

neighbors Serving neighbors



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CHAPTER ONE

History of Electric Cooperatives

“I wanted to be at my parents’ house when electricity came. It was in 1940. We’d all go around flipping the switch to make sure it hadn’t come on yet. We didn’t want to miss it. When they finally came on, the lights just barely glowed. I remember my mother smiling. When they came on full, tears started to run down her cheeks.”

Clyde T. Ellis, first general manager of the National Rural Electric Cooperative Association, recalling “the night the lights came on.”

The story of **rural electrification** begins in darkness and then comes alive in the radiant light of hope and promise. The cooperative story is one of new ideas translated into actions, which gave Americans power—power to own their own electric cooperatives and power in their homes. The story of rural electrification is a story of great change, struggle and success.

The following is a brief history of electric cooperatives, as well as additional information about the cooperative industry and how cooperatives provide their members with power every day.





History of Cooperatives

Our history is loaded with many cooperative success stories. In 1620, two days after the Mayflower anchored in the rolling waters off Plymouth Rock, representatives of the 102 persons aboard pledged their commitment to each other by signing the Mayflower Compact. This simple act united them in a cooperative.

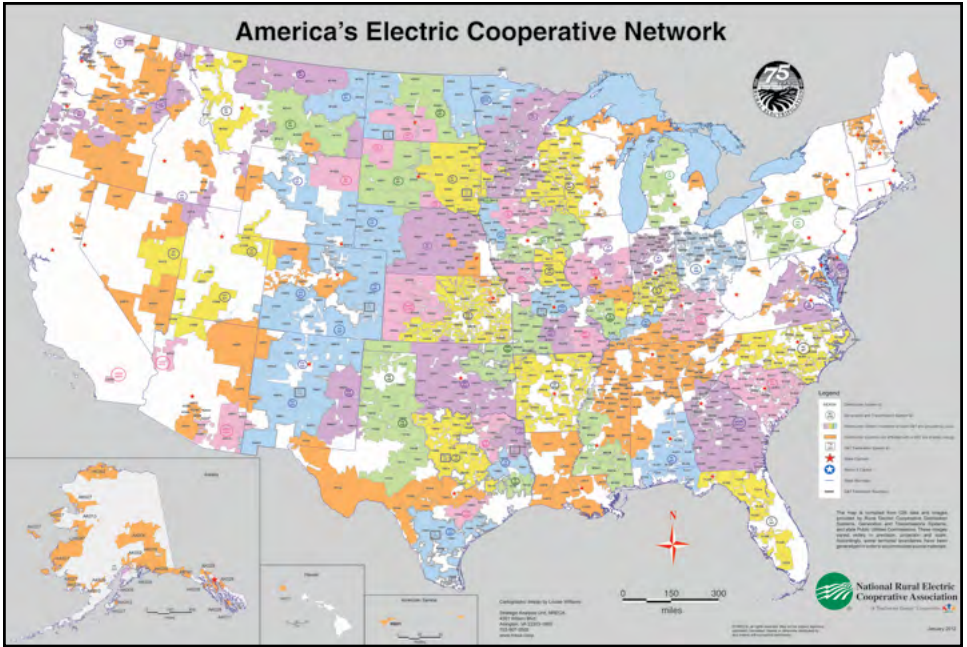
In 1752, inventor and statesman Benjamin Franklin persuaded his neighbors to share a common risk by forming the Philadelphia Contributorship for the Insurance of Homes from Loss of Fire.

During the 100 years following Franklin’s insurance cooperative, a scattering of membership associations began to pop up across the country. These cooperatives were primarily

How Electric Co-ops Energized Rural America

- 
- 1844** Cooperative principles established in Rochdale, England.
 - 1909** Country Life Commission recommends creation of electric cooperatives to power rural areas.
 - 1935**  President Franklin D. Roosevelt creates federal Rural Electrification Administration (REA) by executive order.
 - 1936** 2,000 miles of electric lines under construction by electric co-ops.
 - 1937** 53,000 total miles of co-op lines constructed.
 - 1940** 180,000 miles of rural lines built with another 80,000 underway.
 - 1941** One million farms have power.
 - 1942** National Rural Electric Cooperative Association (NRECA) formed to represent co-op interests nationally.
 - 1949** Roughly 184,000 miles of rural line constructed this year alone.
 - 1950** Willie Wiredhand, a mascot for electric co-ops debuts; named after the “hired hand” electricity gave to farmers. 
 - 1962** Electric co-ops serve 5 million Americans; NRECA joins U.S. Agency for International Development (USAID) to bring electricity to developing nations.
 - 1994** REA renamed Rural Utilities Service.
 - 1998** Touchstone Energy®  Cooperatives debuts, providing a co-op “brand ID” and marketing options. The power of human connections™
 - 2009** NRECA/USAID partnership connects more than 100 million people to electricity in 42 nations.
 - 2012** 77 years after creation of REA, 900-plus co-ops in 47 states serve 18.5 million homes and businesses.
 - 2012** The International Year of Cooperatives is celebrated worldwide.

Source: National Rural Electric Cooperative Association



The Rural Utilities Service (RUS)—previously known as the Rural Electrification Administration (REA)—has grown substantially since President Franklin D. Roosevelt's executive order created it in 1935. The map above shows how many rural areas have been impacted by America's electric cooperative network.

focused on farm production, such as hogs, wool, butter, cheese and grains. Those farming cooperatives have changed considerably in the last couple of centuries. They now produce many of the products in your local grocery store. Names such as Sunkist, Land O'Lakes, Ocean Spray and Welch's are just a few cooperative-owned, brand name foods.

Electricity Comes to Rural America

Rural Americans turned to cooperatives in the 1930s and 1940s because they could find no other way to obtain central station power. Only about 10% of the nation's farms had electricity in 1935 when President Franklin D. Roosevelt issued an executive order making federal funds available to provide rural electric service and creating the **Rural Electrification Administration (REA)**, now the **Rural Utilities Service (RUS)**.

The idea was not to own electric utilities for profit, but to obtain the service that would make those living in rural areas a part of the electrified 20th century. The cooperative was a not-for-profit solution that met this goal.

After the creation of the REA, electric cooperatives began to form across the United States. Those early electric cooperatives were formed by farmers and local businessmen. Membership fees were \$5 to \$10 for each member.

Upon formation, the cooperative could borrow money from the REA to build

an electric system to start turning on lights along the country roads in Kansas and across America.

Electricity Comes to Rural Kansas

In Kansas, the first REA-financed **electric cooperative** to energize was Brown-Atchison Electric Cooperative on April 1, 1938. Thirty-eight other electric cooperatives followed to deliver the wonders of **electricity** into rural areas of the state.

More than 75 years ago, the cities enjoyed a higher quality of life because of the benefits of electricity. Rural electrification became known as the “best hired hand” a farmer or rancher could have. Few other occurrences have had such a positive impact on rural areas.

Today, it is estimated approximately 450,000 Kansans enjoy a quality of life comparable to their “city cousins” because of the electric cooperatives that serve in the rural areas of the state.

Electric Cooperative Youth Tour

At the National Rural Electric Cooperative Association (NRECA) Annual Meeting in Chicago in 1957, Sen. Lyndon Johnson inspired the Electric Cooperative Youth Tour when he addressed the membership.

“If one thing goes out of this meeting, it will be sending youngsters to the national capital where they can actually see what the flag stands for and represents,” he declared.

The next summer, some Texas electric cooperatives sent groups of young people to Washington, D.C., to work in Sen. Johnson’s office. In 1958, an electric cooperative in Iowa sponsored the first group of 34 young people on a weeklong tour of the nation’s capital. Later that same year, another busload came from Illinois. The idea grew, and by 1959 the “Youth Tour” had expanded to 130 delegates.

In 1964, NRECA coordinated a week of joint activities among state delegations and co-op representatives. The first year of Electric Cooperative Youth Tour included approximately 400 young people from 12 states. Today, more than 1,800 young people and their chaperones from 45 states participate in the Electric Cooperative Youth Tour every year.

Cooperative Youth Leadership Camp

In 1973, the Kansas Electric Cooperatives, Inc., (KEC) board of trustees suggested the development of an in-state conference for youth to increase participation in the Electric Cooperative Youth Tour program.

Colorado electric cooperatives conducted a youth leadership camp in Steamboat Springs, Colorado, each year. In 1976, KEC sent a representative to the camp to evaluate the camp activities and educational potential. In 1977, KEC sent its first delegates to the Cooperative Youth Leadership Camp (then called the Energy Seminar).

Now, nearly 100 students from Colorado, Kansas, Oklahoma and Wyoming attend the leadership camp every year.

CHAPTER TWO

The Structure of an Electric Cooperative

Electric cooperatives rely upon member participation in the decision-making process. Each member has one—and only one—vote on matters considered by the membership. Members elect a board of trustees from among themselves and adopt a set of bylaws. The board, in turn, is accountable to the membership.

The board of trustees is generally responsible for setting policies to guide the operation of the cooperative, consistent with the bylaws approved by the membership. The board hires the manager, who is responsible for the day-to-day management of the cooperative's affairs. The manager hires the employees and reports the progress and needs of the cooperative to the board.

Cooperative Funding Sources

Electric cooperatives borrow about 70% of the funds they need to supply electricity to their members. These funds are borrowed from the federal government through the Rural Utilities Service (RUS), a division of the U.S. Department of Agriculture. The borrowed monies are repaid with interest.

The remaining funding is generally obtained from National Rural Utilities Cooperative Finance Corporation (CFC) and other lending sources. CFC was formed by the electric cooperatives in 1969 to provide supplemental financing for rural electrification from private, non-government sources.

Capital Credits

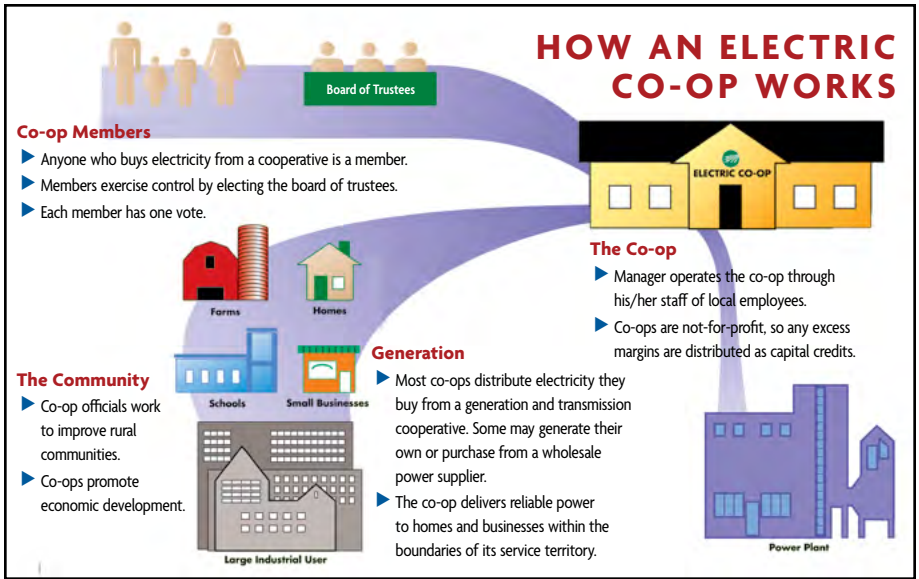
Since cooperatives are not-for-profit, any margins made belong to the members. **Capital credits** refer to the margins that each cooperative member has in their cooperative. It's the share of income remaining after the cooperative pays its expenses. Cooperatives gradually refund or retire capital credits to each member when economically possible.

Cooperative Principles

- 1 VOLUNTARY AND OPEN MEMBERSHIP** – Co-ops are voluntary organizations, open to all persons able to use their services and willing to accept the responsibilities of membership, without gender, social, racial, political or religious discrimination.
- 2 DEMOCRATIC MEMBER CONTROL** – Co-ops are organizations owned and controlled by their members, who actively participate in setting their policies and making decisions. Men and women serving as elected

representatives are accountable to the membership. In co-ops, members have equal voting rights (one member, one vote).

- 3 MEMBER ECONOMIC PARTICIPATION** – Members contribute equitably to, and democratically control, the capital of their co-op. They usually receive limited compensation, if any, on capital subscribed as a condition of membership. Members allocate surpluses for any or all of the following purposes: developing the co-op, setting up reserves, benefiting



Do Cooperatives Pay Taxes?

In addition to providing jobs and services in the communities they serve, cooperatives are also important to the community tax base. Cooperatives pay property, sales, excise, payroll, motor vehicle and gasoline taxes. Most cooperatives do not pay federal income or profit taxes because they have no net income or profit.

Today's Electric Cooperative

Today, America's more than 900 non-profit, member-owned electric cooperative systems provide electricity to more than 42 million people in 47 states.

members in proportion to their transactions with the co-op, and supporting other activities approved by the membership.

4 AUTONOMY AND INDEPENDENCE – Co-ops are self-help organizations controlled by their members. If they enter into agreements with other organizations, including governments, or raise capital from external sources, they do so on terms that ensure democratic control by their members and maintain their co-op autonomy.

5 EDUCATION, TRAINING AND INFORMATION – Co-ops provide education and training for their members,

elected representatives, managers and employees so they can contribute effectively to the development of their co-ops.

6 COOPERATION AMONG CO-OPS – Co-ops serve their members most effectively and strengthen the co-op movement by working together through local, national, regional and international structures.

7 CONCERN FOR COMMUNITY – While focusing on member needs, co-ops work for the sustainable development of their communities through policies accepted by their members.

CHAPTER THREE

Generating and Distributing Electricity

There are several types of electrical power suppliers: electric cooperatives, investor-owned power companies, public power utilities, and federal power marketing agencies.

- ▶ **ELECTRIC COOPERATIVES**—*13% of U.S. electric customers*—there are 28 distribution cooperatives across Kansas, covering 80% of the state.
- ▶ **MUNICIPALS**—*15% of U.S. electric customers*—provide utility services and are owned and operated by a municipal government. City governments such as McPherson, Kansas City and Winfield are some examples.
- ▶ **INVESTOR-OWNED UTILITIES**—*68% of U.S. electric customers*—such as Evergy (Westar and Kansas City Power and Light), an electric utility organized on a for-profit basis. The owners are stockholders.
- ▶ **FEDERAL POWER MARKETING ADMINISTRATIONS (PMA)**—*3% of U.S. electric customers*—a result of the work by the U.S. Corps of Army Engineers, which had the responsibility of improving navigable rivers. Hydroelectric facilities, which produced electricity from rushing water, were installed at many of the dams the Corps built and PMAs were created to sell the electricity generated at these dams. Priority was given to publicly owned and cooperatively owned utilities, such as the municipalities and electric cooperatives.

Distribution and G&T Cooperatives

Two of the three generation and transmission (G&T) cooperative members belonging to KEC are based in Kansas. These G&Ts, Kansas Electric Power Cooperative, Inc. (KEPCo), and Sunflower Electric Power Corporation, are owned by their distribution co-op members. The G&Ts supply retail distribution cooperatives with wholesale electricity, through owned generation, aggregating power purchases from other generators or both.

KEPCo, headquartered in Topeka, Kansas, serves 19 cooperative members as noted on Page 6. KEPCo's power resources include coal, nuclear, diesel, solar and hydropower allocations from federal projects. More than 50% of their energy mix does not emit any greenhouse gases. A staff of 23 provides expertise in engineering, information technology, power supply, transmission, rate design and accounting.

Sunflower, headquartered in Hays, Kansas, was formed in 1957 by six western Kansas distribution cooperatives. A sister company, Mid-Kansas Electric Company, was created in 2007 to acquire the assets of Aquila. Coal, natural gas, wind and hydropower are all components of Sunflower's and Mid-Kansas' generation and power supply mix. They employ a full-time workforce of more than 400 staff and own and operate approximately 2,400 miles of 115 kV and 345 kV transmission line across central and western Kansas.

COMPARING ELECTRIC UTILITIES

	ELECTRIC COOPERATIVE	INVESTOR-OWNED UTILITY	MUNICIPAL/PUBLICLY-OWNED UTILITY
OWNERS	<ul style="list-style-type: none"> ▶ The members are the owners and the consumers ▶ Each member has one vote ▶ Consumer-members influence cooperative policies through democratic control ▶ Built by the communities they serve 	<ul style="list-style-type: none"> ▶ IOUs are owned by shareholders ▶ Voting power equals number of shares owned ▶ The IOU is the retailer and the buyer is the customer 	<ul style="list-style-type: none"> ▶ Municipals are owned by the ratepaying public and are overseen by local government ▶ Municipals are not-for-profit ▶ The ratepayers are the customers ▶ Citizens influence policy direction by electing the officials who oversee the utility
FINANCING	<ul style="list-style-type: none"> ▶ Electric cooperatives can also access capital from Rural Utilities Service, National Rural Utilities Cooperative Finance Corporation and CoBank ▶ Excess margins are allocated to the members as capital credits, which are based on patronage and returned over time 	<ul style="list-style-type: none"> ▶ IOUs sell shares to investors ▶ Profits are distributed to shareholders or reinvested in the company/system 	<ul style="list-style-type: none"> ▶ Income over expenses is used to offset capital improvements and/or adjust rates
STRUCTURE	<ul style="list-style-type: none"> ▶ Members elect a board of trustees that establishes policies and hires a manager who reports to the board ▶ Cooperatives are not-for-profit corporations 	<ul style="list-style-type: none"> ▶ Shareholders elect a board of directors that selects a CEO; the board sets policies ▶ For profit corporation 	<ul style="list-style-type: none"> ▶ Ratepayers elect officials who manage the utility ▶ Officials make policy, but ratepayers decide whether elected officials stay in office
STATISTICS	<ul style="list-style-type: none"> ▶ Nearly 900 electric cooperatives in the nation ▶ Serve an estimated 42 million people ▶ Own 42% of the nation's distribution lines ▶ Kansas averages approximately 3 meters per mile of line 	<ul style="list-style-type: none"> ▶ 200 IOUs in the nation ▶ 104 million customers ▶ Own 43% of the nation's distribution lines ▶ Kansas averages 25 customers per mile of line 	<ul style="list-style-type: none"> ▶ 2,011 publicly-owned utilities in the nation ▶ Serve 49 million people ▶ Own 15% of the nation's distribution lines ▶ Municipality customer density varies, but is significant

How Dependable Electricity Reaches You

It's easy to take reliable electric power for granted. But there's a lot involved in getting that power to you, and the path of electricity starts well before a light switch is flipped.

Power Plant

At a generating plant, water is heated to steam using fuel such as natural gas, coal and oil; the steam turns the turbines that turn generators to produce electric energy. In some areas, nuclear power or water flowing through hydroelectric dams powers the turbines.

Step-Up Substation

Transformers at the generating plant increase the voltage up to 345,000 volts, so it can travel long distances over high-voltage transmission lines.

High-Voltage Transmission Lines

These lines carry the electric energy over long distances. Insulators on the towers prevent the power from flowing to the towers or the ground.

Transmission Substation

Transformers reduce the electric energy up to 69,000 volts, making it suitable for high-volume delivery over short distances.

Consumer-Owned Renewable Generation

A wind turbine, solar panel array or methane digester is interconnected to the co-op's lines through a cut-off switch and other equipment. The switch disconnects the turbine from the line to ensure the turbine is not damaged during outages and regular maintenance projects.

Large Industrial User

Most industries need 2,400 to 4,160 volts to run heavy machinery. They usually have their own substation at the facility.

Distribution Lines

Lines belonging to local electric co-ops carry electricity to transformers that reduce power levels to 120/240 or 120/208 volts for use in schools, farms, homes and small businesses.

Local Distribution Substation

Local electric co-ops operate several of these substations to reduce electricity to 7,200-14,400 volts for distribution to their members.

Small Businesses

Homes

Farms

Schools

Graphic courtesy of the Iowa Association of Electric Cooperatives

Power Generation

Most electricity is generated by burning fuel to create heat to boil water and create steam. The steam is then used to spin a turbine attached to an electrical generator. The fuels used to generate electricity are categorized as either renewable or non-renewable resources.

Non-Renewable Resources

Non-renewable resources are the Earth's natural resources that exist in limited supply and cannot be replaced when they are used up.

- ▶ **COAL** is a fossil fuel. At present consumption rates, the U.S. has enough coal in known reserves to meet energy demand for approximately 300 years. Electric power plants are the principal users of coal.
- ▶ **PETROLEUM** is a fossil fuel. The supply of petroleum is limited. It is generally believed we have a 30- to 40-year supply in known reserves if we continue using it at our current consumption rates. Transportation is the largest user of petroleum products.
- ▶ **NATURAL GAS**, such as methane, is used as a commercial fuel. Methane is a clean-burning, odorless gas. For safety reasons, a little sulfur is mixed with the methane to give it an odor. Natural gas is used not only for its heat; chemical industries also use natural gas to produce antifreeze, fertilizer, dry ice, aerosol sprays and oil- and water-based paints.
- ▶ **NUCLEAR ENERGY** is produced from water heated to a boil through nuclear fission—the splitting of atoms, such as uranium, in a nuclear reactor. The fission is accompanied by the release of heat. Nuclear power plants use the heat to boil water and create steam. The steam then spins the turbine that is attached to the electrical generator.

Renewable Resources

A renewable energy source is one that is replaced by natural processes within a relatively brief period of time.

- ▶ **GEOTHERMAL ENERGY** is produced by using hot water and steam locked below the Earth's surface.
- ▶ **BIOMASS** is the material of which living organisms are composed—such as wood, agricultural residues and refuse.
- ▶ **HYDROPOWER** is the second largest source of renewable energy in the world. It is generated by rushing water spinning a turbine.
- ▶ **SOLAR THERMAL** energy utilizes the sun's energy and is used in home heating through methods such as passive solar designs.
- ▶ **PHOTOVOLTAIC CELLS** can directly turn solar radiation into usable energy by converting sunlight into electric energy. It can be used in commercial size installations or individual units.
- ▶ **WIND POWER** uses blades attached to a turbine to harvest the energy generated by the wind. The wind turns the turbine that is attached to the electric generator and produces electricity.

CHAPTER FOUR

State and National Organizations

Most states have an electric cooperative statewide association, created and supported by its local electric cooperatives. Kansas Electric Cooperatives Inc. (KEC), located in Topeka, performs services on behalf of 28 distribution cooperatives and three G&Ts that serve Kansans. Incorporated in August 1941, KEC develops training and safety programs for cooperative employees and trustees, legislative action programs, member relations and power use programs; coordinates youth programs; performs safety inspections according to regulatory agencies' policies and procedures; and provides public relations, advertising, printing and publications, and communications services for its member co-ops, producing the monthly magazine *Kansas Country Living*.

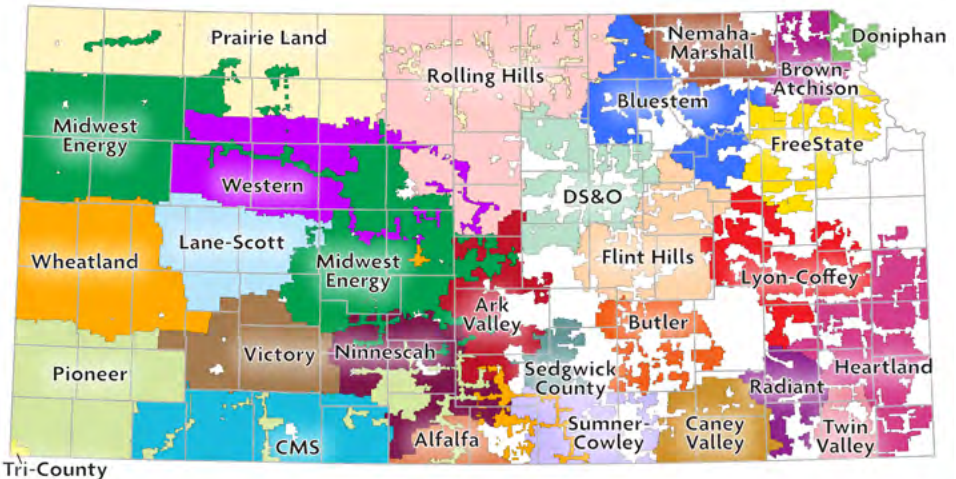
The **National Rural Electric Cooperative Association (NRECA)**, founded in 1942, is located in Washington, D.C., and provides services to more than 900 electric cooperatives and public power districts that serve in the U.S. Willie Wirehand, a registered trademark of NRECA, created in 1950, symbolizes rural electrification around the world.

KEC and NRECA are not government agencies. They do not



Service Areas of the Kansas Electric Cooperatives

The shaded areas below are served by KEC.



generate electricity or distribute electricity. KEC and NRECA are service associations for the G&Ts and distribution cooperatives that generate and distribute electricity to their members.

Touchstone Energy

Many of Kansas electric cooperatives are part of Touchstone Energy, a national alliance of local, member-owned electric cooperatives. Touchstone Energy cooperatives are dedicated to serving commercial, industrial, agricultural and residential members with integrity, accountability, innovation and commitment to community.



Touchstone EnergySM

Kansas Corporation Commission

The Kansas Corporation Commission (KCC) is a state agency organized to protect the public interest through the regulation of businesses operating as controlled monopolies.

Although a couple of electric cooperatives are under the jurisdiction of the KCC, most are not. A law passed in 1992 established a procedure under which the membership of an electric cooperative can exempt their electric cooperative from KCC jurisdiction. The governor appoints three commissioners to four-year terms. The KCC also has jurisdiction over Kansas-operated investor-owned electric utilities, truck lines, railroads, telephone companies, oil drilling companies and bus lines that operate in Kansas.

What About the Future?

Since the **energy** crisis of the 1970s, electricity rates have climbed at a time when fewer people were living and working in rural areas.

Past administrations in Washington, D.C., have tried to limit the role of the RUS. Attempts were made under Presidents Nixon and Reagan to eliminate the agency. But today, the electric cooperatives are needed more than ever.

The passage of the Energy Policy Act of 2005 by Congress marked a conclusion of nearly a decade of the national debate on energy issues. The 1,700 -page bill is the most comprehensive energy legislation in 40 years. For electric cooperatives, this bill represents a landmark for the provisions that recognize cooperatives are different from the other **utility** industry sectors.

Cooperatives in Kansas and nationwide are supporters of renewable energy sources. State and national legislation relating to climate change will surely boost the popularity of renewable resources. While renewables are needed, cooperatives realize that a balanced energy mix, including coal, is also a prerequisite. There will certainly be a regulation of greenhouse gas emissions, which will increase the cost of building power generation. Cooperatives will do their part to help hold the line on energy costs passed on to its members.

GLOSSARY OF TERMS

Capital credits: Any payments made by co-op members in excess of the cost of service. These payments are considered capital investments by the members and are assigned to their account.

Conductor: Any material that allows an electric current to pass through it. Also, the wire that carries electricity in an electric distribution or transmission system.

Cooperative Youth Leadership Camp: Colorado, Kansas, Oklahoma and Wyoming electric cooperatives participate in the annual weeklong educational camp in Steamboat Springs, Colorado. Individual electric cooperatives select high school students from their communities to participate. (See also Electric Cooperative Youth Tour).

Current: A flow of electrically charged particles in an electrical conductor. The rate of movement of the electricity, measured in amperes.

Department of Energy (DOE): The U.S. agency responsible for planning and allocating the nation's energy needs.

Distribution system: A system that enables delivery of electric energy in low voltage from substations to members.

Electric Cooperative Youth Tour: An annual educational trip to Washington, D.C., for high school students selected by local rural electric systems. It is organized by the National Rural Electric Cooperative Association and statewide associations. (See also Cooperative Youth Leadership Camp.)

Electric cooperative: A not-for-profit electric utility that follows a cooperative form of business and is owned by those who use its services.

Electricity: Electric current or power that results from the movement of electrons in a conductor from a negatively charged point to a positively charged point.

Energy: The capability of doing work (potential energy) or the conversion of this capability to motion (kinetic energy). In an electrical context, the use of power, measured in kilowatt-hours.

Fossil fuels: Materials such as coal, oil or natural gas used to produce heat or power. These materials were formed in the ground millions of years ago from plant and animal remains.

Generation and transmission cooperative (G&T): A power supply cooperative owned by a group of distribution cooperatives. G&Ts generate and transmit power.

Generation station (power plant): A plant that houses electric generators and other equipment to convert mechanical, chemical or nuclear energy into electric energy.

Generator: A machine that transforms mechanical energy into electric energy.

Hydroelectric plant: A facility that produces electric energy by releasing water from a reservoir through generators.

Insulators: Materials that prevent the undesired flow of electricity. Insulators are usually made of glass or porcelain.

Investor owned utility (IOU): A stockholder-owned company that generates and distributes electricity for a profit.

Kilowatt (kW): A unit of electrical power equal to one thousand watts.

Kilowatt-hour (kWh): A unit of electrical energy that is equal to one kilowatt of power used for one hour. One kilowatt-hour is equal to one thousand watt-hours.

Load: The amount of electric power delivered or required at any specified location or time. The load of an electric utility system is affected by many factors and changes on a daily, seasonal and annual basis, typically following a pattern. Load is usually measured in kilowatts (kW) or megawatts (MW).

Megawatt (MW): A unit of electrical power equal to one thousand kilowatts or one million watts.

Megawatt-hour (MWh): One thousand kilowatt-hours of electric energy. A unit of electrical energy that equals one megawatt of power used for one hour.

Municipal utility (Muni): A utility service provider, owned and operated by a municipal government.

National Rural Electric Cooperative Association (NRECA): Founded in 1942, NRECA is a national service organization representing the national interests of electric cooperatives and members.

Natural gas: A fossil fuel used for electric generation and space heating.

Power: A term usually meant to imply both capacity and energy. Electrical power is usually measured in kilowatts or watts.

Power grid: An interconnected network of generation, transmission and distribution systems.

Rate: The cost, per kilowatt-hour, for electricity.

Rural Electrification: A term used to describe the introduction of electricity to rural areas not served by power companies.

Rural Electrification Act: Legislation that established the Rural Electrification Administration (REA, later the RUS) as a lending agency for rural electric suppliers. Telephone cooperatives were included in an amendment to the act in 1949.

Rural Electrification Administration (REA): The U.S. Department of Agriculture agency, created in 1935, that lends money to consumer-owned electric and telephone cooperatives and offers engineering and accounting assistance. In 1994, the REA changed its name to Rural Utilities Service (RUS).

Rural Utilities Service (RUS): See above. Formerly known as the Rural Electrification Administration.

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

Transmission system: The poles, lines and equipment used to move bulk electricity from a generating plant to a distribution system.

Turbine: A rotary engine driven by the pressure of steam, water or gas against the curved vanes of a wheel fastened to a driving shaft.

Usage: A measure of electricity used over a certain period of time.

Utility: A cooperative or company that provides electricity, water, gas or telephone service for residential, commercial or industrial use.

Watt: An electrical unit of power. One horsepower is equivalent to approximately 746 watts.

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