KRCD
Kings River Conservation District

4886 East Jensen Avenue
Fresno, California 93725

Tel: 559-237-5567
Fax: 559-237-5560

www.krcd.org

September 27, 2007

Mr. B.B. Blevins
Executive Director
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

Re: Application for Certification for the Kings River Conservation District Community Power Plant

Dear Mr. Blevins:

Kings River Conservation District (KRCD) hereby submits this Application for Certification (AFC) for the Kings River Conservation District Community Power Plant (KRCD CPP) a nominal 565 megawatt (MW) natural gas-fired combined cycle base load power plant to be located near the City of Parlier, in Fresno County. This AFC is being submitted in conformance with the provisions of Title 20, California Code of Regulations. In accordance with California Public Resources Code Section 25806, KRCD has also wired funds in the amount of $287,907.53 (578.461 MW (gross) x $294/ + $117,840).

As General Manager of KRCD, I hereby attest, under penalty of perjury, that the contents of this AFC are true and accurate to the best of my knowledge. Please contact me at (559) 237-5567 or our consultant, Amy Cuellar of Navigant Consulting at (916) 631-3211 if you have any questions regarding this AFC.

Sincerely,

David Orth
General Manager, Kings River Conservation District

DO/as

Enclosures: Application for Certification

File Codes: 536.02
300.57.05
L07-0272

BOARD OF DIRECTORS

Division I, NORMAN B. WALDNER, Dinuba • **Division II**, MASARU YOSHIMOTO, Fowler • **Division III**, GILDO NONINI, Fresno • **Division IV**, MARK McKEAN, Riverdale • **Division V**, BRENT L. GRAHAM, Hanford
Division VI, CEIL W. HOWE, JR., Stratford • **At Large**, ALVIN J. QUIST, Fresno

OFFICERS

MARK McKEAN, President • BRENT L. GRAHAM, Vice President • DAVID ORTH, General Manager-Secretary • RANDY SHILLING, Auditor • EDWARD J. TIEDEMANN, Attorney-At-Law

TABLE OF CONTENTS

CHAPTER 1 EXECUTIVE SUMMARY
1.1 Introduction....1
1.2 Project Overview....1
1.2.1 Kings River Conservation District....1
1.2.2 Key Benefits....2
1.2.2.1 Community Choice Aggregation Program....2
1.2.2.2 Public Outreach....3
1.2.2.3 Project Objectives....4
1.3 Project Description....5
1.3.1 Project Site and Construction Staging Area....6
1.3.2 Natural Gas....6
1.3.3 Electric Transmission....6
1.3.4 Process Water Supply....6
1.3.5 Potable Water and Sewer Interconnections....7
1.4 Project Ownership....7
1.5 Project Schedule....7
1.6 Project Alternatives....8
1.7 Environmental Considerations....8
1.7.1 Air Quality....8
1.7.2 Noise....9
1.7.3 Visual Resources....10
1.7.4 Land Use and Agriculture....11
1.7.5 Water Resources....12
1.7.6 Traffic and Transportation....13
1.7.7 Public Health....14
1.7.8 Hazardous Materials....14
1.7.9 Waste Management....15
1.7.10 Worker Health and Safety....15
1.7.11 Geological Resources and Hazards....16
1.7.12 Soils....17
1.7.13 Socioeconomics....17
1.7.14 Cultural Resources....18
1.7.15 Paleontological Resources....18
1.7.16 Biological Resources....19
1.8 List of Preparers....19
1.9 Applicable Laws, Ordinances, Regulations and Standards and Permits....20
1.10 References....20

CHAPTER 2 PROJECT DESCRIPTION
2.1 Introduction....1
2.2 Project Location....2

2.3 Site Description 2
2.4 Project Description 2
2.4.1 Equipment Selection 3
2.5 Generating Facility Description, Design, and Operation 5
2.5.1 Site Arrangement and Layout 5
2.5.2 Process Description 5
2.5.3 Generating Facility Cycle 6
2.5.4 Combustion Turbine Generators 7
2.5.5 Heat Recovery Steam Generators 7
2.5.6 Steam Turbine Generator 9
2.5.7 Major Electrical Equipment and Systems 9
2.5.7.1 Alternating Current Power—Step Up Transformer and Switchyard 9
2.5.7.2 Alternating Current Power—Distribution to Plant Auxiliaries 10
2.5.7.3 Direct Current Power Supply System 10
2.5.7.4 Uninterruptible Power Supply System 11
2.5.8 Fuel System 12
2.5.9 Plant Water Systems and Supply 12
2.5.9.1 Water Supply 12
2.5.9.2 Water Quality 13
2.5.9.3 Water Requirements 13
2.5.9.4 Water Treatment 14
2.5.9.5 Plant Cooling Systems 17
2.5.9.6 Waste Management 18
2.5.10 Solid Wastes 19
2.5.11 Hazardous Wastes 19
2.5.12 Management of Hazardous Materials 20
2.5.13 Emission Control and Monitoring 20
2.5.13.1 Nitrous Oxide Emission Control 21
2.5.13.2 Carbon Monoxide 21
2.5.13.3 Particulate Emission Control 21
2.5.13.4 Continuous Emission Monitoring 21
2.5.14 Fire Protection 21
2.5.15 Plant Auxiliaries 22
2.5.15.1 Lighting 22
2.5.15.2 Grounding 23
2.5.15.3 Distributed Control System 23
2.5.15.4 Cathodic Protection 24
2.5.15.5 Freeze Protection 24
2.5.15.6 Service Air 25
2.5.15.7 Instrument Air 25
2.6 Interconnect to Electrical Grid 25
2.7 Project Construction 25
2.7.1 Generating Facility Operation 26
2.8 Project Safety Design 28
2.8.1 Natural Hazards 28

2.8.2 Emergency Systems and Safety Precautions 28
2.8.2.1 Fire Protection Systems 28
2.8.2.2 Personnel Safety Program....29
2.9 Facility Reliability 29
2.9.1 Facility Availability 30
2.9.2 Redundancy of Critical Components....30
2.9.2.1 Combined-Cycle Power Block 31
2.9.2.2 Distributed Control System 32
2.9.2.3 Boiler Feedwater System....33
2.9.2.4 Condensate System....33
2.9.2.5 Demineralized Water System 33
2.9.2.6 Power Cycle Makeup and Storage....33
2.9.2.7 Circulating Water System....34
2.9.2.8 Closed-Loop Cooling Water System 34
2.9.2.9 Compressed Air 34
2.9.3 Fuel Availability 34
2.9.4 Water Availability 34
2.9.5 Project Quality Control....35
2.9.5.1 Project Stages....35
2.9.5.2 Quality Control Records 36
2.10 Laws, Ordinances, Regulations, and Standards....37

CHAPTER 3 ENGINEERING
3.1 Introduction....1
3.2 Facility Design....1
3.3 Efficiency....2
3.3.1 Heat and Material Balance....2
3.3.2 Operating Hours and Modes 2
3.3.3 Energy Production 3
3.3.4 Fuel Consumption....3
3.3.5 Alternative Generation Technologies 3
3.4 Reliability 3
3.4.1 Fuel Availability 3
3.4.2 Plant Availability 4
3.4.3 Process Water Source Availability 4
3.4.4 Water Treatment Reliability 5
3.4.5 Waste Management Reliability....5
3.4.6 Inavailability Due to Geologic Hazards and Extreme Climatic Conditions....5
3.4.7 Equipment Redundancy....5
3.4.8 Performance Degradation 5
3.5 Laws, Ordinances, Regulations, and Standards....5
3.6 Required Permits and Agency Contacts 7
3.7 References....9

CHAPTER 4 ELECTRIC TRANSMISSION

4.1 Introduction....1
4.2 Transmission Interconnection....1
4.3 Transmission Lines Description, Design, and Operation....2
4.4 Interconnection Feasibility Study....3
4.4 Interconnection System Impact Study....5
4.4.1 Scope of the System Impact Study....5
4.4.2 Power Flow Study Criteria and Cases....5
4.4.2.1 2011 Summer Peak Base Case....6
4.4.2.2 2011 Spring Peak Base Case....6
4.4.2.3 2011 Summer Off-Peak Base Case....6
4.4.2.4 2011 Winter Peak Base Case....6
4.4.2.5 Base Case and Sensitivity Case Analysis....7
4.4.3 System Impact Study Results....7
4.4.3.1 Overload Mitigation....8
4.6 Transmission Line Safety and Nuisance....10
4.6.1 Electrical Clearances....10
4.6.2 Electrical Effects....11
4.6.2.1 Corona, Audible Noise, and Radio and Television Interference....11
4.6.2.2 Electric and Magnetic Fields....12
4.6.2.3 Electric and Magnetic Field Estimates....13
4.6.2.4 Electric Shock Hazards....16
4.6.2.5 Aviation Safety....17
4.6.2.6 Fire Hazards....17
4.7 Applicable Laws, Ordinances, Regulations, and Standards....17
4.7.1 General Regulations....17
4.7.2 Design and Construction....18
4.7.3 Electric and Magnetic Fields....19
4.7.4 Hazardous Shock....19
4.7.5 Communications Interference....20
4.7.6 Aviation Safety....20
4.7.7 Fire Hazards....20
4.8 Involved Agencies and Contacts....21
4.9 References....21

CHAPTER 5 NATURAL GAS SUPPLY

5.1 Introduction....1
5.2 Proposed Route....1
5.3 Pipeline Construction and Design Criteria....2
5.4 General Construction Practices....2
5.4.1 Pipeline Crossings....3
5.4.2 Construction Staging....4
5.4.3 Gas Pipeline Construction....4

5.4.4 Metering Station 6
5.4.5 Compressor Station....6
5.5 Operations....7
5.5.1 Schools Risk Analysis 7
5.6 Applicable Laws, Ordinances, Regulations and Standards 8
5.7 Required Permits and Schedules 8
5.8 References....9

CHAPTER 6 WATER SUPPLY
6.1 Introduction....1
6.2 Water Use 1
6.3 Reclaimed Water Supply 2
6.4 Backup Water Supply 3
6.5 Service, Fire Protection and Potable Water Supply....4
6.6 Landscape Irrigation Water Supply 4
6.7 Tertiary Treatment System 4
6.8 Compliance with Laws, Ordinances, Regulations, and Standards 6

CHAPTER 7 FACILITY CLOSURE
7.1 Introduction....1
7.2 Temporary Closure 1
7.3 Permanent Closure....1

CHAPTER 8 ENVIRONMENTAL CONSIDERATIONS
8.1 Air Quality....1
8.1.1 Introduction....1
8.1.2 Affected Environment 1
8.1.2.1 Project Site Area 1
8.1.2.2 Sensitive Receptors....3
8.1.2.3 Topography....4
8.1.2.4 Climate and Meteorology 4
8.1.2.5 Air Quality Standards 5
8.1.2.6 Existing Air Quality....9
8.1.3 Environmental Consequences....12
8.1.3.1 Significance Criteria and Methodology....12
8.1.3.2 Construction Impacts 12
8.1.3.3 Operational Impacts....12
8.1.3.4 Air Quality Impact Analysis - Approach....19
8.1.3.5 Air Quality Impact Analysis - Results....24
8.1.3.6 Cumulative Impacts 40
8.1.3.7 Mitigation Measures 40
8.1.4 Laws, Ordinances, Regulations, and Standards....44

8.1.4.1 Federal 54
8.1.4.2 State 55
8.1.4.3 Local 55
8.1.5 Involved Agencies and Contacts 56
8.1.6 Required Permits and Schedules 56
8.1.7 References....57

8.2 Noise 1
8.2.1 Introduction....1
8.2.2 Fundamentals of Acoustics....1
8.2.3 Affected Environment 3
8.2.3.1 Project Description 3
8.2.3.2 Ambient Noise Survey....5
8.2.4 Environmental Consequences....8
8.2.4.1 Significance Criteria 8
8.2.4.2 Construction Impacts 8
8.2.4.3 Operational Impacts....10
8.2.4.4 Cumulative Impacts 14
8.2.5 Mitigation Measures 14
8.2.6 Applicable Laws, Ordinances, Regulations, and Standards 15
8.2.6.1 Federal 16
8.2.6.2 State 17
8.2.6.3 Local 17
8.2.7 Involved Agencies and Contacts 18
8.2.8 Required Permits and Permitting Schedules....19
8.2.9 References....19

8.3 Visual Resources 1
8.3.1 Introduction....1
8.3.2 Affected Environment 2
8.3.2.1 Regional Context and Landscape Setting 2
8.3.2.2 Project Site and Construction Staging Area 3
8.3.2.3 Electric Transmission Line 4
8.3.2.4 Natural Gas Pipeline 5
8.3.2.5 Water Pipeline 5
8.3.2.6 Potable Water and Domestic Sewer 5
8.3.2.7 Project Site Visibility....6
8.3.2.8 Sensitive Viewing Areas and Key Public Viewpoints 6
8.3.3 Environmental Consequences....11
8.3.3.1 Analysis Procedure and Visual Simulation Methods 11
8.3.3.2 Project Appearance....14
8.3.3.3 Construction Impacts 17
8.3.3.4 Operational Impacts....17
8.3.3.5 Impact Significance 20
8.3.3.6 Cumulative Impacts 22

8.3.3.7 Mitigation Measures 23
8.3.4 Laws, Ordinances, Regulations and Standards 23
8.3.4.1 Federal 24
8.3.4.2 State 25
8.3.4.3 Local 25
8.3.5 Involved Agencies and Contacts 31
8.3.6 Required Permits and Schedules 32
8.3.7 References 32

8.4 Land Use and Agriculture 1
8.4.1 Introduction 1
8.4.2 Affected Environment 1
8.4.2.1 Regional Setting 1
8.4.2.2 Project Area Setting 1
8.4.3 Land and Agricultural Use Designations 2
8.4.3.1 Project Site and Construction Staging Area 2
8.4.3.2 Electric Transmission 2
8.4.3.3 Water Pipeline 3
8.4.3.4 Natural Gas Pipeline 4
8.4.3.5 Potable Water and Domestic Sewer 4
8.4.3.6 Area Surrounding Project Site 5
8.4.3.7 Other Land Uses in the Project Area 5
8.4.4 General Plan Designations 6
8.4.5 Zoning Designations 7
8.4.5.1 Agricultural District 7
8.4.5.2 Other Zoning Designations 7
8.4.6 Summary of Land Use Information for the Project Area 8
8.4.7 Site Control 8
8.4.8 Williamson Act 8
8.4.9 Land Use and Future Growth Trends 9
8.4.10 Recent Discretionary Reviews by Public Agencies 9
8.4.10.1 City of Selma 9
8.4.10.2 City of Parlier 10
8.4.10.3 Fresno County 11
8.4.11 Environmental Consequences 11
8.4.11.1 Significance Criteria 11
8.4.11.2 Construction Impacts 12
8.4.11.3 Operation and Maintenance Impacts 13
8.4.11.4 Cumulative Impacts 14
8.4.11.5 Mitigation Measures 14
8.4.12 Laws, Ordinances, Regulations and Standards 15
8.4.12.1 Federal 20
8.4.12.2 State 21
8.4.12.3 Local 21
8.4.13 Involved Agencies and Contacts 22

8.4.14 Required Permits and Permitting Schedules....22
8.4.15 References....23

8.5 Water Resources....1
8.5.1 Introduction....1
8.5.2 Affected Environment....1
8.5.2.1 Kings River Conservation District....1
8.5.2.2 Project Overview....1
8.5.2.3 Hydrologic Setting....3
8.5.3 Water Resources....9
8.5.3.1 Water Demands....9
8.5.3.2 Description of Selected Water Supplies....11
8.5.3.3 Water Quality....16
8.5.3.4 Water Supply Infrastructure....18
8.5.4 Runoff and Drainage....21
8.5.4.1 Flooding Potential....21
8.5.4.2 Potential for Wind or Water Erosion and Sedimentation....22
8.5.4.3 Existing Drainage Characteristics....22
8.5.4.4 On-Site Drainage Facilities....22
8.5.4.5 Oil-Water Separator....23
8.5.4.6 Construction Storm Water Pollution Prevention Plan....23
8.5.4.7 Construction Sedimentation and Erosion Control Plan....24
8.5.5 Environmental Consequences....24
8.5.5.1 Regional Water Impacts....24
8.5.5.2 Groundwater Level Impacts....24
8.5.5.3 Groundwater Quality Impact....26
8.5.5.4 Flooding and Inundation Impacts....27
8.5.5.5 Cumulative Impacts....27
8.5.5.6 Mitigation Measures....27
8.5.6 Laws, Ordinances, Regulations and Standards....27
8.5.6.1 Federal Clean Water Act....30
8.5.6.2 State....30
8.5.6.3 Local....32
8.5.7 Required Permits and Agency Contacts....33
8.5.8 References....35

8.6 Traffic and Transportation....1
8.6.1 Introduction....1
8.6.2 Affected Environment....1
8.6.2.1 Project Description....1
8.6.2.2 Regional Setting....2
8.6.2.3 Local Setting....2
8.6.2.4 Roadway Operating Characteristics....3
8.6.2.5 Level of Service/Traffic Characteristics....4
8.6.2.6 Rail and Bus Transportation....7

8.6.2.7 Bicycle and Pedestrian Circulation....7
8.6.2.8 Schools/School Bus Routes....7
8.6.2.9 Planned Road Improvements....8
8.6.2.10 Airports/Airport Runways....8
8.6.3 Environmental Consequences....8
8.6.3.1 Evaluation Methodology/ Significance Criteria....8
8.6.3.2 Construction Phase Impacts....9
8.6.3.3 Operation and Maintenance Impacts....13
8.6.3.4 Cumulative Impacts....17
8.6.4 Proposed Mitigation Measures....17
8.6.4.1 Construction Phase....17
8.6.4.2 Operation Phase....18
8.6.5 Laws, Ordinances, Regulations, and Standards Compliance....18
8.6.5.1 Federal....20
8.6.5.2 State....20
8.6.5.3 Local....21
8.6.6 Involved Agencies and Contacts....22
8.6.7 Required Permits and Permitting Schedules....23
8.6.8 References....23

8.7 Public Health....1
8.7.1 Introduction....1
8.7.2 Affected Environment....1
8.7.2.1 Project Site Area....1
8.7.2.2 Sensitive Receptors....2
8.7.3 Environmental Consequences....3
8.7.3.1 Significance Criteria and Methodology....3
8.7.3.2 Construction Impacts....4
8.7.3.3 Operation and Maintenance Impacts....4
8.7.3.4 Cumulative Impacts....17
8.7.3.5 Mitigation Measures....17
8.7.4 Laws, Ordinances, Regulations, and Standards....18
8.7.4.1 Federal....20
8.7.4.2 State....20
8.7.4.3 Local....21
8.7.5 Involved Agencies and Contacts....21
8.7.6 Required Permits and Schedules....22
8.7.7 References....22

8.8 Hazardous Materials....1
8.8.1 Introduction....1
8.8.2 Affected Environment....1
8.8.2.1 Project Site Area....1
8.8.2.2 Sensitive Receptors....2
8.8.3 Environmental Consequences....3

8.8.3.1 Construction Impacts 3
8.8.3.2 Operation & Maintenance Impacts 4
8.8.3.3 Fire and Explosion Risk 16
8.8.3.4 Off-Site Consequence Analysis 17
8.8.3.5 Cumulative Impacts 21
8.8.3.6 Mitigation Measures 21
8.8.4 Laws, Ordinances, Regulations, and Standards (LORS) 23
8.8.4.1 Federal 27
8.8.4.2 State 28
8.8.4.3 Local 29
8.8.5 Involved Agencies and Contacts 29
8.8.6 Required Permits and Schedules 30
8.8.7 References 31

8.9 Waste Management 1
8.9.1 Introduction 1
8.9.2 Affected Environment 1
8.9.2.1 Project Description 1
8.9.2.2 Phase I Environmental Assessment 2
8.9.2.3 Phase II Environmental Assessment 5
8.9.3 Environmental Consequences - Waste Generation Inventory 5
8.9.3.1 Construction Phase 6
8.9.3.2 Operation and Maintenance Phase 10
8.9.4 Waste Management Methods and Mitigation Measures 12
8.9.4.1 Construction Phase Impacts 12
8.9.4.2 Operation and Maintenance Phase Impacts 14
8.9.4.3 Cumulative Impacts 15
8.9.4.4 Facility Closure 16
8.9.4.5 Monitoring Program 17
8.9.5 Laws, Ordinances, Regulations and Standards 17
8.9.5.1 Federal 19
8.9.5.2 State 20
8.9.5.3 Local 21
8.9.6 Involved Agencies and Contacts 21
8.9.7 Required Permits and Schedules 22
8.9.8 References 22

8.10 Worker Health & Safety 1
8.10.1 Introduction 1
8.10.2 Affected Environment 1
8.10.2.1 Project Site Area 1
8.10.3 Environmental Consequences 2
8.10.3.1 Impact Assessment 2
8.10.3.2 Construction Impacts 6
8.10.3.3 Operation and Maintenance Impacts 8

8.10.3.4 Fire Protection 9
8.10.3.5 Fuel Handling and Fire Protection....10
8.10.4 Proposed Mitigation Measures 10
8.10.5 Cumulative Impacts 10
8.10.6 Laws, Ordinances, Regulations and Standards....10
8.10.7 Required Permits and Agency Contacts 16
8.10.8 References....18

8.11 Geologic Hazards & Resources 1
8.11.1 Introduction....1
8.11.2 Affected Environment 1
8.11.2.1 Regional Geology 2
8.11.2.2 Local Geology and Stratigraphy....3
8.11.2.3 Groundwater 3
8.11.2.4 Seismicity 4
8.11.2.5 Geologic Hazards....5
8.11.3 Environmental Consequences....8
8.11.3.1 Impacts....8
8.11.3.2 Mitigation Measures 9
8.11.3.3 Cumulative Impacts 9
8.11.4 Laws, Ordinances, Regulations, and Standards (LORS)....10
8.11.4.1 Federal 10
8.11.4.2 State and Local 11
8.11.5 Involved Agencies and Contacts 11
8.11.6 Required Permits and Schedules 11
8.11.7 References....12

8.12 Soils 1
8.12.1 Introduction....1
8.12.2 Affected Environment 1
8.12.2.1 Project Description 1
8.12.2.2 Potentially Affected Soils....2
8.12.2.3 Potentially Affected Contaminated Soils....9
8.12.3 Environmental Consequences....11
8.12.3.1 Significance Criteria and Methodology....11
8.12.3.2 Construction Impacts....12
8.12.3.3 Operation and Maintenance Impacts 15
8.12.3.4 Cumulative Impacts 16
8.12.3.5 Mitigation Measures 16
8.12.4 Laws, Ordinances, Regulations, and Standards....17
8.12.4.1 Federal 18
8.12.4.2 State 19
8.12.5 Involved Agencies and Contacts 20
8.12.6 Permits 20
8.12.7 References....21

8.13 Socioeconomics....1
8.13.1 Introduction....1
8.13.2 Affected Environment....1
8.13.2.1 Project Description....1
8.13.2.2 Population....2
8.13.2.3 Housing....3
8.13.2.4 Economy and Employment....5
8.13.2.5 Fiscal Resources....7
8.13.2.6 Education....8
8.13.2.7 Public Services and Facilities....9
8.13.2.8 Solid Waste....12
8.13.3 Environmental Consequences....12
8.13.3.1 Significance Criteria and Methodology....13
8.13.3.2 Construction Impacts....13
8.13.3.3 Operational Impacts....26
8.13.3.4 Cumulative Impacts....30
8.13.3.5 Mitigation Measures....31
8.13.4 Environmental Justice....31
8.13.5 Laws, Ordinances, Regulations, and Standards....34
8.13.5.1 Federal....35
8.13.5.2 State....35
8.13.5.3 Local....35
8.13.6 Involved Agencies and Agency Contacts....35
8.13.7 Required Permits and Schedules....36
8.13.8 References....36

8.14 Cultural Resources....1
8.14.1 Introduction....1
8.14.2 Affected Environment....1
8.14.2.1 Project Description....1
8.14.2.2 Background....2
8.14.3 Resource Inventory....8
8.14.3.1 Record Search Results....8
8.14.3.2 Pedestrian Archaeological Survey....11
8.14.3.3 Recorded Resources....14
8.14.3.4 Historic Buildings and Structures Reconnaissance....18
8.14.3.5 Native American Correspondence....18
8.14.3.6 Local Historical Societies, Museums and Agency Consultation....19
8.14.4 Environmental Consequences....19
8.14.4.1 Significance Criteria....19
8.14.4.2 Construction Impacts....19
8.14.4.3 Mitigation Measures....21
8.14.4.4 Cumulative Impacts....24
8.14.5 Laws, Ordinances, Regulations and Standards....24

8.14.5.1 Federal 25
8.14.5.2 State 27
8.14.5.3 Local 30
8.14.6 Involved Agencies and Agency Contacts 31
8.14.7 Permits Required and Schedule 31
8.14.8 References....31

8.15 Paleontological Resources 1
8.15.1 Introduction....1
8.15.2 Affected Environment 1
8.15.2.1 Project Description 1
8.15.2.2 Paleontological Sensitivity 2
8.15.2.3 Geology and Paleontology....3
8.15.2.4 Dates of Investigation 5
8.15.3 Environmental consequences....6
8.15.3.1 Definition and Significance of Paleontological Resources 6
8.15.3.2 Methods 6
8.15.3.3 Discussion of Impacts....7
8.15.3.4 Conclusions....7
8.15.3.5 Recommended Mitigation Measures 7
8.15.3.6 Cumulative Impacts 10
8.15.4 Laws, Ordinances, Regulations, And Standards....10
8.15.4.1 Federal 12
8.15.4.2 State 12
8.15.4.3 Local 13
8.15.4.4 Professional Standards....13
8.15.5 Involved Agencies and Agency Contacts 15
8.15.6 Permits Required and Permitting Schedules....15
8.15.7 References....15

8.16 Biological Resources 1
8.16.1 Introduction....1
8.16.2 Affected Environment 1
8.16.2.1 Regional Setting....1
8.16.2.2 Project Area Setting....1
8.16.2.3 Special-Status Plant Species 3
8.16.2.4 Special-Status Wildlife Species 4
8.16.3 Environmental Consequences....4
8.16.3.1 Significance Criteria 4
8.16.3.2 Impact Assessment Methodology....5
8.16.3.3 Field Survey Methods and Results 7
8.16.3.4 Agency Coordination....13
8.16.3.5 Wetland and Waters Evaluation 14
8.16.4 Discussion of Impacts....15
8.16.4.1 Site Preparation and Construction Impacts....15

8.16.4.2 Operation and Maintenance Impacts 20
8.16.4.3 Cumulative Impacts 22
8.16.4.4 Mitigation, Avoidance and Minimization Measures 22
8.16.5 Laws, Ordinances, Regulations and Standards 24
8.16.5.1 Federal 28
8.16.5.2 State 29
8.16.5.3 Local 31
8.16.6 Involved Agencies and Contacts 32
8.16.7 Permits 32
8.16.8 References 33

CHAPTER 9 ALTERNATIVES
9.1 Introduction 1
9.2 Community Choice Aggregation Program 1
9.3 Project Objectives 3
9.4 No Project Alternative 4
9.5 Consideration of Permitted Sites 4
9.6 Alternative Site Locations 5
9.6.1 Preliminary Site Evaluation 5
9.6.2 Secondary Site Evaluation 6
9.6.2.1 Excelsior Site 6
9.6.2.2 Selma-Kingsburg-Fowler Sites 6
9.6.2.3 Additional Sites Identification 7
9.6.2.4 Environmental Considerations 9
9.6.3 Final Site Selection 16
9.6.4 Preferred Site 17
9.6.5 Other Sites Considered 18
9.7 Alternative Linear Facilities 18
9.7.1 Electric Transmission Interconnection 18
9.7.1.1 Route Descriptions 19
9.7.1.2 Summary Comparison of Preferred and Alternative Transmission Line Route 20
9.7.1.3 Summary 24
9.8 Natural Gas Pipeline 24
9.8.1 Route Descriptions 25
9.8.1.1 Summary Comparison of Preferred and Alternative Gas Pipeline Routes 26
9.8.1.3 Summary 32
9.9 Water Pipeline 33
9.10 Alternative Water Supplies 33
9.10.1 Cooling Water Alternatives 33
9.10.2 Potable Water Alternatives 37
9.11 Alternative Process Water Treatment Options 37
9.12 Alternative Wastewater Discharge Options 38
9.13 Alternative Project Configurations 38

9.13.1 Alternative Cooling Systems 38
9.13.1.1 Inlet Air Cooling Alternative 38
9.13.1.2 Dry Cooling (Air Heat Exchanger) Versus Wet Cooling 39
9.13.1.3 Wet/Dry Cooling (Hybrid System) 39
9.13.2 Air Pollution Emission Control Analysis 41
9.14 Alternative Technologies 42
9.14.1 Coal and Oil 43
9.14.2 Biomass 43
9.14.3 Solar 43
9.14.4 Geothermal 44
9.14.5 Hydroelectric 44
9.14.6 Wind 44
9.15 References 44

LIST OF TABLES

Table 1-1	Location Information
Table 1-2	Major Milestones
Table 2-1	Characteristics of CTGs under Consideration
Table 2-2	Major Milestones
Table 2-3	Facility Construction - Average and Peak Construction Traffic
Table 2-4	Equipment Redundancy
Table 3-1	Applicable Laws, Ordinances, Regulations and Standards
Table 3-2	Applicable Engineering Permits
Table 3-3	Agency Contacts –Engineering
Table 4-1	Summary of Forecast System Overloads after Addition of the KRCD CPP (Pre-Mitigation)
Table 4-2	Summary of Recommended Mitigation and Reconductoring Mileage
Table 4-3	General Regulations
Table 4-4	Design & Construction
Table 4-5	Electric and Magnetic Fields
Table 4-6	Hazardous Shock
Table 4-7	Communications Interference
Table 4-8	Aviation Safety
Table 4-9	Fire Hazards
Table 4-10	List of Agency Contacts
Table 5-1	Natural Gas Pipeline LORS
Table 6-1	Estimated Average Process Water Demands
Table 6-2	Average and Maximum Process Water Demands
Table 8.1-1	Sensitive Receptors Located Within 1 to 2 Mile of the Project Site
Table 8.1-2	Regulatory Standards and Significance Levels - NAAQS, CAAQS, and PSD
Table 8.1-3	Baseline Air Quality (Pollutant Concentrations) in the Project Region
Table 8.1-4	Natural Gas Fuel Composition
Table 8.1-5	Summary of Proposed BACT for CTs
Table 8.1-6	Summary of Proposed BACT for Ancillary Equipment
Table 8.1-7	Greenhouse Gas Emissions Rates – GE Option
Table 8.1-8	Greenhouse Gas Emissions Rates – Siemens Option
Table 8.1-9	Stack Parameters
Table 8.1-10	Class I Wilderness Areas within 200 km from Project Site
Table 8.1-11	Predicted Concentrations From Siemen's CTs Under Various Operating Scenarios

Table 8.1-12	Predicted Concentrations From GE CTs Under Various Operating Scenarios
Table 8.1-13	Total Project Impacts
Table 8.1-14	Total Project Impacts at Indianola Elementary School
Table 8.1-15	PSD Class I Analysis – Siemens
Table 8.1-16	PSD Class I Analysis – GE
Table 8.1-17	Emission Reduction Credits Required for Nitrogen Oxide (in tons/yr)
Table 8.1-18	Emission Reduction Credits Required for Volatile Organic Carbons (in tons/yr)
Table 8.1-19	Emission Reduction Credits Required for Particulate Matter 10 Micrograms Diameter and Smaller (in tons/yr)
Table 8.1-20	Emission Reduction Credits Required for Sulfur Dioxide (in tons/yr)
Table 8.1-21	Air Quality LORS
Table 8.1-22	Agency Contacts – Air Quality
Table 8.1-23	Air Quality Permits and Schedules
Table 8.2-1	Acoustical Terminology
Table 8.2-2	Typical A-Weighted Sound Levels of Common Noise Sources
Table 8.2-3	Summary of Continuous 25 Hour Ambient Noise Measurements
Table 8.2-4	Summary of Short-Term Ambient Noise Monitoring Results
Table 8.2-5	Construction Equipment Noise
Table 8.2-6	Effects of Various Vibration Levels on People and Buildings
Table 8.2-7	Siemens W501F Package Sound Power Levels with Silenced HRSG Stacks
Table 8.2-8	Estimated Power Plant Noise Levels at the Nearest Residential Property Lines
Table 8.2-9	Noise LORS
Table 8.2-10	Fresno County Noise Level Criteria
Table 8.2-11	Noise Agency Contacts
Table 8.3-1	Visual Simulations
Table 8.3-2	Assumptions Regarding Tree Height and Growth
Table 8.3-3	Summary of Major Proposed Structures (Estimated Dimensions)
Table 8.3-4	Visual Resources LORS
Table 8.3-5	Applicable County General Plan Policies Pertinent to Visual Quality
Table 8.3-6	Applicable Fresno County Zoning Provisions Pertinent to Visual Quality
Table 8.3-7	Applicable Parlier General Plan Provisions Pertinent to Visual Quality
Table 8.3-8	Applicable Selma General Plan Pertinent to Visual Quality
Table 8.3-9	Applicable Selma City Code Pertinent to Visual Quality
Table 8.3-10	Involved Agencies and Agency Contacts

Table 8.4-1	Project Location Information
Table 8.4-2	Applicable Land Use, Agriculture Use, General Plan and Zoning Designations
Table 8.4-3	Land Use and Agriculture LORS
Table 8.4-4	Land Use and Agriculture Agency Contacts
Table 8.4-5	Required Permit and Schedules
Table 8.5-1	Summary of Temperature (in ºF) and Precipitation (in inches), Parlier, California
Table 8.5-2	Estimated Water Demands
Table 8.5-3	Estimated Process Water Demands
Table 8.5-4	Proposed Water Sources
Table 8.5-5	Estimated Wastewater Effluent (2005-2040)
Table 8.5-6	Monthly Water Supplies and Demands
Table 8.5-7	Water Resources LORS
Table 8.5-8	Water Resources Permit Schedule
Table 8.5-9	List of Water Resources Agency Contacts
Table 8.6-1	General Roadway Classifications and Definitions
Table 8.6-2	Level of Service Description for Roadway Sections
Table 8.6-3	Peak Hour Levels of Service – Existing Conditions
Table 8.6-4	Peak Hour Levels of Service - Construction
Table 8.6-5	Peak Hour Levels of Service –Operational Impacts
Table 8.6-6	Estimated Truck Traffic at the KRCD Site During Operation
Table 8.6-7	Traffic and Transportation LORS
Table 8.6-8	Agency Contacts
Table 8.6-9	Permits Required and Permit Schedule
Table 8.7-1	Sensitive Receptors Located Within 1 to 2 Mile of the Project Site
Table 8.7-2	Non-Criteria Emissions from the Combustion Turbines – Siemens Scenario
Table 8.7-3	Non-Criteria Emissions from the Combustion Turbines - GE Scenario
Table 8.7-4	Non-Criteria Emissions from Cooling Tower
Table 8.7-5	Non-Criteria Emissions from the Auxiliary Boiler
Table 8.7-6	Non-Criteria Emissions from the Natural Gas-Fired Emergency Generator
Table 8.7-7	Non-Criteria Emissions from the KRCD CPP Diesel Fire Pump
Table 8.7-8	OEHHA/ARB Health Values for Use in Risk Assessments1
Table 8.7-9	Summary of Health Risk Assessment Results
Table 8.7-10	Summary of Health Risk Assessment Results at Indianola School
Table 8.7-11	Summary of Applicable LORS
Table 8.7-12	Agency Contacts – Public Health

Table 8.8-1	Sensitive Receptors Located Within 1 to 2 Mile of the Project Site
Table 8.8-2	Use and Location of Hazardous Materials
Table 8.8-3	Chemical Inventory, Description of Hazardous Materials Stored Onsite, and Reportable Quantities
Table 8.8-4	Meteorological Data Used In Emergency Release Modeling
Table 8.8-5	Parameters Used In Calculation Of Evaporation Rates For Emergency Release Modeling
Table 8.8-6	SLAB Model Input Parameters For Emergency Release Modeling
Table 8.8-7	Summary Of SLAB Emergency Release Modeling: Distance To Toxic Endpoints
Table 8.8-8	Summary of Applicable LORS
Table 8.8-9	List of Hazardous Material Agency Contacts
Table 8.9-1	Waste Generation and Management
Table 8.9-2	Solid Waste Disposal and Recycling Facilities
Table 8.9-3	Hazardous Wastes Generated
Table 8.9-4	Waste Management LORS
Table 8.9-5	List of Waste Management Agency Contacts
Table 8.9-6	Waste Management Permit and Schedules
Table 8.10-1	Hazard Analysis – Construction and O&M
Table 8.10-2	Construction Training Programs
Table 8.10-3	Operation and Maintenance Training Programs
Table 8.10-4	Worker Health and Safety LORS
Table 8.10-5	Health and Safety Permits
Table 8.10-6	Agency Contacts – Worker Health and Safety
Table 8.11-1	Geologic Hazards and Resources LORS
Table 8.11-2	List of Geologic Resources and Hazards Contacts
Table 8.11-3	Permits Required and Permit Schedule
Table 8.12-1	Summary of Soil Map Units and Series Properties Within the Project Area
Table 8.12-2	Unified Soil Classification System
Table 8.12-3	Site Soil Volumes Stripped, Excavated, Imported, and Stockpiled
Table 8.12-4	Soil LORS
Table 8.12-5	Soil Agency Contacts
Table 8.12-6	Required Permits and Schedules
Table 8.13-1	Historical and Projected Population
Table 8.13-2	Historical and Projected Annual Average Compounded Population Growth Rates
Table 8.13-3	Housing Estimates by City and County, January 1, 2006
Table 8.13-4	Employment Distribution in Fresno County, 2000 to 2005

Table 8.13-5	Employment Distribution in Tulare County, 2000 to 2005
Table 8.13-6	Employment Data – 2005
Table 8.13-7	Fresno County Revenues and Expenditures by Fund ($000)
Table 8.13-8	Estimated Enrollment by Grade
Table 8.13-9	Plant Construction Personnel by Discipline – Fresno County
Table 8.13-10	Estimated and Projected Available Labor by Occupation in Fresno MSA
Table 8.13-11	Plant Construction Personnel by Discipline – Tulare County
Table 8.13-12	Estimated and Projected Available Labor by Occupation in Tulare County
Table 8.13-13	Typical Plant Operation Workforce
Table 8.13-14	Property Tax Rates and Estimates by Fund
Table 8.13-15	Race by Census Tract and for Fresno County
Table 8.13-16	Income Level and Poverty Status by Census Tract and for Fresno County
Table 8.13-17	Socioeconomic LORS
Table 8.13-18	Agencies and Agency Contacts
Table 8.14-1	Previous Cultural Resource Studies Within the Project Area
Table 8.14-2	Summary of Recorded and Updated Resources in the Project Area
Table 8.14-3	Noted Resources (Located Beyond Survey Corridor or Active Railroads & Bridges)
Table 8.14-4	Cultural Resources LORS
Table 8.14-5	Agency Contacts
Table 8.15-1	Generalized Geologic Mapping Information
Table 8.15-2	Paleontological Resources LORS
Table 8.16-1	Biological Resources LORS
Table 8.16-2	Biological Resources Agency Contacts
Table 8.16-3	Biological Resources Permit Schedule
Table 9-1	Summary of Potential Sites for a Baseload Generation Plant
Table 9-2	General Information for Excelsior & SKF Sites
Table 9-3	General Information for East Side Sites
Table 9-4	Summary Comparison of the Preferred and Alternative Site Areas
Table 9-5	Summary Comparison of the Preferred and Alternative Transmission Line Route
Table 9-6	Summary Comparison of the Preferred and Alternative Natural Gas Pipeline Routes
Table 9-7	Definitions of Pipeline Construction Types

LIST OF FIGURES

Figure 1-1	Regional Area
Figure 1-2	KRCD Service Territory
Figure 1-3	KRCD CPP Project Area
Figure 1-4	KRCD CPP Site Prior to Construction
Figure 1-5	Simulation of KRCD CPP Project Site After Construction
Figure 2-1	General Arrangement
Figure 2-2	General Arrangement – Construction Parking and Laydown Area
Figure 2-3	Elevation View – North Site Elevation
Figure 2-4	Elevation View – East Site Elevation
Figure 2-5	Elevation View – North Elevation Power Block
Figure 2-6	Isometric View Site
Figure 2-7	KRCD CPP Site Land Description
Figure 2-8	One-Line Diagram
Figure 2-9	One-Line Metering and Relaying Diagram
Figure 2-10	Settled Areas, Parks, Recreational and Scenic Areas
Figure 2-11	Existing Transmission and Distribution Facilities
Figure 2-12	Water Balance Diagram – Siemens 63F
Figure 2-13	Water Balance Diagram – Siemens 103F
Figure 3-1	Heat Balance Diagram
Figure 3-2	Heat Balance Diagram – Siemens
Figure 3-3	Heat Balance Diagram – GE
Figure 4-1	Transmission Line to McCall Substation
Figure 4-2	Tangent Pole
Figure 4-3	Elevation View of Cross Section A
Figure 4-4	Elevation View of Cross Section B
Figure 4-5	Estimated Electric and Magnetic Fields at Cross Section A – Post Project
Figure 4-6	Estimated Electric and Magnetic Fields at Cross Section B – Pre-Project
Figure 4-7	Estimated Electric and Magnetic Fields at Cross Section B – Post Project
Figure 5-1	Proposed KRCD Station at Existing So Cal Gas Pipeline Tie-in
Figure 5-2	Typical Jack and Bore Construction
Figure 5-3	Kings River Crossing
Figure 8.1-1	N Deposition at Four Closest Class I Areas
Figure 8.2-1	Noise Sensitive Receptors
Figure 8.3-1	Regional Landscape
Figure 8.3-2	Photos from the Project Site
Figure 8.3-3	Photos of the Site and Surrounding Area

Figure 8.3-4	Photos of the Transmission Line Route and Surrounding Area
Figure 8.3-5	Project Site and Visibility Photo Viewpoint Locations
Figure 8.3-6	Transmission Line Visibility and Photo Viewpoint Locations
Figure 8.3-7	Visual Simulation – KOP-1
Figure 8.3-8	Visual Simulation – KOP-2
Figure 8.3-9	Visual Simulation – KOP-3
Figure 8.3-10	Visual Simulation – KOP-4
Figure 8.3-11	Conceptual Landscape Plan
Figure 8.4-1	Land Use Designations
Figure 8.4-2	Agriculture Land Use
Figure 8.4-3	General Plan Designations
Figure 8.4-4	Zoning Designations
Figure 8.4-5	Proposed Development Projects
Figure 8.5-1	Water Resources
Figure 8.5-2	Groundwater Basin and Sub-Groundwater Basin
Figure 8.5-3	Tertiary Treatment Plant Layout
Figure 8.5-4	Wells Within 1/2 Mile of Sanger Percolation Ponds
Figure 8.5-5	Wells Within 1/2 Mile of Parlier Percolation Ponds
Figure 8.6-1	Regional Transportation Setting
Figure 8.6-2	Local Transportation Access
Figure 8.6-3	Year 2006/2007 Existing Peak Hour Traffic Volumes
Figure 8.6-4	Peak Project Construction Traffic Volumes
Figure 8.6-5	Project Operations Peak Hour Traffic Volumes
Figure 8.6-6	Year 2010 Baseline Peak Hour Traffic Volumes
Figure 8.8-1	Sensitive Receptors
Figure 8.11-1	Geological Resources
Figure 8.12-1	Soils
Figure 8.15-1	Paleontological Resources
Figure 8.16-1	Regional Biological Resources
Figure 8.16-2	Biological Resources
Figure 9-1	KRCD Service Territory
Figure 9-2	Alternative Sites – Excelsior and Selma Kingsburg Fowler (SKF)
Figure 9-3	Alternative Sites – East Side
Figure 9-4	Alternative Transmission Line Routes
Figure 9-5	Natural Gas Pipeline Alternatives

LIST OF APPENDICES

Appendix 1-1	List of Property Owners in the Project Area
Appendix 1-2	Other Interested Property Owners in the Local Area
Appendix 1-3	List of Preparers
Appendix 2-1	Civil Engineering Design Criteria
Appendix 2-2	Structural Engineering Design Criteria
Appendix 2-3	Mechanical Engineering Design Criteria
Appendix 2-4	Electrical Engineering Design Criteria
Appendix 2-5	Control Engineering Design Criteria
Appendix 2-6	Chemical Engineering Design Criteria
Appendix 2-7	Geotechnical Design Criteria
Appendix 4-1	Interconnection Feasibility Study Report
Appendix 4-2	Interconnection System Impact Study Report
Appendix 5-1	Natural Gas Pipeline Risk Assessment
Appendix 6-1	Summary of Reclaimed Water Quality Data
Appendix 6-2	Will-Serve Letters
Appendix 8.1-1	Air Flow Pattern Types and Wind Rose Data
Appendix 8.1-2	Air Dispersion Modeling Protocol (Redline Version)
Appendix 8.1-3	Construction Phase Emissions and Impacts
Appendix 8.1-4	Best Available Control Technology Analysis
Appendix 8.1-5	Operations Phase Emissions
Appendix 8.1-6	Air Dispersion Modeling Data
Appendix 8.2-1	Ambient Noise Monitoring Results and Frequency Data
Appendix 8.3-1	Seasonal/Annual Cooling Tower Impact Program (SACTIP) Analysis
Appendix 8.4-1	Williamson Act Contract/Grant Deed
Appendix 8.5-1	Effluent and Groundwater Quality Data
Appendix 8.5-2	Drainage Design and Criteria Calculations
Appendix 8.5-3	Outline for Stormwater Pollution Prevention Plan
Appendix 8.5-4	Groundwater Impact Analysis
Appendix 8.5-5	Drainage Plans
Appendix 8.7-1	Health Risk Assessment – Calculations and Modeling Results (Partial Output)
Appendix 8.7-2	Letter from Fresno County
Appendix 8.8-1	EDR Offsite Receptor Report
Appendix 8.8-2	Ammonia Emergency Release Modeling
Appendix 8.9-1	Phase I Environmental Assessment
Appendix 8.9-2	Phase II Environmental Assessment

Appendix 8.10-1	Draft Outlines of Construction and Operation Health and Safety Plans
Appendix 8.11-1	Hydrographs for Selected Wells
Appendix 8.12-1	Land Capability Classification System
Appendix 8.12-2	Storie Index Classification System Description
Appendix 8.12-3	EDR Corridor Study
Appendix 8.12-4	Cut and Fill Calculations
Appendix 8.13-1	Description of Minority Status
Appendix 8.13-2	Records of Conversation
Appendix 8.15-1	Resumes of Field Personnel
Appendix 8.16-1	List of Topographic Maps in Project Area
Appendix 8.16-2	CNDDB Summary Results
Appendix 8.16-3	Wetland and Waters Evaluation
Appendix 8.16-4	Critical Habitat Maps
Appendix 8.16-5	USFWS Species List
Appendix 8.16-6	Special Status Plant List
Appendix 8.16-7	Special Status Wildlife List
Appendix 8.16-8	Resumes
Appendix 8.16-9	Record of Correspondence
Appendix 8.16-10	Standard Recommendations for Protection of the San Joaquin Kit Fox Prior or During Ground Disturbance (USFWS 1999)
Appendix 8.16-11	Survey Protocol and Mitigation Guidelines (Burrowing Owl Consortium)
Appendix 8.16-12	Staff Report on Burrowing Owl Mitigation (CDFG 1994)
Appendix 8.16-13	Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (Swainson's Hawk Technical Advisory Committee 2000)
Appendix 8.16-14	Staff Report Regarding Mitigation of Impacts to Swainson' Hawk in the Central Valley of California (CDFG 1994)

ACRONYMS AND ABBREVIATIONS

A

AAQS	Ambient Air Quality Standards
AASHTO	American Association of State Highway and Transportation Officials
AB	Assembly Bill
ABMA	American Boiler Manufacturers Association
AC	Alternating Current
ACC	Air Cooled Direct Condenser
ACHP	Advisory Council on Historic Preservation
ACI	American Concrete Institute
ACM	Asbestos Containing Material
ACSR	Aluminum Conductor Steel-Reinforced
AE-20	Exclusive Agriculture (20-acre minimum parcel size)
AF	Acre-Feet
AF/day	Acre-Feet Per Day
AFY	Acre-Feet per Year
AFBMA	Anti-Friction Bearing Manufacturers Association
AFC	Application for Certification
AGMA	American Gear Manufacturers Association
AHD	American Hospital Directory
AI	Asphalt Institute
AIRFA	American Indian Religious Freedom Act
AISC	American Institute of Steel Construction
AMCA	Air Moving and Conditioning Association
ANSI	American National Standards Institute
APCD	Air Pollution Control District
API	American Petroleum Institute
AQIA	Air Quality Impact Analysis
AQRVS	Air Quality Related Values
ARPA	Archaeological Resources Protection Act
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating, and Air Conditioning Engineers
ASME	American Society for Mechanical Engineers
AST	Aboveground Storage Tank
ASTM	American Society for Testing and Materials
ATC	Authority To Construct
AWS	American Welding Society
AWWA	American Water Works Association

B

B.A.	Bachelors of the Arts and Sciences
BACT	Best Available Control Technology
BART	Best Available Retrofit Technology

bgs	Below Ground Surface
BLM	Bureau of Land Management
BMPS	Best Management Practices
BNSF	Burlington Northern and Santa Fe
BOE	Board of Equalization
BP	Before Present
Btu/ft^3	British Thermal Units per Cubic Feet
Btu/KWh	British Thermal Units per Kilowatt Hour
Btu/scf	British Thermal Units per Standard Cubic Feet
Btus	British Thermal Units

C

°C	Celsius
C	Construction
C&K	Centerville and Kingsburg
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAISO	California Independent System Operator
Cal-OSHA	California Occupational Safety and Health
Caltrans	California Department of Transportation
CAR	California Association of Realtors
CARB	California Air Resources Board
CAS	Chemical Abstract Services
CATEF	California Air Toxics Emissions Factors
CBC	California Building Code
CBSC	California Building Standards Code
CCA	Community Choice Aggregation
CCR	California Code of Regulations
CCTS	Central California Taxonomic System
CDE	California Department of Education
CDEC	California Data Exchange Center
CDF	California Department of Forestry and Fire Protection
CDFG	California Department of Fish and Game
CDMG	California Division of Mines and Geology
CDWR	California Department of Water Resources
CE	Construction Emissions
CEC	California Energy Commission
CEDD	California Employment Development Department
CEM	Continuous Emission Monitoring
CEMS	Continuous Emission Monitoring Systems
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations

CGS	California Geologic Survey
CH4	Methane
CHAPIS	Community Health Air Pollution System
CHRIS	California Historical Resources Information System
CID	Consolidated Irrigation District
CIMIS	California Irrigation Management Information System
CIWMA	California Integrated Waste Management Act
CMC	Community Medical Centers
CMP	Congestion Management Program
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	Carbon Monoxide
CO2	Carbon Dioxide
COC	Conditions of Certification
CPM	Compliance Project Manager
CPUC	California Public Utilities Commission
CRHP	California Register of Historical Properties
CRHR	California Register of Historic Resources
CRSI	Concrete Reinforcing Steel Institute
CRT	Cathode Ray Tube
CSC	California Species of Concern
CTG	Combustion Turbine Generator
CTGs	Combustion Turbine Generators
CTI	Cooling Tower Institute
CTs	Combustion Turbines
CUP	Conditional Use Permit
CUPA	Certified Unified Program Agency
CVRWQCB	Central Valley Regional Water Quality Control Board
CWA	Clean Water Act

D

3D	Three Dimensional
DATS	Deposition Analysis Thresholds
dB	Decibel
dBA	A-weighted Sound Levels
DC	Direct Current
DCS	Distributed Control System
DEM	Digital Elevation Model
DHS	Department of Health Services
DLN	Dry Low Nitrogen Oxide
DOC	Determination of Compliance
DOF	Department of Finance
DOT	Department of Transportation
DPR	Department of Parks and Recreation

DTSC	Department of Toxic Substances Control

E

E	Easting
EAF	Equivalent Availability Factor
EC	Elemental Carbon
EDP	Education Data Partnership
EDR	Environmental Data Resources, Inc.
EHS	Extremely Hazardous Substances
EIRs	Environmental Impact Reports
EMF	Electric and Magnetic Fields
EMT-P	Emergency Medical Technician – Paramedic
ENM	Environmental Noise Model
EPA	Environmental Protection Agency
EPC	Engineering, Procurement and Construction
EPCRA	Emergency Planning and Community Right-to-Know Act
EPS	Emissions Performance Standard
ERCs	Emission Reduction Credits
ERNS	Emergency Response Notification System
ERPG-2	Emergency Response Planning Guideline - 2

F

°F	Fahrenheit
FAA	Federal Aviation Administration
FASL	Feet Above Sea Level
FAX	Fresno Area Express
FCDCH	Fresno County Department of Community Health
FCFPD	Fresno County Fire Protection District
FCRTA	Fresno County Rural Transit Agency
FCSD	Fresno County Sheriff's Department
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FM	Factory Mutual
FMFCD	Fresno Metropolitan Flood Control District
FMMP	Farmland Mapping and Monitoring Program
ft^2/day	Cubic Feet per Day
FY	Fiscal Year

G

gal	Gallons
gals/yr	Gallons per Year
g/bhp-hr	Grams per Brake Horsepower Hour
GE	General Electric
GHGs	Greenhouse Gases

GIS	Geographic Information System
Glm2-sec	Grams per Cubic Meter per Second
GO	General Order
gpd	Gallons Per Day
gpm	Gallons Per Minute
GPS	Global Positioning System
GSU	Generator Step-Up
GWh	Gigawatt Hours

H

HAPS	Hazardous Air Pollutants
HARP	Hotspots Analysis and Reporting
HAZWOPER	Hazardous Work Operations and Emergency Responses
HCPS	Habitat Conservation Plans
HDD	Horizontal Directional Drill
HDPE	High-Density Polyethylene
HEI	Heat Exchange Institute
Hga	Mercury, Absolute
HHV	Higher Heating Value
HIS	Hydraulic Institute Standards
HMBP	Hazardous Materials Business Plan
HMI	Hoist Manufacturers Institute
HNO3	Nitric Acid
HP	High-Pressure
hr	Hour
HRA	Health Risk Assessment
HRIER	Historic Resources Inventory and Evaluation Report
HRSG	Heat Recovery Steam Generator
HUD	Housing and Urban Development
HVAC	Heating, Ventilating, and Air Conditioning
HWCL	Hazardous Waste Control Law
Hz	Hertz

I

I-5	Interstate 5
ICEA	Insulated Cable Engineers Association
IEEE	Institute of Electrical and Electronic Engineers
IERP	Integrated Energy Report Proceeding
IES	Illuminating Engineering Society
IFS	Interconnection Feasibility Study
IGSM	Integrated Groundwater Surface Water Model
IIPP	Injury and Illness Prevention Program
in/sec	Inches per Second
I/O	Input/Output
IP	Intermediate-Pressure

ISA	Instrumentation, Systems and Automation Society
ISC	Industrial Source Complex
ISCST3	Industrial Source Complex Short Term
ISO	Independent System Operator
IWAQM	Interagency Workgroup on Air Quality Modeling

J

j/kg	Joule per Kilogram
j/kg-k	Joule per Kilogram Degrees Kelvin

K

k	Kilograms
KA	Kilo Amperes
kcmil	Thousand Circular Mil
kg/ha/yr	Kilograms per Hectare per Year
kg/m3	Kilograms per Cubic Meter
kips	Kilo Pounds
km	Kilometers
KOP	Key Observation Point
KRCD	Kings River Conservation District
KRCD CPP	Kings River Conservation District Community Power Plant
kV	Kilovolt
kV/m	Kilovolts per Meter
kW	Kilowatt

L

lbs	Pounds
lbs/day	Pounds per Day
lbs/hr	Pounds per Hour
lbs/MMscf	Pounds per Million of Standard Cubic Feet
lbs/yr	Pounds per Year
LDL	Larson Davis Laboratories
Ldn	Day/Night Average Sound Level
LEA	Local Enforcement Agency
LEPC	Local Emergency Planning Commission
Leqp	Equivalent Sound Level
Lmax	Level Maximum
LP	Low-Pressure
LORS	Laws, Ordinances, Regulations and Standards
LOS	Level of Service
LO/TO	Lock Out/Tag Out

M

M	Meter
M.A.	Masters of Arts and Sciences
mA	Milliamperes
MACT	Maximum Achievable Control Technology
mADC	Milliamps Direct Current
MCCs	Motor Control Centers
MCL	Maximum Contaminant Level
MEI	Maximally Exposed Individual
mG	Milligauss
mgd	Million Gallon Per Day
mg/kg/day	Milligrams per Kilogram per Day
mg/l	Milligrams per Liter
MID	Modesto Irrigation District
MLD	Most Likely Descendant
mm	Millimeter
Mmax	Maximum Movement Magnitude
MMBtu/hr HHV	Million British Thermal Units per Higher Heating Value
MMhos	Millimhos per Centimeter
MMscf	Million Standard Cubic Feet
MOU	Memorandum of Understanding
mph	Miles Per Hour
MSA	Metropolitan Statistical Area
MSCFD	Million Standard Cubic Feet per Day
mS/cm	MilliSiemens per Centimeter
MSDS	Material Safety Data Sheet
m/sec	Meters/Second
msl	Mean Sea Level
MSS	Manufacturing Standardization Society
MW	Megawatt
MWhr	Megawatt Hour

N

N	Nitrogen
N	Northing
N2O	Nitrous Oxide
NAAMM	National Association of Architectural Metal Manufacturers
NAAQS	National Ambient Air Quality Standards
NACE	National Association of Corrosion Engineers
NAGPRA	Native American Graves Protection and Repatriation Act
NAHC	Native American Heritage Commission
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Corporation

NESC	National Electrical Safety Code
NESHAPs	National Emissions Standards for Hazardous Air Pollutants
NFPA	National Fire Protection Association
NH3	Ammonia
NHPA	National Historic Preservation Act
NO2	Nitrogen Dioxide
NOI	Notice of Intent
NOx	Nitrogen Oxide
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NRCS	Natural Resources Conservation Service
NSPS	New Source Performance Standards
NSR	New Source Review
NTU	Nephelometric Turbidity Units

O

O2	Oxygen
O3	Ozone
O&M	Operation and Maintenance
OA/FA/FA	Oil Air/Forced Air/Forced Air
OEHHA	Office of Environmental Health Hazard Assessment
ohm	Electrical Resistance
OMB	Office of Management and Budget
OSHA	Occupational Safety and Health Act

P

PAH	Polycyclic Aromatic Hydrocarbons
Pb	Lead
PCE	Tetrachloroethylene
PG&E	Pacific Gas and Electric Company
PGA	Peak Ground Acceleration
plf	Pounds per Linear Foot
PM	Particulate Matter
PM2.5	Particulate Matter 2.5 Micrograms Diameter and Smaller
PM10	Particulate Matter 10 Micrograms Diameter and Smaller
ppb	Parts per Billion
PPE	Personal Protective Equipment
ppm	Parts per Million
ppmvd	Parts per Million by Volume, Dry Basis
PPV	Peak Particle Velocity
PRC	Public Resources Code
PRM	Paleontological Resource Monitor
PRMMP	Paleontological Resource Monitoring and Mitigation Plan
PRS	Paleontological Resource Specialist
PSD	Prevention of Significant Deterioration

psf	Pounds per Square Foot
psi	Pounds per Square Inch
psig	Pounds per Square Inch Gage
PTO	Permit To Operate
PUSD	Parlier Unified School District
PVC	Polyvinyl Chloride

Q

QA	Qualified Archaeologist
Qb	Quaternary Basin Deposits
Qf	Quaternary Alluvial Fan Deposits
Qs	Quaternary Dune Sands

R

RCRA	Resource Conservation and Recovery Act
RECs	Recognized Environmental Conditions
REL	Reference Exposure Level
RH	Relative Humidity
RFP	Request for Proposals
RMP	Risk Management Plan
RMS	Root-Mean-Square
RO	Reverse Osmosis
ROCs	Reactive Organic Compounds
ROW	Right-of-Way
RPA	Register of Professional Archaeologists
RQ	Reportable Quantities
RTA	Real Time Analyzer
RTDs	Resistance Temperature Detectors
RTUs	Remote Terminal Units
RUSLE	Revised Universal Soil Loss Equation
RWQCB	Regional Water Quality Control Board
RWRF	Regional Water Reclamation Facility

S

S	Sulfur
SACTIP	Seasonal/Annual Cooling Tower Impact Program
SARA	Superfund Amendments and Reauthorization Act of 1986
SB	Senate Bill
SCADA	Supervisory Control and Data Acquisition
SCE	Southern California Edison
SCF	Standard Cubic Feet
SCG	Southern California Gas Company
SCR	Selective Catalytic Reduction
SCS	Soil Conservation Service
SDI	Steel Deck Institute

SER	Significant Emission Rate
SERC	State Emergency Response Commission
SF6	Sulphur Hexaflouride
SHPO	State Historic Preservation Office
SIL	Significant Impact Levels
SIP	State Implementation Plan
SJVAPCD	San Joaquin Valley Air Pollution Control District
SJVEC	San Joaquin Valley Energy Center
SJVR	San Joaquin Valley Railroad
SKF	Selma-Kingsburg-Fowler
SLR	Single Lens Reflex
SO2	Sulfur Dioxide
SO4	Sulfates
SOA	Secondary Organic Aerosol
SOI	Sphere of Influence
SPCC	Spill Prevention Control & Countermeasures Plan
SPS	Special Protection Schemes
SQGs	Small Quantity Generators
SR	State Route
SSC	Steam Surface Condenser
SSPC	Steel Structures Painting Council
STG	Steam Turbine Generator
SUSD	Selma Unified School District
SVP	Society of Vertebrate Paleontology
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board

T

TACs	Toxic Air Contaminants
TBACT	Toxics Best Available Control Technology
TCA	Trichloroethane
TDS	Total Dissolved Solids
TEMA	Tubular Exchanger Manufacturer’s Association
TPQ	Threshold Planning Quantities
tpy	Tons per Year
TQ	Threshold Quantities

U

UA	Unit Auxiliary
UCMP	University of California Museum of Paleontology
Ug/m	Cubic Meter
µg/m3	Micrograms per Cubic Meter
UL	Underwriters Laboratories
µm	Micrograms
UP	Union Pacific

UPS	Uninterruptible Power Supply
U.S. 99	United States Highway 99
USACE	United States Army Corp of Engineers
USC	United States Code
USCS	Unified Soil Classification System
USDA	United States Department of Agriculture
USDOC	United States Department of Commerce
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
USLE	Universal Soil Loss Equation
UST	Underground Storage Tank
UTM	Universal Transverse Mercator

V

V	Volt or Volts
V/C	Volume to Capacity
VOC	Volatile Organic Compounds

W

WDRs	Waste Discharge Requirements
WECC	Western Electricity Coordinating Council
WEG	Wind Erodibility Group
WGCEP	Working Group on California Earthquake Potential
WPLT	Western Pluvial Lakes Tradition
WWTP	Waste Water Treatment Plant

X

Y

Z

ZLD	Zero Liquid Discharge