

# Solar to Battery

Research project looks at battery energy storage

# XTRA

JUNE 2015 → VOLUME 15 • ISSUE 07

## Content

**3**

### Visit

New Mexico goodwill ambassadors tour nuclear plants.

**4**

### Black Dog

Last coal train pulls into station as new era begins.

**6**

### Engagement

New survey provides better way to measure customer views of company.

**8**

### Contractors

Increased efficiency the goal of new contractor management effort.

**10**

### Safety Summits

Transmission hosts gatherings to make safety personal.

**12**

### Solar to Battery

Utility-scale batteries and solar power tested for grid operations.

**17**

### Tops Again

Company is the first to top 5,000 megawatts of wind power.

**18**

### People

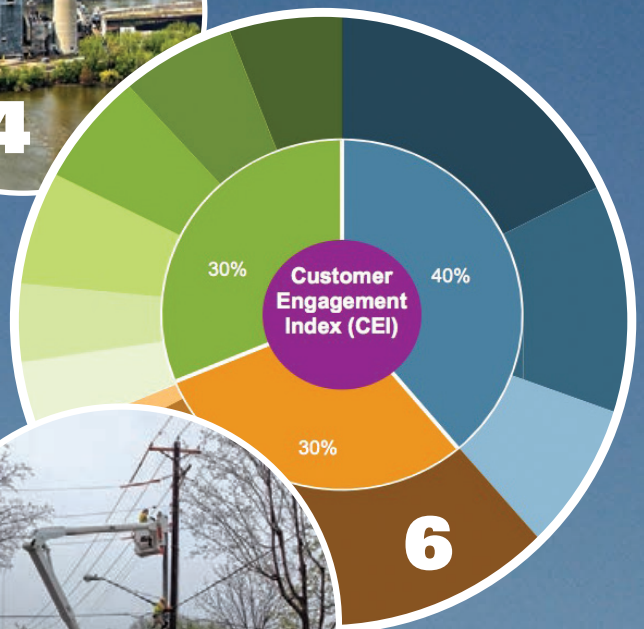
The most recent Friends We'll Miss and Retirements.

### On the Cover

Solar power and utility-scale batteries were the focus of a research effort at the SolarTAC facility in Colorado. The battery installation is pictured in the middle of the photo.



**4**



**8**



**10**



**12**



**17**



### Reception

Ben Fowke, chairman, president and CEO, joined New Mexico Gov. Susana Martinez and others at a reception for the New Mexico Amigos' recent visit to Minnesota.

# GOODWILL VISIT

## NEW MEXICO AMIGOS AND GOVERNOR VISIT NUCLEAR FACILITIES

**The Prairie Island and Monticello nuclear facilities recently hosted the New Mexico Amigos, the official goodwill ambassadors of New Mexico, including Gov. Susana Martinez and civic and business leaders from the state.**

New Mexico is experiencing significant economic and industrial growth, especially in its southeast, and offers Xcel Energy the opportunity to meet the state's needs for new and improved electrical infrastructure.

In partnership with Xcel Energy community relations managers from both New Mexico and Minnesota, the nuclear stations rolled out the red carpet, with more than 150 people touring the power plants and their training centers.

The group proceeded directly from their airplane onto four coach buses, with two going to Monticello and two going to Prairie Island. On the bus ride to the plants, the Amigos were briefed on nuclear energy in Minnesota.

The ride also presented an opportunity for the group to discuss some of the challenges faced by Xcel Energy and other nuclear operators in the country, including safety upgrades, used fuel storage and the general business environment.

"We're always honored to host visitors at our facilities, and

show off the tremendous work and dedication our employees demonstrate every day," said Scott Northard, vice president of Licensing and Common Services. "When dignitaries such as Gov. Martinez are interested in our facilities, it makes it that much more special for our teams."

In addition to touring the nuclear facilities, the community relations teams coordinated a number of meetings and events to connect the New Mexico business community with their counterparts in Minnesota. A reception on May 5, which included remarks by Ben Fowke, chairman, president and CEO, was one such opportunity.

"The Amigos group, our community relations teams and all of us at Xcel Energy offer a huge thank you to all of the people in Nuclear who supported the tour," Northard said. "The security teams, training center and others who made time in their schedules for this group stepped up and made sure the event was interesting, educational and informative, and the Amigos group told us many times how appreciative they were of our efforts." ←

# Last Train to Black

Shipment marks end of an era, beginning of another



## **The end of coal generation at Minnesota's Black Dog Generating Station continues an ongoing effort at Xcel Energy to create a clean-energy future for customers.**

After more than 60 years of operation, Black Dog ended coal operations in mid-April. During a media event at the Burnsville plant, several Twin Cities' media outlets covered the arrival of the final coal train to the plant.

Chris Clark, president of NSP-Minnesota, was on hand to discuss the end of the coal era at Black Dog, and how the closure of coal-burning Units Three and Four supports the company's long-range plan to deliver 63 percent carbon-free energy to its Upper Midwest region by 2030.

"The end of coal operations at Black Dog is a significant marker because it reflects Minnesota's common interest in pursuing progressive yet sensible ways of improving the environment," Clark said. "It's also one piece of a broader strategy for achieving the kind of energy future our customers want and need."

Black Dog already operates a cleaner and more efficient natural gas combined-cycle unit that was installed in 2002. Future plans call for the addition of an efficient 215-megawatt, gas-fired combustion turbine peaking unit. The new unit will begin operating in 2019.

Also attending the media event were Brian Behm, plant

director of Black Dog, and Elizabeth Kautz, mayor of Burnsville. Xcel Energy has joined in a development agreement with the city of Burnsville and Dakota County to enable construction of a trail system along plant property. Black Dog is situated in the Minnesota River Valley and is home to a variety of waterfowl, other wildlife and rare plant species.

"The city of Burnsville has had a great partnership with Xcel Energy, and the Black Dog plant has been our biggest business and a major landmark in the community," Mayor Kautz said. "We look forward to a continued partnership, and we hope everyone will use the trail when it is complete in 2016."

The transition at Black Dog builds on Xcel Energy's track record of creating a clean energy future for customers. Beginning in 2005, the company embarked on a similar effort that replaced two coal-powered plants – Riverside in Minneapolis and High Bridge in St. Paul – with natural gas-powered units, and also installed state-of-the-art emission controls at King Generating Station in suburban Oak Park Heights, Minn.

"Those projects produced exceptional results, as air emissions from those plants were cut by more than 90 percent, more electricity was produced for our customers' growing needs and energy bills were held below the national average," Clark said. "These projects also enjoyed significant support from our customers, policymakers and a broad array of stakeholders."

# Dog



## Black Dog

Chris Clark, president of NSP-Minnesota, took part in a media event to discuss the end of the coal era at Black Dog.

Reducing the environmental impact of Xcel Energy power plants is only one part of the company's vision for a clean and affordable energy future, he added.

"In January, we submitted a 15-year road map for ensuring we have the best combination of resources available to meet our customers' needs over the long term," Clark said. "Our plan calls for helping our customers save energy through industry-leading efficiency programs, more than doubling our already significant renewable resources like wind and solar, achieving nation-leading carbon dioxide emission reductions, and reducing all types of air emissions by dialing back the use of our coal plants."

The company can achieve – and exceed – the renewable and clean-energy goals that Minnesotans want with a diverse energy mix that also keeps costs reasonable and preserves the many benefits that a diverse supply portfolio provides, he said.

"While the majority of Minnesota's energy is generated from coal, that's not the case at Xcel Energy," Clark said. "Today, 54 percent of the energy supplied to our Minnesota customers is CO<sub>2</sub>-free, well above the national average of 33 percent CO<sub>2</sub>-free energy."

"Under our plan, we will deliver 63 percent CO<sub>2</sub>-free energy by 2030," he added. "And it is important to note that we can achieve these results without taking the step of immediately shutting down our coal plants."

What made sense for Black Dog – a smaller, older and less efficient plant – does not necessarily make sense for the newer and more efficient Sherco Generating Station, he said. Instead, Xcel Energy can achieve significant and dramatic carbon reductions by gradually and responsibly dialing back the output from its remaining coal plants.

"This approach will allow us achieve nation-leading CO<sub>2</sub> emission reductions in a way that ensures reliable service at the greatest value to our customers," Clark said.

Because of investments made by Xcel Energy, its customers and other utilities, power plants contribute far less to air-quality concerns than more widespread sources like cars, trucks, construction equipment, and wood and garbage burning, according to the Minnesota Pollution Control Agency's most recent air-quality report. That's a good thing, he said, and one that the company wants to continue to build on in the future.

"So let's mark the passing of the last rail car of coal to one of our plants, but also celebrate our ability to pursue a clean-energy future in a creative, balanced and affordable way," Clark said. "We have a good plan – one that positions us to be a clean-energy leader while keeping electricity reliable and affordable. We look forward to working with policymakers, community organizations, customers and others to make this plan a reality." ←

# CUSTOMER ENGAGEMENT

## NEW SURVEY ALLOWS CUSTOMERS TO PROVIDE MORE DETAILS ABOUT DESIRED SERVICES

### A better way to measure and track customer perceptions is under way at Xcel Energy.

In 2015, a new Customer Engagement Index (CEI) will serve as the company's survey of record for residential and small- to medium-sized business customers.

It replaces the Voice of the Customer (VOC) relationship survey, which will continue this year to track Xcel Energy's larger managed customers. The CEI is on the 2015 corporate and operating companies' scorecards.

"This new tool will help us better align our business-planning efforts with customer feedback," said Dan Nygaard, vice president of Marketing. "It also will help us develop action plans for improving customer engagement."

Results from the CEI study will provide business areas within Xcel Energy with insights to address customer engagement – directly aligned with the Strategic Call to Action and the

related drive to think and act like a competitive business.

While the VOC survey focused on single questions that measured overall customer value and satisfaction on a 0-10 scale, the new CEI uses multiple questions to model customer perceptions of Xcel Energy on a 0-1,000-point scale.

"With the CEI survey, we can provide more in-depth insight," said Bruce Nielson, senior market research analyst. "The CEI disaggregates Xcel Energy's score into key components of trusted brand, operational excellence and product experience, which can then be attributed to functional areas across the company."

The survey also provides benchmarking against peer utilities and other competitive service industries – including retail banks, waste-management companies, and internet and cell-phone providers, Nielson explained.

The brand-trust portion of the CEI survey focuses on how



the company performs in supporting local communities, protecting the environment, caring about customers and creating a good reputation, among other measures. This portion comprises 30 percent of the total CEI.

Another 40 percent of the CEI covers operational excellence. These questions focus on safety and reliability, billing and payment, and customer and field service.

CEI survey questions around product engagement query customers about awareness of benefits, product usage, and product features and design. This segment of the CEI comprises the final 30 percent index.

"It will help us identify which products and programs customers use, are interested in, or are not interested in," Nielson said. "In the end, we discover where their interests lie, work with our peer companies to see how they are creating success, and then work to make our products and programs more attractive."

In 2015, residential and small- to medium-sized businesses will be surveyed online on a quarterly basis. Large, managed

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**"This new tool will help us better align our business-planning efforts with customer feedback. It also will help us develop action plans for improving customer engagement."**

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customers will continue to participate in the VOC relationship survey this year, but may be incorporated into the CEI in the future.

Xcel Energy currently scores around the midpoint for residential customers among 29 combination electric and natural gas utilities, he said. The syndicated survey includes 125 electric and gas utilities across the United States.

Last year, a company team completed a bidding process in search of a vendor to provide a new customer survey and related metrics. The resulting choice of Market Strategies International provided the company with a way to improve customer engagement.

"We know from research that many customers who report high satisfaction levels will still select another service provider when given a choice," Nielson explained. "This new survey will help us better understand changes we can make to engage our customers and keep them with us for the long term." ←

## First quarter 2015 earnings reported

Xcel Energy recently reported 2015 first quarter GAAP earnings of \$152 million, or \$0.30 per share, compared with \$261 million, or \$0.52 per share, in the same period in 2014.

First quarter 2015 ongoing earnings, which exclude an adjustment for a charge related to the Monticello life cycle management/extended power uprate project, were \$0.46 per share, compared with \$0.52 per share for the first quarter of 2014.

The decrease in ongoing earnings was largely attributable to the negative impact of weather. The extreme cold weather experienced in the first quarter of 2014 positively impacted earnings by approximately \$0.05 per share.

The weather in 2015 was closer to normal, resulting in a net negative variance when comparing periods.

Other factors include higher depreciation, operating and maintenance expenses, property taxes and lower allowance for funds used during construction. These amounts were partially offset by earnings from higher electric margins due to new rates and riders in various jurisdictions.

"We had a solid first quarter, with progress on several fronts," said Ben Fowke, chairman, president and CEO. "We achieved regulatory certainty with rate case decisions in Colorado and Minnesota, and resolution in connection with the Monticello nuclear facility prudence review.

"We increased our dividend 6.7 percent and raised our dividend growth target to 5 percent to 7 percent, reflecting the confidence we have in our business plan and our financial flexibility," he added. "Looking ahead, we fully expect to meet our O&M growth target of 2 percent or less, and we are reaffirming our 2015 ongoing earnings guidance to \$2.00 to \$2.15 per share.

"We also received some welcome recognition recently that illustrates our long-standing commitment to environmental leadership, corporate governance and our nation's veterans," Fowke said. "The American Wind Energy Association named us the No. 1 provider of wind energy in the nation for the 11th consecutive year; Forbes Magazine put us on their 100 Most Trustworthy Companies in America list; and Military Times once again recognized us as a Best for Vets employer."

First quarter 2015 GAAP earnings included a \$0.16 per share charge related to the Monticello nuclear facility life cycle management/extended power uprate project, which in total cost \$748 million. In March 2015, the Minnesota Public Utility Commission approved full recovery, including a return, on \$415 million of the project costs, inclusive of allowance for funds used during construction, but only allow recovery of the remaining \$333 million of costs with no return on this portion of the investment for years 2015 and beyond. As a result of this decision, Xcel Energy recorded a pre-tax charge of approximately \$129 million.

## News Brief

# Contractor Management

## New effort with contractors bringing positive results

### **There is no small print in the new contracting initiative that Xcel Energy recently rolled out.**

In putting together contracting agreements for new gas and electric construction, the company clearly spelled out the language – providing the opportunity for both contractors and Xcel Energy to increase efficiency, decrease costs and maximize investment yield.

The new contracts roll contractor labor, overhead and equipment – all costs related to a job except materials – into a “unit-based” formula, such as “per foot” or “per pole.” They give contractors incentives to make their processes more efficient, as every process they improve helps them earn more money by installing more facilities.

The contracting effort came together through a close partnership between Distribution Operations and Supply Chain Sourcing, and is part of the “Distribution Way” program – the business area’s commitment to operational excellence through best practices, continuous improvement and a common operating model. The Distribution Way aligns with the company’s Strategic Call to Action and Productivity through Technology effort through its overall drive toward operational excellence.

“While we have used the unit-based approach in the past for some contracts, we saw an opportunity to expand the approach to other contracts that had been previously awarded on a fixed-lump-sum or time-and-equipment basis,” said Steve Foss, regional vice president of Distribution Operations and team sponsor. “While these approaches were

competitively awarded, we felt there was a better way to gain efficiency and save money on typical and repeatable gas and electric distribution construction work.”

“The new unit-based pricing approach was established through multiple rounds of clarification, negotiation and competitive bidding,” added Bob Kunze, director of Supply Chain Sourcing and Purchasing. “It saves money and drives

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**“We felt there was a better way to gain efficiency and save money on typical and repeatable gas and electric distribution construction work.”**

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contractors to be more efficient because Xcel Energy only pays for work produced.”

Contractors, of course, also can improve efficiency and work to maximize their profits, while helping minimize costs for Xcel Energy. In general, the new contracting process gives contractors much more control – and responsibility – in managing all aspects of construction projects, Kunze said.

Plus, new gas and electric projects are being scheduled with plenty of lead

time, offering contractors the opportunity to plan their work schedules and all related work, such as procuring materials, well in advance.

The new opportunities now being offered to contractors did not happen by chance. They came about by the company asking contractors what kinds of process improvements they wanted to see during the bidding process.

“During the bidding process for the unit-structured contracts, we specifically asked bidders for their input around critical success factors,” said Tim Virant, director of Contractor and Utility Services, NSP-Minnesota. “Their responses were informative, and we worked with them as we put this new process in place.”

Critical success factors mentioned by contractors included:

- Having work assigned to them well ahead of time.
- Having as much ownership and management of the process as possible.
- Allowing them to schedule work to minimize travel time, and assign work by geographic area to further minimize travel time.
- Standardizing the work as much as possible.
- Allowing them to be in control of materials so trips to Xcel Energy service centers are minimized or eliminated.

“In short, contractors were asking us for more control over how they do their work, and for plenty of advance scheduling to allow for ample planning,” Virant said. “And so far, the new contracting strategy is paying off for both parties.

“Good planning and scheduling is



## Culture Change

A shift in how work is completed under a new effort provides contractors more control over how they do their work.

key," he added. "The contractors now have more control over the day-to-day process, so they can schedule and use resources in optimal ways."

For example, it is now crucial for contractors to be on top of scheduling and related communications. It costs them money to sit idle while waiting on materials, which they are now responsible for when it happens, Kunze said.

"All that said, however, Xcel Energy has a key accountability in keeping a rolling three- to four-month pipeline of work in front of our contractors," he said, "so they can keep crew resources and materials consistent and balanced."

In turning over control to contractors, however, it becomes even more critical to ensure the quality of work.

"We have an inspection program using Xcel Energy employees and/or third-party contractors to perform inspections of crews at regular intervals," Virant said. "Any workmanship issues are addressed immediately, and inspection results are reviewed at ongoing Contractor Scorecard Review meetings.

In addition, our contracts include a workmanship warranty of a minimum of one year."

The increased control by contractors over their work — coupled with the new sense of accountability that the new contracts offer — has led to the expected and desired results, said Forrest Jenkins, director of Contracting and Utility Services, PSCo. Increased efficiency has led to increased savings for Xcel Energy, along with gains for contractors.

"The new model is largely unit-based, where our contractors bill us on pre-defined costs per foot of gas pipe or electric cable installed," Jenkins said. "This process places responsibility for efficiency on the contractors. We have a stake in making sure we are not hindering efficiency.

"The more efficient they are, the more they can profit from each unit installed," he added. "In this way, we stabilize our costs while allowing an opportunity for contractor profit. It is a win-win approach and has been well received by our contractors."

The new process already has proven its worth in terms of increased savings for Xcel Energy. Company departments have been analyzing historic project costs with the new contracting process. For similar projects, savings of 8 to 13 percent have been realized.

In fact, based on cost-per-unit analysis, the company has seen an average 10 percent reduction in costs in just one year (2013 vs. 2014). Millions of dollars in savings lie ahead in the years to come, Jenkins said.

"Viewing contractors as partners rather than adversaries was an important part of this process, as well as acknowledging that we have sometimes been part of the problem," Jenkins said. "Understanding how contractors view the work required important and needed culture changes. And although those changes are not always quickly or easily accepted, when they happen, we see positive results." ←



# TRANSMISSION SAFETY SUMMITS

**There's no better way of making safety personal than by getting together in person to share experiences with close calls, near misses and best practices.**

"This includes learning from and sharing with our contractor partners," said Dave Cenedella, director of Transmission Construction and Line Operations. "When it comes to safety, our industry and partners are more than willing to collaborate with each other and with us."

This was the approach taken at the first-ever Transmission Safety Summits, held this spring in Amarillo, Denver and Minneapolis.

"We talked about how we can work together to help create an even stronger safety culture by making safety a personal issue," Cenedella said. "The summits were a follow-up to our Safety Webcast in January, which helped reinforce safety expectations and communicated our safety plan for 2015."

The "Partnering for Safety" Summits were attended by safety leaders and employees from Xcel Energy and its contrac-

tors – with representatives from more than 40 companies that contract with Xcel Energy. Combined attendance at all three summits totaled well over 600 attendees.

"The Safety Summits were designed to ensure everyone working at Xcel Energy worksites understands safety expectations, as well as to share best practices with the objective of preventing injuries and close calls," Cenedella said. "Our shared values around safety are what make us partners, and each of us has the power to shape our common work environment and influence others to work safely."

The keynote speaker at the summits, Jeff "Odie" Espenship, presented his "Back to Basics – Focusing on Safety Leadership Fundamentals," which he has given to more than 100 top U.S. Fortune 500 companies. In his presentation, Espenship emphasized the importance of "being your brother's keeper" through leading by example and always being aware of how one's actions may influence others.

In addition, Mike Boyd, from the Fallen Lineman Organiza-



jeff ESPENSHIP



joe CONRAD

tion, provided a sobering reminder of how important it is to keep safety as the highest priority.

In her welcome address, Teresa Mogensen, vice president of Transmission, reinforced that message. "Everyone working on Xcel

Energy projects needs to join together in putting safety as our top priority," she said. "With our internal and external crews working together toward a common goal of zero injuries, we have an opportunity to be a role model in the industry, and most importantly, to create a safe work environment for everyone on the job.

"Xcel Energy has been on a Journey to Zero injuries – making steady progress each year," she added. "We believe achieving zero injuries is possible. And to keep making progress, we want to talk about our injury trends and near misses or good catches, as each good catch heads off at least one injury."

In the field environment at Xcel Energy, constant vigilance is required for identifying hazards, making safety improvements, reinforcing safety messages and communicating expectations, Mogensen said. "We want you to leave here today better equipped to do your part in continuing to advance our shared safety culture," she said.

The summits included presentations on: safety intervention and stop-work responsibility; the Human Performance initiative; the job briefing initiative; and electrical induction and preferred grounding practices.

"The Safety Summit featured a lot of good content and speakers," said Bill Koertner, president and CEO of MYR Group. "We send our thanks for investing in your contractors and including us."

MYR Group is a specialty electrical contracting firm that has worked on Xcel Energy transmission and distribution construction projects in Colorado, Minnesota, Texas and Wisconsin.

A few key safety messages covered at the summits included:

- All safety rules, processes and procedures are to be followed at all times, by everyone.
- Doing a robust hazard analysis and a thorough job briefing are critical elements of working safely. Regularly ask, "What has changed?" And if something has changed, stop and repeat as many times as needed throughout the day or job to ensure safe work.
- Actively use Human Performance tools. These strategies have been tested across many industries and are proven to reduce errors as they support safe work.
- When a safety incident does occur, work together to put corrective actions in place that result in positive changes in processes, tools and training.

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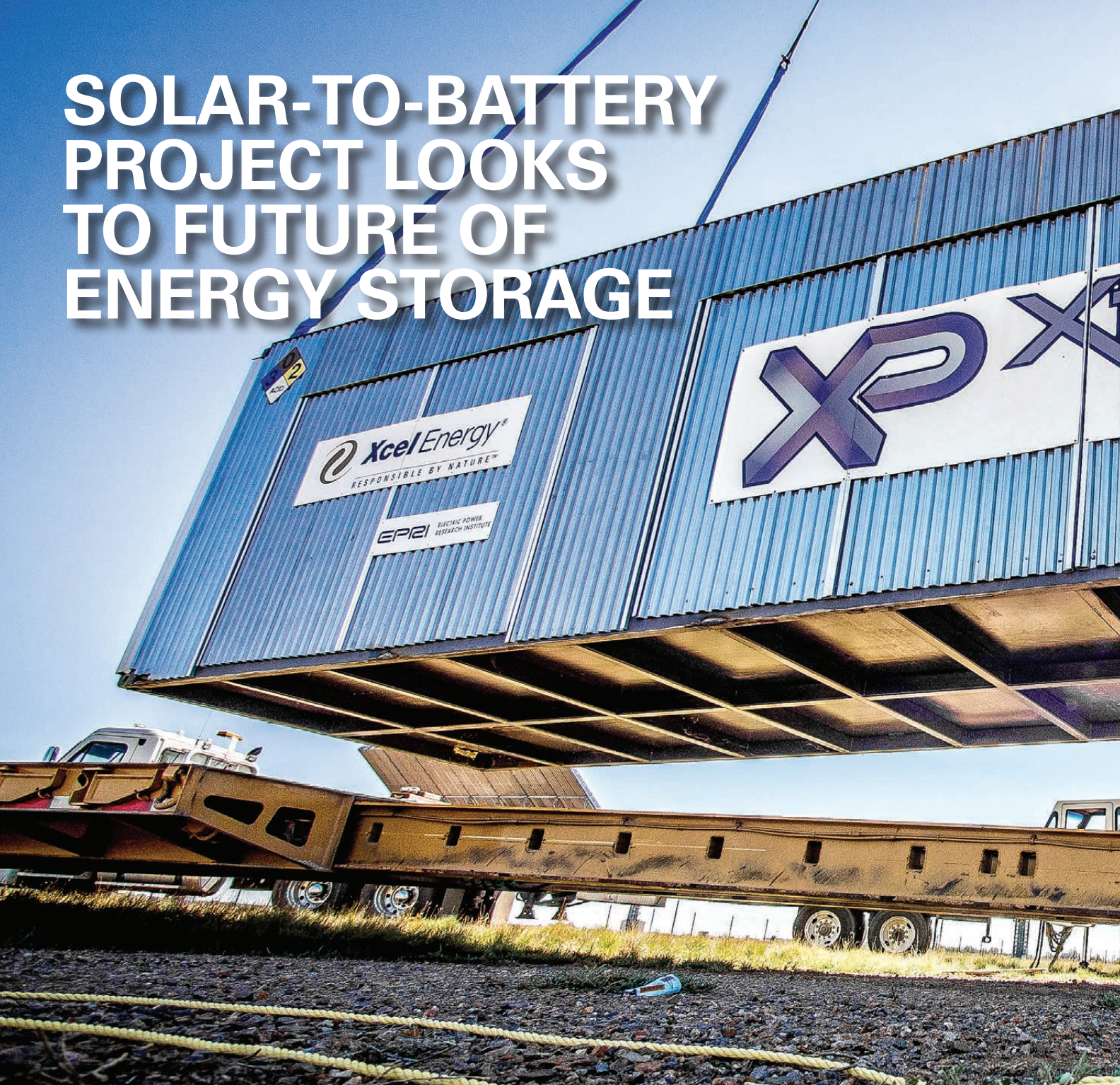
**"The Safety Summits were designed to ensure everyone working at Xcel Energy worksites understands safety expectations, as well as to share best practices with the objective of preventing injuries and close calls."**

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The summits were aimed at reaching out to contractors to create a learning environment between the two groups, and to reinforce for contractors the expectations that Xcel Energy has around safety, said David Ott, manager of System Protection in Wisconsin.

"Our shared safety culture is what we make of it, and we want to create a partnership for safety with our contractors," Ott said. "We can each contribute positively to our work environment and influence how safely our work is being done." ←

# SOLAR-TO-BATTERY PROJECT LOOKS TO FUTURE OF ENERGY STORAGE



**A passing cloud can provide relief on a hot summer day, but it also can cause issues with solar-power generation.**

"Our experience shows that passing clouds can cause the output of solar photovoltaic (PV) resources to drop from 100 percent output to 20 percent in a matter of seconds – and then climb back to 100 percent just as quickly," said Al Choi, manager of the company's Emerging Technology team. "This variability affects our ongoing ability to manage the grid, especially as the amount of solar PV on the system continues to grow."

With its top 10 rating for solar capacity in the United States – and ramping up for more – Xcel Energy has been researching the issue.

As more solar arrays continue to come online – including rooftop, community and utility-scale – efforts are under way to find a reliable, cost-effective way to store portions of the solar power being generated today and keep power

distribution steady.

To that end, utility-scale batteries can supplement the grid during rapid fluctuations and "extend" solar energy to cover peak-demand periods, Choi said.

Battery technology has come a long way in recent years, and Xcel Energy recently completed a multi-year test of a utility-scale battery in a real-world setting. Working with the Electric Power Research Institute (EPRI) and others, the company created an energy-storage project to test possible solutions and produce results based on integrating storage systems with solar installations.

The demonstration project took place at the Solar Technology Acceleration Center (SolarTAC) in Aurora, Colo., where participating companies are testing their technologies in a real-world setting. SolarTAC was created in 2009 as a testing site for companies and organizations specializing in solar. The site provides a place where companies can test their technologies



to see if they are ready for market or determine what improvements are still needed.

"This was a pivotal demonstration of the commercial viability of energy-storage systems," Choi said. "The Solar-To-Battery (S2B) project demonstrated how battery-energy storage can smooth solar power's variability and provide power when the sun isn't there."

Xcel Energy worked with Texas-based Xtreme Power on the demonstration project. The S2B project began in 2010, and at the end of 2011, the team threw the switch to connect a neighboring solar array to the battery storage system.

"The S2B demonstration has offered valuable insights into the performance and reliability of utility-scale storage technology," said David Stevens, Emerging Technology's project manager. "Solar is a growing part of our energy resource mix, and the variability common with solar-energy production can lead to potential voltage fluctuations and other grid-

management concerns.

"Solar generation produced at SolarTAC provides an ideal opportunity to study the issue," he added, "along with solutions related to accommodating large amounts of solar energy on our system."

As costs of large-scale batteries continue to decline, the question is: "Can Xcel Energy benefit by integrating battery-energy storage with solar generation?" Although the answer is still largely dependent on the future cost of batteries, Xcel Energy's Emerging Technology team is seeking to understand how batteries may optimize large-scale solar generation.

During the S2B project, the team worked with the battery over hundreds of days and thousands of cycles to understand the system's smoothing operation and its limits, he explained. In the end, the effort demonstrated the capability of battery-energy storage to mitigate cloud-cover effects. Plus, the system was able to charge and discharge within microseconds to smooth

the solar output before it reached the grid.

The S2B project also proved the concept of time-shifting – in which energy stored earlier in the day can be dispatched later to support increased demand in late afternoon and evening. At a predetermined time during the late afternoon, the solar energy stored was released back into the grid, essentially acting as a small peaking plant.

The Next Generation team continues to analyze the immense amount of data acquired during the project's two and a half years of operation.

"The findings have furnished both EPRI and the utility industry with a greater understanding of the ability of battery storage to integrate variable solar generation into distribution grid," said EPRI's Nadav Enbar.

Emerging Technology's engineer-analyst Michelle Lim

added, "Our intent is to discover even more details that will benefit Xcel Energy and its customers as battery-energy storage continues to become more mainstream."

The Next Generation team also is currently working on another battery project, called Community Energy Storage. This smaller 25-kilowatt system is connected to a simulated four-home neighborhood, where all of the houses have rooftop solar panels.

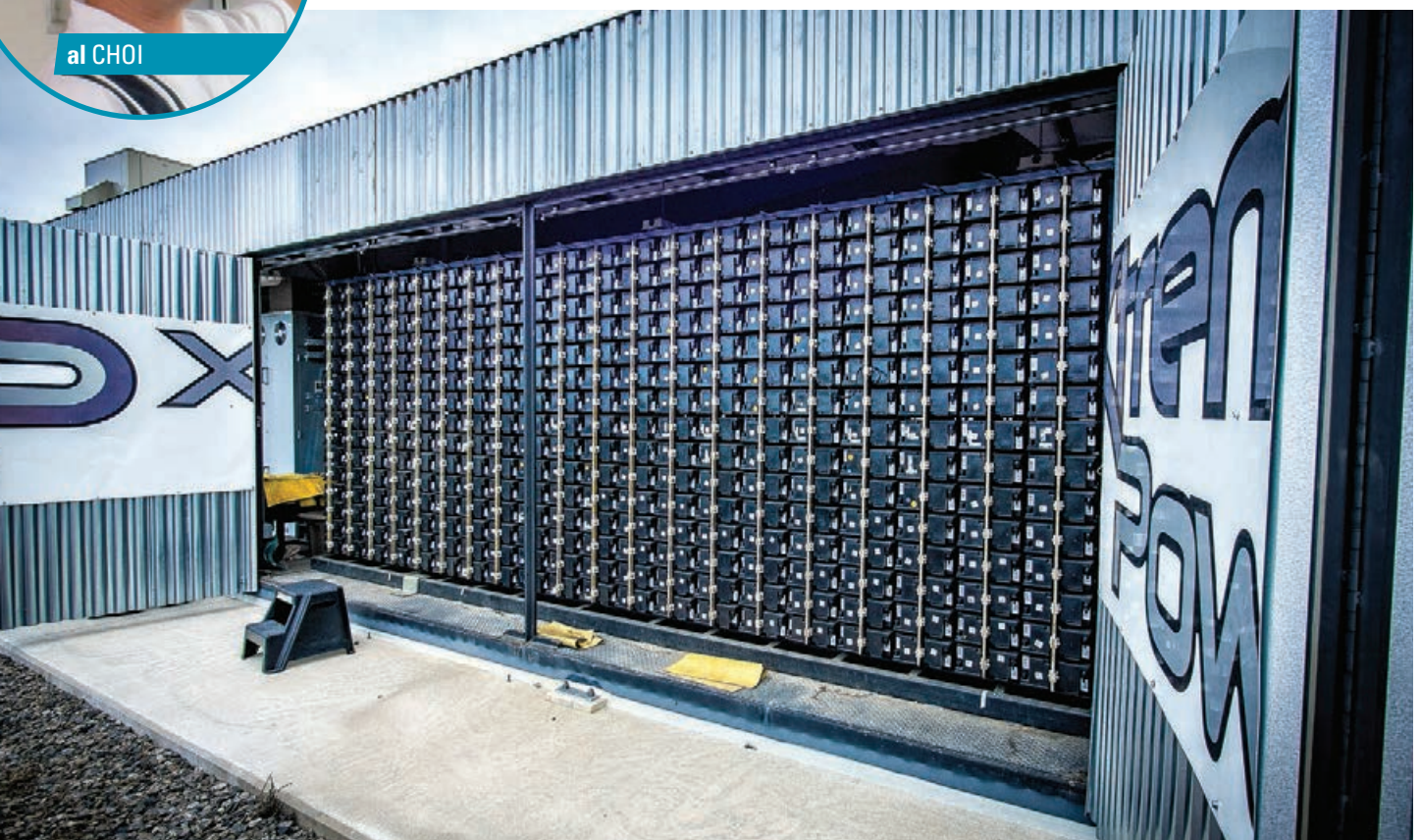
"Solar energy technologies are diverse and continue to rapidly evolve," Choi said. "We hope these demonstration projects will prove to be a pivotal point in combining solar power with energy storage, and in turn underscore for utilities and other electricity providers that viable energy-storage systems can become a commercial reality." ←

## Battery Power

On pages 12 and 13, the housing for the battery portion of the Solar-to-Battery project is removed after a multi-year research project recently came to a close. On this page, personnel work at removing the battery installation. Research on the data from the effort continues.



al CHOI



## Company releases 2014 CO<sub>2</sub> emissions information

Xcel Energy saved more than 2.5 million tons of carbon dioxide (CO<sub>2</sub>) from its operations in 2014 compared to 2013, the equivalent of taking about 480,000 cars off the road for a year, according to the company's latest emissions reporting.

"Through the company's use of renewable energy, energy efficiency and plant modernization projects, we continue to see a downward trend in CO<sub>2</sub> emissions," said Jack Ihle, director of Environmental Policy.

2014 results show that Xcel Energy has reduced CO<sub>2</sub> emissions 22 percent since 2005, with the company projecting a 30 percent reduction by 2020, based on current energy forecasts, he said.

Xcel Energy's 2014 CO<sub>2</sub> worksheet is published in advance of the annual Corporate Responsibility Report and is available for customers and others interested in the company's CO<sub>2</sub> emissions and calculating their own emissions associated with energy usage. The worksheet includes CO<sub>2</sub> and energy mix information for Xcel Energy and each of its three operating systems.

"We did see different results by region that are noted in the worksheet," added Ihle. "Despite some temporary ups and downs, the long-term projection is that all of our operating systems, as well as Xcel Energy as a whole, will continue to reduce emissions."

The company's CO<sub>2</sub> emissions in the Upper Midwest were slightly up in 2014 because the largest unit at Minnesota's Sherco Generating Station was online for a full year after being down for repair from November 2011 to September 2013. This will be offset in future years by the retirement of coal at Black Dog Generating Station, and by planned additions of wind and solar power.

In Texas and New Mexico, emissions were unusually low in 2014 as Xcel Energy's plants in the region began operating under a new dispatch arrangement with the Southwest Power Pool, along with an increase in wind generation. Overall, future emission estimates for the region have increased slightly because of projected load growth by 2020.

Employees or retirees interested in obtaining a copy of the CO<sub>2</sub> worksheet can contact Pam Butler at 303-294-2154.

## News Briefs

## Xcel Energy once again a 'Best for Vets' employer

Xcel Energy has been ranked for the second year in a row on the "Best for Vets" employer list, said Kynnie Martin, senior recruiter for veterans and diversity.

"We're ranked at 55 among the 74 companies who made the 2015 list," she said. "It's a great honor to be included on this list because it demonstrates our commitment to hiring veterans and ensuring they're successful within our company."

The rankings were published in full in a recent issue of Best for Vets, a section of all four Military Times publications, and online at MilitaryTimes.com, as well as ArmyTimes.

com, NavyTimes.com, AirForceTimes.com and MarineCorpsTimes.com.

The Military Times digital platforms and newsweeklies provide news and information for service members and their families. The Air Force Times, Army Times, Marine Corps Times, and Navy Times report on topics important to service members and their families, including pay, benefits, finance, education, health care, recreational resources, retirement, promotions, product reviews and entertainment. Military Times is published by Gannett Government Media. To learn more, visit [www.militarytimes.com](http://www.militarytimes.com).



## Xcel Energy named a 2015 Tree Line USA honoree by Arbor Day Foundation

The Arbor Day Foundation has named Xcel Energy a 2015 Tree Line USA honoree for its commitment to proper tree pruning, planting and care in its service territory. It is the 20th consecutive year Xcel Energy has received this recognition.

Tree Line USA, a partnership between the foundation and the National Association of State Foresters, recognizes public and private utilities for pursuing practices that protect and enhance America's urban trees. Tree Line USA promotes the dual goals of delivering safe and reliable electricity while maintaining healthy community forests.

"Trees are a critical part of urban landscapes all across the United States," said Dan Lambe, president of the Arbor Day Foundation. "Service providers like Xcel Energy show that taking care of urban trees is good for business, good

for customers and good for the community."

"We recognize how important trees are as a natural resource in the hundreds of communities we serve," said Fletcher Johnson, interim director of Vegetation Management. "That's why we've spent years developing a comprehensive program that ensures the safe operation of our lines near trees."

Xcel Energy achieved the Tree Line USA honor by meeting five program standards. Utilities must follow industry standards for: quality tree care; providing annual worker training in the best tree-care practices; sponsoring a tree-planting and public-education program; maintaining a tree-based energy-conservation program; and participating in an Arbor Day celebration.

For more information about Tree Line USA visit [www.arborday.org/TreeLineUSA](http://www.arborday.org/TreeLineUSA). The Arbor Day Foundation is a million-member, nonprofit conservation and education organization with a mission to inspire people to plant, nurture and celebrate trees.

## Texas and New Mexico stakeholder events reach key decision makers

More than 125 key customers, civic and community leaders, and land and business owners in Texas and New Mexico recently heard updates on renewable-energy development and key infrastructure investments that are impacting power costs at a series of Customer and Community Xchange meetings held around the SPS service territory.

The meetings – a joint effort by the Community and Economic Development group and the company's Business Customer Relations organization – were started several years ago to provide an informal stakeholder forum for

discussion on energy issues affecting Xcel Energy communities.

The company held this year's events in Hobbs, Carlsbad, Roswell and Clovis, N.M., followed by Texas meetings in Amarillo, Plainview and Levelland. Brian Fleming, analyst, Resource Planning, presented information on the growing demand for renewable energy in not only the SPS territory, but also the entire Southwest Power Pool (SPP) region.

"It is important to get in front of our community and business leaders to apprise them of our industry, and how hard we are working to provide them with the best and lowest cost products," Fleming said. "It is important for the communities we serve to know we strive to give them more options while being environmentally conscious."

Fleming was joined in Plainview and Levelland by Bill Grant, director of Strategic Planning, who provided detail on the SPP's energy marketplace.

Seth Thomason, director of Customer Relations, wrapped up each meeting with an update on the state of SPS, and an overview of corporate strategies to build the reliability and capacity of the system while maintaining reasonable rates.

"We are seeing a fundamental shift in how we do business and how we serve our customers," Thomason said. "The creation of a wider power market through the SPP has given us new opportunities to acquire inexpensive power and a new marketplace for the renewable energy produced in our territory."

"We've invested hundreds of millions of dollars to tap this market," he added, "and it's paying off through the savings we're seeing in our power purchases."

## News Brief

## Photo Op



## Snowy Owl Sighting

After a snowy owl was spotted a few times near Wisconsin's Ashland Service Center, Larry Bird, lineman-journeyman, recently was able to get within 10 feet of the owl for this photo. He said the owl noticed him and his camera, but he was able to take several photos of the bird on the power poles laying in the yard. Then the owl flew right by him on its way out of the yard. The snowy owl sighting was a first for Bird.

**Editor's Note:** "Photo Op" is a standing feature in Xtra. Each issue, a photo submitted by a reader or produced by a member of Corporate Communications will be published. Please submit high-resolution digital photos to the editor at the email address listed on the back page of this publication. By submitting images for "Photo Op," employees give Xtra permission to run the photos.

# Tops Again

## Company is first to top 5,000 megawatts of wind power

**Eleven years and counting now, Xcel Energy has been named the country's top utility wind-energy provider by the American Wind Energy Association (AWEA), as the company continues to lead the nation in providing wind energy to its customers.**

"Xcel Energy is proud to have grown the use of clean, emissions-free wind energy at a reasonable cost for customers," said Ben Fowke, chairman, president and CEO. "Our wind portfolio is second to none."

In 2014, wind energy made up about 16 percent of the company's energy supply. Currently, Xcel Energy has more than 5,700 megawatts of wind power in its portfolio, enough to meet the energy needs of nearly 2.8 million homes.

Xcel Energy is the first U.S. utility to exceed 5,000 megawatts of wind, according to a new AWEA report. Only nine countries in the world, in addition to the states of Texas, Iowa and California, have more than 5,000 megawatts of wind capacity.

After Xcel Energy's No. 1 ranking with 5,735 megawatts of wind power comes Berkshire Hathaway Energy (including PacifiCorp, NV Energy and MidAmerican Energy) at 4,992 megawatts. Ranked third is Southern California Edison with 3,531 megawatts, followed by American Electric Power (2,185) and Pacific Gas and Electric (2,060).

"Today, we have enough confidence in our wind operations and forecasts that we can back down less efficient fossil fuel plants during times when high winds are predicted," said Frank Prager, vice president for Policy and Federal Affairs. "It's a practice that is reducing fuel costs for customers and saving nearly a quarter million tons of carbon dioxide emissions annually."

In addition, the top 10 states for wind capacity include three in the company's service territory: Texas ranks No. 1, Minnesota is No. 8 and Colorado is No. 10. As well, North Dakota comes in at No. 11.

In 2013, Xcel Energy announced plans to expand its use of wind power by another 40 percent by 2016. The company is adding nine projects throughout its service territory, representing 1,900 megawatts of new wind energy resources, enough to serve about another 900,000 homes.

The projects were all acquired at prices competitive with new natural gas-fueled generation, Prager said, and are estimated to save customers more than \$900 million over the length of the contracts.

At the end of 2014, one-third of this commitment was fulfilled as three of the contracted wind projects came online in Colorado, Texas and Oklahoma, totaling about 650 megawatts. The remaining six projects are on schedule to be completed later this year. ←



## Letters

### 'Your people did a great job'

Dear Xcel Energy:

During the last cold spell, your people did a great job! We never lost power, and we were warm and comfortable. Thank you very much!

—Elton and Janis

### 'He was the nicest person'

Dear Xcel Energy:

I would like to compliment the technician who recently came to my home to inspect my furnace. I suspected a natural gas leak, and your employee responded to my call. He was the nicest person, had a sweet spirit and was very thorough in his inspection. He was kind and patient, and I wanted to thank you for hiring employees like him.

—Shirley

### Getting a callback meant a lot

Dear Xcel Energy:

I just finished doing business with Erika Rodriguez (customer contact center associate) on the phone. She was amazing!

She took care of all my needs, and helped do it as quickly and painlessly as possible. She followed up with me afterward and handled my problem perfectly. Getting her callback really meant a lot to me. Great service. Thank you!"

—Jeanine

### Going beyond expectations

Dear Xcel Energy:

I want to thank Matthew Friell (correspondence representative) for his prompt response and thorough explanation. I really appreciated his help and timely assistance.

I figured I misunderstood the bill, but any time that much money is involved, I get concerned. I thanked him for providing clarity.

Furthermore, I appreciated him going beyond my expectations to adjust my current bill. I very much appreciated his help and was impressed with how quickly he responded.

—A Colorado Customer

## Friends We'll Miss

### Richard L. Anderson

76, senior routing specialist, Meter Reading, Chestnut Service Center, Minneapolis, Minn., died on March 29, 2015. He worked for NSP from 1958 to 1996.

### Edward J. Johnson

59, senior originator, Energy Trading, 414 Nicollet Mall, Minneapolis, Minn., died on April 19, 2015. He worked for Xcel Energy from 1994 to the time of his death.

### Robert F. Jonas

91, executive vice president, Fuel Resources Development, Denver, Colo., died on March 29, 2015. He worked for PSCo from 1947 to 1989.

### James L. Kalisch

75, system relay specialist, Relay Maintenance Operations, 414 Nicollet Mall, Minneapolis, Minn., died on March 21, 2015. He worked for NSP from 1978 to 2002.

### Raymond E. Marjamaki

84, stores foreman, Stores, Chestnut Service Center, Minneapolis, Minn., died on March 22, 2015. He worked for NSP from 1959 to 1994.

### Ivy A. McGeath

73, relay technician, System Protection, Lubbock Operations, Lubbock, Texas, died on April 15, 2015. He worked for SPS from 1970 to 2003.

### John L. Paquette

87, Colorado, died on March 28, 2015. He worked for PSCo from 1956 to 1986.

### Joan B. Peterson

81, budget coordinator, General Services, White Bear Service Center, White Bear Lake, Minn., died on March 23, 2015. She worked for NSP from 1952 to 1989.

### Lana G. Pierce

65, plant specialist A thereafter, Operations, Comanche Generating Station, Pueblo, Colo., died on March 24, 2015. She worked for PSCo from 2006 to 2014.

### Fred J. Raber

71, order reader thereafter, Denver Metro Meter Reading, Lipan Distribution Center, Denver, Colo., died on April 13, 2015. He worked for PSCo from 1968 to 2001.

## People

### Kenneth C. Bernson

63, heavy equipment operator, Transmission Construction, Amarillo Technical Center, Amarillo, Texas, died on April 8, 2015. He worked for SPS from 1992 to the time of his death.

### Morgan H. Clarity

77, Minnesota, died on March 26, 2015. He worked for NSP from 1957 to 1993.

### James R. Darsow

81, Minnesota, died on March 28, 2015. He worked for NSP from 1956 to 1991.

### Virginia M. Donahoe

91, employee education supervisor, Employee Development and Training, 414 Nicollet Mall, Minneapolis, Minn., died on March 26, 2015. She worked for NSP from 1945 to 1983.

### James M. Ellinger

66, risk quantitative assistant analyst, Load Forecasting and Analysis, 1800 Larimer, Denver, Colo., died on April 12, 2015. He worked for Xcel Energy from 1980 to 2013.

### Stephen M. Fait

58, field operator, Eastern High Pressure Gas, Leyden Gas Storage, Arvada, Colo., died on March 24, 2015. He worked for PSCo from 2006 to 2015.

### James J. Gentile

93, lead street fitter, Gas Street, Lipan Service Center, Denver, Colo., died on March 18, 2015. He worked for PSCo from 1948 to 1976.

**Richard B. Reetz**

68, coordinator, Gas Operations, Pueblo Service Center, Pueblo, Colo., died on April 12, 2015. He worked for PSCo from 1967 to 2001.

**Jack L. Riley**

79, meterman, Electric Meter, Kipling Service Center, Lakewood, Colo., died on March 5, 2015. He worked for PSCo from 1959 to 1994.

**Robert G. Savoren**

81, patrolman thereafter, System Operations, Transmission Lines Patrol, Leadville Service Center, Leadville, Colo., died on April 3, 2015. He worked for PSCo from 1972 to 1994.

**Joseph F. Schilds**

91, credit collection specialist, Customer Service Group, Chestnut Service Center, Minneapolis, Minn., died on Jan. 8, 2015. He worked for NSP from 1951 to 1988.

**Heather M. Steele**

35, customer contact center associate, Customer Contact Center, Skypark, Eau Claire, Wis., died on April 24, 2015. She worked for Xcel Energy from 2014 to the time of her death.

**Delbert D. Stover**

87, line crew foreman, Construction, Edina Service Center, Edina, Minn., died on Feb. 21, 2015. He worked for NSP-M from 1955 to 1986.

## Retiring

**Jennifer A. Cornell**

(jascornell2@gmail.com), store keeper, Stores, Kipling Service Center, Lakewood, Colo., retired on April 30, 2015. She worked for Xcel Energy for 35 years.

**Robert C. Correll**

(thecorrells@hotmail.com), facility attachments consultant, Facility Attachments, Rice Street Service Center, St. Paul, Minn., retired on April 30, 2015. He worked for Xcel Energy for 36 years.

**Dale Eckberg**

(daleeckberg@comcast.net), designer, Design, Gateway Service Center, Aurora, Colo., retired on April 30, 2015. He worked for Xcel Energy for 38 years.

**Gregg J. Ellsworth**

(ellsworthgj@gmail.com), line-man troubleman, Electric Trouble Department, Lipan Distribution Center, Denver, Colo., retired on May 12, 2015. He worked for Xcel Energy for 38 years.

**Mark Finleon**

troubleman, Operations, Boulder Service Center, Boulder, Colo., retired on April 25, 2015. He worked for Xcel Energy for 37 years.

**Jeff Fouquette**

lead plant equipment operator, Operations, Sherco Plant, Becker, Minn., retired on April 1, 2015. He worked for Xcel Energy for 34 years.

**Jacqueline Gilchrist**

principal energy supply consultant, Planning and Process Enhancement, Marquette Plaza, Minneapolis, Minn., retired on April 30, 2015. She worked for Xcel Energy for 29 years.

**Leroy Gramsey**

maintenance welder, Maintenance, Monticello Nuclear Generating Plant, Monticello, Minn., retired on April 1, 2015. He worked for Xcel Energy for 41 years.

**Mark Hoffarth**

(hoffarths@frontiernet.net), engineering senior analyst, Design Engineering, Monticello Nuclear Generating Plant, Monticello, Minn., retired on June 1, 2015. He worked for Xcel Energy for 20 years.

**Dave Jagusch**

(davejagusch@hotmail.com), lead NLO work control center, Operations, Prairie Island Nuclear Generating Plant, Welch, Minn., retired on May 15, 2015.

**Kim Keilholtz**

(kimdtm@msn.com), Minneapolis, Minn., retired on March 2, 2015. She worked for Xcel Energy for 35 years.

**Bill Kulp**

(will4short@msn.com), field credit representative, Collections, Arvada Headquarters, Arvada, Colo., retired on April 10, 2015. He worked for Xcel Energy for 32 years.

**Dale D. Lowe**

shift foreman, Operations, Harrington Station, Amarillo, Texas, retired on May 24, 2015. He worked for Xcel Energy for 40 years.

**Sally McBirney**

(salley.mcbirney@gmail.com), collection agency specialist, Credit, 1800 Larimer, Denver, Colo., retired on May 29, 2015. She worked for Xcel Energy for 17 years.

**Susan Merriman**

planner, Design, Mesa County Operations Center, Grand Junction, Colo., retired on April 29, 2015. She worked for Xcel Energy for 27 years.

**Cesar G. Pereira**

senior analyst, Energy Management Systems, Lookout Center, Golden, Colo., retired on March 2, 2015. He worked for Xcel Energy for seven years.

**David B. Quintana**

maintenance mechanic journeyman, Tolk Station, Earth, Texas, retired on May 29, 2015. He worked for Xcel Energy for 40 years.

**Patricia Romanowski**

(thejamlady08@yahoo.com), representative, Customer Call Center, Skypark, Eau Claire, Wis., retired on May 4, 2015. She worked for Xcel Energy for 16 years.

**Thomas Seide**

senior transmission system operator, Transmission, 414 Nicollet, Minneapolis, Minn., retired on Feb. 28, 2015. He worked for Xcel Energy for 35 years.

**Paul Schwartz**

system relay specialist/general foreman, Relay Department, Maple Grove, Minn., retired on May 1, 2015. He worked for Xcel Energy for 34 years.

**Paul K. Smallwood**

settlement accountant, Commercial Accounting, 1800 Larimer, Denver, Colo., retired on May 13, 2015. He worked for Xcel Energy for 36 years.

**David G. Welch**

(davidwelchjr@comcast.net), mechanic specialist, Electric Production, Cherokee Station, Denver, Colo., retired on May 28, 2015. He worked for Xcel Energy for 33 years.

**Daryl Wilson**

(sandymcw@sbcglobal.net), instrument journeyman, Plant Controls, Lubbock, Texas, retired on April 23, 2015. He worked for Xcel Energy for 37 years.

**Sharon R. Wilson**

stores specialist, Stores, Pawnee Station, Brush, Colo., retired on March 31, 2015. She worked for Xcel Energy for 34 years.

**Kathy Worthington**

(kdw81212@gmail.com), area manager, Community and Local Government Affairs, Community Relations, Pueblo Service Center, Pueblo, Colo., retired on May 4, 2015. She worked for Xcel Energy for 42 years.

## Online Xtra subscription now available

Employee readers of *Xtra* can now opt out of receiving the print version of Xcel Energy's employee and retiree publication, and instead read the online version on XpressNet or via a portal on the company's website at [xcelenergy.com](http://xcelenergy.com).

To complete the opt-out process, employees need to fill out a form on the *Xtra* homepage of XpressNet, providing their name, employee ID and company email address. Those who choose to opt out will receive an email when a new issue is available for online viewing.

The opt-out form and online versions of *Xtra* can be found by clicking on the "Xtra Online" link, located at the bottom of the XpressNet homepage. The online edition of *Xtra* also can be found at [xcelenergy.com/Xtra](http://xcelenergy.com/Xtra) — or from the homepage, look under Community/Community Involvement/Retiree Directory (or visit [xcelenergy.com/Retirees](http://xcelenergy.com/Retirees)).

## XTRA

Published monthly by Xcel Energy  
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