# Glossary

## ENGINEERING TERMS

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| **Auxiliary Load** | The difference between the gross generation as measured at the electric generators output and the net generation delivered to the electric grid at the point of interconnection. The auxiliary load is the electric load necessary to operate a generating unit, e.g., pumps, fans, controls, etc. |
| **Balancing Area** | A geographic area defined by the interconnected transmission/distribution systems (which may be owned/operated by different entities) that are managed by the Balancing Authority. The boundaries of the Balancing Area are defined by the points of interconnection to other Balancing Areas. The generation within a Balancing Area must be constantly adjusted so that the sum of the power generated within the Balancing area, plus power imported into the Balancing Area, less the power exported from the Balancing Area, less the load within the Balancing Area is maintained at zero, e.g., in balance. For the Grayson project, the Balancing Area is composed of Los Angeles Water and Power, Glendale Water & Power, and Burbank Water & Power. |
| **Balancing Authority** | The responsible entity that integrates resource plans ahead of time, maintains load-interchange-generation balance within a Balancing Authority Area, and supports Interconnection frequency in real time. Los Angeles Department of Water and Power is the Balancing Authority for the Project area. |
| **Blow Down** | The removal of a continuous or intermittent stream of water from a Heat Recovery Steam Generator or cooling tower to remove the dissolved impurities and maintain the required water/steam quality requirements. |
| **Boiler Building** | A building containing mechanical and electrical equipment used to heat water and produce steam to be used in a steam turbine for power generation. |
| **Combined Cycle Unit** | Combined cycle units utilize both the electricity produced by a combustion turbine generator as well as the high temperature exhaust gases which are used to produce boil water and produce steam, which is then supplied to a steam turbine to generate additional electric power |

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| | without requiring additional fuel. Combined Cycle Units are nearly twice as efficient as simple cycle plants, but take more time to get to full load. |
| **Combustion Turbine Generator (CTG)** | A combustion turbine draws air into the engine, compresses it, which then flows into the combustors. Fuel (natural gas) is mixed with the compressed air and ignited. The hot exhaust gas then flows into a turbine that is mechanically connected to and drives the compressor. The same shaft also drives the electrical generator.<br><br>This is the same technology as used for the engines on a jet airplane. Unlike an airplane, since combustion turbine generator is on the ground where weight, size, and shape are less of a concern, the combustion process and exhaust gases are treated to produce far cleaner engine exhaust. |
| **Contingency** | Planning for the unexpected failure or outage of a system component, such as a generator, transmission line, circuit breaker, switch or other electrical element. |
| **Continuous Emission Monitoring Systems (CEMS)** | A system for measuring and reporting on a real-time continuous basis the combustion turbine exhaust emissions to the South Coast Air Quality Management District, the regulatory body that reviews the project and issues the air permit. |
| **Cooling Tower** | A device used to cool water that is used in the power plant to cool various pieces of equipment, the largest of which is the condenser which is used to condense the exhaust steam from the steam turbine back into water for re-use in the HRSG. |
| **Dispatchable Generation** | Generating units that can start, change load, and shut down as needed on a 24/7 basis to serve electric load without being constrained by their fuel source. |
| **Electric Bus** | Refers to a high electric current duty portion of an electric distribution where a source of power feeds multiple loads. Typically, the loads will have their electric breaker to protect the bus and other electric loads from a fault on any load. Functionally equivalent to the distribution panel in a home. |
| **Frequency Deviation** | The degree to which the alternating current electrical system frequency deviates from 60 Hz due under-generation (<60 HZ) or over-generation (>60 Hz). An excessive frequency deviation, typically <1 Hz, will lead to load shedding and other remedial actions. At 57.9 Hz electric systems will separate from each other per WECC criteria. |

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| **Fuel Gas Compressors** | A device for increasing the pressure of the natural gas fuel so it can flow into the combustors of the combustion turbine. The fuel gas pressure must be higher than the pressure of the compressed air produced by the compressor section of the combustion turbine. |
| **Gross Output** | The electrical output of an electrical generator measured at the generator terminals. |
| **Heat Recovery Steam Generator (HRSG)** | Is an energy recovery heat exchanger that recovers heat from the hot gas stream of the combustion turbine to produce steam that can then be used to drive a steam turbine |
| **Linear Facilities** | Structures that follow an alignment between two ends such as a transmission line, pipeline, or roadway. |
| **Load-Following** | Adjusting power output as demand for electricity fluctuates throughout the day. Load following plants are typically in-between base load and peaking power plants in efficiency, speed of startup and shutdown, construction cost, cost of electricity and capacity factor. |
| **Load Serving Entity** | An entity that is responsible for securing energy and transmission service to serve the electrical demand and energy requirements of its end-use customers. |
| **Load-Shifting Battery** | A battery energy storage system used to store energy to be used at a later time (typically hours later). The battery is charged when there is excess energy available and discharged during periods when there is a high demand on the electric system or inadequate generation resources are available. |
| **Net Output** | The electrical output of a Unit delivered to the electrical system measured at the point of interconnection. The Net Output is equal to the Gross Output of the generator(s) less electrical power consumed within the Unit for pumps, fans, and other electrical loads as well as electrical losses in transformers and cabling. |
| **Non-Spinning Reserve** | The non-spinning reserve or supplemental reserve is the extra generating capacity that is not currently connected to the system but can be brought online within 10 minutes. In isolated power systems, this typically equates to the power available from fast-start generators. However, in interconnected power systems, this may include the power available on |

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| | short notice by importing power from other systems or retracting power that is currently being exported to other systems. |
| **Power Block** | The primary collection of equipment within a power plant unit that converts fuel into thermal and mechanical energy and in turn into electricity. |
| **Power Plant Repowering** | The process of upgrading an older power plant, in part or in whole, with new equipment to improve efficiency and reliability, while reducing environmental impacts through reduced air emissions and water usage. |
| **Reactive Power Support** | The portion of electricity that establishes and sustains the electric and magnetic fields of alternating-current equipment. Reactive power must be supplied to most types of magnetic equipment, such as motors and transformers. It also must supply the reactive losses on transmission facilities. Reactive power is provided by generators, synchronous condensers, or electrostatic equipment such as capacitors and directly influences electric system voltage. It is usually expressed in kilovars or megavars. |
| **Regulation Battery** | A battery energy storage system used to balance short-term imbalances between the generation in service and the electric load. The battery can serve as a load (charging) if there is excess generation and serve as an additional source of generation if there is excess load. Longer-term imbalances are addressed by adjusting the amount of generation in service or shedding load as a last resort. |
| **Reliability Requirements** | The mandatory and enforceable standards for electricity reliability required by Section 215 of the Federal Power Act. |
| **Selective Catalytic Reduction (SCR)** | An air emissions control technology system that injects a reductant agent (typically dilute aqueous ammonia) into the exhaust stream of a combustion unit and hence through a special catalyst to reduce nitrogen oxide pollutant concentrations. |
| **Shed-Load** | The action, either manually or as part of an automatic scheme, to disconnect load from the electric system to bring the load into balance with the available generation. Load shedding can result in customers being involuntarily disconnected on a temporary basis. |
| **Simple Cycle Unit** | A power plant that uses a combustion turbine to drive a generator to produce electrical power. Similar to the engines seen under the wing of an airplane, instead of producing thrust to push an airplane through the air, the power is used to drive an electrical generator. Like the engines |

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| | on an airplane, the combustion turbine can start quickly and go to full power, several times a day if needed, quickly providing energy to the electric system. |
| **Single Largest Contingency** | The planned unexpected failure or outage of a system's largest electrical component. |
| **Spinning Reserve** | The spinning reserve is the reserve or additional generating capacity that is available by increasing the power output of generators that are already operating and connected to the power system. For most generators, this increase in power output is achieved by increasing the torque applied to the turbine's rotor. |
| **Steam Turbine Generator** | A Steam Turbine Generator is a device that uses the high temperature, high pressure steam from the Heat Recover Steam Generator and expands it through the turbine section that then rotates a shaft driving an electrical generator and producing electricity. The 'spent' steam in then condensed back into water that is then re-circulated back to the Heat Recovery Steam Generator to again produce steam. |
| **Transformers** | A device that increases or decreases the voltage in an electrical system. As electrical power is transmitted more efficiently at higher voltages, transformers are used to increase the voltage of the generated electricity so it can be distributed efficiently throughout the City. Transformers are also used to reduce the voltage of the generated electricity for use to power motors to drive pumps and fans in the power plant. |
| **Voltage Regulation** | The voltage regulation is the percentage of voltage difference between no load and full load voltages of a transformer with respect to its full load voltage. |
| **Water Treatment Facility** | A system consisting that will clean up the recycled water to a much higher quality for use in the HRSG and other power plant water applications where demineralized water is required. |

## ENVIRONMENTAL TERMS

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| **Best Available Control Technology** | Means an emission limitation based on the maximum degree of reduction of each pollutant subject to regulation under this Act emitted from or which results from any major emitting facility." |
| **City of Glendale local CEQA Guidelines** | The City of Glendale's adopted local CEQA Guidelines as set forth in the document entitled "City of Glendale and Glendale Housing Authority Guidelines for implementing the California Environmental Quality Act" as amended November 1, 2016. |
| **Emission Reduction Credits** | A reduction in pollution that is equal to one emission unit. A company that reduces its pollution can sell its emission credits to companies that fail to reduce their pollution: If a company fails to meet its emission-reduction target, it will need to buy additional emission credits to cover its excess emissions. |
| **New Source Review** | The New Source Review is a permitting process created by the US Congress in 1977 as part of a series of amendments to the Clean Air Act. |
| **Prevention of Significant Deterioration** | The Prevention of Significant Deterioration, or PSD, permit program was developed by the United States Congress to prevent significant environmental impacts on "attainment areas" from large industrial sources of air pollution. |
| **Priority Reserve** | A Priority Reserve is established to provide credits for specific priority sources. |
| **Repowering** | Repowering is a common term among electric utilities that refers to rebuilding power plants by taking an old generating unit out of commission, dismantling it, and building a new, modern one at the same plant. The repowered units are more energy efficient, create less emissions, and increase reliability of the power grid. |