



2017

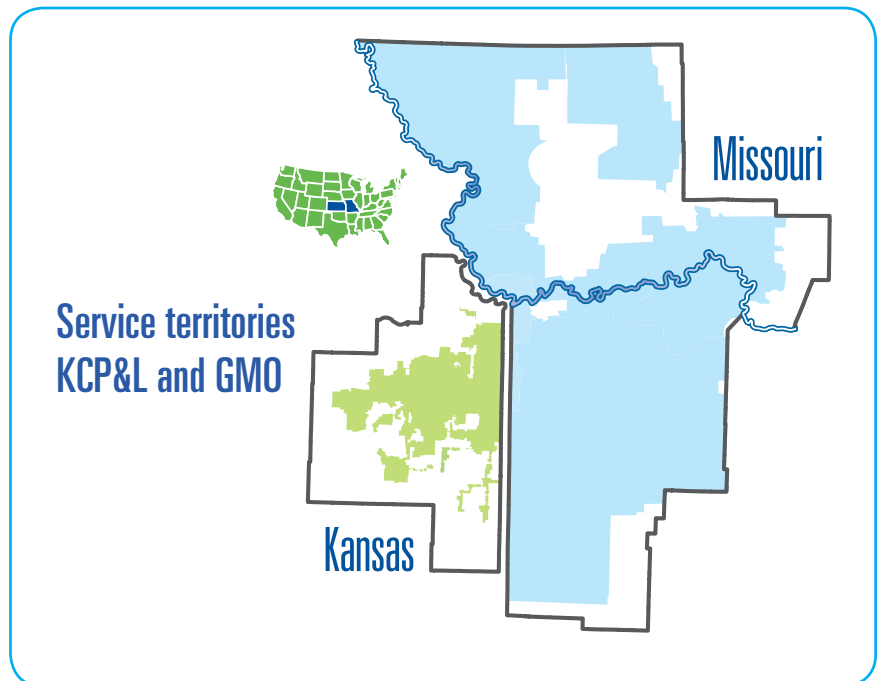
## Sustainability Report





## Who we are

Great Plains Energy (GPE) Incorporated, through its operating subsidiaries, Kansas City Power & Light Company (KCP&L) and KCP&L Greater Missouri Operations Company (GMO), **provides clean, safe and reliable energy** to more than **850,000 customers** in **Kansas** and **Missouri**. With a service area of about 18,000 square miles, it takes more than 3,000 miles of transmission lines, 24,000 miles of distribution lines and more than 400 substations to deliver power to our customers.



## Our Guiding Principles

**Our Higher Purpose** — To **improve life** in the communities we serve.

**Our Mission** — As a leading and trusted energy partner, KCP&L and GMO strive to **provide safe, reliable power** and **customer-focused energy solutions** that create stakeholder value through operational excellence, innovation and a diverse, engaged workforce.





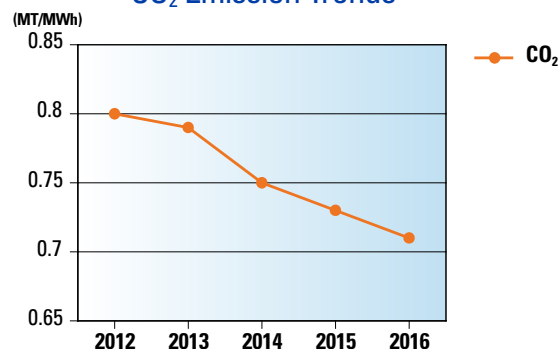
## Environmental Responsibility

KCP&L and GMO work hard to reduce emissions, preserve the environment, increase renewable energy and encourage energy efficiency.

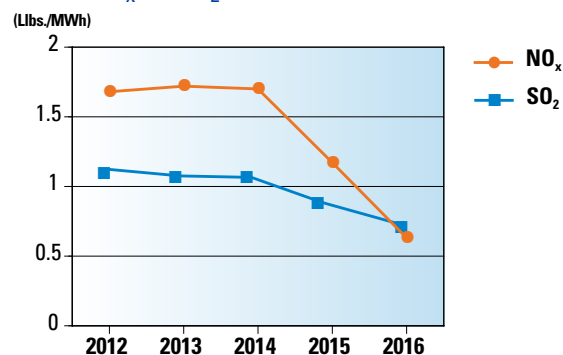
### Emission Reductions

- Our CO<sub>2</sub> **emissions rate is down 12%** since 2012. Emitted metric tons are down 26% for the same period.
- NO<sub>x</sub> and SO<sub>2</sub> **emission rates are down 33%** and **62%** respectively since 2012.
- We have installed emission technology on KCP&L's Iatan, La Cygne, and Hawthorn coal-fired power plants. That includes selective catalytic reduction system **to remove NO<sub>x</sub>**, **scrubbers to remove SO<sub>2</sub>** and **fabric filters** to remove particulate matter.
- We have announced **plans to retire coal-fired electric generating units** at KCP&L's Montrose and KCP&L GMO's Sibley and Lake Road Stations in 2018 and 2019.

CO<sub>2</sub> Emission Trends



NO<sub>x</sub> & SO<sub>2</sub> Emission Trends





## Environmental Preservation

Our power plants require cooling water which allows the stations to develop protected areas for wildlife. Our urban Hawthorn power plant partners with the Missouri Department of Conservation (MDC) to support wildlife and allow limited archery deer hunting on the property.

- Every winter, the University of Kansas Ornithology Department visits the Montrose Lake to conduct overwintering bird counts. We **lease over 2,700 acres** to the Missouri Department of Conservation to be **managed for public use** including primitive camping, canoeing and hunting.
- Near the Iatan power plant in Weston, Mo., we **restored 20 acres of wetlands, 20 acres of uplands** and **10 acres of forest and swamp**. The habitat is home to trumpeter swans, waterfowl, shorebirds and other wildlife species. In the winter, this area of the river is home to one of the largest concentrations of bald eagles in Missouri.

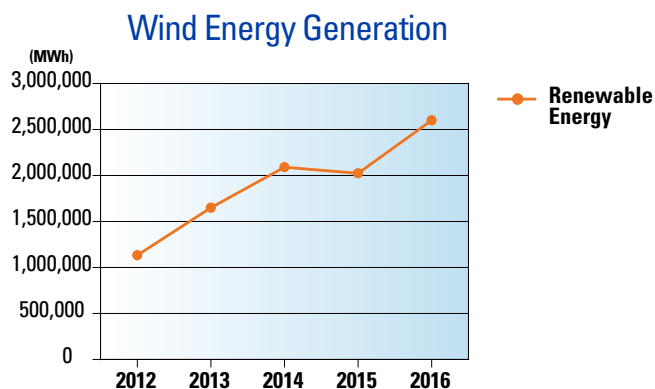


*For several years, we have partnered with MDC and the U.S. Department of Agriculture to install nests, monitor and tag the peregrine falcons at our Iatan, Hawthorn, and Sibley stations.*



## Renewable Energy

- **Wind Energy** – KCP&L was **the first utility to own and operate a commercial-scale wind facility in the state of Kansas** with the 148.5-megawatt Spearville Wind Generation Facility. We have **increased our renewable energy by nearly 130%** since 2012 by purchasing power from other wind energy providers.



- **Solar Energy** – In 2016, we completed a solar plant at our Greenwood Energy Center capable of **producing 4,700 MWh of energy annually**.
- **Biogas Energy** – The three million tons of decomposing waste in St. Joseph, Mo.'s landfill continually produce methane, which our landfill gas-to-energy plant converts into enough electricity to **power up to 1,000 homes annually**. We also purchase electricity from the State Fair Community College Energy Innovation Center located in Pettis County, Mo. The Energy Innovation Center is a landfill gas-to-energy plant that can **power up to 1,500 homes**. In addition to generating electricity, it **provides a teaching and learning environment** as well as a **business incubator** for new energy technologies.
- **Hydro Energy** – We purchase renewable energy from Central Nebraska Public Power and Irrigation District's three hydroelectric plants. This was the **first addition of hydro power** to our energy mix.
- **Renewables** – KCP&L and GMO have increased total renewable capacity over 800% since 2010.





## Energy Efficiency

One way we ensure reliable and affordable electricity is to offer solutions that encourage energy efficiency.

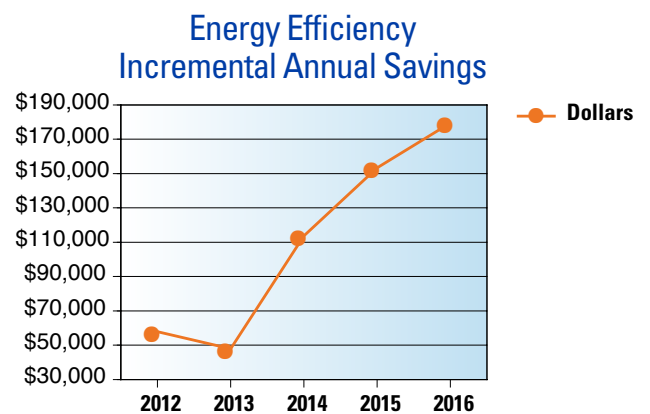
Energy efficiency benefits everyone.

- Reduced electricity need results in **decreased carbon emissions**.
- Investing in energy efficiency **costs less than building a new power plant**, resulting in a lower costs for all.
- Since 2005, we have **saved nearly 200 megawatts** through energy efficiency, enough to power 38,000 homes.

Our efforts have created more than 60 jobs within our region and generated \$50 million of economic activity. We offer various programs to encourage energy efficiency measures where they are needed most within our service area—specifically, GMO. Missouri legislation rewards utilities for programs that successfully encourage energy efficiency,

which means we can recover costs faster than usual. We hope to expand these programs throughout our service area in the future.

We have seen a more than 250% increase in incremental annual savings due to energy efficiency since 2012.





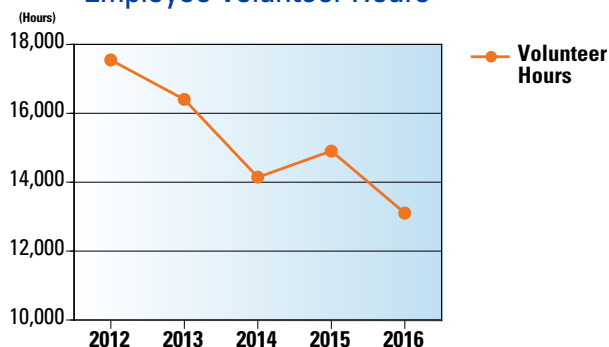
## Social Responsibility

Our commitment to the community is based on a simple principle – a healthy company is dependent on a healthy community. It is in this spirit that community involvement is woven into all we do from community donations and leadership to sound business practices that balance sustainable energy with that of affordability.

- KCP&L and GMO are devoted to **improving the communities we serve** through targeted donations and investments, as well as employee volunteerism and leadership.
- **On average 25% of employees volunteer** nearly 15,000 hours each year and 65% donate more than \$1 million of their own dollars to giving campaigns.
- **Employee volunteerism** covers a wide array of activities such as providing strategic input on nonprofit boards to developing trails and parks to mentoring students.

Our community investment programs are directed in three areas: at-risk youth, economic/workforce development and the environment.

### Employee Volunteer Hours



**At-Risk Youth** – We support **agencies serving young people who are vulnerable or at risk due to socio-economic conditions**. We invest in initiatives that nurture children and support their educational development from birth to career or vocation.

**Environment** – In addition to preserving and developing wildlife habitats near our power plants, we support **programs targeted toward the sustainability, conservation and beautification** of our region's natural resources.

**Economic/Workforce Development** – We're focused on **stimulating economic development in distressed and under served areas** as well as providing key investments in workforce and mentoring programs that ultimately spark an interest in a utility industry career.





## Economic Development

Our Clean Charge Network consists of more than 1,000 electric vehicle charging stations — the largest utility owned and operated charging network in the country.

### **Increasing and attracting electric car owners**

The KCP&L Clean Charge network can support more than 10,000 electric cars. We hope this infrastructure encourages more Kansas City drivers to purchase electric vehicles, as well as encourage electric vehicle owners to visit our region.

### **Gaining a reputation for innovation**

Kansas City and surrounding areas are building a reputation as innovative and sustainable places to live and work, a reputation that's attracting companies and talent.

### **Reducing carbon emissions**

Personal gas-powered cars account for nearly one-fifth of all U.S. emissions. By banding together to reduce carbon emissions, we'll help the Kansas City region attain EPA regional ozone standards and make it a cleaner, better place to live and work.







## Our Reliability

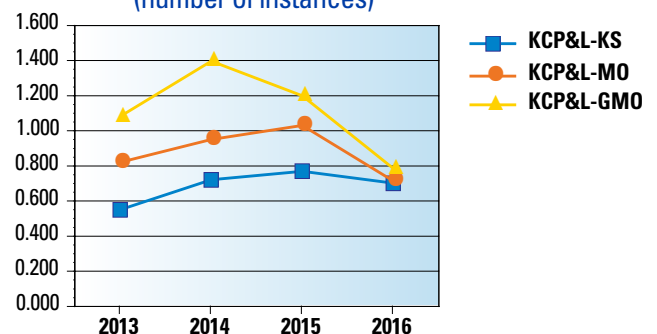
KCP&L and GMO's core responsibility to 850,000 electric customers in communities across Kansas and Missouri is to provide electricity. People require electricity for a variety of reasons including to heat and cool their homes and run businesses and schools. The electricity we provide is utilized to save lives and respond to emergencies.

With such a vital purpose, we strive to keep electricity safe, reliable and reasonably priced for all. Electricity is a key component to power economic investment and community improvement in Kansas and Missouri.

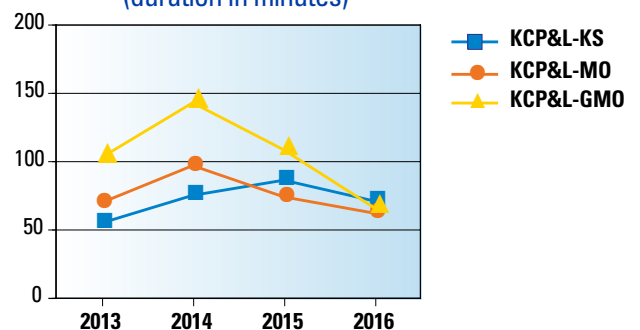
Since reliability is a key focus, we utilize System Average Interruption Duration Index (SAIDI) and System Average Interruption Frequency Index (SAIFI) as reliability indicators. We calculate these values without major events such as storms for example, otherwise known as Major Event Days (MED).

- Outage frequency has **decreased by 27%** in GMO's territory since 2013.
- KCP&L has decreased outage duration in our GMO territory **by 36%** since 2013.

SAIFI without MED  
(number of instances)



SAIDI without MED  
(duration in minutes)



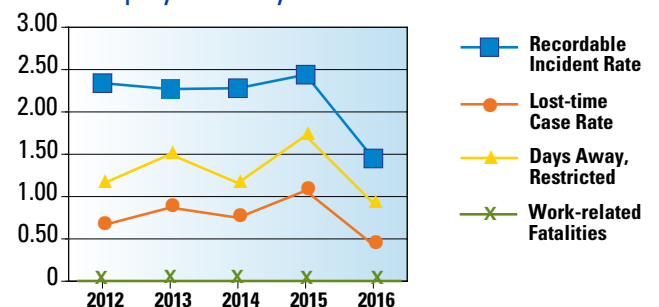


## Corporate Safety

Safety is our focus. Our employees are our most valuable resource. We would not exist without a well-trained, well-equipped team to carry out our mission to power the quality of life. Millions of people and thousands of businesses in Kansas and Missouri are counting on our people for dependable energy, 365 days a year. That compels us to keep our workforce safe and well.

In 2015, we built a new training facility for our apprenticeship programs called Cedar Point. The facility was built using LEED principles and various green technologies. The site features energy-efficient power generation, including a small wind turbine that runs an aeration pump in the irrigation pond, and three solar canopy trellises that provide power as well as cover from the weather for employees walking between buildings. The turbine and solar panels also are used for hands-on training of employees.

Employee Safety Metrics







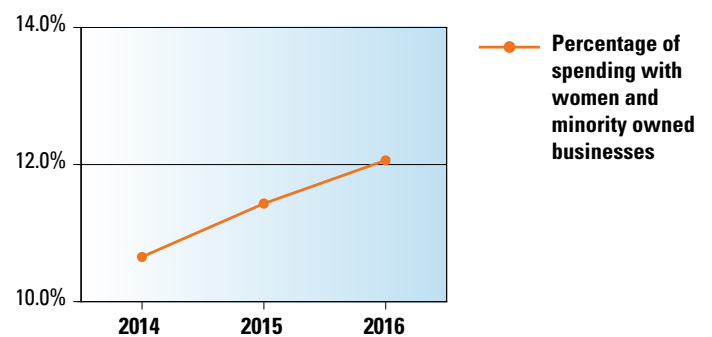
## Supplier Diversity

For more than 30 years, our Supplier Diversity initiative has opened doors to minority, women-owned, and veteran-owned small businesses to help them succeed in their endeavors. When we contribute to the success of diverse suppliers, we start a cycle where the supplier, our company and the local economy all benefit.

The company has a mentoring program called Light Source which is another opportunity for us to guide suppliers to a bright future through a program that seeks to nurture emerging minority, women and veteran-owned businesses in the community.

In 2016, we spent over \$100 million with minority, women, veteran-owned and service-disabled veteran-owned small businesses – an all-time high. Over the last five years, our spend with diverse suppliers has doubled.

Supplier Diversity Spend





## Sustainability Governance

### Structure

The Company has an environmental services group that includes nine employees and reports to the Chief Compliance Officer. The Governance Committee of the Board of Directors, which is made up of six independent directors has responsibility to advise and assist the Board through oversight of the Company's sustainability program. This authority is documented in the Committee's Charter.

### Strategy

#### ***Integration Resource Planning***

The Missouri Public Service Commission (MPSC) requires Missouri electric utilities to develop a 20-year resource plan. The process used to develop this 20-year plan is known as Integrated Resource Planning (IRP). The fundamental objective of the resource planning process is to ensure the public is provided with safe, reliable, and efficient energy services at just and reasonable rates.

The IRP process includes developing alternative resource plans. These alternative resource plans may include:

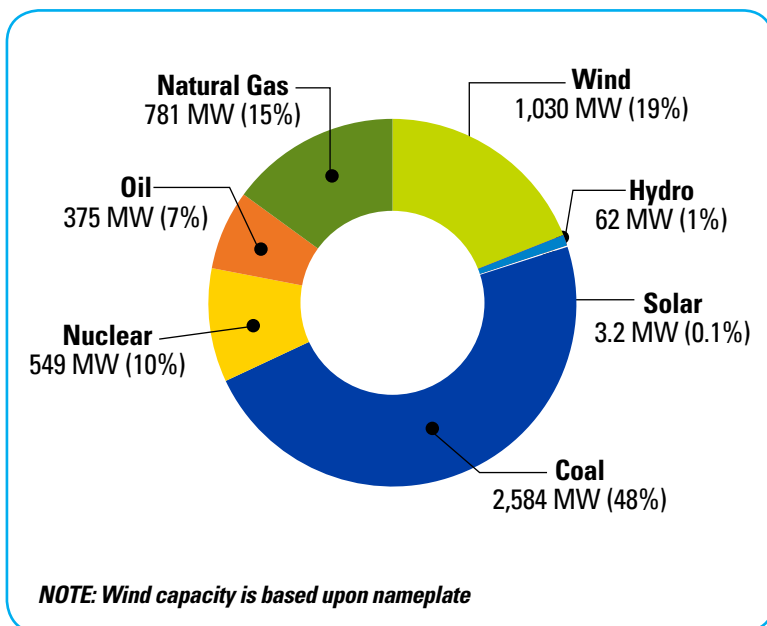
- **New generation resources** (traditional and/or renewable)
- **Demand-side management** resources (DSM)
- **Generating plant retirements**
- **Additional environmental controls on existing power plants** (scrubbers, bag house, etc.)

These alternative plans are analyzed with respect to various performance measures including the 20-year net present value revenue of requirements. The primary criterion for selecting the "Preferred Plan" from the list of alternative plans analyzed is the minimization of net present value of revenue requirements.





By 2018, when all planned wind resources currently under contract are in service and announced coal is retired, the capacity makeup of KCP&L is expected to be as follows:



Highlights of the current IRP Preferred Plans for KCP&L and GMO are outlined below:

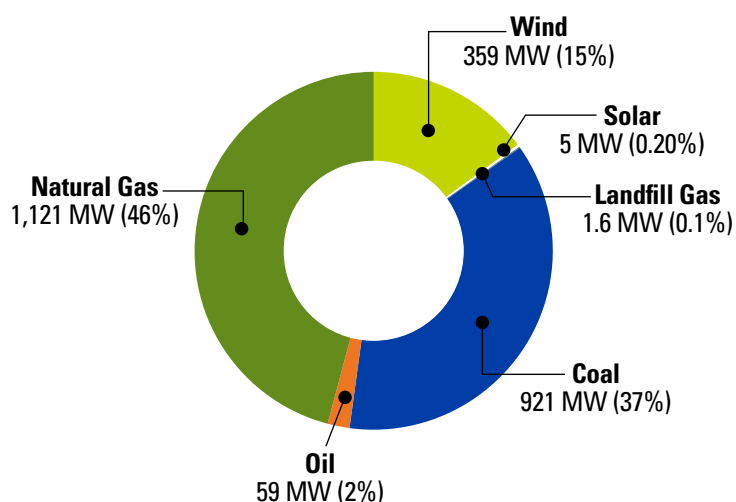
#### KCP&L

- **2017-2027 Generation additions**  
180 MW of wind (2017)  
7 MW of solar (2028)
- **Cease burning coal**  
334 MW (2019)
- Additional **Demand-Side Management**  
492 MW by 2027



## Sustainability Governance *(continued)*

By 2018, when all planned wind resources currently under contract are in service and announced coal and gas are retired, the capacity makeup of GMO is expected to be as follows:



**NOTE:** Wind capacity is based upon nameplate

### GMO

- **2017-2027 Generation additions**  
120 MW of wind (2017)  
5 MW of solar (2028)
- **Cease burning coal**  
461 MW (2018)  
96 MW (2019) gas
- Additional **Demand-Side Management**  
328 MW by 2027





Every three years, a compliance filing is submitted to the MPSC which outlines the IRP process, assumptions, analysis results and the Preferred Plan selected. For the years in which this triennial compliance filing is not required, an annual update analysis is performed to determine if the Preferred Plan from the prior IRP needs to be changed and to update interested parties if any actions that were expected to occur during the three-year window have changed.

The KCP&L and GMO triennial IRP filings occurred on April 1, 2015. The most recent annual updates were filed June 2017 and the next triennial filings are scheduled to occur by April 2018.

The 2017 KCP&L IRP Annual Update can be viewed in its entirety at the Missouri Public Service Commission website:

[www.efis.psc.mo.gov/mpsc](http://www.efis.psc.mo.gov/mpsc)

Select Resources, Case Information, Case Filing/Submission  
Case Number: EO-2017-0229

The 2017 GMO IRP Annual Update can be viewed in its entirety at the Missouri Public Service Commission website:

[www.efis.psc.mo.gov/mpsc](http://www.efis.psc.mo.gov/mpsc)

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