINT	500.0	0	0.0	"*"	1	60.0300
59.9700	fbus	62012	TOWN2	500.0	0	0.0	"*"	1	60.0300
59.9700	fbus	40687	MALIN	500.0	0	0.0	"*"	1	60.0300
59.9700	fbus	66340	SIGURD	345.0	0	0.0	"*"	1	60.0300

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Q268 Load Rejection
No Fault Load Rejection

Q268 Project Interconnection System Impact Study

Selected WECC Bus Frequency Plots

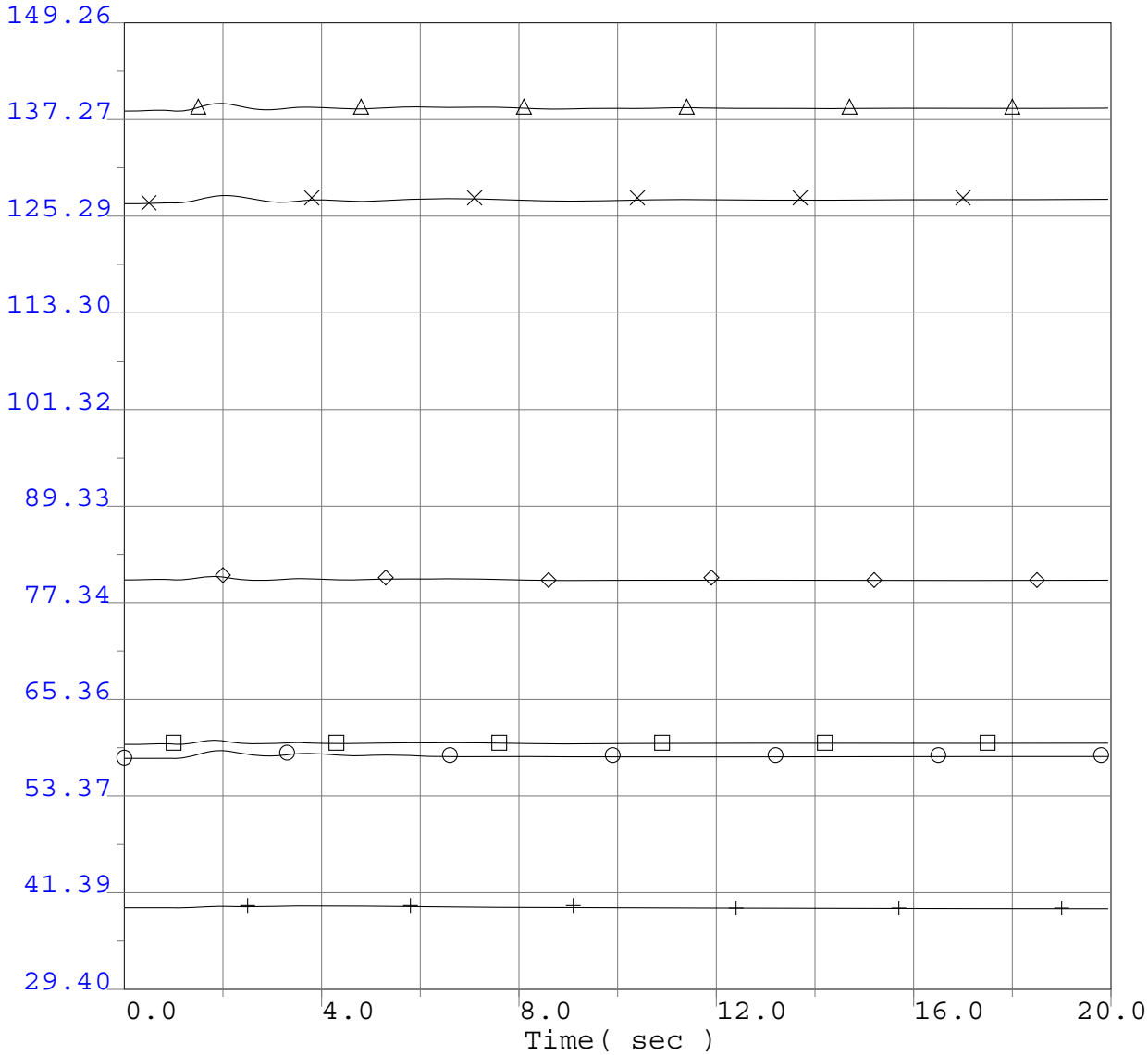


○	59.9700 fbul	54150	WILLESD9 240.0	0	0.0 "*"	1	60.0300
⊗	59.9700 fbus	14003	NAVAJO 500.0	0	0.0 "*"	1	60.0300
□	59.9700 fbus	24153	VESTAL 230.0	0	0.0 "*"	1	60.0300
△	59.9700 fbus	22360	IMPRLVLY 500.0	0	0.0 "*"	1	60.0300

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Q268 Load Rejection
No Fault Load Rejection

Q268 Project Interconnection System Impact Study

WECC Generator Rotor Angle

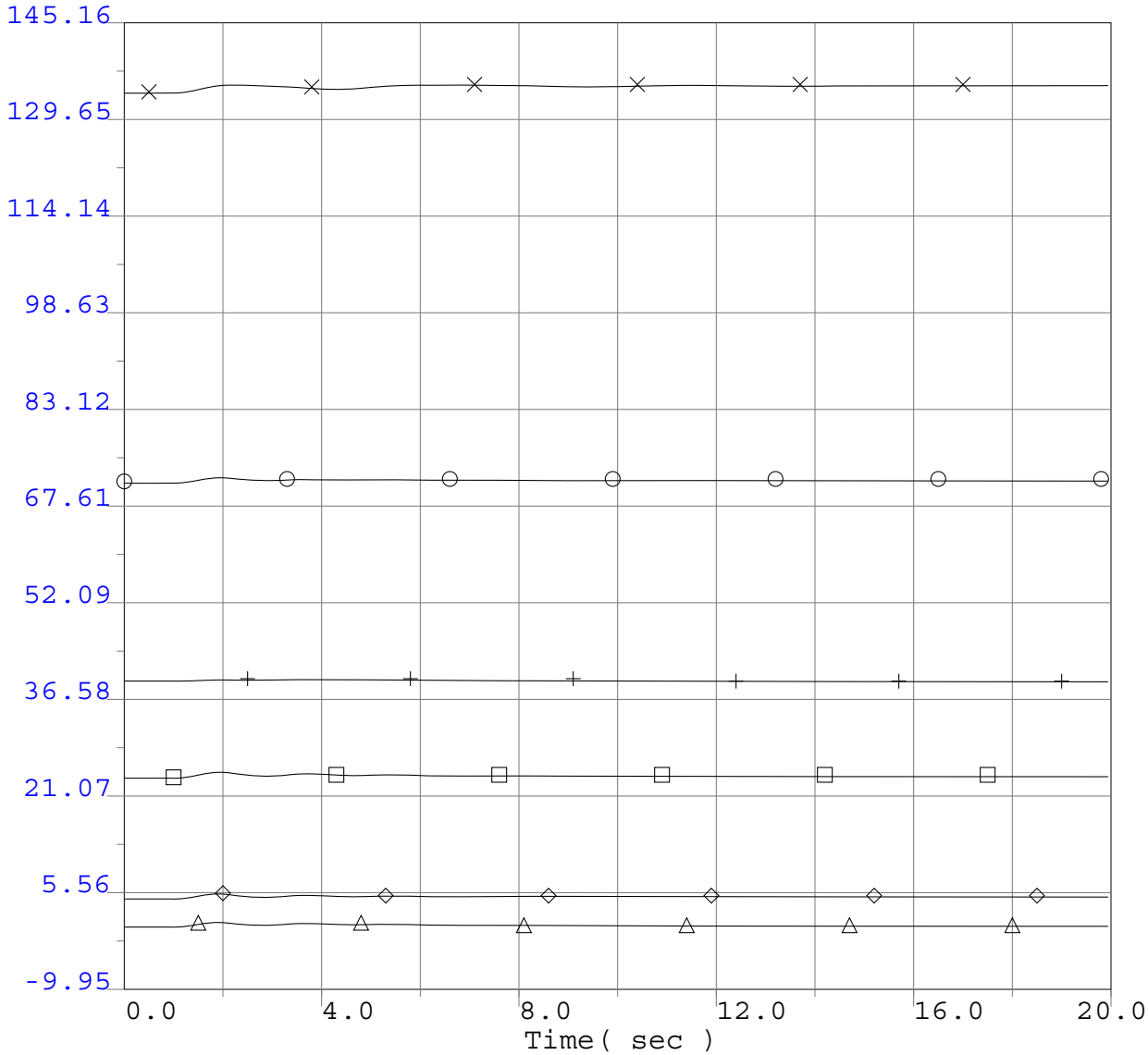


29.4000 ang	14914	FCNGN4CC	22.0	0	0.0 "H"	1	149.2600
29.4000 ang	50499	GMS G5	13.8	0	0.0 "1"	1	149.2600
29.4000 ang	60100	BRWNL 5	13.8	0	0.0 "1"	1	149.2600
29.4000 ang	62048	COLSTP 3	26.0	0	0.0 "1"	1	149.2600
29.4000 ang	44071	JDA 0102	13.8	0	0.0"01"	1	149.2600
29.4000 ang	36411	DIABLO 1	25.0	0	0.0 "1"	1	149.2600

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Q268 Load Rejection
No Fault Load Rejection

Q268 Project Interconnection System Impact Study

WECC Generator Rotor Angle

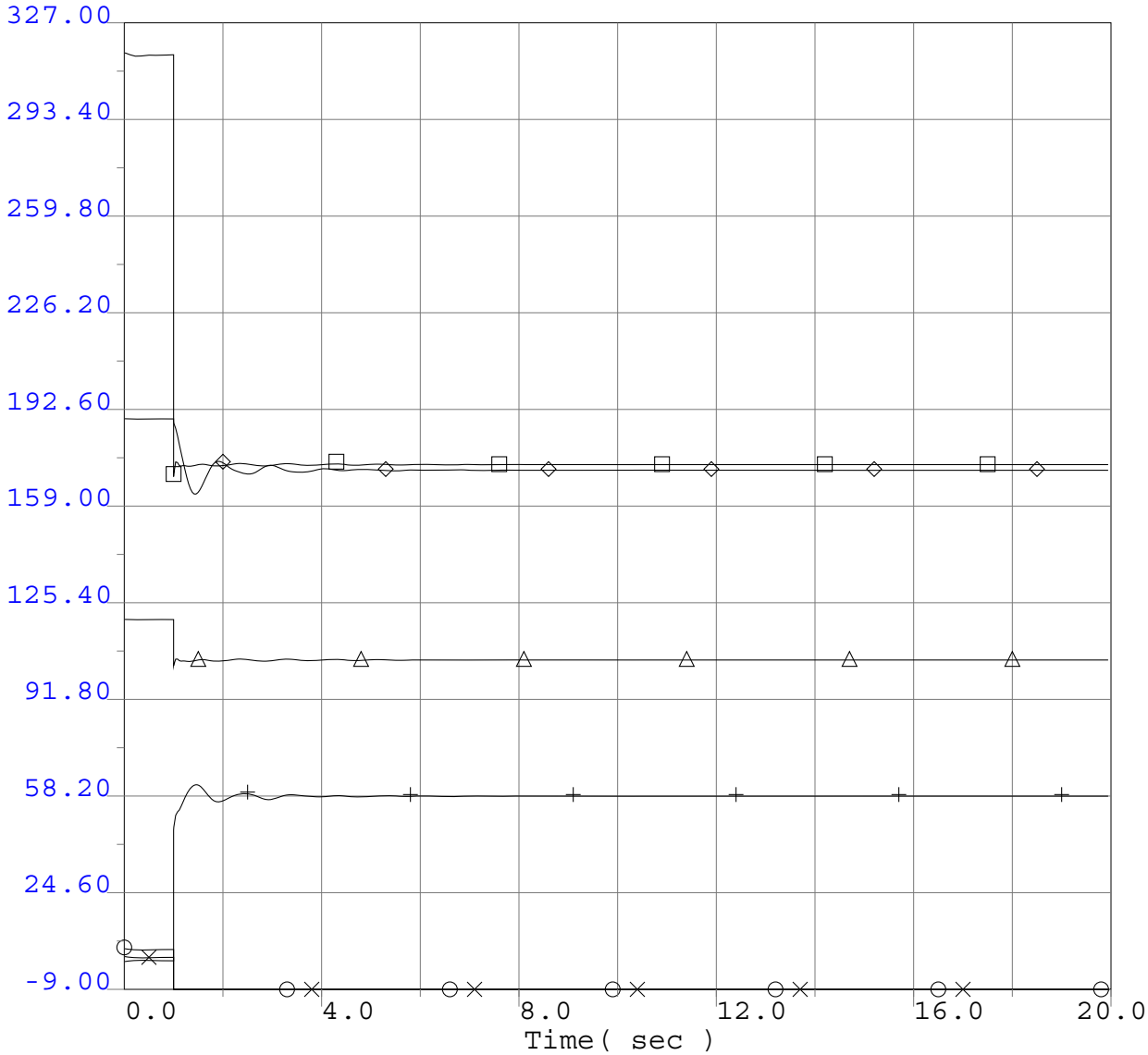


-9.9500 ang	65490	EHUNTR 1	24.0	0	0.0	"1"	1	145.1600
-9.9500 ang	54338	SUND#2GN	18.0	0	0.0	"2"	1	145.1600
-9.9500 ang	79151	GLENC3-4	13.8	0	0.0	"3"	1	145.1600
-9.9500 ang	24130	S.ONOFR3	22.0	0	0.0	"3"	1	145.1600
-9.9500 ang	22244	ENCINA 5	24.0	0	0.0	"1"	1	145.1600
-9.9500 ang	36411	DIABLO 1	25.0	0	0.0	"1"	1	145.1600

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Q268 Load Rejection
No Fault Load Rejection

Q268 Project Interconnection System Impact Study

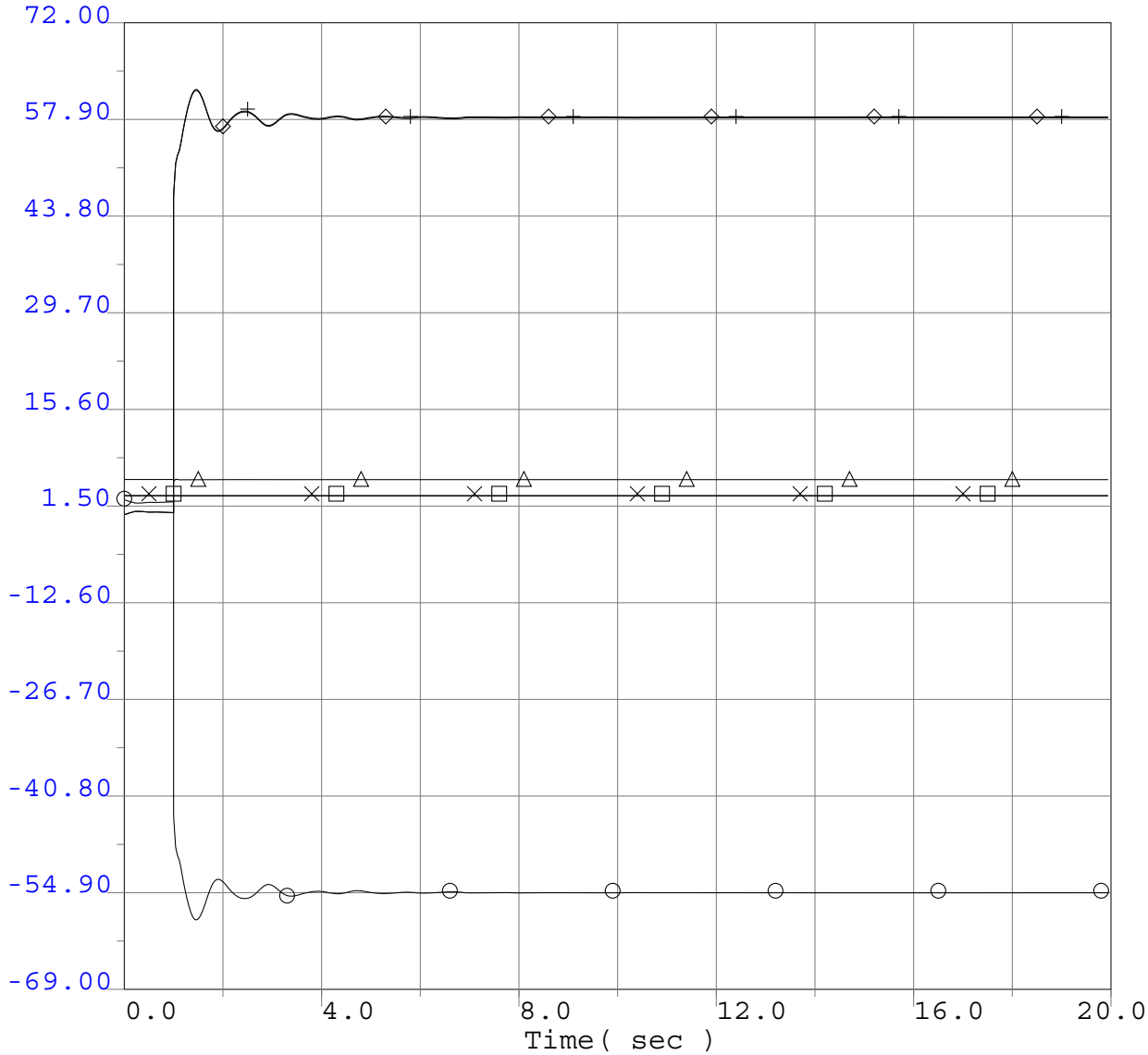
Selected PG&E Transmission Line Flows (MW)



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Q268 Load Rejection
No Fault Load Rejection

Q268 Project Interconnection System Impact Study

Selected PG&E Transmission Line Flows (MW)

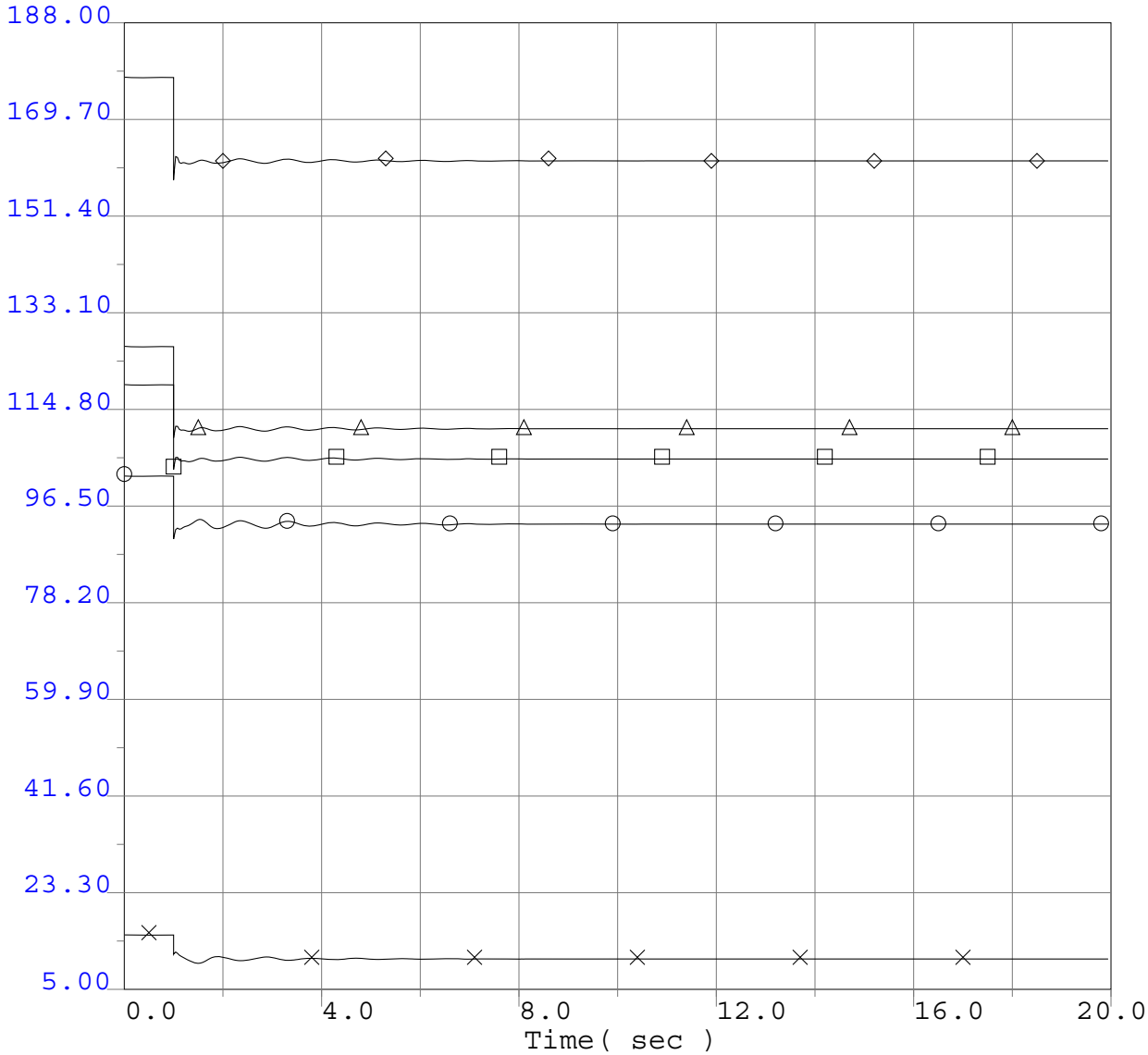


○	-69.0000 pbr	33535	SFWY_TP2 115.0	33543	AEC_TP2 115.0	1	1	72.0000
⊠	-69.0000 pbr	33543	AEC_TP2 115.0	33545	AEC_JCT 115.0	1	1	72.0000
□	-69.0000 pbr	33545	AEC_JCT 115.0	33547	AEC_300 115.0	1	1	72.0000
△	-69.0000 pbr	33537	SFWY_TP1 115.0	33534	SAFEWAY 115.0	1	1	72.0000
◇	-69.0000 pbr	33541	AEC_TP1 115.0	33537	SFWY_TP1 115.0	1	1	72.0000
+	-69.0000 pbr	33540	TESLA 115.0	33541	AEC_TP1 115.0	1	1	72.0000

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Q268 Load Rejection
No Fault Load Rejection

Q268 Project Interconnection System Impact Study

Selected PG&E Transmission Line Flows (MW)

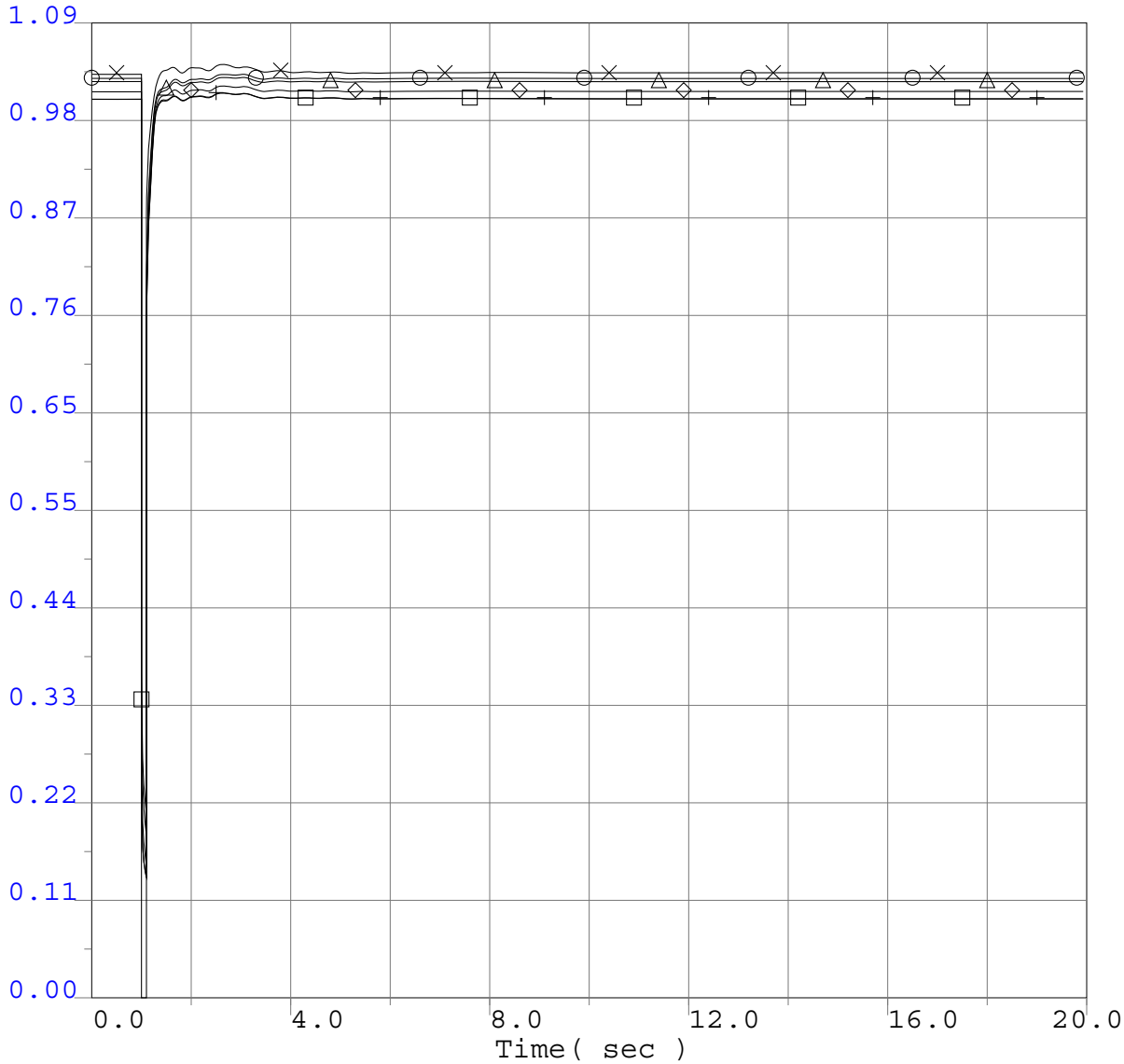


5.0000 pbr	33526	KSSN-JC1	115.0	33514	MANTECA	115.0	1	1	188.0000
5.0000 pbr	33526	KSSN-JC1	115.0	33528	KASSON	115.0	1	1	188.0000
5.0000 pbr	33533	OWENSTP2	115.0	33526	KSSN-JC1	115.0	1	1	188.0000
5.0000 pbr	33529	LAMMERS	115.0	33528	KASSON	115.0	1	1	188.0000
5.0000 pbr	33531	OWENSTP1	115.0	33529	LAMMERS	115.0	1	1	188.0000

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Q268 Load Rejection
No Fault Load Rejection

Q268 Project Interconnection System Impact Study

Selected PG&E Bus Voltage Plots Adjacent to Fault

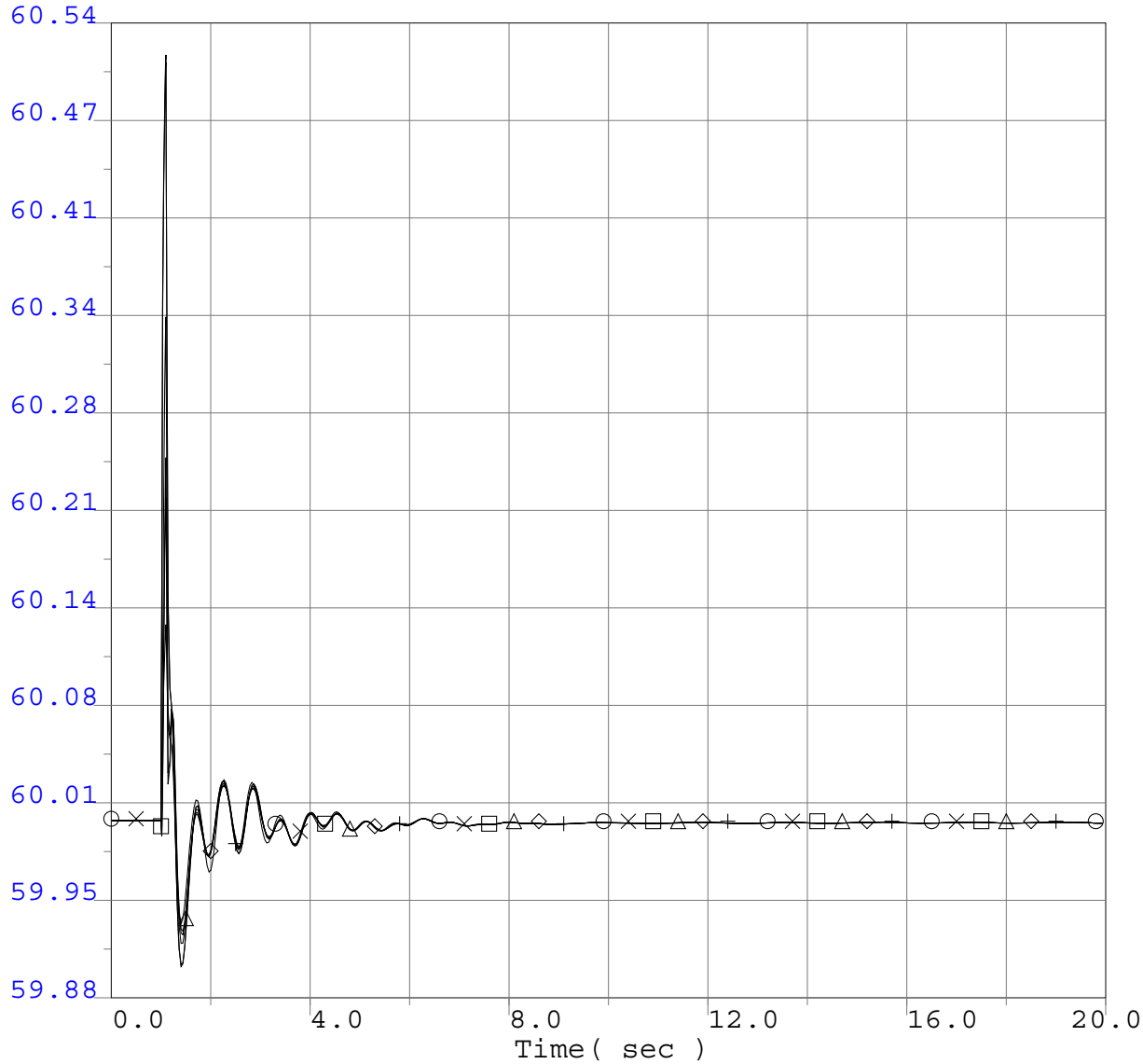


0.0000	vbus	33549	SCHULTE 115.0	0	0.0	"*"	1	1.0900
0.0000	vbus	33540	TESLA 115.0	0	0.0	"*"	1	1.0900
0.0000	vbul	33514	MANTECA 115.0	0	0.0	"*"	1	1.0900
0.0000	vbul	33529	LAMMERS 115.0	0	0.0	"*"	1	1.0900
0.0000	vbus	33528	KASSON 115.0	0	0.0	"*"	1	1.0900
0.0000	vbul	33518	VIERRA 115.0	0	0.0	"*"	1	1.0900

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 112-412+512
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected PG&E Bus Frequency Plots Adjacent to Fault

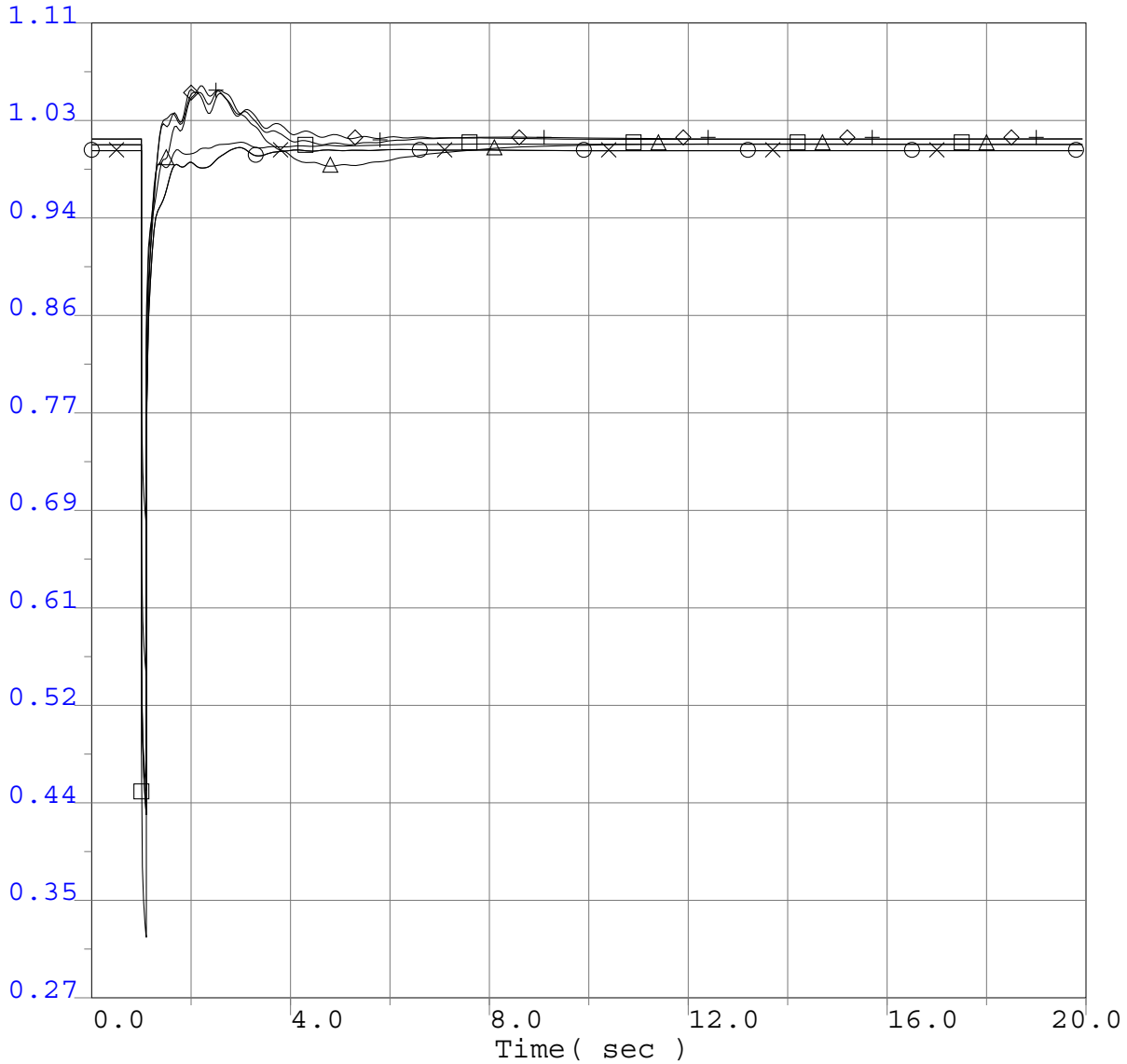


○	59.8800 fbus	33549	SCHULTE 115.0	0	0.0 "*"	1	60.5400
×	59.8800 fbus	33540	TESLA 115.0	0	0.0 "*"	1	60.5400
□	59.8800 fbul	33514	MANTECA 115.0	0	0.0 "*"	1	60.5400
△	59.8800 fbul	33529	LAMMERS 115.0	0	0.0 "*"	1	60.5400
◇	59.8800 fbus	33528	KASSON 115.0	0	0.0 "*"	1	60.5400
+	59.8800 fbul	33518	VIERRA 115.0	0	0.0 "*"	1	60.5400

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 112-412+512
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Project Generator Terminal Voltages

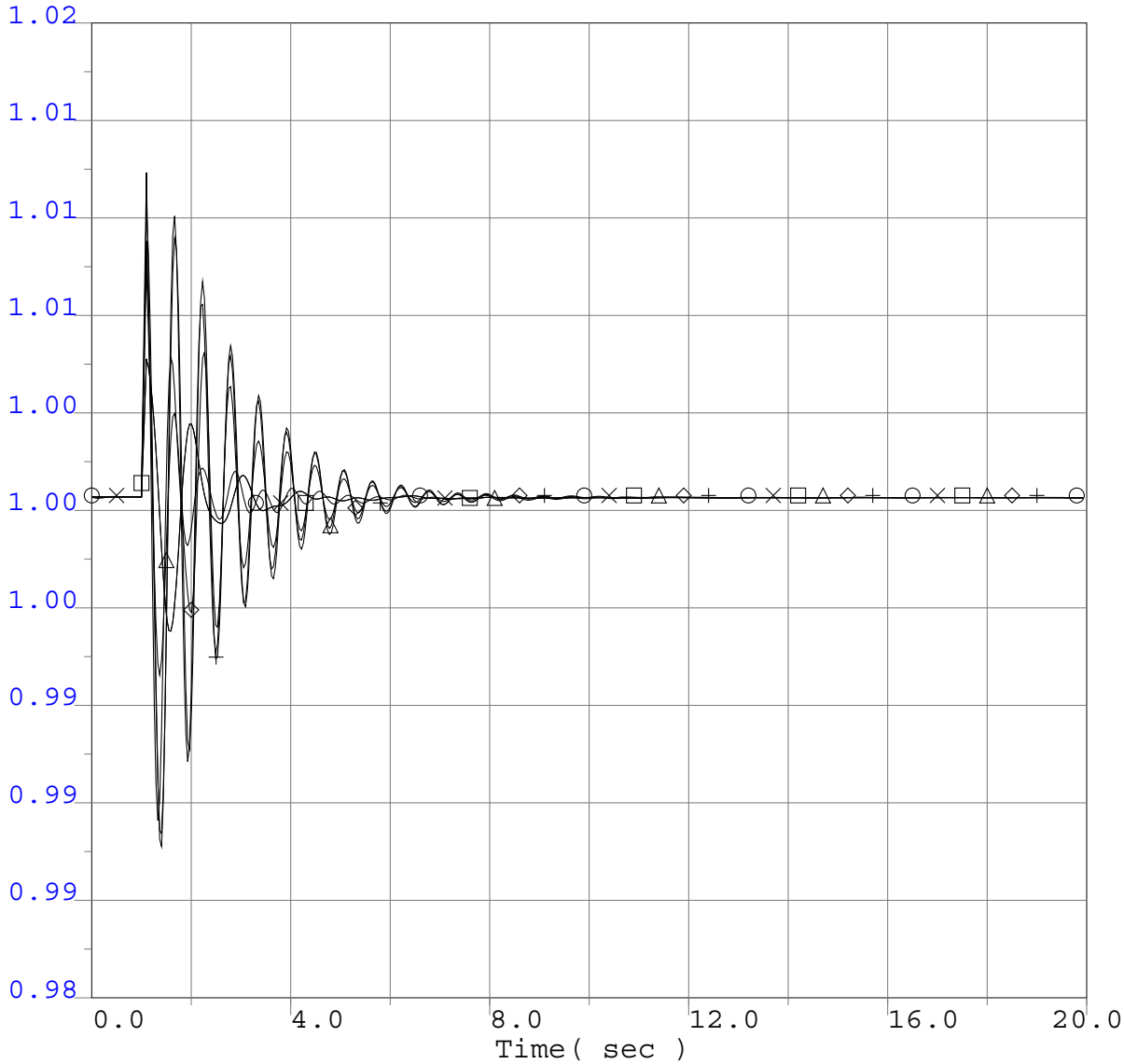


0.2700 vt	33805	GWFTRCY1	13.8	0	0.0 "1"	1	1.1100
0.2700 vt	33807	GWFTRCY2	13.8	0	0.0 "1"	1	1.1100
0.2700 vt	33809	Q268ST1	13.8	0	0.0 "1"	1	1.1100
0.2700 vt	33858	P0409CG2	13.8	0	0.0 "1"	1	1.1100
0.2700 vt	33808	SJ COGEN	13.8	0	0.0 "1"	1	1.1100
0.2700 vt	33810	SP CMPNY	13.8	0	0.0 "1"	1	1.1100

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 112-412+512
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

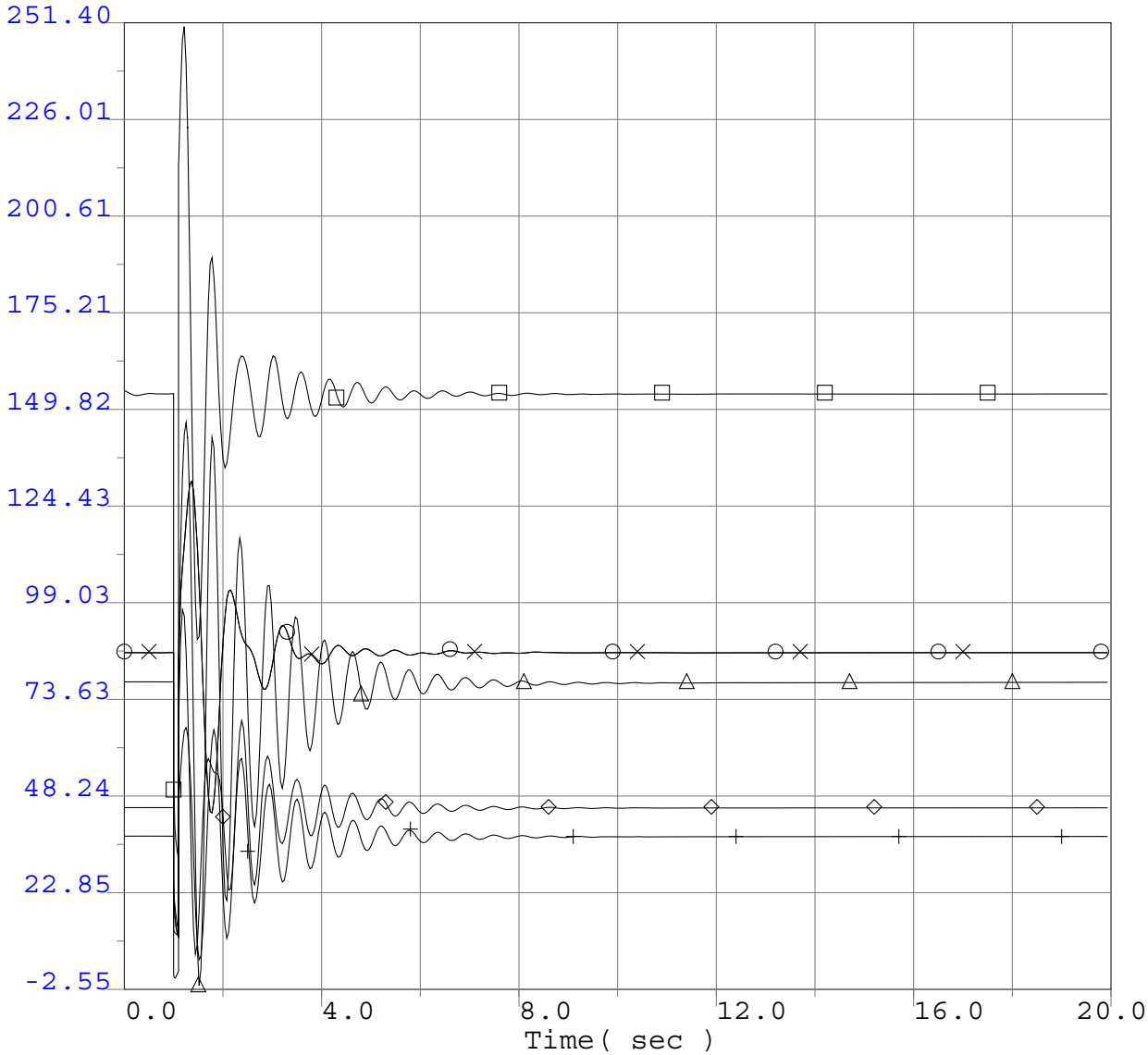
Project Generator Rotor Speed



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 112-412+512
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Project Generator Terminal Power

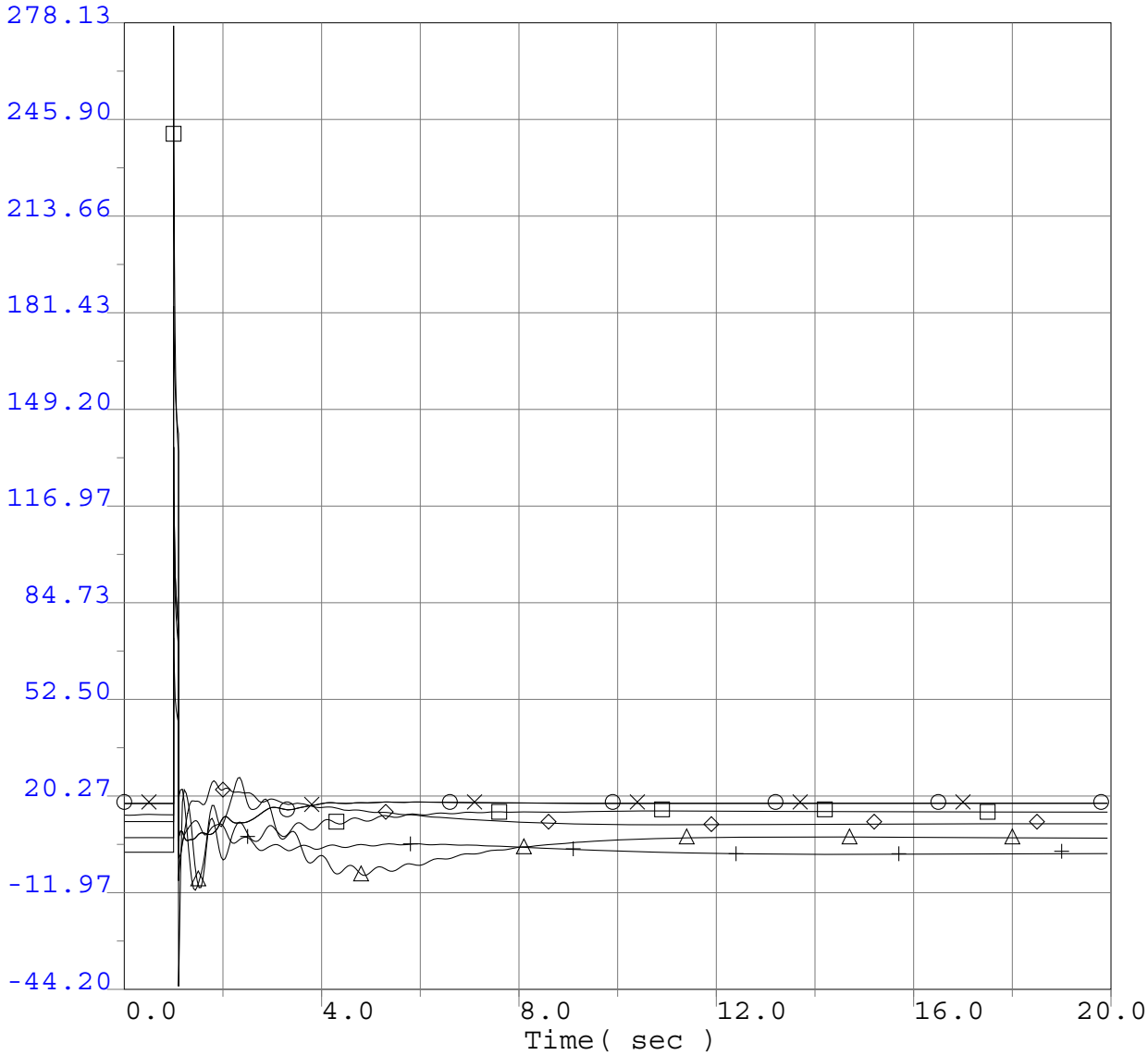


-2.5500 pg	33805	GWFTRCY1	13.8	0	0.0 "1"	1	251.4000
-2.5500 pg	33807	GWFTRCY2	13.8	0	0.0 "1"	1	251.4000
-2.5500 pg	33809	Q268ST1	13.8	0	0.0 "1"	1	251.4000
-2.5500 pg	33858	P0409CG2	13.8	0	0.0 "1"	1	251.4000
-2.5500 pg	33808	SJ COGEN	13.8	0	0.0 "1"	1	251.4000
-2.5500 pg	33810	SP CMPNY	13.8	0	0.0 "1"	1	251.4000

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 112-412+512
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

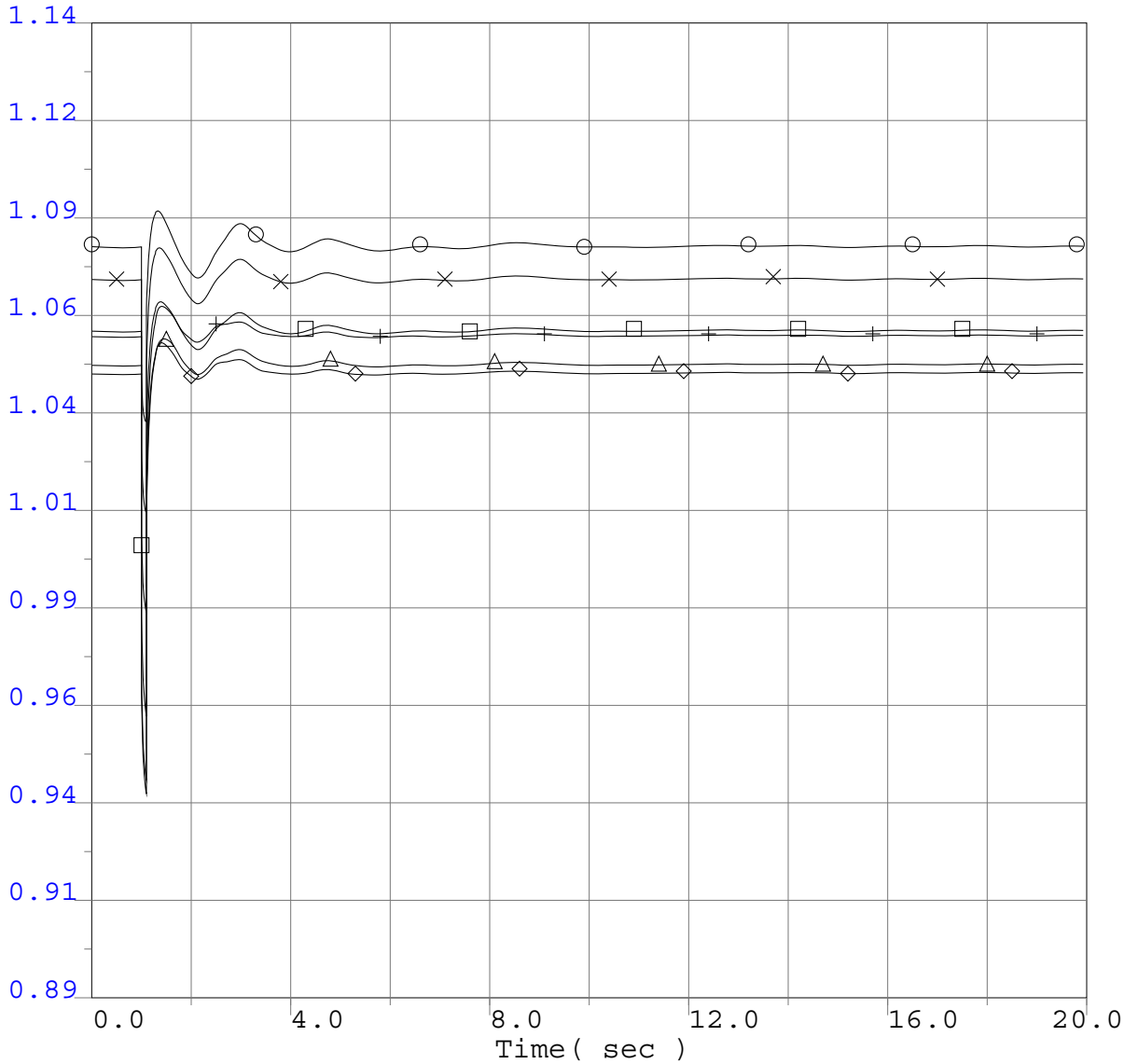
Project Generator Terminal Reactive Power



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 112-412+512
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots

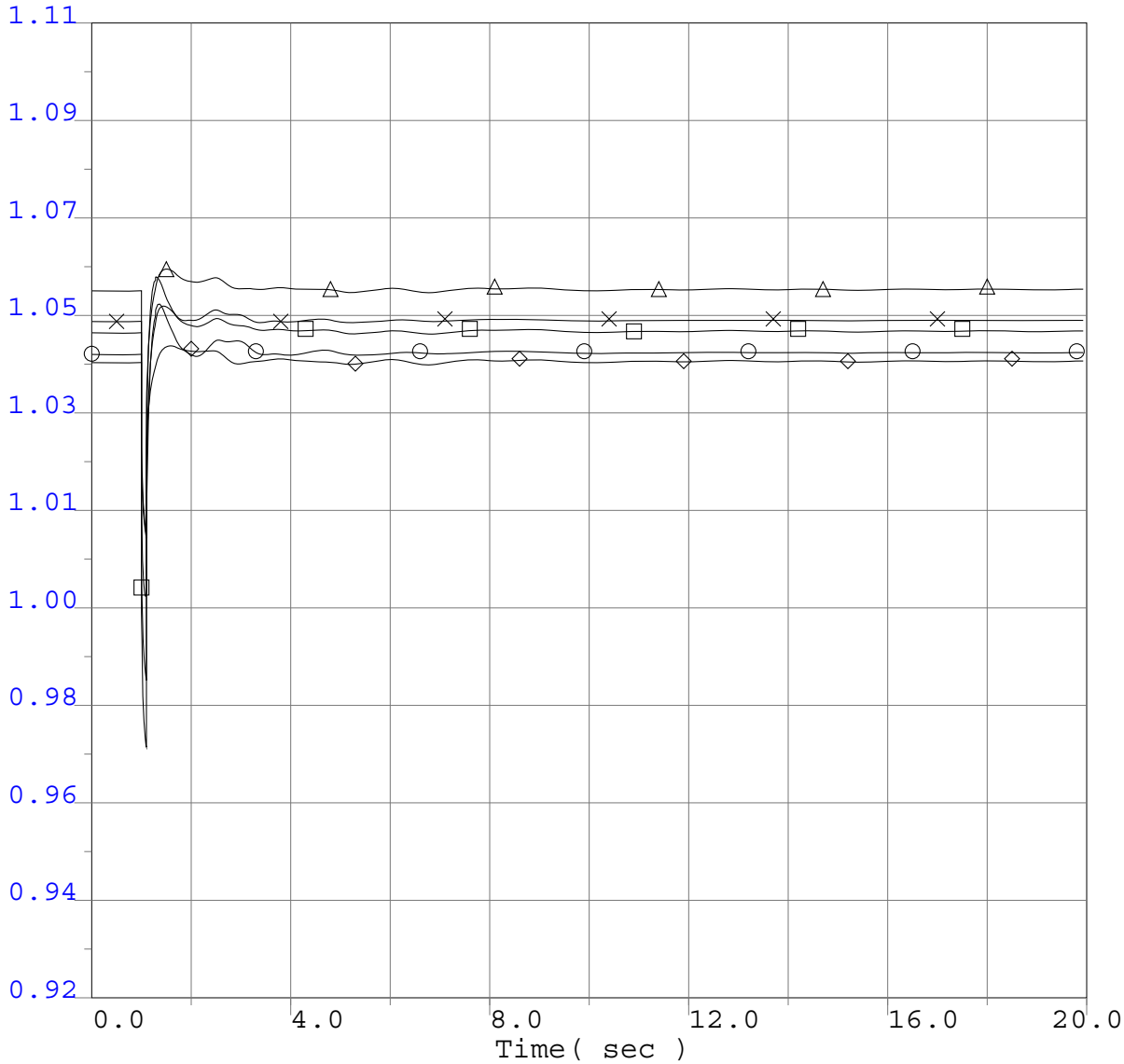


0.8900	vbus	40687	MALIN	500.0	0	0.0 "*"	1	1.1400
0.8900	vbus	30005	ROUND MT	500.0	0	0.0 "*"	1	1.1400
0.8900	vbus	30015	TABLE MT	500.0	0	0.0 "*"	1	1.1400
0.8900	vbus	30030	VACA-DIX	500.0	0	0.0 "*"	1	1.1400
0.8900	vbus	30040	TESLA	500.0	0	0.0 "*"	1	1.1400
0.8900	vbus	30035	TRACY	500.0	0	0.0 "*"	1	1.1400

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 112-412+512
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots

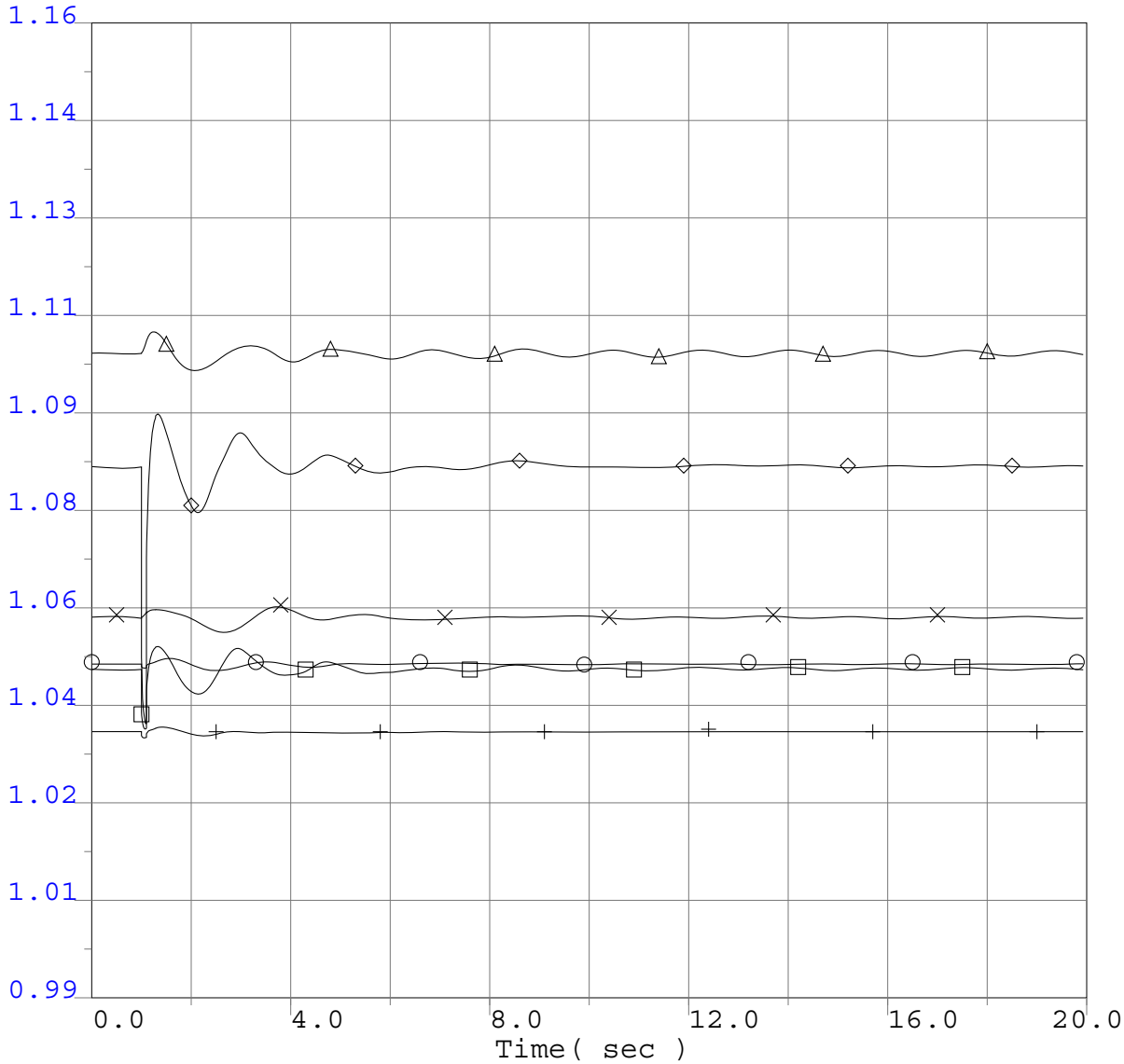


○	0.9200 vbus	30042	METCALF 500.0	0	0.0 "*"	1	1.1100
⊗	0.9200 vbus	30045	MOSSLAND 500.0	0	0.0 "*"	1	1.1100
□	0.9200 vbus	30050	LOSBANOS 500.0	0	0.0 "*"	1	1.1100
△	0.9200 vbus	30055	GATES 500.0	0	0.0 "*"	1	1.1100
◇	0.9200 vbus	30060	MIDWAY 500.0	0	0.0 "*"	1	1.1100

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 112-412+512
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots

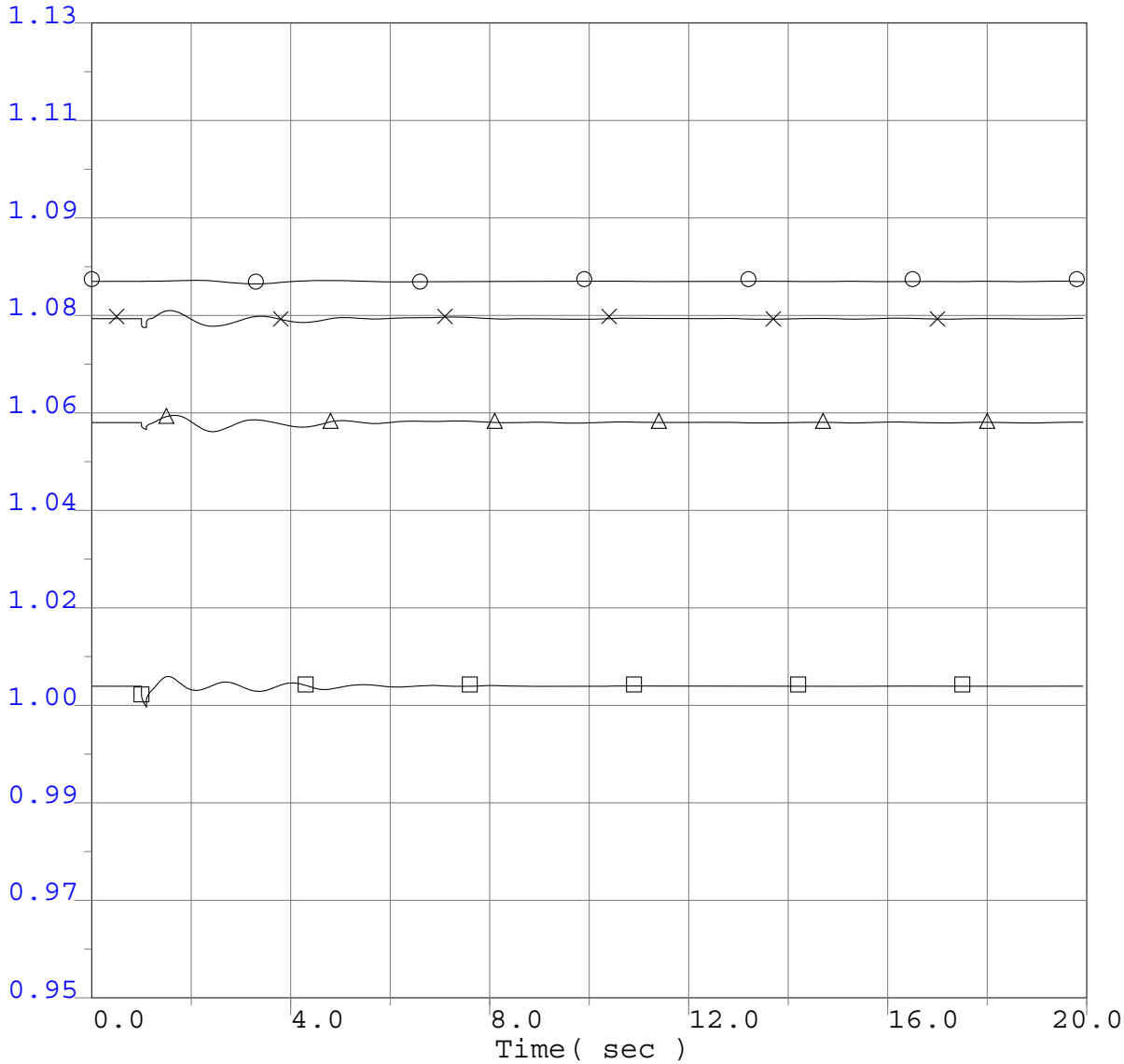


0.9900 vbus	14001	FOURCORN 500.0	0	0.0 "*"	1	1.1600
0.9900 vbus	50703	NIC500 500.0	0	0.0 "*"	1	1.1600
0.9900 vbus	60240	MIDPOINT 500.0	0	0.0 "*"	1	1.1600
0.9900 vbus	62012	TOWN2 500.0	0	0.0 "*"	1	1.1600
0.9900 vbus	40687	MALIN 500.0	0	0.0 "*"	1	1.1600
0.9900 vbus	66340	SIGURD 345.0	0	0.0 "*"	1	1.1600

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 112-412+512
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots

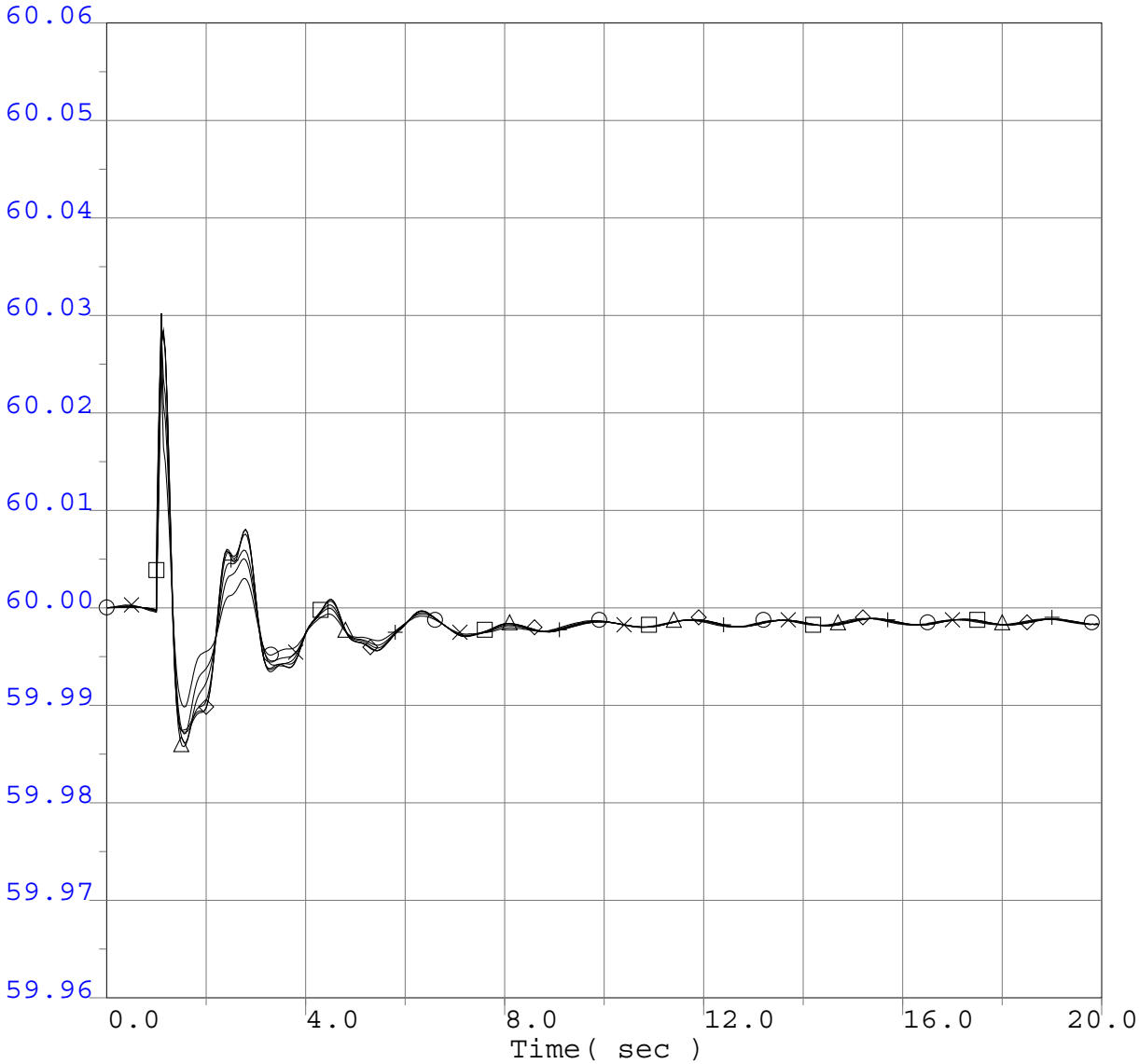


○	0.9500 vbul	54150	WILLESD9 240.0	0	0.0 "*"	1	1.1300
⊗	0.9500 vbus	14003	NAVAJO 500.0	0	0.0 "*"	1	1.1300
□	0.9500 vbus	24153	VESTAL 230.0	0	0.0 "*"	1	1.1300
△	0.9500 vbus	22360	IMPRLVLY 500.0	0	0.0 "*"	1	1.1300

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 112-412+512
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected WECC Bus Frequency Plots



59.9600	fbus	40687	MALIN	500.0	0	0.0	"*"	1	60.0600
59.9600	fbus	30005	ROUND MT	500.0	0	0.0	"*"	1	60.0600
59.9600	fbus	30015	TABLE MT	500.0	0	0.0	"*"	1	60.0600
59.9600	fbus	30030	VACA-DIX	500.0	0	0.0	"*"	1	60.0600
59.9600	fbus	30040	TESLA	500.0	0	0.0	"*"	1	60.0600
59.9600	fbus	30035	TRACY	500.0	0	0.0	"*"	1	60.0600

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
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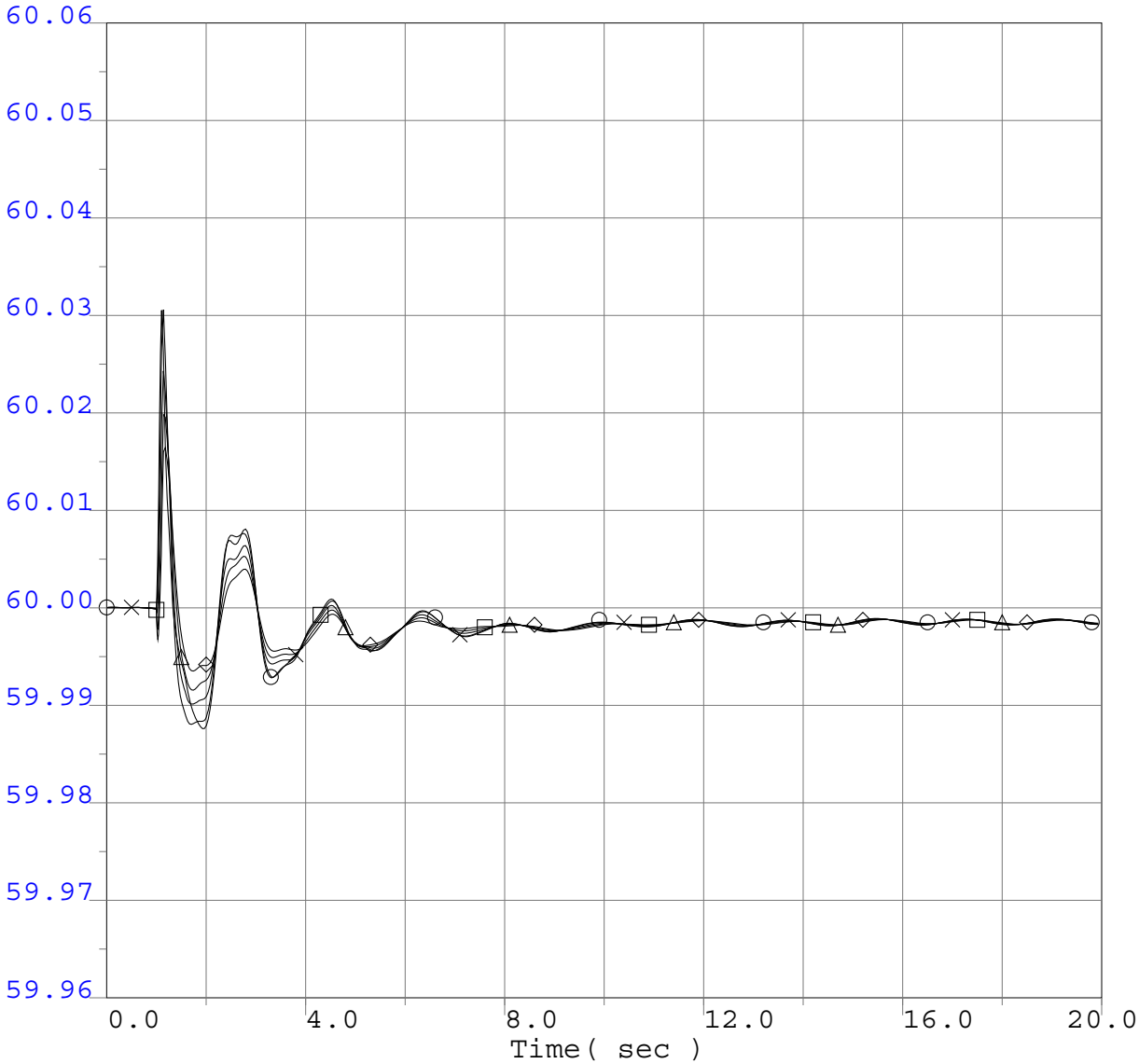
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected WECC Bus Frequency Plots



59.9600	fbus	30042	METCALF	500.0	0	0.0 "*"	1	60.0600
59.9600	fbus	30045	MOSSLAND	500.0	0	0.0 "*"	1	60.0600
59.9600	fbus	30050	LOSBANOS	500.0	0	0.0 "*"	1	60.0600
59.9600	fbus	30055	GATES	500.0	0	0.0 "*"	1	60.0600
59.9600	fbus	30060	MIDWAY	500.0	0	0.0 "*"	1	60.0600

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
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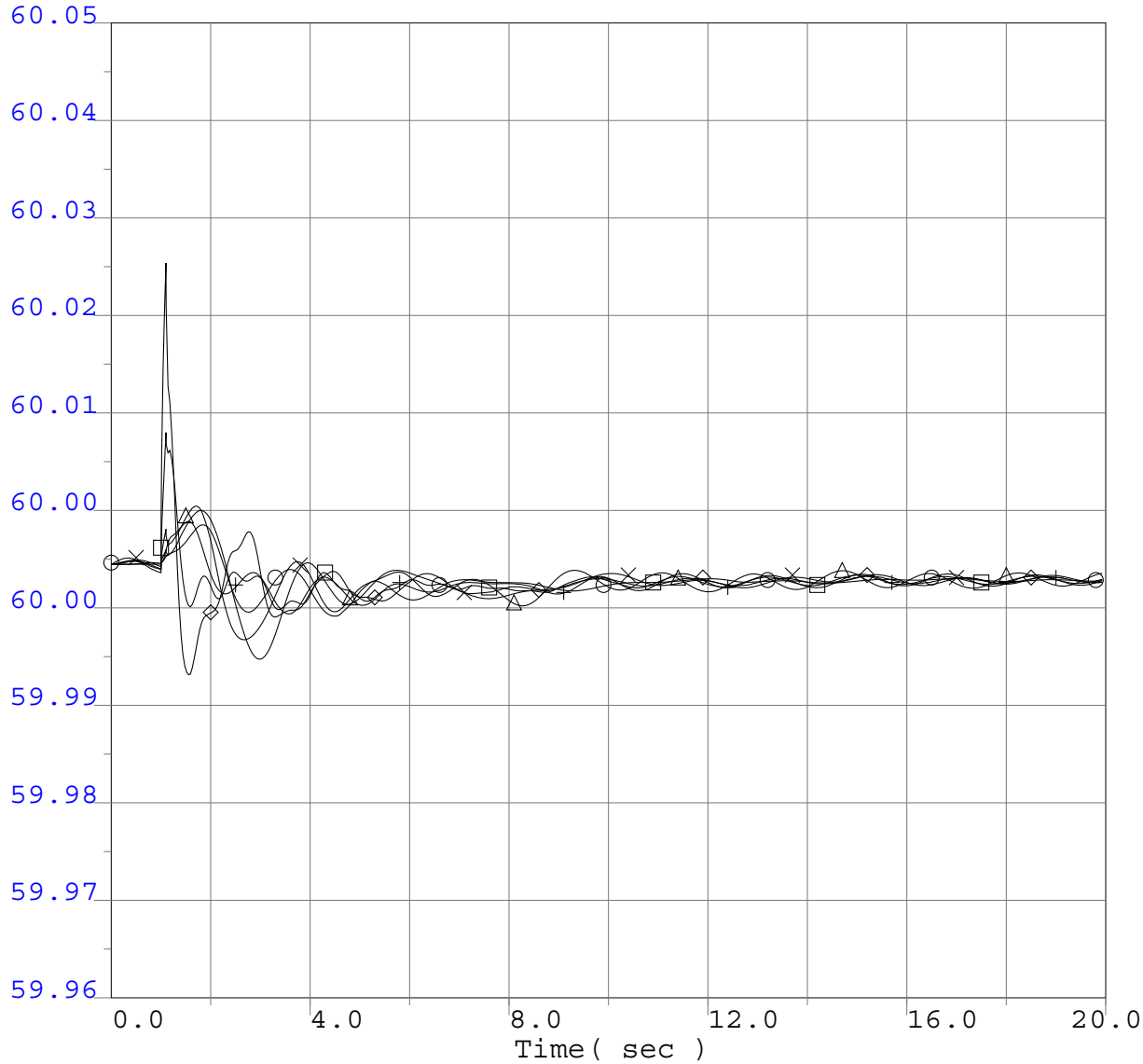
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

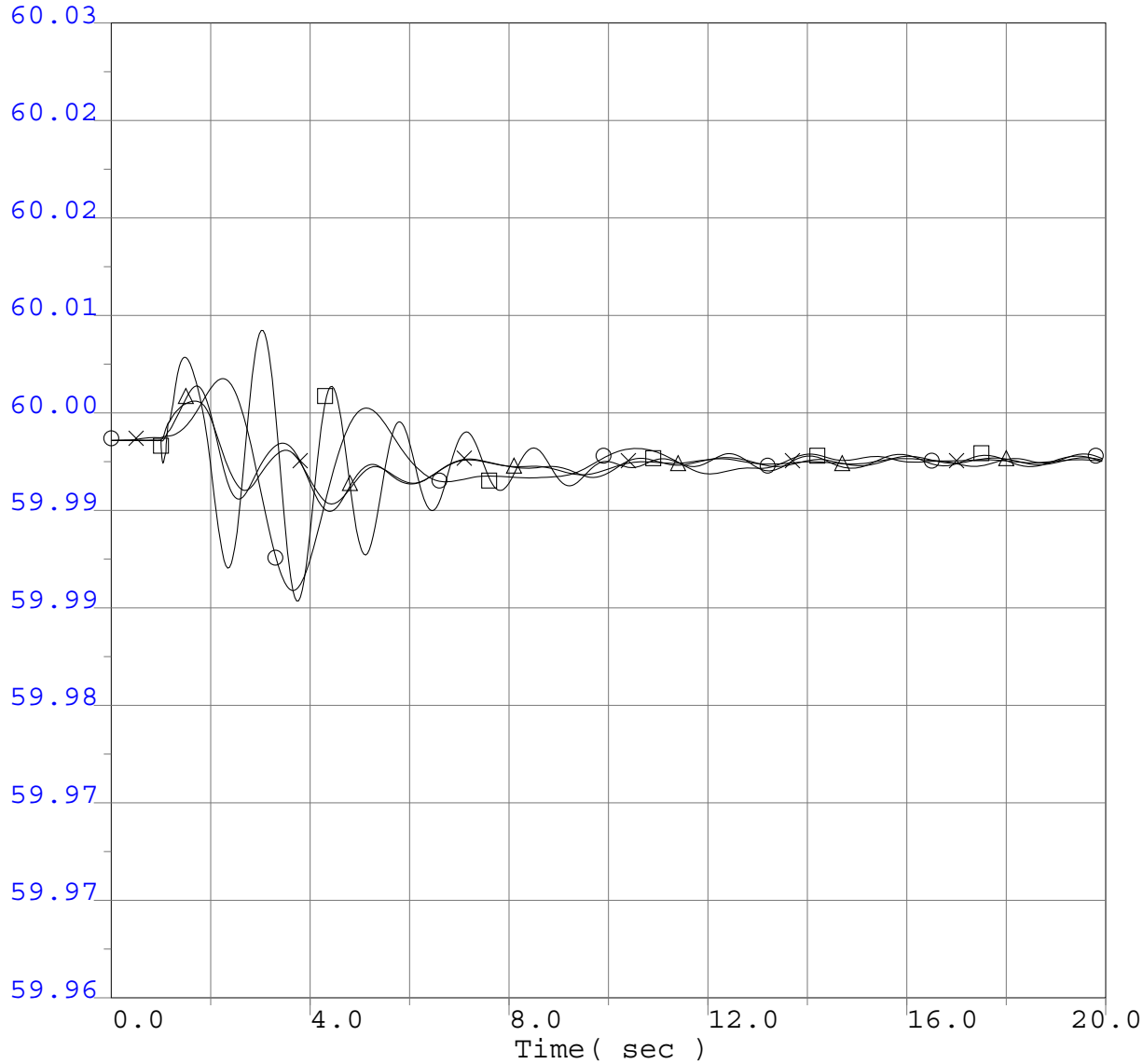
Selected WECC Bus Frequency Plots



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 112-412+512
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected WECC Bus Frequency Plots



○	59.9600 fbul	54150	WILLESD9 240.0	0	0.0 "*"	1	60.0300
⊗	59.9600 fbus	14003	NAVAJO 500.0	0	0.0 "*"	1	60.0300
□	59.9600 fbus	24153	VESTAL 230.0	0	0.0 "*"	1	60.0300
△	59.9600 fbus	22360	IMPRLVLY 500.0	0	0.0 "*"	1	60.0300

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
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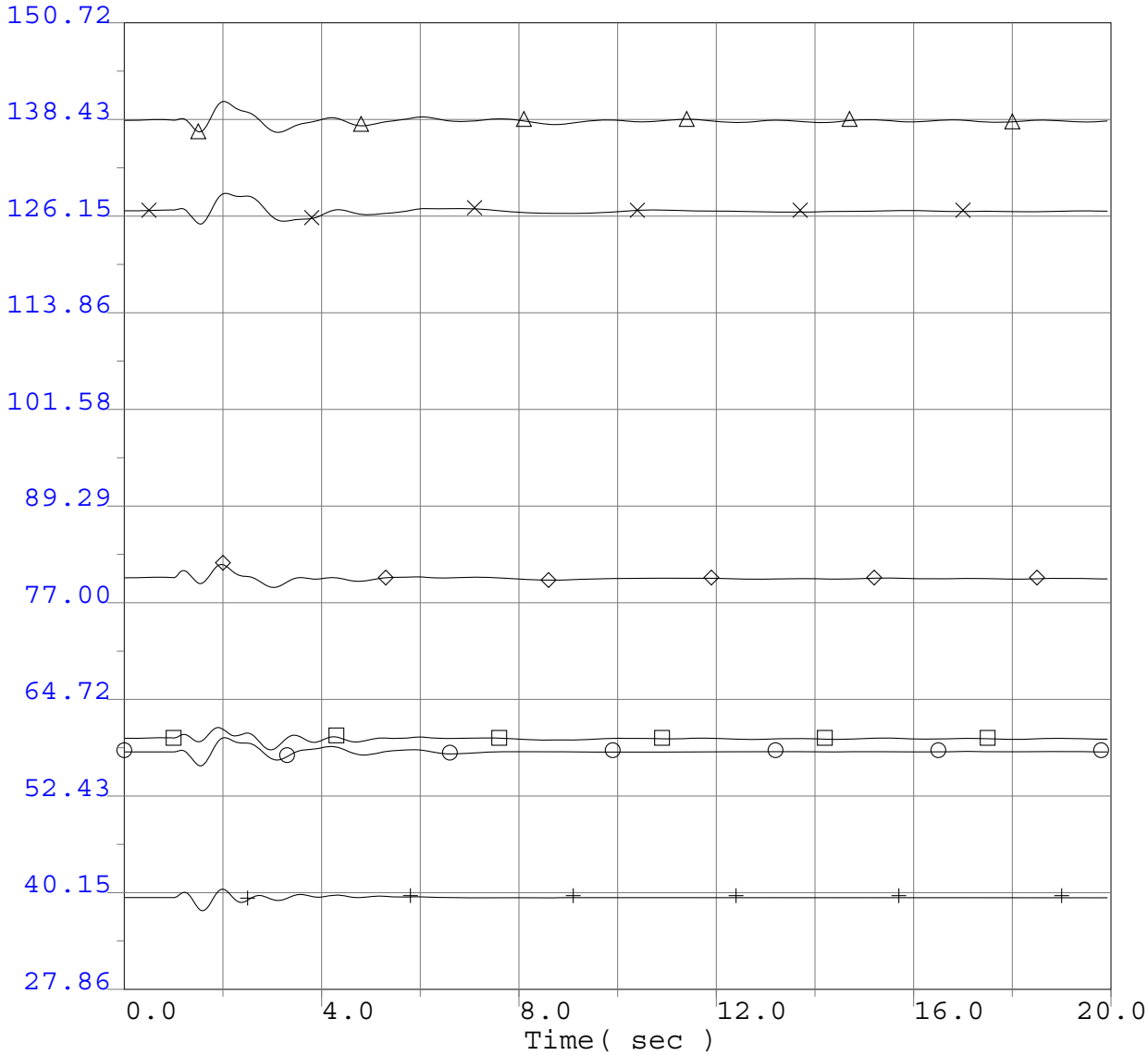
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

WECC Generator Rotor Angle



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 112-412+512
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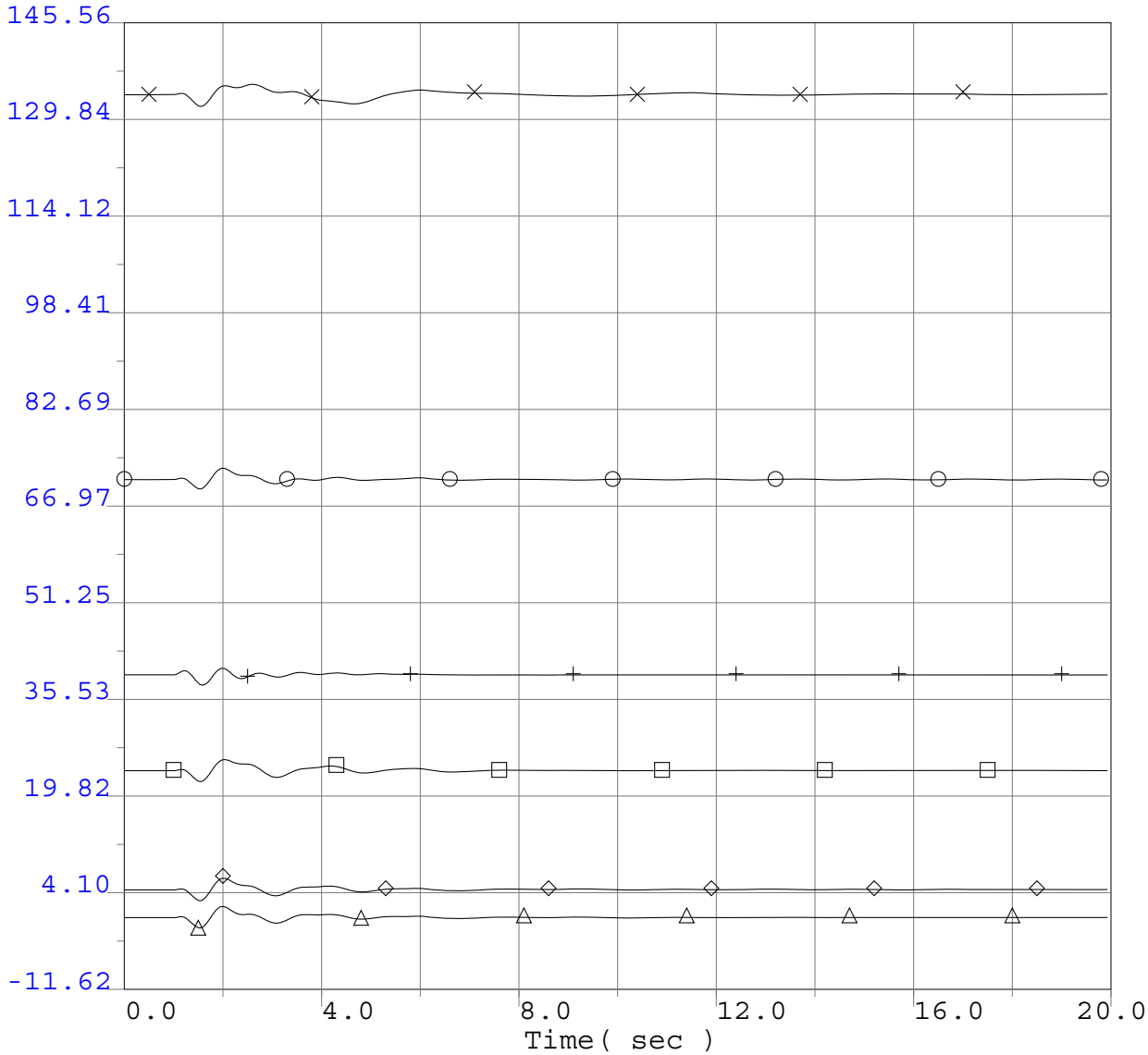
Q268 Project Interconnection System Impact Study

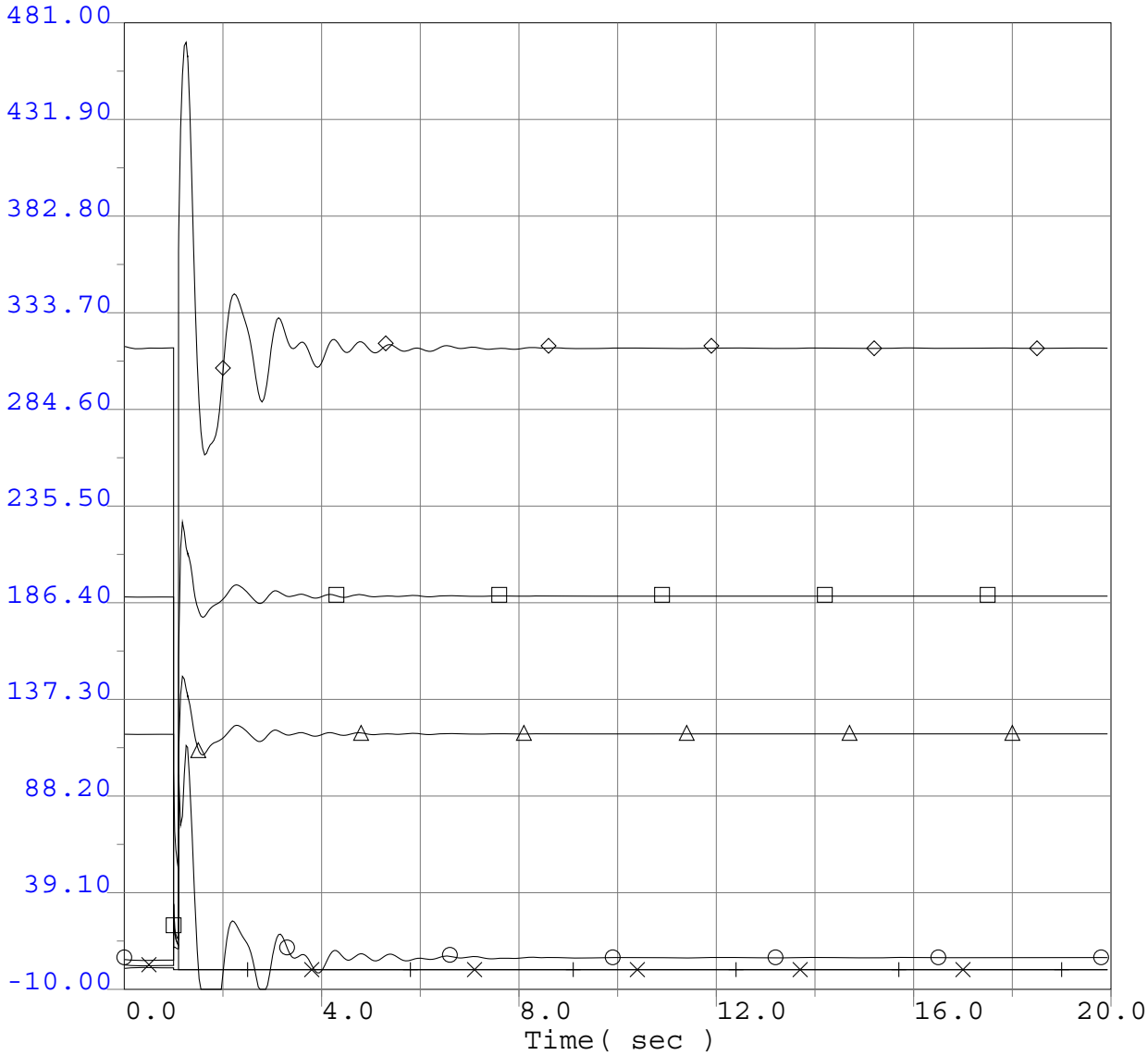
WECC Generator Rotor Angle



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 112-412+512
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

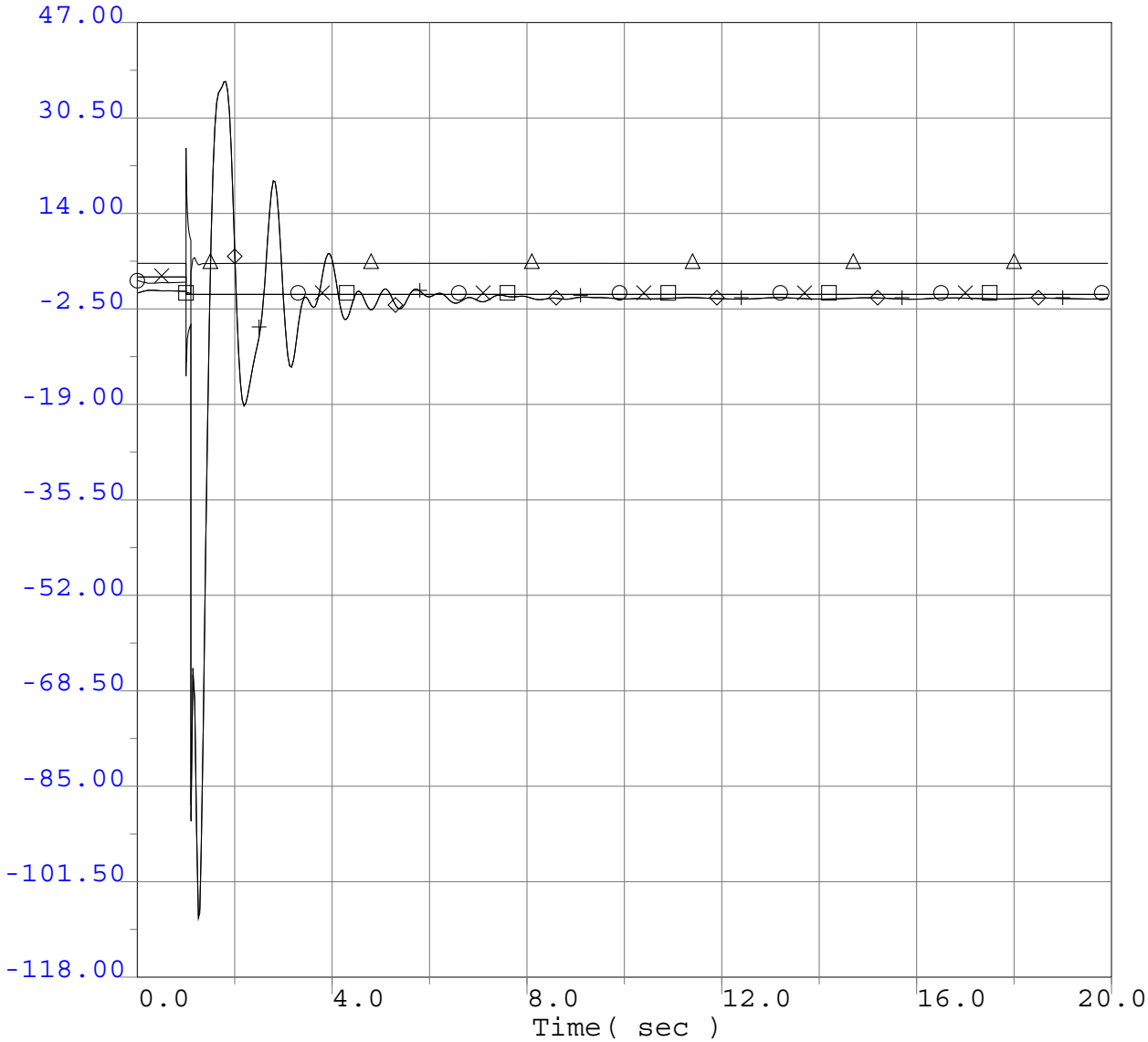
Selected PG&E Transmission Line Flows (MW)



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 112-412+512
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected PG&E Transmission Line Flows (MW)

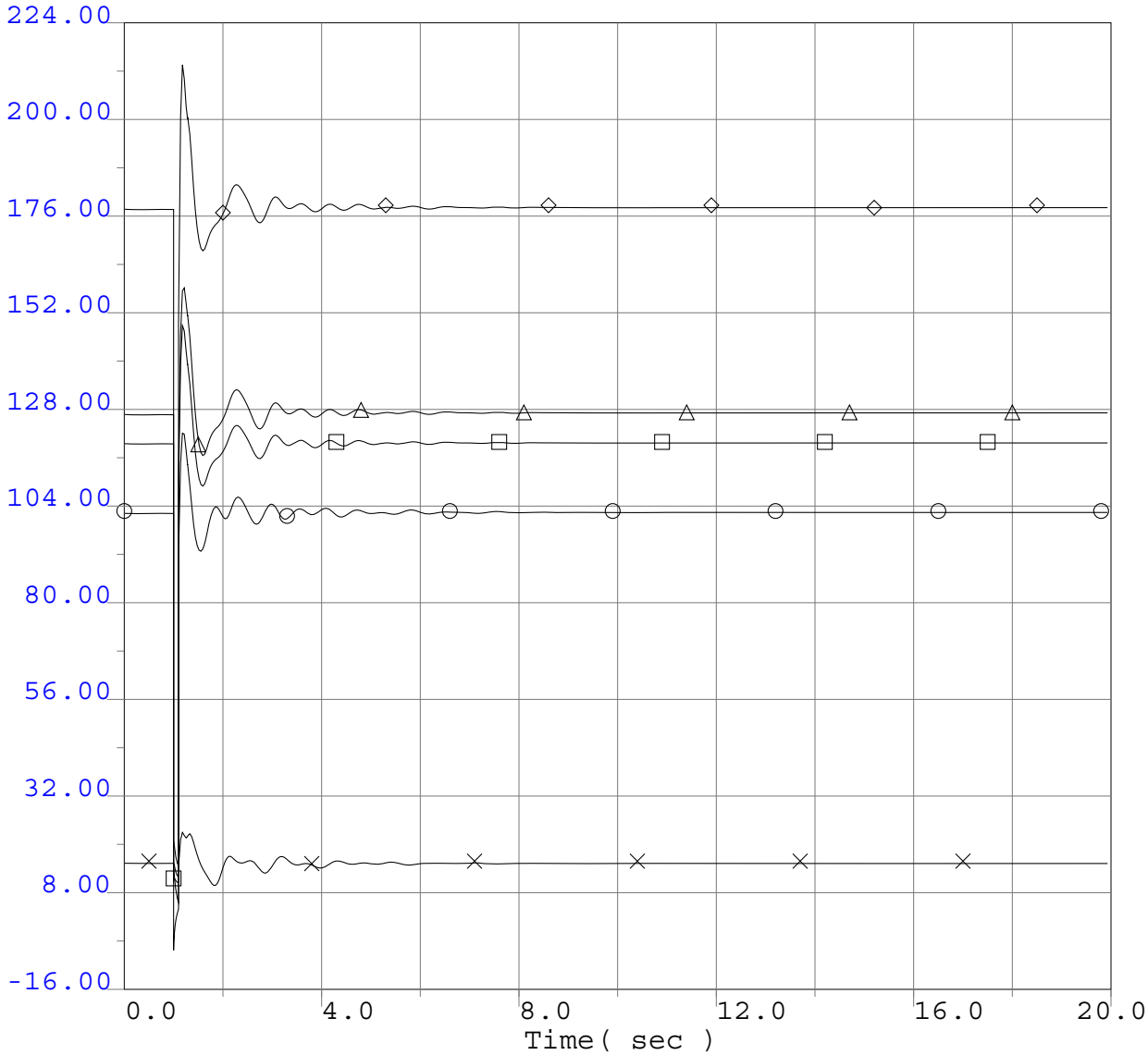


○	-118.0000 pbr	33535	SFWY_TP2 115.0	33543	AEC_TP2 115.0	1	1	47.0000
×	-118.0000 pbr	33543	AEC_TP2 115.0	33545	AEC_JCT 115.0	1	1	47.0000
□	-118.0000 pbr	33545	AEC_JCT 115.0	33547	AEC_300 115.0	1	1	47.0000
△	-118.0000 pbr	33537	SFWY_TP1 115.0	33534	SAFEWAY 115.0	1	1	47.0000
◇	-118.0000 pbr	33541	AEC_TP1 115.0	33537	SFWY_TP1 115.0	1	1	47.0000
+	-118.0000 pbr	33540	TESLA 115.0	33541	AEC_TP1 115.0	1	1	47.0000

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 112-412+512
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected PG&E Transmission Line Flows (MW)

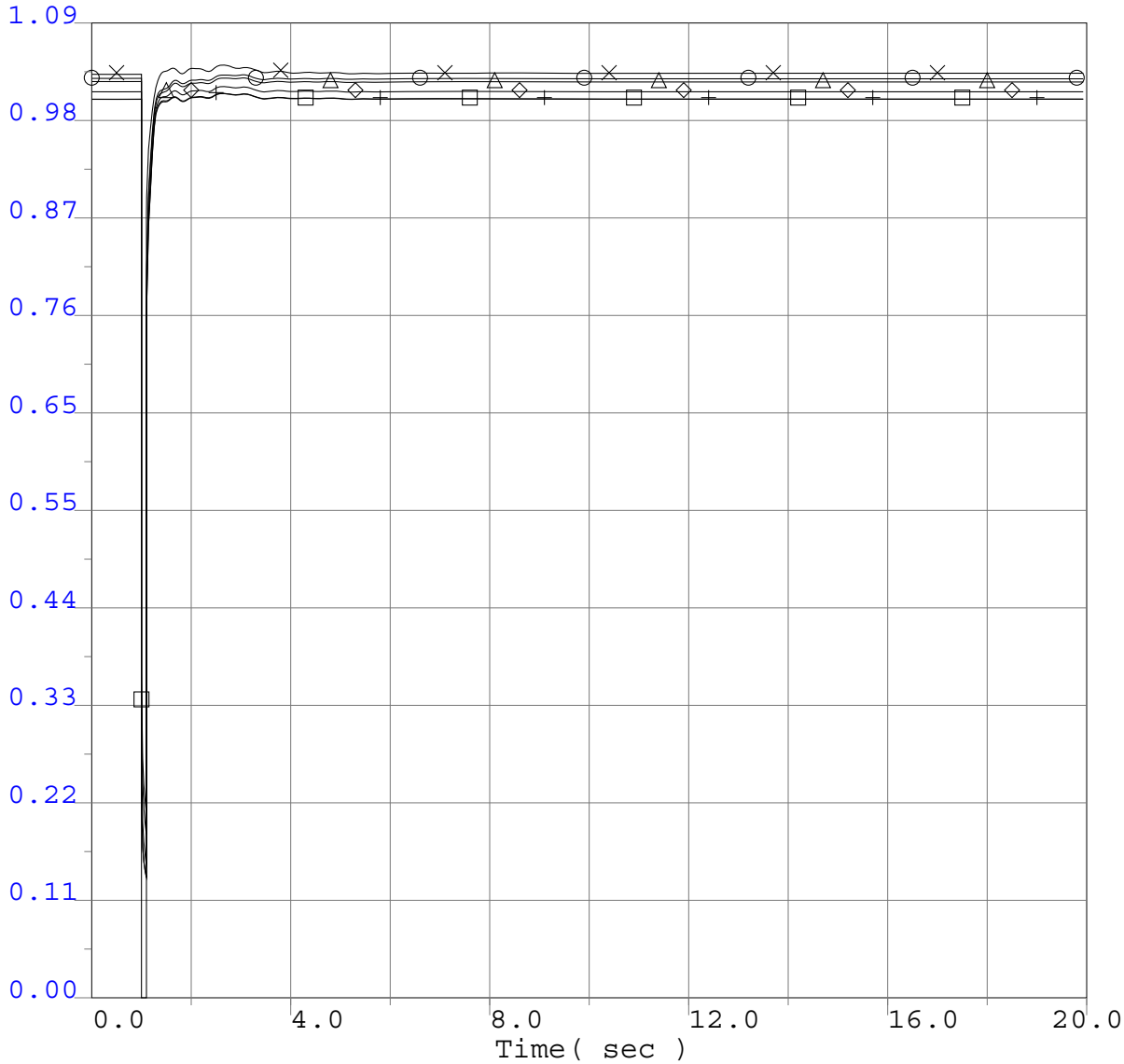


-16.0000 pbr	33526	KSSN-JC1	115.0	33514	MANTECA	115.0	1	1	224.0000
-16.0000 pbr	33526	KSSN-JC1	115.0	33528	KASSON	115.0	1	1	224.0000
-16.0000 pbr	33533	OWENSTP2	115.0	33526	KSSN-JC1	115.0	1	1	224.0000
-16.0000 pbr	33529	LAMMERS	115.0	33528	KASSON	115.0	1	1	224.0000
-16.0000 pbr	33531	OWENSTP1	115.0	33529	LAMMERS	115.0	1	1	224.0000

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 112-412+512
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected PG&E Bus Voltage Plots Adjacent to Fault

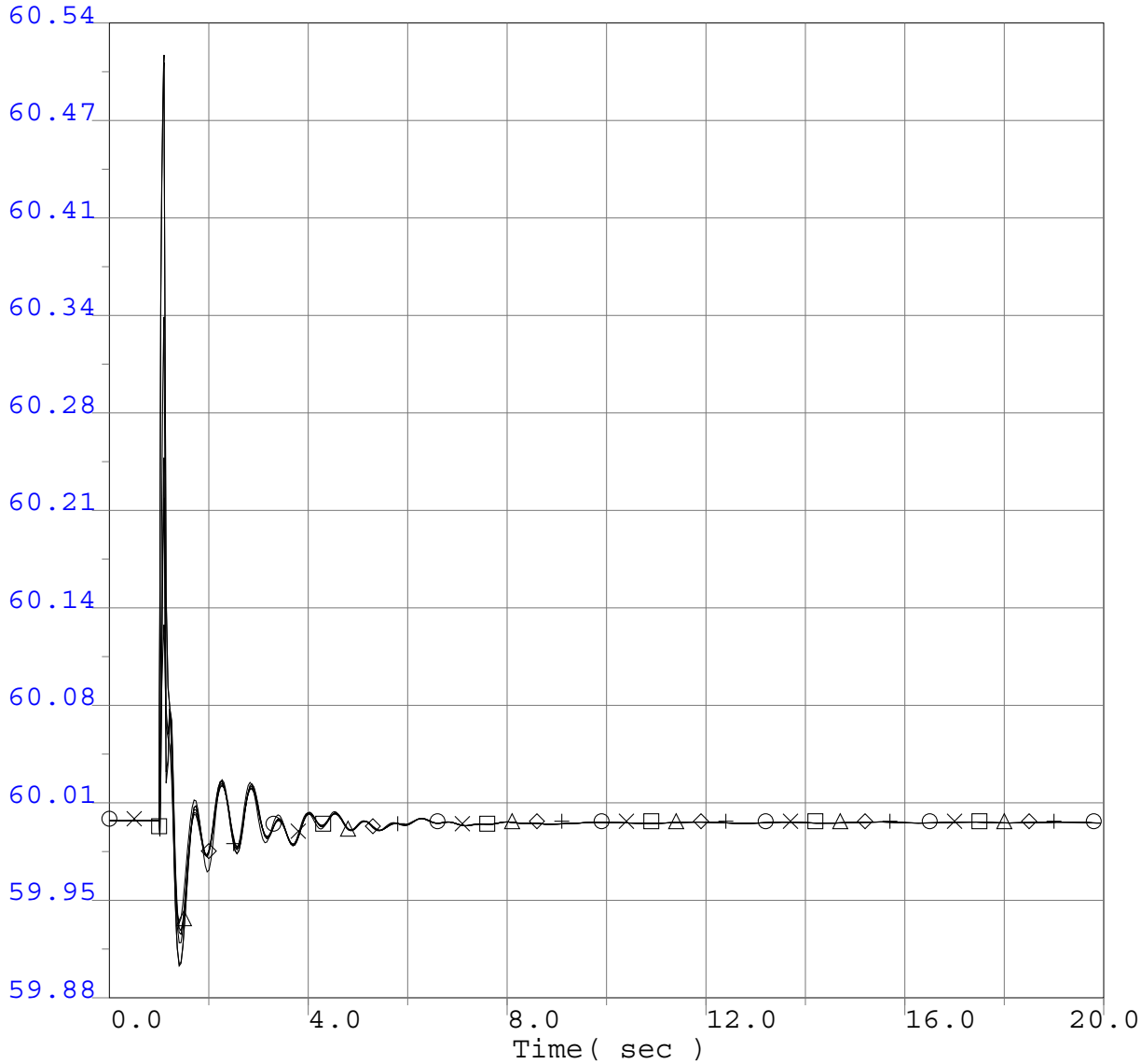


0.0000	vbus	33549	SCHULTE 115.0	0	0.0	"*"	1	1.0900
0.0000	vbus	33540	TESLA 115.0	0	0.0	"*"	1	1.0900
0.0000	vbul	33514	MANTECA 115.0	0	0.0	"*"	1	1.0900
0.0000	vbul	33529	LAMMERS 115.0	0	0.0	"*"	1	1.0900
0.0000	vbus	33528	KASSON 115.0	0	0.0	"*"	1	1.0900
0.0000	vbul	33518	VIERRA 115.0	0	0.0	"*"	1	1.0900

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 122-522+622
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected PG&E Bus Frequency Plots Adjacent to Fault

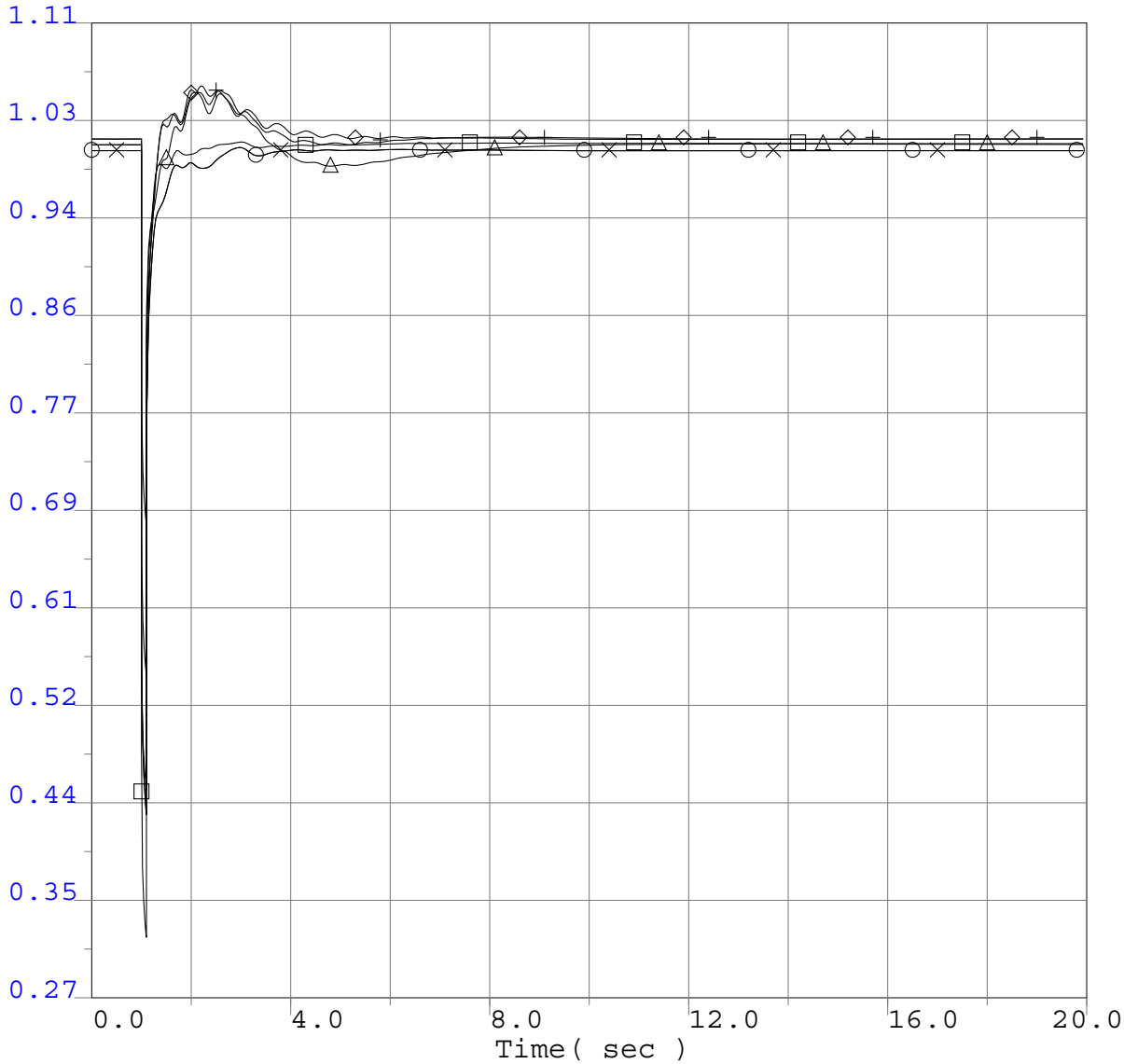


○	59.8800 fbus	33549	SCHULTE 115.0	0	0.0 "*"	1	60.5400
×	59.8800 fbus	33540	TESLA 115.0	0	0.0 "*"	1	60.5400
□	59.8800 fbul	33514	MANTECA 115.0	0	0.0 "*"	1	60.5400
△	59.8800 fbul	33529	LAMMERS 115.0	0	0.0 "*"	1	60.5400
◇	59.8800 fbus	33528	KASSON 115.0	0	0.0 "*"	1	60.5400
+	59.8800 fbul	33518	VIERRA 115.0	0	0.0 "*"	1	60.5400

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 122-522+622
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Project Generator Terminal Voltages

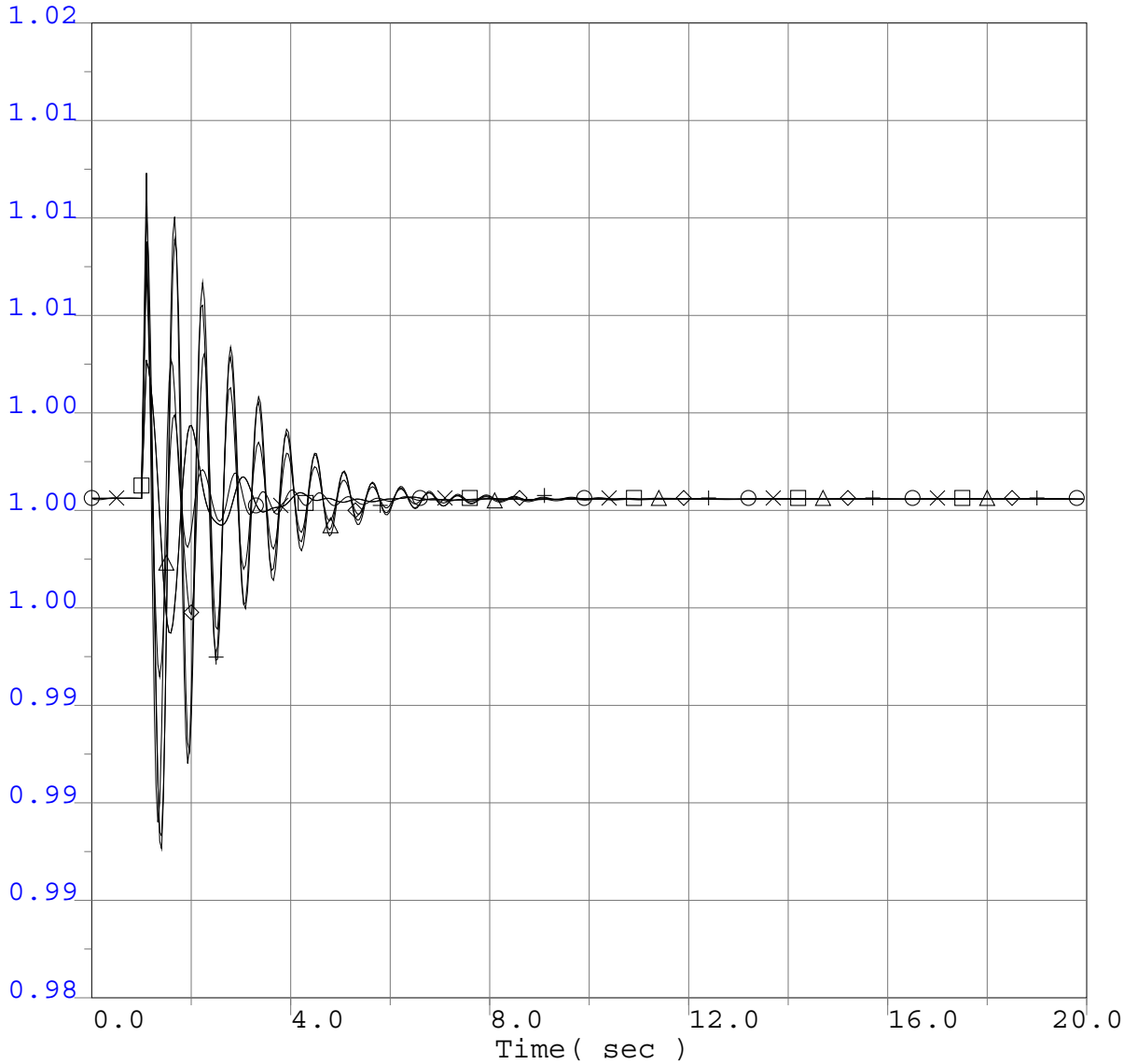


0.2700 vt	33805	GWFTRCY1	13.8	0	0.0 "1"	1	1.1100
0.2700 vt	33807	GWFTRCY2	13.8	0	0.0 "1"	1	1.1100
0.2700 vt	33809	Q268ST1	13.8	0	0.0 "1"	1	1.1100
0.2700 vt	33858	P0409CG2	13.8	0	0.0 "1"	1	1.1100
0.2700 vt	33808	SJ COGEN	13.8	0	0.0 "1"	1	1.1100
0.2700 vt	33810	SP CMPNY	13.8	0	0.0 "1"	1	1.1100

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 122-522+622
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

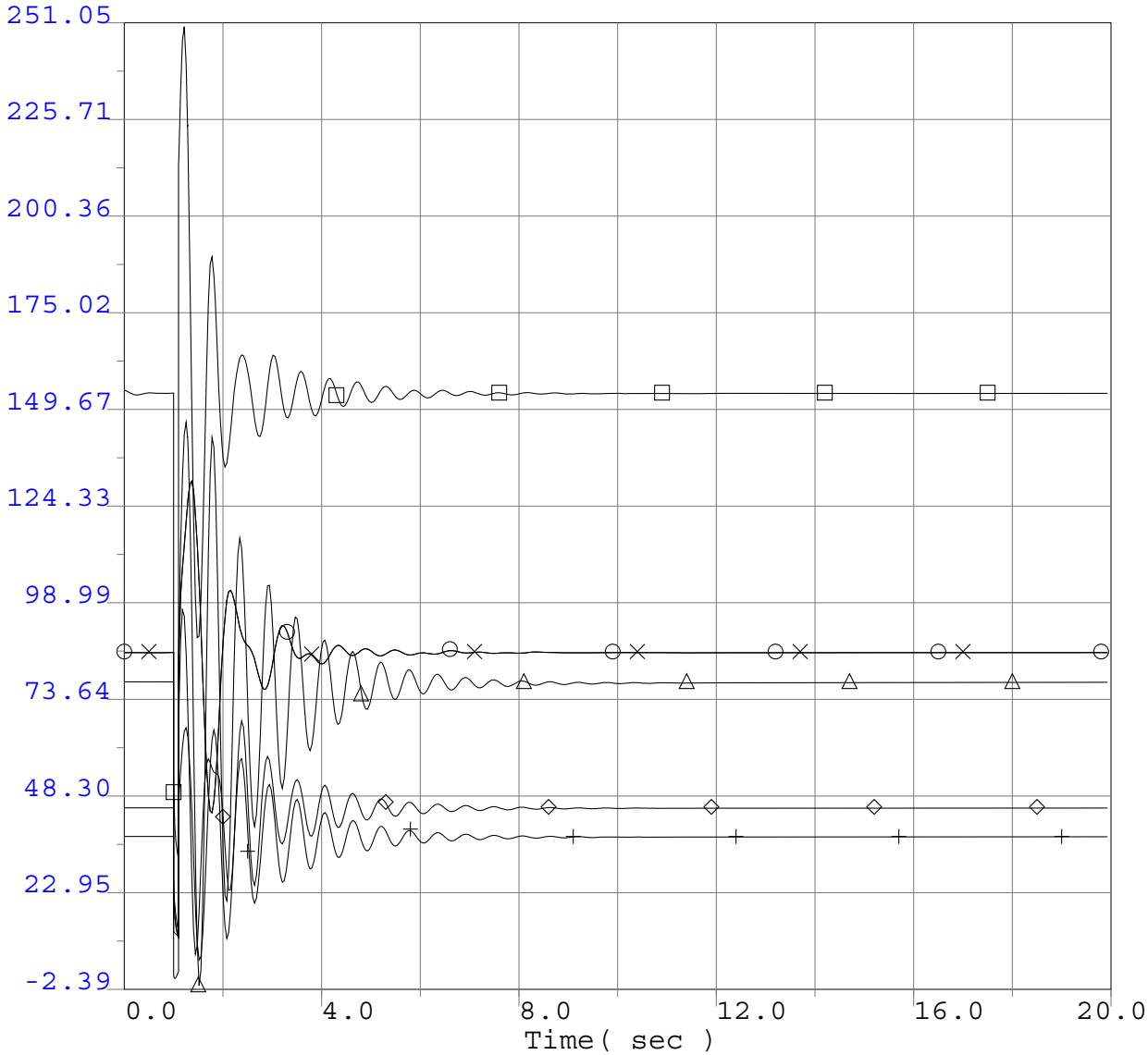
Project Generator Rotor Speed



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 122-522+622
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Project Generator Terminal Power

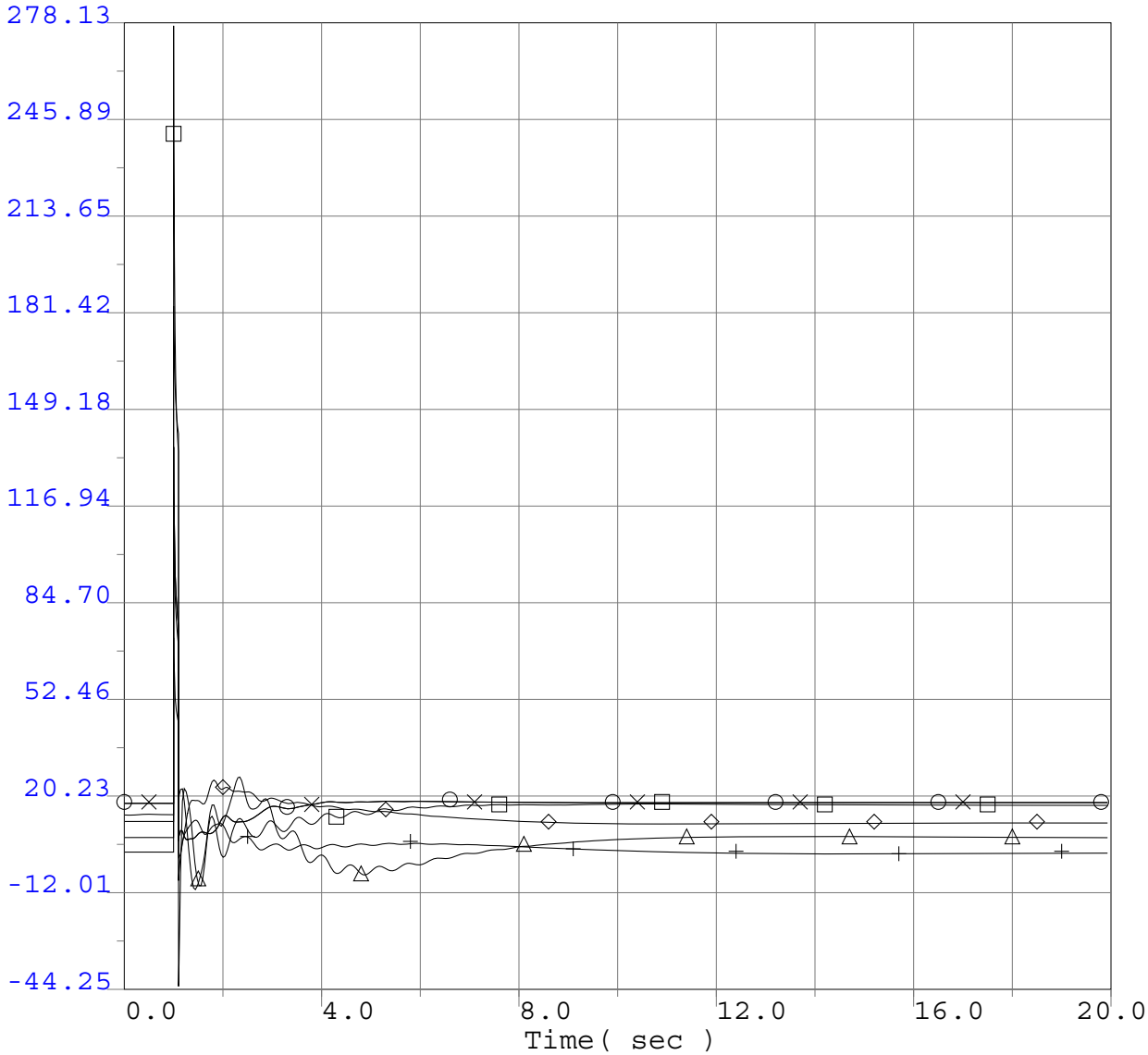


-2.3900 pg	33805	GWFTRCY1	13.8	0	0.0 "1"	1	251.0500
-2.3900 pg	33807	GWFTRCY2	13.8	0	0.0 "1"	1	251.0500
-2.3900 pg	33809	Q268ST1	13.8	0	0.0 "1"	1	251.0500
-2.3900 pg	33858	P0409CG2	13.8	0	0.0 "1"	1	251.0500
-2.3900 pg	33808	SJ COGEN	13.8	0	0.0 "1"	1	251.0500
-2.3900 pg	33810	SP CMPNY	13.8	0	0.0 "1"	1	251.0500

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 122-522+622
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Project Generator Terminal Reactive Power



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 122-522+622
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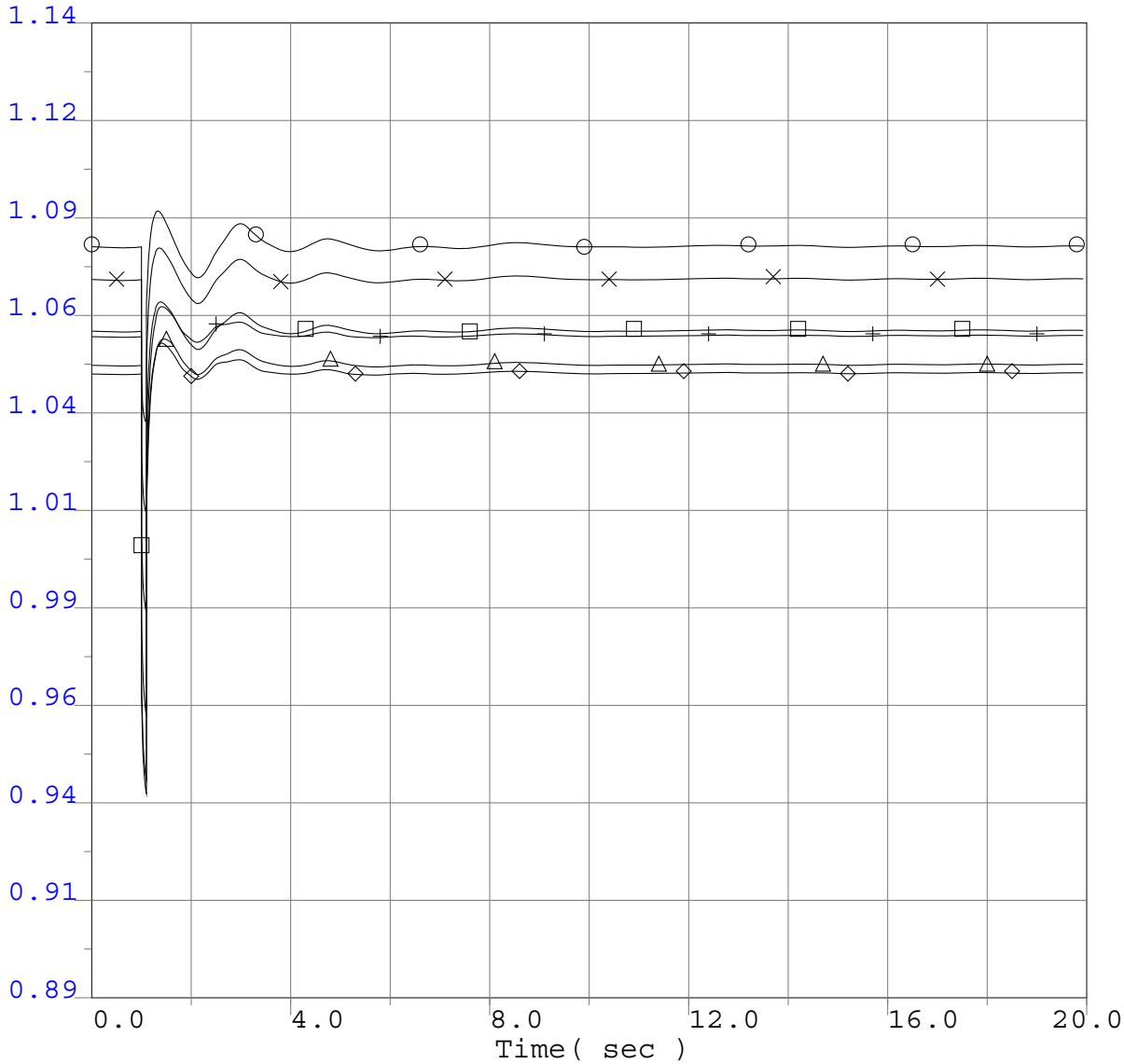
Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots



0.8900	vbus	40687	MALIN	500.0	0	0.0 "*"	1	1.1400
0.8900	vbus	30005	ROUND MT	500.0	0	0.0 "*"	1	1.1400
0.8900	vbus	30015	TABLE MT	500.0	0	0.0 "*"	1	1.1400
0.8900	vbus	30030	VACA-DIX	500.0	0	0.0 "*"	1	1.1400
0.8900	vbus	30040	TESLA	500.0	0	0.0 "*"	1	1.1400
0.8900	vbus	30035	TRACY	500.0	0	0.0 "*"	1	1.1400

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
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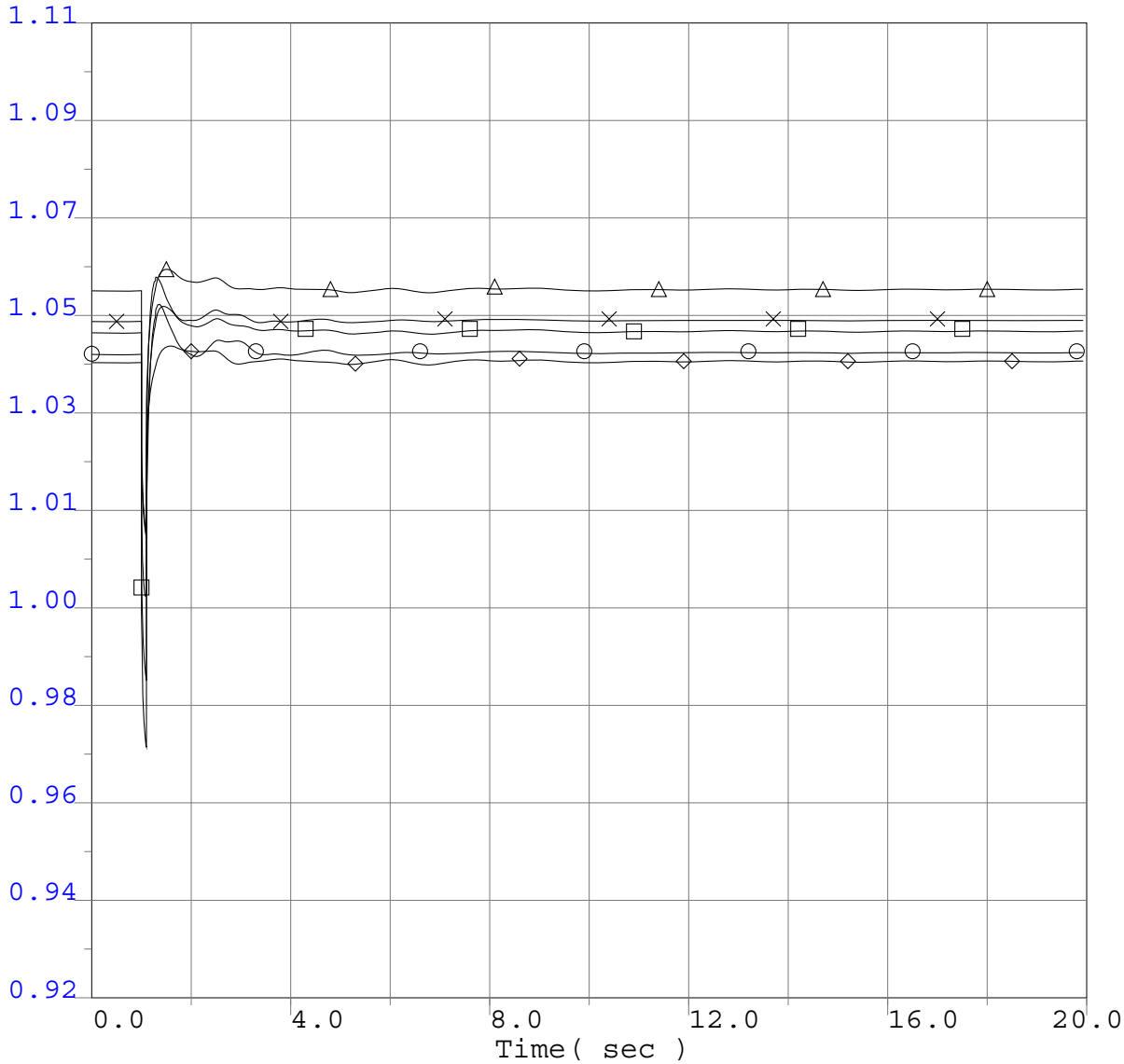
Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots



0.9200	vbus	30042	METCALF	500.0	0	0.0 "*"	1	1.1100
0.9200	vbus	30045	MOSSLAND	500.0	0	0.0 "*"	1	1.1100
0.9200	vbus	30050	LOSBANOS	500.0	0	0.0 "*"	1	1.1100
0.9200	vbus	30055	GATES	500.0	0	0.0 "*"	1	1.1100
0.9200	vbus	30060	MIDWAY	500.0	0	0.0 "*"	1	1.1100

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
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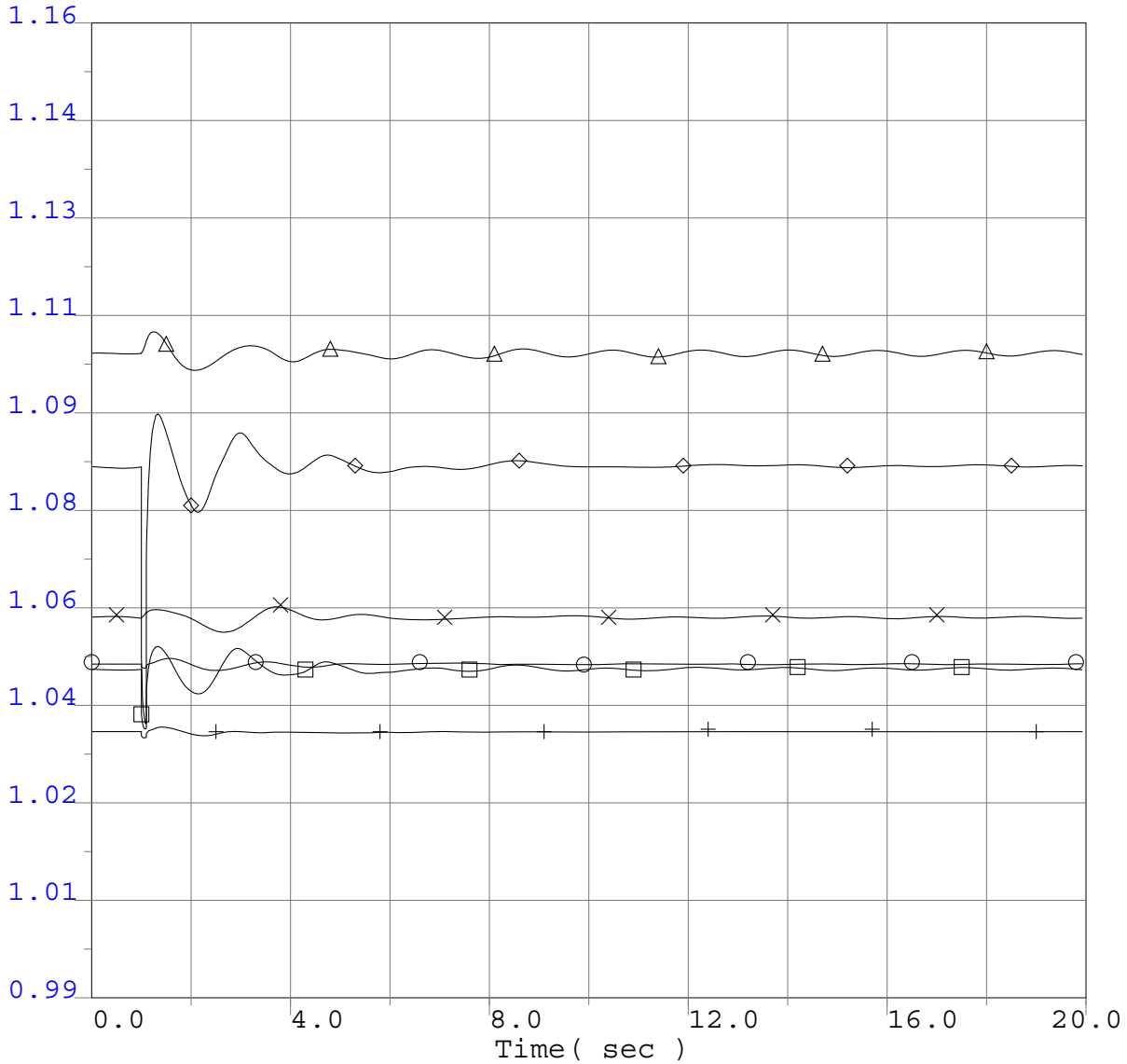
Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots



0.9900	vbus	14001	FOURCORN	500.0	0	0.0 "*"	1	1.1600
0.9900	vbus	50703	NIC500	500.0	0	0.0 "*"	1	1.1600
0.9900	vbus	60240	MIDPOINT	500.0	0	0.0 "*"	1	1.1600
0.9900	vbus	62012	TOWN2	500.0	0	0.0 "*"	1	1.1600
0.9900	vbus	40687	MALIN	500.0	0	0.0 "*"	1	1.1600
0.9900	vbus	66340	SIGURD	345.0	0	0.0 "*"	1	1.1600

Q268 Project Interconnection System Impact Study
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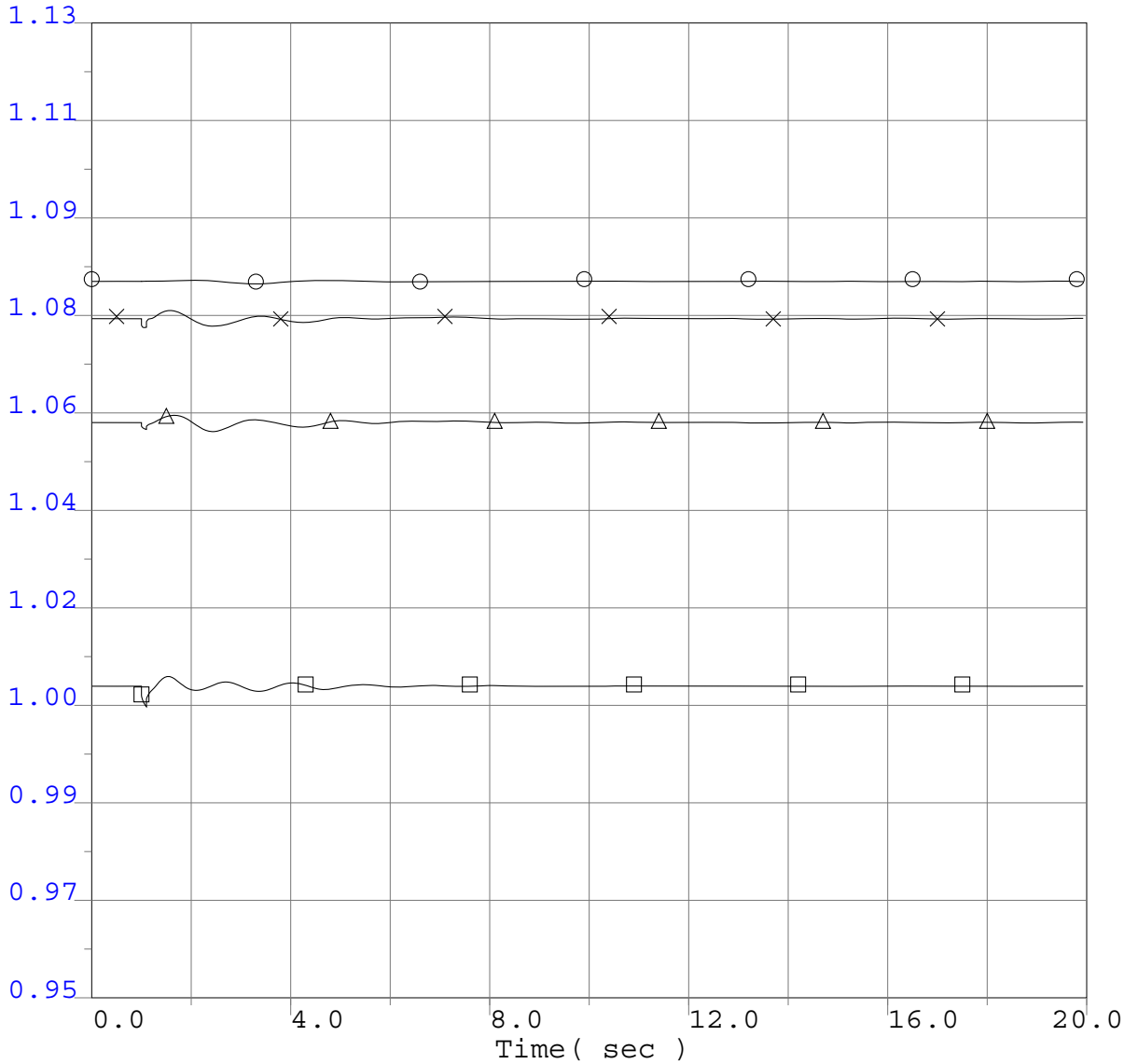
Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots

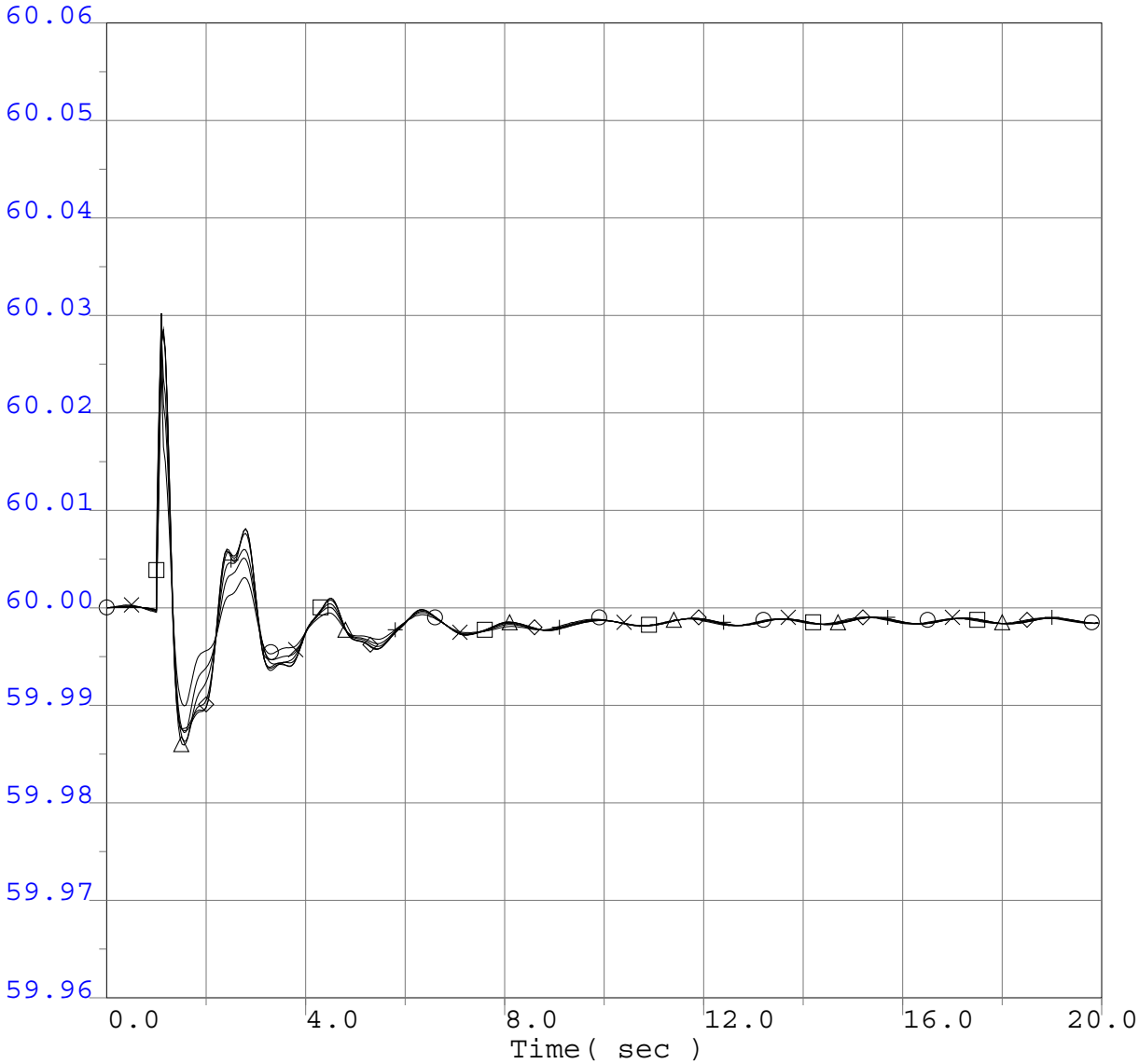


○	0.9500 vbul	54150	WILLESD9 240.0	0	0.0 "*"	1	1.1300
⊗	0.9500 vbus	14003	NAVAJO 500.0	0	0.0 "*"	1	1.1300
□	0.9500 vbus	24153	VESTAL 230.0	0	0.0 "*"	1	1.1300
△	0.9500 vbus	22360	IMPRLVLY 500.0	0	0.0 "*"	1	1.1300

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 122-522+622
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected WECC Bus Frequency Plots

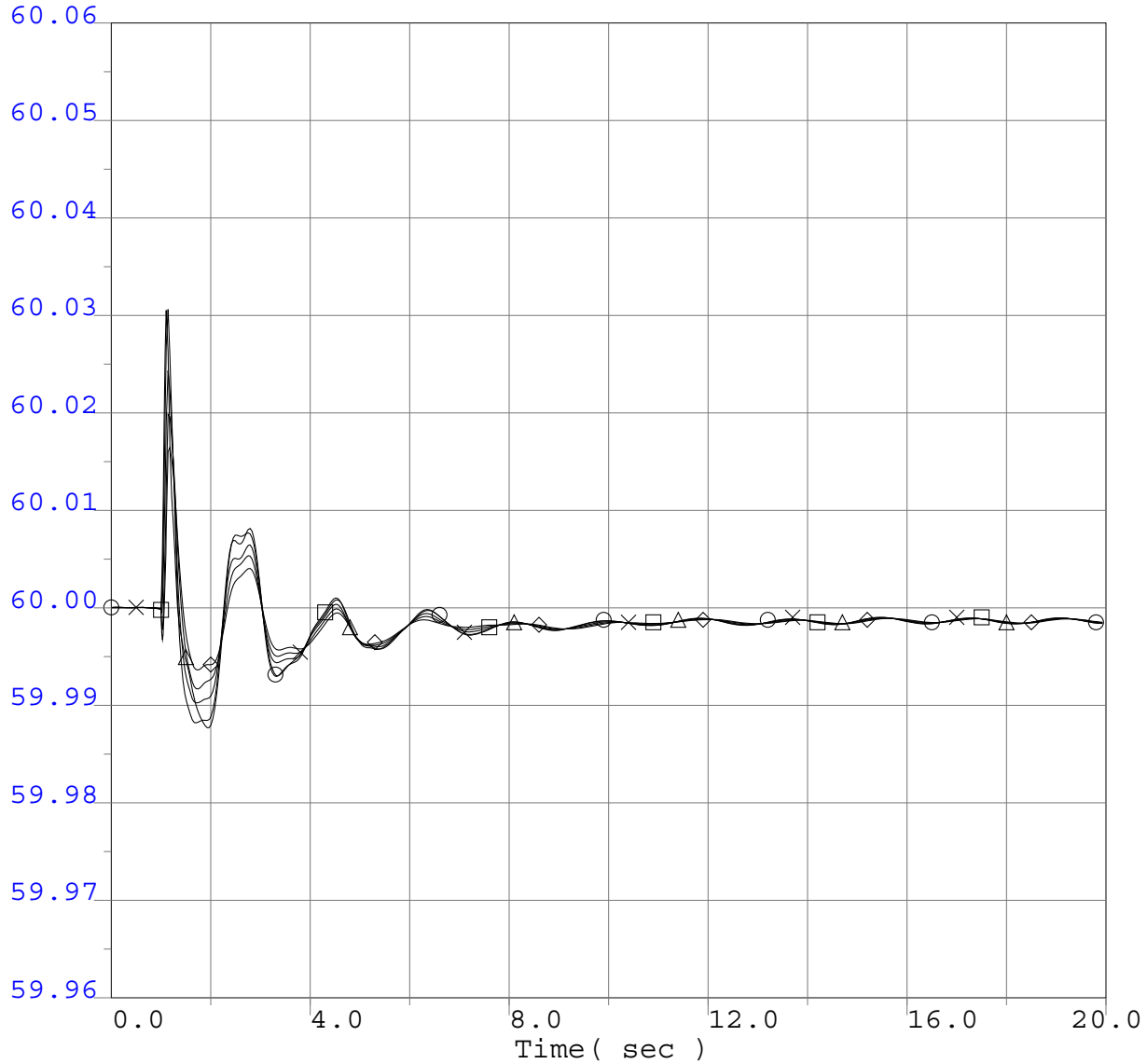


59.9600	fbus	40687	MALIN	500.0	0	0.0	"*"	1	60.0600
59.9600	fbus	30005	ROUND MT	500.0	0	0.0	"*"	1	60.0600
59.9600	fbus	30015	TABLE MT	500.0	0	0.0	"*"	1	60.0600
59.9600	fbus	30030	VACA-DIX	500.0	0	0.0	"*"	1	60.0600
59.9600	fbus	30040	TESLA	500.0	0	0.0	"*"	1	60.0600
59.9600	fbus	30035	TRACY	500.0	0	0.0	"*"	1	60.0600

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 122-522+622
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected WECC Bus Frequency Plots

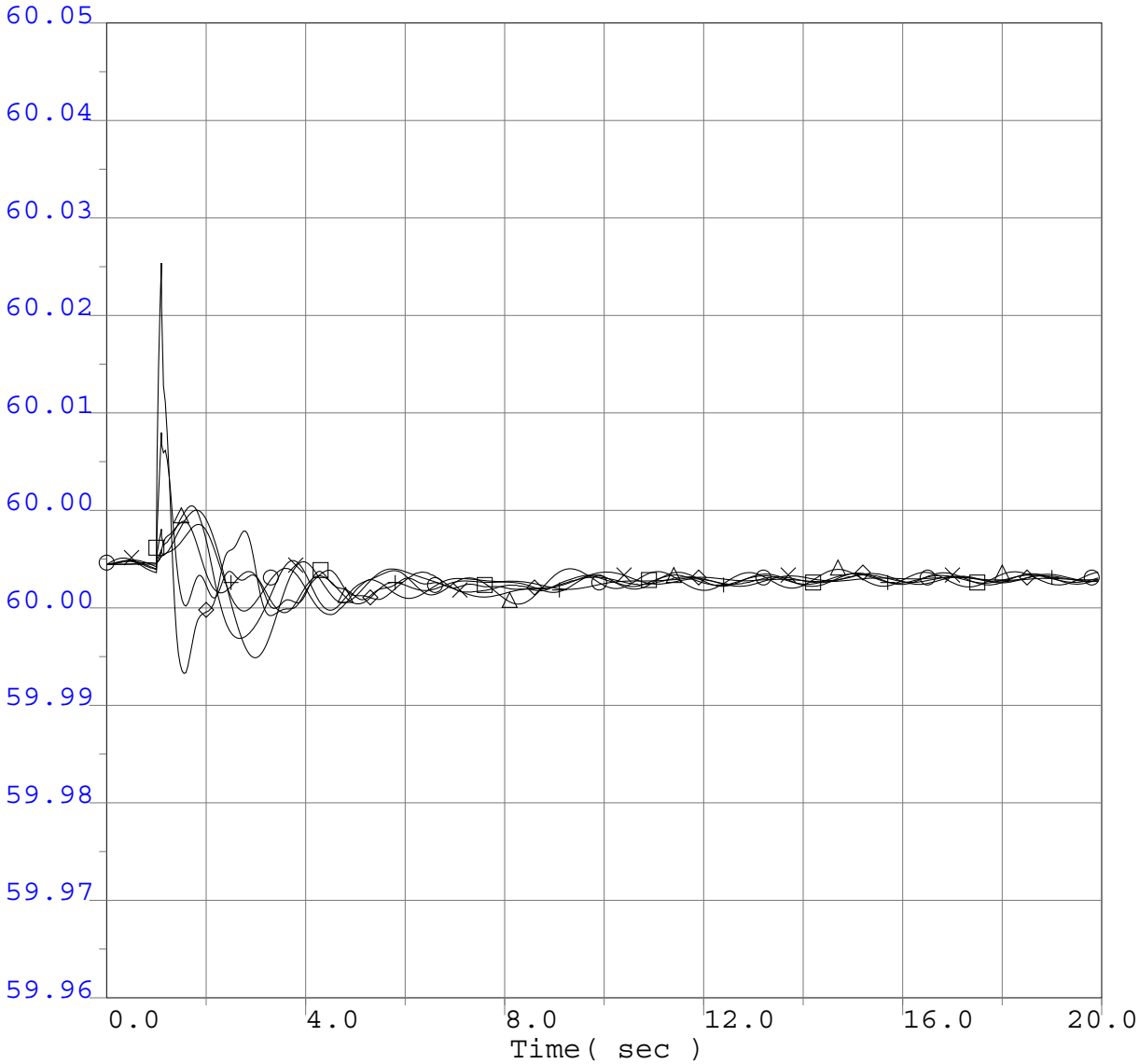


59.9600	fbus	30042	METCALF	500.0	0	0.0 "*"	1	60.0600
59.9600	fbus	30045	MOSSLAND	500.0	0	0.0 "*"	1	60.0600
59.9600	fbus	30050	LOSBANOS	500.0	0	0.0 "*"	1	60.0600
59.9600	fbus	30055	GATES	500.0	0	0.0 "*"	1	60.0600
59.9600	fbus	30060	MIDWAY	500.0	0	0.0 "*"	1	60.0600

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 122-522+622
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected WECC Bus Frequency Plots

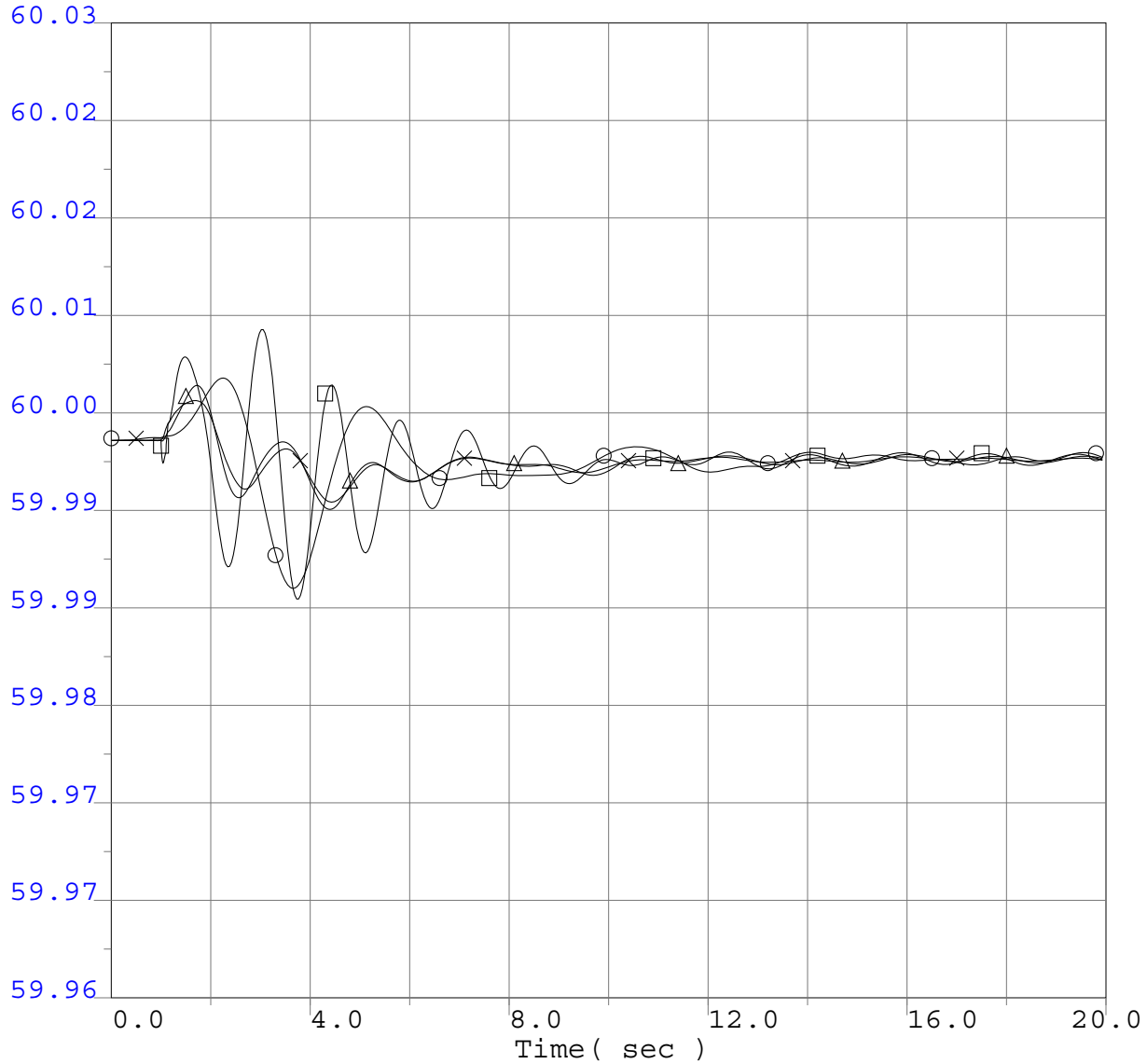


59.9600	fbus	14001	FOURCORN	500.0	0	0.0	"*"	1	60.0500
59.9600	fbus	50703	NIC500	500.0	0	0.0	"*"	1	60.0500
59.9600	fbus	60240	MIDPOINT	500.0	0	0.0	"*"	1	60.0500
59.9600	fbus	62012	TOWN2	500.0	0	0.0	"*"	1	60.0500
59.9600	fbus	40687	MALIN	500.0	0	0.0	"*"	1	60.0500
59.9600	fbus	66340	SIGURD	345.0	0	0.0	"*"	1	60.0500

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 122-522+622
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected WECC Bus Frequency Plots

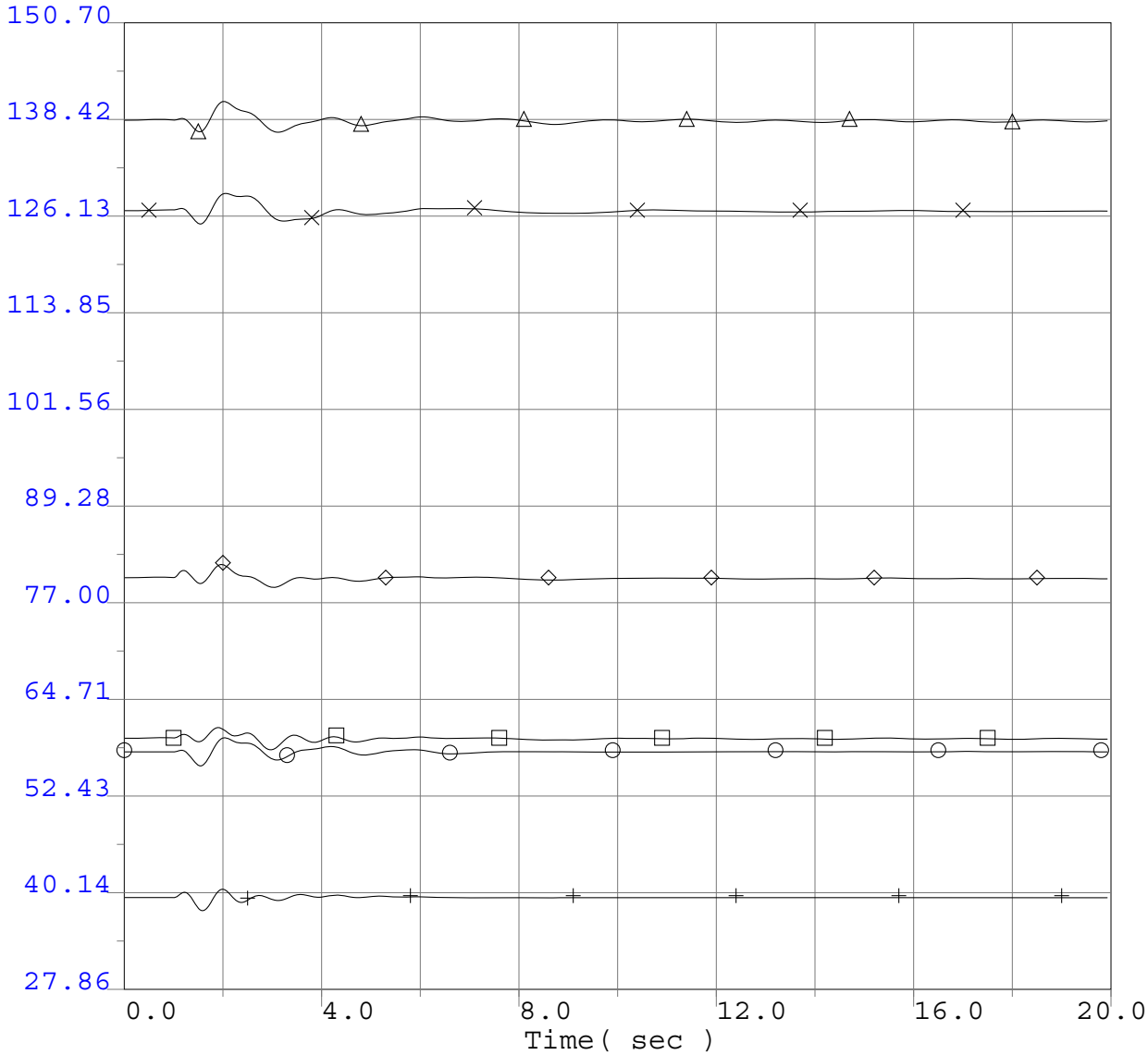


○	59.9600 fbul	54150	WILLESD9 240.0	0	0.0 "*"	1	60.0300
⊗	59.9600 fbus	14003	NAVAJO 500.0	0	0.0 "*"	1	60.0300
□	59.9600 fbus	24153	VESTAL 230.0	0	0.0 "*"	1	60.0300
△	59.9600 fbus	22360	IMPRLVLY 500.0	0	0.0 "*"	1	60.0300

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 122-522+622
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

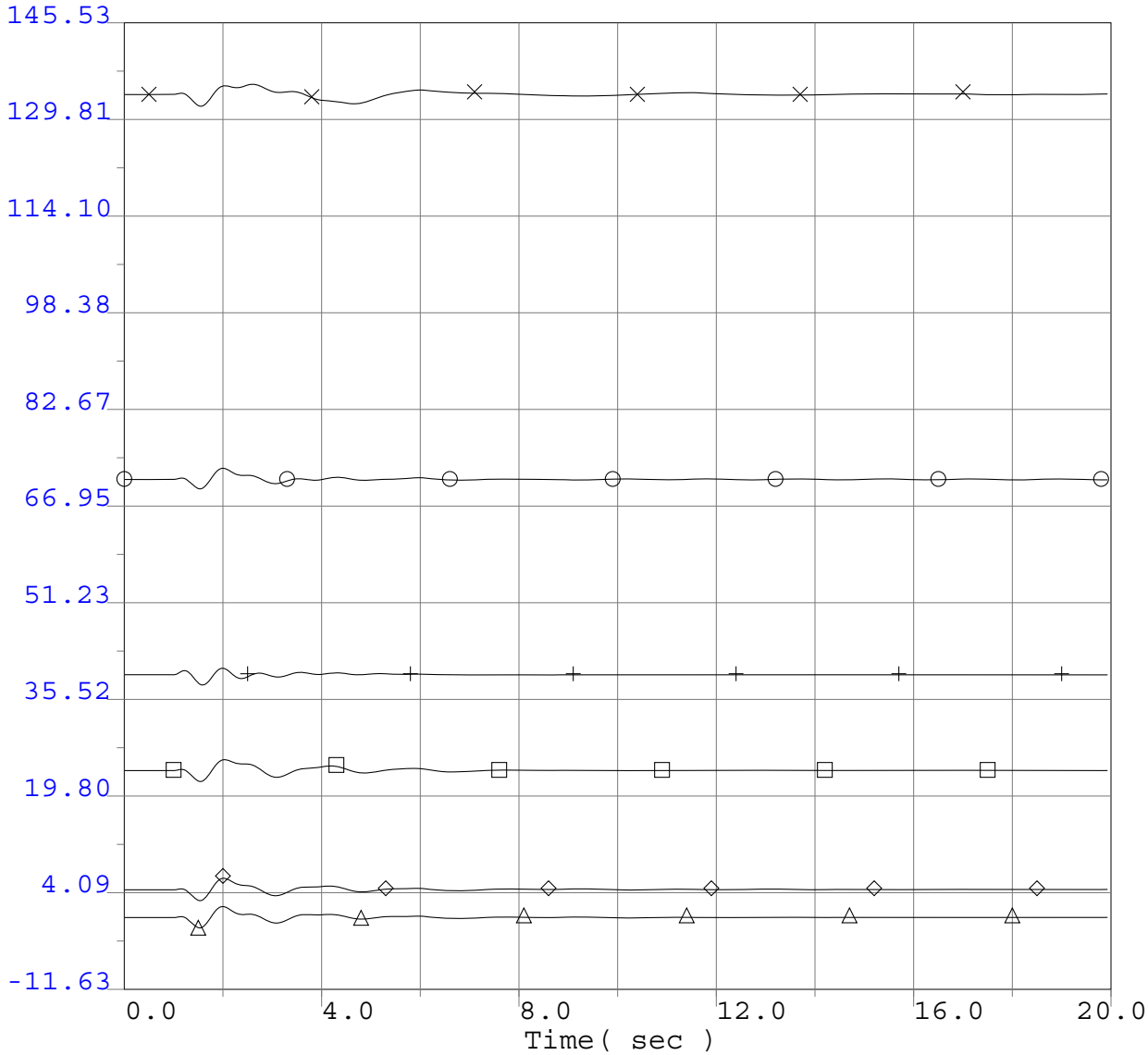
WECC Generator Rotor Angle



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 122-522+622
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

WECC Generator Rotor Angle

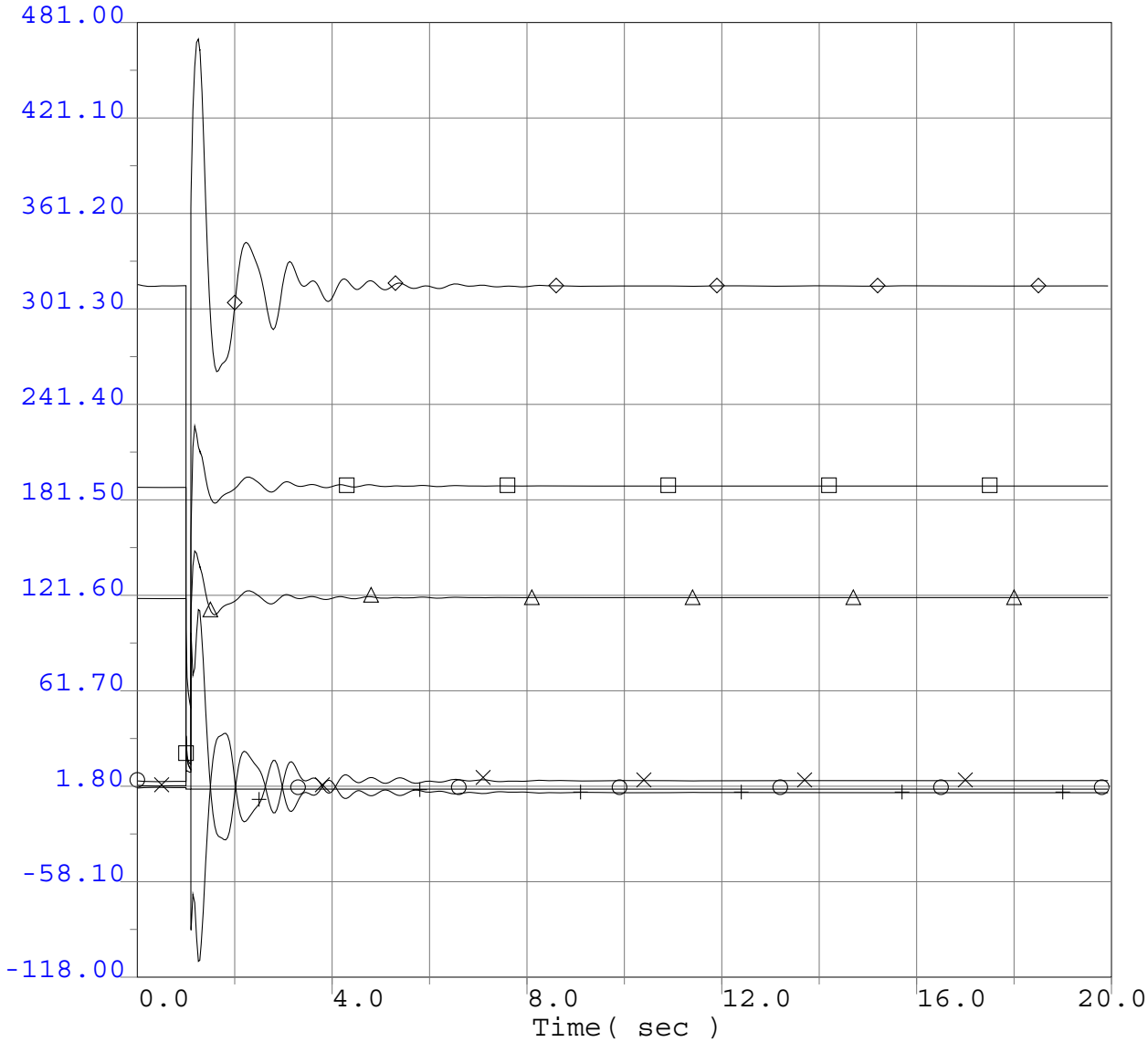


-11.6300 ang	65490	EHUNTR 1	24.0	0	0.0	"1"	1	145.5300
-11.6300 ang	54338	SUND#2GN	18.0	0	0.0	"2"	1	145.5300
-11.6300 ang	79151	GLENC3-4	13.8	0	0.0	"3"	1	145.5300
-11.6300 ang	24130	S.ONOFR3	22.0	0	0.0	"3"	1	145.5300
-11.6300 ang	22244	ENCINA 5	24.0	0	0.0	"1"	1	145.5300
-11.6300 ang	36411	DIABLO 1	25.0	0	0.0	"1"	1	145.5300

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 122-522+622
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

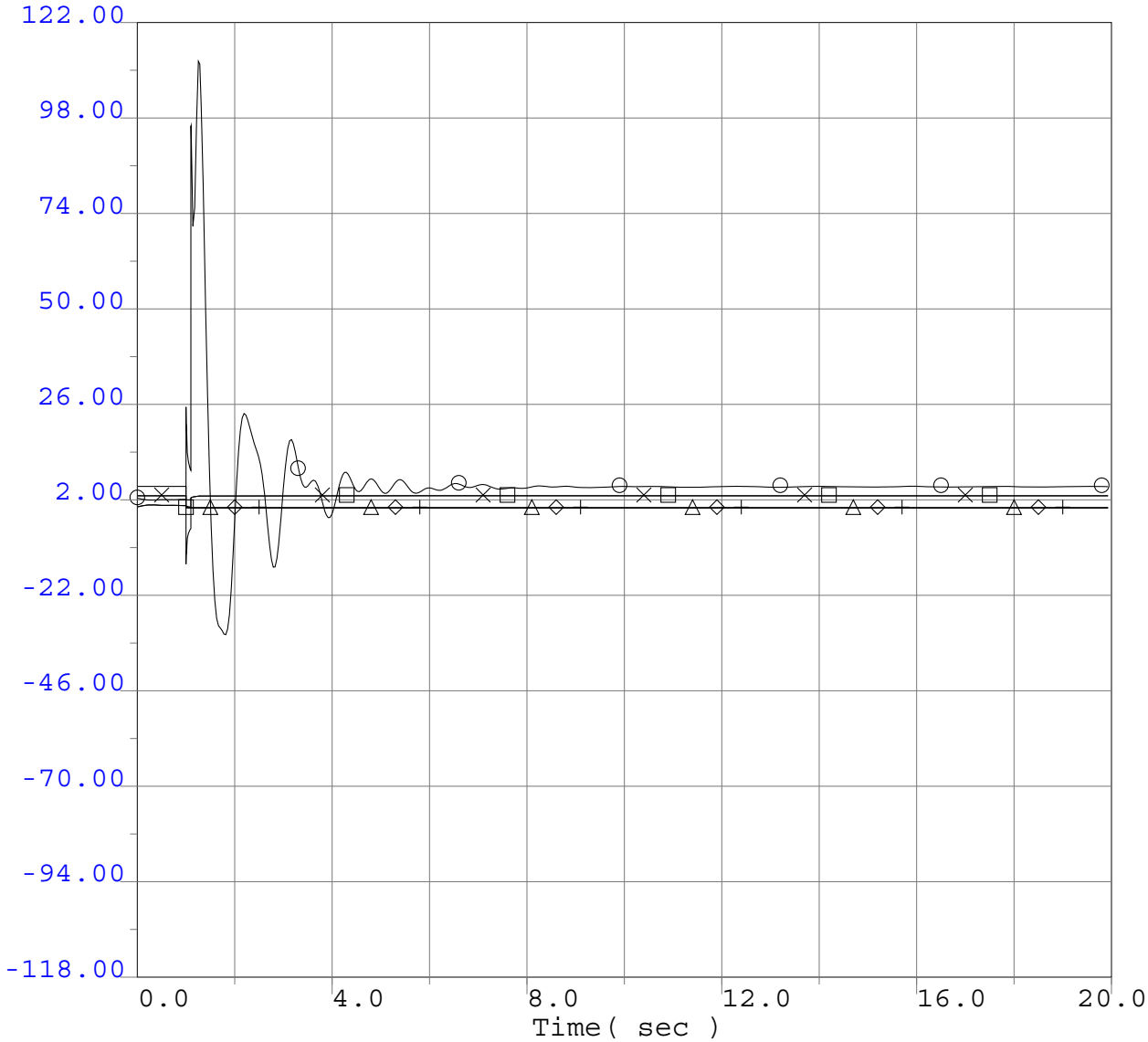
Selected PG&E Transmission Line Flows (MW)



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 122-522+622
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

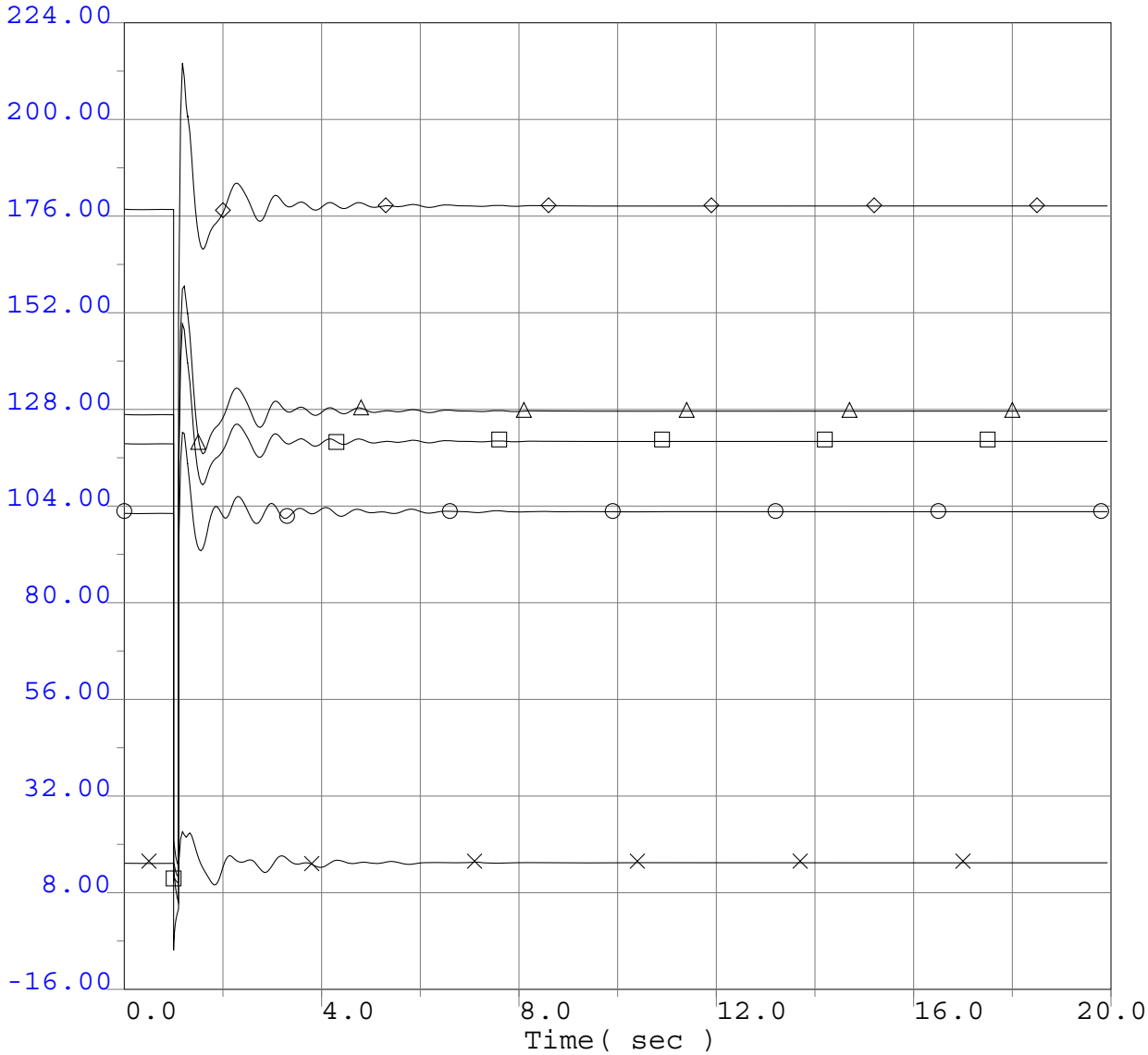
Selected PG&E Transmission Line Flows (MW)



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 122-522+622
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

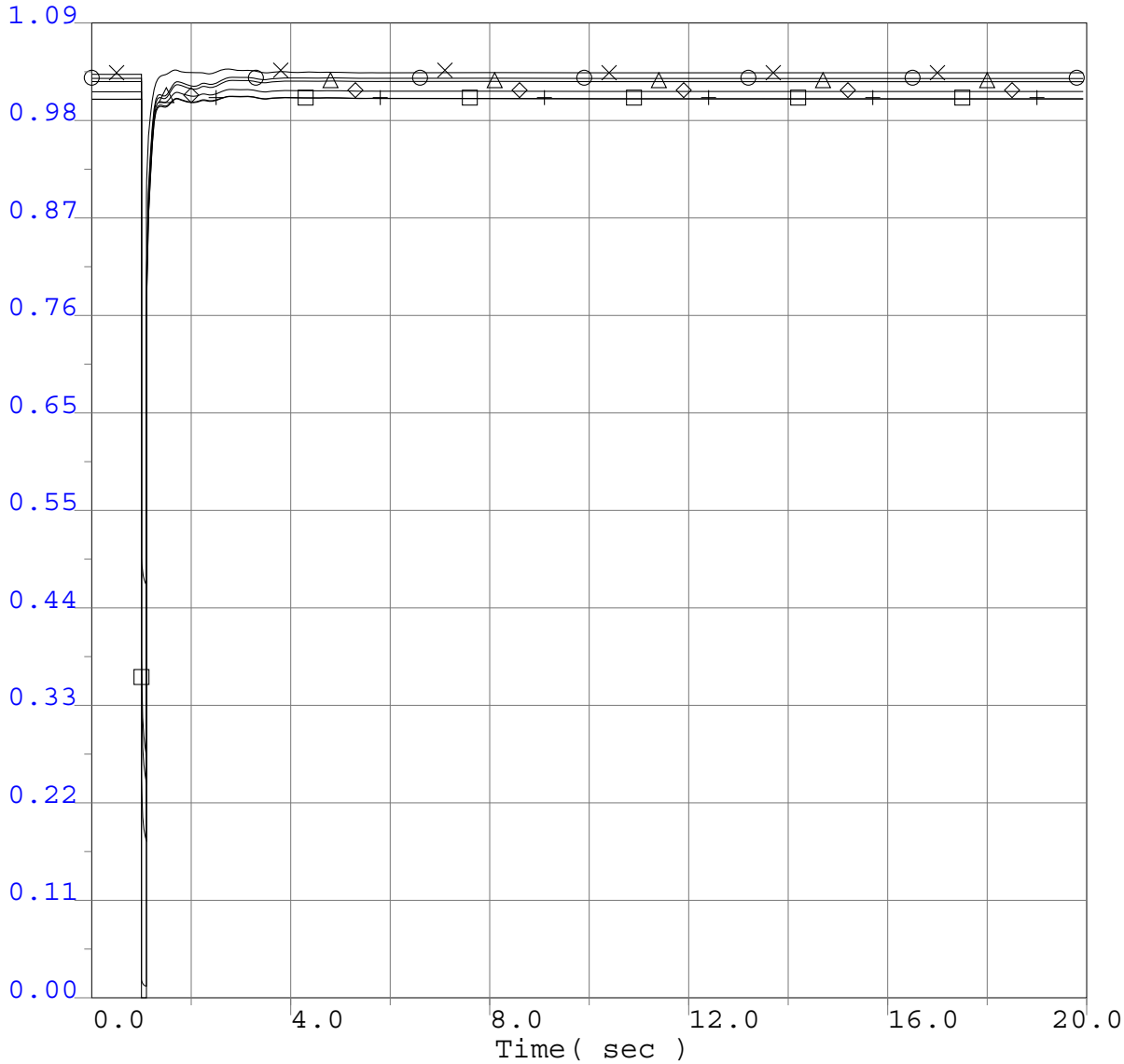
Selected PG&E Transmission Line Flows (MW)



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 122-522+622
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected PG&E Bus Voltage Plots Adjacent to Fault

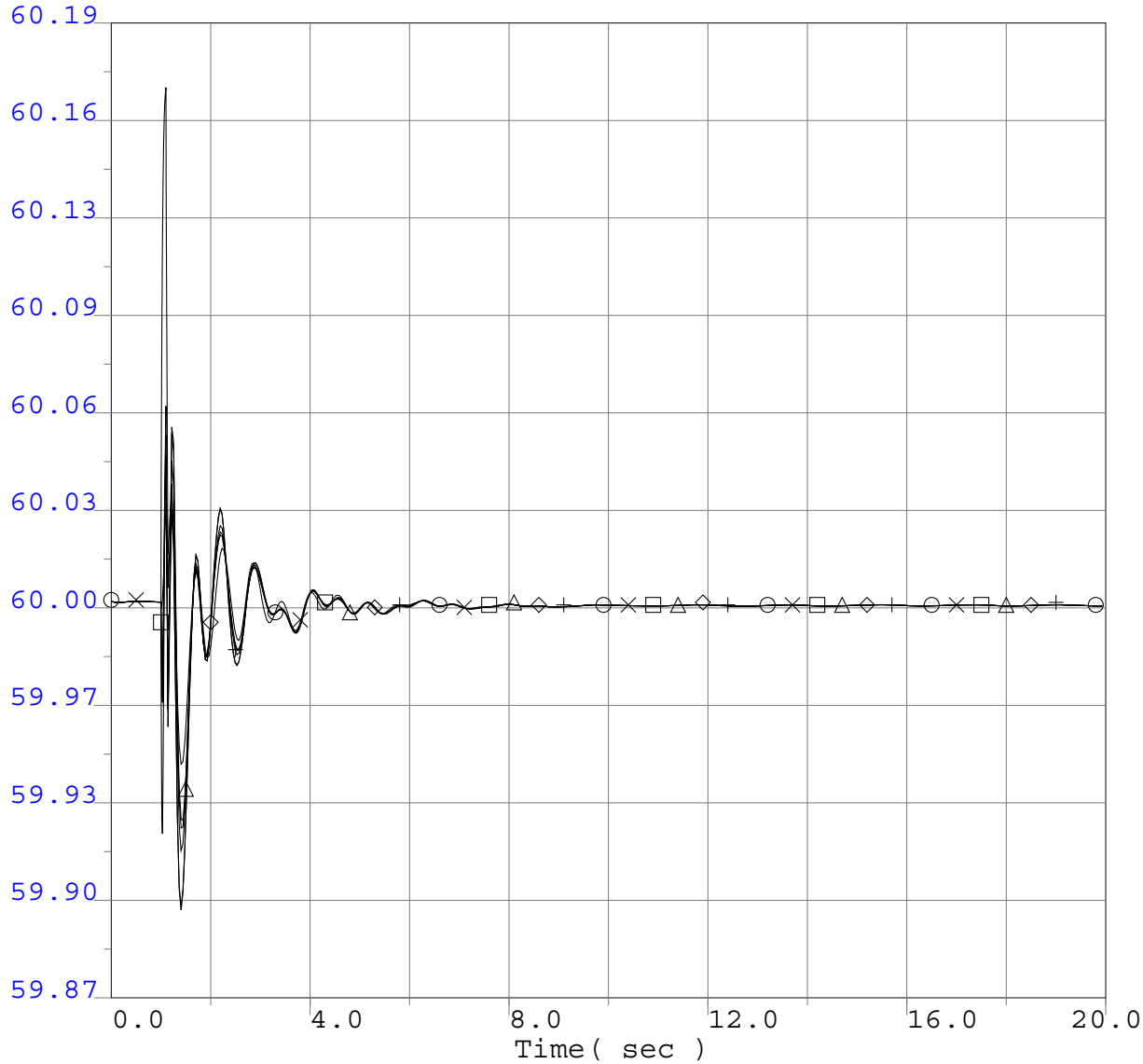


0.0000	vbus	33549	SCHULTE 115.0	0	0.0	"*"	1	1.0900
0.0000	vbus	33540	TESLA 115.0	0	0.0	"*"	1	1.0900
0.0000	vbul	33514	MANTECA 115.0	0	0.0	"*"	1	1.0900
0.0000	vbul	33529	LAMMERS 115.0	0	0.0	"*"	1	1.0900
0.0000	vbus	33528	KASSON 115.0	0	0.0	"*"	1	1.0900
0.0000	vbul	33518	VIERRA 115.0	0	0.0	"*"	1	1.0900

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 112-412+512
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected PG&E Bus Frequency Plots Adjacent to Fault

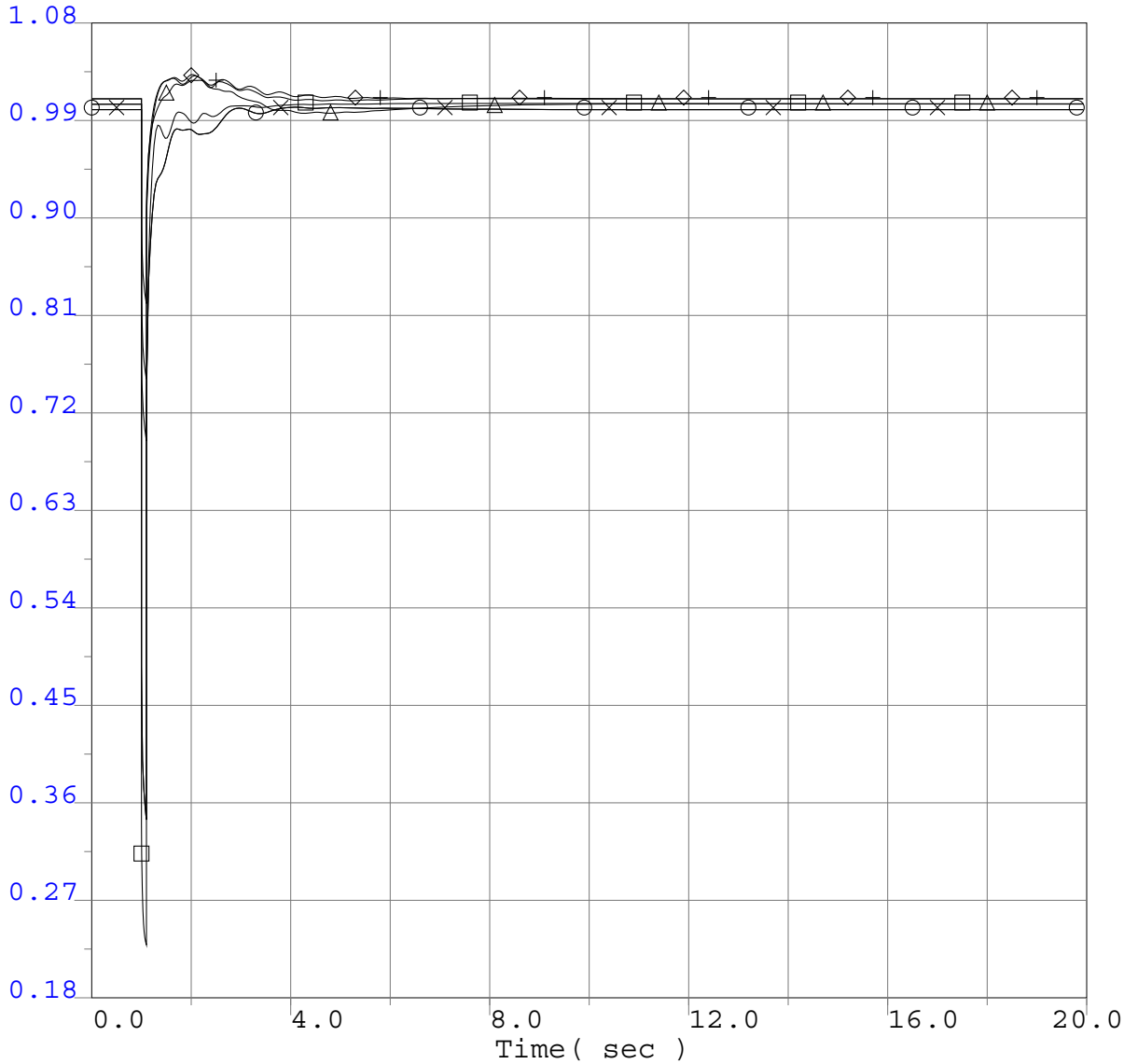


59.8700	fbus	33549	SCHULTE 115.0	0	0.0	"*"	1	60.1900
59.8700	fbus	33540	TESLA 115.0	0	0.0	"*"	1	60.1900
59.8700	fbul	33514	MANTECA 115.0	0	0.0	"*"	1	60.1900
59.8700	fbul	33529	LAMMERS 115.0	0	0.0	"*"	1	60.1900
59.8700	fbus	33528	KASSON 115.0	0	0.0	"*"	1	60.1900
59.8700	fbul	33518	VIERRA 115.0	0	0.0	"*"	1	60.1900

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 112-412+512
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

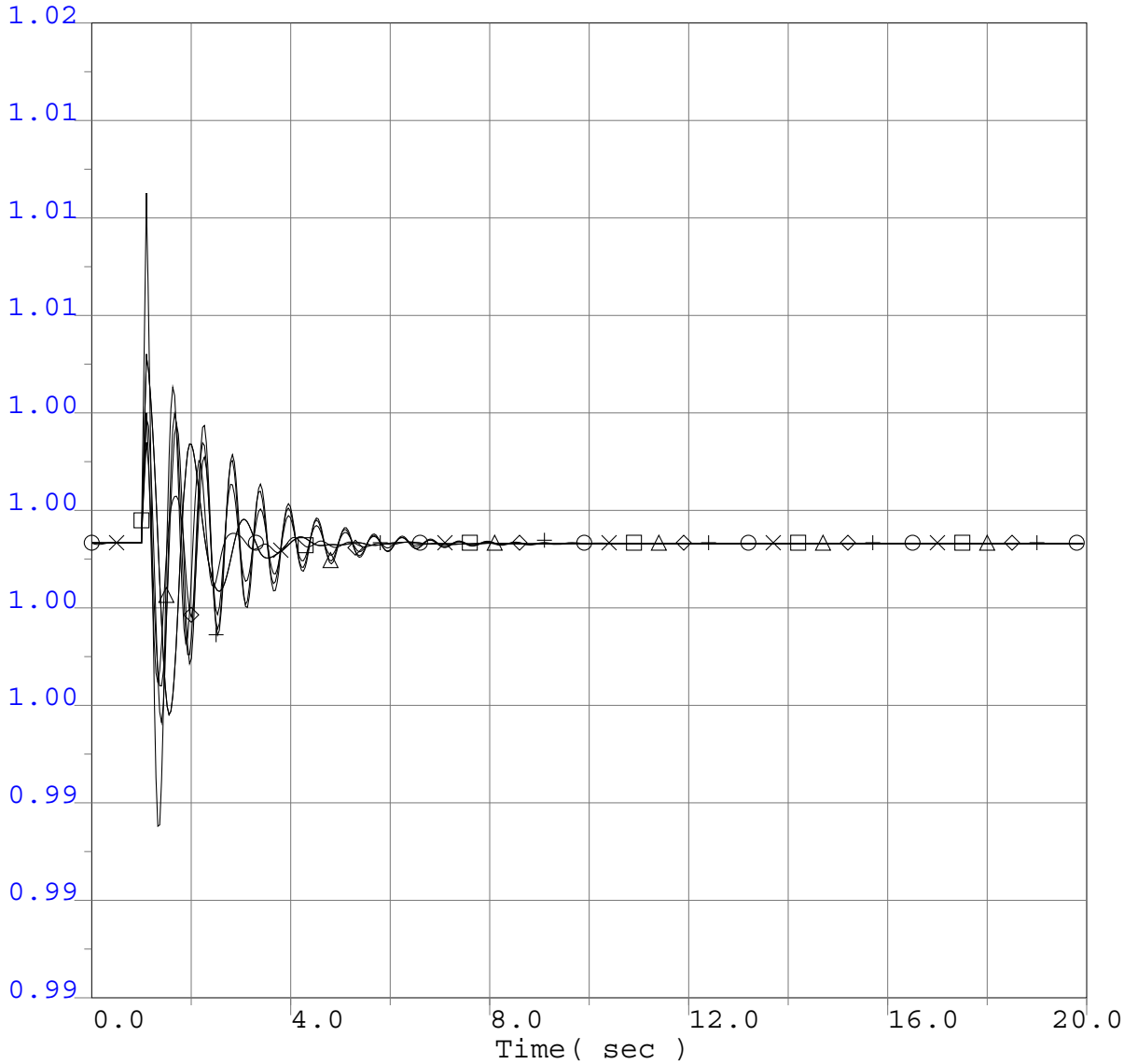
Project Generator Terminal Voltages



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 112-412+512
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Project Generator Rotor Speed

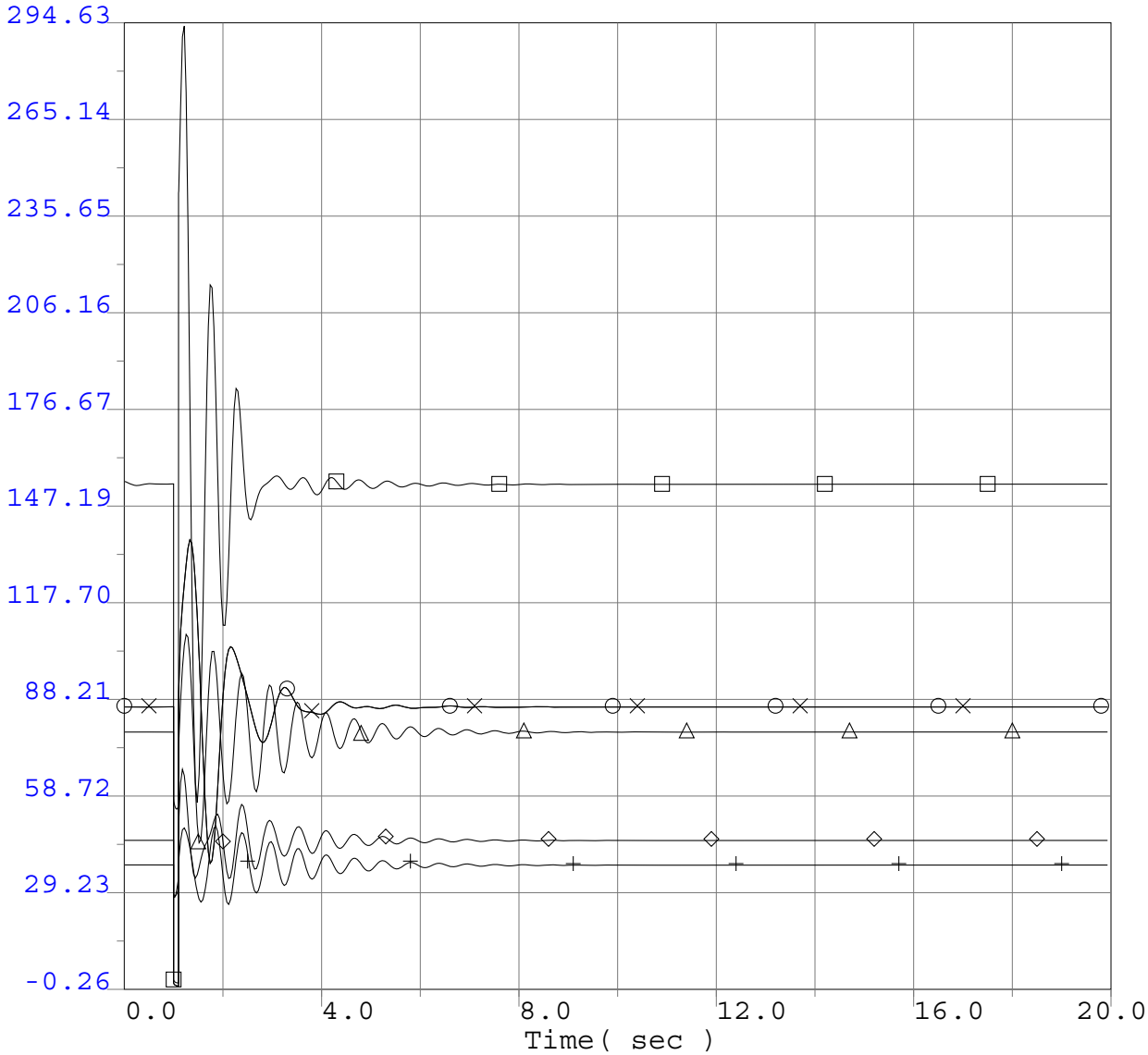


0.9867 spd	33805	GWFTRCY1	13.8	0	0.0 "1"	1	1.0152
0.9867 spd	33807	GWFTRCY2	13.8	0	0.0 "1"	1	1.0152
0.9867 spd	33809	Q268ST1	13.8	0	0.0 "1"	1	1.0152
0.9867 spd	33858	P0409CG2	13.8	0	0.0 "1"	1	1.0152
0.9867 spd	33808	SJ COGEN	13.8	0	0.0 "1"	1	1.0152
0.9867 spd	33810	SP CMPNY	13.8	0	0.0 "1"	1	1.0152

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 112-412+512
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Project Generator Terminal Power

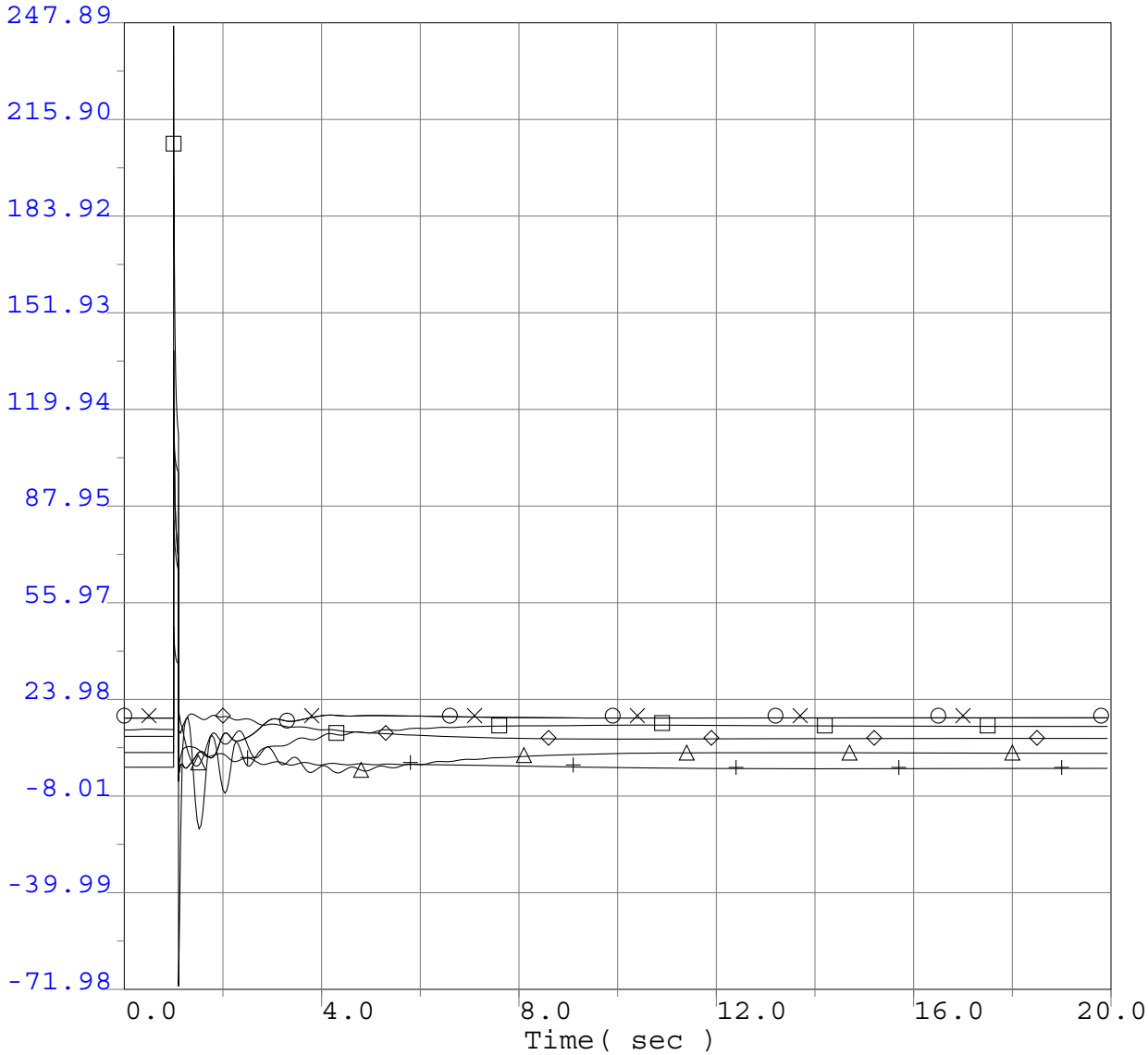


-0.2600 pg	33805	GWFTRCY1	13.8	0	0.0 "1"	1	294.6300
-0.2600 pg	33807	GWFTRCY2	13.8	0	0.0 "1"	1	294.6300
-0.2600 pg	33809	Q268ST1	13.8	0	0.0 "1"	1	294.6300
-0.2600 pg	33858	P0409CG2	13.8	0	0.0 "1"	1	294.6300
-0.2600 pg	33808	SJ COGEN	13.8	0	0.0 "1"	1	294.6300
-0.2600 pg	33810	SP CMPNY	13.8	0	0.0 "1"	1	294.6300

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 112-412+512
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

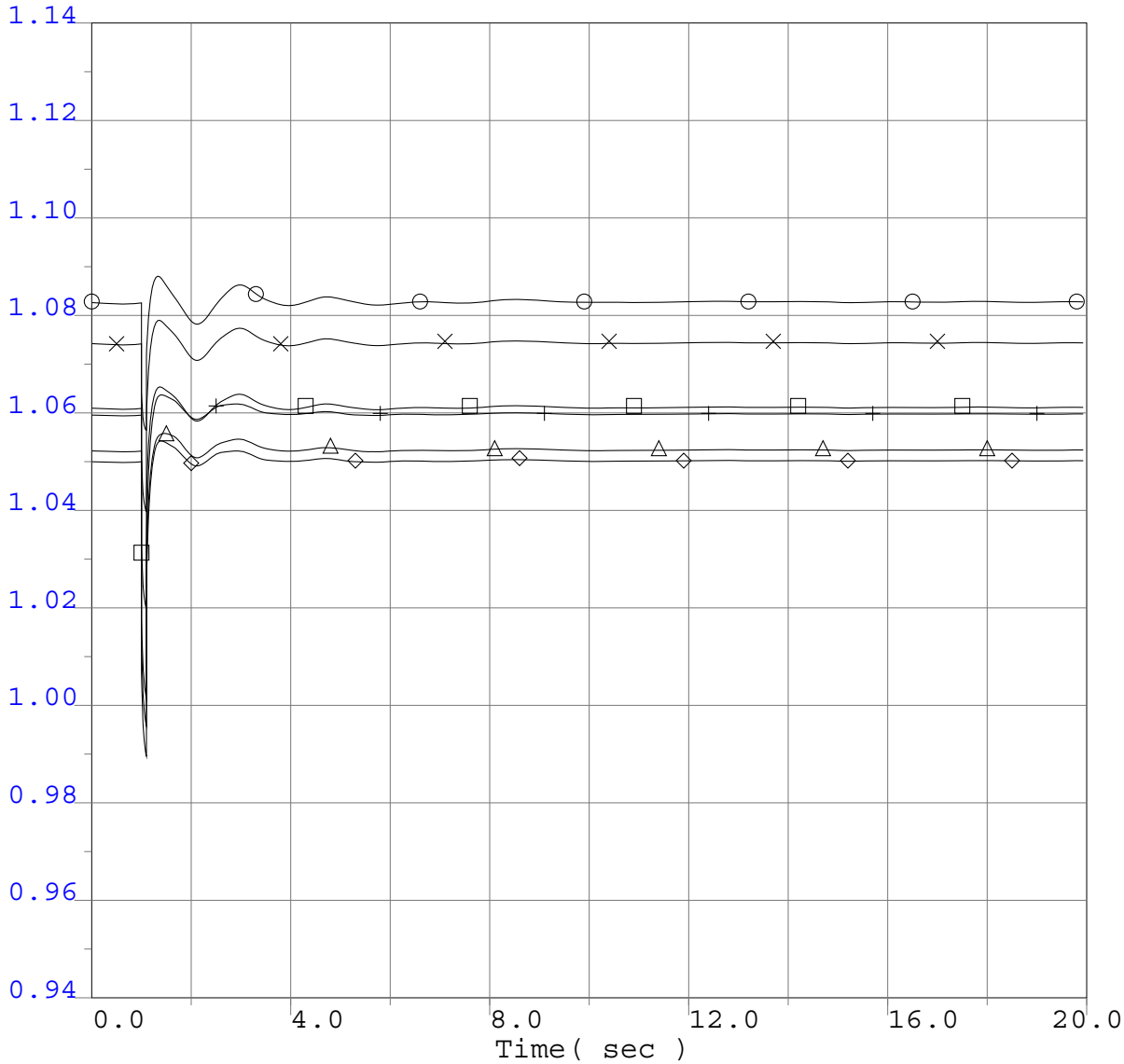
Project Generator Terminal Reactive Power



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 112-412+512
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots

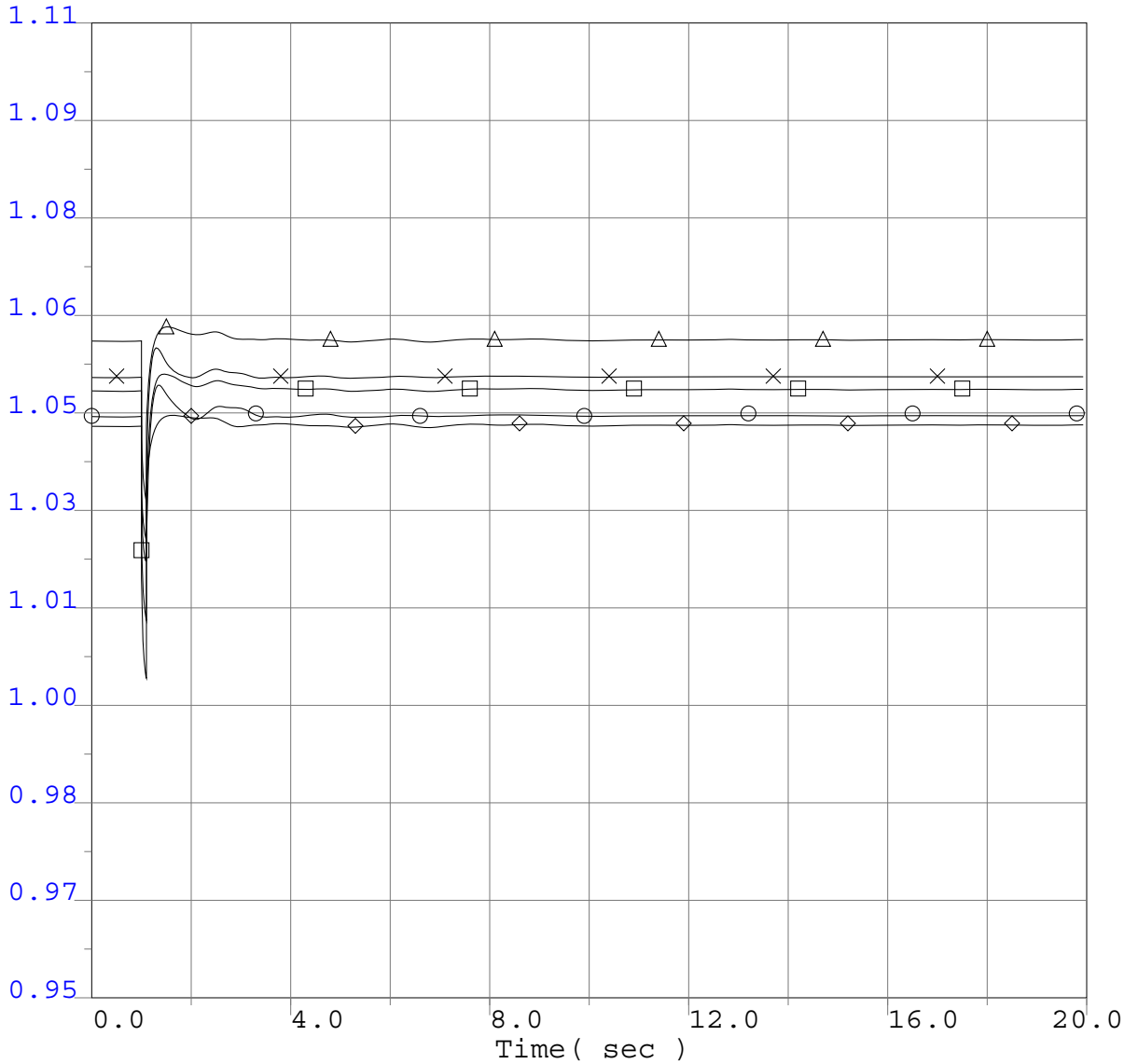


0.9400	vbus	40687	MALIN	500.0	0	0.0 "*"	1	1.1400
0.9400	vbus	30005	ROUND MT	500.0	0	0.0 "*"	1	1.1400
0.9400	vbus	30015	TABLE MT	500.0	0	0.0 "*"	1	1.1400
0.9400	vbus	30030	VACA-DIX	500.0	0	0.0 "*"	1	1.1400
0.9400	vbus	30040	TESLA	500.0	0	0.0 "*"	1	1.1400
0.9400	vbus	30035	TRACY	500.0	0	0.0 "*"	1	1.1400

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 112-412+512
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots

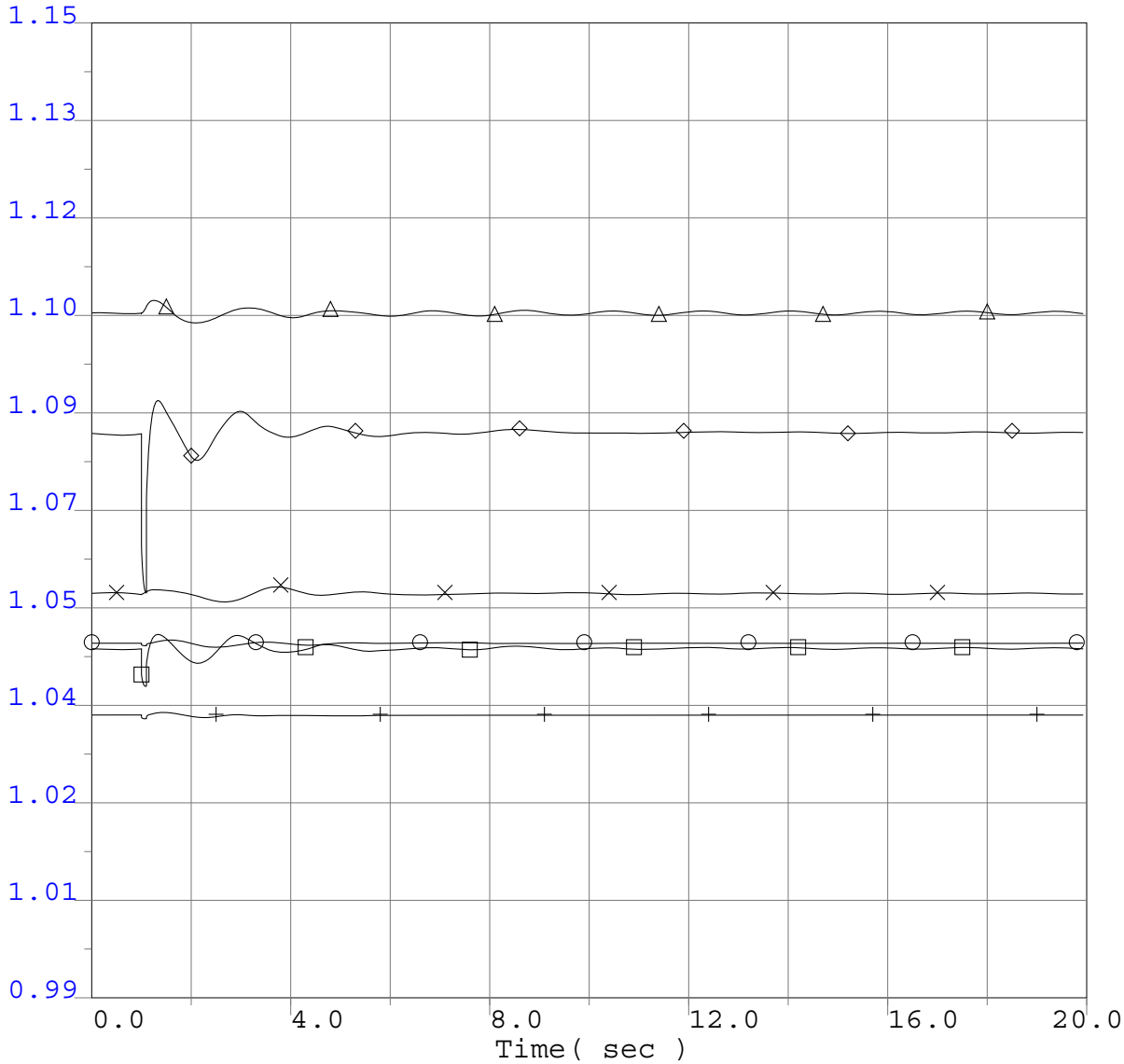


○	0.9500 vbus	30042	METCALF 500.0	0	0.0 "*"	1	1.1100
⊗	0.9500 vbus	30045	MOSSLAND 500.0	0	0.0 "*"	1	1.1100
□	0.9500 vbus	30050	LOSBANOS 500.0	0	0.0 "*"	1	1.1100
△	0.9500 vbus	30055	GATES 500.0	0	0.0 "*"	1	1.1100
◇	0.9500 vbus	30060	MIDWAY 500.0	0	0.0 "*"	1	1.1100

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 112-412+512
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 112-412+512
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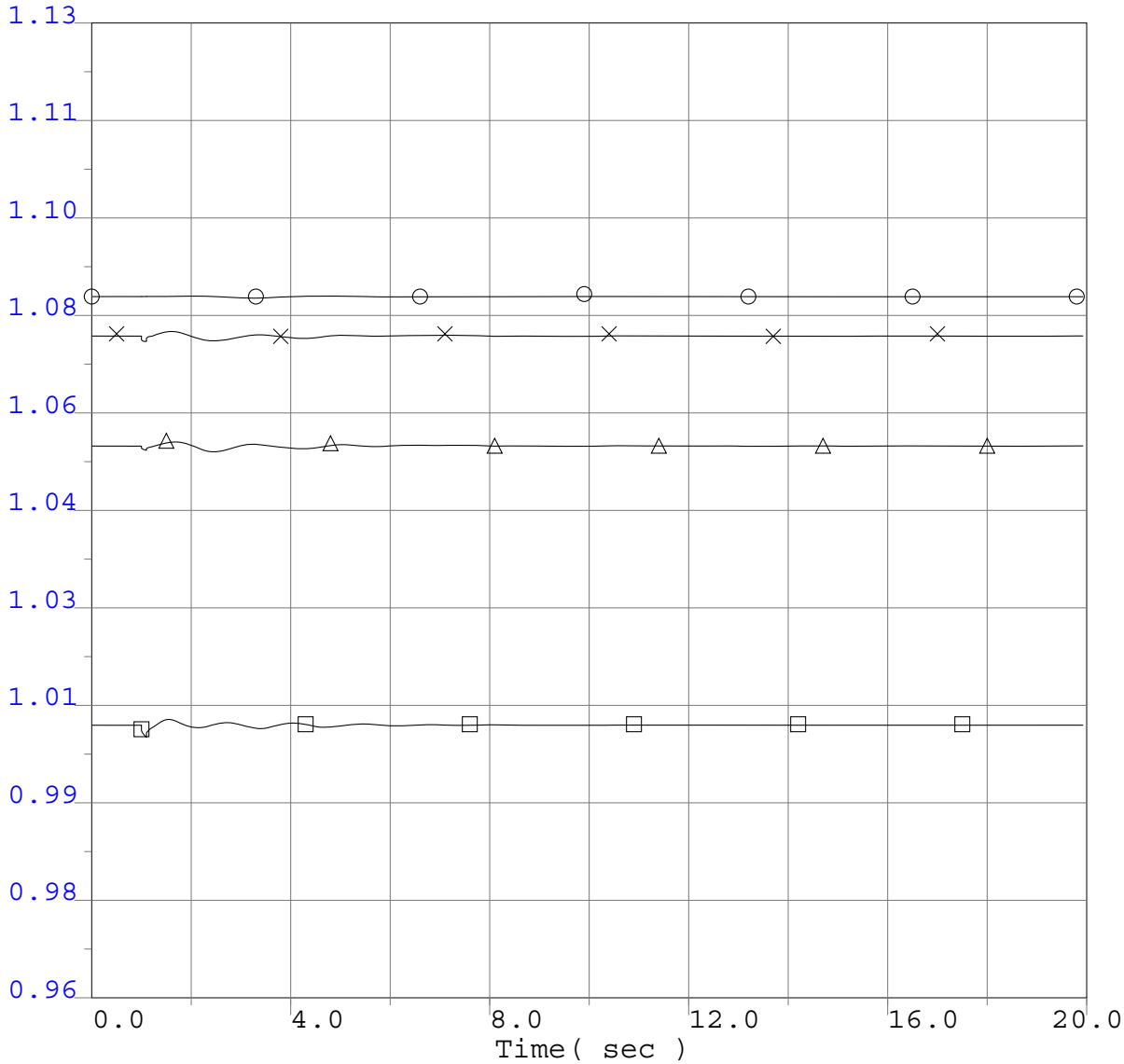
Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots



0.9600	vbul	54150	WILLESD9	240.0	0	0.0	"*"	1	1.1300
0.9600	vbus	14003	NAVAJO	500.0	0	0.0	"*"	1	1.1300
0.9600	vbus	24153	VESTAL	230.0	0	0.0	"*"	1	1.1300
0.9600	vbus	22360	IMPRLVLY	500.0	0	0.0	"*"	1	1.1300

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
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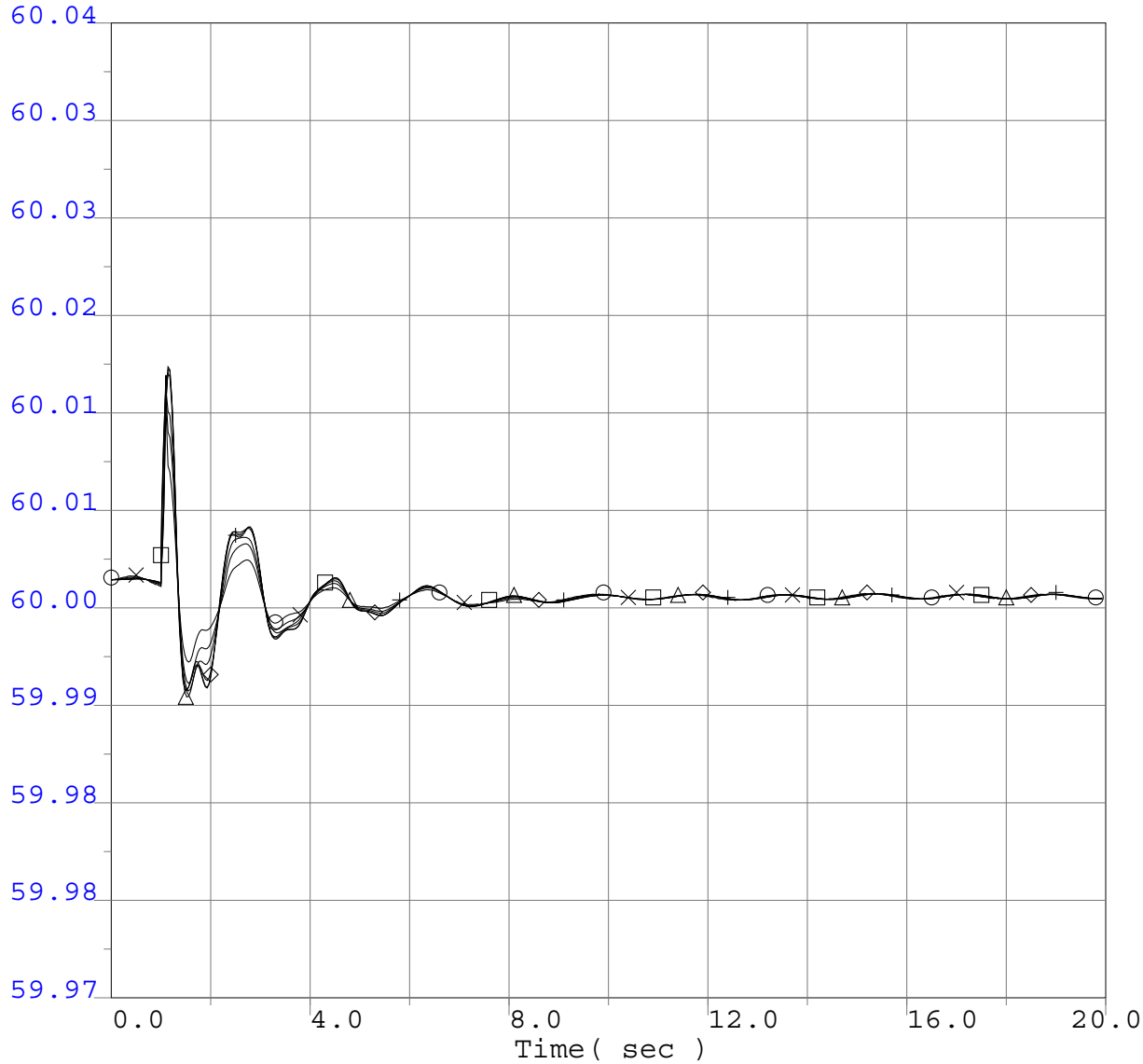
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected WECC Bus Frequency Plots



○	59.9700 fbus	40687	MALIN 500.0	0	0.0 "*"	1	60.0400
⊗	59.9700 fbus	30005	ROUND MT 500.0	0	0.0 "*"	1	60.0400
□	59.9700 fbus	30015	TABLE MT 500.0	0	0.0 "*"	1	60.0400
△	59.9700 fbus	30030	VACA-DIX 500.0	0	0.0 "*"	1	60.0400
◇	59.9700 fbus	30040	TESLA 500.0	0	0.0 "*"	1	60.0400
+	59.9700 fbus	30035	TRACY 500.0	0	0.0 "*"	1	60.0400

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
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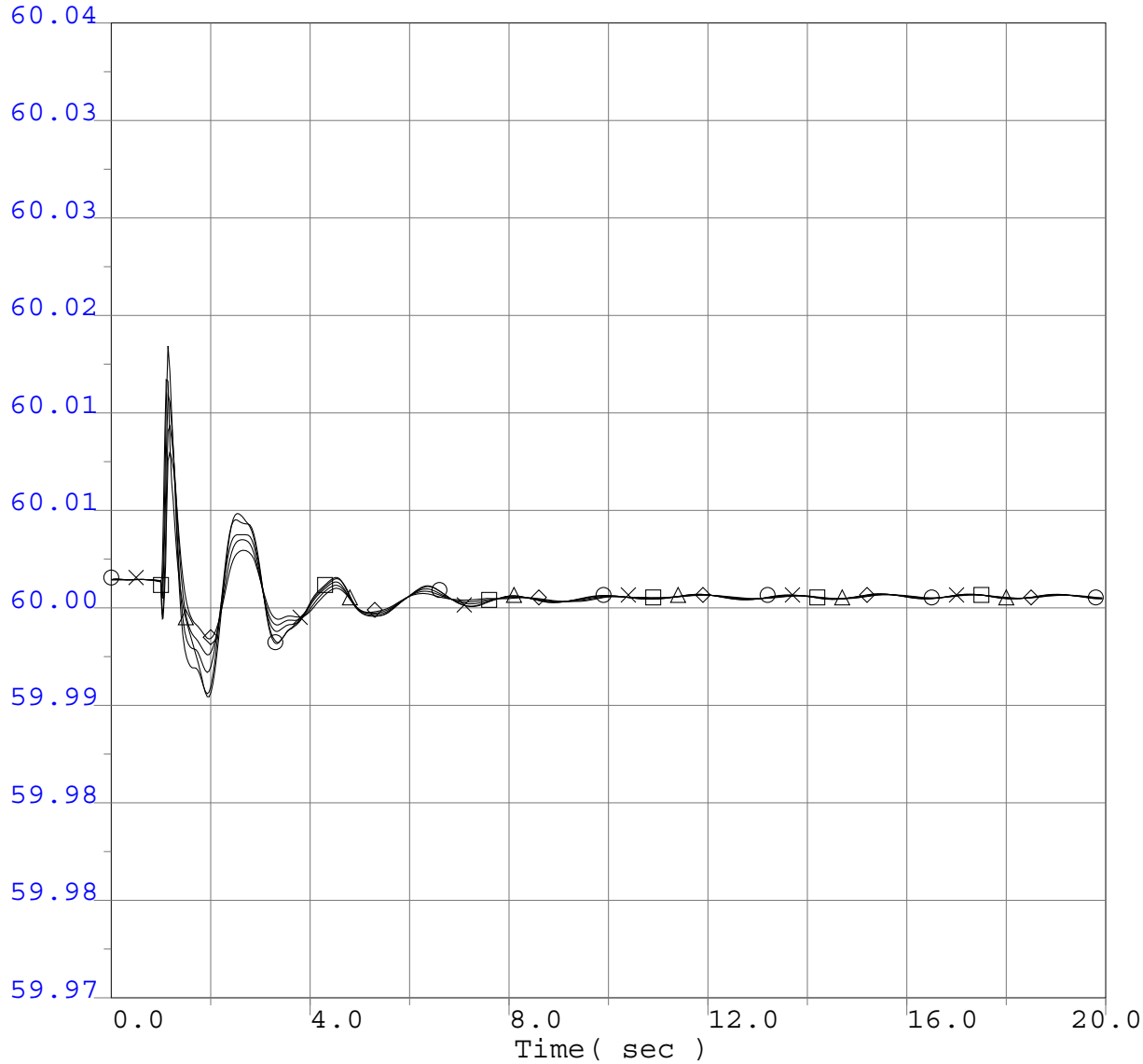
Q268 Project Interconnection System Impact Study

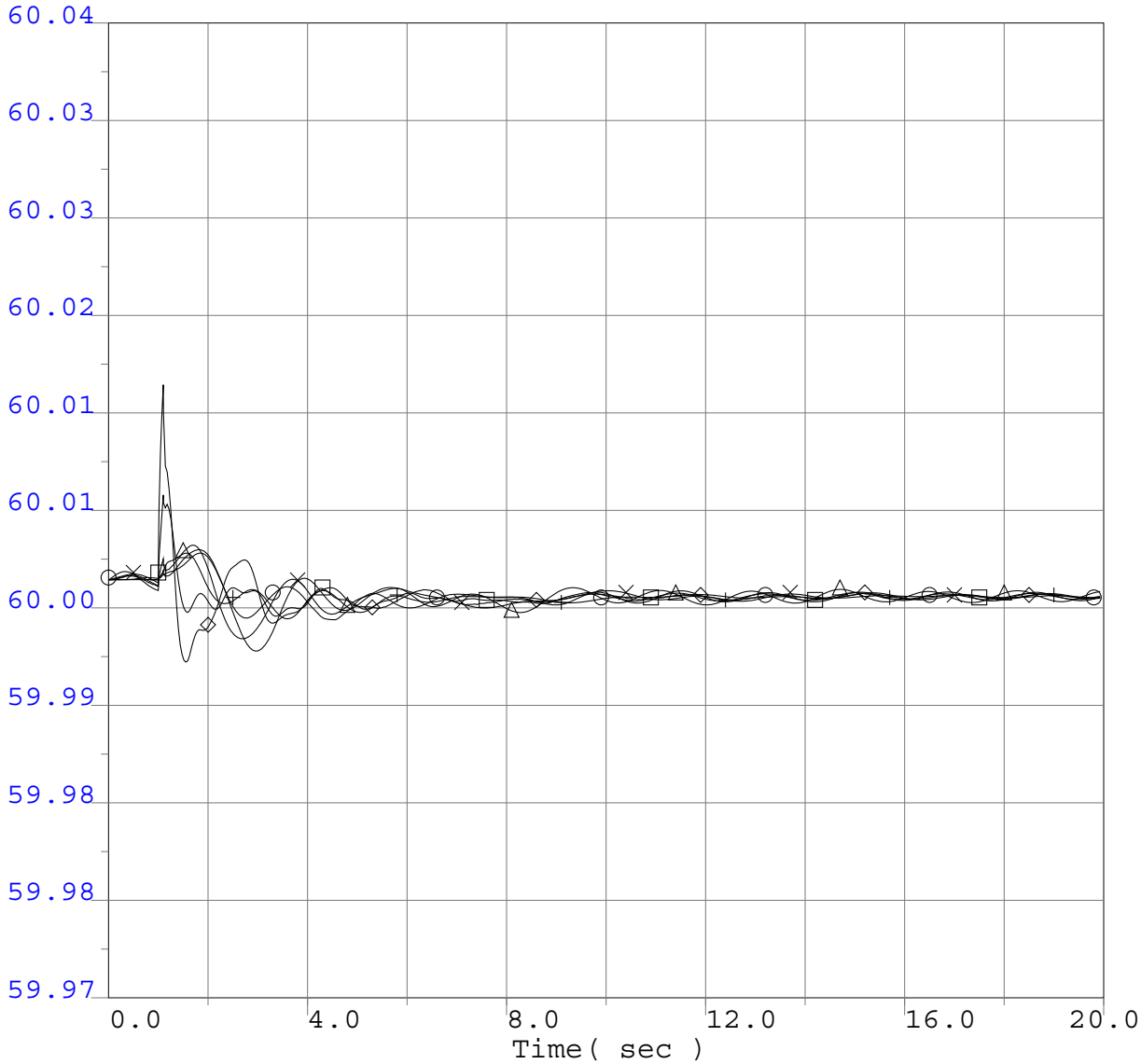
Selected WECC Bus Frequency Plots



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 112-412+512
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected WECC Bus Frequency Plots

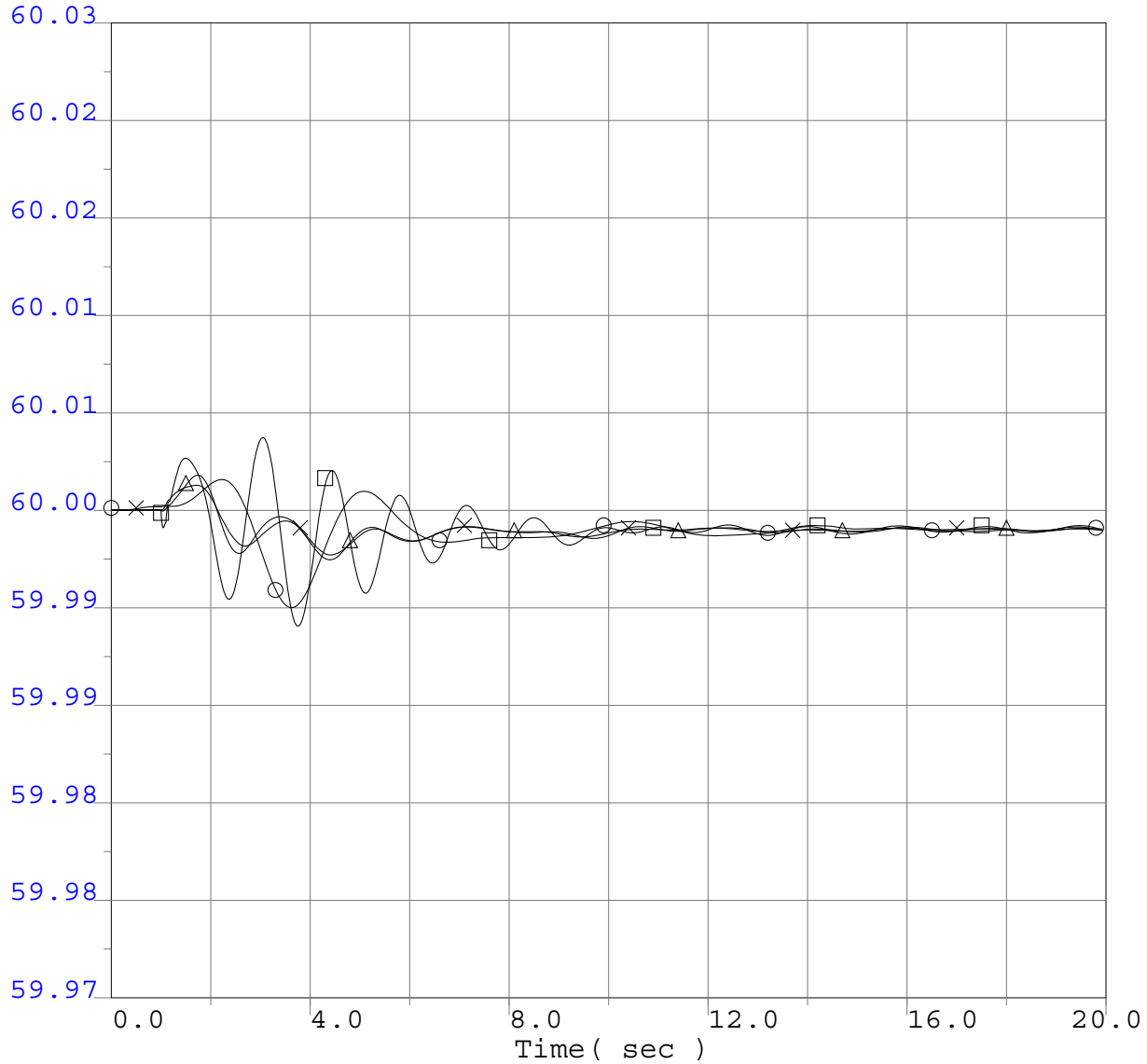


59.9700	fbus	14001	FOURCORN	500.0	0	0.0	"*"	1	60.0400
59.9700	fbus	50703	NIC500	500.0	0	0.0	"*"	1	60.0400
59.9700	fbus	60240	MIDPOINT	500.0	0	0.0	"*"	1	60.0400
59.9700	fbus	62012	TOWN2	500.0	0	0.0	"*"	1	60.0400
59.9700	fbus	40687	MALIN	500.0	0	0.0	"*"	1	60.0400
59.9700	fbus	66340	SIGURD	345.0	0	0.0	"*"	1	60.0400

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 112-412+512
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected WECC Bus Frequency Plots

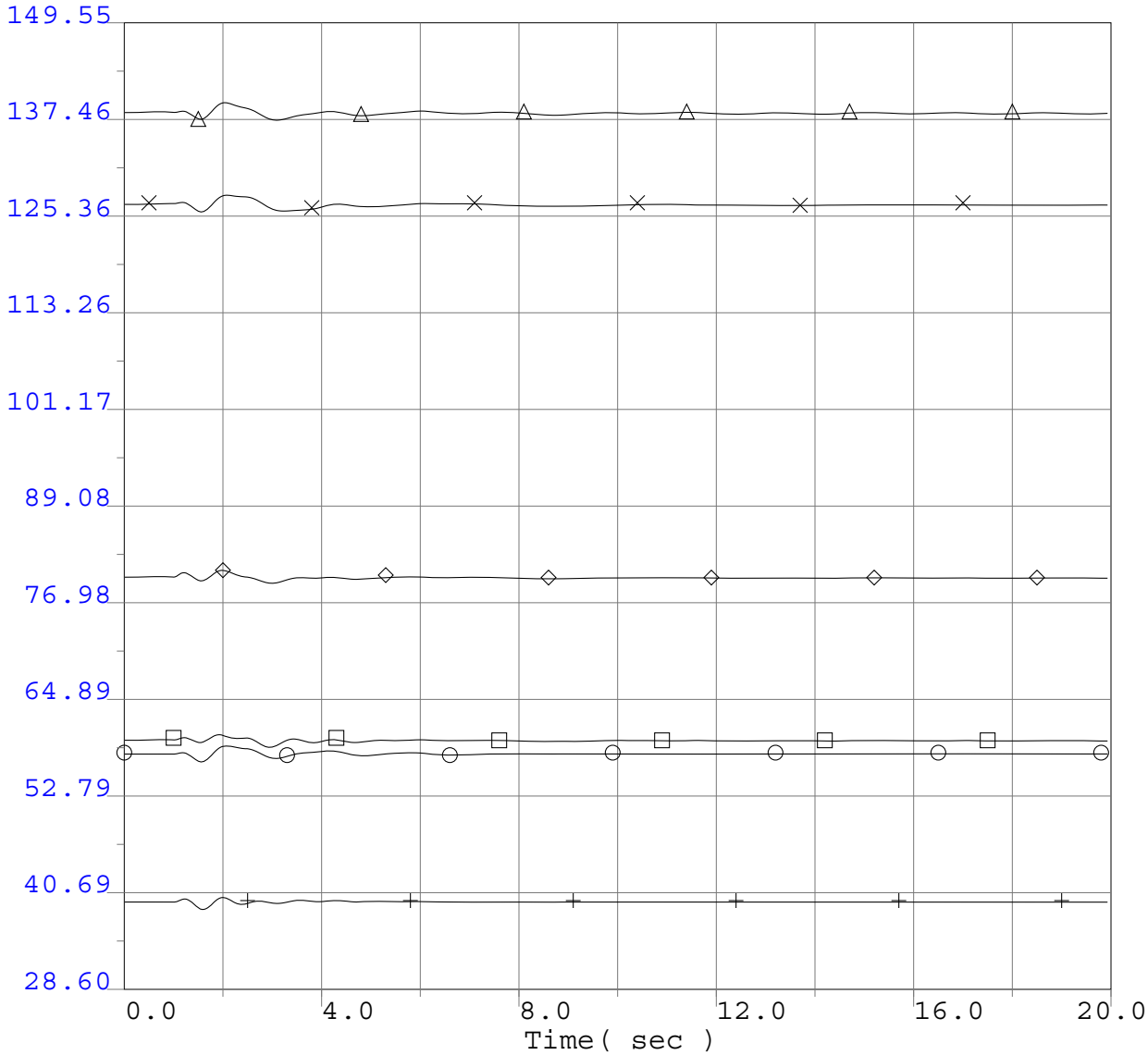


59.9700	fbul	54150	WILLESD9	240.0	0	0.0	"*" 1	60.0300
59.9700	fbus	14003	NAVAJO	500.0	0	0.0	"*" 1	60.0300
59.9700	fbus	24153	VESTAL	230.0	0	0.0	"*" 1	60.0300
59.9700	fbus	22360	IMPRLVLY	500.0	0	0.0	"*" 1	60.0300

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 112-412+512
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

WECC Generator Rotor Angle

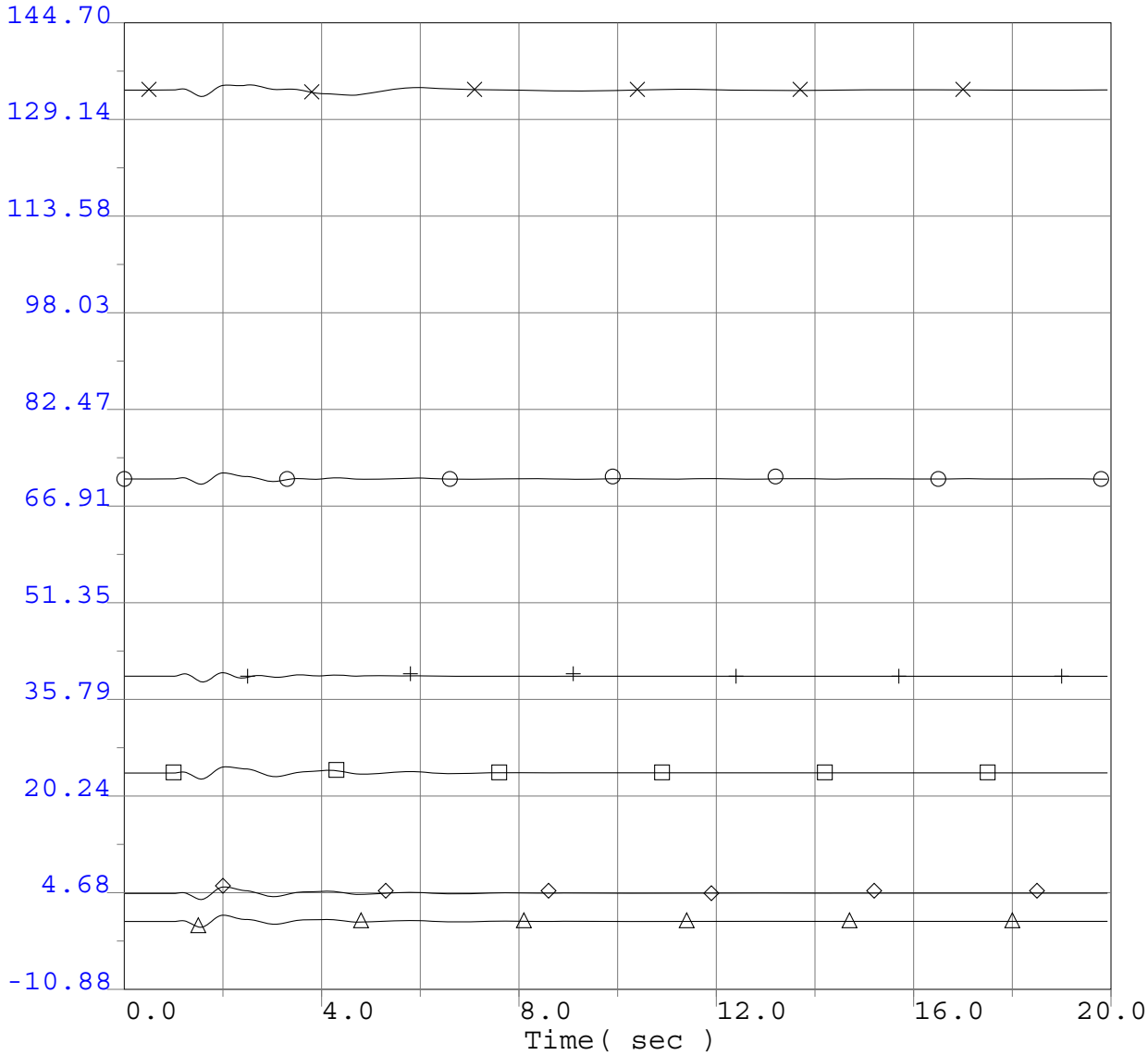


28.6000 ang	14914	FCNGN4CC	22.0	0	0.0 "H"	1	149.5500
28.6000 ang	50499	GMS G5	13.8	0	0.0 "1"	1	149.5500
28.6000 ang	60100	BRWNL 5	13.8	0	0.0 "1"	1	149.5500
28.6000 ang	62048	COLSTP 3	26.0	0	0.0 "1"	1	149.5500
28.6000 ang	44071	JDA 0102	13.8	0	0.0"01"	1	149.5500
28.6000 ang	36411	DIABLO 1	25.0	0	0.0 "1"	1	149.5500

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 112-412+512
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

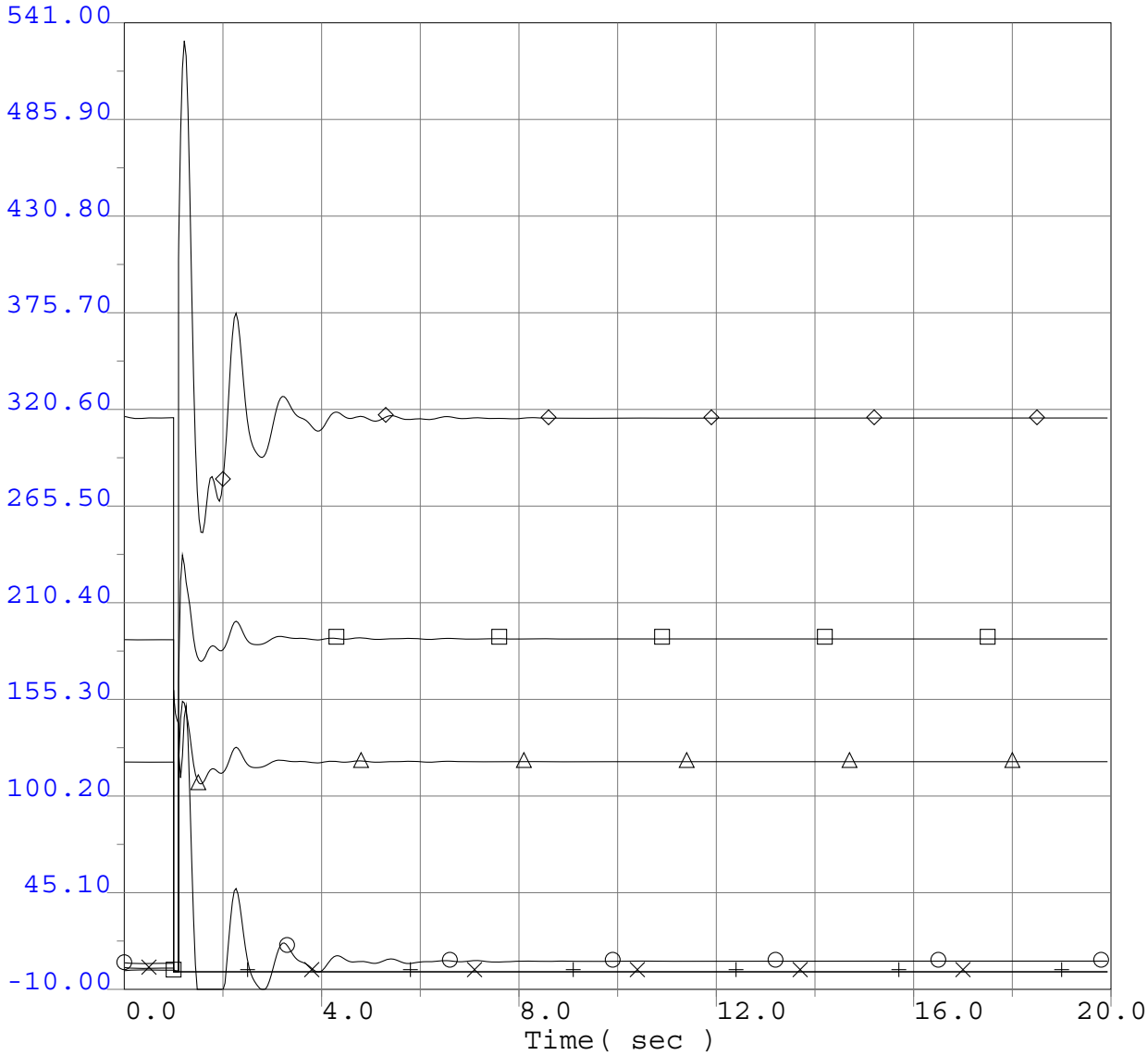
WECC Generator Rotor Angle



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 112-412+512
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

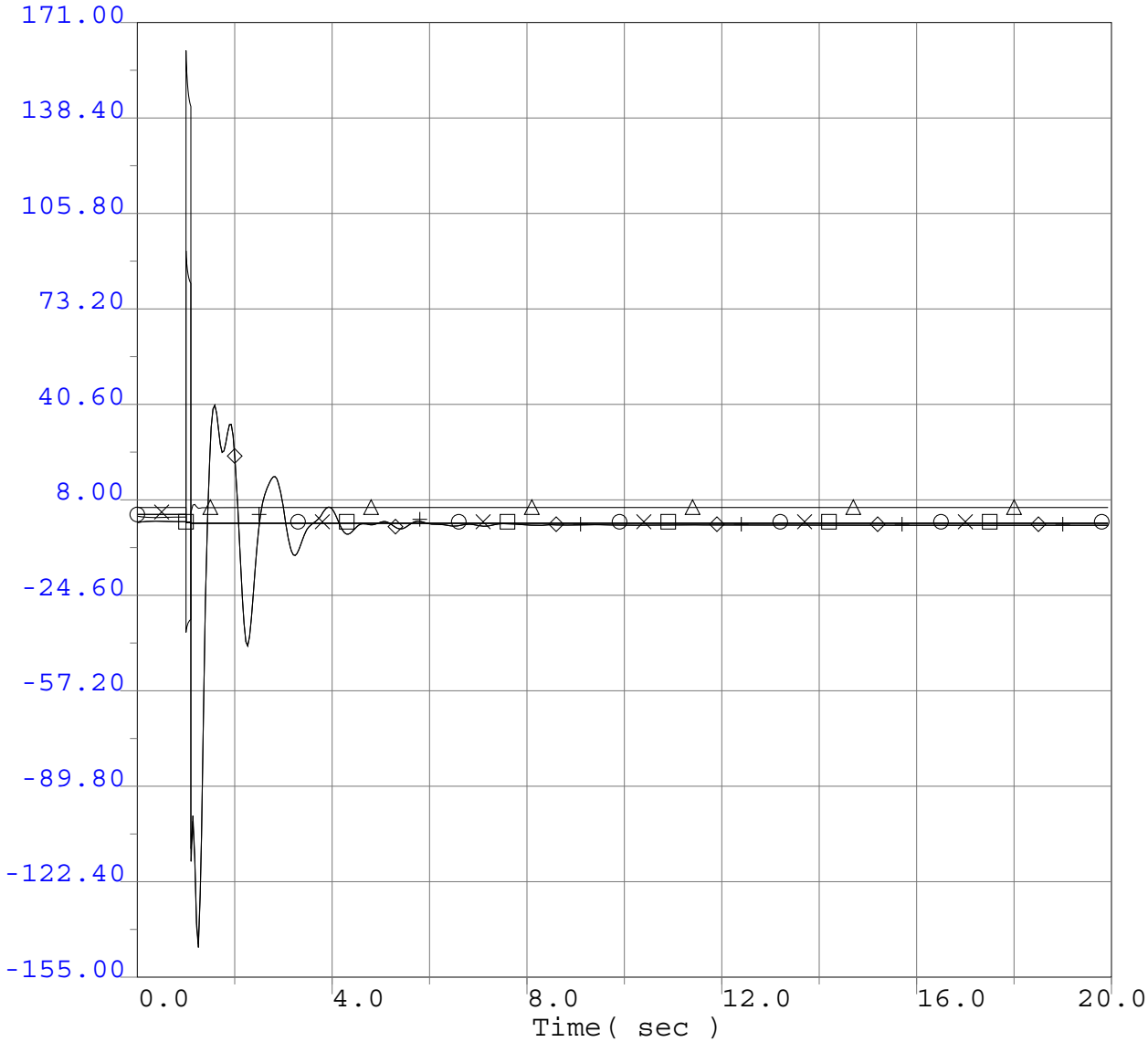
Selected PG&E Transmission Line Flows (MW)



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 112-412+512
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

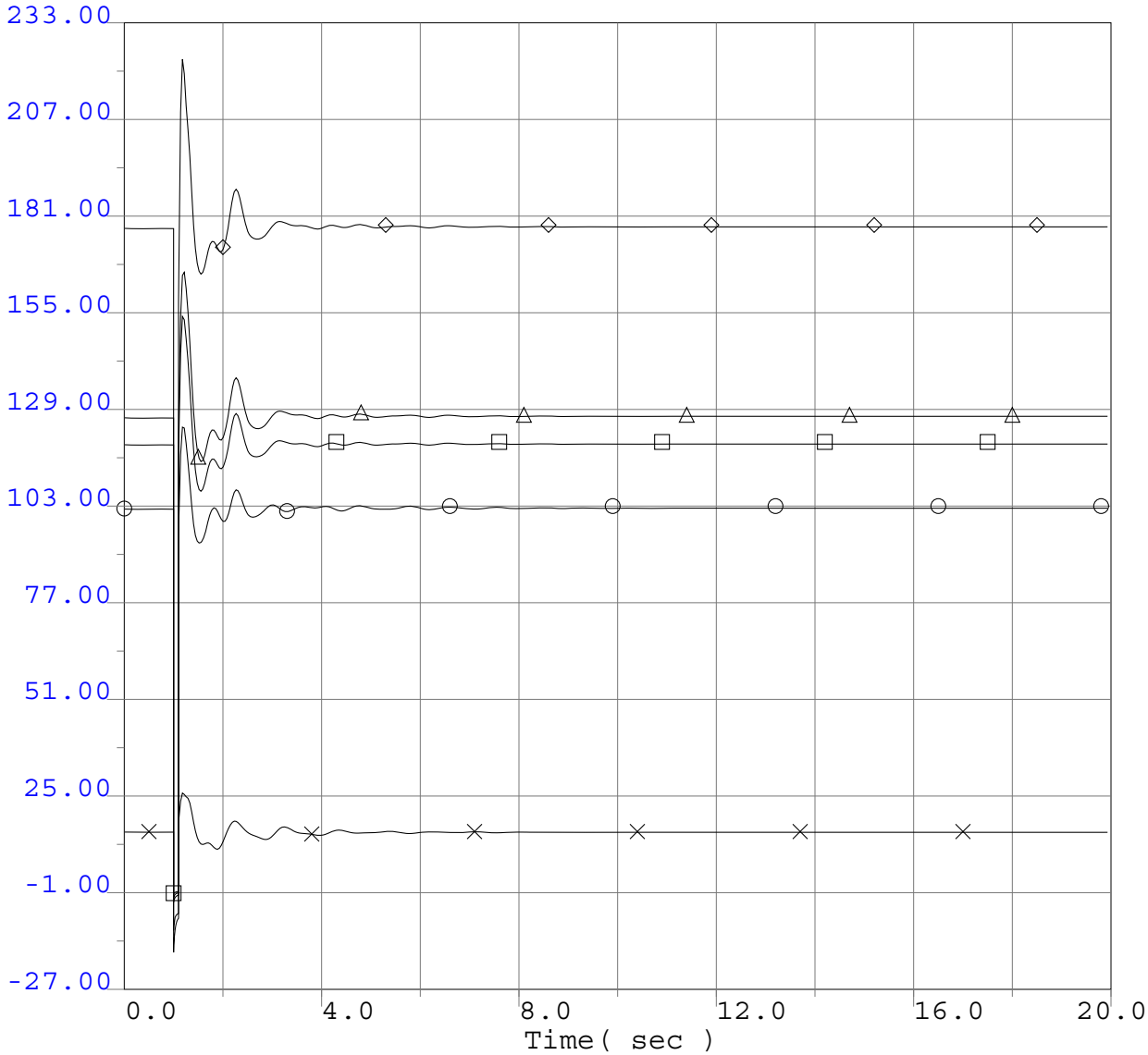
Selected PG&E Transmission Line Flows (MW)



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 112-412+512
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected PG&E Transmission Line Flows (MW)

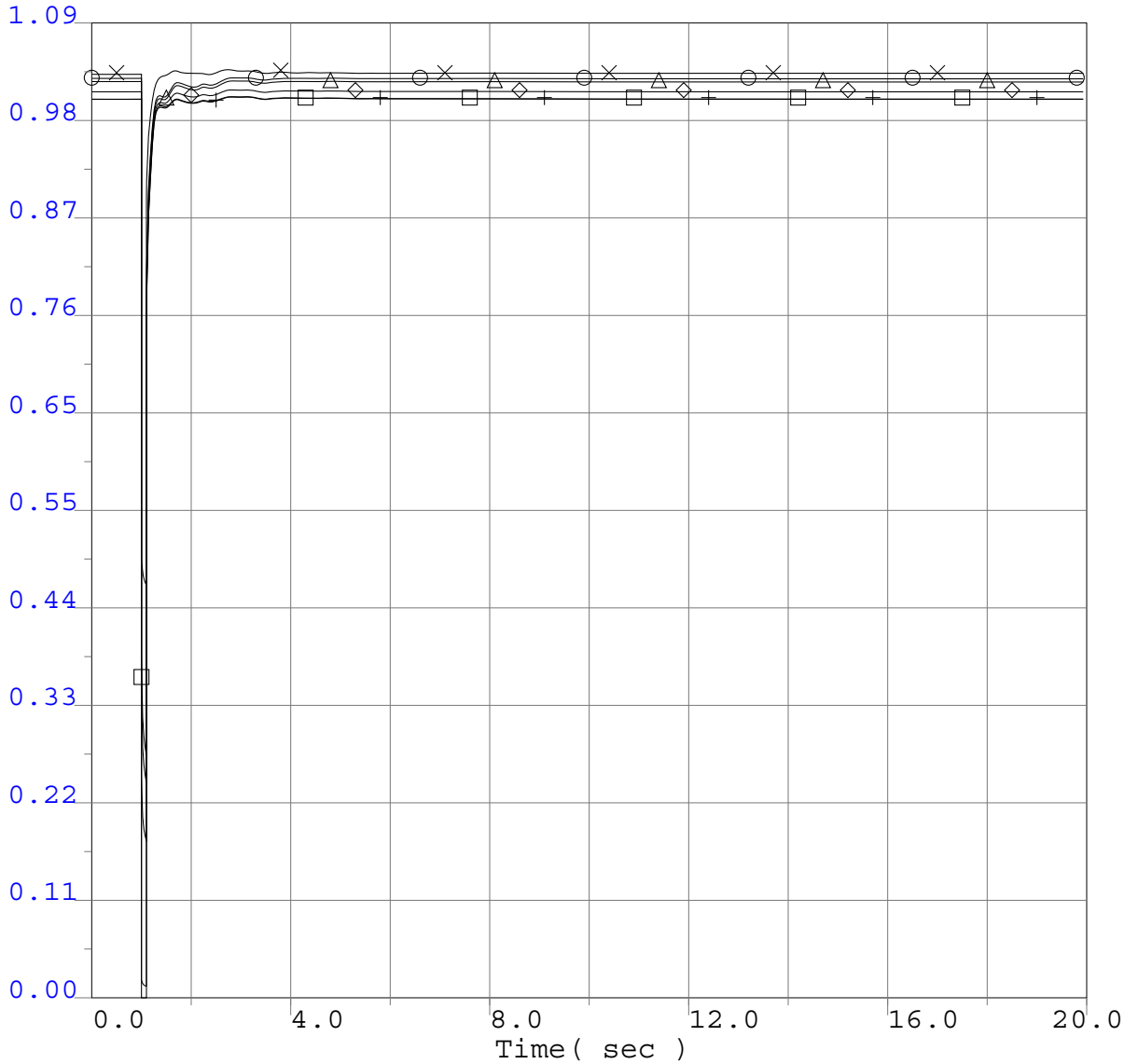


-27.0000	pbr	33526	KSSN-JC1	115.0	33514	MANTECA	115.0	1	1	233.0000
-27.0000	pbr	33526	KSSN-JC1	115.0	33528	KASSON	115.0	1	1	233.0000
-27.0000	pbr	33533	OWENSTP2	115.0	33526	KSSN-JC1	115.0	1	1	233.0000
-27.0000	pbr	33529	LAMMERS	115.0	33528	KASSON	115.0	1	1	233.0000
-27.0000	pbr	33531	OWENSTP1	115.0	33529	LAMMERS	115.0	1	1	233.0000

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 112-412+512
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected PG&E Bus Voltage Plots Adjacent to Fault

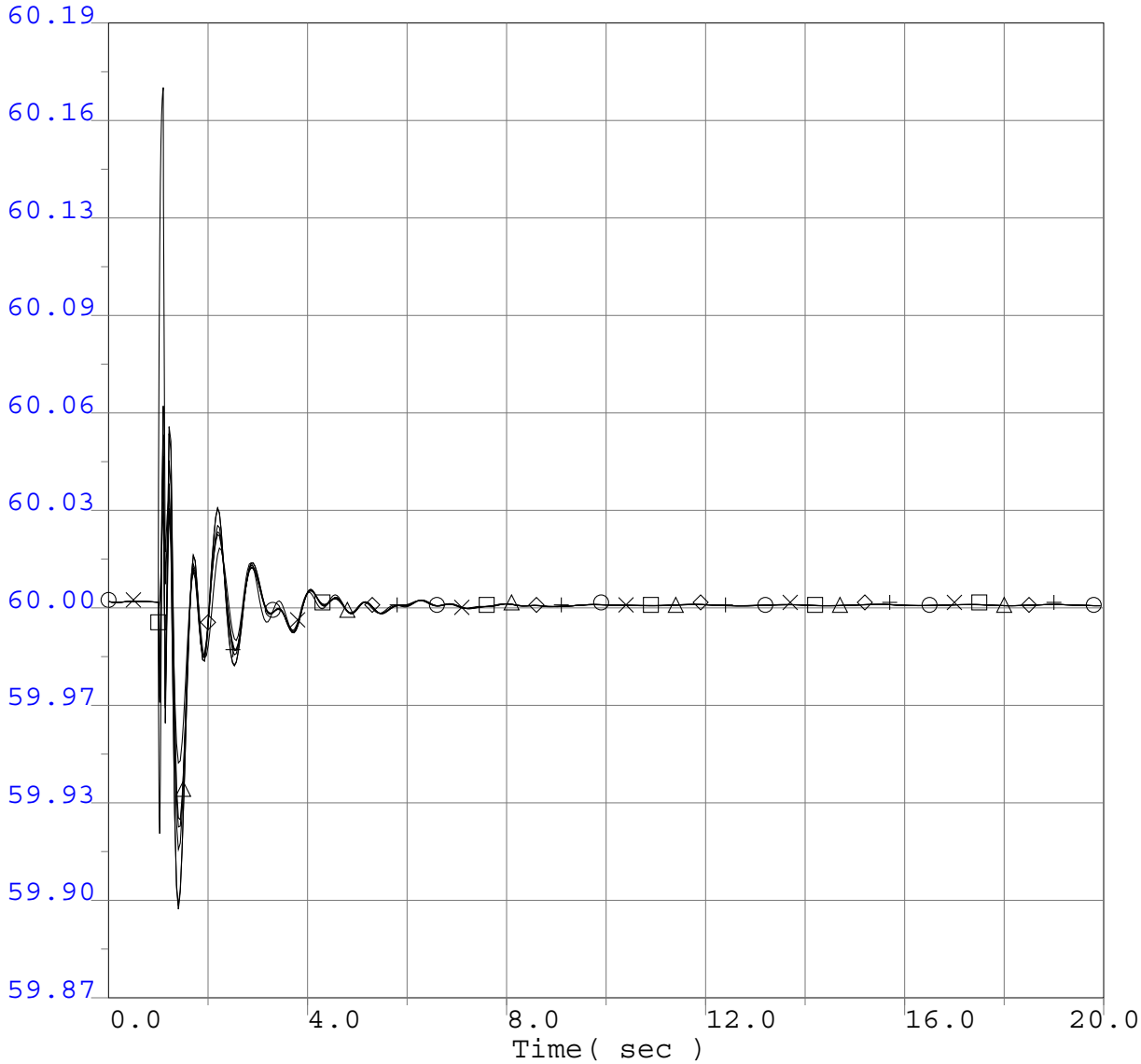


0.0000	vbus	33549	SCHULTE 115.0	0	0.0	"*"	1	1.0900
0.0000	vbus	33540	TESLA 115.0	0	0.0	"*"	1	1.0900
0.0000	vbul	33514	MANTECA 115.0	0	0.0	"*"	1	1.0900
0.0000	vbul	33529	LAMMERS 115.0	0	0.0	"*"	1	1.0900
0.0000	vbus	33528	KASSON 115.0	0	0.0	"*"	1	1.0900
0.0000	vbul	33518	VIERRA 115.0	0	0.0	"*"	1	1.0900

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 122-522+622
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected PG&E Bus Frequency Plots Adjacent to Fault

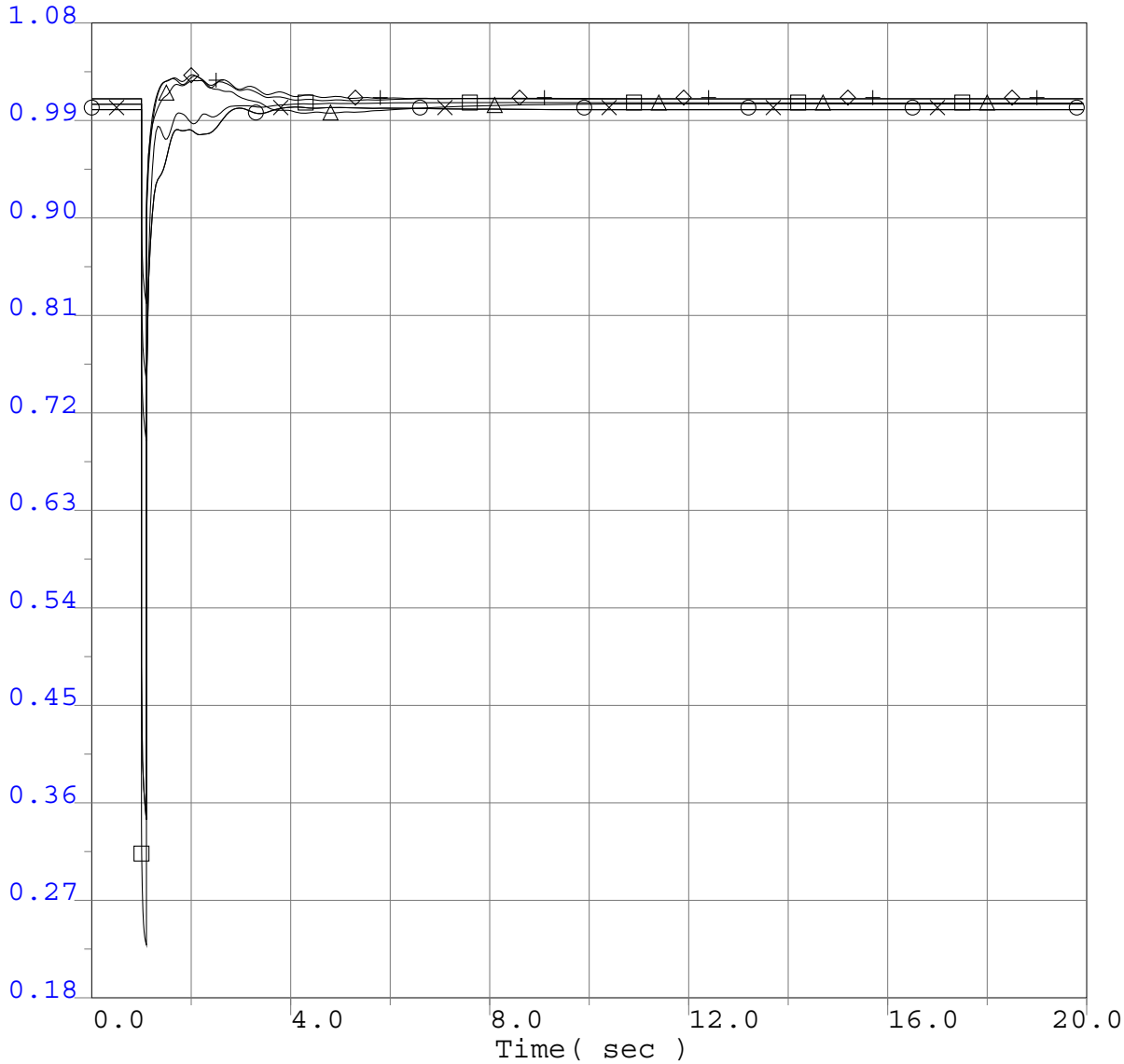


59.8700	fbus	33549	SCHULTE 115.0	0	0.0	"*"	1	60.1900
59.8700	fbus	33540	TESLA 115.0	0	0.0	"*"	1	60.1900
59.8700	fbul	33514	MANTECA 115.0	0	0.0	"*"	1	60.1900
59.8700	fbul	33529	LAMMERS 115.0	0	0.0	"*"	1	60.1900
59.8700	fbus	33528	KASSON 115.0	0	0.0	"*"	1	60.1900
59.8700	fbul	33518	VIERRA 115.0	0	0.0	"*"	1	60.1900

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 122-522+622
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

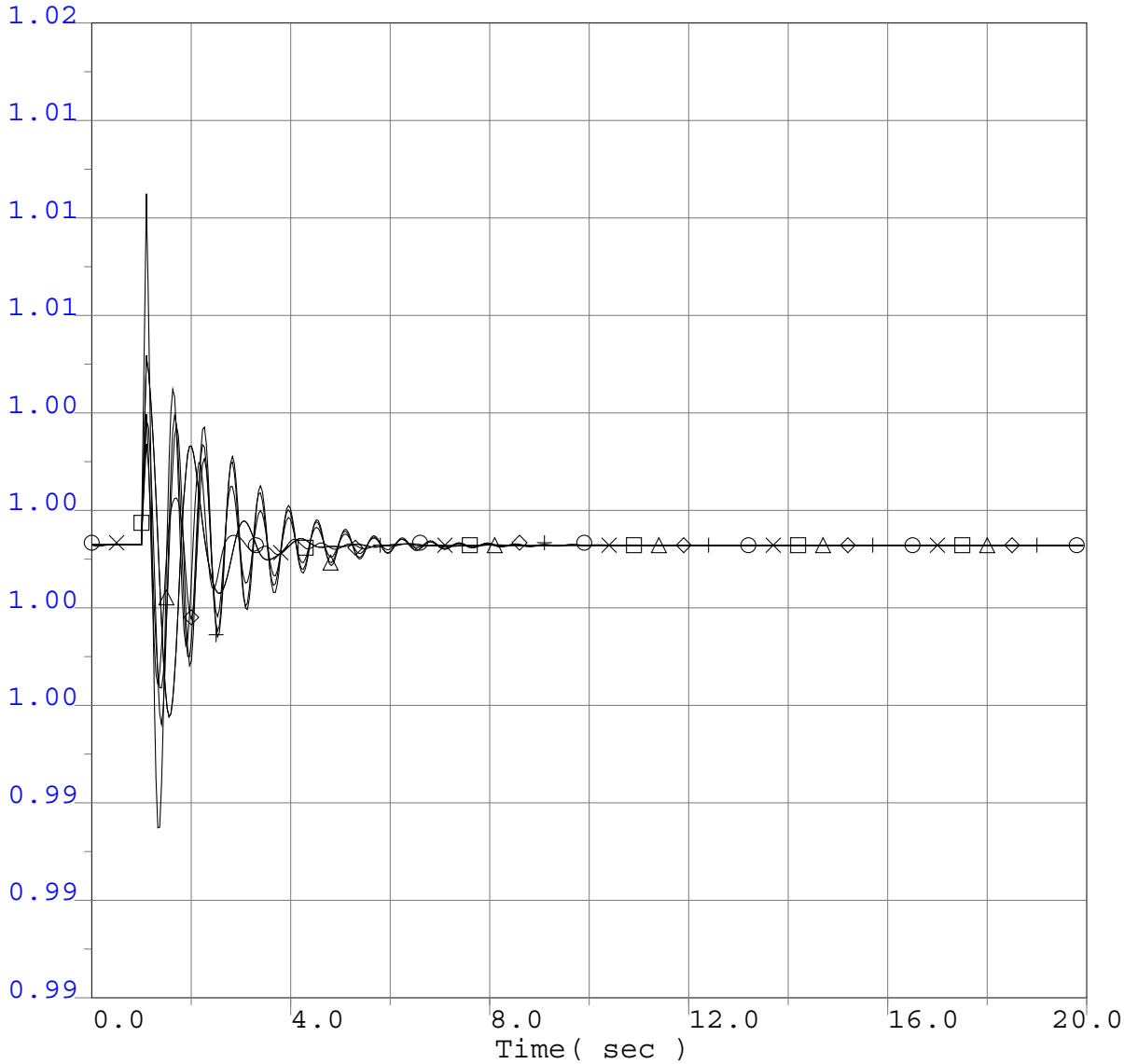
Project Generator Terminal Voltages



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 122-522+622
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Project Generator Rotor Speed

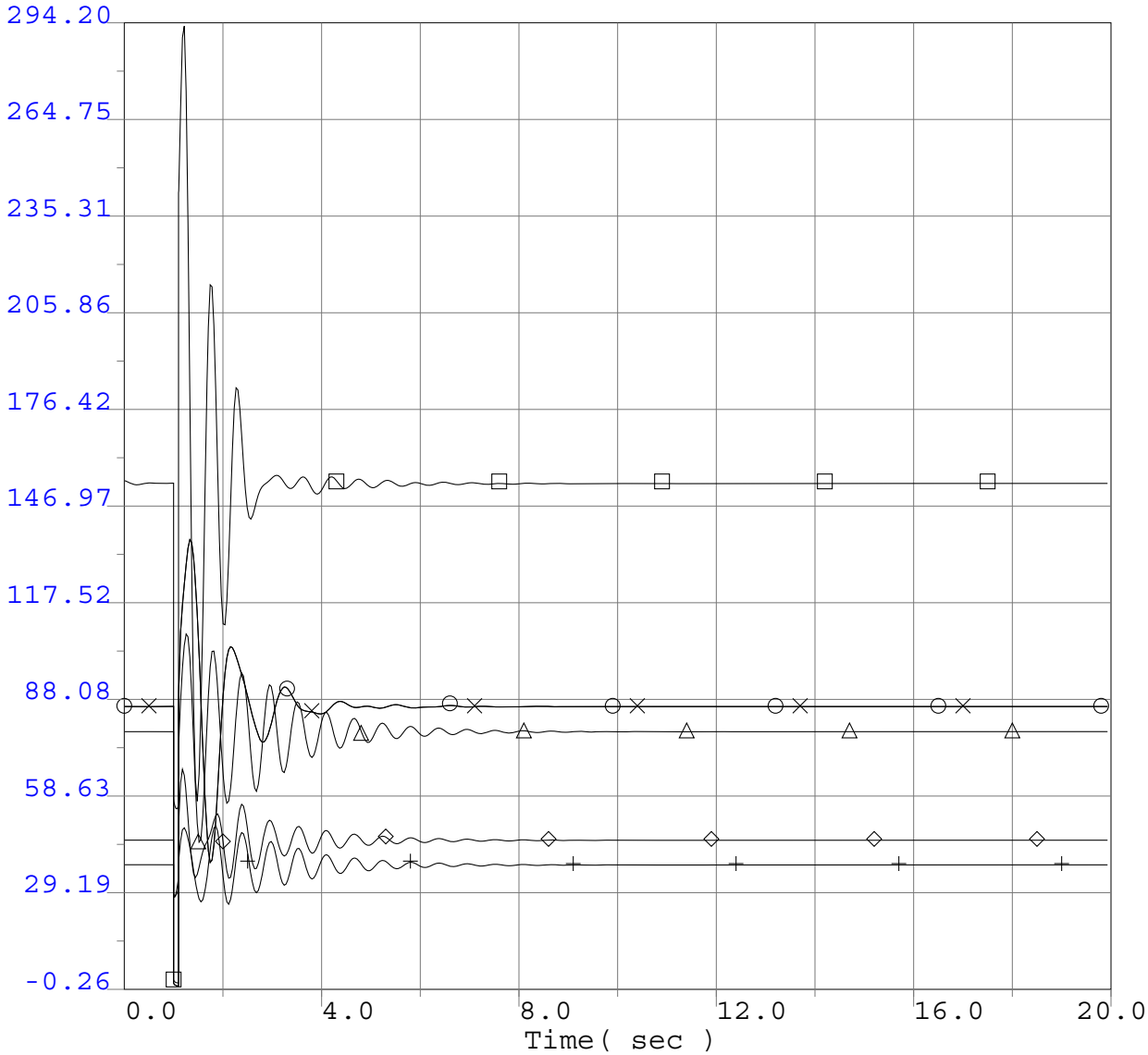


0.9868 spd	33805	GWFTRCY1	13.8	0	0.0 "1"	1	1.0152
0.9868 spd	33807	GWFTRCY2	13.8	0	0.0 "1"	1	1.0152
0.9868 spd	33809	Q268ST1	13.8	0	0.0 "1"	1	1.0152
0.9868 spd	33858	P0409CG2	13.8	0	0.0 "1"	1	1.0152
0.9868 spd	33808	SJ COGEN	13.8	0	0.0 "1"	1	1.0152
0.9868 spd	33810	SP CMPNY	13.8	0	0.0 "1"	1	1.0152

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 122-522+622
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Project Generator Terminal Power

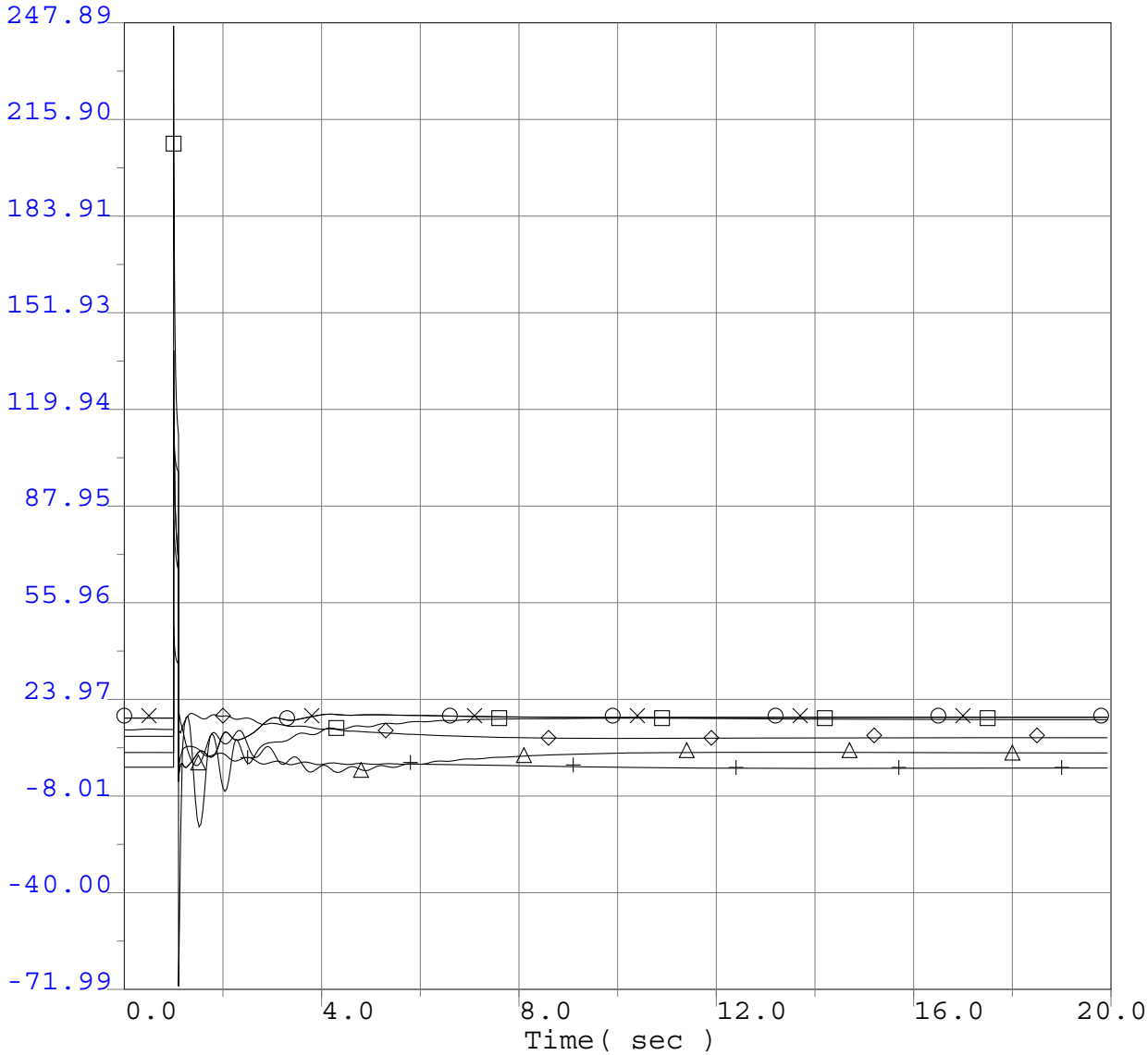


-0.2600 pg	33805	GWFTRCY1	13.8	0	0.0 "1"	1	294.2000
-0.2600 pg	33807	GWFTRCY2	13.8	0	0.0 "1"	1	294.2000
-0.2600 pg	33809	Q268ST1	13.8	0	0.0 "1"	1	294.2000
-0.2600 pg	33858	P0409CG2	13.8	0	0.0 "1"	1	294.2000
-0.2600 pg	33808	SJ COGEN	13.8	0	0.0 "1"	1	294.2000
-0.2600 pg	33810	SP CMPNY	13.8	0	0.0 "1"	1	294.2000

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 122-522+622
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

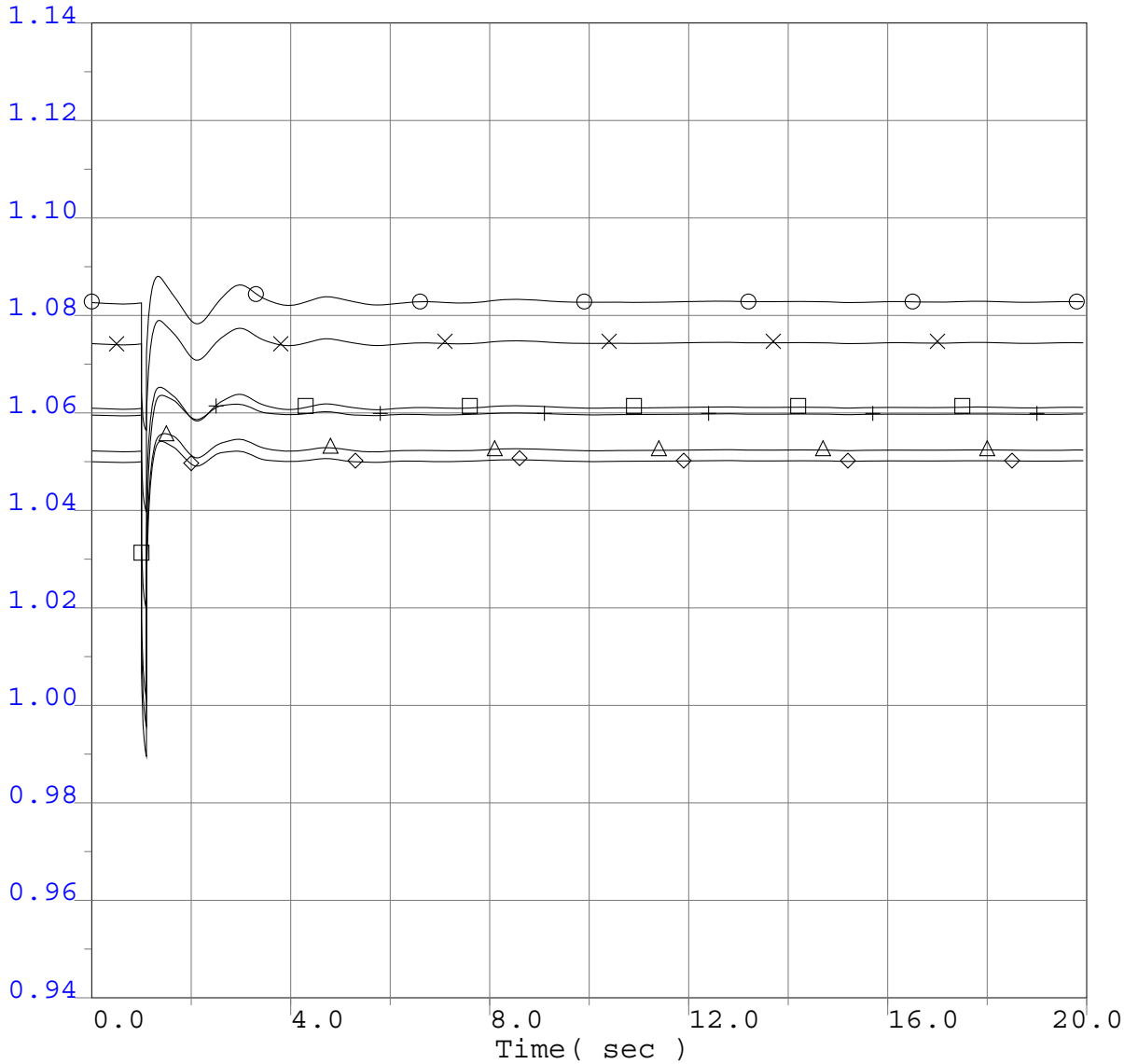
Project Generator Terminal Reactive Power



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 122-522+622
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots

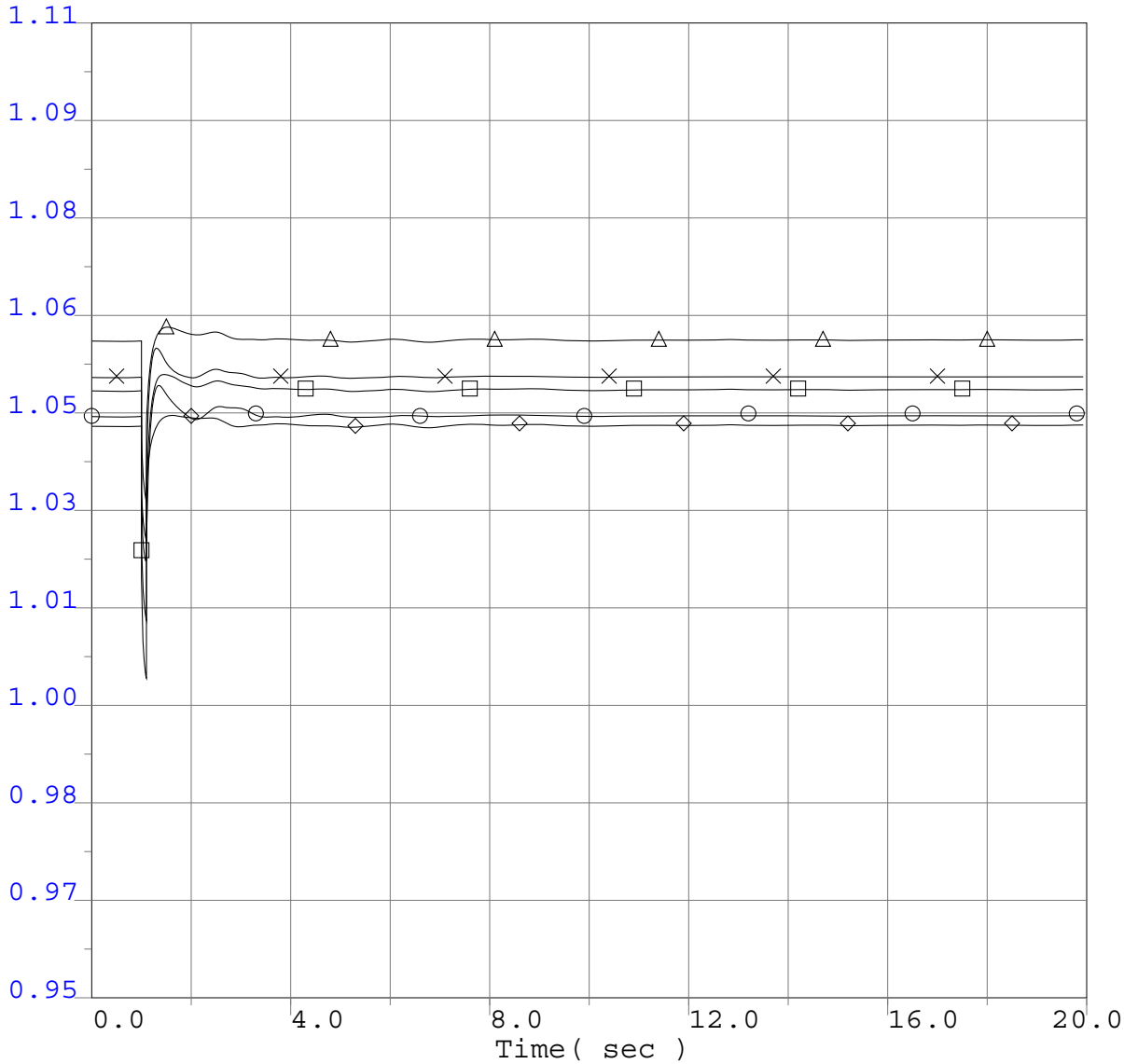


0.9400	vbus	40687	MALIN	500.0	0	0.0 "*"	1	1.1400
0.9400	vbus	30005	ROUND MT	500.0	0	0.0 "*"	1	1.1400
0.9400	vbus	30015	TABLE MT	500.0	0	0.0 "*"	1	1.1400
0.9400	vbus	30030	VACA-DIX	500.0	0	0.0 "*"	1	1.1400
0.9400	vbus	30040	TESLA	500.0	0	0.0 "*"	1	1.1400
0.9400	vbus	30035	TRACY	500.0	0	0.0 "*"	1	1.1400

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 122-522+622
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots

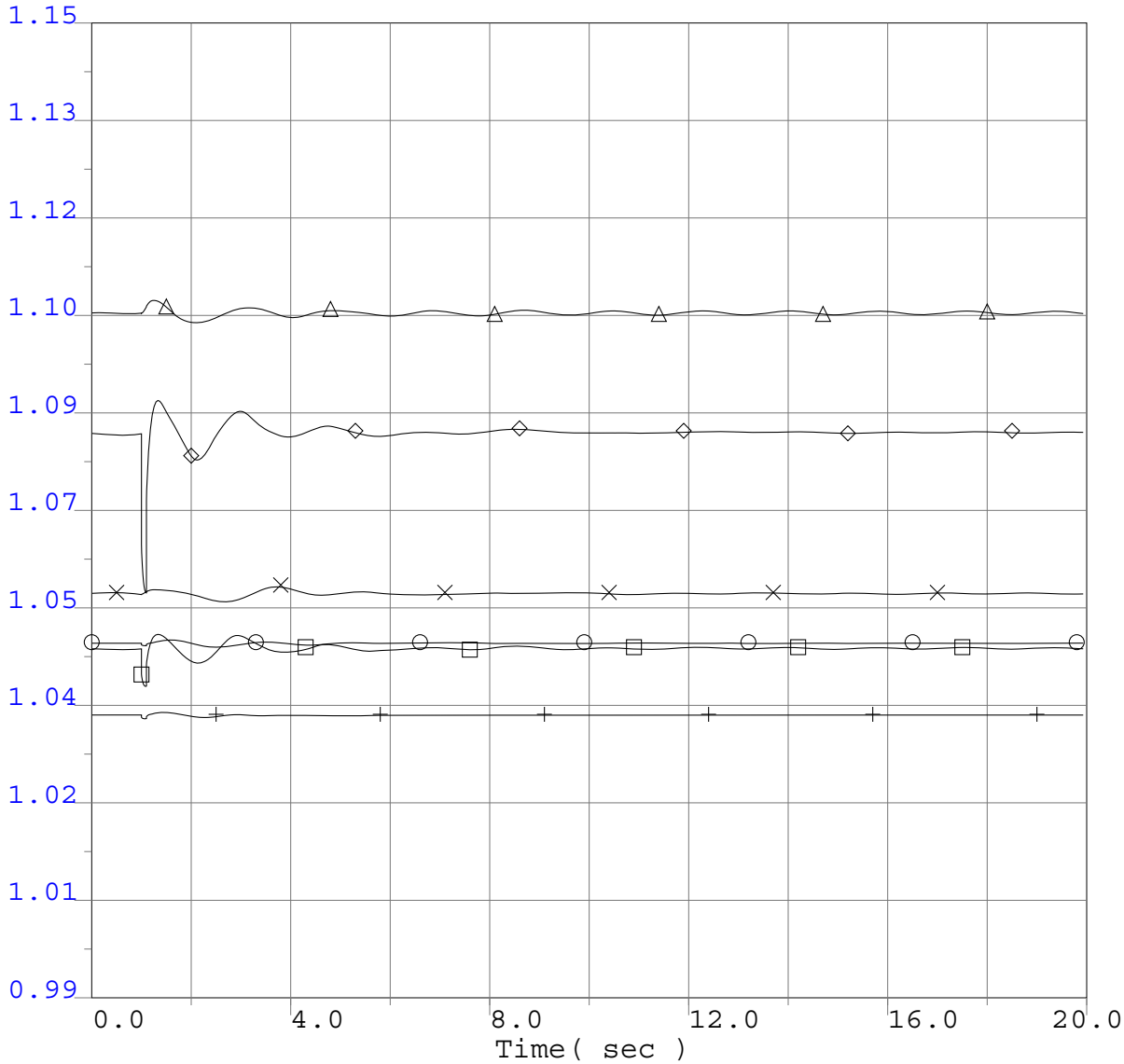


○	0.9500 vbus	30042	METCALF 500.0	0	0.0 "*"	1	1.1100
⊗	0.9500 vbus	30045	MOSSLAND 500.0	0	0.0 "*"	1	1.1100
□	0.9500 vbus	30050	LOSBANOS 500.0	0	0.0 "*"	1	1.1100
△	0.9500 vbus	30055	GATES 500.0	0	0.0 "*"	1	1.1100
◇	0.9500 vbus	30060	MIDWAY 500.0	0	0.0 "*"	1	1.1100

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 122-522+622
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

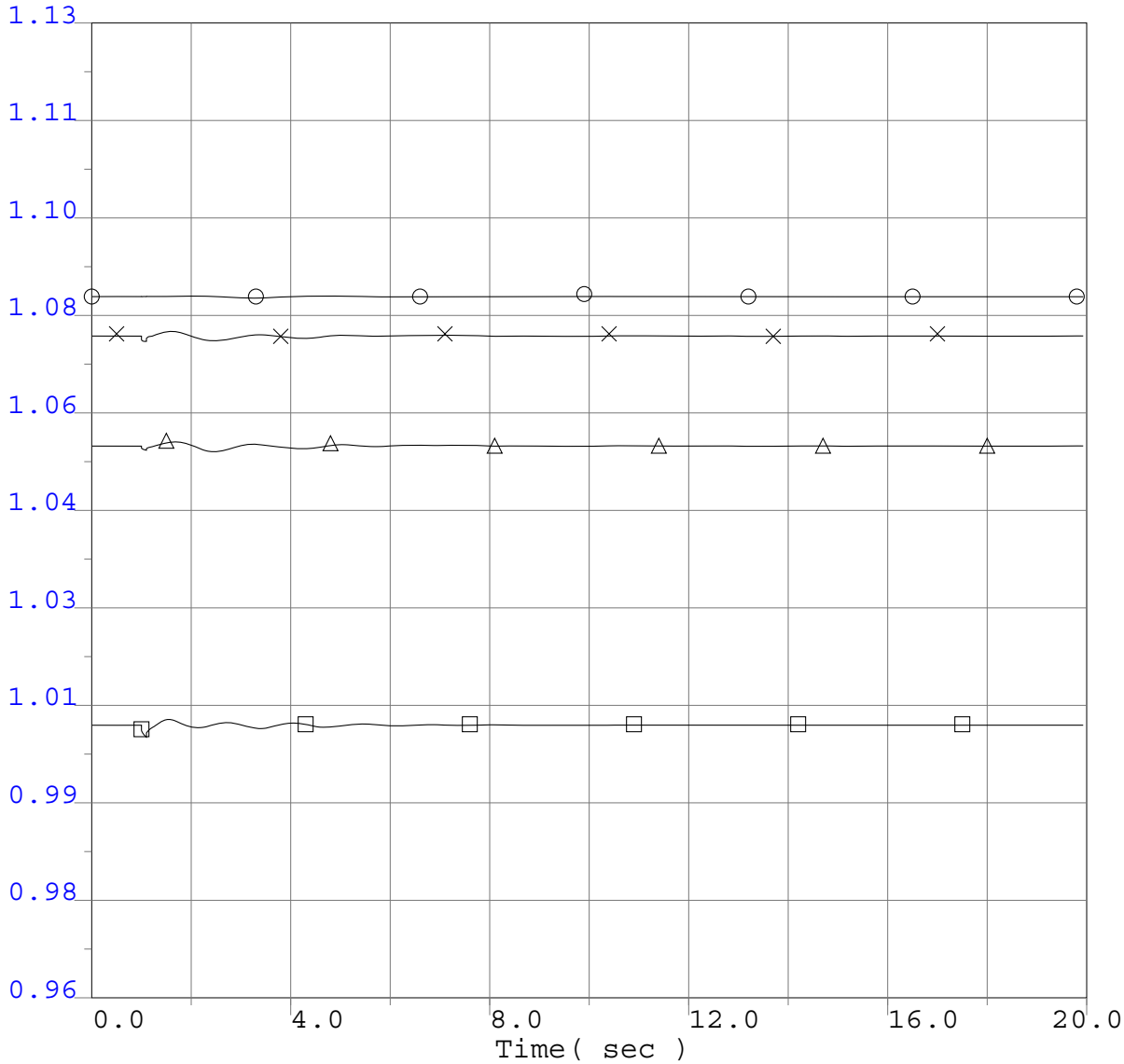
Selected WECC Bus Voltage Plots



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 122-522+622
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots

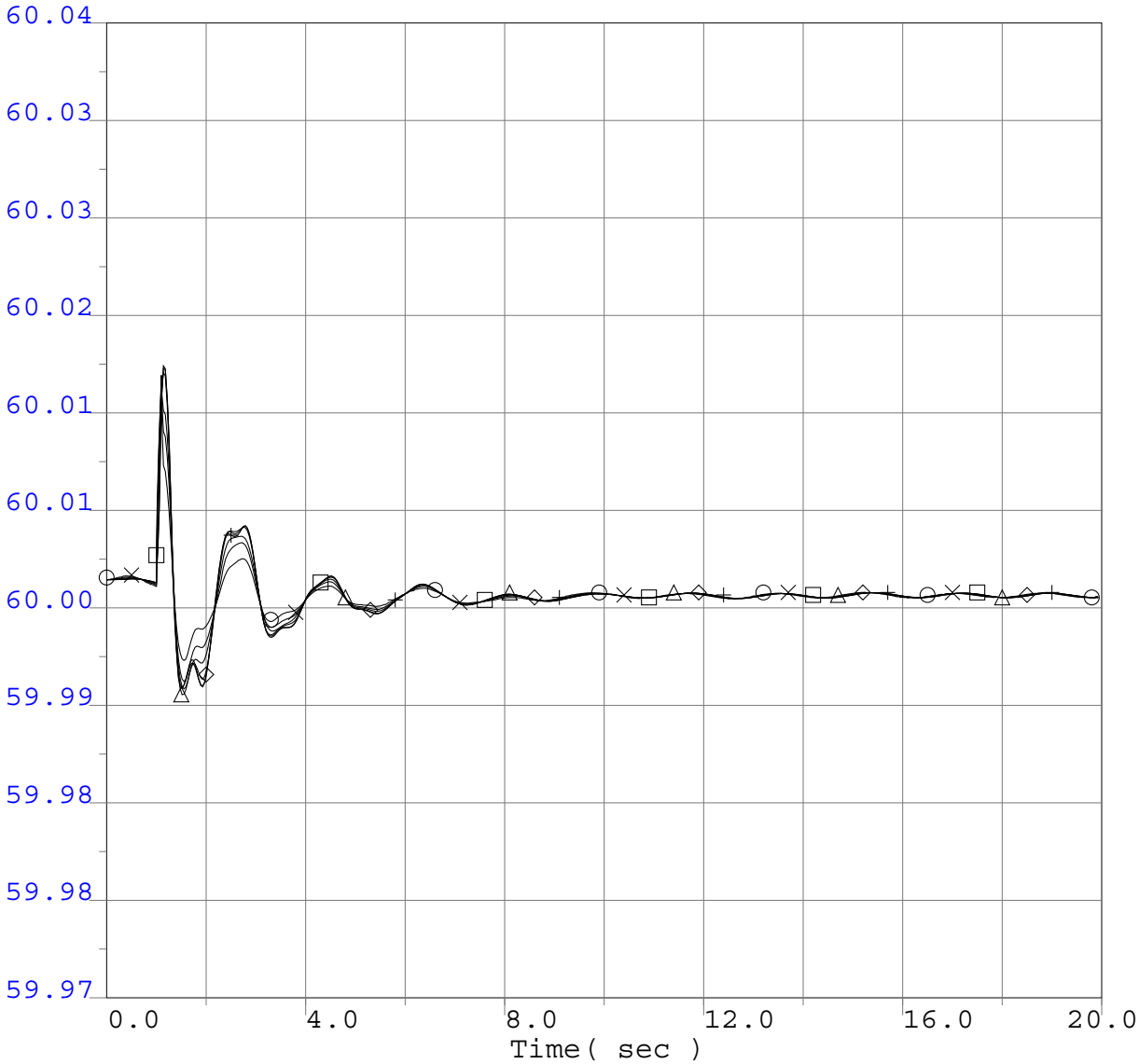


0.9600	vbul	54150	WILLESD9	240.0	0	0.0	"*"	1	1.1300
0.9600	vbus	14003	NAVAJO	500.0	0	0.0	"*"	1	1.1300
0.9600	vbus	24153	VESTAL	230.0	0	0.0	"*"	1	1.1300
0.9600	vbus	22360	IMPRLVLY	500.0	0	0.0	"*"	1	1.1300

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 122-522+622
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected WECC Bus Frequency Plots

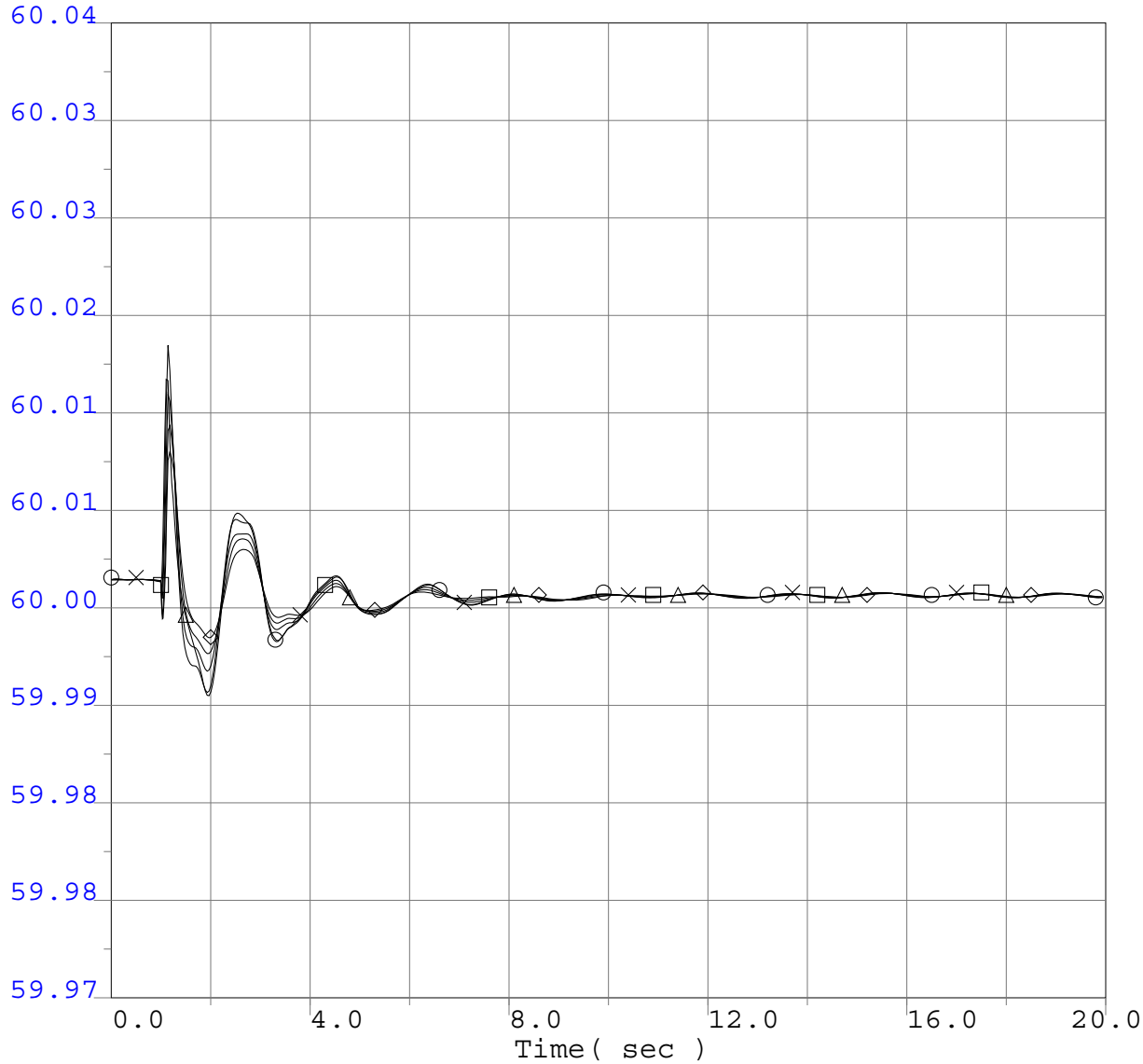


○	59.9700 fbus	40687	MALIN 500.0	0	0.0 "*"	1	60.0400
×	59.9700 fbus	30005	ROUND MT 500.0	0	0.0 "*"	1	60.0400
□	59.9700 fbus	30015	TABLE MT 500.0	0	0.0 "*"	1	60.0400
△	59.9700 fbus	30030	VACA-DIX 500.0	0	0.0 "*"	1	60.0400
◇	59.9700 fbus	30040	TESLA 500.0	0	0.0 "*"	1	60.0400
+	59.9700 fbus	30035	TRACY 500.0	0	0.0 "*"	1	60.0400

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 122-522+622
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

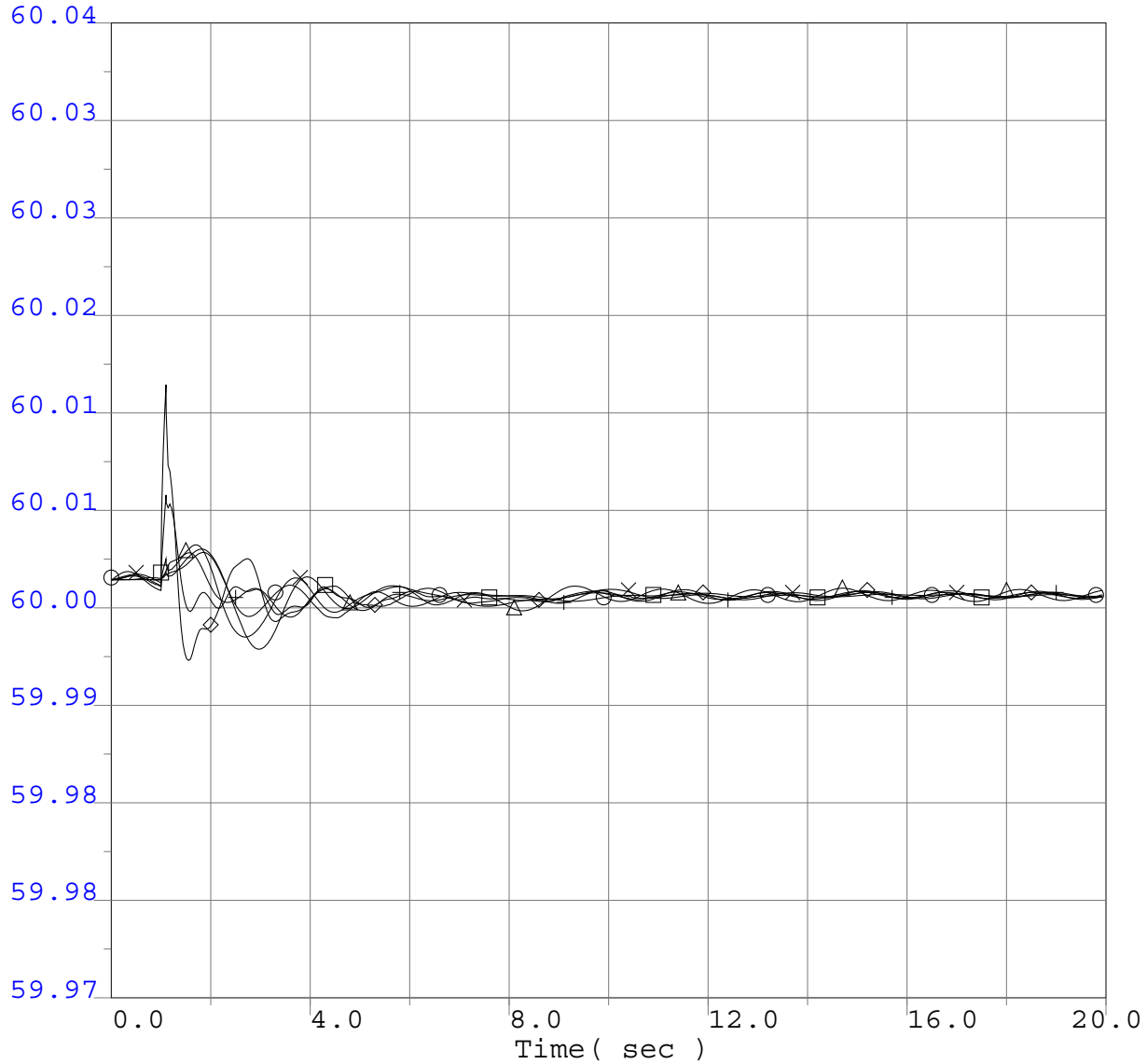
Selected WECC Bus Frequency Plots



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 122-522+622
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected WECC Bus Frequency Plots



59.9700	fbus	14001	FOURCORN	500.0	0	0.0 "*"	1	60.0400
59.9700	fbus	50703	NIC500	500.0	0	0.0 "*"	1	60.0400
59.9700	fbus	60240	MIDPOINT	500.0	0	0.0 "*"	1	60.0400
59.9700	fbus	62012	TOWN2	500.0	0	0.0 "*"	1	60.0400
59.9700	fbus	40687	MALIN	500.0	0	0.0 "*"	1	60.0400
59.9700	fbus	66340	SIGURD	345.0	0	0.0 "*"	1	60.0400

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
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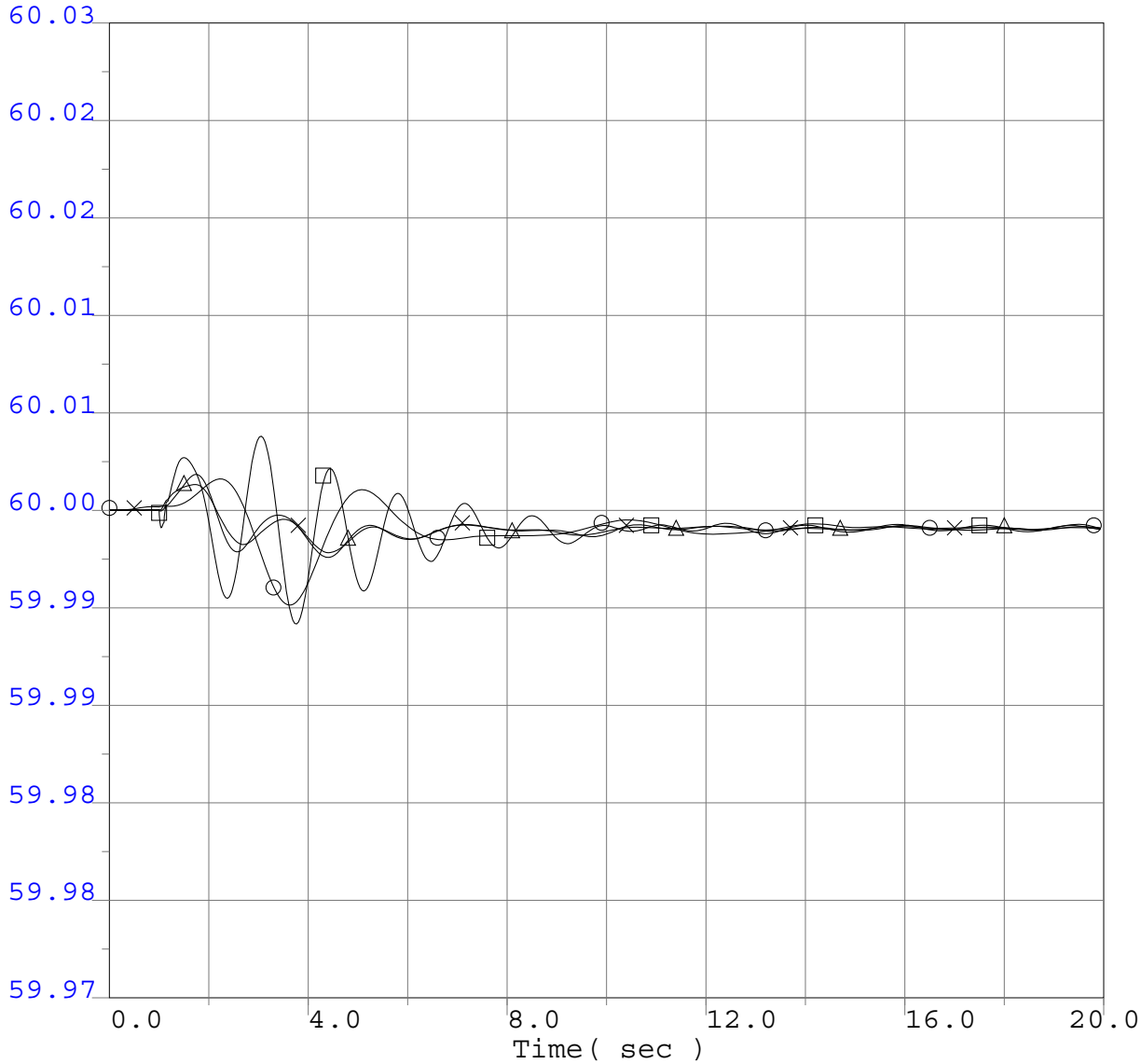
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected WECC Bus Frequency Plots

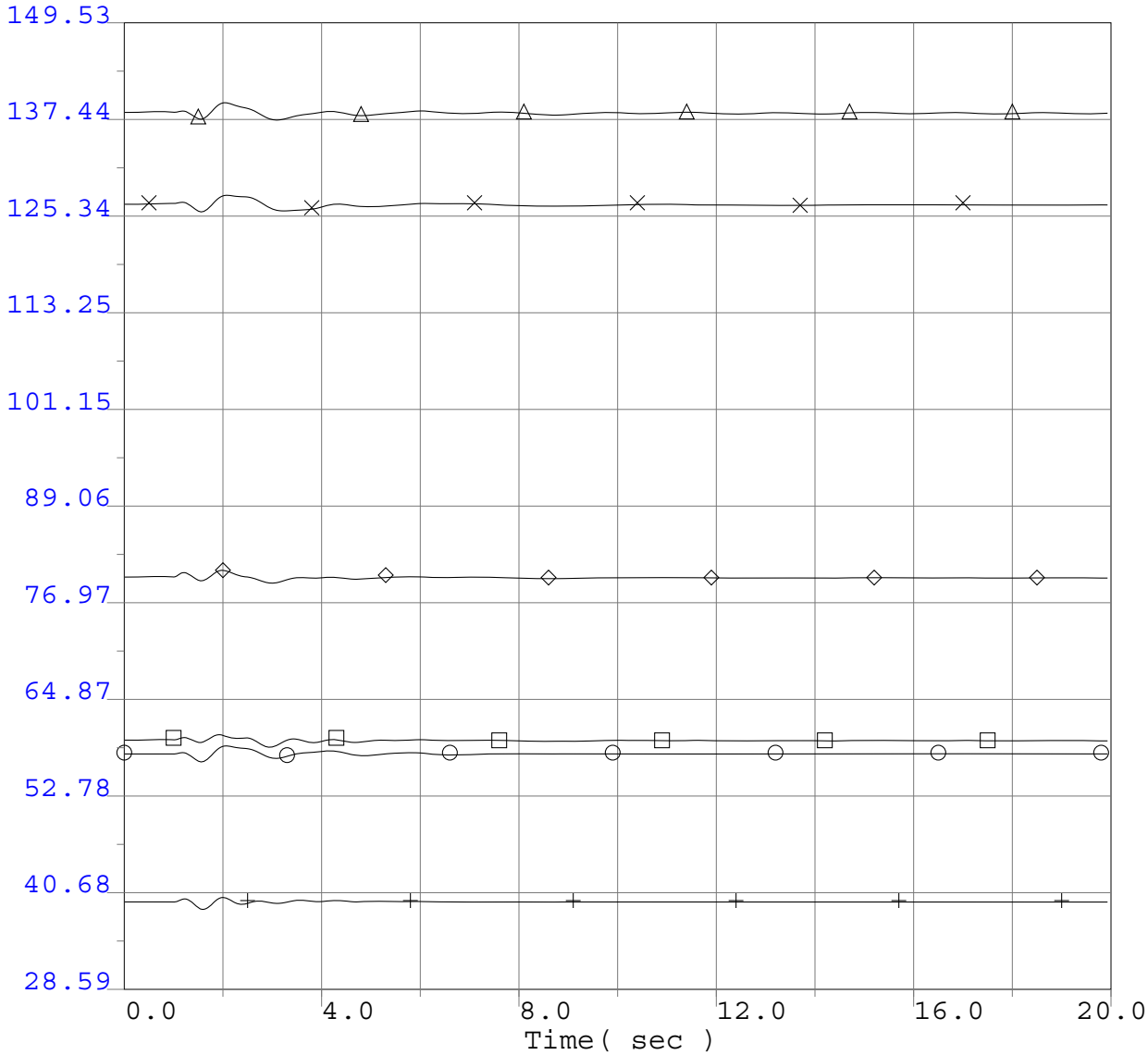


○	59.9700 fbul	54150	WILLESD9 240.0	0	0.0 "*"	1	60.0300
⊗	59.9700 fbus	14003	NAVAJO 500.0	0	0.0 "*"	1	60.0300
□	59.9700 fbus	24153	VESTAL 230.0	0	0.0 "*"	1	60.0300
△	59.9700 fbus	22360	IMPRLVLY 500.0	0	0.0 "*"	1	60.0300

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 122-522+622
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

WECC Generator Rotor Angle

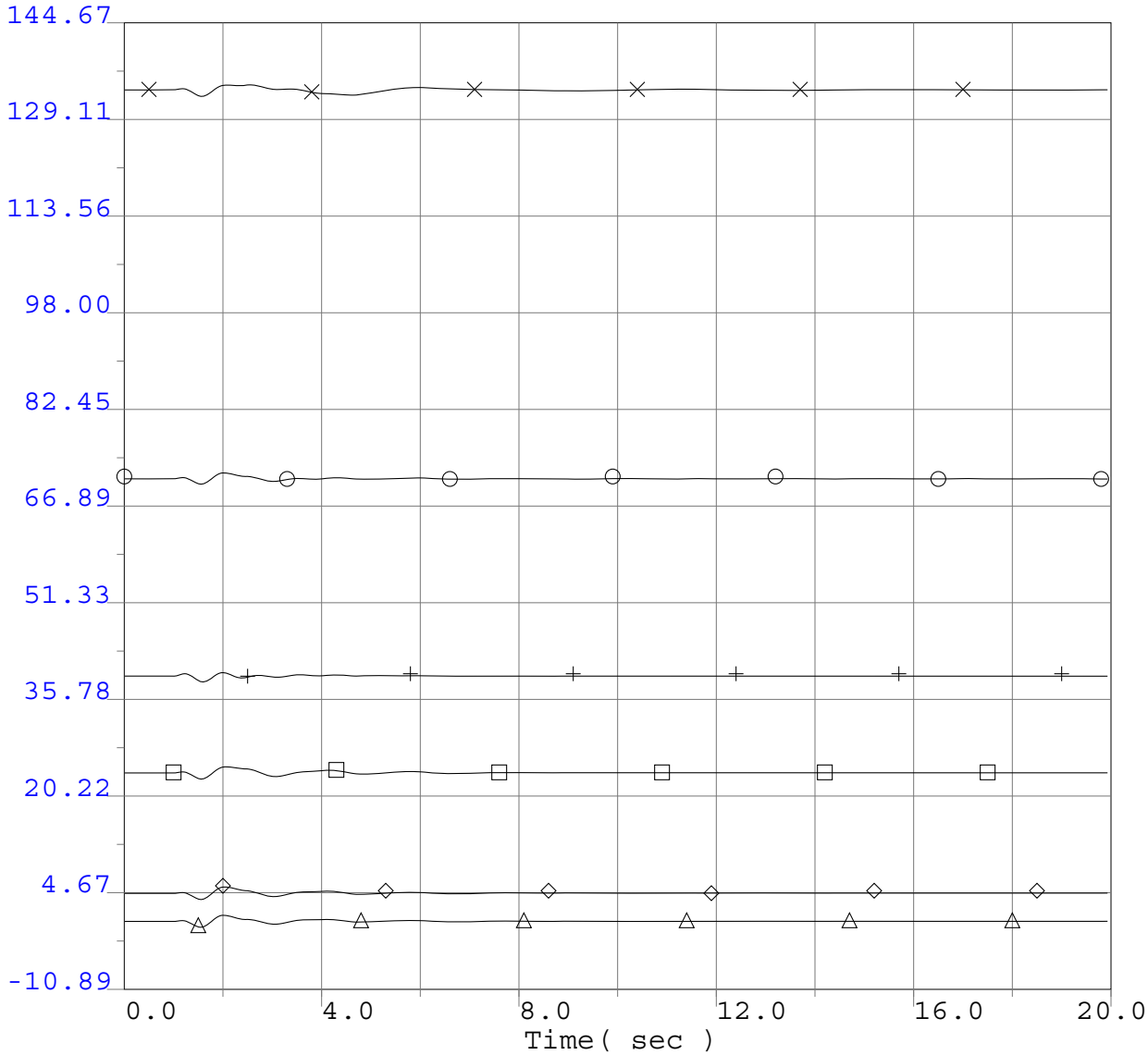


28.5900 ang	14914	FCNGN4CC	22.0	0	0.0 "H"	1	149.5300
28.5900 ang	50499	GMS G5	13.8	0	0.0 "1"	1	149.5300
28.5900 ang	60100	BRWNL 5	13.8	0	0.0 "1"	1	149.5300
28.5900 ang	62048	COLSTP 3	26.0	0	0.0 "1"	1	149.5300
28.5900 ang	44071	JDA 0102	13.8	0	0.0"01"	1	149.5300
28.5900 ang	36411	DIABLO 1	25.0	0	0.0 "1"	1	149.5300

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 122-522+622
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

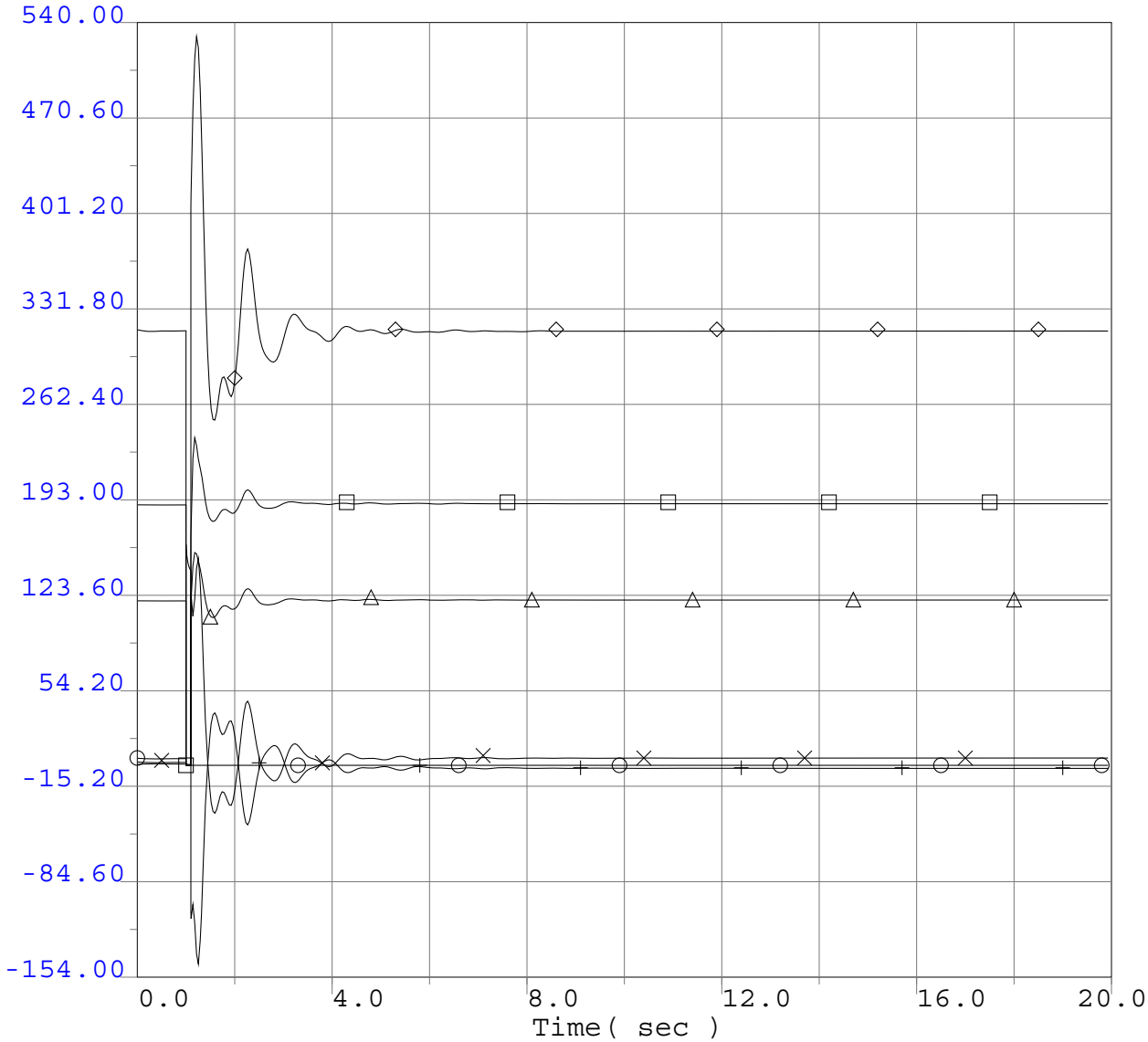
WECC Generator Rotor Angle



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 122-522+622
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

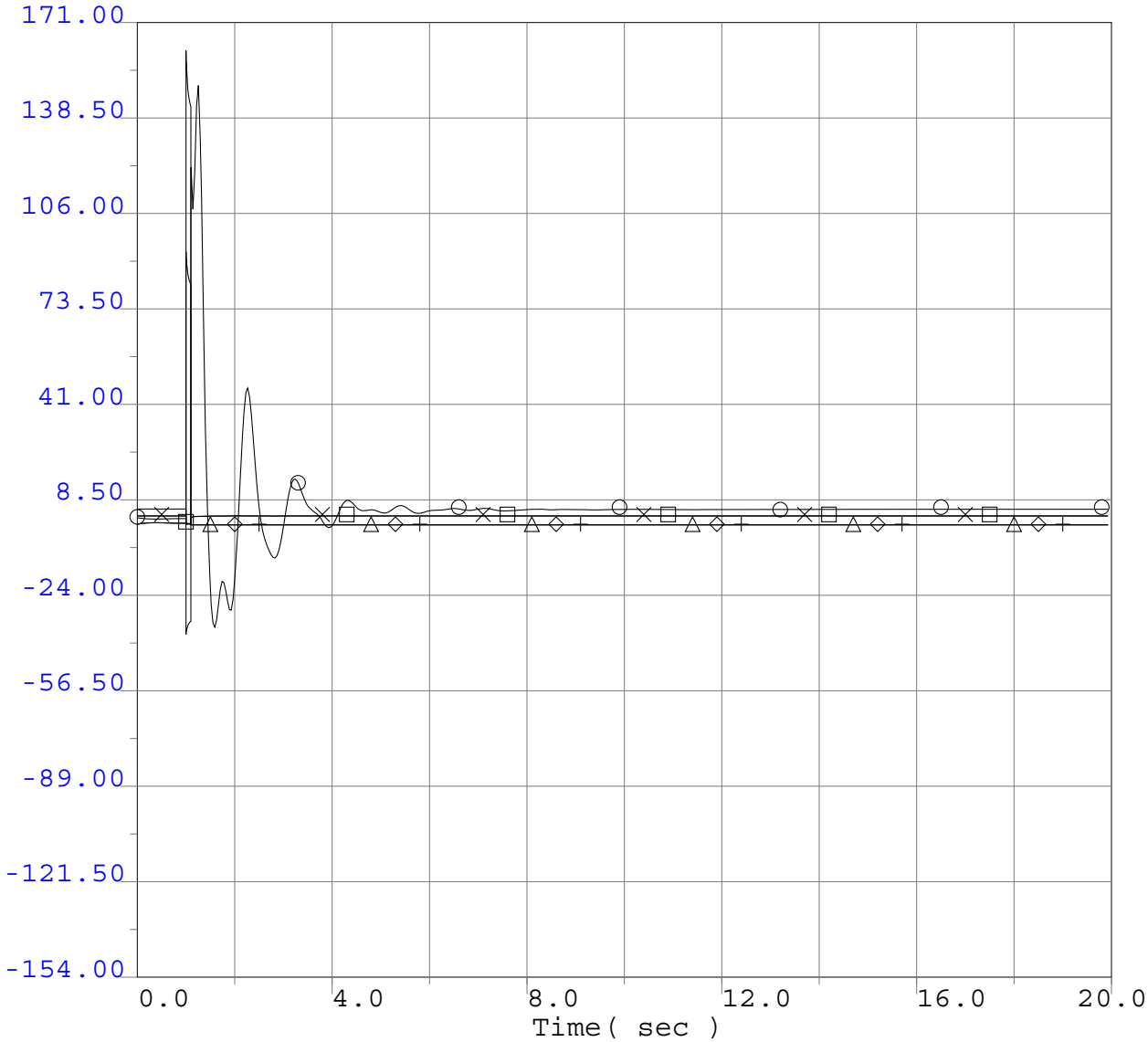
Selected PG&E Transmission Line Flows (MW)



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 122-522+622
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected PG&E Transmission Line Flows (MW)

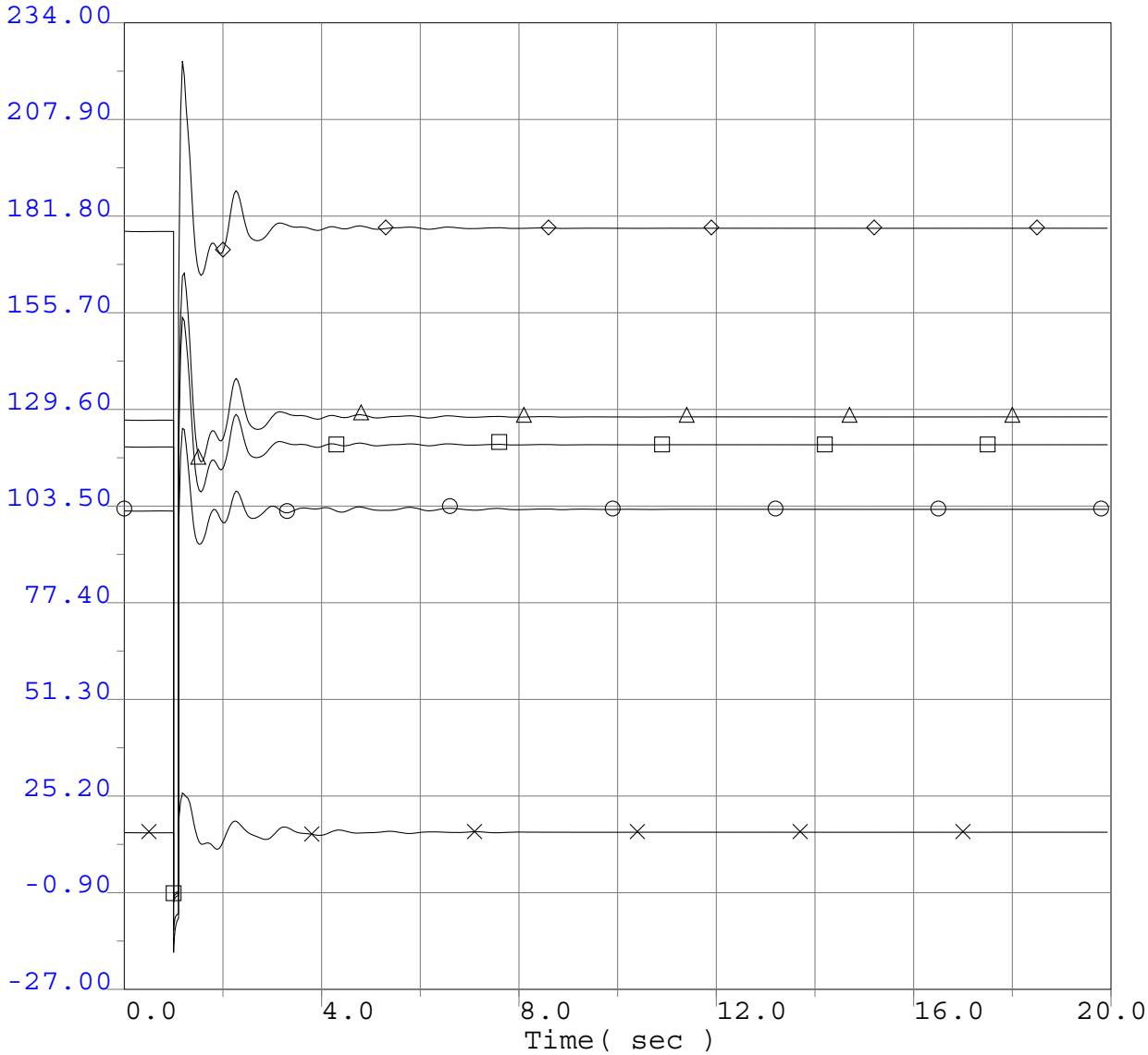


-154.0000	pbr	33535	SFWY_TP2	115.0	33543	AEC_TP2	115.0	1	1	171.0000
-154.0000	pbr	33543	AEC_TP2	115.0	33545	AEC_JCT	115.0	1	1	171.0000
-154.0000	pbr	33545	AEC_JCT	115.0	33547	AEC_300	115.0	1	1	171.0000
-154.0000	pbr	33537	SFWY_TP1	115.0	33534	SAFEWAY	115.0	1	1	171.0000
-154.0000	pbr	33541	AEC_TP1	115.0	33537	SFWY_TP1	115.0	1	1	171.0000
-154.0000	pbr	33540	TESLA	115.0	33541	AEC_TP1	115.0	1	1	171.0000

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 122-522+622
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected PG&E Transmission Line Flows (MW)

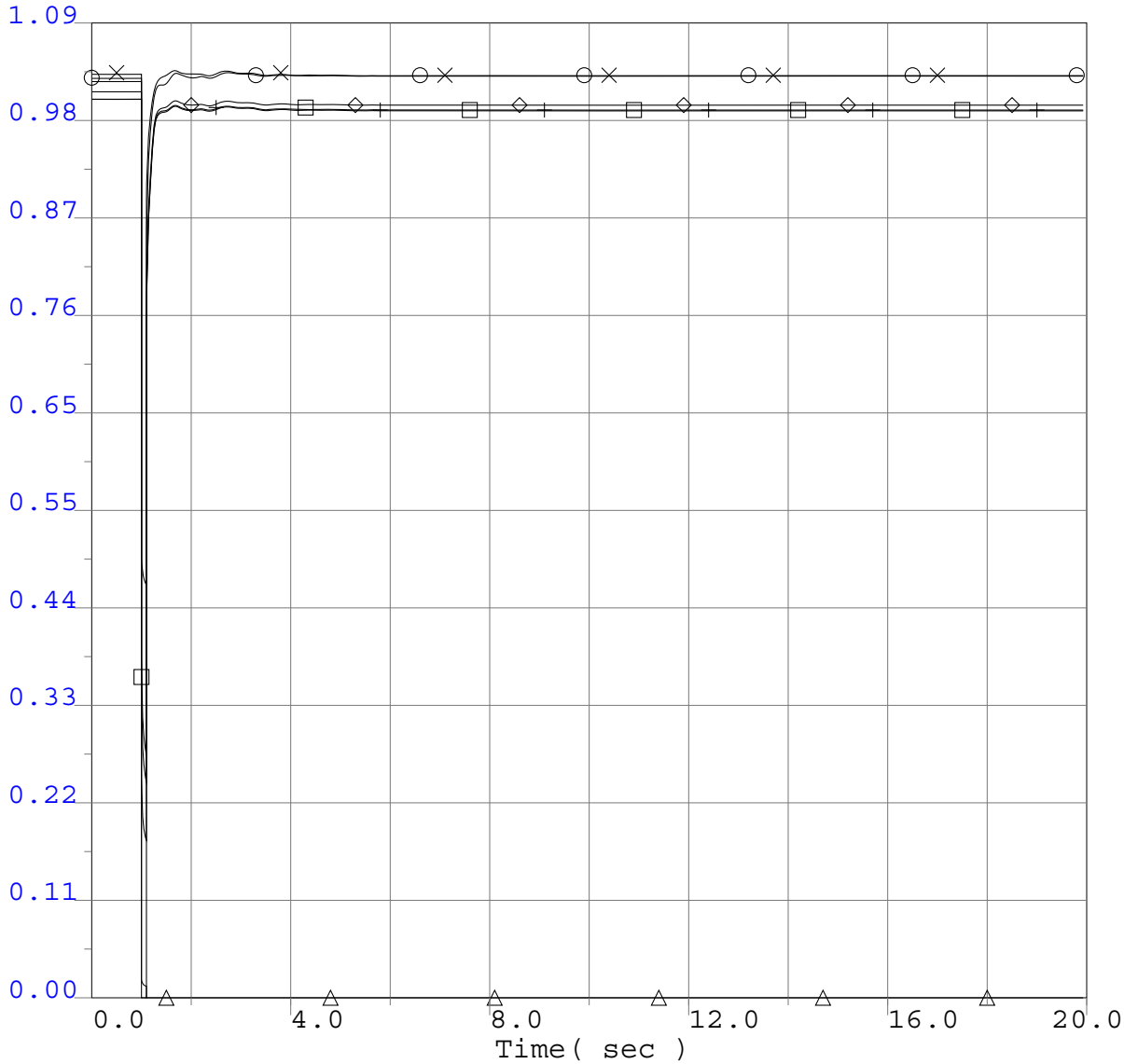


-27.0000	pbr	33526	KSSN-JC1	115.0	33514	MANTECA	115.0	1	1	234.0000
-27.0000	pbr	33526	KSSN-JC1	115.0	33528	KASSON	115.0	1	1	234.0000
-27.0000	pbr	33533	OWENSTP2	115.0	33526	KSSN-JC1	115.0	1	1	234.0000
-27.0000	pbr	33529	LAMMERS	115.0	33528	KASSON	115.0	1	1	234.0000
-27.0000	pbr	33531	OWENSTP1	115.0	33529	LAMMERS	115.0	1	1	234.0000

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 115kV line outage; Breakers 122-522+622
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected PG&E Bus Voltage Plots Adjacent to Fault

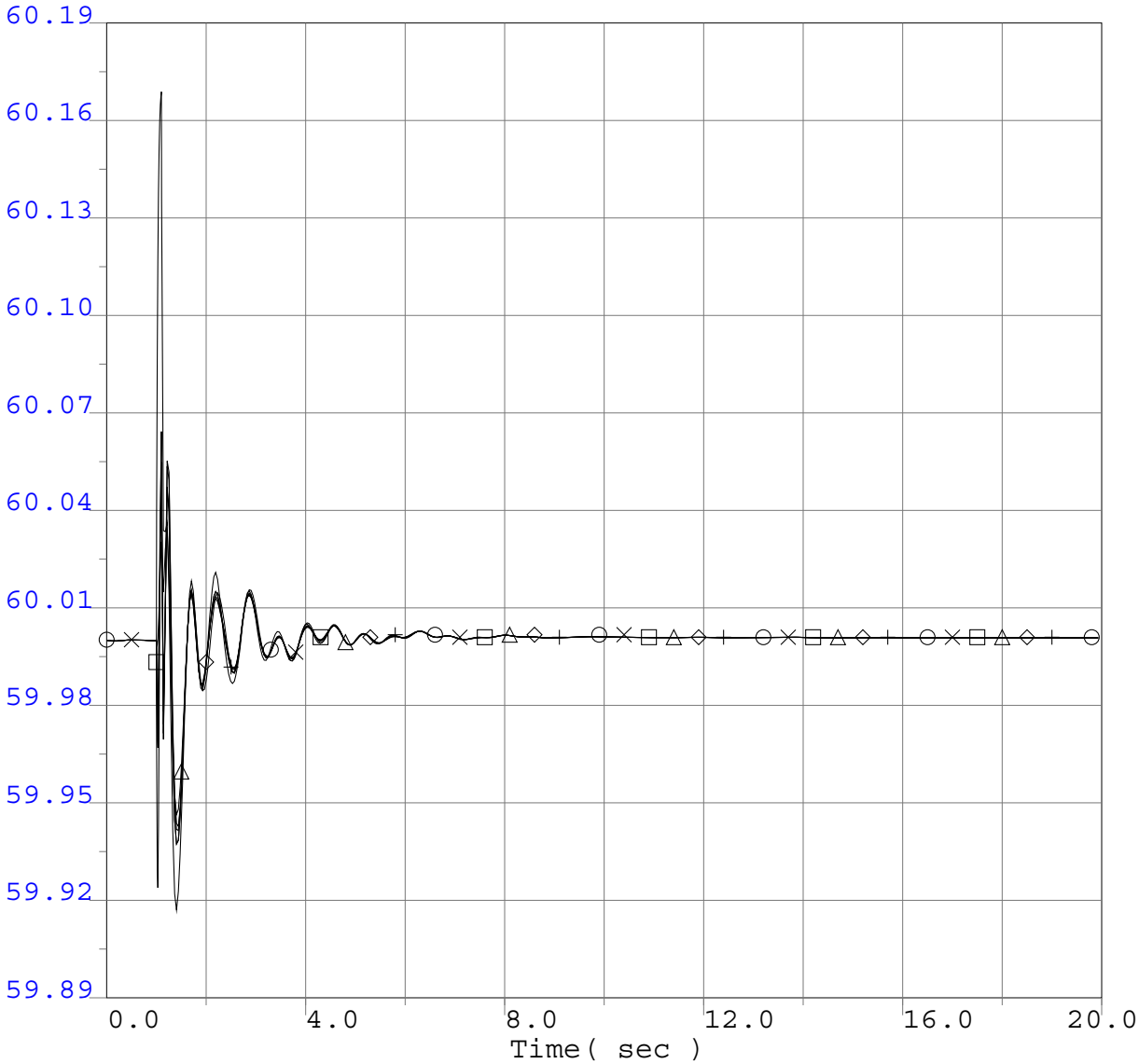


0.0000	vbus	33549	SCHULTE 115.0	0	0.0	"*"	1	1.0900
0.0000	vbus	33540	TESLA 115.0	0	0.0	"*"	1	1.0900
0.0000	vbul	33514	MANTECA 115.0	0	0.0	"*"	1	1.0900
0.0000	vbul	33529	LAMMERS 115.0	0	0.0	"*"	1	1.0900
0.0000	vbus	33528	KASSON 115.0	0	0.0	"*"	1	1.0900
0.0000	vbul	33518	VIERRA 115.0	0	0.0	"*"	1	1.0900

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 142-422+522
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected PG&E Bus Frequency Plots Adjacent to Fault

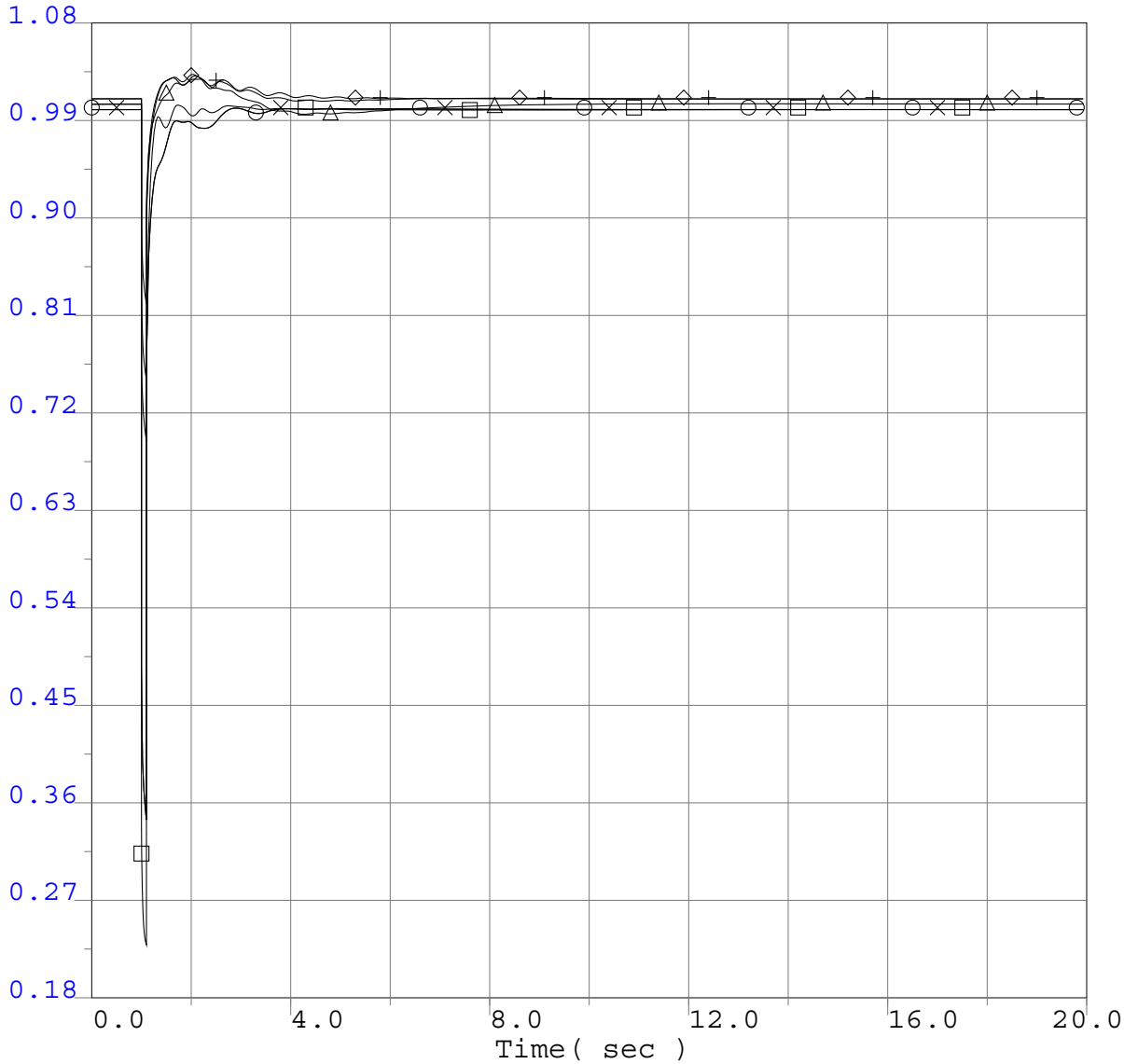


○	59.8900 fbus	33549	SCHULTE 115.0	0	0.0 "*"	1	60.1900
×	59.8900 fbus	33540	TESLA 115.0	0	0.0 "*"	1	60.1900
□	59.8900 fbul	33514	MANTECA 115.0	0	0.0 "*"	1	60.1900
△	59.8900 fbul	33529	LAMMERS 115.0	0	0.0 "*"	1	60.1900
◇	59.8900 fbus	33528	KASSON 115.0	0	0.0 "*"	1	60.1900
+	59.8900 fbul	33518	VIERRA 115.0	0	0.0 "*"	1	60.1900

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 142-422+522
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

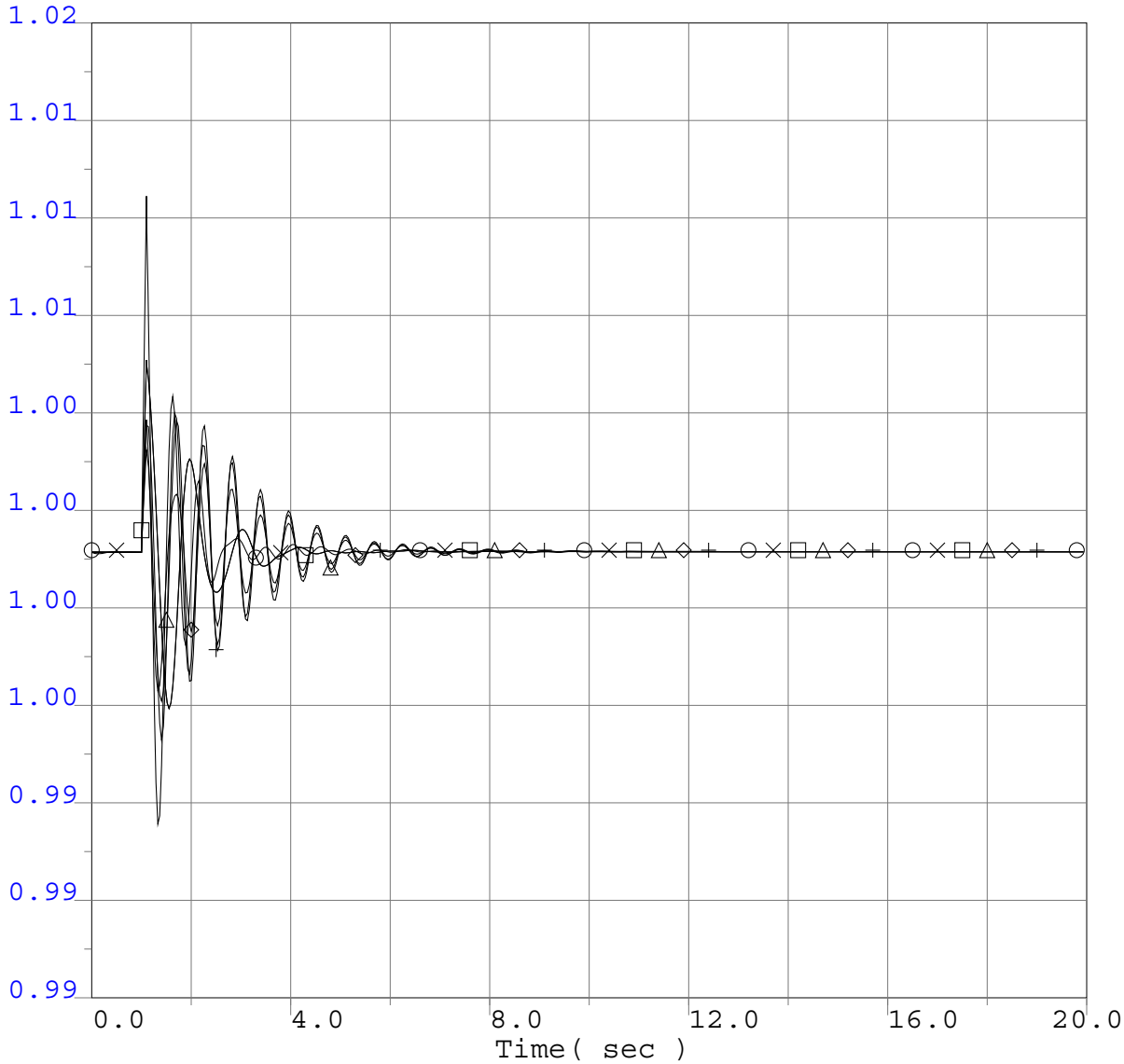
Project Generator Terminal Voltages



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 142-422+522
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Project Generator Rotor Speed

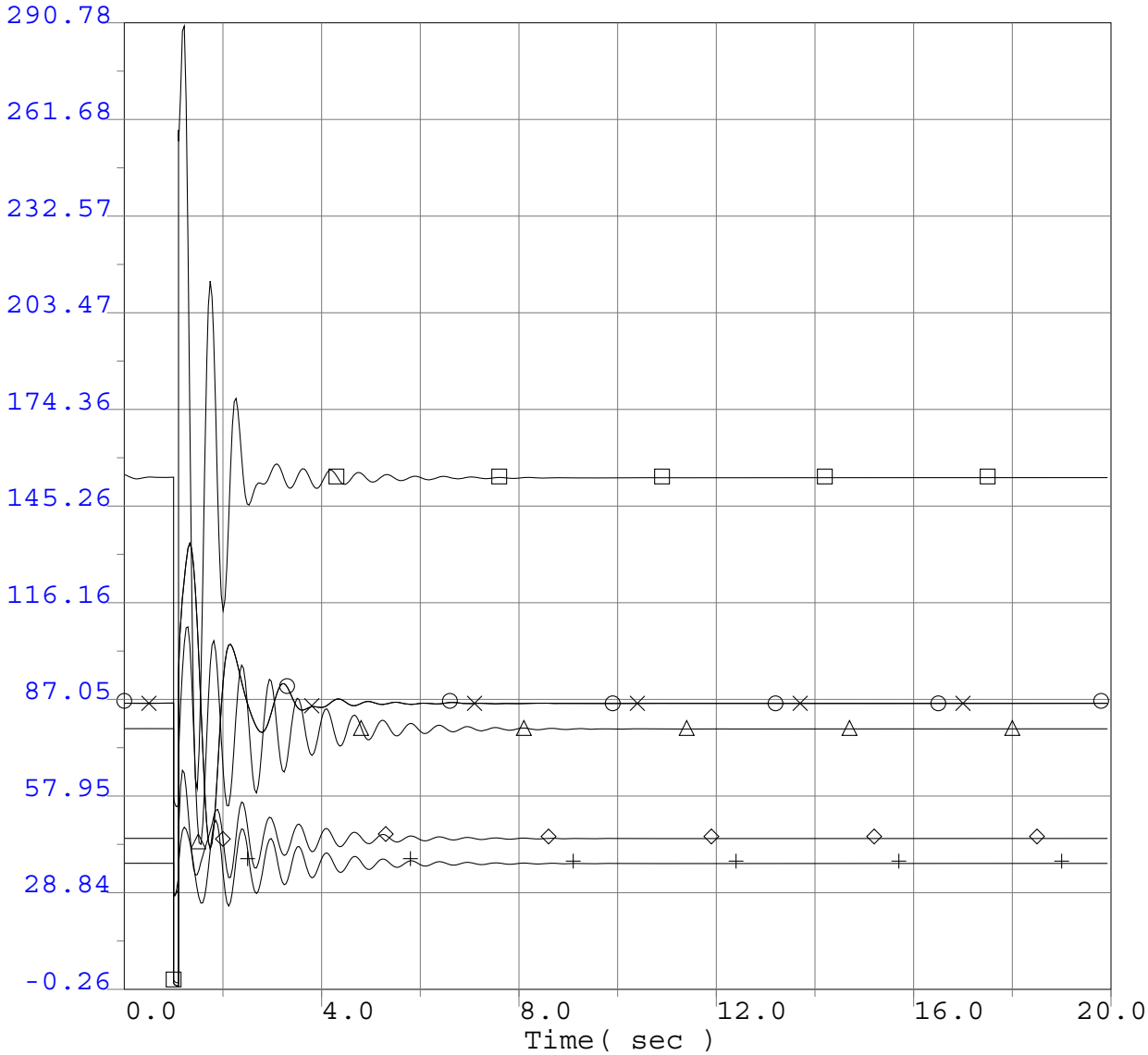


0.9872 spd	33805	GWFTRCY1	13.8	0	0.0 "1"	1	1.0152
0.9872 spd	33807	GWFTRCY2	13.8	0	0.0 "1"	1	1.0152
0.9872 spd	33809	Q268ST1	13.8	0	0.0 "1"	1	1.0152
0.9872 spd	33858	P0409CG2	13.8	0	0.0 "1"	1	1.0152
0.9872 spd	33808	SJ COGEN	13.8	0	0.0 "1"	1	1.0152
0.9872 spd	33810	SP CMPNY	13.8	0	0.0 "1"	1	1.0152

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 142-422+522
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Project Generator Terminal Power

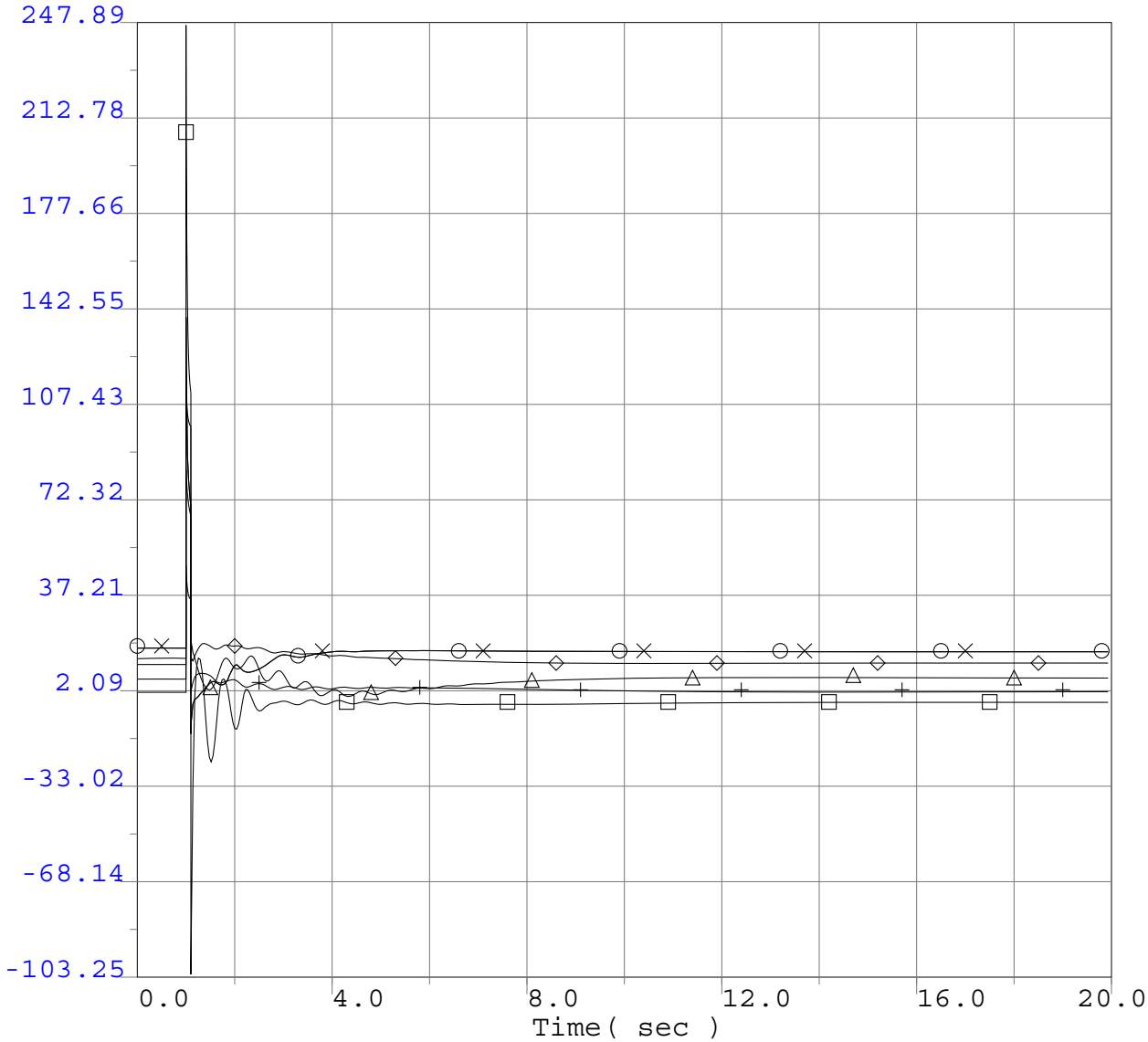


-0.2600 pg	33805	GWFTRCY1	13.8	0	0.0 "1"	1	290.7800
-0.2600 pg	33807	GWFTRCY2	13.8	0	0.0 "1"	1	290.7800
-0.2600 pg	33809	Q268ST1	13.8	0	0.0 "1"	1	290.7800
-0.2600 pg	33858	P0409CG2	13.8	0	0.0 "1"	1	290.7800
-0.2600 pg	33808	SJ COGEN	13.8	0	0.0 "1"	1	290.7800
-0.2600 pg	33810	SP CMPNY	13.8	0	0.0 "1"	1	290.7800

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 142-422+522
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

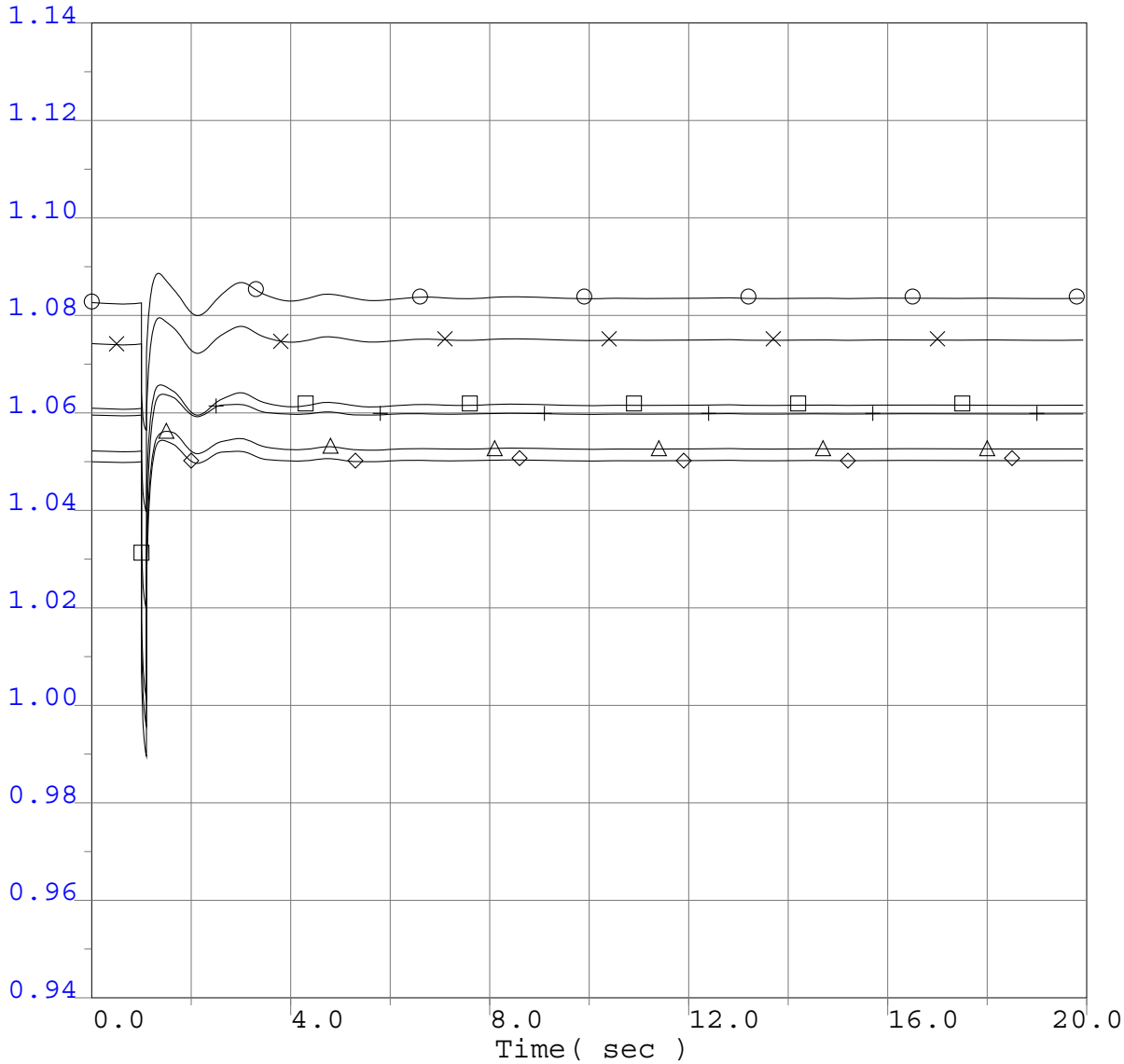
Project Generator Terminal Reactive Power



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 142-422+522
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots

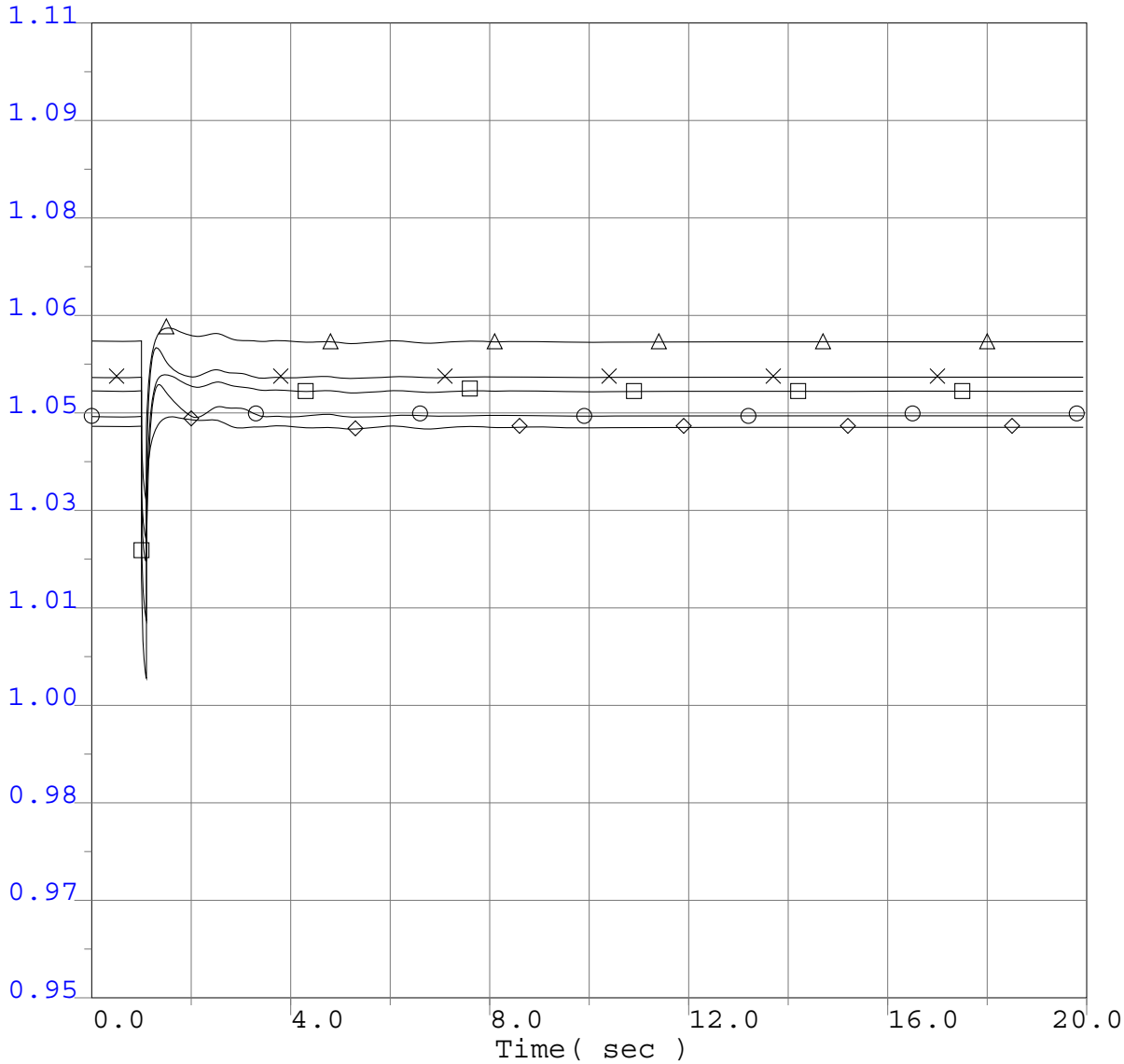


0.9400	vbus	40687	MALIN	500.0	0	0.0 "*"	1	1.1400
0.9400	vbus	30005	ROUND MT	500.0	0	0.0 "*"	1	1.1400
0.9400	vbus	30015	TABLE MT	500.0	0	0.0 "*"	1	1.1400
0.9400	vbus	30030	VACA-DIX	500.0	0	0.0 "*"	1	1.1400
0.9400	vbus	30040	TESLA	500.0	0	0.0 "*"	1	1.1400
0.9400	vbus	30035	TRACY	500.0	0	0.0 "*"	1	1.1400

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 142-422+522
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots

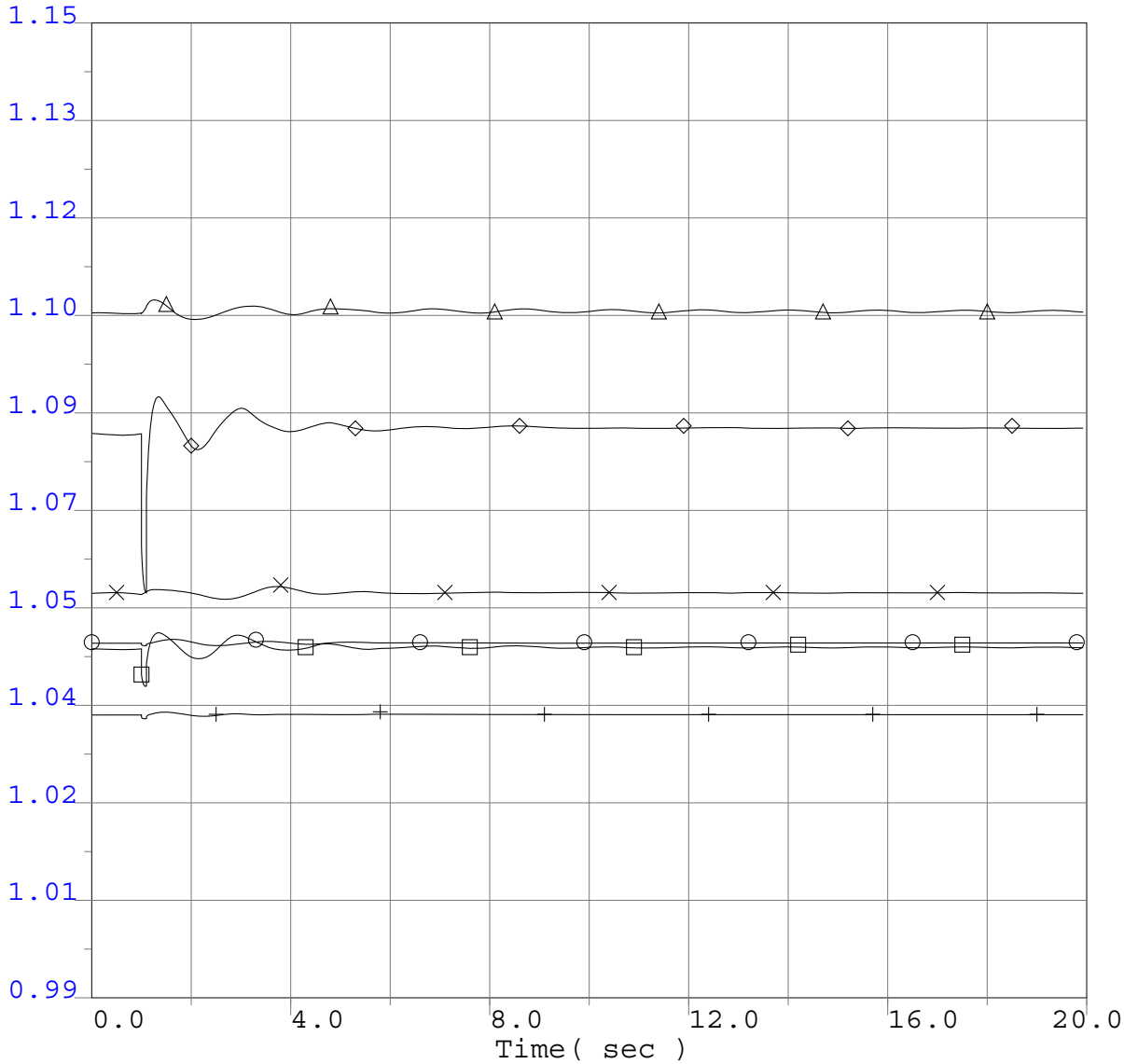


○	0.9500 vbus	30042	METCALF 500.0	0	0.0 "*"	1	1.1100
×	0.9500 vbus	30045	MOSSLAND 500.0	0	0.0 "*"	1	1.1100
□	0.9500 vbus	30050	LOSBANOS 500.0	0	0.0 "*"	1	1.1100
△	0.9500 vbus	30055	GATES 500.0	0	0.0 "*"	1	1.1100
◇	0.9500 vbus	30060	MIDWAY 500.0	0	0.0 "*"	1	1.1100

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 142-422+522
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

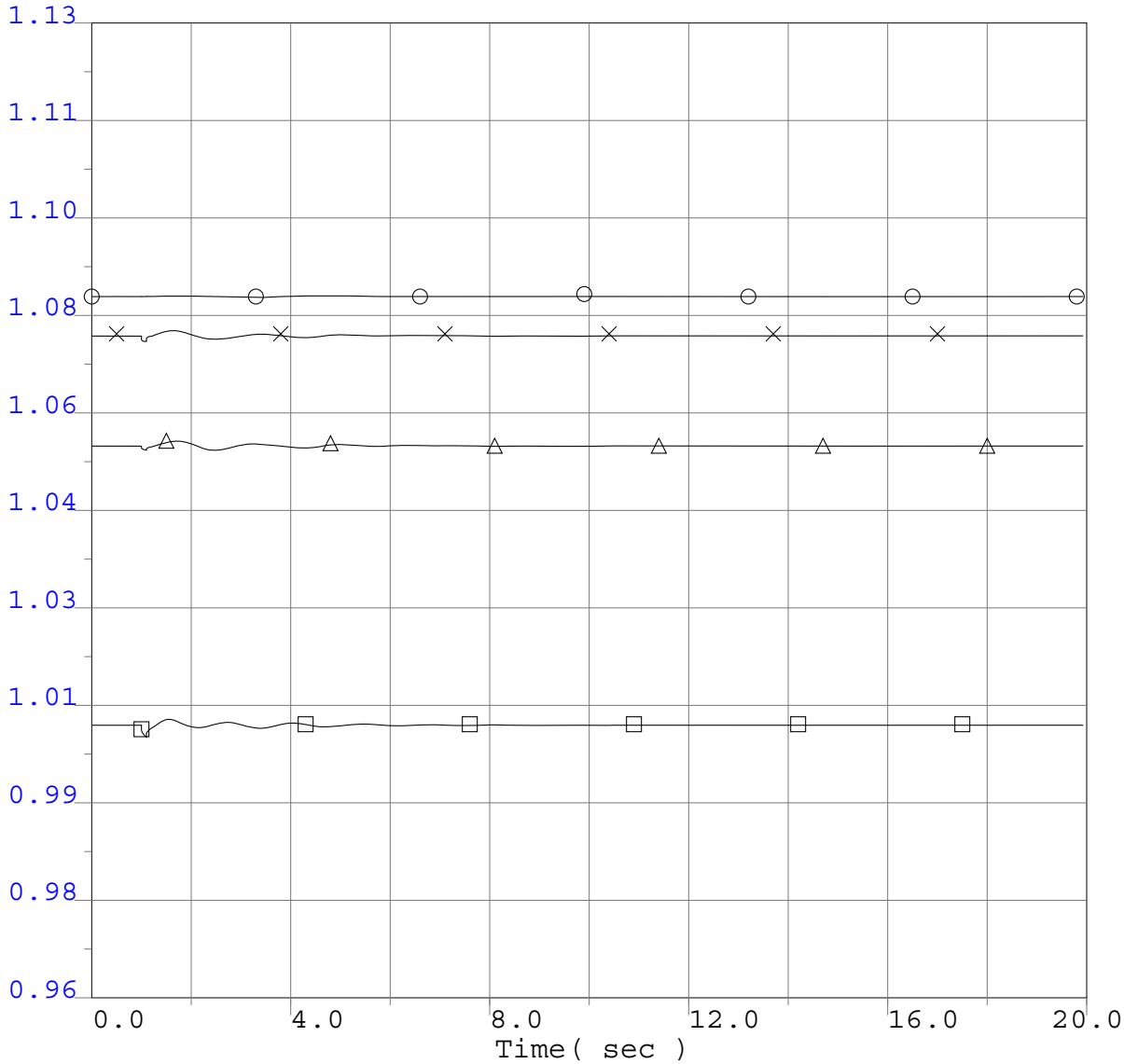
Selected WECC Bus Voltage Plots



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 142-422+522
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots

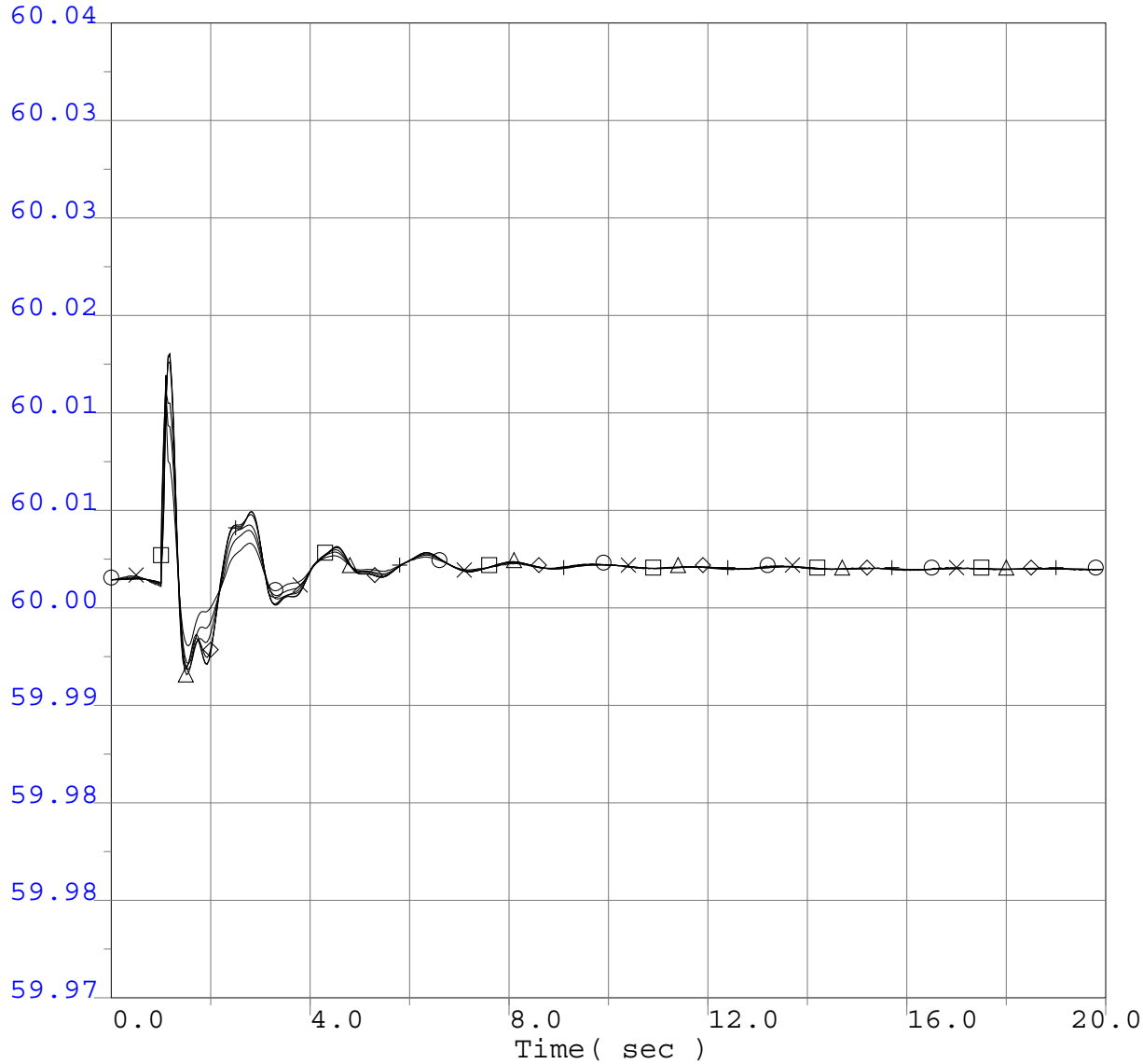


0.9600 vbul	54150	WILLESD9 240.0	0	0.0 "*"	1	1.1300
0.9600 vbus	14003	NAVAJO 500.0	0	0.0 "*"	1	1.1300
0.9600 vbus	24153	VESTAL 230.0	0	0.0 "*"	1	1.1300
0.9600 vbus	22360	IMPRLVLY 500.0	0	0.0 "*"	1	1.1300

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 142-422+522
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

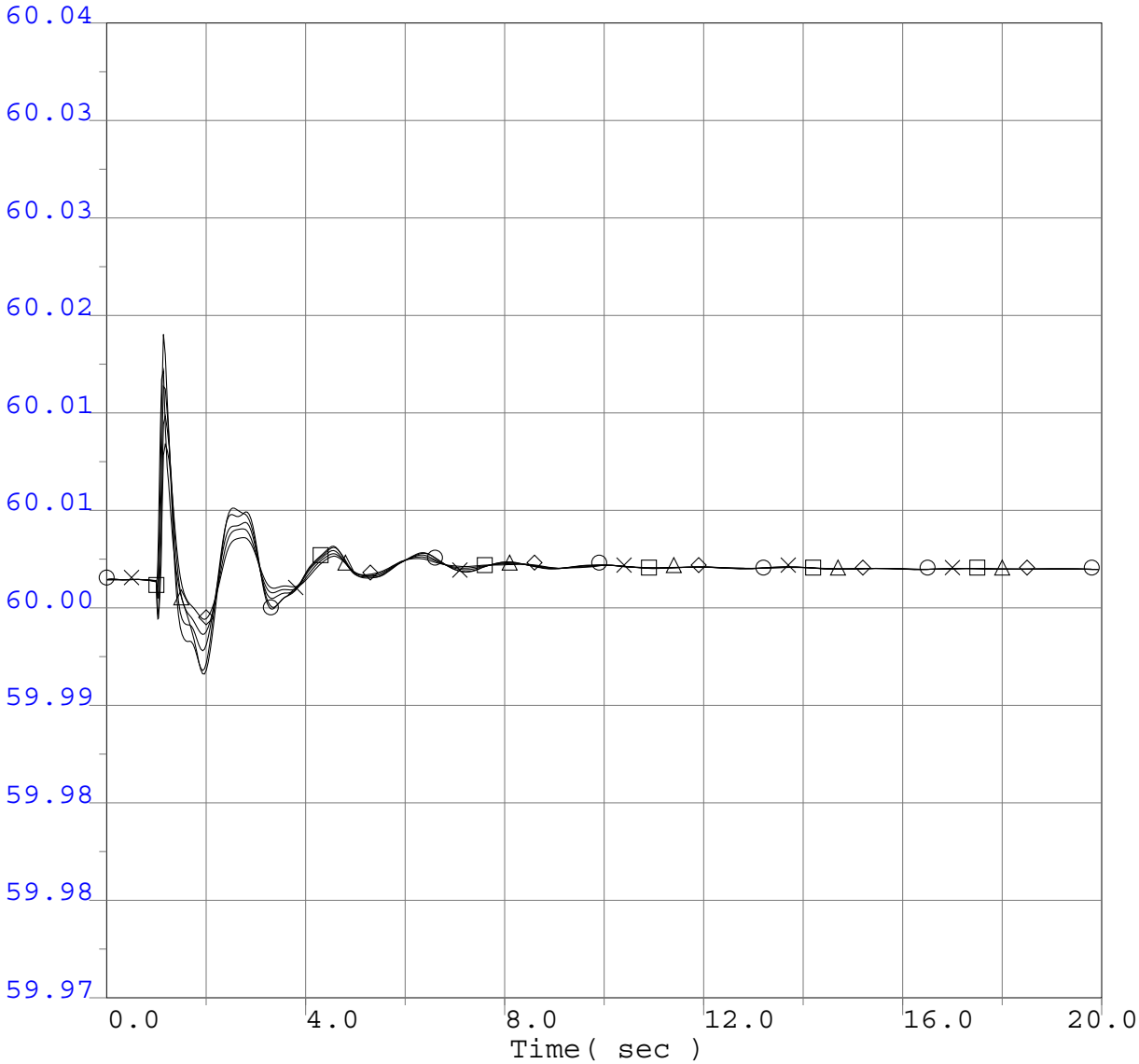
Selected WECC Bus Frequency Plots



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 142-422+522
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected WECC Bus Frequency Plots

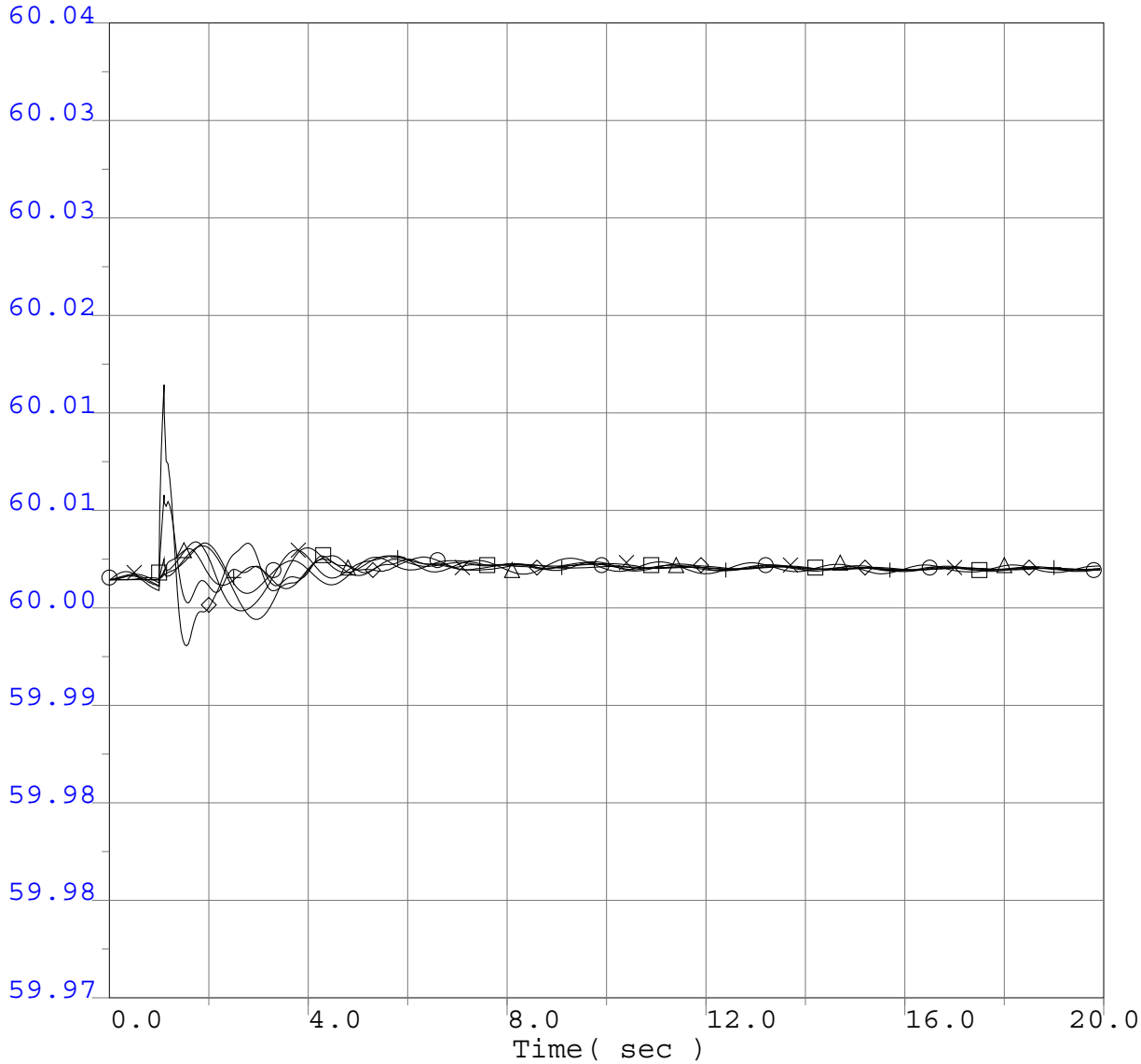


○	59.9700 fbus	30042	METCALF 500.0	0	0.0 "*"	1	60.0400
×	59.9700 fbus	30045	MOSSLAND 500.0	0	0.0 "*"	1	60.0400
□	59.9700 fbus	30050	LOSBANOS 500.0	0	0.0 "*"	1	60.0400
△	59.9700 fbus	30055	GATES 500.0	0	0.0 "*"	1	60.0400
◇	59.9700 fbus	30060	MIDWAY 500.0	0	0.0 "*"	1	60.0400

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 142-422+522
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected WECC Bus Frequency Plots

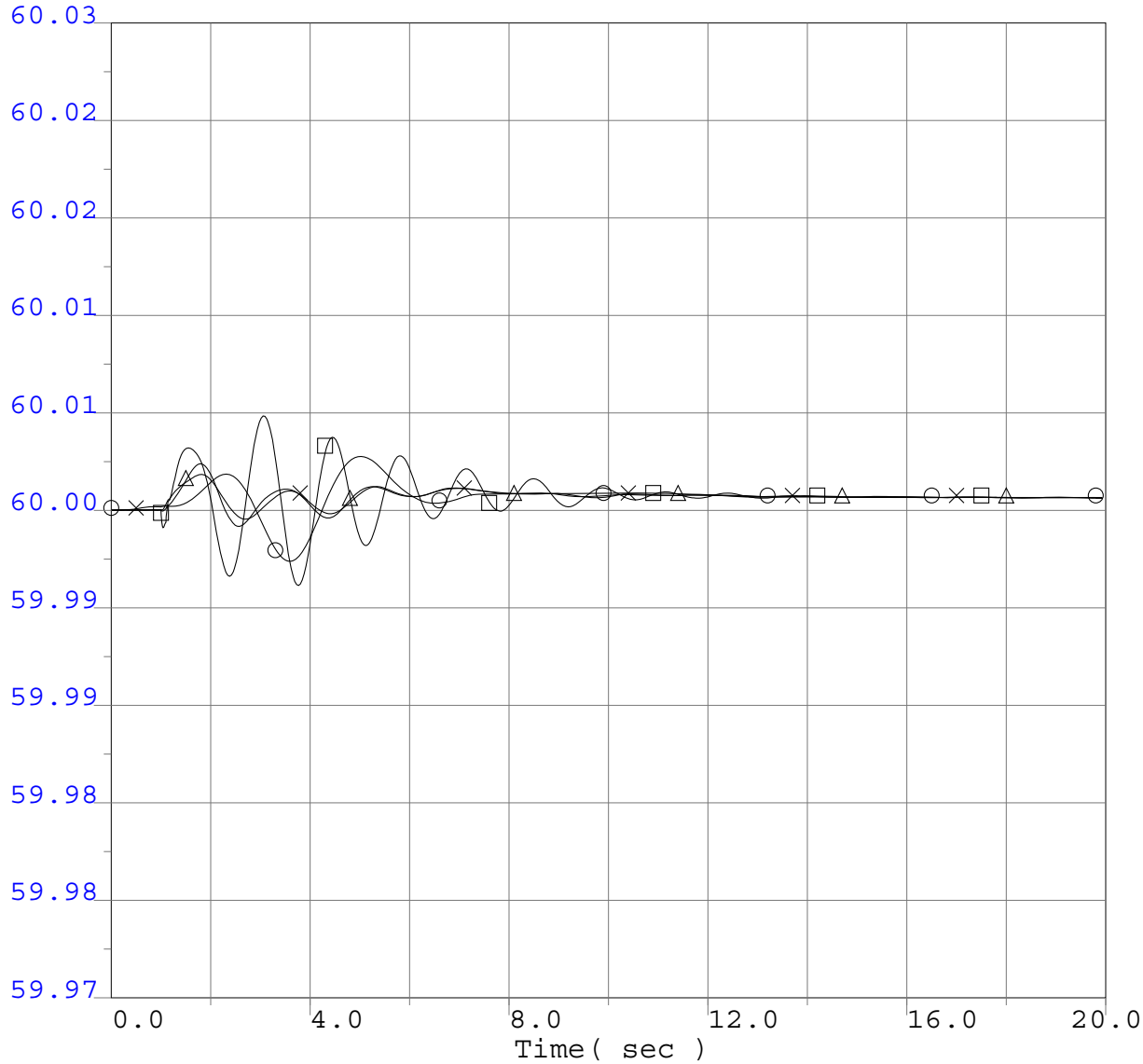


59.9700	fbus	14001	FOURCORN	500.0	0	0.0	"*"	1	60.0400
59.9700	fbus	50703	NIC500	500.0	0	0.0	"*"	1	60.0400
59.9700	fbus	60240	MIDPOINT	500.0	0	0.0	"*"	1	60.0400
59.9700	fbus	62012	TOWN2	500.0	0	0.0	"*"	1	60.0400
59.9700	fbus	40687	MALIN	500.0	0	0.0	"*"	1	60.0400
59.9700	fbus	66340	SIGURD	345.0	0	0.0	"*"	1	60.0400

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 142-422+522
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected WECC Bus Frequency Plots

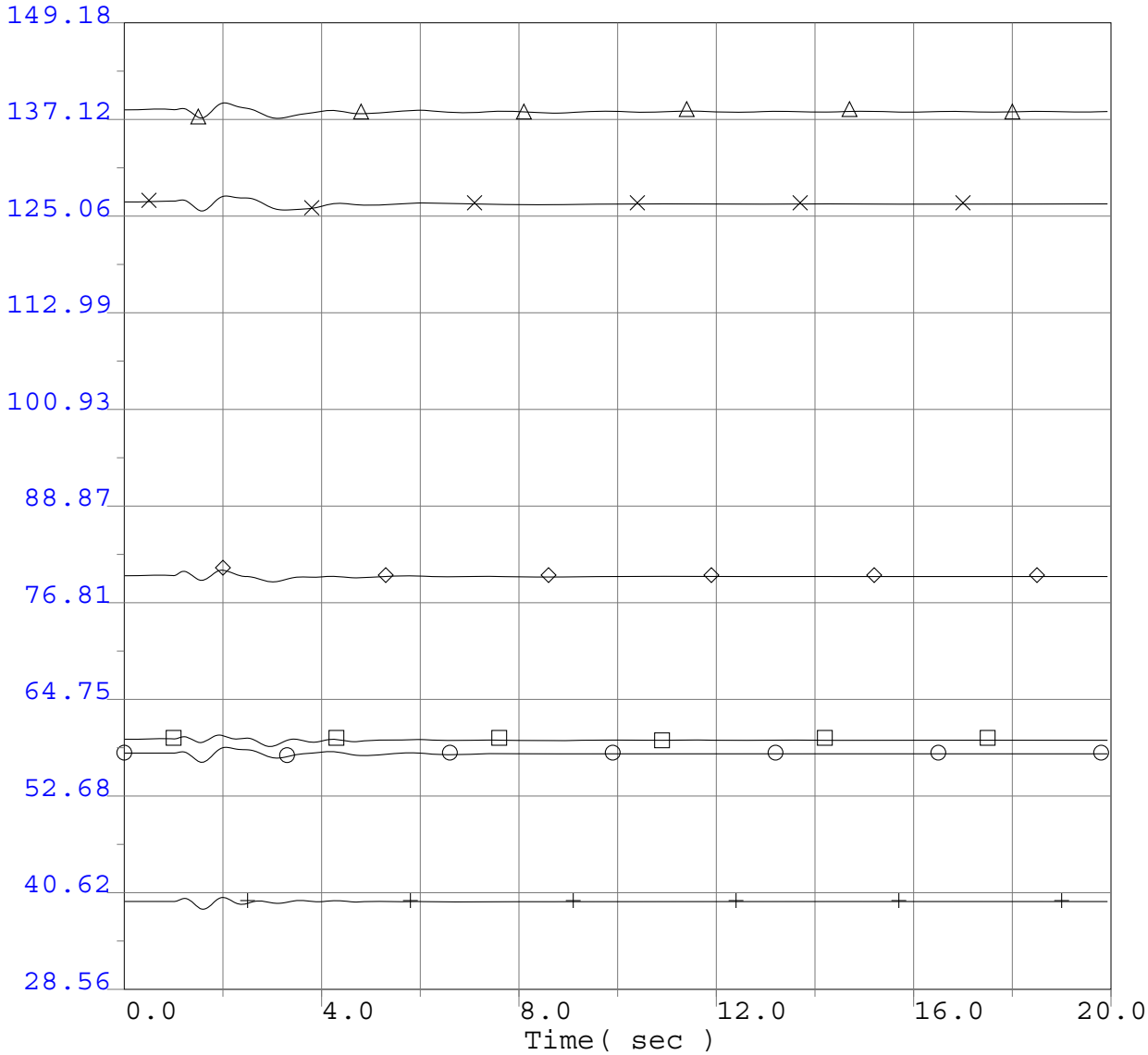


○	59.9700 fbul	54150	WILLESD9 240.0	0	0.0 "*"	1	60.0300
⊗	59.9700 fbus	14003	NAVAJO 500.0	0	0.0 "*"	1	60.0300
□	59.9700 fbus	24153	VESTAL 230.0	0	0.0 "*"	1	60.0300
△	59.9700 fbus	22360	IMPRLVLY 500.0	0	0.0 "*"	1	60.0300

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 142-422+522
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

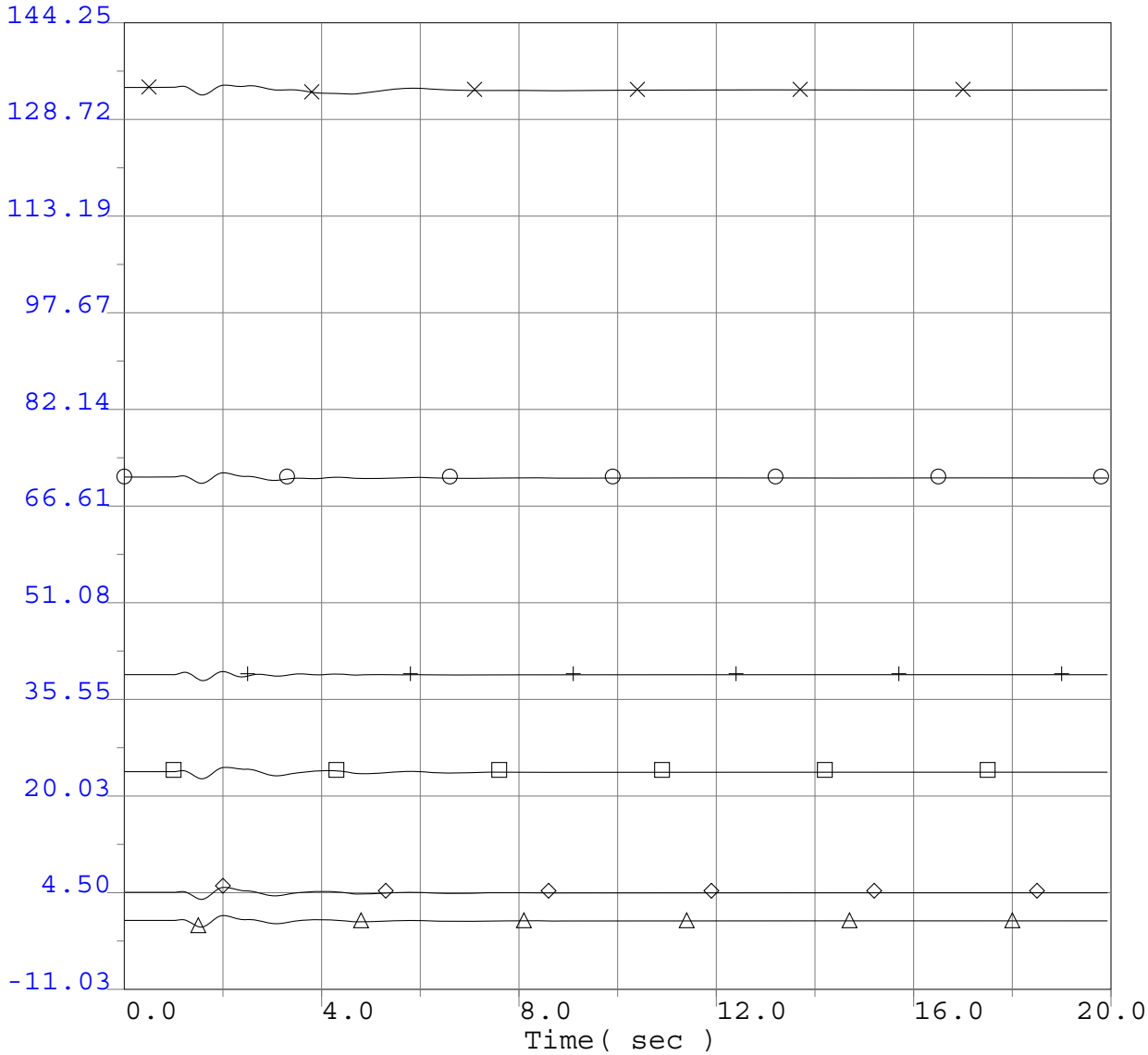
WECC Generator Rotor Angle



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 142-422+522
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

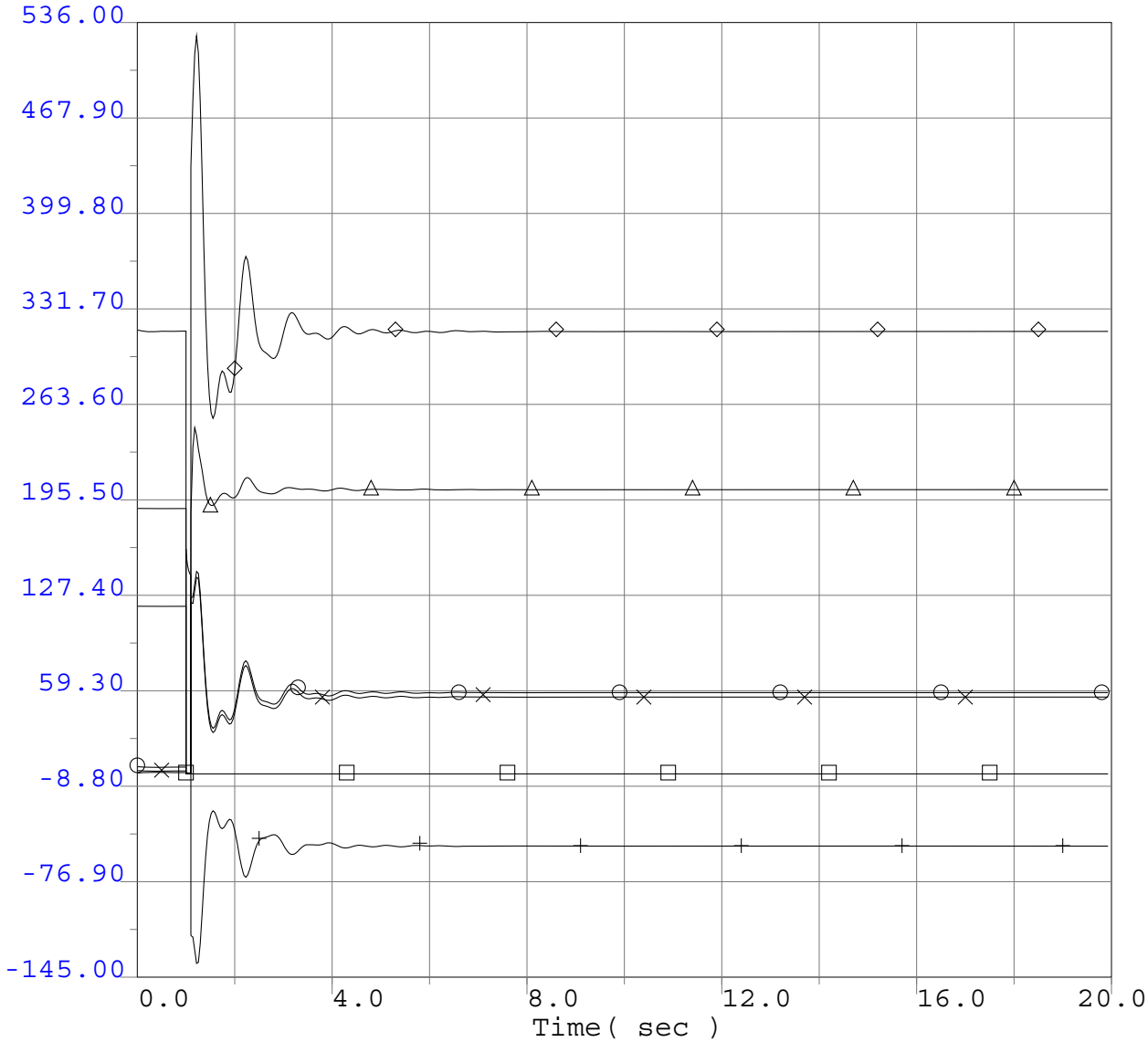
WECC Generator Rotor Angle



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 142-422+522
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

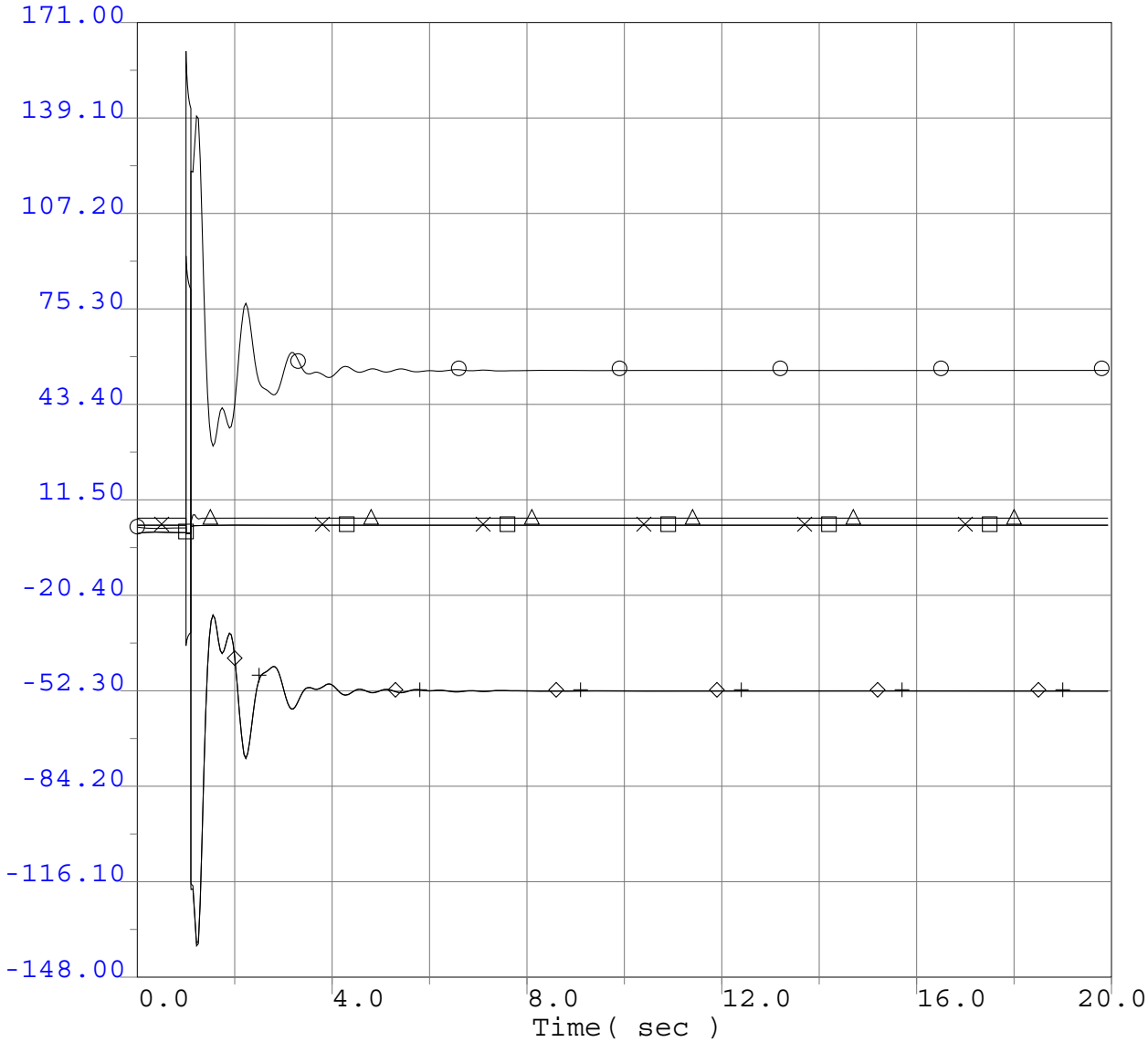
Selected PG&E Transmission Line Flows (MW)



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 142-422+522
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected PG&E Transmission Line Flows (MW)

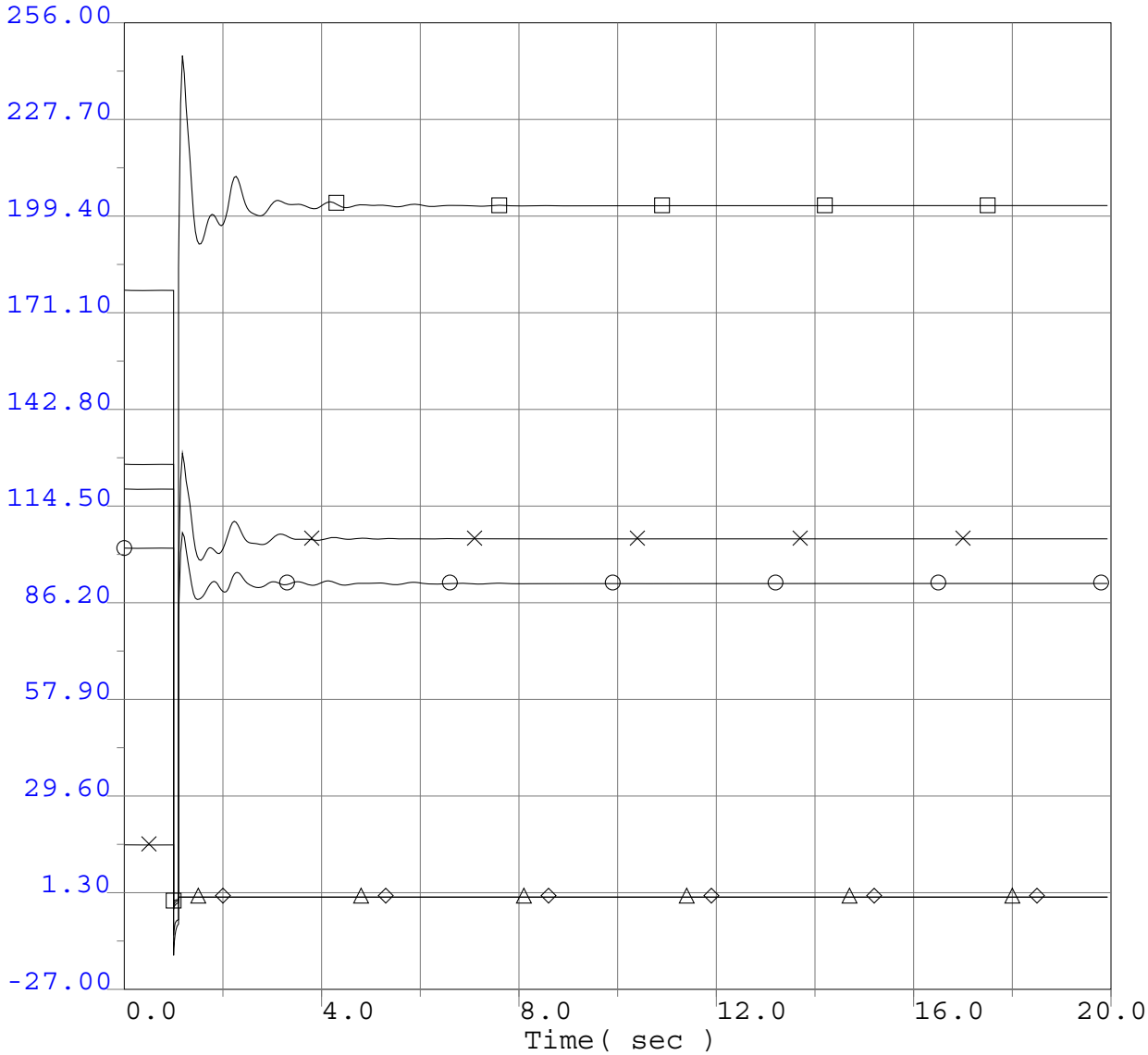


-148.0000	pbr	33535	SFWY_TP2	115.0	33543	AEC_TP2	115.0	1	1	171.0000
-148.0000	pbr	33543	AEC_TP2	115.0	33545	AEC_JCT	115.0	1	1	171.0000
-148.0000	pbr	33545	AEC_JCT	115.0	33547	AEC_300	115.0	1	1	171.0000
-148.0000	pbr	33537	SFWY_TP1	115.0	33534	SAFEWAY	115.0	1	1	171.0000
-148.0000	pbr	33541	AEC_TP1	115.0	33537	SFWY_TP1	115.0	1	1	171.0000
-148.0000	pbr	33540	TESLA	115.0	33541	AEC_TP1	115.0	1	1	171.0000

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 142-422+522
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected PG&E Transmission Line Flows (MW)

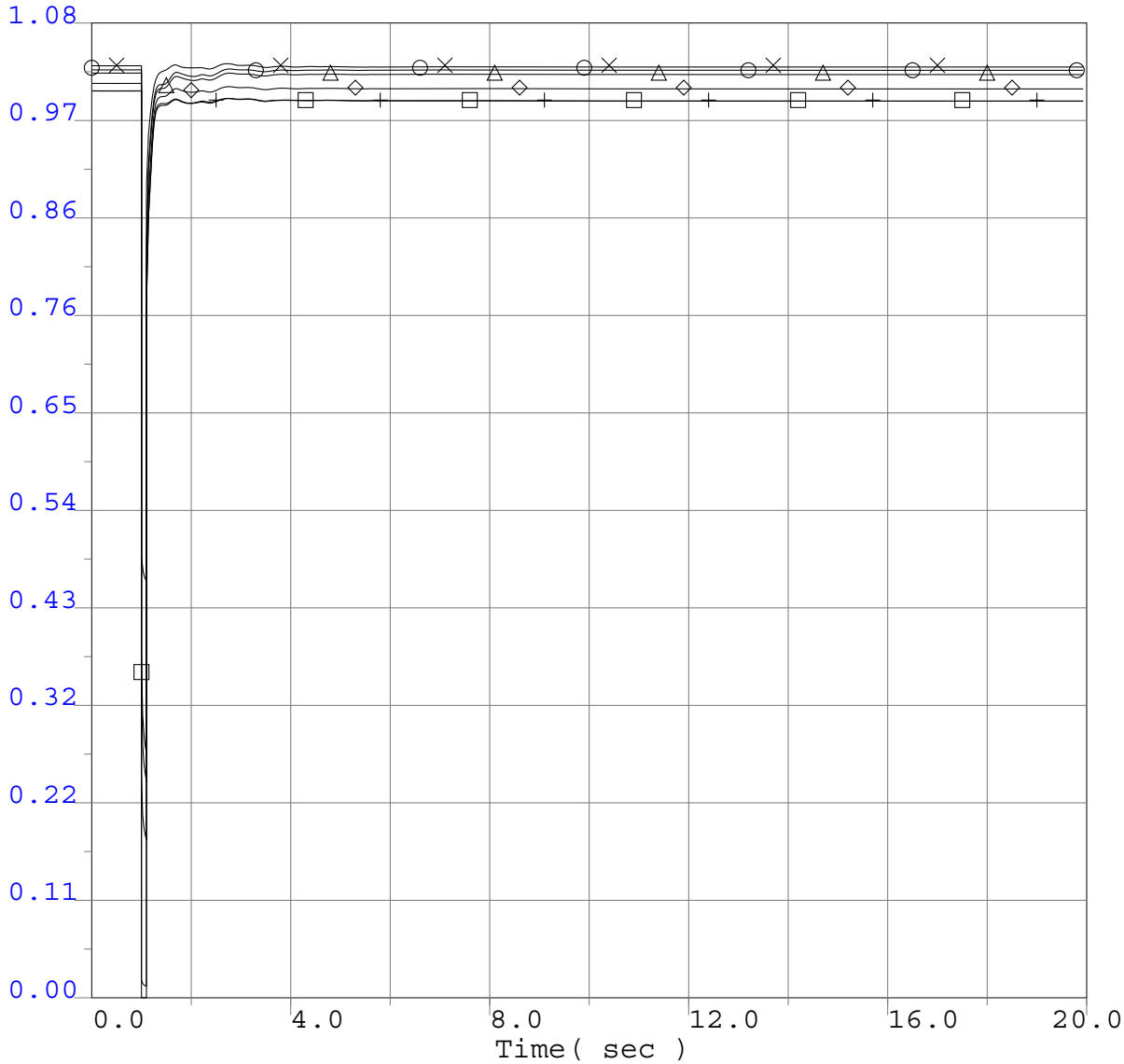


-27.0000	pbr	33526	KSSN-JC1	115.0	33514	MANTECA	115.0	1	1	256.0000
-27.0000	pbr	33526	KSSN-JC1	115.0	33528	KASSON	115.0	1	1	256.0000
-27.0000	pbr	33533	OWENSTP2	115.0	33526	KSSN-JC1	115.0	1	1	256.0000
-27.0000	pbr	33529	LAMMERS	115.0	33528	KASSON	115.0	1	1	256.0000
-27.0000	pbr	33531	OWENSTP1	115.0	33529	LAMMERS	115.0	1	1	256.0000

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 142-422+522
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected PG&E Bus Voltage Plots Adjacent to Fault

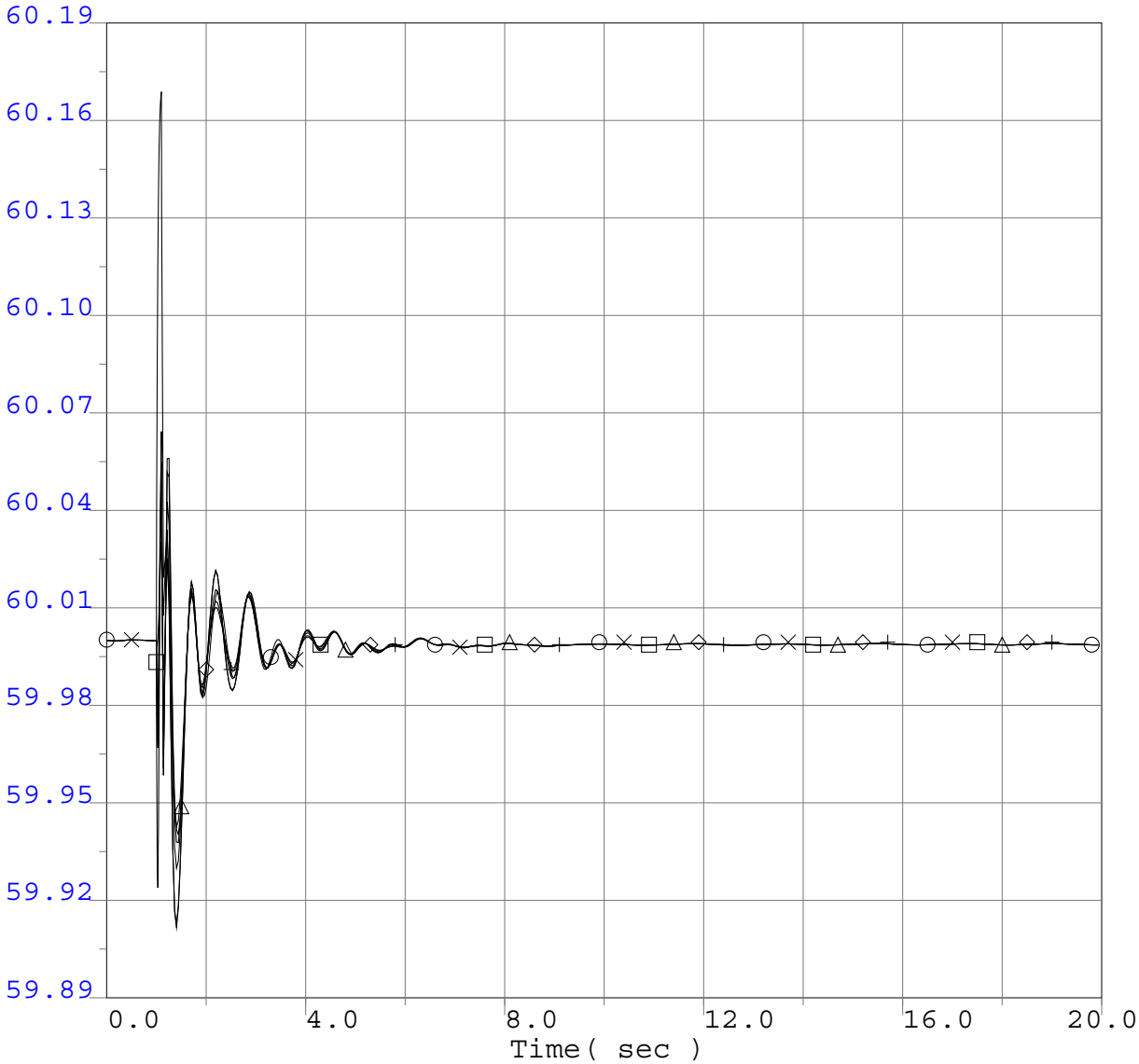


0.0000	vbus	33549	SCHULTE 115.0	0	0.0	"*"	1	1.0800
0.0000	vbus	33540	TESLA 115.0	0	0.0	"*"	1	1.0800
0.0000	vbul	33514	MANTECA 115.0	0	0.0	"*"	1	1.0800
0.0000	vbul	33529	LAMMERS 115.0	0	0.0	"*"	1	1.0800
0.0000	vbus	33528	KASSON 115.0	0	0.0	"*"	1	1.0800
0.0000	vbul	33518	VIERRA 115.0	0	0.0	"*"	1	1.0800

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 194-512+612
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected PG&E Bus Frequency Plots Adjacent to Fault

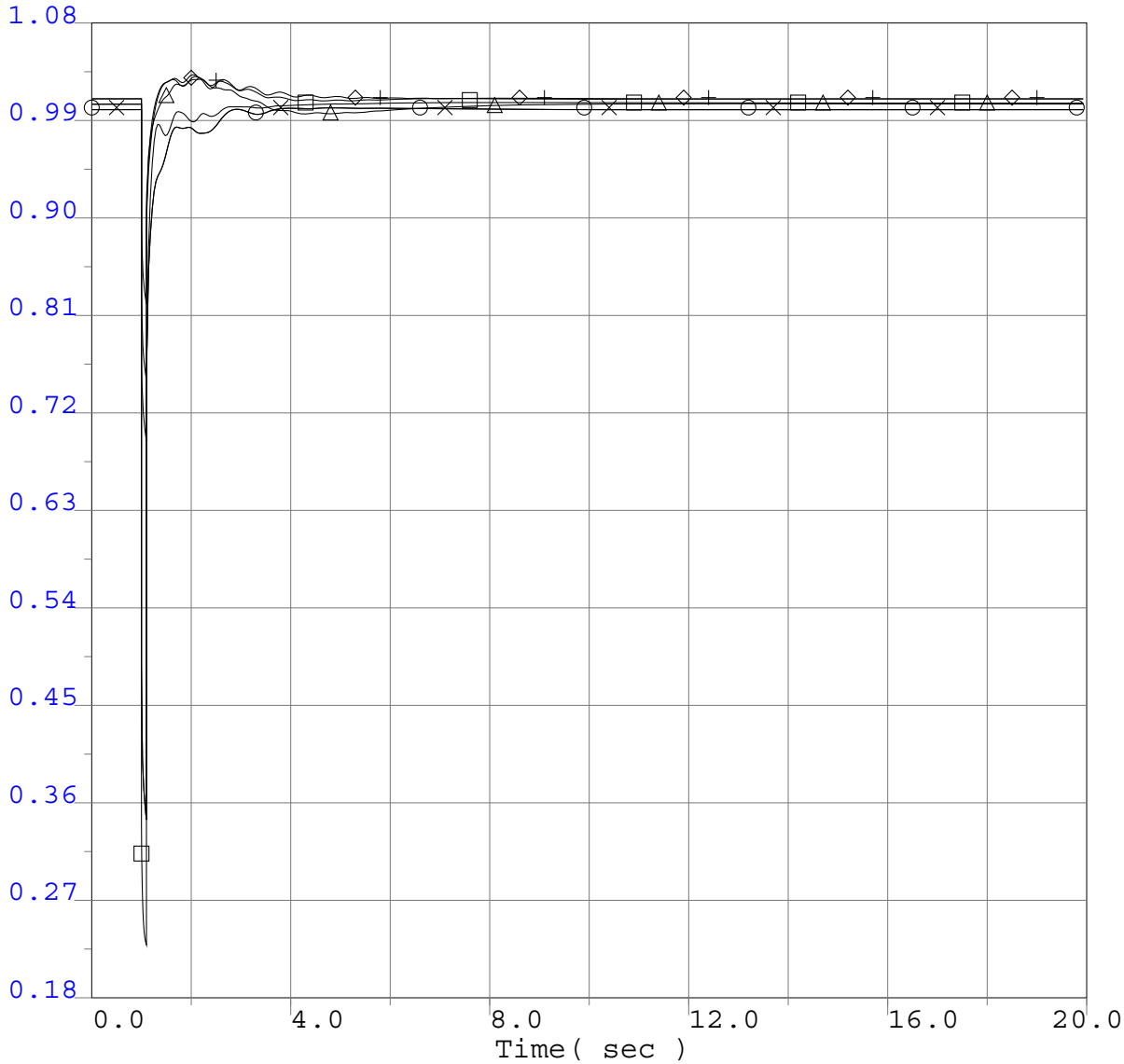


○	59.8900 fbus	33549	SCHULTE 115.0	0	0.0 "*"	1	60.1900
×	59.8900 fbus	33540	TESLA 115.0	0	0.0 "*"	1	60.1900
□	59.8900 fbul	33514	MANTECA 115.0	0	0.0 "*"	1	60.1900
△	59.8900 fbul	33529	LAMMERS 115.0	0	0.0 "*"	1	60.1900
◇	59.8900 fbus	33528	KASSON 115.0	0	0.0 "*"	1	60.1900
+	59.8900 fbul	33518	VIERRA 115.0	0	0.0 "*"	1	60.1900

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 194-512+612
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Project Generator Terminal Voltages

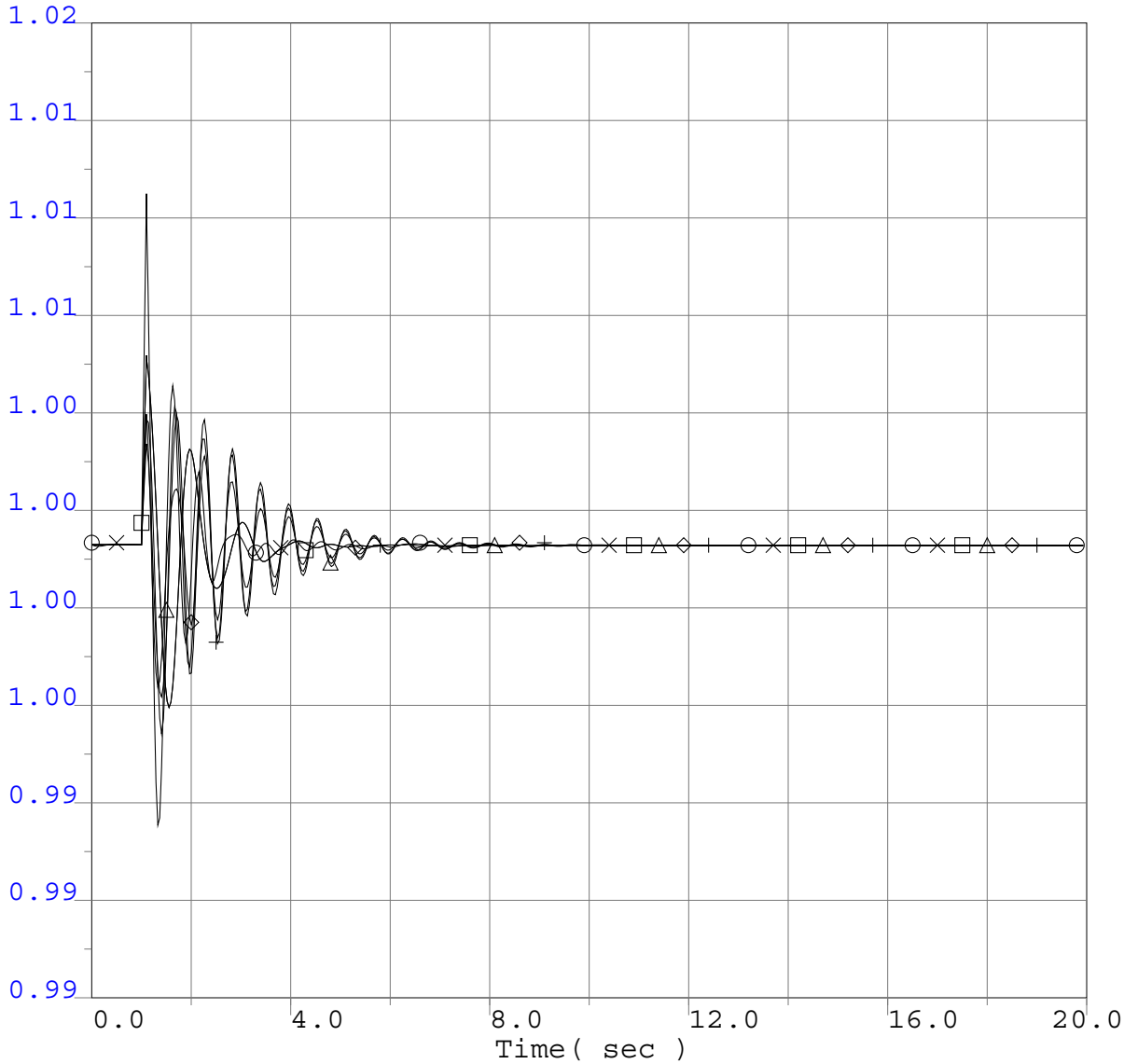


0.1800 vt	33805	GWFTRCY1	13.8	0	0.0 "1"	1	1.0800
0.1800 vt	33807	GWFTRCY2	13.8	0	0.0 "1"	1	1.0800
0.1800 vt	33809	Q268ST1	13.8	0	0.0 "1"	1	1.0800
0.1800 vt	33858	P0409CG2	13.8	0	0.0 "1"	1	1.0800
0.1800 vt	33808	SJ COGEN	13.8	0	0.0 "1"	1	1.0800
0.1800 vt	33810	SP CMPNY	13.8	0	0.0 "1"	1	1.0800

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 194-512+612
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Project Generator Rotor Speed

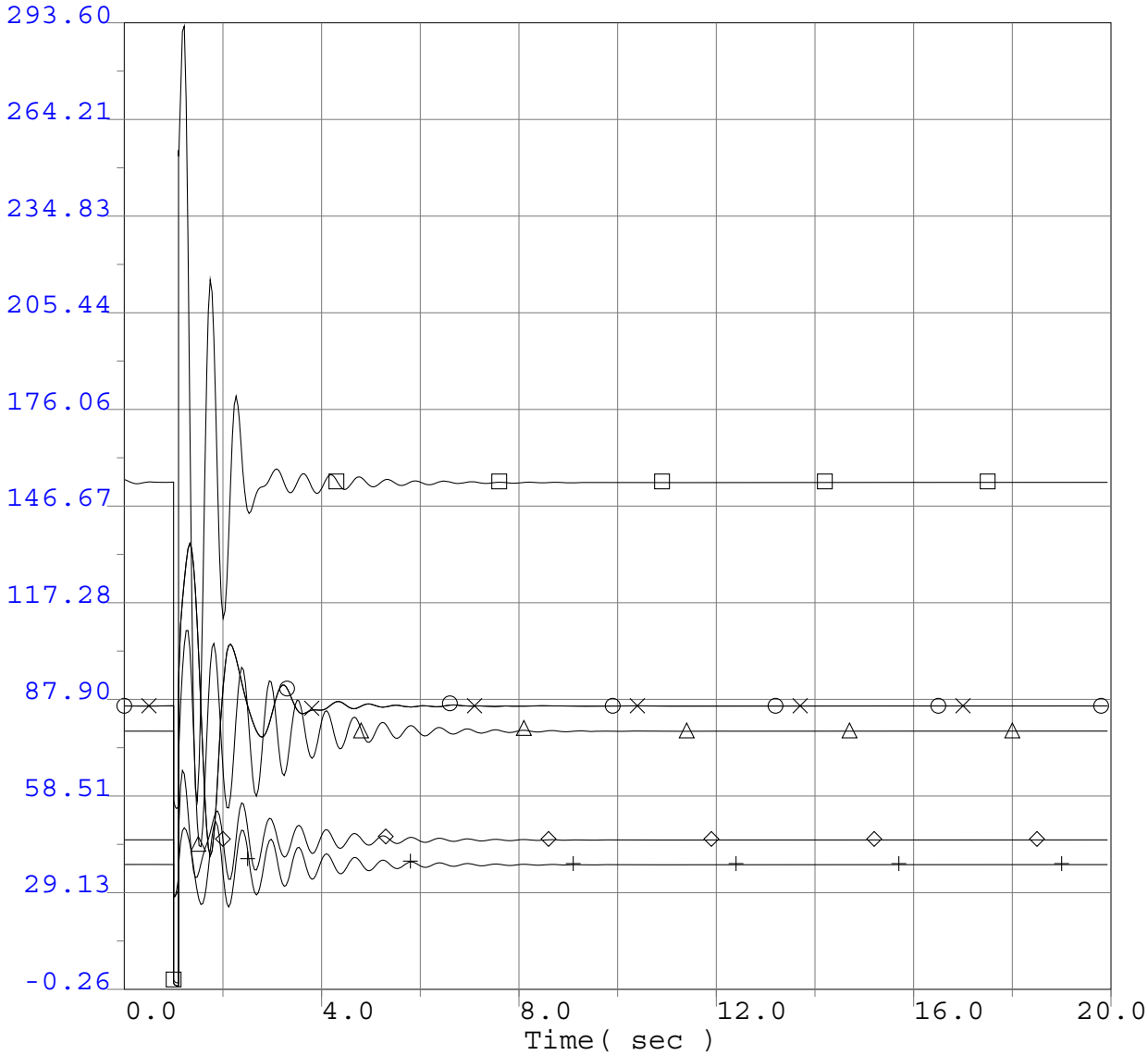


0.9868 spd	33805	GWFTRCY1	13.8	0	0.0 "1"	1	1.0152
0.9868 spd	33807	GWFTRCY2	13.8	0	0.0 "1"	1	1.0152
0.9868 spd	33809	Q268ST1	13.8	0	0.0 "1"	1	1.0152
0.9868 spd	33858	P0409CG2	13.8	0	0.0 "1"	1	1.0152
0.9868 spd	33808	SJ COGEN	13.8	0	0.0 "1"	1	1.0152
0.9868 spd	33810	SP CMPNY	13.8	0	0.0 "1"	1	1.0152

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 194-512+612
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Project Generator Terminal Power

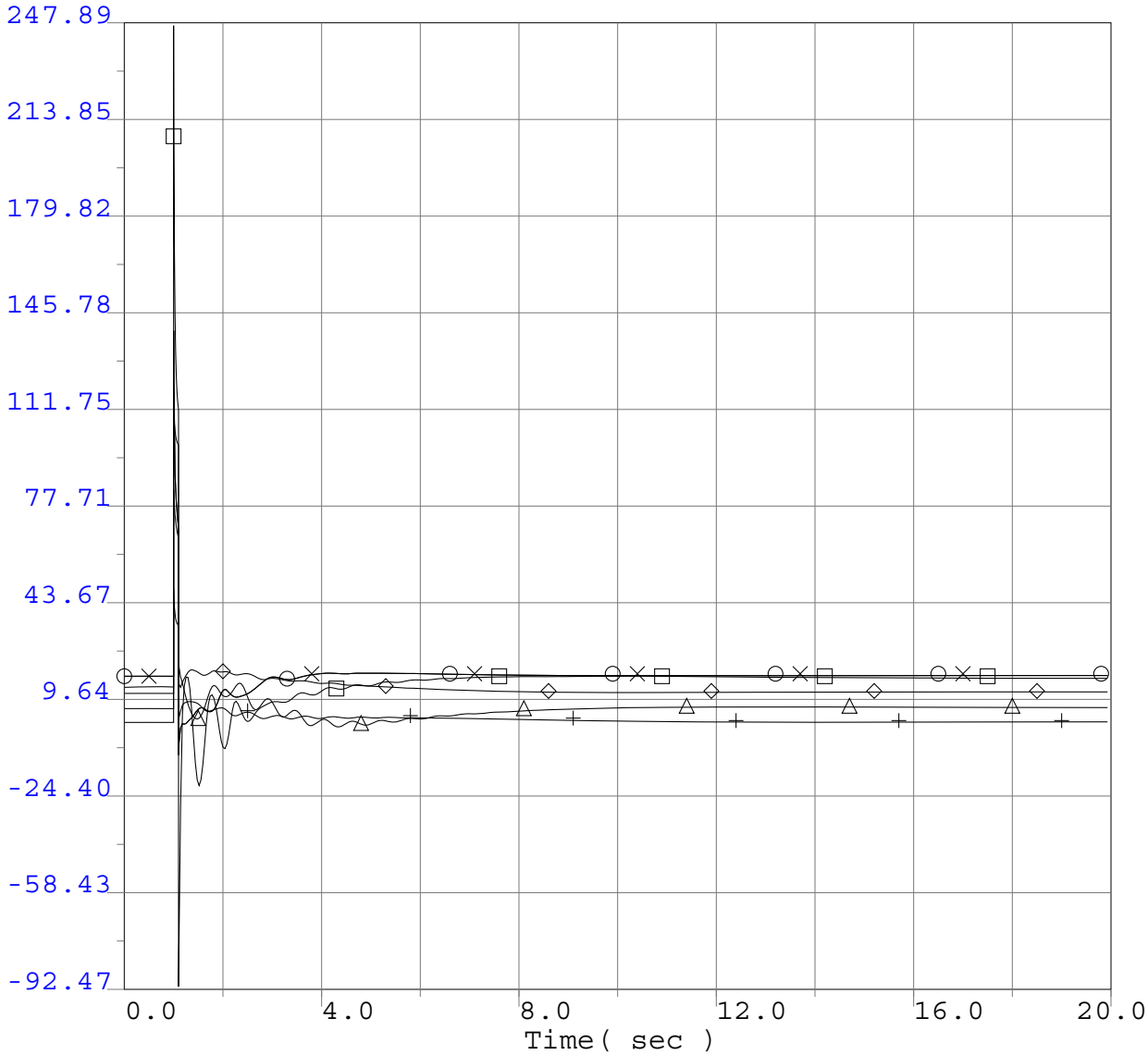


-0.2600 pg	33805	GWFTRCY1	13.8	0	0.0 "1"	1	293.6000
-0.2600 pg	33807	GWFTRCY2	13.8	0	0.0 "1"	1	293.6000
-0.2600 pg	33809	Q268ST1	13.8	0	0.0 "1"	1	293.6000
-0.2600 pg	33858	P0409CG2	13.8	0	0.0 "1"	1	293.6000
-0.2600 pg	33808	SJ COGEN	13.8	0	0.0 "1"	1	293.6000
-0.2600 pg	33810	SP CMPNY	13.8	0	0.0 "1"	1	293.6000

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 194-512+612
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

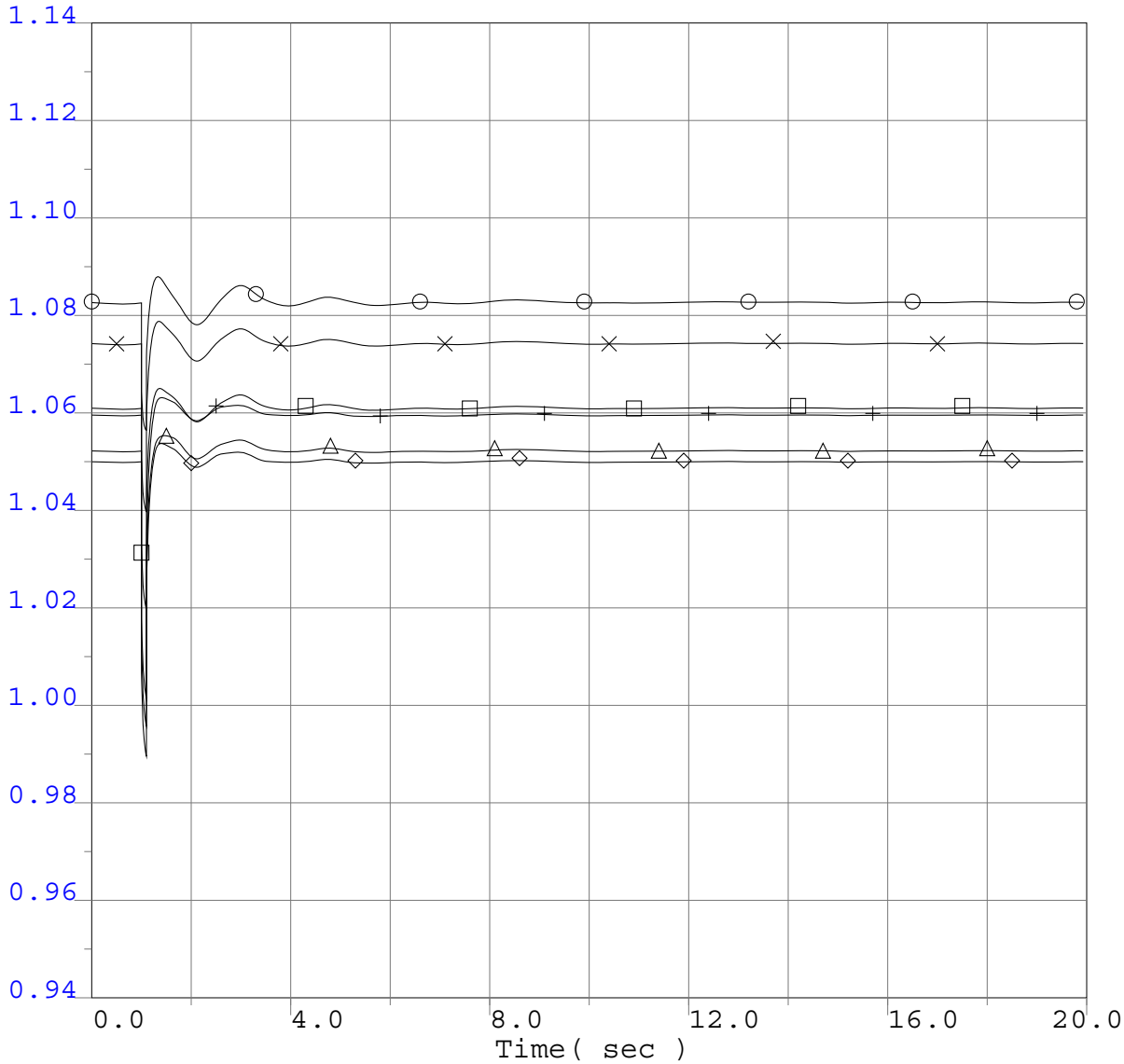
Project Generator Terminal Reactive Power



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 194-512+612
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots

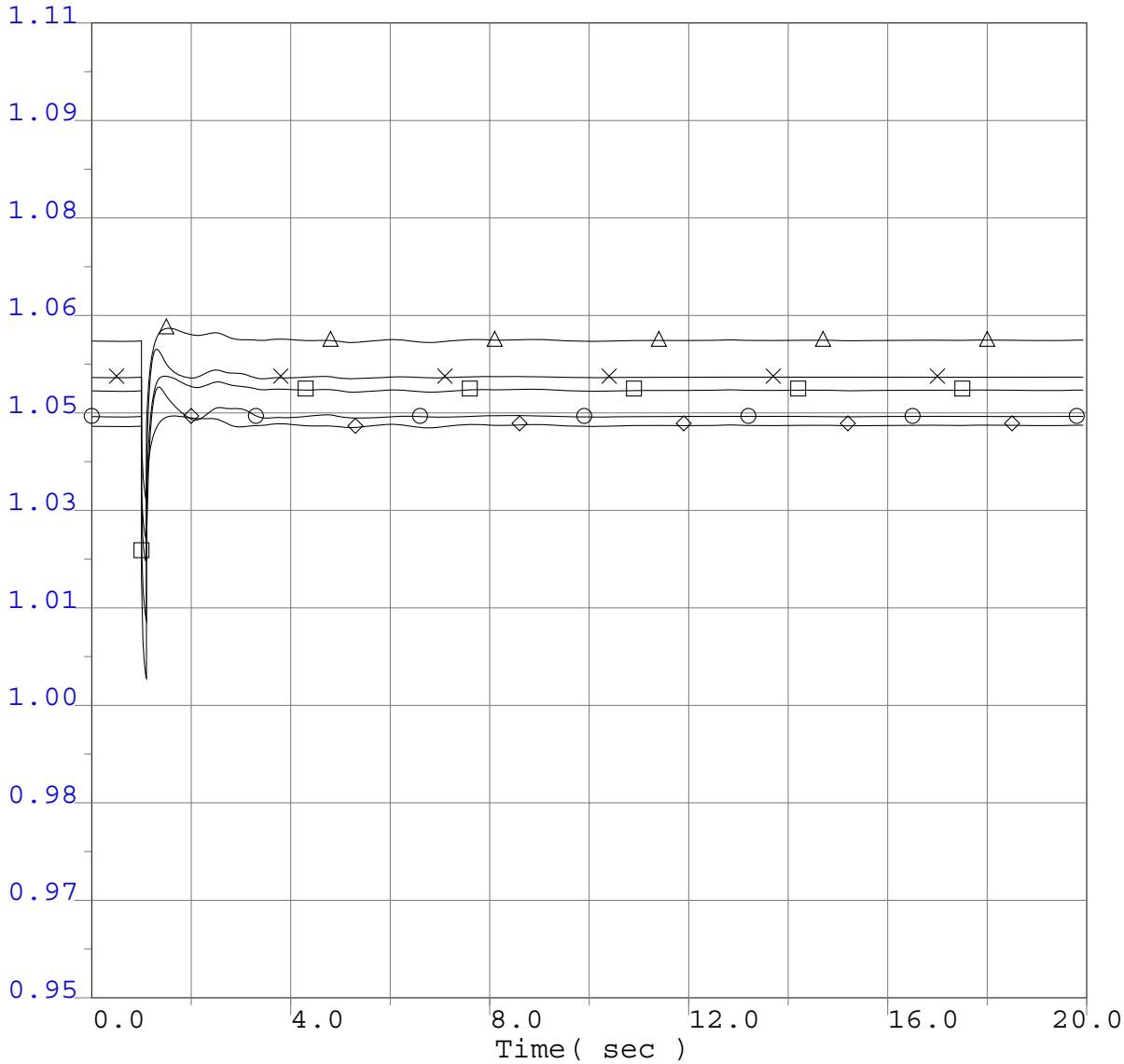


0.9400	vbus	40687	MALIN	500.0	0	0.0 "*"	1	1.1400
0.9400	vbus	30005	ROUND MT	500.0	0	0.0 "*"	1	1.1400
0.9400	vbus	30015	TABLE MT	500.0	0	0.0 "*"	1	1.1400
0.9400	vbus	30030	VACA-DIX	500.0	0	0.0 "*"	1	1.1400
0.9400	vbus	30040	TESLA	500.0	0	0.0 "*"	1	1.1400
0.9400	vbus	30035	TRACY	500.0	0	0.0 "*"	1	1.1400

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 194-512+612
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots

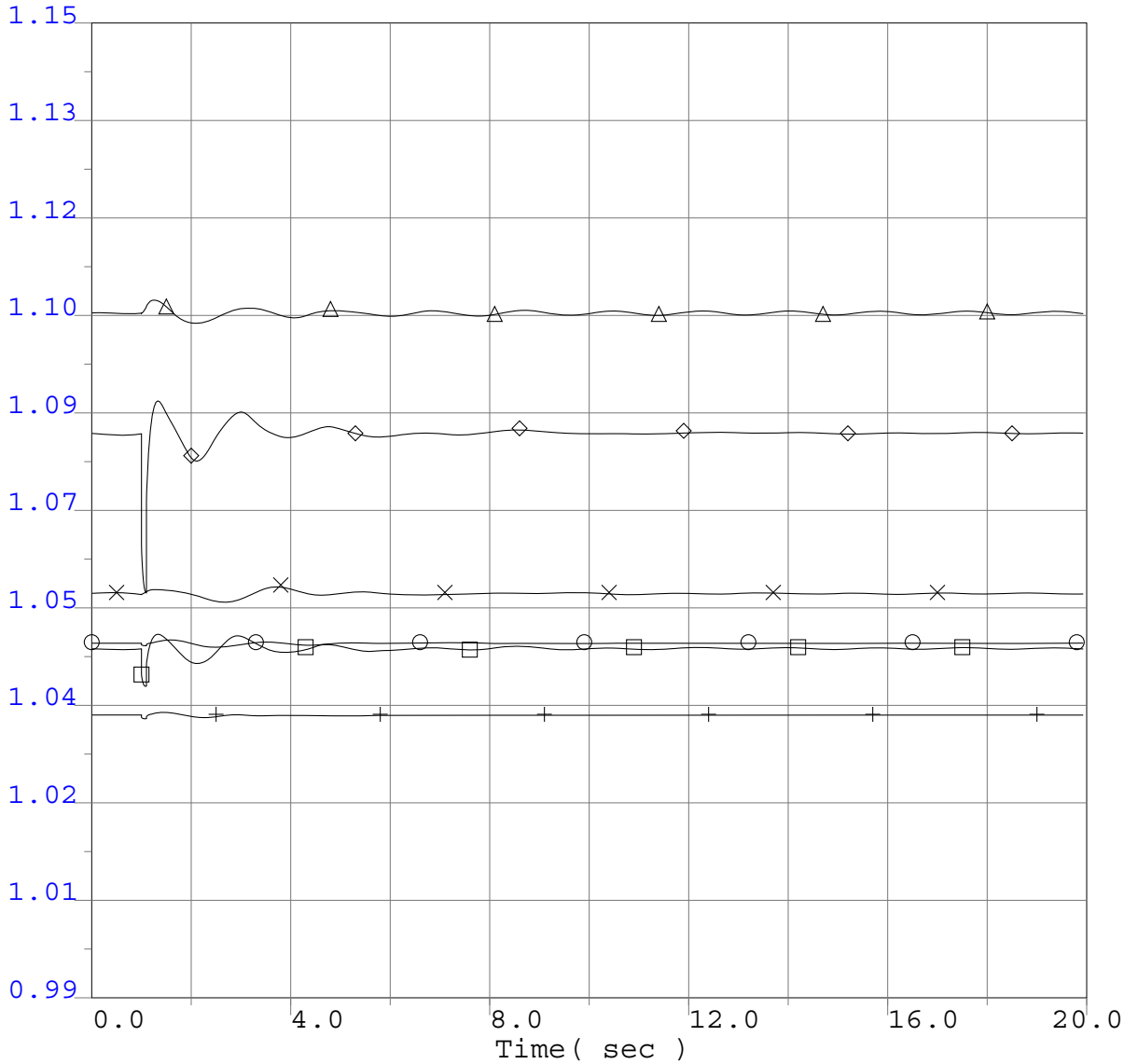


○	0.9500 vbus	30042	METCALF 500.0	0	0.0 "*"	1	1.1100
⊗	0.9500 vbus	30045	MOSSLAND 500.0	0	0.0 "*"	1	1.1100
□	0.9500 vbus	30050	LOSBANOS 500.0	0	0.0 "*"	1	1.1100
△	0.9500 vbus	30055	GATES 500.0	0	0.0 "*"	1	1.1100
◇	0.9500 vbus	30060	MIDWAY 500.0	0	0.0 "*"	1	1.1100

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 194-512+612
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots

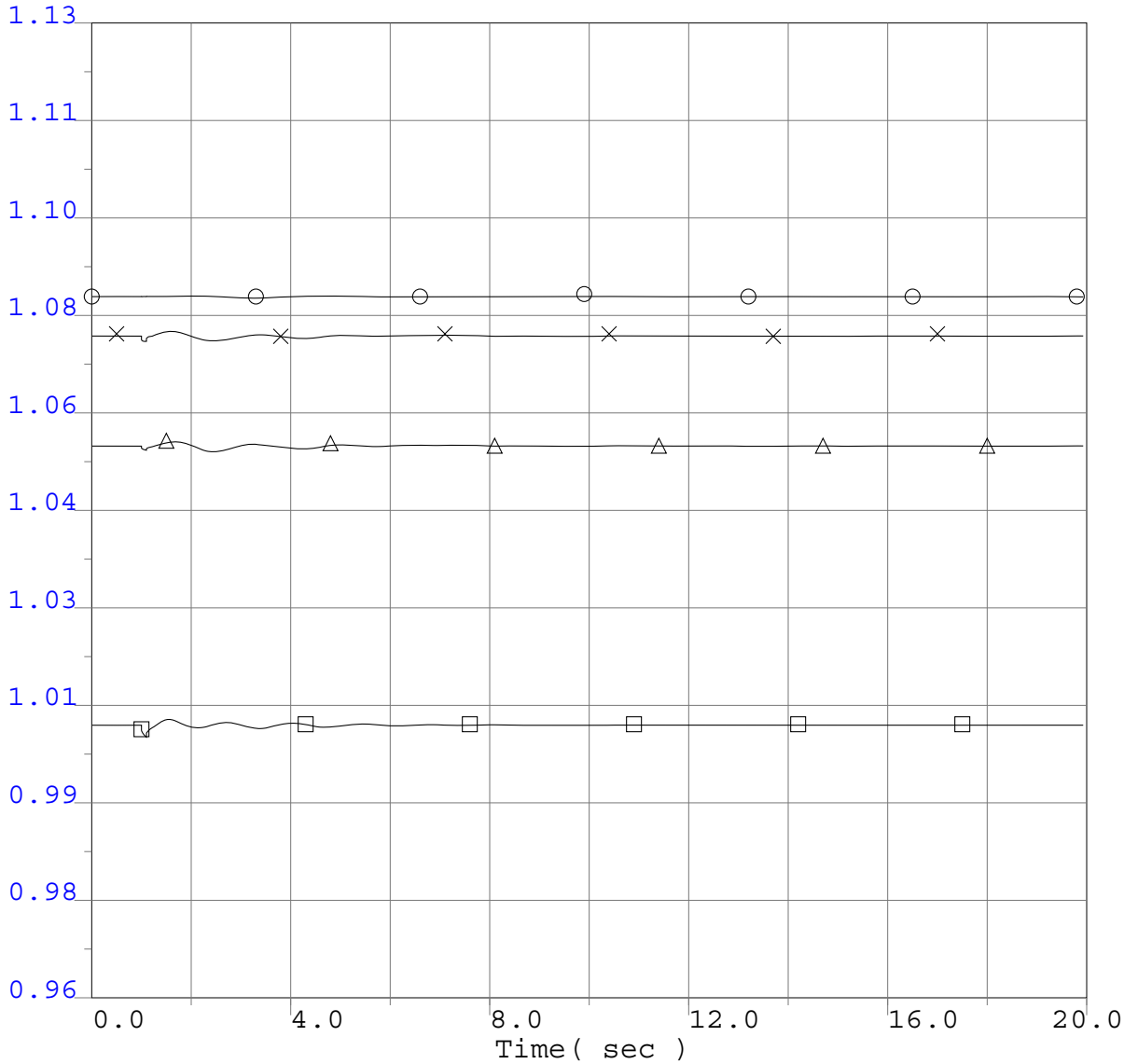


0.9900	vbus	14001	FOURCORN	500.0	0	0.0 "*"	1	1.1500
0.9900	vbus	50703	NIC500	500.0	0	0.0 "*"	1	1.1500
0.9900	vbus	60240	MIDPOINT	500.0	0	0.0 "*"	1	1.1500
0.9900	vbus	62012	TOWN2	500.0	0	0.0 "*"	1	1.1500
0.9900	vbus	40687	MALIN	500.0	0	0.0 "*"	1	1.1500
0.9900	vbus	66340	SIGURD	345.0	0	0.0 "*"	1	1.1500

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 194-512+612
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots

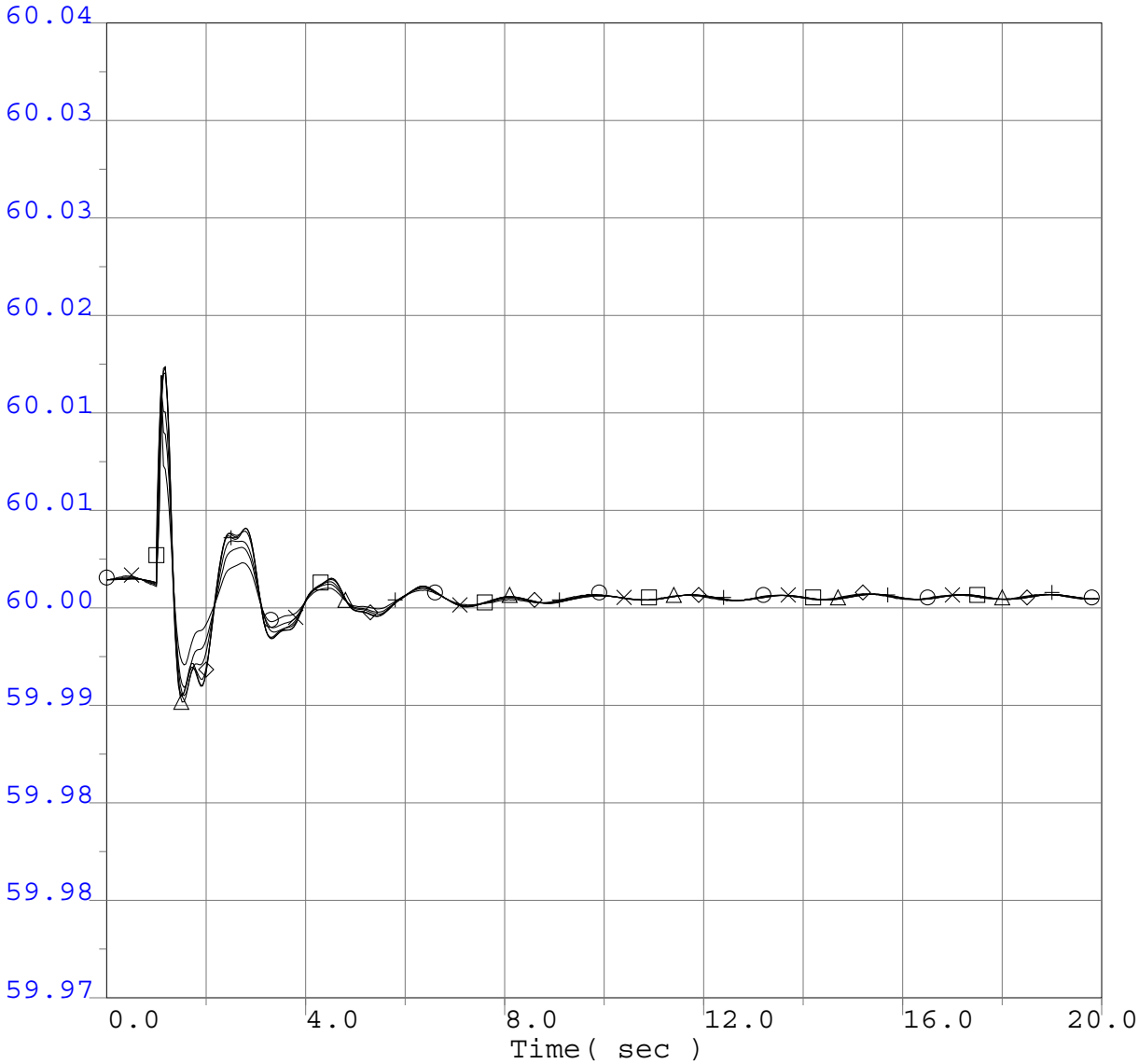


0.9600 vbul	54150	WILLESD9 240.0	0	0.0 "*"	1	1.1300
0.9600 vbus	14003	NAVAJO 500.0	0	0.0 "*"	1	1.1300
0.9600 vbus	24153	VESTAL 230.0	0	0.0 "*"	1	1.1300
0.9600 vbus	22360	IMPRLVLY 500.0	0	0.0 "*"	1	1.1300

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 194-512+612
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected WECC Bus Frequency Plots

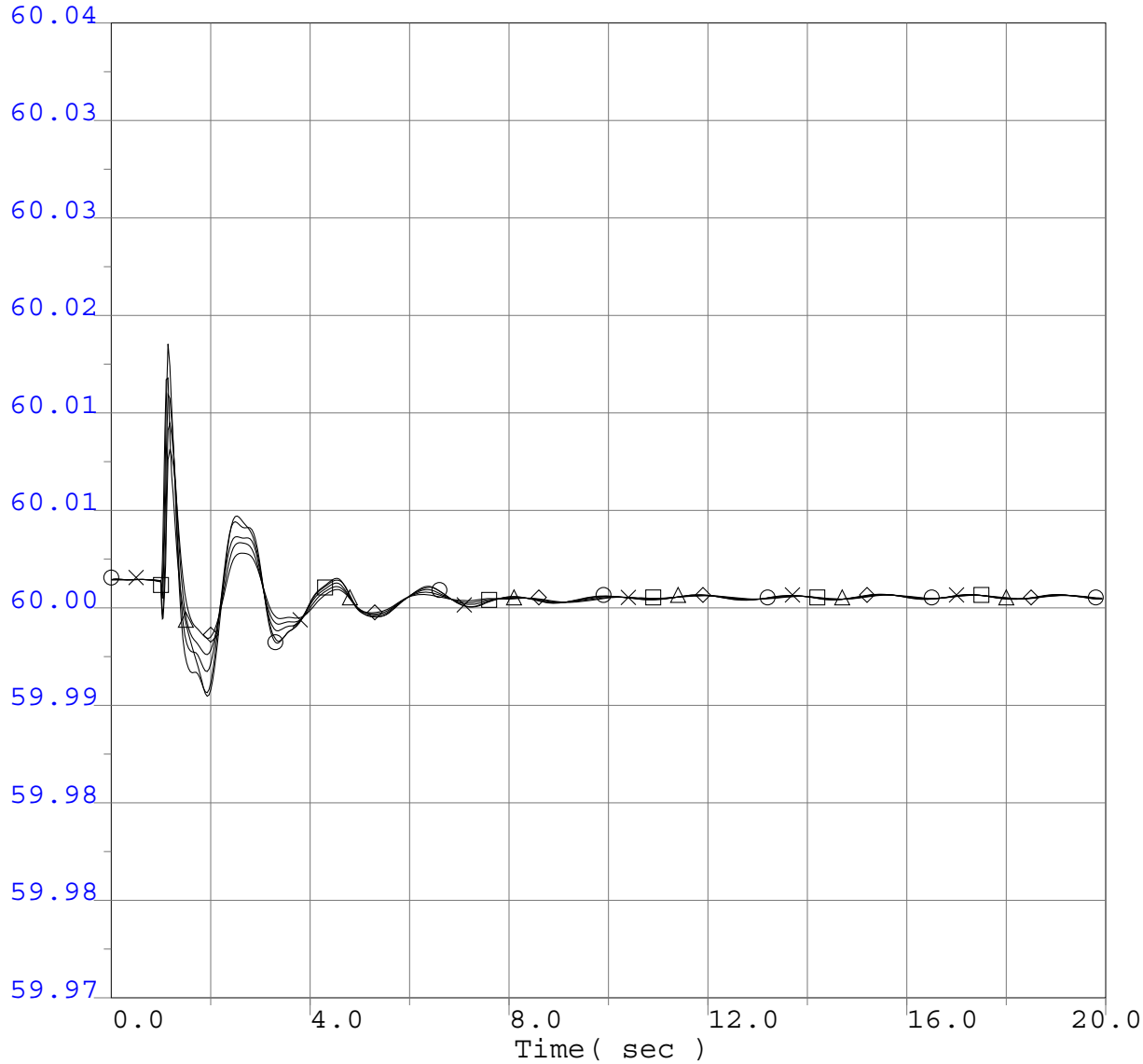


○	59.9700 fbus	40687	MALIN 500.0	0	0.0 "*"	1	60.0400
×	59.9700 fbus	30005	ROUND MT 500.0	0	0.0 "*"	1	60.0400
□	59.9700 fbus	30015	TABLE MT 500.0	0	0.0 "*"	1	60.0400
△	59.9700 fbus	30030	VACA-DIX 500.0	0	0.0 "*"	1	60.0400
◇	59.9700 fbus	30040	TESLA 500.0	0	0.0 "*"	1	60.0400
+	59.9700 fbus	30035	TRACY 500.0	0	0.0 "*"	1	60.0400

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 194-512+612
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

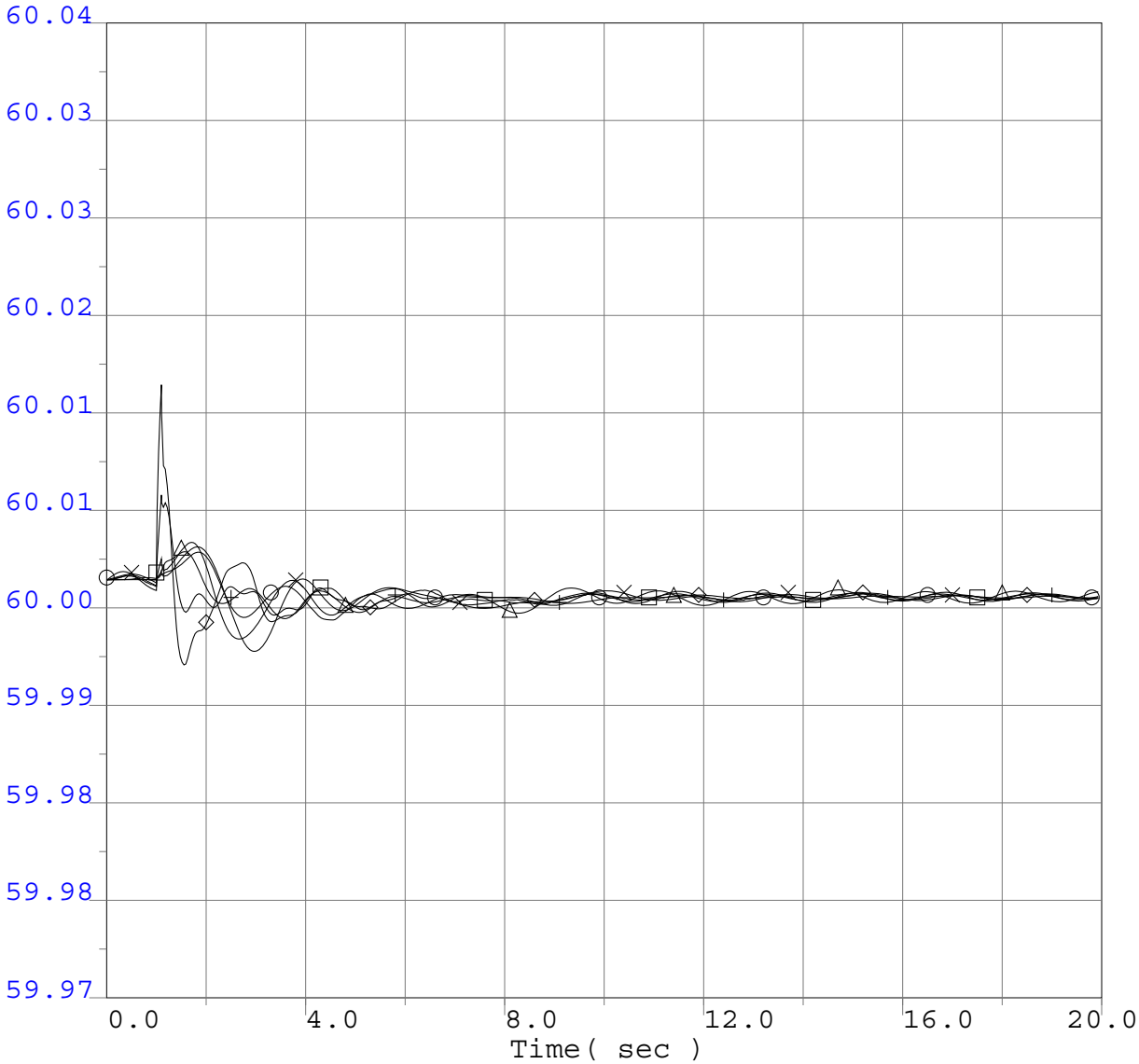
Selected WECC Bus Frequency Plots



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 194-512+612
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected WECC Bus Frequency Plots

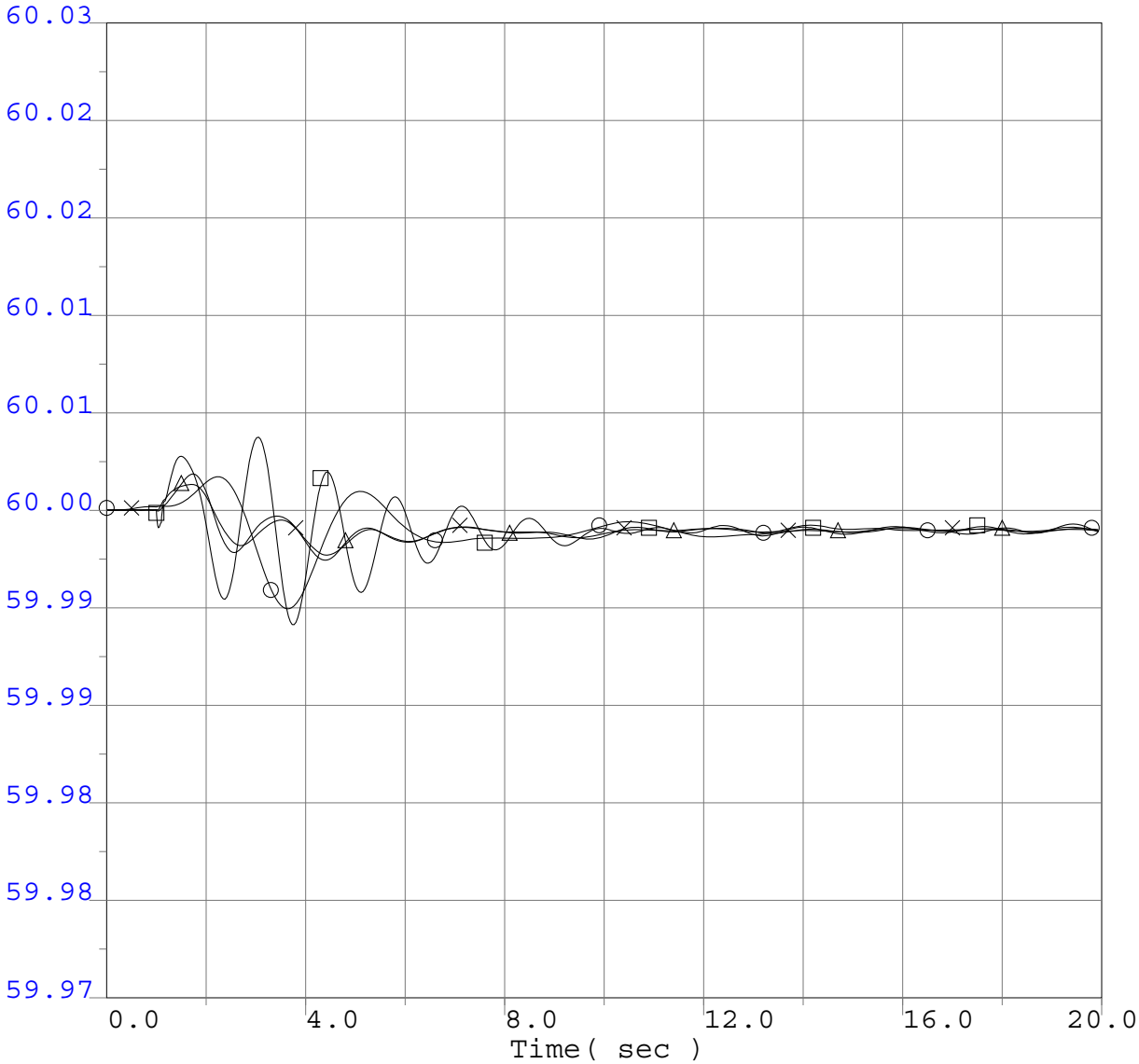


59.9700	fbus	14001	FOURCORN	500.0	0	0.0	"*"	1	60.0400
59.9700	fbus	50703	NIC500	500.0	0	0.0	"*"	1	60.0400
59.9700	fbus	60240	MIDPOINT	500.0	0	0.0	"*"	1	60.0400
59.9700	fbus	62012	TOWN2	500.0	0	0.0	"*"	1	60.0400
59.9700	fbus	40687	MALIN	500.0	0	0.0	"*"	1	60.0400
59.9700	fbus	66340	SIGURD	345.0	0	0.0	"*"	1	60.0400

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 194-512+612
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected WECC Bus Frequency Plots

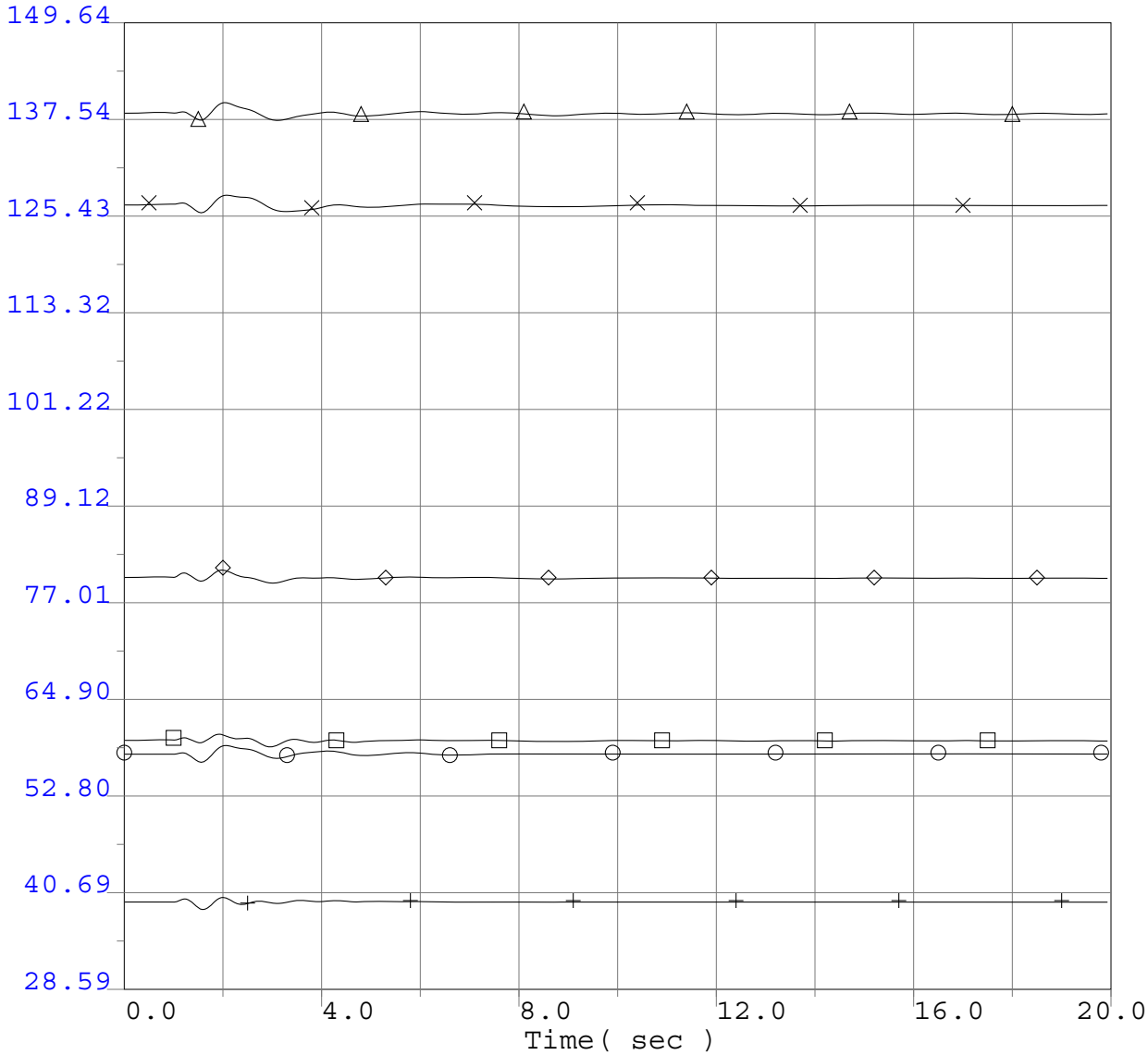


○	59.9700 fbul	54150	WILLESD9 240.0	0	0.0 "*"	1	60.0300
⊗	59.9700 fbus	14003	NAVAJO 500.0	0	0.0 "*"	1	60.0300
□	59.9700 fbus	24153	VESTAL 230.0	0	0.0 "*"	1	60.0300
△	59.9700 fbus	22360	IMPRLVLY 500.0	0	0.0 "*"	1	60.0300

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 194-512+612
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

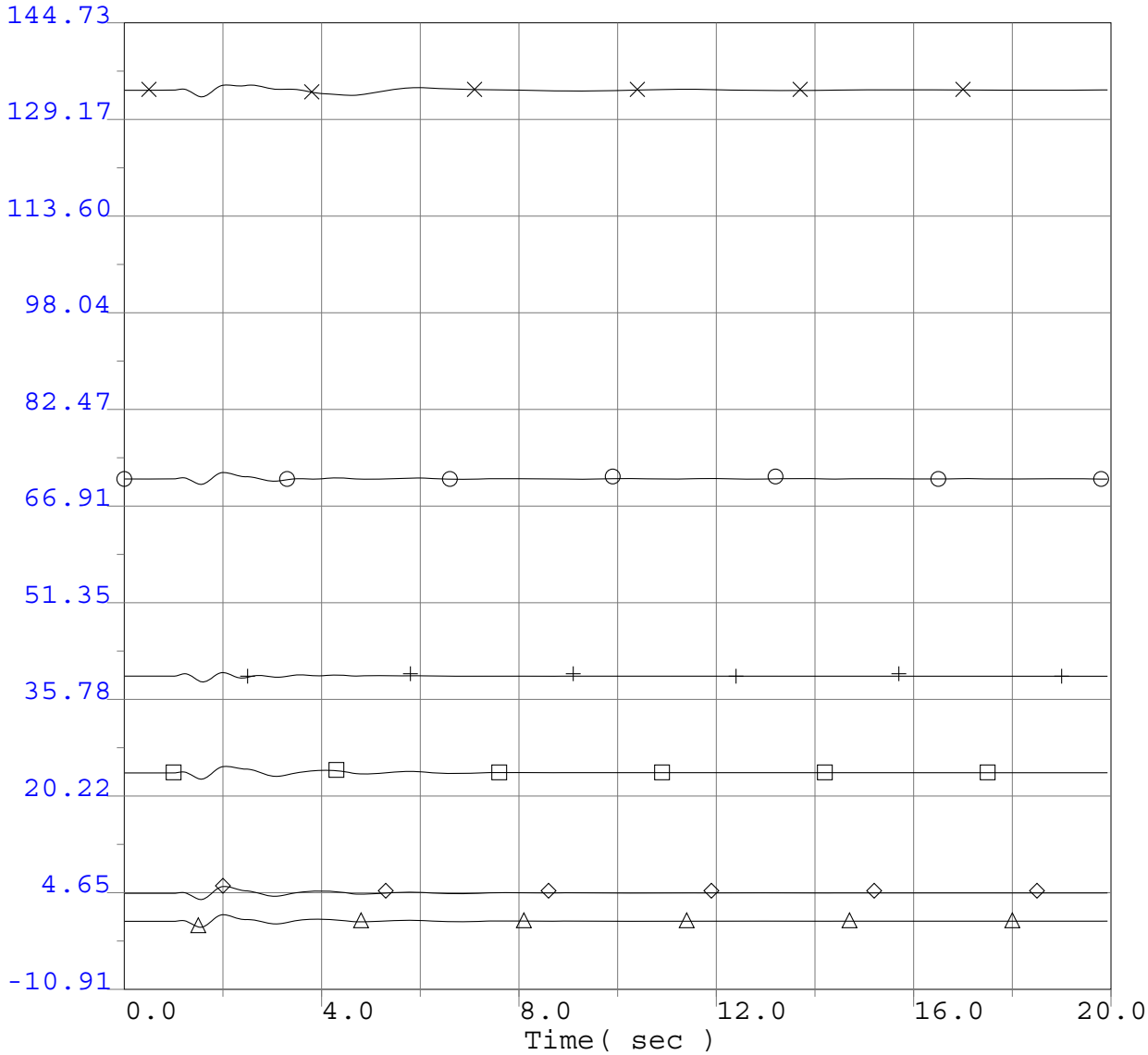
WECC Generator Rotor Angle



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 194-512+612
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

WECC Generator Rotor Angle

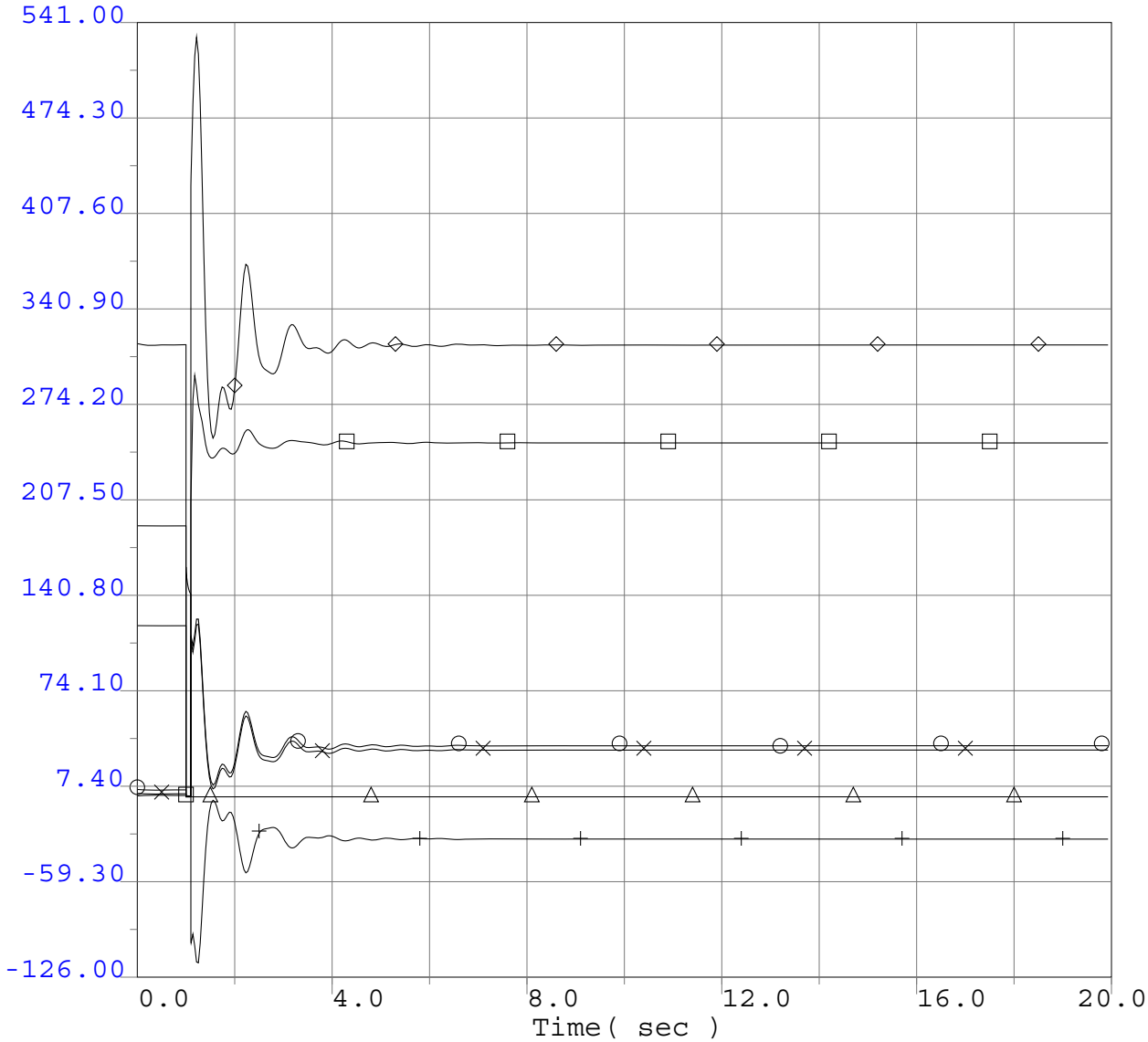


-10.9100 ang	65490	EHUNTR 1	24.0	0	0.0 "1"	1	144.7300
-10.9100 ang	54338	SUND#2GN	18.0	0	0.0 "2"	1	144.7300
-10.9100 ang	79151	GLENC3-4	13.8	0	0.0 "3"	1	144.7300
-10.9100 ang	24130	S.ONOFR3	22.0	0	0.0 "3"	1	144.7300
-10.9100 ang	22244	ENCINA 5	24.0	0	0.0 "1"	1	144.7300
-10.9100 ang	36411	DIABLO 1	25.0	0	0.0 "1"	1	144.7300

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 194-512+612
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

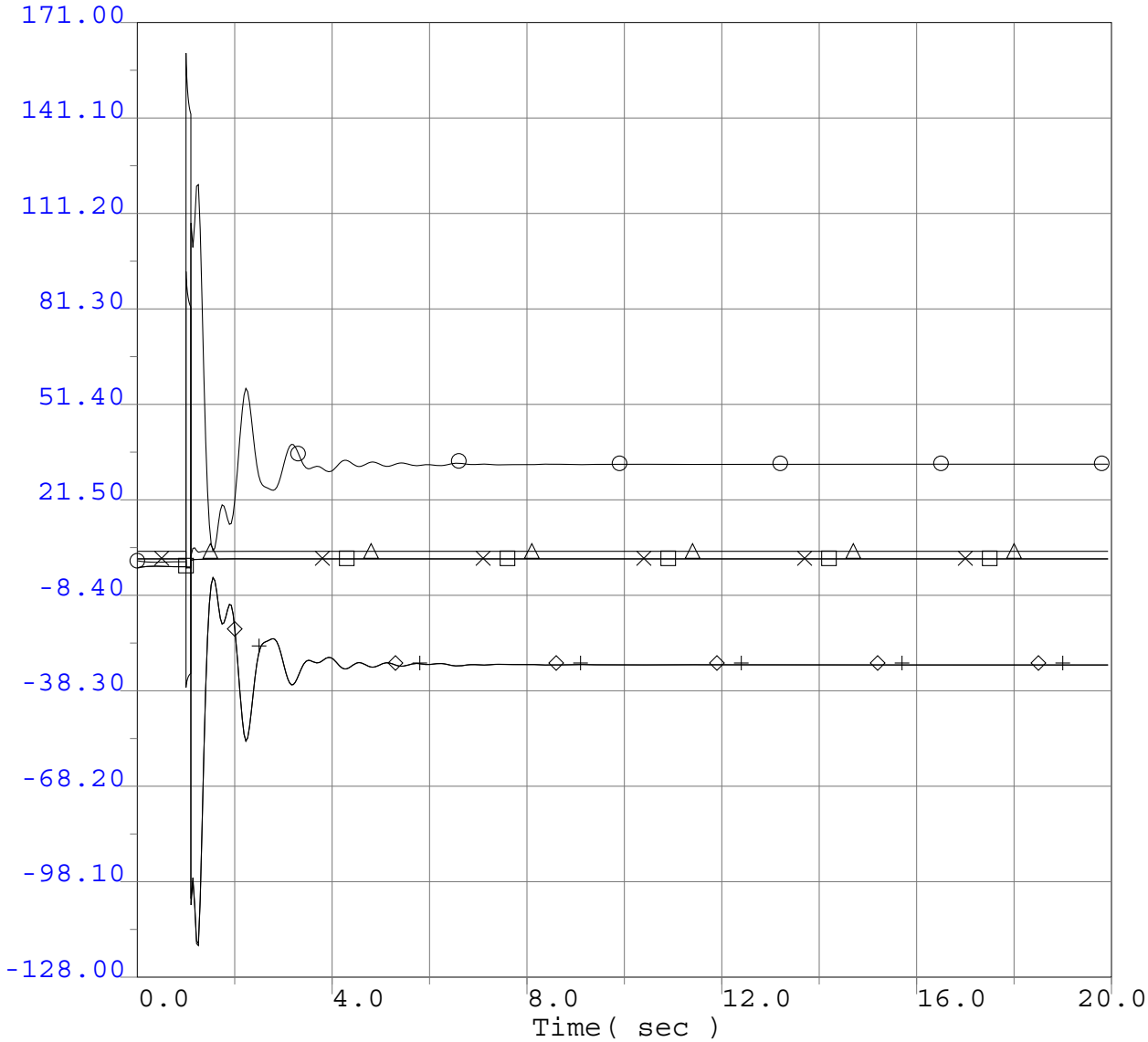
Selected PG&E Transmission Line Flows (MW)



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 194-512+612
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected PG&E Transmission Line Flows (MW)

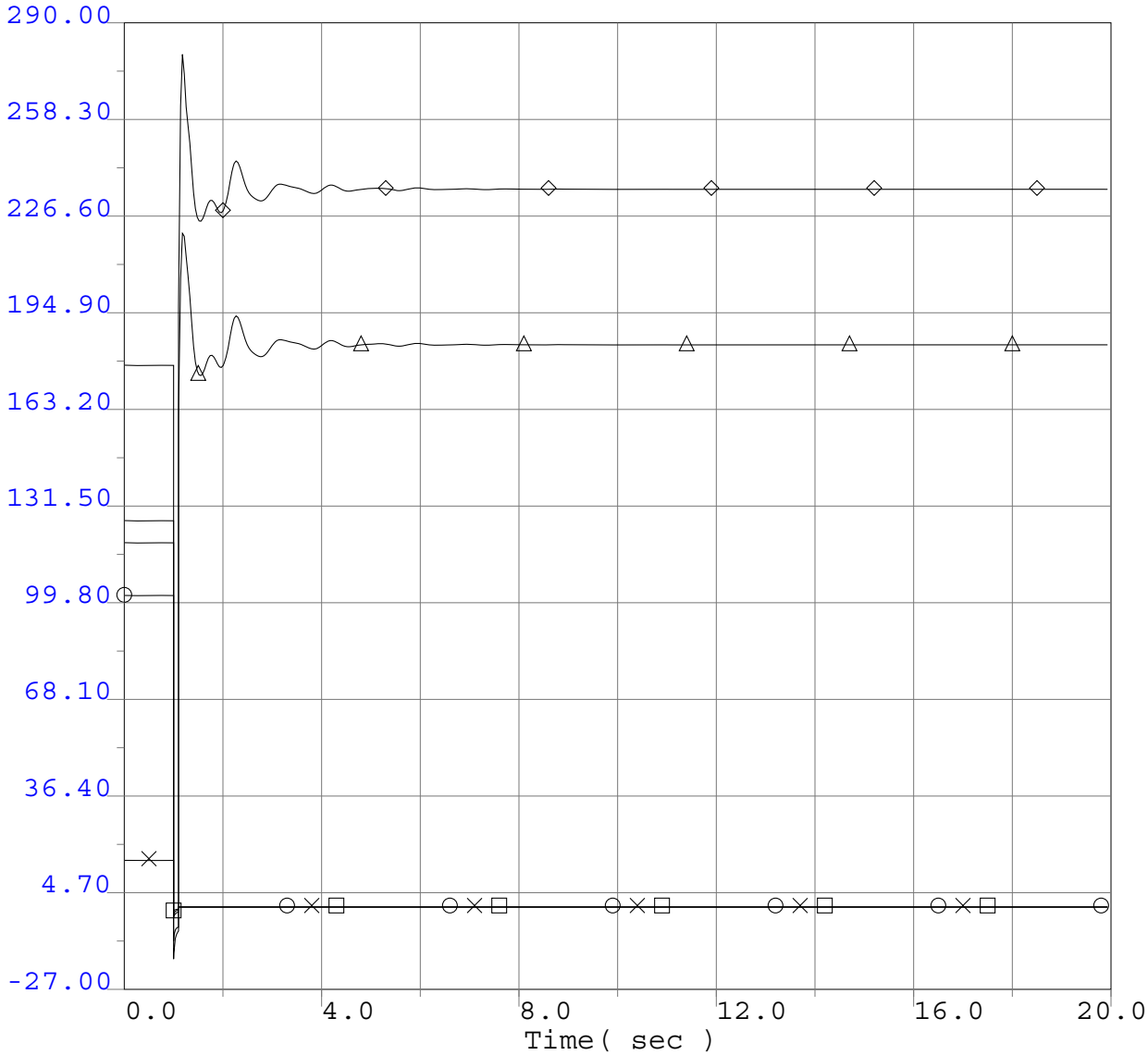


○	-128.0000 pbr	33535	SFWY_TP2 115.0	33543	AEC_TP2 115.0	1	1	171.0000
×	-128.0000 pbr	33543	AEC_TP2 115.0	33545	AEC_JCT 115.0	1	1	171.0000
□	-128.0000 pbr	33545	AEC_JCT 115.0	33547	AEC_300 115.0	1	1	171.0000
△	-128.0000 pbr	33537	SFWY_TP1 115.0	33534	SAFEWAY 115.0	1	1	171.0000
◇	-128.0000 pbr	33541	AEC_TP1 115.0	33537	SFWY_TP1 115.0	1	1	171.0000
+	-128.0000 pbr	33540	TESLA 115.0	33541	AEC_TP1 115.0	1	1	171.0000

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 194-512+612
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected PG&E Transmission Line Flows (MW)

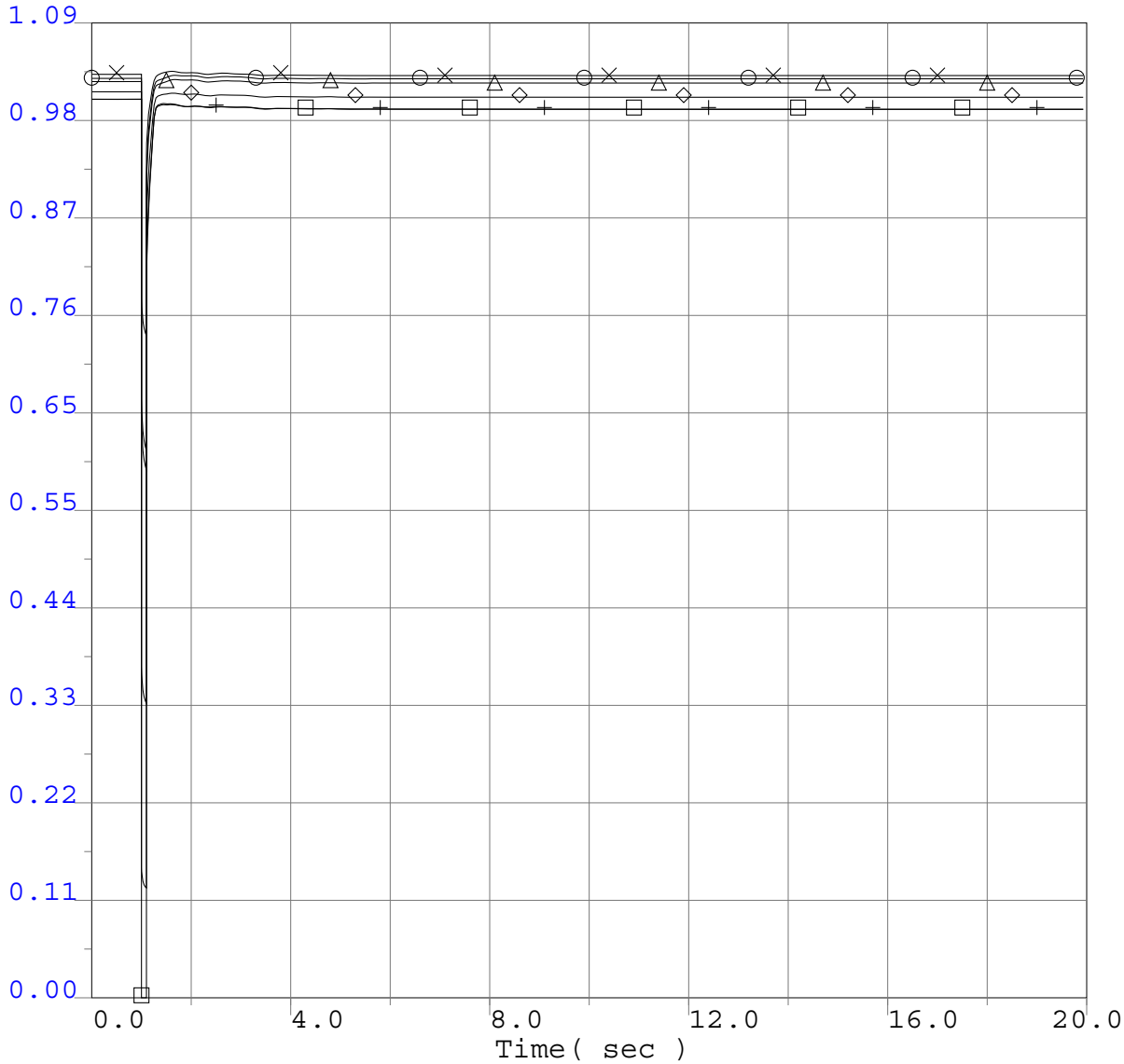


-27.0000 pbr	33526	KSSN-JC1 115.0	33514	MANTECA 115.0	1	1	290.0000
-27.0000 pbr	33526	KSSN-JC1 115.0	33528	KASSON 115.0	1	1	290.0000
-27.0000 pbr	33533	OWENSTP2 115.0	33526	KSSN-JC1 115.0	1	1	290.0000
-27.0000 pbr	33529	LAMMERS 115.0	33528	KASSON 115.0	1	1	290.0000
-27.0000 pbr	33531	OWENSTP1 115.0	33529	LAMMERS 115.0	1	1	290.0000

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 194-512+612
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected PG&E Bus Voltage Plots Adjacent to Fault

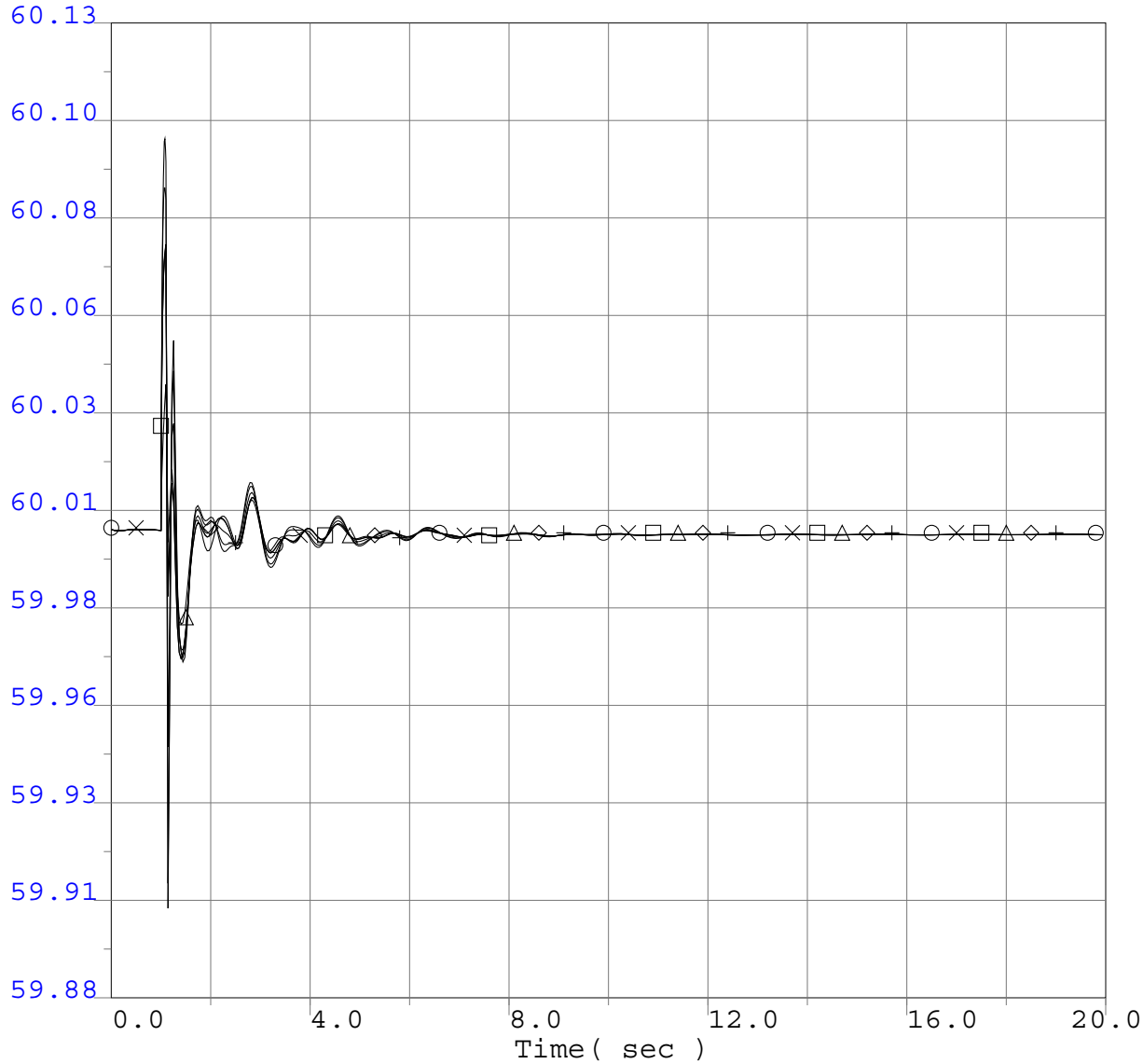


0.0000	vbus	33549	SCHULTE 115.0	0	0.0	"*"	1	1.0900
0.0000	vbus	33540	TESLA 115.0	0	0.0	"*"	1	1.0900
0.0000	vbul	33514	MANTECA 115.0	0	0.0	"*"	1	1.0900
0.0000	vbul	33529	LAMMERS 115.0	0	0.0	"*"	1	1.0900
0.0000	vbus	33528	KASSON 115.0	0	0.0	"*"	1	1.0900
0.0000	vbul	33518	VIERRA 115.0	0	0.0	"*"	1	1.0900

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 194-512+612
3 ph 6 cyc flt @ Manteca 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

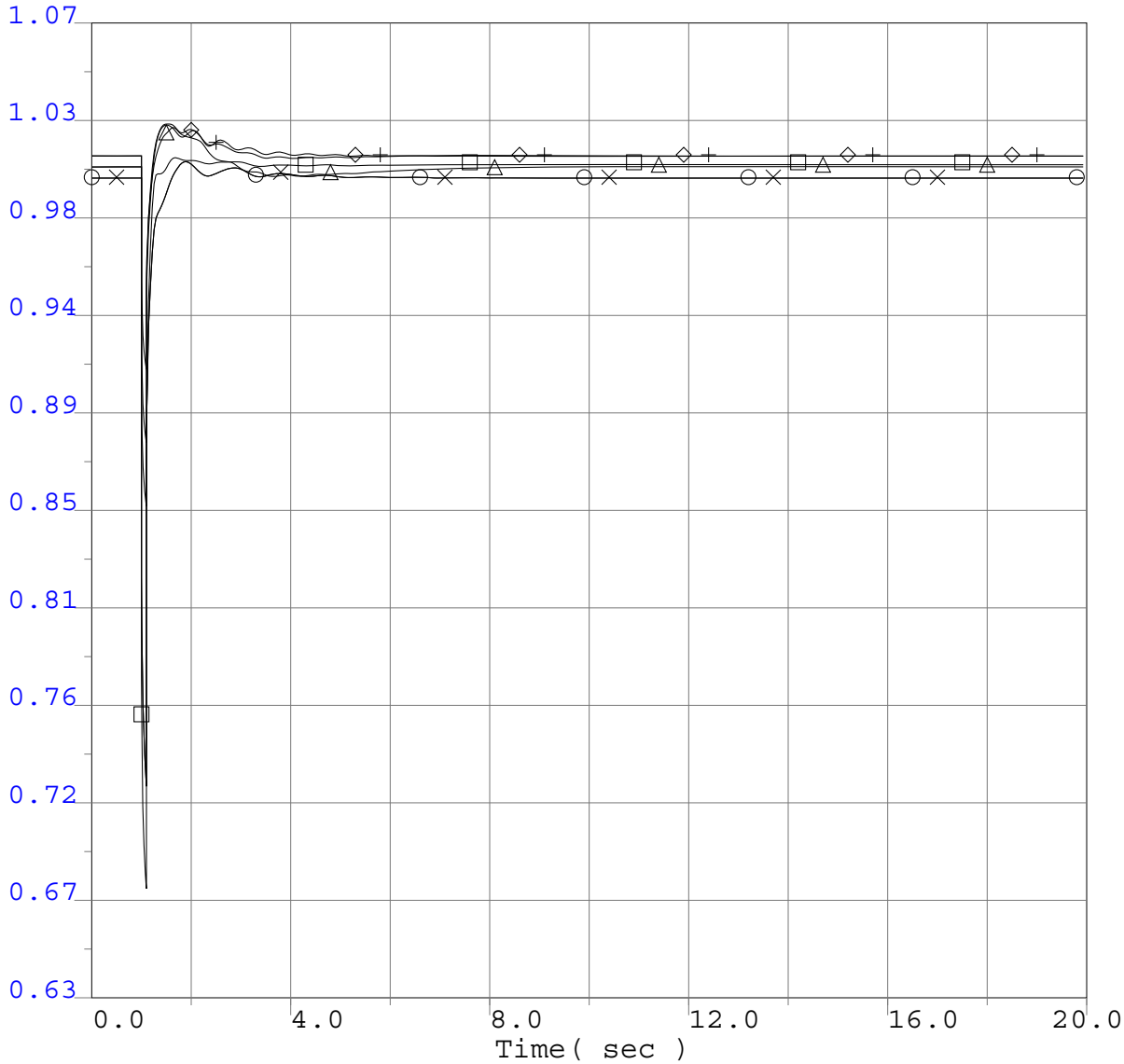
Selected PG&E Bus Frequency Plots Adjacent to Fault



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 194-512+612
3 ph 6 cyc flt @ Manteca 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Project Generator Terminal Voltages

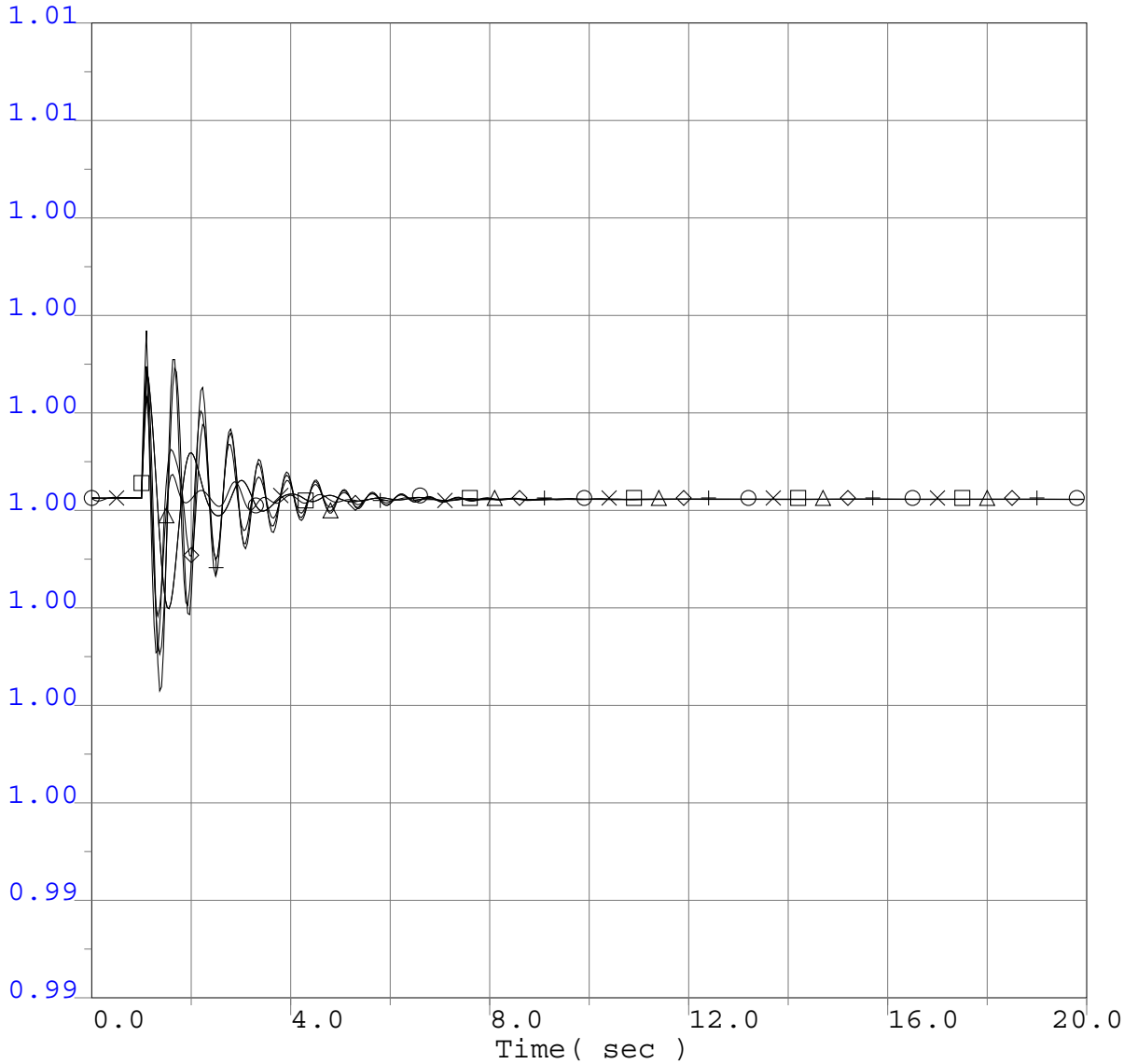


0.6300 vt	33805	GWFTRCY1	13.8	0	0.0 "1"	1	1.0700
0.6300 vt	33807	GWFTRCY2	13.8	0	0.0 "1"	1	1.0700
0.6300 vt	33809	Q268ST1	13.8	0	0.0 "1"	1	1.0700
0.6300 vt	33858	P0409CG2	13.8	0	0.0 "1"	1	1.0700
0.6300 vt	33808	SJ COGEN	13.8	0	0.0 "1"	1	1.0700
0.6300 vt	33810	SP CMPNY	13.8	0	0.0 "1"	1	1.0700

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 194-512+612
3 ph 6 cyc flt @ Manteca 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

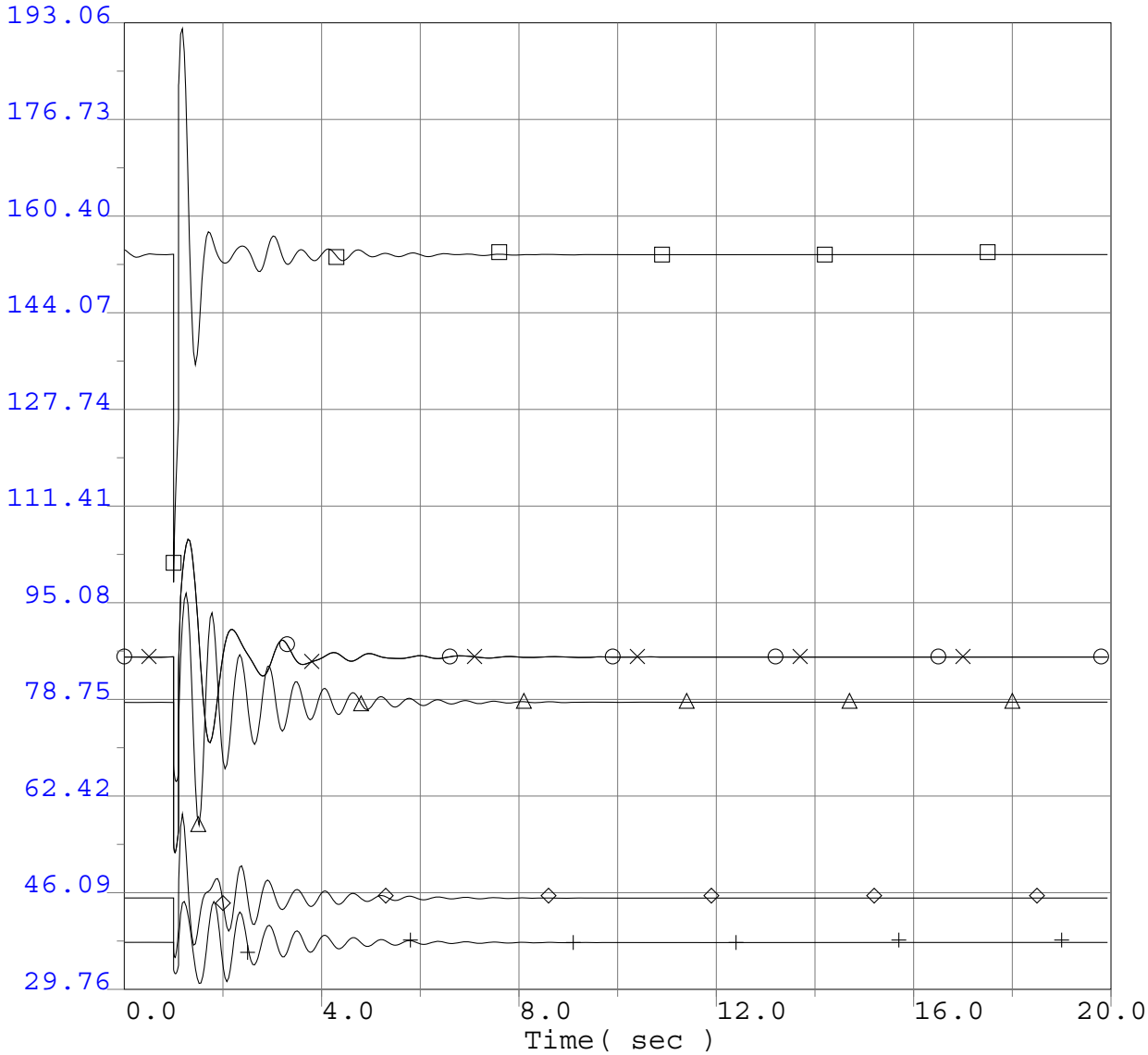
Project Generator Rotor Speed



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 194-512+612
3 ph 6 cyc flt @ Manteca 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Project Generator Terminal Power

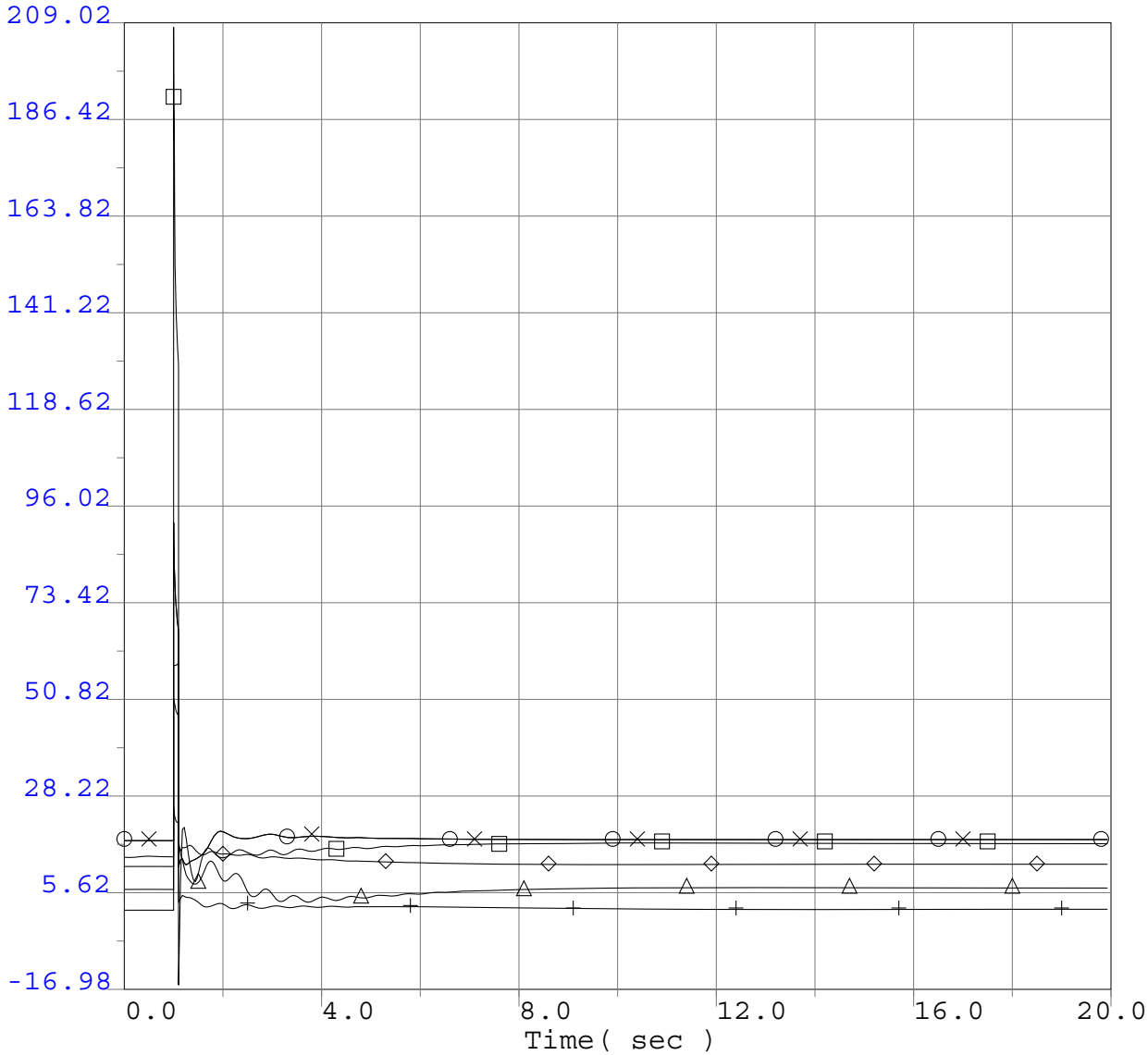


29.7600 pg	33805	GWFTRCY1	13.8	0	0.0 "1"	1	193.0600
29.7600 pg	33807	GWFTRCY2	13.8	0	0.0 "1"	1	193.0600
29.7600 pg	33809	Q268ST1	13.8	0	0.0 "1"	1	193.0600
29.7600 pg	33858	P0409CG2	13.8	0	0.0 "1"	1	193.0600
29.7600 pg	33808	SJ COGEN	13.8	0	0.0 "1"	1	193.0600
29.7600 pg	33810	SP CMPNY	13.8	0	0.0 "1"	1	193.0600

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 194-512+612
3 ph 6 cyc flt @ Manteca 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

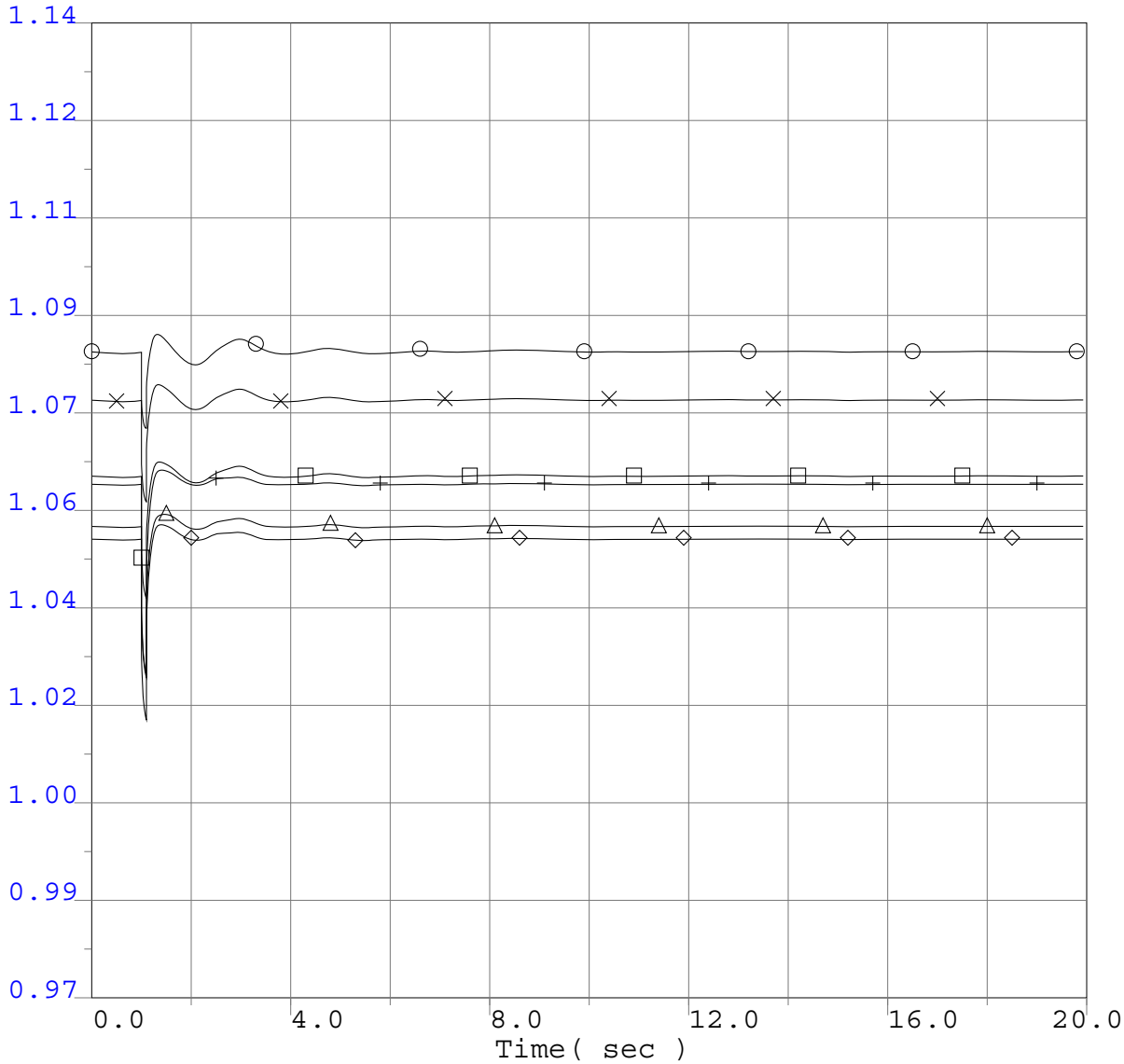
Project Generator Terminal Reactive Power



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 194-512+612
3 ph 6 cyc flt @ Manteca 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots

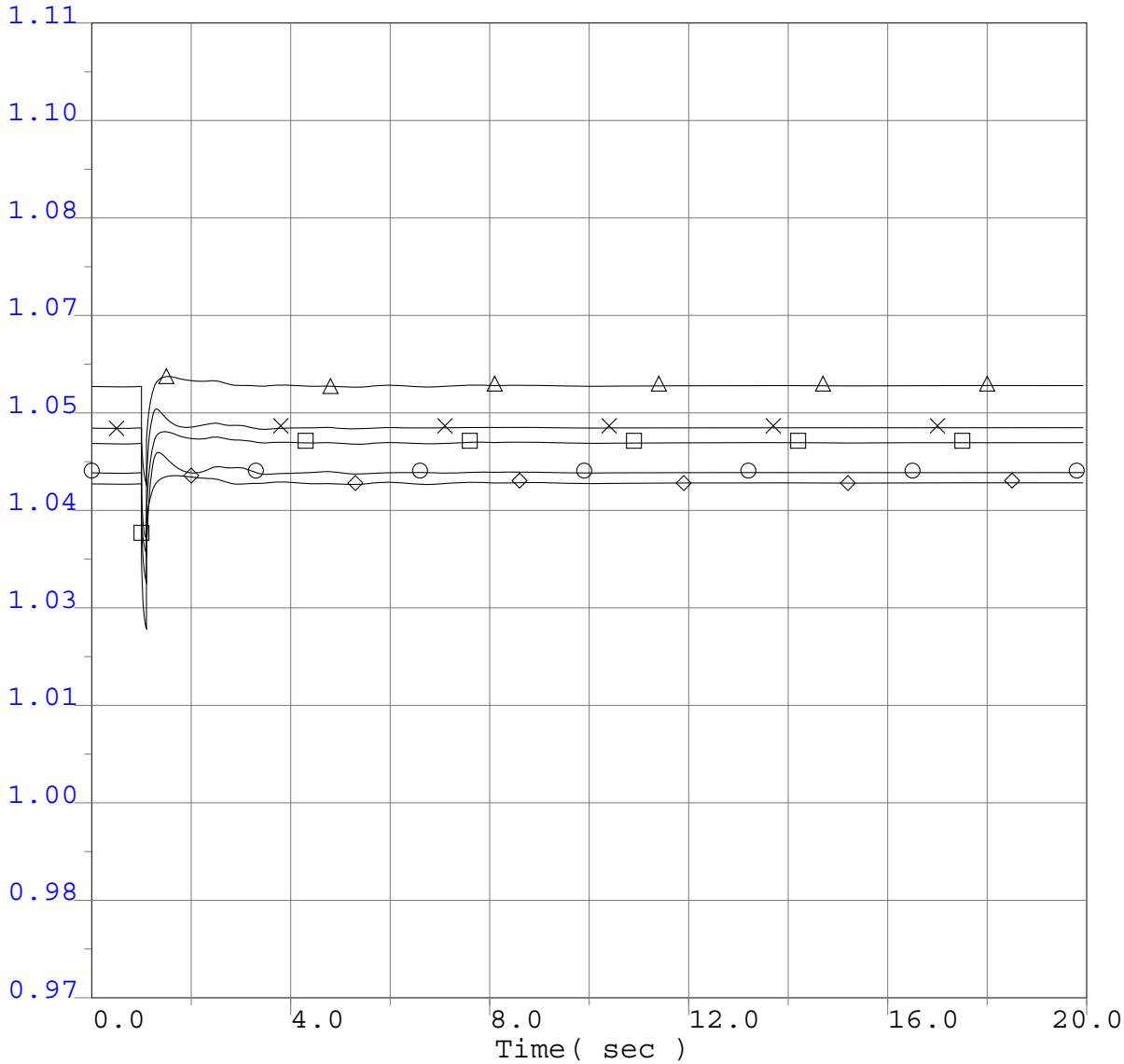


0.9700	vbus	40687	MALIN	500.0	0	0.0 "*"	1	1.1400
0.9700	vbus	30005	ROUND MT	500.0	0	0.0 "*"	1	1.1400
0.9700	vbus	30015	TABLE MT	500.0	0	0.0 "*"	1	1.1400
0.9700	vbus	30030	VACA-DIX	500.0	0	0.0 "*"	1	1.1400
0.9700	vbus	30040	TESLA	500.0	0	0.0 "*"	1	1.1400
0.9700	vbus	30035	TRACY	500.0	0	0.0 "*"	1	1.1400

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 194-512+612
3 ph 6 cyc flt @ Manteca 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots

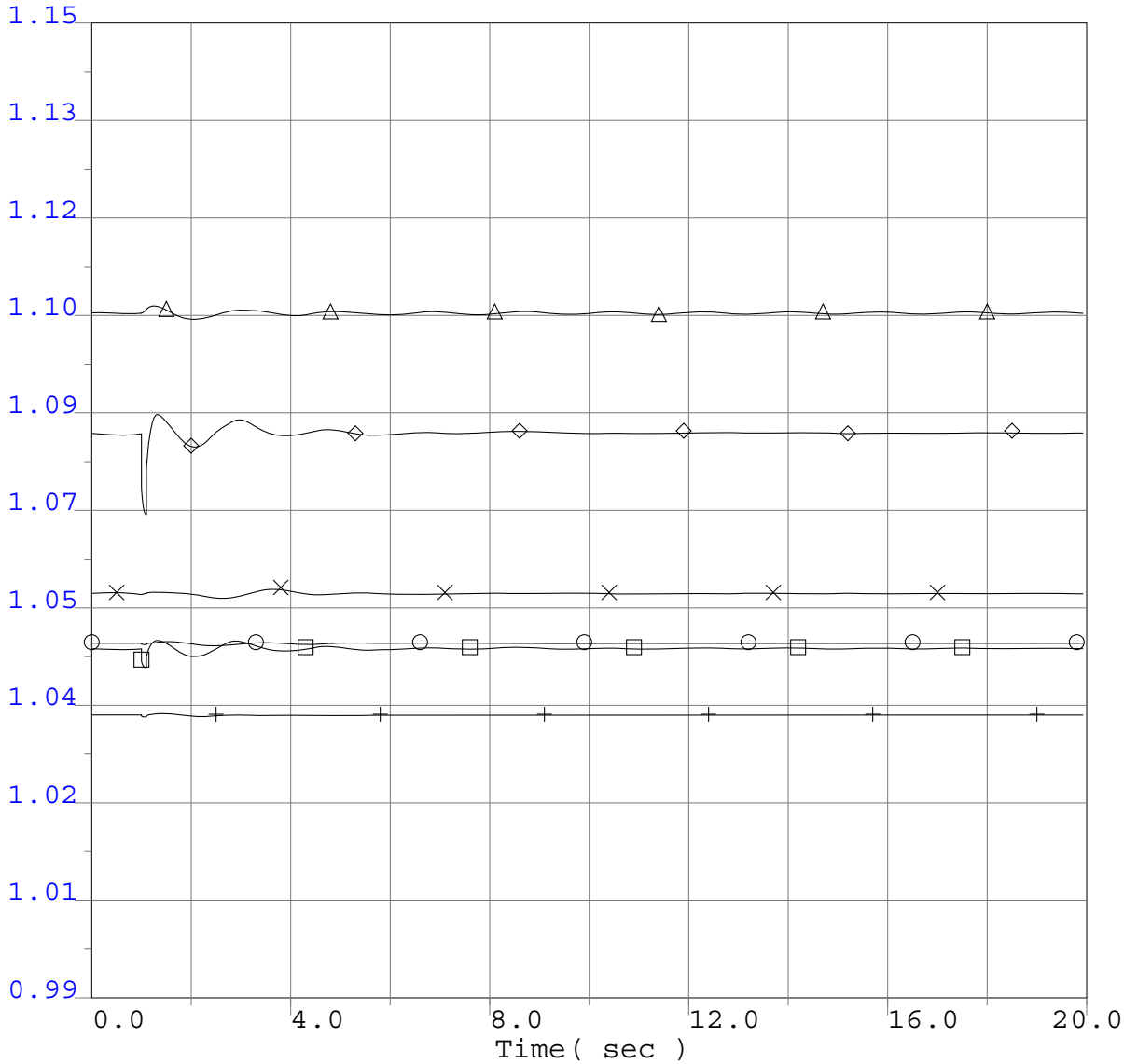


0.9700 vbus	30042	METCALF 500.0	0	0.0 "*"	1	1.1100
0.9700 vbus	30045	MOSSLAND 500.0	0	0.0 "*"	1	1.1100
0.9700 vbus	30050	LOSBANOS 500.0	0	0.0 "*"	1	1.1100
0.9700 vbus	30055	GATES 500.0	0	0.0 "*"	1	1.1100
0.9700 vbus	30060	MIDWAY 500.0	0	0.0 "*"	1	1.1100

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 194-512+612
3 ph 6 cyc flt @ Manteca 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots

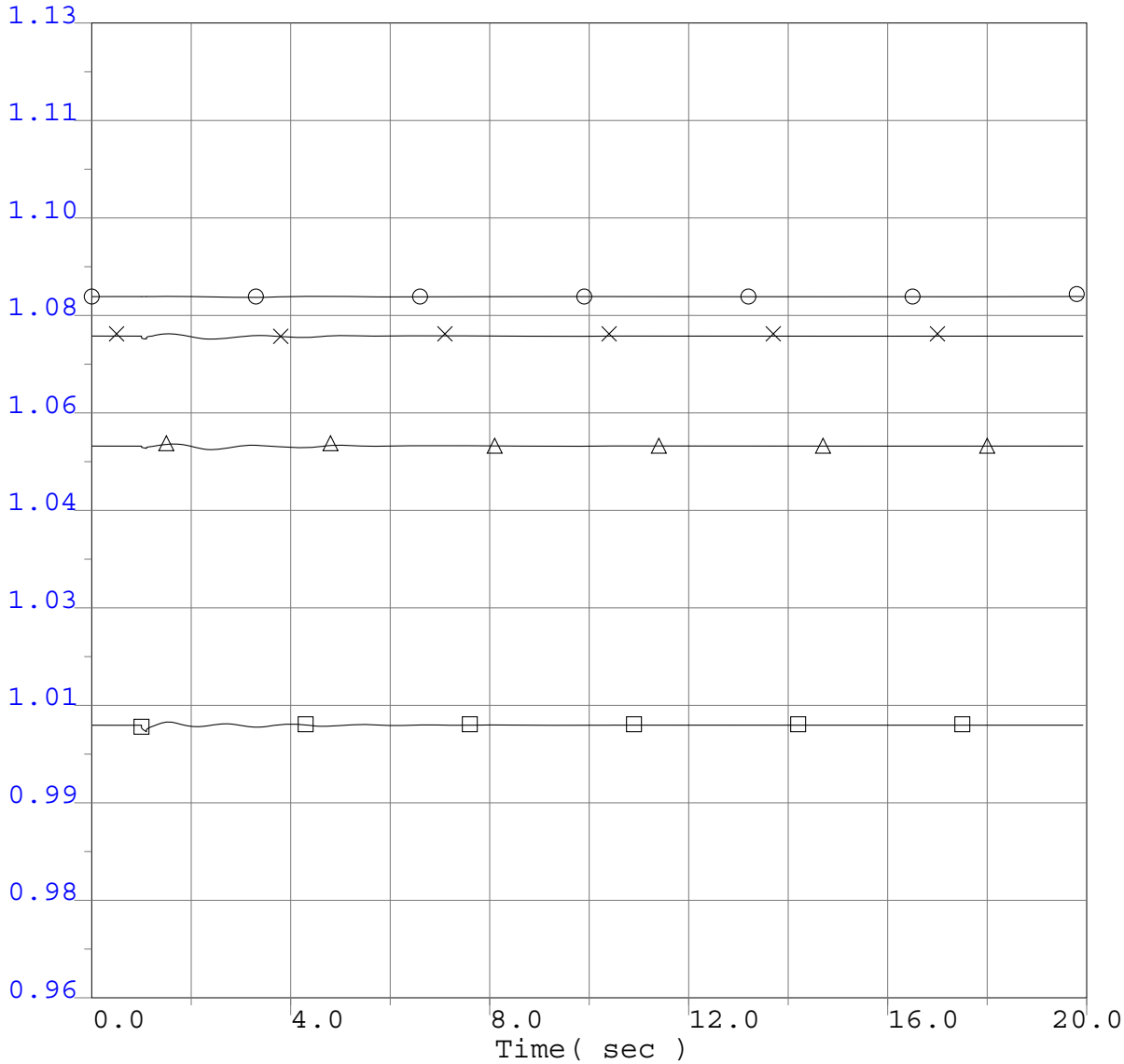


0.9900	vbus	14001	FOURCORN	500.0	0	0.0 "*"	1	1.1500
0.9900	vbus	50703	NIC500	500.0	0	0.0 "*"	1	1.1500
0.9900	vbus	60240	MIDPOINT	500.0	0	0.0 "*"	1	1.1500
0.9900	vbus	62012	TOWN2	500.0	0	0.0 "*"	1	1.1500
0.9900	vbus	40687	MALIN	500.0	0	0.0 "*"	1	1.1500
0.9900	vbus	66340	SIGURD	345.0	0	0.0 "*"	1	1.1500

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 194-512+612
3 ph 6 cyc flt @ Manteca 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots

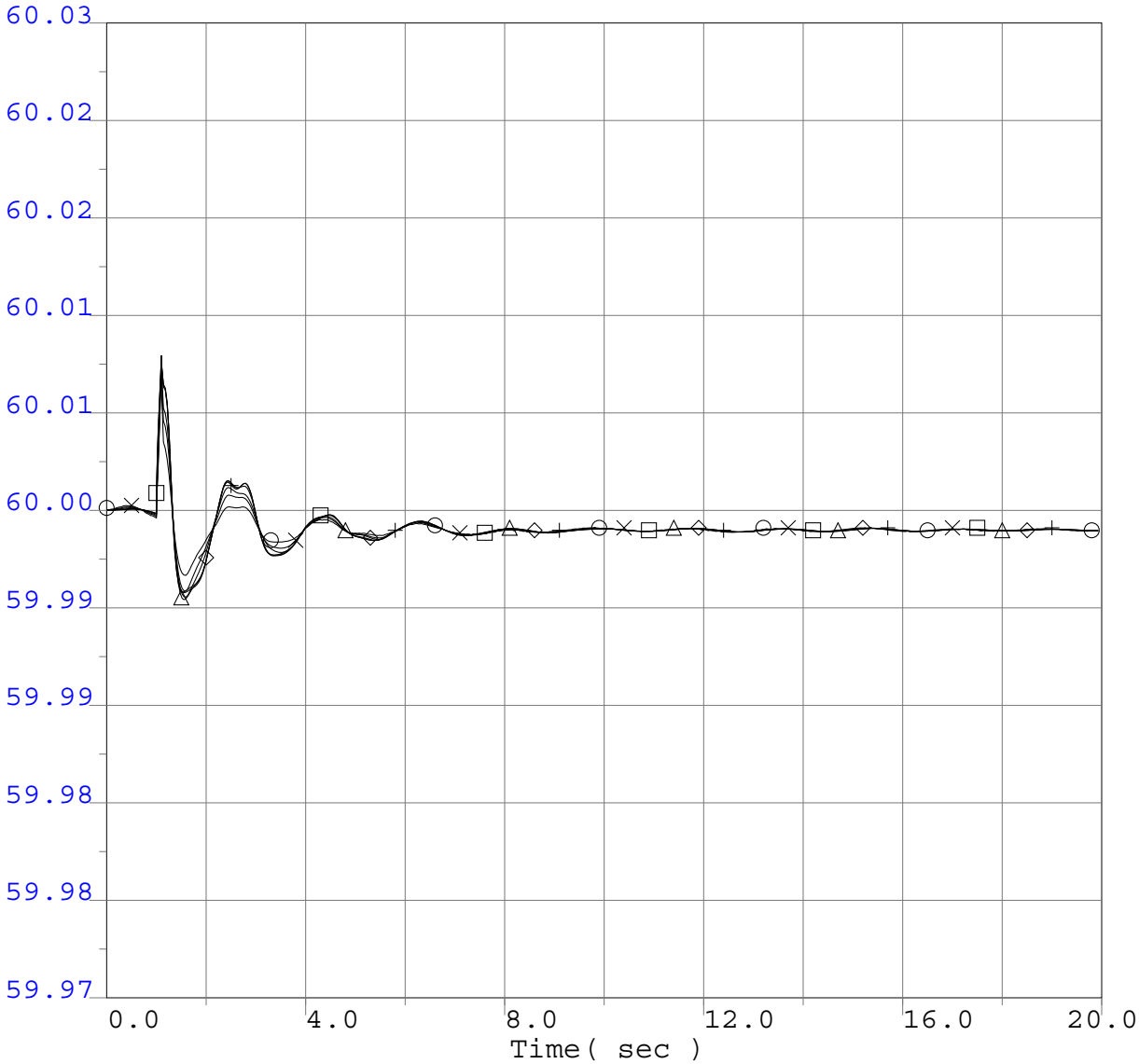


0.9600 vbul	54150	WILLESD9 240.0	0	0.0 "*"	1	1.1300
0.9600 vbus	14003	NAVAJO 500.0	0	0.0 "*"	1	1.1300
0.9600 vbus	24153	VESTAL 230.0	0	0.0 "*"	1	1.1300
0.9600 vbus	22360	IMPRLVLY 500.0	0	0.0 "*"	1	1.1300

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 194-512+612
3 ph 6 cyc flt @ Manteca 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

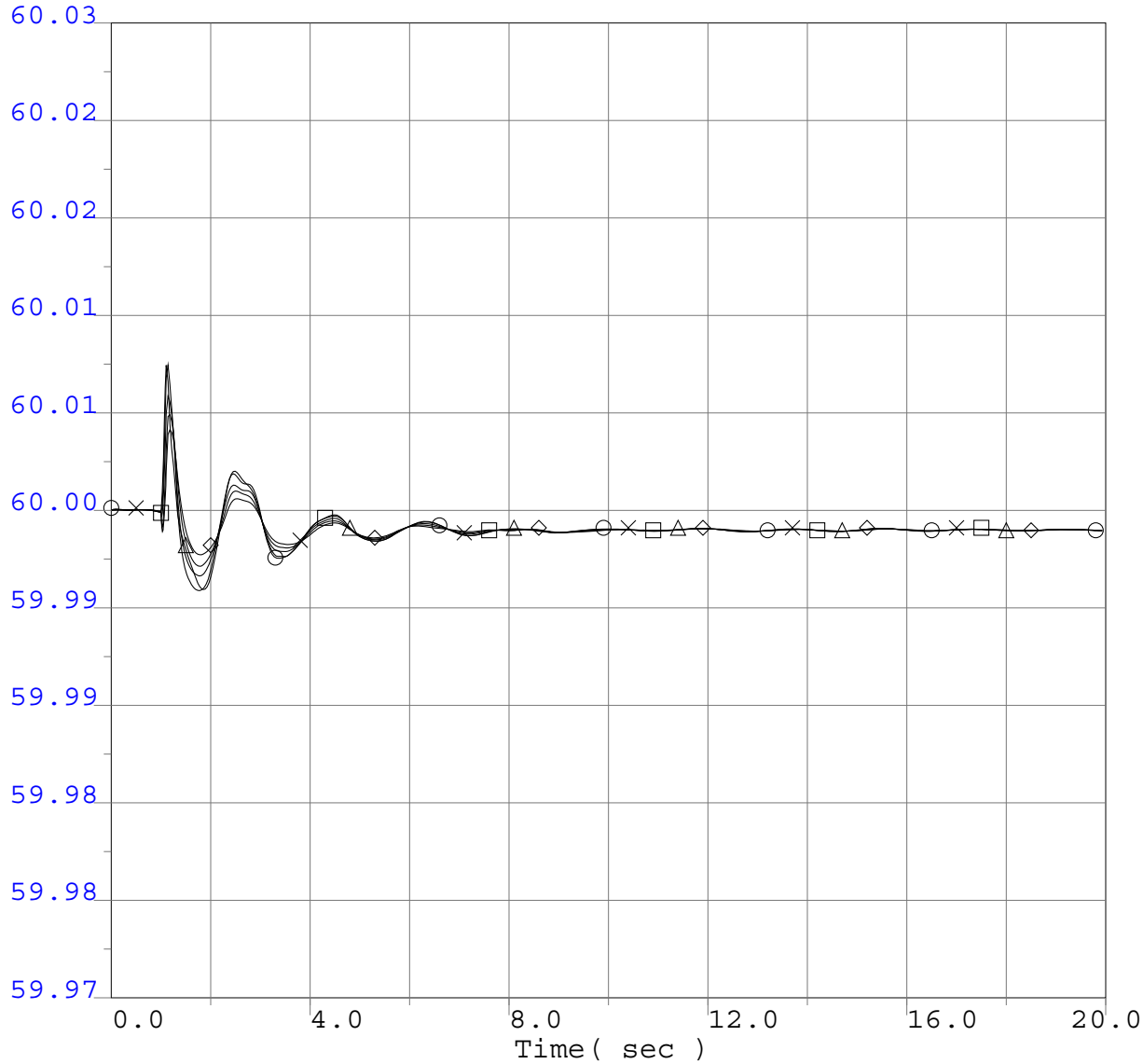
Selected WECC Bus Frequency Plots



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 194-512+612
3 ph 6 cyc flt @ Manteca 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected WECC Bus Frequency Plots

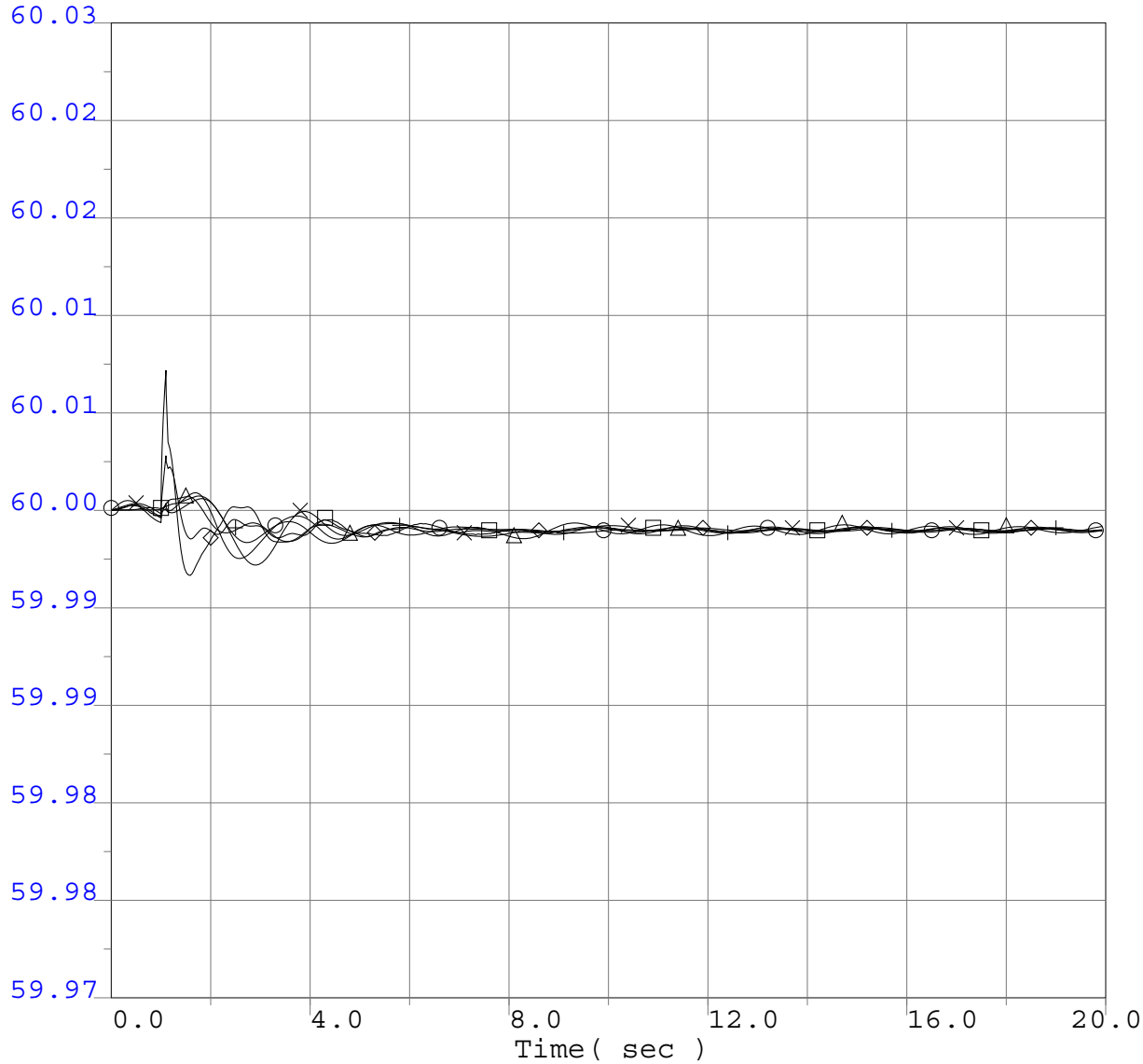


○	59.9700 fbus	30042	METCALF 500.0	0	0.0 "*"	1	60.0300
×	59.9700 fbus	30045	MOSSLAND 500.0	0	0.0 "*"	1	60.0300
□	59.9700 fbus	30050	LOSBANOS 500.0	0	0.0 "*"	1	60.0300
△	59.9700 fbus	30055	GATES 500.0	0	0.0 "*"	1	60.0300
◇	59.9700 fbus	30060	MIDWAY 500.0	0	0.0 "*"	1	60.0300

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 194-512+612
3 ph 6 cyc flt @ Manteca 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected WECC Bus Frequency Plots

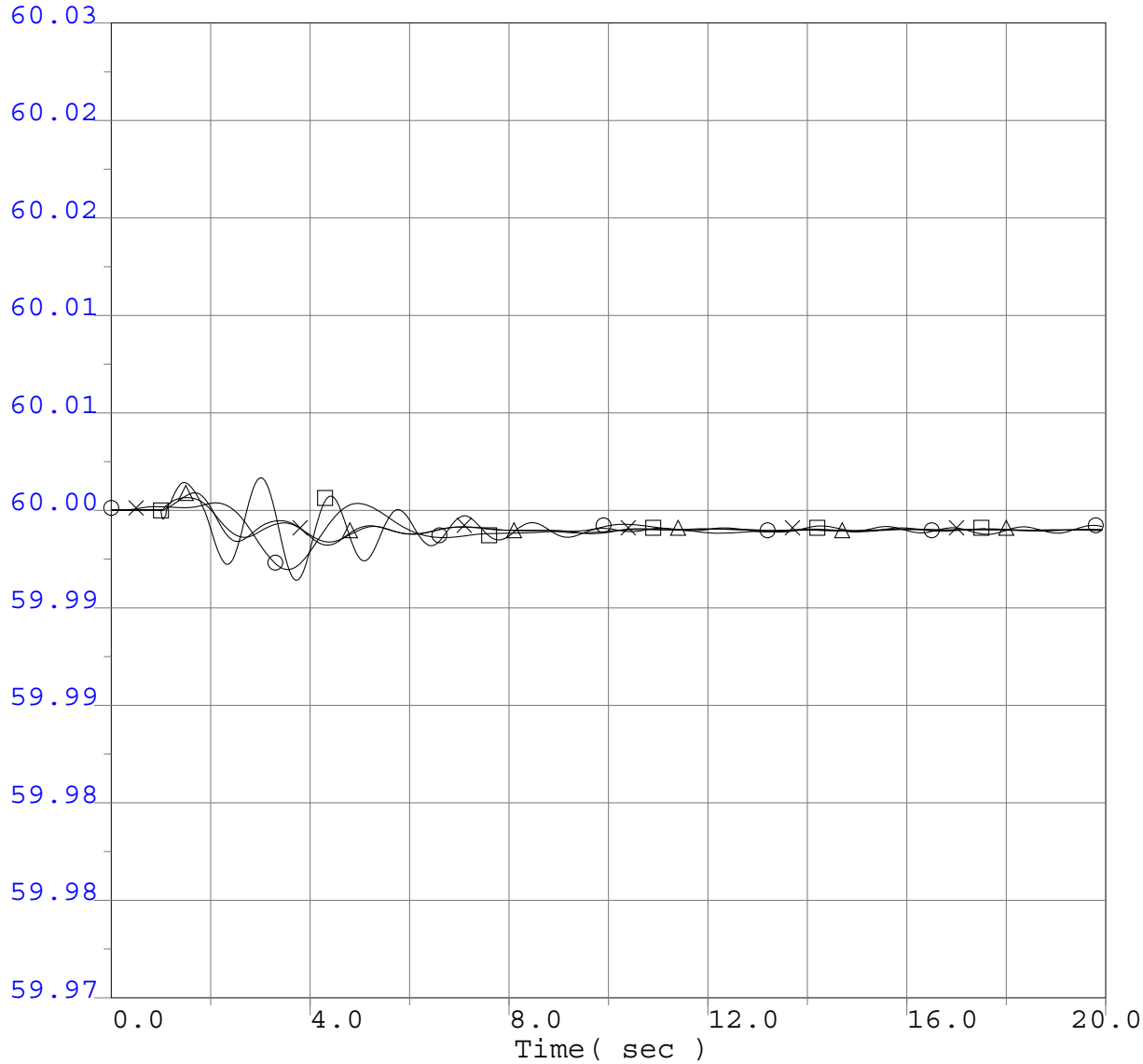


59.9700	fbus	14001	FOURCORN	500.0	0	0.0	"*"	1	60.0300
59.9700	fbus	50703	NIC500	500.0	0	0.0	"*"	1	60.0300
59.9700	fbus	60240	MIDPOINT	500.0	0	0.0	"*"	1	60.0300
59.9700	fbus	62012	TOWN2	500.0	0	0.0	"*"	1	60.0300
59.9700	fbus	40687	MALIN	500.0	0	0.0	"*"	1	60.0300
59.9700	fbus	66340	SIGURD	345.0	0	0.0	"*"	1	60.0300

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 194-512+612
3 ph 6 cyc flt @ Manteca 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected WECC Bus Frequency Plots

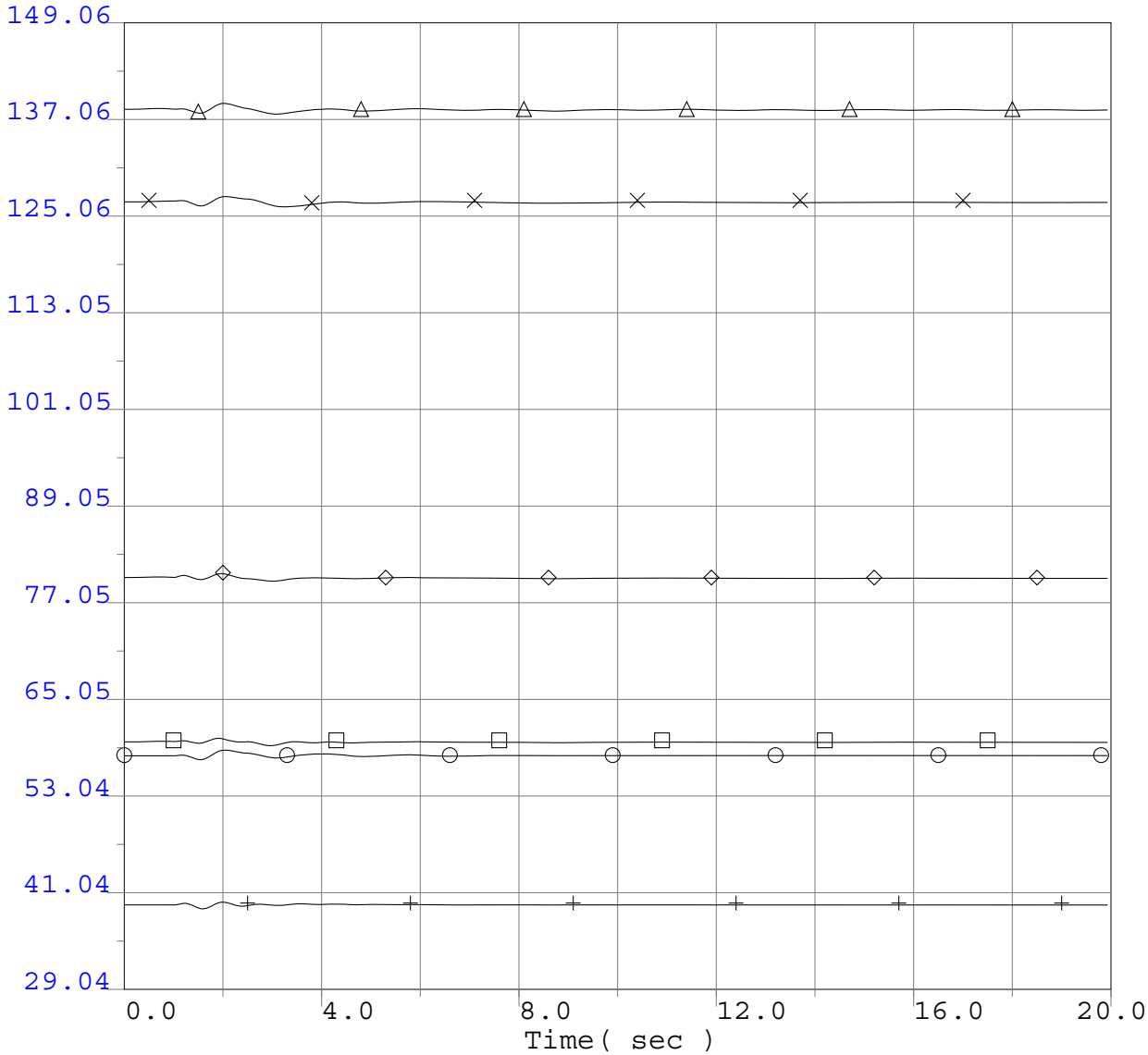


○	59.9700 fbul	54150	WILLESD9 240.0	0	0.0 "*"	1	60.0300
⊗	59.9700 fbus	14003	NAVAJO 500.0	0	0.0 "*"	1	60.0300
□	59.9700 fbus	24153	VESTAL 230.0	0	0.0 "*"	1	60.0300
△	59.9700 fbus	22360	IMPRLVLY 500.0	0	0.0 "*"	1	60.0300

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 194-512+612
3 ph 6 cyc flt @ Manteca 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

WECC Generator Rotor Angle



29.0400 ang	14914	FCNGN4CC	22.0	0	0.0 "H"	1	149.0600
29.0400 ang	50499	GMS G5	13.8	0	0.0 "1"	1	149.0600
29.0400 ang	60100	BRWNL 5	13.8	0	0.0 "1"	1	149.0600
29.0400 ang	62048	COLSTP 3	26.0	0	0.0 "1"	1	149.0600
29.0400 ang	44071	JDA 0102	13.8	0	0.0"01"	1	149.0600
29.0400 ang	36411	DIABLO 1	25.0	0	0.0 "1"	1	149.0600

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
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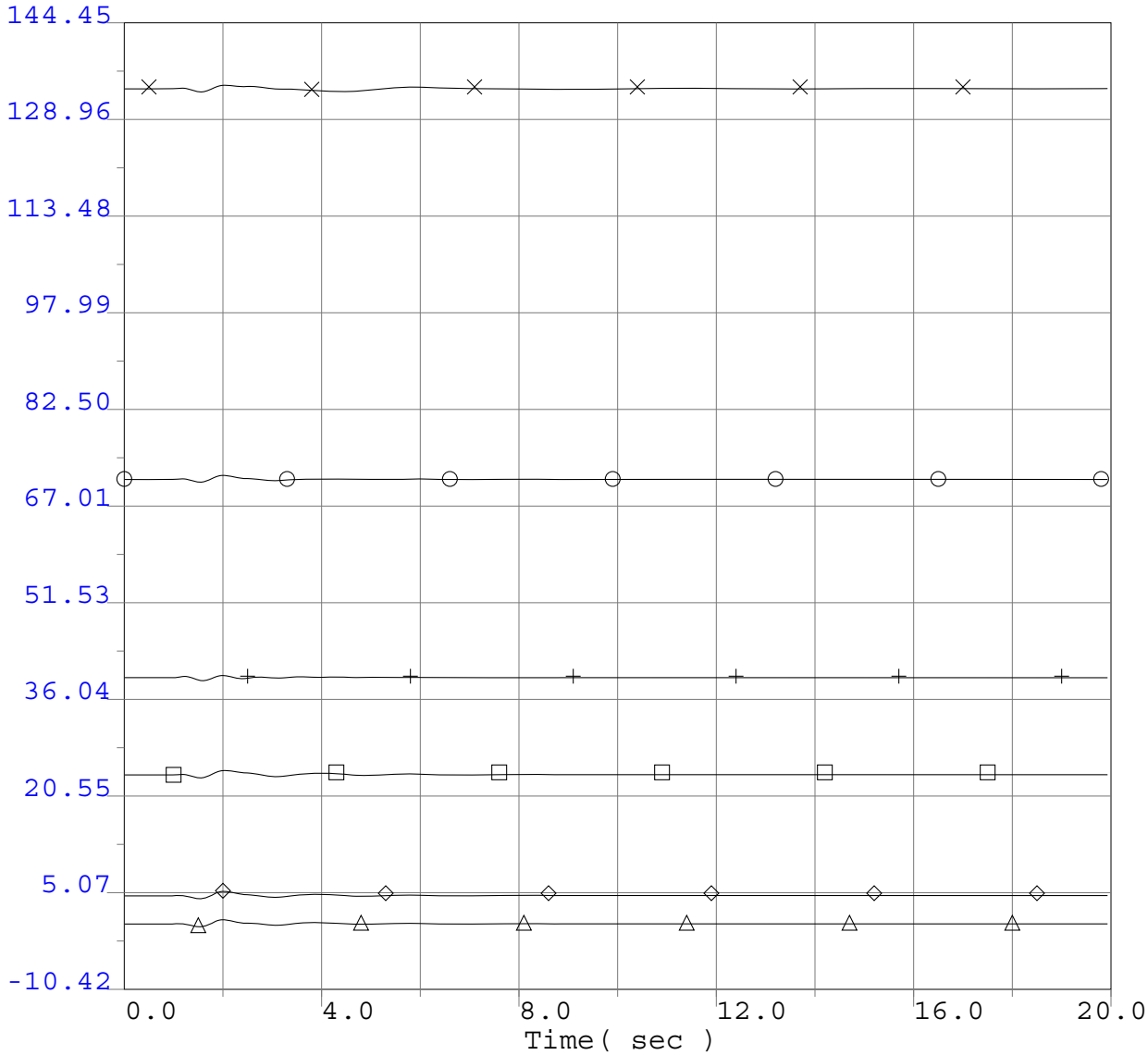
3 ph 6 cyc flt @ Manteca 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

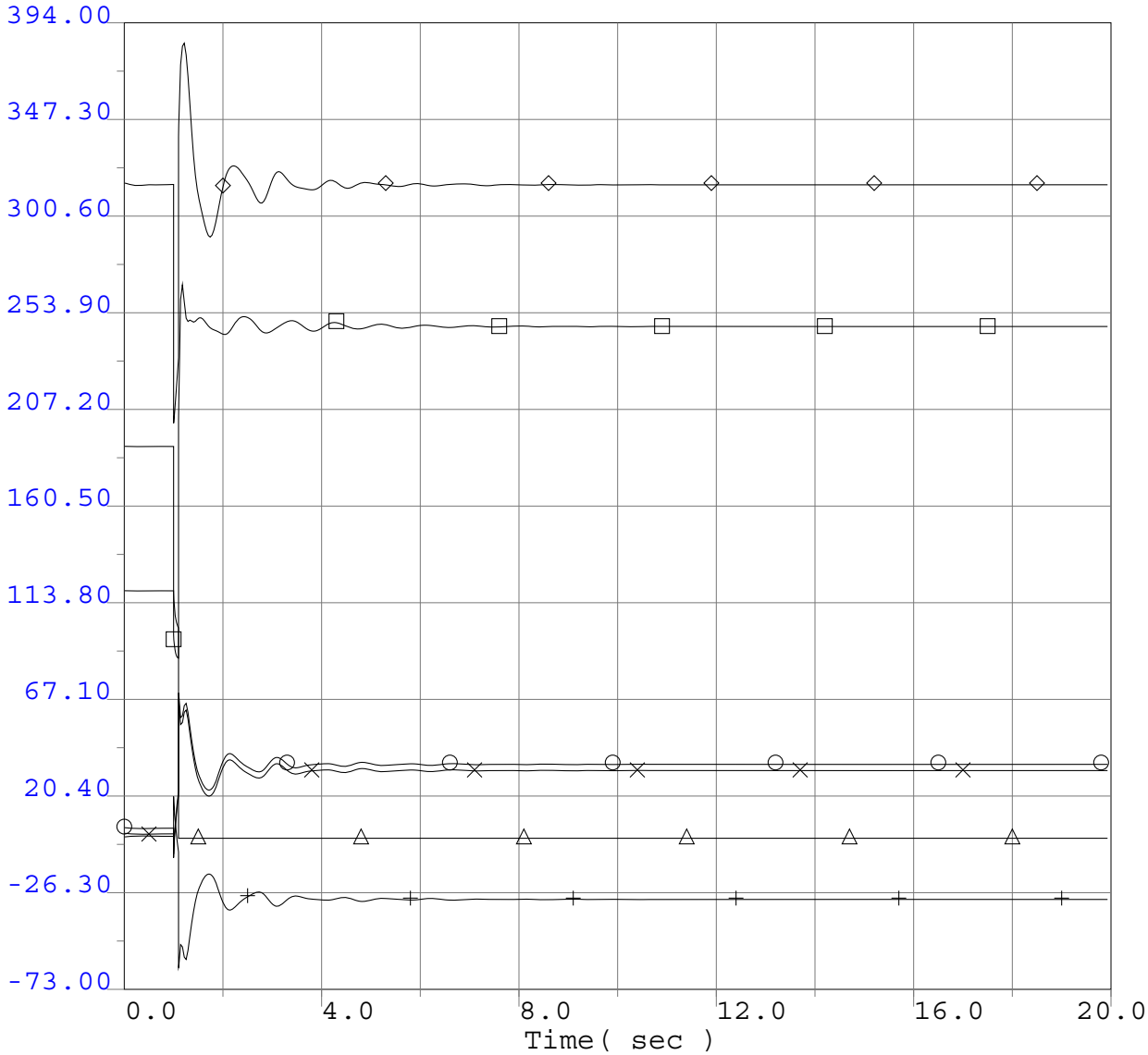
WECC Generator Rotor Angle



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 194-512+612
3 ph 6 cyc flt @ Manteca 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

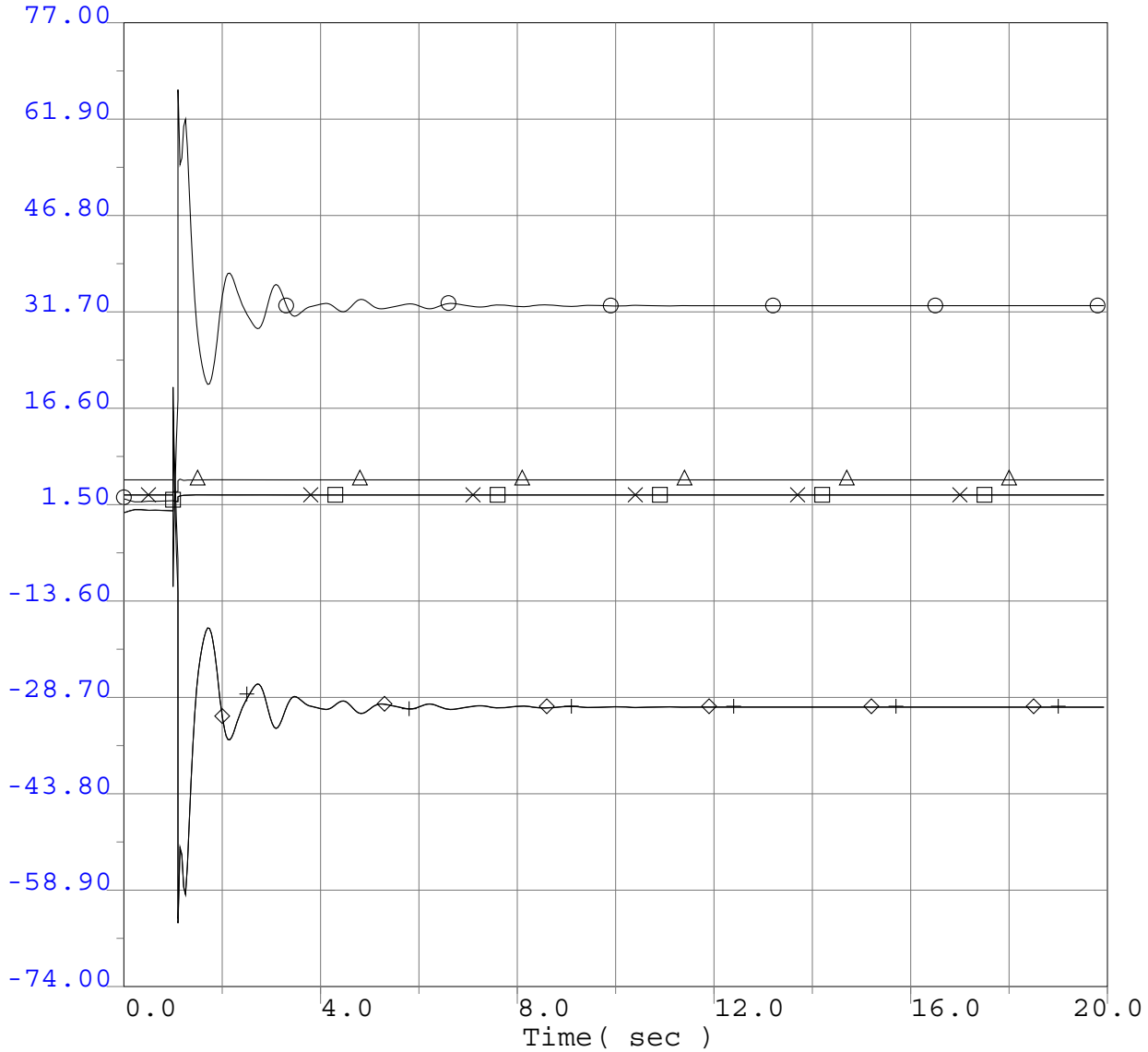
Selected PG&E Transmission Line Flows (MW)



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 194-512+612
3 ph 6 cyc flt @ Manteca 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected PG&E Transmission Line Flows (MW)

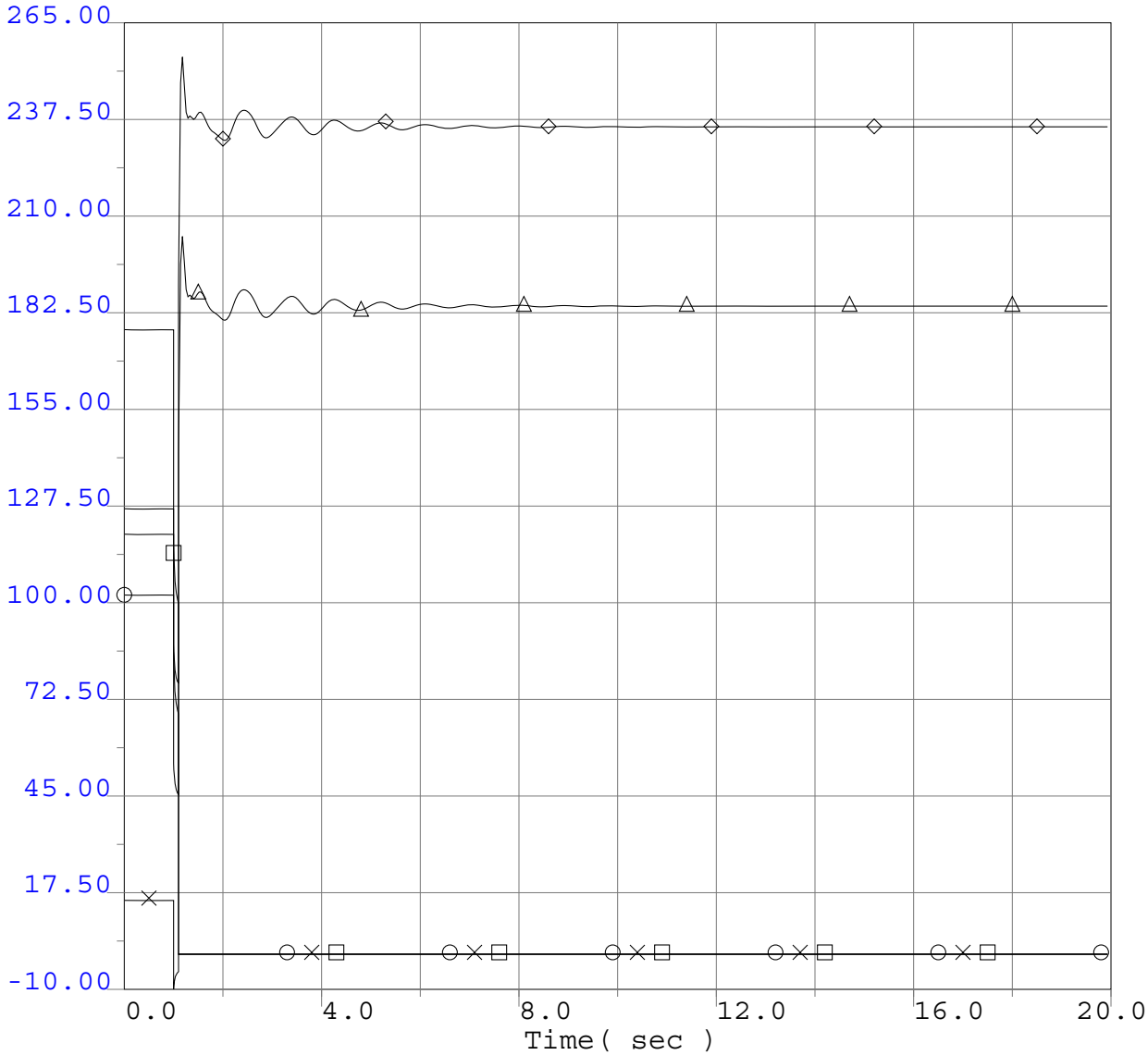


○	-74.0000 pbr	33535	SFWY_TP2 115.0	33543	AEC_TP2 115.0	1	1	77.0000
⊗	-74.0000 pbr	33543	AEC_TP2 115.0	33545	AEC_JCT 115.0	1	1	77.0000
□	-74.0000 pbr	33545	AEC_JCT 115.0	33547	AEC_300 115.0	1	1	77.0000
△	-74.0000 pbr	33537	SFWY_TP1 115.0	33534	SAFEWAY 115.0	1	1	77.0000
◇	-74.0000 pbr	33541	AEC_TP1 115.0	33537	SFWY_TP1 115.0	1	1	77.0000
+	-74.0000 pbr	33540	TESLA 115.0	33541	AEC_TP1 115.0	1	1	77.0000

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 194-512+612
3 ph 6 cyc flt @ Manteca 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected PG&E Transmission Line Flows (MW)

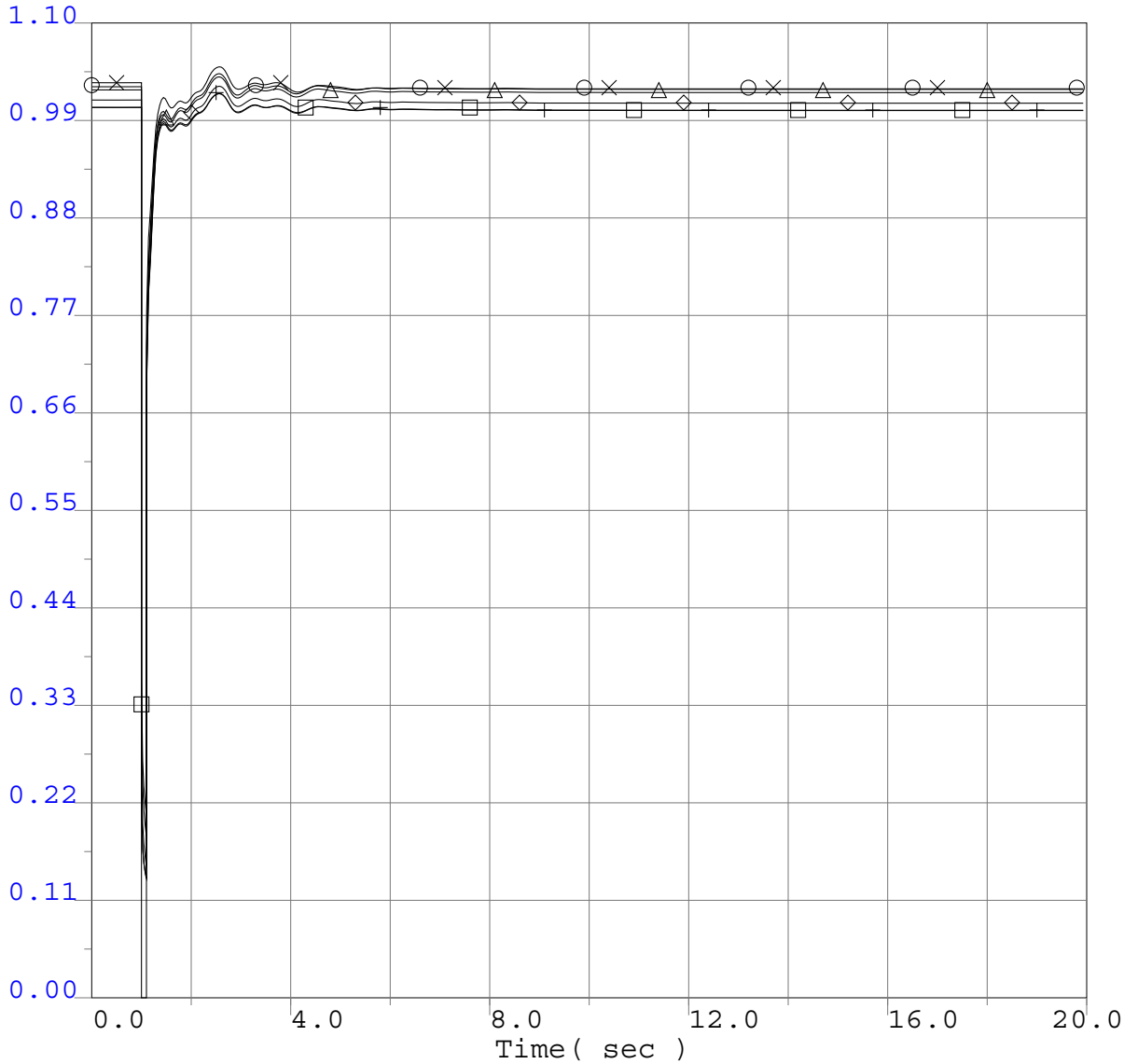


-10.0000	pbr	33526	KSSN-JC1	115.0	33514	MANTECA	115.0	1	1	265.0000
-10.0000	pbr	33526	KSSN-JC1	115.0	33528	KASSON	115.0	1	1	265.0000
-10.0000	pbr	33533	OWENSTP2	115.0	33526	KSSN-JC1	115.0	1	1	265.0000
-10.0000	pbr	33529	LAMMERS	115.0	33528	KASSON	115.0	1	1	265.0000
-10.0000	pbr	33531	OWENSTP1	115.0	33529	LAMMERS	115.0	1	1	265.0000

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte 115kV line outage; Breakers 194-512+612
3 ph 6 cyc flt @ Manteca 115kV bus & clr Manteca-Schulte 115kV line

Q268 Project Interconnection System Impact Study

Selected PG&E Bus Voltage Plots Adjacent to Fault

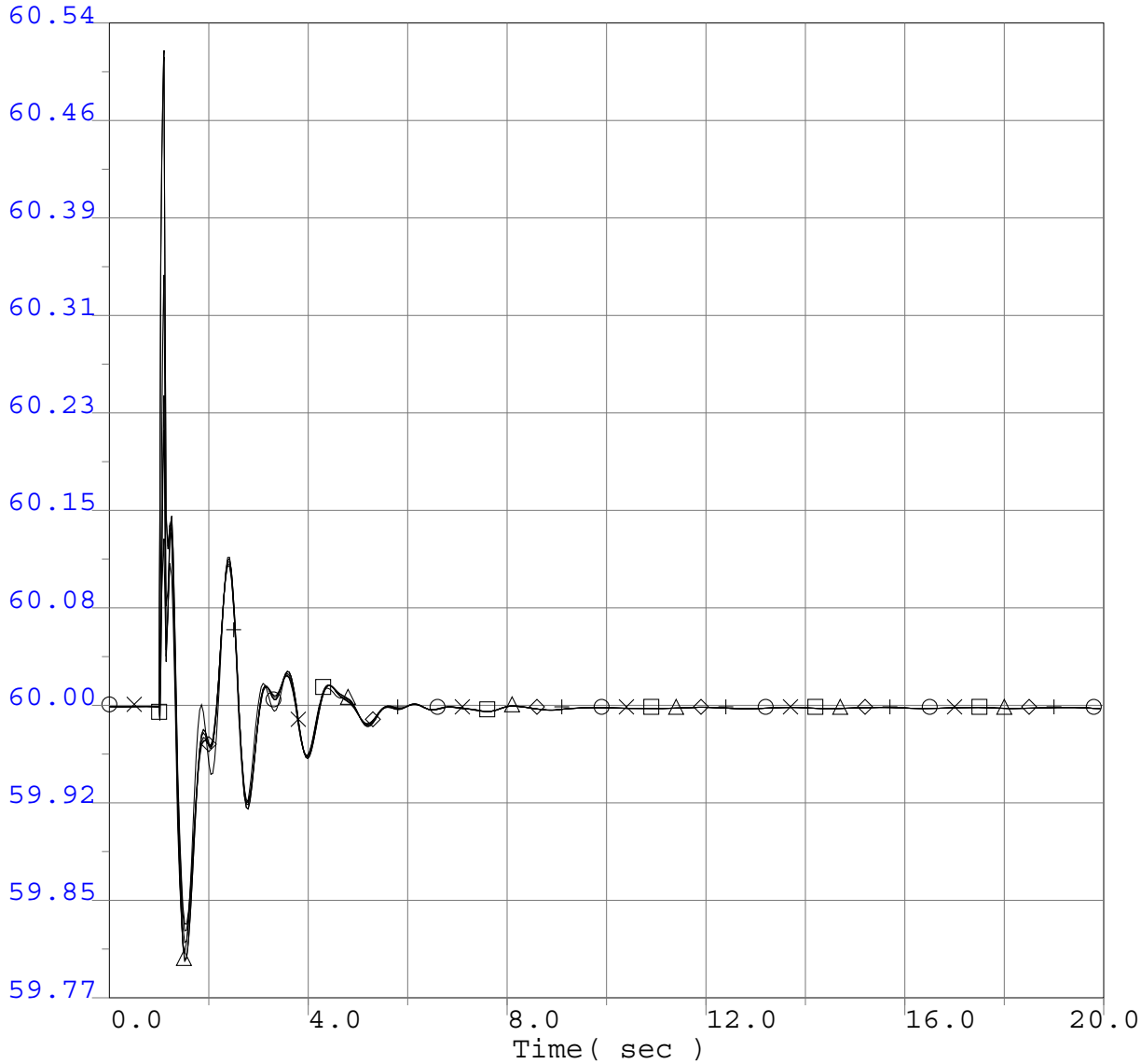


0.0000	vbus	33549	SCHULTE 115.0	0	0.0	"*"	1	1.1000
0.0000	vbus	33540	TESLA 115.0	0	0.0	"*"	1	1.1000
0.0000	vbul	33514	MANTECA 115.0	0	0.0	"*"	1	1.1000
0.0000	vbul	33529	LAMMERS 115.0	0	0.0	"*"	1	1.1000
0.0000	vbus	33528	KASSON 115.0	0	0.0	"*"	1	1.1000
0.0000	vbul	33518	VIERRA 115.0	0	0.0	"*"	1	1.1000

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla 115 bus 1 outage
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla 115kV bus 1

Q268 Project Interconnection System Impact Study

Selected PG&E Bus Frequency Plots Adjacent to Fault

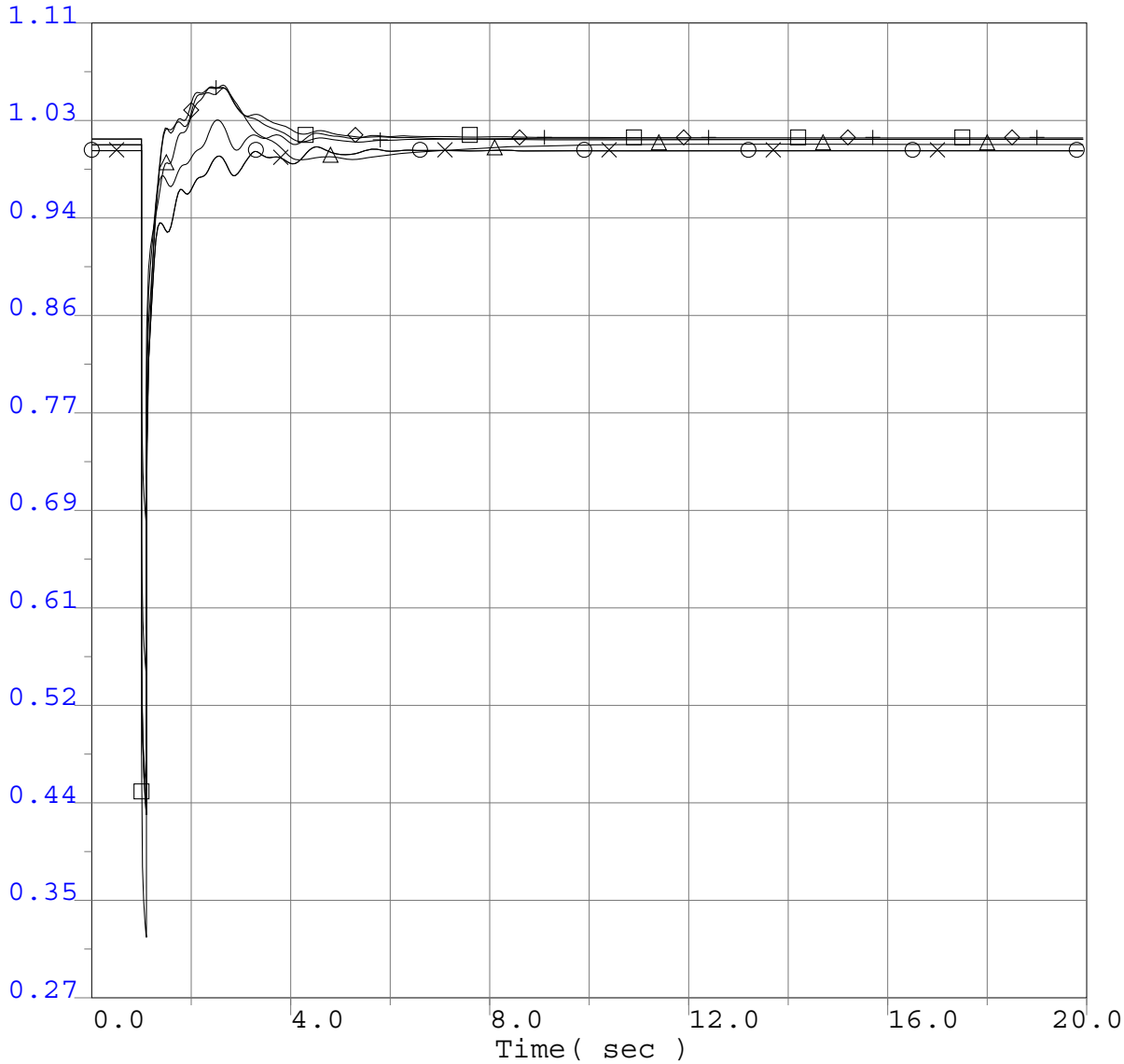


○	59.7700	fbus	33549	SCHULTE 115.0	0	0.0 "*"	1	60.5400
×	59.7700	fbus	33540	TESLA 115.0	0	0.0 "*"	1	60.5400
□	59.7700	fbul	33514	MANTECA 115.0	0	0.0 "*"	1	60.5400
△	59.7700	fbul	33529	LAMMERS 115.0	0	0.0 "*"	1	60.5400
◇	59.7700	fbus	33528	KASSON 115.0	0	0.0 "*"	1	60.5400
+	59.7700	fbul	33518	VIERRA 115.0	0	0.0 "*"	1	60.5400

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla 115 bus 1 outage
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla 115kV bus 1

Q268 Project Interconnection System Impact Study

Project Generator Terminal Voltages

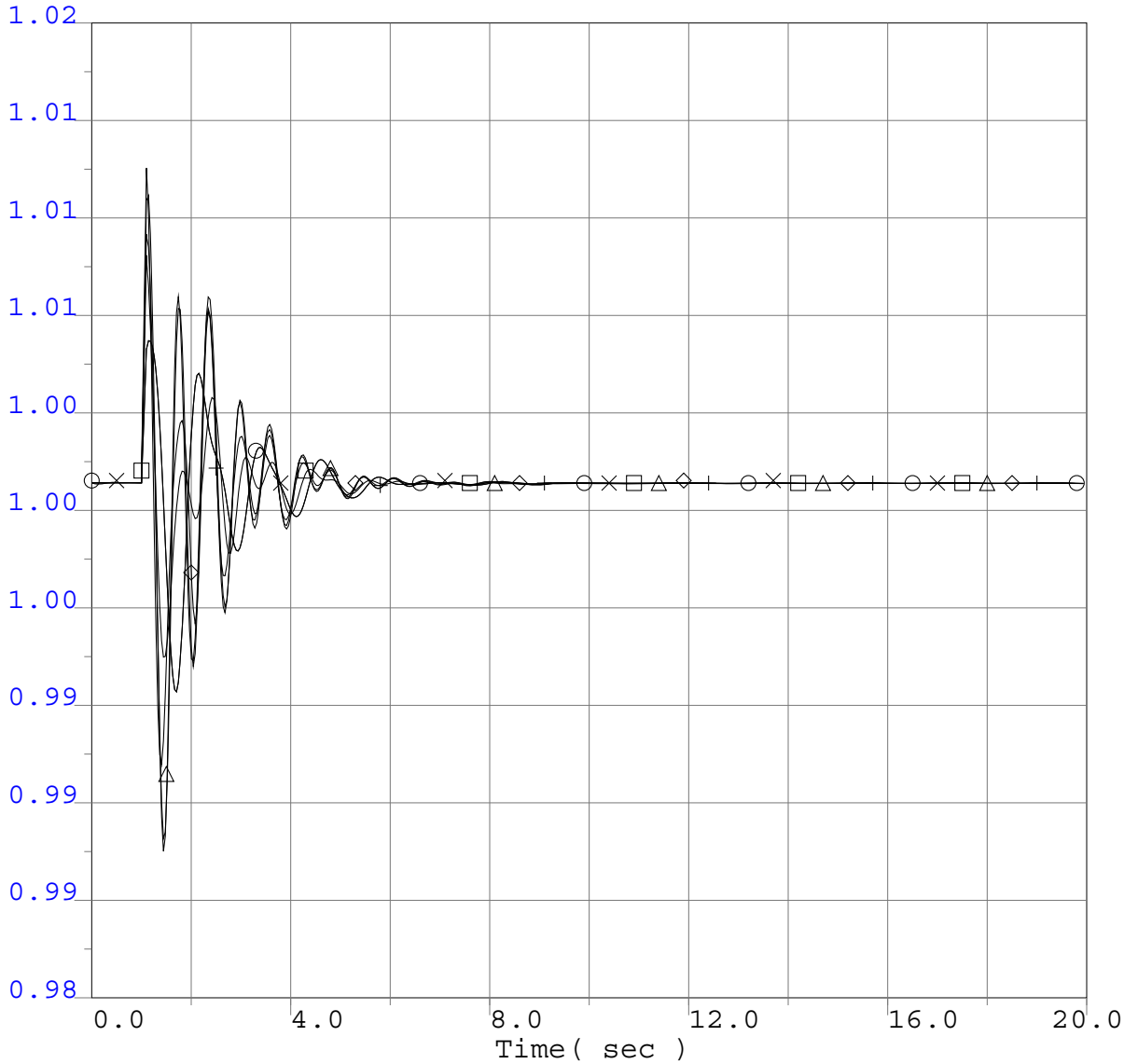


0.2700 vt	33805	GWFTRCY1	13.8	0	0.0 "1"	1	1.1100
0.2700 vt	33807	GWFTRCY2	13.8	0	0.0 "1"	1	1.1100
0.2700 vt	33809	Q268ST1	13.8	0	0.0 "1"	1	1.1100
0.2700 vt	33858	P0409CG2	13.8	0	0.0 "1"	1	1.1100
0.2700 vt	33808	SJ COGEN	13.8	0	0.0 "1"	1	1.1100
0.2700 vt	33810	SP CMPNY	13.8	0	0.0 "1"	1	1.1100

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla 115 bus 1 outage
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla 115kV bus 1

Q268 Project Interconnection System Impact Study

Project Generator Rotor Speed

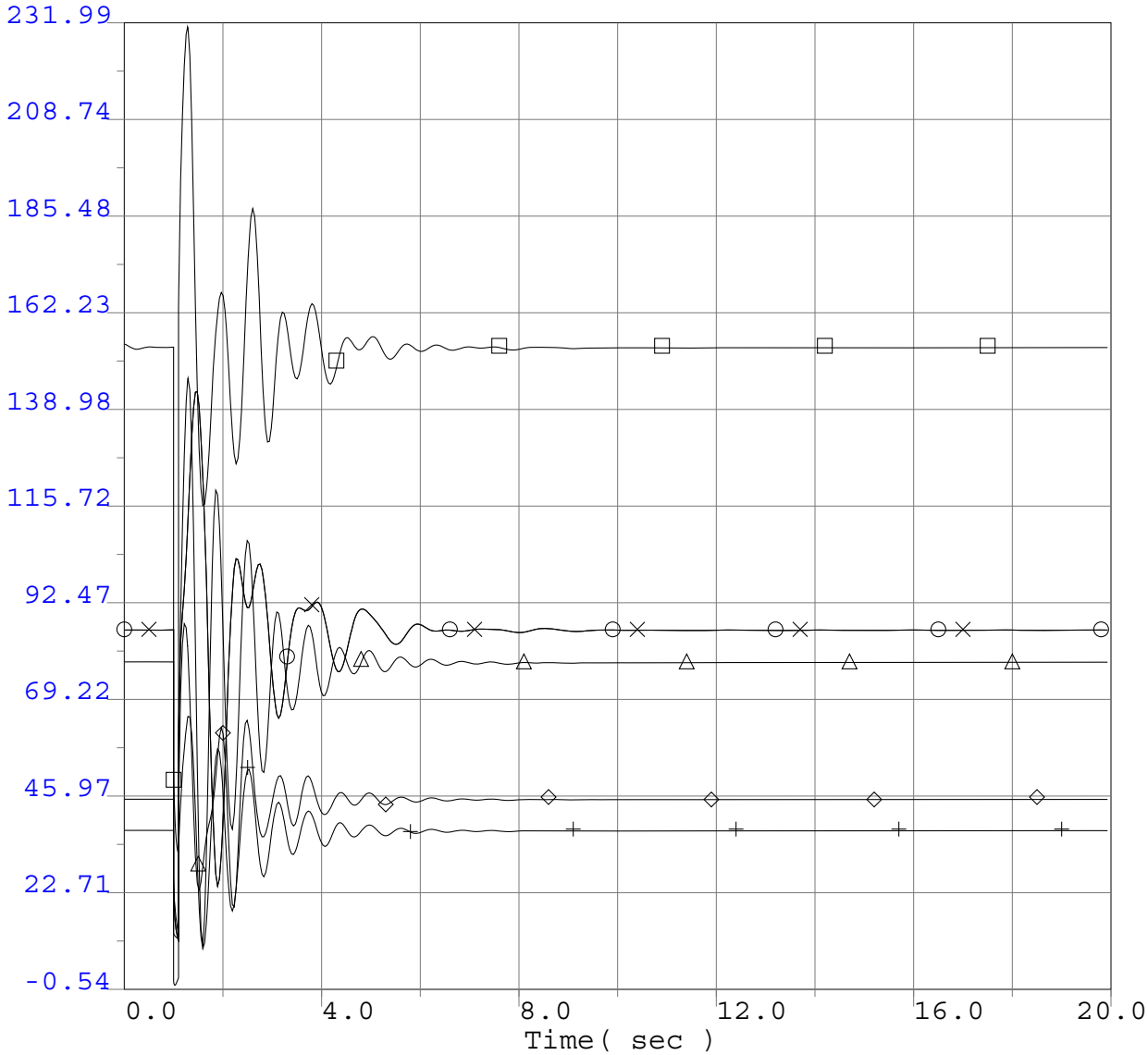


0.9823 spd	33805	GWFTRCY1	13.8	0	0.0 "1"	1	1.0158
0.9823 spd	33807	GWFTRCY2	13.8	0	0.0 "1"	1	1.0158
0.9823 spd	33809	Q268ST1	13.8	0	0.0 "1"	1	1.0158
0.9823 spd	33858	P0409CG2	13.8	0	0.0 "1"	1	1.0158
0.9823 spd	33808	SJ COGEN	13.8	0	0.0 "1"	1	1.0158
0.9823 spd	33810	SP CMPNY	13.8	0	0.0 "1"	1	1.0158

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla 115 bus 1 outage
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla 115kV bus 1

Q268 Project Interconnection System Impact Study

Project Generator Terminal Power

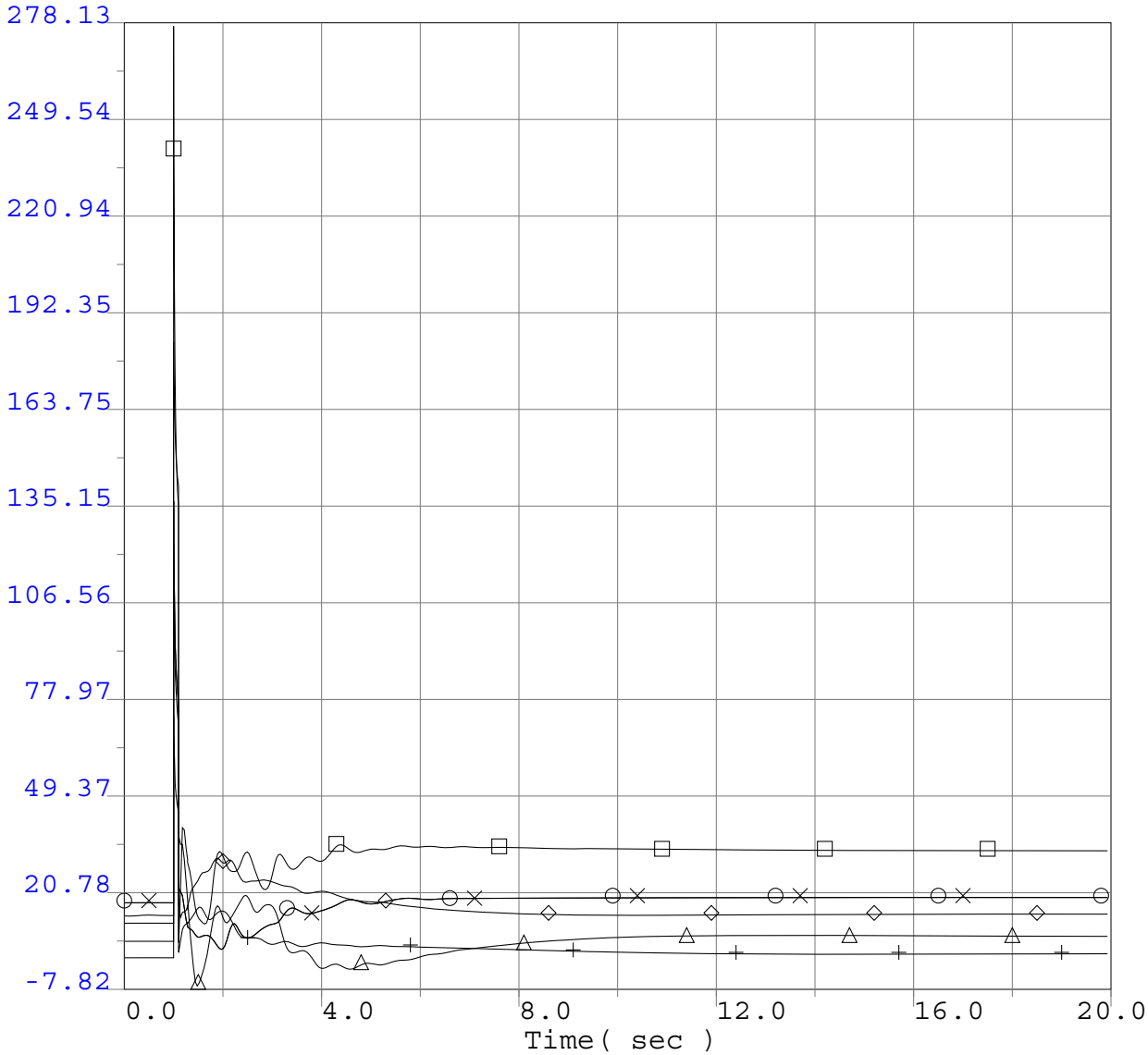


-0.5400 pg	33805	GWFTRCY1	13.8	0	0.0 "1"	1	231.9900
-0.5400 pg	33807	GWFTRCY2	13.8	0	0.0 "1"	1	231.9900
-0.5400 pg	33809	Q268ST1	13.8	0	0.0 "1"	1	231.9900
-0.5400 pg	33858	P0409CG2	13.8	0	0.0 "1"	1	231.9900
-0.5400 pg	33808	SJ COGEN	13.8	0	0.0 "1"	1	231.9900
-0.5400 pg	33810	SP CMPNY	13.8	0	0.0 "1"	1	231.9900

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla 115 bus 1 outage
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla 115kV bus 1

Q268 Project Interconnection System Impact Study

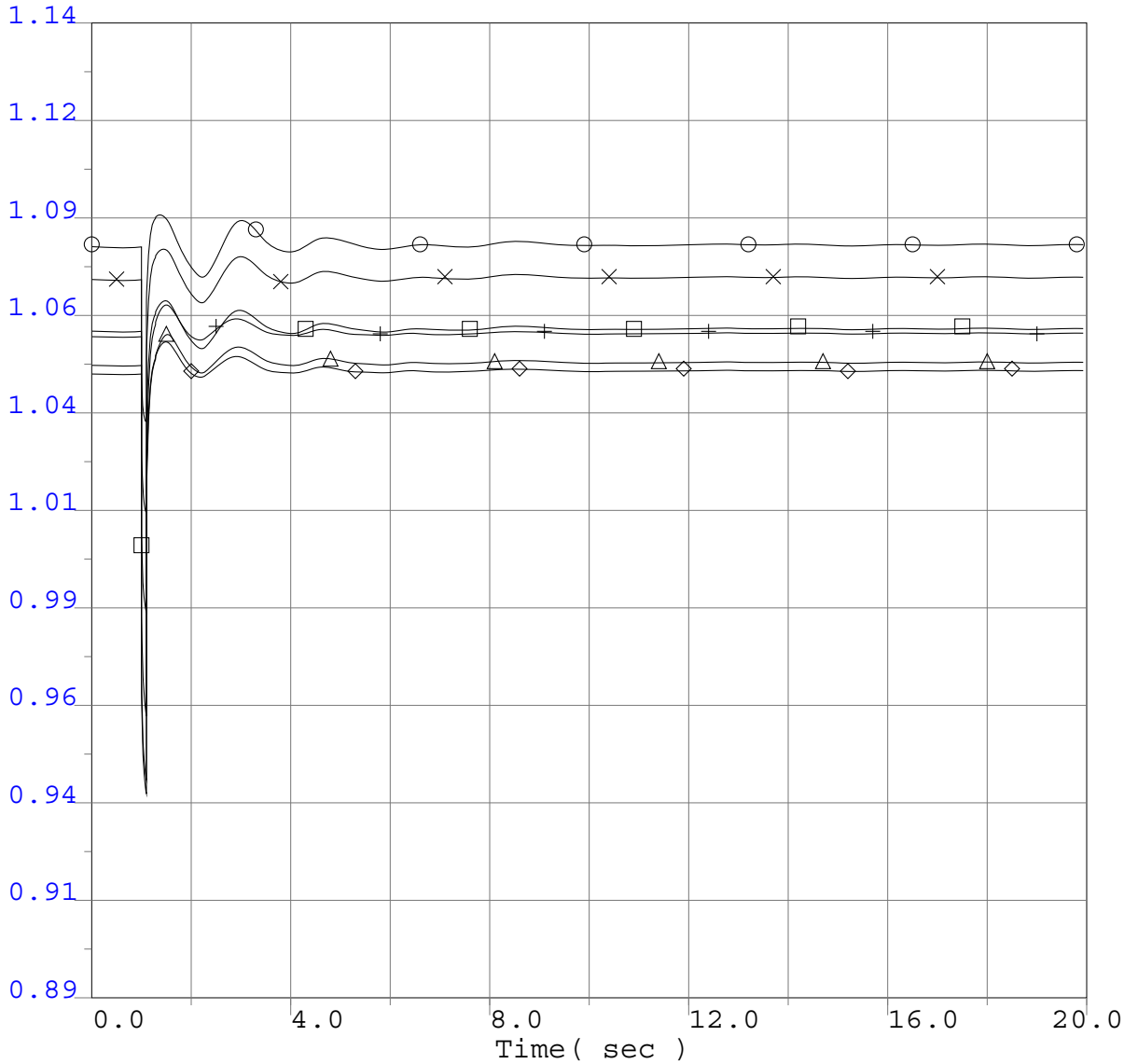
Project Generator Terminal Reactive Power



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla 115 bus 1 outage
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla 115kV bus 1

Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots



0.8900	vbus	40687	MALIN	500.0	0	0.0 "*"	1	1.1400
0.8900	vbus	30005	ROUND MT	500.0	0	0.0 "*"	1	1.1400
0.8900	vbus	30015	TABLE MT	500.0	0	0.0 "*"	1	1.1400
0.8900	vbus	30030	VACA-DIX	500.0	0	0.0 "*"	1	1.1400
0.8900	vbus	30040	TESLA	500.0	0	0.0 "*"	1	1.1400
0.8900	vbus	30035	TRACY	500.0	0	0.0 "*"	1	1.1400

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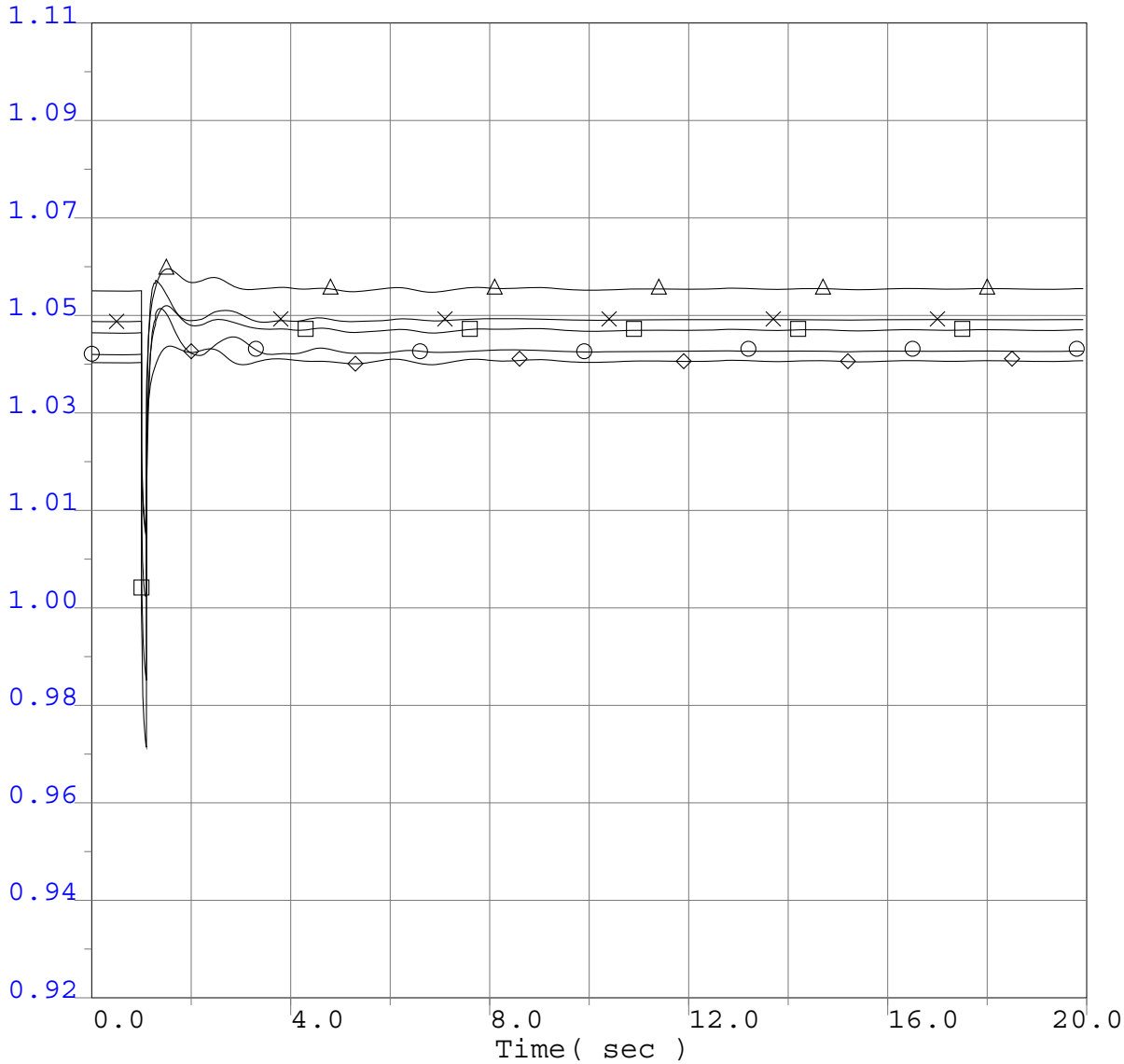
Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots

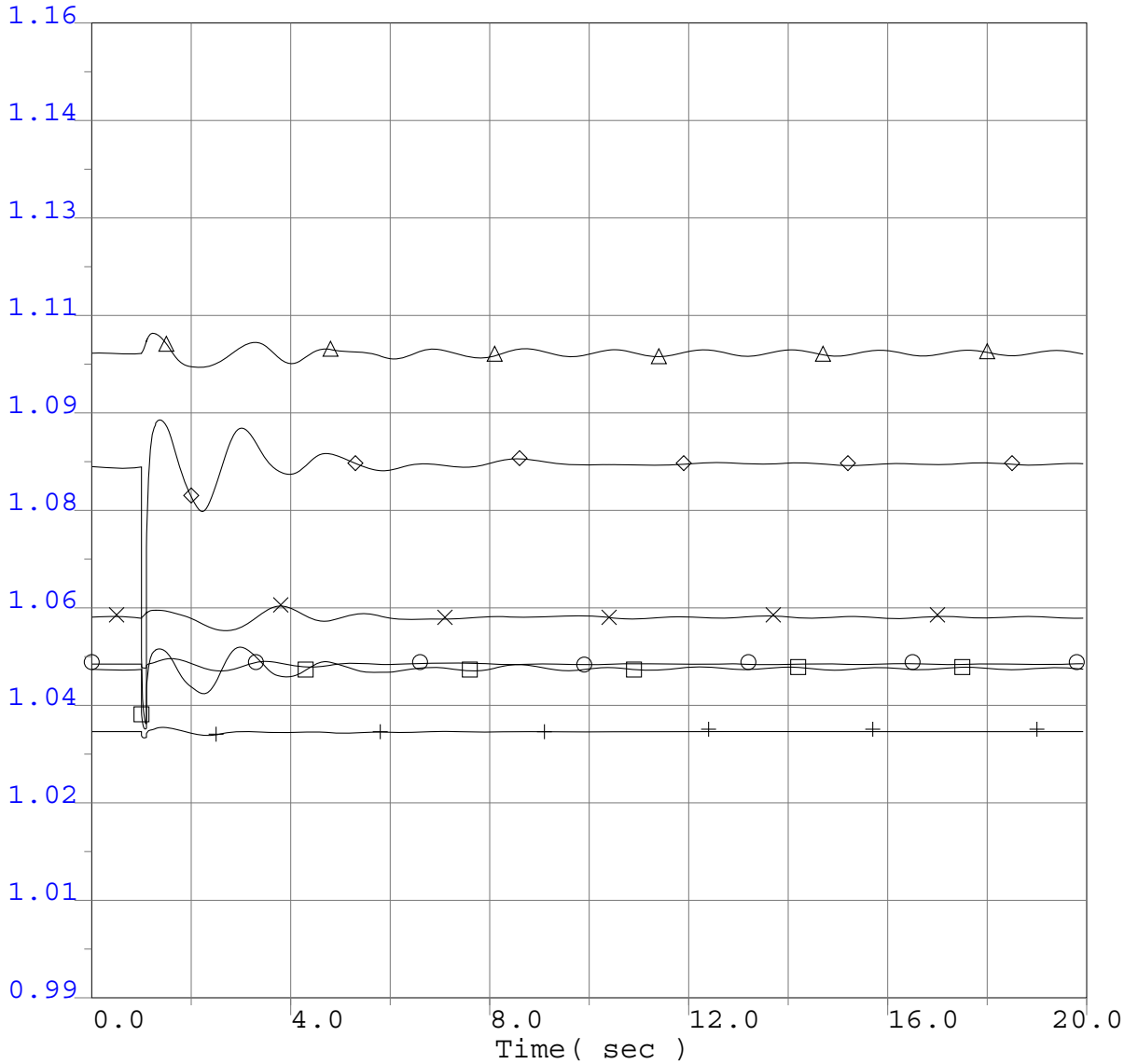


○	0.9200 vbus	30042	METCALF 500.0	0	0.0 "*"	1	1.1100
⊗	0.9200 vbus	30045	MOSSLAND 500.0	0	0.0 "*"	1	1.1100
□	0.9200 vbus	30050	LOSBANOS 500.0	0	0.0 "*"	1	1.1100
△	0.9200 vbus	30055	GATES 500.0	0	0.0 "*"	1	1.1100
◇	0.9200 vbus	30060	MIDWAY 500.0	0	0.0 "*"	1	1.1100

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla 115 bus 1 outage
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla 115kV bus 1

Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots

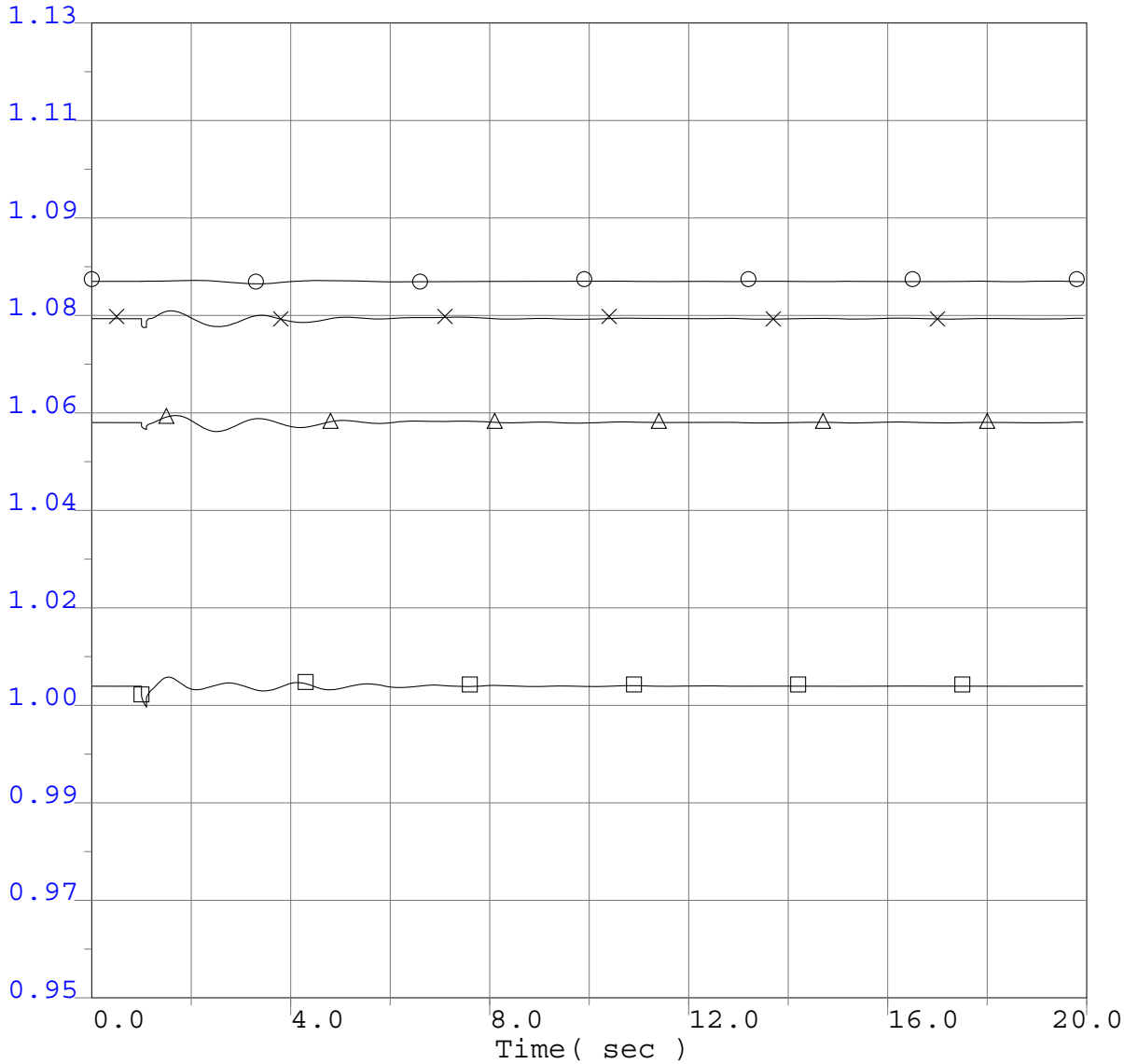


0.9900 vbus	14001	FOURCORN 500.0	0	0.0 "*"	1	1.1600
0.9900 vbus	50703	NIC500 500.0	0	0.0 "*"	1	1.1600
0.9900 vbus	60240	MIDPOINT 500.0	0	0.0 "*"	1	1.1600
0.9900 vbus	62012	TOWN2 500.0	0	0.0 "*"	1	1.1600
0.9900 vbus	40687	MALIN 500.0	0	0.0 "*"	1	1.1600
0.9900 vbus	66340	SIGURD 345.0	0	0.0 "*"	1	1.1600

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla 115 bus 1 outage
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla 115kV bus 1

Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots

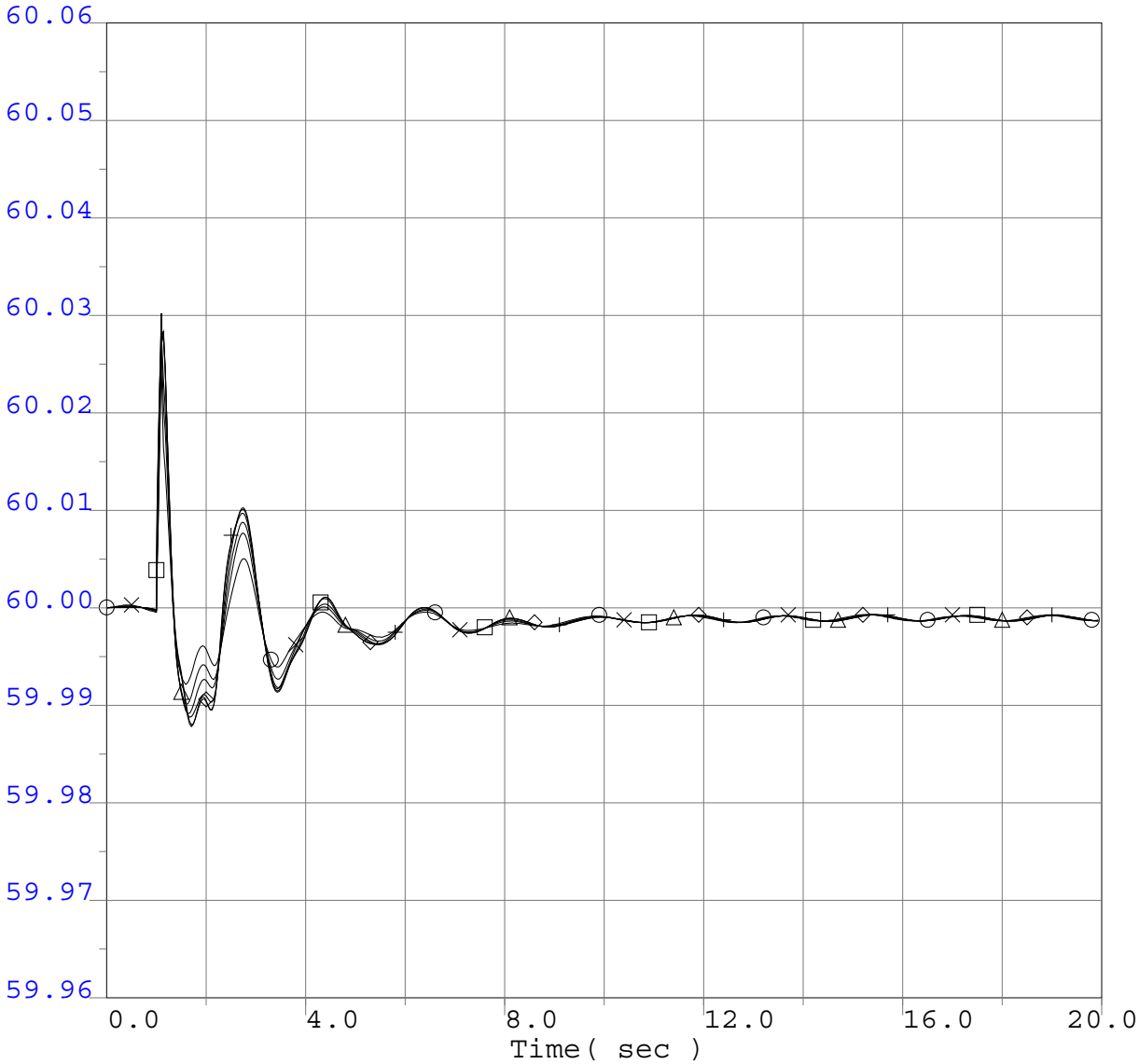


0.9500 vbul	54150	WILLESD9	240.0	0	0.0 "*"	1	1.1300
0.9500 vbus	14003	NAVAJO	500.0	0	0.0 "*"	1	1.1300
0.9500 vbus	24153	VESTAL	230.0	0	0.0 "*"	1	1.1300
0.9500 vbus	22360	IMPRLVLY	500.0	0	0.0 "*"	1	1.1300

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla 115 bus 1 outage
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla 115kV bus 1

Q268 Project Interconnection System Impact Study

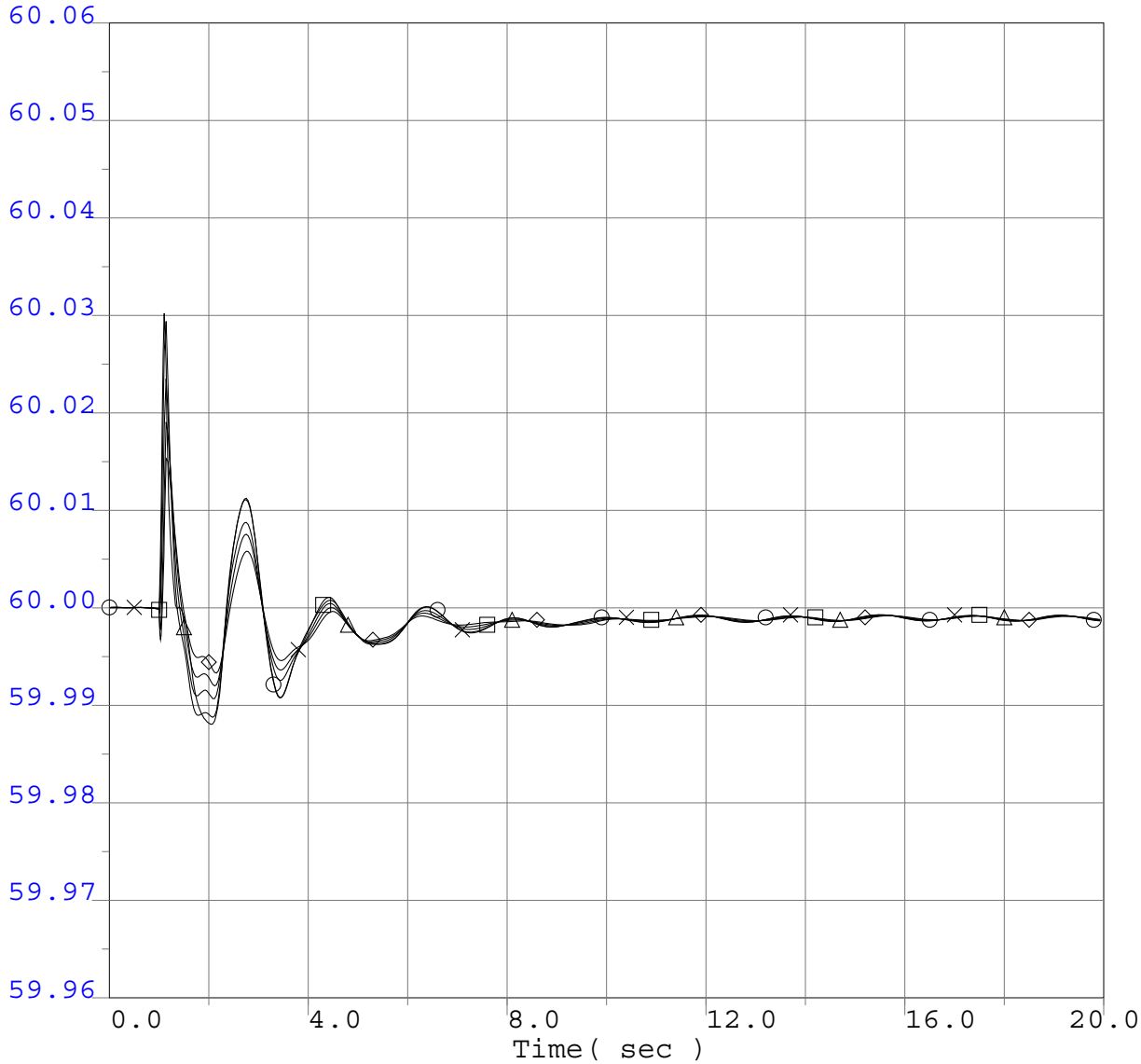
Selected WECC Bus Frequency Plots



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla 115 bus 1 outage
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla 115kV bus 1

Q268 Project Interconnection System Impact Study

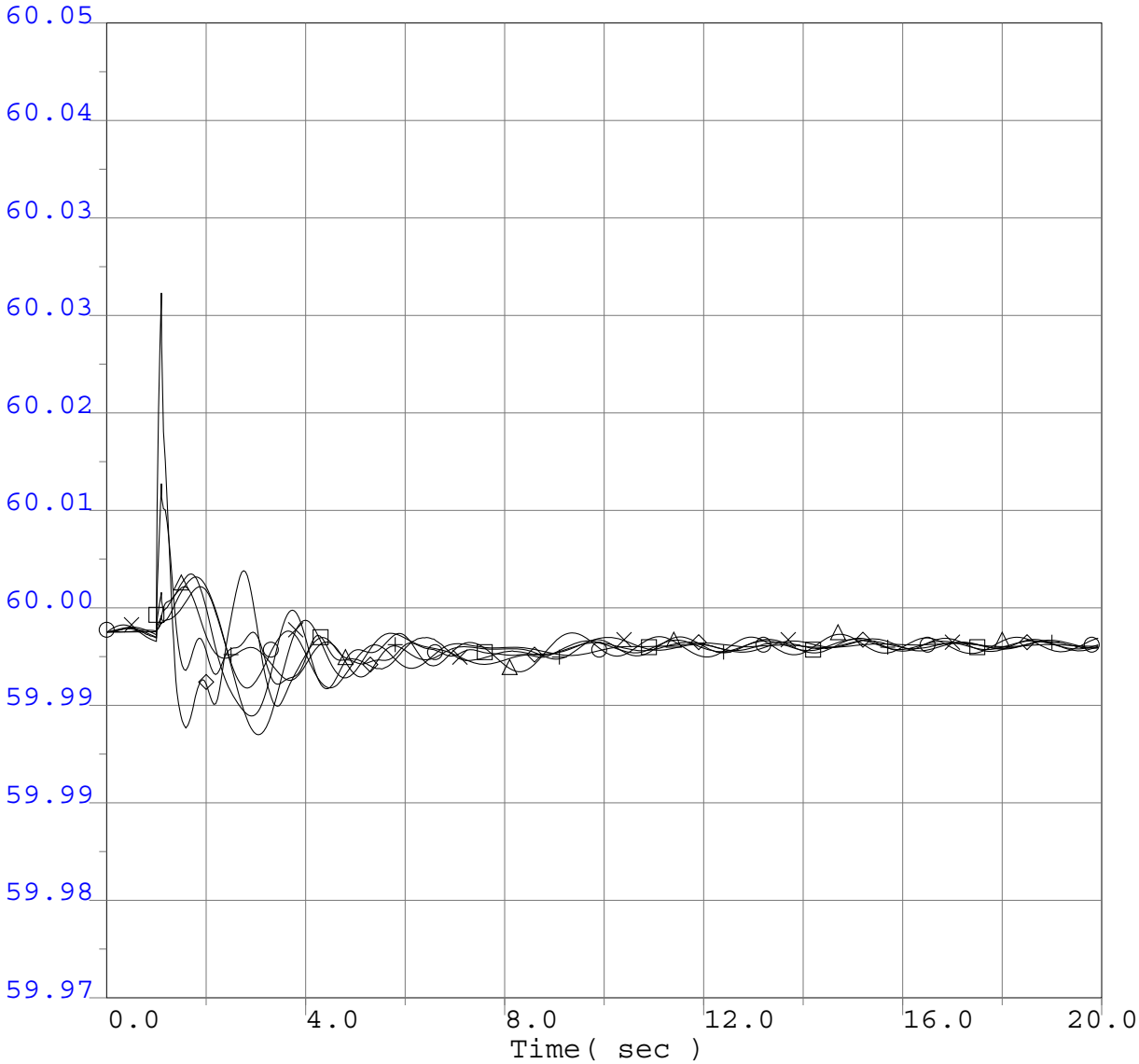
Selected WECC Bus Frequency Plots



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla 115 bus 1 outage
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla 115kV bus 1

Q268 Project Interconnection System Impact Study

Selected WECC Bus Frequency Plots

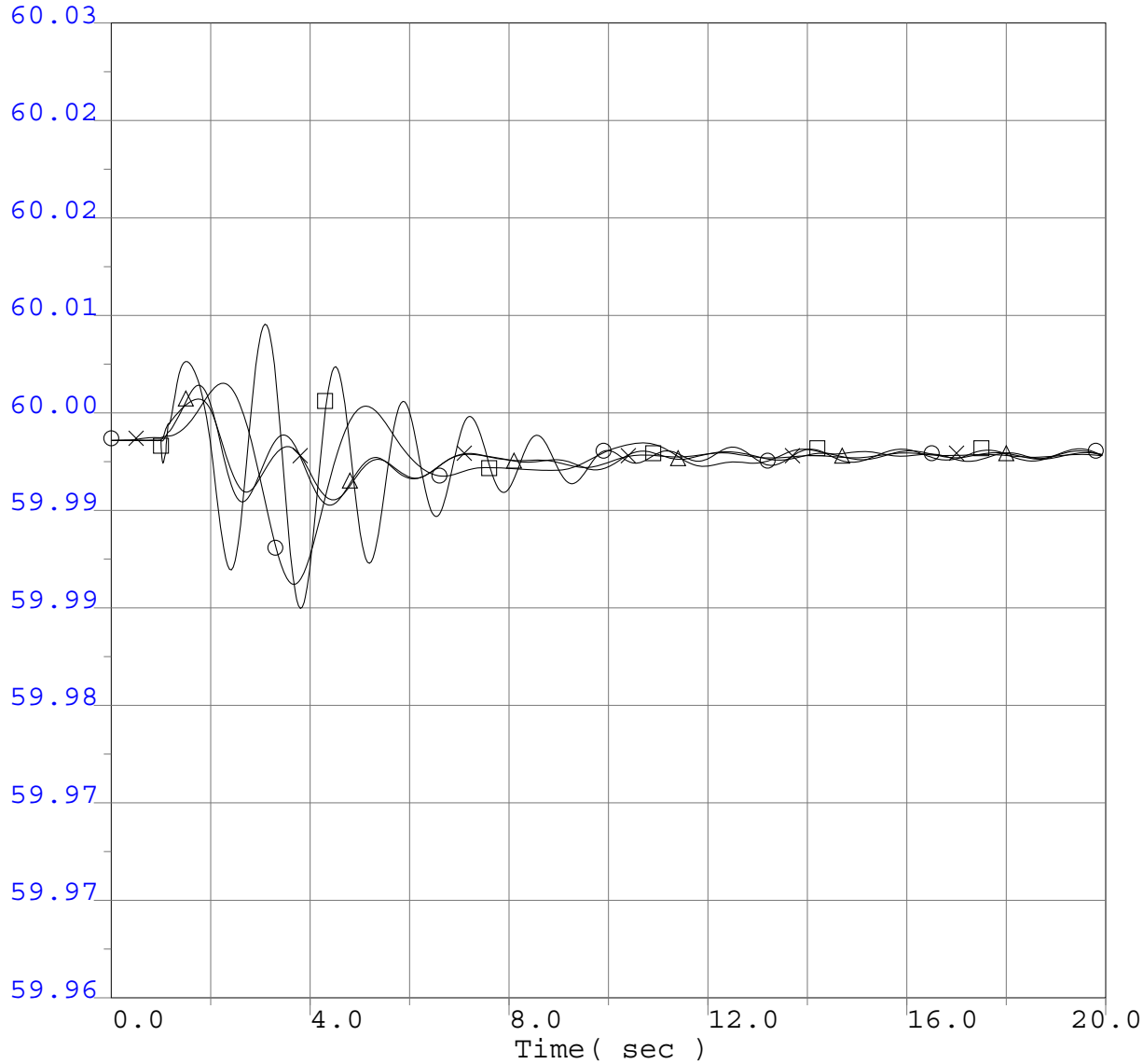


59.9700	fbus	14001	FOURCORN	500.0	0	0.0	"*"	1	60.0500
59.9700	fbus	50703	NIC500	500.0	0	0.0	"*"	1	60.0500
59.9700	fbus	60240	MIDPOINT	500.0	0	0.0	"*"	1	60.0500
59.9700	fbus	62012	TOWN2	500.0	0	0.0	"*"	1	60.0500
59.9700	fbus	40687	MALIN	500.0	0	0.0	"*"	1	60.0500
59.9700	fbus	66340	SIGURD	345.0	0	0.0	"*"	1	60.0500

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla 115 bus 1 outage
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla 115kV bus 1

Q268 Project Interconnection System Impact Study

Selected WECC Bus Frequency Plots

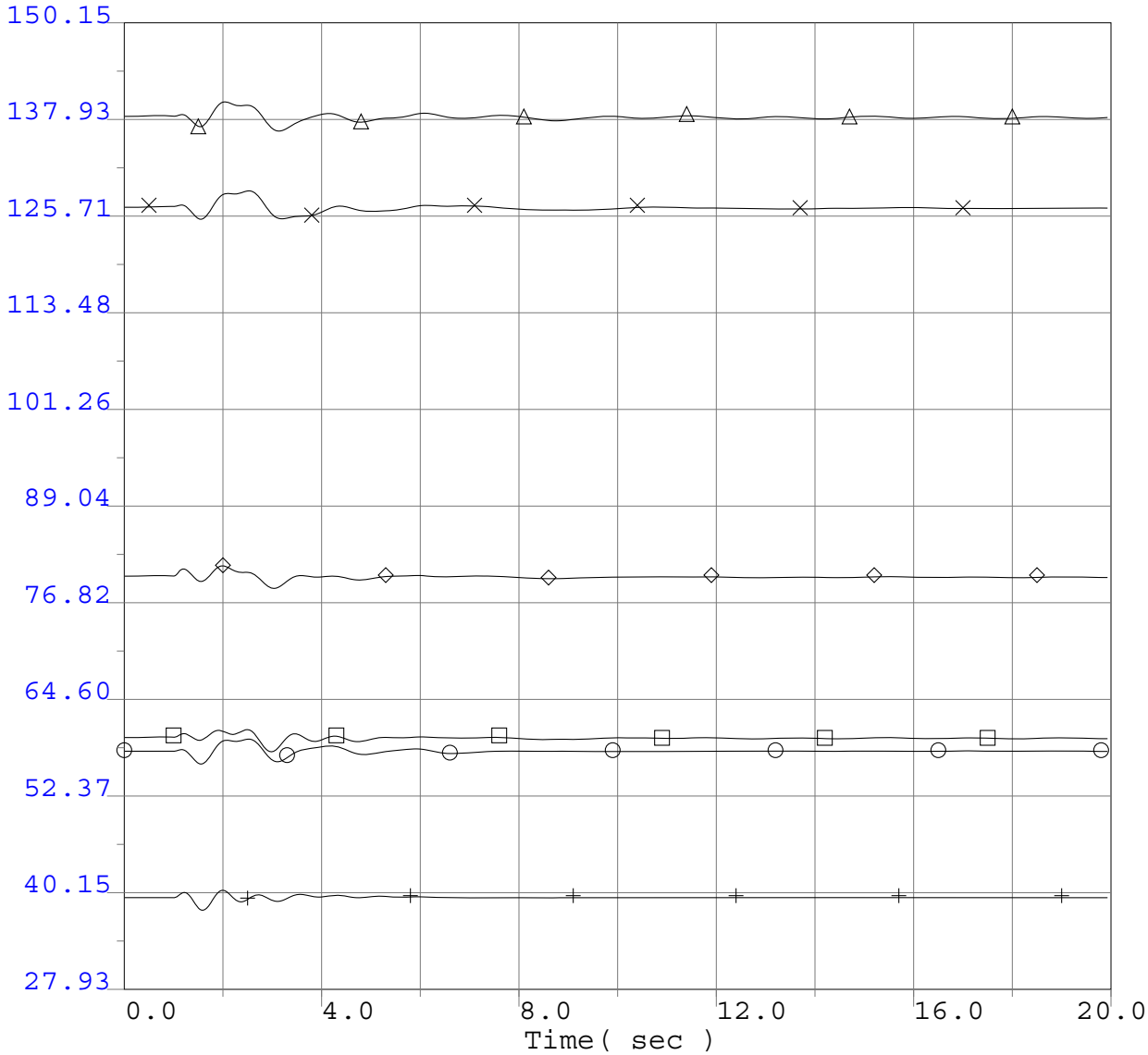


○	59.9600 fbul	54150	WILLESD9 240.0	0	0.0 "*"	1	60.0300
⊗	59.9600 fbus	14003	NAVAJO 500.0	0	0.0 "*"	1	60.0300
□	59.9600 fbus	24153	VESTAL 230.0	0	0.0 "*"	1	60.0300
△	59.9600 fbus	22360	IMPRLVLY 500.0	0	0.0 "*"	1	60.0300

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla 115 bus 1 outage
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla 115kV bus 1

Q268 Project Interconnection System Impact Study

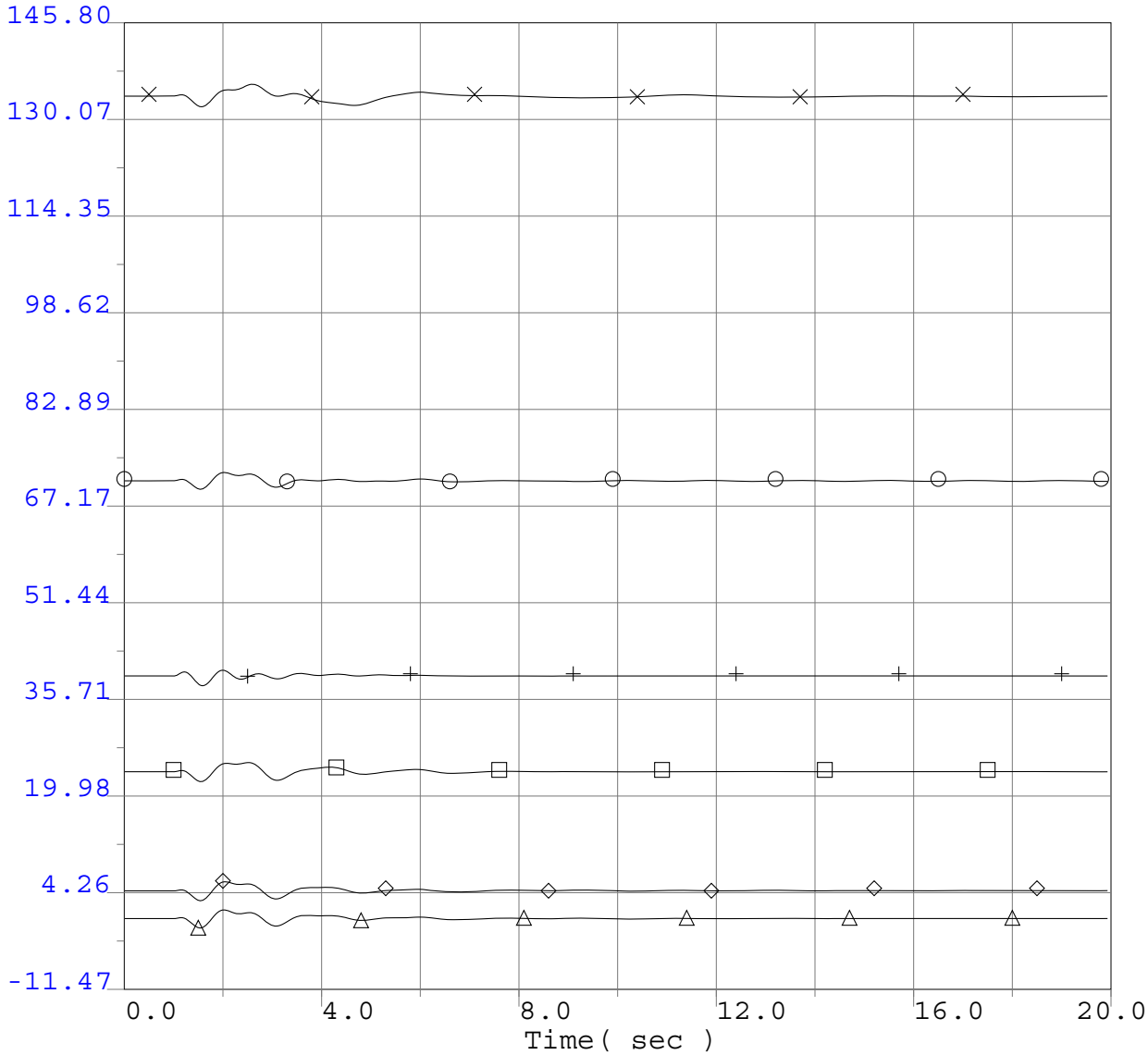
WECC Generator Rotor Angle



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla 115 bus 1 outage
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla 115kV bus 1

Q268 Project Interconnection System Impact Study

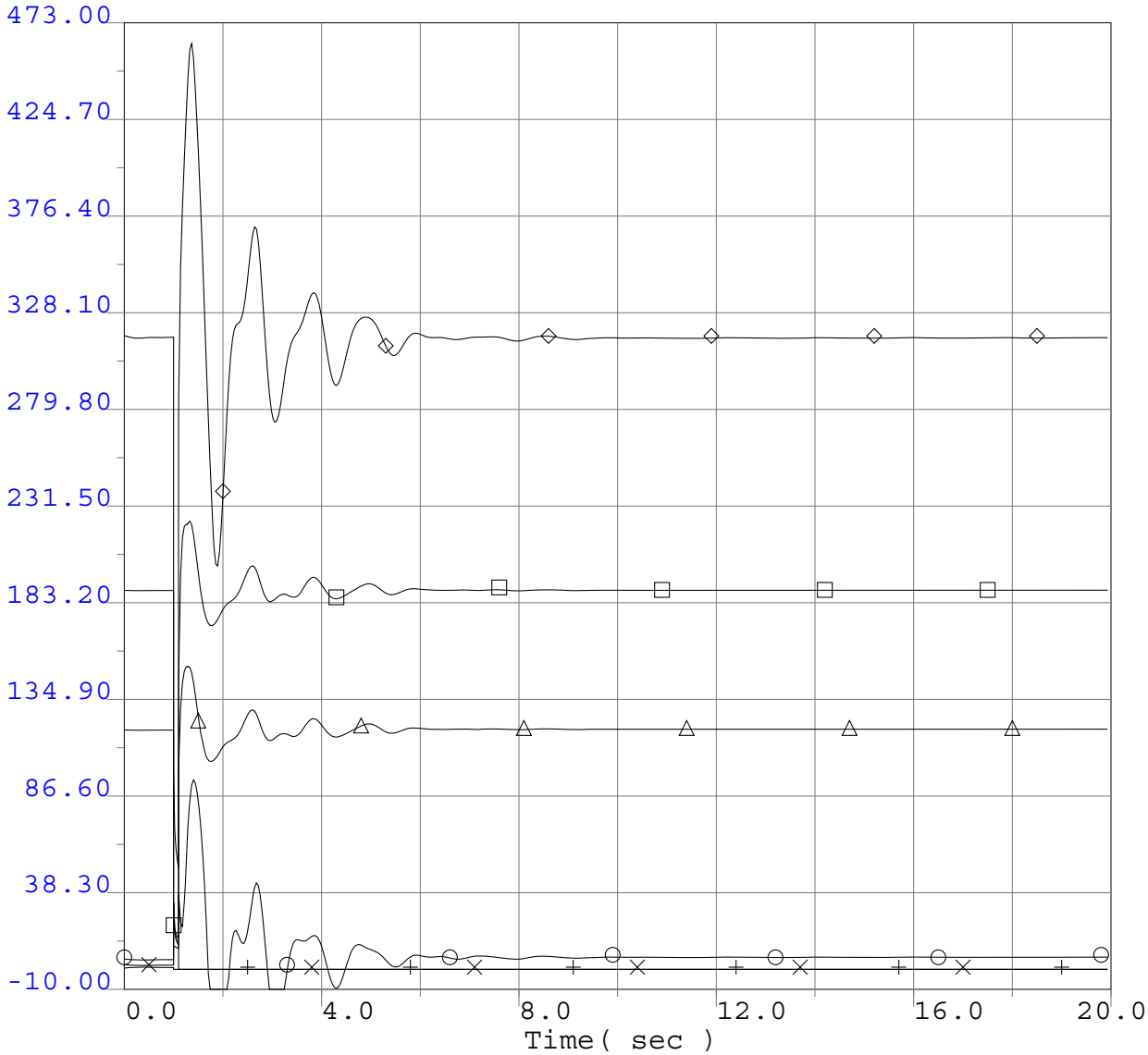
WECC Generator Rotor Angle



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla 115 bus 1 outage
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla 115kV bus 1

Q268 Project Interconnection System Impact Study

Selected PG&E Transmission Line Flows (MW)



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
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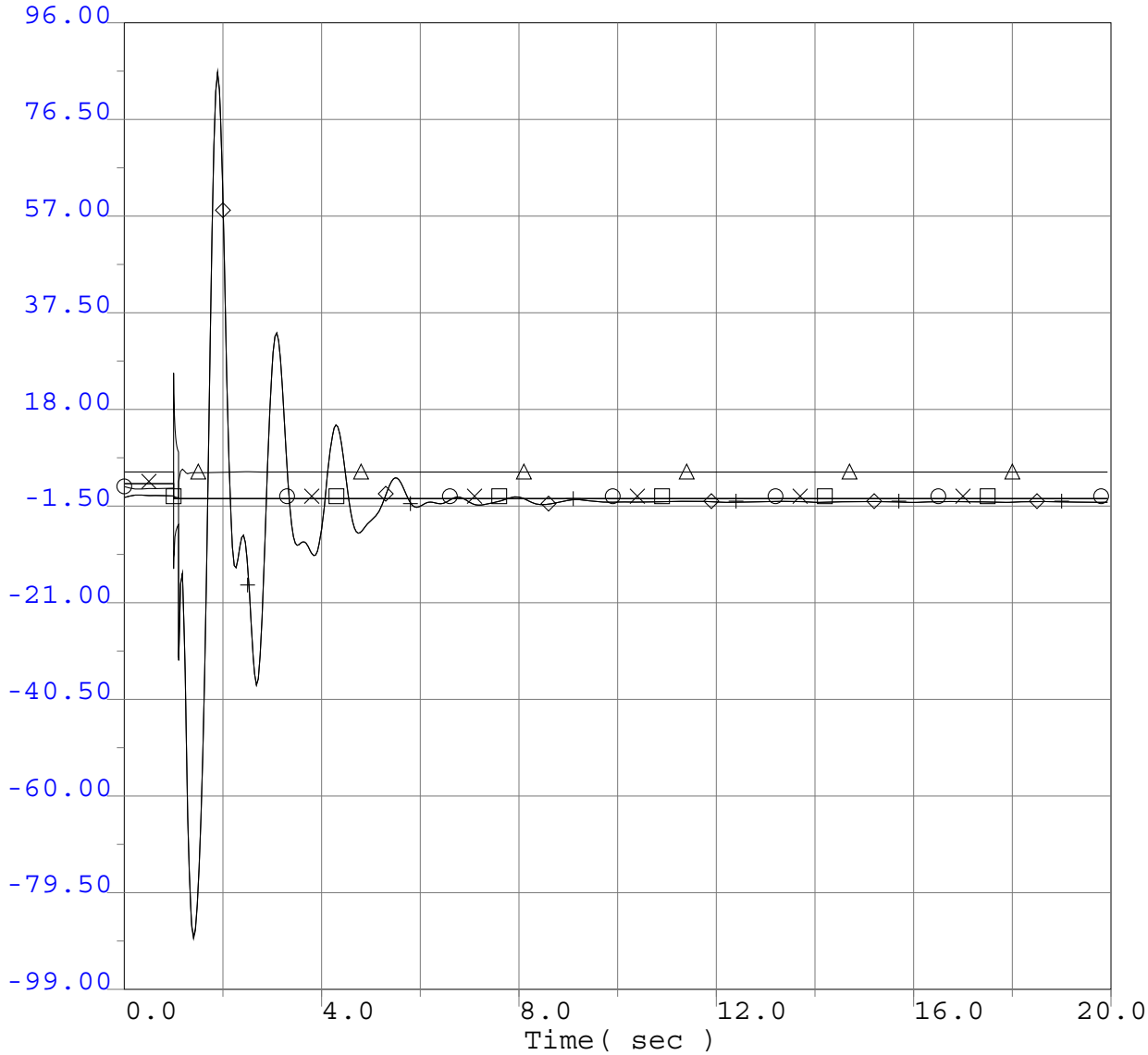
Q268 Project Interconnection System Impact Study

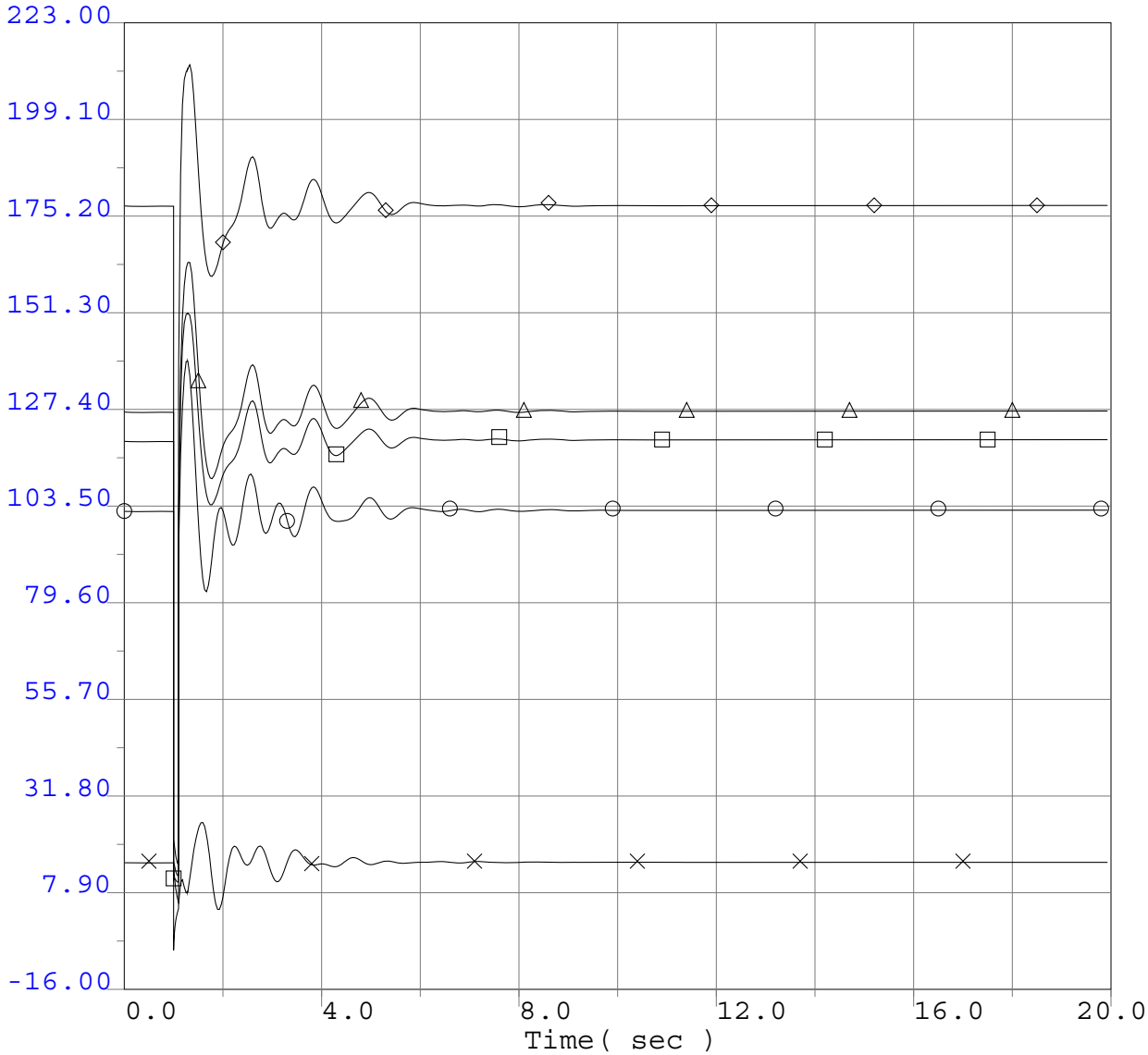
Selected PG&E Transmission Line Flows (MW)



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla 115 bus 1 outage
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla 115kV bus 1

Q268 Project Interconnection System Impact Study

Selected PG&E Transmission Line Flows (MW)



-16.0000 pbr	33526	KSSN-JC1	115.0	33514	MANTECA	115.0	1	1	223.0000
-16.0000 pbr	33526	KSSN-JC1	115.0	33528	KASSON	115.0	1	1	223.0000
-16.0000 pbr	33533	OWENSTP2	115.0	33526	KSSN-JC1	115.0	1	1	223.0000
-16.0000 pbr	33529	LAMMERS	115.0	33528	KASSON	115.0	1	1	223.0000
-16.0000 pbr	33531	OWENSTP1	115.0	33529	LAMMERS	115.0	1	1	223.0000

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
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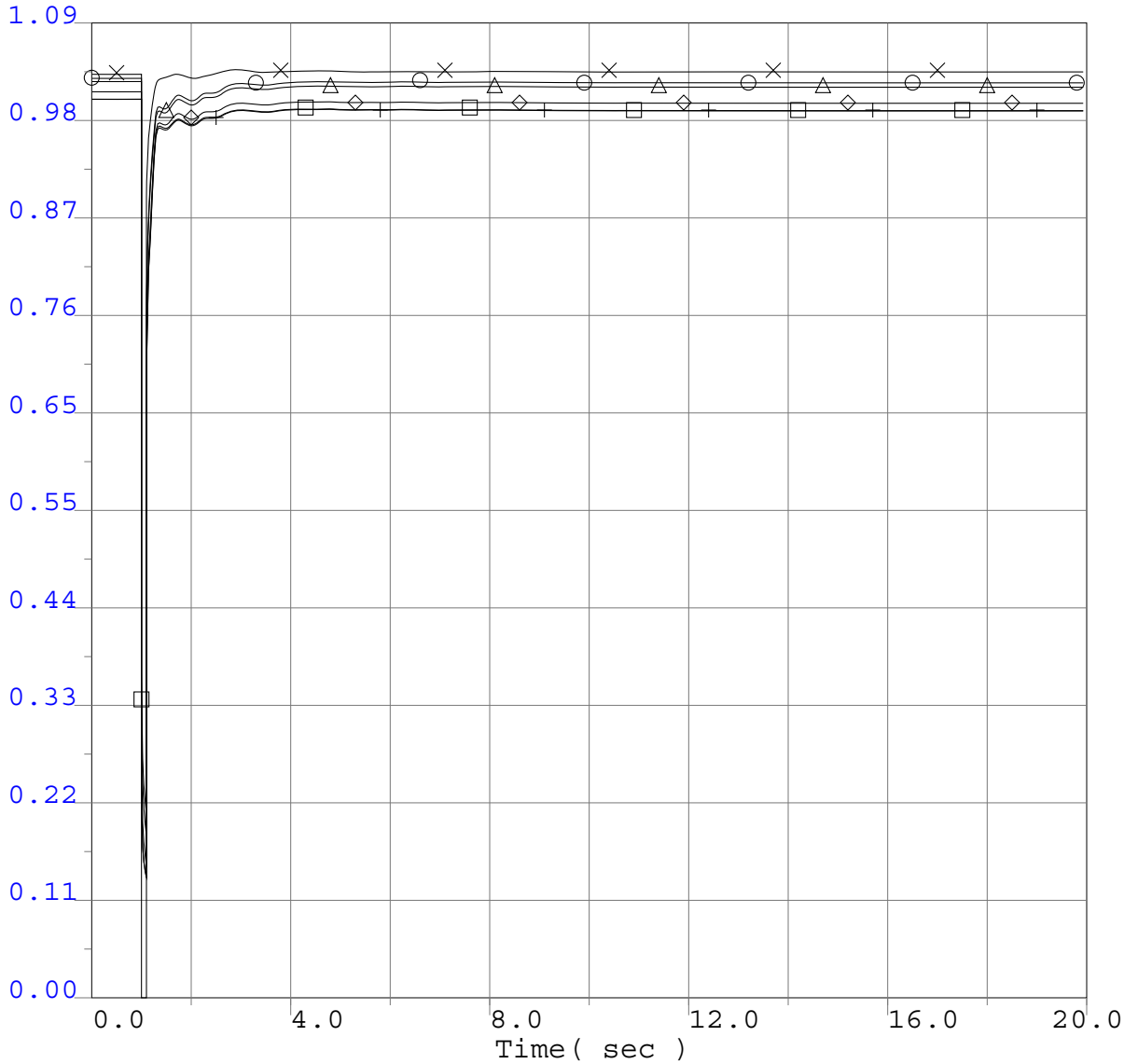
Q268 Project Interconnection System Impact Study

Selected PG&E Bus Voltage Plots Adjacent to Fault

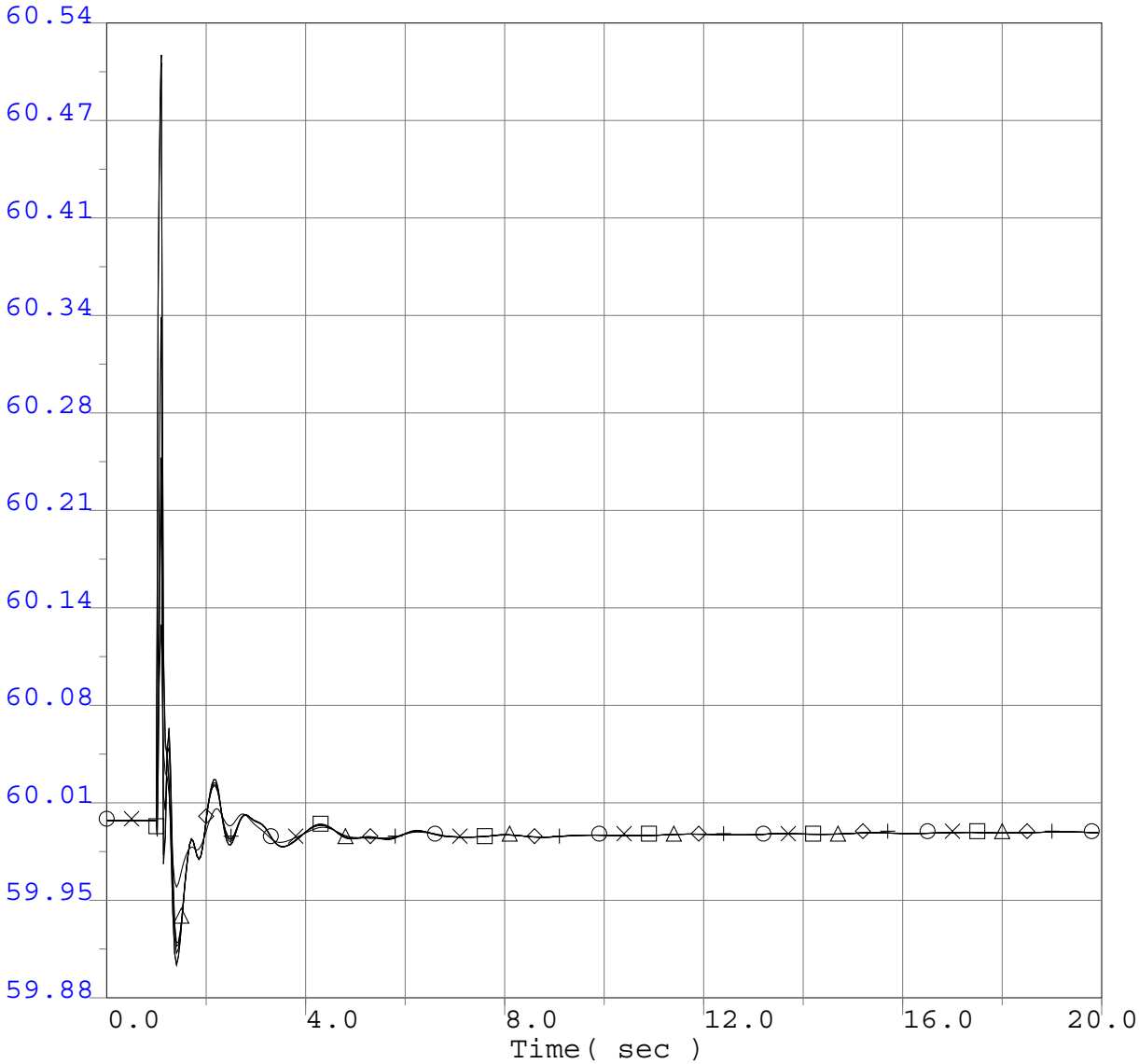


0.0000	vbus	33549	SCHULTE 115.0	0	0.0	"*"	1	1.0900
0.0000	vbus	33540	TESLA 115.0	0	0.0	"*"	1	1.0900
0.0000	vbul	33514	MANTECA 115.0	0	0.0	"*"	1	1.0900
0.0000	vbul	33529	LAMMERS 115.0	0	0.0	"*"	1	1.0900
0.0000	vbus	33528	KASSON 115.0	0	0.0	"*"	1	1.0900
0.0000	vbul	33518	VIERRA 115.0	0	0.0	"*"	1	1.0900

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla 115 bus 2 outage
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla 115kV bus 2

Q268 Project Interconnection System Impact Study

Selected PG&E Bus Frequency Plots Adjacent to Fault

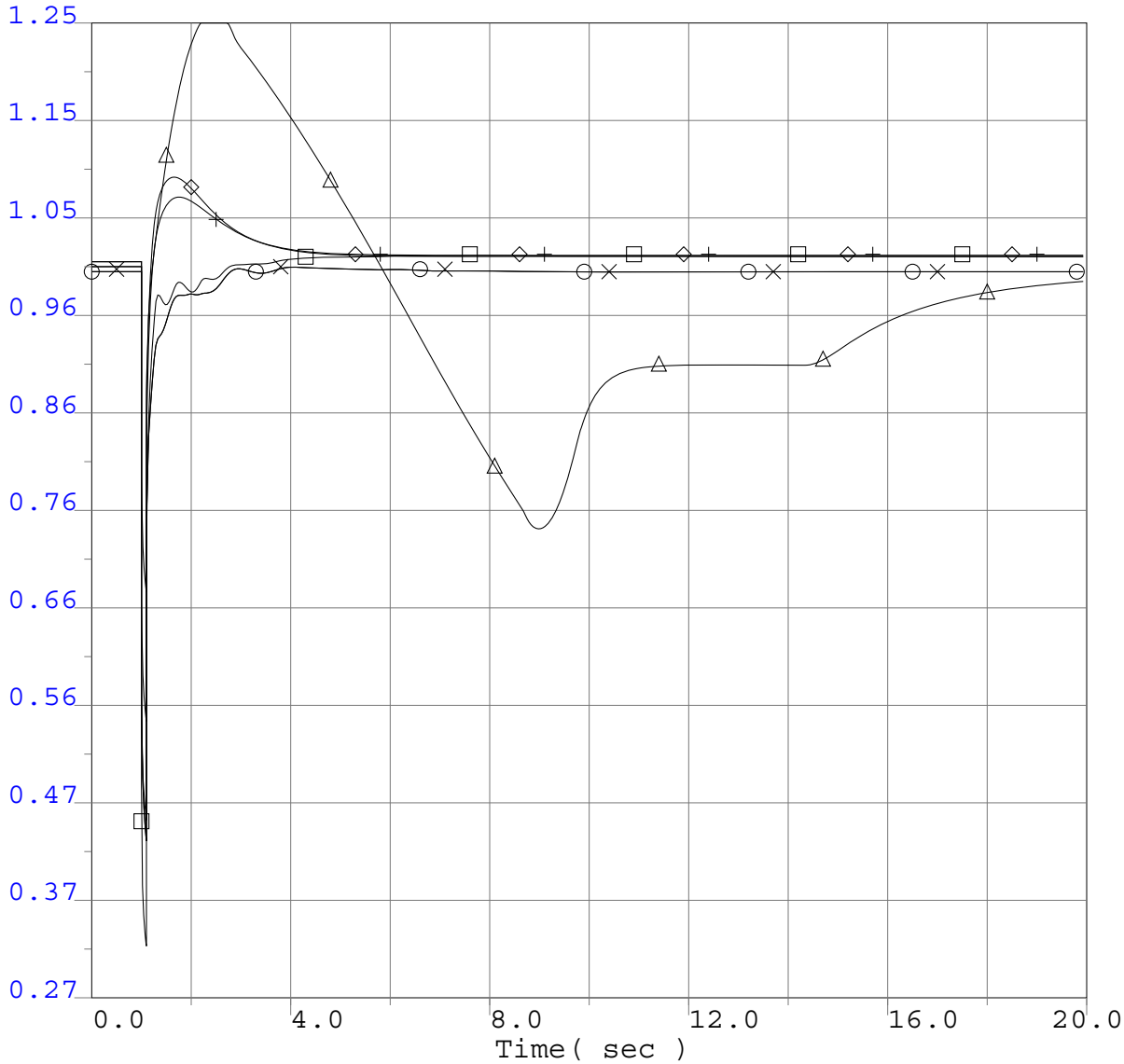


○	59.8800 fbus	33549	SCHULTE 115.0	0	0.0 "*"	1	60.5400
×	59.8800 fbus	33540	TESLA 115.0	0	0.0 "*"	1	60.5400
□	59.8800 fbul	33514	MANTECA 115.0	0	0.0 "*"	1	60.5400
△	59.8800 fbul	33529	LAMMERS 115.0	0	0.0 "*"	1	60.5400
◇	59.8800 fbus	33528	KASSON 115.0	0	0.0 "*"	1	60.5400
+	59.8800 fbul	33518	VIERRA 115.0	0	0.0 "*"	1	60.5400

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla 115 bus 2 outage
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla 115kV bus 2

Q268 Project Interconnection System Impact Study

Project Generator Terminal Voltages

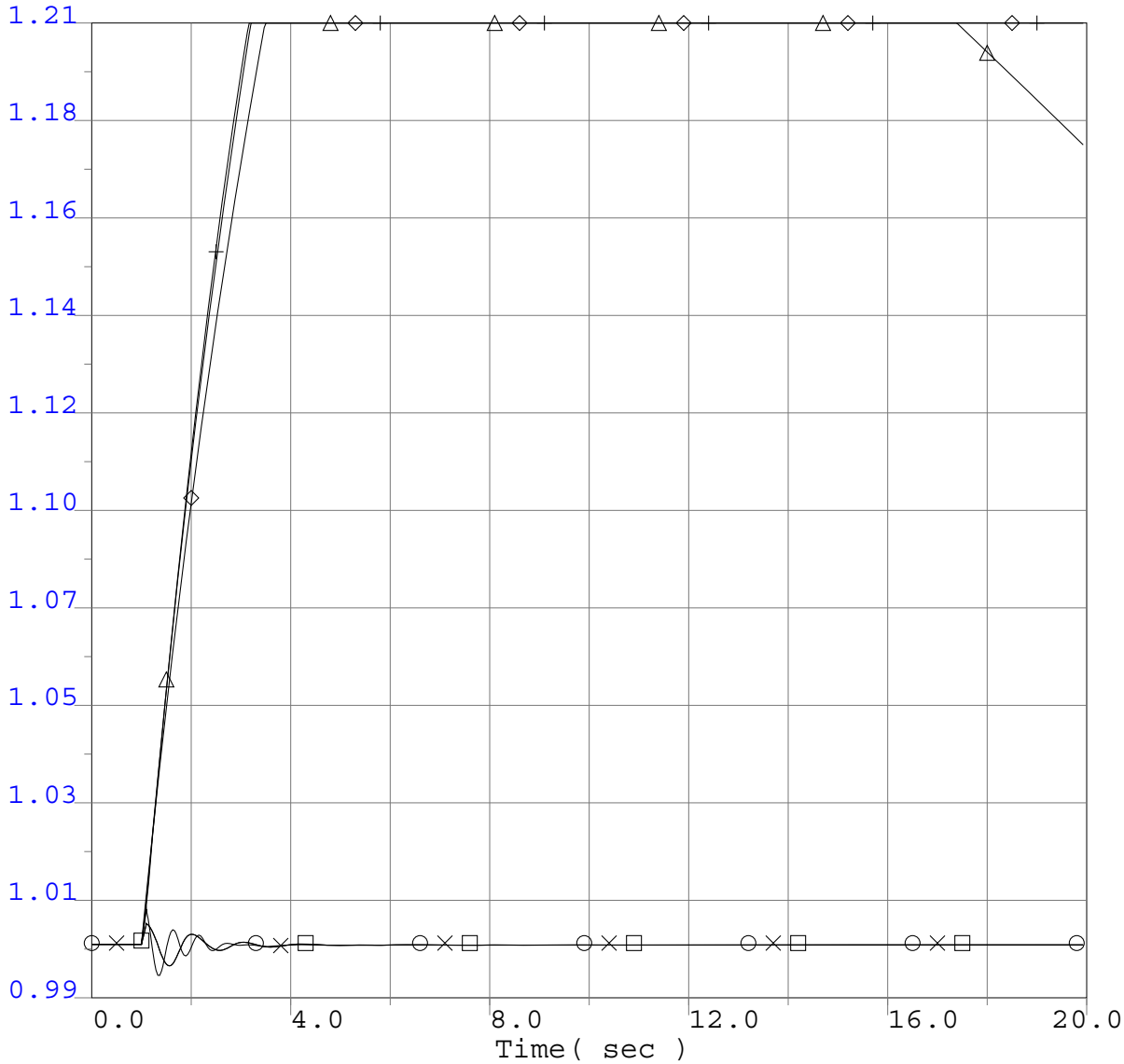


0.2700 vt	33805	GWFTRCY1	13.8	0	0.0 "1"	1	1.2500
0.2700 vt	33807	GWFTRCY2	13.8	0	0.0 "1"	1	1.2500
0.2700 vt	33809	Q268ST1	13.8	0	0.0 "1"	1	1.2500
0.2700 vt	33858	P0409CG2	13.8	0	0.0 "1"	1	1.2500
0.2700 vt	33808	SJ COGEN	13.8	0	0.0 "1"	1	1.2500
0.2700 vt	33810	SP CMPNY	13.8	0	0.0 "1"	1	1.2500

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla 115 bus 2 outage
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla 115kV bus 2

Q268 Project Interconnection System Impact Study

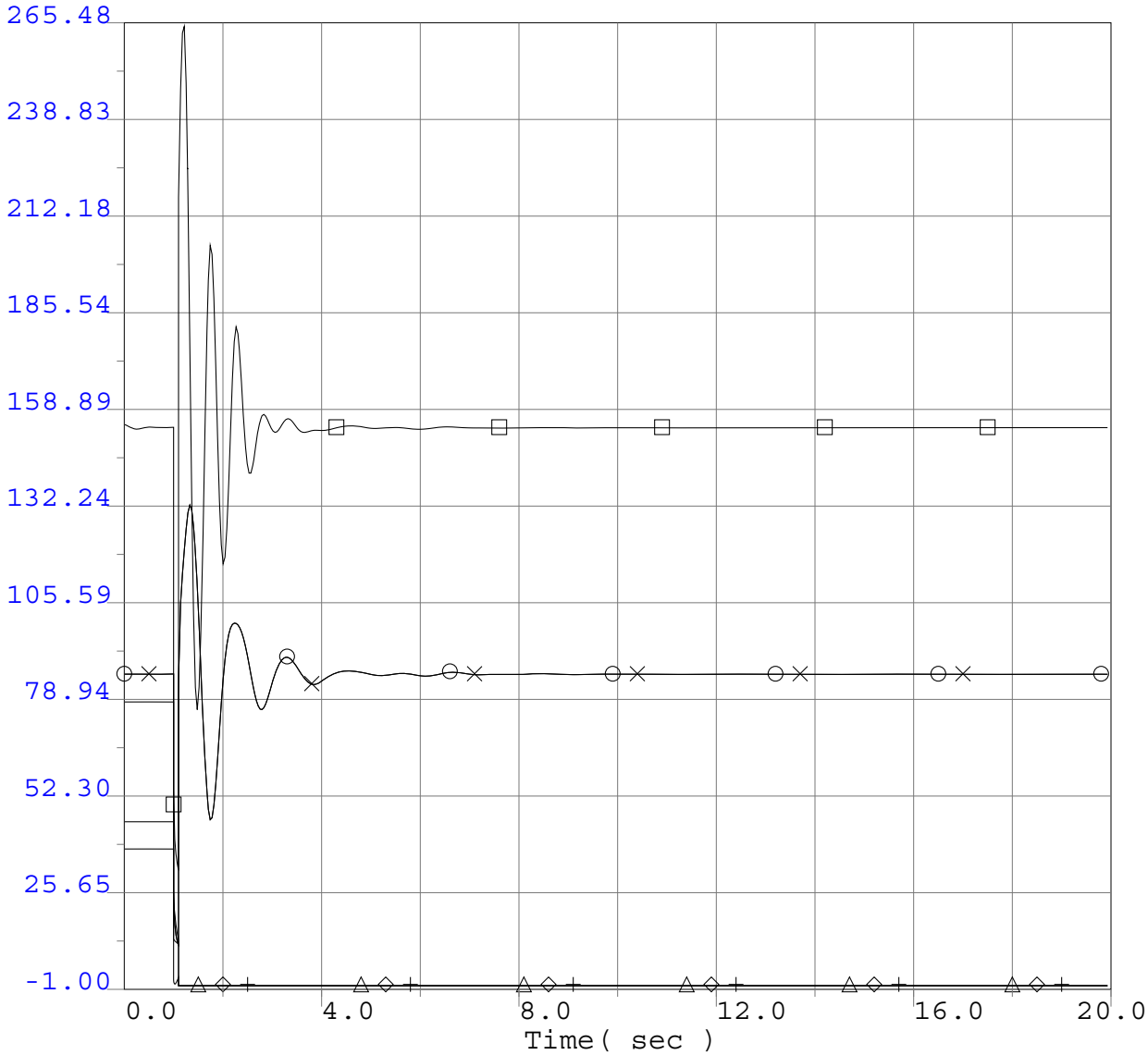
Project Generator Rotor Speed



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla 115 bus 2 outage
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla 115kV bus 2

Q268 Project Interconnection System Impact Study

Project Generator Terminal Power

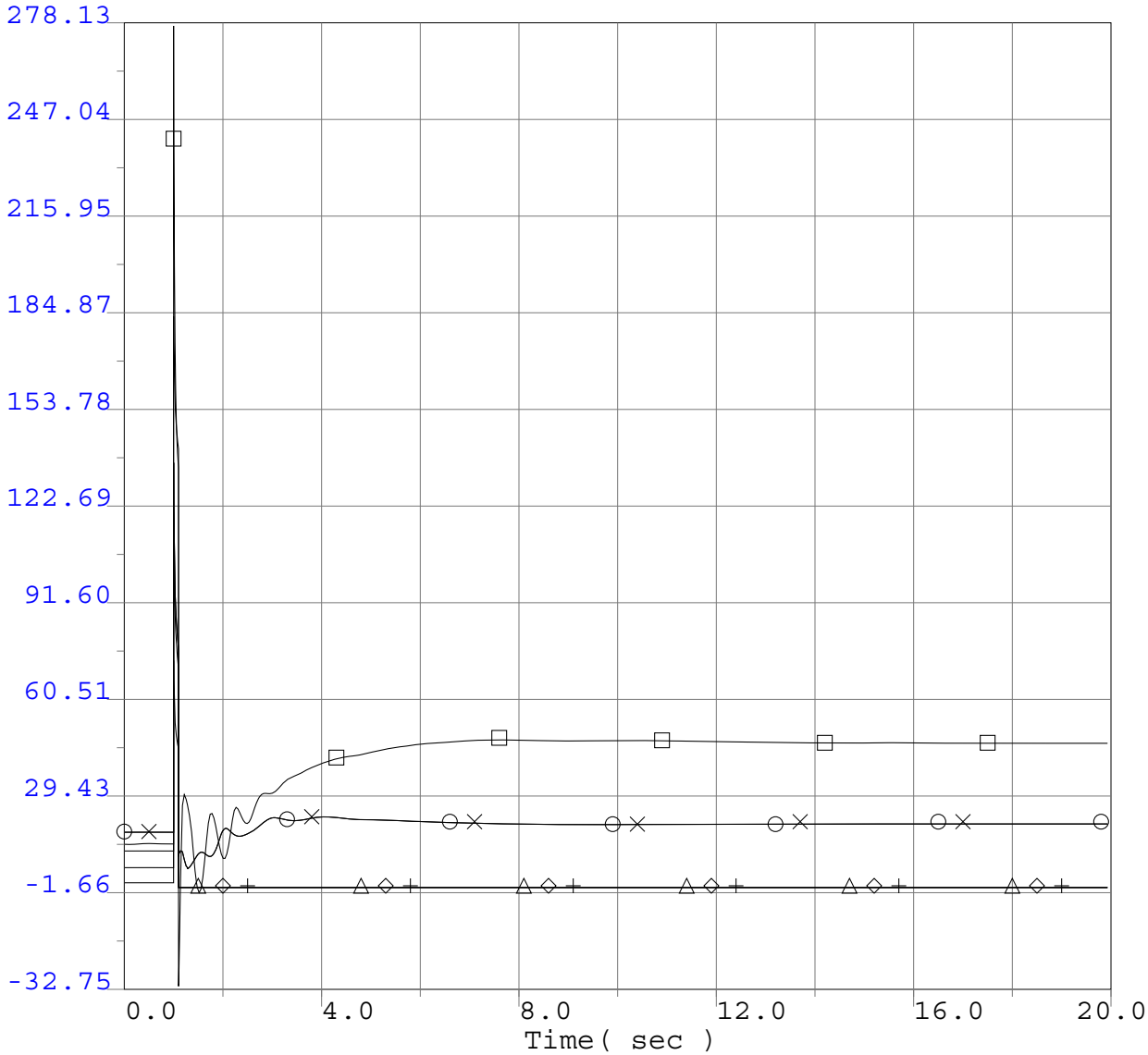


○	-1.0000 pg	33805	GWFTRCY1	13.8	0	0.0	"1"	1	265.4800
×	-1.0000 pg	33807	GWFTRCY2	13.8	0	0.0	"1"	1	265.4800
□	-1.0000 pg	33809	Q268ST1	13.8	0	0.0	"1"	1	265.4800
△	-1.0000 pg	33858	P0409CG2	13.8	0	0.0	"1"	1	265.4800
◇	-1.0000 pg	33808	SJ COGEN	13.8	0	0.0	"1"	1	265.4800
+	-1.0000 pg	33810	SP CMPNY	13.8	0	0.0	"1"	1	265.4800

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla 115 bus 2 outage
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla 115kV bus 2

Q268 Project Interconnection System Impact Study

Project Generator Terminal Reactive Power



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
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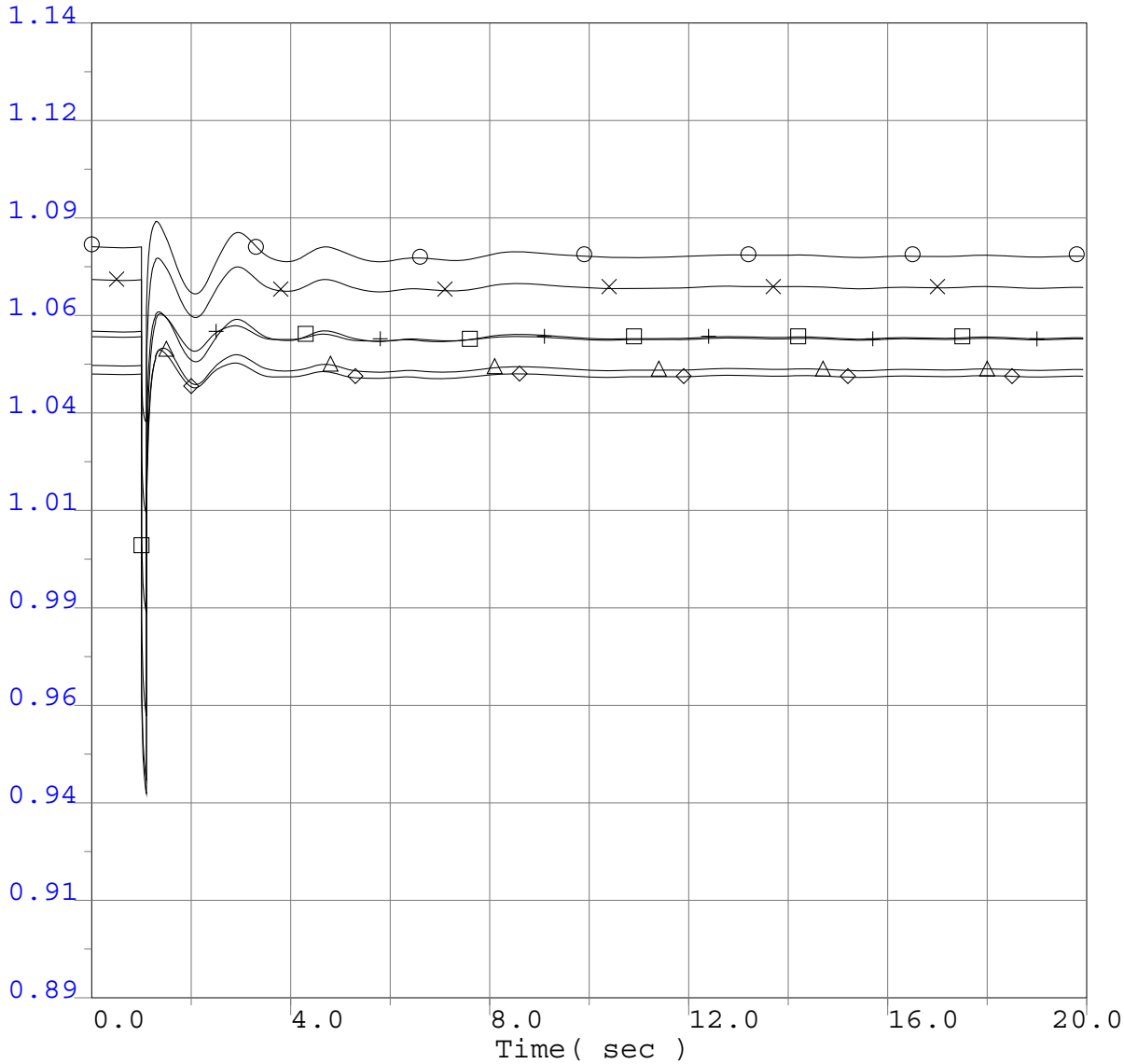
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla 115kV bus 2

Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots



0.8900	vbus	40687	MALIN	500.0	0	0.0 "*"	1	1.1400
0.8900	vbus	30005	ROUND MT	500.0	0	0.0 "*"	1	1.1400
0.8900	vbus	30015	TABLE MT	500.0	0	0.0 "*"	1	1.1400
0.8900	vbus	30030	VACA-DIX	500.0	0	0.0 "*"	1	1.1400
0.8900	vbus	30040	TESLA	500.0	0	0.0 "*"	1	1.1400
0.8900	vbus	30035	TRACY	500.0	0	0.0 "*"	1	1.1400

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
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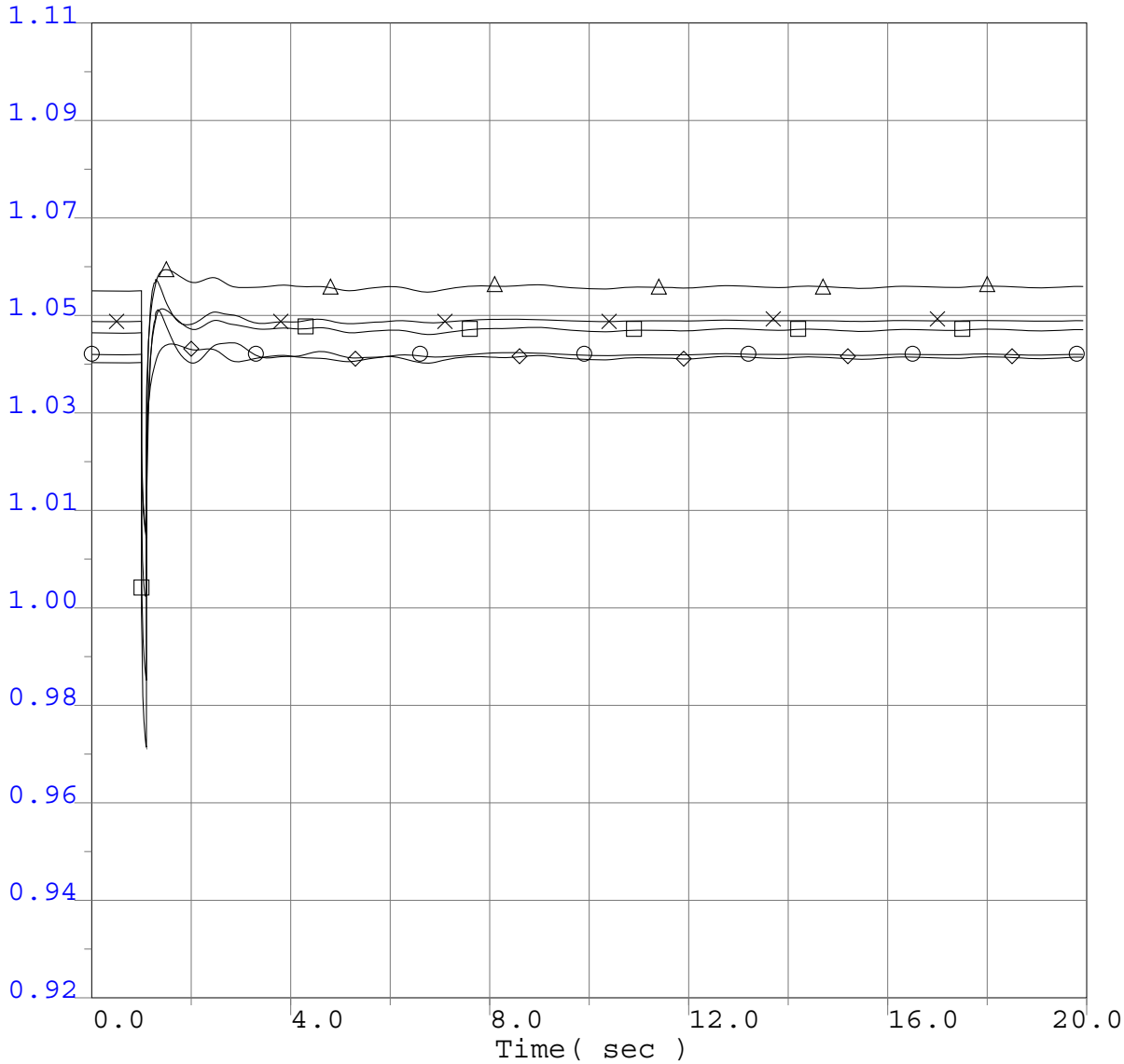
Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots



○	0.9200 vbus	30042	METCALF 500.0	0	0.0 "*"	1	1.1100
⊗	0.9200 vbus	30045	MOSSLAND 500.0	0	0.0 "*"	1	1.1100
□	0.9200 vbus	30050	LOSBANOS 500.0	0	0.0 "*"	1	1.1100
△	0.9200 vbus	30055	GATES 500.0	0	0.0 "*"	1	1.1100
◇	0.9200 vbus	30060	MIDWAY 500.0	0	0.0 "*"	1	1.1100

Q268 Project Interconnection System Impact Study
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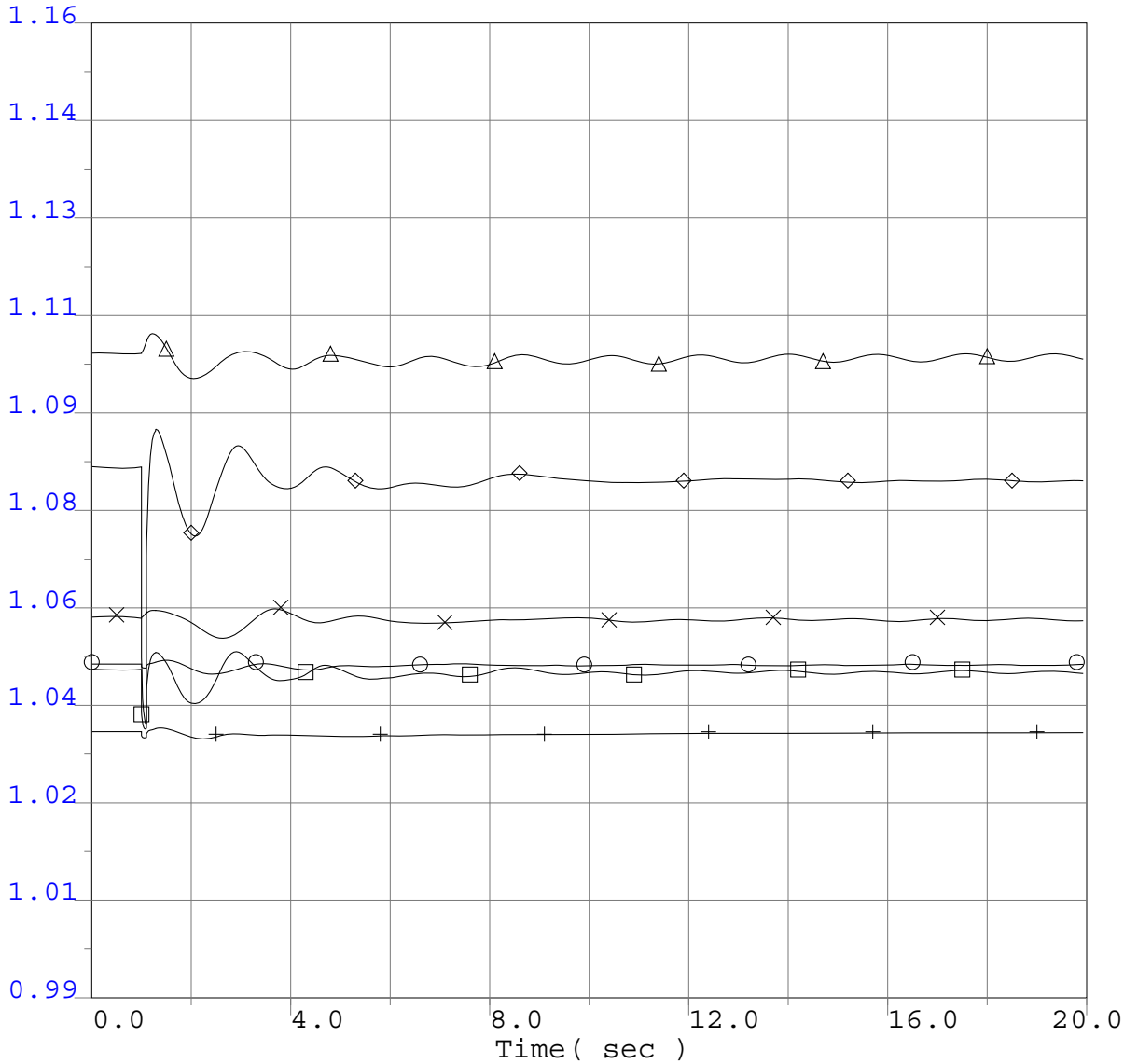
Selected WECC Bus Voltage Plots



0.9900	vbus	14001	FOURCORN	500.0	0	0.0 "*"	1	1.1600
0.9900	vbus	50703	NIC500	500.0	0	0.0 "*"	1	1.1600
0.9900	vbus	60240	MIDPOINT	500.0	0	0.0 "*"	1	1.1600
0.9900	vbus	62012	TOWN2	500.0	0	0.0 "*"	1	1.1600
0.9900	vbus	40687	MALIN	500.0	0	0.0 "*"	1	1.1600
0.9900	vbus	66340	SIGURD	345.0	0	0.0 "*"	1	1.1600

Q268 Project Interconnection System Impact Study
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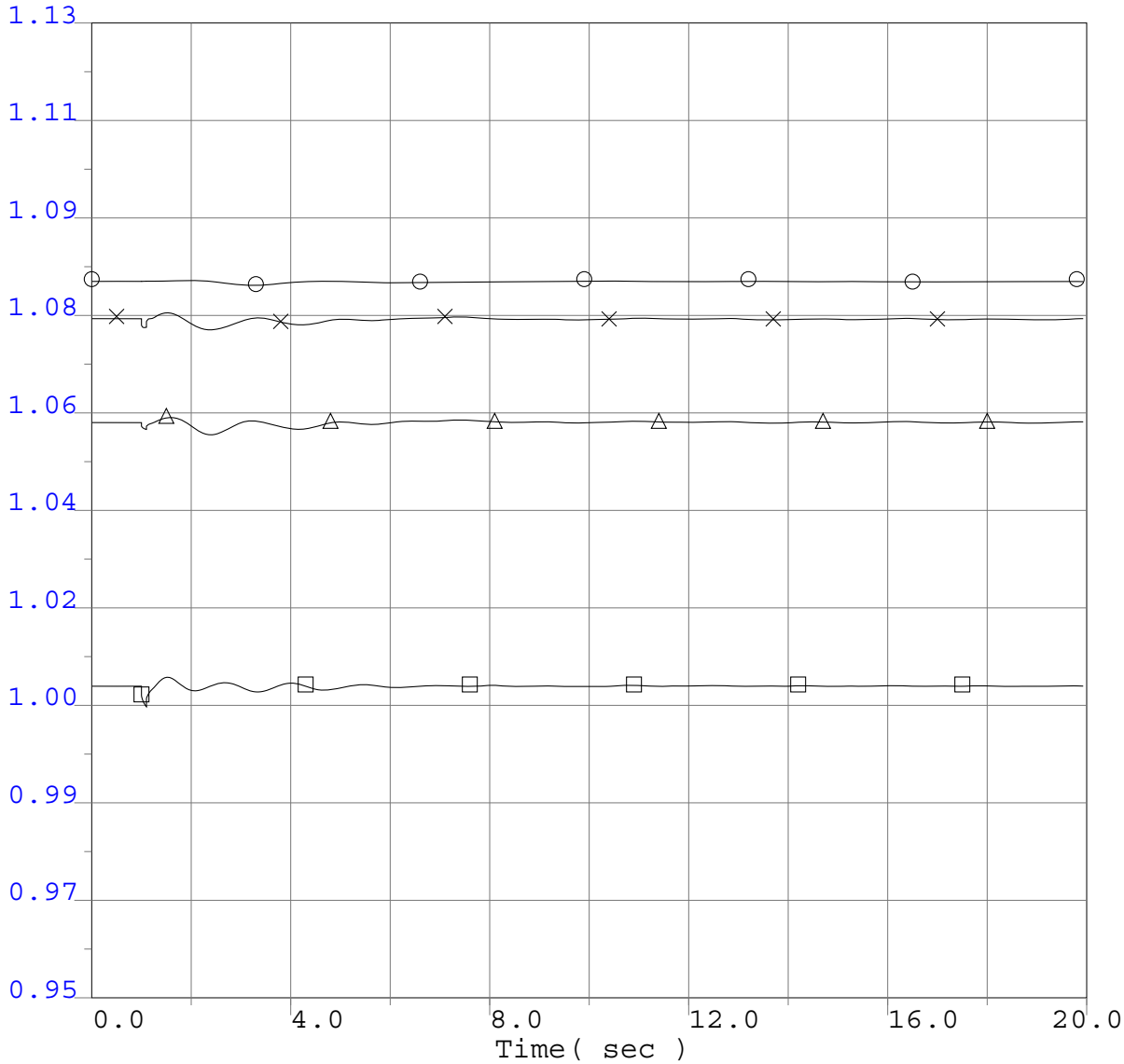

0.9500 vbul	54150	WILLESD9 240.0	0	0.0 "*"	1	1.1300
0.9500 vbus	14003	NAVAJO 500.0	0	0.0 "*"	1	1.1300
0.9500 vbus	24153	VESTAL 230.0	0	0.0 "*"	1	1.1300
0.9500 vbus	22360	IMPRLVLY 500.0	0	0.0 "*"	1	1.1300

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
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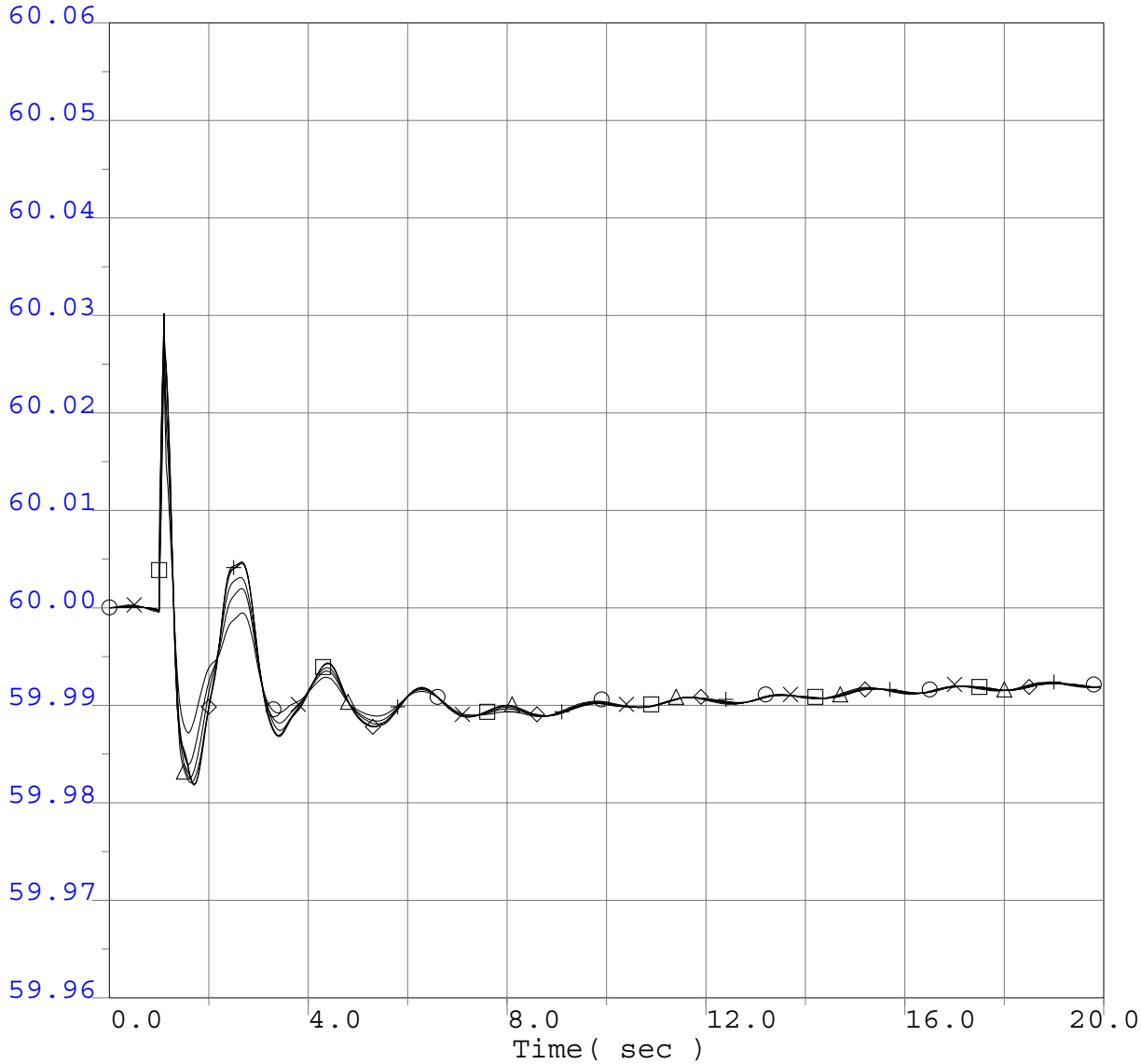
Q268 Project Interconnection System Impact Study

Selected WECC Bus Frequency Plots



59.9600	fbus	40687	MALIN	500.0	0	0.0	"*"	1	60.0600
59.9600	fbus	30005	ROUND MT	500.0	0	0.0	"*"	1	60.0600
59.9600	fbus	30015	TABLE MT	500.0	0	0.0	"*"	1	60.0600
59.9600	fbus	30030	VACA-DIX	500.0	0	0.0	"*"	1	60.0600
59.9600	fbus	30040	TESLA	500.0	0	0.0	"*"	1	60.0600
59.9600	fbus	30035	TRACY	500.0	0	0.0	"*"	1	60.0600

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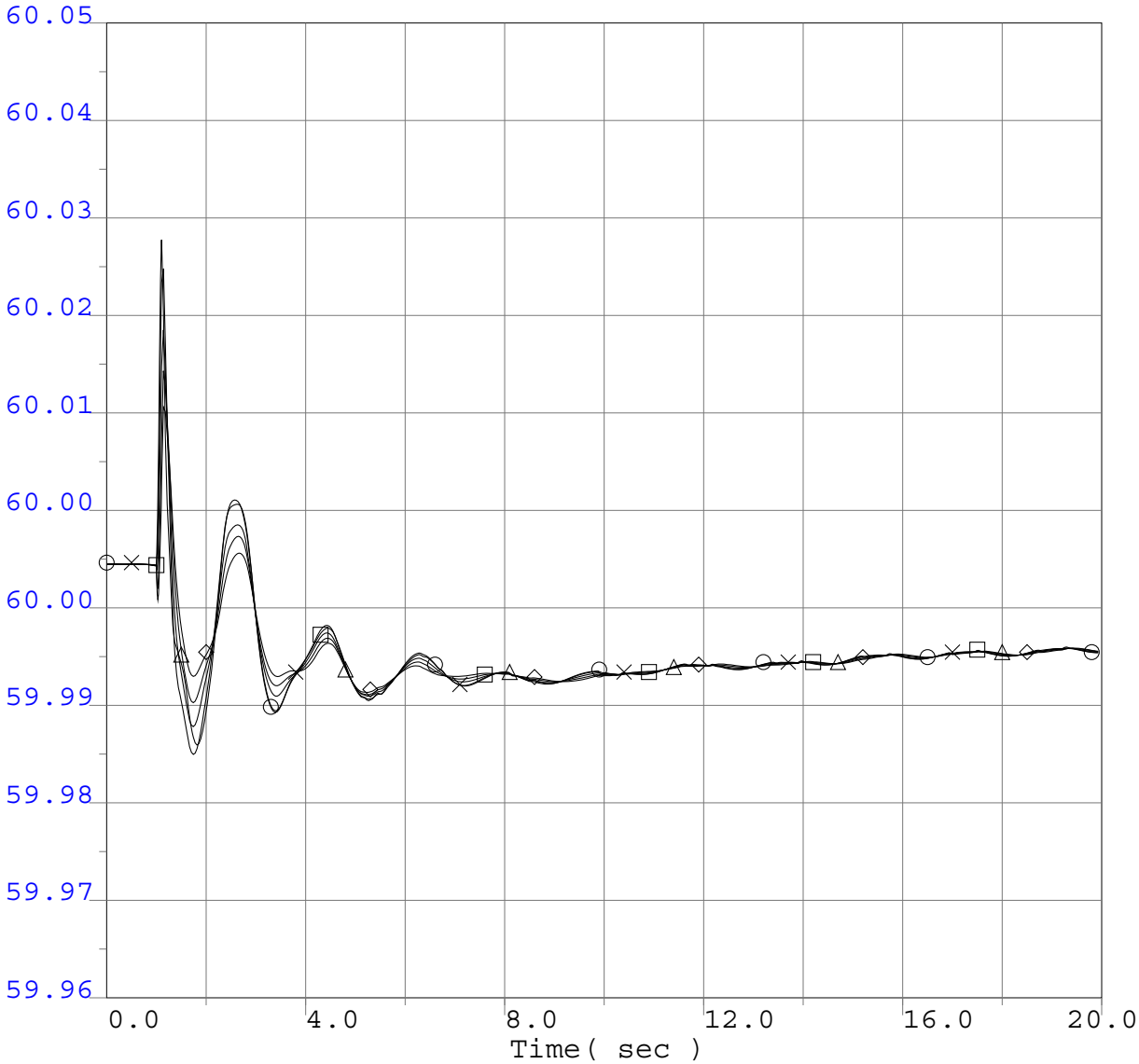

59.9600	fbus	30042	METCALF	500.0	0	0.0 "*"	1	60.0500
59.9600	fbus	30045	MOSSLAND	500.0	0	0.0 "*"	1	60.0500
59.9600	fbus	30050	LOSBANOS	500.0	0	0.0 "*"	1	60.0500
59.9600	fbus	30055	GATES	500.0	0	0.0 "*"	1	60.0500
59.9600	fbus	30060	MIDWAY	500.0	0	0.0 "*"	1	60.0500

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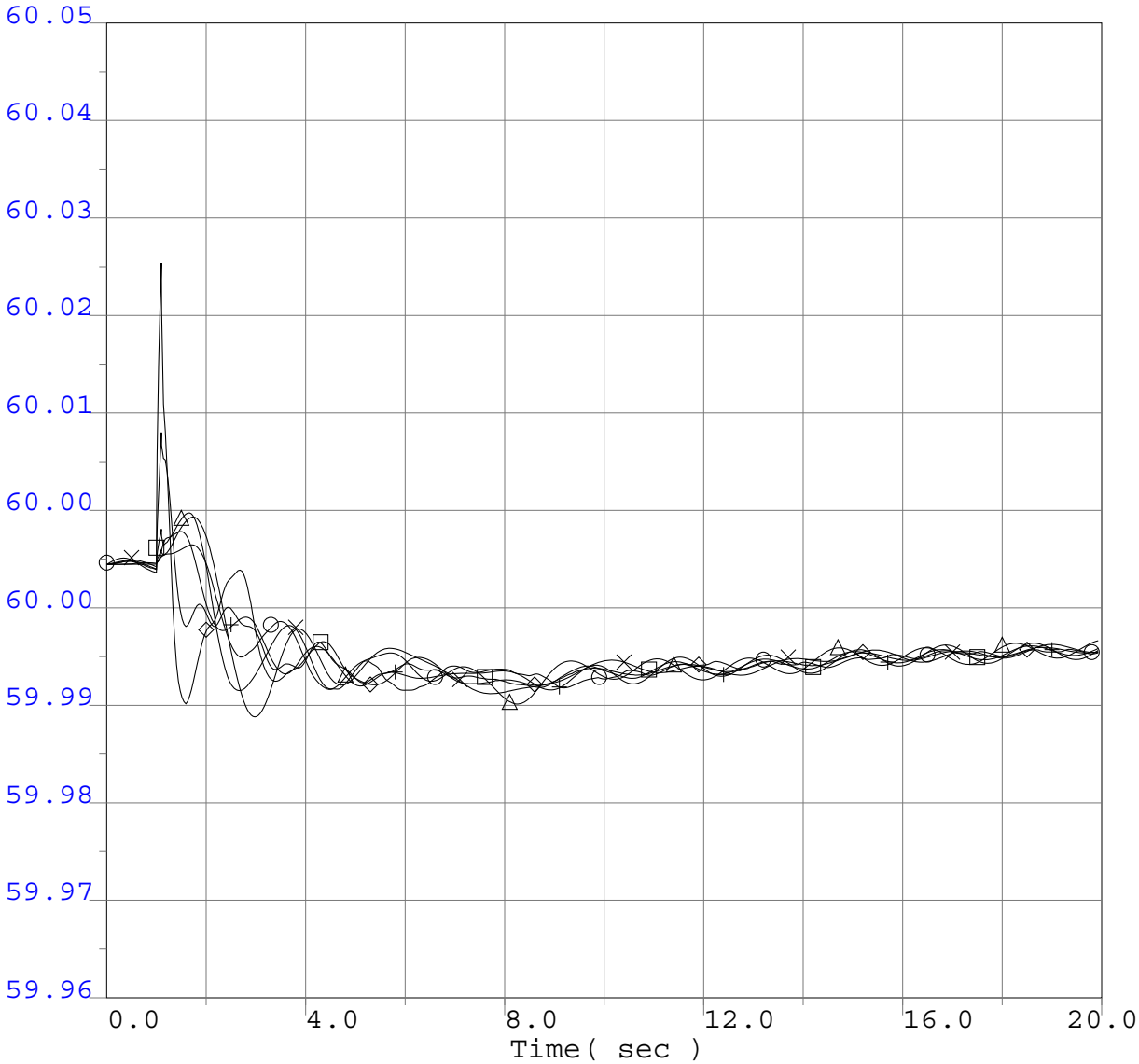
Q268 Project Interconnection System Impact Study

Selected WECC Bus Frequency Plots

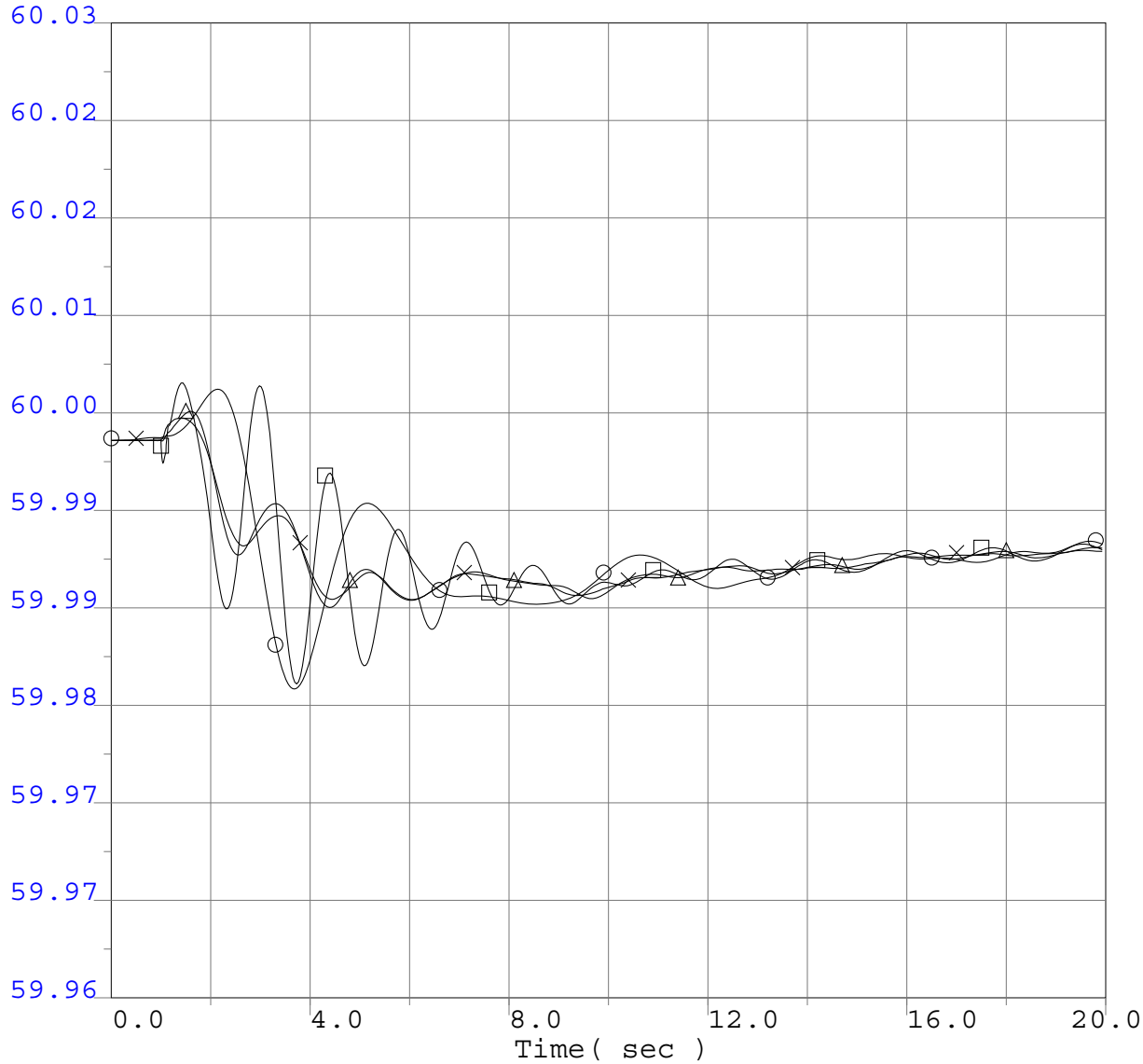


59.9600	fbus	14001	FOURCORN	500.0	0	0.0	"*"	1	60.0500
59.9600	fbus	50703	NIC500	500.0	0	0.0	"*"	1	60.0500
59.9600	fbus	60240	MIDPOINT	500.0	0	0.0	"*"	1	60.0500
59.9600	fbus	62012	TOWN2	500.0	0	0.0	"*"	1	60.0500
59.9600	fbus	40687	MALIN	500.0	0	0.0	"*"	1	60.0500
59.9600	fbus	66340	SIGURD	345.0	0	0.0	"*"	1	60.0500

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla 115 bus 2 outage
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla 115kV bus 2

Q268 Project Interconnection System Impact Study

Selected WECC Bus Frequency Plots

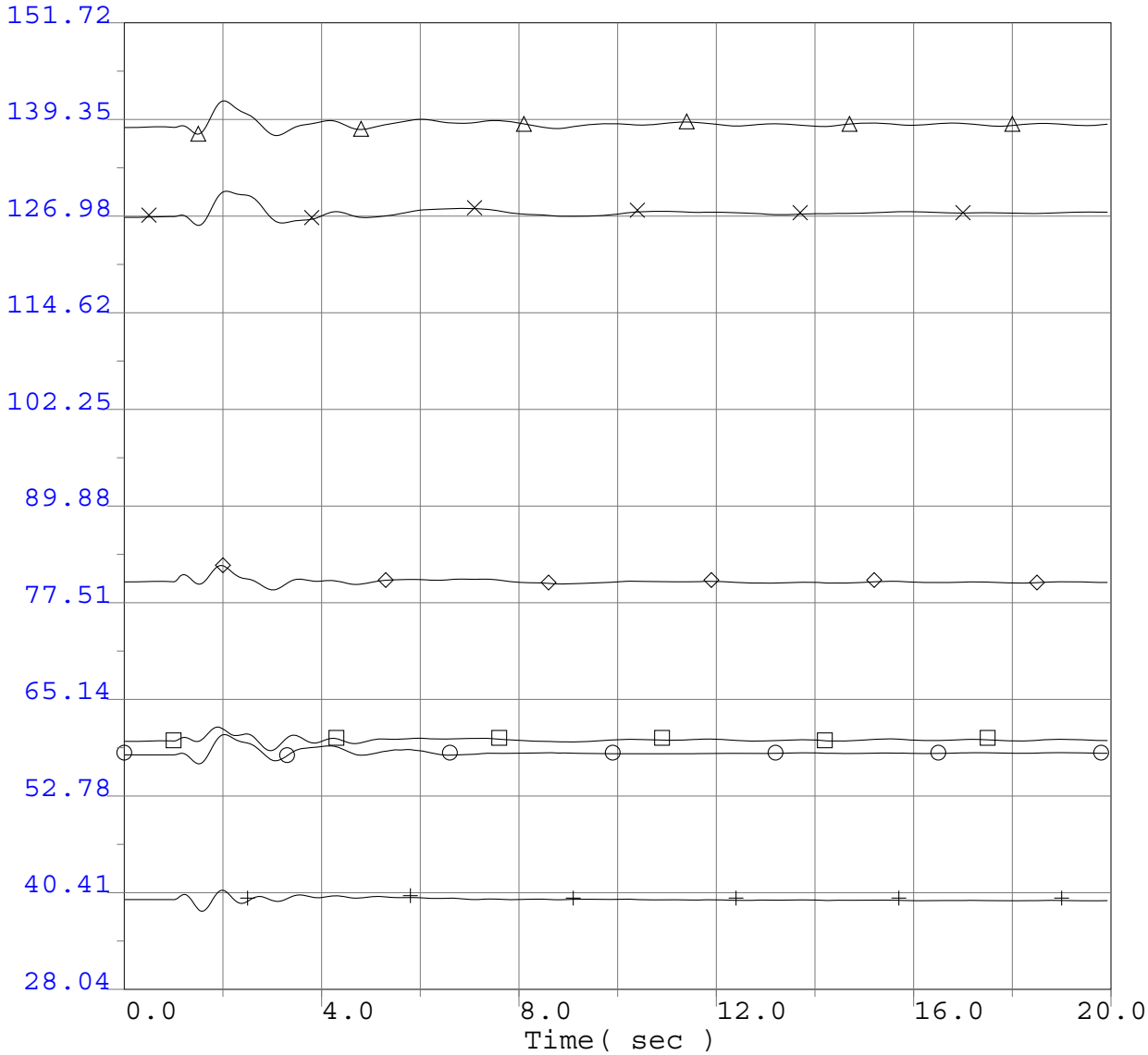


○	59.9600 fbul	54150	WILLESD9 240.0	0	0.0 "*"	1	60.0300
⊗	59.9600 fbus	14003	NAVAJO 500.0	0	0.0 "*"	1	60.0300
□	59.9600 fbus	24153	VESTAL 230.0	0	0.0 "*"	1	60.0300
△	59.9600 fbus	22360	IMPRLVLY 500.0	0	0.0 "*"	1	60.0300

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla 115 bus 2 outage
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla 115kV bus 2

Q268 Project Interconnection System Impact Study

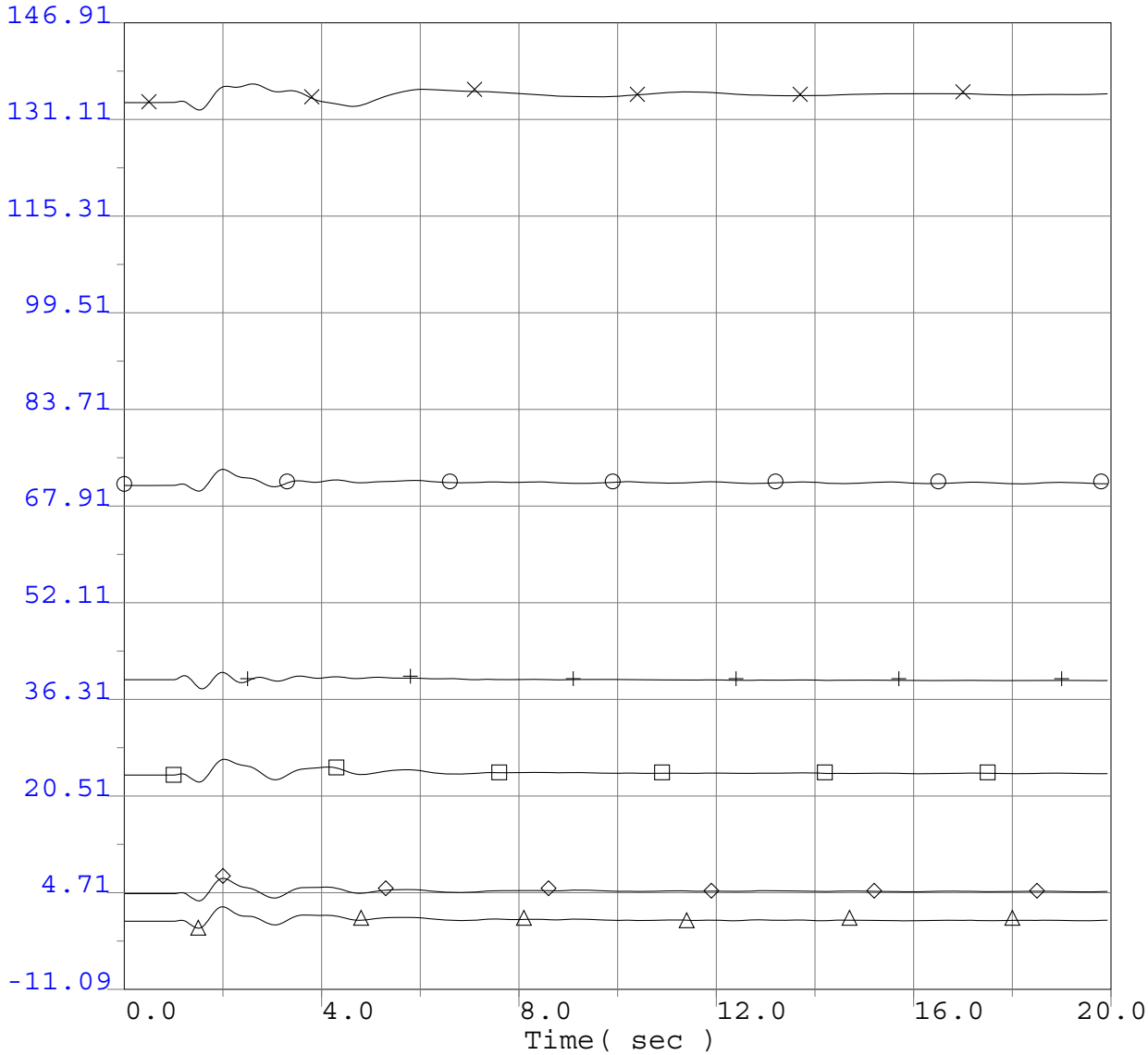
WECC Generator Rotor Angle



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla 115 bus 2 outage
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla 115kV bus 2

Q268 Project Interconnection System Impact Study

WECC Generator Rotor Angle

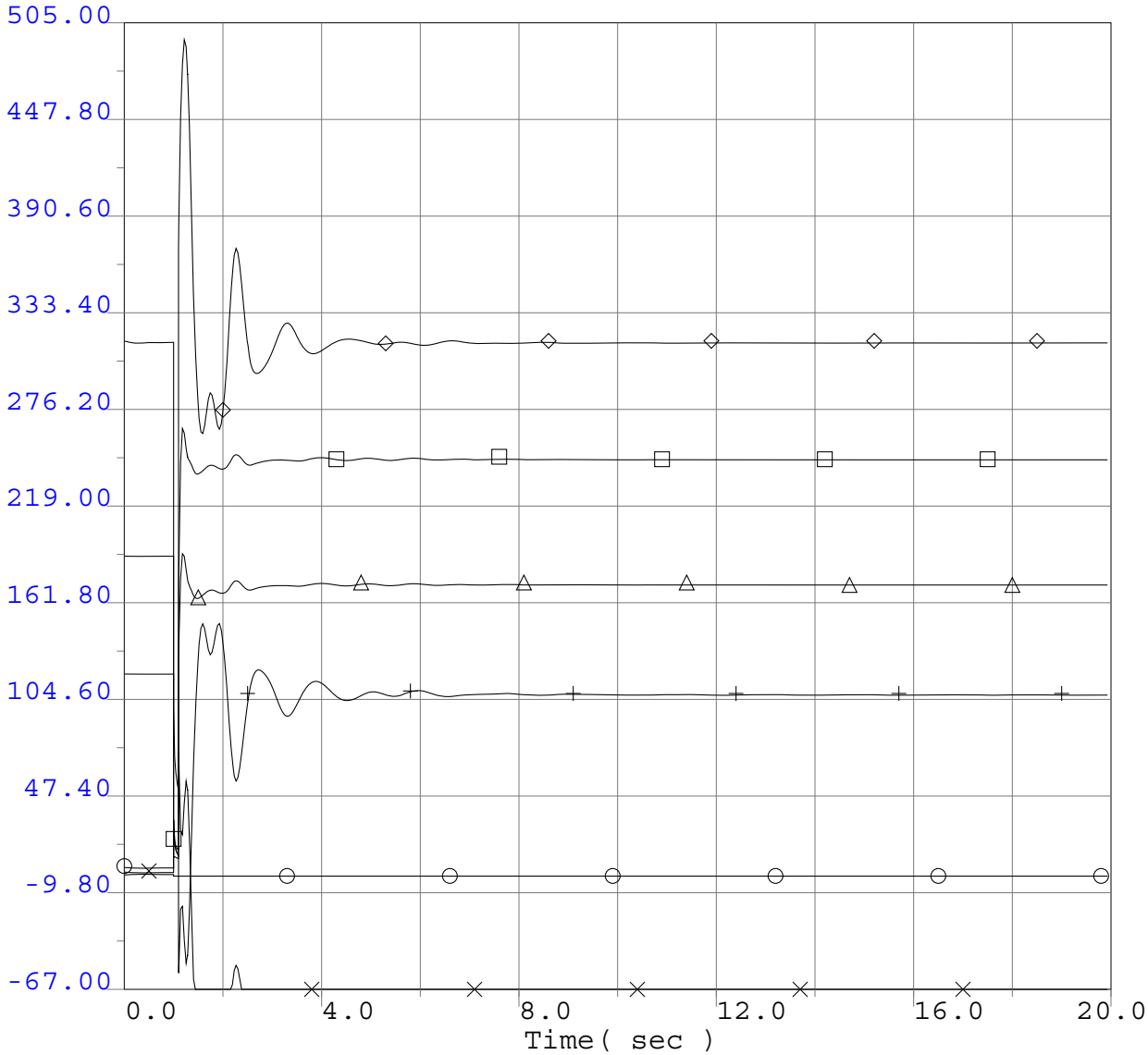


-11.0900 ang	65490	EHUNTR 1	24.0	0	0.0	"1"	1	146.9100
-11.0900 ang	54338	SUND#2GN	18.0	0	0.0	"2"	1	146.9100
-11.0900 ang	79151	GLENC3-4	13.8	0	0.0	"3"	1	146.9100
-11.0900 ang	24130	S.ONOFR3	22.0	0	0.0	"3"	1	146.9100
-11.0900 ang	22244	ENCINA 5	24.0	0	0.0	"1"	1	146.9100
-11.0900 ang	36411	DIABLO 1	25.0	0	0.0	"1"	1	146.9100

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla 115 bus 2 outage
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla 115kV bus 2

Q268 Project Interconnection System Impact Study

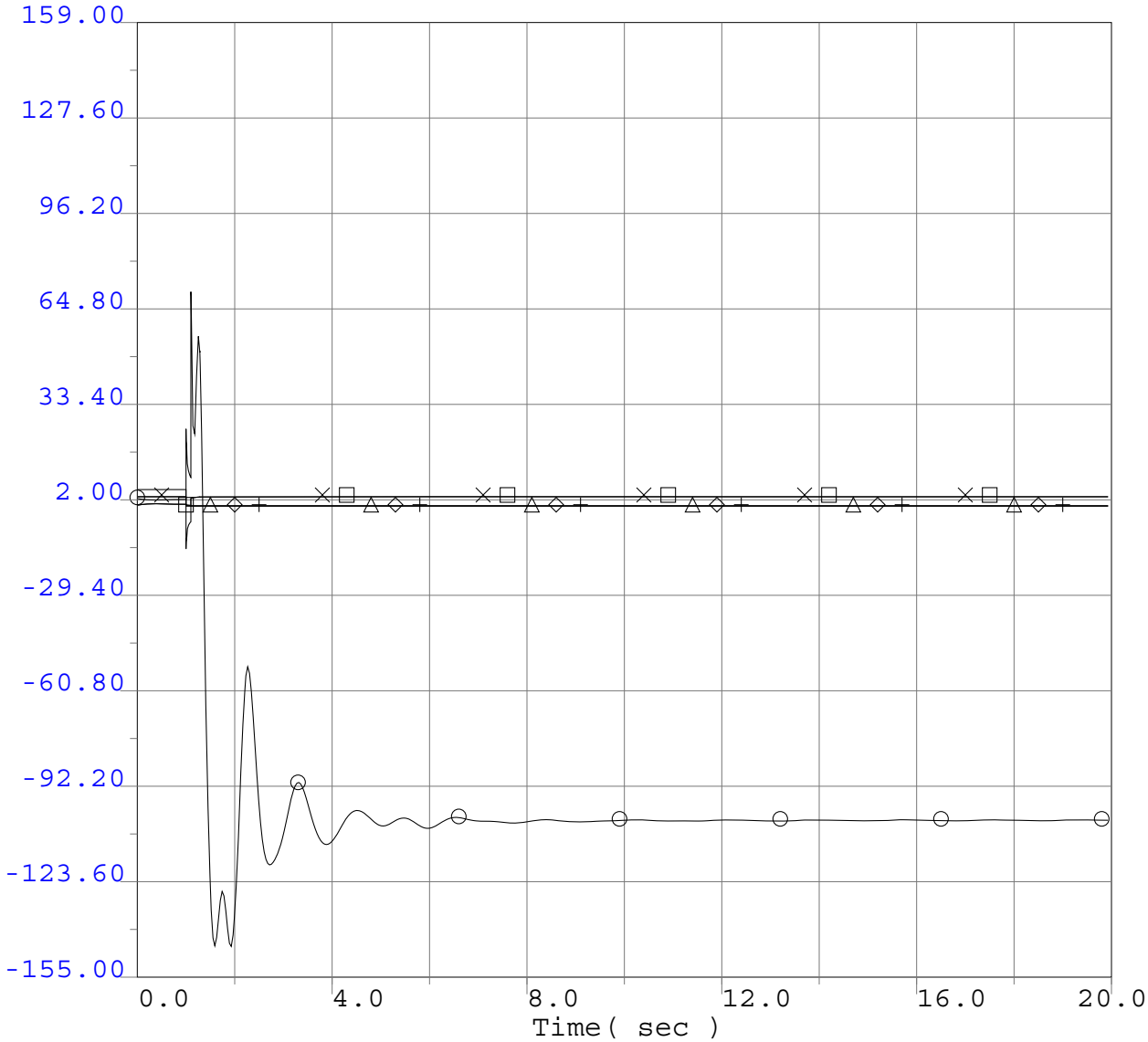
Selected PG&E Transmission Line Flows (MW)



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla 115 bus 2 outage
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla 115kV bus 2

Q268 Project Interconnection System Impact Study

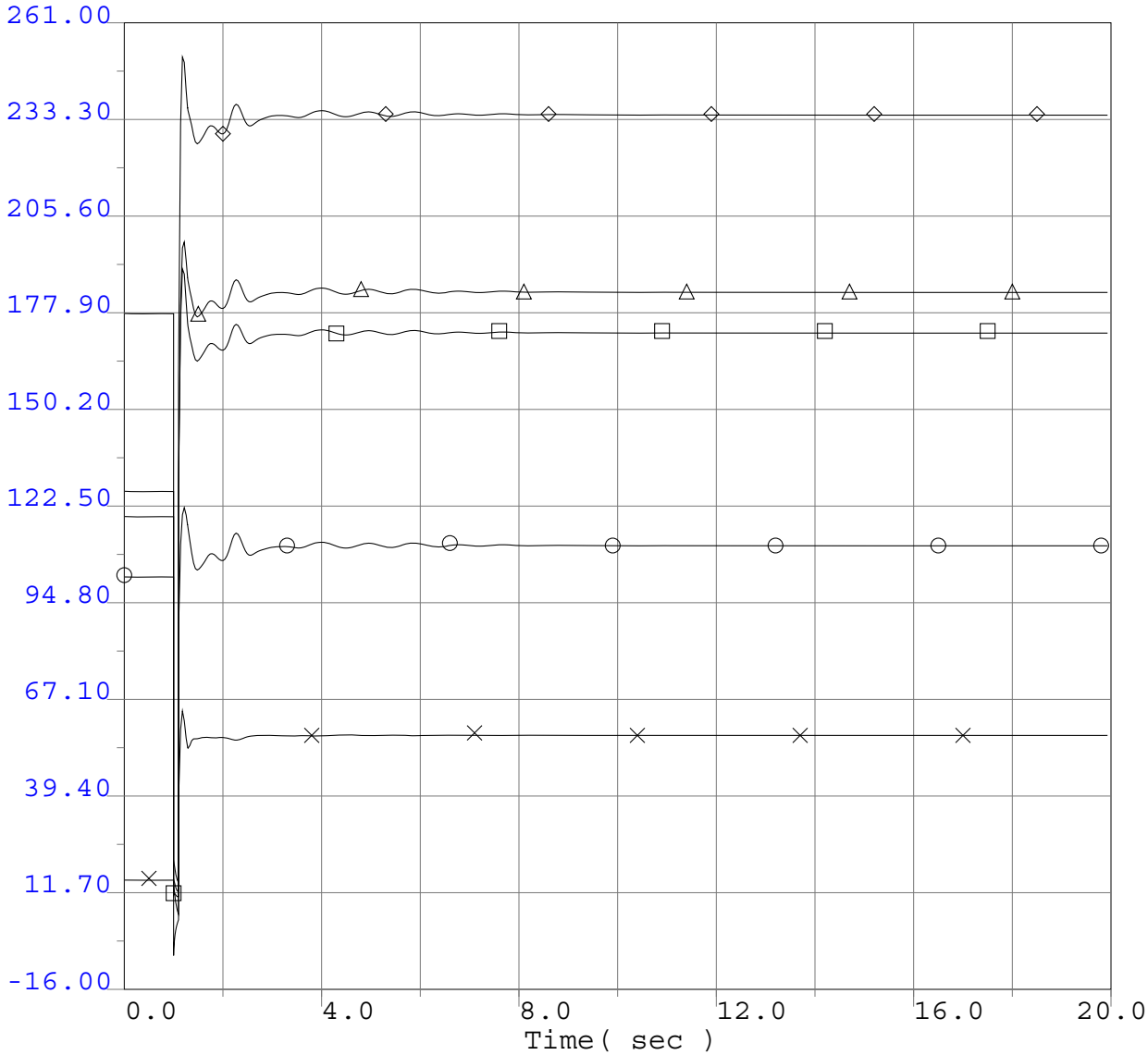
Selected PG&E Transmission Line Flows (MW)



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla 115 bus 2 outage
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla 115kV bus 2

Q268 Project Interconnection System Impact Study

Selected PG&E Transmission Line Flows (MW)

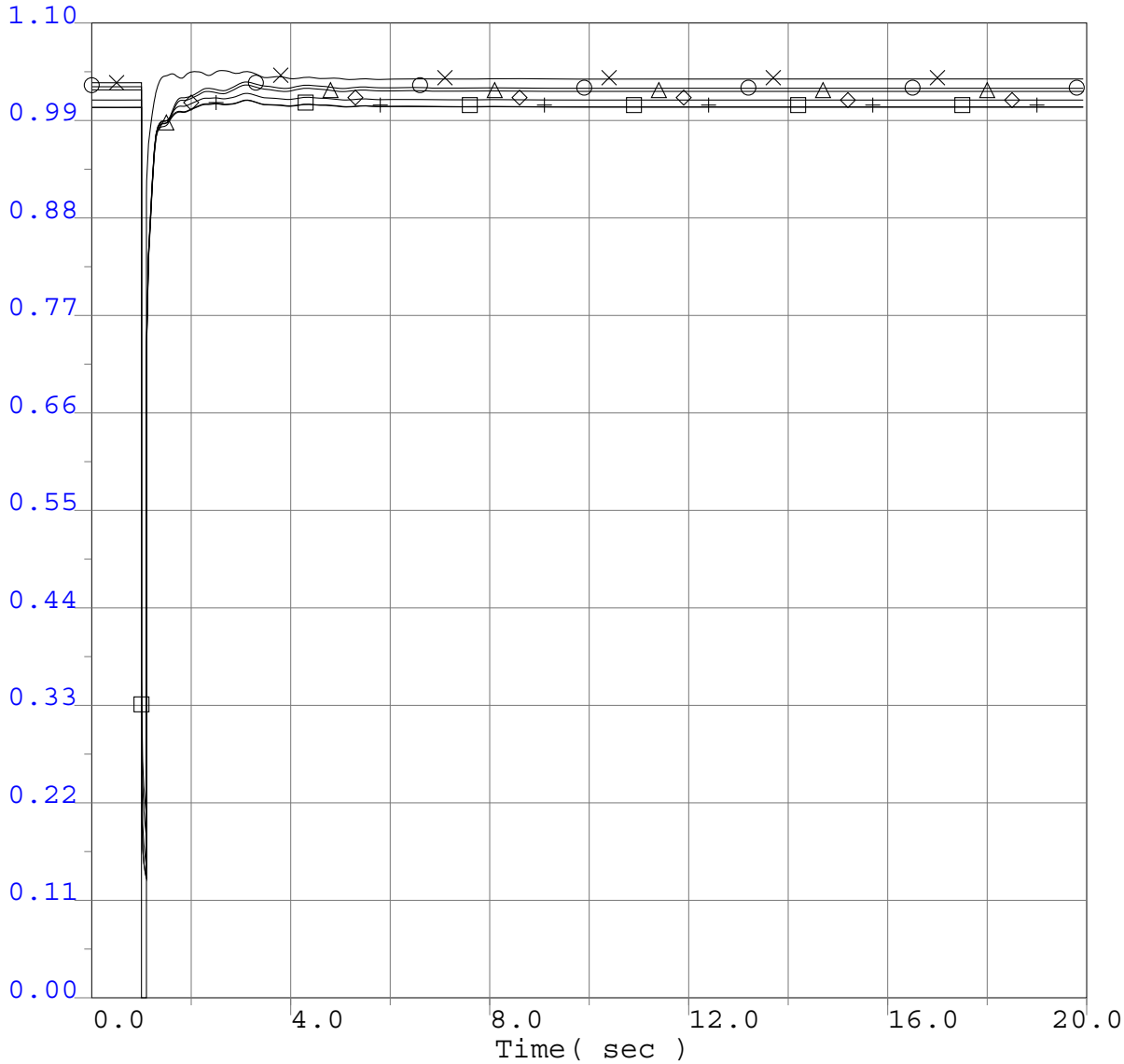


-16.0000 pbr	33526	KSSN-JC1 115.0	33514	MANTECA 115.0	1	1	261.0000
-16.0000 pbr	33526	KSSN-JC1 115.0	33528	KASSON 115.0	1	1	261.0000
-16.0000 pbr	33533	OWENSTP2 115.0	33526	KSSN-JC1 115.0	1	1	261.0000
-16.0000 pbr	33529	LAMMERS 115.0	33528	KASSON 115.0	1	1	261.0000
-16.0000 pbr	33531	OWENSTP1 115.0	33529	LAMMERS 115.0	1	1	261.0000

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla 115 bus 2 outage
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla 115kV bus 2

Q268 Project Interconnection System Impact Study

Selected PG&E Bus Voltage Plots Adjacent to Fault

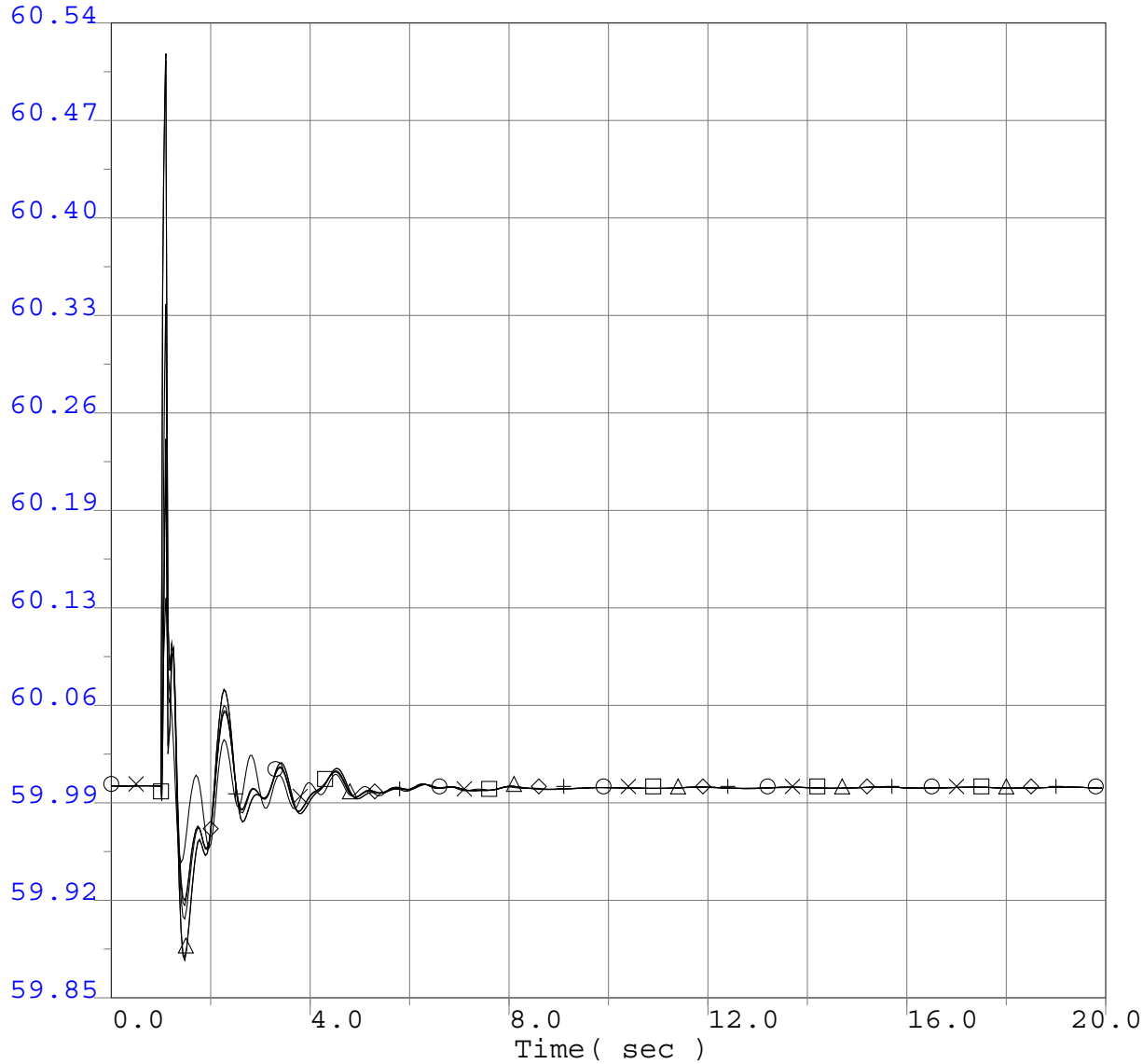


0.0000	vbus	33549	SCHULTE 115.0	0	0.0	"*"	1	1.1000
0.0000	vbus	33540	TESLA 115.0	0	0.0	"*"	1	1.1000
0.0000	vbul	33514	MANTECA 115.0	0	0.0	"*"	1	1.1000
0.0000	vbul	33529	LAMMERS 115.0	0	0.0	"*"	1	1.1000
0.0000	vbus	33528	KASSON 115.0	0	0.0	"*"	1	1.1000
0.0000	vbul	33518	VIERRA 115.0	0	0.0	"*"	1	1.1000

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 1&2 115kV double-line outage
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 1&2 115kV lines

Q268 Project Interconnection System Impact Study

Selected PG&E Bus Frequency Plots Adjacent to Fault

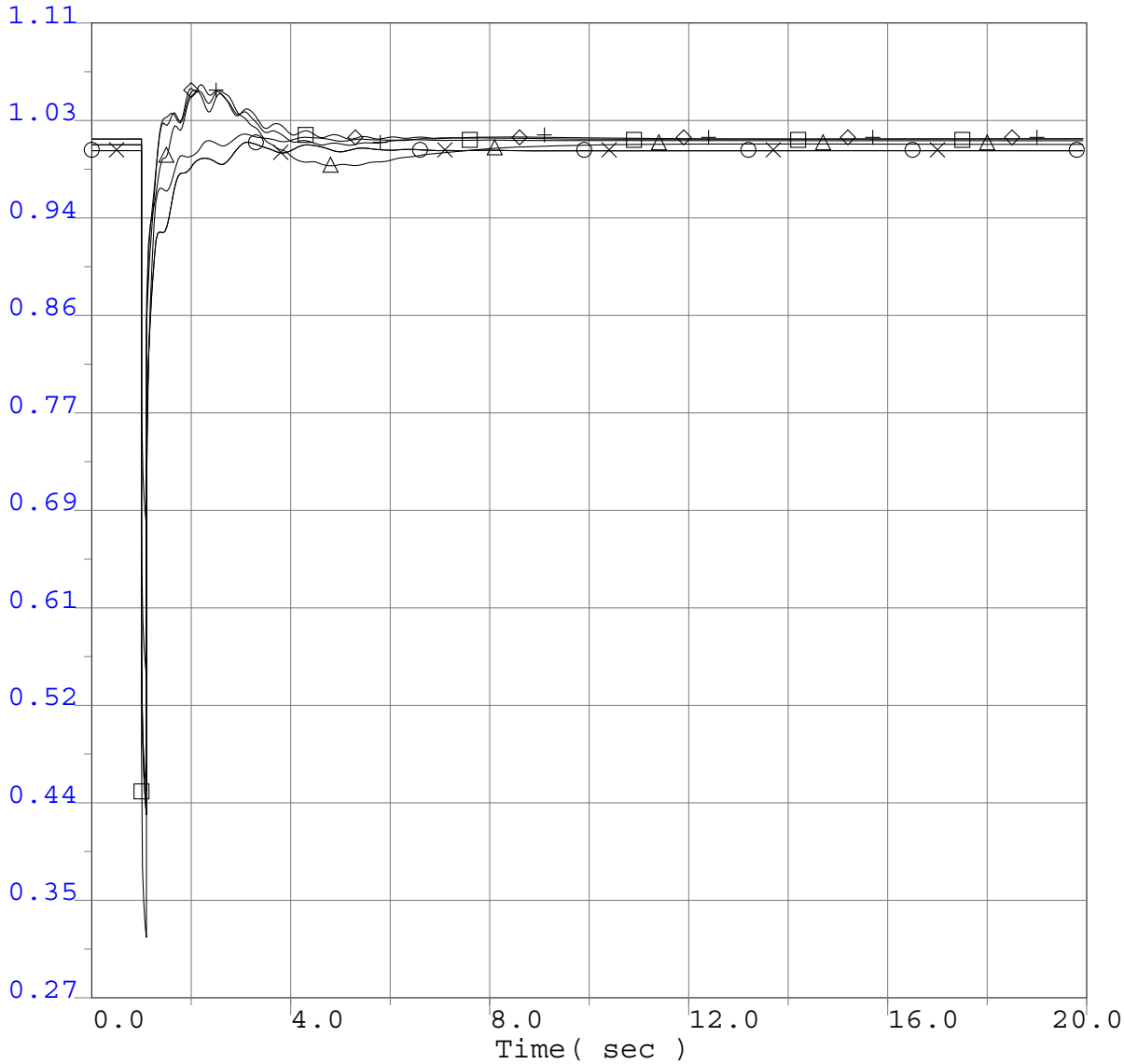


○	59.8500 fbus	33549	SCHULTE 115.0	0	0.0 "*"	1	60.5400
×	59.8500 fbus	33540	TESLA 115.0	0	0.0 "*"	1	60.5400
□	59.8500 fbul	33514	MANTECA 115.0	0	0.0 "*"	1	60.5400
△	59.8500 fbul	33529	LAMMERS 115.0	0	0.0 "*"	1	60.5400
◇	59.8500 fbus	33528	KASSON 115.0	0	0.0 "*"	1	60.5400
+	59.8500 fbul	33518	VIERRA 115.0	0	0.0 "*"	1	60.5400

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 1&2 115kV double-line outage
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 1&2 115kV lines

Q268 Project Interconnection System Impact Study

Project Generator Terminal Voltages

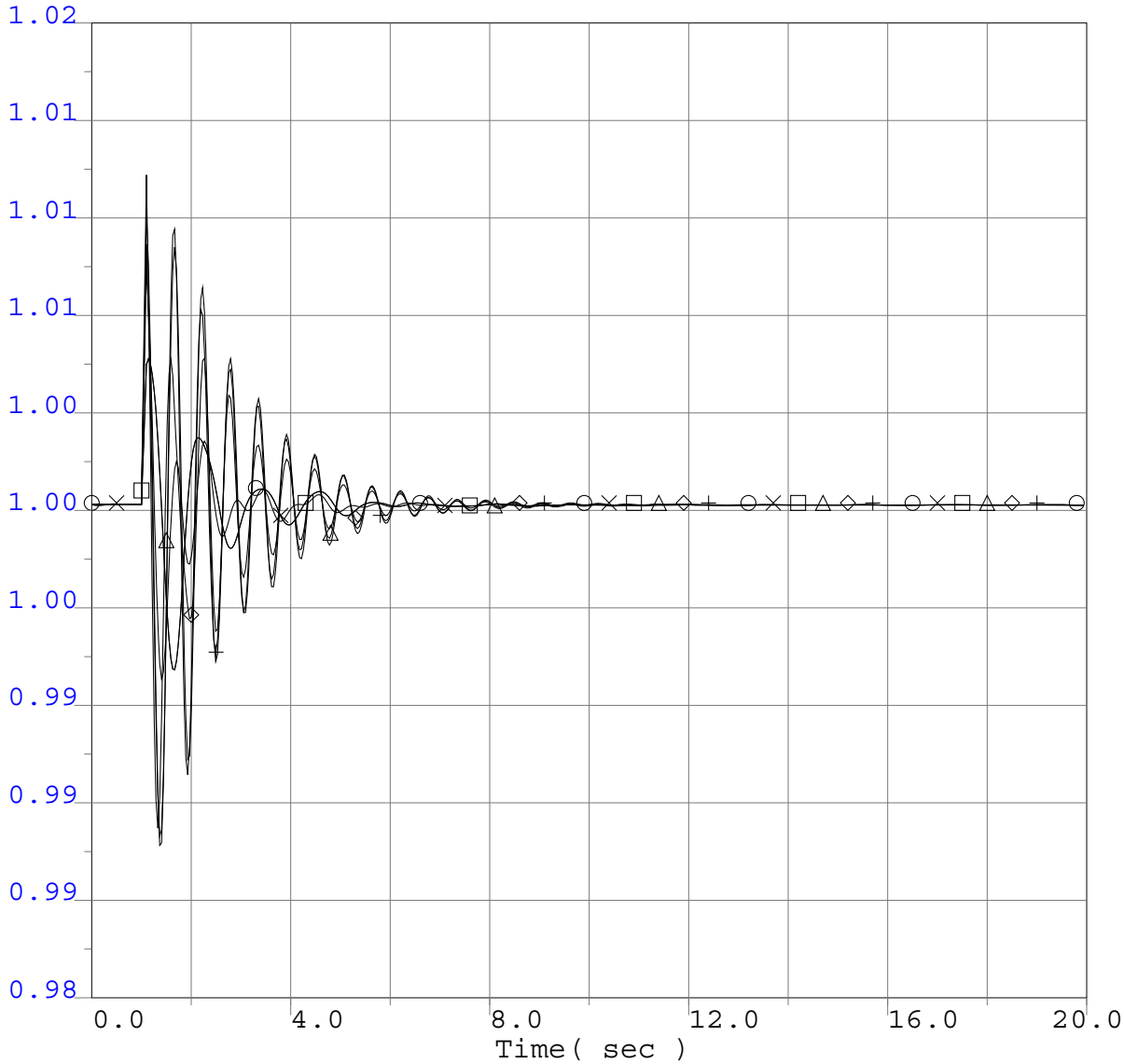


0.2700 vt	33805	GWFTRCY1	13.8	0	0.0 "1"	1	1.1100
0.2700 vt	33807	GWFTRCY2	13.8	0	0.0 "1"	1	1.1100
0.2700 vt	33809	Q268ST1	13.8	0	0.0 "1"	1	1.1100
0.2700 vt	33858	P0409CG2	13.8	0	0.0 "1"	1	1.1100
0.2700 vt	33808	SJ COGEN	13.8	0	0.0 "1"	1	1.1100
0.2700 vt	33810	SP CMPNY	13.8	0	0.0 "1"	1	1.1100

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 1&2 115kV double-line outage
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 1&2 115kV lines

Q268 Project Interconnection System Impact Study

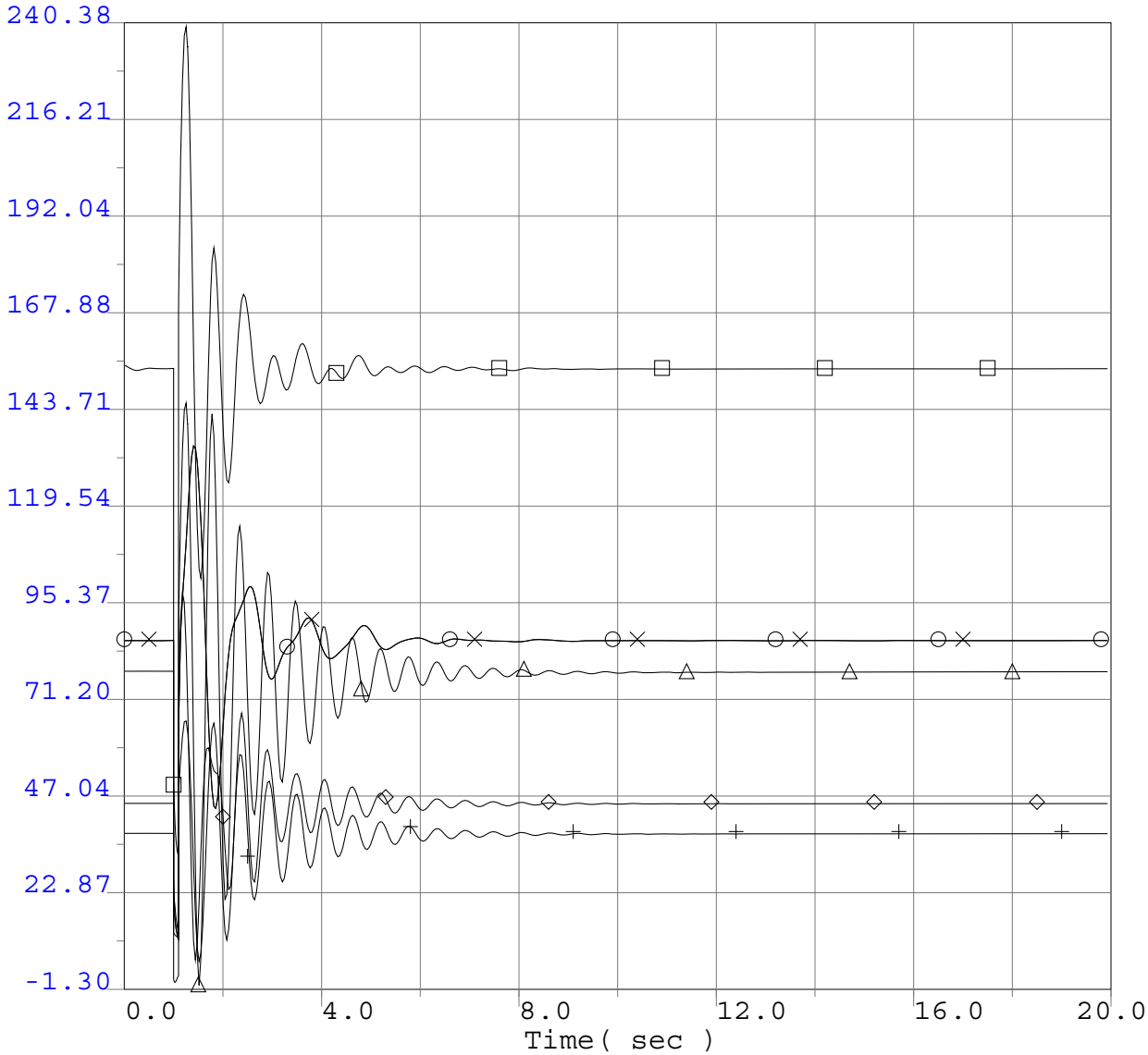
Project Generator Rotor Speed



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 1&2 115kV double-line outage
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 1&2 115kV lines

Q268 Project Interconnection System Impact Study

Project Generator Terminal Power

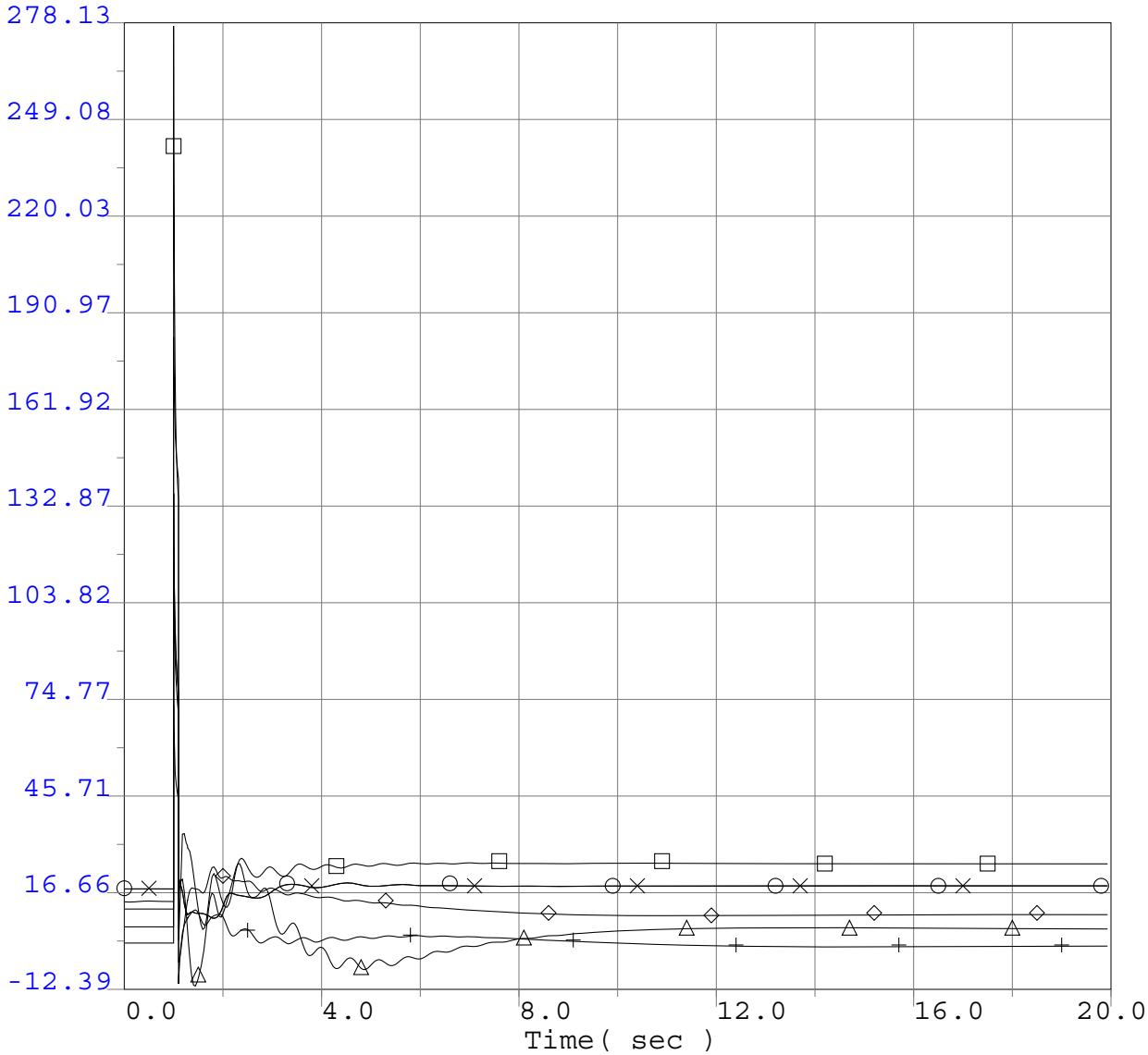


-1.3000 pg	33805	GWFTRCY1	13.8	0	0.0 "1"	1	240.3800
-1.3000 pg	33807	GWFTRCY2	13.8	0	0.0 "1"	1	240.3800
-1.3000 pg	33809	Q268ST1	13.8	0	0.0 "1"	1	240.3800
-1.3000 pg	33858	P0409CG2	13.8	0	0.0 "1"	1	240.3800
-1.3000 pg	33808	SJ COGEN	13.8	0	0.0 "1"	1	240.3800
-1.3000 pg	33810	SP CMPNY	13.8	0	0.0 "1"	1	240.3800

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 1&2 115kV double-line outage
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 1&2 115kV lines

Q268 Project Interconnection System Impact Study

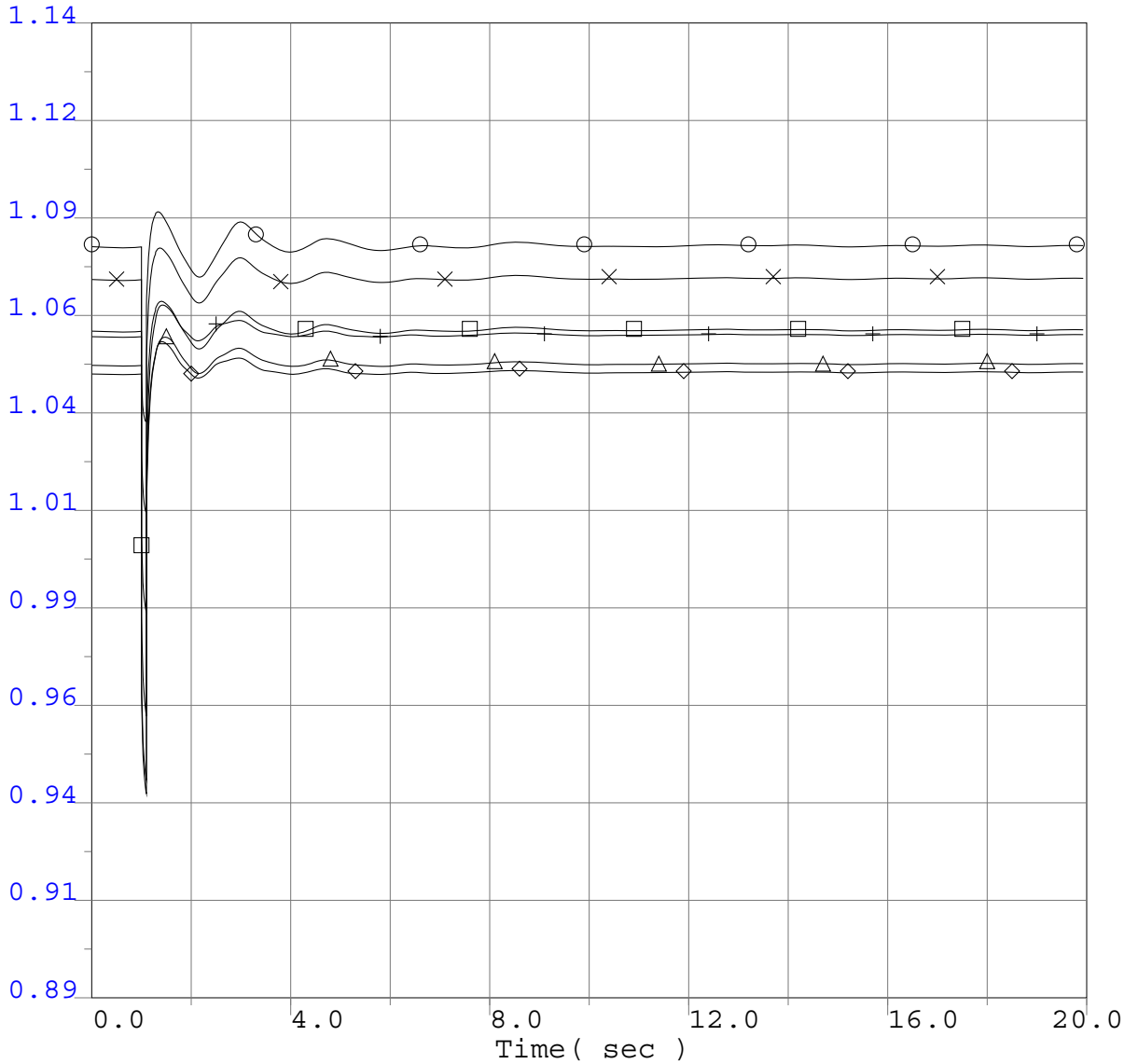
Project Generator Terminal Reactive Power



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 1&2 115kV double-line outage
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 1&2 115kV lines

Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots

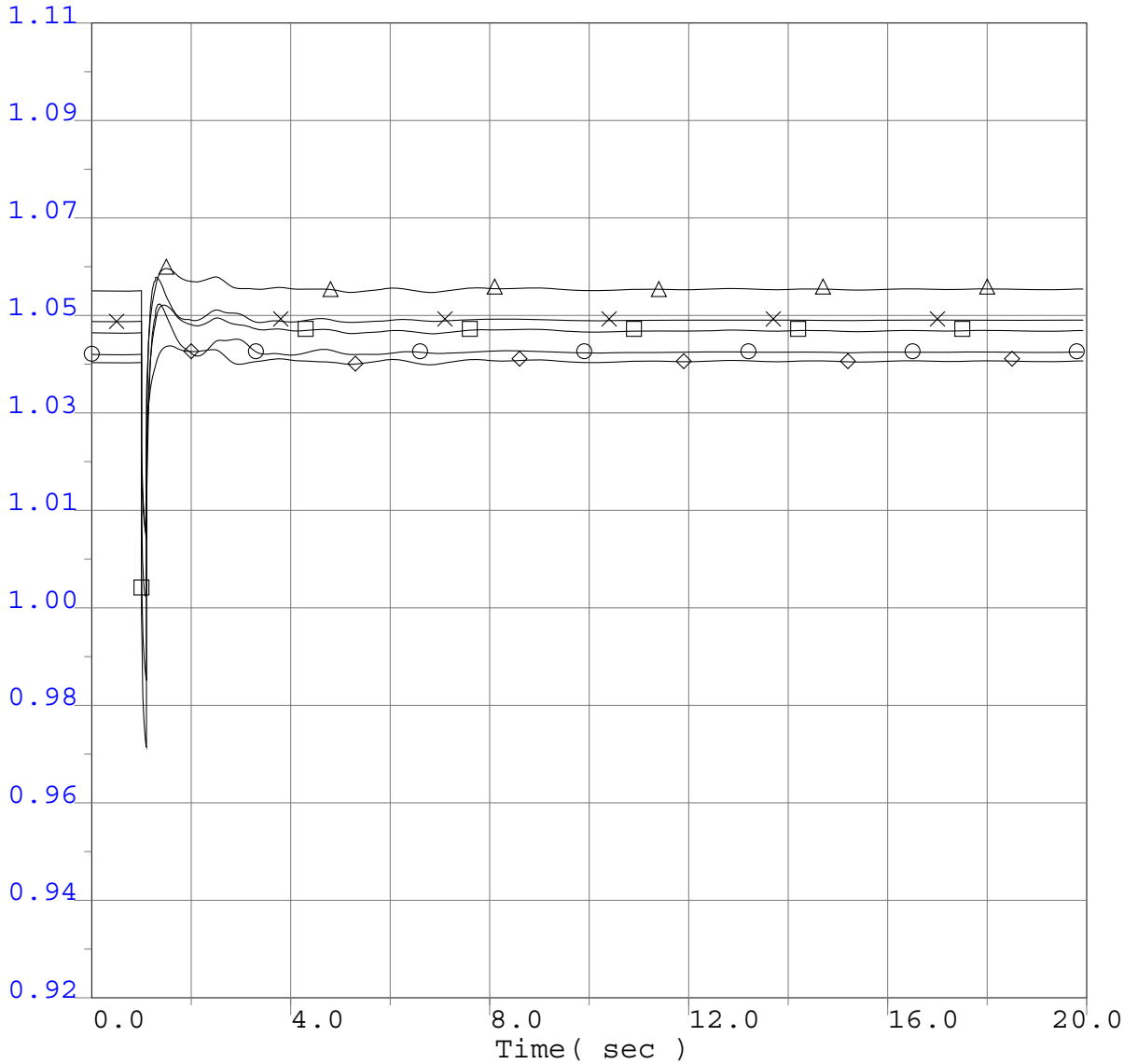


0.8900	vbus	40687	MALIN	500.0	0	0.0 "*"	1	1.1400
0.8900	vbus	30005	ROUND MT	500.0	0	0.0 "*"	1	1.1400
0.8900	vbus	30015	TABLE MT	500.0	0	0.0 "*"	1	1.1400
0.8900	vbus	30030	VACA-DIX	500.0	0	0.0 "*"	1	1.1400
0.8900	vbus	30040	TESLA	500.0	0	0.0 "*"	1	1.1400
0.8900	vbus	30035	TRACY	500.0	0	0.0 "*"	1	1.1400

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 1&2 115kV double-line outage
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 1&2 115kV lines

Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots

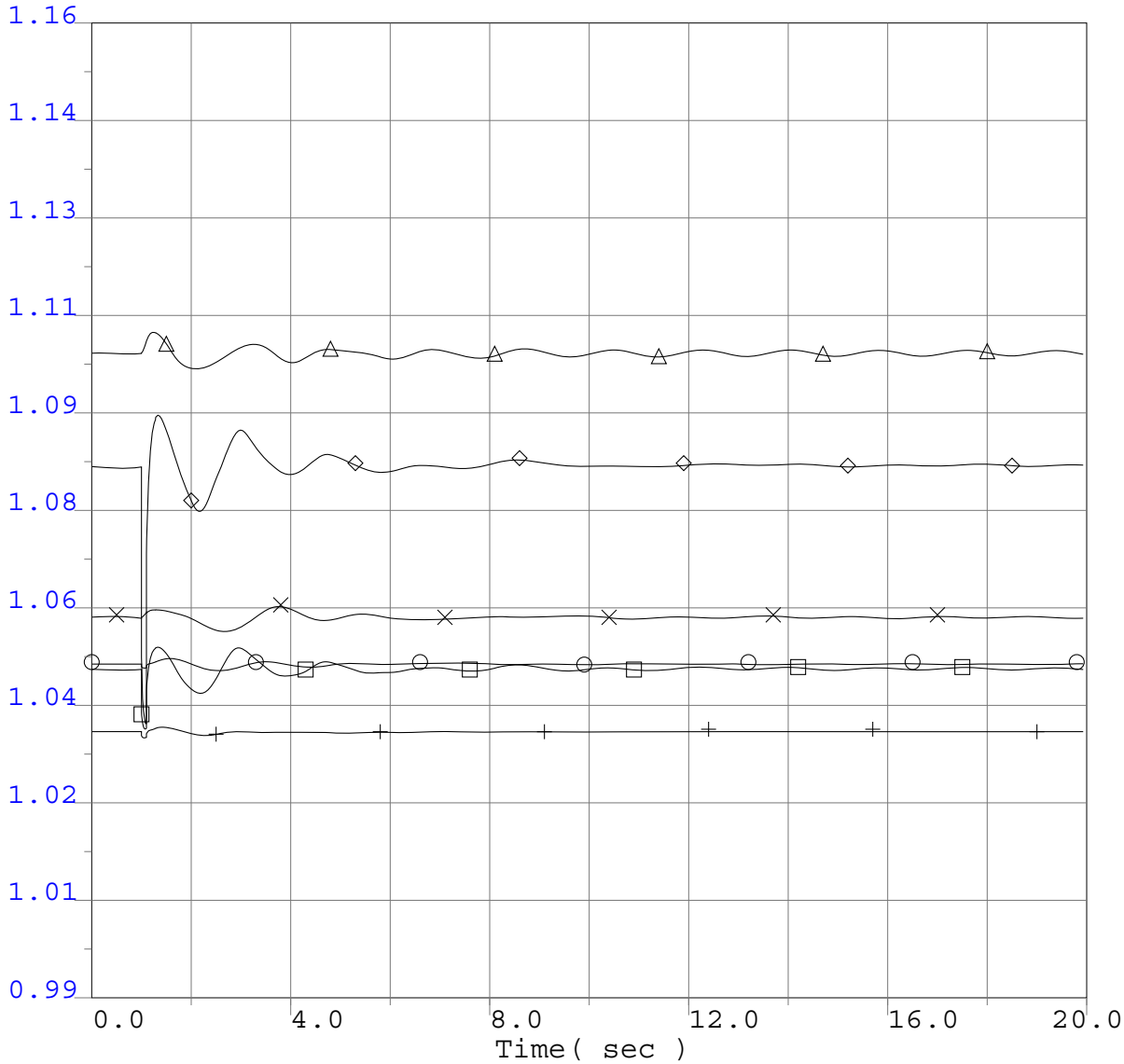


○	0.9200 vbus	30042	METCALF 500.0	0	0.0 "*"	1	1.1100
⊗	0.9200 vbus	30045	MOSSLAND 500.0	0	0.0 "*"	1	1.1100
□	0.9200 vbus	30050	LOSBANOS 500.0	0	0.0 "*"	1	1.1100
△	0.9200 vbus	30055	GATES 500.0	0	0.0 "*"	1	1.1100
◇	0.9200 vbus	30060	MIDWAY 500.0	0	0.0 "*"	1	1.1100

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 1&2 115kV double-line outage
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 1&2 115kV lines

Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots

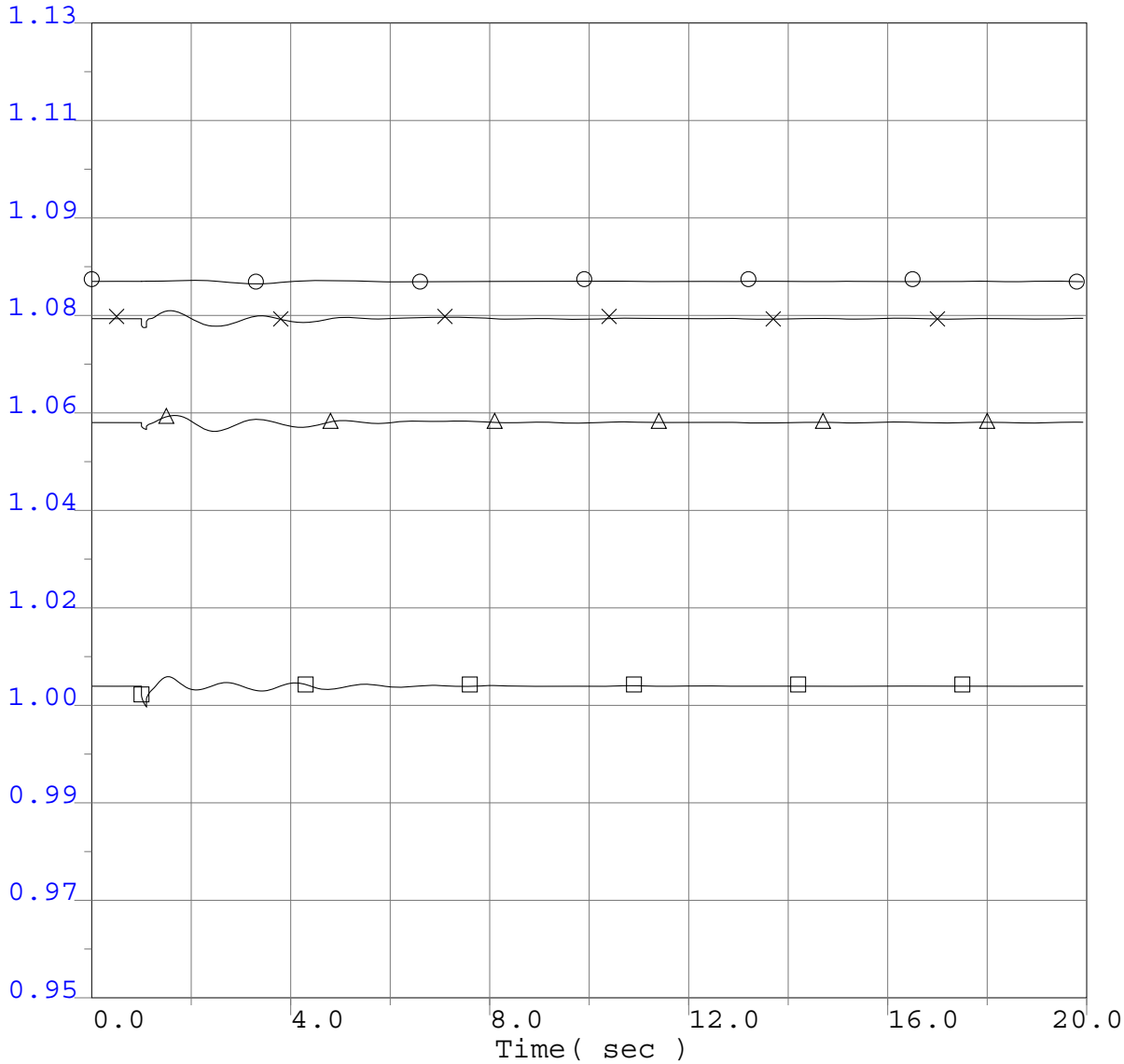


0.9900	vbus	14001	FOURCORN	500.0	0	0.0 "*"	1	1.1600
0.9900	vbus	50703	NIC500	500.0	0	0.0 "*"	1	1.1600
0.9900	vbus	60240	MIDPOINT	500.0	0	0.0 "*"	1	1.1600
0.9900	vbus	62012	TOWN2	500.0	0	0.0 "*"	1	1.1600
0.9900	vbus	40687	MALIN	500.0	0	0.0 "*"	1	1.1600
0.9900	vbus	66340	SIGURD	345.0	0	0.0 "*"	1	1.1600

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 1&2 115kV double-line outage
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 1&2 115kV lines

Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots

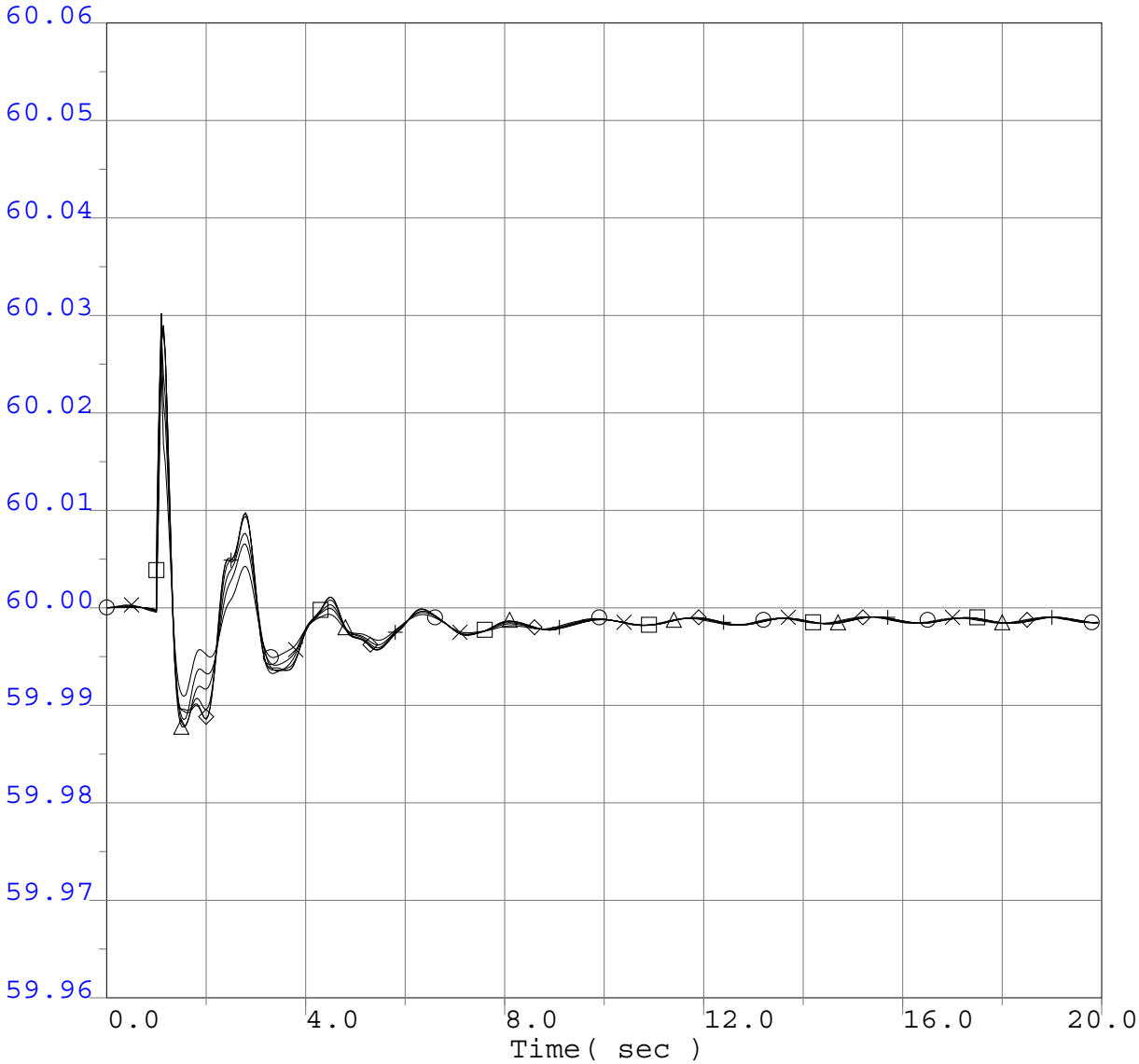


○	0.9500 vbul	54150	WILLESD9 240.0	0	0.0 "*"	1	1.1300
⊗	0.9500 vbus	14003	NAVAJO 500.0	0	0.0 "*"	1	1.1300
□	0.9500 vbus	24153	VESTAL 230.0	0	0.0 "*"	1	1.1300
△	0.9500 vbus	22360	IMPRLVLY 500.0	0	0.0 "*"	1	1.1300

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 1&2 115kV double-line outage
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 1&2 115kV lines

Q268 Project Interconnection System Impact Study

Selected WECC Bus Frequency Plots



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 1&2 115kV double-line outage
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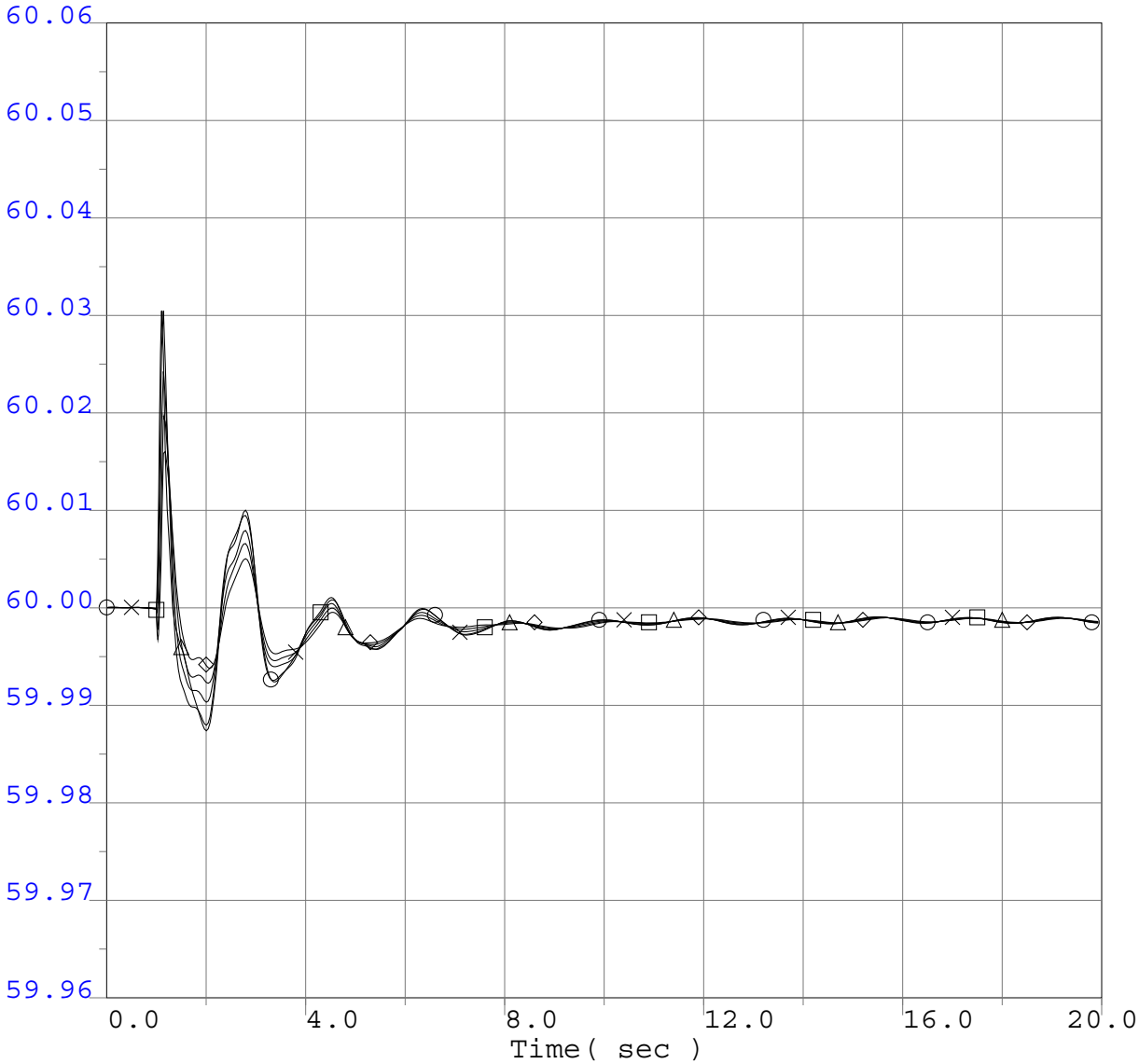
Q268 Project Interconnection System Impact Study

Selected WECC Bus Frequency Plots

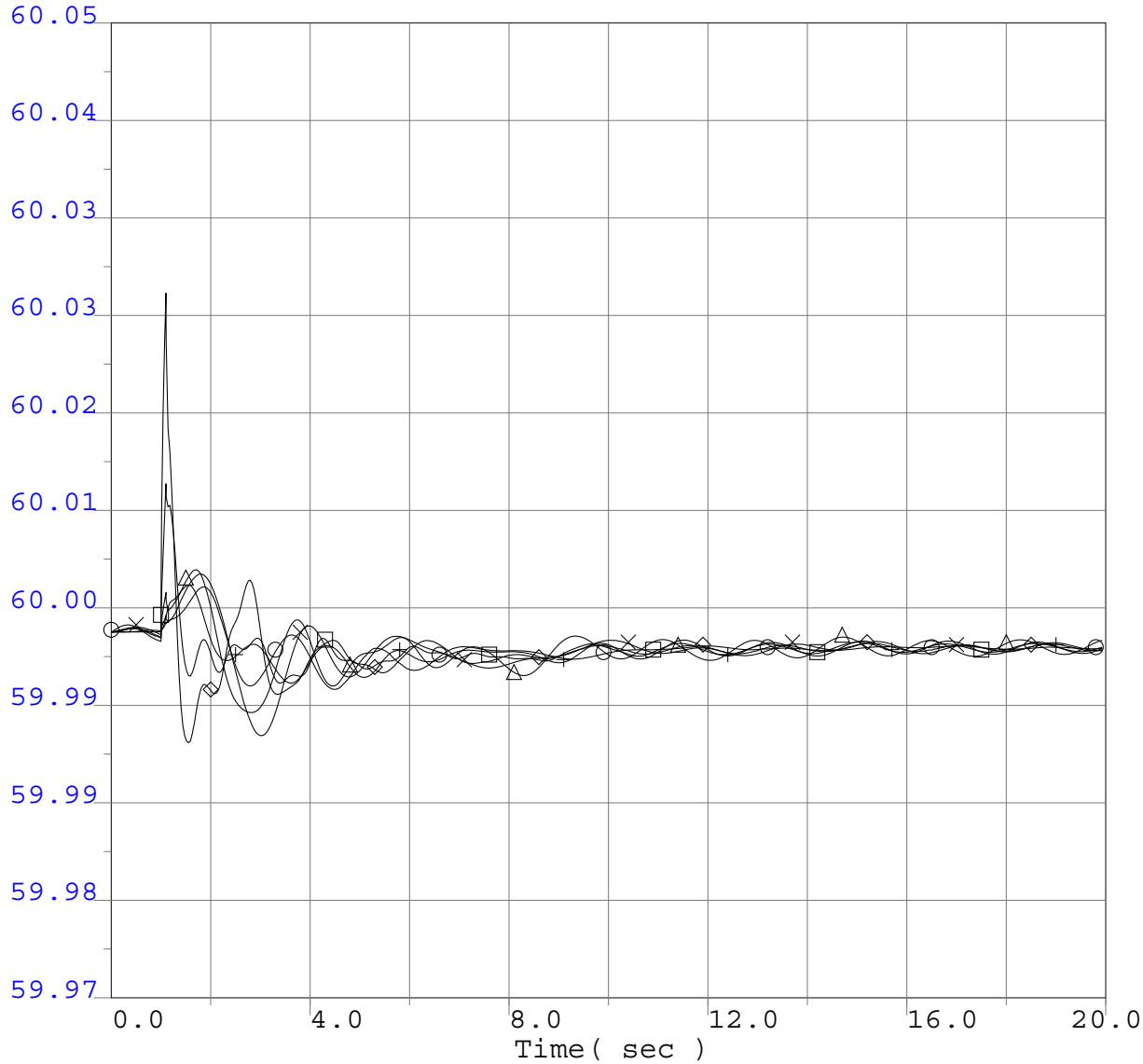


○	59.9600 fbus	30042	METCALF 500.0	0	0.0 "*"	1	60.0600
×	59.9600 fbus	30045	MOSSLAND 500.0	0	0.0 "*"	1	60.0600
□	59.9600 fbus	30050	LOSBANOS 500.0	0	0.0 "*"	1	60.0600
△	59.9600 fbus	30055	GATES 500.0	0	0.0 "*"	1	60.0600
◇	59.9600 fbus	30060	MIDWAY 500.0	0	0.0 "*"	1	60.0600

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 1&2 115kV double-line outage
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 1&2 115kV lines

Q268 Project Interconnection System Impact Study

Selected WECC Bus Frequency Plots



59.9700	fbus	14001	FOURCORN	500.0	0	0.0	"*"	1	60.0500
59.9700	fbus	50703	NIC500	500.0	0	0.0	"*"	1	60.0500
59.9700	fbus	60240	MIDPOINT	500.0	0	0.0	"*"	1	60.0500
59.9700	fbus	62012	TOWN2	500.0	0	0.0	"*"	1	60.0500
59.9700	fbus	40687	MALIN	500.0	0	0.0	"*"	1	60.0500
59.9700	fbus	66340	SIGURD	345.0	0	0.0	"*"	1	60.0500

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
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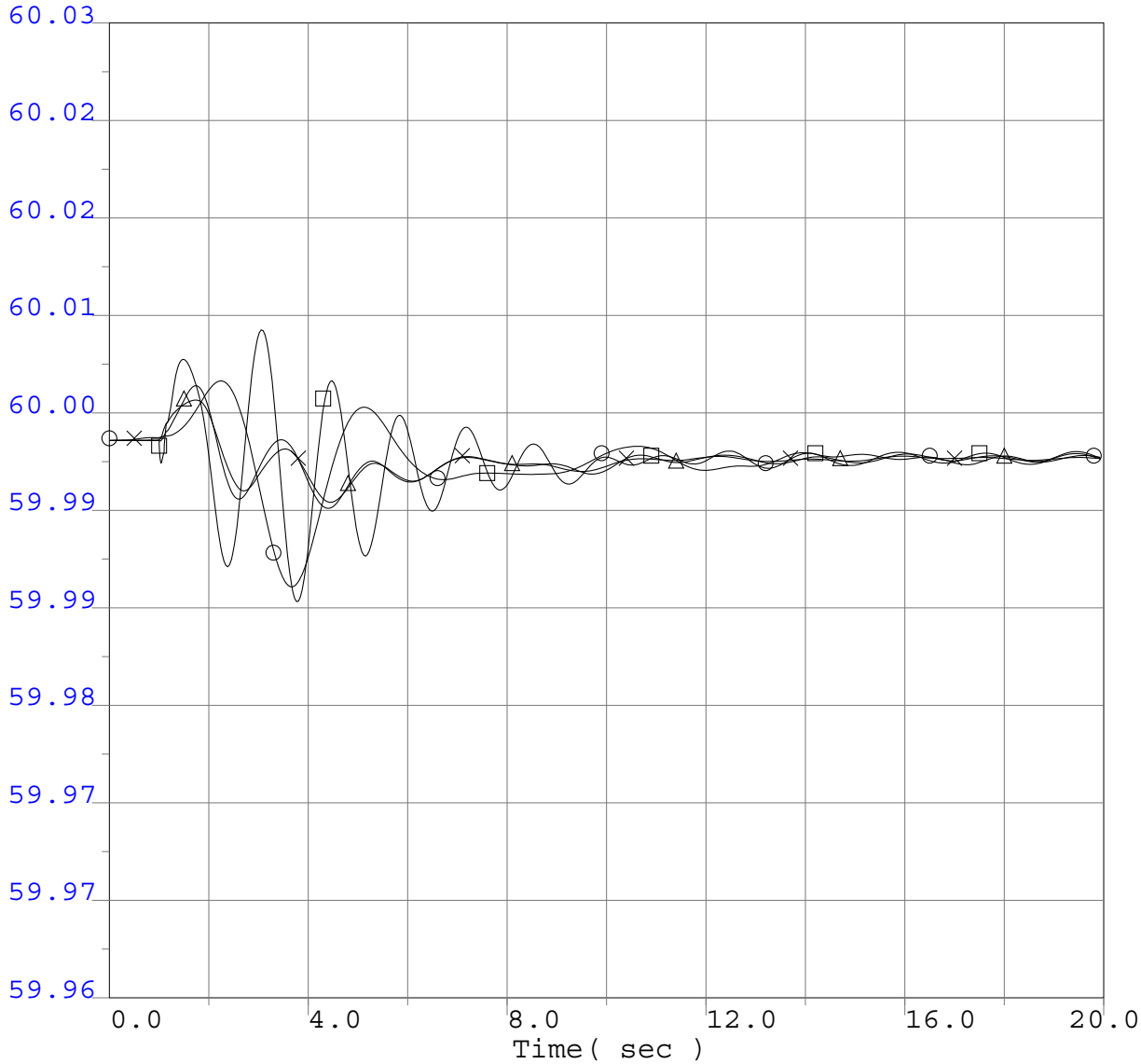
Q268 Project Interconnection System Impact Study

Selected WECC Bus Frequency Plots

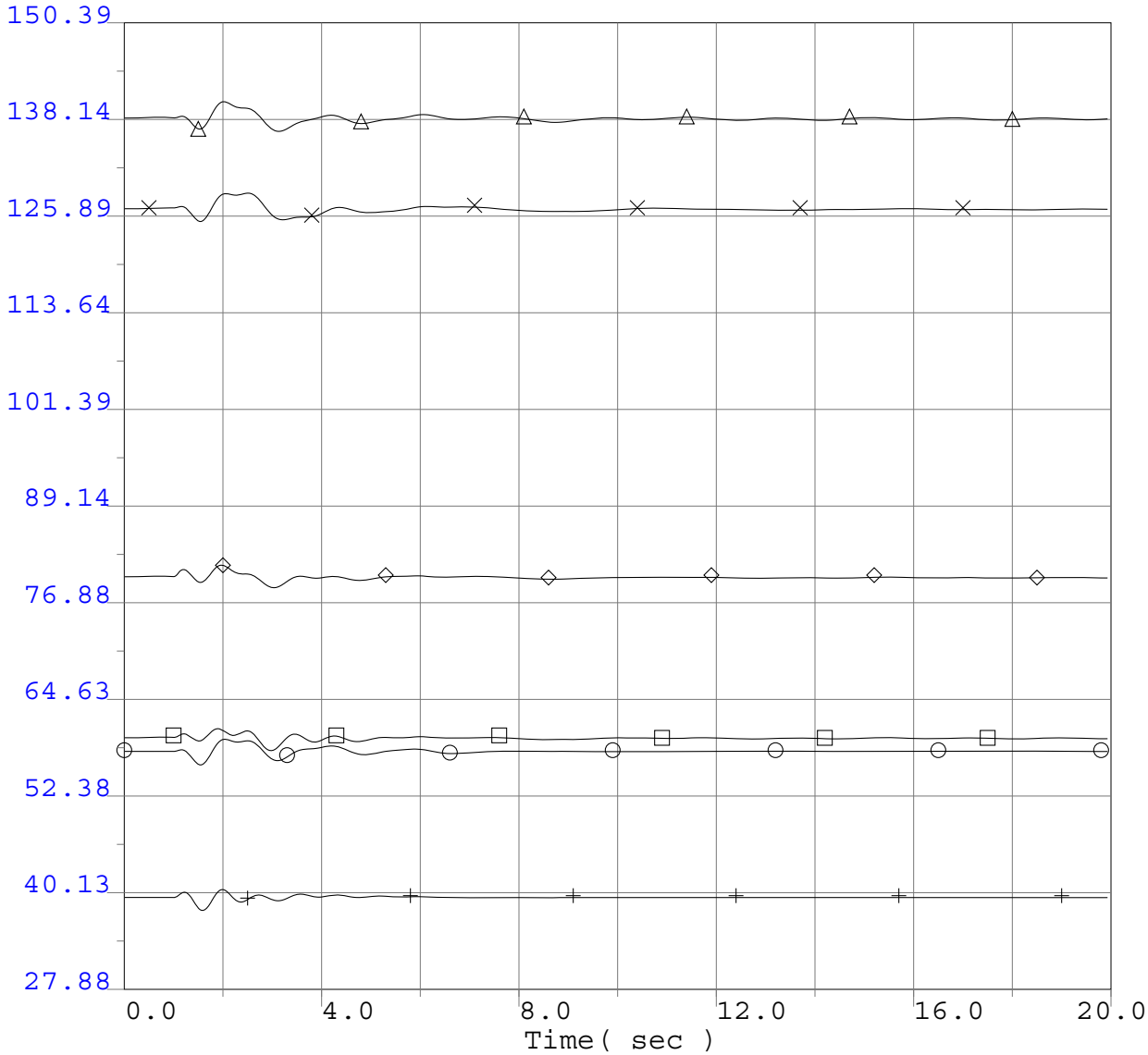


○	59.9600 fbul	54150	WILLESD9 240.0	0	0.0 "*"	1	60.0300
⊗	59.9600 fbus	14003	NAVAJO 500.0	0	0.0 "*"	1	60.0300
□	59.9600 fbus	24153	VESTAL 230.0	0	0.0 "*"	1	60.0300
△	59.9600 fbus	22360	IMPRLVLY 500.0	0	0.0 "*"	1	60.0300

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 1&2 115kV double-line outage
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 1&2 115kV lines

Q268 Project Interconnection System Impact Study

WECC Generator Rotor Angle



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
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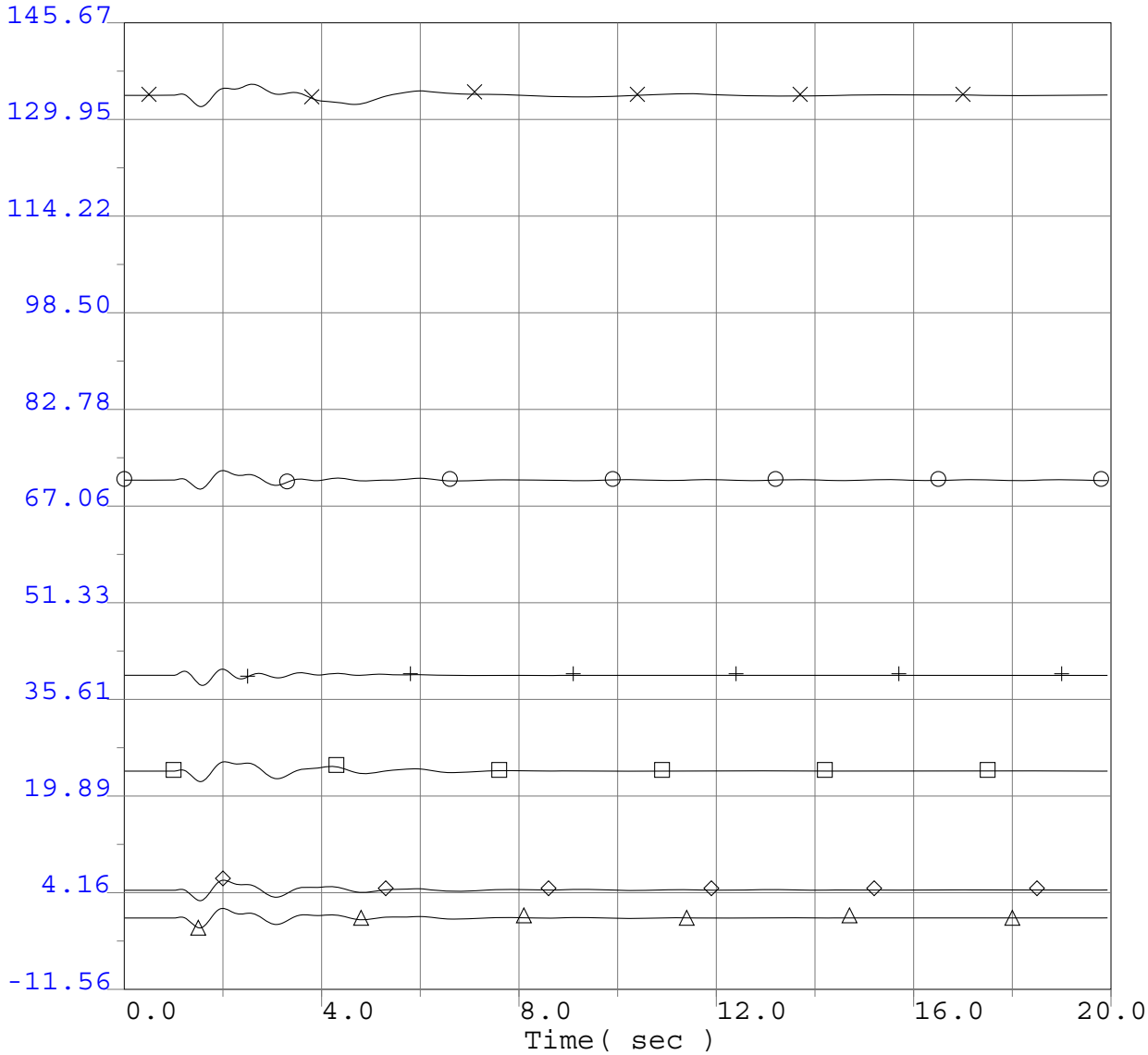
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 1&2 115kV lines

Q268 Project Interconnection System Impact Study

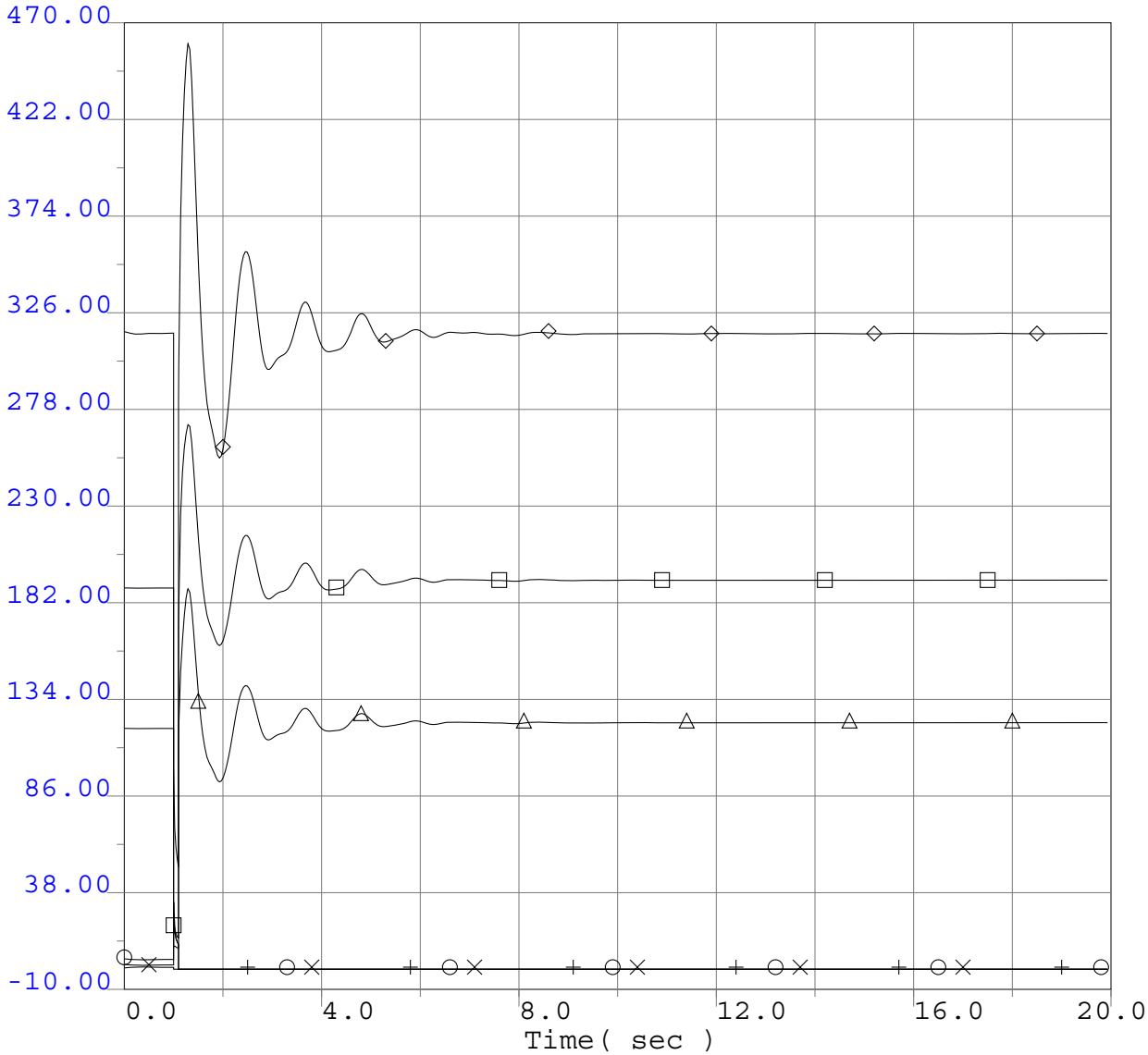
WECC Generator Rotor Angle



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 1&2 115kV double-line outage
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 1&2 115kV lines

Q268 Project Interconnection System Impact Study

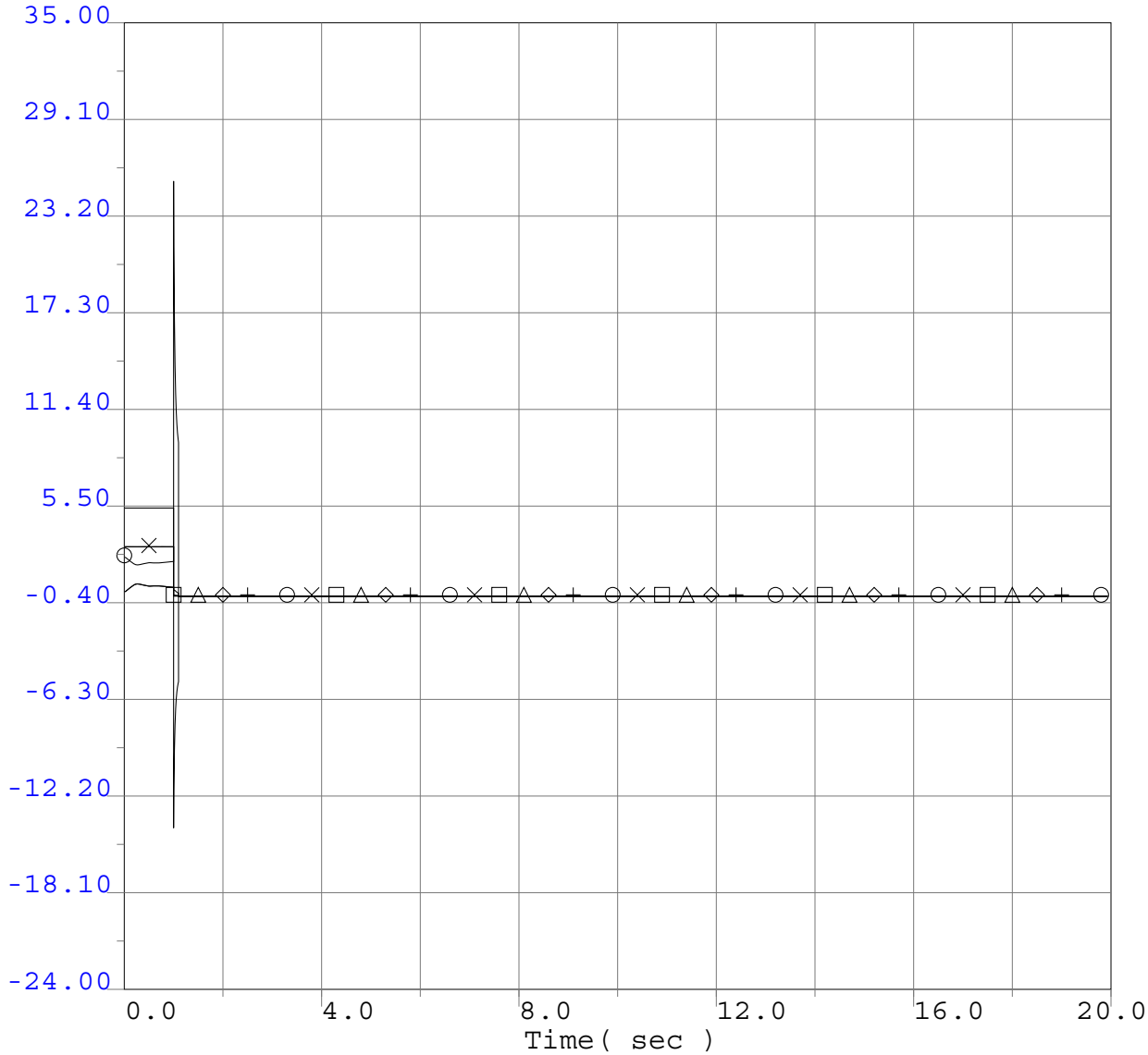
Selected PG&E Transmission Line Flows (MW)



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 1&2 115kV double-line outage
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 1&2 115kV lines

Q268 Project Interconnection System Impact Study

Selected PG&E Transmission Line Flows (MW)

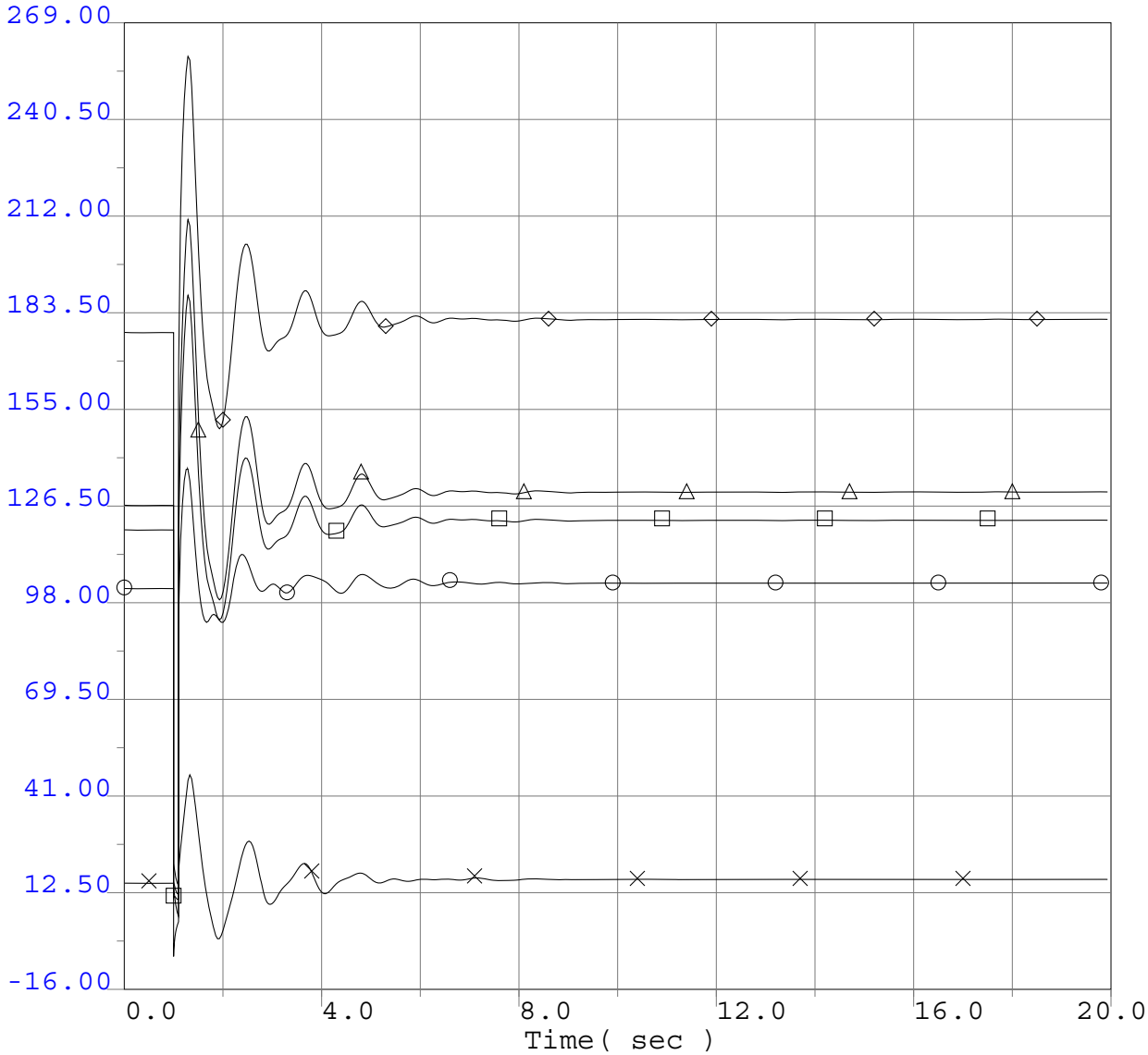


-24.0000	pbr	33535	SFWY_TP2	115.0	33543	AEC_TP2	115.0	1	1	35.0000
-24.0000	pbr	33543	AEC_TP2	115.0	33545	AEC_JCT	115.0	1	1	35.0000
-24.0000	pbr	33545	AEC_JCT	115.0	33547	AEC_300	115.0	1	1	35.0000
-24.0000	pbr	33537	SFWY_TP1	115.0	33534	SAFEWAY	115.0	1	1	35.0000
-24.0000	pbr	33541	AEC_TP1	115.0	33537	SFWY_TP1	115.0	1	1	35.0000
-24.0000	pbr	33540	TESLA	115.0	33541	AEC_TP1	115.0	1	1	35.0000

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 1&2 115kV double-line outage
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 1&2 115kV lines

Q268 Project Interconnection System Impact Study

Selected PG&E Transmission Line Flows (MW)

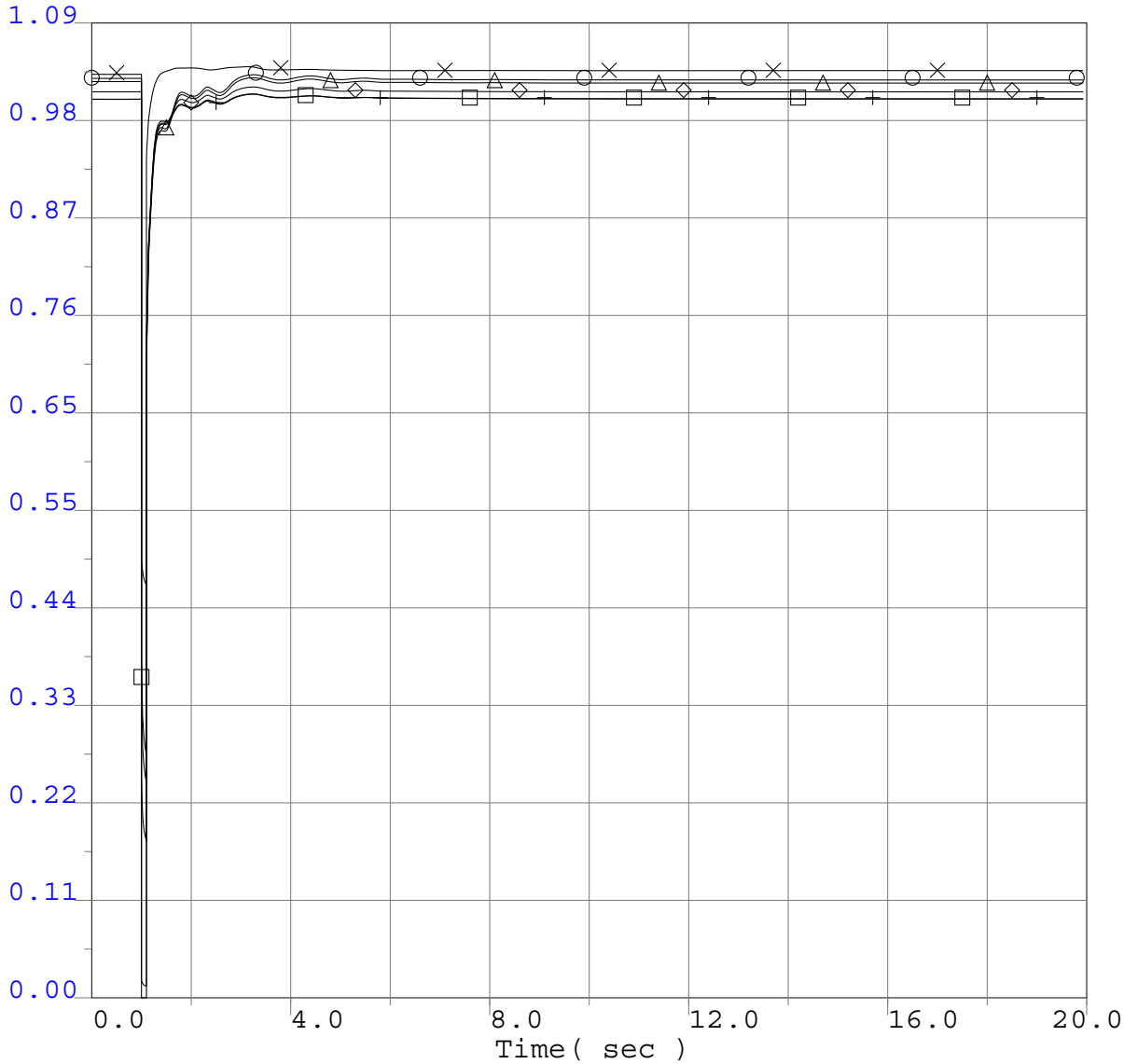


-16.0000 pbr	33526	KSSN-JC1 115.0	33514	MANTECA 115.0	1	1	269.0000
-16.0000 pbr	33526	KSSN-JC1 115.0	33528	KASSON 115.0	1	1	269.0000
-16.0000 pbr	33533	OWENSTP2 115.0	33526	KSSN-JC1 115.0	1	1	269.0000
-16.0000 pbr	33529	LAMMERS 115.0	33528	KASSON 115.0	1	1	269.0000
-16.0000 pbr	33531	OWENSTP1 115.0	33529	LAMMERS 115.0	1	1	269.0000

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 1&2 115kV double-line outage
3 ph 6 cyc flt @ Tesla 115kV bus & clr Tesla-Schulte 1&2 115kV lines

Q268 Project Interconnection System Impact Study

Selected PG&E Bus Voltage Plots Adjacent to Fault

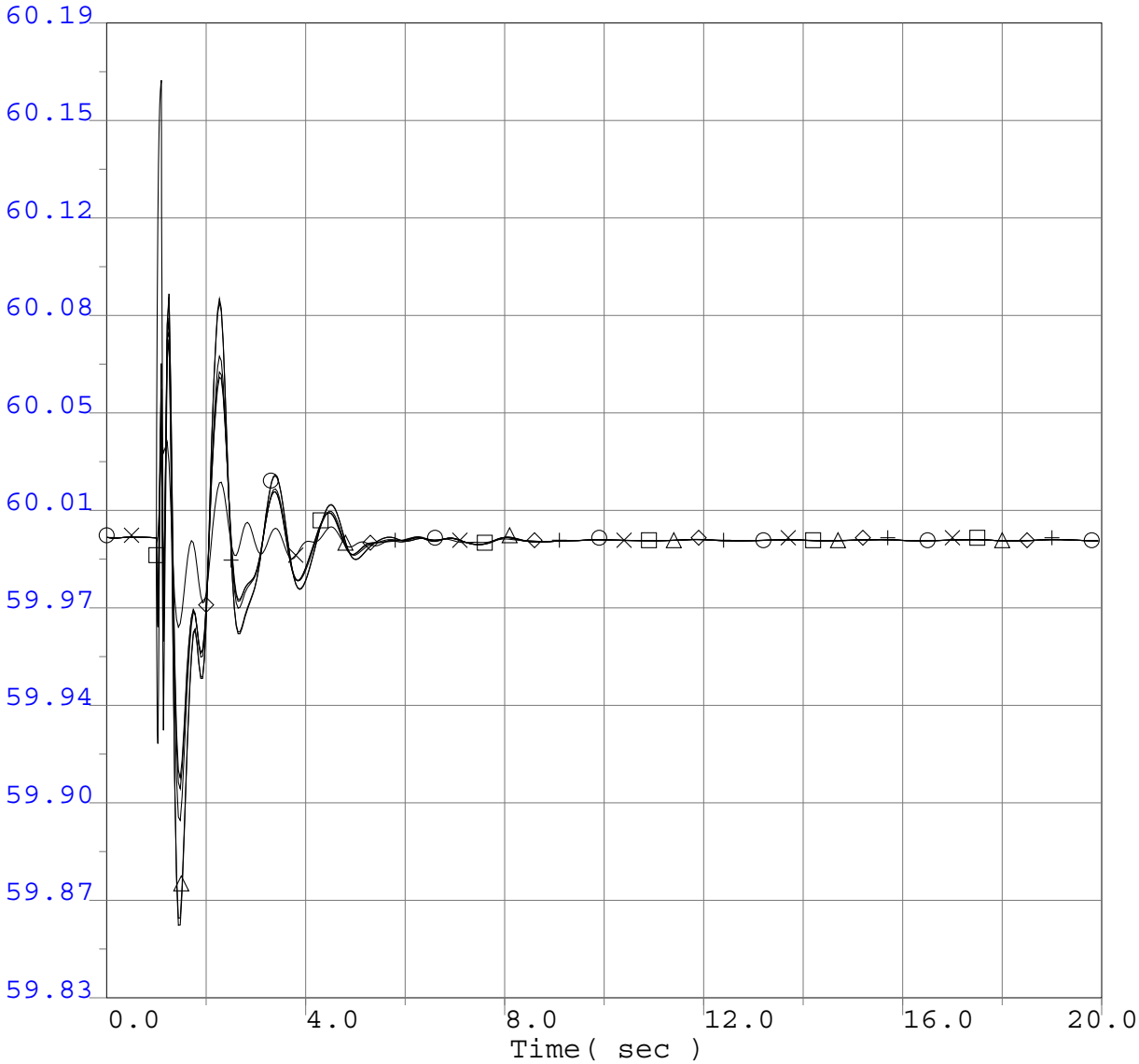


0.0000	vbus	33549	SCHULTE 115.0	0	0.0	"*"	1	1.0900
0.0000	vbus	33540	TESLA 115.0	0	0.0	"*"	1	1.0900
0.0000	vbul	33514	MANTECA 115.0	0	0.0	"*"	1	1.0900
0.0000	vbul	33529	LAMMERS 115.0	0	0.0	"*"	1	1.0900
0.0000	vbus	33528	KASSON 115.0	0	0.0	"*"	1	1.0900
0.0000	vbul	33518	VIERRA 115.0	0	0.0	"*"	1	1.0900

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 1&2 115kV double-line outage
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 1&2 115kV lines

Q268 Project Interconnection System Impact Study

Selected PG&E Bus Frequency Plots Adjacent to Fault

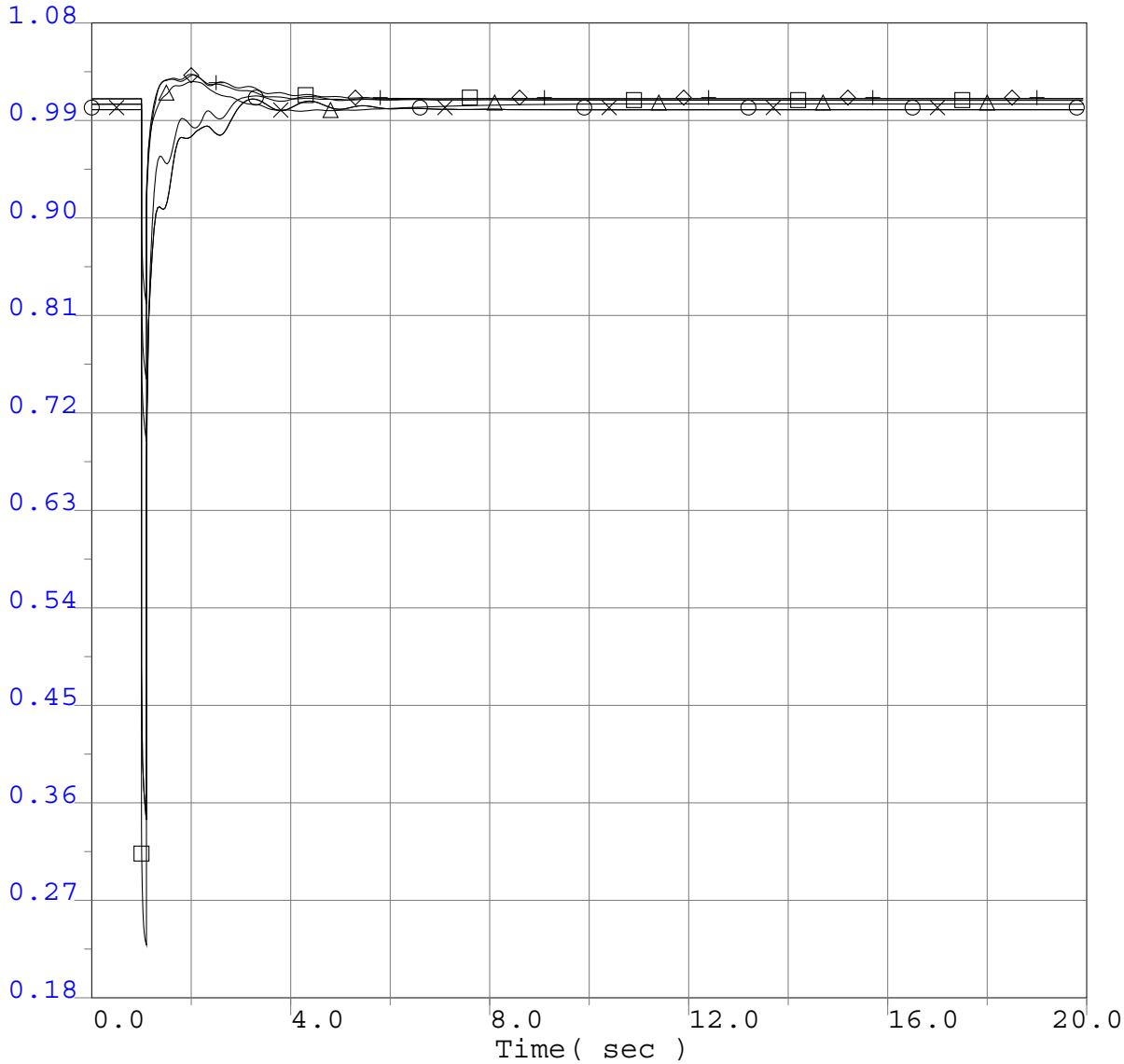


○	59.8300 fbus	33549	SCHULTE 115.0	0	0.0 "*"	1	60.1900
×	59.8300 fbus	33540	TESLA 115.0	0	0.0 "*"	1	60.1900
□	59.8300 fbul	33514	MANTECA 115.0	0	0.0 "*"	1	60.1900
△	59.8300 fbul	33529	LAMMERS 115.0	0	0.0 "*"	1	60.1900
◇	59.8300 fbus	33528	KASSON 115.0	0	0.0 "*"	1	60.1900
+	59.8300 fbul	33518	VIERRA 115.0	0	0.0 "*"	1	60.1900

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 1&2 115kV double-line outage
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 1&2 115kV lines

Q268 Project Interconnection System Impact Study

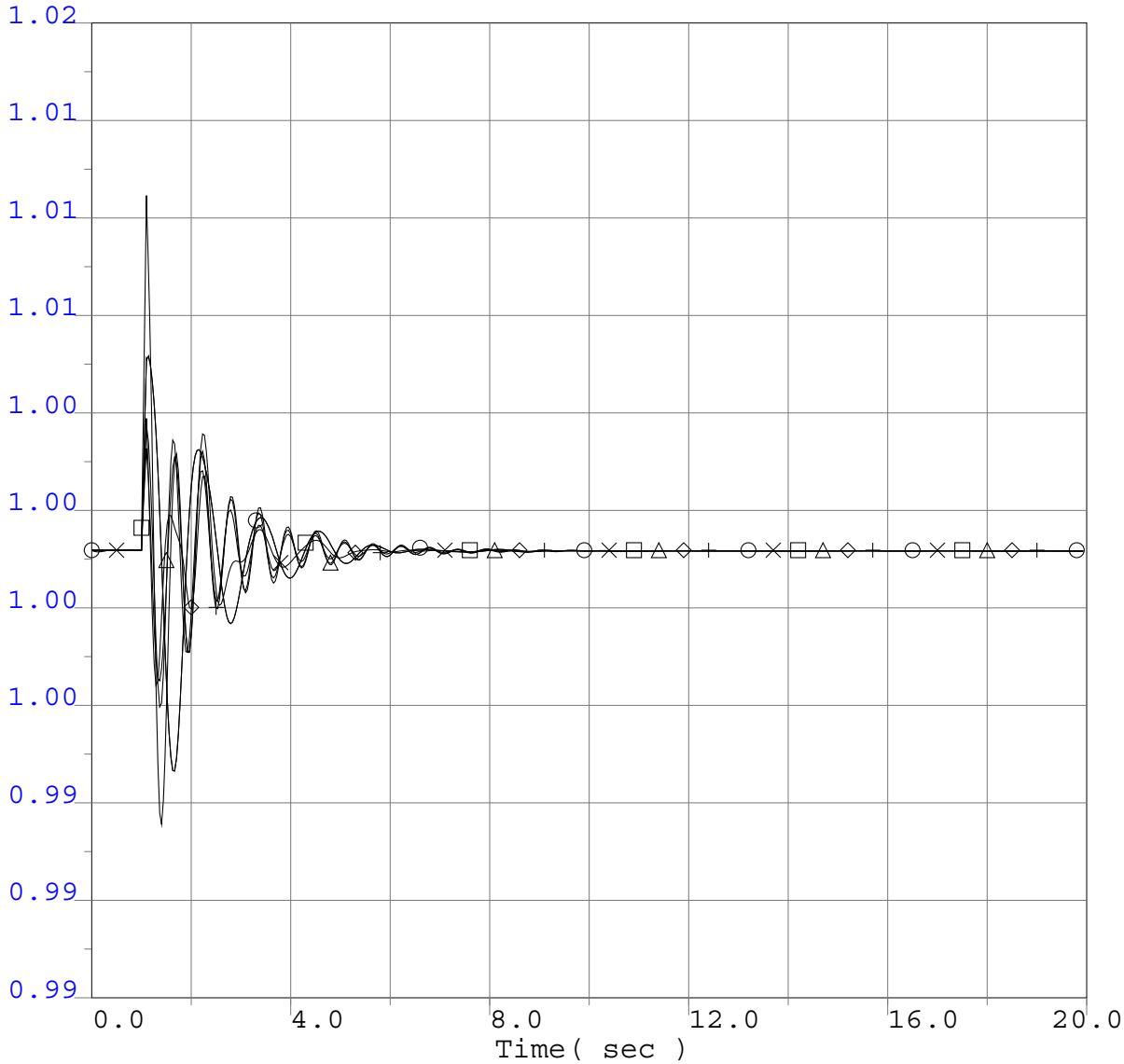
Project Generator Terminal Voltages



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 1&2 115kV double-line outage
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 1&2 115kV lines

Q268 Project Interconnection System Impact Study

Project Generator Rotor Speed

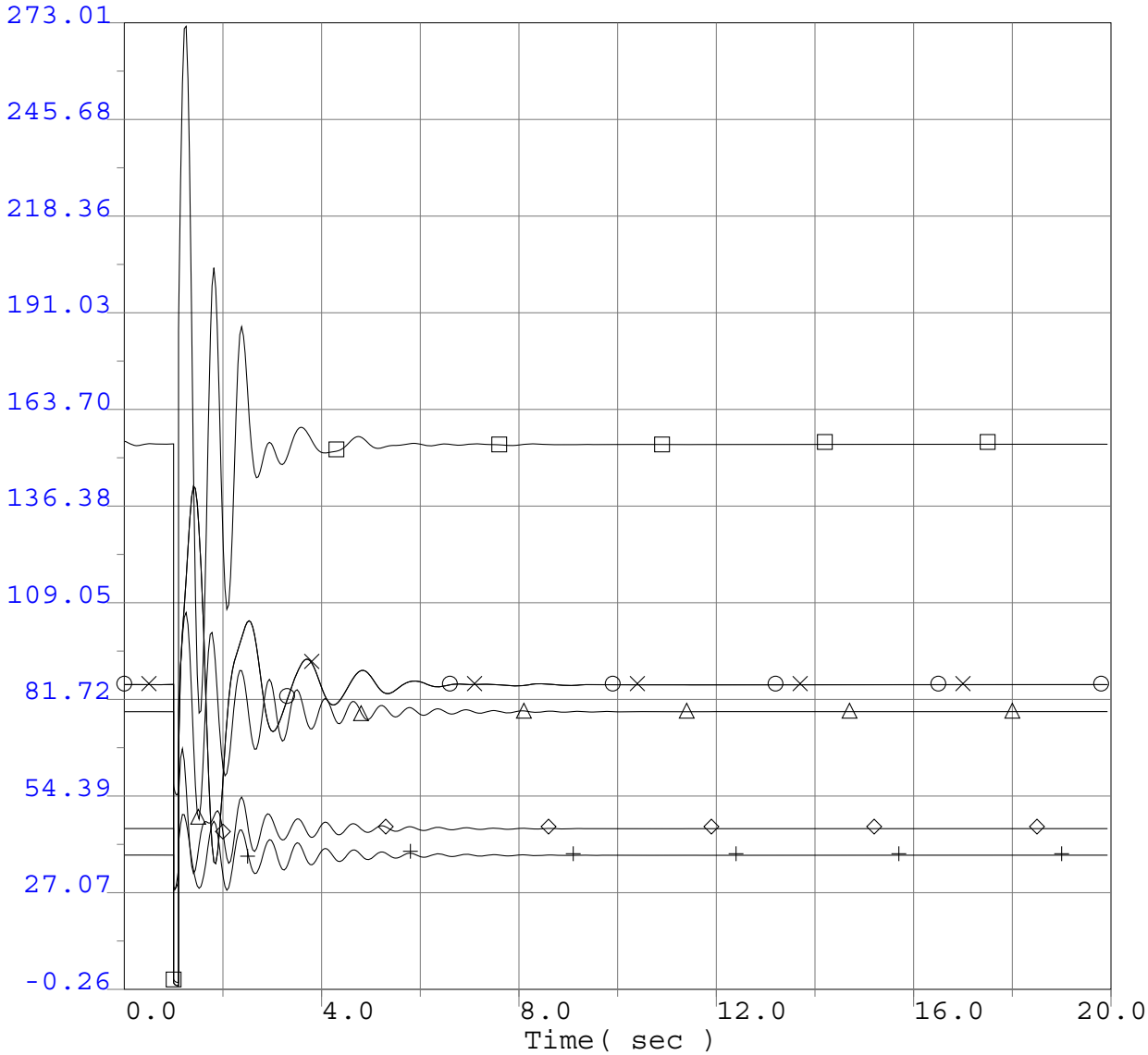


0.9871 spd	33805	GWFTRCY1	13.8	0	0.0 "1"	1	1.0152
0.9871 spd	33807	GWFTRCY2	13.8	0	0.0 "1"	1	1.0152
0.9871 spd	33809	Q268ST1	13.8	0	0.0 "1"	1	1.0152
0.9871 spd	33858	P0409CG2	13.8	0	0.0 "1"	1	1.0152
0.9871 spd	33808	SJ COGEN	13.8	0	0.0 "1"	1	1.0152
0.9871 spd	33810	SP CMPNY	13.8	0	0.0 "1"	1	1.0152

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 1&2 115kV double-line outage
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 1&2 115kV lines

Q268 Project Interconnection System Impact Study

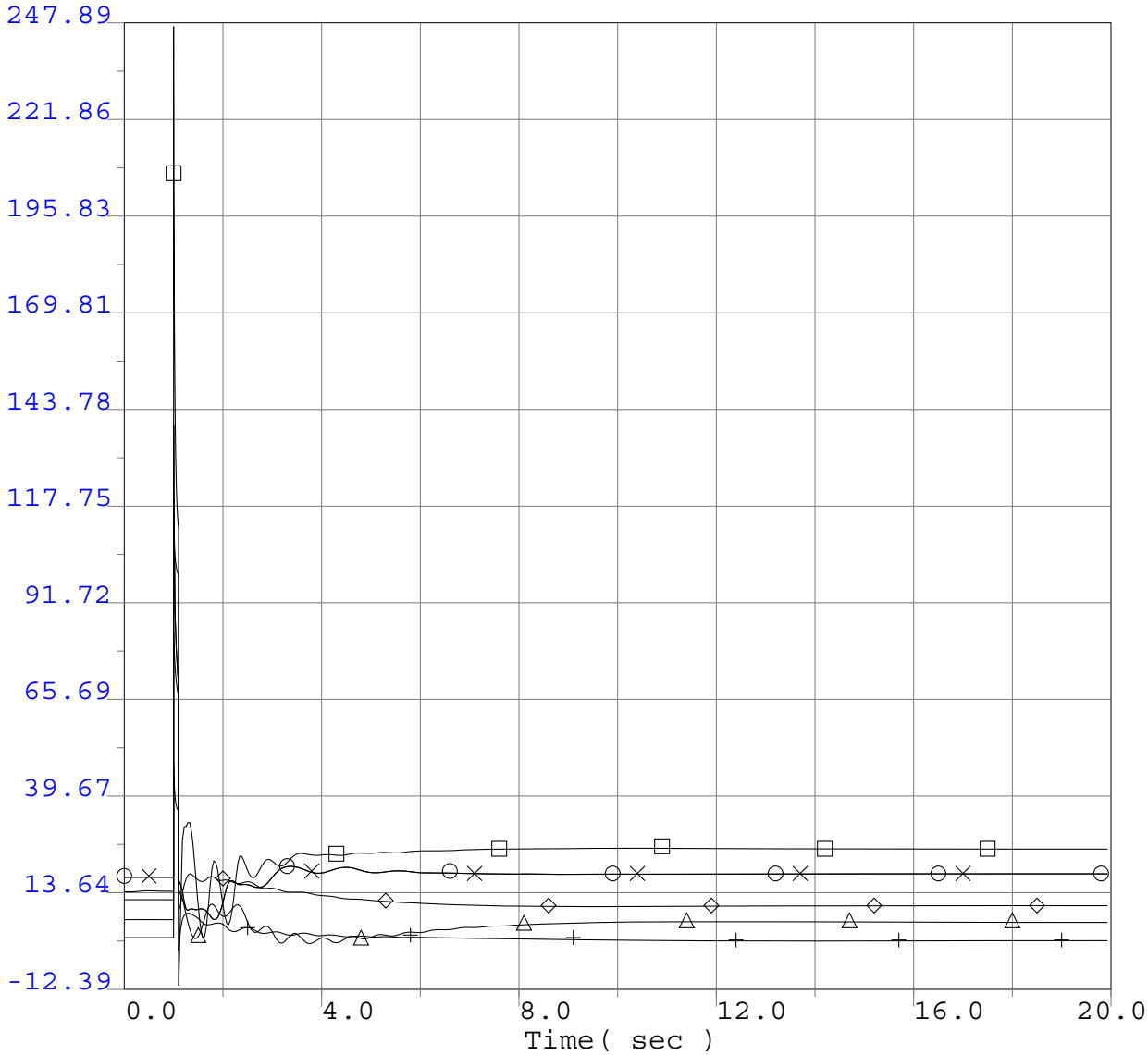
Project Generator Terminal Power



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 1&2 115kV double-line outage
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 1&2 115kV lines

Q268 Project Interconnection System Impact Study

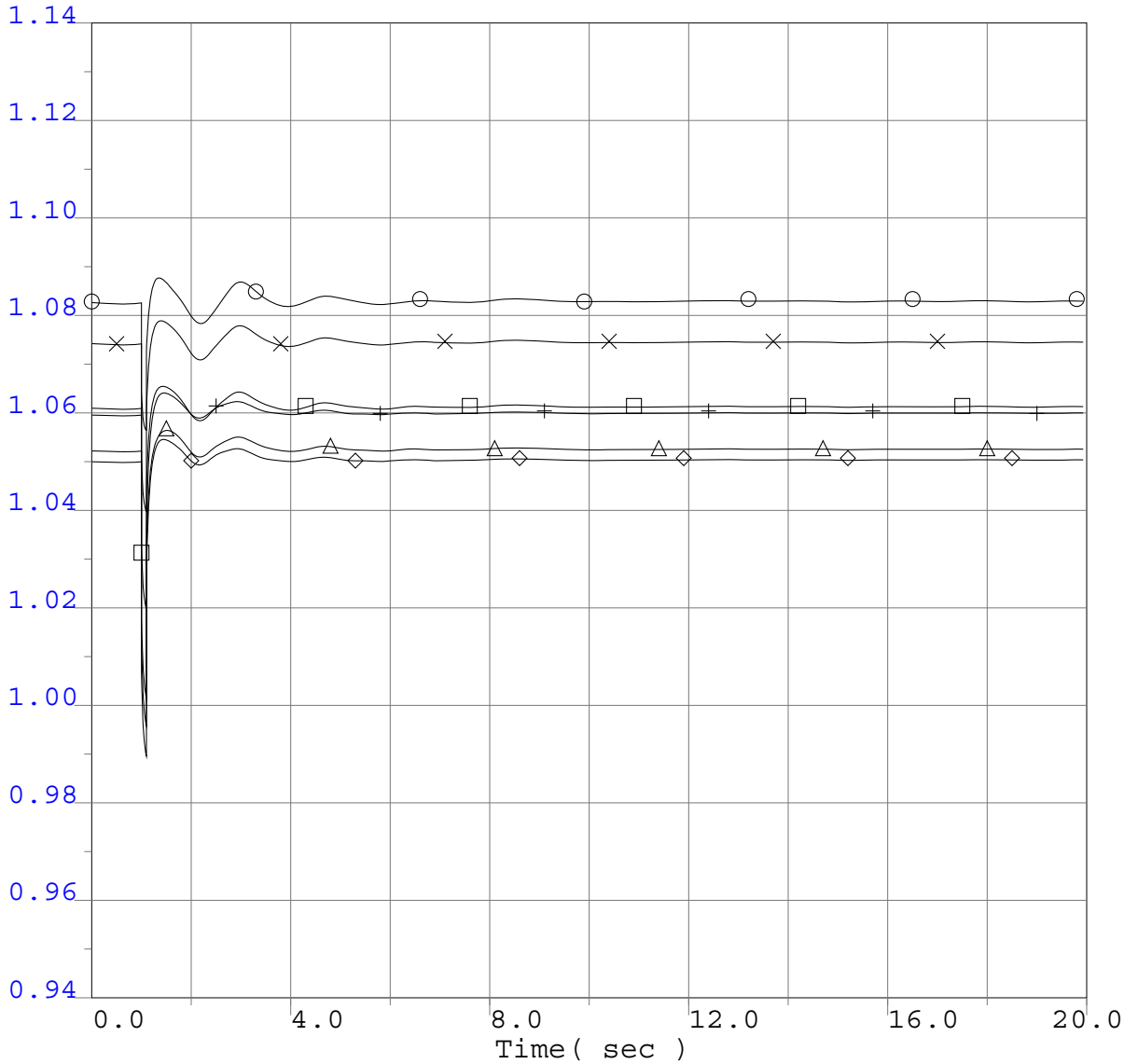
Project Generator Terminal Reactive Power



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 1&2 115kV double-line outage
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 1&2 115kV lines

Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots

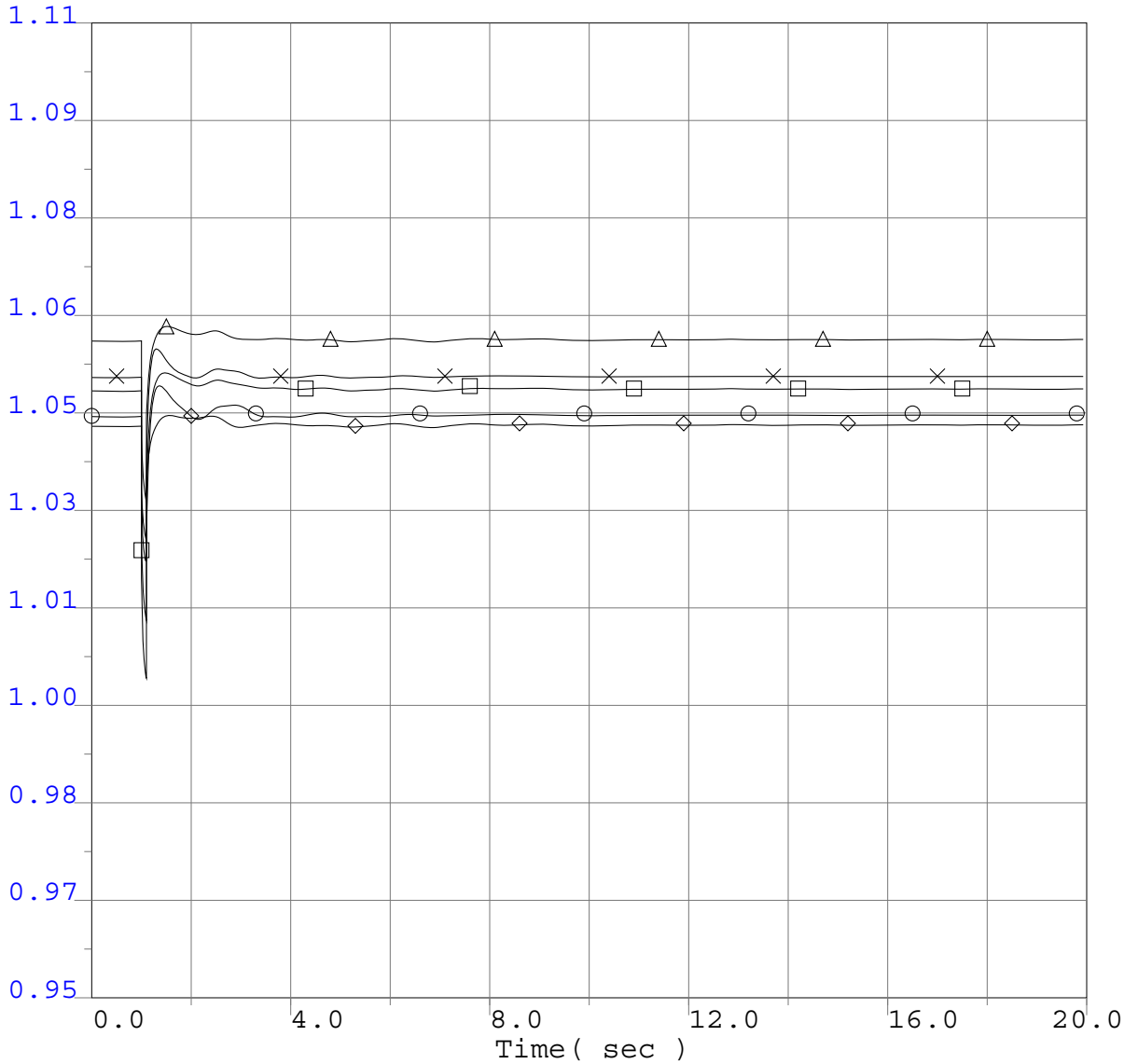


0.9400	vbus	40687	MALIN	500.0	0	0.0 "*"	1	1.1400
0.9400	vbus	30005	ROUND MT	500.0	0	0.0 "*"	1	1.1400
0.9400	vbus	30015	TABLE MT	500.0	0	0.0 "*"	1	1.1400
0.9400	vbus	30030	VACA-DIX	500.0	0	0.0 "*"	1	1.1400
0.9400	vbus	30040	TESLA	500.0	0	0.0 "*"	1	1.1400
0.9400	vbus	30035	TRACY	500.0	0	0.0 "*"	1	1.1400

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 1&2 115kV double-line outage
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 1&2 115kV lines

Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots

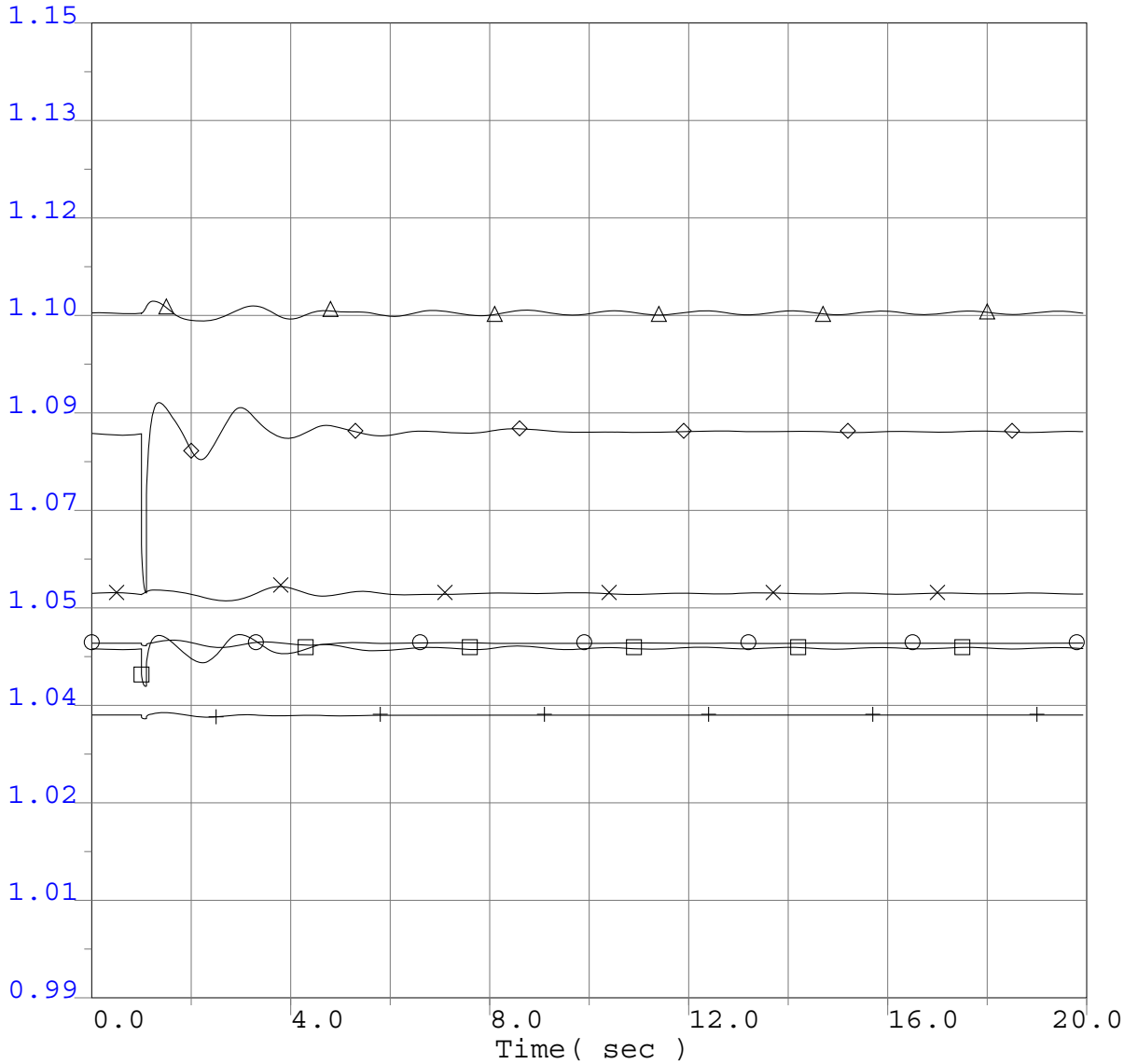


0.9500	vbus	30042	METCALF	500.0	0	0.0 "*"	1	1.1100
0.9500	vbus	30045	MOSSLAND	500.0	0	0.0 "*"	1	1.1100
0.9500	vbus	30050	LOSBANOS	500.0	0	0.0 "*"	1	1.1100
0.9500	vbus	30055	GATES	500.0	0	0.0 "*"	1	1.1100
0.9500	vbus	30060	MIDWAY	500.0	0	0.0 "*"	1	1.1100

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 1&2 115kV double-line outage
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 1&2 115kV lines

Q268 Project Interconnection System Impact Study

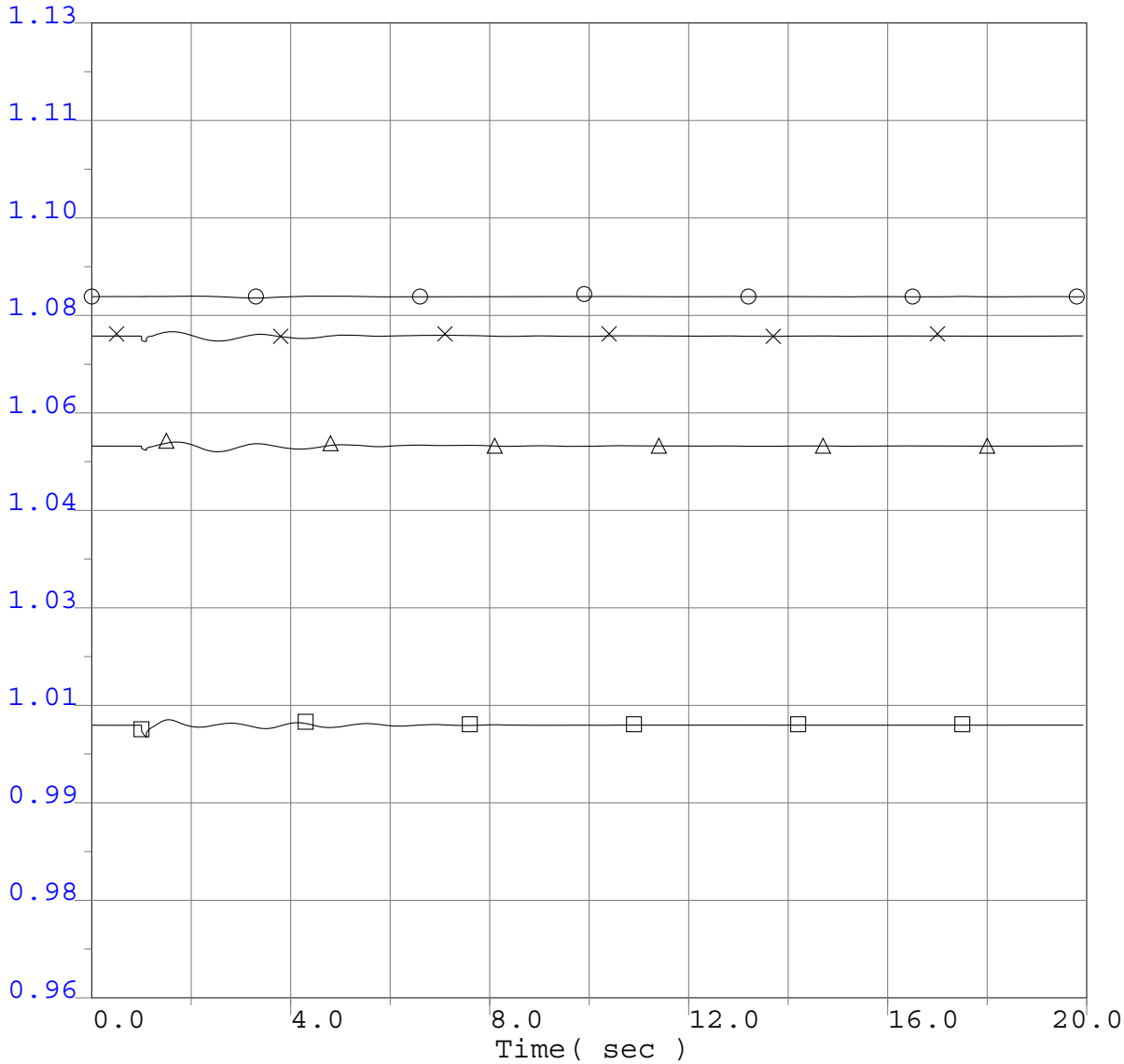
Selected WECC Bus Voltage Plots



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 1&2 115kV double-line outage
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 1&2 115kV lines

Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots

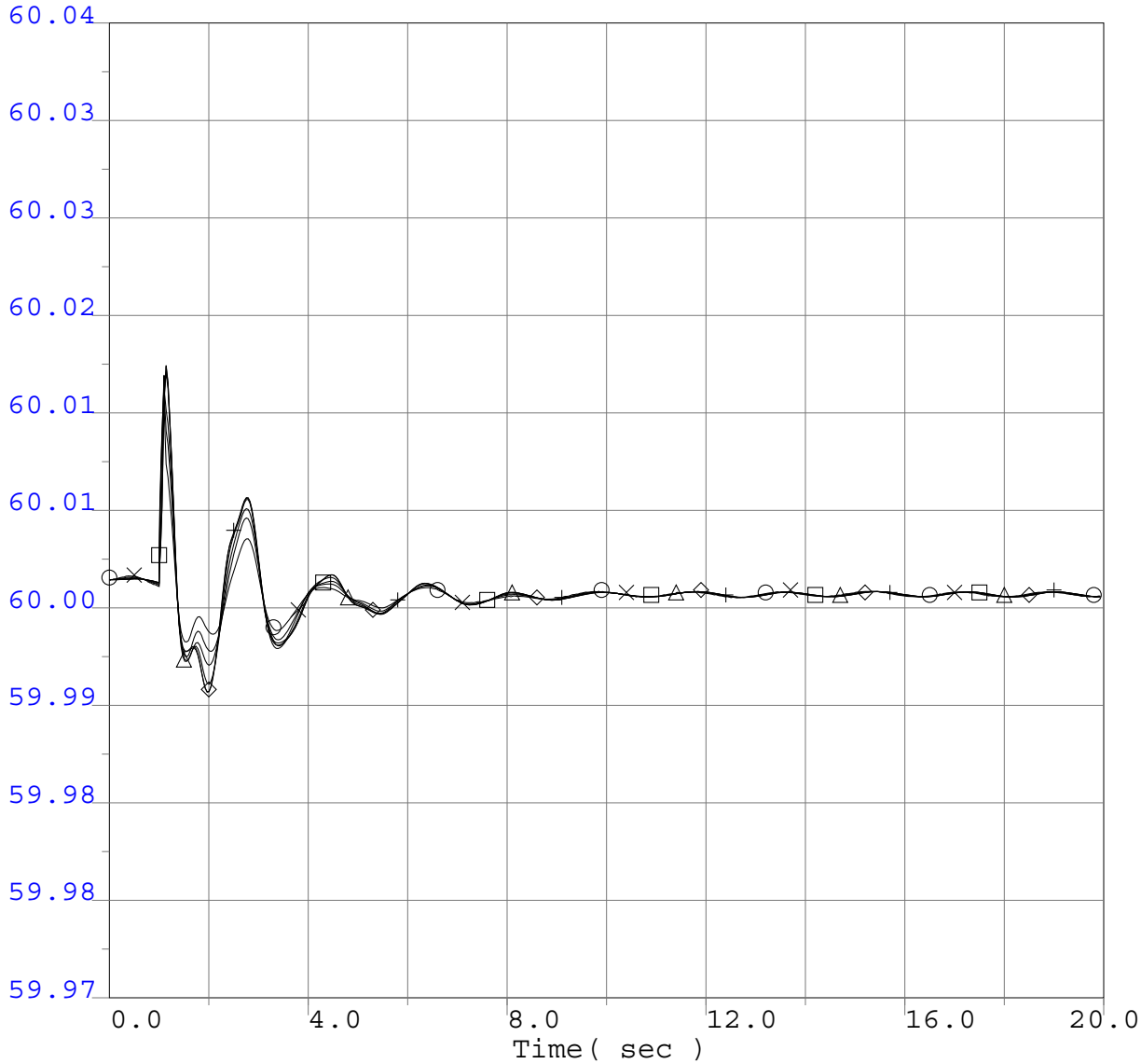


0.9600	vbul	54150	WILLESD9	240.0	0	0.0	"*"	1	1.1300
0.9600	vbus	14003	NAVAJO	500.0	0	0.0	"*"	1	1.1300
0.9600	vbus	24153	VESTAL	230.0	0	0.0	"*"	1	1.1300
0.9600	vbus	22360	IMPRLVLY	500.0	0	0.0	"*"	1	1.1300

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 1&2 115kV double-line outage
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 1&2 115kV lines

Q268 Project Interconnection System Impact Study

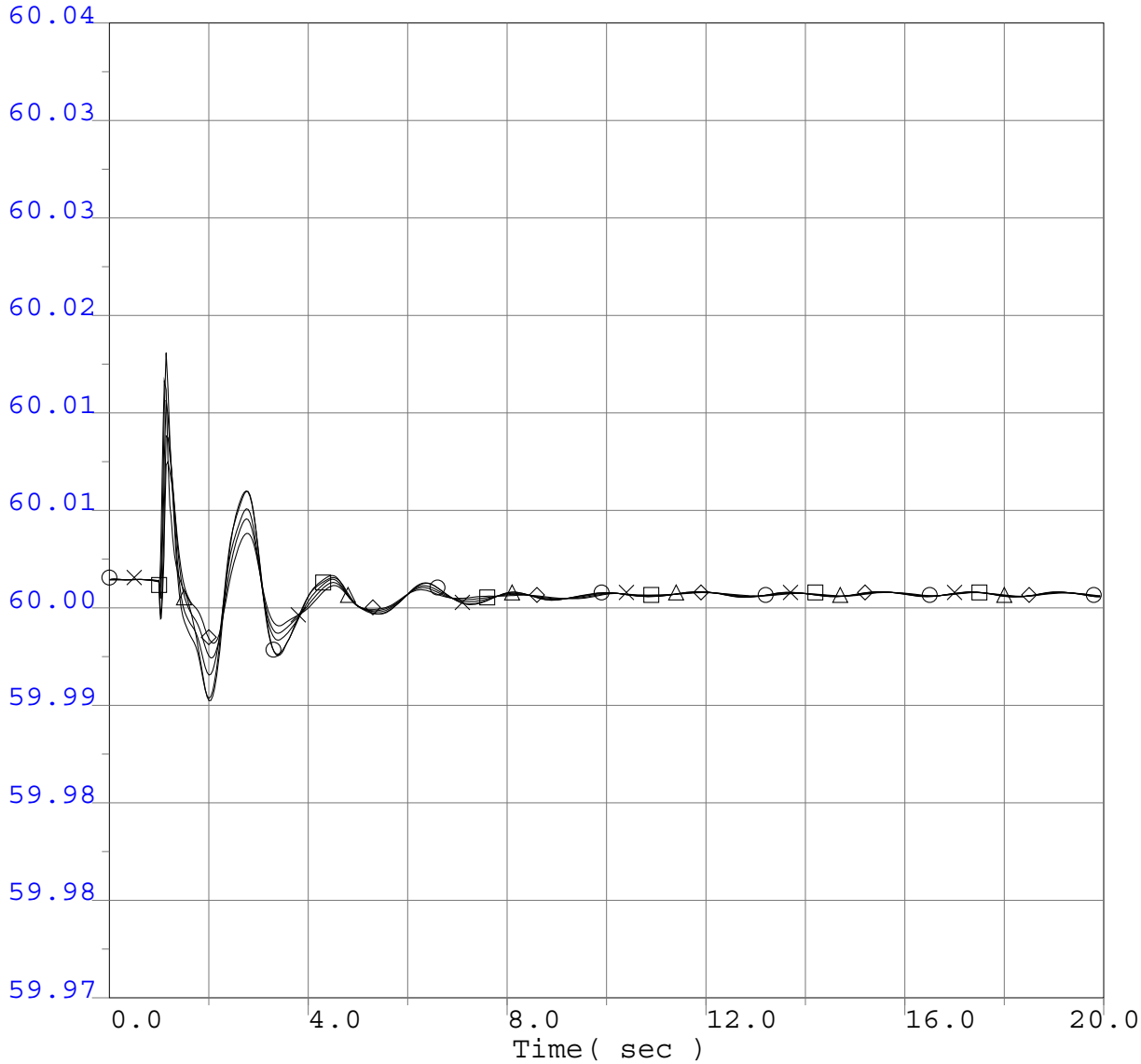
Selected WECC Bus Frequency Plots



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 1&2 115kV double-line outage
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 1&2 115kV lines

Q268 Project Interconnection System Impact Study

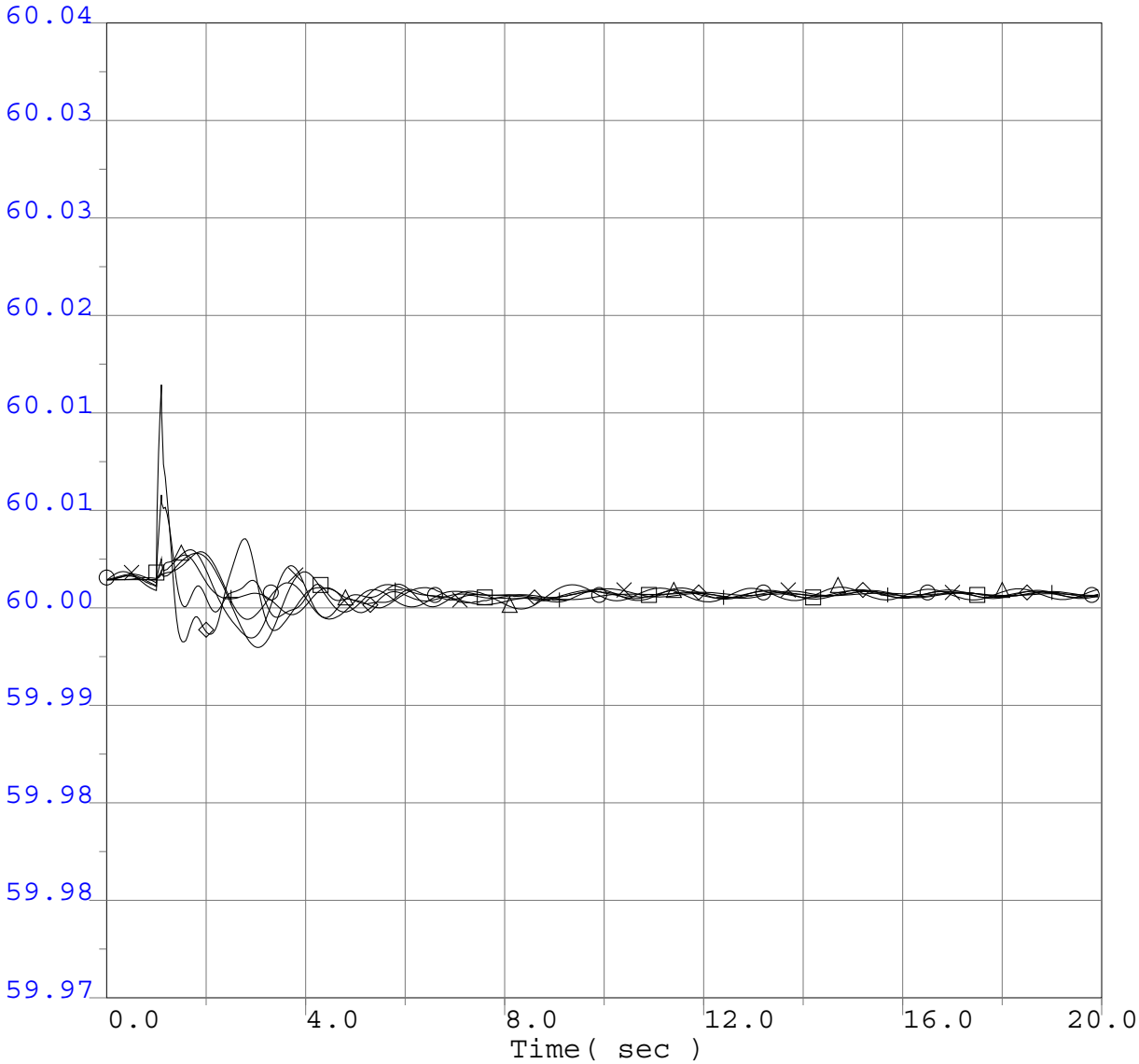
Selected WECC Bus Frequency Plots



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 1&2 115kV double-line outage
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 1&2 115kV lines

Q268 Project Interconnection System Impact Study

Selected WECC Bus Frequency Plots

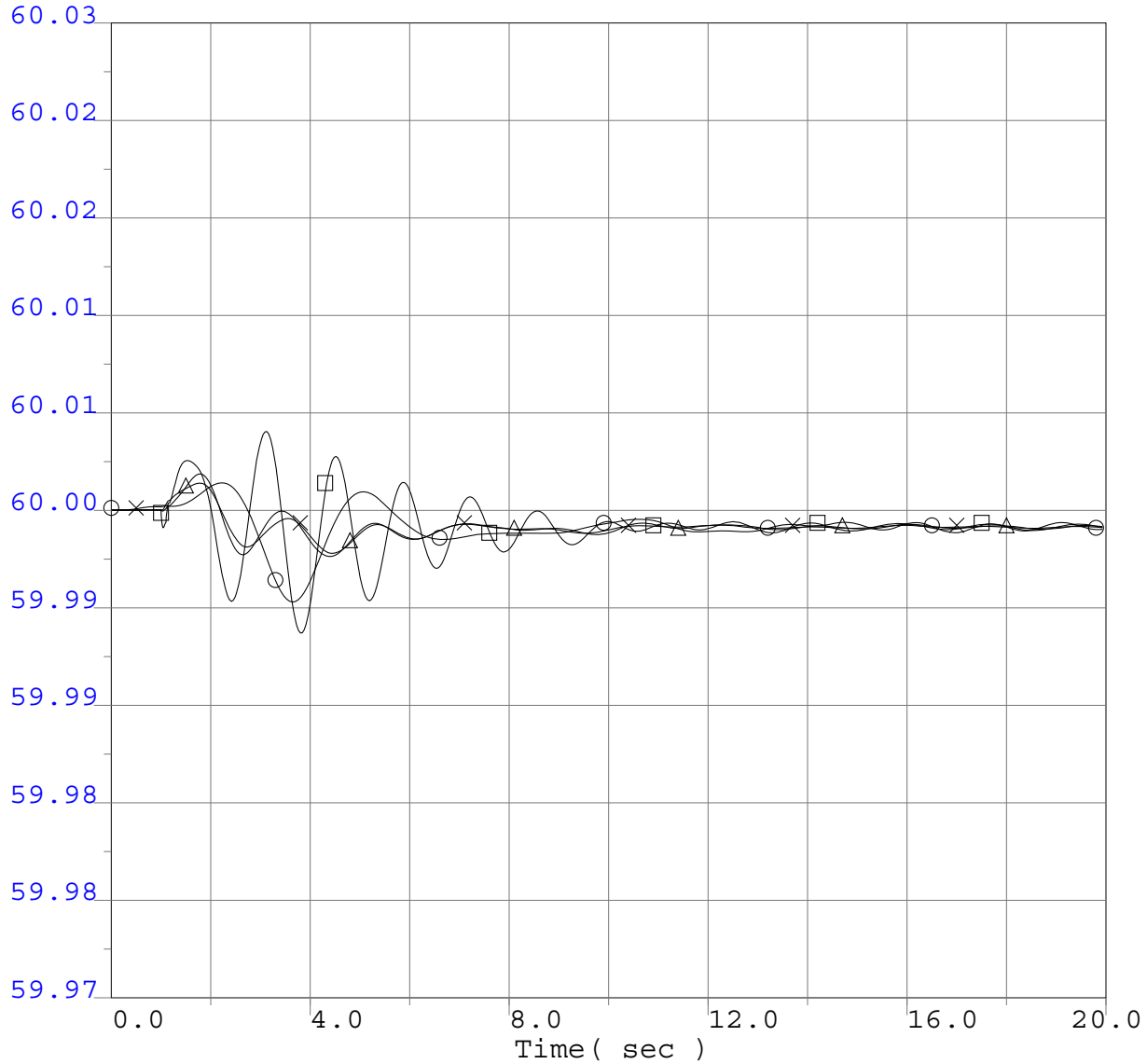


59.9700	fbus	14001	FOURCORN	500.0	0	0.0 "*"	1	60.0400
59.9700	fbus	50703	NIC500	500.0	0	0.0 "*"	1	60.0400
59.9700	fbus	60240	MIDPOINT	500.0	0	0.0 "*"	1	60.0400
59.9700	fbus	62012	TOWN2	500.0	0	0.0 "*"	1	60.0400
59.9700	fbus	40687	MALIN	500.0	0	0.0 "*"	1	60.0400
59.9700	fbus	66340	SIGURD	345.0	0	0.0 "*"	1	60.0400

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 1&2 115kV double-line outage
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 1&2 115kV lines

Q268 Project Interconnection System Impact Study

Selected WECC Bus Frequency Plots

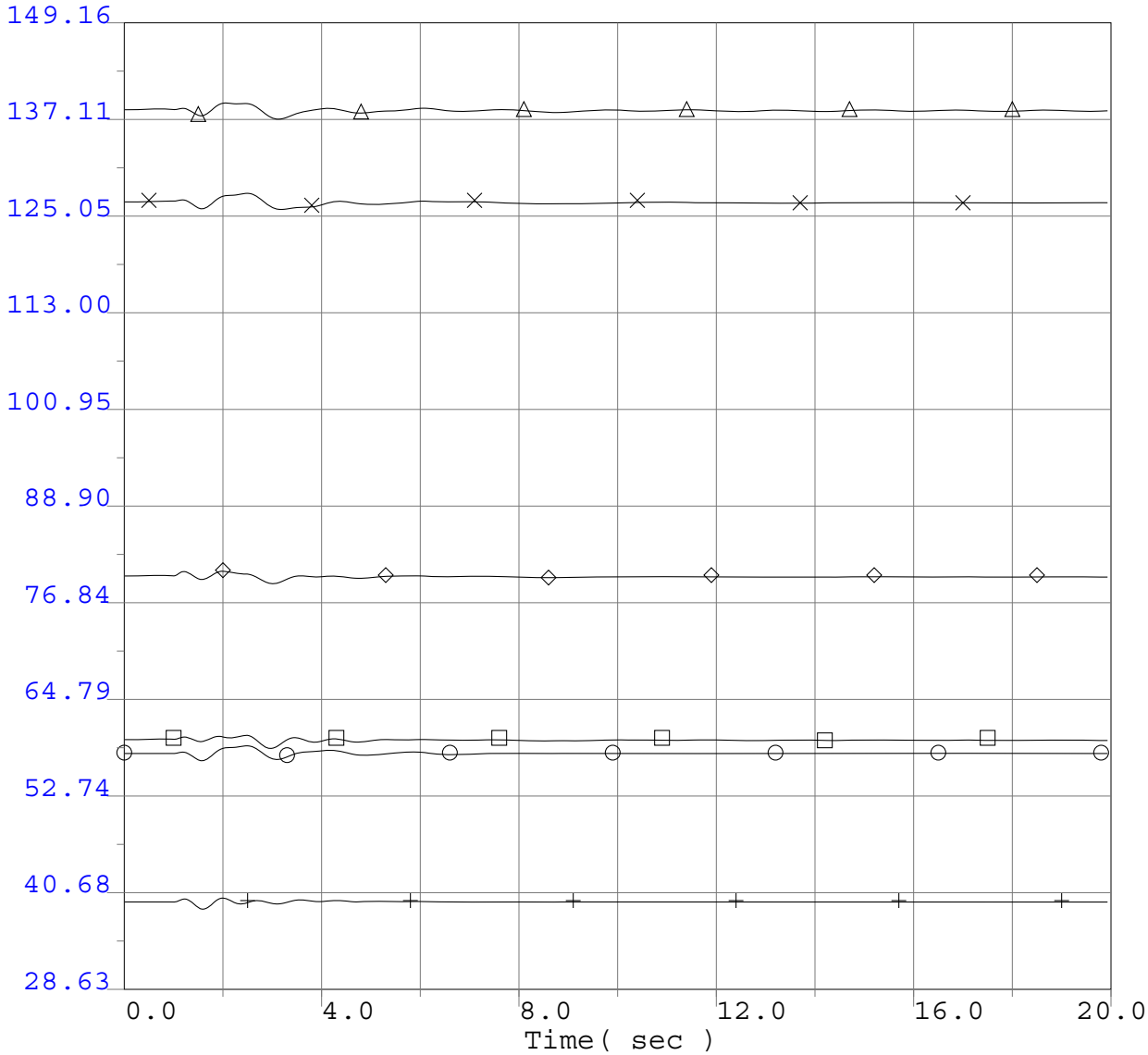


○	59.9700 fbul	54150	WILLESD9 240.0	0	0.0 "*"	1	60.0300
⊗	59.9700 fbus	14003	NAVAJO 500.0	0	0.0 "*"	1	60.0300
□	59.9700 fbus	24153	VESTAL 230.0	0	0.0 "*"	1	60.0300
△	59.9700 fbus	22360	IMPRLVLY 500.0	0	0.0 "*"	1	60.0300

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 1&2 115kV double-line outage
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 1&2 115kV lines

Q268 Project Interconnection System Impact Study

WECC Generator Rotor Angle

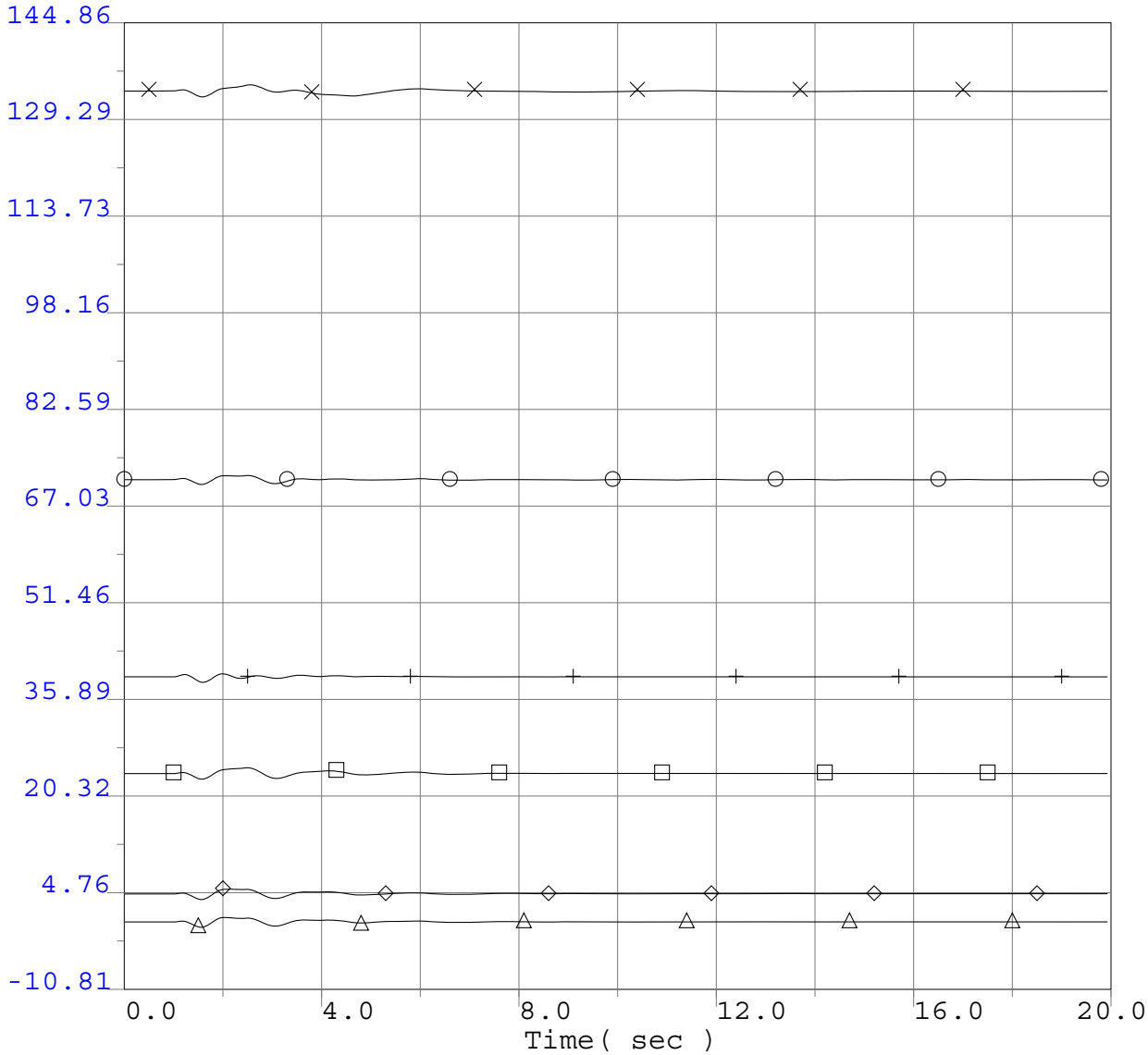


28.6300 ang	14914	FCNGN4CC	22.0	0	0.0 "H"	1	149.1600
28.6300 ang	50499	GMS G5	13.8	0	0.0 "1"	1	149.1600
28.6300 ang	60100	BRWNL 5	13.8	0	0.0 "1"	1	149.1600
28.6300 ang	62048	COLSTP 3	26.0	0	0.0 "1"	1	149.1600
28.6300 ang	44071	JDA 0102	13.8	0	0.0"01"	1	149.1600
28.6300 ang	36411	DIABLO 1	25.0	0	0.0 "1"	1	149.1600

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 1&2 115kV double-line outage
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 1&2 115kV lines

Q268 Project Interconnection System Impact Study

WECC Generator Rotor Angle

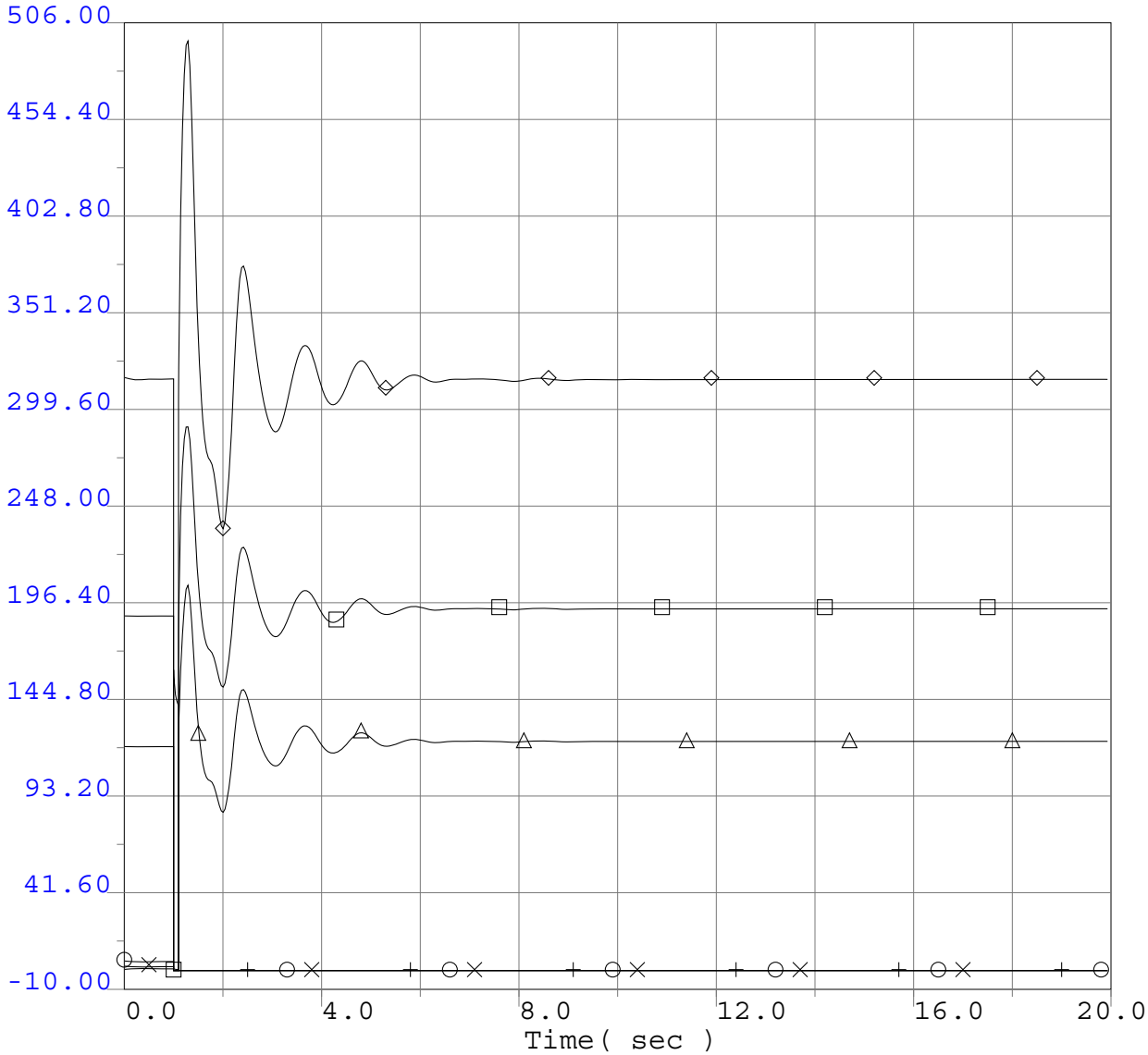


-10.8100 ang	65490	EHUNTR 1	24.0	0	0.0 "1"	1	144.8600
-10.8100 ang	54338	SUND#2GN	18.0	0	0.0 "2"	1	144.8600
-10.8100 ang	79151	GLENC3-4	13.8	0	0.0 "3"	1	144.8600
-10.8100 ang	24130	S.ONOFR3	22.0	0	0.0 "3"	1	144.8600
-10.8100 ang	22244	ENCINA 5	24.0	0	0.0 "1"	1	144.8600
-10.8100 ang	36411	DIABLO 1	25.0	0	0.0 "1"	1	144.8600

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 1&2 115kV double-line outage
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 1&2 115kV lines

Q268 Project Interconnection System Impact Study

Selected PG&E Transmission Line Flows (MW)

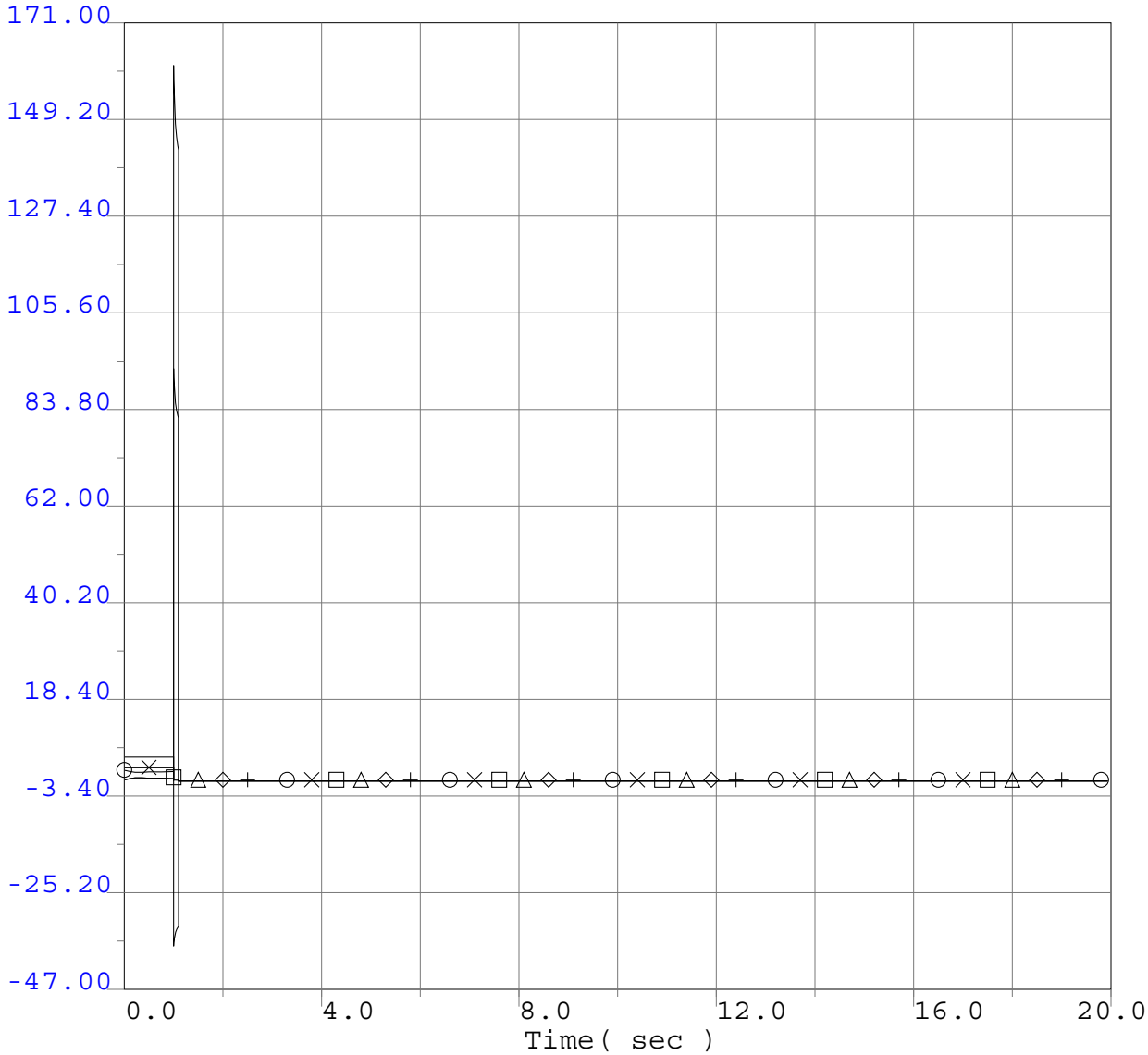


-10.0000	pbr	33549	SCHULTE	115.0	33537	SFWY_TP1	115.0	1	1	506.0000
-10.0000	pbr	33549	SCHULTE	115.0	33535	SFWY_TP2	115.0	1	2	506.0000
-10.0000	pbr	33549	SCHULTE	115.0	33531	OWENSTP1	115.0	1	1	506.0000
-10.0000	pbr	33549	SCHULTE	115.0	33533	OWENSTP2	115.0	1	2	506.0000
-10.0000	pbr	33551	GWFTRACY	115.0	33549	SCHULTE	115.0	1	1	506.0000
-10.0000	pbr	33540	TESLA	115.0	33543	AEC_TP2	115.0	1	1	506.0000

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 1&2 115kV double-line outage
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 1&2 115kV lines

Q268 Project Interconnection System Impact Study

Selected PG&E Transmission Line Flows (MW)

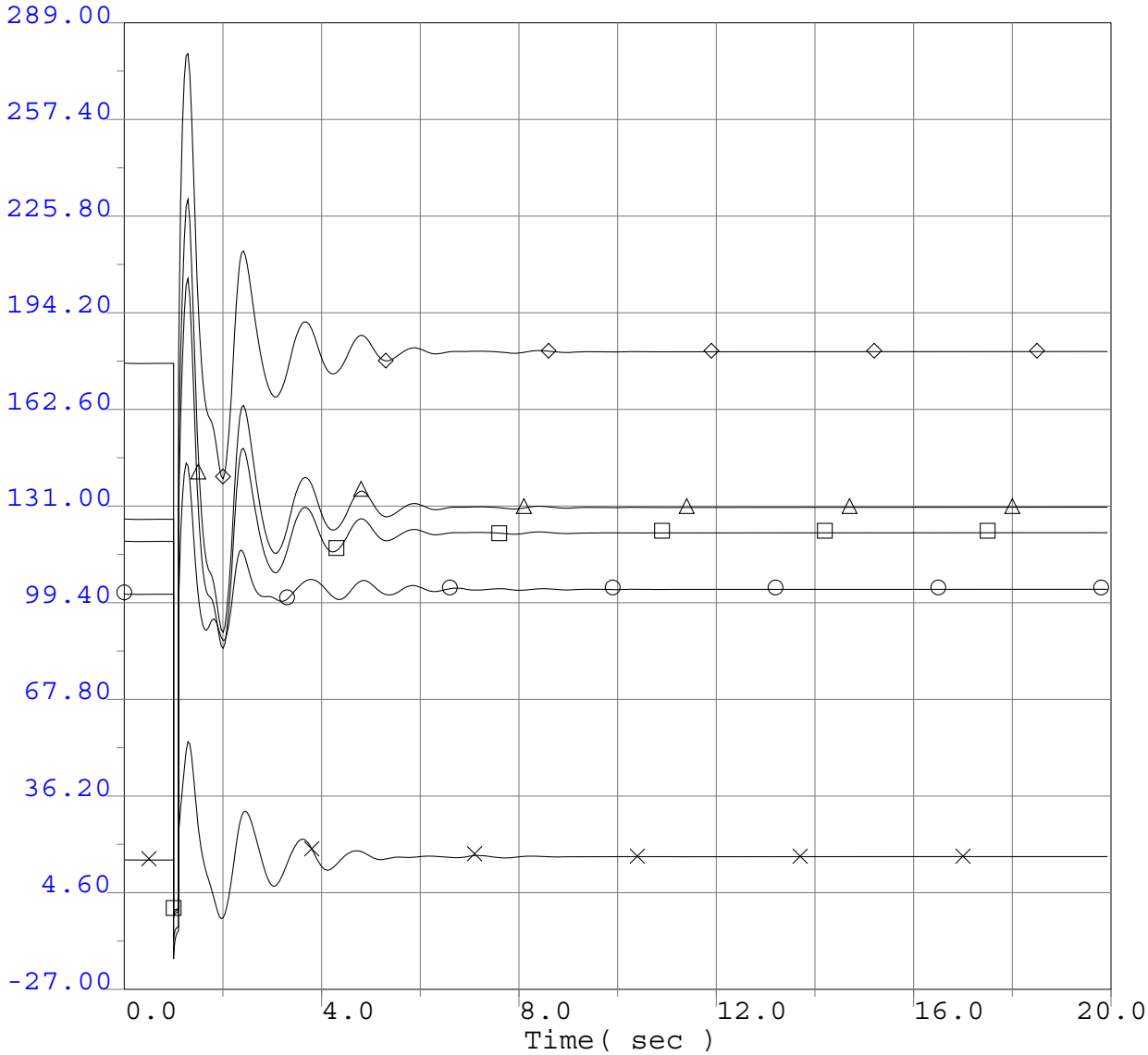


-47.0000	pbr	33535	SFWY_TP2	115.0	33543	AEC_TP2	115.0	1	1	171.0000
-47.0000	pbr	33543	AEC_TP2	115.0	33545	AEC_JCT	115.0	1	1	171.0000
-47.0000	pbr	33545	AEC_JCT	115.0	33547	AEC_300	115.0	1	1	171.0000
-47.0000	pbr	33537	SFWY_TP1	115.0	33534	SAFEWAY	115.0	1	1	171.0000
-47.0000	pbr	33541	AEC_TP1	115.0	33537	SFWY_TP1	115.0	1	1	171.0000
-47.0000	pbr	33540	TESLA	115.0	33541	AEC_TP1	115.0	1	1	171.0000

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 1&2 115kV double-line outage
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 1&2 115kV lines

Q268 Project Interconnection System Impact Study

Selected PG&E Transmission Line Flows (MW)

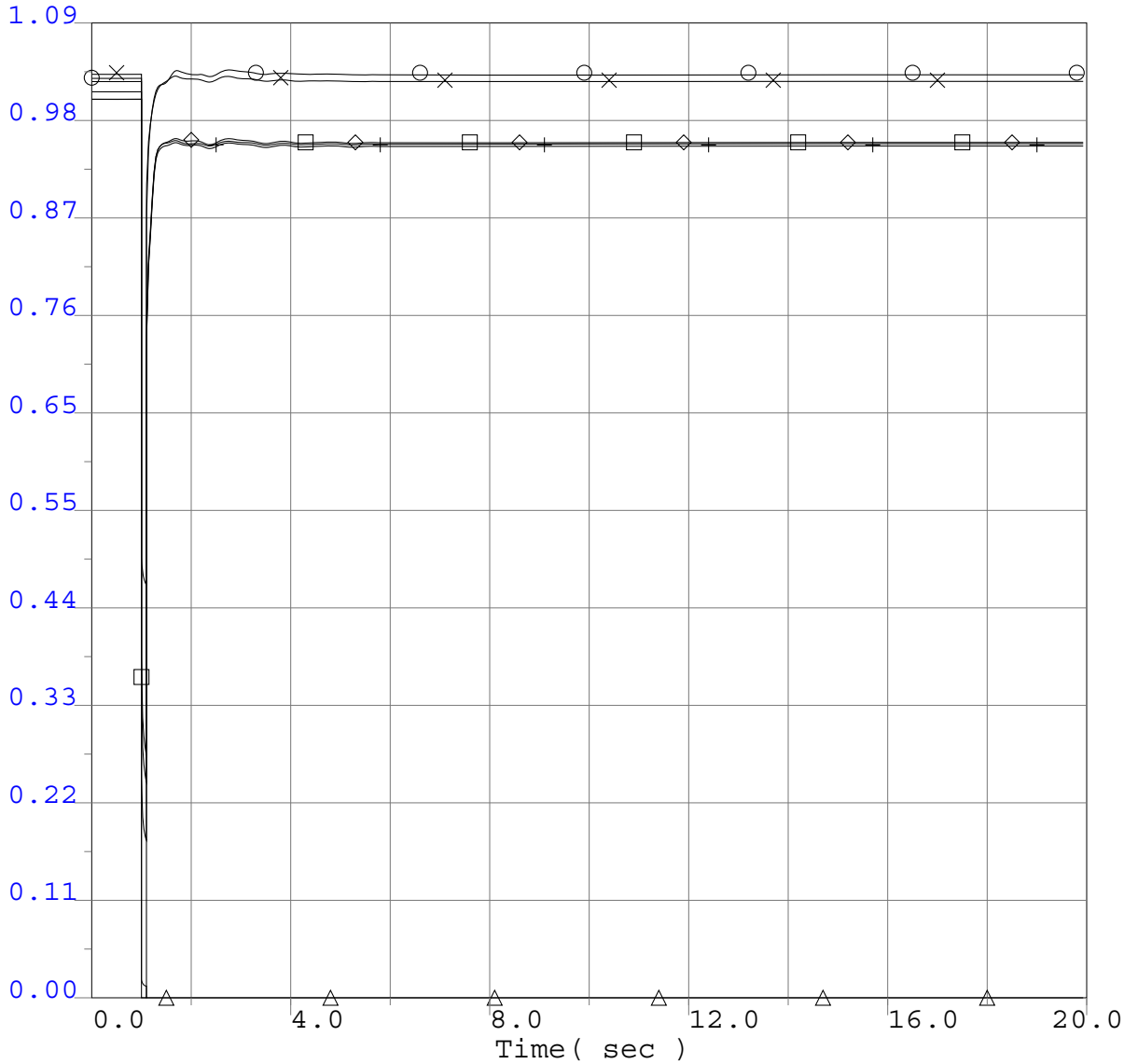


-27.0000	pbr	33526	KSSN-JC1	115.0	33514	MANTECA	115.0	1	1	289.0000
-27.0000	pbr	33526	KSSN-JC1	115.0	33528	KASSON	115.0	1	1	289.0000
-27.0000	pbr	33533	OWENSTP2	115.0	33526	KSSN-JC1	115.0	1	1	289.0000
-27.0000	pbr	33529	LAMMERS	115.0	33528	KASSON	115.0	1	1	289.0000
-27.0000	pbr	33531	OWENSTP1	115.0	33529	LAMMERS	115.0	1	1	289.0000

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Tesla-Schulte 1&2 115kV double-line outage
3 ph 6 cyc flt @ Schulte 115kV bus & clr Tesla-Schulte 1&2 115kV lines

Q268 Project Interconnection System Impact Study

Selected PG&E Bus Voltage Plots Adjacent to Fault

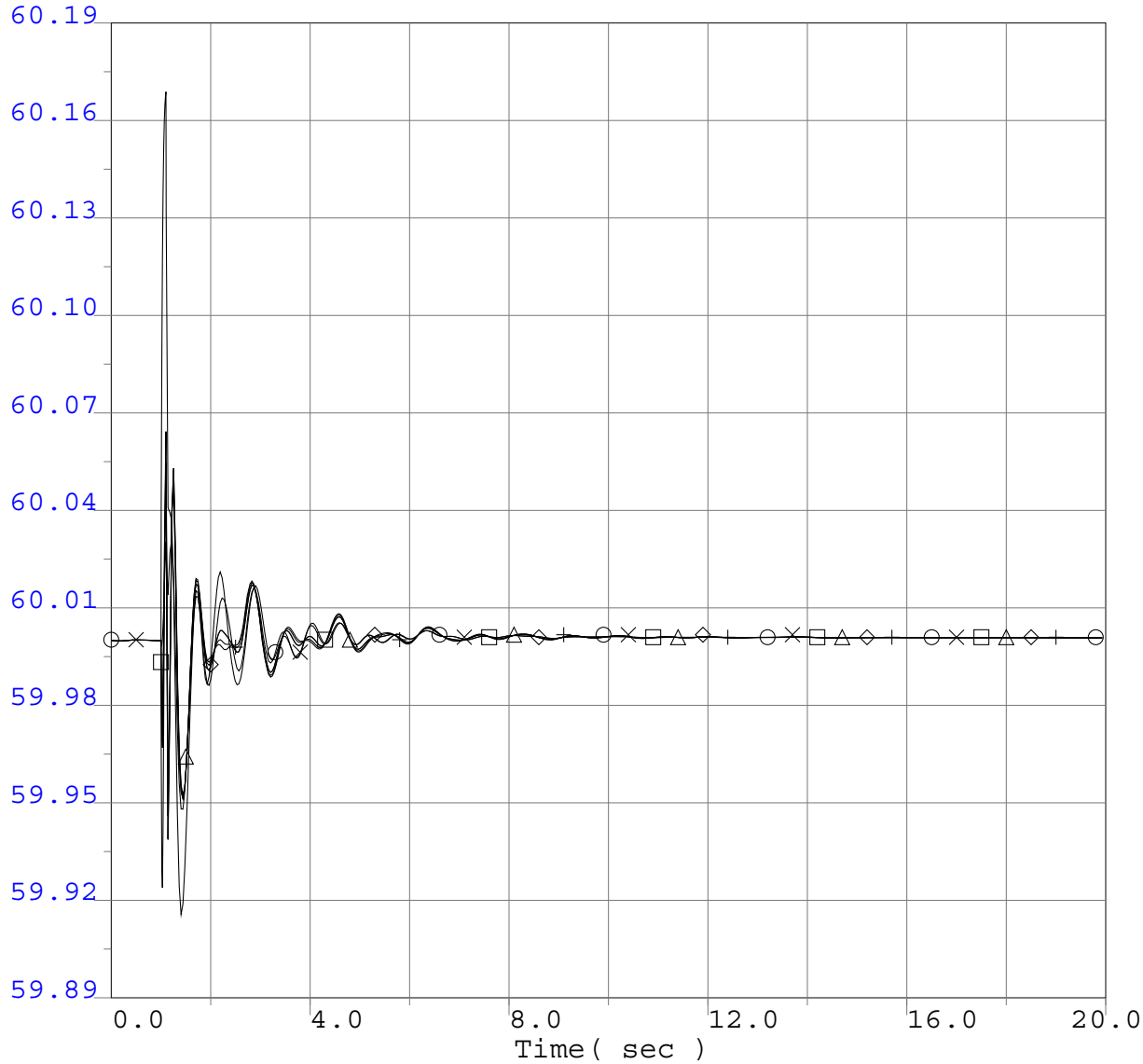


0.0000	vbus	33549	SCHULTE 115.0	0	0.0	"*"	1	1.0900
0.0000	vbus	33540	TESLA 115.0	0	0.0	"*"	1	1.0900
0.0000	vbul	33514	MANTECA 115.0	0	0.0	"*"	1	1.0900
0.0000	vbul	33529	LAMMERS 115.0	0	0.0	"*"	1	1.0900
0.0000	vbus	33528	KASSON 115.0	0	0.0	"*"	1	1.0900
0.0000	vbul	33518	VIERRA 115.0	0	0.0	"*"	1	1.0900

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte+Kasson-Schulte 115kV double-line outage
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte+Schulte-Kasson 115kV l

Q268 Project Interconnection System Impact Study

Selected PG&E Bus Frequency Plots Adjacent to Fault

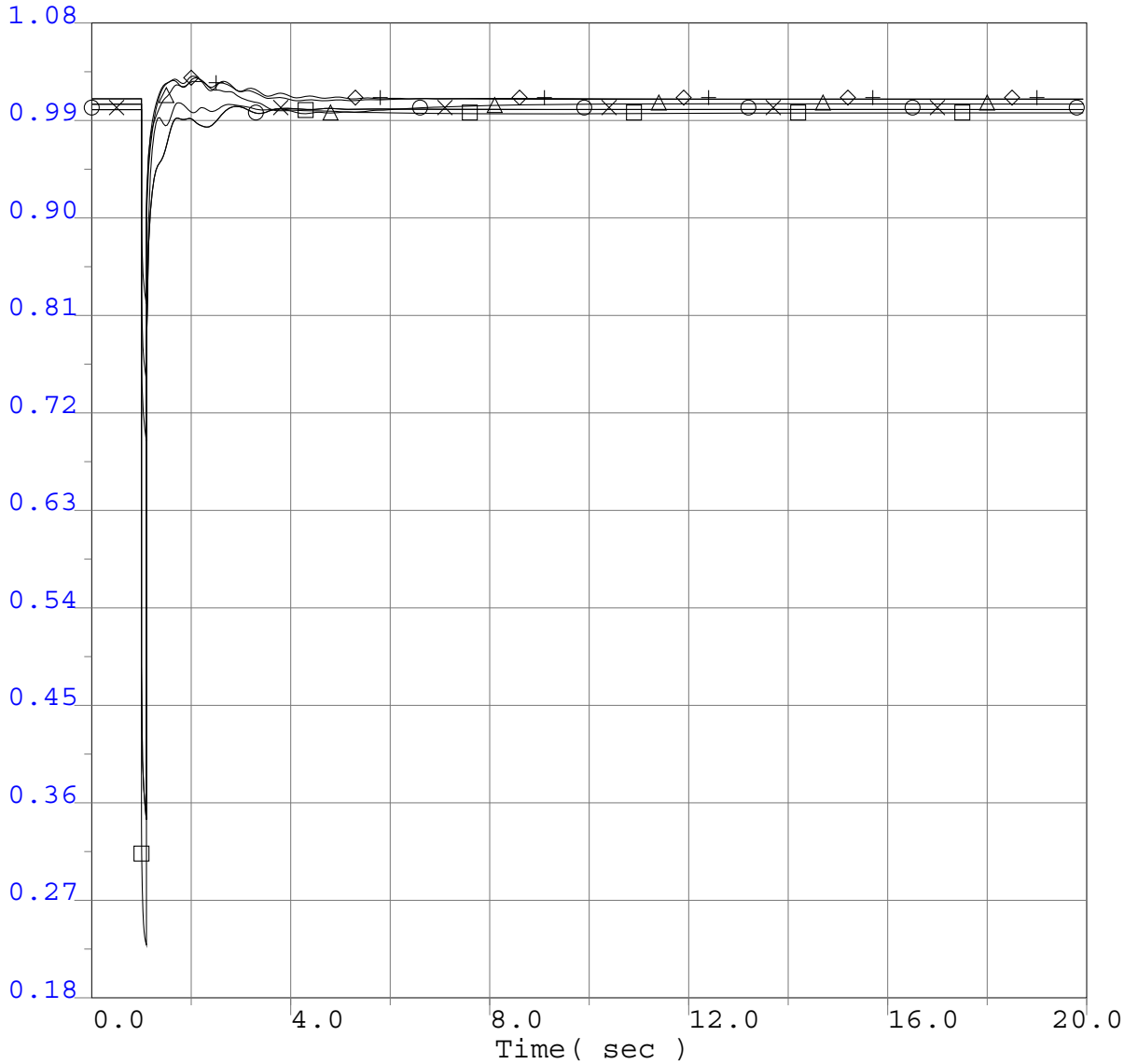


59.8900	fbus	33549	SCHULTE 115.0	0	0.0	"*"	1	60.1900
59.8900	fbus	33540	TESLA 115.0	0	0.0	"*"	1	60.1900
59.8900	fbul	33514	MANTECA 115.0	0	0.0	"*"	1	60.1900
59.8900	fbul	33529	LAMMERS 115.0	0	0.0	"*"	1	60.1900
59.8900	fbus	33528	KASSON 115.0	0	0.0	"*"	1	60.1900
59.8900	fbul	33518	VIERRA 115.0	0	0.0	"*"	1	60.1900

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte+Kasson-Schulte 115kV double-line outage
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte+Schulte-Kasson 115kV l

Q268 Project Interconnection System Impact Study

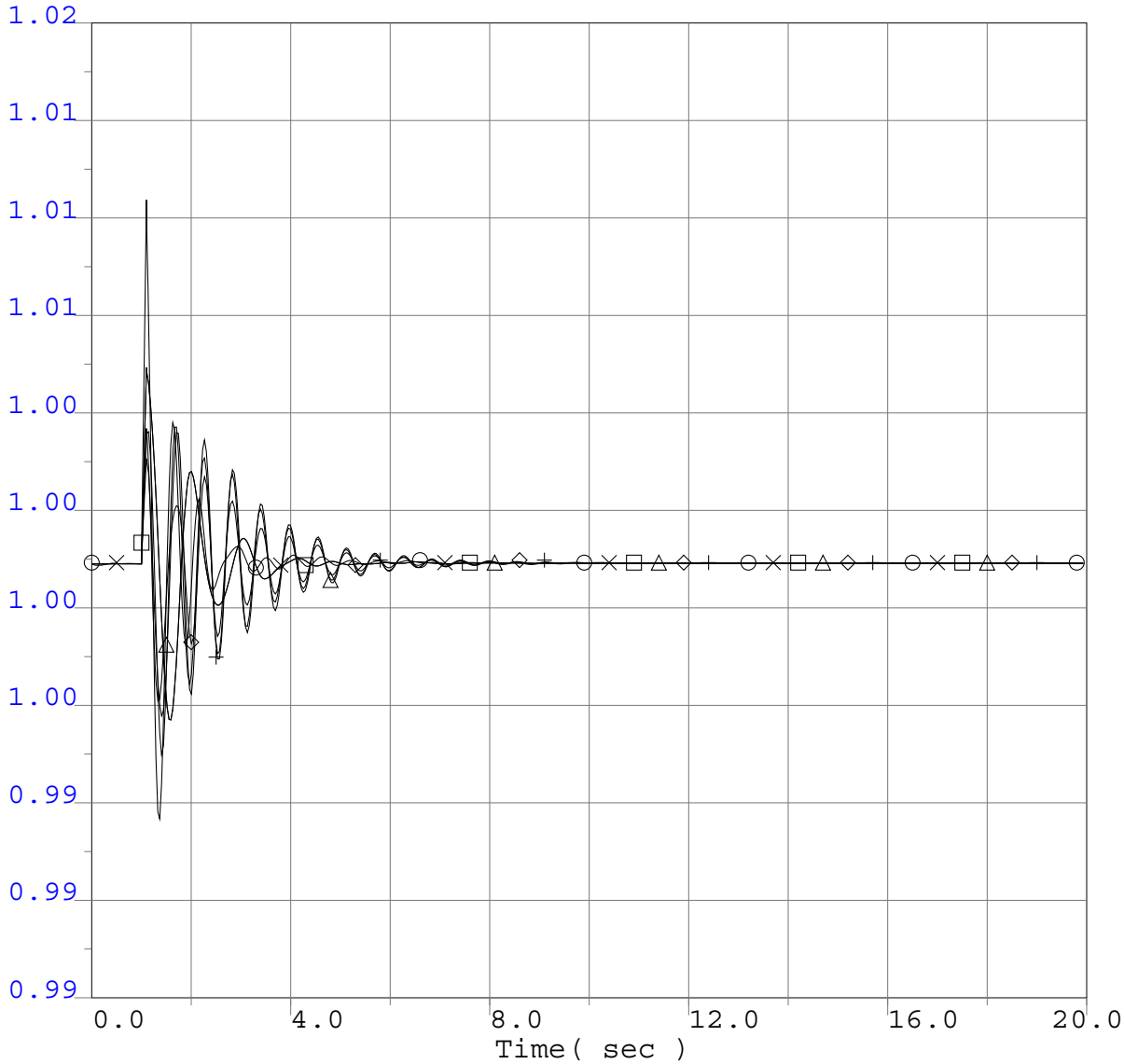
Project Generator Terminal Voltages



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte+Kasson-Schulte 115kV double-line outage
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte+Schulte-Kasson 115kV l

Q268 Project Interconnection System Impact Study

Project Generator Rotor Speed

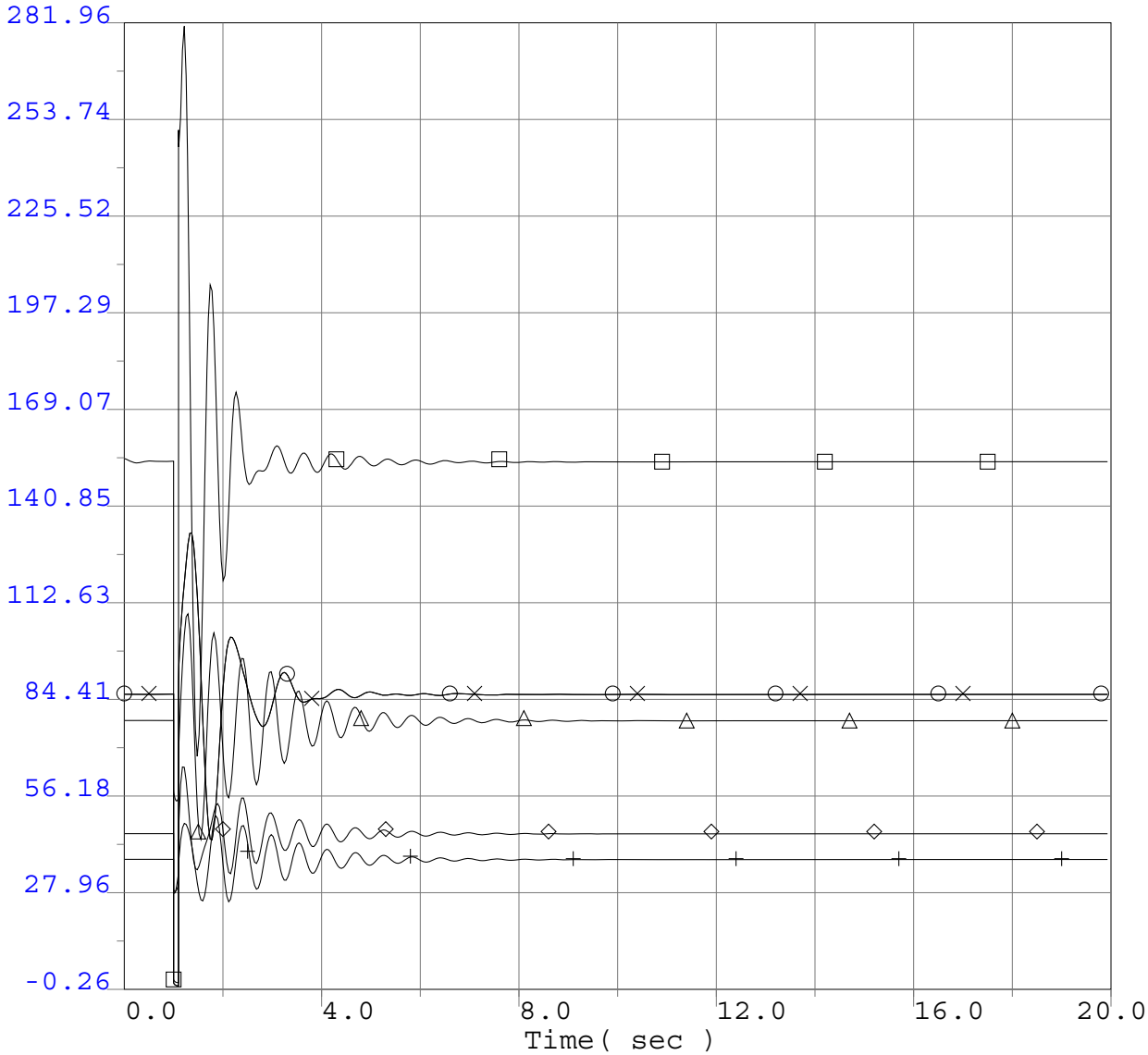


0.9878 spd	33805	GWFTRCY1	13.8	0	0.0 "1"	1	1.0152
0.9878 spd	33807	GWFTRCY2	13.8	0	0.0 "1"	1	1.0152
0.9878 spd	33809	Q268ST1	13.8	0	0.0 "1"	1	1.0152
0.9878 spd	33858	P0409CG2	13.8	0	0.0 "1"	1	1.0152
0.9878 spd	33808	SJ COGEN	13.8	0	0.0 "1"	1	1.0152
0.9878 spd	33810	SP CMPNY	13.8	0	0.0 "1"	1	1.0152

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte+Kasson-Schulte 115kV double-line outage
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte+Schulte-Kasson 115kV l

Q268 Project Interconnection System Impact Study

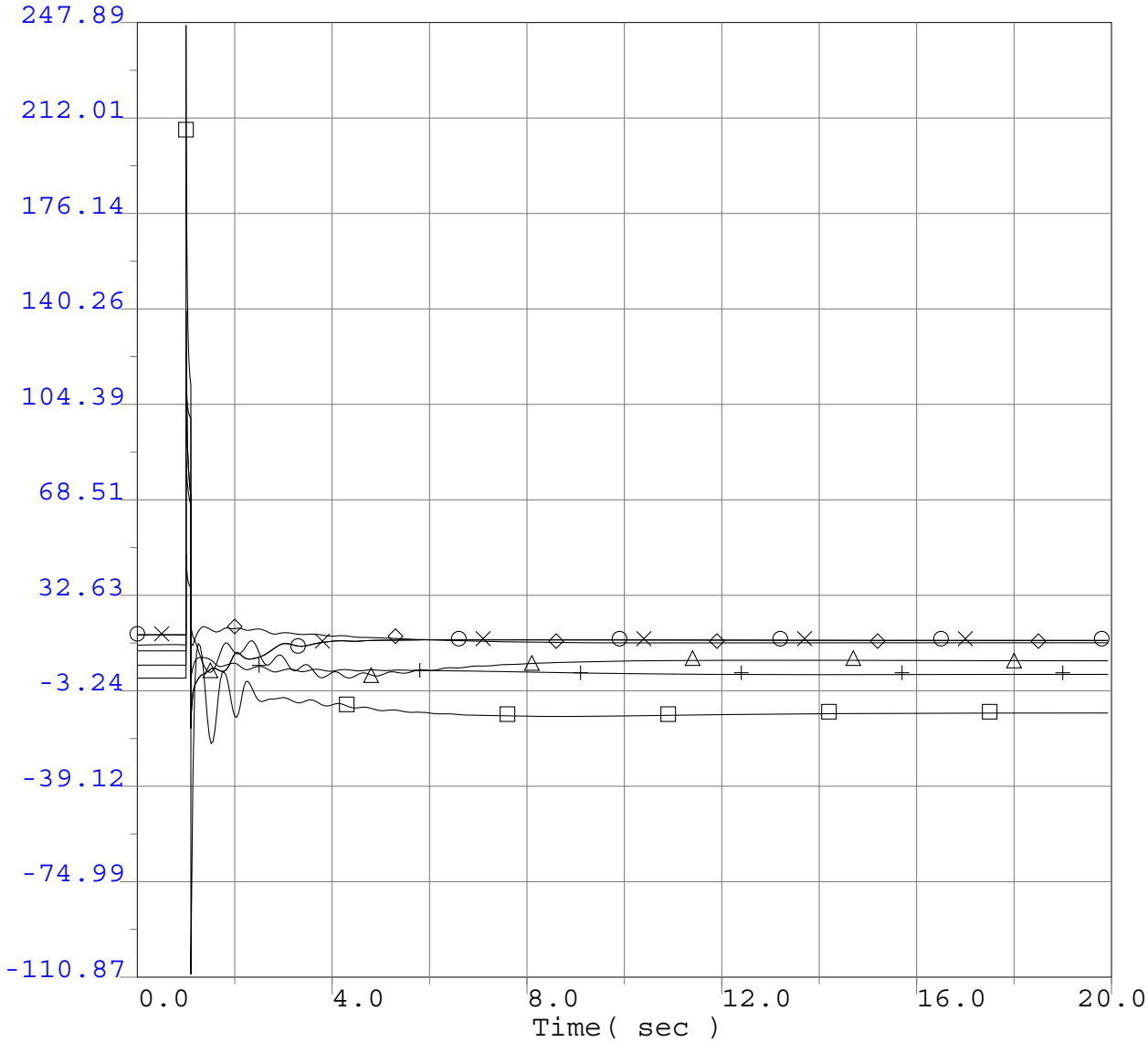
Project Generator Terminal Power



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte+Kasson-Schulte 115kV double-line outage
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte+Schulte-Kasson 115kV l

Q268 Project Interconnection System Impact Study

Project Generator Terminal Reactive Power

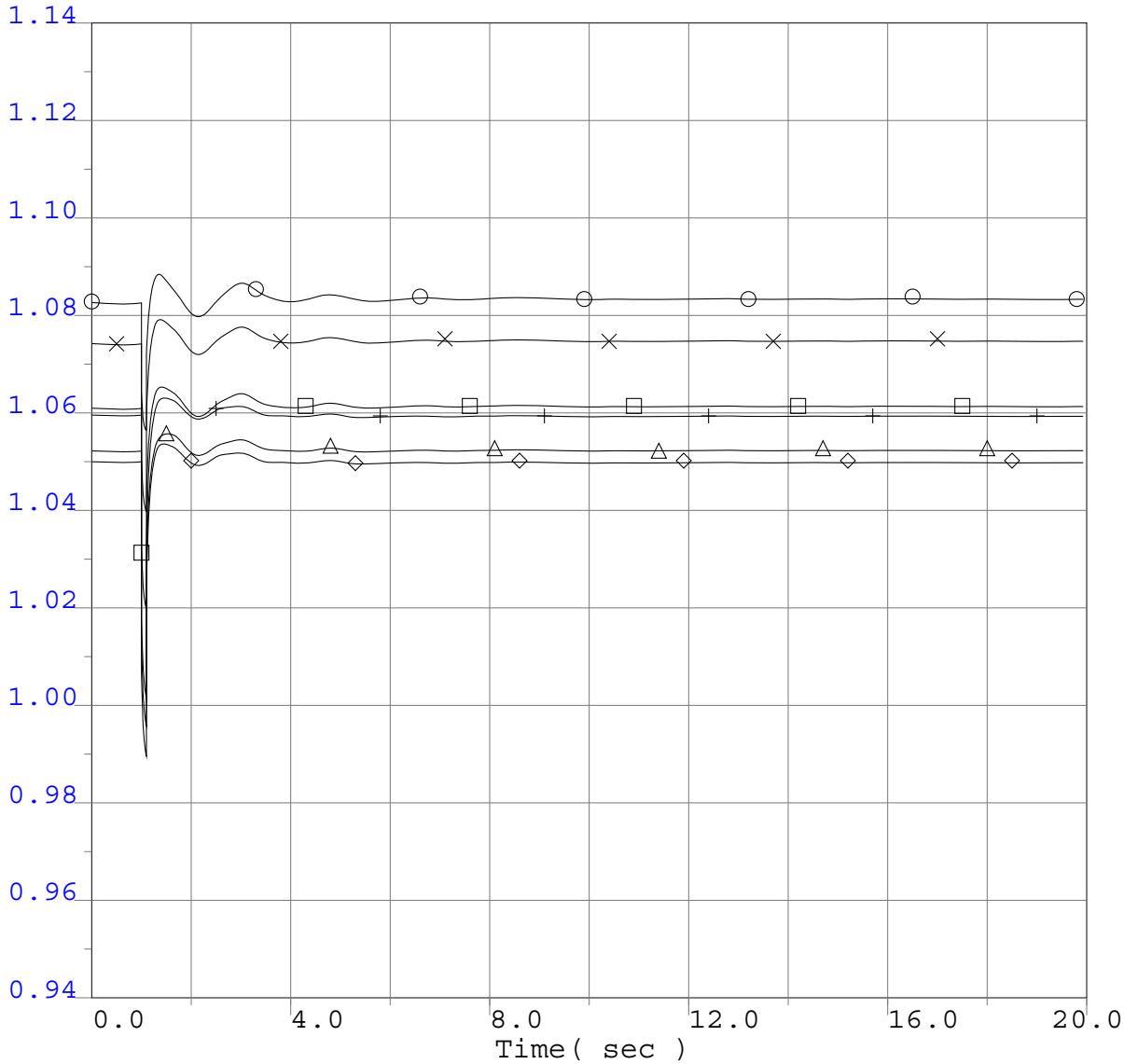


-110.8000 qg	33805	GWFTRCY1	13.8	0	0.0	"1"	1	247.8900
-110.8000 qg	33807	GWFTRCY2	13.8	0	0.0	"1"	1	247.8900
-110.8000 qg	33809	Q268ST1	13.8	0	0.0	"1"	1	247.8900
-110.8000 qg	33858	P0409CG2	13.8	0	0.0	"1"	1	247.8900
-110.8000 qg	33808	SJ COGEN	13.8	0	0.0	"1"	1	247.8900
-110.8000 qg	33810	SP CMPNY	13.8	0	0.0	"1"	1	247.8900

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte+Kasson-Schulte 115kV double-line outage
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte+Schulte-Kasson 115kV l

Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots

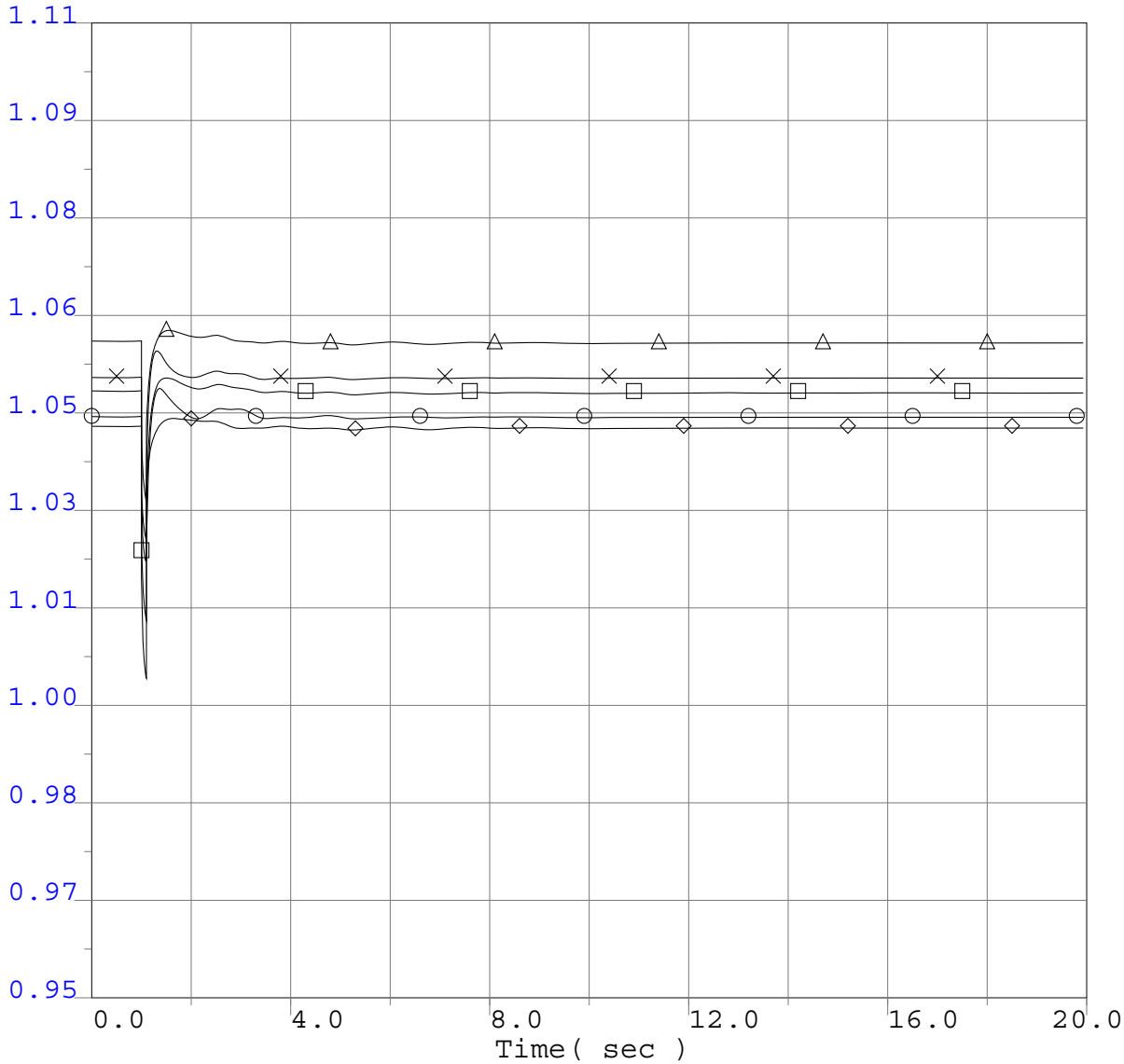


0.9400	vbus	40687	MALIN	500.0	0	0.0 "*"	1	1.1400
0.9400	vbus	30005	ROUND MT	500.0	0	0.0 "*"	1	1.1400
0.9400	vbus	30015	TABLE MT	500.0	0	0.0 "*"	1	1.1400
0.9400	vbus	30030	VACA-DIX	500.0	0	0.0 "*"	1	1.1400
0.9400	vbus	30040	TESLA	500.0	0	0.0 "*"	1	1.1400
0.9400	vbus	30035	TRACY	500.0	0	0.0 "*"	1	1.1400

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte+Kasson-Schulte 115kV double-line outage
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte+Schulte-Kasson 115kV l

Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots

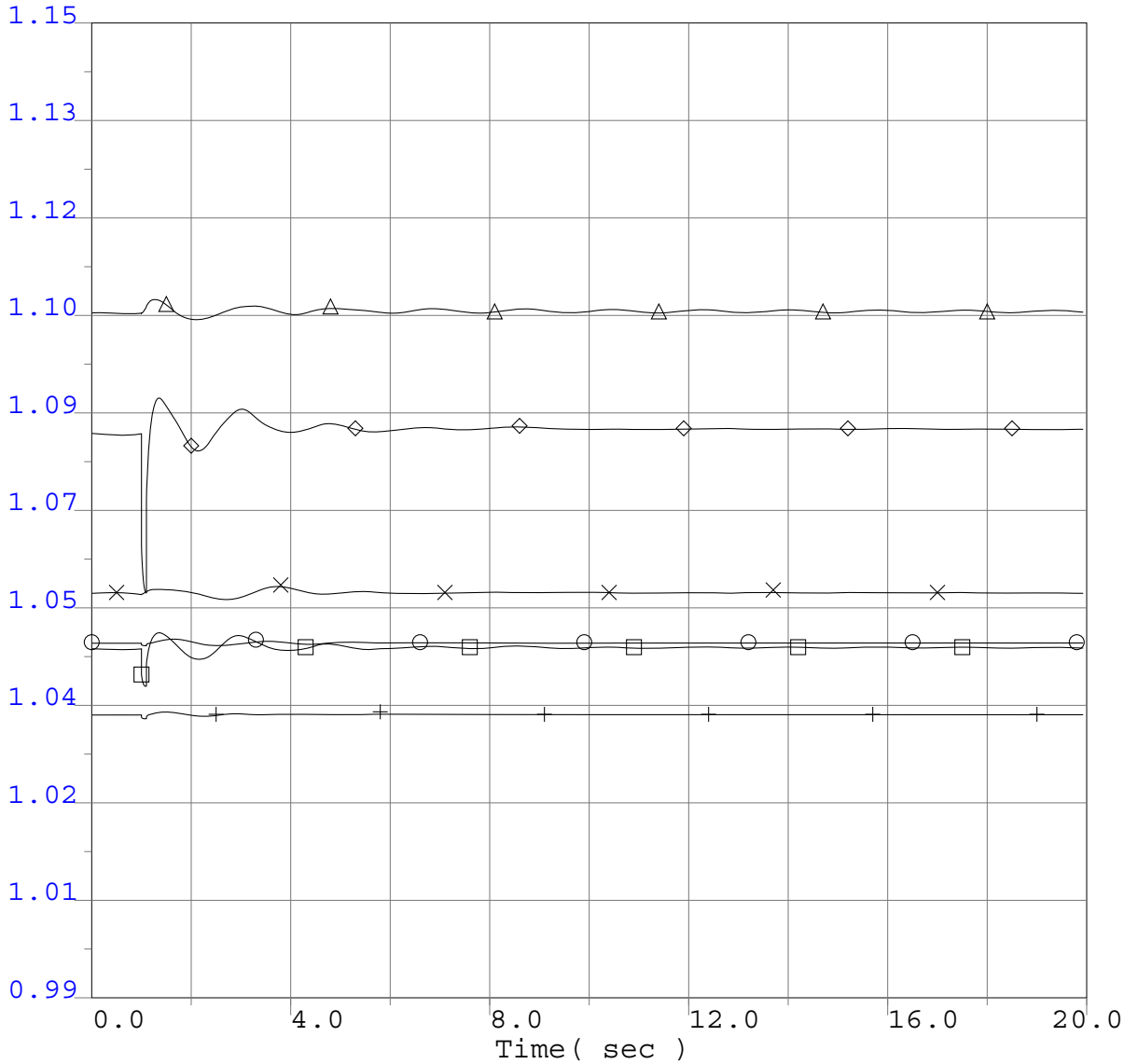


○	0.9500 vbus	30042	METCALF 500.0	0	0.0 "*"	1	1.1100
×	0.9500 vbus	30045	MOSSLAND 500.0	0	0.0 "*"	1	1.1100
□	0.9500 vbus	30050	LOSBANOS 500.0	0	0.0 "*"	1	1.1100
△	0.9500 vbus	30055	GATES 500.0	0	0.0 "*"	1	1.1100
◇	0.9500 vbus	30060	MIDWAY 500.0	0	0.0 "*"	1	1.1100

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte+Kasson-Schulte 115kV double-line outage
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte+Schulte-Kasson 115kV l

Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots

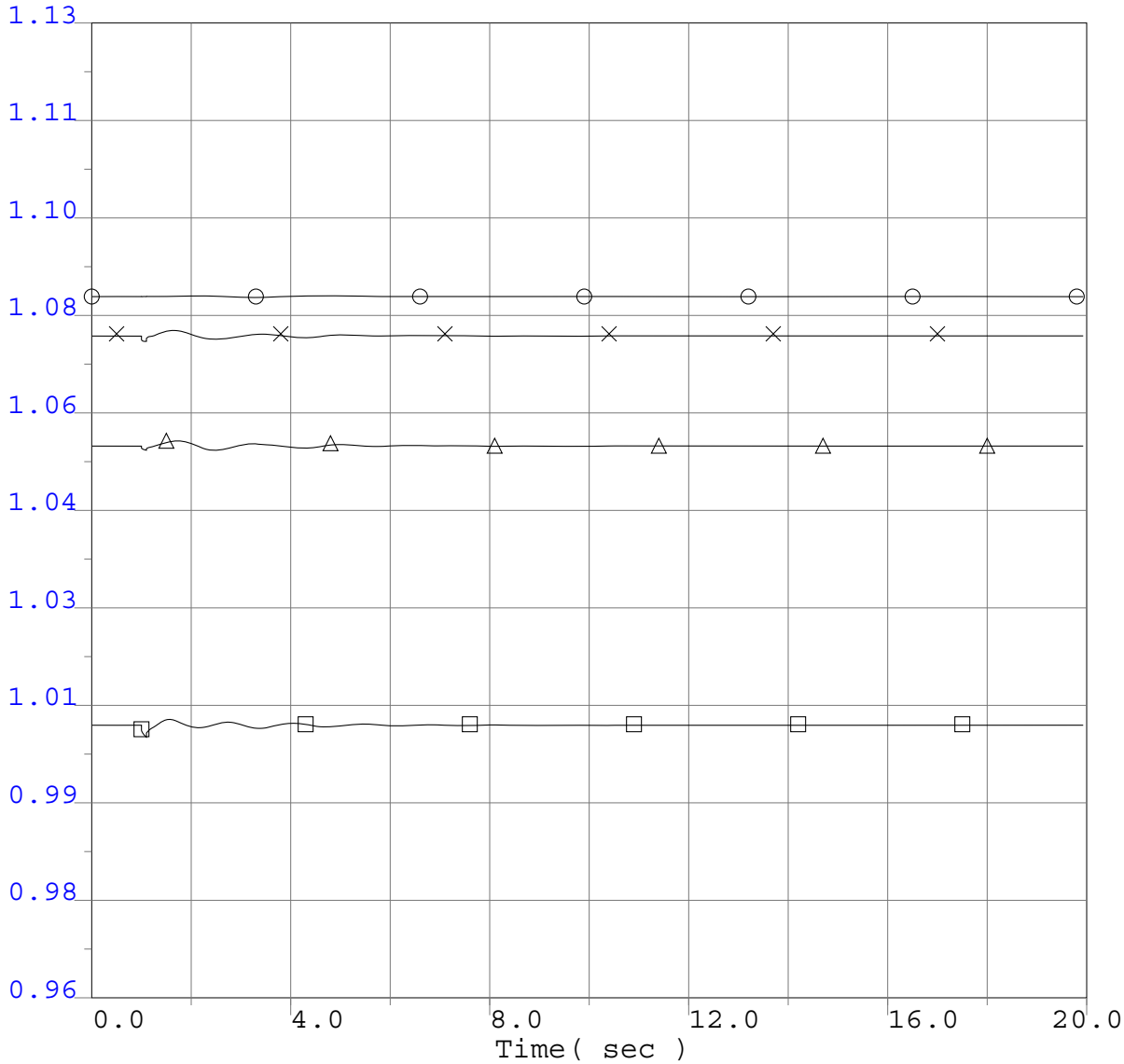


0.9900	vbus	14001	FOURCORN	500.0	0	0.0 "*"	1	1.1500
0.9900	vbus	50703	NIC500	500.0	0	0.0 "*"	1	1.1500
0.9900	vbus	60240	MIDPOINT	500.0	0	0.0 "*"	1	1.1500
0.9900	vbus	62012	TOWN2	500.0	0	0.0 "*"	1	1.1500
0.9900	vbus	40687	MALIN	500.0	0	0.0 "*"	1	1.1500
0.9900	vbus	66340	SIGURD	345.0	0	0.0 "*"	1	1.1500

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte+Kasson-Schulte 115kV double-line outage
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte+Schulte-Kasson 115kV l

Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots

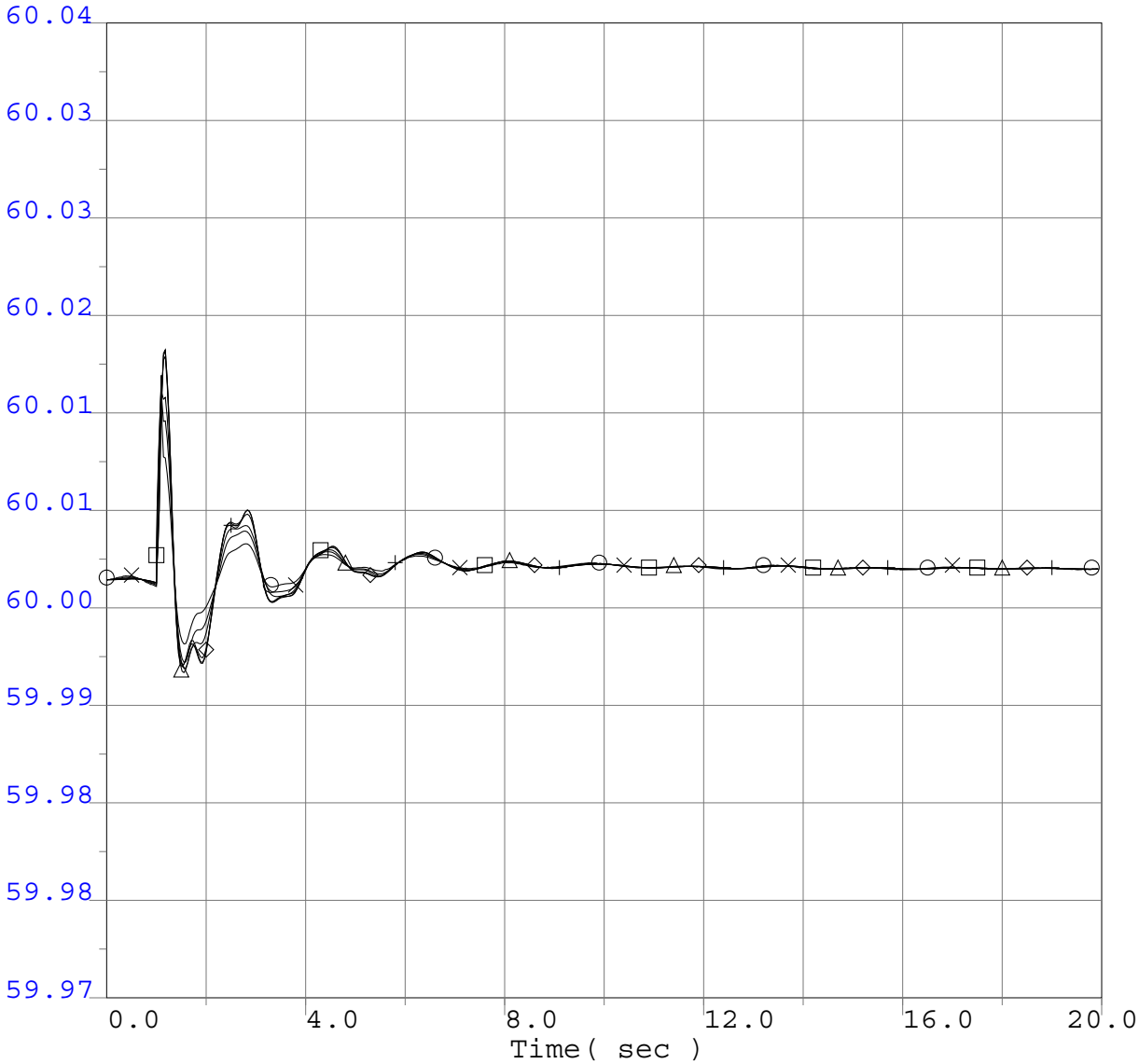


0.9600 vbul	54150	WILLESD9	240.0	0	0.0	"*"	1	1.1300
0.9600 vbus	14003	NAVAJO	500.0	0	0.0	"*"	1	1.1300
0.9600 vbus	24153	VESTAL	230.0	0	0.0	"*"	1	1.1300
0.9600 vbus	22360	IMPRLVLY	500.0	0	0.0	"*"	1	1.1300

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte+Kasson-Schulte 115kV double-line outage
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte+Schulte-Kasson 115kV l

Q268 Project Interconnection System Impact Study

Selected WECC Bus Frequency Plots

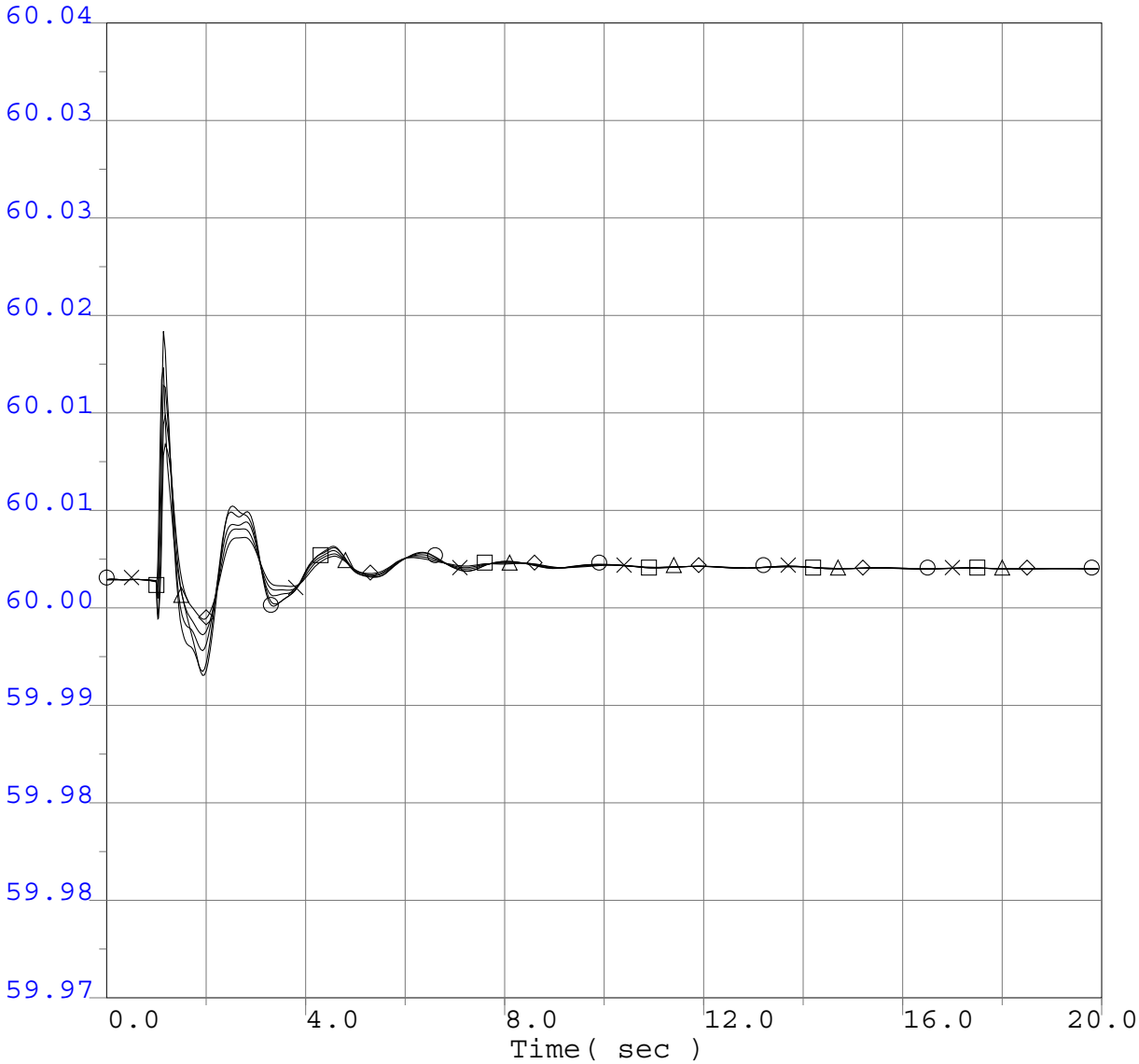


○	59.9700 fbus	40687	MALIN 500.0	0	0.0 "*"	1	60.0400
⊗	59.9700 fbus	30005	ROUND MT 500.0	0	0.0 "*"	1	60.0400
□	59.9700 fbus	30015	TABLE MT 500.0	0	0.0 "*"	1	60.0400
△	59.9700 fbus	30030	VACA-DIX 500.0	0	0.0 "*"	1	60.0400
◇	59.9700 fbus	30040	TESLA 500.0	0	0.0 "*"	1	60.0400
+	59.9700 fbus	30035	TRACY 500.0	0	0.0 "*"	1	60.0400

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte+Kasson-Schulte 115kV double-line outage
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte+Schulte-Kasson 115kV l

Q268 Project Interconnection System Impact Study

Selected WECC Bus Frequency Plots

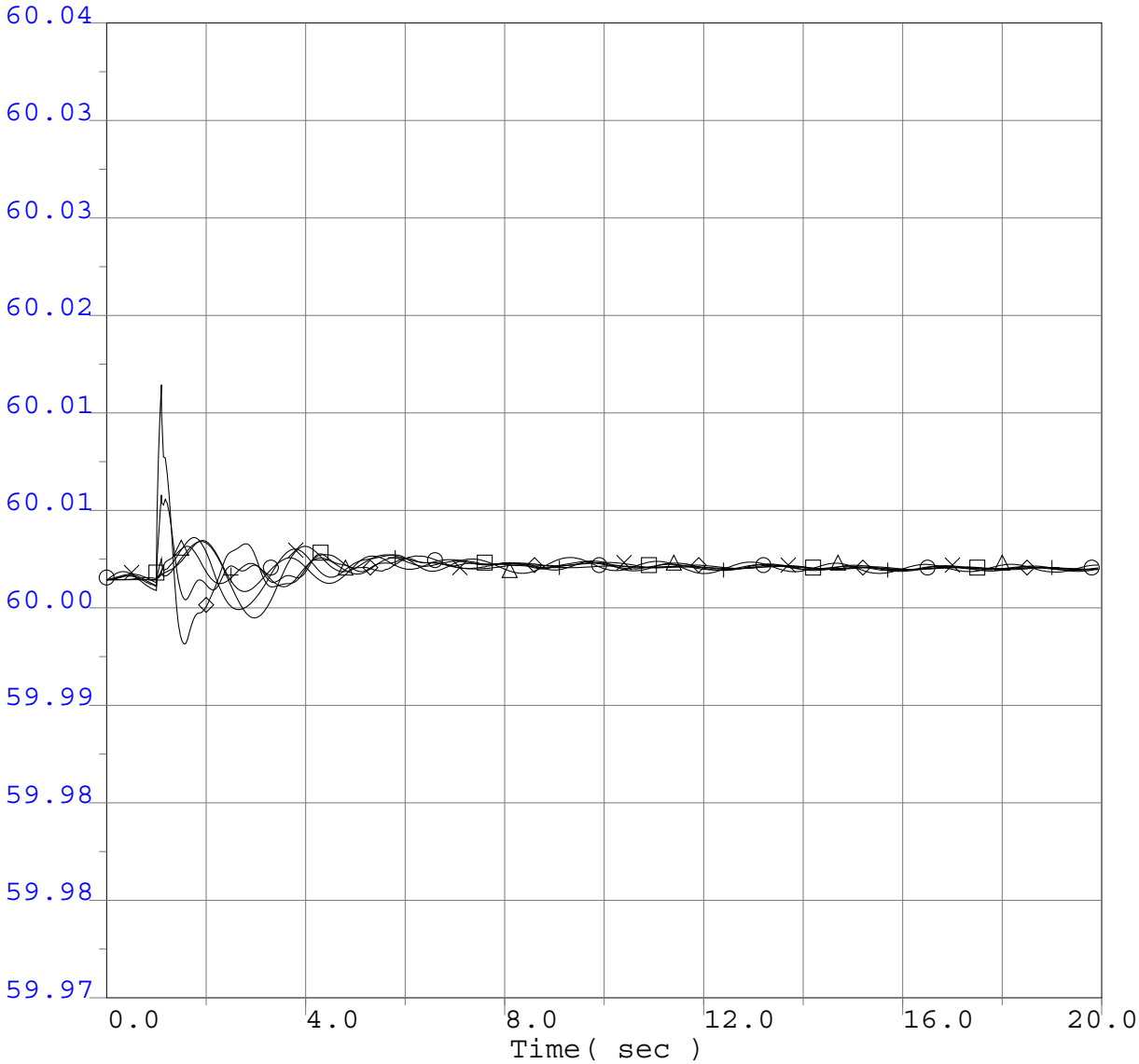


○	59.9700 fbus	30042	METCALF 500.0	0	0.0 "*"	1	60.0400
×	59.9700 fbus	30045	MOSSLAND 500.0	0	0.0 "*"	1	60.0400
□	59.9700 fbus	30050	LOSBANOS 500.0	0	0.0 "*"	1	60.0400
△	59.9700 fbus	30055	GATES 500.0	0	0.0 "*"	1	60.0400
◇	59.9700 fbus	30060	MIDWAY 500.0	0	0.0 "*"	1	60.0400

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte+Kasson-Schulte 115kV double-line outage
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte+Schulte-Kasson 115kV l

Q268 Project Interconnection System Impact Study

Selected WECC Bus Frequency Plots

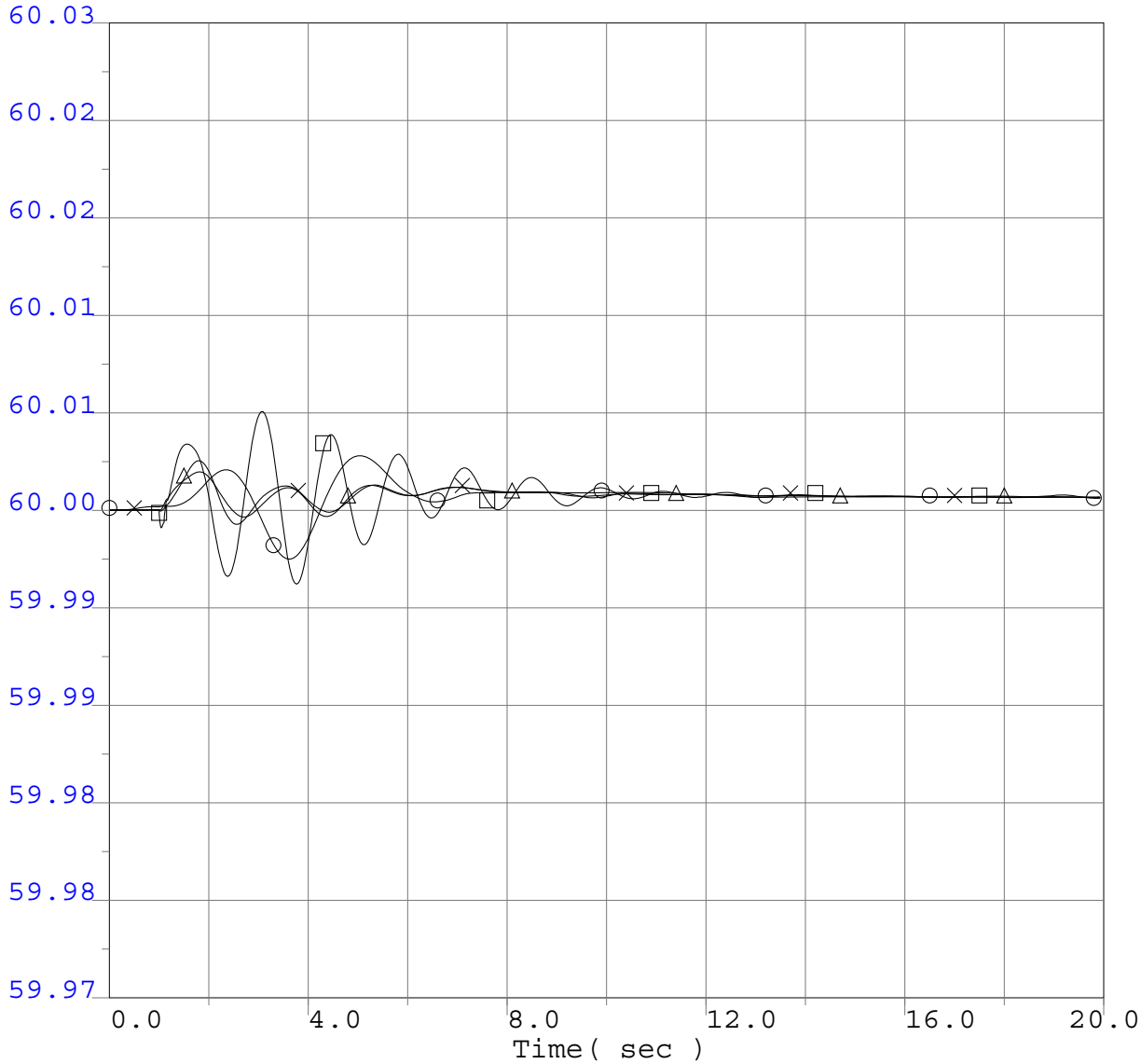


59.9700	fbus	14001	FOURCORN	500.0	0	0.0	"*"	1	60.0400
59.9700	fbus	50703	NIC500	500.0	0	0.0	"*"	1	60.0400
59.9700	fbus	60240	MIDPOINT	500.0	0	0.0	"*"	1	60.0400
59.9700	fbus	62012	TOWN2	500.0	0	0.0	"*"	1	60.0400
59.9700	fbus	40687	MALIN	500.0	0	0.0	"*"	1	60.0400
59.9700	fbus	66340	SIGURD	345.0	0	0.0	"*"	1	60.0400

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte+Kasson-Schulte 115kV double-line outage
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte+Schulte-Kasson 115kV l

Q268 Project Interconnection System Impact Study

Selected WECC Bus Frequency Plots

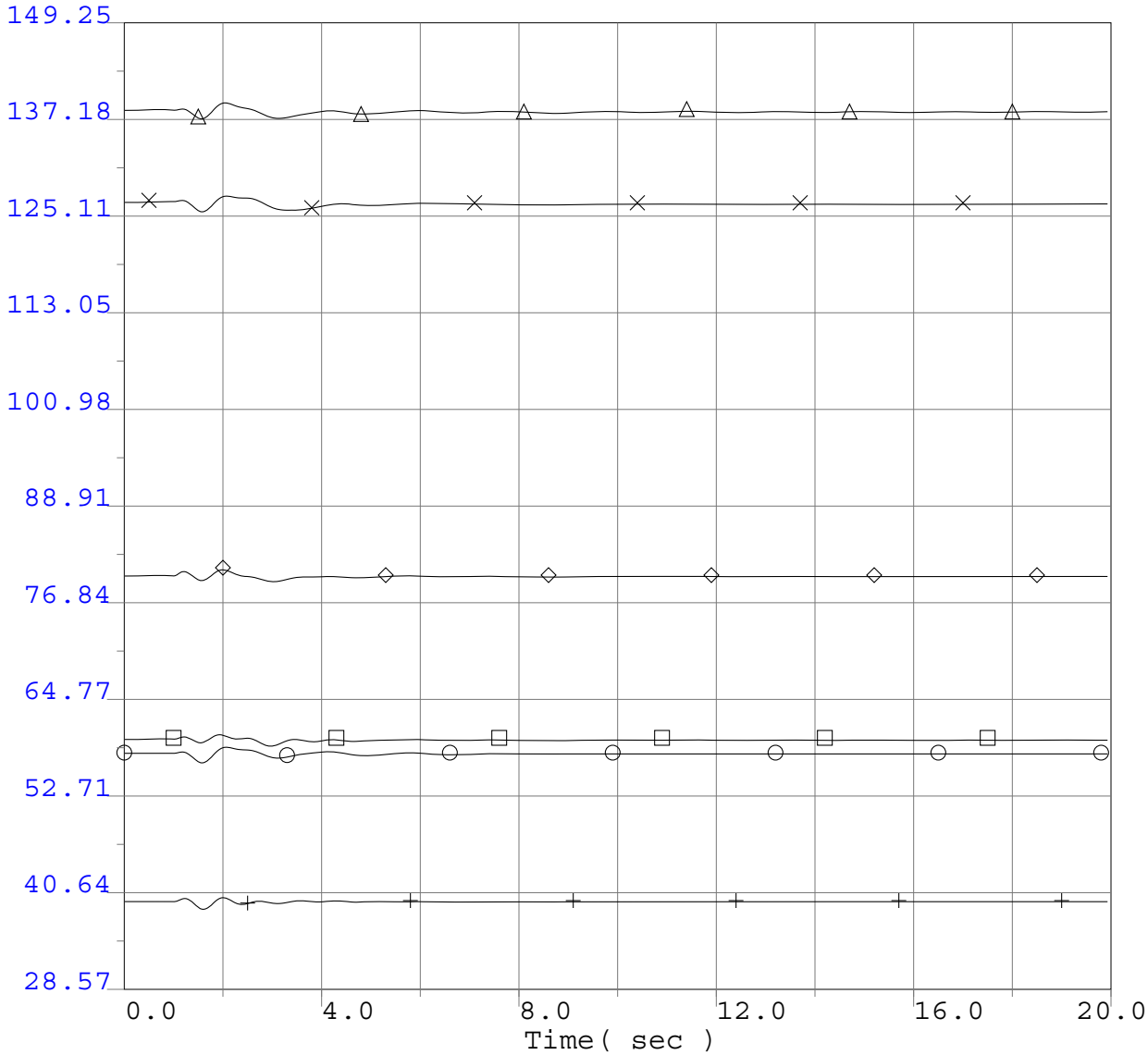


○	59.9700 fbul	54150	WILLESD9 240.0	0	0.0 "*"	1	60.0300
⊗	59.9700 fbus	14003	NAVAJO 500.0	0	0.0 "*"	1	60.0300
□	59.9700 fbus	24153	VESTAL 230.0	0	0.0 "*"	1	60.0300
△	59.9700 fbus	22360	IMPRLVLY 500.0	0	0.0 "*"	1	60.0300

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte+Kasson-Schulte 115kV double-line outage
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte+Schulte-Kasson 115kV l

Q268 Project Interconnection System Impact Study

WECC Generator Rotor Angle

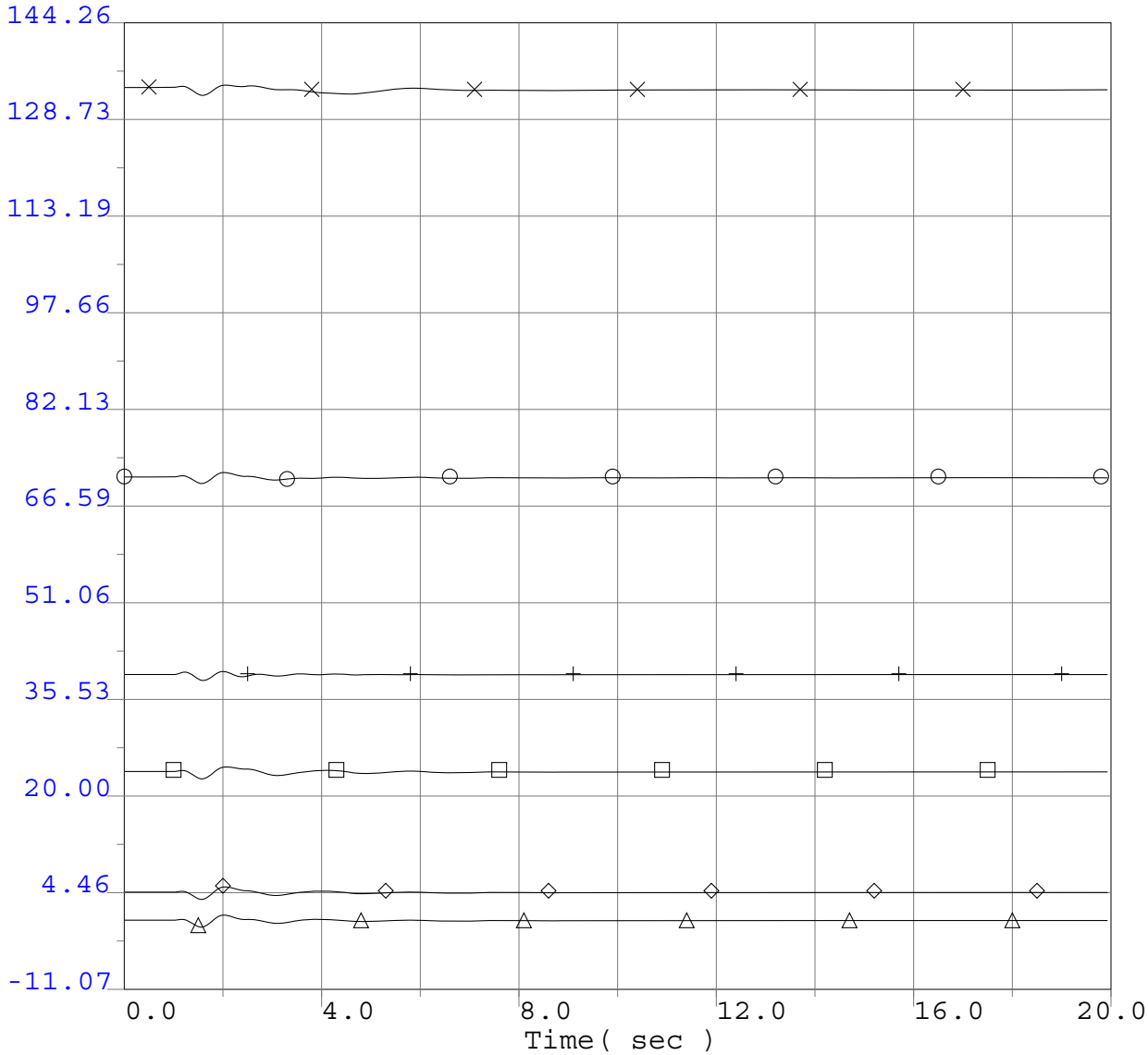


28.5700 ang	14914	FCNGN4CC	22.0	0	0.0 "H"	1	149.2500
28.5700 ang	50499	GMS G5	13.8	0	0.0 "1"	1	149.2500
28.5700 ang	60100	BRWNL 5	13.8	0	0.0 "1"	1	149.2500
28.5700 ang	62048	COLSTP 3	26.0	0	0.0 "1"	1	149.2500
28.5700 ang	44071	JDA 0102	13.8	0	0.0"01"	1	149.2500
28.5700 ang	36411	DIABLO 1	25.0	0	0.0 "1"	1	149.2500

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte+Kasson-Schulte 115kV double-line outage
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte+Schulte-Kasson 115kV l

Q268 Project Interconnection System Impact Study

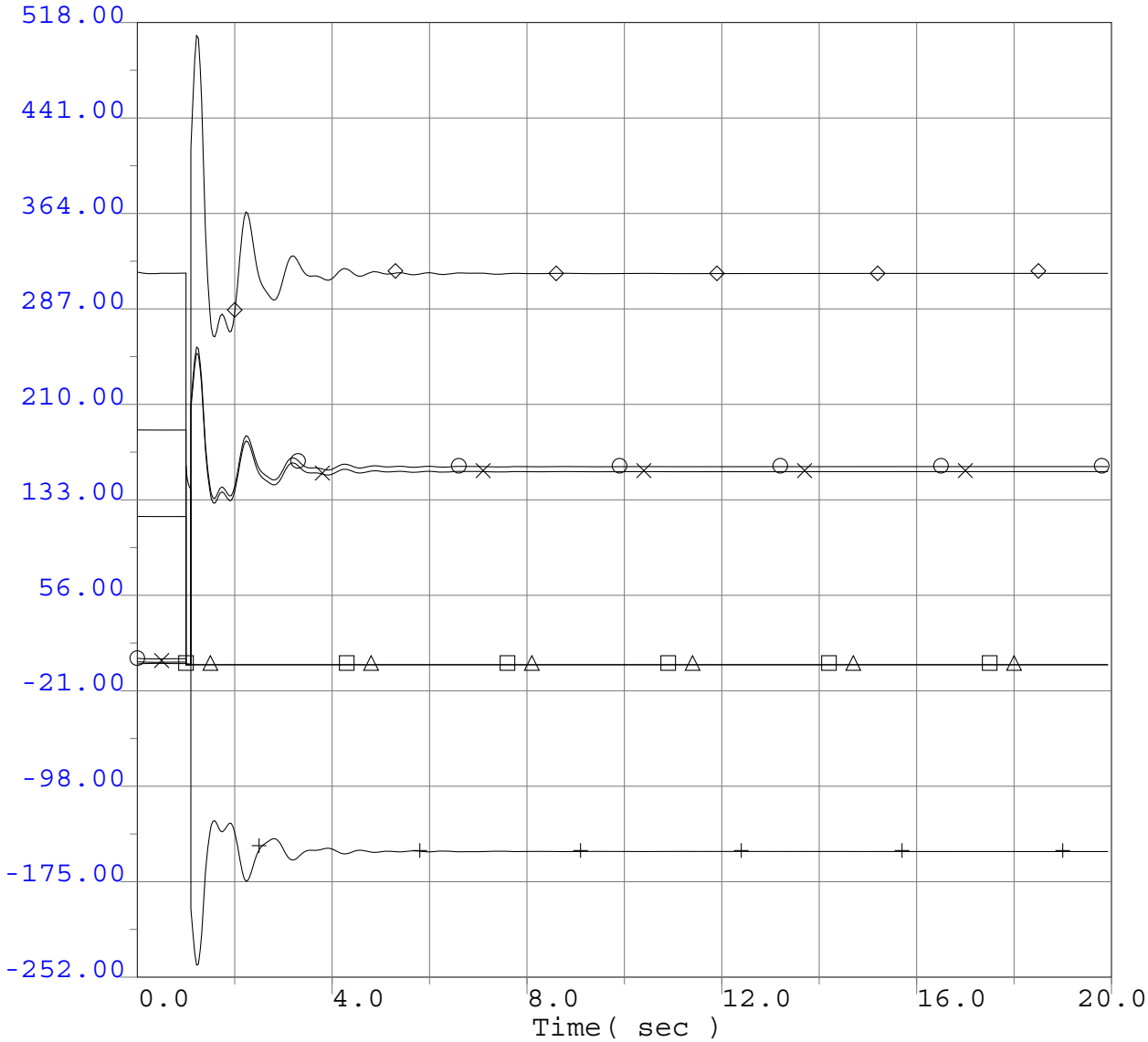
WECC Generator Rotor Angle



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte+Kasson-Schulte 115kV double-line outage
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte+Schulte-Kasson 115kV l

Q268 Project Interconnection System Impact Study

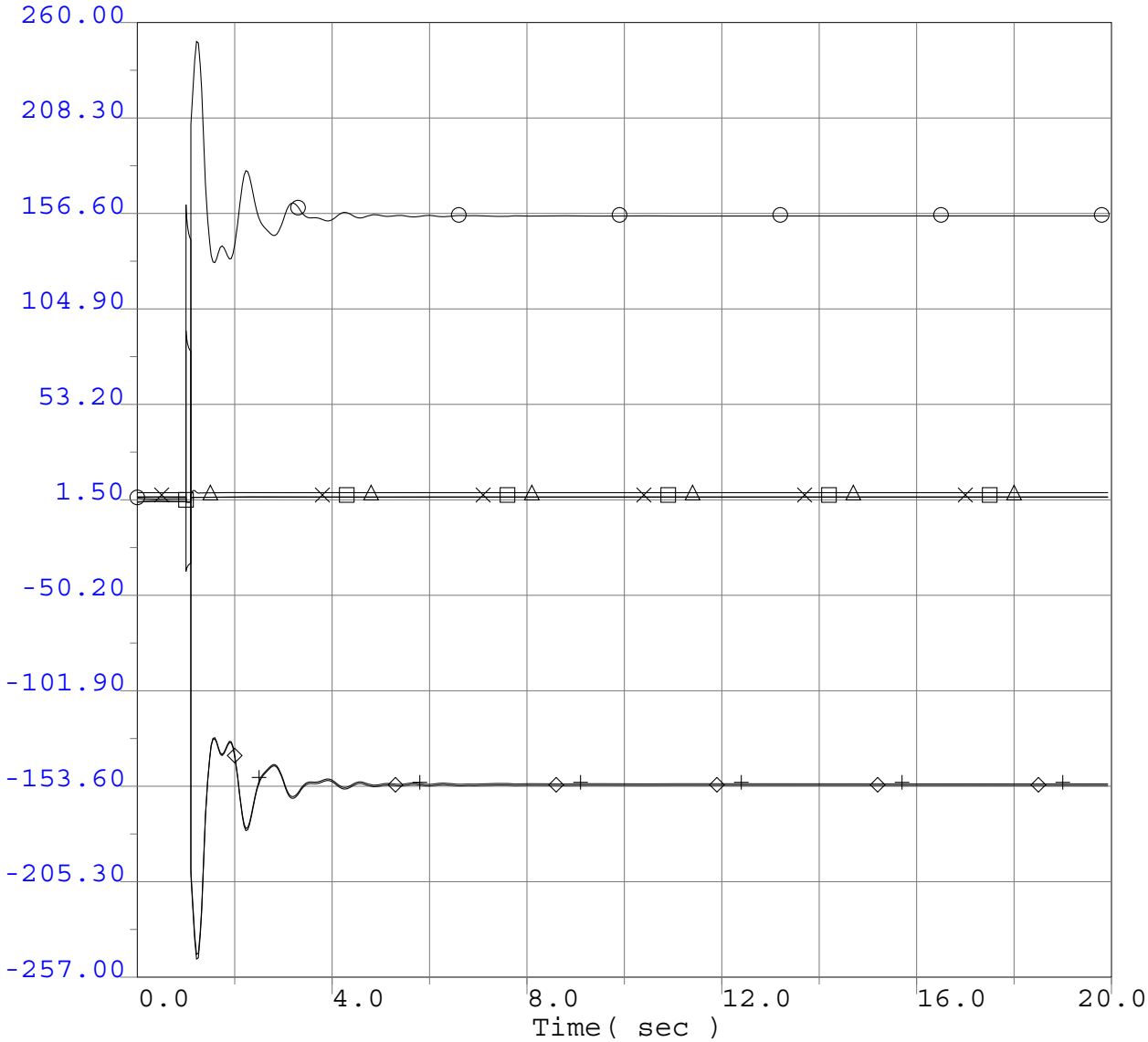
Selected PG&E Transmission Line Flows (MW)



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte+Kasson-Schulte 115kV double-line outage
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte+Schulte-Kasson 115kV l

Q268 Project Interconnection System Impact Study

Selected PG&E Transmission Line Flows (MW)

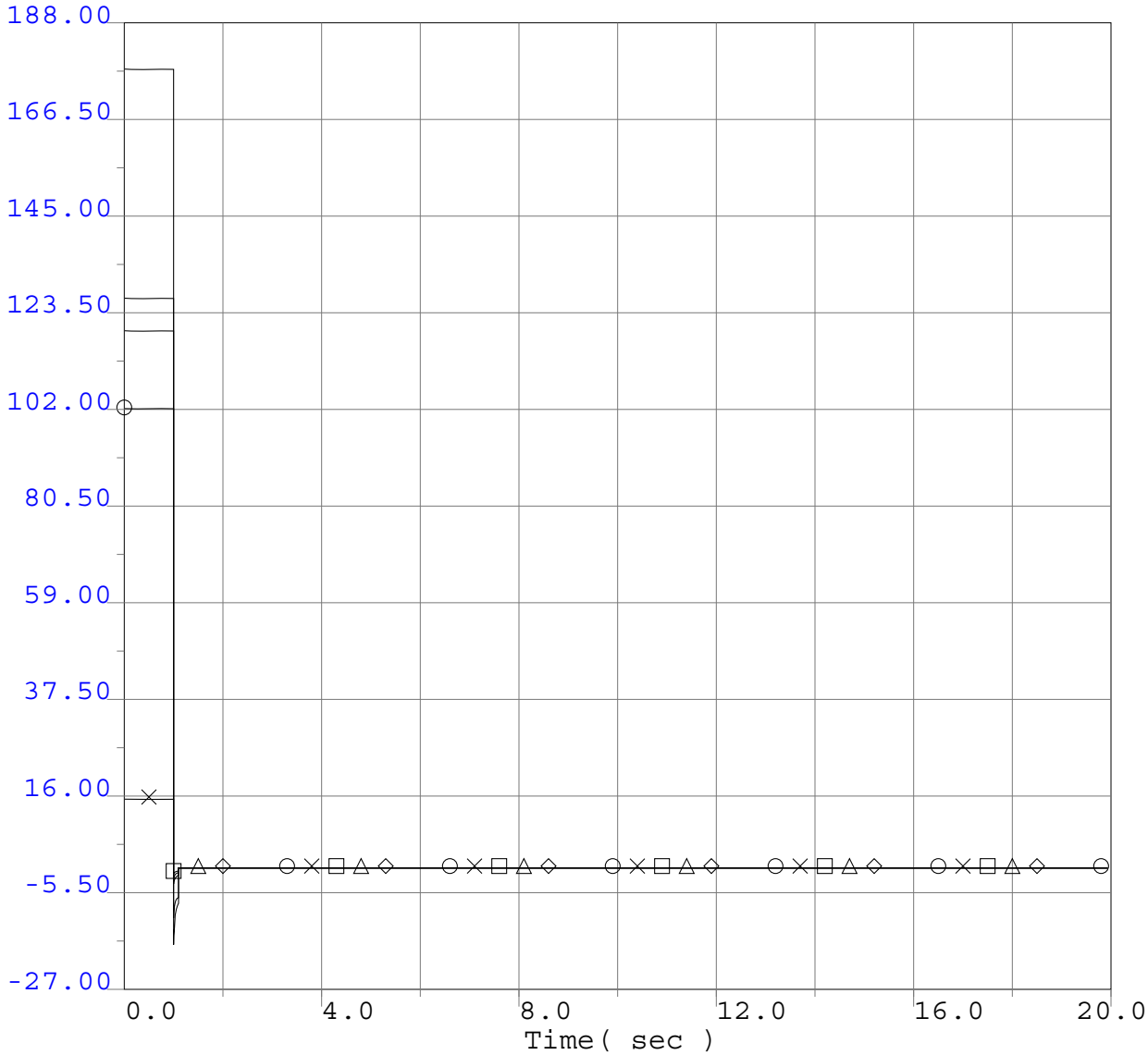


-257.0000	pbr	33535	SFWY_TP2	115.0	33543	AEC_TP2	115.0	1	1	260.0000
-257.0000	pbr	33543	AEC_TP2	115.0	33545	AEC_JCT	115.0	1	1	260.0000
-257.0000	pbr	33545	AEC_JCT	115.0	33547	AEC_300	115.0	1	1	260.0000
-257.0000	pbr	33537	SFWY_TP1	115.0	33534	SAFEWAY	115.0	1	1	260.0000
-257.0000	pbr	33541	AEC_TP1	115.0	33537	SFWY_TP1	115.0	1	1	260.0000
-257.0000	pbr	33540	TESLA	115.0	33541	AEC_TP1	115.0	1	1	260.0000

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte+Kasson-Schulte 115kV double-line outage
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte+Schulte-Kasson 115kV l

Q268 Project Interconnection System Impact Study

Selected PG&E Transmission Line Flows (MW)

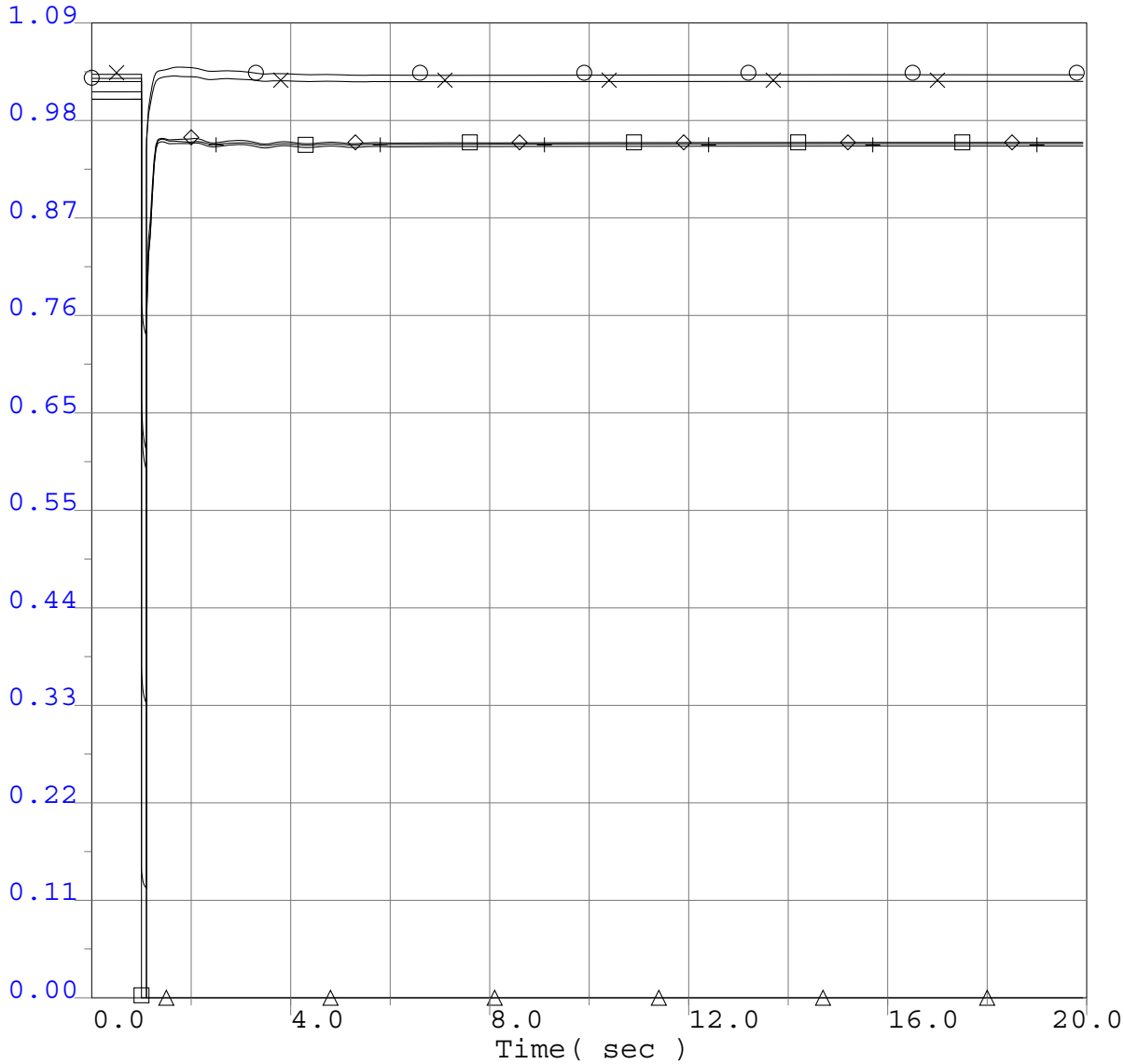


-27.0000 pbr	33526	KSSN-JC1	115.0	33514	MANTECA	115.0	1	1	188.0000
-27.0000 pbr	33526	KSSN-JC1	115.0	33528	KASSON	115.0	1	1	188.0000
-27.0000 pbr	33533	OWENSTP2	115.0	33526	KSSN-JC1	115.0	1	1	188.0000
-27.0000 pbr	33529	LAMMERS	115.0	33528	KASSON	115.0	1	1	188.0000
-27.0000 pbr	33531	OWENSTP1	115.0	33529	LAMMERS	115.0	1	1	188.0000

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte+Kasson-Schulte 115kV double-line outage
3 ph 6 cyc flt @ Schulte 115kV bus & clr Manteca-Schulte+Schulte-Kasson 115kV l

Q268 Project Interconnection System Impact Study

Selected PG&E Bus Voltage Plots Adjacent to Fault

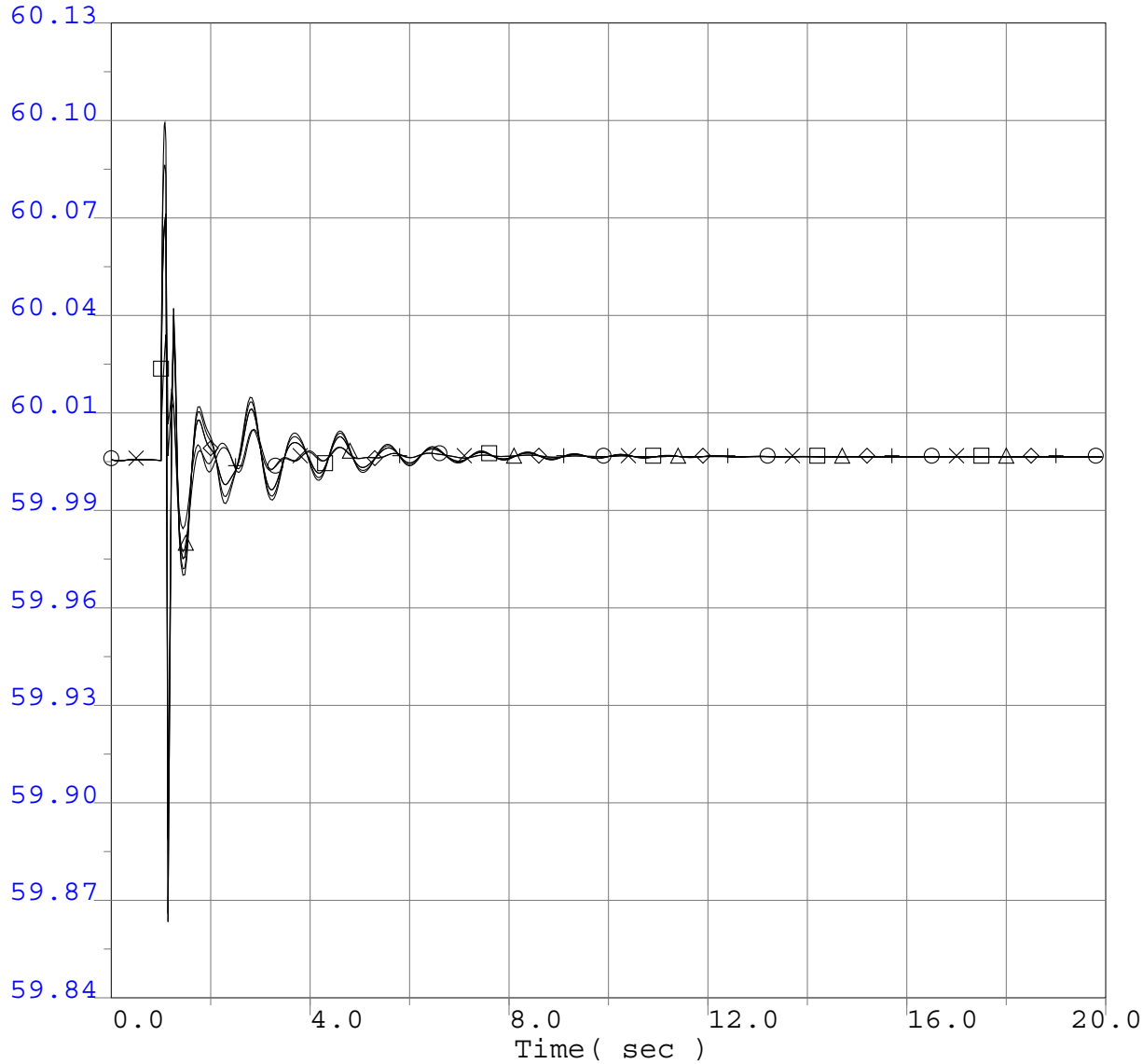


0.0000	vbus	33549	SCHULTE 115.0	0	0.0	"*"	1	1.0900
0.0000	vbus	33540	TESLA 115.0	0	0.0	"*"	1	1.0900
0.0000	vbul	33514	MANTECA 115.0	0	0.0	"*"	1	1.0900
0.0000	vbul	33529	LAMMERS 115.0	0	0.0	"*"	1	1.0900
0.0000	vbus	33528	KASSON 115.0	0	0.0	"*"	1	1.0900
0.0000	vbul	33518	VIERRA 115.0	0	0.0	"*"	1	1.0900

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte+Kasson-Manteca 115kV double-line outage
3 ph 6 cyc flt @ Manteca 115kV bus & clr Manteca-Schulte+Manteca-kasson 115kV l

Q268 Project Interconnection System Impact Study

Selected PG&E Bus Frequency Plots Adjacent to Fault

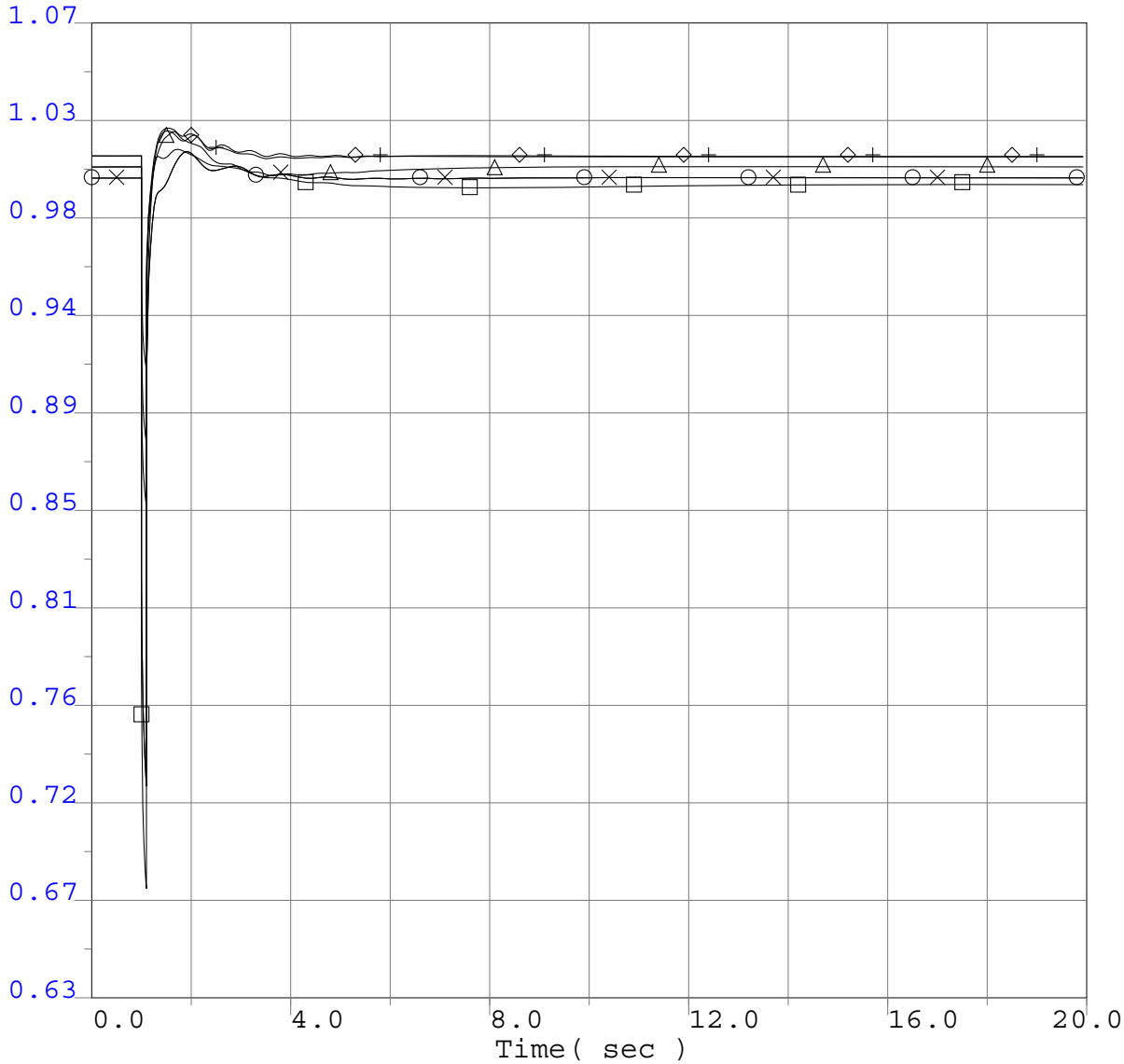


○	59.8400 fbus	33549	SCHULTE 115.0	0	0.0 "*"	1	60.1300
⊗	59.8400 fbus	33540	TESLA 115.0	0	0.0 "*"	1	60.1300
□	59.8400 fbul	33514	MANTECA 115.0	0	0.0 "*"	1	60.1300
△	59.8400 fbul	33529	LAMMERS 115.0	0	0.0 "*"	1	60.1300
◇	59.8400 fbus	33528	KASSON 115.0	0	0.0 "*"	1	60.1300
+	59.8400 fbul	33518	VIERRA 115.0	0	0.0 "*"	1	60.1300

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte+Kasson-Manteca 115kV double-line outage
3 ph 6 cyc flt @ Manteca 115kV bus & clr Manteca-Schulte+Manteca-kasson 115kV l

Q268 Project Interconnection System Impact Study

Project Generator Terminal Voltages

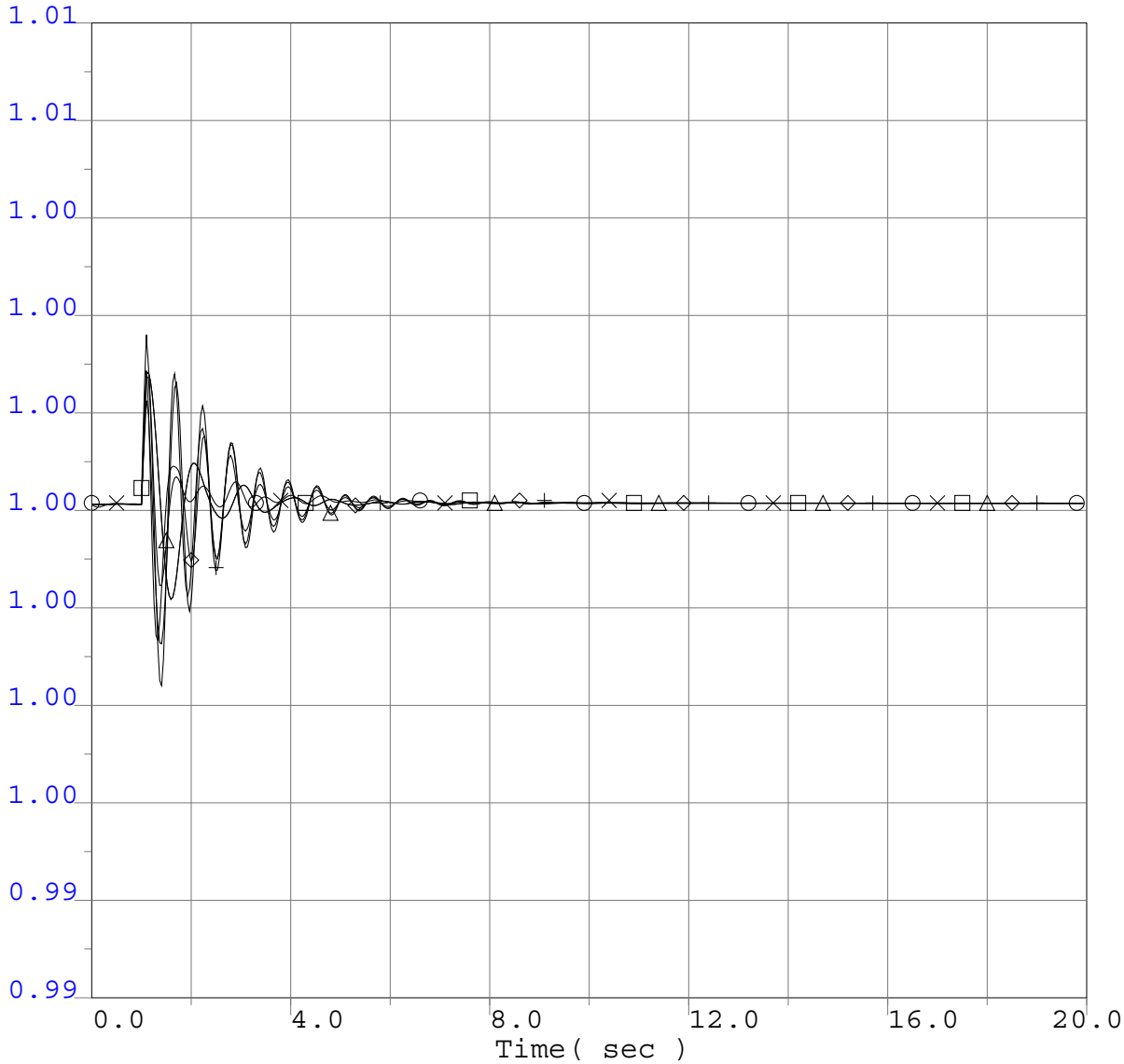


0.6300 vt	33805	GWFTRCY1	13.8	0	0.0 "1"	1	1.0700
0.6300 vt	33807	GWFTRCY2	13.8	0	0.0 "1"	1	1.0700
0.6300 vt	33809	Q268ST1	13.8	0	0.0 "1"	1	1.0700
0.6300 vt	33858	P0409CG2	13.8	0	0.0 "1"	1	1.0700
0.6300 vt	33808	SJ COGEN	13.8	0	0.0 "1"	1	1.0700
0.6300 vt	33810	SP CMPNY	13.8	0	0.0 "1"	1	1.0700

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte+Kasson-Manteca 115kV double-line outage
3 ph 6 cyc flt @ Manteca 115kV bus & clr Manteca-Schulte+Manteca-kasson 115kV l

Q268 Project Interconnection System Impact Study

Project Generator Rotor Speed



0.9921 spd	33805	GWFTRCY1	13.8	0	0.0 "1"	1	1.0077
0.9921 spd	33807	GWFTRCY2	13.8	0	0.0 "1"	1	1.0077
0.9921 spd	33809	Q268ST1	13.8	0	0.0 "1"	1	1.0077
0.9921 spd	33858	P0409CG2	13.8	0	0.0 "1"	1	1.0077
0.9921 spd	33808	SJ COGEN	13.8	0	0.0 "1"	1	1.0077
0.9921 spd	33810	SP CMPNY	13.8	0	0.0 "1"	1	1.0077

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
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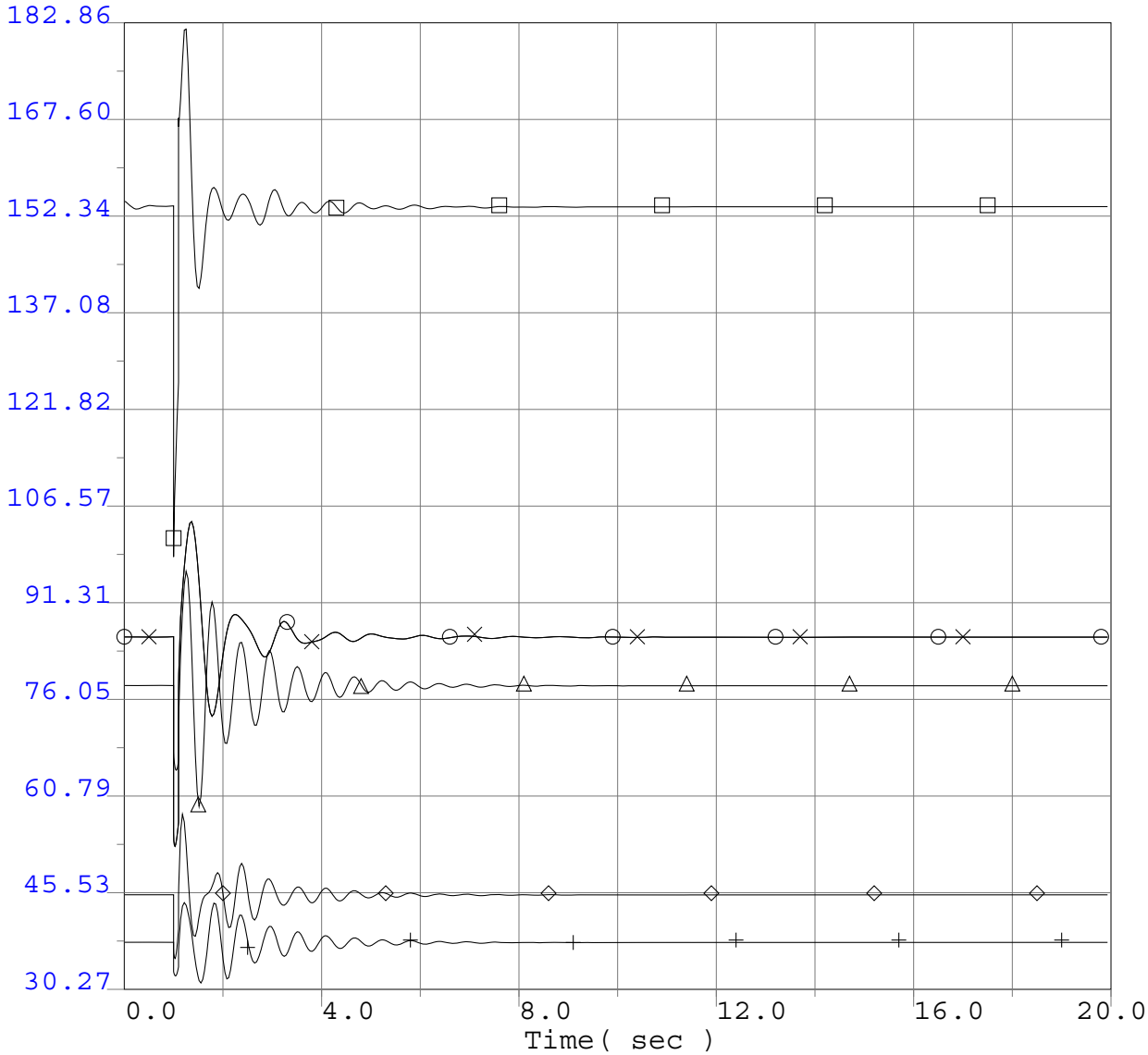
3 ph 6 cyc flt @ Manteca 115kV bus & clr Manteca-Schulte+Manteca-kasson 115kV l

Q268 Project Interconnection System Impact Study

Project Generator Terminal Power

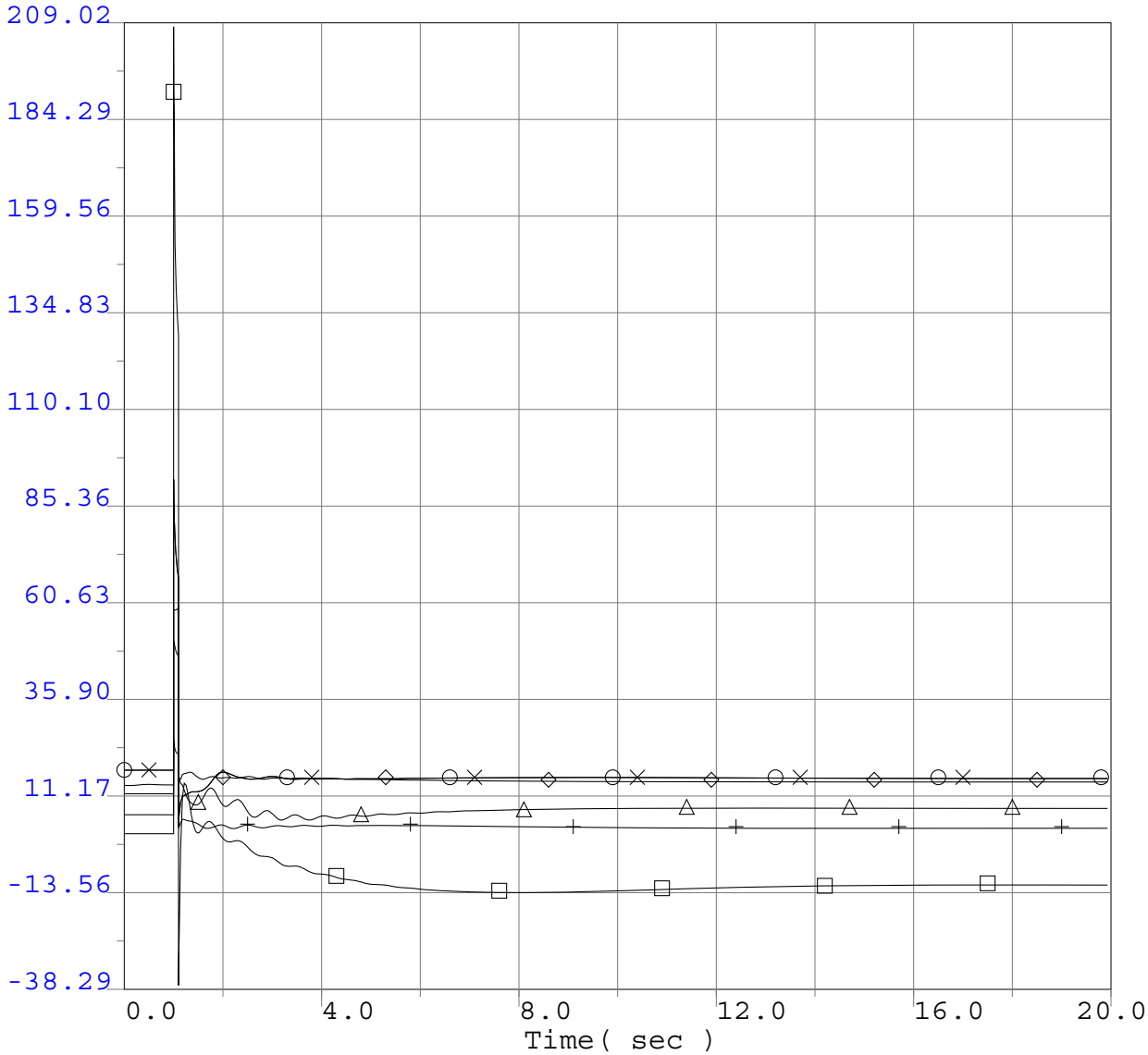


30.2700 pg	33805	GWFTRCY1	13.8	0	0.0 "1"	1	182.8600
30.2700 pg	33807	GWFTRCY2	13.8	0	0.0 "1"	1	182.8600
30.2700 pg	33809	Q268ST1	13.8	0	0.0 "1"	1	182.8600
30.2700 pg	33858	P0409CG2	13.8	0	0.0 "1"	1	182.8600
30.2700 pg	33808	SJ COGEN	13.8	0	0.0 "1"	1	182.8600
30.2700 pg	33810	SP CMPNY	13.8	0	0.0 "1"	1	182.8600

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte+Kasson-Manteca 115kV double-line outage
3 ph 6 cyc flt @ Manteca 115kV bus & clr Manteca-Schulte+Manteca-kasson 115kV l

Q268 Project Interconnection System Impact Study

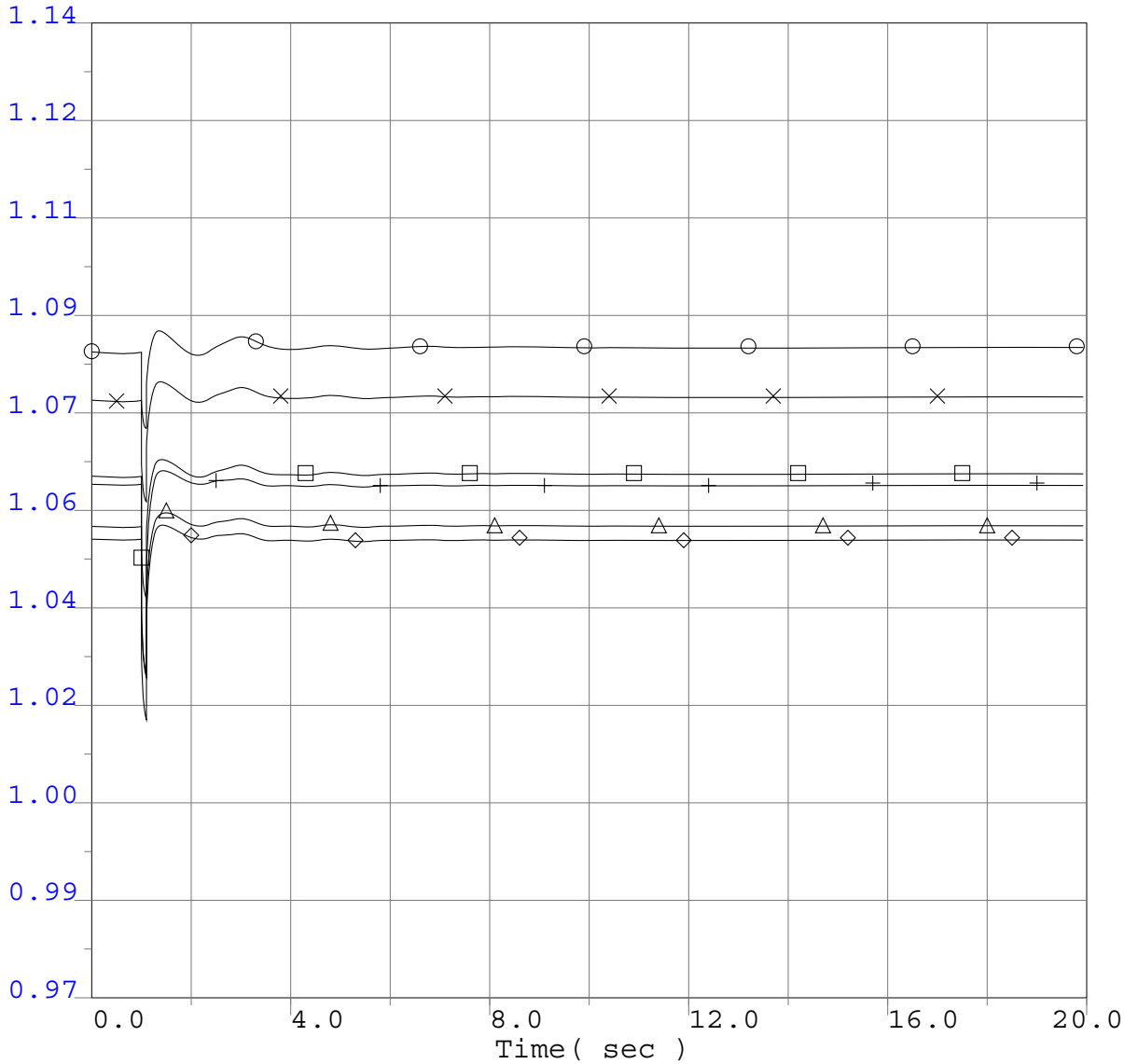
Project Generator Terminal Reactive Power



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte+Kasson-Manteca 115kV double-line outage
3 ph 6 cyc flt @ Manteca 115kV bus & clr Manteca-Schulte+Manteca-kasson 115kV l

Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots



0.9700	vbus	40687	MALIN	500.0	0	0.0 "*"	1	1.1400
0.9700	vbus	30005	ROUND MT	500.0	0	0.0 "*"	1	1.1400
0.9700	vbus	30015	TABLE MT	500.0	0	0.0 "*"	1	1.1400
0.9700	vbus	30030	VACA-DIX	500.0	0	0.0 "*"	1	1.1400
0.9700	vbus	30040	TESLA	500.0	0	0.0 "*"	1	1.1400
0.9700	vbus	30035	TRACY	500.0	0	0.0 "*"	1	1.1400

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
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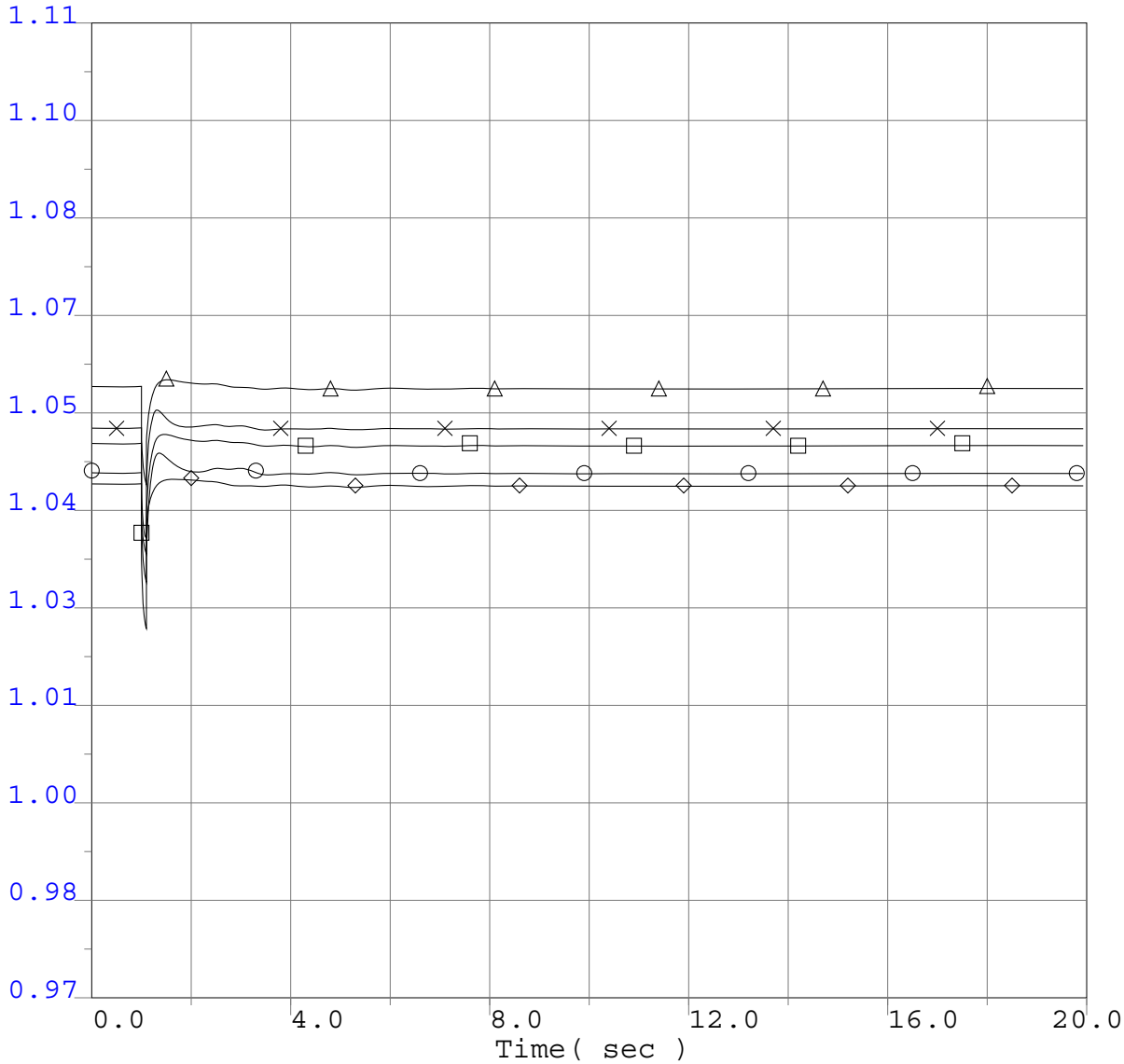
3 ph 6 cyc flt @ Manteca 115kV bus & clr Manteca-Schulte+Manteca-kasson 115kV l

Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots



○	0.9700 vbus	30042	METCALF 500.0	0	0.0 "*"	1	1.1100
⊗	0.9700 vbus	30045	MOSSLAND 500.0	0	0.0 "*"	1	1.1100
□	0.9700 vbus	30050	LOSBANOS 500.0	0	0.0 "*"	1	1.1100
△	0.9700 vbus	30055	GATES 500.0	0	0.0 "*"	1	1.1100
◇	0.9700 vbus	30060	MIDWAY 500.0	0	0.0 "*"	1	1.1100

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
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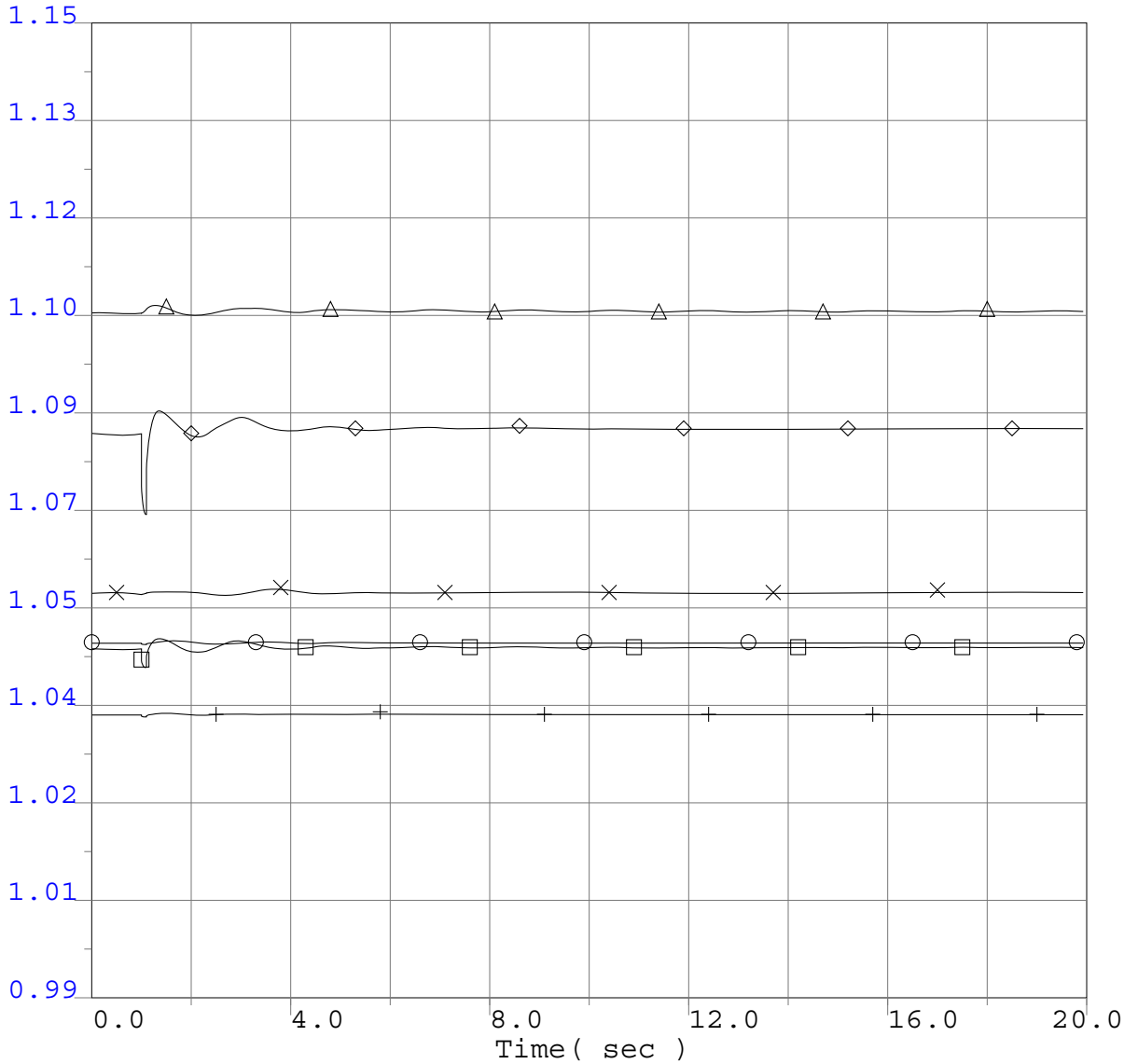
Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots



0.9900	vbus	14001	FOURCORN	500.0	0	0.0 "*"	1	1.1500
0.9900	vbus	50703	NIC500	500.0	0	0.0 "*"	1	1.1500
0.9900	vbus	60240	MIDPOINT	500.0	0	0.0 "*"	1	1.1500
0.9900	vbus	62012	TOWN2	500.0	0	0.0 "*"	1	1.1500
0.9900	vbus	40687	MALIN	500.0	0	0.0 "*"	1	1.1500
0.9900	vbus	66340	SIGURD	345.0	0	0.0 "*"	1	1.1500

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
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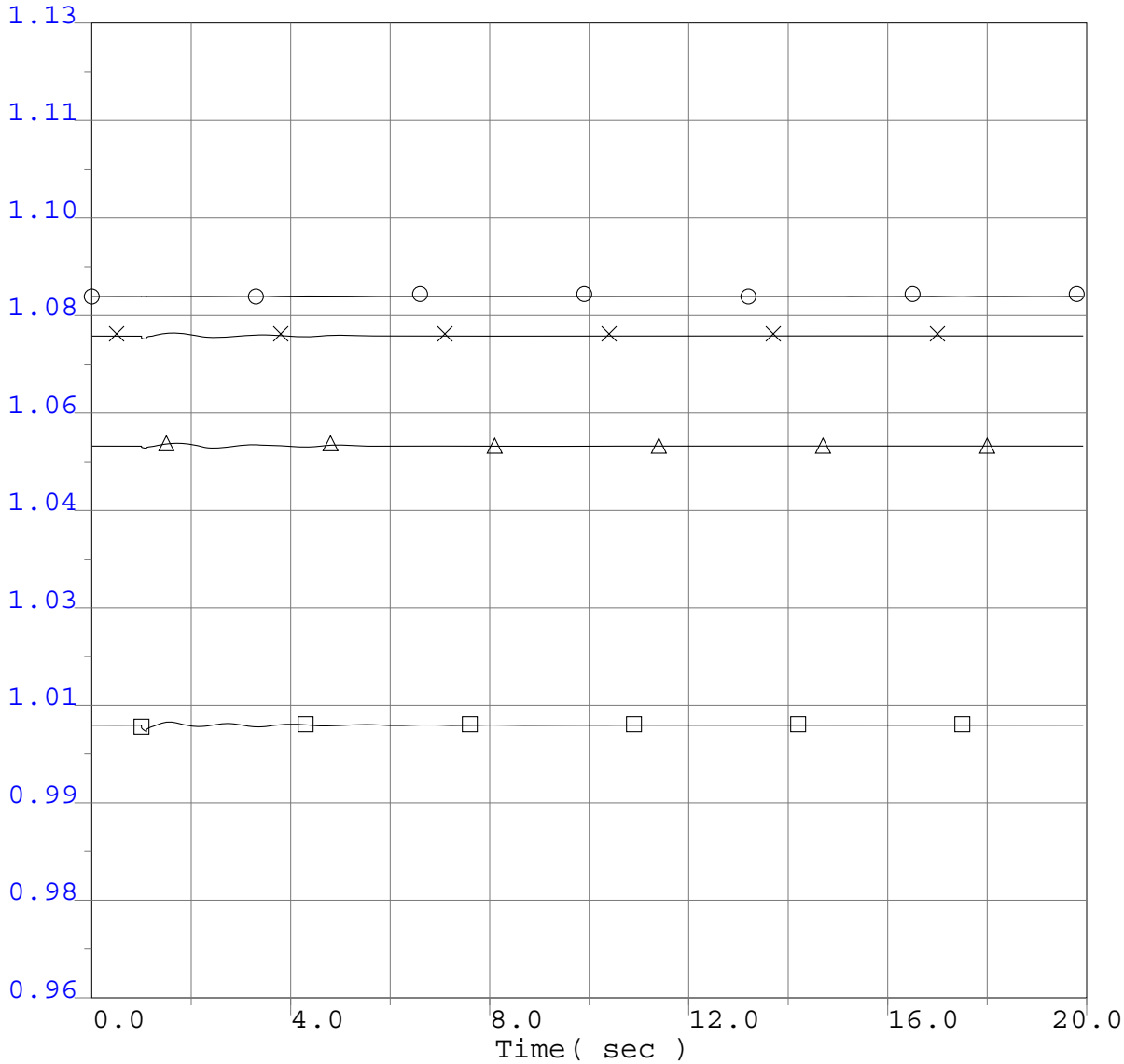
3 ph 6 cyc flt @ Manteca 115kV bus & clr Manteca-Schulte+Manteca-kasson 115kV l

Q268 Project Interconnection System Impact Study

Selected WECC Bus Voltage Plots



0.9600 vbul	54150	WILLESD9	240.0	0	0.0	"*"	1	1.1300
0.9600 vbus	14003	NAVAJO	500.0	0	0.0	"*"	1	1.1300
0.9600 vbus	24153	VESTAL	230.0	0	0.0	"*"	1	1.1300
0.9600 vbus	22360	IMPRLVLY	500.0	0	0.0	"*"	1	1.1300

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
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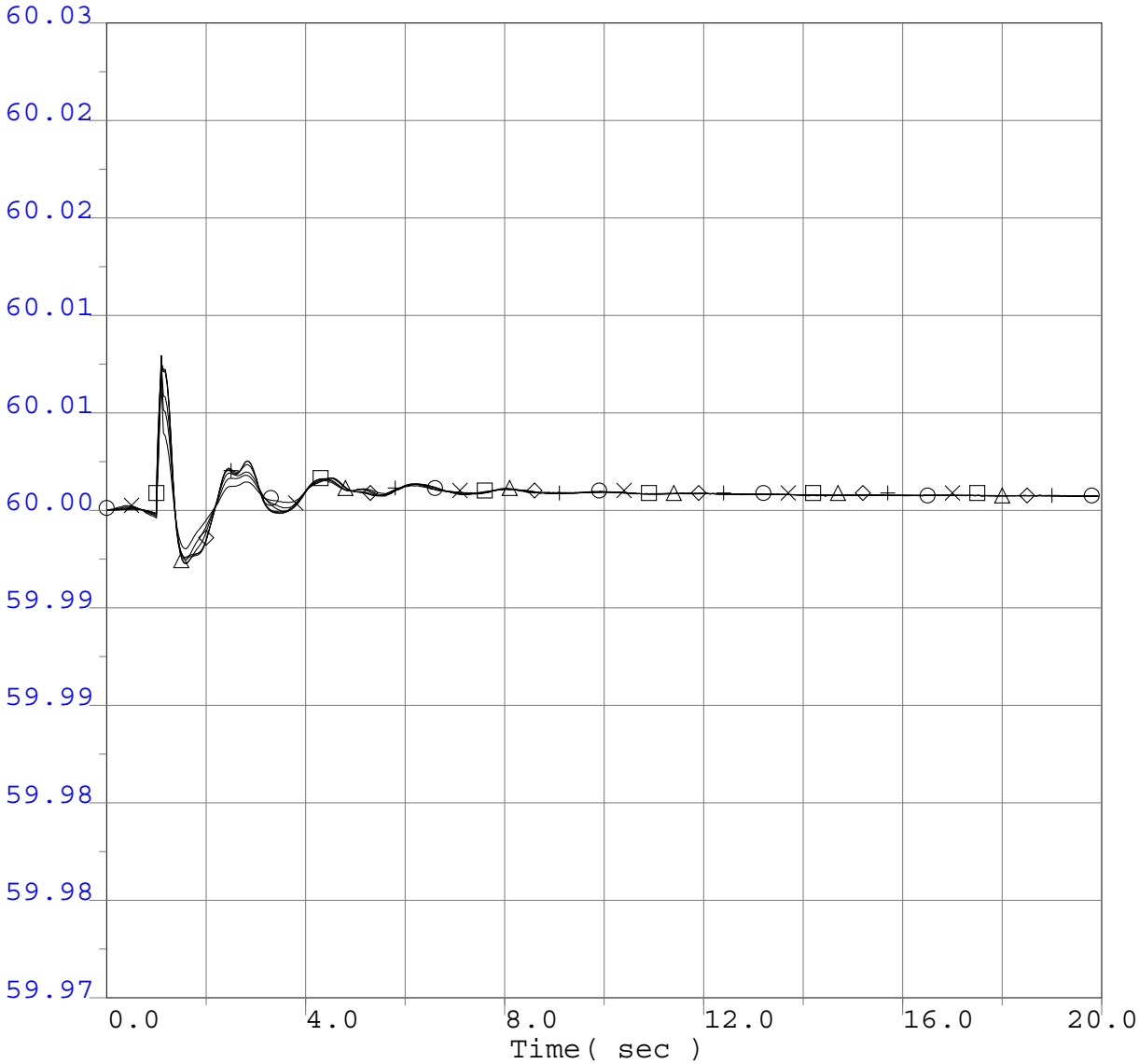
3 ph 6 cyc flt @ Manteca 115kV bus & clr Manteca-Schulte+Manteca-kasson 115kV l

Q268 Project Interconnection System Impact Study

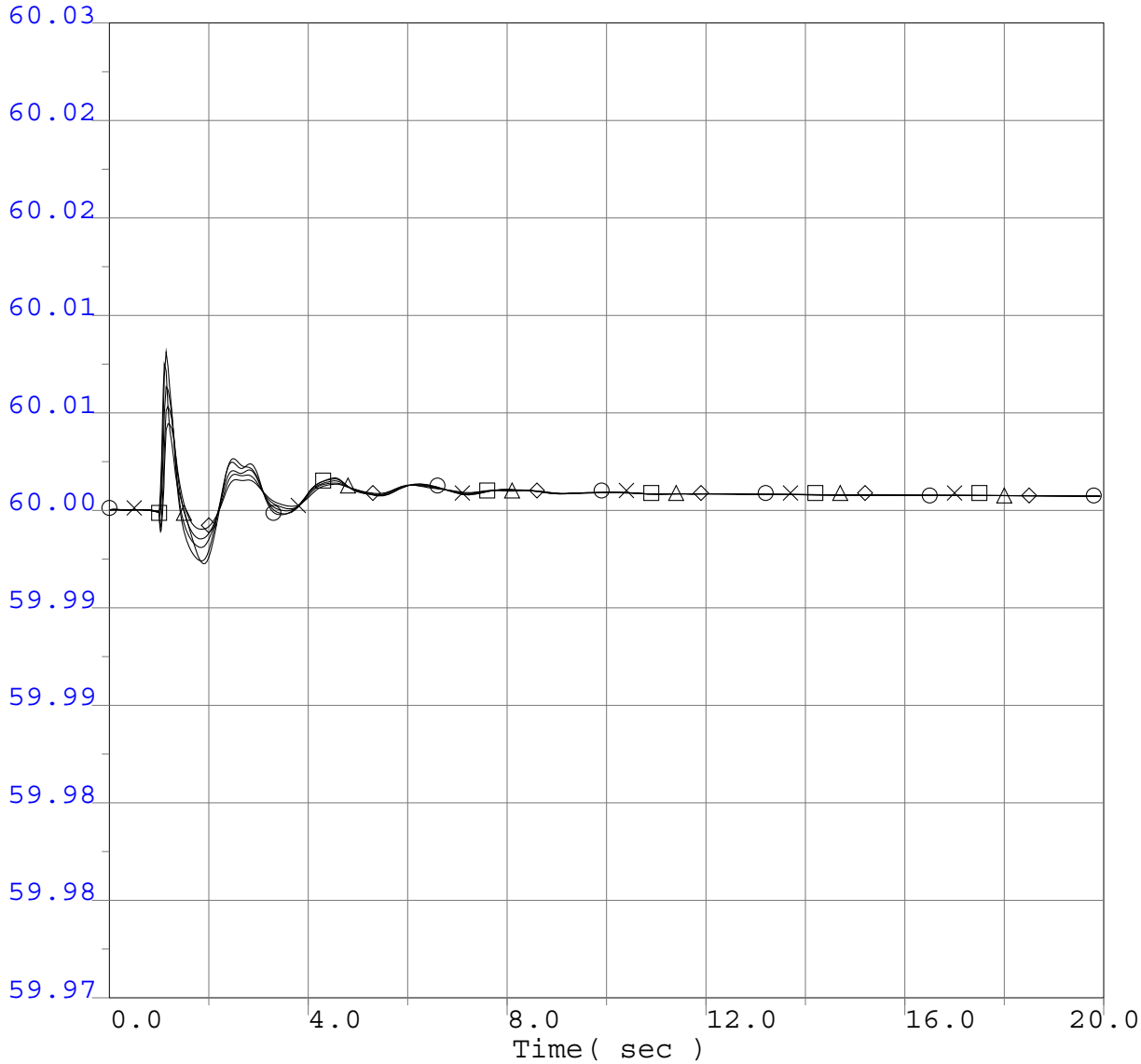
Selected WECC Bus Frequency Plots



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte+Kasson-Manteca 115kV double-line outage
3 ph 6 cyc flt @ Manteca 115kV bus & clr Manteca-Schulte+Manteca-kasson 115kV l

Q268 Project Interconnection System Impact Study

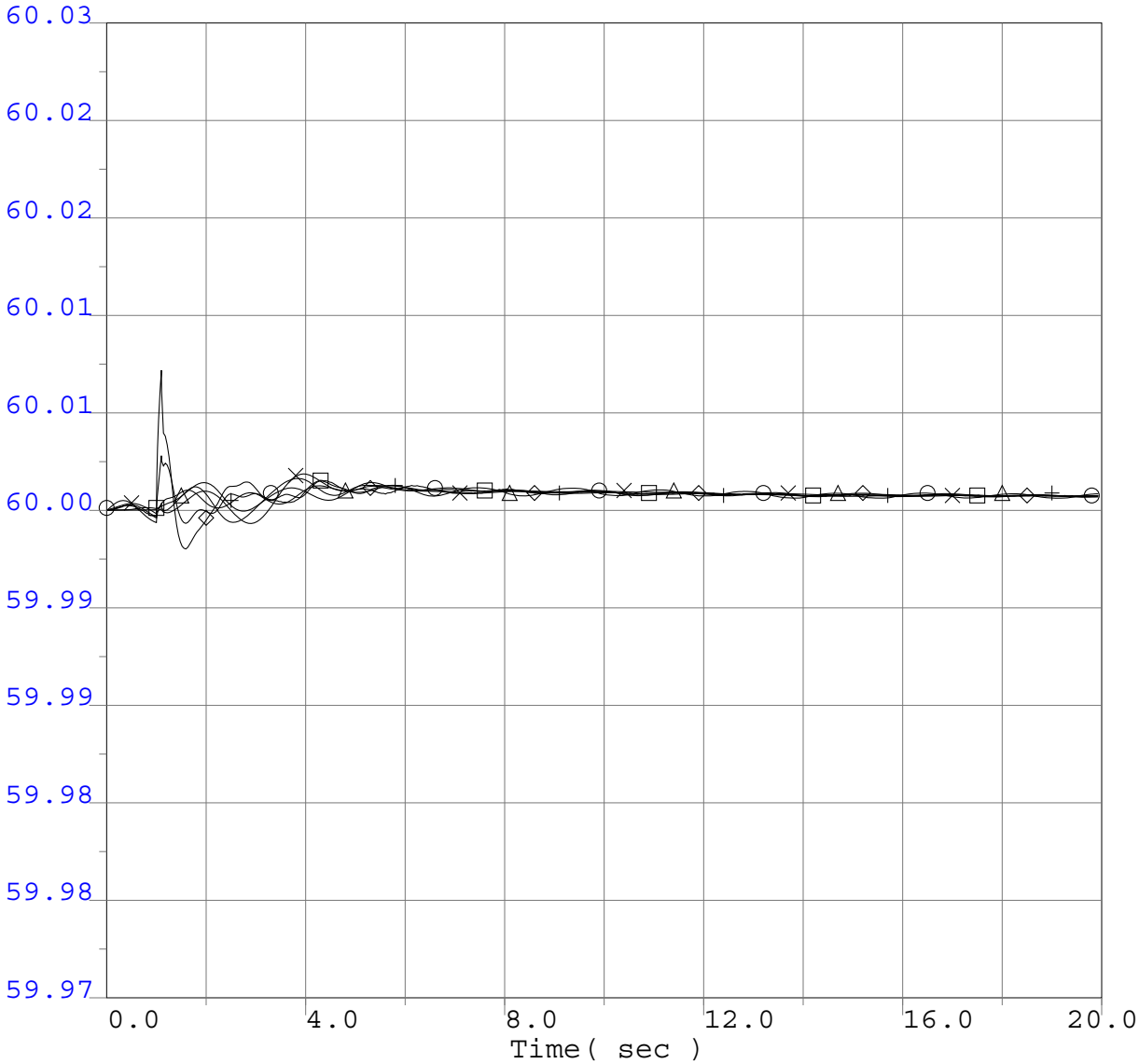
Selected WECC Bus Frequency Plots



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte+Kasson-Manteca 115kV double-line outage
3 ph 6 cyc flt @ Manteca 115kV bus & clr Manteca-Schulte+Manteca-kasson 115kV l

Q268 Project Interconnection System Impact Study

Selected WECC Bus Frequency Plots



59.9700	fbus	14001	FOURCORN	500.0	0	0.0 "*"	1	60.0300
59.9700	fbus	50703	NIC500	500.0	0	0.0 "*"	1	60.0300
59.9700	fbus	60240	MIDPOINT	500.0	0	0.0 "*"	1	60.0300
59.9700	fbus	62012	TOWN2	500.0	0	0.0 "*"	1	60.0300
59.9700	fbus	40687	MALIN	500.0	0	0.0 "*"	1	60.0300
59.9700	fbus	66340	SIGURD	345.0	0	0.0 "*"	1	60.0300

Q268 Project Interconnection System Impact Study
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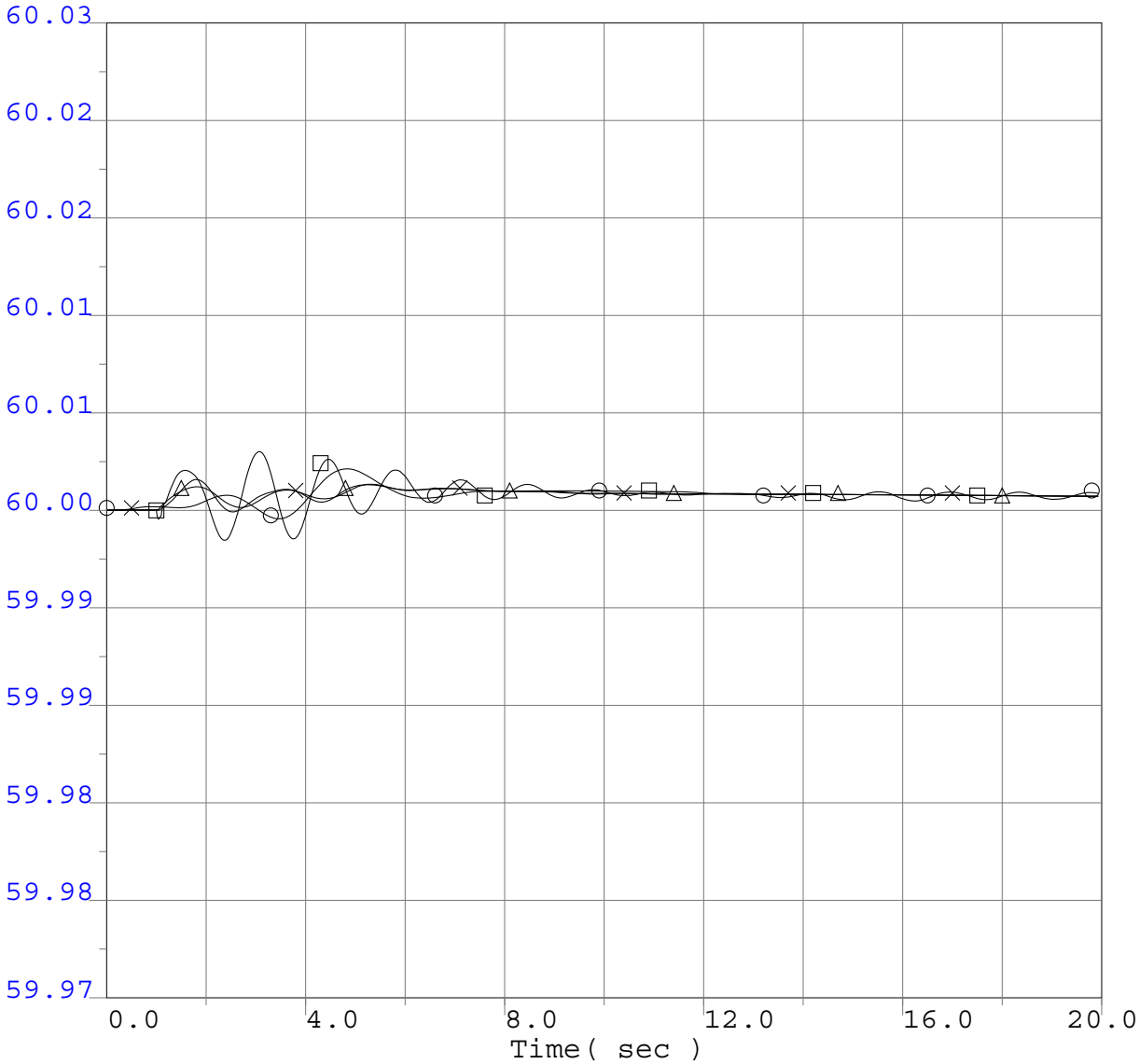
3 ph 6 cyc flt @ Manteca 115kV bus & clr Manteca-Schulte+Manteca-kasson 115kV l

Q268 Project Interconnection System Impact Study

Selected WECC Bus Frequency Plots



○	59.9700 fbul	54150	WILLESD9 240.0	0	0.0 "*"	1	60.0300
⊗	59.9700 fbus	14003	NAVAJO 500.0	0	0.0 "*"	1	60.0300
□	59.9700 fbus	24153	VESTAL 230.0	0	0.0 "*"	1	60.0300
△	59.9700 fbus	22360	IMPRLVLY 500.0	0	0.0 "*"	1	60.0300

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
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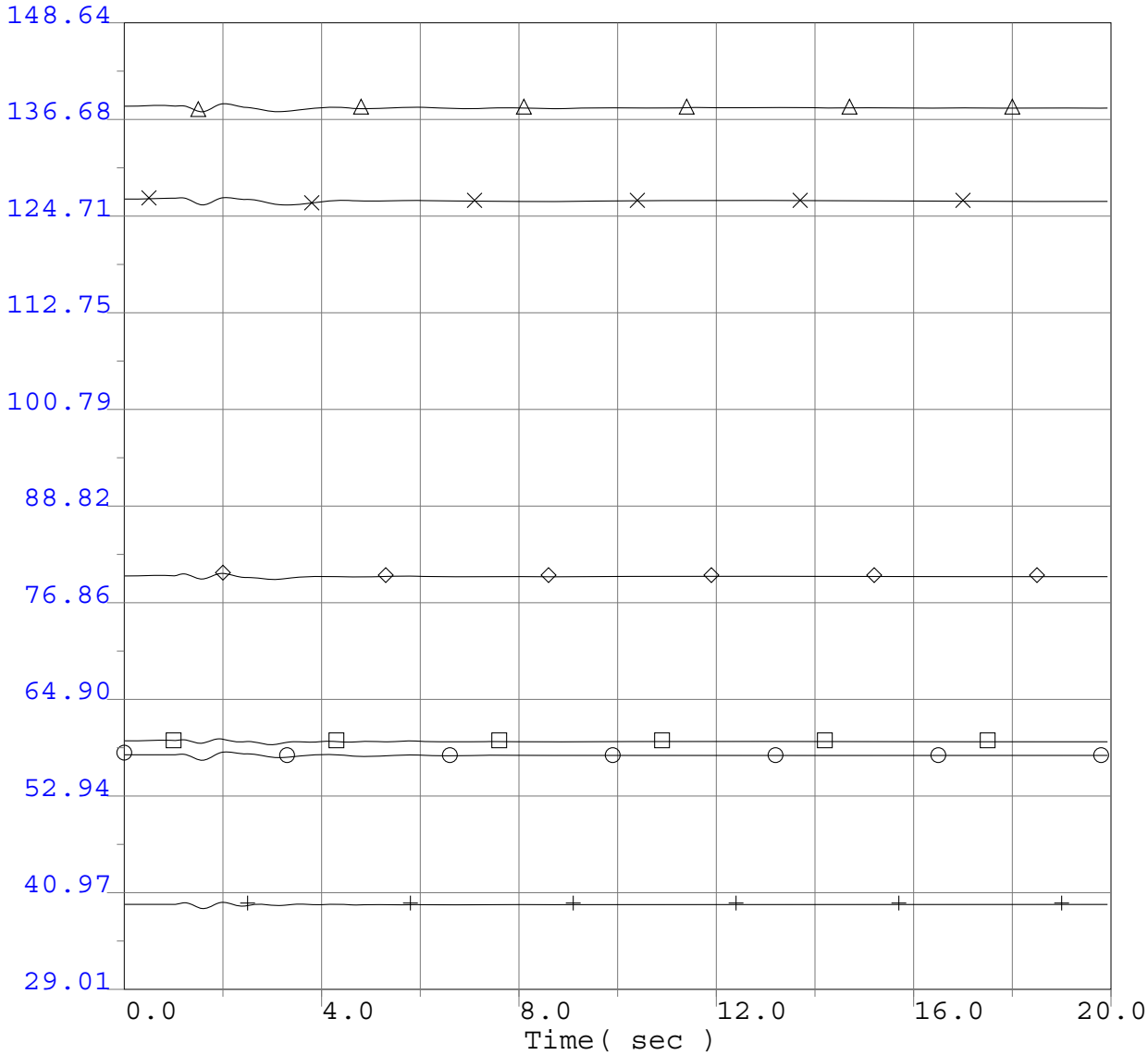
Manteca-Schulte+Kasson-Manteca 115kV double-line outage
3 ph 6 cyc flt @ Manteca 115kV bus & clr Manteca-Schulte+Manteca-kasson 115kV l

Q268 Project Interconnection System Impact Study

WECC Generator Rotor Angle



29.0100 ang	14914	FCNGN4CC	22.0	0	0.0 "H"	1	148.6400
29.0100 ang	50499	GMS G5	13.8	0	0.0 "1"	1	148.6400
29.0100 ang	60100	BRWNL 5	13.8	0	0.0 "1"	1	148.6400
29.0100 ang	62048	COLSTP 3	26.0	0	0.0 "1"	1	148.6400
29.0100 ang	44071	JDA 0102	13.8	0	0.0"01"	1	148.6400
29.0100 ang	36411	DIABLO 1	25.0	0	0.0 "1"	1	148.6400

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
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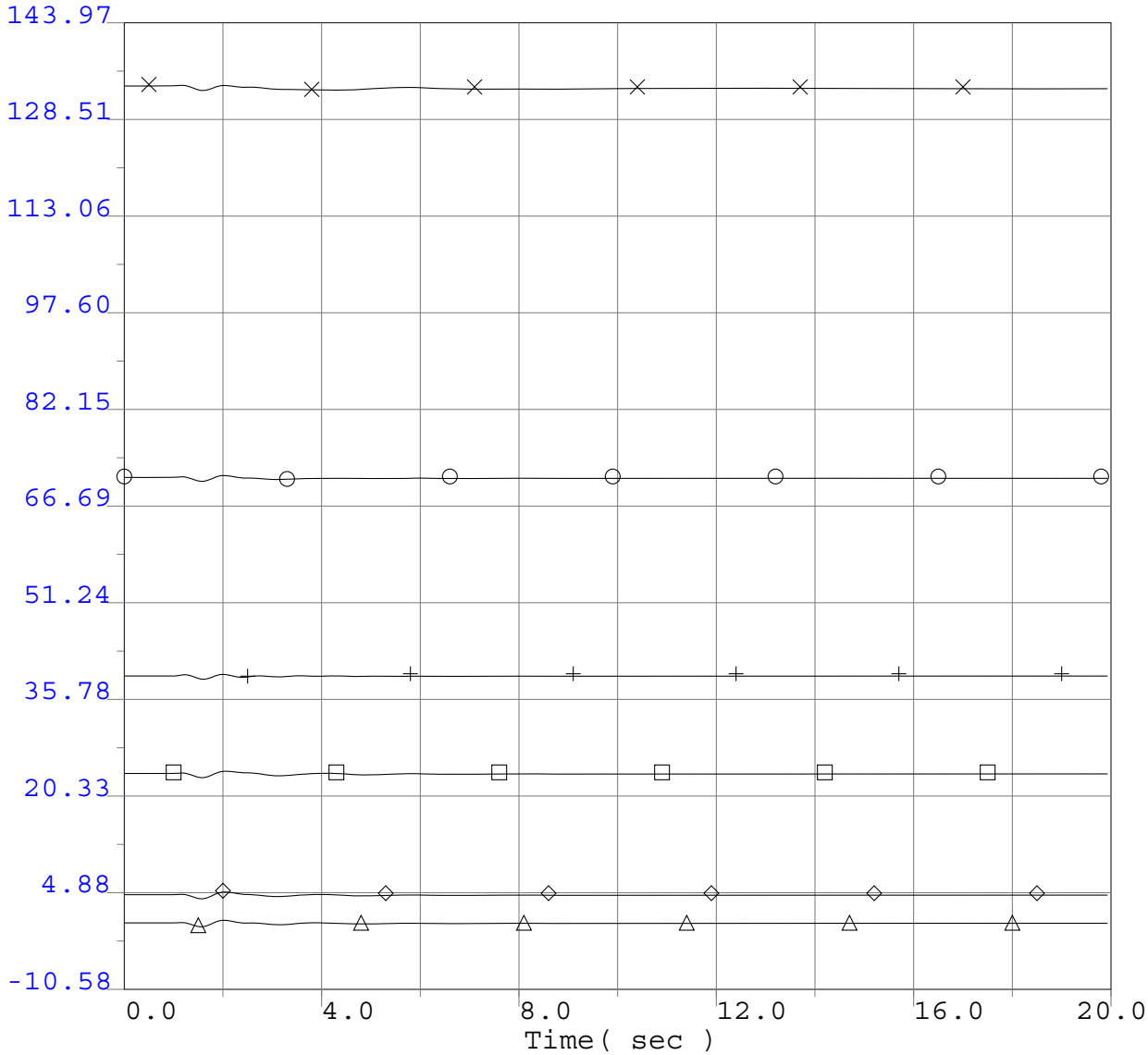
3 ph 6 cyc flt @ Manteca 115kV bus & clr Manteca-Schulte+Manteca-kasson 115kV l

Q268 Project Interconnection System Impact Study

WECC Generator Rotor Angle



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
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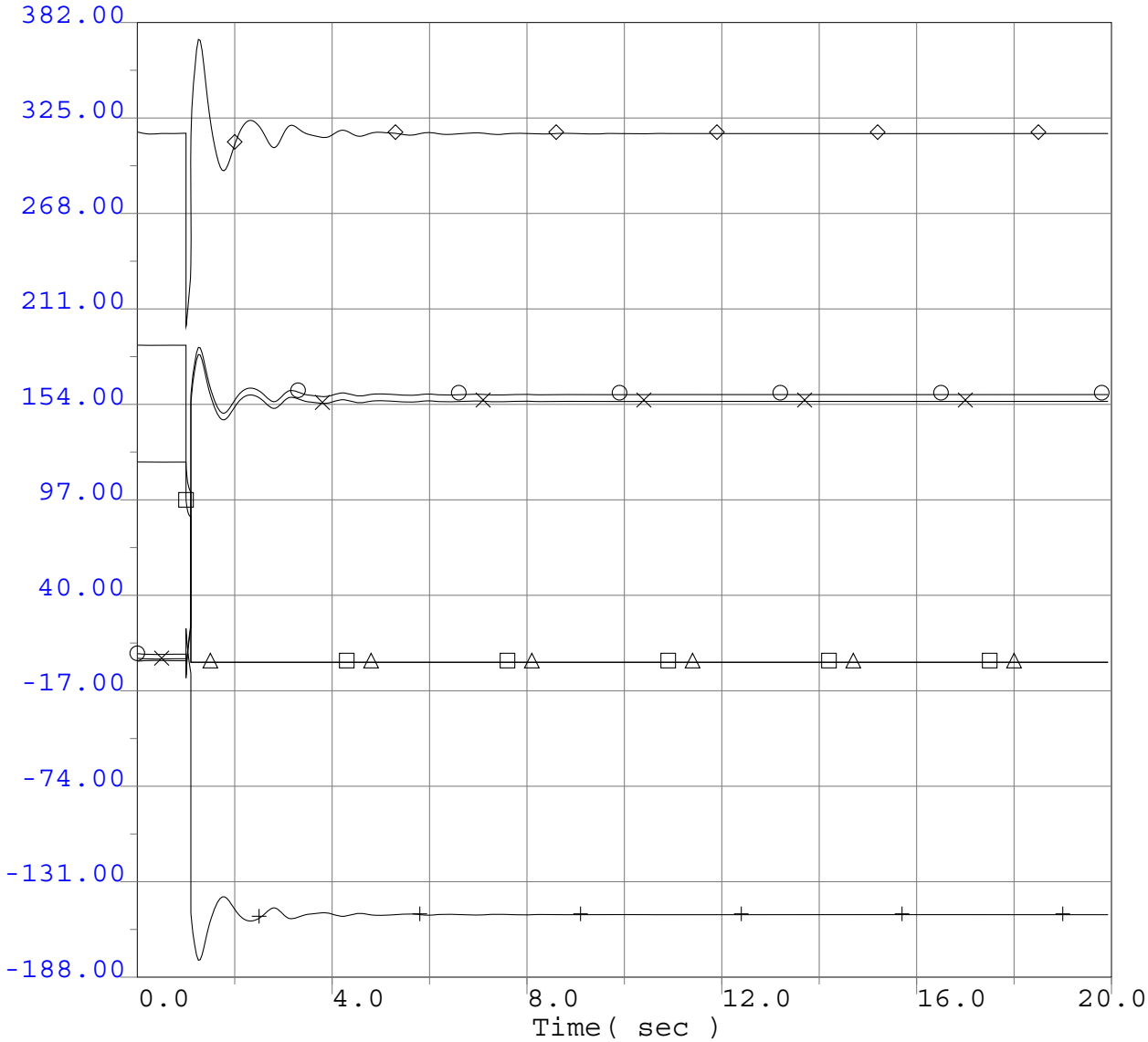
3 ph 6 cyc flt @ Manteca 115kV bus & clr Manteca-Schulte+Manteca-kasson 115kV l

Q268 Project Interconnection System Impact Study

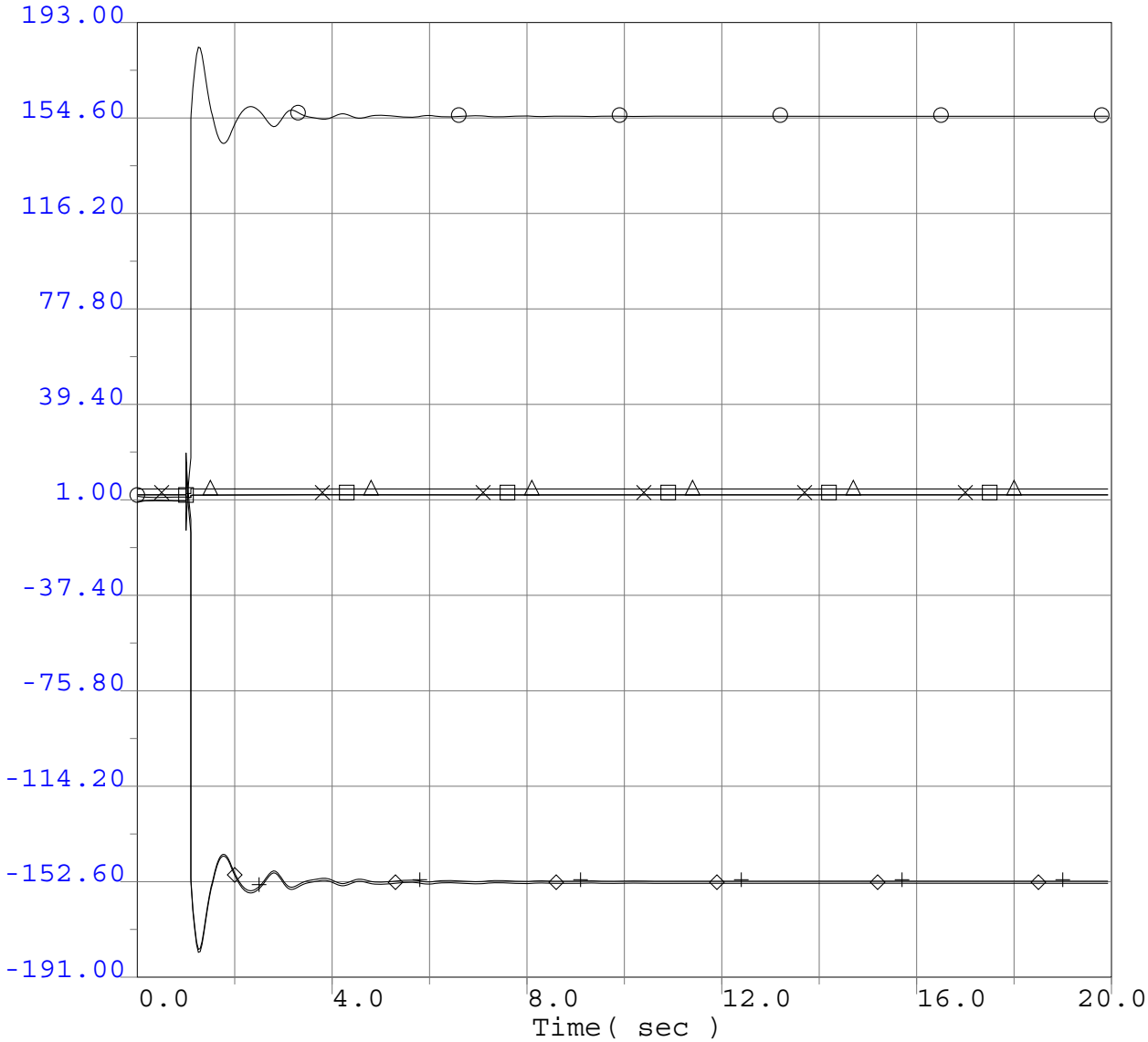
Selected PG&E Transmission Line Flows (MW)



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte+Kasson-Manteca 115kV double-line outage
3 ph 6 cyc flt @ Manteca 115kV bus & clr Manteca-Schulte+Manteca-kasson 115kV l

Q268 Project Interconnection System Impact Study

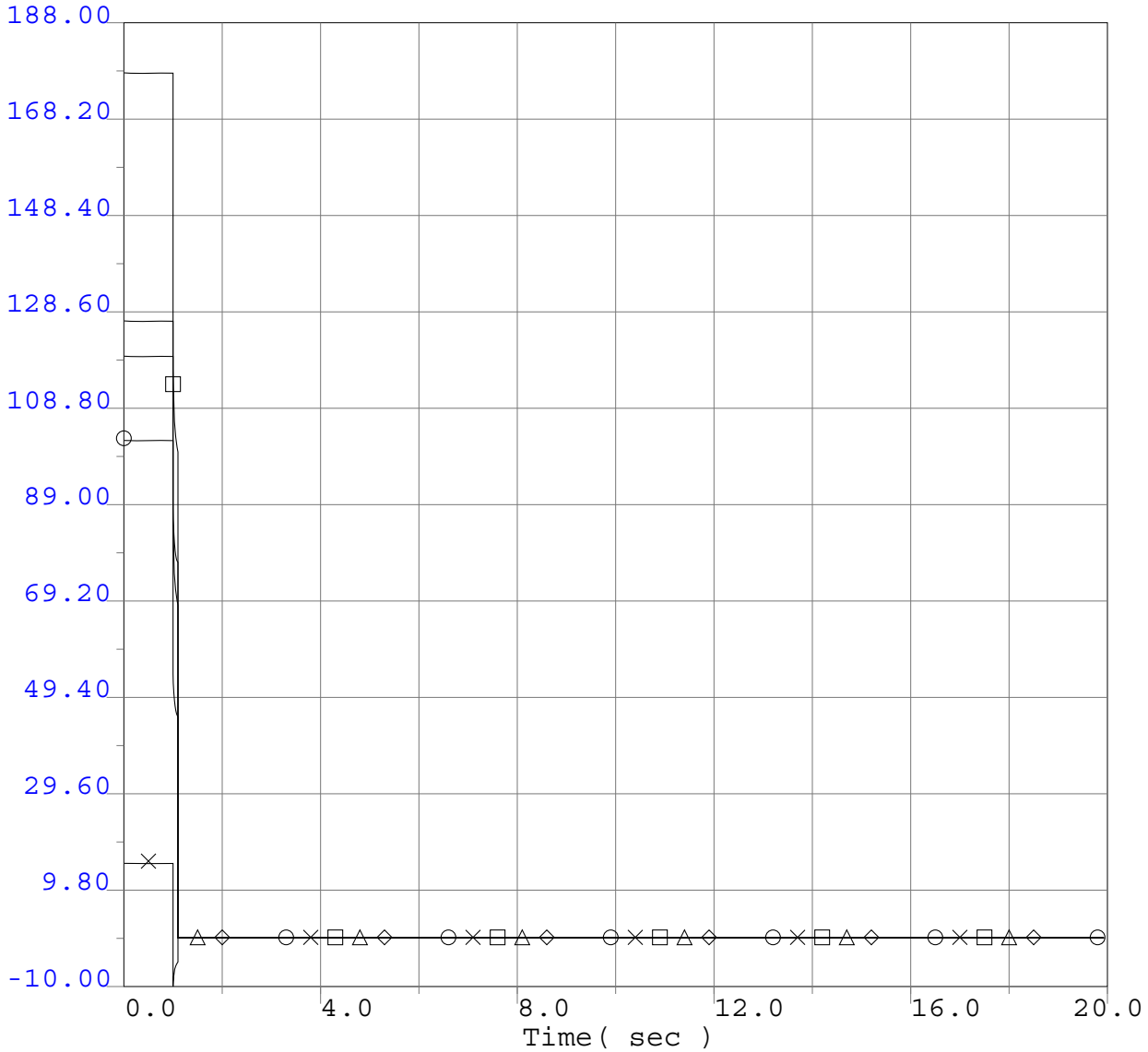
Selected PG&E Transmission Line Flows (MW)



Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte+Kasson-Manteca 115kV double-line outage
3 ph 6 cyc flt @ Manteca 115kV bus & clr Manteca-Schulte+Manteca-kasson 115kV l

Q268 Project Interconnection System Impact Study

Selected PG&E Transmission Line Flows (MW)



-10.0000	pbr	33526	KSSN-JC1	115.0	33514	MANTECA	115.0	1	1	188.0000
-10.0000	pbr	33526	KSSN-JC1	115.0	33528	KASSON	115.0	1	1	188.0000
-10.0000	pbr	33533	OWENSTP2	115.0	33526	KSSN-JC1	115.0	1	1	188.0000
-10.0000	pbr	33529	LAMMERS	115.0	33528	KASSON	115.0	1	1	188.0000
-10.0000	pbr	33531	OWENSTP1	115.0	33529	LAMMERS	115.0	1	1	188.0000

Q268 Project Interconnection System Impact Study
2013 Summer Peak Base Case
Q268 @ 154.7MW
Manteca-Schulte+Kasson-Manteca 115kV double-line outage
3 ph 6 cyc flt @ Manteca 115kV bus & clr Manteca-Schulte+Manteca-kasson 115kV l

Appendix G

Protection Requirement

System Protection Requirements
For
GWF Tracy Interconnection Project

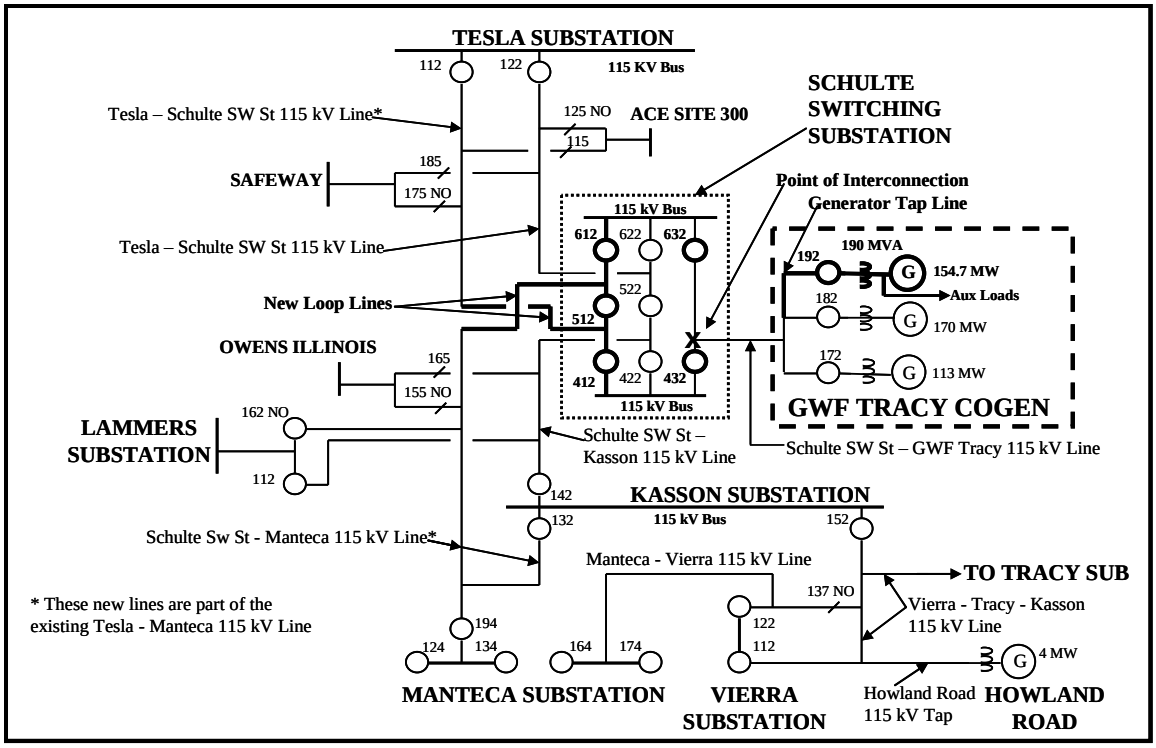
Project Scope:

The Tesla Manteca 115 kV line will be looped into Schulte Switching Station. This would require the following:

Protection Requirements

Assumptions

PG&E owned Schulte Switching Substation will be converted from the existing ring bus configuration to a Breaker and a half (BAAH) configuration. In addition, the Tesla – Manteca 115 kV line will be looped into the Schulte Switching Station. A total of five lines will terminate at the switchyard. The new configuration is shown in the figure below.



Note: Above diagram is from Interconnection System Impact Study

Schulte Switching Station

Install 5 new 115 kV circuit breakers along with the existing 115 kV breakers at Schulte Switching Substation and configure the bus as a 3 bay Breaker and a half (BAAH) bus.

CB 612 / CB 512 (Tesla – Schulte 115 kV line)

- Install a non-integrated, non-pilot, step distance protection using GE D60, SEL 311C (substitute GE-D60 for the REL 512 relay and substitute SEL-311C for SEL-321).

CB 512 / CB 412 (Schulte – Manteca 115 kV line)

- Install a non-integrated, non-pilot, step distance protection using GE D60, SEL 311C (ssubstitute GE-D60 for the REL 512 relay and substitute SEL-311C for SEL-321).

CB 632 / CB 432 (GWF Tracy 115 kV line)

- On line terminal to GWF Tracy 115 kV line, the protective relays will stay the same. Rewire existing line differential protection to new CB CTs. Modify the trip circuits to trip the new circuit breakers.

Bus Differential Protection

- Install 2 bus high impedance bus differential scheme for BAAH configuration

CB 612

- Install breaker fail protection using Basler BEI-BPR relay.
- Install SEL 279 relay for the Automatics will all automatic features and LT Restore memory on all reclosing.

CB 512

- Install a breaker fail protection using Basler BEI-BPR relay.
- Install SEL 279 relay for the Automatics will all automatic features and LT Restore memory on all reclosing.

CB 412

- Install a breaker fail protection using Basler BEI-BPR relay.
- Install SEL 279 relay for the Automatics will all automatic features and LT Restore memory on all reclosing.

CB 632

- Install a breaker fail protection using Basler BEI-BPR relay.
- Install SEL 279 relay for the Automatics will all automatic features.

CB 432

- Install a breaker fail protection using Basler BEI-BPR relay.
- Install SEL 279 relay for the Automatics will all automatic features.

CB 422, 522, 622

- Study and reset line relays due to increased fault duty.

Tesla Substation

CB 112, 122

- Study and reset line relays due to increased fault duty and line reconfiguration.

CB 102, 132, 142, 152, 162, 422, 432

- Study and reset line relays due to increased fault duty.

CB 172 / 372, CB 182 / 382

- Study and reset transmission bank (115 kV / 60 kV) relays due to increased fault duty.

Kasson Substation

CB 132

- Line Relays for Kasson CB 132 will be replaced with the SEL 311C and GE D60 relays for step distance protection (substitute GE-D60 for the REL 512 relay and substitute SEL-311C for SEL-321).
- Breaker fail relay Basler BEI-BPR and SEL 279 relay for automatics will also be added.

CB 142, 152

- Study and reset line relays due to increased fault duty.

CB 176

- Study and reset high side transmission bank relays due to increased fault duty.

Lammers Substation

CB 112 / 122, 152 / 162

- Study and reset line relays due to increased fault duty.

CB 112 / 162, CB 122 / 152

- Study and reset bank relays due to increased fault duty

Manteca Substation

CB 194

- Study and reset line relays due to line reconfiguration.

Generator Protection

- Generator Protection must conform to Section G2 of the PG&E Interconnection Handbook.