Proposed Renewable Resource Portfolios for the 2013-14 Transmission Planning Process

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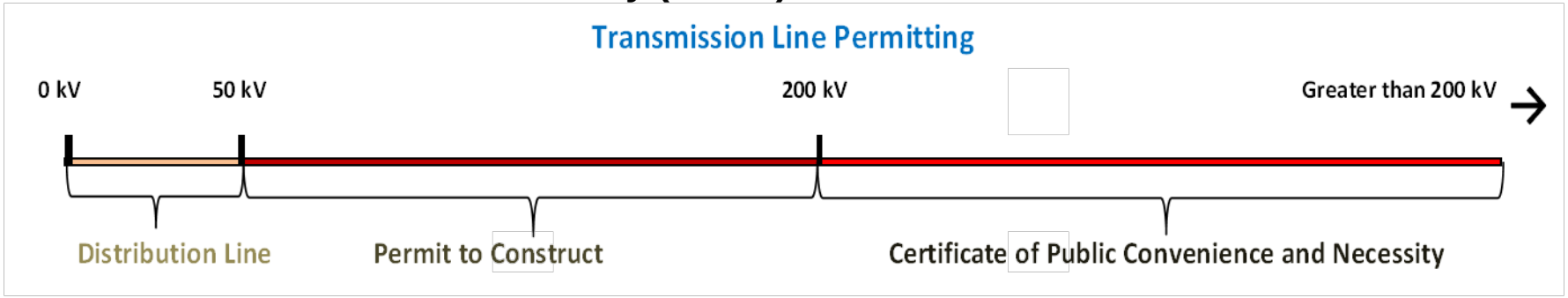
Outline

- Context for Portfolios
- Basics: 33% RPS Calculator
- Major updates
- Proposed portfolios

CONTEXT FOR PORTFOLIOS

CPUC's Transmission Permitting

- IOUs must receive a permit from the CPUC:
  - **transmission line projects:** 50-200 kV require a **Permit to Construct (PTC)**
  - **transmission line projects:** greater than 200 kV require a **Certificate of Public Convenience and Necessity (CPCN)**



  - **Substations:** 50 to 500 kV require a **(PTC)**

CPUC's Transmission permitting, cont.

- Three major questions are asked in the CPCN Permitting process (Tx line projects 200 kV & >):
  - Is the transmission project needed?
  - Does the transmission project pass the CEQA required alternatives analysis?
    - eg. are there demand side alternatives / path alternatives?
  - Are the transmission project costs reasonable?

- One major question is asked in the PTC Permitting process: Does the transmission project pass the CEQA required alternatives analysis?

CPUC's Long Term Procurement Planning

- CPUC's biennial long-term procurement plan (LTPP) proceeding authorizes IOU procurement of new resources
  - The 33% RPS requirement impacts the amount, type, and location of resources needed to meet reliability goals
- Also considers: load forecasting, fossil additions/retirements, and local needs
- 2012 LTPP (R.12-03-014)
  - **Track One PD** - to be voted on in January 2013; it is to provide a MW "need" authorization in the LA Basin and Big Creek/Ventura local reliability areas
  - **Track Two PD** is on the Commission's agenda for tomorrow; it recommends four planning scenarios for operational flexibility modeling

RPS planning assumptions in the LTPP

- In consultation with parties, CPUC staff developed four planning scenarios for operational flexibility modeling, which included possible 33% RPS portfolios (Track 2 PD)
  - April – August 2012: there were several rounds of workshops/proposals/comments
  - These planning scenarios were published in August 2012 for comment
- LTPP does not direct RPS procurement
  - The results in the LTPP (and the TPP) however may be considered in the CPUC's RPS proceedings

Coordinating generation and transmission planning

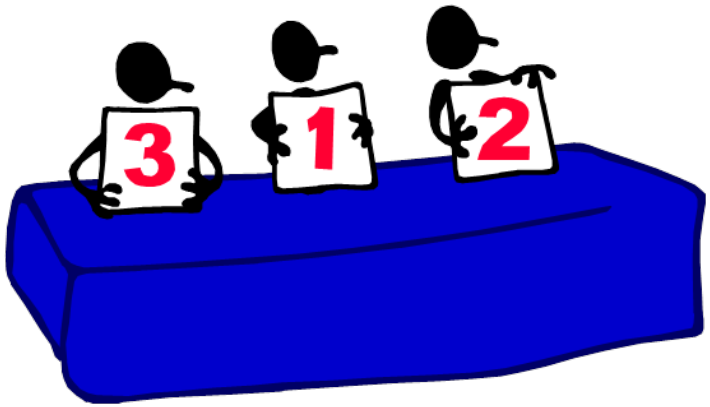
- CPUC and CAISO signed Memorandum of Understanding on May 13, 2010
  - Commits to closer coordination between resource planning and transmission planning
- CPUC's goal: ensure that the transmission planning process includes a *needs* analysis necessary for the transmission permitting phase
  - via the Certificate of Public Convenience and Necessity (CPCN) process

Basics: 33% RPS Calculator

Originally developed by Energy + Environmental Economics (E3) for Energy Division

Project Scoring Methodology

- Each project is scored on a 0-100 scale based on four metrics (0 is best):
  - Net Cost Score
  - Environmental Score
  - Commercial Interest Score
  - Permitting Score



- Weighted average final score: used to rank a project for any one scenario

Calculator's Project Selection Methodology

1. Calculates each project's weighted average final score and ranks each of these projects based on their respective score
2. Allocates lowest cost out-of-state projects to host states until all non-CA WECC RPS targets for 2022 are satisfied
3. Once all the projects are ranked, the calculator selects in-state/out-of-state projects to fill transmission bundles
4. The Calculator then calculates the aggregate score for each of these transmission bundles
5. These aggregate scores are used to rank the transmission bundles against individual non-CREZ projects and REC-only projects

Selection of RPS Portfolio

- Discounted Core* projects are selected first (i.e. forced in) unless they are in a New Transmission bundle

- After the Discounted Core projects are selected, projects & bundles are then selected solely on the basis of their ranking.

*Projects that are sufficiently advanced to be considered “sunk” decisions.

Clarification: Discounted Core

- Discounted Core projects are “forced in” if:
  - They do not require new transmission, or
  - 67% of energy delivered (i.e. 67% of GWhs) on a new transmission bundle is from discounted core projects
    - NOT a 67% capacity factor requirement
    - Actual capacity factor varies by Tx bundle make-up
- Failing this, discounted core projects must compete on the ranking of their weighted scores along with all other projects

MAJOR UPDATES

Major Updates

- New net short calculation
- Updated the list of ED Database projects based on new data from the August 2012 Project Development Status Reports (PDSRs)
- Updated available capacity on existing Transmission with and without minor upgrades to reflect projects that have recently come online (“g-TxInputs” tab)

Major Updates (continued)

- Changed capacity values for biogas projects from 0% to 60% (“a-ProForma” tab)
  - i.e. [(August NQC) / (*Net Dependable Capacity)]

  * From the “master CAISO control area generating capability list”
- Relabeled projects in the Palm Springs CREZ as being in the Riverside East CREZ
- Environment Scores for some projects in the DRECP

Latest Renewable Net Short (GWh)

	All Values in GWh for the Year 2022	Formula	Base/Commercial
1	Statewide Retail Sales - June 2012 IEPR12 Final		301,384.0
2	Non RPS Deliveries (CDWR, WAPA, MWD)		12,530.0
3	Retail Sales for RPS	3=1-2	288,854.0
4	Additional Energy Efficiency		19,543.0
5	Additional Rooftop PV		2,158.8
6	Additional Combined Heat and Power		-
7	Adjusted Statewide Retail Sales for RPS	7=3-4-5-6	267,152.2
8	**Total Renewable Energy Needed For RPS**	**8=7* 33%**	**88,160.2**
	Existing and Expected Renewable Generation		
9	Total In-State Renewable Generation		40,304.7
10	Total Out-of-State Renewable Generation		12,600.0
11	Procured DG (not handled in Calculator)		1,319.0
12	SB 1122 (250 MW of Biogas)		1,752.5
13	**Total Existing Renewable Generation for CA RPS**	**12=9+10+11**	**55,976.3**
14	**Total RE Net Short to meet 33% RPS In 2022 (GWh)**	**13=8-12**	**32,184.0**

Changes in Net Short (GWh)

	2012-13 TPP	2013-14 TPP	% Change
Retail Sales	299,379	301,384	0.7%
RPS-Qualifying Retail Sales	268,935	267,152	-0.7%
RPS Target	88,748	88,160	-0.7%
Existing Resources	43,500	55,976	28.7%
Net Short	45,248	32,184	-28.9%

PROPOSED PORTFOLIOS

CPUC/CEC Propose 3 Portfolios

- Commercial Interest
  - Preference to projects with PPAs + completed permit applications
- Environmental
  - Preference to generation in environmentally preferred locations
- High DG
  - Includes extra small solar PV near load

TPP Portfolio Summary (MW)

	Base	Base	Base
Scenario Name	Commercial	Environmental	High DG
Load	288,854.0	288,854.0	288,854.0
Inc EE	19,543.0	19,543.0	19,543.0
Inc PV	2,158.8	2,158.8	2,158.8
Inc CHP	-	-	-
Net Short (GWh)	32,184	32,184	32,184
	Portfolio Totals (MW)	Portfolio Totals (MW)	Portfolio Totals (MW)
Discounted Core	10,383	9,744	13,504
Generic	1,571	3,112	0
Total	11,954	12,855	13,504
Biogas	136	139	133
Biomass	57	237	57
Geothermal	648	211	211
Hydro	-	21	-
Large Scale Solar PV	5,535	5,589	3,816
Small Solar PV	2,034	3,494	6,263
Solar Thermal	1,402	1,194	1,174
Wind	2,142	1,971	1,850
Total	11,954	12,855	13,504
New Transmission Segments	Merced - 1	Merced - 1	Merced - 1
	Kramer - 1		
	Los Banos - 1		

TPP Portfolios by CREZ (MW)

Total Out-of-State Renewable Generation	12,600	12,600	12,600
	Base	Base	Base
Scenario Name	Commercial	Environmental	High DG
Load	288,854.0	288,854.0	288,854.0
Inc EE	19,543.0	19,543.0	19,543.0
Inc PV	2,158.8	2,158.8	2,158.8
Inc CHP	-	-	-
Net Short (GWh)	32,184	32,184	32,184
	Portfolio Totals (MW)	Portfolio Totals (MW)	Portfolio Totals (MW)
Discounted Core	10,383	9,744	13,504
Commercial Non-Core	0	0	0
Generic	1,571	3,112	0
Total	11,954	12,855	13,504
CREZ			MW
Alberta	450	450	450
Arizona	550	550	550
Carrizo South	900	900	300
Distributed Solar - PG&E	984	1,529	3,449
Distributed Solar - SCE	565	1,255	2,345
Distributed Solar - SDGE	143	190	157
Imperial	1,700	860	860
Kramer	762	62	62
Mountain Pass	645	645	645
Nevada C	316	316	316
NonCREZ	443	623	443
Northwest	104	104	104
Riverside East	964	1,064	964
Round Mountain	-	34	-
San Bernardino - Lucerne	42	42	42
Solano	200	-	-
Tehachapi	2,176	2,306	2,176
Westlands	148	1,285	148
Central Valley North	25	173	25
El Dorado	407	407	407
Merced	62	62	62
Los Banos	370	-	-
Total	11,954	12,855	13,504

LTPP Portfolios Summary (MW)

Scenario Name	Base	Replicating TPP	High DG + High DSM	High DG + High DSM - 2030, 40%
Load	Mid	Mid (1-in-5 peak weather)	Mid	Mid
Inc EE	Mid	None	High	High
Inc PV	Mid	None	High	High
Inc CHP	Low	None	High	High
Net Short (GWh)	32,796	39,957	26,618	42,660
	Portfolio Totals (MW)	Portfolio Totals (MW)	Portfolio Totals (MW)	Portfolio Totals (MW)
Discounted Core	10,505	10,521	10,767	15,767
Generic	1,639	4,597	0	1,500
Total	**12,144**	**15,119**	**10,767**	**17,267**
Biogas	136	136	133	136
Biomass	57	75	57	57
Geothermal	688	719	211	607
Hydro	-	-	-	-
Large Scale Solar PV	5,578	7,421	3,816	5,491
Small Solar PV	2,135	2,381	3,913	7,441
Solar Thermal	1,402	1,402	787	1,402
Wind	2,149	2,984	1,850	2,134
Total	12,144	15,119	10,767	17,267
New Transmission Segments	Merced - 1	Merced - 1	Merced - 1	Merced - 1
	Kramer - 1	Kramer - 1		Kramer - 1
	Los Banos - 1	Los Banos - 1		Los Banos - 1

LTPP / TPP RNS Differences (GWh)

	All Values in GWh for the Year 2022	Formula	LTPP Base	Difference	TPP Base
1	Statewide Retail Sales - June 2012 IEPR12 Final		301,384.0		301,384.0
2	Non RPS Deliveries (CDWR, WAPA, MWD)		12,530.0		12,530.0
3	Retail Sales for RPS	3=1-2	288,854.0		288,854.0
4	Additional Energy Efficiency		19,543.0		19,543.0
5	Additional Rooftop PV		2,158.8		2,158.8
6	Additional Combined Heat and Power		-		-
7	Adjusted Statewide Retail Sales for RPS	7=3-4-5-6	267,152.2		267,152.2
8	**Total Renewable Energy Needed For RPS**	**8=7* 33%**	**88,160.2**		**88,160.2**
	Existing and Expected Renewable Generation				
9	Total In-State Renewable Generation		40,304.7		40,304.7
10	Total Out-of-State Renewable Generation		**13,950.0**	***-1,350.0***	**12,600.0**
11	Procured DG (not handled in Calculator)		**1,109.7**	***209.3***	**1,319.0**
12	SB 1122 (250 MW of Biogas)		**0.0**	***1,752.5***	**1,752.5**
13	**Total Existing Renewable Generation for CA RPS**	**12=9+10+11**	**55,364.4**		**55,976.3**
14	**Total RE Net Short to meet 33% RPS In 2022 (GWh)**	**13=8-12**	**32,795.8**		**32,184.0**

SB 1122 – Distributed Bioenergy

- Non-binding forecast based on:
  - Population
  - Milk production
  - Forested area

IOU	Municipal Biogas	Dairy/ Agricultural	Forest Waste	Forecast Total	Target Total by Load Share
PGE	11.4	50.7	47.9	109.9	109.1
SCE	76.3	39.3	2.1	117.7	117.6
SDGE	23.3	0.0	0.0	23.3	23.3
Total	110.9	90.0	50.0	250.9	250.0

Summary of Procured DG

Sum of Min Expected GWh/yr	IOU Service Territory			
Technology	PG&E	SCE	SDGE	Grand Total
Biomass	11		11	22
Digester Gas	22			22
Geothermal	11			11
Landfill gas	11		37	49
Pumped Storage	2			2
Solar Photovoltaic	109			109
Solar PV	388	700		1087
Solar PV - Ground mount			17	17
Grand Total	555	700	65	1319

Next Steps

- Comments on TPP Portfolios:
  - Should be submitted to Patrick Young (Patrick.young@cpuc.ca.gov; 415-703-5357) by 4:00 p.m. on January 11, 2013.
  - Subject line should state: "Comments on TPP Renewable Portfolios"
- Final recommendation from the CPUC and CEC commissioners: mid-February 2013

For more details:

“Tools” and Spreadsheets:

http://www.cpuc.ca.gov/PUC/energy/Procurement/LTPP/2012+LTPP+Tools+and+Spreadsheets.htm

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