

CHAPTER 8

GLOSSARY AND ACRONYMS

8.1 GLOSSARY

AB 1890: Assembly Bill 1890, which was signed into law as Chapter 854 of the Statutes of 1996 by Governor Pete Wilson on September 23, 1996, provides the legislative guidance for restructuring the electric industry in California.

Analytical maximum: The level at which it is assumed, for purposes of the impact analyses in this EIR, the divested plants would be operated by the new owners; it is also sometimes referred to as “A-Max.” The analytical maximum capacity factors for the four plants represent the highest capacities at which the plants could operate, taking into account limiting factors such as the rated capacities of the units; scheduled and forced outages of units for maintenance; contractual limitations, including must-take contracts that favor power generated by qualifying facilities (QFs); and demand constraints (i.e., the finite demand for electricity at any particular time on any given day). The 1999 Analytical Maximum Scenario also assumes for the fossil-fueled plants that natural gas could be purchased in unlimited quantities at a 25 percent discount from the least expensive supply of gas assumed to be available to fuel California power plants (i.e., the natural gas supplied for the Cool Water plant). Although it is extremely unlikely that such a reduced gas price could be obtained, this assumption strengthens the conservative nature of the impacts analysis. The 1999 Analytical Maximum Scenario for the Geysers plant assumes the minimum level of modeled operations for the Geysers units since such lower operations may result in environmental impacts from steam stacking and the resulting unabated steam releases.

Ancillary service: the services needed to maintain system reliability and meet WSCC/NERC operating criteria, including spinning, non-spinning, and replacement reserves, regulation, voltage control and black start capability.

Baseload: a manner of power plant operation such that a unit is run at a more or less constant output level, regardless of changes in loads. For most plants the most efficient level is at a maximum design output level (in contrast to “load-following” or “cyclical” operation).

Bioaccumulative: pertaining to a chemical (e.g. a toxic substance such as lead or arsenic) that gradually builds up in living body tissue after prolonged or repeated ingestion, inhalation, or other exposure.

Black Start Capability: the ability of a generator to start operations independent of any outside electrical power source. Most generation units require external auxiliary power to start.

Bundled service: the provision of all services associated with the production and delivery of electric energy to an individual customer – including generation, transmission, distribution, and ancillary services – under one rate charged to the customer.

California Energy Commission (CEC): the state agency responsible for assuring the adequacy and reliability of electric and natural gas supply within the state and for overseeing programs that promote research and development of alternative power technologies and other public purpose programs. It is overseen by an appointed five person board.

California Public Utility Commission (CPUC): an independent agency responsible for regulating investor-owned electric, natural gas, water and telecommunications utilities, and some transportation service industries. It is also the change agent responsible for restructuring the electric utility industry. The CPUC is overseen by five commissioners appointed by the governor.

Capacity factor: the ratio of power actually produced by a generating unit to the maximum power it could possibly produce (that is, its rated generating capacity) in the same time period. The annual capacity factor of an individual unit (or, collectively, a plant) is a function of both the amount of time that the unit is operating and the level at which the unit is operating. For instance, if a hypothetical unit were on and operating 100 percent of the time at 50 percent of its rated capacity, it would have a 50 percent capacity factor. Similarly, if a hypothetical unit were on and operating 50 percent of the time, but at 100 percent of its rated capacity, it would also have a 50 percent capacity factor. Combining these concepts, if a hypothetical unit were on and operating 50 percent of the hours of the year and at a 50 percent level for each of the hours it was on, it would have an annual capacity factor of 25 percent.

Cogeneration: A type of power plant that produces electric energy and heat energy simultaneously from the same fuel(s) in the same facility. Cogeneration facilities typically produce both electricity and steam or heat that is used for industrial processes.

Combustion turbine (CT): essentially a permanently mounted jet engine (which works by continuously burning a mixture of fuel and compressed air in a combustion chamber to produce a jet of hot exhaust gas that spins the turbine blades) used to turn a generator. CTs are usually used to meet load during peak demand times; also called gas combustion turbines, or GTs.

Competitive Transition Charge (CTC): a non-bypassable charge on each customer of the utility distribution company, including those who are served under contracts with non-utility suppliers, for recovery of the utility's uneconomic, or stranded costs. (In the past, utilities made investments in power plants or contracts to ensure they had adequate supply of electricity to meet customer's demands. In some cases, standards imposed by state government or regional electric reliability councils obliged utilities to make investments that exceeded actual demand, to ensure a margin of safety. Stranded costs are the costs from such investments that the utility may not be able to recover in the competitive market, due to technological changes and other factors.)

Cost-of-service regulation: the method of regulation used to set rates for utility services prior to restructuring. Rates under cost-of-service regulation were based principally on the costs of generating and delivery electricity, with an allowable profit margin.

Criteria air pollutants: air pollutants that are pervasive in urban environments and for which state or national ambient air quality standards have been established.

Decibel (dB): a standard unit of sound energy intensity. Sound waves, traveling outward from a source, exert a sound pressure level (commonly called “sound level”) measured in dB. An A-weighted decibel (dBA) is a decibel corrected for the variation in frequency response of the typical human ear at commonly encountered noise levels

Direct access transaction: a contract between one or more electrical generator(s), marketer(s) or broker(s) of electric power and one or more retail customer(s) providing for the direct purchase and sale of electric power or any ancillary service(s).

Direct connect: service arrangement in which a customer receives electricity through a conductor that connects directly to a given power plant, rather than through a transmission and distribution (T&D) system, thus avoiding T&D charges.

Dispatch: the operating control of an integrated electric system to: (1) assign generation of specific generating units and other power sources to maintain the most reliable and economical supply as area loads rise or fall; (2) control operations and maintenance of high-voltage lines, substations and equipment, including administration of safety procedures; (3) operate the interconnection; and (4) schedule energy transactions with other interconnected electric utilities.

Dispatching protocol: the method used in determining when to operate a particular generating unit. Utilities primarily follow an economic dispatching protocol, which requires operators to first use the least expensive unit available, then the second least expensive unit, and so forth. However, some units are operated under a different dispatching protocol because of unique environmental or permitting conditions. For example, a thermal discharge requirement under a Waste Discharge Requirement Order or an NPDES permit may require operators to dispatch certain generating units in order to minimize the thermal impacts of the combined operations, even when other, less expensive units are available.

Displacement oil: a lighter grade of oil used to displace comparatively heavy fuel oil in pipes and tanks, generally used when power plant operators switch fuel sources; also used to remove fuel oil from unused fuel pipelines so the fuel oil does not form tar-like plugs that block the lines.

Distillate fuel oil: a power plant fuel similar to Jet A fuel oil used in airplanes. Distillate fuel refers to a class of fuels that is more refined (less crude) and remains fluid over a wider range of temperatures than residual fuel oil, which generally must be heated before it can be pumped through a pipeline or into a boiler.

Distribution system: a network of comparatively low-voltage lines used to deliver electricity from a substation to the retail customer's home or business.

Divestiture: the transfer of title or disposal of assets or interests, such as physical property or stock in a company. In the case of utilities, it is the stripping off of one utility function from the others by selling (spinning off) or in some other way changing ownership of the assets related to that function. Most commonly associated with spinning-off generation assets so they are not longer owned by shareholders that own the transmission and distribution assets.

Electric capacity: the maximum continuous load-carrying ability of electric equipment, including transmission lines, generators and substations.

End-use customer: a residential, commercial, industrial or agricultural customer that buys electric power for consumption as a final product (i.e., that does not resell the power to another entity).

Electric Service Provider (ESP): an entity registered with the CPUC that provides electric products and services to a retail or end-use customer but does not fall within the definition of an electrical utility under Section 218 of the state utility code.

Entrainment: the process of aquatic organisms passing through cooling water intake screens.

Excess cancer risk: the individual cancer risk calculated for a particular source of toxic air contaminants. "Individual cancer risk" is the likelihood that a person exposed to concentrations of toxic air contaminants over a lifetime will contract cancer, based on the use of standard risk assessment methodology established for AB 2588.

Fossil fuel: burnable fuel created through the fossilization of organic matter; includes coal, oil, and natural gas.

Generating capacity: the maximum amount of power a generating unit can produce for a sustained period of time.

Generating facility: a power plant, normally consisting of several generating units, that produces electrical energy.

Generating unit: generally refers to the combination of a steam or combustion turbine and electrical generator, which together produce electrical energy.

Generator: entities that own, operate, and maintain generation assets to supply energy and ancillary services. (An electrical generator is also a piece of equipment that produces an electric current.)

Geothermal plant: A generating facility that uses geothermal power to produce electrical energy.

Geothermal power: a renewable power resource that utilizes subsurface steam, which has been heated by the internal heat of the earth, to spin turbine-generators.

Green power: generally refers to renewable power resources, including thermal and photovoltaic solar, hydro-electric, wind, geothermal and biomass power plants.

Grid: a system of interconnected power lines and generators that is managed so that the generators are dispatched as needed to meet the requirements of customers connected to the grid at various points. The grid is interconnected to ensure reliability of the system when generating units fail.

Hazardous air pollutants: air pollutants that occur at relatively low concentrations and are believed to have carcinogenic or other health effects, but for which no ambient air quality standards have been established under federal law. Similar to state toxic air contaminants.

Hydroelectric plant: A generating facility that uses the kinetic energy of flowing water to produce electrical energy.

Impingement: the process of aquatic organisms colliding with, or being pinned to, cooling water intake screens.

Independent System Operator (ISO): a state entity created by AB 1890 to provide nondiscriminatory transmission access, the ISO is responsible for the operation, control and reliability of the statewide transmission system under restructuring. The ISO maintains instantaneous balance of the grid system by controlling the dispatch of flexible plants to ensure that loads match resources available to the system. It is regulated by the Federal Energy Regulatory Commission (FERC).

Inframarginal: describes plants that have operating costs below the market clearing price and therefore their operations are insensitive to how the market clearing price might change.

Investor-owned utility (IOU): an electric utility company owned by individual and institutional stockholders, such as Pacific Gas & Electric, as compared to municipal utilities, which are owned by public entities, such as the City of Santa Clara.

Islanding: term used to describe a temporary separation or isolation of transmission grid areas due to system disturbances, such as outages or current fluctuations. Islanding can occur automatically or manually by the operator. Islanded areas must generate their own electricity as long as they remain cut off from the grid.

Kilowatt-hour (kWh): a measure of electric energy, equivalent to the energy created by generating 1 kilowatt of power for one hour, or 10 kilowatts for 6 minutes, etc.

Load (electric): The amount of electric power delivered or required at any specific point or points on a system. The requirement originates at the energy consuming equipment of the consumers.

Load-following: (or “cyclical”) a manner of power plant operation that roughly follows the daily and seasonal electrical demand; i.e., at highest output levels during daytime peaks, and at lowest or zero output levels during nighttime lows (in contrast to “baseload” operation).

Market power: the ability of one or a few entities to manipulate or control the market by, for example, withholding generation from the market in order to artificially inflate the price of power.

Mitigation measures: actions that would eliminate or reduce environmental impacts.

Must-run: the designation given to a power plant or generating unit that must remain on-line during specific times in order to maintain the reliability of the grid in a given geographical area. Prior to restructuring, the CPUC determined must-run designations; in the restructured electric industry, the Independent System Operator (ISO) now has the authority to determine which generators are designated as must-run. A must-run unit is subject to a contract between the unit owner and the ISO that, in return for certain payments, entitles the ISO to call upon the owner to run the unit or to provide ancillary services when needed to maintain electrical system reliability

Must-take: refers to generation that, for a variety of reasons, must be purchased by the local utility. Reasons are generally contractual – such as the mandatory purchase by utilities of power produced by qualifying facilities (QFs) under PURPA -- or because of the nature of the power plant, such as nuclear plants that run at full power 24 hours per day because of physical limits that prevent rapid increases or decreases of power levels.

Net generating capacity: the amount of power a generating unit can put into the electric grid; a plant’s net generating capacity is equal to the rated generating capacity of the generators in the plant minus the amount of power needed for the various electric components of the plant, such as pumps and heaters.

Non-spinning reserve: the portion of idle generating capacity (controlled by the ISO) capable of being loaded in 10 minutes and operated for at least two hours, or load that can be interrupted (de-energized) in 10 minutes.

Non-utility generator (NUG): a generation facility owned and operated by an entity that does not meet the definition of a utility company in Section 218 of the state utility code.

North American Electric Reliability Council (NERC): an organization made up of electric utilities and other electricity providers that promotes the reliability of the electricity supply for North America by coordinating operations of utilities and other suppliers, reviewing the past for lessons learned, monitoring the present for compliance with policies, standards, principles and guides, and assessing the future reliability of the bulk electric systems.

Office of Ratepayer Advocates (ORA): an independent division within the California Public Utility Commission that represents residential ratepayers in proceedings before the commission.

Operating reserve: the combination of spinning and non-spinning reserve required to meet WSCC and NERC requirements for reliable operation of the grid.

Phase I Environmental Assessment: A field study that depends upon existing records and site documentation to determine whether a property or parcel might have impaired environmental conditions. Typically performed prior to, or as due diligence for, a transfer of ownership or refinancing.

Phase II Environmental Assessment: A field study that employs sampling and testing of soils, water, or other materials to determine whether a property has impaired environmental conditions. Typically performed as a follow-up to a Phase I Environmental Assessment.

Photovoltaic energy: electrical energy converted directly from sunlight using solar photoelectric cells.

Power Exchange (PX): the state entity created by AB 1890 that establishes a competitive spot market for electric power through electronic day- and hour-ahead auctions that match generation and demand bids.

Power grid: see “Grid.”

Public Utilities Regulatory Powers Act of 1978 (PURPA): a federal law that, among other things, requires utilities to purchase electric power from plants designated as “qualifying facilities” (QFs).

Qualifying facility (QF): a designation under PURPA that allows the designated plant to sell output to the local utility at avoided cost rates. To become a QF, the independent power supplier has to produce electricity with a specified fuel type (cogeneration or renewables) and meet certain ownership, size, and efficiency criteria established by the Federal Energy Regulatory Commission.

Ramping: changing the loading level of a generator in a constant manner over a fixed time (e.g. “ramping up” or “ramping down”), directed by computer or manual control.

Reliability: Electric system reliability is defined by several criteria: the availability of sufficient electric power generation to meet growing customer demand; the time required to restore power to customers following an outage; and the ability of the system to withstand sudden disturbances such as electric short circuits or unanticipated loss of system facilities (which relates to the degree of built-in system redundancy to handle such unexpected problems).

Renewable energy or power: any source of electric generation that uses naturally replenishable resources. They are virtually inexhaustible in duration but limited in the amount of energy that is available per unit of time. Some (such as geothermal and biomass) may be stock-limited in that stocks are depleted by use, but on a time scale of decades, or perhaps centuries, they can probably be replenished. Renewable energy resources include biomass, hydro, geothermal, solar, and the wind. In the future they could also include the use of ocean thermal, wave, and tidal action technologies.

Repowering: the process of replacing or refurbishing a power plant unit using new or updated technology.

Risk Assessment: A formal study that assesses the human health risk of a potential hazard.

Special status species: Several species known to occur within the general region of the project area are accorded “special status” because of their recognized rarity or vulnerability to habitat loss or population decline. Some of these species receive specific protection in federal and/or state endangered species legislation. Others have been designated as “sensitive species” or “species of special concern” on the basis of adopted policies of federal, state, or local resource agencies. These species are referred to collectively as “special status species.”

Spinning Reserve: the portion of unloaded but running generating capacity (controlled by the ISO) that can be loaded in 10 minutes and run for at least two hours.

Steam stacking: term used to describe a buildup of steam pressure in a geothermal field due to a temporary slowdown in use of the steam wells. The steam buildup may result in an unscheduled release of steam from the field to release the excess pressure.

Stranded costs: investment costs that a utility cannot recover in an open, competitive market due to technological changes or other factors.

Substation: an electric utility system component generally consisting of one or more step-down transformers, which convert the high voltages carried over the transmission system to the lower voltages used in the distribution system, and switching equipment that isolates problems and routes electric energy to the desired portion of the distribution system.

Synchronous condenser: an electrical device that increases the power factor on the grid by reducing circulating currents. (Circulating currents are created by the expanding and collapsing of magnetic fields within electric motors and transformers, and do not produce real work. They are called circulating because they merely run back and forth between generators and loads, creating heat and limiting the amount of real power than is transmitted over a conductor.) A synchronous condenser generally consists of a generator that has been converted to a motor by disconnecting it from the turbine shaft. Operators reduce circulating currents by adjusting the field excitation to the condenser.

Thermal discharge: waste heat from power plant operations that is released into the environment. Usually refers to water that is pumped from a nearby body, such as the San Francisco Bay or the San Joaquin River, for use as condenser cooling water, where it picks up heat and then is discharged back into the water body. The heated water thus adds thermal energy to the water body, which may have an effect on the local ecosystem.

Thermal plant: A generating facility that uses a heat source to generate electrical energy.

Toxic air contaminants: air pollutants that occur at relatively low concentrations and are believed to have carcinogenic or other health effects, but for which no ambient air quality standards have been established under State law. Similar to Federal hazardous air pollutants.

Transformer: an electrical device with many coils of wire around a solid core, used to reduce (step-down) or boost (step-up) voltages for use in transmission and distribution systems.

Transmission congestion: an operating condition reached when too many generators attempt to use a portion of the grid and power flows cannot be physically accommodated by the system.

Transmission system: a network of high voltage circuits that carry power from electricity generating plants to distribution substations, where voltage is reduced for delivery through the distribution system to homes, businesses and farms.

Unbundled services: separation of generation, transmission, distribution, and other services and programs, as opposed to bundled service, where all needed electric services are provided in one package at one rate.

Utility Distribution Companies (UDCs): the entities that will continue to provide regulated services for the distribution of electricity to customers and serve customers who do not choose direct access. Regardless of where a consumer chooses to purchase power, the utility that served the customer prior to restructuring (now called a UDC), will continue to deliver the power to the consumer's home, business or farm. The local utility or UDC will also be responsible for the reliability and maintenance of the power lines and poles that connect homes and businesses to the statewide transmission grid.

Western Systems Coordinating Council (WSCC): one of 10 regional reliability councils in the North American Electric Reliability Council (NERC), responsible for maintaining the reliability of the electric system in the Western half of North America (including parts of Mexico and Canada).

8.2 ACRONYMS USED IN THIS EIR

AB: Assembly Bill

ABAG: Association of Bay Area Governments

AGC: Automatic Generation Control

A-Max: analytical maximum

APCD: Air Pollution Control District

AQMD: Air Quality Management District

AQMP: Air Quality Management Plan

AST: aboveground storage tank

BAAQMD: Bay Area Air Quality Management District

BACT: Best Available Control Technology

BARCT: Best Available Retrofit Control Technology

BARR: Bay Area Reliability Requirements

BCDC: San Francisco Bay Conservation and Development Commission

bgs: below ground surface

BLM: Bureau of Land Management

BMP: Best Management Practices

BRPU: Biennial Resource Planning Update

BTA: best technology available

BTU: British Thermal Unit

- Cal EPA:** California Environmental Protection Agency
- CAPCOA:** California Air Pollution Control Officers Association
- CARB:** California Air Resources Board
- CCFCD:** Contra Costa Flood Control and Water Conservation District
- CCWD:** Contra Costa Water District
- CDF:** California Department of Forestry
- CDFG:** California Department of Fish and Game
- CDM:** Camp, Dresser & McKee
- CDOG&GR:** California Division of Oil, Gas and Geothermal Resources
- CDWR:** California Department of Water Resources
- CEC:** California Energy Commission
- CERCLA:** U.S. Comprehensive Environmental Response, Compensation and Liability Act
- CIEDARS:** California Emission Inventory Development and Reporting System
- CEQA:** California Environmental Quality Act
- CESA:** California Endangered Species Act
- CHMRIS:** California Hazardous Material Incident Report System
- CHS:** California Department of Health Services
- CNPS:** California Native Plant Society
- CO:** carbon monoxide
- CO₂:** carbon dioxide
- CPUC:** California Public Utility Commission
- CT:** combustion turbine

CTC: Competition Transition Charge

CVRWQCB: Central Valley Regional Water Quality Control Board

dB: decibel

dba: A-weighted decibel

DDSD: Delta Diablo Sanitation District

DOGGR: California Division of Oil, Gas and Geothermal Resources

DTSC: California Department of Toxic Substances Control

du: dwelling unit

EBRPD: East Bay Regional Park District

Edison: Southern California Edison Company

EIR: Environmental Impact Report

EIS: Environmental Impact Statement

EMF: electromagnetic field

EPA: U.S. Environmental Protection Agency

EPCRA: Emergency Planning and Community Right-to-Know Act

FERC: Federal Energy Regulatory Commission

FESA: Federal Endangered Species Act

FTP: fallout-type particulate

G&A: general and administrative

GAMP: Geysers Air Quality Monitoring Program

gpd: gallons per day

GSFBA: Greater San Francisco Bay Area

GWMP: Groundwater Master Plan

HAPs: Hazardous Air Pollutants

HCP: Habitat Conservation Plan

HRSG: Heat-recovery steam generation

HWIS: Hazardous Waste Information System

H₂S: hydrogen sulfide

IOU: investor-owned utility

IDR: Identified Deferrable Resource

ISO: Independent System Operator

KGRA: Known Geothermal Resource Area

kV: kilovolt

kW: kilowatt

kWh: kilowatt-hour

LBL: Lawrence Berkeley National Laboratory

LCAQMD: Lake County Air Quality Management District

L_{dn}: day-night average noise level

L_{eq}: energy-equivalent noise level

MACT: maximum achievable control technology

MCE: maximum credible earthquake

MEI: Maximally Exposed Individual

MMRA: Master Multi-Run Agreement

MOU: Memorandum of Understanding

MVA: MegaVolt-Amperes

MW: megawatt

NCPA: Northern California Power Agency

NERC: North American Electric Reliability Council

NH₃: ammonia gas

NH₄OH: ammonia in water solution

NMFS: National Marine Fisheries Service

NOP: Notice of Preparation

NO₂: nitrogen dioxide gas or nitrous oxide

NO₃: nitrogen trioxide gas or nitric oxide

NOx: a mixture of nitrogen oxide gases

NPDES: National Pollutant Discharge Elimination System

NRCS: Natural Resource Conservation Service

NSCAPCD: Northern Sonoma County Air Pollution Control District

O&M or O/M: operation and maintenance

ORA: Office of Ratepayer Advocates

OSHA: Occupational Safety and Health Administration

PAHs or PNAs: polycyclic aromatic hydrocarbons

PCBs: polychlorinated biphenyl compounds

PDEF: Pittsburg District Energy Facility

PG&E: Pacific Gas & Electric Company

PM-10: particulate matter, less than 10 microns in diameter

PM-2.5: particulate matter, less than 2.5 microns in diameter

POTW: Publicly Owned Treatment Works

ppm: Parts per Million

PURPA: Public Utilities Regulatory Powers Act

PX: Power Exchange

QF: Qualifying Facility, under PURPA

RACT: Reasonable Available Control Technology

RCRA: Federal Resource Conservation and Recovery Act

RMP: Resource(s) Management Plan

RMRA: Reliability Must Run Agreement

ROG: reactive organic gases

RTA: Regional Transmission Association

RWMP: Recycled Water Master Plan

RWQCB: Regional Water Quality Control Board; typically the San Francisco Bay RWQCB

SARA: Superfund Amendments and Reauthorization Act

SCR: selective catalytic reduction

SDG&E: San Diego Gas & Electric Company

SFBRWQCB: San Francisco Bay Regional Water Quality Control Board

SFOC: San Francisco Operation Criteria

SIP: State Implementation Plans

SMUD: Sacramento Municipal Utility District

SO₂: sulfur dioxide gas

SO₃: sulfur trioxide gas

SOx: a mixture of sulfur oxide gases

SPCC: Spill Pollution Control and Countermeasures

SWPPP: Storm Water Pollution Prevention Plan

TAC: Toxic Air Contaminants

TANC: Transmission Agency of Northern California

T&D: transmission and distribution

TPCA: State Toxic Pits Cleanup Act

TPH: total petroleum hydrocarbons

TSCA: Federal Toxic Substances Control Act

TSD: hazardous waste treatment, storage, or disposal facility

TURN: The Utility Reform Network

UEG: Utility Electric Generator

µg/m³: micrograms per cubic meter

UNT: UnoCal, NEC, and Thermal Power

UP: Union Pacific

USFWS: United States Fish and Wildlife Service

USGS: United States Geological Survey

UST: underground storage tank

VMT: vehicle miles traveled

VSD: variable speed drive

VOCs: volatile organic compounds

WAPA: Western Area Power Administration

WDR: waste discharge requirement

WPCP: water pollution control plants

WRTA: Western Regional Transmission Association

WSCC: Western System Coordinating Council

WSPP: Western Systems Power Pool