

LEADING THE CLEAN ENERGY TRANSITION

We are the first major U.S. power company with an aspiration to provide 100% carbon-free electricity and are equally committed to cutting greenhouse gas emissions from our natural gas business.

We know that climate change is an urgent issue for many policy makers and investors and is a growing concern for our customers who look to Xcel Energy to act. It is a priority for us as well, and the reason we set an ambitious interim goal to reduce carbon emissions 80% by 2030 from the electricity we provide customers and aim to deliver 100% carbon-free electricity by 2050.

By acting now, we increase our ability to achieve these goals while assuring that our system remains reliable and our energy service affordable for customers. We are working within our states to propose clean energy plans for reducing emissions and creating a pathway to advance the zero-carbon 24/7 technologies necessary to eliminate the last carbon from our system.

Just as we are committed to providing clean electricity, we have a comprehensive plan for reducing greenhouse gas emissions across the natural gas system — from drill head to burner tip. We can help customers reduce their carbon emissions from natural gas use while operating the cleanest natural gas delivery system possible and encouraging our gas suppliers to do their part to reduce emissions too.



HIGHLIGHTS

- We cut carbon emissions from the electricity that serves our customers by approximately 5.6 million tons in 2019, a more than 10% reduction, compared to 2018 levels — our largest single-year decline.
- From 2005 through 2019, we reduced carbon emissions approximately 44% from the electricity provided to customers. This puts us over halfway to achieving our interim goal to reduce carbon emissions 80% by 2030.
- Xcel Energy received a national Climate Leadership Award for top Organizational Leadership. The award recognizes our industry-leading carbon reduction efforts, as well as our support for customers and communities in achieving their clean energy goals.
- In early 2019, we published a special carbon report that outlines our path to achieving ambitious carbon reductions and provides a scientific analysis of our carbon goals. Climate experts, including a lead author for the Intergovernmental Panel on Climate Change, completed the analysis that concludes our carbon goals are consistent with electric sector emissions in scenarios likely to achieve the temperature targets of the Paris climate agreement.
- Over 15 years ago, we were among the first in our industry to tie carbon reduction directly to executive compensation, and we are one of three peer energy providers that do so today.
- We joined ONE Future, a consortium of more than 20 natural gas companies committed to collectively limiting methane emissions across the entire natural gas supply chain to 1% or less. For the portion of the supply chain that we own and operate, we are committed to achieving a methane emissions rate of less than 0.22% — ONE Future's stated target for distribution systems.
- We worked with South Platte Water Renewal Partners in 2019 to interconnect renewable natural gas from its wastewater treatment plant. Through the project, we support the plant's progress toward reducing its carbon footprint and take a first step in greening our natural gas supply.
- The Climate Registry recognized our greenhouse gas emissions reporting with its top Allstar status for excellence. For 14 consecutive years, our carbon reporting has been third-party verified in accordance with The Climate Registry — we are the only electric utility with this length of consecutive verified data.

OUR PATHWAY TO CARBON-FREE ELECTRICITY

We are working to reduce greenhouse gas emissions that occur as we produce and distribute energy to our customers. Approximately 99% of greenhouse gases associated with our operations are carbon dioxide from the use of fossil fuels to generate electricity. Because of this, our clean energy strategy and long-term goals are primarily directed toward reducing carbon emissions from the electricity that serves our customers.

Reducing carbon emissions 80% by 2030

With the technology available today, we are confident in reaching our interim goal to reduce carbon emissions 80% by 2030 from 2005 levels affordably and reliably for customers. In setting the goal, we analyzed a variety of cost-effective pathways that had common elements for achieving significant carbon reductions. The potential pathways we studied include:

- Adding thousands of megawatts of wind and solar power to our system
- Incorporating both natural gas and storage resources, including pumped-storage hydro, to help integrate high levels of wind and solar energy
- Continuing to implement industry-leading energy efficiency programs
- Seeking to operate our nuclear plants through the remainder of their licenses and possibly relicensing them
- Retiring additional coal units or changing their operations to minimize emissions affordably and reliably
- Investing in supportive infrastructure to modernize the power grid

We are currently implementing approved energy plans that are expected to reduce carbon emissions approximately 60% by 2030. The plans include adding significant wind, solar and battery resources and retiring five coal units from 2022 to 2027.

To reach our goal to reduce carbon emissions 80% by 2030, we have started to work with stakeholders engaged in our state resource planning processes. In 2019, we originally proposed the Upper Midwest Energy Plan that would close our remaining coal units early, shutting down all the units in the region by 2030. It would also extend the use of nuclear energy at the Monticello plant and significantly add more wind and solar power, as well as firm capacity resources, such as natural gas or possibly storage. Through the end of 2019 into early 2020, we updated our planning model and worked with stakeholders and will resubmit a new plan for the Upper Midwest by the end of June 2020, based on input we received. We expect to make similar proposals in Colorado and New Mexico in 2021 as the energy planning processes in these states get underway.

100% Carbon-free Electricity by 2050

Looking beyond 2030 to our aspiration to provide 100% carbon-free electricity, we are putting in place the drivers that will make this vision possible, even though 2050 is decades away. This includes building the necessary state and stakeholder support, public policy and advanced technologies.

To eliminate the remaining 20% of carbon from our system, we need advanced, zero-carbon 24/7 generation technologies and long-duration energy storage not yet commercially available at the cost and scale needed. This includes technologies such as advanced renewable energy, carbon capture utilization and storage, long-duration storage, zero-carbon fuels such as hydrogen, and advanced nuclear. To ensure these technologies are ready when we need them at an affordable price, there must be more research, innovation and development done today.

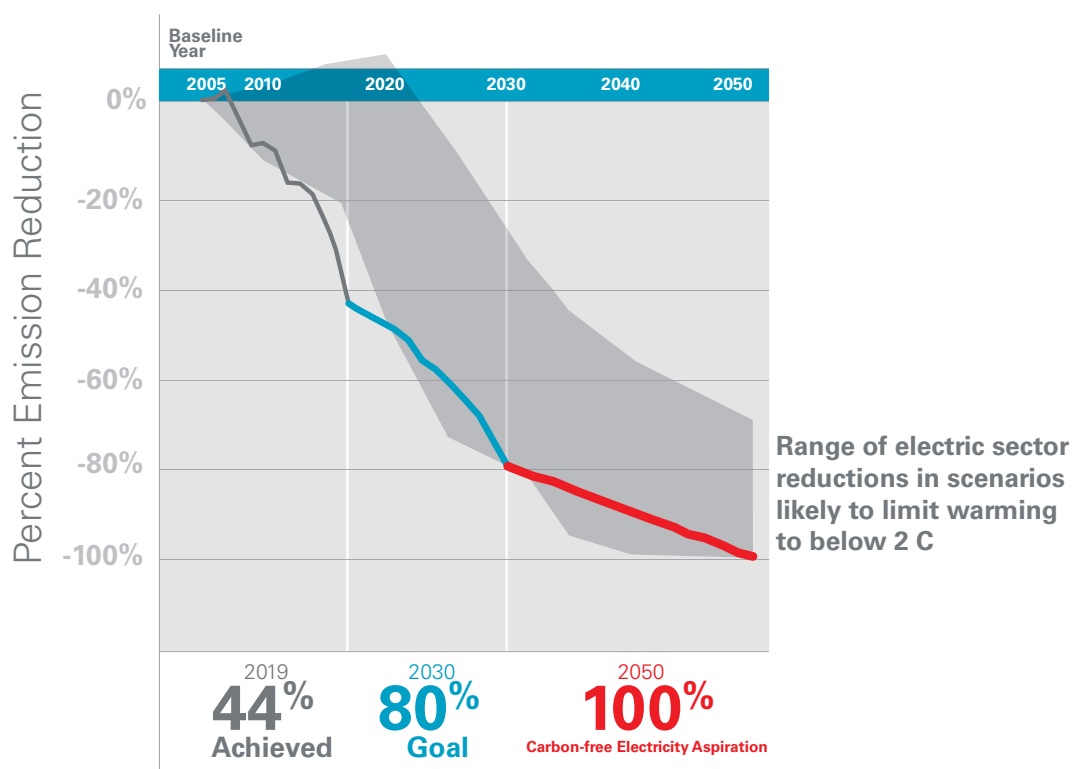
Technology advancement is key to the long-term success of our strategy, and it has a long lead time for development. Because we cannot do it alone, we are working with others who share our interests on the research, development and deployment of advanced technologies. Specifically, we are pursuing policy objectives to support increased research and development, as well as programs and incentives to foster commercial demonstration and early deployment of promising technologies. Once new technologies are developed, we need an infrastructure or ecosystem in place to streamline the permitting, installation and operations, helping to accelerate their adoption.

We provide additional detail on progress toward efforts to achieve our long-term carbon vision in the following sections of the Corporate Responsibility Report: [Renewable Energy](#), [Reliable and Secure Energy](#), [Public Policy](#) and [Energy Innovation](#).

Scientific Analysis

The most recent climate science informed our carbon vision, which is designed to minimize the long-term risks associated with climate change. After reviewing international and national climate reports released in 2018, we contracted with climate modeling experts, including a lead author for the International Panel on Climate Change, to understand how our vision relates to global temperature goals. They consulted the newest IPCC emission scenarios database and analyzed carbon emissions for the electric sector in industrialized countries, within global greenhouse gas scenarios that have a high (66% or greater) probability of achieving the 2 degrees Celsius goal and those more likely than not (50% or greater) to achieve the 1.5 degrees Celsius goal. The dark gray shaded area in the chart below represents the range of electric sector reductions in scenarios likely to limit warming to below 2 C.

Xcel Energy’s carbon goals align with scenarios likely to limit warming to 2 C.



Xcel Energy’s carbon emission reduction trajectory, including carbon reductions since 2005 and the 2030 and 2050 goals, was then compared with the emission scenarios. Based on this analysis, our reduction targets are clearly consistent with — even on the low end of — the electric sector reductions in scenarios that achieve the international 2 C goal. Even more encouraging, this analysis shows that our emission trajectory is also consistent with the more aggressive 1.5 C goal.

We know some investors and other stakeholders are interested in the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD), and our reporting largely aligns with these recommendations. To fully meet this disclosure, Xcel Energy published a [report](#) responding to the Task Force’s recommendations.

A COMPREHENSIVE PLAN FOR NATURAL GAS IN A LOW-CARBON FUTURE

Cleaner, low-cost natural gas is an essential component of our clean energy transition. As we invest in new, zero-carbon technologies, we need natural gas to balance our power grid, and customers need it for affordably heating homes and businesses and fueling industrial processes. Natural gas is an energy workhorse, and there are no cost-effective substitutes available today. We believe that because of the vital role natural gas plays in our economy and low-carbon future, more must be done to address its environmental impact.

There are two sources of greenhouse gases from natural gas. Methane — a potent greenhouse gas — can be released during the production and delivery of natural gas. When natural gas is burned in power plants or in appliances, such as furnaces and water heaters, carbon dioxide is emitted. We launched a comprehensive plan in 2019 that covers all segments of the natural gas supply chain to reduce both methane emitted during production and delivery and carbon emissions from combustion. We are committed to helping customers reduce their natural gas use while operating the cleanest natural gas delivery system possible, using natural gas selectively on our power grid, and encouraging gas suppliers to do their part too.

Integrating clean energy and reducing carbon emissions today

Thanks to low-cost natural gas we're reliably integrating high-levels of wind and solar energy on the power grid and retiring coal units. While renewable energy is replacing most of our retiring coal generation, we need natural gas to help balance the system today and to achieve our goal to reduce carbon emissions 80% by 2030. When it comes to meeting our 100% carbon-free aspiration by 2050, we will need to evaluate our natural gas investments. If technologies and strategies, such as storage, demand response or load shifting become more economical and reliable than natural gas, we will use them instead. We will also continue to evaluate technologies that can make natural gas generation carbon free, such as hydrogen blending and carbon capture, utilization and sequestration. If there comes a day when we decide we can operate reliably and save our customers money by retiring natural gas units, we will do it.

Helping customers to reduce carbon emissions from their natural gas use

The building sector — homes and businesses — is currently a much lower source of greenhouse gas emissions compared to other sectors of the economy. As the electric power sector reduces emissions, the building sector may become a larger share of economy-wide greenhouse gas emissions, particularly for cities, states and individual companies. Because every source of emissions counts, we can help customers reduce their emissions associated with natural gas use.

More than 80% of the homes in the colder states we serve — Colorado, Michigan, Minnesota, North Dakota and Wisconsin — rely on natural gas for heating. It is an efficient, safe, reliable and affordable way to fuel homes, providing significant value for customers and the environment. We estimate that our current electric system would need to be built out to twice or more its current size to deliver the same amount of energy that our natural gas system delivers on a peak winter day.

Xcel Energy customers have cut back natural gas consumption nearly 20% since 2000 through better building practices, efficient appliances and our conservation programs. The challenge going forward is that today there are few cost-effective alternatives to heating in cold climates. Even so, there is more we can do to help customers reduce carbon emissions associated with their natural gas use. We plan to expand voluntary programs that encourage customers to use natural gas more efficiently and are developing voluntary programs to promote new technologies, such smart electric water heaters that can operate with the power grid to take advantage of periods during the day when wind and solar energy produce more electricity. We are also developing an all-electric offering for new residential developments where it makes sense to avoid the expense of building out the natural gas system to serve the developments.

We view electrification as one solution, mainly in applications where it can verifiably reduce emissions, minimize customer costs and promote efficient use of the power grid. There is a consensus emerging in our states that electrification which meets these criteria is in the public interest and is considered "beneficial electrification". We are working to develop policy to help remove regulatory barriers and support this type of electrification without increasing costs for all customers.

In addition, we are exploring options for offering customers cost-effective renewable natural gas as well as participating in hydrogen pilots to help advance that technology. We worked with South Platte Water Renewal Partners in 2019 to interconnect renewable natural gas from its wastewater treatment plant. The project met the quality standards of our natural gas system while helping the plant take advantage of the lower carbon attributes. These types of supply options for our natural gas system enable large-scale reductions in carbon without having to motivate individual action in millions of homes.

Operating the cleanest natural gas delivery system possible

Our natural gas delivery system efficiently delivers gas to our customers. We are investing approximately \$1.4 billion in projects that secure our pipelines and reduce methane emissions while improving the integrity and reliability of our system overall. This includes replacing all the older cast iron and approximately 90% of the bare steel pipe on our system with improved plastic and protected steel pipe.

Xcel Energy joined EPA's voluntary Natural Gas STAR program in 2008 to reduce methane. We are also a founding member of the program's Methane Challenge, pledging to reduce by at least 50% the venting of pipelines during scheduled natural gas construction projects — a goal we far exceeded by reducing venting of methane up to 95% since 2018.

We joined ONE Future in early 2020 to partner with others in the industry to collectively limit methane emissions across the entire natural gas supply chain to 1% or less by 2025. To achieve its overall 1% target, ONE Future set individual targets for each segment of the supply chain. Xcel Energy has committed to the distribution segment target to limit methane intensity below 0.22%. As a member of this consortium, we will annually report a comprehensive methane emissions rate to ONE Future, which provides public methane reporting that is more inclusive and goes beyond what most regulations currently require. This will start in 2021 when we first report 2020 methane emissions from the distribution system and will expand in 2022 when we report 2021 methane emissions from all three segments of our business, including processing, transmission and storage, and distribution.

To date, we have voluntarily reduced methane emissions across our natural gas business. Starting in 2021, we will follow new, stringent requirements in Colorado adopted through the state's Regulation 7, which seeks to regulate emissions from oil and gas operations that are a precursor to ozone. Starting in 2021, we will submit emissions information from our transmission and storage operations to be combined with the emissions from other transmission and storage operations in the state. This emissions inventory will be used to establish a benchmark for comparing future emissions and encouraging best management practices to reduce emissions.

Encouraging natural gas suppliers to do their part

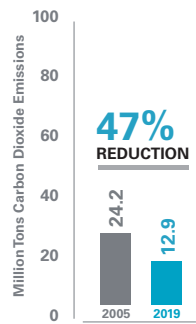
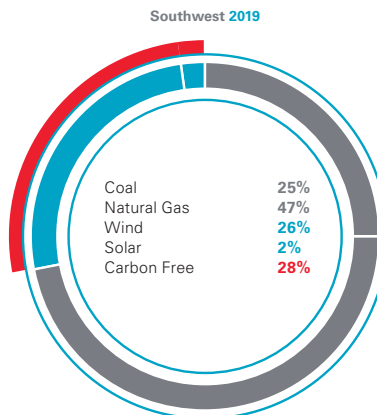
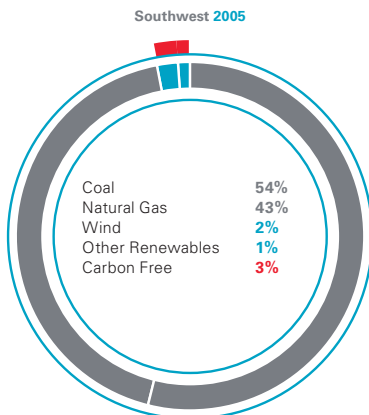
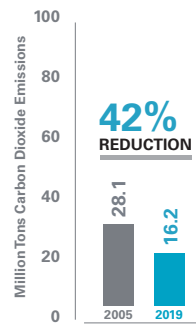
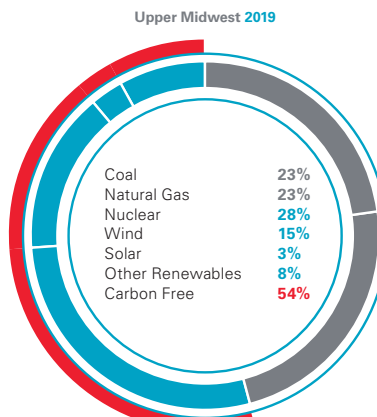
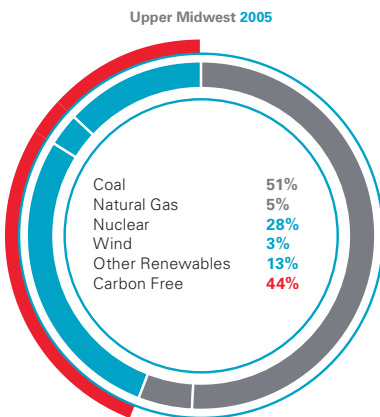
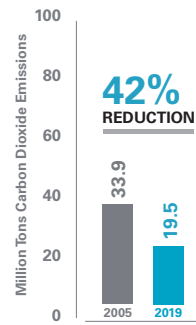
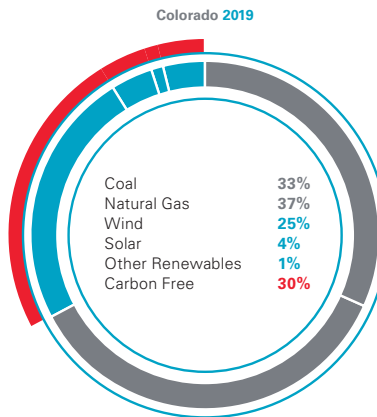
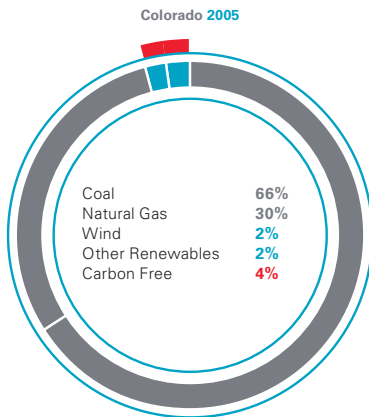
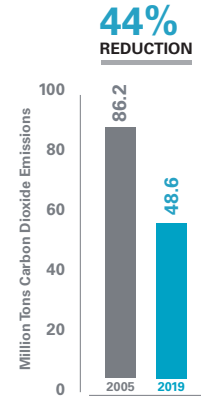
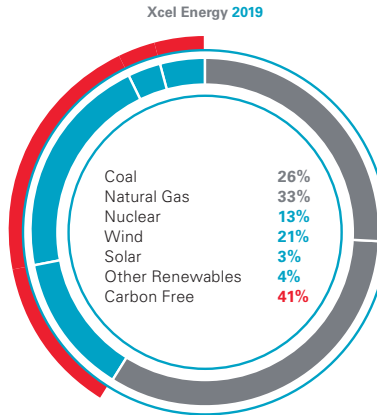
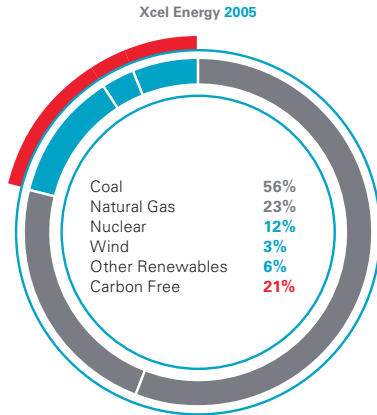
Finally, through our supply chain, we can encourage transparency and action from natural gas producers and suppliers. We were a cofounder of MJ Bradley's Natural Gas Supply Collaborative and EEI's Natural Gas Sustainability Initiative. Both initiatives focus on creating consistent, sustainable disclosures among natural gas suppliers, which is an important step toward addressing emissions in the production and transportation of natural gas.

To increase transparency around the methane intensity of natural gas that we purchase, in 2020, we will begin requesting voluntary disclosure of methane emissions and management best practices. We will ask our suppliers for both their methane intensity based on the Natural Gas Sustainability Initiative protocol and for information on their use of management best practices that minimize or prevent high emission events. The combination of reported methane intensity and implemented best practices will allow us to identify which suppliers are producing natural gas with low methane emissions. Examples of best practices include frequent leak detection and repair (LDAR), controlled venting of emissions, and replacing high-bleed equipment with low- or no-bleed alternatives. Collecting this information will help us to evaluate our purchasing practices in the future and reduce the methane intensity of the natural gas we provide.

We report methane emissions from our natural gas distribution system in the Performance Summary and provide more information about our natural gas business in the [Reliable and Secure Energy](#) section of the Corporate Responsibility Report.

2019 Electricity and Carbon Emissions Reporting

Our changing energy mix and carbon emission reductions since 2005



Background on Xcel Energy's Greenhouse Gas Reporting

Xcel Energy supports timely, transparent public reporting of carbon dioxide and other greenhouse gas emissions. Our comprehensive reporting covers all aspects of our business and is based on The Climate Registry and its Electric Power Sector Protocol, which aligns with the World Resources Institute and ISO 14000 series standards.

We joined The Climate Registry as a founding member in 2007 to help establish a consistent and transparent standard for calculating, verifying and reporting greenhouse gases. We annually third-party verify, register and publicly disclose our greenhouse gas emissions through The Climate Registry. In 2019, the organization recognized our reporting with its top, Allstar, status for excellence. For 14 consecutive years, our carbon reporting has been third-party verified in accordance with The Climate Registry — we are the only electric utility with this length of consecutive verified data.

We report carbon emissions from electric generating plants that we own and from electricity that we purchase from others to serve customers, including both our retail and wholesale requirements customers. During times when we have more electricity than we need to serve these customers, we sell electricity into wholesale markets where it is purchased by others to serve their customers. The carbon emissions from these sales of excess electricity are excluded from our goal and associated carbon reporting because the energy does not serve our customers, and the purchasers — if they follow accepted greenhouse gas reporting protocols — will include those emissions in their reporting, so excluding them from our reporting avoids double counting.

2019 emission levels provided in this report are preliminary. Once we complete third-party verification by the end of 2020, there may be minor changes in the final reported emissions for 2019.

Our energy mix reporting is for all electric generation on Xcel Energy's system. It includes by fuel type all electricity produced at Xcel Energy power plants, purchased from others and supplied for customers participating in renewable choice programs (Windsource®, Renewable*Connect®, Solar*Rewards® and Solar*Rewards Community®).

Generally, Xcel Energy receives a Renewable Energy Credit (REC) for every megawatt hour of renewable electricity generated. RECs are retired to meet renewable portfolio standards and the Certified Renewable Percentage, saved for future compliance, or sold depending on market opportunities.

We provide more detailed carbon reporting in the [Performance Summary](#), as well as information about renewable energy on our system and REC sales in the [Renewable Energy section](#) of the Corporate Responsibility Report. Customers can find carbon emissions intensities for use in their own reporting or goal tracking in Xcel Energy's [Carbon Emission Intensities Information Sheet](#).