

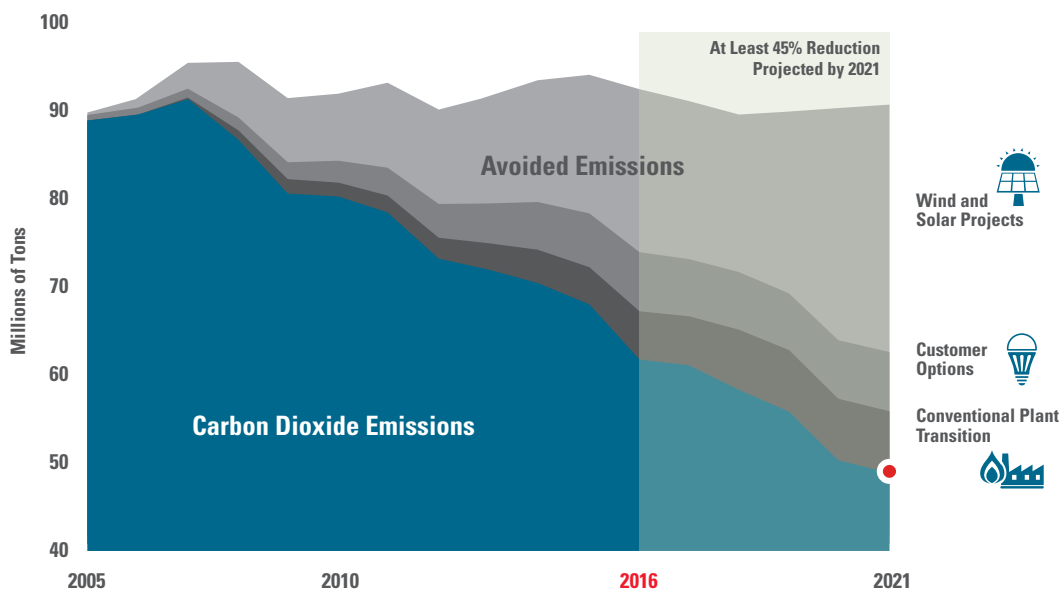
# The Right Mix: Investing for a Clean Energy Future

For more than a decade, we have managed the risk of climate change through a clean energy strategy that consistently reduces carbon emissions and transitions our operations for the future. This strategy is transforming how we produce, deliver and encourage the efficient use of energy—all at low cost to customers. In the next five years, we will invest about \$5 billion in clean energy projects, including renewable energy and the advanced grid. Further, our other planned investments in generation, transmission and distribution also support our clean energy transition. Many of our plans, such as our proposals for wind ownership, grow the business while saving customers money.

## Our clean strategy focuses on three key areas:

- Increasing the use of wind and solar power
- Transitioning our conventional plant fleet
- Providing customers renewable and energy-saving options

Figure 1: Xcel Energy Clean Energy Strategy Projected Emissions Reductions



## Investing in Wind and Solar Power

Xcel Energy’s significant investments in wind and solar energy can grow our business and reduce emissions, while offering customers additional clean energy without significantly impacting their bills. Our “steel for fuel” strategy seeks to capitalize on declining wind and solar costs and available tax credits to increase renewable ownership, decrease and hedge fuel expenditures, diversify our generation portfolio and reduce carbon regulatory risk. We expect that our current renewable investments and proposals will avoid billions of dollars in fuel expenditures and save customer costs over the life of the projects.

- We plan to make significant capital investments to add new wind capacity over the next five years, plus enter into new power purchase agreements for additional renewables. If these planned investments are approved, our owned wind generation will grow nearly fourfold to 3,600 megawatts by 2021, with our total wind portfolio increasing from more than 6,600 megawatts today to 10,400 megawatts in 2021.
  - Upper Midwest: if our plans are approved, we will add 1,550 megawatts of wind power and own 1,150 megawatts of the capacity. The proposal is expected to save customers more than \$4 billion over the next 30 years and is part of our approved Upper Midwest resource plan that will result in a 63 percent carbon-free energy mix in the region by 2030.

- Colorado: we have approval to build, own and operate the 600-megawatt Rush Creek Wind Project. Our investment in Rush Creek is expected to save customers more than \$1.1 billion over the next 30 years.
- Southwest: we have announced plans to add 1,230 megawatts of additional wind power, and own about 1,000 megawatts. The projects are expected to save customers about \$2.8 billion over the next 30 years.
- Xcel Energy is the No. 1 utility wind provider in the United States for the past 12 years. After the acquisition of three wind farms totaling 600 megawatts in the last two years, we now own more than 13 percent of our wind portfolio.

### **Investing in the Transition of our Conventional Generating Fleet**

Our fleet of coal-fueled generating plants was developed over decades as a reliable resource to meet customer demand for affordable power, and some coal will remain as part of our system for years to come. However, as prices for natural gas and renewable energy have fallen and emissions requirements have grown more stringent, we are using the opportunity to diversify our energy supply and transition our generating fleet for the future. This includes retiring older, less efficient coal units and replacing them with natural gas and renewables. In making these decisions, we balance the remaining value of the coal units against the environmental benefits and the likely future costs to maintain, operate and upgrade the coal facilities.

Currently, coal represents approximately 13 percent of our customer rate base—or total net plant investment—and 37 percent of our generation portfolio. Under current, approved plans, we will retire approximately 42 percent of the coal-fueled capacity that we owned in 2005 by the end of 2026. Further, this transition strategy has already allowed us to invest in three natural gas combined-cycle power plants, and we plan to continue to invest in new gas-fueled capacity.

#### **Our transition plans include:**

- Retiring two coal units, representing more than 1,300 megawatts, at the Sherco Generating Plant in Minnesota by the end of 2026. In March of 2017, Minnesota enacted legislation that facilitates our ability to own a new replacement natural gas combined-cycle plant at the Sherco site.
- Continuing to execute our Clean Air-Clean Jobs project, retiring or converting to natural gas more than 1,000 megawatts of coal-fueled generation in Colorado by the end of 2017. The Clean Air-Clean Jobs project supported our investment in a new gas combined-cycle plant at the Cherokee Station and several environmental retrofits at other coal plants.

### **Investing in Customer Renewable and Energy-saving Options**

Customers want more control over their energy use, as well as control over how their energy is produced. As our customers' interests evolve, we are anticipating their needs by offering new and innovative solutions.

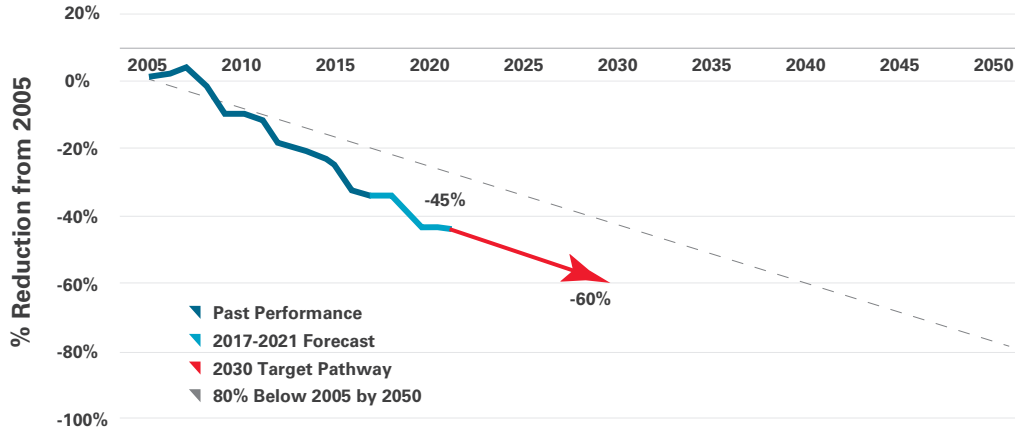
- Over the next five years, we plan to spend \$1.3 billion on advancements to the power grid, including advanced meters for electricity customers, as well as other technologies. As part of this, we have proposed a \$560 million Advanced Grid Intelligence and Security plan in Colorado, which is pending regulatory commission approval. The advanced technology will provide customers with new options and more information to control and track their energy use.
- Xcel Energy's Windsource® program, which lets customers subscribe to have all of their energy from wind power, is ranked the No. 3 voluntary renewable energy program in the country for customer participation.
- We pioneered community solar gardens in Colorado, and our Minnesota community solar gardens program is the largest subscriber-based community solar garden program in the country.
- With our new Renewable\*Connect® product line, we are providing even more options to Colorado and Minnesota customers, allowing them to choose energy from utility-owned solar and wind projects in their home states. Our initial offers will make up to 125 megawatts of wind and solar power available to customers in these states.
- Xcel Energy customers saved more than a terawatt hour of electricity in 2016 through energy efficiency programs that generated \$71 million in rebates. Through these programs, we saved enough energy in the past five years to power more than 700,000 homes annually.

## **A Potential Pathway to Climate Targets**

In 2016, Xcel Energy reduced carbon emissions by 30 percent from 2005 levels. This significant milestone is the product of our clean energy strategy, as well as our commitment to stakeholder engagement. From investing in renewable energy to establishing new customer options and determining coal unit retirements, all of our efforts are decided through the utility regulatory process and state policies, which require active engagement with state policymakers, customers, regulators and other stakeholders. Throughout these stakeholder processes, our ability to continue to meet cost and reliability expectations is a fundamental prerequisite to delivering emissions reductions.

We expect to significantly reduce emissions further over the next five years, achieving at least a 45 percent reduction in carbon emissions from 2005 levels by 2021. These projected reductions will primarily be achieved by upcoming coal unit retirements as we complete the Clean Air-Clean Jobs project and our renewable plans, which will contribute to 4,700 megawatts of new renewable resources by 2021. Our ambitious renewable expansion depends on regulatory approvals, which in turn, rely heavily on attractive economics. To execute our 2017-2021 plans, we will need to maintain the balance between environmental improvement, customer costs and return to shareholders that has supported our performance to date. If we can do this, we will generate 50 percent of our electricity from carbon-free sources by 2021.

Figure 2: Carbon Emissions Trajectories



As we consider the longer-term future beyond 2021, our emissions-reduction trajectory can continue if there is a supportive policy and regulatory environment, favorable economics and ongoing support among the customers, communities and states we serve. We expect to consider and apply those factors to future plans, as we have for many years. These plans include firm commitments to retire the two units at the Sherco Generating Plant, and expectations for further wind and solar development and other emission reduction initiatives across all of our service territories. Based on our experience with emission reductions, fuel markets, advancing technology and growing customer interest, we think it is feasible to achieve a 60 percent reduction in carbon emissions by 2030. We intend to pursue that path.

While we do not have firm plans beyond 2030, we think that emissions reductions will likely continue. The emissions pathway will depend on a number of significant factors, such as:

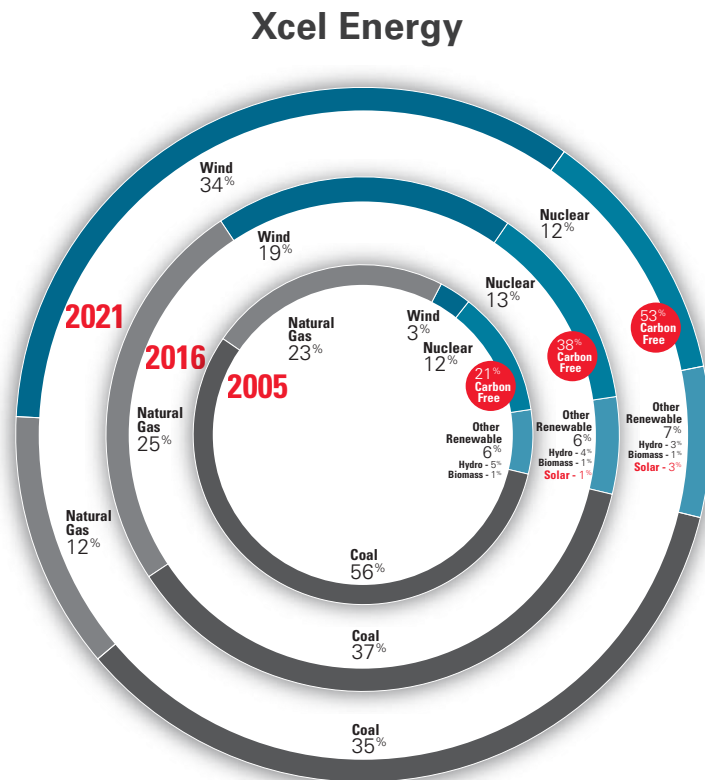
- the continued operation of our two nuclear plants in Minnesota that currently provide 13 percent of our generation with no carbon emissions
- ongoing access to competitively priced natural gas
- the replacement or extension of expiring long-term wind and hydro power purchase agreements
- the ability of our systems to absorb ever-higher levels of variable renewable energy
- significant continued technology advancement in the power sector

However, the technology trends of the last few years give us optimism that we can continue to use more of the bountiful renewable resources available in our service territory. Further, many of our communities and customers make it clear, through targets such as Minnesota's 80 percent reduction by 2050 goal, that long-term climate objectives will remain a central element of our planning for the foreseeable future. We are proud that we have been able to profitably adapt our utility business model to the significant climate challenge. And we are confident that, over the long term, we will meet international and national climate objectives while maintaining our tradition of giving our customers both excellent reliability and low-cost energy.

## Our Diversified Portfolio

Our clean energy strategy is driving a cleaner, more diverse energy portfolio. In the next five years, assuming execution of our proposed plans, we expect to be serving our customers with at least 40 percent renewable and 50 percent carbon-free electricity. To proceed along this pathway, we must demonstrate that we can execute these plans while maintaining cost-effective and reliable electricity service. Diversity is another key element—as we implement our strategy, we expect to maintain a significant role for all of the fuel sources in our portfolio.

Figure 3: Xcel Energy owned and purchased energy supply



## Ongoing Governance and Risk Management

Xcel Energy is constantly analyzing, managing and acting on risks associated with climate change.

- Our Board of Director's Operations, Nuclear, Environmental and Safety Committee provides oversight of the company's environmental strategy and compliance.
- We anticipate future economic risks of carbon policy by using carbon "proxy" pricing for some resource planning decisions.
- Dedicated policy and risk management teams are responsible for analyzing and quantifying climate change risks. The policy team is also heavily engaged in climate policy development and advocacy.
- We address physical risks of climate change through supply chain and water management strategies and designing our system to withstand extreme conditions.