Appendix F

Glossary of Energy and Global Warming Terms

Average Megawatt (aMW)—An average megawatt is 8,760 megawatt hours. This is the continuous output of a resource with one megawatt of capacity over a full year. One aMW provides enough electric energy for about 730 Oregon homes for one year.

Biofuels—Alcohols, ethers, esters, and other chemicals made from raw biological material such as herbaceous and woody plants, agricultural and forestry residues, and a large portion of municipal solid and industrial waste.

Biological Sequestration—The fixation of atmospheric carbon dioxide in a carbon sink through physical or biological processes, such as photosynthesis. Also called bio-sequestration or carbon sequestration.

Biomass—Organic waste that is considered a renewable energy source. It includes organic waste from agricultural, livestock and lumber industry products, dead trees, and foliage, etc. Biomass can be used as fuel and is most often burned to create steam that powers steam turbine generators. It also is used to make transportation fuels like ethanol and biodiesel.

Btu—British thermal unit; the amount of heat required to raise the temperature of one pound of water one degree Fahrenheit under stated conditions of pressure and temperature (equal to 252 calories, 778 foot-pounds, 1,005 joules and 0.293 watthours). It is the U.S. customary unit of measuring the quality of heat, such as the heat content of fuel.

Carbon Dioxide Offset—A mechanism by which the impact of emitting a ton of CO_2 can be negated or diminished by avoiding the release of a ton elsewhere or by absorbing a ton of CO_2 from the air that otherwise would have remained in the atmosphere.

Carbon Sequestration—See Biological Sequestration.

Carbon Sink—A reservoir that absorbs or takes up released carbon from another part of the carbon cycle. Vegetation and soils are common carbon sinks.

CH_4—Methane, a greenhouse gas.

CHP—Combined Heat and Power. See Cogeneration.

CO—Carbon Monoxide, a pollutant regulated by the federal Clean Air Act.

CO_2—Carbon Dioxide, a greenhouse gas.

Cogeneration—Also called combined heat and power. The generation of electrical and thermal energy where both forms of energy are put to productive use. The addition of cogeneration capability to generating facilities and industries that produce large amounts of heat energy helps ensure that waste heat (usually in the form of hot water or steam) is used efficiently for heating, industrial use, agriculture or conversion into electricity.

Cooperative Electric Association or Utility—Utility owned and operated by its members.

Consumer-Owned Utilities (COUs) —A term that includes municipal electric utilities, people's utility districts (PUDs) and rural electric cooperatives.

Demand—The rate at which electric energy is delivered to or by a system or part of a system, generally expressed in kilowatts (kW), megawatts (MW), or gigawatts (GW) at a given instant.

Distillate Fuel Oil—Light fuel oils distilled during the refining process and used primarily for space heating, on-and-off highway diesel engine fuel (including railroad engine fuel and fuel for agricultural machinery), and electric power generation.

Distribution—The delivery of electricity to the retail customer's home or business through low voltage distribution lines.

DOE—U.S. Department of Energy. Also called USDOE. See Oregon Department of Energy (ODOE).

Electric Energy—The generation or use of electric power by a device over a period of time, expressed in kilowatt-hours (kWh), megawatt-hours (MWh), or gigawatt-hours (GWh).

Energy Conservation—Using less energy, either by greater energy efficiency or by decreasing the types of applications requiring electricity or natural gas to operate.

Energy Efficiency—Using less energy (electricity and/or natural gas) to perform the same function at the same level of quality. Programs designed to use energy more efficiently (doing the same with less).

EPA—U.S. Environmental Protection Agency.

Fossil Fuels—Sources of carbon-based energy from the earth, primarily crude oil, natural gas and coal.

Fuel Switching—The substitution of one type of fuel for another, either temporary or permanent. Permanent might include someone who replaces an electric water heater with a gas-fired water heater.

Geothermal Energy—The energy from the internal heat of the earth; it may be residual heat, friction heat, or a result of radioactive decay. The heat is found in rocks and fluids at various depths and can be extracted by drilling or pumping.

Green Tags—Certificates or tags created when a renewable energy facility generates electricity. Each green tag represents all of the environmental attributes or benefits of a specific quantity of renewable generation. Those include the benefits that everyone receives when conventional fuels, such as coal, oil or gas are displaced.

Greenhouse Effect—This effect is the result of the mixture of gases in the atmosphere that surrounds the earth. This mixture traps, as heat, some of the solar energy that enters the atmosphere, maintaining a temperature range within certain limits that sustains life on the planet as we know it. Without this natural effect, scientists estimate that temperatures would be over 50 degrees F. cooler, too cold to be habitable. Conversely, too thick a mixture, or "blanket," of these greenhouse gases can overheat the surface of the earth and affect habitability.

Greenhouse Gases (GHGs)—Molecules in the atmosphere that affect the radiative properties of the atmosphere and thereby the global climate. GHGs include water vapor, carbon dioxide, tropospheric ozone, nitrous oxide, methane, and numerous types of halons, such as chlorofluorocarbons (CFCs), hydrofluorocarbos (HFCs), hydroclorofluorcarbons (HCFCs), perfluorocarbons (PFCs) and sulfur hexafluroride (SF_6).

Grid—A system of interconnected power lines and generators that is managed so that power from generators is dispatched as needed to meet the requirements of the customers connected to the grid at various points.

Intelligent Transportation Systems (ITS)—To make travel through and around areas safer and more efficient, ITS uses electronics, computers and communications equipment to collect information, process it, and take appropriate actions. ITS technologies can monitor traffic, manage traffic flow, provide alternate routes to travelers, manage incidents and provide other beneficial uses.

Investor Owned Utility (IOU)—Common term for a privately owned (shareholder owned) gas or electric utility regulated by the Oregon Public Utility Commission.

Kilowatt (kW)—A measure of power delivered (rate of energy flow). It is used to measure the peak use for commercial or industrial utility customers, generally billed on the customer's peak monthly demand.

Kilowatt-hour (kWh)—This is a measure of electric energy consumption over a specified time period (cumulative energy flow), typically a one-month period for billing purposes. Customers are charged a rate per kWh of electricity used.

Liquefied Natural Gas (LNG)—Natural gas (primarily methane) that has been liquefied by reducing its temperature to minus 260 degrees Fahrenheit at atmospheric pressure.

Load—Amount of power that must be generated at power plants to serve customer electric demands. It must account for the amount of power that customers use and the amount lost in the transmission and distribution system. The amount generated is measured in kilowatts (kW) or megawatts (MW).

Load-based Greenhouse Gas Allowance Standard—A limitation placed on the greenhouse gas emissions associated with the energy deliverer (e.g., usually by an electric or gas utility, but potentially any large emitter of greenhouse gases). The standard governs the amount of carbon dioxide (or all greenhouse gases) that can be released in connection with an amount of energy generated to serve customer loads (a residence, business or institution that uses energy).

Methane—CH_4. A greenhouse gas formed from decaying organic matter, including animal waste. It is the primary component of natural gas.

Municipal Utility—Electric utility owned and operated by a city or chartered by a city.

Megawatt (MW)—A megawatt equals 1,000 kilowatts or 1 million watts.

Megawatt-hour (MWh)—A megawatt-hour; the unit of energy equal to that expended in one hour at a rate of one million watts. One MWh equals 3,414,000 Btu.

N_2O—Nitrous Oxide, a greenhouse gas.

NOx—Nitrogen Oxides, pollutants regulated by the federal Clean Air Act.

Northwest Power and Conservation Council (NPCC)— Through the Northwest Power Act of 1980, the U.S. Congress authorized Idaho, Montana, Washington and Oregon to create, as an interstate compact, the Pacific Northwest Electric Power and Conservation Planning Council (now known as the Northwest Power and Conservation Council). The Council is a planning and policy-making body that develops and maintains a regional power plan and a fish and wildlife program to balance the Northwest's environment and energy needs. The Governors of the Northwest states appoint Council members.

Offset—See Carbon Dioxide Offset.

Oregon Department of Energy (ODOE)—State agency created in 1975 to ensure Oregon has an adequate supply of reliable and affordable energy and is safe from nuclear contamination. The agency helps Oregonians save energy, develop clean energy resources, promote renewable energy and clean up nuclear waste. Formerly called the Oregon Office of Energy.

Oregon Public Utility Commission (OPUC or PUC)—The OPUC regulates customer rates and services of the state's investor-owned electric, natural gas and telephone utilities. The Commission does not regulate people's utility districts, cooperatives or municipal utilities except in matters of safety.

PV—Photovoltaic or solar electricity.

Peak Load or Peak Demand—The electric load that corresponds to a maximum level of electric demand within a specified time, usually a year.

People's Utility District—A body of local government that provides utility services, generally electricity and water, in a specified community area.

Public Purpose Charge—Portland General Electric and PacifiCorp must collect fees from consumers within their service areas that are equal to 3 percent of gross revenue as part of Oregon Senate Bill 1149 (1999). This money funds energy conservation, renewable energy, and weatherization and energy assistance to low-income households and public schools in their service territories.

Reliability—Electric system reliability has two components—adequacy and security. Adequacy is the ability of the electric system to supply the aggregate electric demand and energy requirements of the customers at all times, taking into account scheduled and unscheduled outages of system facilities. Security is the ability of the electric system to withstand sudden disturbances such as electric short circuits or unanticipated loss of system facilities. Reliability also refers to the security and availability of natural gas and petroleum supply, transportation and delivery.

Renewable Resources—Renewable energy resources are naturally replenished, but flow-limited. 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, direct solar and photovolatics, and wind. In the future they could also include the use of ocean thermal, wave, and tidal action technologies.

Telecommute (or Telework)—A program allowing an employee to work part-or full-time in a location other than the employer's main office. The program conserves fuel, relieves traffic congestion and improves air quality. The alternate location is often the teleworker's home.

Transmission—Transporting bulk power over long distances.

Utility—A regulated or public entity that exhibits the characteristics of a natural monopoly. In the electric industry, "utility" generally refers to a regulated, vertically integrated monopoly electric company or public body that delivers electricity. "Transmission utility" refers to the regulated owner/operator of the transmission system.

Watt—The unit of measure for electric power or rate of doing work. The rate of energy transfer equivalent to one ampere flowing under pressure of one volt.