



AN ALLETE COMPANY

EnergyForward



Under *EnergyForward*, we've made great strides in diversifying how we produce and deliver safe, reliable, affordable and clean energy.

Our next step in meeting the region's growing electricity needs and demand for clean energy is a resource package that adds more wind and solar and employs the flexibility of natural gas to ensure power 24/7 year-round for customers.

Wind + Solar + Natural Gas

A powerful package for delivering safe, reliable, affordable and clean energy



Solar: Add 10 megawatts of solar power through a power purchase agreement with developer Cypress Creek Renewables. The developer plans to build an array near Royalton in central Minnesota. Online in 2019.

+10
MEGAWATTS



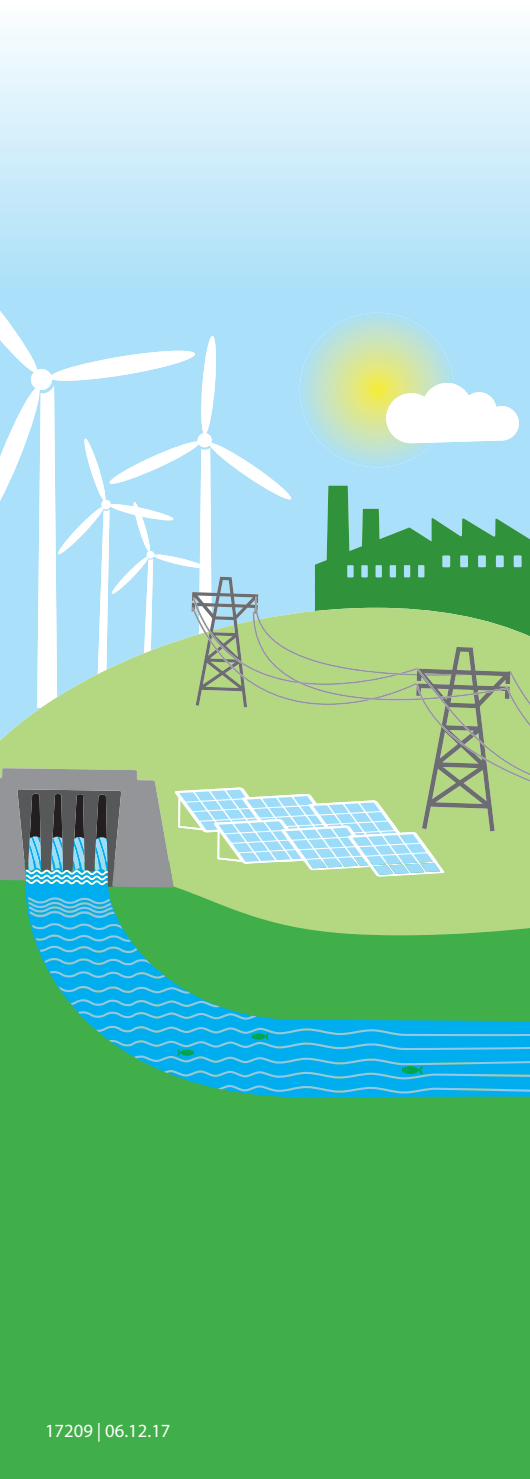
Wind: Add 250 megawatts of wind energy through a power purchase agreement with Tenaska. The wind developer plans to build a wind farm in southwestern Minnesota, which will add geographic diversity to our wind energy portfolio. Online in 2020.

+250
MEGAWATTS



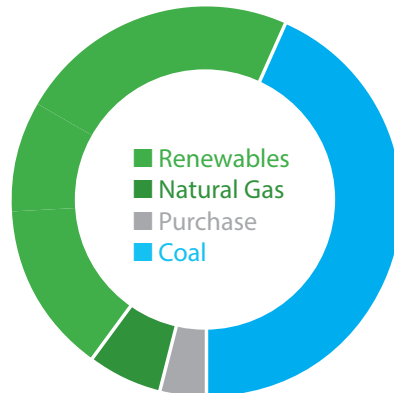
Natural gas: Partner with Dairyland Power Cooperative to build a combined-cycle natural gas power plant in Superior, Wisconsin. About 250 megawatts will come from the jointly owned Nemadji Trail Energy Center. Online in 2025.

+250
MEGAWATTS



EnergyForward transition

- Renewables **grow to 44%** by 2025 – our current portfolio includes 620 MW of wind, 120 MW hydro and 10 MW of solar
- Natural gas supports existing and expansion of renewables
- Exceeds state energy goals
- Carbon emissions **reduced by 40%** by 2030



Replacing traditional baseload power while ensuring reliability

Our energy mix has changed a lot in recent years and continues to evolve—by 2026 we will have removed more than **700 megawatts** of coal-fired generation from our 2,050-megawatt system. We've already added **620 megawatts** of wind and **10 megawatts** of solar energy, but we can't rely on these renewable sources of energy to be available all the time.

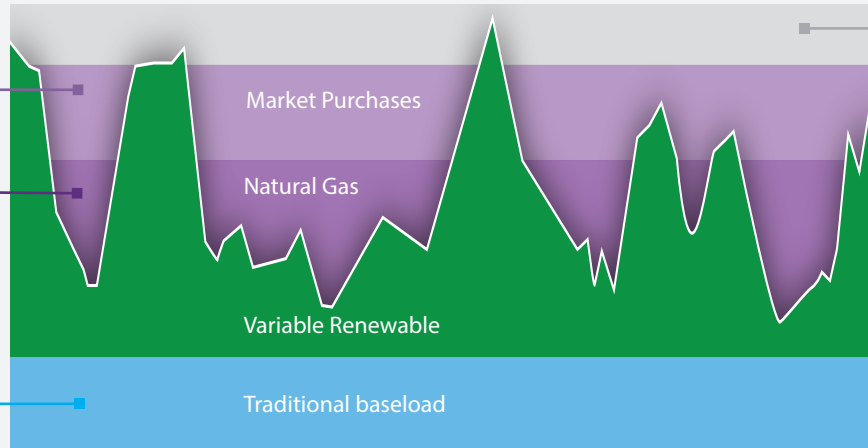
Sometimes the wind doesn't blow and the sun doesn't shine. That's when natural gas, an economical, abundant and flexible energy source with less carbon dioxide emissions, can fill the gap and help keep the lights on.

Balancing variable renewable resources with flexible generation

Affordability, reliability and environmental stewardship

Natural gas, and purchases from energy markets are used to fill in the gaps between the peaks and valleys of variable wind and solar power. Natural gas helps buffer the volatility of energy market prices.

Our traditional coal-fired units provide consistent, dependable baseload power.



Agreements with some of our customers to interrupt service at times of peak load—also used to balance resources and maintain reliability.

This chart represents a 16-hour snapshot of our power supply.

The natural gas power plant

The premier site in Superior, Wisconsin, is shovel-ready and boasts access to multiple interstate natural gas pipelines and nearby transmission lines that can efficiently get the electricity to customers. It also brings with it a joint owner in LaCrosse, Wisconsin-based Dairyland Power Cooperative that serves customers in western Wisconsin. The facility has economies of scale and efficiencies that wouldn't be available if we were to build a smaller unit on our own.

The Nemadji Trail Energy Center will be a combined-cycle facility between 525 and 550 megawatts and will cost about \$700 million to build. The power plant will employ 22-25 people when completed, and create an estimated 260 construction jobs and 130 indirect jobs. Because of its proximity to Minnesota, the facility is expected to bring benefits to both states.

Competitive, stable energy costs

We are committed to keeping rates competitive for all of our customers and know that energy costs are critical to the region's natural resource-based industries. Competitive and stable energy costs for residents and businesses help keep the region's economy healthy. The resource package is a vital piece of the changing energy landscape and provides least cost power supply to our customers.

Moving EnergyForward

We continue to lead in transitioning to clean energy and reducing emissions of carbon dioxide. In 2013, when we first announced *EnergyForward*, our goal was to be about one-third renewable energy by 2026. Already, we're at nearly 30 percent renewable energy—a significant change from 2005 when we were about 95 percent coal.

This resource package will help advance our long-term goal for an energy mix of two-thirds renewable energy and renewable-enabling natural gas and one-third environmentally compliant baseload coal.

The addition of natural gas ensures reliability while enabling us to add even more wind and solar power to our system. Our traditional power plants are among the cleanest in the nation, meeting or exceeding environmental regulations for emissions such as mercury and sulfur dioxide.

Energy for today and tomorrow

