



Renewable Energy

We have some of the best wind and solar resources in our own backyard, and we're putting them to work for customers.

As a national leader in wind energy, Xcel Energy has steadily expanded its wind portfolio over the past 15 years. By early 2021, we became one of the first energy providers in the United States to reach 10,000 megawatts of wind power on our system, and we continue to increase solar capacity as well. We purchase approximately 760 megawatts from large-scale solar projects, and through renewable choice programs, added more than 1,500 megawatts of distributed solar through the end of 2020. Under our approved and proposed energy plans, we could nearly triple our solar portfolio by 2030, including some solar projects that we expect to own.

Wind and solar power are integral to our goal of reducing carbon emissions 80% by 2030 from 2005 levels. We anticipate renewable resources will produce more than 60% of our electricity by that same year. Not only is wind and solar power carbon-free and more environmentally friendly, but the costs have declined as technology improves. Wind farms installed over the past several years will save our customers billions of dollars in fuel costs over the life of the projects.

We also understand that some customers want more renewable energy, beyond what is currently provided in our energy supply. This includes our business customers and communities that have set goals for up to 100% clean energy. We offer one of the most extensive portfolios of voluntary renewable energy programs in the industry, providing customers flexibility and multiple options to meet their unique energy needs.

Governance

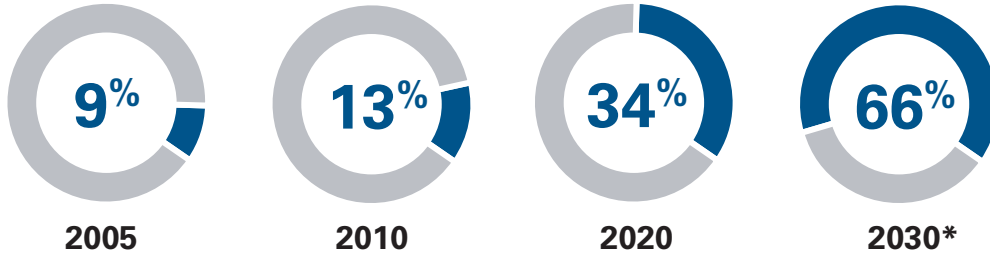
The Finance Committee of the board of directors oversees major investments, including investments in wind and solar energy projects. Within the company, the chief financial officer is responsible for developing and financing renewable projects and contracting for purchased power. The senior vice president of Energy Supply is responsible for constructing and operating the company's owned renewable projects, under oversight of the chief generation officer. Both officers report to the chairman and CEO.

HIGHLIGHTS

- We added nearly 1,500 megawatts of company-owned wind to our system in 2020, including three large projects we built in Colorado, New Mexico and Minnesota. Four additional wind farms will be completed in 2021, adding another 800 megawatts to our system.
- Regulators approved our plan to repower four wind farms, totaling 650 megawatts, as part of our proposal to help fuel Minnesota's economic recovery from the COVID-19 pandemic. Upon completion of the upgrades, we expect the average annual output of the farms to increase approximately 20%, compared to today.
- Xcel Energy announced plans to own its first large-scale solar projects. If approved by regulators, we will own the 74-megawatt Western Mustang solar array in Wisconsin and the 460-megawatt Sherco Solar project, which is adjacent to our coal-fueled power plant in Becker, Minnesota.
- As we've completed projects under our nation-leading wind expansion, our system set multiple records for renewable generation from fall 2020 to spring 2021. We've recorded hours in all our regions where wind and solar energy produced more than 80% of electricity provided to customers and entire days where wind and solar produced about 70% of customers' power.
- Nearly 244,000 customers participate in our renewable choice programs. This includes almost 151,000 customers enrolled in programs backed by Xcel Energy renewable resources, demonstrating high engagement and satisfaction with these options, which include Renewable*Connect®, Windsource® and Solar*Connect Community® in Wisconsin.
- We broke ground on three solar gardens that are the country's first 100% income-qualified community solar projects operated by an investor-owned utility. The projects are part of a unique partnership between Xcel Energy, Pivot Energy, and Energy Outreach Colorado that will reduce barriers to accessing the benefits of renewable resources for vulnerable customers who struggle to afford energy.
- Through renewable choice programs, we have installed nearly 71,000 distributed energy systems, totaling more than 1,500 megawatts of capacity. More than half of the capacity is from community solar gardens, which continue to come online since late 2016.



Renewable energy is a vital and growing part of our energy supply.



*Results are estimated based on potential scenarios that reduce carbon emissions by 2030; actual system depends on regulatory approval of our plans.

Steel for Fuel: Renewable Energy Expansion

Xcel Energy’s Steel for Fuel growth strategy delivers both economic and environmental benefits for customers and other stakeholders. We’re adding renewable resources—the steel—at a savings, where the capital costs of the projects are more than offset by the savings from renewable tax credits and avoided fuel costs. We also operate in some of the best regions of the country for wind and solar energy, resulting in projects with higher capacity factors that can produce more electricity.

Delivering on the Nation’s Largest Multi-State Wind Investment

Xcel Energy announced the nation’s largest multi-state wind investment in 2017. Since that time, we added 13 new company-owned wind farms to our system, including eight that Xcel Energy constructed, with a 14th project expected to begin operating in late 2021. We also added nearly 1,500 megawatts of wind under power purchase agreements.

Altogether, the company-owned projects provide more than 3,600 megawatts of new wind capacity to our system, enough to power nearly 1.8 million average homes annually. While providing customers with affordable, clean energy, the new wind farms created approximately 3,000 construction jobs and more than 180 permanent jobs and will result in landowner and property tax payments of nearly \$1.2 billion over the project lives.

Surpassing the 10,000-Megawatt Wind Capacity Milestone

In early 2021, Xcel Energy became one the first energy providers in the country to reach 10,000 megawatts of wind capacity in our portfolio. We expect to surpass 11,000 megawatts of wind capacity by the end of 2021, including nearly 4,500 megawatts from company-owned projects.

Wind Repowering Projects

As our power purchase agreements expire over the next decade, we are seeking opportunities to buy and repower older wind farms. We will use the latest technology which is more efficient and cost effective to save customers money, even after wind farms are retrofitted. We’ve completed three such projects to date: Lake Benton, Community Wind North and Jeffers.

In early 2021, we announced plans to acquire and buyout our remaining power purchase agreement for the repowered 120-megawatt Allete wind project in Minnesota. It’s just one of the projects we’ve proposed in response to a request by Minnesota regulators for projects to spur economic recovery from the impact of the COVID-19 pandemic.

Regulators in late 2020 approved our plan to repower about 650 megawatts of existing wind power from the following company-owned projects as part of the economic recovery package:

- Border (150 megawatts)
- Grand Meadow (100 megawatts)
- Nobles (200 megawatts)
- Pleasant Valley (200 megawatts)

We also plan to purchase power from some smaller wind projects that will be repowered. Altogether, the upgrades to wind farms in our economic recovery proposal are expected to save customers about \$160 million in energy costs over the next 25 years and create up to 700 local, union construction jobs in addition to indirect jobs provided by suppliers. Following the construction, we anticipate increasing the annual energy output for the projects by approximately 20% on average, compared to today. They will also provide landowners and local governments more than \$9 million in annual lease and property tax payments.

Expanding our Portfolio of Large-scale Solar Projects and Storage

All the large-scale solar power on Xcel Energy's system currently comes from power purchase agreements, but that will change if regulators approve two projects the company has proposed to own:

- The 74-megawatt Mustang Solar project will be the largest solar array in western Wisconsin, providing enough energy to power more than 15,000 homes annually when it's operational in late 2022. Once built, it is expected to generate nearly \$300,000 in annual shared revenue for Pierce County and the town of Gilman and deliver about \$7 million in customer bill savings over the project life.
- The 460-megawatt Sherco Solar project will be Minnesota's largest solar array, providing enough energy to power about 100,000 homes each year. The project will be built from 2022 to 2024 and is expected to provide an estimated \$115 million in wages from nearly 900 new union construction jobs and \$240 million in local benefits over the project life.

We also have regulatory approval to purchase more than 800 megawatts of solar power and 275 megawatts of storage under our 2018 Colorado Energy Plan. The following projects are scheduled for completion in 2022:

- Neptune Solar Project in Pueblo County (250 megawatts, plus 125-megawatts hours storage)
- Thunder Wolf Solar Project in Pueblo County (200 megawatts, plus 100-megawatt hours storage)
- Front Range-Midway Solar Project in El Paso County (100 megawatts, plus 50-megawatt hours storage)
- Sun Mountain Solar Project in Pueblo County (200 megawatts)
- Hartsel Solar Project in Park County (72 megawatts; at this time, the Hartsel project has not received local permits to proceed with construction)

To provide power for EVRAZ Rocky Mountain Steel, our largest customer in Colorado, we've contracted with Lightsource BP to build and operate the Bighorn Solar project. Construction is expected to be complete by the end of 2021 on the 240-megawatt solar array located on the EVRAZ site in Pueblo.

Find Xcel Energy's renewable capacity by resource type and region in the [Data Summary of Xcel Energy's Sustainability Report](#).

Responsible Wind Development

Wind energy is an important resource for reducing carbon emissions and other environmental impacts. However, it's important that wind farms are properly located, constructed, operated, monitored and managed throughout their entire life cycle to achieve the full environmental benefit.

Project Siting and Development

Before construction, we carefully select wind farm sites to ensure impacts to birds, bats and other wildlife are avoided or minimized as much as possible. This includes following the U.S. Fish and Wildlife Service's Land-based Wind Energy Guidelines, conducting wildlife and habitat surveys, and following other best practices. As part of this, we work with wind project developers, the USFWS and appropriate state wildlife and natural resource agencies during siting and permitting to try to ensure turbine locations are not in critical habitat for threatened and endangered species. If issues are identified, we work with the appropriate agencies to avoid or minimize impacts.

Our Sagamore Wind Project in New Mexico is an example of our commitment to responsible wind development. In addition to siting wind turbines in locations to avoid and minimize impacts, we voluntarily entered into a conservation agreement and purchased preservation and restoration credits from the Lost Draw Conservation Bank for the Lesser Prairie-Chicken (LPC).

Under this arrangement, we are helping expand, improve and protect high-quality LPC habitat. The bank is expected to restore thousands of acres of habitat by reconvert agricultural fields and removing tall woody species such as mesquite. It will eliminate existing fragmentation, such as pivot irrigation, windmills and other tall structures, and provide permanent protection through easements held by a New Mexico land trust.

Construction

Pre-construction surveys help minimize potential wildlife impacts and are done before excavation begins for building roads and foundations, installing cable or relocating cranes. For example, at the Cheyenne Ridge Wind Project in Colorado, pre-construction surveys identified burrowing owl nests in prairie dog colonies. With the information, we were able to create buffer zones to protect the owls during construction.

Wind Farm Operations

Once a wind farm is built, we continue to perform studies and monitor wind turbine operations. Our wind farms have detailed Bird and Bat Conservation Plans that provide a framework for how we study, monitor and minimize impacts over the life of a project—from wind farm planning through construction, operations and maintenance, and decommissioning.

We report avian or bat injuries or fatalities to USFWS and appropriate state agencies. If protected avian species build nests too close to existing wind turbines, we evaluate what actions are needed to avoid and minimize impacts and engage our state and federal wildlife experts to ensure we take the right steps.

In addition to wind farms we own, we also purchase significant wind generation from others. We expect our third-party wind suppliers to perform similar permitting, reporting, reviews and studies of their wind farm operations.

Decommissioning

Wind farms currently have an operating life of 20 years or more, and ideally, all wind turbine components are designed to last that full lifespan. As many first-generation wind farms reach the end of their useful lives and we consider repowering opportunities, there are questions about wind turbine waste and disposal.

Most wind turbine components are made of recyclable materials. The following is a breakdown of components:

- Nacelles, tower sections and internal gearing contain metal that can be recycled
- Concrete from foundations can be removed, ground and reused
- Oil from wind turbines can be removed and reused
- Turbine blades are made of mixed materials, including fiberglass that currently has limited recycling options—the blades are typically cut into sections and disposed in an approved landfill for regular construction waste

Technology and recycling opportunities are always changing, and we work with industry groups to explore ways to sustainably reuse currently non-recyclable materials. As new opportunities develop, we will evaluate and incorporate them into our recycling programs.

Responsible Solar Development

Large-scale solar projects take land, approximately 4 to 7 acres per megawatt of capacity, depending on the technology. Projects can be built on existing industrial or “brownfield” sites. Some solar developers are incorporating agrivoltaics where crops are grown beneath solar panels, and a project’s environmental value can be increased by growing pollinator friendly vegetation between rows of solar panels. Xcel Energy’s new community solar gardens in Boulder and Denver, Colorado, will be planted with a seed mix formulated to attract bees, butterflies or other beneficial species.

Solar panels have an operating lifespan of about 20 to 30 years. Many solar owners who installed panels in the early 2000s are now only beginning to face end-of-life disposal issues. Because of this, recycling options are improving. Currently, the aluminum frames, wire and glass in solar panels can be recycled or reused to manufacture new solar panels or electronics. Solar manufacturers continue to research and improve efficiency and the materials used to manufacture panels to address end-of-life disposal issues up front.

Renewable Choice Programs

Just as customers want more control over their energy use, they also want more choice in how their energy is produced. Our goal is to offer innovative solutions that enable our customers to meet their priorities around clean energy and the environment while balancing these choices with the cost that all customers pay to support them.

We were an early adopter of voluntary green power back in 1998 with the introduction of our flagship program, Windsource. Since then, our program offerings have expanded to include options for community solar gardens, on-site solar and Renewable*Connect.

Programs Backed by Xcel Energy Renewable Resources

Through Renewable*Connect, Xcel Energy customers can choose to source their energy with up to 100% wind and solar energy. Different contract options, such as month-to-month, five-year and 10-year terms, further meet customer needs. There is no equipment to install and customers can remain on the program if they move to a different home or business location within our service area.

Renewable*Connect exemplifies innovation. We have combined customer input with our program and regulatory experience to design the program so customers can fully retain the rights to renewable energy claims. Renewable*Connect also keeps bills low for participating customers by being self-supporting through subscription fees, so nonparticipants do not pay more.

We expanded Renewable*Connect in 2020 now offering it to customers in Michigan, and we plan to increase the size of the existing program in Minnesota by 2022. We currently purchase energy from the 50-megawatt Titan Solar facility in Colorado and from the Odell Wind Farm and North Star, Marshall and Aurora solar projects in Minnesota to supply the program. The popularity of Renewable*Connect continues to thrive, with program waitlists in Minnesota and Colorado. We are working with stakeholders and regulators to further expand program availability in the coming years.

Our Solar*Connect Community program in Wisconsin is fully subscribed. The program delivers energy to participants through three solar garden projects each located to serve customers in different parts of our service area, including Ashland, Eau Claire and La Crosse. Like Renewable*Connect, the incremental program costs are covered through subscription fees so that nonparticipating customers do not pay extra to make the program available. We also began offering this program to customers in New Mexico in 2021 and will purchase the solar energy from a new project underway near Clovis.

We will soon offer income-qualified customers in Colorado the opportunity to benefit from renewable energy under a unique partnership involving municipalities, community organizations, solar developers and Xcel Energy. We've broken ground on three solar gardens that Pivot Energy will design and build, and Xcel Energy will own and operate, located on the sites of two former coal-fueled power plants in Boulder and Denver. Energy Outreach Colorado, a nonprofit agency that supports consumers who struggle to afford their energy bills, will serve as the subscribing agency. The organization will use its 30 years of expertise with bill assistance programs to identify, educate and enroll eligible customers through existing energy assistance and efficiency programs. The program subscriptions will aim to significantly reduce participating customers' energy bills.

Third-party Solar Garden Programs

Solar*Rewards Community® in Colorado was one of the first community solar gardens programs in the nation. Between 2017 and 2020, it quadrupled in size, with 108 megawatts of capacity from 80 participating solar gardens. In Minnesota, Solar*Rewards Community is easily the largest community solar program in the country, with over 780 megawatts of capacity from more than 380 participating solar gardens at the end of 2020. However, the purchase rate for the Minnesota solar energy is two to four times higher than what we would pay from more cost-effective energy sources, and the program currently increases an average residential customer's bills by \$40 to \$50 a year. While we operate and support solar development in this legislated program, we also continue to engage on policies to lower the bill impacts for nonparticipating customers due to the program's cost.

Customers also continue to install more on-site solar and our popular Solar*Rewards® incentive program helps make solar more affordable. Across all states, more than 9,800 solar systems were installed during 2020, adding 88 megawatts of additional on-site distributed solar. To reduce the impact of energy bills for customers struggling to make ends meet, we recently launched incentive options to test solar installations for income-qualified households in Colorado and Minnesota.

Given we administer the country’s largest community solar garden program in Minnesota, as well as an on-site solar program, we’ve had great successes and some challenges connecting a large volume of projects and solar capacity to the power grid each year. In 2020, the company received a series of complaints over issues with connecting projects to our system that contributed to the company exceeding a performance threshold in our quality of service plan, which triggered a \$1 million penalty. We are continuing to work with all parties to make the interconnection process smooth and successful for our customers and the solar industry while maintaining grid reliability and safety. We are also working with industry stakeholders to refine and bring greater transparency to the dispute process.

We offer the following renewable choice programs that reflect our company’s commitment to meeting the clean energy interests of customers.

Program	Description	REC Attribution	MN	WI	ND	SD	CO	NM	TX	MI
Renewable*Connect	A flexible and affordable way to subscribe for up to 100% renewable energy	Participant	■	■			■			■
Windsource	An easy, low-risk way to subscribe to clean wind energy	Participant	■				■	■		■
Solar*Connect Community	Subscribe to a solar garden and get full rights to the solar claims, plus a bill credit for choosing solar energy	Participant		■				■		
Solar*Rewards Community	Subscribe to a third-party solar garden and receive electric bill credit payments for the solar energy produced	All Customers	■				■			
Solar*Rewards	Install your private on-site solar system and earn an incentive for transferring the RECs to Xcel Energy	All Customers	■				■	■*		
Net Metering	When you produce wind or solar energy through on-site equipment, you are able to retain RECs, and sell any excess energy back to the grid	Participant	■	■	■		■	■	■	■

*New Mexico Solar*Rewards availability varies from year to year and is not currently available.

Certified Renewable Percentage

In addition to renewable choices, we now offer customers in Colorado, Minnesota and Wisconsin a Certified Renewable Percentage to let them claim the full benefit of our increasingly clean energy mix. We retire Renewable Energy Credits (RECs) to cover the entire renewable energy portion of the electricity we deliver to customers, beyond what we already retire to meet state renewable portfolio standards.

Certified Renewable Percentage is not something customers enroll in or subscribe to but is a benefit they automatically receive. This enables customers to make renewable energy claims and reflect our clean-energy mix in their sustainability accounting or reporting. For example, our commercial customers can claim the portion of renewable energy included in the Certified Renewable Percentage just by being an Xcel Energy customer

Find the Certified Renewable Percentage by state on [xcelenergy.com](https://www.xcelenergy.com) (under energy portfolio, power generation and select the state Colorado, Minnesota or Wisconsin).

Integrating Wind and Solar Power

The significant wind and solar resources on our systems have fundamentally changed the way we operate. With each increase in renewable capacity, we have improved system operations, enabling us to incrementally grow the use of wind and solar power and achieve new system records.

Some of our operational improvements for accommodating more wind and solar energy include:

- **Adding more flexible backup generation.** As we retire aging coal plants, we are replacing some of the energy with lower carbon natural gas generation, which more efficiently and cost effectively ramps up or down to accommodate variable, renewable generation.
- **Cycling baseload plants offline and reducing minimum generation levels.** After years of study and experience, we turn off coal units to accommodate more wind generation and have reduced the time that units need to be offline before they can be restarted. It is a practice that reduces fuel use and emissions. Building on this experience, we now operate our nuclear plants with similar flexibility.
- **Negotiating greater flexibility from our natural gas suppliers.** These agreements allow us to efficiently use our gas generation resources to integrate variable renewable generation, helping to increase system reliability and lowering customer costs.
- **Investing in transmission.** We are improving and building new transmission facilities that can deliver more wind and solar energy to customers.
- **Using control equipment.** We use set-point controls for wind farms in combination with automatic controls on thermal units. This enables wind farms to operate at peak levels and reduces fossil fuel generation.
- **Establishing a 30-minute flexibility reserve.** We previously carried one megawatt of reserve capacity for every megawatt of wind generation as backup in case winds suddenly dropped off. As our wind portfolio grew, we studied the maximum amount of wind energy typically lost within 30 minutes and were able to reduce this reserve, dramatically decreasing costs associated with carrying large wind reserves while maintaining system reliability.
- **Adjusting planned maintenance.** We now plan transmission and plant maintenance outages around times of the year when wind and solar production is lowest.
- **Winterizing wind turbines.** All the wind turbines that Xcel Energy owns across its three regions are outfitted with cold weather turbine packages that support operations down to -22 F (-30 C).

Generally, we find that wind and solar are very compatible resources for meeting customer needs. Our renewable generation works together consistently to operate on average across all hours of the day.

While solar energy is relatively straightforward to forecast, wind generation is notoriously difficult to predict because of its variability. Most weather forecasting models are designed to generate information about winds near ground level rather than at 200 to 300 feet (61 to 91 meters), where turbine hubs are located. Also, landscape features such as hills and trees can reshape wind speeds and directions, causing turbulence in ways that greatly influence the amount of energy produced.

To improve on this, we began working in 2009 on a multi-year research and development project with the National Center for Atmospheric Research and its affiliate company Global Weather Corp. Today, the WindWX system helps energy providers around the globe, including Xcel Energy, to make better commitment and dispatch decisions. It uses real-time, turbine-level operating data and applies sophisticated algorithms to forecast the amount of wind power that will be produced. Forecasts for a 168-hour period are provided every 15 minutes across Xcel Energy's service area.

Compliance with State Renewable Energy and Portfolio Standards

Xcel Energy is on pace to surpass established renewable energy requirements in the states it serves beyond 2030, even as state requirements continue to evolve. For example, New Mexico adopted Senate Bill 489 in 2019, the Energy Transition Act, which set one of the most ambitious renewable portfolio standards in the nation, and in 2020, Minnesota added both wind and solar carve-out requirements to its annual renewable portfolio standard (RPS). We constantly evaluate our overall compliance strategy with increased target requirements based on individual state legislation.

Renewable Energy Requirements in Xcel Energy States			
State	2020	Next Increase	Notes
Colorado Renewable Energy Standard	30%	30% indefinitely	30% of retail sales by 2020, with 3% from distributed generation (DG), including at least 1.5% from retail net-metered DG resources and up to 1.5% from wholesale DG resources (defined as resources ≤30 megawatts located in Colorado that are not customer sited)
Michigan Renewable Portfolio Standard	12.5%	15% by 2021	Goal of 35% by 2025
Minnesota Renewable Portfolio Standard	30% and 1.5% Solar	10% solar goal by 2030	30% of retail sales in 2020, with at least 24% from wind, plus 1.5% of retail sales from solar, with at least 10% of that from on-site solar 40kW or less
New Mexico Renewable Portfolio Standard	20%	40% by 2025	The New Mexico Energy Transition Act increases future RPS—in addition to the immediate goals, it sets a standard of 40% by 2025, 50% by 2030, 80% by 2040, and then 100% carbon-free electricity by 2045; under the rule, the Public Regulation Commission must consider the safe and reliable operation of the system and the prevention of unreasonable costs
North Dakota Renewable and Recycled Energy Objective	—	Voluntary	No RPS Requirement for North Dakota
South Dakota Renewable, Recycled and Conserved Energy Objective	10%	Voluntary	No RPS Requirement for South Dakota
Texas Renewable Generation Requirement	Statewide RPS Goal	10,000 MW of renewable capacity statewide by 2025 (goal achieved) and non-wind goal of 500MW	Xcel Energy's final RPS is approximately 3.2% of the statewide RPS goal
Wisconsin Renewable Portfolio Standard	12.89%	—	—

Renewable Energy Credits

A renewable energy certificate or credit (REC) is created for every megawatt hour (MWh) of renewable electricity generated. RECs are the unit of compliance for state renewable energy standards as well as some voluntary buyers' sustainability goals. They also provide a mechanism to commoditize renewable energy attributes and are tracked in national REC tracking registries, which are approved of by our state regulatory commissions. RECs can be disaggregated or unbundled from the underlying renewable energy.

Xcel Energy uses RECs to comply with state renewable energy standards throughout our operating company service areas. We carefully track our REC ownership and comply with the rules and best practices around renewable energy claims. Only parties that own and retire RECs can claim to use the renewable energy, according to the Federal Trade Commission. Renewable energy that is unbundled from its associated REC can retain its value to be used for compliance with environmental regulations. In reporting progress against our carbon reduction goals, our company does so based on actual carbon emissions from energy provided to our customers, independent of whether there was a REC associated with that energy.

Xcel Energy's policy is to manage its RECs to best serve its customers and to comply with renewable and carbon emissions requirements. It is also our policy to avoid regulatory penalties for customers. In some of the states we serve, regulatory penalties are applied to RECs not sold within their established shelf life. Therefore, starting July 1, 2021, we will not initiate the sale of RECs generated from our portfolio unless it is necessary to avoid such penalties on a jurisdiction-by-jurisdiction basis or the RECs are transferred to or retained by customers as part of voluntary programs or service arrangements.

RECs that accrue in excess of state renewable energy standard compliance may be transferred for a fee to Xcel Energy customers (through Xcel Energy program offerings or wholesale contracts) to help these customers achieve their voluntary and incremental sustainability goals. The company will retire RECs on behalf of these customers or require retirement of RECs post-transfer to avoid double-counting concerns. Moreover, and as we have in the past, we will continue to provide a residual mix carbon emission intensity by operating company that reflects RECs we have retired on behalf of or transferred to certain customers and RECs sold to avoid regulatory penalties. The residual mix carbon emission intensity also reflects energy purchased through any power purchase agreement where we do not purchase the associated REC.

We provide more detailed information on our 2020 REC sales in the [Data Summary of Xcel Energy's Sustainability Report](#). We also provide residual mix carbon emission intensities for customers who participate in our renewable choice programs in the [2020 Carbon Dioxide Emission Intensities Information Sheet](#).