

## *Use or Usage: An Electric Cooperative Guide to Style*

This glossary of electric cooperative and utility terms and acronyms was created by member publications of the National Electric Cooperative Statewide Editors Association in conjunction with *Rural Electric Magazine* and *Straight Talk Alert*. It contains key definitions, preferred wording tips, and a smattering of historical and fun facts.

### **A**

**A** ampere.

**AC** alternating current.

**access charge** A fee assessed for the right to send electricity over another utility's wires.

**ACES Power Marketing (APM)** A nationally recognized wholesale energy trading and risk management firm formed in February 1999. Owned and governed by 16 electric cooperatives, APM, based in Carmel, Ind., also serves other electric industry participants, such as municipal electric systems, financial institutions, and independent power producers. APM has become one of the nation's largest physical traders of electricity.

**acid rain** Precipitation with a high acidity level, produced when gases (notably sulfur dioxide from coal fired power plants) are released into the atmosphere. It has been blamed for damaging the environment, particularly fish life in eastern lakes. A pH of 5.6 is considered normal for rainfall. (*See sulfur dioxide.*)

**ACRE®** Action Committee for Rural Electrification.

**ACRE Co-op Owners for Political Action®** A program created by the National Rural Electric Cooperative Association in 2003 that allows residential electric cooperative consumers to participate in the Action Committee for Rural Electrification. Spell out and use trademark symbol on first reference. (*See Action Committee for Rural Electrification, grassroots, National Rural Electric Cooperative Association.*)

**Action Committee for Rural Electrification (ACRE®)** A political action committee formed by the National Rural Electric Cooperative Association in 1966 that gives financial support to congressional and state legislative candidates friendly to electric cooperatives. ACRE does not get involved in presidential, gubernatorial, statewide row office, judicial, or municipal races. Forty-nine percent of all ACRE funds are returned to state ACRE committees, based on each state's contributions. All ACRE contributions are voluntary, and membership includes electric cooperative employees, directors, attorneys, chief executives, spouses, and consumers. Spell out and use trademark symbol on first reference. (*See ACRE Co-op Owners for Political Action, National Rural Electric Cooperative Association, William F. Matson Democracy Award.*)

**active power** (*See real power.*)

**active solar energy** Using pumps or fans to move energy stored from the sun's radiation to heat a home. (*See passive solar energy, photovoltaics, solar power, solar thermal energy.*)

**advanced meter infrastructure (AMI)** A comprehensive set of technologies and software applications that enable two-way communications with a smart meter and provide electric utilities—using frequent meter reads—with near real-time oversight of system operations. (*See automated meter reading, downline automation, smart grid, smart meter.*)

**AFCI** arc fault circuit interrupter. Abbreviation acceptable on second reference.

**aggregate load** Similar businesses or groups that pool purchasing power to negotiate for better electricity prices.

**aggregators** Brokers, utilities, or other parties that put retail consumers into electric power buying groups to negotiate for the lowest possible electricity costs, or that sell demand response from multiple retail consumers into the wholesale market. Electric cooperatives have always acted as aggregators for their consumers. (*See demand response, power marketer.*)

**agribusiness** Includes all forms of enterprises involved in getting food from field to table, ranging from producing, processing, storing, and distributing commodities to manufacturing and selling farm equipment and supplies.

**air-condition, air-conditioned, air conditioner, air conditioning** *Air-condition* is a verb. *Air conditioned* is an adjective. *Air conditioner* is a noun. *Air conditioning* can be a noun or an adjective; if used as an adjective, use a hyphen.

**air-source heat pump** (*See heat pump.*)

**Alabama Living** Official consumer publication of the Montgomery, Ala.-based Alabama Rural Electric Association.

**algae reactor** A system through which algae, using photosynthesis and other biological processes, consume (and thus remove) carbon dioxide and nitrogen oxides emissions out of flue gas diverted from a coal-fired power plant. Algae can then be harvested and ultimately used for livestock feed or producing biodiesel. (*See carbon capture and storage, carbon dioxide, flue gas, nitrogen oxides.*)

**all-requirements contract** An agreement under which an electric distribution cooperative agrees to purchase all of its wholesale power needs from a single supplier, generally a generation and transmission cooperative.

**all-terrain vehicle** (ATV) Three- or four-wheel vehicle with a motorcycle engine designed for off-road activities. Used sometimes by electric cooperatives for line inspection and other tasks.

**alternating current** (AC) A flow of electricity through a conductor that reverses its direction at regularly recurring intervals, in contrast to direct current (DC). AC allows for the long-distance transport of high-voltage electricity. Nearly all of the electricity consumed in the United States comes via alternating current. Abbreviation acceptable on all references. (*See direct current, electricity, reactive power, real power.*)

**American Public Power Association** (APPA) A Washington, D.C.-based national service organization representing municipal electric utilities.

**AMI** advanced metering infrastructure.

**ampere** (A) A measure of how much electricity moves through a conductor, and indicating the size of circuit breakers and fuses. Amperes equal watts (W) divided by volts (V); a 1,000-W heater at 120 V draws 8.33 A. Abbreviation acceptable on all references. (*See Ohm's Law.*)

**AMR** automated meter reading.

**anaerobic digester** Equipment where biodegradable organic matter, such as livestock waste, gets broken down by bacteria into biogas (primarily methane) that can be used to generate heat and electricity. Sometimes called a *methane digester*. (*See base load, biomass, distributed generation, renewables.*)

**ancillary services** Items necessary to support reliable operation of an interconnected transmission system. The Federal Energy Regulatory Commission has identified six ancillary services: reactive power and voltage control, loss compensation, scheduling and dispatch, load following, system protection, and energy imbalance. (*See Federal Energy Regulatory Commission, transmission, transmission system, wholesale power market.*)

**annual meeting** Once-a-year gathering of electric cooperative members held according to a cooperative's bylaws for the purpose of electing directors and conducting other business.

**anthracite** A hard, high-energy coal containing lots of carbon and little volatile matter most commonly mined in northeastern Pennsylvania. (*See bituminous coal, coal, lignite, subbituminous coal.*)

**APM** ACES Power Marketing.

**APPA** American Public Power Association.

**arc fault circuit interrupter (AFCI)** A fire-protection device that instantly breaks an electric circuit when a non-working electric arc develops.

**arc flash** A type of electrical explosion (essentially a short circuit through the air) that can cause substantial damage, fire, or injury. In an arc flash incident, an enormous amount of concentrated energy explodes outward from electrical equipment. This creates pressure waves that can damage hearing, a high-intensity flash that can destroy eyesight, and a superheated ball of gas that can blast molten metal, tools, and other objects through the air and severely burn an unprotected line worker's body. The temperature of an arc flash can reach 35,000 degrees Fahrenheit—about four times hotter than the surface of the sun. The 2007 *National Electrical Safety Code* required all electric distribution utilities to perform assessments by January 1, 2009, as a way to determine the potential exposure of line workers to arc-flash hazards and identify the types of protective clothing necessary. (See *National Electrical Safety Code*.)

**area coverage** The extension of electric service to everyone who wants it in a given area at no additional charge; a basic tenet of electric cooperatives. (See *franchise, Pace Act, service area/territory*.)

**arrester** Never use arrestor. (See *lightning arrester*.)

**ash** Residue remaining after complete combustion of coal. (See *bottom ash, fly ash, slag*.)

**assn.** Abbreviation for *association*; used chiefly in footnotes, captions, tables, etc., where space is at a premium. Spell out in normal text.

**Atomic Energy Commission** (See *Nuclear Regulatory Commission*.)

**ATV** all-terrain vehicle.

**automated meter reading (AMR)** Specially equipped metering devices that allows utilities to remotely collect kWh use (and in some cases demand) information and transfer it to a central database for billing and/or analyzing purposes. Data, which flows just one way, can be gathered and sent via drive-by or walk-by readings as well as radio frequency, power line (note one word) carrier, telephone lines, or wireless systems. (See

*advanced meter infrastructure, meter, power line carrier, smart grid, smart meter*.)

**automatic vehicle location (AVL)** Technology used to track the geographic location of a vehicle at any point in time. Electric cooperatives use AVL to better schedule line crews in the field and ensure their safety.

**average cost** The revenue requirement of a utility divided by its sales.

**AVL** automatic vehicle location.

**avoided cost** A calculation that estimates the expense an electric utility incurs to supply or generate a certain amount of power. In practice, it refers to the price that qualifying facilities under the Public Utility Regulatory Policies Act of 1978 are entitled to receive for excess power sold to a utility. Avoided cost is established at the price a utility would have paid for power had it not purchased from a qualifying facility. (See *Public Utility Regulatory Policies Act, qualifying facility, small power producer*.)

## B

**backup, back up** *Backup* is a noun or an adjective. *Back up* is a verb.

**backup charge** The rate consumers with distributed generation systems pay to a utility for providing backup power. Also called a *standby charge*. (See *distributed generation*.)

**backup power** Electricity supplied when generating units are not in service because of emergencies, outages, or scheduled maintenance.

**barrel (bbl)** A measurement equal to 42 U.S. gallons. A barrel of No. 6 or bunker C oil commonly weighs 300 pounds and boasts an energy content of about 6.32 million Btu. However, these figures can vary from one oil field to another. Abbreviation may have originated as a symbol for blue barrels used by Standard Oil in its early days.

**base load** The minimum amount of electric power delivered or required from a generating system over a specified period of time; usually measured in MW.

**Base load** A large, efficient generating station—typically with a capacity factor of at least 65 percent— that provides dependable electric power year-round at a low cost per kWh. Coal-fired, nuclear, hydro, and (increasingly) large natural gas-fired power plants make up most base load generation in the United States, although smaller-scale biomass facilities (such as anaerobic digesters and plants burning wood waste, poultry litter, or landfill gas), if properly operated, can also produce base load output (though in much smaller quantities). Solar thermal energy (concentrating solar power) has begun making inroads as a base load source in the Southwest U.S. (*See anaerobic digester, biomass, capacity factor, coal, hydroelectric power, natural gas, nuclear power, peaking plant, solar thermal energy.*)

**base rate** The portion of a total electric rate that covers the cost of doing business unrelated to fuel expenses.

**bbbl** barrel.

**biomass** Biological material that can be used as a fuel or exploited for industrial purposes (such as chemicals, fibers, plastics, etc.). In electricity generation, biomass consists of two types: closed-loop biomass (trees grown expressly for power production) and open-loop biomass (sawdust, tree trimmings, timber slash, wood chips, farm byproducts, animal waste, and landfill gas). (*See anaerobic digester, base load, renewables, synthetic fuel.*)

**biomass conversion** The process of producing fuels or energy from renewable organic matter such as plant or animal wastes.

**bituminous coal** A high-energy soft coal that ranks below anthracite in energy value; includes most of the coal mined in the United States. (*See anthracite, coal, lignite, subbituminous coal.*)

**blackout** Total power failure over a large area, often caused by the malfunction of generating equipment or transmission facilities. (*See outage, rolling blackouts.*)

**BLC** Board Leadership Certificate.

**block rate** A pricing structure where consumers pay a specific cost for a set amount of kWh, with the price per kWh changing as set quantities are exceeded. For example, the first 100 kWh may cost 10 cents per kWh, the next 100 kWh may cost 8 cents per kWh, and all additional kWh may cost 6 cents per kWh. Under this type of rate, charges may also increase as thresholds are crossed. (*See class rate, cost-based rate, declining block rate, demand rate, flat rate, industrial rate, interruptible rate, inverted rate, off-peak rate, offset rate, ratchet rate, step rate, time-of-use rate.*)

**Board Leadership Certificate (BLC)** An advanced educational curriculum for electric cooperative directors developed by the National Rural Electric Cooperative Association. The Board Leadership Certificate can be attained after a director has achieved Credentialed Cooperative Director status and completed a total of 10 credits from 900-level training courses. (*See Credentialed Cooperative Director, National Rural Electric Cooperative Association.*)

**Bonneville Power Administration (BPA)** One of four regional federal agencies that market electricity generated primarily from federal dams. Based in Portland, Ore., BPA sells power from 31 U.S. Army Corps of Engineers and U.S. Department of the Interior Bureau of Reclamation hydro projects in eight northwestern states: all of Idaho, Oregon, and Washington as well as contiguous swaths of California, Montana, Nevada, Utah, and Wyoming. (*See Bureau of Reclamation, power marketing administrations, U.S. Army Corps of Engineers.*)

**bottom ash** Slag or other residue remaining in a boiler after coal is burned. (*See ash, fly ash, slag.*)

**BPA** Bonneville Power Administration.

**BPL** broadband over power line.

**British thermal unit** (Btu) Amount of heat needed to raise the temperature of one pound of water by one degree Fahrenheit. Abbreviation acceptable on all references.

**broadband** Often called *high-speed Internet*, it includes any data transmission connection to the consumer of 256 kilobits per second or greater. Standard broadband technologies available to rural residents include cable modem, digital subscriber line (DSL) over existing copper telephone lines, wireless, and satellite.

**broadband over powerline** (BPL) Technology that holds the promise of allowing a consumer to access high-speed Internet service simply by plugging a computer or other Web-enabled device into a power outlet. With BPL, utilities connect substations to the Internet (via fiber-optic lines or satellite hookups) and then “inject” broadband signals on existing electric distribution wires. In this usage, write out *powerline* as one word.

**broker** A firm that acts as a “middle man” in the sale and purchase of electricity but never takes ownership of it. (*See power marketer.*)

**brownout** A small, temporary voltage reduction implemented by a utility to conserve electricity during periods of high power consumption.

**Btu** British thermal unit. Singular and plural are the same.

**Btu tax** A levy based on the heat content of a particular fuel. Advocates contend a Btu tax—by moving the U.S. economy from income-based to consumption-based taxation—will slash greenhouse gas emissions, promote energy conservation, and reduce dependency on foreign oil. In 1993, the Clinton Administration unsuccessfully proposed a Btu tax on coal, natural gas, liquefied natural gas, gasoline, nuclear power, hydropower, and imported electricity at a base rate of 25.7 cents per million Btu, with an additional 34.2 cents per million Btu tacked on to refined petroleum products (for a total of 59.9 cents per million Btu). Congress nearly passed the plan, but after bogging down moved instead to increase the federal excise tax on gasoline from 14.1 cents per gallon to its

current level of 18.4 cents per gallon. (*See British thermal unit, carbon tax, greenhouse gases.*)

**bulk power** Large amounts of electricity shipped across a transmission system, generally on a wholesale level. (*See cyber security, financial transmission rights, grid, locational marginal pricing, North American Electric Reliability Corporation, regional transmission organization, rolling blackouts, transmission, transmission congestion, transmission system, wheeling, wholesale power market.*)

**bundling** The vertical organization of a utility into generation, transmission, and distribution segments. Bundling of an electric bill means the consumer gets billed just one amount for all components involved in providing electricity. (*See unbundling.*)

**Bureau of Reclamation** An agency within the U.S. Department of the Interior, established in 1902, that has constructed more than 600 dams and reservoirs in 17 western states, including such iconic projects as Hoover Dam on the Colorado River and Grand Coulee Dam on the Columbia River. The Bureau of Reclamation owns and operates 58 federal hydropower facilities. (*See hydroelectric power, power marketing administrations, U.S. Army Corps of Engineers.*)

**bus** An electrical conductor that serves as a common connection for two or more electrical circuits.

**bus-bar** Large conductors that carry electricity out of a power plant.

**bus-bar cost** The total cost of generating electricity, excluding substation and transmission losses.

**business incubator** An organization that allows startup companies to pool secretarial, data processing, and management services while offering subsidized rent.

**bylaws** Rules for governing an organization, such as an electric cooperative, approved by the membership. (*See quorum.*)

**byproduct** Something produced in the making of something else. Use as one word.

## C

**CAIDI** Customer Average Interruption Duration Index.

**CAIR** Clean Air Interstate Rule.

**cap and trade** A system of reducing airborne pollutants from large stationary sources (such as power plants, factories, and refineries) using market forces. Each facility has limit placed on the amount of a particular pollutant it can release—the cap. Sources that emit less than the cap can sell the extra allowances to those not able to achieve reductions as easily—the trade. A cap-and-trade system was first created in the Clean Air Act of 1990 for curbing emissions of acid rain-causing sulfur dioxide. Since 1999, 21 eastern states and the District of Columbia have been using a similar cap-and-trade strategy to reduce smog-producing nitrogen oxides emissions. A U.S. Environmental Protection Agency cap-and-trade rule for toxic mercury emissions from power plants was rejected by the U.S. Court of Appeals for the District of Columbia in February 2008. Cap-and-trade proposals for greenhouse gas emissions, particularly carbon dioxide, have been floated in Congress. (*See greenhouse gases, nitrogen oxides, sulfur dioxide, U.S. Environmental Protection Agency.*)

**capacitor** A device that stores electrical charges and maintains voltage levels in power lines to improve electric system efficiency.

**capacity** The potential for generating power, measured in kW or MW, of a power plant. Also the electric load, measured in W or kW, of a piece of electrical equipment. (*See megawatt, nameplate rating.*)

**capacity factor** The ratio of actual net electrical energy generation to the maximum possible energy that could have been generated if a plant operated at its maximum capacity rating for the same time. Capacity factor is normally reported as a percentage.

**capital credits** Margins credited to cooperative members based on their purchases (in the case of electric cooperatives, electricity use) from the cooperative. Used by the cooperative as working capital for a period of time, then paid back to the membership. Also called *patronage capital* or *equity capital*. Capital credits should not be confused with profits, which are a return *on* capital. Retirement of capital credits provides a return *of* member-furnished capital. (*See first in, first out, margin, percentage method, not-for-profit.*)

**captive consumer** An individual who does not have a realistic alternative to buying power from a local utility.

**captive shipper** Utilities, chemical manufacturers, steel mills, mines, lumber and wood products companies, and grain processors that must rely on a single railroad line for transporting goods or receiving raw materials.

**carbon capture and storage (CCS)** The technical process of separating carbon dioxide gas from power plant emissions (primarily coal- or natural gas-fired generation); compressing it; pumping it down into spent oil and natural gas wells, saline reservoirs, or inaccessible coal seams; and entombing it there forever. (*See algae reactor, carbon dioxide, carbon sequestration, clean-coal technology, climate change, EPRI prism, greenhouse gases.*)

**carbon dioxide** A colorless, odorless gas produced by all animals, plants, fungi, and microorganisms during respiration and used by plants during photosynthesis. Carbon dioxide also gets emitted when fossil fuels like coal and natural gas or vegetable matter are burned and from volcanoes and other geothermal processes such as hot springs and geysers. Although essential to life, the gas is increasingly viewed as a pollutant—higher carbon dioxide emissions as a result of industrialization, most scientists contend, have created a heat-trapping *greenhouse effect* in the atmosphere that's now disrupting climate patterns and warming the planet. Don't use the abbreviation CO<sub>2</sub> (*See algae reactor, climate change, global warming, greenhouse effect, greenhouse gases.*)

**carbon footprint** The impact human activities have on the environment based on the amount of greenhouse gases produced as measured in units of carbon dioxide. Individuals, nations, and organizations (like electric cooperatives) can use the calculations to conceptualize their contribution to *climate change*. (See *carbon dioxide, climate change, global warming, greenhouse effect, greenhouse gases*.)

**carbon sequestration** The permanent removal carbon dioxide from (or before it enters) the atmosphere by both natural (crops, forests, oceans, soil, and vegetation) and man-made means. Synonymous with the “storage” part of *carbon capture and storage*. (See *algae reactor, carbon capture and storage, carbon dioxide, clean-coal technology, climate change, greenhouse gases*.)

**carbon tax** A levy on energy sources that emit carbon dioxide into the atmosphere, based on the carbon content of a particular fuel. Carbon taxes are aimed at reducing consumption of coal, natural gas, and oil and with it, production of greenhouse gases. (See *Btu tax, carbon dioxide, greenhouse gases*.)

**Carolina Country** Official consumer publication of the Raleigh, N.C.-based North Carolina Association of Electric Cooperatives.

**CBA** Cooperative Benefit Administrators, Inc.

**CBO** Congressional Budget Office.

**CCC** Certified Cooperative Communicator.

**CCD** Credentialed Cooperative Director.

**CCS** carbon capture and storage.

**ceiling cable** A system that radiates heat from the ceiling, heating air in the room by convection.

**central station service** Electricity provided by a utility rather than self-generated by a consumer. (See *dynamo*.)

**Certified Cooperative Communicator (CCC)** An electric cooperative employee who has completed a demanding professional credentialing program established by the Council of Rural Electric Communicators. The CCC program is overseen by a separate board of directors. (See *Council of Rural Electric Communicators*.)

**CFC** National Rural Utilities Cooperative Finance Corporation. Spell out on first reference.

**CFCs** chlorofluorocarbons.

**CFL** compact fluorescent light bulb. Plural is CFLs. (See *light bulb*.)

**CFL Charlie** Cartoon mascot created in 2008 for the Touchstone Energy® Cooperatives Kids Zone Web site. (See *Touchstone Energy® Cooperatives*.)

**chairman** The National Association of Parliamentarians insists on *chairman* for both sexes.

**charge** A quantity of electricity produced by either a surplus or shortage of electrons in an object.

**cherry-picking** The process of competing to serve another utility’s most profitable consumers, normally big industries and housing projects. Also called *cream-skimming*. (See *franchise, service area/territory, territorial integrity*.)

**chlorofluorocarbons (CFCs)** Chemicals used as refrigerants and propellants in aerosol cans. Studies have shown that these compounds destroy the ozone layer in Earth’s atmosphere. As a result, they are completely or partially banned in most countries. Abbreviation acceptable on second reference. (See *ozone layer*.)

**CHP** combined heat and power. (See *cogeneration*.)

**circuit** A conductor, such as wire, through which electric current flows; also the path electric current takes from a power source to a device using the power and then back to the source.

**circuit breaker** A switch that opens an electric circuit when a short occurs or the system otherwise experiences abnormal stress. (*See fuse.*)

**class rate** A pricing structure given to similar groups of electric consumers, such as residential, commercial, or industrial users. (*See block rate, cost-based rate, declining block rate, demand rate, flat rate, industrial rate, interruptible rate, inverted rate, off-peak rate, offset rate, ratchet rate, step rate, time-of-use rate.*)

**Clean Air Act** The 1970 federal law that serves as the backbone of efforts to control air pollution in the United States. It requires the U.S. Environmental Protection Agency to develop and enforce regulations that protect the general public from exposure to airborne contaminants hazardous to human health. The statute was reauthorized and significantly amended in 1977 (with the inclusion of New Source Review provisions) and again in 1990 (creating a cap-and-trade program to curb emissions of acid rain-causing sulfur dioxide from power plants and other large stationary sources, like factories and refineries). (*See acid rain, cap and trade, New Source Review, sulfur dioxide, U.S. Environmental Protection Agency.*)

**Clean Air Interstate Rule (CAIR)** A U.S. Environmental Protection Agency regulation issued on March 10, 2005, that permanently caps emissions of sulfur dioxide and nitrogen oxides across 28 eastern states and the District of Columbia. When fully implemented in 2015, CAIR will reduce sulfur dioxide emissions from power plants by more than 70 percent and nitrogen oxides emissions by more than 60 percent from 2003 levels as well as result in \$85 billion to \$100 billion in annual public health benefits and nearly \$2 billion in visibility benefits. Electric cooperatives supported the rule. The U.S. Court of Appeals for the District of Columbia vacated it on July 11, 2008, but on December 23, 2008, reversed itself, saying that despite “fatal flaws” (including how CAIR treats emissions on a state-by-state level) the regulation should remain in place on a temporary basis to preserve environmental benefits. (*See nitrogen oxides, sulfur dioxide, U.S. Environmental Protection Agency.*)

**clean-coal technology** Any industrial system or application that reduces emissions from coal-fired power plants. (*See carbon capture and storage, integrated gasification combined cycle.*)

**Clean Renewable Energy Bonds (CREBs)** Created in the federal Energy Policy Act of 2005, these bonds act as interest-free loans and provide not-for-profit electric cooperatives with a way to invest in renewable generation. CREBs level the “green power financing playing field” with investor-owned utilities, which can qualify for investment tax credits to support solar installation and production tax credits to “sprout” other renewable electricity sources involving wind, geothermal, closed-loop biomass (trees grown expressly for electricity production), open-loop biomass (sawdust, tree trimmings, timber slash, wood waste, farm byproducts, animal waste, and landfill gas), small hydro (less than 25 MW), and hydrokinetic (ocean wave and tidal) power. By the end of 2008, \$450 million in CREBs had helped electric cooperatives develop more than 4,500 MW of renewable generation. (*See Energy Policy Act of 2005, investment tax credit, production tax credit.*)

**climate change** Periods of freezing and warming experienced by planet Earth. Policymakers are now focused on finding ways to reduce man-made greenhouse gas emissions blamed for contributing to what most scientists contend is a current cycle of global warming. Electric cooperatives are encouraging elected officials to make sure that any climate change solutions adopted can be sustained economically and politically for decades to come. (*See carbon capture and storage, carbon dioxide, carbon footprint, EPRI prism, global warming, greenhouse effect, greenhouse gases.*)

**closed-loop heat pump** (*See heat pump.*)

**Clyde T. Ellis Award** An honor presented annually by the National Rural Electric Cooperative Association (NRECA) Board of Directors since 1976 to an electric cooperative employee, attorney, or director for outstanding service. Named for Clyde T. Ellis, NRECA’s first general manager from 1943 to 1968. (*See National Rural Electric Cooperative Association.*)

**coal** A readily combustible black or brownish-black rock formed in ecosystems where plant remains were preserved and fossilized by water and mud. It's composed primarily of carbon and hydrogen along with small quantities of other elements, notably sulfur. Coal remains the most commonly used fuel for generating electricity in the nation and around the world and the largest source of carbon dioxide emissions blamed for contributing to climate change. In the United States, coal-fired power plants are responsible for approximately 39 percent of the nation's man-made carbon dioxide output—more than any other sector—and about 33 percent of all greenhouse gas emissions from human activity. Coal accounts for about 80 percent of the power produced by generation and transmission cooperatives and 62 percent of all electric cooperative power requirements nationwide. *(See anthracite coal, baseload, bituminous coal, carbon dioxide, clean-coal technology, climate change, coal liquefaction, coal slurry, fluidized-bed combustion, fossil fuel, generation and transmission cooperative, greenhouse gases, integrated gasification combined cycle, lignite, subbituminous coal, syngas, synthetic fuel.)*

**coal gasification** The conversion of coal to a gas. *(See integrated gasification combined cycle, syngas.)*

**coal liquefaction** The conversion of coal to liquid fuel, generally diesel. *(See synthetic fuel.)*

**coal slurry** Finely ground coal suspended in water for transport through a pipeline.

**coal-to-diesel** *(See coal liquefaction, synthetic fuel.)*

**CoBank** A Greenwood Village, Colo.-based lender (organized as a cooperative and a member of the \$200 billion-plus Farm Credit System) that provides financing to rural agribusinesses, farm cooperatives, as well as water, electric, and telecommunications cooperatives and companies. Funds to finance CoBank loans come primarily from the sale of Farm Credit System securities to investors in national and international money markets. *(See cooperative, qualified lender.)*

**Coefficient of Performance (COP)** The ratio of heating or cooling provided by a heat pump (or other refrigeration machine) to the energy consumed by the system under designated operating conditions. The higher the COP, the more efficient the system.

**cogeneration** Producing both electricity and heat from a single energy source, such as using waste heat from an industrial process to generate electricity or making beneficial use of waste heat or steam from electric generation. The U.S. Department of Energy Oak Ridge National Laboratory finds that increased deployment of cogeneration could meet close to 20 percent of the nation's power needs by 2030, up from 9 percent presently. Also known as *combined heat and power*. *(See combined cycle, independent power producer, non-utility generator, Public Utility Regulatory Policies Act, qualifying facility.)*

**coincident capacity** The ratio of actual net electric generation to the maximum possible energy that could have been produced if a facility operated at its maximum capacity rating during a power supplier's peak demand. Coincident capacity factor is normally reported as a percentage. *(See intermittency, peak demand.)*

**coincident demand** The amount of power used by a consumer or class of consumers during a power supplier's system peak demand. *(See non-coincident demand, peak demand.)*

**coincidental peak** The sum of two or more utility system load peaks that occur during the same time. *(See non-coincidental peak, peak load.)*

**Colorado Country Life** Official consumer publication of the Denver, Colo.-based Colorado Rural Electric Association.

**combined cycle** A method of generating power from waste heat created by one or more combustion turbines. High-pressure, high-temperature exhaust from the turbines can be captured to make steam and power a turbine-generator that produces additional electricity. The process greatly increases generating efficiency at low cost with zero emissions. A form of cogeneration, it's also known as *waste-heat*

*recovery. (See cogeneration, combustion turbine, integrated gasification combined cycle, turbine generator.)*

**combined heat and power (CHP)** *(See cogeneration.)*

**combustion turbine** An engine that typically burns natural gas, occasionally diesel fuel, or a combination of both to produce electricity. Combustion turbines, because of their generally rapid startup and ramping times, are often used to meet short-term demand peaks placed on electric systems. *(See peaking plant.)*

**commercial paper** Short-term investments (typically unsecured and issued by corporate borrowers with high credit ratings) having a definite maturity date.

**Community Service Awards** *(See National Community Service Awards.)*

**compact fluorescent light bulb (CFL)** A type of fluorescent lamp designed to replace incandescent light bulbs. Compared with incandescents delivering the same amount of visible light, CFLs use 25 percent to 33 percent less energy and boast a longer life. After 2012, retail stores in the United States will stock only CFLs. Note that *light bulb* is now used as one word, according to *Merriam-Webster's Collegiate Dictionary, Eleventh Edition. (See energy efficiency.)*

**competitive transition charge (CTC)** A temporary assessment on an electric bill that recovers a utility's stranded costs. *(See stranded costs.)*

**compressed-air storage** Power plants that generate electricity during times of peak demand by using compressed air previously pumped into an underground cavern during off-peak periods. When needed, the compressed air gets withdrawn to drive a turbine. Extended operation of compressed-air storage plants can be achieved by burning an air/natural gas mix. Compressed-air facilities are increasingly looked at as a possible way to "store" electricity from renewable energy systems, particularly wind farms, to make them more reliable sources of generation. PowerSouth Energy Cooperative, a generation and transmission cooperative based in Alabama, operates the only compressed-air storage facility in the United States. *(See generation and*

*transmission cooperative, off-peak power, peak demand, pumped storage hydro.)*

**concentrating solar power** *(See solar thermal energy.)*

**conductor** A material that allows an electric current to pass through; also, the wire or cable that carries electricity across an electric distribution or transmission system. When describing distribution facilities in particular, use *wire* or *line* to avoid confusion.

**congestion costs** Expenses that arise from the less-than-optimal dispatch of generation facilities due to transmission constraints. *(See financial transmission rights, locational marginal pricing, regional transmission organization, transmission, transmission congestion, transmission system, wholesale power market.)*

**Congressional Budget Office (CBO)** A non-partisan arm of Congress that prepares fiscal estimates and budgets.

**connection charge** A one-time levy paid by a consumer for expenses involved in connecting electric service to a home or a business. *(See consumer charge, energy charge, facilities charge, service charge.)*

**conservation** The careful and wise use of resources, as well as changes in consumer behavior to save energy. Conservation differs from *energy efficiency* in that behavioral changes center on cutbacks aimed at using less electricity. *(See energy efficiency.)*

**consolidation** The combination of two or more companies where all legacy identities cease to exist and a new name results. *(See merger.)*

**construction work in progress (CWIP)** A utility regulatory commission term. CWIP is not allowed in the rate base of regulated utilities. However, some agencies, including the Federal Energy Regulatory Commission, treat CWIP on a case-by-case basis. *(See Federal Energy Regulatory Commission, net utility plant.)*

**consumer** What electric cooperatives call (or should call) those who use their services. Investor-owned utilities employ the less personal,

profit-associated word *customer*. (See *consumer-member*, *member*, *owner*.)

**consumer charge** A levy sometimes used to recover fixed costs for serving individual accounts. These costs are recovered through a flat charge, regardless of the amount of energy used. (See *connection charge*, *energy charge*, *facilities charge*, *service charge*.)

**consumer choice** The ability for consumers (investor-owned utilities use the less personal, profit associated word *customers*) to select between competing companies for electric generation. Used interchangeably with *power supply choice*, *retail competition*, *retail wheeling*, and *shopping for power*. Choice works both ways: you don't have to choose a new electric generation supplier and suppliers don't have to choose you. (See *deregulation*, *electric generation supplier*, *re-regulation*, *restructuring*, *standard offer service*.)

**consumer loyalty** Inclination of a consumer to choose one product or brand over time.

**consumer-member, consumer-owner** More inclusive wording for all persons (including children) served by an electric cooperative than the more restrictive *member* or *owner* (which refer just to the person[s] listed on the account). Never use *member-consumer* or *member-owner* as members can neither be consumed nor owned. NOTE: Many cooperative consumers find the word *owner* uncomfortable as it implies financial responsibility. For most usage, stick with the simple form *consumer*. (See *consumer*, *member*, *owner*.)

**contract demand** The maximum level of power a generating utility agrees to have available for delivery. Measured in kW.

**cooling tower** A structure used to vent steam produced by a nuclear power plant. (See *nuclear power*.)

**co-op** Short for *cooperative*. Always use the hyphen. Otherwise, it's a small shed where barnyard fowl roost.

**Co-op Connections®** (See *Touchstone Energy® Cooperatives*.)

**Co-op Owners for Political Action** (See *ACRE Co-op Owners for Political Action*.)

**cooperative** (co-op) A business owned and governed by members who use its services. Democratically controlled and operated on a not-for-profit basis, a cooperative returns any margins to members on the basis of patronage. The first known cooperative formed in the United States, the Philadelphia Contributorship for the Insurance of Homes from Loss of Fire, was organized by Benjamin Franklin in 1752. It still operates today. In 1804, the initial farm-marketing cooperative was established by dairymen in the Connecticut River Valley. The first irrigation cooperative was launched in California in 1853; by 1857, New York and Ohio had adopted laws enabling the operation of cooperative (mutual) insurance companies. The modern cooperative movement, though, traces its roots to a store started by 28 weavers and other artisans in the town of Rochdale (pronounced Rotch-dale) in northern England in 1844. (See *cooperative principles*, *electric cooperative*, *Rochdale Principles*.)

**Cooperative Benefit Administrators, Inc. (CBA)** A wholly owned subsidiary of the National Rural Electric Cooperative Association (NRECA) based in Lincoln, Neb., that processes and administers medical, dental, vision, prescription drug, and disability claims for electric cooperative employees, retirees, dependents, and directors participating in the NRECA Group Benefits Trust. CBA commenced operations in 1984. (See *National Rural Electric Cooperative Association*.)

**Cooperative Innovators Awards** Honors presented annually from 2005 to 2008 by the Cooperative Research Network recognizing electric cooperatives that adopted new technologies or found creative ways to solve various marketing, engineering, operations, member services, supply chain, and information challenges. The awards have since been discontinued. (See *Cooperative Research Network*.)

**Cooperative Living** Official consumer publication of the Glen Allen, Va.-based Virginia, Maryland & Delaware Association of Electric Cooperatives.

**Cooperative Month** An annual October commemoration started in 1930 focusing on the importance of cooperative organizations.

**cooperative principles** A set of guidelines that govern cooperative operations. Originally drawn up by Charles Howarth, one of 28 weavers and other artisans who founded the Rochdale Society of Equitable Pioneers in Rochdale, England, on December 21, 1844, these principles were introduced into the United States in 1874 by the National Grange, and formally written down by the International Cooperative Alliance in 1937 (last updated in 1995). The cooperative principles are:

1. Open and Voluntary Membership
2. Democratic Member Control
3. Members' Economic Participation
4. Autonomy and Independence
5. Education, Training, and Information
6. Cooperation Among Cooperatives
7. Concern for Community

Initial capitalize the seven principles, with the actual principle noted in quotation marks: "*Concern for Community*," *the Seventh Cooperative Principle*; *XYZ Electric Cooperative extensively promotes the Second Cooperative Principle*, "*Democratic Member Control*." (See *cooperative*, *Rochdale Principles*.)

**Cooperative Research Network (CRN)** A division of the National Rural Electric Cooperative Association that monitors, evaluates, and applies technologies to help electric cooperatives control costs, increase productivity, and enhance service to their consumers. CRN provides studies specifically for electric cooperatives on innovations affecting the utility industry, member service and generation opportunities, creative technical and management approaches, and new products. (See *Cooperative Innovators Awards*, *National Rural Electric Cooperative Association*.)

**Cooperative Response Center (CRC)** A nationwide, cooperatively owned and operated 24/7 contact center and software provider that provides various services (primarily to electric cooperatives) including

after-hours dispatch, round-the-clock consumer care, and monitoring of security and medical alarm systems. Founded in 1992, CRC operates out of offices in Austin, Minn., and Dunlap, Tenn.

**COP** Coefficient of Performance.

**copper theft** (See *metal theft*.)

**cost-based rate** A pricing structure where consumers in each class (residential, commercial, and industrial) pay their fair share of a cooperative's costs so no group subsidizes another. (See *block rate*, *class rate*, *cost-of-service study*, *declining block rate*, *demand rate*, *flat rate*, *industrial rate*, *interruptible rate*, *inverted rate*, *off-peak rate*, *offset rate*, *ratchet rate*, *step rate*, *time-of-use rate*.)

**cost of service** The cost of providing a consumer with electric service, excluding generation.

**cost-of-service rate** Price for power based on covering the cost of constructing and operating facilities necessary to produce and deliver electricity. (See *market-based rate*.)

**cost-of-service study** An analysis that determines how much it costs an electric utility to serve various classes of consumers; provides the basis for evaluating different discount and incentive programs and results in the development of cost-based rates. (See *cost-based rate*.)

**cost shifting** (See *cross-subsidization*.)

**Council of Rural Electric Communicators (CREC)** A group of professional communicators who work to improve communication with electric cooperative consumers. Established on October 27, 1981. (See *Certified Cooperative Communicator*.)

**Country Living** Official consumer publication of the Columbus, Ohio-based Ohio Rural Electric Cooperatives.

**cove heater** A heating system installed on a wall near the ceiling, combining radiant and convective heat.

**cream-skimming** (*See cherry-picking.*)

**CREBs** Clean Renewable Energy Bonds.

**CREC** Council of Rural Electric Communicators.

**Credentialed Cooperative Director (CCD)** An educational curriculum designed to provide electric cooperative directors with basic knowledge and skills needed to perform their duties. Directors earn a CCD certificate by attending five required courses and successfully completing a learning assessment for each. After achieving CCD status, directors can work to obtain their *Board Leadership Certificate*. The CCD program is administered by the National Rural Electric Cooperative Association. (*See Board Leadership Certificate, National Rural Electric Cooperative Association.*)

**credit union** A financial cooperative formed by a group of people with a shared field of membership who join together to save money and make loans at the lowest possible cost.

**critical-peak pricing** A method of setting rates where power costs are much higher during a limited number of hours per year (typically fewer than 80 hours). Consumers are given notice ranging from one day to one hour before a utility implements critical-peak pricing. These rates are generally coupled with time-of-use rates under which the cost for electricity varies according to the time when it's consumed, whether during more expensive peak (usually afternoon) or cheaper off-peak (usually nighttime) demand periods. Higher prices are meant to discourage use at those times. (*See block rate, class rate, cost-based rate, declining block rate, demand rate, dynamic pricing, flat rate, industrial rate, interruptible rate, inverted rate, off-peak rate, offset rate, peak demand, ratchet rate, real-time pricing, step rate, time-of-use rate.*)

**CRC** Cooperative Response Center.

**CRN** Cooperative Research Network.

**crossarm** A wooden support attached to a pole that holds wire and insulators.

**cross-subsidization** The practice of charging rates higher than the actual cost of service to one class of consumers so that lower rates can be provided to another class. Also known as *cost shifting*.

**CTC** competitive transition charge.

**current** A flow of electrically charged particles, measured in amperes.

**Currents** Official consumer publication of the Phoenix, Ariz.-based Grand Canyon State Electric Cooperative.

**customer** (*See consumer.*)

**Customer Average Interruption Duration Index (CAIDI)** A reliability index used by electric utilities, it shows the average outage time experienced by a consumer over the course of a year. (*See System Average Interruption Duration Index, System Average Interruption Frequency Index.*)

**cutout** A transformer fuse so named because when the fuse is removed the circuit opens.

**CWIP** construction work in progress.

**cyberspace** A general reference to doing things electronically by computer over the Internet. (*See information superhighway, Internet, Web site, World Wide Web.*)

**cyber security** The process of protecting data and information systems from unauthorized access, use, disclosure, disruption, modification, or destruction. Critical infrastructure protection standards issued by the North America Electric Reliability Corporation are designed to defend bulk power systems from "cyber-tage." Use as two words. (*See bulk power, North America Electric Reliability Corporation.*)

**cycle** A single period of two phases in which alternating current reverses direction before returning to the first state. Alternating current consists of a succession of cycles.

## D

**dark-sky lights** Outdoor lighting that meets requirements of the Tucson, Ariz.-based International Dark-Sky Association. Dark-sky fixtures direct all of their light downward, below the horizontal plane, increasing illumination on sidewalks and around homes while eliminating “light pollution” (glare) that interferes with star gazing.

**data** Information organized for analysis or used as the basis for decision-making.

**day-ahead market** The competitive wholesale power market for the following day, or more specifically, the market for wholesale electricity 24 hours in advance of a given time in any day. (*See spot market, wholesale power market.*)

**daylight saving time** No hyphen, no “s” on saving.

**DC** direct current.

**debt-to-equity ratio** The amount an electric cooperative owes in relation to the amount it owns.

**declining block rate** A pricing structure where a consumer pays less for electricity as use increases beyond one or more fixed kWh amounts during a specific billing period. (*See block rate, class rate, demand rate, flat rate, industrial rate, interruptible rate, inverted rate, off-peak rate, offset rate, ratchet rate, step rate, time-of-use rate.*)

**degree-day** A measurement of how much the average daily temperature varies from a standard reference temperature; employed to estimate heating and cooling requirements for a home or building. Use with a hyphen.

**delivery point** The interconnection where one utility supplies power to another utility’s system.

**demand** The amount of electricity drawn from an electric system at a given time, measured in kW. (*See demand charge, demand interval, demand meter, energy, load.*)

**demand charge** A pricing structure for electricity based on the maximum amount of system power a consumer uses. (*See demand, demand interval, demand meter, energy, load.*)

**demand interval** A period of time during which the flow of electricity gets averaged to determine demand. (*See demand, demand charge, demand meter, energy, load.*)

**demand meter** An electric meter that also measures and records maximum demand over a specified period of time. (*See demand, demand charge, demand interval, energy, load, meter.*)

**demand ratchet** (*See ratchet rate.*)

**demand rate** A pricing structure where a consumer, usually a large commercial or industrial account, pays for electricity based on the maximum kW used during times of peak demand. (*See block rate, class rate, cost-based rate, declining block rate, flat rate, industrial rate, interruptible rate, inverted rate, off-peak rate, offset rate, ratchet rate, step rate, time-of-use rate.*)

**demand response** Programs or mechanisms that reduce electricity consumption in response to market signals or other incentives. Demand response includes direct load control, time-of-use rates, interruptible contracts, utility dispatch of consumer-owned generation, and other initiatives. (*See demand-side management, interruptible rate, load management, peak demand, peak load, time-of-use rate, ZigBee.*)

**demand-side management** A utility program aimed at reducing total consumer use of electricity through conservation or efficiency measures, or shaving peak demand through use of demand-response measures. Most often referred to by electric cooperatives as *load management*. (*See load management, integrated resource planning, peak demand.*)

**Depression, The** (*See Great Depression.*)

**deregulation** Major reduction of government oversight of private industry. To better describe legislative and regulatory initiatives aimed at allowing retail electric consumers to choose between competing electric generation suppliers, use *restructuring*, as many aspects of utility regulation still remain. (*See consumer choice, electric generation supplier, re-regulation, restructuring, standard offer service.*)

**desuperheater** A device for recovering heat from a heat pump or central air conditioner for use in heating or preheating water.

**digger-derrick** A type electric utility line truck that digs holes and sets poles. Use with hyphen.

**direct access** The ability of a retail consumer to purchase electricity directly from the competitive power market rather than through his or her local distribution utility.

**direct current** (DC) Electricity that flows through a conductor in a single direction. Abbreviation acceptable on all references. (*See alternating current, electricity.*)

**disaggregation** Separating a vertically integrated utility into smaller, individually operated distribution, transmission, and generation divisions.

**dispersed generation** (*See distributed generation.*)

**distributed energy** (*See distributed generation.*)

**distributed generation** Decentralized generation technologies designed to supplement or replace power produced by large generating plants. In most cases, distributed generation is located at or near the point of use. For homeowners and farmers, examples include standby, or emergency, generators that run on gasoline, diesel fuel, or natural gas and “backyard” renewable energy systems such as anaerobic digesters, small wind turbines, photovoltaics, and microhydro plants. For industrial customers, examples include much larger cogeneration using natural gas or industrial waste products as fuel. In situations where an unscheduled outage could

result in tens of thousands of dollars of lost production and possibly damaged equipment or dead animals, many commercial and industrial consumers—such as manufacturing firms, data centers, retail outlets, and large livestock operations—install distributed generation like diesel generators and natural gas-fired combustion turbines (or versions that can run on a combination of both fuels) or even fuel cells as a supplemental power supply to protect their livelihood and enhance service reliability. Distributed generation further provides electric cooperatives with an option when electricity use spikes—a consumer can switch to his or her backup power supply and ease strain on the grid. In return, the consumer usually receives a special electric rate that helps decrease costs. Also called *on-site generation, dispersed generation, or distributed energy*. (*See anaerobic digester, backup charge, combustion turbine, EPRI prism, fuel cells, interruptible rate, load management, microhydro, photovoltaics, small power producer, wind turbine.*)

**distributed resources** Decentralized energy sources including distributed generation, local energy storage, and demand-response resources. (*See distributed generation, demand response.*)

**distribution cooperative** An electric cooperative that operates a distribution system, purchases wholesale power, and delivers it to consumers. (*See electric cooperative, generation and transmission cooperative.*)

**distribution system** Poles, wire, substations, and transformers used to deliver electric energy to consumers.

**diversification** Any endeavor outside the core function or mission of a business.

**DOE** U.S. Department of Energy.

**down** Denotes a power plant that’s not operating. (*See on-line.*)

**down-line automation** Digital technologies that help utilities monitor the flow of electricity along a distribution grid in near real-time; pinpoint outages; identify voltages out of allowed ranges; and transmit

signals to transformers, capacitors, circuit breakers, and other equipment to initiate diagnostic or corrective actions. (*See smart grid.*)

**dragline** A large mobile excavator used in a strip mine to remove dirt and other material covering coal seams.

**DSL** digital subscriber line. (*See broadband.*)

**dual fuel** A system where a supplemental heating source, such as an oil furnace, takes over when electricity is cut off to heat pumps or electric baseboard systems during times of peak electric consumption. Designed to keep a lid on power costs by making it unnecessary for a utility to call on more expensive sources of power. Also, a standby or emergency generator that can operate on two different fuels, such as natural gas and oil. No hyphen needed on *dual fuel system*. (*See heat pump.*)

**duct work** In forced-air systems, passages usually made of sheet metal through which hot or cool air is blown.

**dynamic pricing** A method of setting rates where the retail price for electricity varies according to the cost of wholesale power at the time it's consumed. While dynamic pricing can include relatively simple time-of-use rates, typically it refers to prices that track wholesale power costs in real-time. (*See block rate, class rate, cost-based rate, critical-peak pricing, declining block rate, demand rate, flat rate, industrial rate, interruptible rate, inverted rate, off-peak rate, offset rate, peak demand, ratchet rate, real-time pricing, step rate, time-of-use rate.*)

**dynamo** The very first electric generator capable of producing power for consumers on a large scale, it converted mechanical rotation within a magnetic field into a pulsing direct current. Rarely seen today (except in museums) due to the nearly universal use of alternating current. Thomas Edison built six dynamos for his Pearl Street Station in New York City—the first central station power system in the United States. It began commercial operation on September 4, 1882. (*See alternating current, central station service, direct current, generator, turbine, turbine-generator.*)

## E

**Earth, earth** Capitalize when referring to the planet. As with other planets, do not precede the name with the article *the*. Used lowercase, it means soil, ground, etc.

**earth-coupled heat pump** (*See heat pump.*)

**easement** An agreement allowing a utility to use private property for a specific purpose, such as building a transmission line. (*See right-of-way.*)

**Eastern Interconnection** (*See grid.*)

**ECBA** Electric Cooperative Bar Association.

**Edison Electric Institute (EEI)** The Washington, D.C.-based trade association of investor-owned utilities and electric utility holding companies.

**EEI** Edison Electric Institute.

**EER** energy efficiency rating.

**EERE** U.S. Department of Energy Office of Energy Efficiency and Renewable Energy.

**efficiency** A ratio of the work or energy output over the amount of energy input.

**EGS** electric generation supplier.

**EIA** U.S. Energy Information Administration.

**85/15** An Internal Revenue Service requirement under which an electric cooperative loses its tax-exempt status for the year when more than 15 percent of its revenue comes from non-member sources. The

restriction can crimp the ability of electric cooperatives to compete in a restructured electricity marketplace. (See *Energy Policy Act of 2005*.)

**EIS** environmental impact statement.

**ELCON** Electricity Consumers Resource Council.

**electric and magnetic fields** (EMF) Radiation surrounding power lines; present wherever electric power is being used. Already plural, so do not use *EMFs*. Also avoid using *electromagnetic fields*.

**electric competition** (See *consumer choice, deregulation*.)

**Electric Consumer** Official consumer publication of the Indianapolis, Ind.-based Indiana Statewide Association of Rural Electric Cooperatives.

**electric cooperative** A not-for-profit utility owned by those (members) who use its services. Electric cooperatives generate and purchase wholesale power, own or arrange for the transmission of that power, distribute power, and aggregate power purchases for consumers. Known by various names in different parts of the United States—*electric cooperative associations, electric membership corporations, electric power associations, rural electric cooperatives, rural electric cooperative associations, rural electric cooperative corporations, and rural electric membership corporations*. (See *distribution cooperative, generation and transmission cooperative, public power district, public utilities, public utility district*.)

**Electric Cooperative Alumni Club** An organization of former electric cooperative employees, chief executives, and directors that assists the National Rural Electric Cooperative Association with co-op political activism and concern for community efforts. (See *National Rural Electric Cooperative Association*.)

**Electric Cooperative Bar Association** (ECBA) A National Rural Electric Cooperative Association professional network formed in 2001 that allows more than 600 electric cooperative attorneys to share advice and expertise. (See *National Rural Electric Cooperative Association*.)

**Electric Co-op Today** A weekly newspaper published by the National Rural Electric Cooperative Association covering political, economic, research, and business issues relevant to the electric cooperative network. (See *National Rural Electric Cooperative Association*.)

**electric current** (See *electricity*.)

**electric energy** The flow of charged particles (electrons).

**electric generation supplier** (EGS) A broker, marketer, aggregator, or electric utility generation subsidiary operating in a competitive retail power market that sells electricity to end-use consumers. (See *consumer choice, price to compare, standard offer service*.)

**Electric Power Research Institute** (EPRI) A non-profit research consortium made up of electric utilities, including electric cooperatives, headquartered in Palo Alto, Calif. (See *EPRI prism*.)

**electric thermal storage** (ETS) A type of room heater that warms ceramic material in an insulated cabinet. Often used in load management programs because stored heat continues to be released even after power to the unit gets switched off.

**electric vehicle** (EV) A vehicle powered by electricity. (See *plug-in hybrid electric vehicle*.)

**electricity** The movement of electrons in a conductor from a negatively charged point to a positively charged point. (See *alternating current, direct current*.)

**Electricity Consumers Resource Council** (ELCON) A Washington, D.C.-based association of large industries formed in 1976 that advocates for policies promoting electric competition and consumer choice. (See *consumer choice, deregulation*.)

**electricity theft** The unlawful and dangerous practice of interfering with the operation of a meter or jumping power to another facility to lower or avoid paying electric bills. Also known as *theft of service* or *meter tampering*.)

**electromagnetic fields** (*See electric and magnetic fields.*)

**electronic meter reading** A system that uses a handheld computer to record and store electric use information from consumers' meters and then transmits that information to a central computer for billing purposes.

**electrostatic precipitator** An electronic pollution-control device that removes particles of fly ash from power plant emissions. (*See fly ash.*)

**e-mail** Communications done by computer either through a local area network or the Internet. Use with a hyphen.

**EMF** electric and magnetic fields. Don't use *electromagnetic fields*. Lower case, emf stands for *electromotive force*.

**eminent domain** The power of a government body to condemn private property for public use after paying the property owner "just compensation." Sometimes used as a last resort by electric utilities in constructing power lines. (*See right-of-way.*)

**emissions control equipment** (*See pollution control.*)

**enchantment** Official consumer publication of the Santa Fe, N.M.-based New Mexico Rural Electric Cooperative Association.

**energy** The capacity for doing work; may be natural or manufactured. In an electrical context, the use of power, measured in kWh. (*See demand, demand charge, demand interval, demand meter, load.*)

**energy audit** An analysis of residential, commercial, or industrial buildings that shows consumers how to save money on their electric bills by making energy efficiency-related improvements.

**energy charge** The part of an electric bill based on the amount of electricity used. (*See connection charge, consumer charge, facilities charge, service charge.*)

**energy efficiency** Using less energy to perform the same or additional functions. Sometimes called *the other power supply*, the *fifth fuel* (after coal, nuclear, natural gas, and renewables), or even the *first fuel* (before the others). Energy efficiency measures—a real resource that can be measured and verified—help electric cooperatives temporarily head off the need to build new generation while curbing greenhouse gas emissions. In general, the biggest payoff for electric cooperatives comes from consumers implementing recommendations of energy audits and switching to more energy-efficient geothermal and air-source heat pumps, lighting, and appliances, combined with improved power plant operating efficiencies and expansion of load management programs that reduce electricity purchases during expensive demand peaks. Energy efficiency differs from *conservation* in that it involves doing more with less. (*See compact fluorescent light bulb, conservation, energy audit, greenhouse gases, heat pump, load management.*)

**energy efficiency rating (EER)** A measure of how efficiently an appliance uses energy. Determined by dividing the Btu per hour output by the number of watts used. A higher EER means greater efficiency. (*See seasonal energy efficiency rating.*)

**Energy Policy Act of 1992** A federal law that opened up the wholesale power market to competition. It gave the Federal Energy Regulatory Commission authority to order transmission-owning utilities to provide interstate transmission service to other utilities, federal power marketing agencies, or independent power marketers for wholesale transactions.

**Energy Policy Act of 2005** A federal law that provided tax incentives and loan guarantees for all types of energy production and conservation. The measure exempted electric cooperatives with annual electricity sales of less than 4 million MWh from Federal Energy Regulatory Commission (FERC) jurisdiction; placed into law FERC's regulatory exemption for electric cooperatives that borrow from the Rural Utilities Service; authorized Clean Renewable Energy Bonds to assist electric cooperatives in financing "green power" projects; and removed from 85/15 calculations electric cooperative earnings from nuclear decommissioning trust funds, income received from providing

open transmission access, and (for the first seven years of consumer choice) revenue collected from non-members being served to offset load lost under retail competition (*See Clean Renewable Energy Bonds, 85/15, Public Utility Holding Company Act, Public Utility Regulatory Policies Act.*)

**Energy Resources Conservation loan (ERC loan)** Low-interest financing provided by some electric cooperatives to consumers for energy-saving home improvements and energy-efficient electric heating and cooling systems. Funding for ERC loans (which can't exceed seven years in length) comes from deferred principal payments on a portion of debt owed to the federal Rural Utilities Service. Under the 2008 Farm Bill, ERC loans can be used for home energy audits as well. (*See Rural Utilities Service.*)

**Energy Star** An international standard for energy-efficient consumer products. First created by the U.S. Environmental Protection Agency in 1992, it has since been adopted by Australia, Canada, Japan, New Zealand, Taiwan, and the European Union. Devices carrying the Energy Star logo, such as computers, kitchen and household appliances, and homes, use 20 percent to 30 percent less energy on average than comparable products.

**ensure/insure** In most usage, you want *ensure* (as in *guarantee*). Use *insure* only for insurance-related matters.

**environmental impact statement (EIS)** A report required by many state and federal regulators that outlines the likely environmental consequences of building and operating large-scale facilities such as power plants.

**EPA** U.S. Environmental Protection Agency. Spell out on first reference.

**EPRI** Electric Power Research Institute. (*See EPRI prism.*)

**EPRI prism** A comprehensive set of seven recommendations made by the Electric Power Research Institute that the organization contends would, if adopted, allow the electric utility industry to slow, halt, and eventually decrease carbon dioxide emissions to 1990 levels by 2030 while still

meeting demand for affordable, reliable electricity. Failure to maximize any of the seven suggestions will dramatically increase the cost of achieving climate change goals. The seven recommendations are: boosting energy efficiency, improving the operating efficiency of coal-fired power plants, investing in renewable energy, expanding nuclear power capacity, capturing and storing carbon produced by coal-fired power plants, adding distributed generation resources, and putting plug-in hybrid electric vehicles on the road. (*See carbon capture and storage, climate change, distributed generation, Electric Power Research Institute, global warming, greenhouse effect, greenhouse gases, plug-in hybrid electric vehicle.*)

**equity** The monetary value of a property or business that exceeds the claims and/or liens against it by others. In an electric cooperative, equity represents the value of member ownership.

**equity capital** (*See capital credits.*)

**ERC loan** Energy Resources Conservation loan.

**ethanol** A grain alcohol, largely produced from fermented and distilled corn; used as an octane-enhancer in gasoline.

**ETS** electric thermal storage.

**EV** electric vehicle.

**Executive Order 7037** The directive issued by President Franklin D. Roosevelt on May 11, 1935, establishing the Rural Electrification Administration as a part of a federal unemployment relief program. (*See Rural Electrification Act, Pace Act.*)

**exit fee** A charge assessed when an electric utility consumer switches power suppliers or chooses to self-generate electricity.

**externality** Hidden costs of an energy source or costs not covered in the price of fuel, such as expenses derived from cleaning up acid rain.

## F

**facilities charge** The part of a consumer's electricity bill paid as reimbursement for equipment used to generate, transmit, and distribute electricity. (*See connection charge, consumer charge, energy charge, service charge.*)

**FASB** Financial Accounting Standards Board. Acceptable on second reference.

**Federal Energy Regulatory Commission (FERC)** A federal agency formed in 1977 with jurisdiction over interstate electricity sales, wholesale electric rates, hydroelectric licensing, natural gas pricing, and oil pipeline rates. FERC also reviews and authorizes liquefied natural gas terminals, interstate natural gas pipelines, and non-federal hydropower projects. Part of the U.S. Department of Energy, but functions independently. FERC replaced the Federal Power Commission. (*See construction work in progress, Federal Power Commission, North American Electric Reliability Corporation, regional transmission organization.*)

**Federal Financing Bank (FFB)** An arm of the U.S. Treasury created in 1973 to coordinate the borrowing of federal agencies, such as the Rural Utilities Service, that provide loan guarantees. (*See qualified lender, RUS guaranteed loans.*)

**Federal Power Commission** A body created in 1920 to better coordinate federal hydropower development among cabinet-level departments and transformed into an independent regulatory agency in 1935. Predecessor to the Federal Energy Regulatory Commission. (*See Federal Energy Regulatory Commission.*)

**federated cooperative** A cooperative composed of smaller cooperatives.

**Federated Rural Electric Insurance Exchange** The Lenexa, Kan.-based company that provides property and casualty insurance to electric cooperatives in 40 states. Formed as a stock-owned company in 1959, it became a reciprocal exchange in October 1999. (*See Rural Electric Safety Accreditation Program.*)

**feed-in tariff** A concept promoted by green power advocates that requires utilities to enter into long-term purchased power agreements with renewable energy producers at a price high enough to make the generation projects profitable—but not at a price reasonable for consumers. Feed-in tariffs, commonly used in Europe, can lead to the installation of inefficiently sized and poorly located systems, create operational challenges, and increase costs for consumers. (*See purchased power, tariff.*)

**FERC** Federal Energy Regulatory Commission.

**FFB** Federal Financing Bank.

**Financial Accounting Standards Board (FASB)** A Norwalk, Conn.-based independent organization recognized as the accounting profession's chief rulemaking body. Auditors, industry, government, and professional associations frequently submit topics to FASB to clarify various accounting issues. After a hearing and comment period, FASB may issue a new "Statement of Financial Accounting Standards." These statements affect accounting requirements for virtually all businesses that must issue financial reports.

**financial transmission rights (FTRs)** Hedging instruments that allow transmission customers to protect themselves against the risk of cost increases when receiving electricity across congested transmission lines. A necessary tool in centralized wholesale power markets, where transmission users pay market prices to move energy from one point on the transmission system to another. (*See bulk power, locational marginal pricing, transmission, transmission congestion, transmission system.*)

**Finding of No Significant Impact statement (FONSI)** A document from the federal Rural Utilities Service (RUS) stating that a given project will have no significant impact on the environmental, cultural, historical, or archeological resources of the area affected; necessary before a project funded by RUS can proceed. (*See Rural Utilities Service.*)

**firm energy** Electricity guaranteed by a power supplier to be available at all times.

**first in, first out** A method of retiring capital credits where the earliest credits are retired first. (*See capital credits, percentage method.*)

**fission** (*See nuclear fission.*)

**fixed costs** Expenses that stay the same regardless of other factors or the level of sales. A distribution cooperative's fixed costs would include rent, utilities, taxes, and depreciation on buildings.

**fixed costs recovery charge** (*See stranded costs.*)

**flashover** An abnormal electrical discharge or arc, as from a high-voltage power line to a ground or between two pieces of equipment. (*See arc flash.*)

**flat rate** A pricing structure where consumers pay the same rate for each kWh of electricity used, regardless of how much they consume. (*See block rate, class rate, cost-based rate, declining block rate, demand rate, industrial rate, interruptible rate, inverted rate, off-peak rate, offset rate, ratchet rate, step rate, time-of-use rate.*)

**flip-flop** Practice of changing from one electric utility to another, usually due to rate differences. This practice is illegal in some states, but weak laws make it difficult to enforce.

**Florida Living** A for-profit publication used by some of Florida's electric cooperatives to communicate with their members.

**Florida Reliability Coordinating Council** One of eight North American Electric Reliability Corporation regional organizations that coordinate planning and operations among utilities. (*See North American Electric Reliability Corporation.*)

**flue gas** The mixture of gases and fly ash emitted from a coal-fired power plant. (*See algae reactor, pollution control.*)

**fluidized-bed combustion** A method of burning coal to achieve lower emissions that combines coal with limestone or similar material in a suspension that moves up through the boiler.

**fly ash** Tiny solid particles that escape from a furnace when coal is burned; removed by pollution-control equipment. (*See ash, bottom ash, electrostatic precipitator, slag.*)

**FONSI** Finding of No Significant Impact statement.

**forced outage** The period of time during which a power plant is scheduled to operate but cannot because of breakdowns or other unforeseen circumstances.

**Form 7, RUS** A financial and statistical report filed annually by federal Rural Utilities Service borrowers.

**fossil fuel** Hydrocarbons such as coal, oil, or natural gas found within the top layer of Earth's crust and used to produce heat or power; also called *conventional fuels*. These materials were formed in the ground millions of years ago from plant and animal remains.

**franchise** A license granted by a government entity giving a utility the right to serve consumers in a particular area. (*See service area/territory.*)

**fuel adjustment clause** A correction or modification on a consumer's monthly electric bill caused by an increase or decrease in the cost of an electric utility's fuel supply. This adjustment eliminates the need for a new rate approval each time fuel costs change. Also called a *power cost adjustment*.

**fuel cells** Devices similar to batteries that convert the chemical energy of fuels, such as hydrogen and natural gas, directly into electricity.

**fuel cost** The total cost of fuel delivered to a power plant, including freight and other transportation charges, coupled with maintenance and mine reclamation costs.

**fuse** A protective device for electric circuits containing a wire designed to melt and open the circuit under abnormally high electric loads. (*See circuit breaker.*)

**fusion power** The result of a reaction where two light atoms, such as hydrogen, fuse together to form a heavier atom, such as helium. In the process, some of the hydrogen mass gets converted into energy. Nuclear fusion occurs naturally in stars. Artificial fusion in a sustainable uncontrolled chain has also been achieved (the hydrogen bomb). Research into controlled fusion for producing electricity has been accompanied by extreme scientific and technological difficulties, resulting in slow progress over the past 50-plus years. (*See nuclear fission.*)

## G

**GAO** Government Accountability Office.

**G&T** generation and transmission cooperative. Acceptable on second reference. Plural is G&Ts.

**GDP** Gross Domestic Product.

**generation** The production of electricity using fuels such as coal, natural gas, oil, and uranium or from renewable sources such as a biomass, geothermal, hydro, hydrokinetic (ocean wave and tidal), solar, or wind.

**generation and transmission cooperative** (G&T) A wholesale power supply cooperative owned by a group of electric distribution cooperatives and sometimes other entities (like municipal electric systems). G&Ts produce power and/or purchase it from a variety of sources. Spell out on first reference. G&Ts generate 5 percent of the nation's electricity and own 160 generating units producing 38,604 MW. G&T-owned power plants produce 57 percent of the electricity supplied by member electric distribution cooperatives to consumers; overall, G&Ts account for 45 percent of the total power sold by all electric cooperatives. (*See all-*

*requirements contract, distribution cooperative, electric cooperative, municipal electric system, purchased power.*)

**generator** A machine that converts mechanical energy into electrical energy. (*See dynamo, turbine, turbine-generator.*)

**geographic information system** (GIS) Any automated setup capable of integrating, storing, editing, analyzing, sharing, and displaying spatial data, such as maps, and presenting results of all those operations.

**George W. Haggard Memorial Journalism Award** (*See Haggard Award.*)

**GEORGIA Magazine** Official consumer publication of the Tucker, Ga.-based Georgia Electric Membership Corporation.

**Geothermal Heat Pump Consortium** A Washington, D.C.-based group that promotes geothermal heat pump systems.

**geothermal heat pump** (*See heat pump.*)

**geothermal power** Electricity produced using natural heat contained in rocks, hot water, and steam below Earth's surface. (*See renewables.*)

**GFCI** ground-fault circuit interrupter. Acceptable on second reference.

**gigawatt** (GW) A measure of electric capacity equal to 1 billion W, 1 million kW, or 1,000 MWs. *The United States needs to add 264,000 MW, or 264 GW, of generating capacity by 2030 to keep the lights on reliably.* (*See kilowatt, megawatt, watt.*)

**GIS** geographic information system.

**global positioning system** (GPS) A satellite-based navigation network made up of 24 satellites placed into orbit by the U.S. Department of Defense. GPS was originally intended for military applications, but

in the late 1980s, the government began making it available for civilian use. GPS works in all weather conditions, anywhere in the world (except parking garages and tunnels), 24 hours a day. Abbreviation acceptable on all references.

**global warming** A gradual warming of Earth's atmosphere thought by some to be caused by increased concentrations of water vapor and gases like carbon dioxide. Human activities such as the burning of fossil fuels increase concentrations of these "greenhouse gases," which absorb outgoing radiation and trap heat closer to the ground. (*See climate change, EPRI prism, greenhouse effect, greenhouse gases.*)

**Government Accountability Office (GAO)** A non-partisan congressional watchdog agency that audits federal programs.

**GPS** global positioning system.

**grassroots** One word when referring to the 40 million-plus electric cooperative consumers nationwide who give the electric cooperative program its political strength. (*See ACRE Co-op Owners for Political Action, "Our Energy, Our Future."*)

**Great Depression** The period of low business activity and economic deflation in the United States and elsewhere that began with the stock market crash of October 1929 and continued through the 1930s. Capitalize the shortened form *Depression* when referring to this specific era, but lowercase otherwise.

**greenhouse effect** A climate change phenomenon caused by the trapping of heat due to a buildup of water vapor, carbon dioxide, methane, and other gases in Earth's atmosphere. James Hansen, a NASA researcher, announced the greenhouse effect in 1988. Most scientists as well as federal, state, and local policymakers accept that the greenhouse effect chiefly stems from human activities, notably the burning of fossil fuels like coal and oil coupled with deforestation. However, natural cyclical factors such as a boost in solar radiation, changes in oceanic conveyors, and increased volcanic activity also play a role. (*See carbon dioxide, climate change, EPRI prism, global warming, greenhouse gases.*)

**greenhouse gases** Carbon dioxide, methane, and other gases that may contribute to the warming of Earth's atmosphere. According to the U.S. Department of Energy Carbon Dioxide Information Analysis Center at Oak Ridge National Laboratory in Tennessee, some 250 years of burning fossil fuels have released about 305 billion tons of carbon dioxide emissions, raising concentrations of carbon dioxide in the atmosphere from 280 to 390 parts per million. Levels are 30 percent higher than in 1900, and carbon dioxide molecules can last for 100 years or more. U.S. carbon dioxide emissions have climbed 38 percent since 1992. (*See Btu tax, carbon capture and storage, carbon dioxide, carbon tax, climate change, energy efficiency, EPRI prism, global warming, greenhouse effect.*)

**grid** A network of interconnected high-voltage transmission lines and power generating facilities that allows utilities and other suppliers to share resources on a regional basis. The *North American Electric Reliability Corporation* oversees reliability of the electric grid covering the United States, most of Canada, and the Mexican state of Baja California Norte. The nation's electric grid consists of three main sections: the *Eastern Interconnection*, which extends from the foot of the Rocky Mountains to the Atlantic seaboard, excluding most of Texas; the *Western Interconnection*, which runs from the Rocky Mountains to the Pacific coast; and the *Texas Interconnection*, which covers most of Texas. Also, any network of interconnected electric facilities, including a distribution system. (*See bulk power, North American Electric Reliability Corporation, rolling blackouts, transmission system.*)

**Gross Domestic Product (GDP)** The total market value of all goods and services produced within a country in a given period of time (usually a calendar year).

**ground fault circuit interrupter (GFCI)** A fire-protection device that instantly breaks an electric circuit when a short develops. Required for outlets used in bathrooms, kitchens, outdoors, or wherever electrical equipment might come into contact with water. Spell out on first reference.

**ground man** An electric utility employee whose primary duties involve providing on-the-ground support to line workers. For a gender-neutral reference, use *ground worker*.

**groundwater heat pump** (*See heat pump.*)

**guaranteed loan** A loan that a third party agrees to repay if the borrower defaults; the federal Rural Utilities Service has historically acted as the third party for electric cooperative borrowers. (*See RUS guaranteed loans.*)

**gigawatt.** 1 billion watts.

## H

**Haggard Award** An annual honor presented by the National Rural Electric Cooperative Association that recognizes the electric cooperative statewide publication judged best in “lucid, forthright contributions to electric cooperative objectives.” Named for George W. Haggard, first editor of the Texas statewide publication who was killed in a plane crash in 1951. (*See National Rural Electric Cooperative Association.*)

**hardship loans** A federal Rural Utilities Service insured loan program available to electric distribution cooperatives that have electric rates at least 20 percent above the average for all utilities in their state and serve consumers with average household incomes below the statewide average, or that have suffered a natural disaster. Hardship loans are made on a first-come, first-served basis at 5 percent interest and can be used for distribution, subtransmission, and headquarters (service and warehouse facility) purposes. (*See insured loans, means testing, municipal rate loans, Rural Electrification Loan Restructuring Act, RUS guaranteed loans, Treasury rate loans.*)

**heat exchanger** A device designed to transfer heat between two physically separated fluids or mediums of different temperatures.

**heat pump** An appliance that provides both heating and cooling by moving heat into or out of a structure. *Geothermal heat pumps*, also called *ground-source heat pumps*, come in two types: a *groundwater (open-loop) heat pump* uses well water; an *earth-coupled (closed-loop)* model moves a water and antifreeze solution through underground pipes to disperse heat. An *air-source heat pump* uses air to transfer heat. (*See dual fuel, heat sink.*)

**heat sink** A medium—such as water or earth—that receives heat released from a heat pump. (*See heat pump.*)

**hertz (Hz)** An international measure of frequency or vibration equal to 1 cycle per second. The alternating current frequency used in North America is 60 Hz. In Europe and some other parts of the world, it is 50 Hz. Singular and plural forms are the same.

**high-pressure sodium vapor lights** A type of energy-efficient outdoor lighting, noted for its yellow glow, promoted by many electric cooperatives as *security lights* or *pole lights*. Note use of hyphen. (*See dark-sky lights, mercury vapor lights, metal halide lights.*)

**high voltage** Voltage in a power line higher than the 120 V to 240 V used in most residences.

**holding company** A corporate entity that partly or completely controls another company. Throughout the 1920s, electric utility holding companies bought smaller utilities, sometimes to the point that a holding company was as many as 10 steps removed from the operating utility. While the smaller utilities were subject to state regulation in many cases, holding companies were not. As a result, holding companies could issue new stock and bonds without state oversight, and their pyramid structure allowed them to inflate the value of utility securities. Consolidation of utilities continued until, by the early 1930s, 10 holding companies controlled 75 percent of electric power production in the United States. Abuses spawned by electric utility holding companies led to passage in 1935 of the federal Public Utility Holding Company Act, which was repealed in the federal Energy Policy Act of 2005. (*See investor-owned utility, public utilities, Public Utility Holding Company Act.*)

**horsepower** (hp) A measure of power equal to 746 W. Abbreviation acceptable on all references.

**horsepower-hour** A measure of the work performed by one horsepower exerted for one hour.

**hours-of-service rules** Regulations issued by the Federal Motor Carrier Safety Administration designed to prevent accidents caused by fatigued long-haul truck and bus drivers. The restrictions, which took effect in January 2004, limit the time commercial interstate fleet operators can spend behind the wheel each day and each week and establish a minimum rest period between shifts. State regulations apply for intrastate driving. Electric cooperatives were initially lumped in the rules because line trucks sometimes exceed 10,000 lbs. gross weight, not because of any safety concerns. However, compliance threatened to increase costs for cooperatives in performing routine line maintenance (given the distances between vehicle bays and the “end of the line”), slow down line crews trying to restore power after localized heavy storms (those not accompanied by a formal disaster declaration), and severely hamper out-of-state mutual assistance efforts. A permanent exemption for utility truck operators was included in the massive federal highway bill enacted in 2005.

**hp** horsepower. Abbreviation acceptable on all references.

**hydro** Short for *hydroelectric plant*.

**hydroelectric plant** A facility that produces electric energy from flowing water. Some hydroelectric plants generate power by releasing water from a reservoir to drive turbine-generators. Run-of-river facilities use the natural energy of moving water from undammed waterways. Short form is *hydro*. (See *turbine-generator*.)

**hydroelectric power** A renewable baseload source of electric generation created by flowing water. Since large hydroelectric power plants can ramp up from nothing to maximum output in just a few minutes without the need for an external power source, they have long been relied upon to restart electric grids after a blackout. Short form is *hydropower*. (See *baseload, hydropower, microhydro, renewables*.)

**hydrokinetic power** Generation produced by the action of waves or tides. (See *ocean wave power, tidal power*.)

**hydropower** Short for hydroelectric power. Hydropower accounts for less than 1 percent of the electricity produced by generation and transmission cooperatives but about 10 percent of electric cooperative power requirements nationwide. (See *generation and transmission cooperative, renewables*.)

**Hz** hertz. Singular and plural forms are the same.

## I

**IEEE** Institute of Electrical and Electronics Engineers.

**Illinois Country Living** Official consumer publication of the Springfield, Ill.-based Association of Illinois Electric Cooperatives.

**incentive rate** A discount used to attract economic development or encourage consumption of electricity during periods of low power use.

**increasing block rate** (See *inverted rate*.)

**incubator** (See *business incubator*.)

**independent power producer** (IPP) An entity other than a utility that generates wholesale power. (See *cogeneration, merchant plant, non-utility generator*.)

**independent system operator** (ISO) An independent organization responsible for providing nondiscriminatory transmission services for one or more transmission owners while maintaining reliability. ISOs typically perform similar functions as *regional transmission organizations* (RTOs) but have somewhat less authority and typically cover smaller geographic areas. Both ISOs and RTOs are subject to Federal Energy Regulatory Commission jurisdiction. (See *Federal*

*Energy Regulatory Commission, grid, regional transmission organization.*)

**induction** The process by which an electrical conductor becomes electrified when near a charged body.

**industrial rate** A special pricing structure created for industrial consumers. (*See block rate, class rate, cost-based rate, declining block rate, demand rate, flat rate, interruptible rate, inverted rate, off-peak rate, offset rate, ratchet rate, step rate, time-of-use rate.*)

**information superhighway** Phrasing used to describe the flow of data from the Internet through computers and other Web-enabled devices. (*See cyberspace, Internet, World Wide Web.*)

**Institute of Electrical and Electronics Engineers (IEEE)** A Piscataway, N.J.-based non-profit professional organization dedicated to the advancement of technology related to electricity. A leader in standards-making, it publishes the *National Electrical Safety Code*. (*See National Electrical Safety Code.*)

**insulation** Material used to prevent the escape of electricity, heat, or sound.

**insulators** Devices that support electric wires and prevent an undesired flow of electricity; typically made of glass or porcelain, although fiberglass and polymer versions are coming into favor.

**insured loans** Financing offered by the federal Rural Utilities Service that chiefly benefits electric distribution cooperatives. (*See hardship loans, municipal rate loans.*)

**integrated gasification combined cycle (IGCC)** A power generation system that converts coal into a clean-burning gas stripped of sulfur compounds and mercury, then burns it to generate electricity. (*See clean-coal technology, coal gasification, combined cycle, syngas.*)

**integrated resource planning (IRP)** A process through which an electric utility, after evaluating ways to meet future power requirements, selects a

mix of generation and demand-side management options that minimizes costs to consumers while meeting reliability and other objectives. (*See generation, demand-side management.*)

**interchange** Energy sold to one electric utility by another.

**interconnection** A tie permitting the flow of electricity between the facilities of two electric systems.

**intermittency** A major reliability challenge associated with wind power, solar power, and hydrokinetic (ocean wave and tidal) power. Even with good location and plenty of breezes, wind generation averages only about 20 percent to 40 percent capacity factor and seldom blows on the days when power is needed most—during periods of peak demand on hot, humid summer weekday afternoons or cold days below minus 22 degrees Fahrenheit. Wind's coincident capacity averages only 2 percent to 15 percent depending on location. Solar power systems, for their part, operate only during daylight hours and are affected by cloud cover. Some *concentrating solar power* systems can reduce intermittency by storing heat in a molten salt compound. (*See capacity factor, coincident capacity, hydrokinetic power, ocean wave power, solar power, solar thermal energy, tidal power, wind power.*)

**Internet** A global system of interconnected computer networks that interchange data. Developed originally for the U.S. military but later extended to government, academic, and research institutions in the 1970s and to commercial use in 1988. While often used interchangeably with the term *World Wide Web*, the two are not one and the same: the World Wide Web is one of the services communicated via the Internet. (*See information superhighway, Voice over Internet Protocol, Web site, World Wide Web.*)

**Internet Protocol (IP)** A set of rules for processing packets of information sent between computers connected to the Internet. Each computer has at least one IP address, which acts like a telephone number for talking to that computer. Abbreviation acceptable on all references.

**Internet Protocol television (IPTV)** Video programming delivered through technologies used for computer networks, generally a broadband connection. (*See broadband, National Rural Telecommunications Cooperative.*)

**interruption rate** A pricing structure where consumers, mostly large commercial and industrial accounts, pay a lower rate for electricity in exchange for giving a utility the right to cut off service temporarily during periods of high demand. (*See block rate, class rate, cost-based rate, declining block rate, demand rate, distributed generation, flat rate, industrial rate, inverted rate, load management, off-peak rate, offset rate, ratchet rate, step rate, time-of-use rate.*)

**inverted rate** A pricing structure where consumers pay more per kWh as consumption increases beyond a fixed amount of kWh during a billing period. Also called an *increasing block rate*. (*See block rate, class rate, cost-based rate, declining block rate, demand rate, flat rate, industrial rate, interruption rate, off-peak rate, offset rate, ratchet rate, step rate, time-of-use rate.*)

**investment tax credit (ITC)** A federal tax incentive available to homeowners, businesses, and investor owned utilities to encourage solar power deployment. The federal Emergency Economic Stabilization Act of 2008 extended the 30 percent ITC for both residential and commercial solar installations for eight years. The ITC helps lower the cost of power from solar projects to a level competitive with convention fuels, like coal or natural gas. Electric cooperatives are not eligible for the ITC, but can use Clean Renewable Energy Bonds for the same purpose. (*See Clean Renewable Energy Bonds, production tax credit.*)

**investor-owned utility (IOU)** A stockholder-owned power company that generates, transmits, and distributes electric energy for a profit. (*See holding company, public utilities, purchased power.*)

**IOU** investor-owned utility. Acceptable on second reference.

**IP** Internet Protocol.

**IPP** independent power producer.

**IPTV** Internet Protocol television.

**IRP** integrated resource planning.

**ISO** independent system operator.

**ITC** investment tax credit. Acceptable on second reference.

## J

**journey-level line worker** A gender-neutral replacement term for *journeyman lineman*.

**journeyman lineman** An electric utility employee who has completed apprenticeship training and learned the trade for working on power lines. For a gender-neutral reference, use *journey-level line worker*.

## K

**Kansas Country Living** Official consumer publication of the Topeka, Kan.-based Kansas Electric Cooperatives.

**Kbps** kilobits per second.

**Kentucky Living** Official consumer publication of the Louisville, Ky.-based Kentucky Association of Electric Cooperatives, Inc.

**key account** Any load deemed vital to the financial well-being of an electric cooperative, usually a large business or industry.

**Key Ratio Trend Analysis (KRTA)** A report published annually since 1975 by the National Rural Utilities Cooperative Finance Corporation that tracks 145 financial and operational ratios over the previous five years for more than 800 participating electric distribution cooperatives. (*See National Rural Utilities Cooperative Finance Corporation.*)

**kilobits per second** (Kbps) A unit of data transfer equal to 1,000 bits per second.

**kilovolt** (kV) Equal to 1,000 V. Used to measure the amount of electric force carried through a highvoltage transmission line. Abbreviation acceptable on all references.

**kilovolt-ampere** (kVA) Equal to 1,000 VA. Abbreviation acceptable on all references. (*See voltampere.*)

**kilowatt** (kW) The basic unit of electric demand, equal to 1,000 W. A measure of both a utility's capacity and a consumer's demand or load. Abbreviation acceptable on all references. (*See watt.*)

**kilowatt-hour** (kWh) A unit of energy or work equal to 1,000 Wh. The basic measure of electric energy generation or use. A 100-W lightbulb burning for 10 hours uses 1 kWh. Abbreviation acceptable on all references. (*See megawatt-hour, watt, watt-hour.*)

**KRTA** Key Ratio Trend Analysis.

**kV** kilovolt.

**kVA** kilovolt-ampere.

**kW** kilowatt.

**kWh** kilowatt-hour.

## L

**LAN** local area network.

**laser** A device used in drilling and cutting, alignment and guidance, and in surgery. The underlying optical properties are exploited in holography, reading bar codes, and in recording and playing compact discs. An acronym, it stands for *light amplification by stimulated emission of radiation*.

**Leadership in Energy and Environmental Design** (LEED) A program of the Washington, D.C.-based U.S. Green Building Council that recognizes the overall sustainability of properties by awarding points for just about any feature imaginable, from bike racks and rainwater collection systems to energy efficient lighting and low-flow plumbing fixtures. LEED uses different tiers of certification such as Silver, Gold, or Platinum tailored for new buildings, existing buildings, and tenant build outs.

**least-cost planning** Efforts undertaken by utilities and regulators to meet growing power needs without building new generating plants. Methods include buying power from other utilities, making maximum use of transmission grids, and developing energy efficiency and load management programs.

**LED** light-emitting diode.

**LEED** Leadership in Energy and Environmental Design.

**license plate rate** A regional transmission pricing structure under which costs are based on the transmission system where a transaction originates; similar to the way residents pay to license a car in their home state, but can drive anywhere. (*See postage stamp rate.*)

**lien accommodation** A financing adjustment that occurs when an electric cooperative, which has borrowed from the federal Rural Utilities Service (RUS) in the past, uses another lender. The new lender will require a lien on any assets it finances, but the existing RUS mortgage supersedes other liens. To enable the new lender to obtain a first lien on the specific assets it is bankrolling, RUS must grant a *lien accommodation* that places the agency in a subordinated position. (*See Rural Utilities Service.*)

**lightbulb** One word, according to *Merriam-Webster's Collegiate Dictionary, Eleventh Edition*.

**light-emitting diode** (LED) An electronic component that emits light when an electrical current is applied in the forward direction of the units. Widely used for indicator lights and digital readouts on most

electrical products and increasingly in higher power applications such as flashlights, traffic signals, and area lighting.

**lightning arrester** A device that protects electric utility equipment against damage caused by power surges from lightning strikes.

**lignite** A low-sulfur, low-energy coal, found primarily in the upper Great Plains. (*See anthracite, bituminous coal, coal, subbituminous coal.*)

**LIHEAP** Low Income Home Energy Assistance Program.

**line** A carrier of electricity on an electric power system.

**line loss** Electric energy lost in the process of transmitting it over power lines.

**lineman** An electric utility employee who builds and maintains power lines. For a gender-neutral reference, use *line worker* or *line technician*.

**line worker** Preferred word for *lineman*.

**liquefied natural gas (LNG)** Methane that has been cooled and liquefied for easier long-distance transport. Most LNG used in the United States comes from countries like Algeria, Egypt, Nigeria, and Qatar. Double-hulled tanker ships bring the resource to specially designed terminals dotting the U.S. coastline. Once unloaded, the liquid gets transferred by pressurized, heavily insulated trucks to storage facilities, or heaters at the docks warm LNG into its natural state for pumping into a pipeline.

**Listserv** Capitalize in all uses.

***Living in South Carolina*** Official consumer publication of the Cayce, S.C.-based Electric Cooperatives of South Carolina.

***Living with Energy in Iowa*** Official consumer publication of the Des Moines, Iowa-based Iowa Association of Electric Cooperatives.

**LMP** locational marginal pricing.

**LNG** liquefied natural gas.

**load** The amount of electric power drawn at a specific time from an electric system, or the total power drawn from the system. (*See demand, demand charge, demand interval, demand meter, energy, peak load.*)

**load control** (*See demand response, demand-side management, load management, interruptible rate.*)

**load curve** A graph plotting a system's use of electricity over a period of time.

**load factor** The ratio of average demand to peak demand; a measure of efficiency that indicates whether a system's electrical use over a period of time remains reasonably stable or if it exhibits extreme peaks and valleys. A high load factor usually results in a lower average price per kWh than a low load factor.

**load forecasting** Predicting a system's load and kWh sales growth.

**load management** An energy efficiency initiative whereby an electric utility reduces power consumption—and keeps the lid on wholesale generation costs—by controlling when electricity gets used. On the residential side, utilities interrupt electric service to water heaters, air conditioners, electric thermal storage units, and other specialized appliances in the homes of volunteer consumers. On the commercial and industrial (C&I) side, service gets cut off to irrigation pumps, manufacturing equipment, and even entire businesses, some of whom have installed backup generation. In most cases, control takes place for a brief period (typically just a few hours) during times of peak demand—the electric utility industry's equivalent of rush-hour traffic—when power costs skyrocket. Load management essentially works like a “power plant in reverse,” helping to boost electric system efficiency, cut expensive demand charges utilities must pay for purchased power, and reduce the need for new power plants. Electric cooperatives with load management programs normally offer rate incentives, such as a rebate on electric bills (for residential consumers) to interruptible rates (for C&I consumers). Also called *demand response, demand-side management, or peak load shifting/shaping*. As

of 2008, electric cooperatives could control 6 percent of their peak load through load management. (*See demand response, demand side management, distributed generation, energy efficiency, interruptible rate, peak demand, peak load.*)

**local area network (LAN)** An interconnected computer network covering a small geographic area, like a home, office, or group of buildings. LANs boast high data-transfer rates and typically don't require leased telecommunication lines. (*See wide area network.*)

**locational marginal pricing (LMP)** A market-based approach used to manage the efficient use of generation when transmission congestion occurs. LMP revolves around the idea that the price of any commodity should be based on the cost of bringing the last unit of that commodity—the one that balances supply and demand—to market. In centralized wholesale power markets, LMP prices are established by the last power station to come on-line to meet demand at any particular location on the grid. LMP prices rise when transmission congestion prevents lower-cost generation outside a local area from being imported to meet load requirements, forcing higher-cost resources (generally the most expensive and least efficient peaking plants) within the load pocket to be dispatched. Since LMP provides market participants a clear and accurate signal of electricity prices at every spot on the grid, it theoretically provides incentives for building new generation, upgrading bulk power facilities, or reducing electricity consumption to alleviate transmission bottlenecks, increase competition, and improve an electric system's ability to meet demand from lowest-cost resources. In practice, LMP has done little but increase costs to consumers. (*See bulk power, financial transmission rights, grid, peaking plant, transmission, transmission congestion, transmission system, wholesale power market.*)

**loop transmission** An electric distribution system that allows consumers to receive electricity from more than one direction, providing backup in case of an outage.

**loss control** Safety programs aimed at preventing or limiting financial and personnel loss from accidents.

**Louisiana Country** Official consumer publication of the Baton Rouge, La.-based Association of Louisiana Electric Cooperatives.

**Low Income Home Energy Assistance Program (LIHEAP)** A federal welfare program created in 1981 that offers financial support to eligible low-income households for paying home heating or cooling bills. Each state, territory, and tribal government receives LIHEAP funds as a block grant from the U.S. Department of Health and Human Services Administration for Children & Families and then operates individual programs. Applicants for LIHEAP cash grants and crisis payments must have an annual household income of less than 150 percent of the federal poverty level or 75 percent of state median income, whichever is greater; some states provide supplemental appropriations to expand coverage. LIHEAP provides a critical safety net for struggling electric cooperative consumers since rural communities have limited access to alternative energy assistance sources, like private fuel funds used in many large cities. The program also helps electric cooperatives absorb the costs of delinquent accounts. Most state LIHEAP efforts include weatherization support, where contractors replace broken windows or install more energy-efficient furnaces. (*See Weatherization Assistance Program.*)

## M

**man at the end of the line** A phrase of unknown origin that has become a mantra or creed embodying the spirit of rural electrification: extending power to the last homestead in the farthest reaches of the last hollow in rural America. It's estimated that up to 10 percent of all electric cooperative consumers actually live at the end of a distribution line. (*See area coverage, Pace Act.*)

**margin** The difference between a cooperative's income and its expenses; returned to members in the form of capital credits as the cooperative's financial status permits. (*See capital credits.*)

**marginal-cost pricing** A method of establishing the selling price of a commodity based on production costs of the last, most expensive unit sold.

**market-based rate** Price for generation based solely on what can be obtained in an open marketplace. This differs from cost-of-service rates, which are tied to the cost of construction and operation of facilities necessary to produce electricity. (*See cost-of-service rate.*)

**market power** The ability of a company to raise and maintain prices (and generate profits) above competitive levels for a significant period of time.

**maximum drawdown** The lowest reservoir level at a hydroelectric plant; likely occurs during severe drought.

**Mbps** megabits per second.

**MDSC** modified debt service coverage.

**means testing** The practice of limiting loans to borrowers with special eligibility criteria. For electric cooperatives, means testing was attached to the awarding of federal Rural Utilities Service (RUS) hardship insured loans under the Rural Electrification Loan Restructuring Act of 1993. The Bush Administration, as part of its 2004 and subsequent federal budget blueprints, proposed additional means testing on all RUS electric loans, such as limiting them to “genuine rural areas with persistent poverty rates.” (*See hardship loans, once rural, always rural, Rural Electrification Loan Restructuring Act.*)

**megabits per second (Mbps)** A unit of data transfer equal to 1 million bits per second.

**megawatt (MW)** Equal to 1,000 kW or 1 million W. A measure of both a utility’s capacity and a consumer’s demand or load. Abbreviation acceptable on all references. (*See kilowatt, gigawatt.*)

**megawatt-hour (MWh)** Equal to 1,000 kWh or 1 million Wh. Abbreviation acceptable on all references. (*See kilowatt-hour.*)

**member** The actual person(s) listed on an account who receive service from an electric cooperative. In most cases, the number of members served by a cooperative differs from the total number of consumers served (not all consumers are members, as some are children, etc.) or the number of meters served (since some accounts have more than one meter). (*See consumer, consumer-member, owner.*)

**merchant plant** A generation facility built to produce electricity as a commodity and that has not committed its full output to a specific customer or customers under long-term contracts.

**mercury vapor lights** A popular type of outdoor lighting, noted for its bright white radiance, once promoted by many electric cooperatives as *security lights* or *pole lights*. The federal Energy Policy Act of 2005 banned ballasts needed for operating mercury vapor lights as of January 1, 2008, leading to their eventual elimination. No need for a hyphen. (*See dark-sky lights, high-pressure sodium vapor lights, metal halide lights.*)

**merger** The combination of two or more companies with one retaining its identity. (*See consolidation.*)

**metal halide lights** A type of energy-efficient outdoor lighting, noted for bright white and intense, though high temperature, brilliancy and increasingly promoted by electric cooperatives as *security lights* or *pole lights*. Described by some as “lightning in a bottle,” metal halide floodlights have grown in popularity following the mandatory phase-out of *mercury vapor lights*. No need for a hyphen. (*See darksky lights, high-pressure sodium vapor lights, mercury vapor lights.*)

**metal theft** The unlawful and (in the case of copper wire used for electric service) dangerous practice of stealing items made of metal and selling them for scrap. The most common products affected are those made of copper, aluminum, brass, and bronze. Metal theft increased significantly from 2003 to mid-2008 due to record-high world metal prices fed by breakneck economic growth in China, India, and the Middle East. (Metal prices declined sharply in the last half of 2008, returning to 2003-era levels.) Many law enforcement officials believe that methamphetamine users are responsible for much of the

epidemic. Metal theft forces electric cooperatives to spend tens of millions annually in replacement materials and repairs.

**meter** A device used to measure and record the amount of electricity used by a consumer. Newer models also communicate readings and other data with a utility. (*See automated meter reading, advanced meter infrastructure.*)

**meter tampering** (*See electricity theft.*)

**methane digester** (*See anaerobic digester.*)

**Michigan Country Lines** Official consumer publication of the Okemos, Mich.-based Michigan Electric Cooperative Association.

**microhydro** Small hydroelectric plants that typically produce no more than 100 kW of power. (*See distributed generation, hydroelectric power, renewables.*)

**Mid-West** Mid-West Electric Consumers Association.

**Mid-West Electric Consumers Association** (Mid-West) A Wheat Ridge, Colo.-based lobbying and planning organization representing more than 340 electric cooperatives and municipal utilities in the nine-state Missouri River drainage basin that purchase federal hydropower from the Western Area Power Administration. Formed in 1958. Use short form, Mid-West, on second reference. (*See Western Area Power Administration.*)

**Midwest Independent System Operator** (MISO) A Carmel, Ind.-headquartered regional transmission organization that coordinates roughly 130,000 MW, or 13 percent, of the nation's generating capacity, across all or parts of 15 states and the Canadian province of Manitoba. (*See regional transmission organization.*)

**Midwest Reliability Organization** One of eight North American Electric Reliability Corporation regional organizations that coordinate planning and operations among utilities. (*See North American Electric Reliability Corporation.*)

**mill** One-tenth of a cent. Used as a measure of electric energy bought and sold.

**MISO** Midwest Independent System Operator.

**modified debt service coverage** (MDSC) A ratio that measures a borrower's ability to repay a loan. It's calculated by totaling interest on long-term debt, depreciation and amortization expenses, operating margins, interest earned, and cash received as generation and transmission and other capital credits and dividing that figure by total long-term debt exposure. The National Rural Utilities Cooperative Finance Corporation requires electric cooperative borrowers to maintain a minimum MDSC of 1.35. (*See National Rural Utilities Cooperative Finance Corporation, Times Interest Earned Ratio.*)

**MultiSpeak Initiative** (MultiSpeak) A collaboration between the National Rural Electric Cooperative Association and more than 50 vendors, consultants, and electric utilities aimed at developing standard interfaces between commonly used (primarily distribution system) software applications and automation tools. Launched in 1999, MultiSpeak essentially allows meters, consumer databases, and utility equipment to "talk" to each other without expensive custom programming, helping boost system efficiency and service reliability. MultiSpeak also has been partnering with the Common Information Model, developed by the Geneva, Switzerland-based International Electro technical Commission, to create a single utility data integration standard. (*See National Rural Electric Cooperative Association.*)

**municipal electric system** An electric distribution utility owned by a city, borough, or other incorporated community. Avoid use of the short form *muni*.

**municipal rate loans** A federal Rural Utilities Service insured loan program available to electric distribution cooperatives with interest set at the current market yield on municipal bonds. Funds can be used for distribution, subtransmission, and headquarters (service and warehouse facility) purposes. (*See hardship loans, insured loans, Rural Electrification Loan Restructuring Act, RUS guaranteed loans, Treasury rate loans.*)

**MW** megawatt.

**MWh** megawatt-hour.

## N

**NAAQS** National Ambient Air Quality Standards.

**nameplate rating** The maximum capacity of electrical equipment or a generator as stated on the attached nameplate. Actual capacity can vary due to age, wear, maintenance, or other conditions that hamper operation. (*See capacity.*)

**NARUC** National Association of Regulatory Utility Commissioners.

**National Ambient Air Quality Standards (NAAQS)** Levels of pollutants that can be present in the atmosphere without endangering public health and welfare; established by the U.S. Environmental Protection Agency. (*U.S. Environmental Protection Agency.*)

**National Association of Regulatory Utility Commissioners (NARUC)** A professional trade association, headquartered in Washington, D.C., composed of members of state and federal regulatory bodies that have authority over public utilities. (*See public utilities.*)

**National Cooperative Services Corporation (NCSC)** A subsidiary of Herndon, Va.-based National Rural Utilities Cooperative Finance Corporation (CFC) created in 1982 to offer services that CFC could not, such as financing for-profit electric cooperative ventures, loans to cooperative consumers for home energy efficiency improvements, and acquisitions of investor-owned utility service territories. (*See National Rural Utilities Cooperative Finance Corporation.*)

**National Community Service Awards** Honors presented annually by the National Rural Electric Cooperative Association that recognize electric cooperatives for outstanding leadership and contributions in the categories

of Community Investment, Energy Efficiency, and Youth Programs. (*See National Rural Electric Cooperative Association.*)

**National Consulting Group (NCG)** A unit of the National Rural Electric Cooperative Association that provides electric cooperatives with strategic guidance in the areas of governance, utility operations, leadership continuity, human resources management, and business process design. (*See National Rural Electric Cooperative Association.*)

**National Country Market Sales Cooperative (NCM)** The Austin, Texas-based advertising sales arm for most of the nation's electric cooperative statewide publications. Incorporated on January 5, 1996.

**National Electric Cooperative Statewide Editors Association (SEA)** The education and training arm of the nation's 32 electric cooperative statewide consumer publications, which reach more than 10 million households in 37 states each month.

**National Electrical Code (NEC)** The United States standard for safe installation of internal electrical wiring and equipment, part of the *National Fire Code* series published by the National Fire Protection Association. A publication title, italicize.

**National Electrical Safety Code (NESC)** Developed by the Institute of Electrical and Electronics Engineers, it sets ground rules for worker safety during the installation, operation, and maintenance of electric and telecommunication lines and associated equipment. A publication title, italicize. (*See arc flash, Institute of Electrical and Electronics Engineers.*)

**National Food and Energy Council** (*See Rural Electricity Resource Council.*)

**National Information Solutions Cooperative (NISC)** A Lake Saint Louis, Mo.-based information technology provider that develops and supports software and hardware applications primarily for electric cooperatives and rural telecommunications carriers.

**National Renewables Cooperative Organization (NRCO)** An organization founded in 2008 to assist electric cooperatives in gaining access to power generated from renewable resources. Any National Rural Electric Cooperative Association member cooperative—such as generation and transmission cooperatives, unaffiliated electric distribution cooperatives, public utility districts, and partial requirements cooperatives with the legal ability to purchase wholesale electricity—can join NRCO. As of late 2008, NRCO boasted 24 members. (*See all-requirements contract.*)

**National Rural Electric Cooperative Association (NRECA)** The Arlington, Va.-based national service organization representing more than 900 consumer-owned, not-for-profit electric cooperatives, public power districts, and public utility districts in the United States. NRECA oversees cooperative employee benefits plans; carries out federal government relations activities like lobbying; conducts management and director training; and spearheads communications, advocacy, and public relations initiatives. In addition, it coordinates national and regional conferences and seminars; offers member cooperatives advice on tax, legal, environmental, and engineering matters; and performs economic and technical research. Incorporated on March 19, 1942. (*See ACRE Co-op Owners for Political Action, Action Committee for Rural Electrification, Board Leadership Certificate, Clyde T. Ellis Award, Cooperative Benefit Administrators, Inc., Cooperative Research Network, Credentialed Cooperative Director, Electric Cooperative Bar Association, Electric Co-op Today, Haggard Award, MultiSpeak Initiative, National Community Service Awards, National Consulting Group, NRECA International Foundation, NRECA International, Ltd., NRECA International Programs, “Our Energy, Our Future,” regional meeting, regional transmission organization, Rural Electric Magazine, Rural Electric Safety Accreditation Program, Rural Electric Youth Tour, Straight Talk Alert, TechAdvantage Conference & Expo, William F. Matson Democracy Award, Willie Wiredhand, Wood Quality Control, Inc., Youth Leadership Council.*)

**National Rural Telecommunications Cooperative (NRTC)** The Herndon, Va.-based organization representing the advanced telecommunications and information technology interests of more than 1,400 electric cooperatives, telephone cooperatives, and affiliates in 47 states. NRTC offers products developed specifically to meet the needs of

rural consumers, such as WildBlue satellite high-speed Internet service, DIRECTV digital satellite television programming, automated meter reading, long-distance and mobile phone programs, and Internet Protocol television. Incorporated on August 6, 1986. (*See Internet Protocol television, WildBlue.*)

**National Rural Utilities Cooperative Finance Corporation (CFC)** The Herndon, Va.-based premier private market lender to the nation’s electric cooperatives. Incorporated on April 10, 1969, it lists more than \$20 billion in loans and loan guarantees. (*See National Cooperative Services Corporation, qualified lender, Rural Telephone Finance Cooperative.*)

**National Telephone Cooperative Association (NTCA)** The Arlington, Va.-based service organization representing about 450 telephone cooperatives and other independent telephone companies across the United States.

**National Utility Training & Safety Education Association (NUTSEA)** An organization whose primary activities involve job training, safety education, and safety program administration for electric cooperatives and related organizations. Use with ampersand.

**natural gas** A gaseous fossil fuel consisting primarily of methane but including significant quantities of ethane, propane, butane, and pentane used for electric generation, heating, cooking, and public transportation. Natural gas, most commonly used as a fuel for peaking plants rather than baseload generation, accounts for about 7 percent of the power produced by generation and transmission cooperatives and 11 percent of all electric cooperative power requirements nationwide. Natural gas compressor stations are largest collective load for electric cooperatives nationwide. (*See baseload, carbon capture and storage, carbon dioxide, combustion turbine, fossil fuel, fuel cell, generation and transmission cooperative, liquefied natural gas, peaking plant, syngas, synthetic fuel.*)

**NCG** National Consulting Group.

**NCM** National Country Market Sales Cooperative.

**NCSC** National Cooperative Services Corporation.

*NEC National Electrical Code.*

*NESC National Electrical Safety Code.*

**net generation** The total amount of electricity produced at a power plant less the amount of electricity used by the plant itself.

**net metering** An incentive where owners of small renewable energy systems receive retail credit for at least a portion of the electricity they generate. In its pure form, a consumer's electric meter will spin backwards whenever he/she uses less power than the renewable energy system produces, effectively banking excess electricity production for future credit.

**net utility plant** Used to measure the value of security on a loan, it's determined by the total value of a borrower's physical plant plus construction work in progress, minus accumulated provision for depreciation and amortization. (*See construction work in progress.*)

**neutral-to-earth voltage** Essentially, electricity that develops on the grounded neutral system of a farm. If the voltage reaches sufficient levels, animals coming into contact with grounded devices, like stanchions, water troughs, and milking machines, may receive a mild electrical shock that can cause a behavioral response. Avoid using the term *stray voltage*.

**New Source Review (NSR)** A provision in the federal Clean Air Act of 1977 that requires installation of expensive, state-of-the-art pollution controls—like scrubbers—when equipment at a coal-fired power plant, refinery, or factory undergoes an upgrade or operational change deemed to be a “major modification.” In contrast, projects considered “routine maintenance, repair, or replacement” are exempt. Electric cooperatives, holding that NSR rules are confusing, arbitrary, and stymie plant improvements, have strongly urged Congress and the U.S. Environmental Protection Agency to clarify the matter. In reauthorizing the Clean Air Act in 1990, Congress recognized that power plants have a typical life expectancy of 65 years or more and electric utilities are expected to maintain existing capabilities and reliability of those plants during their useful life without NSR kicking in. (*See Clean Air Act.*)

**New York Power Authority (NYPA)** America's largest state-owned electricity provider, it operates 18 generating facilities and more than 1,400 circuit-miles of transmission lines. NYPA sells preference hydropower from the Niagara Power Project to electric cooperatives in New York, Pennsylvania, New Jersey, and Ohio. (*See hydroelectric power, preference principle.*)

**nitrogen oxides** Compounds of nitrogen and oxygen formed when fossil fuels burn and a leading contributor to smog. Always plural. Don't use the abbreviation NOx. (*See algae reactor, cap and trade, Clean Air Act, Clean Air Interstate Rule.*)

**NISC** National Information Solutions Cooperative.

**non-coincident demand** The highest demand for power by a consumer or class of consumers that occurs at a different time than a power supplier's system peak demand. (*See coincident demand, peak demand.*)

**non-coincidental peak** The sum of two or more utility system load peaks that do not occur during the same time. Meaningful when considering peak loads within a limited period, such as a day, week, month, a heating or cooling season, and usually for not more than one year. (*See coincidental peak, peak load.*)

**non-firm power** Generation or power-producing capacity supplied or available under a commitment having limited availability.

**non-profit** An organization engaging in public interest activities, such as humanitarian, charitable, educational, or environmental efforts, and that obtains money for services without seeking to realize a profit. Non-profits do things for people in a relationship of dependency. Electric cooperatives, in contrast, as self-help organizations, are considered *not-for-profit*. (*See not-for-profit.*)

**non-utility generator** A corporation, person, agency, authority, or other entity that owns electric generating capacity and is not defined as a utility under state or federal law. Includes small power producers (such as electric cooperative consumers with renewable energy systems) and independent power producers. (*See cogeneration,*

*independent power producer, Public Utility Regulatory Policies Act, purchased power, qualifying facility, small power producer.*)

**North American Electric Reliability Corporation (NERC)** The Princeton, N.J.-based organization charged with overseeing reliability of the electric grid covering the United States, most of Canada, and the Mexican state of Baja California Norte. NERC develops and enforces reliability standards; assesses reliability annually via 10-year and seasonal forecasts; monitors the bulk power system; evaluates users, owners, and operators for preparedness; and educates, trains, and certifies industry personnel. While a self-regulating body, NERC remains subject to oversight by the Federal Energy Regulatory Commission and governmental authorities in Canada. *(See bulk power, Federal Energy Regulatory Commission, Florida Reliability Coordinating Council, grid, Midwest Reliability Organization, Northeast Power Coordinating Council, Reliability First Corporation, SERC Reliability Corporation, Southwest Power Pool, Texas Regional Entity, Western Electricity Coordinating Council.)*

**Northeast Power Coordinating Council** One of eight North American Electric Reliability Corporation regional organizations that coordinate planning and operations among utilities. *(See North American Electric Reliability Corporation.)*

**North Dakota Living** Official consumer publication of the Mandan, N.D.-based North Dakota Association of Rural Electric Cooperatives.

**not-for-profit** An incorporated, self-help organization established with the sole purpose of providing a service at the lowest possible cost and where ownership lies with stakeholders (users) and not outside investors. Not-for-profit entities, such as cooperatives and credit unions, maintain a surplus of income over expenditures but use that excess revenue to improve service and return it to stakeholders. *Electric cooperatives are not-for-profit businesses. (See capital credits, non-profit.)*

**NRC** Nuclear Regulatory Commission.

**NRCO** National Renewables Cooperative Organization.

**NRECA International Foundation** A registered charitable 501(c) (3) organization that partners with electric cooperatives in the United States and others to bring power and economic development to rural villages overseas. The Foundation, created in 1985 by the National Rural Electric Cooperative Association, has provided millions of dollars in funding, supplied donated equipment, and recruited volunteer personnel to share expertise with electric cooperatives in developing countries. One of two entities that make up NRECA International Programs. *(See National Rural Electric Cooperative Association, NRECA International, Ltd., NRECA International Programs.)*

**NRECA International, Ltd.** A wholly owned subsidiary of the National Rural Electric Cooperative Association with offices in six countries that designs, constructs, and operates hundreds of rural electric utilities overseas, while training local personnel to own and manage them. One of two entities that make up NRECA International Programs. *(See National Rural Electric Cooperative Association, NRECA International Foundation, NRECA International Programs.)*

**NRECA International Programs** A division of the National Rural Electric Cooperative Association created in November 1962 to combat communist expansion and boost goodwill overseas by helping developing countries (42 to date) provide rural residents with access to safe, reliable, and affordable electricity. These electrification programs have resulted in increased agricultural productivity, millions of new jobs, as well as higher incomes and quality of life for nearly 100 million people. Composed of two distinct entities: NRECA International, Ltd. and NRECA International Foundation. *(See National Rural Electric Cooperative Association, NRECA International Foundation, NRECA International, Ltd., Sister Cooperative Partnership Program.)*

**NRTC** National Rural Telecommunications Cooperative.

**NSR** New Source Review.

**NTCA** National Telephone Cooperative Association.

**nuclear fission** The energy produced by splitting atoms (such as uranium) in a nuclear reactor. (*See fusion power, nuclear power, reactor.*)

**nuclear fuel reprocessing** The chemical separation of spent nuclear fuel into plutonium, reusable uranium, and a small amount of waste products. Fear of nuclear weapons proliferation led the United States to indefinitely suspend the commercial reprocessing and recycling of high-level nuclear waste in 1977 and focus on long-term storage. (*See nuclear power, Nuclear Waste Fund.*)

**nuclear power** A method whereby steam, produced from water heated to a boil through nuclear fission, spins a turbine to generate electricity. In nuclear power plants, a reactor contains a core of nuclear fuel, primarily enriched uranium. When uranium atoms are hit by neutrons they fission (split), releasing heat and more neutrons. Under controlled conditions, the neutrons keep striking more uranium atoms, creating a self-sustaining chain reaction used to boil water. Nuclear accounts for about 13 percent of the power produced by generation and transmission cooperatives and 15 percent of all electric cooperative power requirements nationwide. (*See baseload, cooling tower, generation and transmission cooperative, nuclear fission, reactor, uranium.*)

**Nuclear Regulatory Commission (NRC)** The federal agency responsible for the licensing and safety of nuclear power plants; successor to the Atomic Energy Commission.

**Nuclear Waste Fund** An account created in the federal Nuclear Waste Policy Act of 1982 to pay for construction of a permanent, central storage repository for high-level radioactive waste. (The law called on the U.S. Department of Energy to begin developing such a facility.) Since 1983, Americans who consume electricity produced by nuclear power plants have paid roughly \$30 billion, including interest, into the federal Nuclear Waste Fund through a one-tenth of 1 cent per kWh fee. More than \$700 million of the total has come from electric cooperative consumers. However, Congress has used most of the revenue collected to mask the size of the federal budget deficit; just \$13.5 billion had been spent on repository work as of 2008. (*See Yucca Mountain.*)

**NUTSEA** National Utility Training & Safety Education Association.

**NYPA** New York Power Authority.

## O

**Occupational Safety and Health Administration (OSHA)** Federal agency that sets standards for safe work places and enforces them through periodic inspections.

**ocean wave power** A form of hydrokinetic power that converts mechanical energy from the constant rising and falling of ocean waves into electricity. Most ocean wave power systems rely on buoy technology to run a piston that in turn drives a generator. (*See hydrokinetic power, tidal power.*)

**OCR** oil-circuit recloser.

**Office of Management and Budget (OMB)** White House branch that prepares fiscal estimates and budgets.

**off-peak power** Electricity supplied during periods of low consumption. (*See peak demand, system demand.*)

**off-peak rate** A pricing structure where consumers pay special low charges for electricity used during times of low consumption. (*See block rate, class rate, cost-based rate, declining block rate, demand rate, flat rate, industrial rate, interruptible rate, inverted rate, offset rate, ratchet rate, step rate, time-of-use rate.*)

**offset rate** A pricing structure where a cooperative passes along certain charges to consumers. (*See block rate, class rate, cost-based rate, declining block rate, demand rate, flat rate, industrial rate, interruptible rate, inverted rate, off-peak rate, ratchet rate, step rate, time-of-use rate.*)

**ohm** The amount of resistance overcome by 1 V in causing 1 A to flow. An ohm measures resistance to current flow in electrical circuits.

**Ohm's Law** A formula that holds *the strength of an unvarying electrical circuit is directly proportional to the electromotive force and inversely proportional to the resistance of the circuit.* In other words, voltage is equal to current multiplied by resistance. Use the following formula:  $E = I \times R$ , where E is voltage in volts, I is current in amperes, and R is resistance in ohms.

**oil** A liquid fossil fuel found in rock formations consisting of a complex mixture of hydrocarbons and other organic compounds. Refined and distilled, it can be turned into a variety of products such as asphalt, diesel fuel, gasoline, heating oil, jet fuel, kerosene, lubricants, paraffin wax, sulfuric acid, tar, and aromatic chemicals. More accurately referred to as *petroleum*. Oil, primarily diesel fuel, accounts for less than 1 percent of the power produced by generation and transmission cooperatives and around 1 percent of all electric cooperative power requirements nationwide. (*See combustion turbine, generation and transmission cooperative, peaking plant, syngas, synthetic fuel.*)

**oil-circuit recloser (OCR)** A device that protects electric lines by momentarily interrupting service when a fault occurs, then restoring power automatically after the fault clears. This keeps outages from occurring when temporary problems arise, such as tree branches touching a line.

**Oklahoma Living** Official consumer publication of the Oklahoma City, Okla.-based Oklahoma Association of Electric Cooperatives.

**OMB** White House Office of Management and Budget.

**once a borrower, always a borrower** (*See once rural, always rural .*)

**once rural, always rural** Lending policy used by the federal Rural Utilities Service under which any electric cooperative borrower is considered eligible for loans, despite demographic changes in its service territory. The historic practice was officially written into law as part of the 2008 Farm Bill. Also referred to as *once a borrower, always a borrower*. (*See means testing.*)

**on-line, online** A generating plant that's operating is *on-line*. *Online* refers to communication over the Internet. (*See down.*)

**on-site generation** (*See distributed generation.*)

**open access** Permitting wholesale power suppliers and sellers to move power over the transmission lines of other utilities.

**open-loop heat pump** (*See heat pump.*)

**operating expenses** Costs needed to generate electricity, such as those associated with running a power plant, maintenance, taxes, and depreciation.

**operating income** The amount of money remaining to a utility after operating expenses are deducted from operating revenues.

**operating reserve** Generating capacity available within a short period of time to meet demand in case a power plant goes down or another supply disruption occurs. Most power systems are designed so that, under normal conditions, the operating reserve always matches the capacity of the largest generator plus a fraction of peak load. The operating reserve can be divided into *spinning reserves* and *supplemental reserves*. (*See capacity, demand, peak load, reserves, spinning reserve, supplemental reserve.*)

**operating revenues** Money a utility receives from selling goods and services.

**OSHA** U.S. Occupational Safety and Health Administration.

**“Our Energy, Our Future”** The largest and most aggressive grassroots awareness campaign in electric cooperative history. At its core, the effort seeks to motivate more than 40 million electric cooperative consumers in 47 states to discuss with elected officials the complexities associated with providing safe, reliable, and affordable power in an environmentally responsible fashion over coming decades. Launched in late February 2008. Use with trademark symbol on first reference; use quote marks at all times. (*See grassroots, National Rural Electric Cooperative Association.*)

**outage** Interruption of service to an electric consumer because of malfunctioning power plants, transmission lines, substations, or distribution equipment.

**owner** Avoid using this word when referring to an electric cooperative consumer, as it implies a level of financial responsibility that makes folks uncomfortable. *Consumer, member, or consumer-member* is preferred, depending on context. (See *consumer, consumer-member, member.*)

**ozone layer** A section of the upper atmosphere containing concentrations of a form of oxygen that screens out ultraviolet radiation. Studies proved this layer was being destroyed by chemicals from aerosol cans and refrigeration units, which were then banned. (See *chlorofluorocarbons.*)

## P

**Pace Act** The 1944 federal law that extended the life of the federal Rural Electrification Administration (REA) indefinitely beyond its targeted 1946 expiration date on the condition that electric cooperatives adopt area coverage. The measure also set REA loan interest rates at 2 percent and lengthened loan terms to 35 years. (See *area coverage, Executive Order 7037, man at the end of the line, Rural Electrification Act, Rural Electrification Administration.*)

**pad-mount transformer** An electric transformer mounted on the ground, usually on concrete, and seen most often in housing developments with limited overhead line construction. (See *pole-mount transformer, transformer.*)

**passive solar energy** Radiation from sunlight that can be used to provide heat and light without complicated machinery; typically controlled by building design and location. (See *active solar energy, solar power, solar thermal energy.*)

**patronage capital** (See *capital credits.*)

**payback** A method of calculating how long it will take to recover the additional cost of a more efficient appliance or building material.

**PCBs** polychlorinated biphenyls. Acceptable on all references.

**peak demand** The electric utility industry's equivalent of rush-hour traffic when power costs are the highest. It's the greatest demand placed on an electric system, measured in kW or MW; also, the time of day or season of the year when that demand occurs.

**peak pricing** (See *critical-peak pricing, time-of-use rate.*)

**peak load** The amount of electric power required by a consumer or a utility system during times when electric consumption reaches its highest point; measured in kW or MW. (See *demand response, demand side management, load management.*)

**peak-load shifting/shaping** (See *demand-side management, load management.*)

**peaking plant** An electric generating unit, usually burning natural gas or diesel fuel, that operates for a short time during periods of high electricity consumption. (See *baseload, combustion turbine, locational marginal pricing.*)

**Penn Lines** Official consumer publication of the Harrisburg, Pa.-based Pennsylvania Rural Electric Association.

**people's utility district** (See *public utility district.*)

**percentage method** Retirement of capital credits by paying a portion of the amount in a member's account, regardless of how long it has been there. (See *capital credits; first in, first out.*)

**perm** Unit of measurement for the rate at which water moves through a membrane. Used to measure vapor barriers in home construction and remodeling.

**PHEV** plug-in hybrid electric vehicle.

**photovoltaics (PV)** Technology for generating electric power directly from sunlight. (*See active solar energy, distributed generation, passive solar energy, renewables, solar power, solar thermal energy.*)

**PJM** PJM Interconnection.

**PJM Interconnection (PJM)** A Valley Forge, Pa.-headquartered regional transmission organization that coordinates roughly 165,000 MW, or 16 percent, of the nation's generating capacity, in all or parts of 13 Mid-Atlantic and Midwestern states and the District of Columbia. (*See regional transmission organization.*)

**plug-in hybrid electric vehicle (PHEV)** A car or truck that relies on the combination of a gasoline or diesel engine and lithium-ion batteries for propulsion. Unlike standard hybrid vehicles, where much smaller 1.3-kWh nickel-metal hydride batteries are recharged by the gasoline engine and a regenerative braking system, PHEV batteries (ranging from 9 kWh to 16 kWh) are fully recharged only through a regular 110-V outlet. (*See EPRI prism.*)

**PMAs** power marketing administrations.

**pole attachments** Lines and conduits, typically deployed by telephone and cable TV companies, that “piggyback” on electric utility poles and rights-of-way for a fee. Electric cooperatives base pole attachment rates and terms on local costs and conditions, not profit. As a result, the federal Telecommunications Act of 1996 exempts electric cooperatives from Federal Communications Commission pole attachment rate-setting authority.

**pole-mount transformer** An electric transformer mounted on a utility pole. (*See pad-mount transformer, transformer.*)

**pollution control** Steps taken to ease any harmful environmental effects resulting from electricity production. (*See flue gas.*)

**polychlorinated biphenyls (PCBs)** Once used as insulation in electric transformers, PCBs were found in the mid-1970s to be toxic and banned. Abbreviation acceptable on all references.

**postage stamp rate** A regional transmission pricing structure that establishes a single rate for all users; similar to the way postage is charged in that it costs the same amount to send a letter across the country as it does down the street. (*See license plate rate.*)

**power** In the context of electricity, a general term that can include energy (kWh), capacity (kW), or both. Use the specific term *energy* or *capacity* whenever possible.

**power cost adjustment** (*See fuel adjustment clause.*)

**powerhouse** An electric generating station.

**power line** A conductor (wire) that carries electricity from a generation source to a supplier or the ultimate consumer. Two words in this usage.

**powerline carrier** A system for carrying data over an electric power line. Note one word on *powerline* in this usage.

**power marketer** Persons or companies that sell wholesale power they generate themselves, purchase from others, or both. Power marketers are required to register with the Federal Energy Regulatory Commission. (*See aggregator, broker, Federal Energy Regulatory Commission, purchased power.*)

**power marketing administrations (PMAs)** The umbrella term for the federal Bonneville Power Administration (BPA), Southeastern Power Administration (SEPA), Southwestern Power Administration (SWPA), and Western Area Power Administration (WAPA). PMAs, as federal agencies, sell power produced at federal hydropower projects, giving first priority to consumer-owned electric cooperatives and publicly owned municipal electric systems (under the *preference principle*), and making power available at the cost of production. (*See Bonneville Power Administration, Bureau of Reclamation, hydroelectric power, preference principle, purchased power, Southeastern Power Administration, Southwestern Power Administration, U.S. Army Corps of Engineers, Western Area Power Administration.*)

**power pool** Two or more utility systems connected to increase reliability and operating efficiencies.

**power supplier** A company that provides electricity, either by generating it or by arranging for its delivery to a consumer.

**power supply choice** (*See consumer choice.*)

**PPD** public power district.

**preference principle** An antimonopoly measure authorized by Congress that gives publicly owned municipal electric systems (since 1906) and not-for-profit, consumer-owned electric cooperatives (since creation of the Tennessee Valley Authority in 1933) first right, or preference, to purchase hydropower produced at federal dams. Preference provides cooperatives with access to wholesale power at reasonable rates and creates a competitive yardstick for measuring electricity costs. (*See hydroelectric power, power marketing administrations.*)

**price to compare** The cost per kWh for generation and transmission from a local utility that a competitive electric generation supplier has to beat for a consumer to save money. (*See electric generation supplier.*)

**provider of last resort** (*See standard offer service.*)

**Price-Anderson Act** Federal legislation first passed in 1957 that partially indemnifies nuclear power plant operators against liability claims arising from accidents while still ensuring compensation for the general public. The act was renewed for another 20 years as part of the Energy Policy Act of 2005.

**private power company** (*See investor-owned utility.*)

**privatization** Turning over government or public assets to private interests to be operated for profit.

**production tax credit (PTC)** A federal tax incentive designed to support the introduction of renewable energy. For-profit companies presently can qualify for a 2.1 cents per kWh production tax credit for installing wind, geothermal, closed-loop biomass (trees grown expressly for electricity production), open-loop biomass (sawdust, tree trimmings, timber slash, wood chips, farm byproducts, animal waste, and landfill gas), small hydro (less than 25 MW), and hydrokinetic (ocean wave and tidal) generation. Production tax credits lower the cost of power from renewable energy projects to a level competitive with convention fuels, like coal or natural gas. Electric cooperatives are not eligible for the PTC but can use Clean Renewable Energy Bonds for the same purpose. (*See Clean Renewable Energy Bonds, investment tax credit.*)

**PTC** production tax credit. Acceptable on second reference.

**public power district (PPD)** Locally controlled political subdivisions within the state of Nebraska, similar to a county, formed to distribute electricity on a not-for-profit basis across a specified service area. PPDs (some are called *rural public power districts*, or *RPPDs*) differ from electric cooperatives in that they are not required to retain and return capital credits or hold annual meetings, and directors are elected on the state general election ballot (candidates only need to reside within the PPD/RPPD's boundaries, not be connected to its power lines). PPDs/RPPDs enjoy full status as members of the National Rural Electric Cooperative Association. Nebraska has 26 PPDs/RPPDs. (*See electric cooperative.*)

**public utilities** Private, for-profit, and state-regulated businesses that provide an essential commodity or service, such as water, electricity, natural gas, or cable TV. Also, entities selling wholesale power or providing interstate transmission service subject to regulation by the Federal Energy Regulatory Commission. (*See holding company, Federal Energy Regulatory Commission, investor-owned utility, regulation.*)

**public utility district (PUD)** A political entity, similar to a school district, formed in Washington, California, and Oregon (where they're called *people's utility districts*) to distribute electricity on a not for-

profit basis across a specified service area. PUDs differ from electric cooperatives in that they are not required to retain and return capital credits or hold annual meetings, and commissioners (i.e. directors) are elected on the state general election ballot (candidates only need to reside within the PUD's boundaries, not be connected to its power lines). PUDs enjoy full status as members of the National Rural Electric Cooperative Association. (*See electric cooperative.*)

**Public Utility Holding Company Act (PUHCA)** One of the most important consumer protection statutes ever enacted, the original 1935 federal law limited the size (geographic scope) of investor owned utility holding companies, banned common ownership of electric and natural gas utilities, and curbed self-dealing among utility affiliates while opening up holding company books and records to inspection by the U.S. Securities and Exchange Commission and state regulators. The 1935 law was repealed in the Energy Policy Act of 2005, although some of its consumer protections were retained in a revised PUHCA of 2005 thanks to electric cooperative efforts. (*See holding company, investor-owned utility, public utilities.*)

**Public Utility Regulatory Policies Act (PURPA)** One of five parts of the National Energy Act of 1978 designed to promote greater use of self-generated, mostly "clean and green" energy. PURPA Section 210 created an electricity sales market for non-utility generators, independent power producers (such as industrial cogenerators), or consumers with small-scale renewable generation like anaerobic digesters or solar systems, by requiring electric utilities to buy power from them at the utility's *avoided cost*. The Energy Policy Act of 2005 repealed sections of PURPA requiring utilities to buy power from these *qualifying facilities* if the Federal Energy Regulatory Commission finds they have access to real-time competitive wholesale power markets. It also revoked requirements that utilities sell power to qualifying facilities in territories with active retail competition. (*See avoided cost, cogeneration, independent power producer, non-utility generator, qualifying facility, small power producer.*)

**PUD** public utility district, people's utility district.

**PUHCA** Public Utility Holding Company Act.

**pumped-storage hydro** A hydroelectric plant that generates power during times of peak demand by using water previously pumped to an elevated storage reservoir during off-peak periods. Pumped storage hydro remains the largest-capacity form of electricity storage currently available. (*See compressed-air storage, distributed resources, hydroelectric plant, off-peak power, peak demand.*)

**purchased power** Wholesale power bought through a long-term contract or off the spot market. Purchased power from investor-owned utilities, non-utility generators, power marketers, federal power marketing administrations, state power agencies, and others makes up 55 percent of the electricity supplied by electric cooperatives nationwide; the rest is provided by *generation and transmission cooperatives*. (*See investor-owned utility, generation and transmission cooperative, non-utility generator, power marketer, power marketing administrations, spot market.*)

**PURPA** Public Utility Regulatory Policies Act.

**PV** photovoltaics.

## Q

**QF** qualifying facility.

**quad** A quadrillion British thermal units, equal to the energy contained in 8 billion gallons of gasoline—a year's supply for 10 million cars.

**qualified lender** For electric cooperatives that no longer borrow from the federal Rural Utilities Service (RUS), loans carrying an RUS guarantee can be made through "qualified lenders" (either the National Rural Utilities Cooperative Finance Corporation or CoBank), which obtain funds through the *Federal Financing Bank (FFB)*—an arm of the U.S. Treasury that coordinates the borrowing of federal agencies providing loan guarantees. The government guarantee allows qualified lenders to raise money at a reduced rate compared to what can be obtained from capital markets. For the privilege of borrowing from FFB, qualified lenders pay a 30-basis-points (three-tenths of 1 percent)

fee twice a year for as long as a loan remains outstanding. The fees, meanwhile, flow into the federal *Rural Economic Development Loan and Grant Program* to provide additional funding for rural businesses expansion and job creation. (See *CoBank, Federal Financing Bank, National Rural Utilities Cooperative Finance Corporation, Rural Economic Development Loan and Grant Program, Rural Utilities Service, RUS guaranteed loans.*)

**qualifying facility (QF)** A distinct class of electricity producers consisting of either renewable generators up to 80 MW in capacity or cogenerators who meet criteria established by the Federal Energy Regulatory Commission (FERC). When a generation unit of this type meets Public Utility Regulatory Policies Act and FERC requirements for size and efficiency, local electric utilities are obligated to interconnect, sell backup power to, and purchase the output from the QF at their *avoided cost*. Under the Energy Policy Act of 2005, utilities no longer have to buy power from QFs if FERC finds they have access to real-time competitive wholesale power markets, or sell power to QFs in territories with active retail competition. (See *avoided cost, cogeneration, Public Utility Regulatory Policies Act, small power producer.*)

**quorum** Number of members who must be present for an electric cooperative to legally conduct business. Usually established in a cooperative's *bylaws*. (See *bylaws.*)

## R

**rad** A measure of the amount of radiation absorbed by the human body.

**radiant energy** Energy traveling outward from a source with a wave motion.

**radiation** Energy emitted as waves or nuclear particles; a natural component of the environment and an inevitable byproduct of nuclear power.

**radiator** A device that transfers heat to room air by circulating steam or hot water through pipes.

**ratchet rate** A pricing structure incorporated into utility rate designs to minimize the risk of providing service to consumers whose loads vary throughout the year. The ratchet spreads out costs over an annual basis, based on maximum past or present electric demand. For example, if peak demand during summer hits 500 kW and the rate design includes a 50 percent ratchet, the minimum billing would be 250 kW for following months, even if actual demand was lower. (See *block rate, class rate, cost-based rate, declining block rate, demand rate, flat rate, industrial rate, interruptible rate, inverted rate, off peak rate, offset rate, step rate, time-of-use rate.*)

**rate** The cost per kWh for electricity.

**rate base** The total value of a utility's plants, transmission lines, buildings, and other equipment.

**rate of return** The percentage of profit a utility earns on an investment in electric facilities; generally, it applies only to regulated investor-owned utilities.

**RBCS** Rural Business-Cooperative Service.

**REA** Rural Electrification Administration.

**REA circus** A federal Rural Electrification Administration (REA) traveling road show that demonstrated electric appliances and products for agricultural and home use. Officially called the *REA Farm Equipment Tour*, it ran from October 1938 until the end of 1941. (See *Rural Electrification Administration.*)

**reactive power** The portion of power flow due to stored energy that returns to the source in each alternating current cycle. Reactive power becomes important when an electric load or a home appliance contains coils or capacitors, as electricity will periodically return to the power plant and then "slosh" back and forth across power lines. Reactive power has been described as the bouncing up and down that happens

when you walk forward across a trampoline, even through the movement seems to head in the opposite direction. Electric cooperatives work hard to balance real and reactive power in distribution and transmission operations as failure to do so can cause excessive losses, reduce capacity, and destabilize the system. (*See alternating current, real power.*)

**reactor** A complex machine that uses boiling water to produce steam, which in turns spins a turbine to generate electricity. Heat for boiling the water comes through the fission, or splitting, of uranium atoms. (*See nuclear fission, nuclear power, uranium.*)

**real power** The portion of power flow that, when averaged over a complete alternating current cycle, results in the net transfer of energy in one direction. If an electric load or appliance behaves purely as a resistor (such as a heater or an incandescent light bulb), then the device consumes real power only. (*See alternating current, reactive power.*)

**real-time pricing** A method of setting rates where the retail rate for electricity varies on an hourly or more frequent basis as the price of wholesale power changes. (*See block rate, class rate, cost-based rate, critical-peak pricing, declining block rate, demand rate, dynamic pricing, flat rate, industrial rate, interruptible rate, inverted rate, off-peak rate, offset rate, peak demand, ratchet rate, step rate, time-of-use rate.*)

**Red Flags rule** Federal Trade Commission regulation aimed at stemming the tide of identity theft. It required electric cooperatives, like all utilities with “covered accounts,” to implement identity theft prevention programs by November 1, 2008. Enforcement of the rule was later delayed until May 1, 2009.

**REDL&G** Rural Economic Development Loan and Grant Program.

**regional meeting** A gathering of electric cooperative leaders from states within one of 10 regions of the National Rural Electric Cooperative Association. Use numerals and ampersand when referring to regions: *The NRECA Regions 1 & 4 Meeting will be held in Pittsburgh, Pa.* (*See National Rural Electric Cooperative Association.*)

**regional transmission organization (RTO)** An entity established to ensure non-discriminatory access to transmission systems on a regional basis, perform regional transmission planning, implement and operate competitive wholesale power markets, and improve regional system reliability. The voluntary formation of RTOs was encouraged by the Federal Energy Regulatory Commission (FERC) under Order 2000 issued on December 20, 1999. RTOs perform similar functions as *independent system operators (ISOs)* but have expanded authority and cover larger, multi-state geographic areas. Both ISOs and RTOs are subject to FERC jurisdiction. The nation’s seven existing RTOs/ISOs are Valley Forge, Pa.-based PJM Interconnection; Carmel, Ind.-headquartered Midwest ISO; ISO New England in Holyoke, Mass.; New York ISO in Rensselaer, N.Y.; California ISO in Folsom, Calif.; Electric Reliability Council of Texas in Austin, Texas; and the Southwest Power Pool in Little Rock, Ark. The annual *RTO Report Card* produced by the National Rural Electric Cooperative Association finds that RTOs have not done a satisfactory job of encouraging investment in generation and transmission because their short-term markets do little to reduce long-term risk. In addition, RTOs have not made much progress in allowing all generators within a region to compete with one another on all price levels. (*See bulk power, Federal Energy Regulatory Commission, independent system operator, Midwest Independent System Operator, PJM Interconnection, transmission system, wholesale power market.*)

**regulation** A governmental order carrying the force of law. Because public utilities, such as stockholder-controlled investor-owned power companies, gain a natural monopoly within a given area, governmental oversight of rates and service becomes necessary to protect consumers from rampant price gouging and shoddy performance. Not-for-profit local electric cooperatives, being consumer-owned and controlled, boast built in consumer protection. As a result, most states exempt electric cooperatives from utility regulation. (*See electric cooperative, holding company, investor-owned utility, not-for-profit, public utilities.*)

**reliability** Every utility’s goal of providing uninterrupted electric service to consumers.

**Reliability First Corporation** One of eight North American Electric Reliability Corporation regional organizations that coordinate planning and operations among utilities. Note use of italics on name. (*See North American Electric Reliability Corporation.*)

**rem** “Roentgen equivalent, man.” A measure of radiation received by an individual. A dose of 100 rem will cause severe illness; 500 rem or more is considered fatal.

**REMDC** Rural Electric Management Development Council.

**renewable portfolio standards (RPS)** Laws passed by 28 states and the District of Columbia (as of late 2008) that require investor-owned utilities, competitive electric generation suppliers, as well as some municipal electric systems and electric cooperatives to add increasing amounts of “clean and green” electricity to their power supply mix (ranging from 10 percent to 30 percent) by a certain date (mostly between 2018 and 2025). Hawaii, Nevada, and North Carolina allow energy efficiency to count toward half of their RPS. Five other states (North Dakota, South Dakota, Utah, Vermont, and Virginia) have passed non-binding renewable goals. Eighteen states call for electric cooperatives to meet RPS mandates. In three others that generally exempt cooperatives from an RPS, Montana holds that cooperatives with more than 5,000 members develop similar renewable standards; Pennsylvania allows cooperatives to comply by offering energy efficiency or demand-side management programs; and Texas rescinds the exemption if cooperatives participate in consumer choice. (*See renewables.*)

**renewables** Sources of energy that are naturally replenishable, including wind, solar, biomass, geothermal, hydro, and hydrokinetic (ocean wave and tidal) power. Non-hydro renewables account for less than 1 percent of the power produced by generation and transmission cooperatives and 1 percent of electric cooperative power requirements nationwide. (*See anaerobic digester, biomass, generation and transmission cooperative, geothermal power, hydroelectric power, hydrokinetic power, hydropower, microhydro, ocean wave power, photovoltaics, solar power, tidal power, wind power.*)

**RERC** Rural Electricity Resource Council.

**re-regulation** Returning governmental jurisdiction over an industry previously freed of such control. (*See consumer choice, deregulation, restructuring, standard offer service.*)

**reserves** Extra generating capacity required to provide for variations in demand, load-forecasting errors, loss of equipment, and area protection. (*See operating reserve, spinning reserve, supplemental reserve.*)

**RESMA** Rural Electric Statewide Managers Association.

**restructuring** Changes made in the electric utility industry to promote competition. Also refers to the reorganization of an electric utility. (*See consumer choice, deregulation, re-regulation, standard offer service.*)

**retail competition** (*See consumer choice.*)

**retail wheeling** (*See consumer choice.*)

**retrofit** Installation or replacement of equipment at an existing power plant.

**Revolving Fund** Now extinct, the Revolving Fund was eliminated as part of the federal government’s credit reform measures implemented in 1991. It is short for Rural Electrification and Telephone Revolving Fund. Acceptable on all references. (*See Rural Electrification and Telephone Revolving Fund.*)

**right-of-way** A strip of land owned by another party on which a utility places poles, wires, substations, and other facilities. Sometimes acquired through eminent domain. Use hyphens for both the noun and adjective form. Plural is *rights-of-way*. (*See easement, eminent domain.*)

**Rochdale Principles** A set of business guidelines drawn up by Charles Howarth, one of 28 weavers and other artisans who founded the Rochdale Society of Equitable Pioneers in Rochdale, England, on December 21, 1844. (The tradesmen had banded together to open a

store selling food items they could not otherwise afford, starting out with a meager selection of butter, sugar, flour, oatmeal, and a few candles but soon expanding to include tea and tobacco. Eventually, the enterprise was so successful that the group was able to open a cooperative factory and textile mill.) The Rochdale (pronounced Rotchdale) Principles serve as the basis of the seven cooperative principles used today. (*See cooperative, cooperative principles.*)

**rolling blackouts** Controlled power outages designed to lessen the threat of an overload or cascading outage of major transmission systems brought on by short supply and high demand for power. Rolling blackouts are scheduled for predetermined sectors of the transmission grid at timed intervals. This spreads the burden of power shortages across an entire region for short, manageable periods (usually no more than a few hours) rather than allowing imbalances to destabilize the grid and cause extended, unplanned blackouts that can jeopardize public safety and damage sensitive equipment. (*See blackout, grid, outage, transmission system.*)

**RPS** renewable portfolio standards.

**RTFC** Rural Telephone Finance Cooperative.

**RTO** regional transmission organization.

**Rural Arkansas** Official consumer publication of the Little Rock, Ark.-based Arkansas Electric Cooperatives, Inc.

**Rural Business-Cooperative Service (RCBS)** A division of the U.S. Department of Agriculture that oversees the Rural Economic Development Loan and Grant Program. (*See Rural Electric Development Loan and Grant Program, USDA Rural Development.*)

**Rural Economic Development Loan and Grant Program (REDL&G)** A federal Rural Business-Cooperative Service offering that uses electric cooperatives as “pass-throughs” to make loans and grants available for rural businesses expansion and job creation. Businesses that receive REDL&G assistance see no real difference between loans and grants—in both cases, local electric cooperatives furnish the funds as a zero-interest loan with a payback of up to 10 years. Cooperatives, though, guarantee

repayment of REDL&G loans to the federal government. With REDL&G grants, electric cooperatives agree to create a revolving loan fund and match 20 percent of the amount. The match and subsequent loan repayments capitalize the revolving fund so it can assist additional local projects. REDL&G has a record of leveraging \$5 in private sector investment for every \$1 provided. Through 2008, REDL&G had supplied \$428 million to 1,400 projects nationwide, creating 42,000 jobs. (*See qualified lender, Rural Business-Cooperative Service, USDA Rural Development.*)

**Rural Electric Magazine** Flagship publication of the Arlington, Va.-based National Rural Electric Cooperative Association since October 1942. *RE Magazine* acceptable on all references. Known as *Rural Electrification Magazine* until May 2001. (*See National Rural Electric Cooperative Association, Straight Talk Alert.*)

**Rural Electric Management Development Council (REMDC)** An organization of electric cooperatives founded in 1958 that explores ways to improve management effectiveness.

**Rural Electric Nebraskan** Official consumer publication of the Lincoln, Neb.-based Nebraska Rural Electric Association.

**Rural Electric Safety Accreditation Program (RESAP)** A peer-review evaluation of electric cooperative safety and loss control programs administered by the National Rural Electric Cooperative Association. Launched in 1967, more than 500 electric cooperatives are currently accredited through the voluntary process; Lenexa, Kan.-based Federated Rural Electric Insurance Exchange automatically gives electric cooperatives a 5 percent discount if they are RESAP-accredited. (*See Federated Rural Electric Insurance Exchange, National Rural Electric Cooperative Association.*)

**Rural Electric Statewide Managers Association (RESMA)** An organization made up of electric cooperative statewide association chief executives. (*See statewide.*)

**Rural Electric Youth Tour** An annual educational trip to Washington, D.C., during June for high school students (mostly

seniors-to-be) selected by local electric cooperatives. The program has been coordinated by the National Rural Electric Cooperative Association since 1964 in conjunction with electric cooperative statewide service organizations. *Youth Tour* acceptable on second reference. (See *National Rural Electric Cooperative Association, statewide, Youth Leadership Council.*)

**Rural Electricity Resource Council (RERC)** A Wilmington, Ohio-based non-profit association formed in 1957 that provides technical assistance, educational resources, and training to electric utilities on subjects such as motors, standby generators, neutral-to-earth voltage, energy audits, electricity value, lighting, and safety as they relate to rural homes and farms, particularly large agricultural operations and businesses. Known as the *National Food and Energy Council* until 2008.

**rural electrification** Wording that describes the introduction of electricity into rugged and remote areas previously not served by investor-owned or government-run power companies.

**Rural Electrification Act** Legislation signed into law by President Franklin D. Roosevelt on May 21, 1936, that provided official status to the federal Rural Electrification Administration (REA) as a lending agency for electric cooperatives. An amendment, the Hill-Poage Rural Telephone Act of 1949, authorized REA to make loans to telephone cooperatives as well as existing telephone companies and mutual associations for extending dial-tone phone service to rural areas. (See *Executive Order 7037, Pace Act, Rural Electrification Administration.*)

**Rural Electrification Administration (REA)** A U.S. Department of Agriculture agency established by Executive Order May 11, 1935, to lend money and provide engineering services to electric and telephone cooperatives. On October 20, 1994, as part of a department reorganization, REA became the Rural Utilities Service. (See *Rural Utilities Service, Executive Order 7037.*)

**Rural Electrification and Telephone Revolving Fund** A U.S. Treasury fund created in 1973 that lent money to electric cooperatives and rural telephone systems. It was called a revolving fund because money that borrowers paid back on their loans was used to make new loans. The Revolving Fund was eliminated as part of the federal government's 1991

credit reform measures. Congress now only appropriates the true (subsidy) costs of new RUS loans. (See *Revolving Fund, subsidy costs.*)

**Rural Electrification Loan Restructuring Act** A law signed on November 1, 1993, that replaced 5 percent federal Rural Electrification Administration (REA) direct loans with insured loans carrying interest rates set at the current market yield on municipal bonds. In addition, the measure abolished 2 percent REA direct hardship loans and created a new 5 percent fixed-rate hardship insured loan program. The legislation came after President Bill Clinton announced his intention to "reform" REA in his initial State of the Union address. (See *hardship loans, means testing, municipal rate loans, Rural Electrification Administration.*)

**Rural Electrification News** Official publication of the federal Rural Electrification Administration from 1935 to 1953.

**Ruralite** Official consumer publication of the Forest Grove, Ore.-based Ruralite Services, Inc., which provides publications and training to electric cooperatives in Alaska, California, Colorado, Idaho, Nevada, Oregon, Utah, Washington, and Wyoming.

**Rural Missouri** Official consumer publication of the Jefferson City, Mo., based Association of Missouri Electric Cooperatives.

**Rural Montana** Official consumer publication of the Great Falls, Montana based Montana Electric Cooperatives' Association.

**Rural Telecommunications** Official publication of the Washington, D.C. based National Telephone Cooperative Association.

**rural telephone cooperative** Consumer-owned enterprises first organized in the 1890s to bring telephone service to farms and rural homes.

**Rural Telephone Finance Cooperative (RTFC)** A Herndon, Va.-based member-owned, not-for-profit cooperative created in 1987 to lend money to rural telephone and telecommunication systems.

Funded by its affiliate, National Rural Utilities Cooperative Finance Corporation. (*See National Rural Utilities Cooperative Finance Corporation.*)

**Rural Utilities Service (RUS)** A U.S. Department of Agriculture agency that lends money and offers engineering and accounting assistance to the nation's consumer-owned electric and telephone cooperatives. (*See Energy Resources Conservation loan, hardship loans, insured loans, municipal rate loans, qualified lender, Rural Electrification Administration, Treasury rate loans, USDA Rural Development.*)

**RUS** Rural Utilities Service.

**RUS guaranteed loans** A program under which the federal Rural Utilities Service (RUS) provides a 100 percent government guarantee for distribution, subtransmission, bulk transmission, generation, and headquarters facilities (office, service, and warehouse) loans. For electric cooperatives that borrow from RUS, guaranteed loans are made through the *Federal Financing Bank*—an arm of the U.S. Treasury— at market interest rates, plus one-eighth of 1 percent. As a result of provisions in the 2008 Farm Bill, RUS guaranteed loans may come directly from the U.S. Treasury. However, RUS guaranteed loans for generation are presently limited to natural gas-fired power plants and renewables since the Bush Administration in 2007 blocked RUS from guaranteeing loans for baseload coal-fired and nuclear power plants (due to taxpayer risk). Electric co-ops tried to overturn that action in the 2008 Farm Bill, but Congress balked at including provisions that would have allowed RUS to impose an up-front fee on coal and nuclear power plant loans as a way to mitigate taxpayer risk. (*See Federal Financing Bank, hardship loans, insured loans, municipal rate loans, qualified lender, Treasury rate loans.*)

**R-value** A number showing the ability of insulation to resist the transfer of heat. Higher R-values indicate more effective insulation.

## S

**sag** The distance between the actual location of a wire (at its lowest point in a given span) and an imaginary line drawn between the wire's two adjacent supports.

**SAIDI** System Average Interruption Duration Index.

**SAIFI** System Average Interruption Frequency Index.

**satellite dish** A bowl-shaped antenna used to receive broadcasts transmitted from orbiting satellites. Dishes come in large C-band and 18-inch DBS models.

**SCADA** Supervisory Control and Data Acquisition.

**scrubbers** Expensive devices that reduce sulfur dioxide and other pollutants from power plant smokestack emissions.

**SEA** National Electric Cooperative Statewide Editors Association.

**seasonal account** An electric consumer who uses electricity for only part of a year, such as the owner of a lakeside cottage, beach house, or hunting cabin.

**seasonal energy efficiency rating (SEER)** A way to measure the efficiency of air-conditioning systems. The higher the SEER, the more energy efficient the system. (*See energy efficiency rating.*)

**SEDC** Southeastern Data Cooperative.

**SEER** seasonal energy efficiency rating.

**SEPA** Southeastern Power Administration.

**SERC Reliability Corporation** One of eight North American Electric Reliability Corporation regional organizations that coordinate planning and operations among utilities. (*See North American Electric Reliability Corporation.*)

**service area/territory** The geographic region that a utility is required to serve, or has the exclusive right to serve, in supplying electricity to

the ultimate consumer. (*See area coverage, cherry-picking, man at the end of the line, Pace Act, territorial integrity.*)

**service charge** An amount on a consumer's electric bill designed to recover some of the fixed costs of providing electric service; generally a flat rate charged whether or not any electricity is consumed. (*See connection charge, consumer charge, energy charge, facilities charge.*)

**shopping for power** (*See consumer choice.*)

**short, short circuit** Establishment of an accidental or unintended electrical conducting path that bypasses the planned route from an electric power source to the intended load or appliance.

**single-phase power** An electric circuit that consists of one alternating current. (*See three-phase power.*)

**Sister Cooperative Partnership Program** An initiative launched in 1963 by NRECA International Programs—a division of the National Rural Electric Cooperative Association—that allows electric cooperatives in the United States to individually establish relationships with and provide monetary support, equipment, volunteer labor, and management advice to a counterpart in a developing country. The program has been active in Bolivia, Honduras, the Philippines, Guatemala, Costa Rica, and the Dominican Republic. (*See NRECA International Programs, National Rural Electric Cooperative Association.*)

**slag** Residue produced by the combustion of coal. This heat-fused material accumulates on the sides and bottom of a boiler and must be removed periodically and disposed of according to environmental regulations. (*See ash, bottom ash, fly ash.*)

**small power producer** An entity that generates electricity primarily from a renewable energy system with capacity under 80 MW. As defined by the federal Public Utility Regulatory Policies Act, small power producers can use some fossil fuels as part of their generation but renewables must provide at least 75 percent of the total energy input. Small power producers include homeowners and farmers who self-generate electricity for their own needs from a “backyard” renewable energy facility and sell

the surplus back to their local utility. (*See distributed generation, net metering, non-utility generator, Public Utility Regulatory Policies Act, qualifying facility, renewables.*)

**smart grid** The use of technologies (such as advanced meter infrastructure and down-line automation) that help electric utilities better meet consumers' needs reliably and affordably by more effectively monitoring consumer demand and system conditions on a near real-time basis. The smart grid combines digital equipment and two-way communications to track the flow of electricity with great precision, pinpoint outages, identify voltages out of allowed ranges, and transmit messages to transformers, capacitors, circuit breakers, and other distribution equipment to initiate diagnostic or corrective (self-healing) actions. It can also let utilities record consumer electric use in various time intervals, communicate that consumption data among authorized staff, and provide consumers with hourly or more frequent pricing signals so they can respond to changing electricity requirements. While the smart grid can improve member service and help utilities control costs, it can also be abused to shift market risks onto end users. The U.S. Department of Energy lists seven functions of a smart grid: enabling informed participation by consumers; accommodating all generation and storage options; enabling new products, services, and markets; providing power quality for the range of needs in the twenty-first century; optimizing asset utilization and operating efficiency; addressing disturbances—automated prevention, containment, and restoration; and operating resiliently against physical and cyber attacks and natural disasters. (*See advanced meter infrastructure, automated meter reading, down-line automation, grid, smart meter, Zigbee.*)

**smart meter** A type of advanced electric meter that identifies consumption in detail over various time intervals and communicates that information via a network back to a local utility for power quality monitoring and billing purposes. Smart meters also allow electric consumers to respond to electricity price signals and more actively participate in demand-response programs. (*See advanced meter infrastructure, automated meter reading, demand response, down-line automation, meter, smart grid.*)

**solar power** Energy absorbed from photons (elementary particles) in sunlight and converted into heat or electricity. (*See active solar energy, intermittency, passive solar energy, photovoltaics, renewables, solar thermal energy.*)

**solar thermal energy** Technology that harnesses sunlight for heat and characterized by three types. Low temperature solar thermal collectors typically are used to heat swimming pools. Medium temperature collectors heat water for residential and commercial use. High temperature collectors, also known as *concentrating solar power*, can produce baseload generation using shiny long parabolic troughs that concentrate the sun's rays on receiver tubes; synthetic oil in the system gets pumped through heat exchangers to create steam that turns a turbine-generator. Solar thermal energy differs from *photovoltaics*, which convert sunlight directly into electricity. (*See active solar energy, baseload, intermittency, passive solar energy, photovoltaics, solar power.*)

**SOS** standard offer service.

**South Dakota Electric Cooperative Connections** Official consumer publication of the Pierre, S.D.- based South Dakota Rural Electric Association.

**Southeastern Data Cooperative (SEDC)** A Tucker, Ga.-based provider of billing and accounting software for the electric utility industry.

**Southeastern Power Administration (SEPA)** One of four regional federal agencies that markets electricity generated primarily from federal dams. Based in Elberton, Ga., it sells power from 23 U.S. Army Corps of Engineers hydro projects in 11 states: Alabama, Florida, Georgia, Illinois, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia. (*See power marketing administrations, U.S. Army Corps of Engineers.*)

**Southwest Power Pool** One of eight North American Electric Reliability Corporation regional organizations that coordinate planning and operations among utilities. (*See North American Electric Reliability Corporation.*)

**Southwestern Power Administration (SWPA)** One of four regional federal agencies that markets electricity generated primarily from federal dams. Based in Tulsa, Okla., it sells power from 24 U.S. Army Corps of Engineers hydro projects in six states: Arkansas, Kansas, Louisiana, Missouri, Oklahoma, and Texas. (*See power marketing administrations, U.S. Army Corps of Engineers.*)

**spike** An increase in voltage lasting less than 1/60th of a second. Usually caused by switching of heavy loads.

**spike suppressor** (*See surge suppressor.*)

**spinning reserve** Extra generating capacity available from a power plant on short notice in case another generating station on the system goes down. (*See capacity, operating reserve, reserves, supplemental reserve.*)

**spot market** A commodity exchange that allows producers of surplus power to instantly locate available buyers, negotiate prices within milliseconds, and deliver the actual energy just a few minutes later. (*See day-ahead market, wholesale power market.*)

**standard offer service (SOS)** Electricity supplied by local utilities to consumers who do not choose a competitive electric generation supplier. Sometimes called *provider of last resort*. (*See consumer choice, deregulation, electric generation supplier.*)

**standby charge** (*See backup charge.*)

**statewide** An organization formed by electric cooperatives operating in one or more states that offers government relations, communications, job training and safety, economic development, education, group purchasing, and other services.

**step rate** A pricing structure where consumers pay a different amount depending on kWh used; the more a consumer uses, the cheaper the cost of each kWh. (*See block rate, class rate, cost-based rate, declining block rate, demand rate, flat rate, industrial rate, interruptible rate, inverted rate, off-peak rate, offset rate, ratchet rate, time-of-use rate.*)

***Straight Talk Alert*** Monthly electronic publication of the National Rural Electric Cooperative Association containing editorial and graphic materials created for use in electric cooperative statewide publications, electric cooperative newsletters, and Web sites. Known as *PowerKit* until 2008. *Straight Talk Alert* shares staff with *Rural Electric Magazine*. (See *Rural Electric Magazine*, *National Rural Electric Cooperative Association*.)

**stranded benefits** Positive actions many regulators and consumer groups argue will be lost under electric industry competition. These include environmental protection, energy efficiency, low-income ratepayer assistance, and community service programs.

**stranded costs** Assets owned by utilities that become uneconomical in a competitive marketplace. Primary examples of stranded costs include power plants or transmission lines. (See *competitive transition charge*.)

**strategic marketing** Process of gathering information to meet consumer needs.

**stray voltage** (See *neutral-to-earth voltage*.)

**strip mining** Extracting coal from underground seams by digging pits with giant shovels called draglines.

**subbituminous coal** Coal with a medium capability of producing heat. (See *anthracite*, *bituminous coal*, *coal*, *lignite*.)

**subsidiary** A business controlled by another enterprise, called the parent company, but with its own identity, including charter, officers, and board of directors.

**subsidy costs** What federal Rural Utilities Service (RUS) loan programs actually cost taxpayers after the loans are repaid with interest. Calculated as the difference between the official federal borrowing rate and the sometimes lower rate charged on RUS loans. Subsidy costs are appropriated annually by Congress. (See *Revolving Fund*, *Rural Electrification and Telephone Revolving Fund*.)

**substation** An electrical facility containing equipment for controlling the flow of electricity from supplier to user.

**subtransmission system** The poles, lines, and wires used to interconnect a high-voltage transmission network with a distribution system. (See *bulk power*, *transmission system*.)

**sulfates** Chemical compounds of sulfur contained in many fossil fuels.

**sulfur dioxide** A poisonous gas created during the combustion of fossil fuels when sulfates combine with oxygen. A principal contributor to acid rain. Don't use the abbreviation SO<sub>2</sub>. (See *acid rain*, *cap and trade*, *Clean Air Act*, *Clean Air Interstate Rule*.)

**superconductors** Materials that carry electric current without friction and, as a result, don't waste energy by producing heat. An electric current could conceivably flow in a loop of superconducting wire forever. Superconductors are already in use in hospital MRI machines, cell-phone towers, and high speed maglev trains but presently can only function at extremely low temperatures.

**Supervisory Control and Data Acquisition (SCADA)** A distribution monitoring system that provides data from substations, feeders, control breakers, and switches; manages demand-response/load management efforts; keeps an eye on down-line devices; and controls capacitors.

**supplemental heating** A heating system used during extremely cold weather when additional heat is needed to moderate indoor temperatures.

**supplemental reserve** Extra generating capacity not connected to an electric system that can be brought on-line after a short delay. Often involves importing power from an interconnected system or reducing power exports. (See *capacity*, *operating reserve*, *reserves*, *spinning reserve*.)

**supply-side management** Activities conducted on the utility's side of an electric meter.

**surge** Over voltages lasting longer than one-sixtieth of a second, often caused by the automatic switching on or off of motor-driven devices or lightning strikes near a power line.

**surge suppressor** A device that protects consumer electronic equipment and appliances from short term, high-voltage flows of electricity such as lightning strikes; also called a *spike suppressor*.

**SWPA** Southwestern Power Administration.

**syngas** Any gaseous mixture generated by the gasification of a carbon-containing fuel, such as coal, or municipal waste. Also includes the steam reforming of natural gas or oil to produce hydrogen. (*See coal gasification, integrated gasification combined cycle.*)

**synthetic fuel** Combustible liquid obtained from coal, natural gas, biomass, or other solids such as oil shale, tar sand, and waste plastics. (*See coal liquefaction.*)

**System Average Interruption Duration Index (SAIDI)** A reliability indicator used by electric utilities, it measures the average outage time for each consumer over the course of a year. (*See Customer Average Interruption Duration Index, System Average Interruption Frequency Index.*)

**System Average Interruption Frequency Index (SAIFI)** A reliability indicator used by electric utilities, it measures the average number of service interruptions that a consumer experiences over the course of a year. (*See Customer Average Interruption Duration Index, System Average Interruption Duration Index.*)

**system demand** The total amount of energy required to supply all consumers served by a utility or within a region. (*See off-peak power, peak demand.*)

## T

**take-and-pay contract** An agreement that says payment shall be made only for power actually delivered.

**take-or-pay contract** An agreement that stipulates payment must be made whether or not the power contracted for gets used.

**takeover** Acquisition of a cooperative or company accomplished by buying the owners' equity.

**takeover** (verb.)

**tap** An electric circuit with limited capacity extending from a distribution line; usually supplies a small number of consumers.

**tariff** A statement of a utility's rates, terms, and conditions of service as filed with a utility regulatory body. (*See feed-in tariff.*)

**TechAdvantage Conference & Expo** Trade show for manufacturers, suppliers, and vendors who market to electric cooperatives. Held in conjunction with the annual meeting of the National Rural Electric Cooperative Association. Use with ampersand. (*See National Rural Electric Cooperative Association.*)

**Tennessee Magazine, The** Official consumer publication of the Nashville, Tenn.-based Tennessee Electric Cooperative Association.

**Tennessee Valley Authority (TVA)** A quasi-governmental agency created by Congress in 1933 to develop hydroelectric resources in the Tennessee River Valley. (*See preference principle.*)

**territorial dispute** A disagreement between two utilities about which one has the right to deliver electricity to a particular service area or consumer.

**territorial integrity** Legally supported right of an electric utility not to have consumers in its franchised service territory connected to the lines of another electric utility. (*See franchise, cherry-picking, service area/territory, territorial dispute.*)

**Texas Cooperative Power** Official consumer publication of the Austin, Texas-based Texas Electric Cooperatives.

**Texas Interconnection** (*See grid.*)

**Texas Regional Entity** One of eight North American Electric Reliability Corporation regional organizations that coordinate planning and operations among utilities. (*See North American Electric Reliability Corporation.*)

**theft of service** (*See electricity theft.*)

**therm** A measure of heat equal to 100,000 British thermal units (Btu).

**three-phase power** An electric circuit that consists of three separate currents delivered at one-third cycle intervals by means of three wires; typically used to power large industrial motors that operate at 230 V or higher. (*See single-phase power.*)

**tidal power** A form of hydrokinetic power that converts mechanical energy from the motion of tides into electricity. (*See hydrokinetic power, ocean wave power, renewables.*)

**TIER** Times Interest Earned Ratio.

**time-of-use metering** Measures both electric consumption and time of use. (*See time-of-use rate.*)

**time-of-use rate** A pricing structure where the cost for electricity varies according to the time when it's consumed. Time-of-use rates can include on/off-peak rates, critical-peak pricing, dynamic pricing, and real-time pricing. (*See block rate, class rate, cost-based rate, critical-peak pricing, declining block rate, demand rate, dynamic pricing, flat rate, industrial rate, interruptible rate, inverted rate, off-peak rate, offset rate, peak demand, ratchet rate, real-time pricing, step rate.*)

**Times Interest Earned Ratio (TIER)** A ratio of margins to long-term interest expense, indicating the ability of an electric cooperative to meet financial obligations. TIER equals long-term interest plus

margins divided by long-term interest. A cooperative with interest costs of \$100,000 and margins of 99 \$150,000 has a TIER of 2.5. The federal Rural Utilities Service requires electric cooperative borrowers to maintain a minimum TIER of 1.25. (*See modified debt service coverage.*)

**tipple** A facility that loads coal onto trucks or rail cars.

**TODAY in Mississippi** Official consumer publication of the Ridgeland, Miss.-based Electric Power Associations of Mississippi.

**Touchstone Energy® Cooperatives** The “brand ID” of the nation’s electric cooperatives launched on April 4, 1998. Use trademark symbol on first reference and use full name throughout articles; avoid the shortened *Touchstone Energy*. Refer to the Touchstone Energy Cooperatives graphic standards manual for proper use of the name and logo. The brand offers more than 35 different services, including Co-op Connections® cards and key fobs that provide consumers with discounts at participating retailers and pharmacies; *Get Charged! Electricity and You* curriculum kits that help teach middle school students about electric cooperatives and electricity in general; a hot-air and cold-air balloon program; and SitesAcrossAmerica.com, a Web site that serves as a clearinghouse for available commercial and industrial properties in electric cooperative service territories. (*See CFL Charlie.*)

**transformer** A device used to raise or lower voltage in electric distribution or transmission lines. (*See pad-mount transformer, pole-mount transformer.*)

**transmission** The process of moving large amounts of electricity from where it's generated to where it's used, as well as the facilities needed to move that power. (*See bulk power, license plate rate, postage stamp rate, wheeling.*)

**transmission congestion** A condition that occurs when a transmission system operates at full capacity and proper efficiency, yet still can't supply all consumers. When congestion occurs in a competitive wholesale power market, utilities that control transmission facilities

could engage in price gouging. As a result, federal and state regulatory agencies and regional transmission organizations attempt to build in safeguards to prevent such abuses and ensure that congestion-related price increases reasonably reflect extra costs incurred in alleviating the situation. Also called *transmission bottlenecks* or *transmission constraints*. (See *congestion costs*, *financial transmission rights*, *locational marginal pricing*, *regional transmission organization*, *transmission*, *transmission system*, *wholesale power market*.)

**transmission facility** Towers, poles, lines, and wires used to move large amounts of electricity from a generating plant to a substation.

**transmission system** The interconnected system of lines, poles, wires, and other equipment that move large amounts of electricity from generating plants to distribution systems, whether on a local or regional level. (See *bulk power*, *grid*, *subtransmission system*, *wheeling*.)

**Treasury rate loans** A federal Rural Utilities Service loan program available to electric distribution cooperatives with interest rates set daily by the U.S. Treasury and determined at the time of each loan advance. Funds can be used for distribution, subtransmission, renewable generation, and headquarters (service and warehouse facility) purposes. (See *hardship loans*, *insured loans*, *municipal rate loans*, *RUS guaranteed loans*.)

**turbine** A rotary engine that extracts energy from moving water, gas, steam, or air. The simplest turbines boast one moving part, a rotor assembly—essentially, a shaft with blades attached. (See *combustion turbine*, *dynamo*, *generator*, *turbine-generator*, *wind turbine*.)

**turbine-generator** A steam, gas, air, or water-driven turbine coupled directly to a generator that produces electricity. (See *dynamo*, *hydroelectric plant*, *generator*, *turbine*.)

**TVA** Tennessee Valley Authority.

## U

**UDI** Utility Data Institute.

**UL** Registered trademark of Underwriters Laboratories, Inc.

**unbundling** Splitting operations of an electric utility into separate generation, transmission, and distribution components. An unbundled electric bill may itemize charges associated with providing electric service. (See *bundling*.)

**underground residential distribution (URD)** Electric distribution conduit that runs below the surface, often in housing developments with limited overhead line construction.

**Underwriters Laboratories, Inc. (UL)** A Chicago, Ill.-based not-for-profit firm that tests and sets minimum standards for electric consuming items. The UL seal on a product means the item was tested and found safe to use under the conditions for which it was designed. Consumers are urged to look for the UL seal on all electric appliances and equipment.

**uninterruptible power supply (UPS)** A device typically used to protect computers, telecommunications equipment, or other electric-using appliances where an unexpected power disruption could cause injuries, fatalities, or data loss.

**universal service** Electricity sufficient to meet the basic needs of virtually everyone regardless of income or where they may live.

**universal service charge** A charge levied on retail electric providers by regulators and used to assist utilities in providing service to low-income or hard-to-reach (i.e. rural) consumers.

**UPS** uninterruptible power supply.

**uranium** A soft, radioactive metal and the heaviest natural element; used as a fuel for nuclear energy. One pound of enriched uranium contains nearly 3 million times the energy contained in a pound of coal.

**URD** underground residential distribution (line/cable).

**usage, use** *Usage* refers only to language practice. In all other contexts, including electricity, it's *use*: *Load management helps reduce electric use; Joe's monthly electric bill shows a decrease in kWh use.* Your electric cooperative may need to change a lot of documents to get this usage right!

**U.S. Army Corps of Engineers** A federal agency within the U.S. Department of Defense responsible for large-scale dam construction and operation; works with the U.S. Department of the Interior Bureau of Reclamation in the West. Other functions include flood control, irrigation, and river navigation projects. *Corps* acceptable on second reference. (*See Bureau of Reclamation, hydroelectric power, power marketing administrations.*)

**USDA** U.S. Department of Agriculture.

**USDA Rural Development** A mission area of the U.S. Department of Agriculture that combines rural electric, water, environmental, telecommunications, distance learning, and telemedicine programs. These programs are administered primarily through three agencies: Rural Utilities Service, Rural Business- Cooperative Service, and Rural Housing and Community Development Service. (*See Rural Economic Loan and Grant Program.*)

**U.S. Department of Agriculture (USDA)** The federal cabinet-level department responsible for implementing national farm, rural development, and nutrition policy.

**U.S. Department of Energy (DOE)** The federal cabinet-level department responsible for implementing national energy policy.

**U.S. Department of Energy Office of Energy Efficiency and**

**Renewable Energy (EERE)** A mission area within the U.S. Department of Energy that seeks to strengthen America's energy security, environmental quality, and economic vitality by bringing clean, reliable, and affordable energy technologies to the marketplace through public-

private partnerships. EERE also oversees the federal Weatherization Assistance Program. (*See Weatherization Assistance Program.*)

**used and useful** Requirement that before fixed assets of a generating plant may be included in a utility's rate base, the plant in question must be in operation (used) and be needed to provide service to the public (useful).

**U.S. Energy Information Administration (EIA)** The highly respected statistical arm of the U.S. Department of Energy.

**U.S. Environmental Protection Agency (EPA)** A federal bureau with cabinet-level status that oversees the nation's environmental science, research, education, and assessment efforts. One of its primary duties involves developing and enforcing rules and regulations for environmental protection. (*See cap and trade, Clean Air Act, Clean Air Interstate Rule.*)

**U.S. House** Acceptable on all references for the United States House of Representatives.

**U.S. Senate** Acceptable on all references for the United States Senate.

**utility** An entity (whether investor-owned, cooperative, or municipal) that provides electric, water, or natural gas service for residential, commercial, and industrial consumption.

**Utility Data Institute (UDI)** A Washington, D.C.-based research firm that tracks trends in the electric utility industry.

**utility plant** Fixed assets of a utility.

## V

**V** volt.

**VA** volt-ampere.

**vertically integrated utility** An electricity provider that owns generation, transmission, and distribution facilities.

**view shed** The landscape or topography visible from a geographic point, especially one having aesthetic value.

**virtual private network (VPN)** An interconnected computer setup in which some connections are bridged with virtual circuits over the Internet or a similar large data system instead of with physical wires.

**Voice over Internet Protocol (VoIP)** Technology used to transmit telephone calls over the Internet or other data networks. (*See Internet.*)

**VoIP** Voice over Internet Protocol.

**volt (V)** A unit of electric force that measures the pressure of electricity. Abbreviation acceptable on all references. (*See kilovolt.*)

**voltage** An electromotive force that acts like water pressure and causes electrons to flow. Voltage measures the potential for current flow and may exist between objects without an actual flow of current.

**volt-ampere (VA)** The basic unit of electric power, figured as the product of a system's voltage multiplied by amperes. Abbreviation acceptable on all references. (*See kilovolt-ampere.*)

**VPN** virtual private network.

## W

**W** watt.

**Wal-Mart** A retail giant that has become the largest collective consumer of electric cooperative power nationwide. Spell out as one word based on the company's new branding initiative.

**WAN** wide area network.

**WAPA** Western Area Power Administration.

**waste-heat recovery** (*See cogeneration, combined cycle.*)

**water heater** An appliance for heating potable water, such an *electric water heater*. Do not use *hot water heater*. Electric water heaters are a key part of many electric cooperative load management programs. (*See load management.*)

**watt (W)** The standard unit of electric power, equal to 1/746 horsepower. Named for James Watt, a nineteenth century Scots engineer. Abbreviation acceptable on all references. (*See gigawatt, kilowatt, kilowatt-hour, megawatt.*)

**watt-hour (Wh)** Energy converted or consumed at a rate of one watt during a period of one hour. (*See kilowatt-hour.*)

**weatherhead** The top of the conduit supporting a consumer's service wire, constructed to resist the action of weather. One word.

**Weatherization Assistance Program** A U.S. Department of Energy (DOE) program created in 1976 that enables low-income families to permanently reduce energy bills by making their homes more energy efficient. DOE's Office of Energy Efficiency and Renewable Energy oversees the program and provides funding and technical guidance to states, which then set eligibility guidelines and select weatherization service providers—usually local non-profit agencies. During the last 30 plus years, weatherization services have been provided to more than 5.6 million low-income households free of charge, with an average expenditure of \$2,826 per home. At current energy prices, these efforts have trimmed home heating bills by 32 percent and overall energy bills by \$358 annually. (*See Low Income Home Energy Assistance Program, U.S. Department of Energy Office of Energy Efficiency and Renewable Energy.*)

**weather stripping** Insulation placed around doors and windows to save energy. Two words, no hyphen.

**Web site** Name for a publication posted on the World Wide Web. Use as two words, capitalize “W” on Web. (*See cyberspace, information superhighway, Internet, World Wide Web, XML.*)

**wellness program** Organized effort to promote good health by encouraging employees to exercise, eat properly, reduce stress, and adopt safety awareness.

**Western Area Power Administration (WAPA)** One of four regional federal agencies that markets electricity generated primarily from federal dams. Based in Lakewood, Colo., WAPA sells power from 57 U.S. Army Corps of Engineers, U.S. Department of the Interior Bureau of Reclamation, and U.S. State Department International Boundary and Water Commission hydro projects in 15 states: Arizona, California, Colorado, Iowa, Kansas, Minnesota, Montana, Nebraska, Nevada, New Mexico, North Dakota, South Dakota, Texas, Utah, and Wyoming. (*See Bureau of Reclamation, power marketing administrations, U.S. Army Corps of Engineers.*)

**Western Electricity Coordinating Council** One of eight North American Electric Reliability Corporation regional organizations that coordinate planning and operations among utilities. (*See North American Electric Reliability Corporation.*)

**Western Interconnection** (*See grid.*)

**Wh** watt-hour.

**wheeling** Delivering large amounts electricity from a generating plant to a distribution system across another utility’s transmission lines. (*See bulk power, transmission.*)

**White House Office of Management and Budget.** (*See Office of Management and Budget.*)

**wholesale competition** A market-based system under which an electricity supplier has the option to buy power for resale from a variety of generation providers.

**wholesale power market** A system that allows trading between generators, retailers, and financial intermediaries both for short-term (spot price) and future (forward price) electricity delivery periods. (*See day-ahead market, spot market.*)

**wide area network (WAN)** An interconnected computer setup with a wide coverage area using routers and leased communications links. (*See local area network.*)

**Wi-Fi** A wireless technology brand owned by the Wi-Fi Alliance used to certify the interoperability of wireless computer networking devices, typically in reference to wireless Internet.

**WildBlue** A satellite-delivered high-speed Internet service for homes and small offices available through participating members of the National Rural Telecommunications Cooperative and many local satellite TV dealers. (*See National Rural Telecommunications Cooperative.*)

**William F. Matson Democracy Award** An honor presented annually by the National Rural Electric Cooperative Association to an electric cooperative employee or director for outstanding accomplishments and service to the program through political action, political education, and participation in the Action Committee for Rural Electrification. Named for William F. Matson, who served as the first president of Harrisburg, Pa.-based Pennsylvania Rural Electric Association, a statewide service organization, and Allegheny Electric Cooperative, a generation and transmission cooperative, from 1964 to 1986. (*See Action Committee for Rural Electrification, National Rural Electric Cooperative Association.*)

**Willie Wiredhand** A cartoon figure created on October 30, 1950, by Andrew “Drew” McLay, a freelance artist working for the National Rural Electric Cooperative Association. Adopted as the official electric cooperative mascot in 1951. Awarded trademark protection following a January 7, 1957, ruling by a three-judge panel from the Fourth U.S. Circuit Court of Appeals. (*See National Rural Electric Cooperative Association.*)

**Willies Awards** Honors presented annually by the National Electric Cooperative Statewide Editors Association to member publications for excellence in writing, photography, and design.

**WiMAX** Worldwide Interoperability Microwave Access. Abbreviation acceptable on all references.

**wind farm** A group number of large wind turbines built close together. (See *wind power*, *wind turbine*.)

**wind power** Converting the kinetic energy present in wind motion to produce electricity. (See *intermittency*, *renewables*, *wind turbine*.)

**wind turbine** A device that, by capturing the wind's energy with two or three propeller-like blades mounted on a rotor, generates electricity. (See *distributed generation*, *turbine*, *wind power*, *yaw drive*.)

**wires charge** Fee imposed on retail consumers for wheeling power through a local distribution system. This charge would cover the cost of providing distribution service and may also include additional charges levied by regulators, such as supporting energy efficiency programs and renewable energy sources, and possibly stranded costs.

**Wisconsin Energy Cooperative News** Official consumer publication of the Madison, Wis.-based Wisconsin Electric Cooperative Association.

**WQC** Wood Quality Control, Inc.

**Wood Quality Control, Inc. (WQC)** A National Rural Electric Cooperative Association program that provides a modern, economical, and effective quality assurance service for inspection of treated wood poles and crossers. (See *National Rural Electric Cooperative Association*.)

**work force** Use as two words.

**Worldwide Interoperability Microwave Access (WiMAX)** A telecommunications technology that provides for the wireless transmission of data, at broadband speeds, in a variety of ways. Usually referred to by just the acronym. (See *broadband*.)

**World Wide Web** A section of the Internet that makes possible the almost instantaneous exchange of information by linking documents and graphics into electronic pages. (See *cyberspace*, *information superhighway*, *Internet*, *Web site*.)

**Wyoming Rural Electric News** Official consumer publication of the Casper, Wyo.-based Wyoming Rural Electric Association.

## X, Y, and Z

**XML** eXtensible Markup Language. XML lets Web site developers and designers create customized page tags that offer greater flexibility in organizing and presenting information. Abbreviation acceptable on all references. (See *Web site*.)

**yaw drive** Upwind wind turbines face into the wind; the yaw drive keeps the rotor facing into the wind as its direction changes. Downwind turbines don't require a yaw drive; the wind blows the rotor downwind.

**yaw motor** The motor that powers a yaw drive.

**YLC** Youth Leadership Council.

**Youth Leadership Council (YLC)** A working group formed annually composed of one outstanding Rural Electric Youth Tour student chosen from each participating state. YLC members are given hands-on opportunities to develop leadership and presentation skills, broaden their understanding of electric cooperatives, and participate in resolutions and grassroots advocacy activities during the annual meeting of the National Rural Electric Cooperative Association (NRECA). A national spokesperson is also selected by YLC members to address the NRECA Annual Meeting and the following year's Youth Tour delegates. Known as the *Youth Consulting Board* from 1976–98. (See *National Rural Electric Cooperative Association*, *Rural Electric Youth Tour*.)

**Youth Tour** Acceptable on second reference for Rural Electric Youth Tour.

**Yucca Mountain** A ridge located about 90 miles northwest of Las Vegas, Nev., near former nuclear warhead testing grounds, that Congress in 2002 formally designated as the site of a permanent, central repository for storing spent uranium fuel bundles and other high-level radioactive waste from commercial nuclear power plants, defense installations, and national laboratories. Under 1987 amendments to the federal Nuclear Waste Policy Act of 1982 (the amendments focused U.S. Department of Energy repository studies exclusively on Yucca Mountain), the facility was supposed to have begun accepting waste shipments by January 31, 1998, with capacity limited to 77,000 tons. But work remains slowed by lawsuits and Nevada political resistance—latest estimates have the repository opening in 2021 (if ever). As of 2008, nearly 64,000 tons of nuclear waste (growing by 2,200 tons per year) was sitting at 126 “temporary” sites in 39 states, all of it in aboveground cooling pools or dry casks. Roughly 161 million Americans—including 85 percent of those on the East Coast—live within 75 miles of an interim nuclear waste storage location. U.S. Department of Energy estimates hold that the nation’s existing fleet of 104 commercial nuclear power reactors could produce 143,000 tons of waste over their operating lives. New studies place Yucca Mountain waste disposal potential at between 286,000 and 628,000 tons, due to additional space available in adjacent rock formations. But Congress would have to approve any increase in repository size. (*See Nuclear Waste Fund.*)

**zero-interest loans.** (*See Rural Economic Development Loan and Grant Program.*)

**ZigBee** A wireless technology protocol developed by the non-profit ZigBee Alliance of companies as an open global standard for low-cost, low-power sensor networks (such as those used with household electronics, security and entertainment systems, and appliances). A ZigBee-enabled home area network, for example, permits active consumer participation in controlling electric consumption. (*See demand response, smart grid.*)

**(Updated January 2009)**