

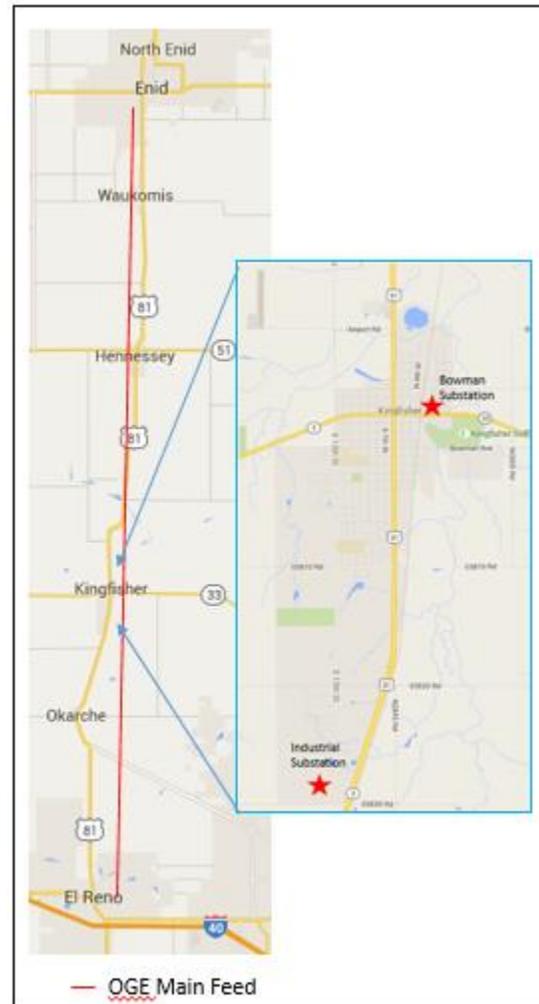
Understanding My Municipal Electric Utility

While no one looks forward to a power outage, multiple uncontrollable factors, primarily weather, cause them. Statistical data from the US Energy Information Administration (EIA) indicate that outages are more frequent and this trend will continue to grow with population growth and grid expansion. This document is designed to provide our customers with information relating to Kingfisher Electric. Please feel free to visit with us directly at City Hall for more information.

Kingfisher Electric System

Kingfisher receives a transmission feed from the south carried over Oklahoma Gas & Electric (OGE) high voltage transmission lines from El Reno to Enid. We also have another transmission feed from Western Farmers Electric Cooperative (WFEC) from the north. If OGE has substantive issues on the south line, we have the ability to request to switch to the WFEC feed. If it is going to be a long-term outage, we generally can switch. If OGE indicates that it will be a short outage, we generally are not able to switch.

Kingfisher is also very fortunate to be one of four public power communities that still have the availability to generate power through a municipal power plant. Our plant can generate up to 8.5 Megawatts (MW) of power. Depending on the amount of power used by customers, determines how much of our service area we can provide power to during an outage. Of the five diesel and natural gas engines to generate power, the newest one is a 1975 Enterprise Engine. The plant takes about an hour and half from start up to being able to provide power to the community. The power plant is available to sustain power for long-term outages. If OGE anticipates an extended outage, our system is isolated from the external feeds, and Kingfisher generates power.



Kingfisher has two substations that distribute high voltage power to lower voltage power to move to our three circuits in town. Power from the substations is distributed to transformers on the circuits which convert the power into voltages for residential and commercial use.

Types of Power Outages in Kingfisher

Internal: This type of outage is repairable by City crews and can impact a neighborhood on a leg of a circuit, a section of town or an entire circuit. These outages can be caused by storm damage such as tree limbs falling on lines, transformers struck by lightning, or birds or squirrels getting into relays or

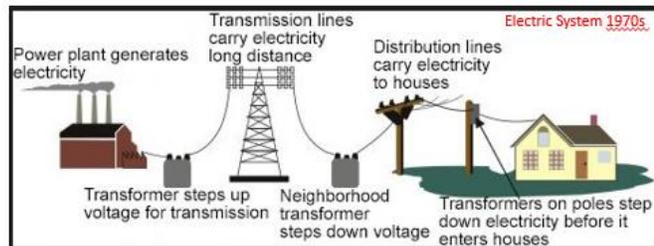
switches in the overhead lines. Once City crews find the issue, they assess the best repair method, and engage in restoration of services.

External: This type of outage is outside of the control of Kingfisher Electric, generally resulting in transmission failure for high voltage coming into Kingfisher.

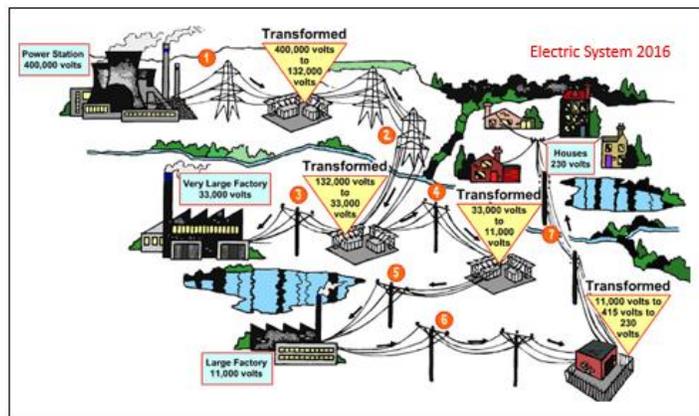
Categories of Power: Generation, Transmission, Distribution

Generation: This is where power is made and created through nuclear, natural gas or coal fired plants, in addition to hydro turbine plants and wind and solar production. Power is generated and supplied to “the grid” a systematic application of putting generated power into transmission lines to be provided to distribution systems. The Oklahoma Municipal Power Authority (OMPA) is the wholesale electric provider for Kingfisher Electric. Kingfisher is a member-owner of OMPA and has input into its policies, rates and practices. OMPA owns, co-owns and has ownership shares in power production facilities in Oklahoma, Texas, Louisiana and Arkansas. OMPA and Kingfisher Electric fall under the Southwest Power Pool for grid management.

A few decades ago, all generation was local, where power plants were smaller and served smaller areas. Government regulations increased and many local generators couldn't keep up with compliance and couldn't efficiently support the growth and increase in demand. Larger plants were able to produce electricity at costs lower than the local plants. If Kingfisher still generated power at our plant, your costs would be 4 to 5 times what you are currently paying per kilowatt hour (kWh).



Transmission: This is how power is moved and delivered from generating power plants to distribution systems. This is the infrastructure of large towers and high voltage lines that carry electricity from points of origin to distribution systems for consumption.



Transmission is the transportation mechanism of electricity. Unlike highways and roads, transmission has limited options available for rerouting.

For example, if you want to go from Kingfisher to Oklahoma City and Highway 3 is closed, there are many different routes available to get to Oklahoma City detouring off of Highway 3. If the OGE high voltage feed is disrupted, there are very limited rerouting options to get power delivered. A 747 jumbo jet can't land at Kingfisher Airport and you can't hook a garden hose on a 12 inch water main with intentions to sprinkle your flowers. Likewise, high voltage transmission can't run on overhead service lines.

Distribution: This is where high voltage electricity is converted for residential and commercial use. Kingfisher Electric is a distribution system. Incoming high voltage electricity is received at the substations and converted through the circuits, switches, transformers and fuses through overhead and underground lines, to the meter at your house.

FREQUENTLY ASKED QUESTIONS

What do I do if my power goes out?

- If it is during the day, please call **375-3705**. For after hours, weekends and holidays, please call **375-5943** to report outages. Follow us on Facebook at City of Kingfisher, OK as we try and post status updates during outages. Residents in Meeker Addition are Cimarron Electric customers.

What happens when my power goes out?

- When Kingfisher Electric has a power failure, the on-call lineman reports in and begins to assess the situation while communicating with OMPA to determine fault time, location, and information available from OMPA's monitoring of our system.
- If it is an internal issue, crews locate the fault. While this isn't normally as complex as finding a needle in a haystack, it also isn't as simple as finding a broken water main with water shooting twenty feet in the air. Once the cause has been identified, crews begin repairs to restore service.
- If it is an external issue, we communicate with OMPA who is in contact with OGE. OGE dispatches crews to assess and make repairs. While Kingfisher Electric Distribution System covers a little over 4 square miles, OGE's coverage area is significantly larger, as the distance for their main feed high voltage line from El Reno to Enid is nearly 70 miles. While it may seem that the wait on OGE is longer than the wait on Kingfisher Electric, it is only fair to point out that they have a much larger area to assess. In addition to line crews on the ground, OGE also uses airplanes and helicopters to fly the line to look for areas of concern for line crews to assess.
- Transmission and Distribution restoration of service can be complex; requiring repairs of line, poles, switches, fuses, transformers and multiple combinations of such. It is generally not as simple as flipping a breaker on the electric panel at your home. Some problems take longer to find than the amount of time required to fix them. While automation and monitoring is assisting with reducing the time it takes to find problems, the larger the coverage area of the system, the longer it takes to get personnel, equipment and resources to the repair site.

Why does the power always go out in Kingfisher?

- To be perfectly honest, we are at the mercy of Mother Nature for a vast majority of the outages impacting Kingfisher. Distribution infrastructure failure, such as an old pole breaking or transformer failing, accounts for less than 10% of our outages over the past five years. Kingfisher Electric prides ourselves on our system maintenance for reliability by routinely inspecting components of our system and replacing equipment that cannot be repaired prior to failure.

- With all of the wind, ice and tornados, why are electric lines still overhead instead of buried underground?

- Underground electric lines have become common practice for distribution systems for new construction and developments. However, the cost to convert most transmission high voltage from overhead to underground outweighs the expense consumers are willing to pay. Overhead transmission lines can cost between \$800,000 to \$1,200,000 per mile to build, depending upon conditions. Underground transmission can cost up to 10 times that much.



- In many aspects, underground is simply not an available option due to other existing utilities. In distribution systems such as Kingfisher, existing overhead lines cannot be moved underground due to current water, sewer, phone, fiber, natural gas, and cable lines already in the ground. Regarding transmission, oil and gas existing crossings and underground lines have to be considered. The US EIA has a mapping tool available at <http://www.eia.gov/state/maps.cfm> that shows all utilities and illustrates the complexity in converting overhead lines to underground.

Where does my power come from?

- Kingfisher Electric purchases power from OMPA, which is delivered from the power plants to Kingfisher over various transmission feeds, but the primary direct feed into town is from OGE. Wholesale power entities, like OMPA, OGE and PSO lease existing transmission lines from each other instead of building duplicate lines, to keep costs low.
- OMPA owns, co-owns, and has ownership shares in 11 energy centers in Oklahoma, Texas, Arkansas and Louisiana to include coal and natural gas plants, wind energy, hydro plants, and a landfill gas to energy plant. Details are available at <http://ompa.com/about/power-supply/> for review.
- Generated energy is produced at the power plants and metered onto the grid. Transmission systems transport energy to distribution systems where it is metered coming off of the grid. Kingfisher Electric pays OMPA for megawatts generated that are used in Kingfisher, but that does not necessarily mean that a lightbulb in your home is being powered directly by generation at an OMPA facility.

- For a brief summary of how the grid works, please watch this video <https://www.youtube.com/watch?v=38EEemWHIOc8>

Why doesn't the City start the Kingfisher Power Plant up when the power goes out?

- While we are very fortunate to still have this asset available, it requires a lot of maintenance and oversight to keep it running. If we have a sustained outage beyond our control, we generally opt to generate if the outage will be prolonged or for shorter time frames to keep businesses open. When an outage occurs, it generally takes a certain amount of time for crews to be dispatched and determine the extent of the damage, which contributes to this delay.
- The plant takes a minimum of one and a half hours to generate production to carry the load of our customers. If we bring the plant up to capacity and are only online for 30 minutes, it is neither cost effective nor efficient. Our plant is a reserve facility, used for emergencies; or to supply power back to the grid due to high demand, generation failure or scheduled maintenance at other generation facilities. It does not operate regularly enabling the ability to simply "switch" to power plant electricity.

How does Kingfisher Electric operate?

The City Commissioners also serve as Trustees of the Kingfisher Public Works Authority (KPWA) with the Mayor serving as Trust Chair and the City Manager serving as Trust Manager. The KPWA is responsible for Electric, Water, Waste Water and Sanitation within the City of Kingfisher. Jim Warner is the Electric Superintendent with four linemen in the department. The power plant has two personnel for operations and maintenance. The utility billing department is located in City Hall.

What happens when severe weather causes long-term outages in the distribution system?

Through our partnership with the Municipal Electric Systems of Oklahoma (MESO), Kingfisher Electric has mutual aid agreements with the 62 other public power communities across the state. During the Thanksgiving and Christmas severe weather in 2015, we received mutual aid from Duncan, Edmond, Stillwater, Purcell and Claremore. When damaging storms hit Duncan in May of 2016, Kingfisher Electric sent crews to Duncan to provide mutual aid.

Why doesn't OGE outage tracker show Kingfisher as being out when you say we lost their main feed?

OGE's outage tracker only provides service outage reports for their retail customers. Okarche, Dover, and Hennessey are OGE customers, but Kingfisher is not. OGE receives transmission revenues from OMPA for transmission services, but Kingfisher does not directly pay OGE. As the OGE outage tracker is for their customers, Kingfisher residents are not included in their outage reports.