Leading the Clean Energy Transition

We were the first U.S. energy provider to set aggressive goals for addressing all the ways our customers use energy — electricity, heating and transportation.

Now, more than ever, there is growing urgency to address the risk of climate change. We hear this from our customers, as well as from policymakers, investors and the communities we serve. It is a priority we share, and one we're tackling through a leading clean energy strategy that positions Xcel Energy to be a net-zero energy provider by 2050.

The greatest environmental contribution we can make is to serve customers with cleaner electricity. By 2030, we aim to reduce carbon emissions 80% from the electricity provided to customers, as we work toward delivering electricity that is 100% carbon free—with zero carbon dioxide emissions—by 2050, from both the power we produce and purchase from others.

Just as we're committed to providing clean electricity, we aim to deliver natural gas service with net-zero emissions by 2050. In the interim, our goal is to reduce greenhouse gas emissions 25% from the supply, delivery and customer use of natural gas, including achieving net-zero methane emissions from our distribution system, by 2030.

Beyond our operations, clean electricity can power a cleaner economy, and it starts with transportation—the country's largest source of carbon emissions. Our vision is to power zero-carbon transportation in our service area by 2050, with an interim goal of enabling one out of five vehicles to be electric by 2030. By increasing EV adoption, we will improve air quality, grow our business and save customers billions in fuel costs.

We are implementing our strategy at a pace that transitions to clean energy sources as quickly as possible while maintaining service reliability and keeping customer energy bills affordable. To ground our goals in climate science, we engaged with climate modeling experts who validated that our projected emissions reductions align with science-based scenarios likely to meet the targets of the Paris agreement for limiting global warming to 1.5 degrees Celsius from preindustrial levels.

Governance
Under Xcel Energy's Board of Directors, each board committee plays a role in managing risks associated with climate change, with the Operations, Nuclear, Environmental and Safety (ONES) Committee assigned specific responsibility for overseeing climate-related risks and the company's environmental strategy and performance, including carbon reduction initiatives. Within the company, the chief sustainability officer reports to the CEO and is responsible for sustainability and ESG-related policy, strategy, governance and reporting, including the management of climate-related risks, and regular sustainability discussions with the board.

Highlights

- From 2005 through 2021, we reduced carbon emissions 50% and remain on track to achieve our interim goal of reducing carbon emissions 80% by 2030 from 2005 levels. Our carbon reductions held steady despite a rise in energy demand due to economic recovery from the pandemic and a spike in natural gas prices that favored coal-fueled generation on our system and across the globe.

- We were among the first in our industry in 2005 to tie carbon reduction to executive compensation and continue doing so today, with our board of directors providing oversight of environmental performance since 2000.

- In November 2021, we announced our net-zero vision for the natural gas business. A unique aspect of the goal is that it addresses greenhouse gas emissions from the supply, delivery and customer use of natural gas —both carbon dioxide and methane emissions— which is important to our stakeholders.

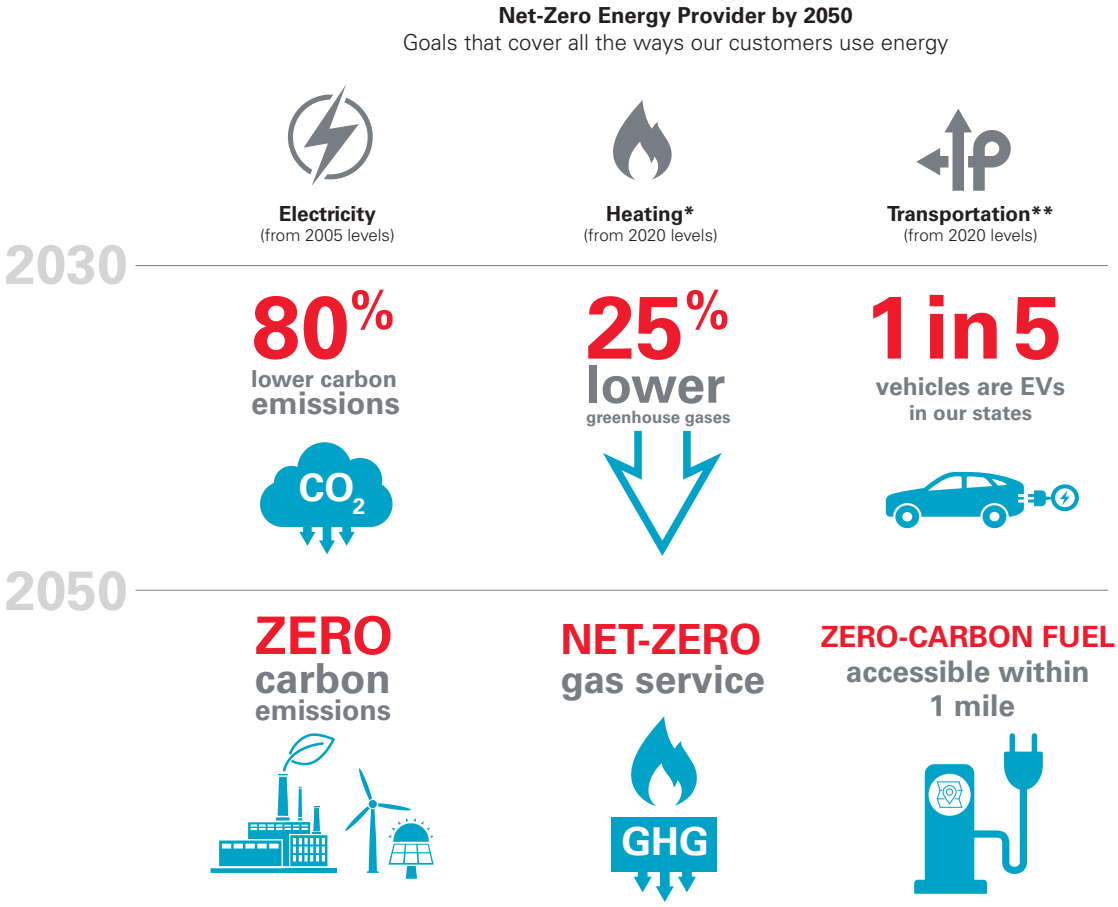
- Under our clean energy goals for electricity, heating and transportation, we expect to cut carbon dioxide output by more than 80 million tons from 2005 to 2030—equivalent to the carbon removed by 1.2 billion trees.

- Our landmark clean energy plans for Colorado and the Upper Midwest establish a firm pathway for reducing carbon emissions by at least 85% and put us on track to fully exit from coal in the the regions no later than Jan. 1, 2031.

- Xcel Energy is a founding member of The Climate Registry, and our annual greenhouse gas reporting is third-party verified going back to 2005, making us the only power company with this length of consecutively verified data. Our reporting follows The Climate Registry's Electric Power Sector Protocol, which aligns with the World Resources Institute and ISO 14000 series standards.

Clean Energy on the Horizon

Xcel Energy is reducing greenhouse gas emissions and transitioning to clean energy sources today. We are set to achieve aggressive interim goals by 2030, on our way to becoming a net-zero energy provider in the future. As we invest in clean energy, we are equally committed to maintaining reliability and keeping energy bills affordable for customers.



*Spans natural gas supply, delivery and customer use

**Includes the Xcel Energy fleet; zero-carbon fuel is electricity or other clean energy

Carbon-Free Electricity

Carbon dioxide from producing electricity makes up the majority of greenhouse gas emissions from our operations company-wide. That is why delivering electricity with zero carbon emissions by 2050 is the cornerstone of our clean energy vision.

We've backed up our ambitious goals with landmark clean energy plans for Colorado and the Upper Midwest that were developed by engaging with stakeholders and our state public utilities commissions. The plans demonstrate that with today's wind, solar and battery technologies we can reduce carbon dioxide emissions at least 85% by 2030—and do so reliably and affordably for customers. Collectively, our plans call for adding nearly 10,000 megawatts of wind and solar capacity and retiring all remaining coal-fueled generation in the regions no later than Jan. 1, 2031.

- **Colorado Clean Energy Plan**: Our plan for Colorado is expected to reduce carbon dioxide emissions by at least 85% from 2005 levels and deliver electricity from more than 80% renewable energy sources by 2030. We reached an agreement on the plan with a wide range of stakeholders representing customers, communities, state agencies, labor and generation providers in April 2022.

  Under the plan, we will add:
  - 2,400 megawatts of wind and 1,600 megawatts of large-scale solar capacity
  - 1,200 megawatts of distributed solar capacity
  - 1,300 megawatts of dispatchable resources (available 24/7) and 400 megawatts battery storage

  The plan also calls for phasing down all remaining Colorado coal-fueled generation, including:
  - Comanche Station Unit 3 will retire no later than Jan. 1, 2031, with the unit beginning to reduce operations in 2025
  - Pawnee Station will convert from coal to natural gas generation by 2026
  - Craig Station Unit 2 will retire by 2028
  - Hayden Station will retire by 2028

  We have also committed to working with communities, employees and union leaders to manage the retirement of coal-fueled plants.

- **Upper Midwest Energy Plan**: In February 2022, the Minnesota Public Utilities Commission approved our plan that is expected to reduce carbon dioxide emissions more than 85% from 2005 levels and deliver electricity from at least 80% carbon-free energy sources by 2030.

  Under the plan, we will:
  - Add 2,150 megawatts of wind and 2,500 megawatts of solar by 2032, with another 1,100 megawatts of wind and solar capacity beyond 2032
  - Retire all remaining Upper Midwest coal plants by 2030
  - Ensure reliable, affordable energy by extending the generation of carbon-free nuclear energy at our Monticello Plant an additional 10 years to 2040
  - Build on our successful energy efficiency programs to help customers save energy and money and work with customers on new demand response options to manage energy load
  - Develop new transmission infrastructure to connect more clean energy to the power grid, reusing important connections near retiring coal plants, which will help maintain reliability

  The commission approved moving forward with some elements of the new transmission infrastructure, with additional filings and approvals needed as work progresses. Approximately 3,800 megawatts of additional capacity for backing up wind and solar resources and maintaining reliability by 2030 will require further commission approval. This includes 800 megawatts of hydrogen-ready combustion turbines and 300 megawatts of repowered combustion turbines that need to go through a certificate of need process for final approval.

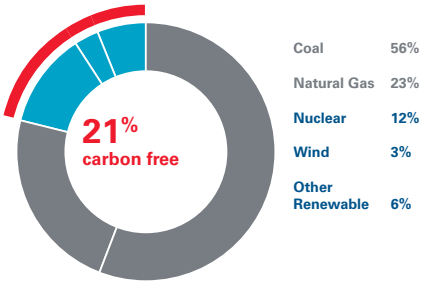
- **Plans for Texas and New Mexico**: By 2030, we anticipate reducing carbon dioxide emissions more than 70% and providing electricity from at least 70% renewable energy resources. We plan to add about 1,900 megawatts of wind and solar energy and will switch Harrington Station from coal to natural gas in 2024 and retire Tolk Station by 2034. We already operate Tolk seasonally or as economically appropriate.

In 2019, we published the report **Building a Carbon-free Future** that details our goals and clean energy strategy for electricity. The report is available on xcelenergy.com/carbon.

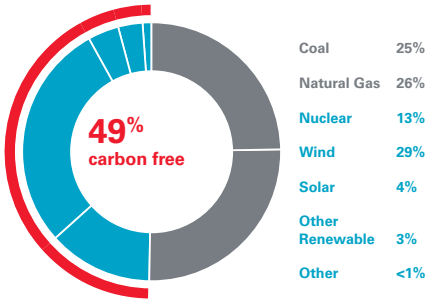
2021 Progress Toward Carbon-Free Electricity Vision

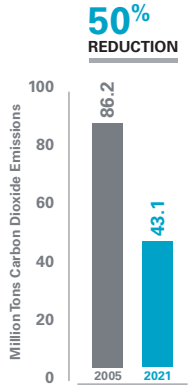
Xcel Energy's clean energy vision for electricity includes reducing carbon dioxide emissions from the electricity that serves our customers, including owned and purchased power. The charts below show our 2021 energy mix and carbon dioxide emissions (short tons) compared to the 2005 baseline.*

2005 Energy Mix – Xcel Energy

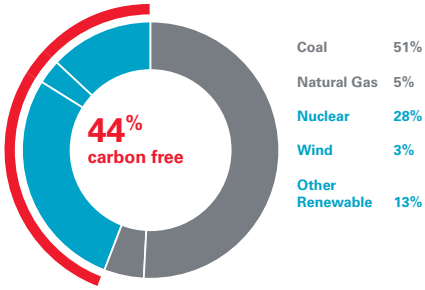


2021 Energy Mix – Xcel Energy

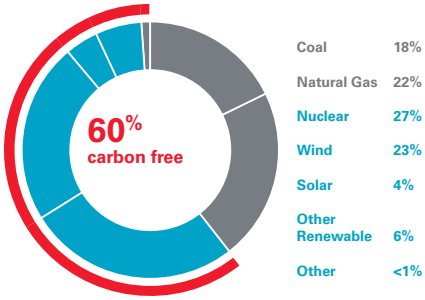


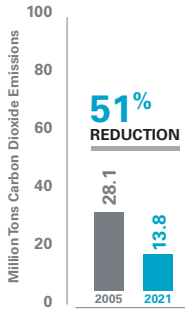


2005 Energy Mix – Upper Midwest

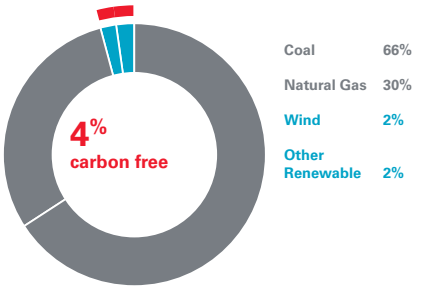


2021 Energy Mix – Upper Midwest

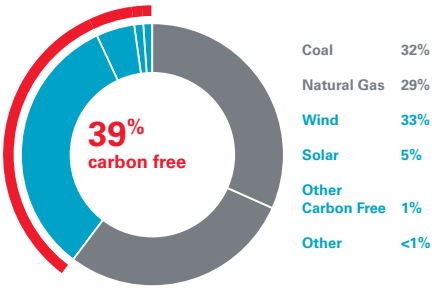


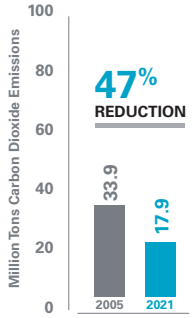


2005 Energy Mix – Colorado

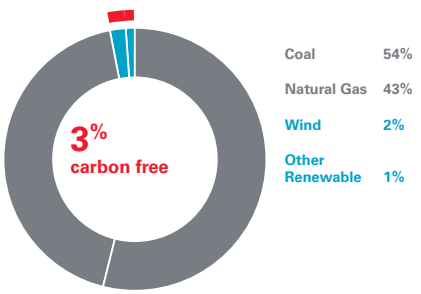


2021 Energy Mix – Colorado

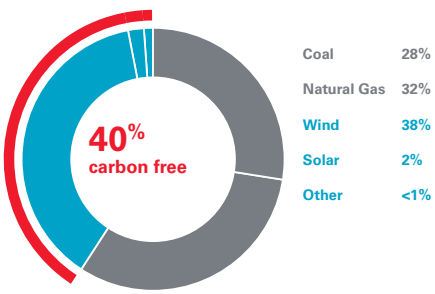


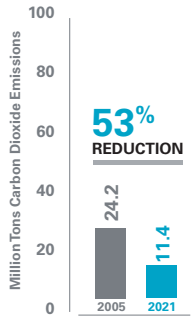


2005 Energy Mix – Southwest



2021 Energy Mix – Southwest





*Carbon dioxide emissions are from electricity delivered to customers in 2021 and are considered preliminary until third-party verified; third-party verification is expected to be completed by first quarter 2023. Energy mix includes all electricity on our systems for the year by fuel type, including 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®).

Net-Zero Natural Gas Service

After more than a year of study, Xcel Energy in 2021 announced its vision for delivering net-zero natural gas in 2050. The vision includes an important interim goal of reducing greenhouse gas emissions from natural gas service by 25% from 2020 levels, including net-zero methane emissions from our own infrastructure, by 2030.

Our vision is comprehensive and includes taking the following actions for reducing emissions across the supply, delivery and customer use of natural gas—from drill head to burner tip.

- **Certified low-emissions natural gas supply**: We depend on suppliers for the natural gas we deliver to customers, and while we have no direct control over our suppliers' activities, we can use our purchasing power to move them toward improved transparency and lower methane emissions. We plan to purchase only certified low-emissions natural gas from suppliers by 2030. In 2021, we began taking steps toward that goal by asking suppliers to provide information on their methane intensities as well as their use of best practices for reducing emissions. We also are helping build the market for certified low-emission natural gas through initiatives, such as a pilot project with Civitas Resources (formerly Crestone Peak Resources) and Project Canary in Colorado. From spring 2021 through winter 2022, we purchased enough certified natural gas to heat about 20,000 homes per day from Civitas Resources, while Project Canary continuously monitored and certified the emissions.

- **Net-zero methane emissions from natural gas distribution**: The clean energy transition for natural gas starts with our own system where we have already made significant progress reducing methane emissions. We plan to enhance our emissions detection, accelerate repair work, improve reporting and continue making operational improvements. Our current progress includes:

  — We joined EPA's Natural Gas STAR program in 2008 to voluntarily reduce methane emissions. We continue to maintain a methane emissions rate below 0.22% for our system, which is considered low for the industry. In 2016, we became a founding member of EPA's Methane Challenge and pledged to reduce the venting of pipelines by at least half during scheduled natural gas construction projects. We surpassed that pledge over the past three years and reduced the venting of methane an average of 83%.
  — Over the next five years, we plan to invest more than $1.1 billion in projects that tighten and improve our system, helping maintain safety and reducing methane emissions. To date, we have replaced all the cast iron and nearly all the bare steel pipe on our system with improved plastic and protected steel pipe.
  — We engage in industry collaborations that promote transparent reporting and best practices for reducing emissions from natural gas. Xcel Energy is a member of Our Nation's Energy (ONE) Future, an industry partnership with the goal of collectively limiting methane emissions to 1% or less by 2025 across the entire natural gas supply chain. We also participate in the Natural Gas Sustainability Initiative (NGSI), an industry effort sponsored by the Edison Electric Institute and American Gas Association, focused on creating consistent, transparent disclosures among natural gas providers

- **Offering customers new cost-effective options for cutting carbon emissions**: About 85% of Xcel Energy customers depend on natural gas for heating their homes and businesses. It is a reliable, affordable fuel, especially in the colder climates that we serve. While our natural gas system continues to grow and deliver more natural gas to new customers, individual customers have reduced their natural gas consumption nearly 20% since 2000 through more efficient appliances, better building practices and our extensive portfolio of conservation programs.

  We plan to offer new voluntary programs to further help customers reduce carbon emissions from their natural gas use, including expanded conservation programs. We are starting to pilot multiple options, including smart electric water heaters, all-electric new building developments, and electric air source heat pumps for cooling and heating combined with natural gas furnaces for backup heating. We also plan to launch a renewable natural gas pilot, similar to the voluntary wind and solar programs we offer customers and are exploring testing both hydrogen production and hydrogen blending in our natural gas distribution system.

We published a report, **Net-Zero Vision for Natural Gas**, that details our clean energy strategy for our natural gas business. The report is available on xcelenergy.com/carbon. Find more information about our customer energy efficiency programs in the **Energy Efficiency and Electric Vehicles brief** and our natural gas operations in the **Reliable and Secure Energy brief**, both in Xcel Energy's Sustainability Report.

In early 2022, we worked with a leading independent national analysis firm, Energy+Environmental Economics (E3), to evaluate scenarios for achieving our interim goal to reduce greenhouse gas emissions 25% from our natural gas service. The analysis confirmed our strategy is the right approach, including:

- We need a portfolio of solutions to effectively reduce emissions—there is no single solution
- Customers and natural gas suppliers must be part of the solution
- The natural gas system plays an essential role in reducing greenhouse gas emissions, especially in colder climates

The **E3 report** on greenhouse gas reduction scenarios for Xcel Energy's natural gas business is available on xcelenergy.com/carbon.

2021 Net-Zero Natural Gas Progress

We are developing the metrics to report our progress reducing greenhouse gas emissions from the natural gas business compared to a 2020 baseline. We expect greenhouse gas emissions from our natural gas business may increase due to system growth over the next several years, while we launch the initiatives for lowering emissions.

The methane emissions intensity from Xcel Energy's natural gas distribution system in 2020 was 0.202%. This intensity is calculated following the Natural Gas Sustainability Initiative protocol and serves as the baseline for reporting methane emissions under our goal. Using the same methodology, total system carbon dioxide equivalent was 265,150 metric tons.

More detailed methane reporting information is provided in the **Data Summary** in Xcel Energy's Sustainability Report.

Transportation Electrification

We are using our clean energy leadership to support transportation electrification. With electric vehicles (EVs) primed for widespread adoption, our lower-carbon electricity can reduce emissions from the transportation sector, while driving electricity sales growth and helping keep bills low for customers.

We have an ambitious vision to enable zero-carbon transportation in our service area by 2050, providing the infrastructure and energy to run all vehicles on carbon-free electricity or other clean energy like carbon-free hydrogen for future fuel cell electric vehicles. By 2030, our interim goal is to enable one out of five vehicles in our service area to be electric.

We are also leading the way in our own vehicle fleet. We plan to electrify all sedans in our fleet by 2023 and all light-duty vehicles and 30% of medium- and heavy-duty vehicles by 2030. By the end of 2021, our company fleet included 130 electric sedans—a more than 40% increase compared to 2020 as we replace all existing vehicles. By 2050, our goal is to operate a zero-carbon fleet.

Our plans for connecting customers to EVs include:

- Optimizing the use of the power grid by offering special rates and program options that encourage vehicle charging during off-peak and low-cost time periods
- Encouraging vehicle adoption with programs and services that provide an excellent customer experience and make it more affordable and convenient and easier to charge electric vehicles
- Serving as a trusted energy advisor and connecting customers with information and resources through our industry and other partnerships

An electric vehicle powered with Xcel Energy electricity in 2021 was more than 55% cleaner than a conventional gasoline-powered vehicle and is expected to be at least 80% cleaner by 2030 under our clean energy plans for electricity. Besides the environmental benefits, EVs can save customers money because they are less expensive to drive, costing the equivalent of about $1 per gallon of gasoline to fuel and requiring no oil changes and limited maintenance.

Xcel Energy launched a record 14 clean transportation programs in Colorado and Minnesota in 2021, and in early 2022, rolled out a suite of new EV programs for residential and commercial customers in New Mexico. We currently offer EV programs for customers in Wisconsin and continue to explore additional opportunities across all our states.

Equity is a key component of our electric transportation vision. Our goal is to develop holistic programs and infrastructure for delivering affordable EV charging solutions for all customers at home, work and on the go. By 2050, our vision is for all customers to access affordable charging at or within one mile of their homes, and underserved communities will have opportunities to participate in Xcel Energy programs and the economic development benefits associated with zero-carbon transportation.

We published the report **Drive Toward a Carbon-free Future: Electric Transportation Vision**, that details our transportation electrification strategy. The report is available on xcelenergy.com/carbon. More information about our customer programs is available in the **Energy Efficiency and Electric Vehicles brief** in Xcel Energy's Sustainability Report.

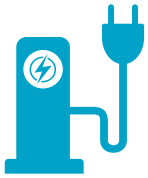
2021 Transportation Electrification Progress
Under our goal to enable one out of five vehicles in our service area to be electric by 2030, we expect our EV driving customers to collectively save $1 billion annually, while all customers benefit from eliminating 5 million tons of carbon emissions annually by the same year.

Our goal that
1 in 5
vehicles are EVs in our states

Results through 2021

65,000 EVs

~1,200 Charging Ports Installed Through Xcel Energy Customer EV Programs



Technology for a Net-Zero Energy Future

Xcel Energy and the industry at large are achieving significant emissions reductions with the renewable and storage technologies available today, but those technologies can only go so far. Achieving our net-zero emissions commitments by 2050, and doing so reliably and affordably for customers, requires new clean energy technologies that are not yet available at the cost and scale which are needed.

Zero-Carbon Dispatchable Power Technologies

As we look beyond 2030 toward eliminating the remaining carbon emissions from the power grid, we need carbon-free technologies that are dispatchable—available anytime or 24/7—to maintain system reliability while operating high-levels of variable wind and solar energy resources.

New carbon-free dispatchable technologies on the horizon include:

- Advanced wind and solar energy systems
- Long-duration storage and advanced demand efficiency
- Advanced geothermal
- Zero-carbon fuels, such as hydrogen and ammonia
- Advanced nuclear energy, both fission and fusion
- Carbon capture, utilization and storage

Because we can't develop these resources on our own, we're working with others who share our interests on the research, development and deployment of advanced technologies. We joined the Low-Carbon Resources Initiative led by the Electric Power Research Institute and GTI, a leading research and development organization that is addressing energy and environmental challenges. This is a five-year focused research and development commitment to create the pathways to advance low-carbon technologies for large-scale deployment.

In early 2021, we helped launch the Carbon-Free Technology Initiative that focuses on implementation of federal policies to help ensure the commercial availability of affordable, carbon-free, 24/7 power technology options by the early 2030s. The Edison Electric Institute leads the initiative, along with its member companies and other environmental and technology participants.

Technologies for Net-Zero Natural Gas Service

Our net-zero vision for the natural gas business will drive technology innovation. Through pilot programs, we can help build the market for and improve new advanced building technologies such as smart electric water heaters and heat pumps, as well as low-carbon gas alternatives, including hydrogen and renewable natural gas.

We are pursuing demonstration projects, such as our hydrogen production pilot with Idaho National Laboratory at the Prairie Island Nuclear Plant, and participate in several research studies, including:

- Xcel Energy provides customers in Colorado incentives to participate in a study with the National Renewable Energy Laboratory on the real-world effectiveness of cold climate heat pumps at high altitude. Participating customers agree to long-term monitoring of their installed heat pumps, so researchers can analyze and compare the performance to similar equipment in a laboratory environment. The goal is to develop heat pump information for trade partners and customers to use for making buying decisions.

- The two-year HyBlend Project with the National Renewable Energy Laboratory is a collaborative project with industry sponsors, including Xcel Energy. Launched in 2021, it seeks to address technical barriers associated with blending hydrogen in natural gas infrastructure.

- We are participating in the Department of Energy's Residential Cold Climate Heat Pump Technology Challenge. Through the challenge, DOE aims to develop new technology specification for a high-performance cold climate heat pump that meets consumer needs, demonstrate equipment performance in the lab and pilot sites, and launch pilot programs with partners, such as Xcel Energy, to identify and alleviate installation challenges and accelerate adoption.

Our focus on innovation and advancing technology also includes direct air capture, where carbon emissions are removed from the environment. Out to 2050 and beyond, we expect to still have some natural gas on the system and anticipate using direct air capture to remove remaining carbon emissions associated with our service.

Find more information about our company's technology projects in the **Energy Innovation brief** and our policy initiatives in the **Public Policy brief**, both in Xcel Energy's Sustainability Report.

Grounding Our Goals in Climate Science

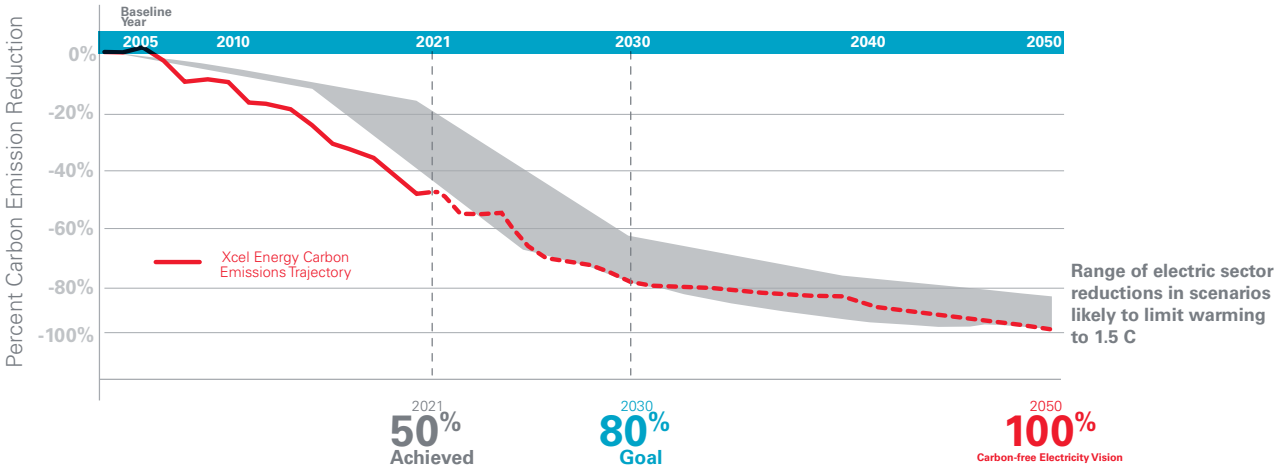
We continue to use climate science to inform our clean energy strategy.

Evaluating Our Carbon Vision for Electricity

We first contracted with climate modeling experts, including a lead author for the International Panel on Climate Change (IPCC), to understand how our vision for delivering 100% carbon-free electricity by 2050 and interim goal of reducing carbon emissions 80% by 2030 relate to global temperature goals.

These experts 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.

Xcel Energy's carbon emissions trajectory for the electricity provided to customers aligns with science-based scenarios likely to limit global warming to 1.5 degrees Celsius.

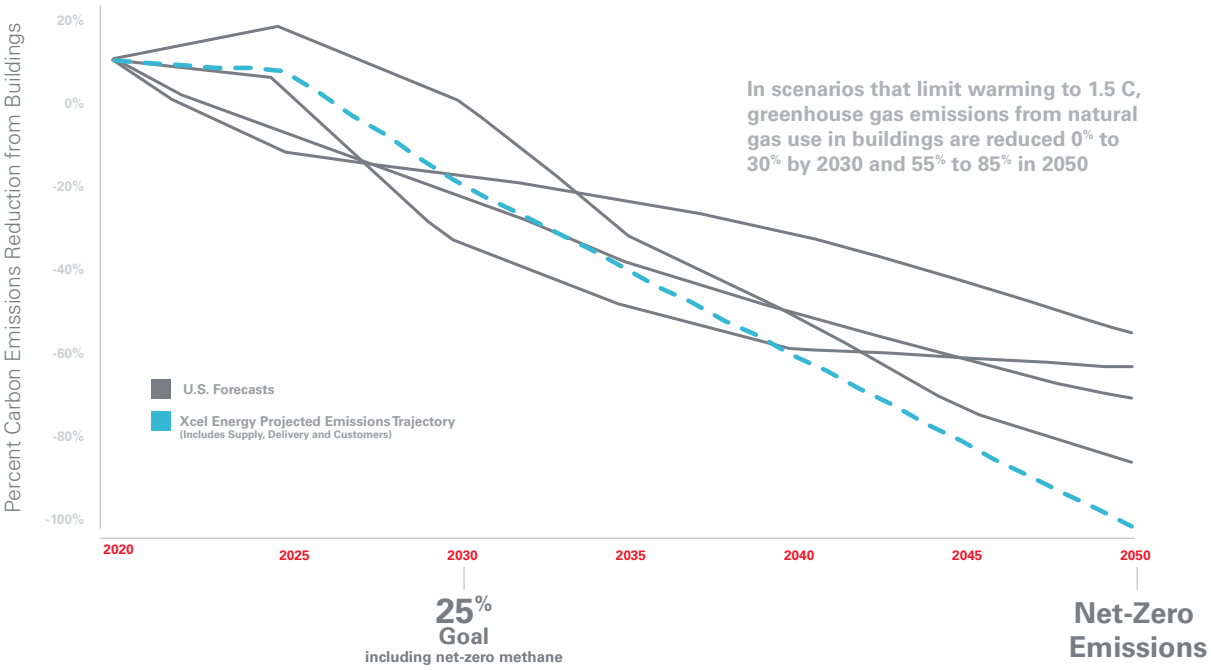


The dark gray shaded area in the chart above represents the range of electric sector reductions in scenarios likely to limit warming to 1.5 C from preindustrial levels. Xcel Energy's carbon emissions reduction trajectory to 2050 was then compared with the emission scenarios. Based on this analysis, our reduction targets are clearly consistent with—even on the low end of—the electric sector reductions in scenarios that achieve the international 1.5 C goal.

Analyzing the Future Use of Natural Gas in Buildings with the Climate Science

We engaged with the same climate modeling expert who conducted our electric system study to test the future use of natural gas in buildings against scenarios likely to achieve the 2 degrees Celsius and 1.5 degrees Celsius temperature goals of the Paris agreement.

Xcel Energy's net-zero vision for natural gas aligns with scenarios likely to limit global warming to 1.5 degrees Celsius.



Study results show a range of possible outcomes that all achieve the same climate goals for natural gas in a low-carbon future, driven by the cost and availability of technology especially in colder climates that rely the most on natural gas for heating. Our strategy is consistent with and can help drive these outcomes. Over the next decade, our voluntary strategy for achieving net-zero natural gas service can achieve the same range of emission reductions as the scenarios in the study do.

The reports that include the full analysis for both climate science studies are available on **xcelenergy.com/carbon**.

Xcel Energy's Greenhouse Gas Reporting

For well over a decade, we have supported the timely, transparent public reporting of carbon dioxide and other greenhouse gas emissions. We joined The Climate Registry as a founding member in 2007 to help establish a consistent, transparent standard for calculating, verifying and reporting greenhouse gases. Our reporting 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 are currently working to expand our greenhouse gas reporting to accurately track progress in meeting our net-zero vision for natural gas, which includes both methane and carbon dioxide from the supply, delivery and customer use of natural gas.

Carbon Dioxide from the Electricity Serving Customers

For 15 years (2005 through 2019), we have third-party verified, registered and publicly disclosed our carbon dioxide emissions through The Climate Registry and are the only power company with this length of consecutive, verified reporting. Xcel Energy has consistently measured its emissions reduction progress compared to a 2005 baseline, which is the first year we began measuring and tracking our greenhouse gas emissions. National and international standards commonly use a 2005 baseline as well.

We report progress toward our carbon reduction goals (80% by 2030 and 100% by 2050) based on carbon dioxide emissions associated with the electricity serving customers. During times when we have more electricity than we need to serve our residential, business, industrial and wholesale customers, we sell electricity into wholesale markets where it is purchased by others to serve their customers. The carbon emissions from sales of excess electricity are excluded from our goal and associated carbon reporting because the energy does not serve our customers. If the purchasers of the energy follow accepted greenhouse gas reporting protocols, they will include emissions from the energy in their reporting.

Information on RECs and REC sales is provided in the **Renewable Energy** brief and more detailed greenhouse gas emissions reporting is in the **Data Summary** in Xcel Energy's Sustainability Report. We also report emissions in our **report that follows the Edison Electric Institute and American Gas Association's Environmental, Social and Governance Template**. Customers can find carbon emissions intensities for use in their own reporting or goal tracking in our **Carbon Emission Intensities Information Sheet**.