Louisiana Electric Generation - 2007 Update

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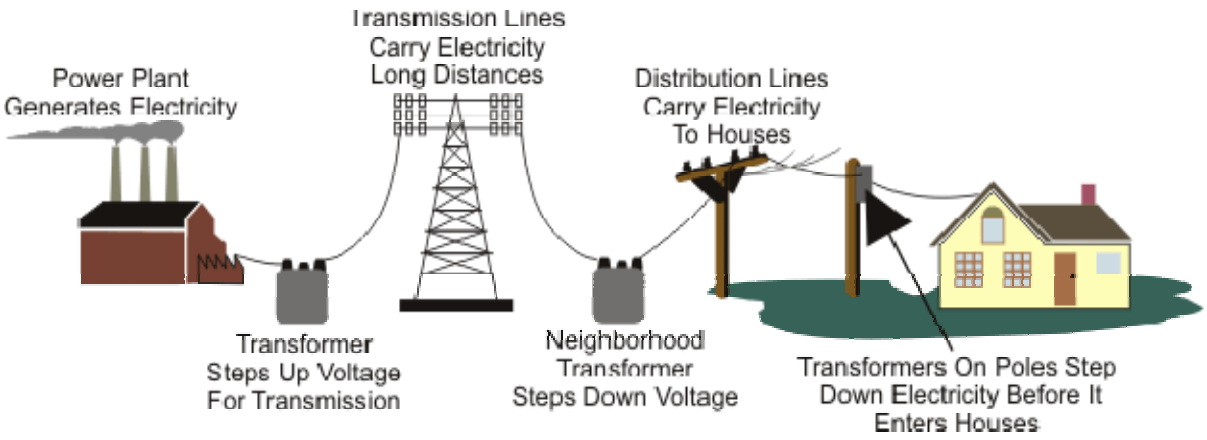
Electricity is available to consumers because utilities and nonutility electricity power producers operate electric generating units. The fuel sources for these generating units include fossil fuels (coal, natural gas and petroleum), uranium, and renewable fuels (water, geothermal, wind, and other renewable energy sources). Total electric power generation in the U.S. in 2005 was 4,055 billion kilowatthours (kWh). Coal was used to generate 49.7% of electricity in 2005. Nuclear generating units were the second largest contributor at 19.3%. Natural gas was used to generate 18.7% and petroleum generated 3.0% of the electricity. Of the renewables, water had the largest share at 6.5% with non-water renewables only about 2.7%. (These include geothermal, refuse, waste heat, waste steam, solar, wind, wood, blast furnace gas, batteries, and chemicals.)

Figure 1. Key Elements of the Electric Power Grid



SOURCE: EIA

Louisiana Electricity Generation

In 2005 58% of the generating capacity in Louisiana came from electric utilities and 42% came from independent power producers (IPP's) and cogeneration. The state had a net electricity generation capacity in 2005 of 92,616,878 megawatthours (MWh). The primary energy source for generating electricity in Louisiana is natural gas. However, of the ten largest plants (by generating capacity), five use natural gas as the primary energy source (Willow Glen, Nine Mile Point, Little Gypsy, Acadia Energy Center, Michoud), three use coal (Big Cajun 2, R. S. Nelson, Rodemacher) and two are nuclear generating plants (Waterford 3, Riverbend). The top five retailers of electricity are investor-owned utilities: Entergy Louisiana Inc., Entergy Gulf States Inc., Cleco Power LLC, Southwestern Electric Power Co., and Entergy New Orleans Inc. Louisiana has approximately 2,176,000 retail customers and the average retail price is 8.03 cents per kilowatthour.

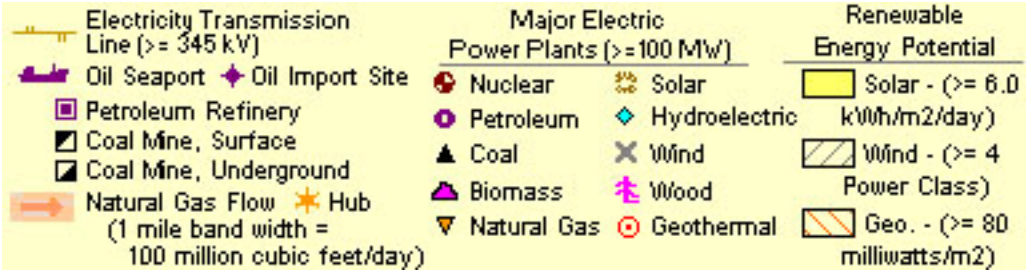
Louisiana's Electricity Generation by Primary Energy Source

Coal	12.9%
Petroleum	1.1%
Natural Gas	75%
Other Gases	0.2%
Nuclear	7.9%
Hydroelectric	0.7%
Other Renewables[1]	1.2%
Other	0.9%

SOURCE: EIA, 2005

Figure 2. Major Electric Power Plants in Louisiana

LEGEND:



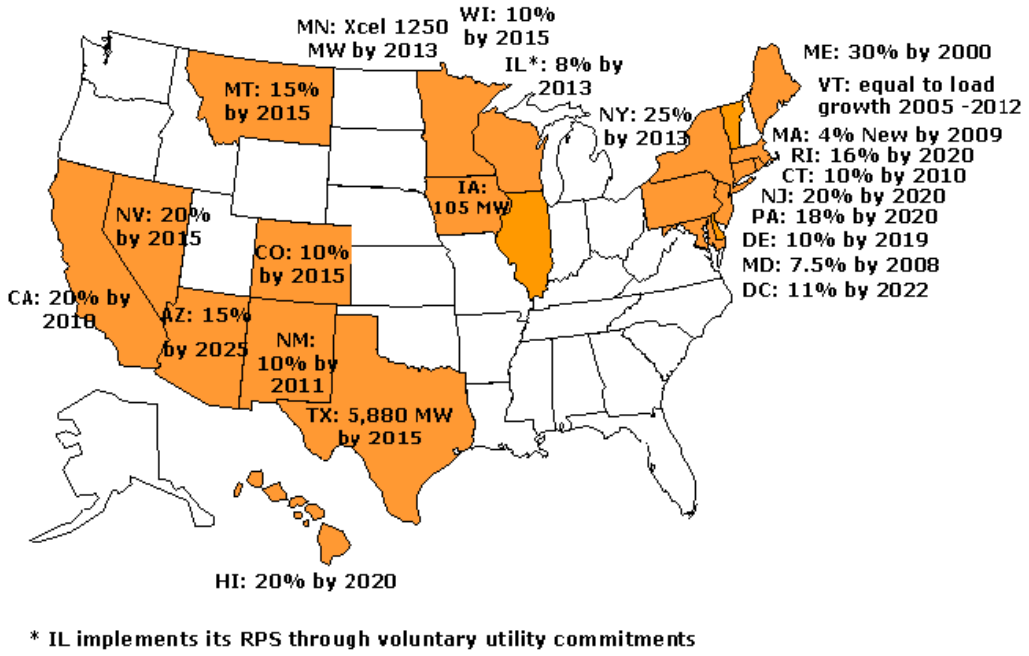
SOURCE: EIA

Electricity Generation From Renewable Resources

[1] "Other Renewables" includes wood, black liquor, other wood waste, municipal solid waste, landfill gas, sludge waste. Tires, agriculture byproducts, other biomass, geothermal, solar thermal, photovoltaic energy and wind.

A Renewable Portfolio Standard (RPS) is a requirement that a certain portion of the electricity sold by utilities be generated from a renewable resource by a certain date. The standards as well as the definitions of renewable energy vary. Twenty-two states and the District of Columbia have set standards.

Figure 3. States with Renewable Portfolio Standards Enacted



A renewable energy technology does not rely on fossil fuels. It relies on an energy source that is naturally regenerated such as: sun light (solar), wind, elevated water (hydro), plants that will grow in a sustainable manner (biomass), or hot water trapped in the earth's crust that is or can be supplied continuously (geothermal).

There is no national renewable portfolio standard so the states are free to establish their own RPS standards, and the requirements are different. Each state typically features renewable energy sources that are plentiful in that state or region. "Northeast states uniformly include wood-fired and small hydro projects. Some northern and upper Midwestern states allow larger hydro projects. Midwestern states explicitly include agricultural-related biomass. Coastal states include tidal or wave power projects."[2]

At the present time Louisiana does not have a Renewable Portfolio Standard (RPS). The Louisiana Public Service Commission (PSC) studied the feasibility of implementing a RPS, but concluded that it would increase electricity costs and decided against it. The PSC commissioned a study of "green pricing" as an alternative. The difference between a RPS and "green pricing" is that under an RPS the utility would have to supply a certain percentage of their power from renewable sources no matter what it cost, and the extra cost would be passed on to all customers in the fuel adjustment portion of the bill. Under the green pricing alternative the customer can elect to buy renewable energy, for a premium.

[2]Charles G. Willing Jr. Esq., "Renewable Portfolio Standards Programs," *Distributed Energy*, May/June 2005.

Louisiana's Green Pricing Pilot Program

The Louisiana Public Service Commission (PSC) accepted the PSC staff position paper of November 21, 2006, which describes a "Green Pricing" pilot program for the Entergy Gulf States territory in Louisiana (EGSILA). On January 11, 2007, the General Order was released (APPENDIX B). The PSC hopes to answer a number of questions through this trial. Are customers interested in green power? What is Louisiana's renewable energy potential? What is the cost of realizing Louisiana's renewable energy potential? Entergy Gulf States, Inc. (EGSI-LA) offered to host a trial program in its territory beginning April 1, 2007. Information about the "Geaux Green" pilot program is included in Appendix B.

The PSC staff recommended that the pilot program premium be on top of the regular rates including the fuel clause adjustment. They recommended that all renewables be allowed during the pilot, regardless of age. Only one renewable plant has been built in the last 10 years. A plant is under construction in St. Francisville, but will not be online during the trial.

The program is capped at 40,000 megawatthours (MWh)5 for the one year trial. EGSI-LA is permitted $500,000 for a targeted marketing campaign and administrative costs which is to be prorated over the maximum amount of power to be sold.

Generating Electricity with Nuclear Energy

Nuclear power is generated using the heat given off during nuclear fission.[3] Uranium, the fuel for nuclear generation, is abundant in North America. The waste products of nuclear power generation are spent fuels, other radioactive waste, and heat, but not carbon dioxide. There are 104 licensed nuclear reactors in the U.S. (Figure 4).[4] About 20% of the electricity produced in the U.S. comes from nuclear generation. In Louisiana, about 8% of the electricity is produced from nuclear generation.

Nuclear generation has been used in the U.S. for over 30 years and during that time there have been efficiency improvements such that the capacity factor for nuclear power plants has increased from 60% to 90% (Figure 2). However, no new reactors have been ordered since the 1970s. Cost overruns and increased regulatory oversight following the Three Mile Island accident were factors in ending construction of new nuclear facilities. The Three Mile Island Nuclear Station, Unit 2 (TMI-2) accident in 1979 was the most serious in U.S. commercial power plant history.[5] The TMI-2 reactor is shut down and defueled, however, the accident did not kill or injure anyone inside the plant or in the surrounding community. The regulation of the industry increased after the accident and the nuclear industry in the U.S. has had an excellent safety record since then.

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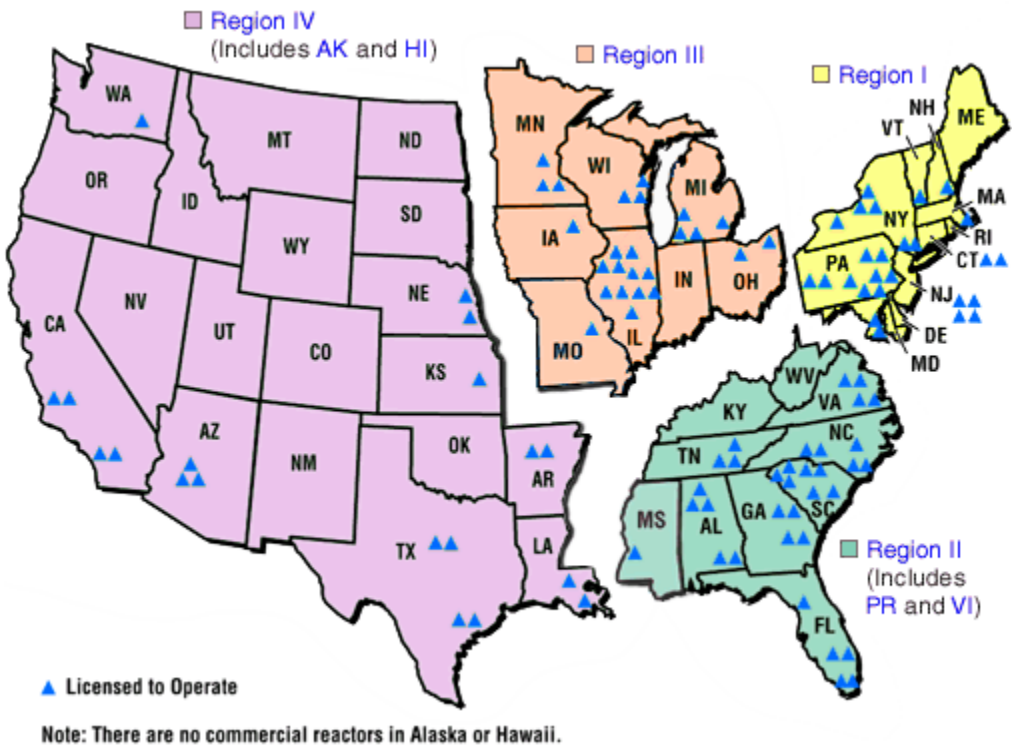
[3] "Energy in a nuclear reactor is derived from a process called nuclear fission, in which a neutron strikes the nucleus of a uranium atom and is absorbed. The absorption of the neutron makes the nucleus unstable, causing it to split into two atoms of lighter elements and release heat and new neutrons. The heat is used to produce electricity, while the neutrons can potentially be absorbed by other atoms of uranium, resulting in more nuclear fissions. This continuing process of fissioning is called a chain reaction. It is sustained because, for every atom of uranium fissioned by a neutron, new neutrons are released to continue the process." Source: Department of Energy (URL: http://www.eia.doe.gov/neic/infosheets/nuclear.html, accessed 2/23/2007).

[4] Brown's Ferry unit 1 reactor has been shut down since 1985.

[5] The Chernobyl accident in 1986 in the former Soviet Union was the most severe nuclear reactor accident to occur in any country.

Figure 4. Licensed Nuclear Plants in U.S.



Source: Nuclear Regulatory Commission

Nuclear Energy in Louisiana

Louisiana has two generating nuclear reactors. River Bend Station is owned by Entergy Gulf States Inc. It is a boiling water reactor, manufactured by General Electric (turbine generator manufactured by General Electric) with a 966 megawatt capacity. Waterford 3 is owned by Entergy Louisiana Inc. It is a pressurized water reactor, manufactured by Combustion Engineering (turbine generator manufactured by Westinghouse) with a 1,157 megawatt capacity.

Nuclear Power Plants in Louisiana

	City	Capacity (MW)	2006 Generation (MWh)	2004-2006 3-year Average Capacity Factor (%)
River Bend	**St. Francisville**	966	7,465,534	89.3
Waterford 3	**Taft**	1,158	9,269,914	90.0
Total		**2,124**	**16,735,448**	**89.6**

Source: Energy Information Administration

Entergy Nuclear, whose parent company, Entergy Corporation (headquartered in New Orleans), is the second largest operator of nuclear power plants in the U.S. Entergy Nuclear operates five reactors at four locations in Arkansas, Mississippi, and Louisiana and five reactors at four sites in Massachusetts, New

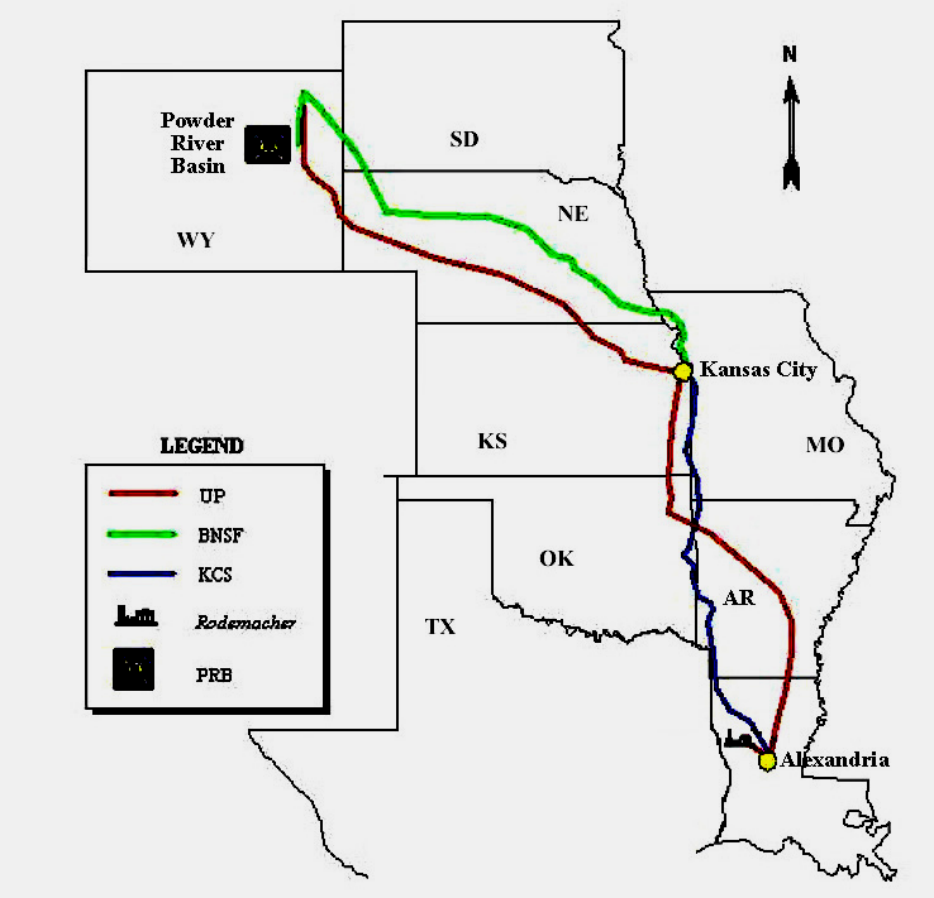
York, and Vermont, as well as, providing management services to the Cooper Nuclear Station in Nebraska.[6]

Entergy has not decided to build a nuclear unit but it is positioning itself to have the option to build a nuclear unit. Entergy Nuclear has signed a project development agreement with GE-Hitachi Nuclear to order reactor components and is on schedule to submit a combined construction and operating license application for its Grand Gulf nuclear site in Mississippi by the end of 2007 and a second application for its River Bend site in Louisiana in mid-2008.[6]

Railroad Competition and Electricity Generation

There is legislation pending in Congress to improve competitiveness of the railroad system in the United States (Appendix E). This legislation is important to Louisiana because unpredictable service and higher rail transportation costs are impacting the chemical industry and utility providers in this state. The proposed legislation amends title 49, United States Code, to ensure competition in the rail industry, enable rail customers to obtain reliable rail service, and provide those customers with a reasonable process for challenging rate and service disputes. About half of the electricity generation in the United States uses coal (most of which is shipped by rail) as the fuel source.

Figure 5. Selected Routes For PRB Coal Moving to Rodemacher



Source: Lafayette Utilities System

[6] http://www.entergy-nuclear.com/news_room/newsrelease.aspx?NR_ID=1017 (August 16, 2007).

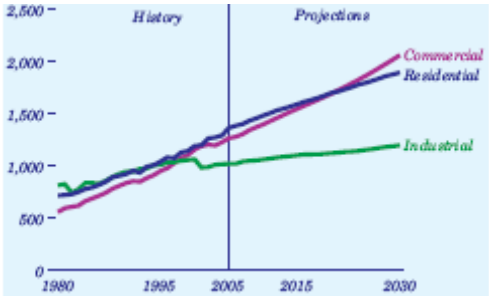
Senator David Vitter and Senator Mary Landrieu cosponsored the legislation. The Rodemacher plant, a coal-fired generating plant in Louisiana, gets its coal by rail from the Powder River Basin which is 1500 miles away. The Rodemacher plant is a captive rail customer; the last 19 miles are served by only one rail provider.[7]

Electricity Generation Looking Forward Through 2030

Electricity demand is projected to grow in all sectors (residential, commercial, and industrial).[8] Coal fired plants will continue to supply most of that generation unless changes in environmental policies cause fundamental changes. Capacity additions will include new plants as well as plants built to replace aging or inefficient equipment.

Nuclear and renewables are stimulated by Federal tax incentives and higher fossil fuel costs. Because the cost of building new nuclear plants is so uncertain several cost cases are assumed and as expected new nuclear plant construction would go up as the costs go down.

Figure 6. Annual Electricity Sales by Sector



SOURCE: EIA/Annual Energy Outlook 2007

Conclusion

Included in Appendix A are the Louisiana statistics from the EIA state electricity profiles (2005).

Table 1. 2005 Summary Statistics

Table 2. Ten Largest Plants by Generating Capability, 2005

Table 3. Top Five Retailers of Electricity, with End use Sectors, 2005

Table 4. Electric Power Net Summer Capacity by Primary Energy Source and Industry Sector, 1990, 1995, and 2000 Through 2005

[7] A captive rail customer is a rail customer who has no competitive alternative to a single railroad serving its location. Captivity occurs over the entire route or only a portion of the route. Competitive rail traffic exists when shipments between origins and destinations can be served by more than one railroad.

[8] The electricity projections are from the Energy Information Administration, "Annual Energy Outlook 2007." The electricity section is included in Appendix D.

Table 5. Electric power Net Generation by Primary Energy source and Industry Sector, 1990, 1995, and 2000 through 2005

Table 6. Electric Power Delivered Fuel Prices and Quality for Coal, Petroleum, and Natural Gas, 1990, 1995, and 2000 through 2005

Table 7. Electric Power Industry Emissions Estimates, 1990, 1995, and 2000 Through 2005

Table 8. Retail Sales, Revenue, and Average Retail prices by Sector, 1990, 1995, and 2000 Through 2005

Table 9. Retail Electricity Sales Statistics, 2005

The glossary following this section contains words and phrases used in the generation, transmission and distribution of electricity.

Louisiana currently generates most of its electricity using natural gas as the primary energy source for generating electricity. However, Louisiana is looking toward the future and a more diverse fuel mix. Louisiana's Green Pricing pilot program has taken a first step toward generating with more renewable sources, but they must find solid customer interest to continue. The renewed interest in nuclear power generation resulting from increased demand for electricity also sees Louisiana poised for possible new nuclear unit construction at Entergy's Riverbend site.

All of this data was secured from the web site (http://www.eia.doe.gov) of the Energy Information Administration (EIA) and uses the statistics available as of 2005.

GLOSSARY

Glossary

Active Power: The component of electric power that performs work, typically measured in kilowatts (kW) or megawatts (MW). Also known as “real power.” The terms “active” or “real” are used to modify the base term “power” to differentiate it from Reactive Power.

Active solar: As an energy source, energy from the sun collected and stored using mechanical pumps or fans to circulate heat-laden fluids or air between solar collectors and a building.

Actual peak reduction: The actual reduction in annual peak load (measured in kilowatts) achieved by customers that participate in a utility demand-side management (DSM) program. It reflects the changes in the demand for electricity resulting from a utility DSM program that is in effect at the same time the utility experiences its annual peak load, as opposed to the installed peak load reduction capability (i.e., potential peak reduction). It should account for the regular cycling of energy efficient units during the period of annual peak load.

Adjusted electricity: A measurement of electricity that includes the approximate amount of energy used to generate electricity. To approximate the adjusted amount of electricity, the site-value of the electricity is multiplied by a factor of 3. This conversion factor of 3 is a rough approximation of the Btu value of raw fuels used to generate electricity in a team-generation power plant.

Adjustment bid: A bid auction conducted by the independent system operator or power exchange to redirect supply or demand of electricity when congestion is anticipated.

Aggregator: Any marketer, broker, public agency, city, county, or special district that combines the loads of multiple end-use customers in negotiating the purchase of electricity, the transmission of electricity, and other related services for these customers.

Alternating current (AC): An electric current that reverses its direction at regularly recurring intervals.

Alternative-rat DSM program assistance: A DSM (demand-side management) program assistance that offers special rate structures or discounts on the consumer’s monthly electric bill in exchange for participation isn DSM programs aimed at cutting peak demands or changing load shape. These rates are intended to reduce consumer bills and shift hours of operation of equipment from on-peak to off-peak periods through the application of time-differentiated rates. For example, utilities often pay consumers several dollars a month (refund on their monthly electric bill) for participation in a load control program. Large commercial and industrial customers sometimes obtain interruptible rates, which

provide a discount in return for the consumer's agreement to cut electric loads upon request from the utility (usually during critical periods, such as summer afternoons when the system demand approaches the utility's generating capability).

Ampere: The unit of measurement of electrical current produced in a circuit by 1 volt acting through a resistance of 1 Ohm.

Ancillary services: Services that ensure reliability and support the transmission of electricity from generation sites to customer loads. Such services may include: load regulation, spinning reserve, non-spinning reserve, replacement reserve, and voltage support.

Apparent power: the product of the voltage (in volts) and the current (in amperes). It comprises both active and reactive power. It is measured in "volt-amperes" and often expressed in "kilovolt-amperes" (kVA) or "megavolt-amperes" (MVA).

Auxiliary generator: A generator at the electric plant site that provides power for the operation of the electrical generating equipment itself, including related demands such as plant lighting, during periods when the electric plant is not operating and power is unavailable from the grid. A black start generator used to start main central station generators is considered to be an auxiliary generator.

Available but not needed capability: Net capability of main generating units that are operable but not considered necessary to carry load and cannot be connected to load within 30 minutes.

Average revenue per kilowatthour: The average revenue per kilowatthour of electricity sold by sector (residential, commercial, industrial or other) and geographic area (State, Census division, and national) is calculated by dividing the total monthly revenue by the corresponding total monthly sales for each sector ad geographic area.

Backup Generator: A generator that is used only for test purposes, or in the event of an emergency, such as a shortage of power needed to meet customer load requirements.

Backup power: Electric energy supplied by a utility to replace power and energy lost during an unscheduled equipment outage.

Base bill: A charge calculated by taking the rate from the appropriate electric rate schedule and applying it to the level of consumption.

Base load: The minimum amount of electric power delivered or required over a given period of time at a steady rate.

Base load capacity: The generating equipment normally operated to serve loads on an around-the-clock basis.

Base load plant: A plant usually housing high-efficiency steam-electric units, which is normally operated to take all or part of the minimum load of a system, and which consequently produces electricity at an essentially constant rate and runs continuously. These units are operated to maximize system mechanical and thermal efficiency and minimize system operating costs.

Base rate: A fixed kilowatthour charge for electricity consumed that is independent of other charges and/or adjustments.

Boiling-water reactor (BWR): A light-water reactor in which water, used as both coolant and moderator, is allowed to boil in the core. The resulting steam can be used directly to drive a turbine.

Breeder reactor: A reactor that both produces and consumes fissionable fuel, especially one that creates more fuel than it consumes. The new fissionable material is created by a process known as breeding, in which neutrons from fission are captured in fertile materials.

British thermal unit: The quantity of heat required to raise the temperature of 1 pound of liquid water by 1 degree Fahrenheit at the temperature at which water has its greatest density (approximately 39 degrees Fahrenheit).

Bulk power transactions: The wholesale sale, purchase, and interchange of electricity among electric utilities. Bulk power transactions are used by electric utilities for many different aspects of electric utility operations, from maintaining load to reducing costs.

Bus: An electrical conductor that serves as a common connection for two or more electrical circuits.

Carbon dioxide (CO2): A colorless, odorless, non-poisonous gas that is a normal part of Earth's atmosphere. Carbon dioxide is a product of fossil-fuel combustion as well as other processes. It is considered a greenhouse gas as it traps heat (infrared energy) radiated by the Earth into the atmosphere and thereby contributes to the potential for global warming. The global warming potential (GWP) of other greenhouse gases is measured in relation to that of carbon dioxide, which by international scientific convention is assigned a value of one (1).

Circuit: A conductor or a system of conductors through which electric current flows.

Classes of service: Customers grouped by similar characteristics in order to be identified for the purpose of setting a common rate for electric service. Usually classified into groups identified as residential, commercial, industrial, and other.

Climate change: A term used to refer to all forms of climatic inconsistency, but especially to significant change from one prevailing climatic condition to another. In some cases, “climate change” had been used synonymously with the term “global warming”, scientists, however, tend to use the term in a wider sense inclusive of natural changes in climate, including climatic cooling.

Cogeneration: The production of electrical energy and another form of useful energy (such as heat or steam) through the sequential use of energy.

Cogeneration system: A system using a common energy source to produce both electricity and steam for other uses, resulting in increased fuel efficiency.

Cogenerator: A generating facility that produces electricity and another form of useful thermal energy (such as heat or steam), used for industrial, commercial, heating, or cooling purposes. To receive status as a qualifying facility (QF) under the Public utility Regulatory Policies Act (PURPA), the facility must produce electric energy and “another form of useful thermal energy through the sequential use of energy” and meet certain ownership, operating, an efficiency criteria established by the Federal Energy Regulatory Commission (FERC). (See the Code of Federal Regulations, Title 18, Part 292.)

Combined cycle: An electric generating technology in which electricity is produced from otherwise lost waste heat exciting from one or more gas (combustion) turbines. The exiting heat is routed to a conventional boiler or to a heat recovery steam generator for utilization by a steam turbine in the production of electricity. This process increases the efficiency of the electric generating unit.

Commercial operation (nuclear): The phase of reactor operation that begins when power ascension ends and the operating utility formally declares the nuclear power plant to be available for the regulr production of electricity. This declaration is usually related to the satisfactory completion of qualification test on critical components of the unit.

Conductor: Metal wires, cables, and bus-bar used for carrying electric current. Conductors may be solid or stranded, that is, built up by an assembly of smaller solid conductors.

Congestion: A condition that occurs when insufficient transfer capacity is available to implement all of the preferred schedules for electricity transmission simultaneously.

Connected load: The sum of the continuous ratings or the capacities for a system, part of a system, or a customer's electric power consuming apparatus.

Connection: The physical connection (eg., transmission lines, transformers, switch gear, etc.) between two electric systems permitting the transfer of electric energy in one or both directions.

Conservation and other DSM: This Demand-Side Management category represents the amount of consumer load reduction at the time of system peak due to utility programs that reduce consumer load during many hours of the year. Examples include utility rebate and shared savings activities, such as thermal storage, time-of-use rates, fuel substitution, measurement and evaluation, and any other utility-administered Demand-Side Management activity designed to reduce demand and/or electricity use.

Conventional hydroelectric plant: A plant in which all of the power is produced from natural streamflow as regulated by available storage.

Cooperative electric utility: An electric utility legally established to be owned by and operated for the benefit of those using its service. The utility company will generate, transmit, and/or distribute supplies of electric energy to a specified area not being serviced by another utility. Such ventures are generally exempt from Federal income tax laws. Most electric have been initially financed by the Rural Utilities Service (prior Rural Electrification Administration), U.S. Department of Agriculture.

Current (electric): A flow of electrons in an electrical conductor. The strength or rate of movement of the electricity is measured in amperes.

Customer choice: The right of customers to purchase energy from a supplier other than their traditional supplier or from more than one seller in the retail market.

Decommissioning: Retirement of a nuclear facility, including decontamination and/or dismantlement.

Decontamination: Removal of unwanted radioactive or hazardous contamination by a chemical or mechanical process.

Demand charge: That portion of the consumer's bill for electric service based on the consumer's maximum electric capacity usage and calculated based on the billing demand charges under the applicable rate schedule.

Demand-side management (DSM): The planning, implementation, and monitoring of utility activities designed to encourage consumers to modify patterns of electricity usage, including the timing and level of electricity demand.

It refers to only energy and load-shape modifying activities that are undertaken in response to utility-administered programs. It does not refer to energy and load shape changes arising from the normal operation of the marketplace or from government-mandated energy-efficiency standards. Demand-side management covers the complete range of load-shape objectives, including strategic conservation and load management, as well as strategic load growth.

Deregulation: The elimination of some or all regulations from a previously regulated industry or sector of an industry.

Design electrical rating (capacity) net: the minimal net electrical output of a nuclear unit, as specified by the utility for the purpose of plant design.

Distributed Generator: A generator that is located close to the particular load that it is intended to serve. General, but non-exclusive, characteristics of these generators include: an operating strategy that supports the served load; and interconnection to a distribution or sub-transmission system (138kV or less).

Dual-fired unit: A generating unit that can produce electricity using two or more input fuels. In some of these units, only the primary fuel can be used continuously; the alternate fuel(s) can be used only as a start-up fuel or in emergencies.

Electric current: The flow of electric charge. The preferred unit of measure is the ampere.

Electric energy: The ability of an electric current to produce work, heat, light, or other forms of energy. It is measured in kilowatthours.

Electric generation industry: Stationary and mobile generating units that are connected to the electric power grid and can generate electricity. The electric generation industry includes the “electric power sector” (utility generators and independent power producers) and industrial and commercial power generators, including combined-heat-and-power producers, but excludes units at single-family dwellings.

Electric generator: A facility that produces only electricity, commonly expressed in kilowatthours (kWh) or megawatthours (MWh). Electric generators include electric utilities and independent power producers.

Electric non-utility: Any firm that generates or transmits electricity, or that sells or trades these services and products, for which the price charged is market-based and is not set by a regulating body. Examples of these entities include, but are not limited to; independent power producers, power marketers and aggregators (both wholesale and retail), merchant transmission service providers and self-generation entities.

Electric power: The rate at which electric energy is transferred. Electric power is measured by capacity and is commonly expressed in megawatts (MW).

Electric power grid: A system of synchronized power providers and consumers connected by transmission and distribution lines and operated by one or more control centers. In the continental united States, the electric power grid consists of three systems: the Eastern Interconnect, the Western Interconnect, and the Texas Interconnect. In Alaska and Hawaii, several systems encompass areas smaller than the State (e.g., the interconnect serving Anchorage, Fairbanks, and the Kenai Peninsula; individual islands).

Electric power plant: A station containing prime movers, electric generators, and auxiliary equipment for converting mechanical, chemical, and/or fission energy into electric energy.

Electric system reliability: The degree to which the performance of the elements of the electrical system results in power being delivered to consumers within accepted standards and in the amount desired. Reliability encompasses two concepts, adequacy and security. Adequacy implies that there are sufficient generation and transmission resources installed and available to meet projected electrical demand plus reserves for contingencies. Security implies that the system will remain intact operationally (i.e., will have sufficient available operating capacity) even after outages or other equipment failure. The degree of reliability may be measured by the frequency, duration, and magnitude of adverse effects on consumer service.

Electricity: A form of energy characterized by the presence and motion of elementary charged particles generated by friction, induction, or chemical change.

Electricity congestion: a condition that occurs when insufficient transmission capacity is available to implement all of the desired transactions immediately.

Electricity demand: The rate at which energy is delivered to leads and scheduling points by generation, transmission, and distribution facilities.

Electricity generation: The process of producing electric energy or the amount of electric energy produced by transforming other forms of energy, commonly expressed in kilowatthours (kWh) or megawatthours (MWh).

Emergency backup generation: The use of electric generators only during interruptions of normal power supply.

Emissions: Anthropogenic releases of gases to the atmosphere. In the context of global climate change, they consist of radiatively important greenhouse gases (e.g., the release of carbon dioxide during fuel combustion).

Energy: The capacity for doing work as measured by the capability of doing work (potential energy) or the conversion of this capability to motion (kinetic energy). Energy has several forms, some of which are easily convertible and can be changed to another form useful for work. Most of the world's convertible energy comes from fossil fuels that are burned to produce heat that is then used as a transfer medium to mechnical or other means in order to accomplish tasks. Electrical energy is usually measured in kilowatthours, while heat energy is usually measured in British thermal units (Btu).

Energy efficiency, Electricity: Refers to programs that are aimed at reducing the energy used by specific end-use devices and systems, typically without affecting the services provided. These programs reduce overall electricity consumption (reported in megawatthours), often without explicit consideration for the timing of program-induced savings. Such savings are generally achieved by substituting technologically more advanced equipment to produce the same level of end-use services (e.g., lighting, heating, motor drive) with less electricity. Examples include high-efficiency appliances, efficient lighting programs, high-efficiency heating, ventilating and air conditioning (HVAC) systems or control modifications, efficient building design, advanced electric motor drives, and heat recovery systems.

Fast breeder reactor (FBR): A reactor in which the fission chain reaction is sustained primarily by fast neutrons rather than by thermal or intermediate neutrons. Fast reactors require little or no moderator to slow down the neutrons from the speeds at which they are ejected from fissioning nuclei. This type of reactor produces more fissile material than it consumes.

Federal Energy Regulatory Commission (FERC): The Federal agency with jurisdiction over interstate electricity sales, wholesale rates, hydroelectric licensing, natural gas pricing, oil pipeline rates , and gas pipeline certification. FERC is an independent regulatory agency within the Department of Energy and is the successor to the Federal Power Commission.

Fissile material: Material that can be caused to undergo atomic fission when bombarded by neutrons. The most important fissionable materials are uranium-235, plutonium-239, and uranium-233.

Fission: The process whereby an atomic nucleus of appropriate type, after capturing a neutron, splits into (generally) two nuclei of lighter elements, with the release of substantial amounts of energy and two or more neutrons.

Fossil-fuel electric generation: Electric generation in which the prime mover is a turbine rotated by high-pressure steam produced in a boiler by heat from burning fossil fuels.

Generating unit: Any combination of physically connected generators, reactors, boilers, combustion turbines, and other prime movers operated together to produce electric power.

Generation: The process of producing electric energy by transforming other forms of energy; also, the amount of electric energy produced, expressed in kilowatthours.

Generator capacity: The maximum output, commonly expressed in megawatts (MW), that generating equipment can supply to system load, adjusted for ambient conditions.

Global warming: An increase in the near surface temperature of the Earth. Global warming has occurred in the distant past as the result of natural influences, but the term is today most often used to refer to the warming some scientists predict will occur as a result of increased anthropogenic emissions of greenhouse gases.

Greenhouse gases: Those gases, such as water vapor, carbon dioxide, nitrous oxide, methane, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride, that are transparent to solar (short-wave) radiation but opaque to long-wave (infrared) radiation, thus preventing long-wave radiant energy from leaving Earth's atmosphere. The net effect is a trapping of absorbed radiation and a tendency to warm the planet's surface.

Half-life: The time it takes for an isotope to lose half of its radioactivity.

Heat rate: A measure of generating station thermal efficiency commonly stated as Btu per kilowatthour. Note: Heat rates can be expressed as either gross or net heat rates, depending whether the electricity output is gross or net generation. Heat rates are typically expressed as net heat rates.

Horsepower: A unit for measuring the rate of work (or power) equivalent to 33,000 foot-pounds per minute or 746 watts.

Hydroelectric power: The use of plowing water to produce electrical energy.

Independent power producer: A corporation, person, agency, authority, or other legal entity or instrumentality that owns or operates facilities for the generation of electricity for use primarily by the public, and that is not an electric utility.

Independent system operator (ISO): An independent, Federally regulated entity established to coordinate regional transmission in a non-discriminatory manner and ensure the safety and reliability of the electric system.

Interconnected system: A system consisting of two or more individual power systems normally operating with connecting tie lines.

Interconnection: Two or more electric systems having a common transmission line that permits a flow of energy between them. The physical connection of the electric power transmission facilities allows for the sale or exchange of energy.

Interruptible load: This demand-side management category represents the consumer load that, in accordance with contractual arrangements, can be interrupted at the time of annual peak load by action of the consumer at the direct request of the system operator. This type of control usually involves large-volume commercial and industrial consumers. Interruptible load does not include direct load control.

Investor-owned utility (IOU): A privately-owned electric utility whose stock is publicly traded. It is rate regulated and authorized to achieve an allowed rate of return.

Kilovolt-Ampere (kVa): A unit of apparent power, equal to 1,000 volt-ampere; the mathematical product of the volts and amperes in an electrical circuit.

Kilowatt (kW): One thousand watts.

Kilowatt-electric (kWe): One thousand watts of electric capacity.

Kilowatthour (kWh): A measure of electricity defined as a unit of work or energy, measured as 1 kilowatt (1,000 watts) of power expended for 1 hour. One kWh is equivalent to 3,412 Btu.

Light water reactor (LWR): A nuclear reactor that uses water as the primary coolant and moderator, with slightly enriched uranium as fuel.

Liquid metal fast breeder reactor: A nuclear breeder reactor, cooled by molten sodium, in which fission is caused by fast neutrons.

Load (electric): The amount of electric power delivered or required at any specific point or points on a system. The requ9irement originates at the energy-consuming equipment of the consumers.

Megavoltamperes (MVA): Millions of voltamperes, which are a measure of apparent power.

Megawatt (MW): One million watts of electricity.

Megawatthour (MWh): One thousand kilowatt-hours or 1 million watt-hours.

Merchant facilities: High-risk, high-profit facilities that operate, at least partially, at the whims of the market, as opposed to those facilities that are constructed with close cooperation of municipalities and have significant amounts of waste supply guaranteed.

MMBtu: One million British thermal units.

Moderator: A material, such as ordinary water, heavy water, or graphite, used in a reactor to slow down high-velocity neutrons, thus increasing the likelihood of further fission.

Municipality: A village, town, city, county, or other political subdivision of a State.

NAICS (North American Industry Classification System): A cooling system developed jointly by the United States, Canada, and Mexico to classify businesses and industries according to the type of economic activity in which they are engaged. NAICS replaces the Standard Industrial Classification (SIC) codes.

Name plate: A metal tag attached to a machine or appliance that contains information such as brand name, serial number, voltage, power ratings under specified conditions, and other manufacturer supplied data.

Net summer capacity: The maximum output, commonly expressed in megawatts (MW), that generating equipment can supply to a system load, as demonstrated by a multi-hour test, adjusted to the ambient weather conditions for summer peak demand (from June 1 through September 30). This output reflects a reduction in capacity attributed to station service or auxiliary equipment requirements.

Net winter capacity: The maximum output, commonly expressed in megawatts (MW), that generating equipment can supply to a system load, as demonstrated by a multi-hour test, adjusted to the ambient weather conditions for winter peak demand (from December 1 through March 31). This output reflects a reduction in capacity attributed to station service or auxiliary equipment requirements.

Nonattainment area: Any area that does not meet the national primary or secondary ambient air quality standard established by the Environmental Protection Agency for designated pollutants, such as carbon monoxide and ozone.

Nonspinning reserve: The generating capacity not currently running but capable of being connected to the bus and load within a specified time.

Nonutiliy generation: Electric generation by end-users, or small power producers under the Public Utility Regulatory Policies Act, to supply electric power for industrial, commercial, and military operations, or sales to electric utilities.

Nonutility power producer: A corporation, person, agency, authority, or other legal entity or instrumentality that owns or operates facilities for electric generation and is not an electric utility. Nonutility power producers include qualifying cogenerators, qualifying small power producers, and other nonoutility generators (including independent power producers). Nonutility power producers are without a designated franchised service area and do not file forms listed in the Code of Federal Regulations, Title 18 Part 141.

Nuclear electric power (nuclear power): Electricity generated by the use of the thermal energy released from the fission of nuclear fuel in a reactor.

Nuclear fuel: Fissionable materials that have been enriched to such a composition that, when placed in a nuclear reactor, will support a self-sustaining fission chain reaction, producing heat in a controlled manner for process use.

Nuclear reactor: An apparatus in which a nuclear fission chain reaction can be initiated, controlled, and sustained at a specific rate. A reactor includes fuel (fissionable material), moderating material to control the rate of fission, a heavy-walled pressure vessel to house reactor components, shielding to protect personnel, a system to conduct heat away from the reactor, and instrumentation for monitoring and controlling the reactor's systems.

Off peak: Period of relatively low system demand. These periods often occur in daily, weekly, and seasonal patterns; these off-peak periods differ for each individual electric utility.

Ohm: A measure of the electrical resistance of a material equal to the resistance of a circuit in which the potential difference of 1 volt produces a current of 1 ampere.

Ohm's Law: In a given electrical circuit, the amount of current in amperes is equal to the pressure in volts divided by the resistance, in ohms. The principle is named after the German scientist Georg Simon Ohm.

On peak: Periods of relatively high system demand. These periods often occur in daily, weekly, and seasonal patterns; these on-peak periods differ for each individual electric utility.

Open access: A regulatory mandate to allow others to use a utility's transmission and distribution facilities to move bulk power form one point to another on a nondiscriminatory basis for a cost-based fee.

Operable generators/units: Electric generators or generating units that are available to provide power to the grid or generating units that have been providing power to the grid but are temporarily shut down. This includes units in standby status, units out of service for an indefinite period, and new units that have their construction complete and are ready to provide test generation. A nuclear unit is operable once it receives its Full Power Operating License.

Other: The "other" category is defined as representing electricity consumers not elsewhere classified. This category includes public street and highway lighting service, public authority service to public authorities, railroad and railway service, and interdepartmental services.

Other power producers: Independent power producers that generate electricity and cogeneration plants that are not included in the other industrial, coke and commercial sectors.

Outage: The period during which a generating unit, transmission line, or other facility is out of service.

Ozone: A molecule made up of three atoms of oxygen. Occurs naturally in the stratosphere and provides a protective layer shielding the Earth from harmful ultraviolet radiation. In the troposphere, it is a chemical oxidant, a greenhouse gas, and a major component of photochemical smog.

Ozone precursors: Chemical compounds, such as carbon monoxide, methane, nonmethane hydrocarbons, and nitrogen oxides, which in the presence of solar radiation react with other chemical compounds to form ozone.

Peaking capacity: Capacity of generating equipment normally reserved for operation during the hours of highest daily, weekly, or seasonal loads. Some generating equipment may be operated at certain times as peaking capacity and at other times to serve loads on an around-the-clock basis.

Plutonium (Pu): A heavy, fissionable, radioactive, metallic element (atomic number 94) that occurs naturally in trace amounts. It can also result as a byproduct of the fission reaction in a uranium-fuel nuclear reactor and can be recovered for future use.

Power (electrical): An electric measurement unit of power called a voltampere is equal to the product of 1 volt and 1 ampere. This is equivalent to 1 watt for a direct current system, and a unit of apparent power is separated into real and reactive power. Real power is the work-producing part of apparent power that measures the rate of suppl7 of energy and is denoted as kilowatts (kW). Reactive power is the portion of apparent power that dies no work and is referred to as kilovars; this type of power must be supplied to most types of magnetic equipment such as motors, and is supplied by generator or by electrostatic

equipment. Voltamperes are usually divided by 1,000 and called kilovoltamperes (kVA). Energy is denoted by the product of real power and the length of time utilized; this product is expressed as kilowatthours.

Power factor: The ratio of real power (kilowatt) to to apparent power kilovolt-ampere for any given load and time.

Power loss: The difference between electricity input and output as a result of an energy transfer between two points.

Power marketers: Business entities engaged in buying and selling electricity. Power marketers do not usually own generating or transmission facilities. Power marketers, as opposed to brokers, take ownership of the electricity and are involved in interstate trade. These entities file with the Federal Energy Regulatory Commission (FERC) for status as a power marketer.

Pressurized-water reactor (PWR): A nuclear reactor in which heat is transferred from the core to a heat exchanger via water kept under high pressure, so that high temperatures can be maintained in the primary system without boiling the water. Steam is generated in a secondary circuit.

Prime mover: The engine, turbine, water wheel, or similar machine that drives an electric generator; or, for reporting purposes, a device that converts energy to electricity directly (e.g., photovoltaic solar and fuel cells).

Radioactive waste: Materials left over from making nuclear energy. Radioactive waste can destroy living organisms if it is not stored safely.

Reactive power: 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. Reactive power is provided by generators, synchronous condensers, or electrostatic equipment such as capacitors and directly influences electric system voltage. It is derived value equal to the vector difference between the apparent power and the real power. It is usually expressed as kilovolt-amperes reactive (kVAR) or megavolt-amperes reactive (MVAR).

Real power: The component of electric power that performs work, typically measured in kilowatts (kW) or megawatts (MW) – sometimes referred to as active power. The terms “real” or “active” are often used to modify the base term “power” to differentiate it form Reactive Power and apparent Power.

Regional Transmission Group: A utility industry concept that the Federal Energy Regulatory Commission (FERC) embraced for the certification of voluntary groups that would be responsible for transmission planning and use on a regional basis.

Reliability (electric system): A measure of the ability of the system to continue operation while some lines or generators are out of service. Reliability deals with the performance of the system under stress.

Renewable energy resources: Energy resources that are naturally replenishing by flow-limited. They are virtually inexhaustible in duration but limited in the amount of energy that is available per unit of time. Renewable energy resources include: biomass, hydro, geothermal, solar, wind, ocean thermal, wave action, and tidal action.

Residential sector: An energy-consuming sector that consists of living quarters for private households. Common uses of energy associated with this sector include space heating, water heating, air conditioning, lighting, refrigeration, cooking, and running a variety of other appliances. The residential sector excludes institutional living quarters.

Running and quick-start capability: The net capability of generating units that carry load or have quick-start capability. In general, quick-start capability refers to generating units that can be available for load within a 30-minute period.

Scheduled outage: The shutdown of a generating unit, transmission line, or other facility for inspection or maintenance, in accordance with an advance schedule.

Self-Generator: A plant whose primary product is not electric power, but does generate electricity for its own use or for sale on the grid; for example, industrial combined heat and power plants.

Service area: The territory in which a utility system or distributor is authorized to provide service to consumers.

Short circuit: An electric current taking a shorter or different path than intended.

Short circuit current: The current flowing freely through an external circuit that has no load or resistance; the maximum current possible.

Small power producer (SPP): Under the Public Utility Regulatory Policy Act (PURPA), a small power production facility (or small power producer) generates electricity using waste, renewable (biomass, conventional hydroelectric, wind and solar, and geothermal) energy as a primary energy source. Fossil fuels can be used, but the renewable resource must provide at least 75 percent of the total energy input. (See Code of Federal Regulations, Title 18, Part 292.)

Solar energy: The radiant energy of the sun, which can be converted into other forms of energy, such as heat or electricity.

Special nuclear material: The term “special nuclear material” means (1) plutonium, uranium enriched in the isotope 233 or in the isotope 235, and any other material that the Atomic Energy Commission, pursuant to the provisions of section 51 of the Atomic Energy Act of 1954, as amended, determines to be special nuclear material, but does not include source material; or (2) any material artificially enriched by any of the foregoing, but does not include source material.

Spent fuel: Irradiated fuel that is permanently discharged from a reactor. Except for possible reprocessing, this fuel must eventually be removed from its temporary storage location at the reactor site and placed in a permanent repository. Spent fuel is typically measured either in metric tons of heavy metal (i.e., only the heavy metal content of the spent fuel is considered) or in metric tons of initial heavy metal (essentially, the initial mass of the fuel before irradiation). The difference between these two quantities is the weight of the fission products.

Spinning reserve: That reserve generating capacity running at a zero load and synchronized to the electric system.

Stand-alone generator: A power source/generator that operates independently of or is not connected to an electric transmission and distribution network; used to meet a load(s) physically close to the generator.

Standby electricity generation: Involves use of generators during times of high demand on utilities to avoid extra “peak-demand” charges.

Steam electric power plant (conventional): A plant in which the prime mover is a steam turbine. The steam used to drive the turbine is produced in a boiler where fossil fuels are burned.

Steam for heating/cooling: Steam produced at a combined heat and power plant for the purpose of heating and/or cooling space, such as district heating systems.

Steam turbine: A device that converts high-pressure steam, produced in a boiler, into mechanical energy that can then be used to produce electricity by forcing blades in a cylinder to rotate and turn a generator shaft.

Substation: Facility equipment that switches, changes, or regulates electric voltage.

System interconnection: A physical connection between two electric systems that permits the transfer of electric energy in either direction.

Three-phase power: Power generated and transmitted from generator to load on three conductors.

Tie line: A transmission line connecting two or more power systems.

Time-of-day pricing: a special electric rate feature under which the price per kilowatthour depends on the time of day.

Time-of-day rate: The rate charged by an electric utility for service to various classes of customers. The rate reflects the different costs of providing the service at different times of the day.

Transfer capability: The overall capacity of interregional or international power lines, together with the associated electrical system facilities, to transfer power and energy from one electrical system to another.

Transformer: An electrical device for changing the voltage of alternating current.

Transmission (electric) (verb): The movement or transfer of electric energy over an interconnected group of lines and associated equipment between points of supply and points at which it is transformed for delivery to consumers or is delivered to other electric systems. Transmission is considered to end when the energy is transformed for distribution to the consumer.

Transmission system (electric): An interconnected group of electric transmission lines and associated equipment for moving or transferring electric energy in bulk between points of supply and points at which it is transformed for delivery over the distribution system lines to consumers or is delivered to other electric systems.

Turbine: A machine for generating rotary mechanical power from the energy of a stream of fluid (such as water, steam, or hot gas). Turbines convert the kinetic energy of fluids to mechanical energy through the principles of impulse and reaction, or a mixture of the two.

Unbundling: Separating vertically integrated monopoly functions into their component parts for the purpose of separate service offerings.

Vertical integration: The combination within a firm or business enterprise of one or more stages of production or distribution. In the electric industry, it refers to the historical arrangement whereby a utility owns its own generating plants, transmission system, and distribution lines to provide all aspects of electric service.

Volt (V): The volt is the International System of Units (SI) measure of electric potential or electromotive force. A potential of one volt appears across a

resistance of one ohm when a current of one ampere flows through that resistance.

Voltage: The difference in electrical potential between ay two conductors or between a conductor and ground. It is a measure of the electric energy per electron that electrons can acquire and/or give up as they move between the two conductors.

Water turbine: a turbine that uses water pressure to rotate its blaes; the primary types are the Pelton wheel, for high heads (pressure); the Francis turbine, for low to medium heads; and the Kaplan for a wide range of heads. Primarily used to power an electric generator.

Watt (W): The unit of electrical power equal to one ampere under a pressure of one volt. A Watt is equal to 1/746 horsepower.

Watthour (Wh): The electrical energy unit of measure equal to one watt of power supplied to, or taken from, an electric circuit steadily for one hour.

Wattmeter: A device for measuring power consumption.

Wheeling charge: An amount charged by one electrical system to tranmit the energy of, and for, another system or systems.

Wheeling service: The movement of electricity from one system to another over transmission facilities of interconnecting systems. Wheeling service contracts can be established between tow or more systems.

Wholesale electric power market: The purchase and sale of electricity from generators to resellers (retailers), along with the ancillary services needed to maintain reliability and power quality at the transmission level.

Wholesale transmission services: The transmission of electric energy sold, or to be sold, in the wholesale electric power market.

Wholesale wheeling: An arrangement in which electricity is transmitted from a generator to a utility through the transmission facilities of an intervening system.

Wind energy: Kinetic energy present in wind motion that can be converted to mechanical energy for driving pumps, mills, and electric power generators.

Wind power plant: A group of wind turbines interconnected to a common utility system through a system of transformers, distribution lines, and (usually) one substation. Operation, control, and maintenance functions are often centralized through a network of computerized monitoring systems, supplemented by visual

inspection. This is a term commonly used in the United States. In Europe, it is called a generating station.

Wind turbine: Wind energy conversion device that produces electricity; typically three blades rotating about a horizontal axis and positioned up-wind of the supporting tower.

Wires charge: A broad term referring to fees levied on power suppliers or their customers for the use of the transmission or distribution wires.

APPENDIX A
2005 STATISTICS FOR LOUISIANA

TABLE 1. 2005 SUMMARY STATISTICS

TABLE 2. TEN LARGEST PLANTS BY GENERATING CAPACITY, 2005

TABLE 3. TOP FIVE RETAILERS OF ELECTRICITY, WITH END USE SECTORS, 2005

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TABLE 8. RETAIL SALES, REVENUES, AND AVERAGE RETAIL PRICES BY SECTOR, 1990, 1995, AND 2000 THROUGH 2005

TABLE 9. RETAIL ELECTRICITY SALES STATISTICS, 2005

SOURCE: EIA, 2005

Table 1. 2005 Summary Statistics

Item	Value	U.S. Rank
Louisiana		
NERC Region(s)		**SERC/SPP**
Primary Energy Source		**Gas**
Net Summer Capability (megawatts)	**26,785**	**14**
Electric Utilities	15,432	17
Independent Power Producers & Combined Heat and Power	11,353	9
Net Generation (megawatthours)	**92,616,878**	**19**
Electric Utilities	44,157,533	22
Independent Power Producers & Combined Heat and Power	48,459,344	8
Emissions (thousand metric tons)		
Sulfur Dioxide	128	21
Nitrogen Oxide	96	15
Carbon Dioxide	57,101	16
Sulfur Dioxide (lbs/MWh)	3.0	34
Nitrogen Oxide (lbs/MWh)	2.3	25
Carbon Dioxide (lbs/MWh)	1,359	28
Total Retail Sales (megawatthours)	**77,389,170**	**20**
Full Service Provider Sales (megawatthours)	77,389,170	19
Direct Use (megawatthours)	**19,845,343**	**2**
Average Retail Price (cents/kWh)	**8.03**	**18**

See footnotes at end of tables.

Table 2. Ten Largest Plants by Generating Capability, 2005

Plant	Primary Energy Source or Technology	Operating Company	Net Summer Capacity (MW)
Louisiana			
1. Willow Glen	Gas	Entergy Gulf States Inc	2,045
2. Nine Mile Point	Gas	Entergy Louisiana Inc	1,804
3. Big Cajun 2	Coal	Louisiana Generating LLC	1,730
4. R S Nelson	Coal	Entergy Gulf States Inc	1,416
5. Little Gypsy	Gas	Entergy Louisiana Inc	1,198
6. Waterford 3	Nuclear	Entergy Louisiana Inc	1,158
7. Acadia Energy Center	Gas	Calpine Corp	1,063
8. River Bend	Nuclear	Entergy Gulf States Inc	966
9. Rodemacher	Coal	CLECO Power LLC	963
10. Michoud	Gas	Entergy New Orleans Inc	860

See footnotes at end of tables.

Table 3. Top Five Retailers of Electricity, with End Use Sectors, 2005

(Megawatthours)

Entity	Type of Provider	All Sectors	Residential	Commercial	Industrial	Transportation
Louisiana						
1. Entergy Louisiana Inc	Investor-Owned	26,888,775	8,558,912	5,982,194	12,347,669	0
2. Entergy Gulf States Inc	Investor-Owned	18,938,856	4,817,245	4,805,015	9,316,596	0
3. Cleco Power LLC	Investor-Owned	8,824,601	3,515,981	2,447,371	2,861,249	0
4. Southwestern Electric Power Co	Investor-Owned	5,630,181	2,384,091	2,315,336	930,754	0
5. Entergy New Orleans Inc	Investor-Owned	4,714,034	1,615,771	2,588,172	498,316	11,775
Total Sales, Top Five Providers		64,996,447	20,892,000	18,138,088	25,954,584	11,775
Percent of Total State Sales		84	73	84	96	100

See footnotes at end of tables.

Table 4. Electric Power Net Summer Capacity by Primary Energy Source and Industry Sector, 1990, 1995, and 2000 Through 2005

(Megawatts)

Energy Source	1990	1995	2000	2001	2002	2003	2004	2005	Percentage Share	
									1990	2005
Louisiana										
Electric Utilities	**16,751**	**17,019**	**14,317**	**14,165**	**14,233**	**14,090**	**14,176**	**15,432**	**86.0**	**57.6**
Coal	3,343	2,843	1,723	1,723	1,723	1,723	1,723	1,723	17.2	6.4
Petroleum	17	16	16	20	16	16	26	26	0.1	0.1
Natural Gas	11,380	12,149	10,566	10,350	10,423	10,284	10,372	11,559	58.4	43.2
Nuclear	2,011	2,011	2,012	2,073	2,071	2,067	2,055	2,124	10.3	7.9
Independent Power Producers and Combined Heat and Power	**2,727**	**2,795**	**6,798**	**7,556**	**11,399**	**11,659**	**12,289**	**11,353**	**14.0**	**42.4**
Coal	14	8	1,783	1,783	1,730	1,730	1,730	1,730	0.1	6.5
Petroleum	-	192	241	256	259	259	259	259	-	1.0
Natural Gas	1,928	1,822	4,161	4,987	8,962	9,216	9,632	8,537	9.9	31.9
Other Gases	114	82	105	64	62	63	65	64	0.6	0.2
Hydroelectric	182	182	182	192	192	192	192	192	0.9	0.7
Other Renewables	469	487	304	253	170	175	335	333	2.4	1.2
Other	21	21	21	22	24	24	77	238	0.1	0.9
Total Electric Industry	**19,479**	**19,814**	**21,115**	**21,721**	**25,633**	**25,749**	**26,465**	**26,785**	**100.0**	**100.0**
Coal	3,357	2,851	3,506	3,506	3,453	3,453	3,453	3,453	17.2	12.9
Petroleum	17	208	257	275	275	275	285	285	0.1	1.1
Natural Gas	13,308	13,971	14,728	15,336	19,385	19,499	20,004	20,096	68.3	75.0
Other Gases	114	82	105	64	62	63	65	64	0.6	0.2
Nuclear	2,011	2,011	2,012	2,073	2,071	2,067	2,055	2,124	10.3	7.9
Hydroelectric	182	182	182	192	192	192	192	192	0.9	0.7
Other Renewables	469	487	304	253	170	175	335	333	2.4	1.2
Other	21	21	21	22	24	24	77	238	0.1	0.9

See footnotes at end of tables.

Table 5. Electric Power Net Generation by Primary Energy Source and Industry Sector, 1990, 1995, and 2000 Through 2005

(Megawatthours)

Energy Source	1990	1995	2000	2001	2002	2003	2004	2005	Percentage Share	
									1990	2005
Louisiana										
Electric Utilities	**58,168,408**	**65,555,229**	**57,601,142**	**50,378,001**	**54,921,960**	**43,485,059**	**47,603,602**	**44,157,533**	**76.1**	**47.7**
Coal	17,800,084	18,954,264	14,484,315	10,917,220	12,258,694	11,020,325	11,324,239	11,415,901	23.3	12.3
Petroleum	130,260	48,558	625,093	1,722,244	68,460	1,007,874	3,693,520	3,377,765	0.2	3.6
Natural Gas	26,041,280	30,866,507	26,695,995	20,402,402	25,085,994	15,093,742	15,138,928	13,687,514	34.1	14.8
Other Gases	-	-	-	-	203,484	236,796	366,934	-	-	-
Nuclear	14,196,784	15,685,900	15,795,739	17,336,135	17,305,328	16,126,322	17,079,981	15,676,353	18.6	16.9
Independent Power Producers and Combined Heat and Power	**18,297,222**	**19,004,495**	**35,264,493**	**37,516,376**	**40,049,003**	**51,399,981**	**50,568,706**	**48,459,345**	**23.9**	**52.3**
Coal	56,603	35,210	9,004,549	11,050,926	9,792,212	11,868,605	12,328,719	11,654,441	0.1	12.6
Petroleum	101,838	1,437,656	1,451,267	1,727,695	1,796,076	1,930,074	152,391	108,170	0.1	0.1
Natural Gas	13,433,586	12,351,240	19,433,248	19,970,352	22,814,853	30,340,455	30,678,522	29,871,679	17.6	32.3
Other Gases	440,700	982,181	1,598,632	440,544	1,294,140	2,450,434	2,827,222	2,748,046	0.6	3.0
Hydroelectric	656,492	952,144	532,290	732,217	891,441	891,991	1,098,825	810,948	0.9	0.9
Other Renewables	2,315,184	2,645,416	2,792,452	2,704,289	2,810,480	3,078,304	2,707,787	2,724,494	3.0	2.9
Other	1,292,819	600,648	452,055	890,353	649,801	840,117	775,241	541,566	1.7	0.6
Total Electric Industry	**76,465,630**	**84,559,724**	**92,865,635**	**87,894,377**	**94,970,963**	**94,885,040**	**98,172,308**	**92,616,878**	**100.0**	**100.0**
Coal	17,856,687	18,989,474	23,488,864	21,968,146	22,050,906	22,888,930	23,652,958	23,070,342	23.4	24.9
Petroleum	232,098	1,486,214	2,076,360	3,449,939	1,864,536	2,937,948	3,845,911	3,485,935	0.3	3.8
Natural Gas	39,474,866	43,217,747	46,129,243	40,372,754	47,900,847	45,434,197	45,817,450	43,559,193	51.6	47.0
Other Gases	440,700	982,181	1,598,632	440,544	1,497,624	2,687,230	3,194,156	2,748,046	0.6	3.0
Nuclear	14,196,784	15,685,900	15,795,739	17,336,135	17,305,328	16,126,322	17,079,981	15,676,353	18.6	16.9
Hydroelectric	656,492	952,144	532,290	732,217	891,441	891,991	1,098,825	810,948	0.9	0.9
Other Renewables	2,315,184	2,645,416	2,792,452	2,704,289	2,810,480	3,078,304	2,707,787	2,724,494	3.0	2.9
Other	1,292,819	600,648	452,055	890,353	649,801	840,117	775,241	541,566	1.7	0.6

See footnotes at end of tables.

Table 6. Electric Power Delivered Fuel Prices and Quality for Coal, Petroleum, and Natural Gas, 1990, 1995, and 2000 Through 2005

Fuel, Quality	1990	1995	2000	2001	2002	2003	2004	2005
Louisiana								
Coal (cents per million Btu)	169.5	154.9	132.0	130.9	W	W	W	W
Average heat value (Btu per pound)	8,194	8,110	7,933	8,030	8,095	8,023	8,146	8,136
Average sulfur Content (percent)	0.5	0.6	0.6	0.7	0.5	0.5	0.5	0.5
Petroleum (cents per million Btu)	371.5	348.1	459.2	519.0	63.4	246.6	285.6	426.8
Average heat value (Btu per gallon)	144,962	141,543	149,843	145,238	140,393	145,807	147,379	147,057
Average sulfur Content (percent)	0.4	0.1	1.0	0.7	5.4	3.8	3.5	3.3
Natural Gas (cents per million Btu)	165.9	180.6	439.6	413.2	342.4	561.2	632.9	879.1
Average heat value (Btu per cubic foot)	1,045	1,043	1,034	1,040	1,034	1,033	1,031	1,034

See footnotes at end of tables.

Table 7. Electric Power Industry Emissions Estimates, 1990, 1995, and 2000 Through 2005

(Thousand Metric Tons)

Emission Type	1990	1995	2000	2001	2002	2003	2004	2005
Louisiana								
Sulfur Dioxide								
Coal	91	124	82	87	89	87	87	82
Petroleum	3	86	80	79	61	83	20	19
Natural Gas	*	*	*	*	*	*	*	*
Other	18	20	19	19	21	24	25	27
Total	112	231	182	185	171	195	132	128
Nitrogen Oxide								
Coal	83	83	45	38	39	39	37	35
Petroleum	*	5	5	10	7	9	4	3
Natural Gas	55	61	69	68	52	53	50	43
Other	13	6	5	10	13	14	15	14
Total	152	156	124	126	110	115	106	96
Carbon Dioxide								
Coal	18,666[R]	20,140[R]	24,224[R]	22,946	22,192	23,600	24,563	24,315
Petroleum	202[R]	1,875[R]	2,215[R]	3,528	2,042	3,009	4,356	3,834
Natural Gas	25,702[R]	28,997[R]	31,014[R]	27,846	30,523	29,037	29,157	28,652
Other Renewables	-	-	85[R]	129	162	253	302	300
Total	44,570[R]	51,012[R]	57,537[R]	54,449	54,920	55,899	58,378	57,101

See footnotes at end of tables.

Table 8. Retail Sales, Revenue, and Average Retail Prices by Sector, 1990, 1995, and 2000 Through 2005

Sector	1990	1995	2000	2001	2002	2003	2004	2005	Percentage Share	
									1990	2005
Louisiana										
Retail Sales (thousand megawatthours)										
Residential	21,434	24,116	27,719	25,800	28,157	28,572	28,863	28,654	33.6	37.0
Commercial	13,814	15,575	18,225	17,722	18,686	21,944	22,568	21,692	21.6	28.0
Industrial	25,862	30,692	31,950	28,574	29,662	27,251	28,290	27,031	40.5	34.9
Other	2,716	2,444	2,795	2,596	2,756	NA	NA	NA	4.3	NA
Transportation	NA	NA	NA	NA	NA	3	16	12	NA	*
All Sectors	63,826	72,827	80,690	74,693	79,261	77,769	79,737	77,389	100.0	100.0
Retail Revenue (million dollars)										
Residential	1,587	1,744	2,127	2,044	2,000	2,241	2,324	2,542	41.4	40.9
Commercial	973	1,055	1,308	1,343	1,242	1,628	1,710	1,857	25.4	29.9
Industrial	1,083	1,219	1,599	1,596	1,310	1,518	1,646	1,814	28.3	29.2
Other	187	170	195	219	194	NA	NA	NA	4.9	NA
Transportation	NA	NA	NA	NA	NA	*	1	1	NA	*
All Sectors	3,830	4,189	5,229	5,201	4,746	5,387	5,682	6,214	100.0	100.0
Average Retail Prices (cents/KWh)										
Residential	7.41	7.23	7.67	7.92	7.10	7.84	8.05	8.87	NA	NA
Commercial	7.05	6.77	7.18	7.58	6.64	7.42	7.58	8.56	NA	NA
Industrial	4.19	3.97	5.00	5.58	4.42	5.57	5.82	6.71	NA	NA
Other	6.88	6.97	6.98	8.43	7.05	NA	NA	NA	NA	NA
Transportation	NA	NA	NA	NA	NA	7.32	7.09	7.63	NA	NA
All Sectors	6.00	5.75	6.48	6.96	5.99	6.93	7.13	8.03	NA	NA

See footnotes at end of tables.

Table 9. Retail Electricity Sales Statistics, 2005

Item	Full Service Providers					Other Providers		Total
	Investor-Owned	Public	Federal	Cooperative	Facility	Energy	Delivery	
Louisiana								
Number of Entities	5	22	NA	13	NA	NA	NA	40
Number of Retail Customers	1,624,399	159,477	NA	391,912	NA	NA	NA	2,175,788
Retail Sales (thousand megawatthours)	64,996	4,450	NA	7,943	NA	NA	NA	77,389
Percentage of Retail Sales	83.99	5.75	NA	10.26	NA	NA	NA	100.00
Revenue from Retail Sales (million dollars)	5,294	361	NA	559	NA	NA	NA	6,214
Percentage of Revenue	85.20	5.81	NA	8.99	NA	NA	NA	100.00
Average Retail Price (cents/kWh)	8.14	8.11	NA	7.03	NA	NA	NA	8.03

Table 9 Notes: Data are shown for All Sectors. Full Service Providers sell bundled electricity services (e.g., both energy and delivery) to end users. Full Service Providers may purchase electricity from others (such as independent Power Producers or other full service providers) prior to delivery. Other Providers sell either the energy or the delivery services, but not both. Sales volumes and customer counts shown for Other Providers refer to delivered electricity, which is a joint activity of both energy and delivery providers; for clarity, they are reported only in the Energy column in this table. The revenue shown under Other Providers represents the revenue realized from the sale of the energy and the delivery services distinctly. "Public" entities include municipalities, State power agencies, and municipal marketing authorities. "Federal" entities are either owned or financed by the Federal Government. "Cooperatives" are electric utilities legally established to be owned by and operated for the benefit of those using its services. The cooperative will generate, transmit and/or distribute supplies of electric energy to a specified area not being serviced by another utility. "Facility" sales represent direct electricity transactions from independent generators to end use consumers.

Other Notes: NA = Not applicable; NM = Not meaningful;
W = Withheld to avoid disclosure of individual company data.
* = Value is less than half of the smallest unit of measure (e.g., for values with no decimals, the smallest unit is 1 and values under 0.5 are shown as *.)
Totals may not equal sum of components because of independent rounding.
The “Other Renewables” category for Tables 4 and 5 includes wood, black liquor, other wood waste, municipal solid waste, landfill gas, sludge waste, tires, agriculture byproducts, other biomass, geothermal, solar thermal, photovoltaic energy and wind. In Table 7, “Other Renewables” emissions include non-biogenic municipal solid waste, and other renewable waste.
Direct Use is commercial or industrial use of electricity that 1) is self-generated, 2) is produced by either the same entity that consumes the power or an affiliate, and 3) is used in direct support of a service or industrial process located within the same facility or group of facilities that houses the generating equipment. Direct use is exclusive of station use.

APPENDIX B

1. GEAUX GREEN PROGRAM INFORMATION

2. LOUISIANA PUBLIC SERVICE COMMISSION GENERAL ORDER NUMBER 01-11-07 (R28271)

Entergy
ENTERGY LOUISIANA

Print Page | Return

Geaux GREEN

It's A Good Choice For Louisiana.

What Is Green Power?

Green Power is a popular name for electricity generated from renewable energy sources. It is purchased voluntarily by consumers and businesses who want to do their part to reduce greenhouse gases and dependence on fossil fuels.

What Are Renewable Energy Sources?

Biomass, hydroelectric, wind, solar, and geothermal are all considered renewable, earth-friendly, Green Power sources.

What Is The Benefit Of Using Green Power?

The more Green Power we use, the less fossil fuels we need to generate electricity. Green Power preserves limited resources and reduces greenhouse gas emissions believed to contribute to global climate change.

Is Green Power Available For Purchase In Louisiana?

Beginning in April 2007, **Entergy Gulf States** will implement a voluntary pilot program to give you the option, for a minimal monthly fee, to have a specific portion of your bill devoted to the purchase of power generated from renewable resources located in Louisiana. When you choose to buy Green Power, you support this environmentally friendly process and do something good for Louisiana.

Why Is Entergy Offering Green Power?

Entergy Gulf States is working closely with the Louisiana Public Service Commission to gauge consumer interest in purchasing renewable power. This pilot program will also help stimulate the development of renewable energy resources in Louisiana and explore the capability of suppliers in the state to meet this new demand.

Why Does Green Power Cost More?

The current technology used for small scale renewable energy is generally more expensive than traditional sources of energy. As technology advances and more renewable resources become available, it is likely that these products will become more economically attractive.

Where Is This Green Power Being Produced?

All power generated for this program will be produced in Louisiana using biomass fuels from agricultural

byproducts grown in Louisiana. The use of biomass fuels helps to strengthen Louisiana's economy by opening new markets to Louisiana farmers and agricultural businesses for materials that might otherwise go unused.

Want more information about Geaux Green? Please click here.

LOUISIANA PUBLIC SERVICE COMMISSION

GENERAL ORDER

LOUISIANA PUBLIC SERVICE COMMISSION,

EX PARTE

Docket No. R-28271 In re: Investigation regarding the feasibility of implementing a renewable portfolio standard for the jurisdictional electric utilities in the state of Louisiana.

(Decided at the November 29, 2006 Business and Executive Session.)

Background

As a result of interest in expanding the development of renewable energy in Louisiana, this Commission requested Staff to initiate an investigation of the feasibility of implementing a renewable portfolio standard ("RPS") in Louisiana. At the December 2005 Open Session, Staff presented a report explaining the benefits and detriments of implementing an RPS in Louisiana. Benefits included stimulating economic development associated with renewable resource development in Louisiana, environmental improvements through the reduction in the use of fossil fuels, and improving the security of fuel supply through the reliance on renewable energy. The primary detriment to the development of renewable energy is the added cost of renewable resources compared to conventional sources of energy. At a time when Louisiana customers are burdened by the impacts of hurricanes Katrina and Rita, the added cost associated with developing renewable resources has to be considered. Furthermore, Staff's report explained that while Louisiana most assuredly does have prospects for developing renewable resources such as biomass, landfill gas, and offshore wind resources, it does not have the same opportunities as some other states for building on-shore wind, geothermal, hydro, and solar generation resources.

Staff's report pointed out that from a policy perspective, the Commission had to decide what amount of an increase in rates, if any, was a fair trade-off for the benefits of renewable energy development. As a middle ground, Staff's report offered another option for the Commission to consider - a Green Pricing Tariff ("GPT"). Under a GPT, only the customer that chooses to take service under the tariff pays a premium for the costs associated with the procurement of electricity from renewable resources; the non-GPT customer bears no increased costs associated with the renewable resource procurement. A GPT could be a stepping-stone that would help to promote the implementation of an RPS at a later time if the results of the GPT

prove to be successful. Thus, the implementation of a GPT could be viewed as a precursor, not a prohibition to an RPS.

In February 2006, the Commission voted to further investigate the implementation of a GPT. Staff issued an initial report on August 18, 2006 discussing the important issues that need to be addressed in a GPT program and requested parties to respond to a set of specific questions. Staff subsequently summarized all comments received from the parties and filed its Position Paper on November 21, 2006 recommending the implementation of a year-long GPT pilot program.

Jurisdiction

The Louisiana Constitution, Article IV, Section 21, provides:

> The commission shall regulate all common carriers and public utilities and have such other regulatory authority as provided by law. It shall adopt and enforce reasonable rules, regulations, and procedures necessary for the discharge of its duties, and shall have other powers and perform other duties as provided by law.

Louisiana Revised Statute 45:1163(A)(1) provides:

> (A)(1): The commission shall exercise all necessary power and authority over any street, railway, gas, electric light, heat, power, waterworks, or other local public utility for the purpose of fixing and regulating the rates charged or to be charged by and service furnished by such public utility.

Louisiana Revised Statute 45:1176 provides in pertinent part:

> The Commission...shall investigate the reasonableness and justness of all contracts, agreements and charges entered into or paid by such public utilities with or to other persons, whether affiliated with such public utility or not.

Analysis

After reviewing comments from interested parties, Staff concluded that the availability of acceptable renewable resources, the willingness of customers to enroll, and the relationship between the participation levels and pricing are uncertain at this time. Given this uncertainty, Staff proposed the implementation of a pilot program to last no longer than one year. A pilot program will allow the Commission the greatest opportunity to gain information in order to develop permanent GPT rules. Entergy Gulf States, Inc. ("EGSI") agreed to participate as the utility in the pilot and to work with Staff in order to implement the program as quickly as possible.

Staff's recommendation allows all renewable resources that comply with either the Green-e or ECOPOWER established standards for certification to participate in the pilot

program. An exception is that renewable energy resources built prior to 1997 will also be able to participate in the program. Renewable energy credits that do not involve delivery of energy to EGSI will not be permitted as part of the pilot program but will be considered further as part of the permanent program. EGSI may bank credits from eligible energy purchases in one month that exceed the amount of renewable energy demand in that month. Furthermore, EGSI may sell excess credits, although that revenue should first be used to reduce overall program costs.

Staff recommended a two-tiered pricing structure offered to the suppliers with priority given to those suppliers whose resources fully comply with the established standards. Resources that fully comply with the standards will be paid $65/MWH and resources that meet all of the national standards, except that they first began operating prior to 1997, will receive $59/MWH. A cap of 40,000 MWH will be placed on the amount of energy that is purchased from renewable energy suppliers. Therefore, the premium for GPT customers is estimated to be 2.252 cents per kWh. GPT customers will pay this premium in addition to the base energy charge and the fuel adjustment charge.

In the event that fewer customers enroll in the GPT than expected, Staff recommended that EGSI be allowed to recover its excess costs spent on the GPT program through the fuel adjustment clause ("FAC"). While it is certainly not desirable to add costs to the FAC for all customers, the "worst-case" impact of this would be quite small, as the average residential customer that uses 1,100 kWh of energy per month would only incur an increased cost of about 5 cents per month.

Staff also requested authorization to make reasonable adjustments to the pilot program while the pilot is in operation. For example, in the event that demand for the GPT exceeds the 40,000 MWH cap, and assuming sufficient quantities of eligible renewable energy resources exist, then Staff would be able to increase the cap to accommodate the demand. Another example would be if changes to the program's marketing methods or administrative processes would help to improve the pilot, then Staff would be able to implement those changes. Staff's delegated authority from the Commission would not extend to any changes that would result in a ratepayer impact of greater than 8 cents per month for the average residential customer that uses 1,100 kWh of energy per month.

Because this pilot is a Louisiana-specific undertaking, the Commission will not seek to include any of the costs of this pilot (*e.g.*, administrative costs, purchased power costs, etc.) that

exceed Entergy's avoided costs in the calculation of EGSI's bus bar production costs for purposes of calculating relative production costs under FERC Order 480 or 480-A (or subsequent applicable orders) in FERC Docket No. EL01-88-000.

Roles of the Parties

The LPSC and its Staff will participate in the development of the tariff and encourage EGSI to properly market the program to its customers. Staff will monitor the program to ensure that adequate rules have been implemented, and to propose adjustments as necessary. The LPSC will also establish benchmarks to evaluate the success of the pilot program. These benchmarks will be used to determine whether a permanent GPT program should be implemented.

All EGSI customers (e.g., residential, commercial, industrial) are eligible to participate in the program. The GPT will be in the form of a rider that a customer can sign up for to purchase renewable energy in 100 kWh blocks. Once a customer enrolls, that customer must commit to remain on the tariff for the term of the pilot program.

Interested parties such as environmental groups, forestry associations, and agriculture associations should consider helping to market the green pricing tariff in order to promote public awareness and ultimately to increase customer participation rates.

The utility, EGSI, will develop the tariff and will create a power purchase agreement that can be used to purchase supplies of renewable energy. It will also administer the program and market it to its customers. Staff proposed that $500,000 be allocated to market and administer the program. Any amounts not used in the pilot program will be allocated to the permanent program or returned to the ratepayers through the FAC. EGSI can contract with the Green-e or ECOPOWER organizations to perform all validation of the renewable energy resources that are offered. In doing this, EGSI will be permitted to use the Green-e or ECOPOWER logo on its marketing material, which should prove beneficial in marketing the GPT program to customers. However, in the interests of starting the pilot program quickly, if it is determined that this will take an excessive amount of time and effort, then for purposes of the pilot, EGSI can work with Commission Staff to validate that the proposals comply with the national standards. If it appears during the year that the actual costs of implementing the program will exceed the estimate, then EGSI shall promptly notify the Staff so that a determination can be made whether to continue the program for the full year, or possibly modify it, or discontinue it.

To obtain renewable energy supplies, EGSI will hold an enrollment process for renewable energy providers that will be open for a period of 30 days once official notice is published. EGSI will be required to accept only renewable energy that satisfies Green-e or ECOPOWER standards and can be delivered to EGSI's transmission system from resources located within the state of Louisiana. However, if fewer than 40,000 MWH of renewable energy is offered, then EGSI should accept renewable energy from suppliers located within Louisiana that can meet the national standards in all regards except they were built prior to 1997. Should a supplier require the use of another company's transmission system, that supplier can still participate, as long as it is able to obtain transmission service, and pay all transmission expenses. In the event that more than 40,000 MWH is offered to EGSI within the enrollment period, then a portion of 40,000 MWH will be divided equally among each provider. However, suppliers that can fully comply with the established standards will be given priority first.

A successful GPT program requires the utility to build a targeted marketing campaign to educate customers and encourage enrollment. At a minimum, Staff recommended that EGSI must include information regarding the availability of its green pricing program with its retail electric customer's regular billing statements. EGSI must also provide information regarding the availability of its green pricing program on its website. Additionally, for the pilot program, EGSI must also rely on television and/or radio spots to promote the green pricing program.

Staff recommended that EGSI provide the Commission with detailed quarterly reports evaluating the results of the program. Each report should discuss how the program has worked, options offered to customers, participation levels and distribution statistics analyzing the data, the amount and type of renewable energy purchased and from which suppliers, and the amount of investment any party made in qualified alternative energy resources. The report should clearly describe the source of the renewable energy and characteristics of the energy generated. The report should discuss EGSI's insight derived while participating in the pilot about the barriers that exist in Louisiana preventing the potential development of new renewable resources. The report should also discuss any customer surveys that have been conducted and EGSI's perceptions about the reasons why customers did or did not enroll in the program. At least one survey should be conducted during the course of the pilot. This information will be useful in trying to improve the GPT and implement long-term rules for all utilities in Louisiana.

Green-e and ECOPOWER have strict customer disclosure requirements that EGSI must follow. These requirements include product content labeling, pricing disclosure, termination fee information, minimum agreement length information, and both prospective and historical fuel source disclosure. In the event that EGSI will buy power from renewable energy generators that were built prior to 1997, it will be important to disclose that information to the customers, both in marketing materials and in product content labeling. EGSI is also required to provide all customers with fuel mixture information.

Commission Action

This matter was considered at the Commission's Open Session held on November 29, 2006. On motion of Commissioner Field, seconded by Commissioner Sittig, and unanimously adopted, the Commission voted to accept the Staff recommendation and approve implementation of the pilot program as outlined in Staff's Position Paper. Specifically, the Commission voted to delegate authority to Staff for monitoring, evaluation, and adjustment of the pilot program.

IT IS THEREFORE ORDERED THAT:

1) The Commission approves implementation of the Green Pricing Tariff pilot program as outlined in Staff's Position Paper and presented at the Open Session.

2) EGSI shall have 60 days following the effective date of this order to develop the program implementation details. During the first 30 days, EGSI will develop a written Request for Renewable Energy Power Supplies ("Request for Supply"). This Request for Supply must indicate that potential suppliers will have to comply with either Green-e or ECOPOWER standards.[1] EGSI will provide this Request for Supply to Staff to review. If Staff finds that the Request for Supply is not in compliance with Staff's pilot proposal, then Staff will work collaboratively with EGSI to make any necessary adjustments. EGSI will release its Request for Supply and allow the next 30 days for responses to be received.

3) Also during the 60 day period EGSI will develop marketing materials, create customer survey materials, develop disclosure materials, develop product content labeling, develop a standard contract for renewable energy supplies, make programming changes to its accounting and billing systems, etc. At the end of the 60-day period, EGSI will summarize the details of its GPT program and specifically show how its program will meet the requirements that are laid out

[1] EGSI will also note that there will be one exception, which is that renewable resources built prior to 1997 will be accepted as long as they meet all other Green-e or ECOPOWER standards. Resources built prior to 1997 will be informed that they will be paid less than the resources that fully comply with the standards.

in Staff's pilot proposal. After receiving EGSI's program detail summary, Staff will determine if EGSI's plans are in compliance with Staff's requirements, and if not Staff will work collaboratively with EGSI to make any necessary adjustments. This process should require 15 days, and within 75 days of this order, EGSI should be ready to enroll customers and have contracts in place with renewable energy suppliers.

4) This order is effective immediately.

BY ORDER OF THE COMMISSION
BATON ROUGE, LOUISIANA
January 11, 2007

/S/ JAMES M. FIELD
DISTRICT II
CHAIRMAN JAMES M. FIELD

/S/ JACK "JAY" A. BLOSSMAN
DISTRICT I
VICE CHAIRMAN JACK "JAY" A. BLOSSMAN

/S/ C. DALE SITTIG
DISTRICT IV
COMMISSIONER C. DALE SITTIG

/S/ FOSTER L. CAMPBELL
DISTRICT V
COMMISSIONER FOSTER L. CAMPBELL

LAWRENCE C. ST. BLANC
SECRETARY

/S/ LAMBERT C. BOISSIERE, III
DISTRICT III
COMMISSIONER LAMBERT C. BOISSIERE, III

APPENDIX C

NUCLEAR ENERGY IN LOUISIANA FACT SHEET

FACT SHEET

Nuclear Energy in Louisiana

July 2007

Louisiana's Electricity Generation

Nuclear	18.4%
Coal	28.6%
Oil	0.3%
Gas	47.4%
Hydro	0.8%
Renewable and Other	4.6%

Source: EIA, 2006

Nuclear Power Plants in the State

	City	Capacity (MW)	2006 Generation (MWh)	2004-2006 3-year Average Capacity Factor (%)
River Bend	**St. Francisville**	966	7,465,534	89.3
Waterford 3	**Taft**	1,158	9,269,914	90.0
Total		**2,124**	**16,735,448**	**89.6**

Source: Energy Information Administration

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www.nei.org

Clean Air Benefits

Economic Growth and Emission-Free Electricity

Louisiana has experienced an average growth in Gross State Product of 1.0 percent per year over the past 5 years. To keep Louisiana's economy growing, the state will need new sources of power. At the same time, parts of Louisiana must deal with poor air quality. Emission-free sources, like nuclear power plants, supply safe, reliable and affordable power to meet the state's economic growth without polluting the air.

Status of the State's Air Quality

All counties are in attainment for EPA's new 8-hour ozone standard. Ozone contributes to smog, which can lead to asthma attacks and respiratory impairment in young children and the elderly. Louisiana's nuclear power plants supply emission-free power to Baton Rouge and the rest of the state helping to improve the air quality.

Nuclear Energy in Louisiana

Nuclear Energy Prevents Emissions
Generating electricity with nuclear energy prevents the emission of pollutants like sulfur dioxide (SO_2) and nitrogen oxides (NO_x) and greenhouse gases like CO_2 associated with burning fossil fuels. The nuclear power plants in Louisiana avoided the emission of 26,400 tons of SO_2, 18,700 tons of NO_x and 13.2 million metric tons of CO_2 in the year 2006. *(Source: NEI/EPA)* Emissions of SO_2 lead to the formation of acid rain. NO_x is a key precursor of both ground level ozone and smog. Greenhouse gases, like CO_2, contribute to global warming.

For perspective, the 18,700 tons of NO_x prevented by the nuclear power plants in Louisiana is the amount of NO_x released in a year by almost 1.0 million passenger cars. There are nearly 2 million cars registered in the state of Louisiana.

Potential Uprates at Nuclear Plants
With additional capital investment, more emission-free power can be generated at most existing nuclear power plants. This process of increasing power output capacity is called an "uprate." According to an analysis performed for the U.S. Department of Energy, uprates at Louisiana's nuclear power plants could supply three percent more electricity and avoid annual emissions of 1,500 tons of SO_2, 400 tons of NO_x and 38,000 metric tons of CO_2.

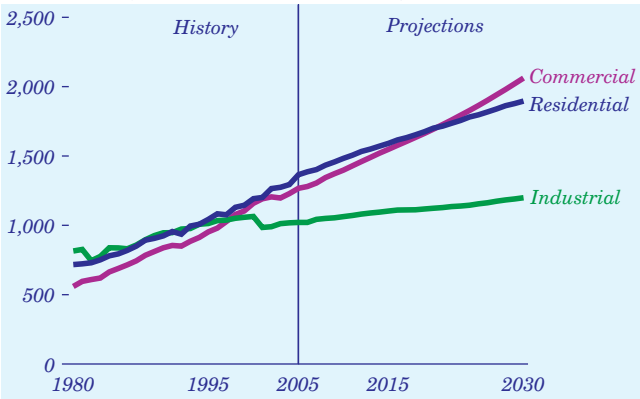
This fact sheet is also available at www.nei.org*, where it is updated periodically.*

APPENDIX D

ELECTRICITY DEMAND AND SUPPPLY EXCERPT FROM ENERGY INFORMATION ADMINSITRATION / ANNUAL ENERGY OUTLOOK 2007

Continued Growth in Electricity Use Is Expected in All Sectors

Figure 53. Annual electricity sales by sector, 1980-2030 (billion kilowatthours)



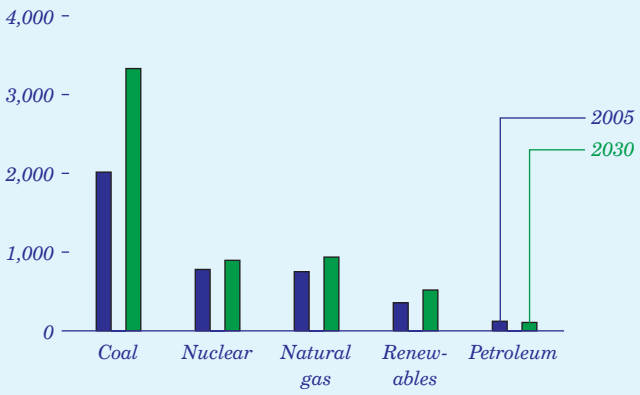
Total electricity sales increase by 41 percent in the *AEO2007* reference case, from 3,660 billion kilowatthours in 2005 to 5,168 billion kilowatthours in 2030. The largest increase is in the commercial sector (Figure 53), as service industries continue to drive growth. Electricity sales, which are strongly affected by the rate of economic growth, are projected to grow by 54 percent in the high growth case, to 5,654 billion kilowatthours in 2030, but by only 28 percent in the low growth case, to 4,682 billion kilowatthours in 2030.

By end-use sector, electricity demand in the reference case is projected to grow by 39 percent from 2005 to 2030 in the residential sector, by 63 percent in the commercial sector, and by 17 percent in the industrial sector. Growth in population and disposable income is expected to lead to increased demand for products, services, and floorspace, with a corresponding increase in demand for electricity for space heating and cooling and to power the appliances and equipment used by buildings and businesses. Population shifts to warmer regions will also increase the need for cooling.

The growth in demand for electricity is expected to be potentially offset by efficiency gains in both the residential and commercial sectors, and higher energy prices are expected to encourage investment in energy-efficient equipment. In both sectors, continuing efficiency gains are expected for electric heat pumps, air conditioners, refrigerators, lighting, cooking appliances, and computer screens. In the industrial sector, increases in electricity sales are offset by rapid growth in on-site generation.

Coal-Fired Power Plants Provide Largest Share of Electricity Supply

Figure 54. Electricity generation by fuel, 2005 and 2030 (billion kilowatthours)



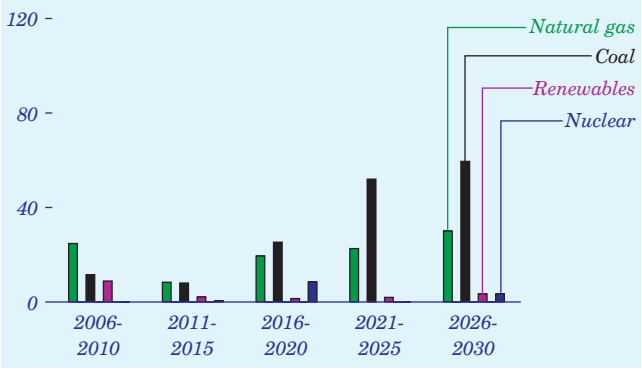
Coal-fired power plants (including utilities, independent power producers, and end-use CHP) continue to supply most of the Nation's electricity through 2030 (Figure 54). In 2005, coal-fired plants accounted for 50 percent of generation and natural-gas-fired plants for 19 percent. Most capacity additions over the next 10 years are natural-gas-fired plants, increasing the natural gas share to 22 percent and lowering the coal share to 49 percent in 2015. As natural gas becomes more expensive, however, more coal-fired plants are built. In 2030, the generation shares for coal and natural gas are 57 percent and 16 percent, respectively.

Nuclear and renewable generation increase as new plants are built, stimulated by Federal tax incentives and rising fossil fuel prices. Nuclear generation also increases modestly with improvements in plant performance and expansion of existing facilities, but the nuclear share of total generation falls from 19 percent in 2005 to 15 percent in 2030. The generation share from renewable capacity (about 9 percent of total electricity supply in 2005) remains roughly constant at about 9 percent.

Relative fuel costs, particularly for natural gas and coal, affect both the utilization of existing capacity and technology choices for new plants. Natural-gas-fired plants are projected to provide 27 percent of total electricity supply in 2030 in the low price case but only 11 percent in the high price case, while the projected share of total generation from coal-fired plants is 45 percent in the low price case but increases to 61 percent in the high price case. Changes in environmental policies would also affect the *AEO2007* projections for capacity additions.

Early Capacity Additions Use Natural Gas, Coal Plants Are Added Later

Figure 55. Electricity generation capacity additions by fuel type, including combined heat and power, 2006-2030 (gigawatts)



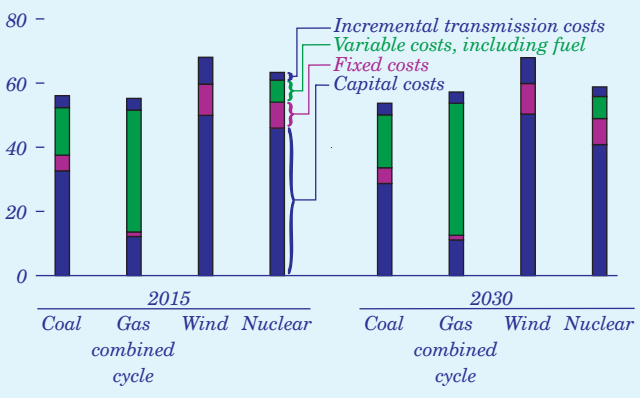
In the reference case, 292 gigawatts of new generating capacity (including end-use CHP) is required by 2030 to meet growth in electricity demand and to replace inefficient, older generating plants that are retired. Capacity decisions depend on the costs and operating efficiencies of different options, fuel prices, demand growth, and the availability of Federal tax credits for investments in some technologies.

Coal-fired capacity, which typically is expensive to build but has relatively low operating costs, accounts for about 54 percent of the total capacity additions from 2006 to 2030 (Figure 55). Natural-gas-fired plants, which generally are the least expensive capacity to build but have comparatively high fuel costs, represent 36 percent of the projected additions. Renewable and nuclear plants, which have high investment costs and low operating costs, account for 6 percent and 4 percent of total additions, respectively. Of the 12 gigawatts of new nuclear capacity expected by 2030, 3 gigawatts is added after the EPACT2005 PTC expires in 2020.

Different fuel price paths or growth rates for electricity demand can affect the quantity and mix of capacity additions. In the low and high price cases, variations in fuel prices have little impact on total capacity additions but do affect the mix of capacity types. Because fuel costs are a larger share of total expenditures for new natural-gas-fired capacity, higher fuel prices lead to more coal-fired additions. In the economic growth cases, capacity additions range from 191 gigawatts in the low growth case to 398 gigawatts in the high growth case, but with similar shares for the different generating technologies in both cases.

Least Expensive Technology Options Are Likely Choices for New Capacity

Figure 56. Levelized electricity costs for new plants, 2015 and 2030 (2005 mills per kilowatthour)



Technology choices for new generating capacity are made to minimize cost while meeting local and Federal emissions constraints. The choice of technology for capacity additions is based on the least expensive option available (Figure 56) [*167*]. The *AEO2007* reference case assumes a capital recovery period of 20 years. In addition, the cost of capital is based on competitive market rates, to account for the risks of siting new units.

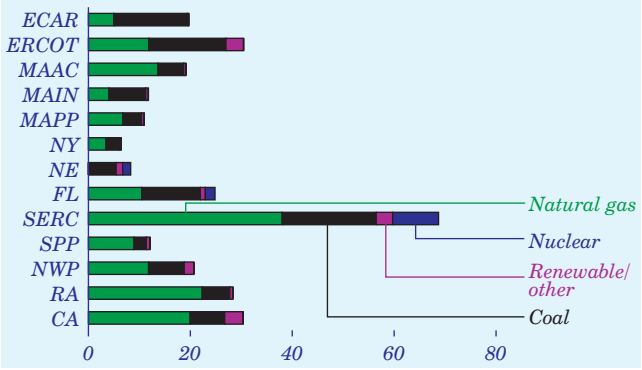
Capital costs decline over time (Table 16), at rates that depend on the current stage of development for each technology. For the newest technologies, capital costs are initially adjusted upward to reflect the optimism inherent in early estimates of project costs. As project developers gain experience, the costs are assumed to decline. The decline continues at a progressively slower rate as more units are built. The efficiency of new plants is also assumed to improve through 2015, with heat rates for advanced combined cycle and coal gasification units declining from 6,572 and 8,309 Btu per kilowatthour, respectively, in 2005 to 6,333 and 7,200 Btu per kilowatthour in 2015.

Table 16. Costs of producing electricity from new plants, 2015 and 2030

Costs	2015		2030	
	Advanced coal	Advanced combined cycle	Advanced coal	Advanced combined cycle
	2005 mills per kilowatthour			
Capital	*32.64*	*12.16*	*28.71*	*11.12*
Fixed	*4.89*	*1.44*	*4.89*	*1.44*
Variable	*14.82*	*37.97*	*16.49*	*41.17*
Incremental transmission	*3.72*	*3.67*	*3.64*	*3.49*
Total	***56.07***	***55.24***	***53.73***	***57.22***

Largest Capacity Additions Expected in the Southeast and the West

Figure 57. Electricity generation capacity additions, including combined heat and power, by region and fuel, 2006-2030 (gigawatts)



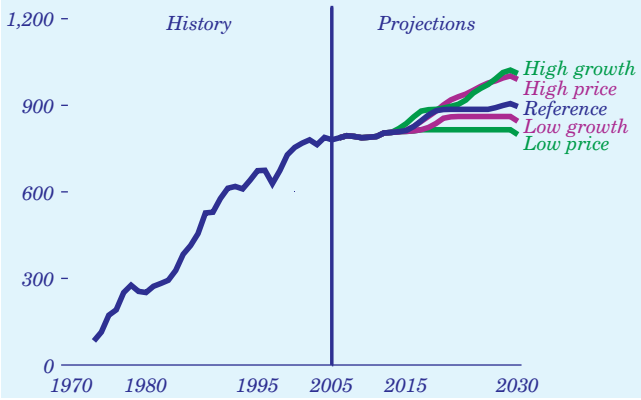
Most areas of the United States currently have excess generation capacity, but all electricity demand regions (see Appendix F for definitions) are expected to need additional, currently unplanned, capacity by 2030. The largest amounts of new capacity are expected in the Southeast (FL and SERC) and the West (NWP, RA, and CA). In the Southeast, electricity demand represents a relatively large share of total U.S. electricity sales, and its need for new capacity is greater than in other regions (Figure 57).

With natural gas prices rising in the reference case, coal-fired plants make up most of the capacity additions through 2030, given the assumption that current environmental policies are maintained indefinitely. The largest concentrations of new coal-fired plants are in the Southeast and the West. In the Southeast, new coal-fired plants are built in view of the size of the electricity market and the corresponding need for additional capacity. In the West, where the capacity requirement is much smaller, the choice to build mostly coal-fired plants is based on the region's lower-than-average coal prices and higher-than-average natural gas prices.

Nationwide, some new natural-gas-fired plants are built to maintain a diverse capacity mix or to serve as reserve capacity. Most are located in the Midwest (MAPP, MAIN, and ECAR) and Southeast (FL and SERC). The Midwest has a surplus of coal-fired generating capacity and does not need to add many new coal-fired plants. In the Southeast, natural-gas-fired plants are needed along with coal-fired plants to maintain diversity in the capacity mix.

EPACT2005 Tax Credits Are Expected To Stimulate New Nuclear Builds

Figure 58. Electricity generation from nuclear power, 1973-2030 (billion kilowatthours)



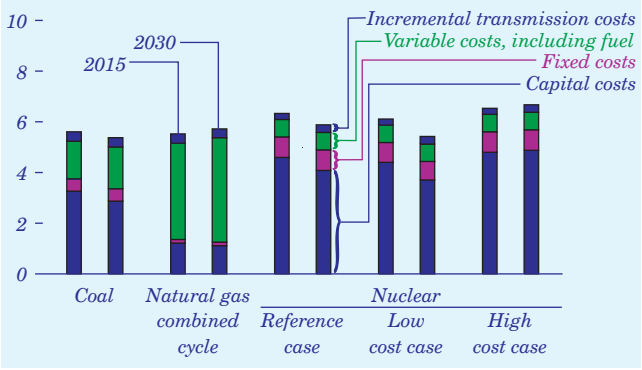
In the *AEO2007* reference case, nuclear capacity increases from 100.0 gigawatts in 2005 to 112.6 gigawatts in 2030. The change includes 2.7 gigawatts of capacity expansion at existing plants, 12.5 gigawatts of capacity at new plants, and 2.6 gigawatts of retirements of older units. EPACT2005 provides an 8-year PTC of 1.8 cents per kilowatthour for up to 6 gigawatts of new nuclear capacity built before 2021; however, the credit can be shared for additional capacity at a lower credit value. The reference case assumes that 9.0 gigawatts will be built by 2020 and will receive tax credits worth 1.2 cents per kilowatthour. The increase in capacity at existing units assumes that all uprates approved, pending, or expected by the NRC will be carried out.

Most existing nuclear units are expected to continue operating through 2030, based on the assumption that they will apply for and receive license renewals. Four units, totaling 2.6 gigawatts, are projected to be retired in 2030, when the date of their original licenses plus a 20-year renewal is reached.

Projected nuclear capacity additions vary, depending on overall demand for electricity and the prices of other fuels. Across the five main *AEO2007* cases, nuclear generation grows from 780 billion kilowatthours in 2005 to between 799 and 1,010 billion kilowatthours in 2030 (Figure 58). In the low price case, the delivered price of natural gas in 2030 is 10 percent lower than in the reference case, and new nuclear plants are not economical. In the high price and high growth cases, respectively, 24 and 27 gigawatts of new nuclear capacity are projected, because more capacity is needed and the cost of alternatives is higher.

When Lower Costs Are Assumed, New Nuclear Plants Are More Competitive

Figure 59. Levelized electricity costs for new plants by fuel type, 2015 and 2030 (2005 cents per kilowatthour)

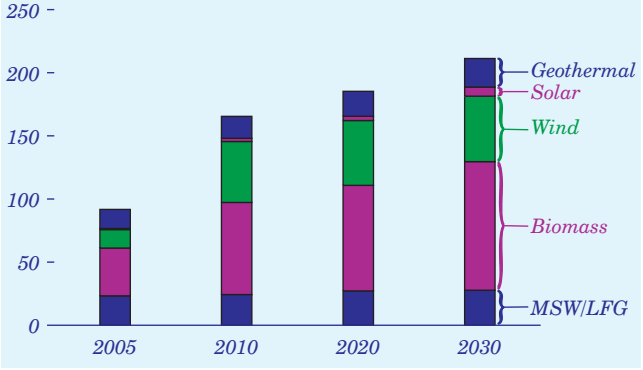


The reference case assumptions for the cost and performance characteristics of new technologies are based on cost estimates by government and industry analysts, allowing for uncertainties about new designs. Because no new nuclear plants have been ordered in this country since 1977, there is no reliable estimate of what they might cost. To test the significance of uncertainty in the assumptions, alternative cases vary key parameters. The low nuclear cost case assumes capital and operating costs 10 percent below those in the reference case in 2030, reflecting a 25-percent reduction in overnight capital costs from 2006 to 2030. The high nuclear cost case assumes no change in capital costs for advanced nuclear technologies from their 2006 levels.

Nuclear generating costs in the low nuclear cost case are more competitive with the generating costs for new coal- and natural-gas-fired units toward the end of the projection period (Figure 59). (The figure shows average generating costs, assuming generation at the maximum capacity factor for each technology; the costs and relative competitiveness of the technologies could vary by region.) In the reference case, Federal tax credits result in 9.0 gigawatts of new nuclear capacity by 2020, leading to lower costs in the future and an additional 3.5 gigawatts after the tax credits expire. In the low nuclear cost case, 28.5 gigawatts of new nuclear capacity is added between 2005 and 2030. The additional nuclear capacity displaces primarily new coal-fired capacity. In the high nuclear cost case, where capital costs are higher than expected, only 6 gigawatts of nuclear capacity is projected to be built, all due to the Federal tax credits.

Biomass and Wind Lead Projected Growth in Renewable Generation

Figure 60. Nonhydroelectric renewable electricity generation by energy source, 2005-2030 (billion kilowatthours)

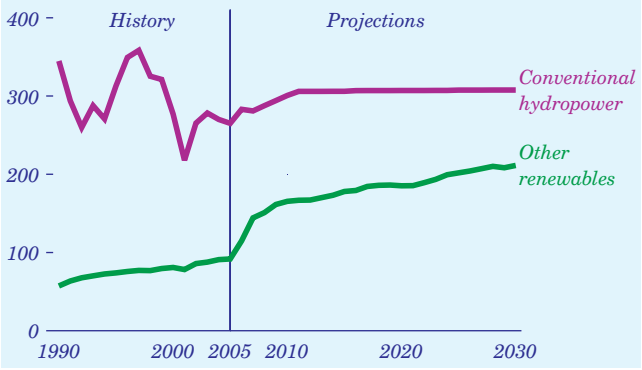


There is considerable uncertainty about the growth potential of wind power, which depends on a variety of factors, including fossil fuel costs, State renewable energy programs, technology improvements, access to transmission grids, public concerns about environmental and other impacts, and the future of the Federal PTC, which was set to expire at the end of 2007 but has been extended to 2008. In the *AEO2007* reference case, generation from wind power increases from 0.4 percent of total generation in 2005 to 0.9 percent in 2030 (Figure 60). Generation from geothermal facilities, while increasing, is not projected to gain market share and remains at its 2005 level of 0.4 percent of total generation in 2030, because opportunities for the development of new sites are limited. Most of the suitable sites, restricted mainly to Nevada and California, involve relatively high up-front costs and performance risks; and although geothermal power plants are eligible for the Federal PTC, the long construction lead times required make it unlikely that significant new capacity could be built in time to benefit from the current credit.

Among the other alternative fuel technologies, generation from municipal solid waste (MSW) and LFG stays at 0.5 percent of total generation. Solar technologies in general remain too costly for grid-connected applications, but demonstration programs and State policies support some growth in central-station solar PV, and small-scale customer-sited PV applications grow rapidly [*168*]. Grid-connected solar generation increases to 0.1 percent of total generation in 2030.

Technology Advances, Tax Provisions Increase Renewable Generation

Figure 61. Grid-connected electricity generation from renewable energy sources, 1990-2030 (billion kilowatthours)

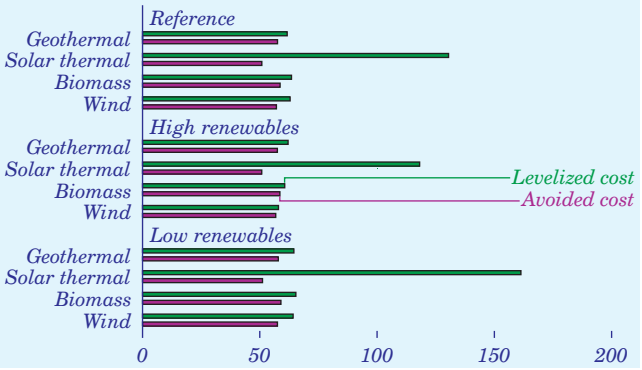


Despite technology improvements, rising fossil fuel costs, and public support, the contribution of renewable fuels to U.S. electricity supply remains relatively small in the *AEO2007* reference case at 9.0 percent of total generation in 2030—about the same as their share in 2005 (Figure 61). Although conventional hydropower remains the largest source of renewable generation through 2030, environmental concerns and the scarcity of untapped large-scale sites limit its growth, and its share of total generation falls from 6.6 percent in 2005 to 5.3 percent in 2030. Electricity generation from nonhydroelectric alternative fuels increases, however, bolstered by technology advances and State and Federal supports. The share of nonhydropower renewable generation increases by 60 percent, from 2.3 percent of total generation in 2005 to 3.6 percent in 2030.

Biomass is the largest source of renewable electricity generation among the nonhydropower renewable fuels. Co-firing with coal is relatively inexpensive when low-cost biomass resources are available. As low-cost feedstocks begin to be exhausted, however, more costly biomass resources are used, and new dedicated biomass facilities, such as IGCC plants, are built. Electricity generation from biomass increases from 1.0 percent of total generation in 2005 to 1.8 percent in 2030, with approximately 47 percent of the increase coming from biomass co-firing, 29 percent from dedicated power plants, and 25 percent from new on-site CHP capacity.

Renewables Are Expected To Become More Competitive Over Time

Figure 62. Levelized and avoided costs for new renewable plants in the Northwest, 2030 (2005 mills per kilowatthour)

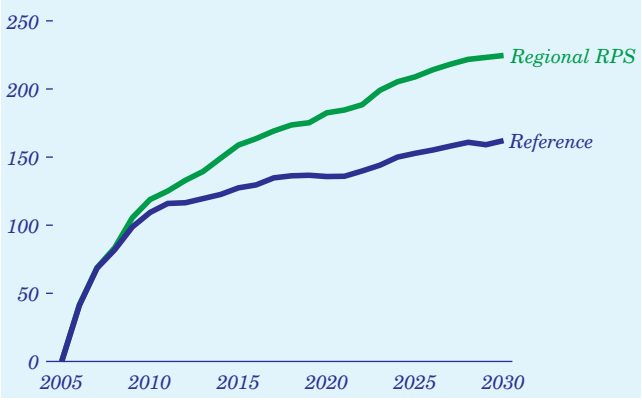


The competitiveness of both conventional and renewable generation resources is based on the most cost-effective mix of capacity that satisfies the demand for electricity across all hours and seasons. Baseload technologies tend to have low operating costs and set the market price for power only during the hours of least demand. Dispatchable geothermal and biomass resources compete directly with new coal and nuclear plants, which to a large extent determine the avoided cost [*169*] for baseload energy. In some regions and years, new geothermal or biomass plants may be competitive with new coal-fired plants, but their development is limited by the availability of geothermal resources or competitive biomass fuels.

Wind and solar are intermittent technologies that can be used only when resources are available. With relatively low operating costs and limited resource availability, their avoided costs are determined largely by the operating costs of the most expensive units in operation when their resources are available. Solar generators tend to operate during peak load periods, when natural-gas-fired combustion turbines and combined-cycle units with higher fuel costs determine avoided costs. The levelized cost of solar thermal generation is significantly higher than its avoided cost through 2030 (Figure 62). The availability of wind resources varies among regions, but wind plants tend to displace intermediate load generation. Thus, the avoided costs of wind power are determined largely by the low-to-moderate operating costs of combined-cycle and coal-fired plants, which set power prices during intermediate load hours. In some regions and years, levelized costs for wind power are approximately equal to its avoided costs.

State Portfolio Standards Increase Generation from Renewable Fuels

Figure 63. Renewable electricity generation, 2005-2030 (billion kilowatthours)



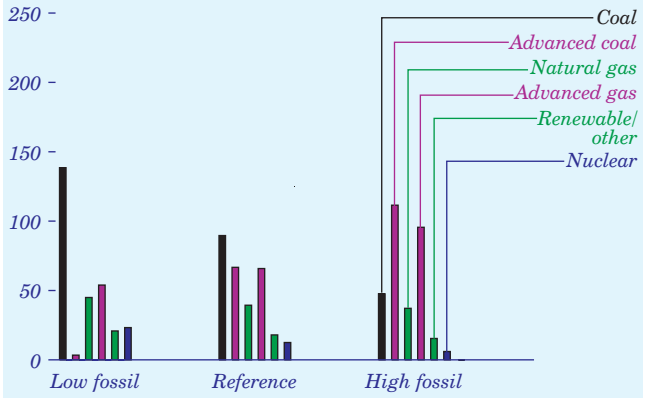
In 2005, 23 States and the District of Columbia had RPS or similar programs in effect. An alternative case was prepared for *AEO2007* to examine the potential impacts of full compliance with those programs. Because NEMS does not provide projections at the State level, the *AEO2007* regional RPS case assumed that all States would reach their goals within each program's legislative framework, and the results were aggregated at the regional level. In some States, however, compliance could be limited by authorized funding levels for the programs. For example, California is not expected to meet its renewable energy targets because of restraints on the funding of its RPS program.

In the regional RPS case, State renewable energy programs are projected to result in a national total of 61 billion kilowatthours of additional nonhydropower renewable generation in 2030 relative to the reference case, a 29-percent increase (Figure 63). Most of the additional generation is projected to come from biomass resources, with smaller increases for wind, municipal waste, and geothermal generation, which together account for 8 percent of the projected increase.

Nearly 5 gigawatts of additional new dedicated biomass capacity is projected for the mid-Atlantic region in the RPS case, as a result of the implementation of aggressive standards and the limited availability of other renewable resources. Florida, New York, and New England each would add 500 megawatts or more biomass capacity, whereas States in the West would add little new capacity beyond that projected in the reference case.

Fossil-Fired Capacity Additions Vary With Cost and Performance

Figure 64. Cumulative new generating capacity by technology type, 2006-2030 (gigawatts)

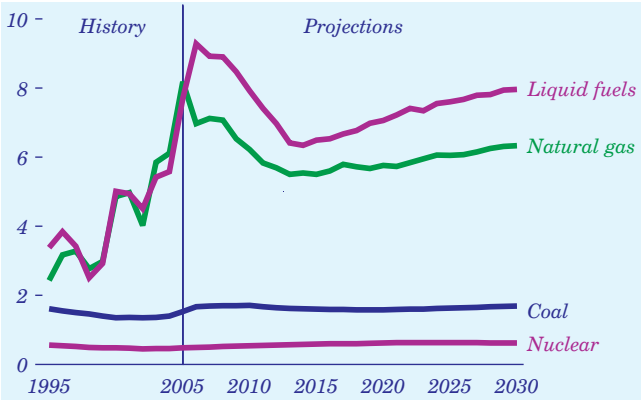


The cost and performance of various generating technologies in the reference case are determined in consultation with industry and government specialists. To test the significance of uncertainty in the assumptions, alternative cases vary key parameters. In the high fossil technology case, capital costs, heat rates, and operating costs for advanced fossil-fired generating technologies in 2030 are assumed to be 10 percent lower than in the reference case. The low fossil technology case assumes no change from the 2006 capital costs and heat rates for advanced technologies.

With different cost and performance assumptions, the mix of generating technologies changes (Figure 64). In all cases, assuming continuation of current environmental policies, coal technologies account for at least 50 percent of new capacity additions; in the high fossil technology case, 70 percent of coal-fired additions use advanced technologies, compared with only 2 percent in the low fossil case. Natural-gas-fired capacity makes up 35 to 42 percent of new additions in all cases. Advanced technologies represent 72 percent of those additions in the high fossil case and 55 percent in the low fossil case. The improved economics of advanced fossil technologies in the high fossil case result in fewer nuclear and renewable builds and more retirements of older steam units. Electricity prices are 2 percent lower in 2030 in the high fossil case than in the reference case. Because fossil-fired capacity is more costly in the low fossil case, more nuclear capacity (11 gigawatts) and slightly more renewable capacity are added; however, the higher costs of operating less efficient fossil-fired capacity in the low fossil technology case cause projected electricity prices in 2030 to be 2 percent higher than in the reference case.

Fuel Costs Drop from Recent Highs, Then Increase Gradually

Figure 65. Fuel prices to electricity generators, 1995-2030 (2005 dollars per million Btu)



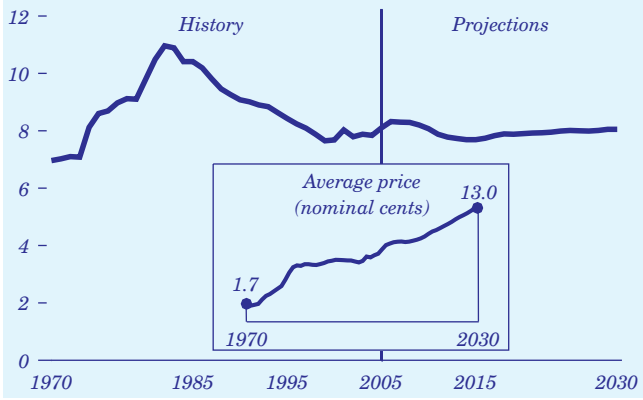
Electricity production costs are a function of fuel, operation and maintenance, and capital costs. In the reference case, fuel costs account for about two-thirds of production costs for new natural-gas-fired plants, less than one-third for new coal-fired units, and about one-tenth for new nuclear power plants in 2030. Generation from natural-gas-fired power plants increased in the early 2000s, but rising natural gas prices have increased their generation costs. After a 34-percent jump from 2004, natural gas prices were $8.18 per million Btu (2005 dollars) in 2005.

In the reference case, the price of natural gas delivered to the electric power sector drops to $5.50 per million Btu in 2013, then rises to $6.33 per million Btu in 2030 (Figure 65). Coal prices to the electric power sector remain relatively low, peaking at $1.71 per million Btu in 2010, falling to $1.69 per million Btu in 2018, and remaining at that level through 2030. Accordingly, the natural gas share of generation (including utilities, independent power producers, and end-use CHP) peaks at 22 percent in 2016, then drops to 16 percent in 2030 as prices rise, while the coal share increases from 50 percent in 2016 to 57 percent in 2030. Nuclear fuel costs rise steadily, to $0.62 per million Btu in 2030.

In the low and high price cases, coal prices to the power sector in 2030 are $1.51 and $1.80 per million Btu, respectively, and natural gas prices are $5.71 and $7.79 per million Btu. As a result, the respective coal and natural gas shares of total generation in 2030 are projected to be 45 percent and 27 percent in the low price case, as compared with 61 percent and 11 percent in the high price case.

Electricity Prices Moderate in the Near Term, Then Rise Gradually

Figure 66. Average U.S. retail electricity prices, 1970-2030 (2005 cents per kilowatthour)



In the reference case, retail electricity prices peak at 8.3 cents per kilowatthour (2005 dollars) in 2006, then fall to 7.7 cents per kilowatthour in 2015 as new sources of natural gas and coal are brought on line. After 2013, fossil fuel prices rise slowly but steadily, and retail electricity prices also rise gradually after 2015, to 8.1 cents per kilowatthour in 2030 (Figure 66). Customers in States with competitive retail markets for electricity are expected to see the effects of changes in natural gas prices in their electricity bills more rapidly than those in regulated States, because competitive prices are determined by the marginal cost of energy rather than the average of all plant costs, and natural-gas-fired plants, with their higher operating costs, often set hourly marginal prices.

Electricity distribution costs are projected to decline by 8 percent from 2005 to 2030, as technology improvements and a growing customer base lower the cost of the distribution infrastructure. Transmission costs, on the other hand, increase by 29 percent, because additional investment is needed to meet consumers' growing demand for electricity and to facilitate competition in wholesale energy markets.

Economic expansion increases electricity consumption by businesses, factories, and residents as they buy and use more electrical equipment. Thus, over the long term, the rate of economic growth has a greater effect on the range of electricity prices than do oil and natural gas prices, because power suppliers can substitute coal, nuclear, and renewable fuels for expensive natural gas. In the low and high economic growth cases, electricity prices are 7.8 and 8.4 cents per kilowatthour, respectively, in 2030.

APPENDIX E

Senate Bill 953
"Railroad competition and Service Improvement Act of 2007"

S 953 IS

110th CONGRESS

1st Session

S. 953

To amend title 49, United States Code, to ensure competition in the rail industry, enable rail customers to obtain reliable rail service, and provide those customers with a reasonable process for challenging rate and service disputes.

IN THE SENATE OF THE UNITED STATES

March 21, 2007

Mr. ROCKEFELLER (for himself, Mr. CRAIG, Mr. DORGAN, Mr. VITTER, Ms. KLOBUCHAR, Mr. TESTER, Ms. LANDRIEU, Mr. CRAPO, Mr. BAUCUS, and Ms. CANTWELL) introduced the following bill; which was read twice and referred to the Committee on Commerce, Science, and Transportation

A BILL

To amend title 49, United States Code, to ensure competition in the rail industry, enable rail customers to obtain reliable rail service, and provide those customers with a reasonable process for challenging rate and service disputes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

(a) Short Title- This Act may be cited as the `Railroad Competition and Service Improvement Act of 2007'.

(b) Table of Contents- The table of contents for this Act is as follows:

SEC. 2. REFERENCES TO TITLE 49, UNITED STATES CODE.

Except as otherwise expressly provided, whenever in this Act an amendment or repeal is expressed in terms of an amendment to, or a repeal of, a section or other provision, the reference shall be considered to be made to a section or other provision of title 49, United States Code.

TITLE I--ENSURING COMPETITION IN THE RAIL INDUSTRY

SEC. 101. CLARIFICATION OF RAIL TRANSPORTATION POLICY AND DIRECTIVES FOR IMPLEMENTATION.

Section 10101 is amended--

(1) by inserting `(a) In General- ' before `In'; and

(2) by adding at the end the following:

`(b) Implementation Directives- In implementing subtitle IV, the Board shall--

`(1) ensure, to the maximum extent possible, effective competition among rail carriers at origins and destinations;

`(2) ensure reasonable rates for rail customers in the absence of competition; and

`(3) ensure consistent, efficient, and reliable rail transportation service for rail customers, including the timely provision of rail cars requested by rail customers.'.

SEC. 102. REQUIREMENT FOR RAILROADS TO PROVIDE RATES FOR TRANSPORTATION.

Section 11101(a) is amended--

(1) by inserting `(1)' after `(a)';

(2) by striking `A rail carrier shall not' and inserting the following:

`(3) A rail carrier may not'; and

(3) by inserting after paragraph (1) the following:

`(2) Upon the request of a shipper, a rail carrier shall establish a rate for transportation and provide service requested by the shipper between any 2 points on the system of that carrier at which traffic originates, terminates, or may reasonably be interchanged. A carrier shall establish a rate and provide service upon such request without regard to--

`(A) the location of the movement on the rail system, including terminal areas;

`(B) whether the rate established is for part of a movement between a point of origin and a destination;

`(C) whether the shipper has made arrangements for transportation for any other part of that movement; or

`(D) whether the shipper has a contract with any rail carrier for part or all of its transportation needs over the route of movement.'.

SEC. 103. ELIMINATION OF BARRIERS TO COMPETITION BETWEEN CLASS I, CLASS II, AND CLASS III RAIL CARRIERS.

(a) In General- Section 10901 is amended by adding at the end the following:

`(e)(1) The Board may not issue a certificate authorizing an activity described in subsection (a), section 10902, or section 11323, or exempt a person, a class of persons, a transaction, or a service from the applicability of this section with respect to such an activity under section 10502, if the activity involves a transfer of interest in a line of railroad, from a Class I rail carrier to a Class II or Class III rail carrier, and the activity would directly or indirectly--

`(A) restrict or limit the ability of the Class II or Class III rail carrier to interchange traffic with other rail carriers;

`(B) restrict or limit competition of rail carriers in the region affected by the activity in a manner that would violate antitrust laws of the United States (notwithstanding any exemption from the applicability of antitrust laws that is provided under section 10706 or any other provision of law); or

`(C) require higher per car interchange rates for Class II or Class III rail carriers to interchange traffic with other rail carriers.

`(2) Any party to an activity described in paragraph (1) that has been carried out, or any rail shipper affected by such an activity, may request that the Board review the activity to determine whether the activity has resulted in a restriction described in that paragraph. If the Board determines, upon review of the activity, that the activity resulted in such a restriction, the Board shall declare the restriction to be unlawful and terminate the restriction unless the Board determines that the termination of the restriction would materially impair the ability of an affected rail carrier to provide service to the public or would otherwise be inconsistent with the public interest.

`(3) In this subsection, the term `antitrust laws' has the meaning given that term in subsection (a) of the first section of the Clayton Act (15 U.S.C. 12(a)), except that such term also means section 5 of the Federal Trade Commission Act (15 U.S.C. 45) to the extent that section 5 applies to unfair methods of competition.'.

(b) Applicability- Paragraph (2) of section 10901(e), as added by subsection (a), shall apply with respect to any activity referred to in that paragraph for which the Surface Transportation Board issued a certificate authorizing the activity under section 10502 before, on, or after the date of enactment of this Act.

SEC. 104. RECIPROCAL SWITCHING.

Section 11102(c) is amended--

(1) in paragraph (1)--

(A) by striking `may require' and inserting `shall require';

(B) by striking `where it finds' and inserting `if the Board determines';

(C) by striking `where such' and inserting `if such'; and

(D) by striking the second sentence and inserting the following: `The rail carriers entering into such an agreement shall establish the conditions and compensation applicable to such agreement. If the rail carriers cannot agree upon such conditions and compensation within a reasonable period of time, the Board shall establish such conditions and compensation.'; and

(2) by adding at the end the following:

`(3) In making any finding under paragraph (1), the Board may not require evidence of anticompetitive conduct by a rail carrier from which access is sought.'.

SEC. 105. AREAS OF INADEQUATE RAIL COMPETITION.

(a) Designation and Remedies-

(1) IN GENERAL- Chapter 105 is amended by adding at the end the following:

`Sec. 10503. Areas of inadequate rail competition

`(a) In General- The Board shall designate any State or substantial part of a State as an area of inadequate rail competition after finding that--

`(1) the State or substantial part of the State encompasses rail shipping origins and destinations that are served exclusively by 1 Class I railroad; and

`(2) persons that ship by rail or receive rail shipments in the State or substantial part of the State--

`(A) pay rates for the rail shipments that exceed the rates necessary to yield recovery by the rail carrier of 180 percent of revenue-variable costs, as determined under standards applied in the administration of section 10707(d); or

`(B) have experienced competitive disadvantage in the marketplace or other economic adversity because of high cost or poor quality of rail service in the State, or in a substantial part of the State.

`(b) Specific Commodities- An area of inadequate rail competition may be composed of the facilities of a group of shippers or receivers of 1 or more specific commodities within a geographic area.

`(c) Authorized Petitioners- A Governor of a State is authorized to petition the Board for a designation of the State, or of a substantial part of the State, as an area of inadequate rail competition.

`(d) Actions- Not later than 60 days after designating a State, or substantial part of a State, as an area of inadequate rail competition, the Board shall resolve the conditions described in subsection (a) that justify the designation. In taking such action, the Board may not require rates lower than those necessary to yield recovery of 180 percent of revenue-variable costs. In addition to providing other remedies authorized by law, the Board may order any of the following actions:

`(1) Provision of reciprocal switching as provided for in section 11102(c) and terminal trackage rights beyond the limits specified in section 11102 (a).

`(2) Haulage transportation of railroad cars by a rail carrier to or from facilities that such carrier physically serves on behalf of another rail carrier, for a fee prescribed by the Board.

`(3) Regarding rates on any rail segments within or connected to the area of inadequate rail competition on which rail service is susceptible to delay or interruption due to traffic congestion, expedited final offer arbitration under section 11708(e).

`(4) Expedited review of whether a rate violates the prohibition against discriminatory rates contained in section 10741, without regard to subsection (b)(2) of such section.

`(e) Procedures- In the case of a petition for an order for reciprocal switching or terminal trackage rights under subsection (d)(1), the Board may not require that there be evidence of anticompetitive conduct by a rail carrier as a prerequisite for ordering such action.'.

(2) CLERICAL AMENDMENT- The table of sections at the beginning of chapter 105 is amended by adding at the end the following new item:

`10503. Areas of inadequate rail competition.'.

(b) Study on Areas of Inadequate Rail Competition- Not later than 1 year after the date of the enactment of this Act, the Rail Customer Advocate of the Department of Transportation shall--

(1) review the effectiveness of the procedures under section 10503 for challenging and remedying conditions adversely affecting rail shippers of agricultural and forestry commodities and products, including commodities and products shipped by rail in annual volumes of 1,500 rail cars or less, and the applicability of such procedures for ameliorating rail rate and service problems, in areas of inadequate rail competition; and

(2) report the results of the study to Congress, including any recommendations that the Rail Customer Advocate may have for improving the procedures.

TITLE II--IMPROVING SERVICE TO RAIL CUSTOMERS

SEC. 201. RAIL SERVICE.

(a) Public Notice-

(1) IN GENERAL- Not later than 7 days after receipt by the Surface Transportation Board, or any member or staff of the Board, of a complaint from a customer about rail service, the Board shall post a description of the complaint on the Board's Internet website, including--

(A) information identifying the railroad or railroads providing the service that is the subject of the complaint;

(B) the general geographic area of the customer's movement;

(C) the date upon which the service problem occurred; and

(D) the date notice of the complaint was made to the Board or any member or staff of the Board.

(2) The Internet posting shall identify the rail customer only upon the written consent of the rail customer. Not later than 5 days after the date the complaint is resolved, the Board shall update the information posted on the Board's Internet website to indicate that the complaint has been resolved, the means of its resolution, and the date of its resolution.

(b) Annual Report to Congress-

(1) IN GENERAL- Not later than March 15, 2008, and annually thereafter, the Surface Transportation Board shall submit to Congress a report regarding the service complaints received by the Board, or any member

or staff of the Board, in the previous calendar year for each Class I railroad.

(2) CONTENTS- Each report submitted under paragraph (1) shall include a description of each service complaint, including--

(A) information identifying the railroad in question;

(B) the geographic area of the customer's movements;

(C) the date on which the service problem occurred;

(D) the date notice of the service complaint was made to the Board, or any member or staff of the Board; and

(E) the date of, and a detailed description of, the resolution of the complaint.

(3) PUBLICATION- A copy of the report submitted under paragraph (1) shall be posted on the Board's Internet website.

(c) Time Limits on Petitions for Injunctive Relief- Section 721(b) is amended--

(1) by redesignating paragraphs (1) through (4) as subparagraphs (A) through (D);

(2) by inserting `(1)' before `The Board may'; and

(3) by adding at the end the following:

`(2)(A) If, not later than 20 days after the publication of a new or revised rail rate, rule, or practice, a complaint is filed, and injunctive or similar relief is sought, based on an allegation of unlawfulness (other than an allegation that a rate level is not reasonable within the meaning of section 10701(d)), the Board, not later than 90 days after receiving such a complaint, shall determine, based on applicable law, whether or not to grant the relief sought.

`(B) If the party requesting relief establishes that the rule or practice involved in the complaint is unlawful per se, there shall be a strong presumption of irreparable harm regardless of the availability of monetary relief.

`(C) The Board may not deny injunctive or similar relief based in whole or in part on the absence of irreparable harm due to the availability of adequate monetary relief unless monetary damages have been awarded to the complaining party.'.

SEC. 202. RAILROAD OBLIGATION TO SERVE.

Section 11101(a) is amended by inserting `The transportation provided shall be reliable and efficient.' after `on reasonable request.'.

SEC. 203. DAMAGES DUE TO THE FAILURE OF TIMELY DELIVERY.

Section 11704(b) is amended by inserting `, including damages due to the failure of timely delivery' after `violation of this part'.

SEC. 204. RAIL CUSTOMER ADVOCATE.

(a) Amendment- Subchapter II of chapter 7 is amended--

(1) by redesignating section 727 as section 728; and

(2) by inserting after section 726 the following:

`Sec. 727. Office of Rail Customer Advocacy

`(a) In General- There is established, within the Department of Transportation, the Office of Rail Customer Advocacy.

`(b) Rail Customer Advocate- The Office of Rail Customer Advocacy shall be headed by the Rail Customer Advocate, who shall be appointed in the competitive service by the Secretary of Transportation, in consultation with the Secretary of Agriculture.

`(c) Duties and Powers of Rail Customer Advocate- The Rail Customer Advocate shall--

`(1) accept rail customer complaints;

`(2) participate as a party in proceedings of the Board on petitions for action by the Board regarding the regulation of rail transportation, and may initiate such an action;

`(3) collect, compile, and maintain information regarding the cost and efficiency of rail transportation; and

`(4) carry out other duties and powers prescribed by the Board.

`(d) Access to Information- The Rail Customer Advocate shall have access to information, including databases, of the Board to carry out the duties and powers under subsection (c).'.

(b) Clerical Amendment- The table of sections at the beginning of chapter 7 is amended by striking the item relating to section 727 and inserting the following:

`727. Office of Rail Customer Advocacy.

`728. Definitions.'.

TITLE III--PROVIDING ACCESS TO A REASONABLE RATE PROCESS

SEC. 301. RIGHTS OF RAIL CUSTOMERS.

(a) In General- Chapter 107 is amended by inserting before section 10701 the following:

`Sec. 10700. Rights of rail customers

`Rail customers that are subject to railroad market dominance shall have a right of access to a process maintained by the Board for determining if the rate in question is reasonable. The Board shall ensure that the process is accessible by all affected rail customers and is cost effective.'.

(b) Clerical Amendment- The table of sections for chapter 107 is amended by inserting before the item relating to section 10701 the following:

`10700. Rights of rail customers.'.

SEC. 302. IMPROVEMENT OF RATE REASONABLENESS STANDARD.

(a) In General- Section 10701(d) is amended by adding at the end the following:

`(4)(A) Not later than 1 year after the date of the enactment of this paragraph, the Board shall adopt a method for determining the reasonableness of rail rates based on the railroad's actual costs, including a portion of fixed costs and an adequate return on debt and equity. The method adopted--

`(i) shall permit a final determination not later than 9 months after a complaint is filed;

`(ii) shall ensure that necessary cost and operational information is available to the complainant;

`(iii) shall not require excessive litigation costs; and

`(iv) shall require, upon a showing by the shipper of market dominance (as defined in section 10707), that the rail carrier prove that the challenged rate is reasonable.

`(B) The Board may not use any method for determining the reasonableness

of rail rates based on the costs of a hypothetical competitor, except that, in any rate reasonableness proceeding filed before the method required under subparagraph (A) is adopted, the complaint, upon the election of the complainant, shall be decided based on applicable rate standards in effect on the date of the filing, including small shipper rate guidelines.

`(C) The Board shall adopt a method under this paragraph that applies the `phasing constraint' in its existing rail rate method so that it can be practically administered without substantial litigation-related costs in any proceeding involving a challenge to a rail rate in which the Board determines that the phasing constraint applies.

`(5) Upon receiving notification of a challenge made by a shipper to the reasonableness of any rate established by a rail carrier, the Board shall determine the reasonableness of the rate without regard to--

`(A) whether the rate is for part of a movement between a point of origin and a destination;

`(B) whether the shipper has made arrangements for transportation for any other part of that movement; or

`(C) any other contract the shipper has with a rail carrier for any part of the rail traffic involved.'.

(b) Definition of Market Dominance- Section 10707(a) is amended to read as follows:

`(a) In this section, `market dominance' exists if a complainant shipper demonstrates that the challenged rate results in a revenue-variable cost percentage for the transportation to which the rate applies that is not less than 180 percent.'.

SEC. 303. FILING FEES ON PETITIONS FOR CAPTIVE RATE RELIEF.

Section 721 is amended by adding at the end the following:

`(f) Limitation on Fees- The Board may not charge a fee for the filing of a complaint, protest, or other request for relief in an amount greater than fees charged by district courts of the United States for a comparable filing.'.

SEC. 304. ARBITRATION OF CERTAIN RAIL RATE, SERVICE, AND OTHER DISPUTES.

(a) In General- Chapter 117 is amended by adding at the end the following:

`Sec. 11708. Arbitration of certain rail rate, service, and other disputes

`(a) Election of Arbitration- A dispute described in subsection (b) shall be submitted for resolution by arbitration upon the election of any party to the dispute.

`(b) Covered Disputes- (1) Except as provided in paragraph (2), subsection (a) shall apply to any dispute between a party and a rail carrier that--

`(A) arises under section 10701(c), 10701(d), 10702, 10704(a)(1), 10707, 10741, 10745, 10746, 11101(a), 11102, 11121, 11122, or 11706;

`(B) involves the transportation of any agricultural product, including timber, paper, and fertilizer; and

`(C) involves--

`(i) the payment of money;

`(ii) a rate or charge imposed by the rail carrier; or

`(iii) transportation or other service by the rail carrier.

`(2) Subsection (a) shall not apply to a dispute if the resolution of the dispute would necessarily involve the promulgation of regulations generally applicable to all rail carriers.

`(c) Arbitration Procedures- Not later than 1 year after the effective date of this section, the Board shall promulgate regulations governing voluntary arbitration that are consistent with the provisions of this section. Such modifications shall include the following:

`(1) Arbitration shall be mandatory if either party elects arbitration in lieu of filing a formal or informal complaint before the Board. Challenges to the reasonableness of rail rates or charges may not be subjected to arbitration at the sole election of a rail carrier imposing such rates or charges.

`(2) Arbitration shall be before an administrative law judge of the Board, or arranged for by the Board, unless the parties to the arbitration each select an arbitrator and the 2 selected arbitrators agree on a third arbitrator from a list of neutral arbitrators maintained by the Board.

`(3) Disputes concerning rates and charges shall not be considered or decided using any method based on stand-alone cost, the costs of a hypothetical competitor, or in reliance on precedent adopting or applying such methods.

`(4) Standards for rate reasonableness developed under section 10701 (d)(3) shall apply in arbitration under this section. The arbitrator or arbitrators shall adopt the final offer of 1 of the parties, without amendment or compromise, if such position is consistent with this section.

`(5) A rate may not be prescribed in an arbitration if such rate would result in a revenue-variable cost percentage below 180 percent or if market dominance is not found. A rate prescription may not remain in effect for longer than 5 years after the date on which the arbitrator's decision becomes final.

`(6) If a party to arbitration under this section seeks damages from a rail carrier that do not exceed $500,000 per year based on a claim of excessive rates or charges, the arbitrator shall consider evidence of rates or charges on comparable shipments.

`(7) Decisions issued in arbitration under this section shall not be subject to appeal to the Board unless all parties to the arbitration agree to such appeal. Appeals to a court, or to the Board if both parties agree to Board review, shall be based on a clear error standard, and consistency with the requirements of this section.'.

(b) Clerical Amendment- The table of sections at the beginning of chapter 117 is amended by adding at the end the following:

`Sec. 11708. Arbitration of certain rail rate, service, and other disputes.'.

TITLE IV--AUTHORITY TO INVESTIGATE

SEC. 401. AUTHORITY OF BOARD TO INVESTIGATE AND SUSPEND CERTAIN RAILROAD ACTIONS.

Section 11701(a) is amended to read as follows:

`(a)(1) The Board may begin an investigation under this part on its own initiative. If the Board finds that a rail carrier is violating this part, the Board shall take appropriate action to compel compliance with this part.

`(2) If the Board receives a complaint alleging that a rail carrier may be violating this part, the Board shall initiate an investigation.

`(3) If the alleged violation under paragraph (2) applies to more than 1 person, the Board has substantial reason to believe that the allegations in the complaint are likely to have merit, and, if the allegations prove to have merit, it will be difficult to make complete restitution for the damage, the Board--

`(A) shall suspend the rail carrier activity in question; and

`(B) may not revoke such suspension unless the rail carrier justifies the practice to the satisfaction of the Board.'.

END