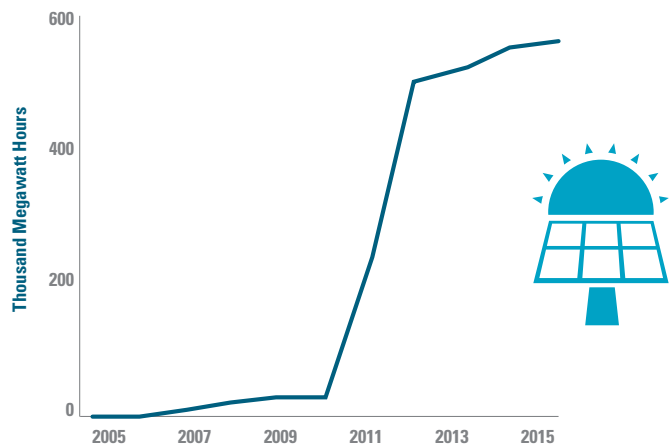


Solar Energy



Solar Power on our systems has more than doubled since 2011



Our Approach

The customers and communities we serve increasingly want solar power as an energy source to meet their needs. After all, solar energy is clean, renewable and provides customers options, all while the technology continues to become more efficient and affordable. For these reasons, solar is an important and growing part of our diverse energy supply. We support and want to provide our customers all forms of solar generation to meet their interests, from large, universal solar projects that provide power to serve all customers, to local community gardens and private rooftop systems that power individual homes and businesses.

Current Solar Energy Additions

Xcel Energy increased the solar energy on our systems in 2015 by more than 130 megawatts—or 40 percent. At the end of the year, we began purchasing power from the new 50-megawatt SunPower Solar Star Colorado III project, which is large enough to power more than 15,000 average-size homes annually. We also helped customers install more than 5,700 private solar energy projects for their homes and businesses and added 11 new community solar gardens to our systems during the year.

In 2016, we will add about 520 megawatts of universal solar to benefit all customers—nearly triple the capacity we have today—and enough to power about 124,000 homes annually. We plan to purchase energy from the following solar power plants under construction:

- 120-megawatt Comanche Solar Project, Colo.
- 100-megawatt North Star Solar Project, Minn.
- 62-megawatt Marshall Solar Project, Minn.
- 100-megawatt Aurora Solar Project, Minn.
- 70-megawatts Chaves County Solar, N.M.
- 70-megawatts Roswell Solar, LLC, N.M.

In addition, we expect to help our customers add about 23 megawatts-AC in new private, rooftop solar energy systems in 2016 through our Solar*Rewards® programs in Colorado and Minnesota. Through Solar*Rewards®Community®, we project adding approximately 200 megawatts-AC of new solar community garden projects through our Minnesota program, with an additional four megawatts-AC through our Colorado program.

Universal Solar Serving Xcel Energy Customers in 2015

Investing in universal solar power is an opportunity to further diversify our energy supply and meet customer interest in clean energy. At the end of 2015, we had 190 megawatts of large, universal solar on our systems, enough to power about 54,000 homes. These solar power plants provide clean, solar energy at the lowest cost, to the greatest number of people in the communities Xcel Energy serves because of the benefits that come with economies of scale.

Universal Solar on Xcel Energy Systems (As of Yearend 2015)

| Facility and Owner | System Type | Size (AC) | Location | Online |
|--|---|-----------|-----------------------------------|--------|
| SunEdison Alamosa | Combination concentrating and flat-plate photovoltaic | 6.95 MW | Alamosa, Colo. | 2007 |
| SunPower Greater Sandhill | High efficiency photovoltaic | 19 MW | Alamosa, Colo. | 2010 |
| SunEdison | Ground-mounted photovoltaic (five 10-MW sites) | 50 MW | Lea and Eddy counties, New Mexico | 2011 |
| Iberdrola Renewables San Luis Valley Solar | Central photovoltaic | 30 MW | Alamosa, Colo. | 2012 |
| Cogentrix Alamosa Solar Generating Project | Central, concentrating photovoltaic | 30 MW | Alamosa, Colo. | 2012 |
| Solar Technology Acceleration Center (SolarTAC) | Multiple technologies | 0.5 MW | Aurora, Colo. | 2012 |
| SunPower Solar Star Colorado III | Photovoltaic | 50 MW | Mosca, Colo. | 2015 |
| Best Power Intl. St. John's Solar Farm | Photovoltaic | 0.32 MW | Collegeville, Minn. | 2010 |
| Best Power Intl. School Sisters of Notre Dame Solar Park | Photovoltaic | 0.718 MW | Blue Earth County, Minn. | 2015 |
| Ecos Energy Slayton Solar | Photovoltaic | 1.66 MW | Slayton, Minn. | 2013 |

Customer Solar Energy Options

Xcel Energy offers a range of solar energy programs to meet the different needs and interests of our customers. Our Solar*Rewards program in Colorado, Minnesota and New Mexico provides incentives to customers interested in installing private rooftop systems for their homes and businesses to help make the systems more affordable. In turn, the program and the renewable energy credits associated with the solar energy produced enable us to meet state renewable energy standards.

Through Solar*Rewards Community, we provide customers in Colorado and Minnesota a convenient solar option, without having to install or maintain their own panels. Customers can sign up to participate in a local community solar garden through a garden developer. In Wisconsin, we now offer Solar*Connect CommunitySM that gives customers the option to sign up and participate in an Xcel Energy community solar garden project.

We also have proposed offering additional programs in Colorado and Minnesota that give customers the option to participate in solar power by subscribing through Xcel Energy. These premium programs, currently under review with our public utilities commissions, would provide our customers easy, convenient and flexible options for designating that up to 100 percent of their energy come from clean, renewable sources.

Advancing Solar Technology: SolarTAC

After celebrating its grand opening in 2011, the Solar Technology Acceleration Center (SolarTAC) in Aurora, Colo., is now a world-class facility for demonstrating and validating some of the most advanced solar technologies available. Today, technology projects occupy most of the 74-acre site.

Xcel Energy recognized early the benefit to customers and became SolarTAC's original founding member, an investment that has paid off. Several large-scale solar technologies fine-tuned at SolarTAC are now in commercial operation as part of arrays in New Mexico and Colorado producing more cost-effective and reliable solar power for our customers. Developers also have been able to make adjustments for cold weather conditions before installing technology in our service area.

Xcel Energy has a unique opportunity at SolarTAC to study solutions to solar integration in a real-world environment, separate from the system that serves customers. We have installed a community energy storage project that is testing a more cost-effective way to integrate solar power in areas with high solar production. Working with the Electric Power Research Institute (EPRI), we are testing a 25-kilowatt battery integrated with four small photovoltaic installations that simulate a neighborhood with multiple rooftop solar power systems. We plan to compile the final results and wrap up the project in 2016.

In 2011, we installed a 1.5 megawatt battery provided by Younicos (formerly Xtreme Power) at SolarTAC to evaluate how energy storage can aid in operating a distribution system with energy from large-scale solar facilities. Solar energy produced by a nearby solar array onsite was channeled through the battery before going to the grid. The study concluded in 2014 and a final report was produced, which overviews how the project provided greater insight and understanding into the abilities of battery storage to integrate variable solar generation.

In addition to the testing work, solar projects operating at SolarTAC are connected to the Xcel Energy electric system and serve our customers. Through agreements with SolarTAC participants, we purchase about 500 kilowatts of solar power produced at the site.

In 2016, SolarTAC will begin its next evolution. A portion of the site will be dedicated to GridNXT at SolarTAC, an effort to support the demonstration of advanced technologies for integrating distributed generation at the edge or end of the electric distribution system.

New Mexico Community Solar Program

Xcel Energy owns four photovoltaic systems located on community partner sites in eastern and southeastern New Mexico through our New Mexico Community Solar program. Installed in 2009 and 2010, the systems total 77 kilowatts and feature different types of technology, including rooftop and ground-mounted solar photovoltaic panels and single- and dual-axis panels. Projects are located at Clovis High School, Eastern New Mexico University-Roswell and Xcel Energy's Hobbs Service Center. A key component of the program is educational outreach. We provide energy curriculum developed specifically for New Mexico schools. Students, as well as the general public, are able to access live and historical data measuring ambient temperatures, wind speed and levels of solar production at the sites.