

Boulder Municipalization Study Issue # 7

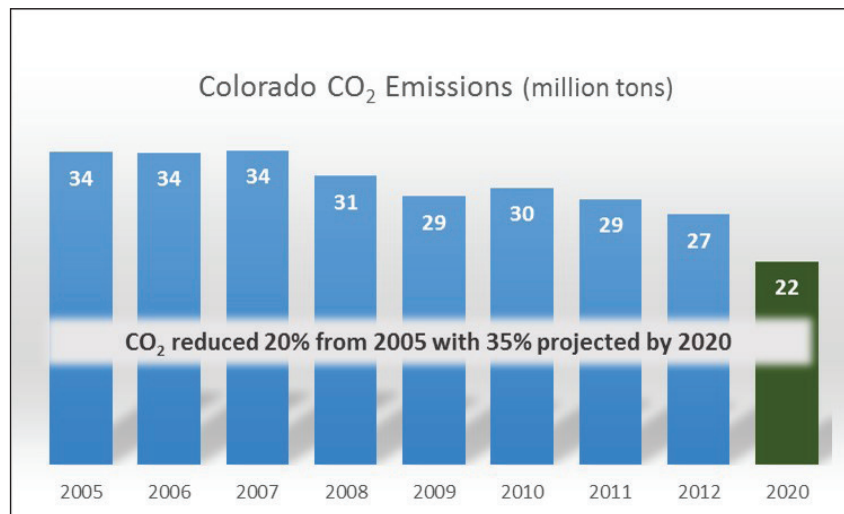
Xcel Energy—past successes lead to future goals

October 18, 2013

Just over five years ago, Xcel Energy proposed what, at the time, was an ambitious goal: “In Colorado, we have proposed a plan that our projections show will achieve CO₂ reductions of 10 percent by 2017, with further reductions possible by 2020.”¹ Fast-forward to today: Xcel Energy has *already* reduced carbon dioxide emissions by 20 percent.

That was accomplished while also keeping electricity bills affordable, with Colorado residential customers paying an average of about \$2.38 a day or approximately \$72 a month in 2012. Xcel Energy now projects it will reduce its Colorado CO₂ emissions 35 percent by 2020. If renewable energy remains as cost competitive as it is today, carbon emissions could be cut in *half or greater* from 2005 levels in the not too distant future.

Figure 1. Xcel Energy Colorado CO₂ emissions



The record: lower emissions while maintaining reliability, affordable rates

Xcel Energy has taken an aggressive but cost-effective approach to reducing the environmental impact of producing electricity. In 2010, the company proposed a plan to support the state’s “Clean Air Clean Jobs” initiative that would significantly reduce power plant emissions by retiring its oldest coal-fired power plants, such as the Valmont facility in Boulder County, installing state-of-the-art emissions control equipment on other plants and increasing the use of natural gas to generate electricity.

Natural gas now powers nearly a quarter of the electricity delivered in Xcel Energy’s Colorado service area, with renewable energy representing nearly 20 percent of the fuel mix. Colorado-based wind energy makes up the bulk of the renewable energy supply. Among the more than 3,000 electric utilities in the U.S., Xcel Energy is the number one provider of wind energy and has held this position for the past nine consecutive years, according to the American Wind Energy Association (AWEA).

¹ 2007 Xcel Energy Triple Bottom Line Report

Integrating that much power from an intermittent resource has required innovation and advances in operating our utility system. Xcel Energy's partnership with the National Center for Atmospheric Research (NCAR) in Boulder has created an industry-leading tool for producing highly detailed, localized weather forecasts to anticipate and incorporate wind into the state's power grid with much higher effectiveness. The forecasts help Xcel Energy make critical decisions about reducing the use of fossil fuel power plants when sufficient supplies of wind power are predicted. The result is a method that enables Xcel Energy to offer its customers much more renewable energy while still meeting their reliability needs at a low cost.

In fact, for a very low price of about 2.16 cents per kilowatt hour (kWh), Colorado customers can choose to purchase up to 100 percent of their electricity from wind power through Xcel Energy's Windsource® program. Windsource is consistently ranked among the leading customer-choice green energy programs in the nation. It recently passed a major milestone as customers subscribed to two billion kilowatt-hours of wind. Denver and Boulder are the two communities with the highest number of Windsource participants.

Solar energy is also growing in prominence as an alternative energy source for Xcel Energy and its Colorado customers. The cost of solar is low since Xcel Energy is able to take advantage of the 30 percent investment tax credit, which will be reduced to 10 percent at the start of 2017.

Today Xcel Energy has 84 megawatts of large, utility-scale solar on its Colorado system, with much more planned. This is enough energy to meet the electricity needs of about 25,000 homes. Additionally, customers are participating in the company's Solar*Rewards® program at a record rate, receiving incentives to install solar panels on their homes and businesses. New applications for the program have increased 144 percent since 2011. Today more than 16,500 Solar*Rewards systems with a combined capacity of 170 megawatts are producing clean energy from Colorado sunshine.

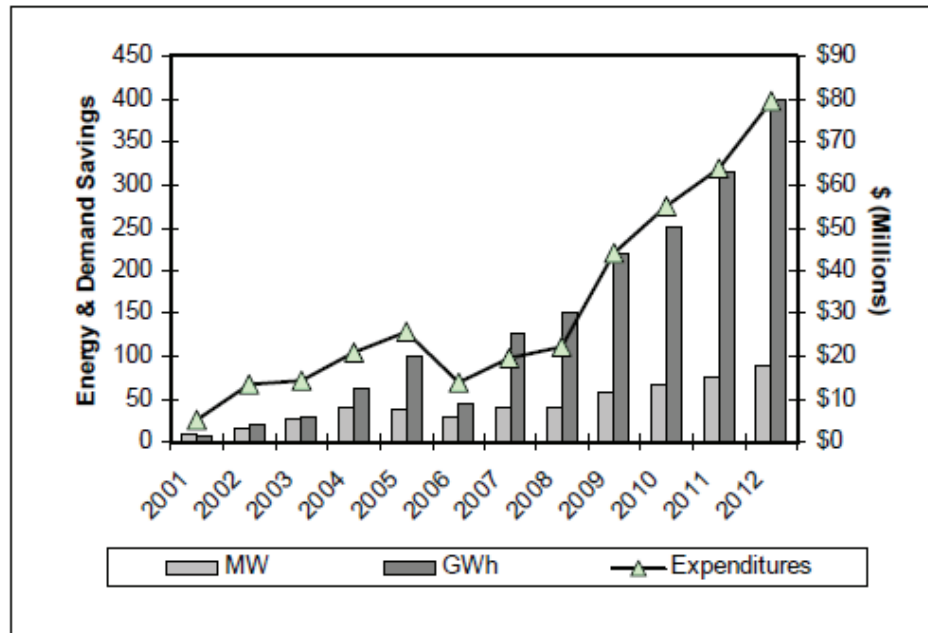
The Solar*Rewards Community® program has also shown strong participation as developers attract customers who may not be able to install solar panels on their homes but can still take advantage of energy from the sun.

Boulder customers, in particular, have shown strong participation in Solar*Rewards, where local solar generation meets about 4 percent of the community's annual electricity needs. That is more than 30 times the national average. As stated in a Sept. 10, 2013, *Boulder Daily Camera* article, "According to the city, Boulder already has one of the highest levels of solar use per capita in the U.S., with almost 14 megawatts installed in the city." And, in 2013, Xcel Energy approved Solar*Rewards Community applications for nine projects in counties throughout Colorado, each providing 500 kilowatts of energy.

Xcel Energy's commitment to energy efficiency and conservation also plays a pivotal role in reducing carbon emissions. It is often a surprise to customers when they learn the company invests more than \$80 million a year—more than double the amount in 2007—to help them use less electricity through "demand side management" (DSM) programs. These energy efficiency programs have not just reduced electricity use but also helped Colorado customers save more than \$400 million in 2012 alone. Xcel Energy's DSM programs have earned the Sustained Excellence Award, the highest award from ENERGY STAR®, for continued leadership in delivering energy efficiency choices to customers.

In 2012, Xcel Energy's DSM programs exceeded their energy savings goals and reduced the *demand* for electricity by more than 90 megawatts and annual electric *consumption* by more than 400 gigawatt-hours (see Figure 2). That decrease in use is roughly the equivalent to the amount of energy consumed by all residential and small commercial customers in the city of Boulder.

Figure 2. Xcel Energy DSM expenditures and resulting savings in Colorado



A look forward

Xcel Energy's latest Colorado Electric Resource Plan (ERP), filed in late 2011, proposed more wind, utility-scale solar and natural gas-fired generation resources for the statewide system. Those additions will reduce overall CO₂ emissions from 2005 levels by increasing the use of renewable energy. The company is already ahead of the CO₂ reduction goal it proposed in 2007 because, in part, it has aggressively added wind energy while the federal tax credit is still available, cutting the cost of wind generation by 30-40 percent.

This tax credit is set to expire at the end of 2013 and is one reason the company proposed, and recently received, approval from the Colorado Public Utilities Commission for 450 megawatts of additional low-cost wind energy. This is above the 400 megawatts of wind energy the company added in 2012.

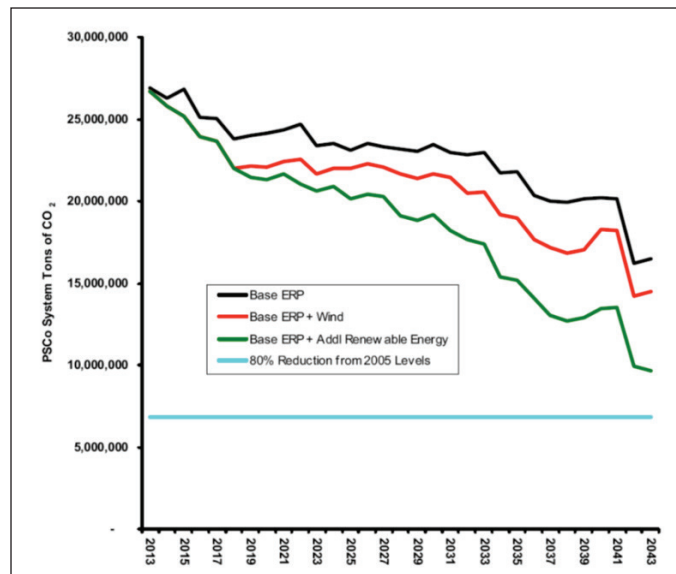
The company is also requesting approval for large-scale solar power generation since finding that prices for solar energy are competitive with fossil fuel generation—a first in Colorado. Xcel Energy is now seeking approval of an additional 170 megawatts of utility-scale solar for its Colorado system, an amount equal to the output of all of the customer-sited solar installations in the state and at about *half the cost* of past projects. To be able to fully use these new wind and solar resources, Xcel Energy has proposed purchasing 317 megawatts of natural gas generation so it can reliably integrate renewable resources into the electricity grid.

All of these proposed investments represent a significant change to the company's 2011 electric resource plan. One of the critical flaws of Boulder's municipal utility financial studies is that they are based strictly on the 2011 ERP without considering how Xcel Energy has already surpassed the forecasts in that plan over the past two years. Additional modeling the company provided to Boulder shows that, if renewable energy remains as inexpensive as it is today, Xcel Energy will continue to incorporate those resources at a much faster pace than the 2011 ERP suggested.

Figure 3 shows the forecasted Colorado carbon dioxide emissions for Xcel Energy under various scenarios. The black line at the top indicates emission levels if the company strictly followed the 2011 plan. With the 450 megawatts of wind recently approved and 170 megawatts of solar proposed, Xcel Energy is on a trajectory that is slightly below the red line in 2020.

The green line at the bottom of the graph indicates the emission forecast if Xcel Energy continues to add renewables at just one-third of the pace the company has followed over the past 10 years. The light blue flat line represents an 80 percent emissions reduction level. Boulder’s municipalization study incorrectly compares a speculative city utility to what Xcel Energy was predicting its course would be in 2011, not to the emissions reductions the company actually achieved in the two years since 2011 and is likely to achieve in the future.

Figure 3. Xcel Energy’s projected CO₂ emissions in Colorado under differing scenarios



Conclusions

In 2007, Xcel Energy set a goal of reducing its carbon emissions in Colorado 10 percent by 2017, a target that, at the time, was considered an industry leader. Now four years short of 2017, the company has far exceeded that plan while still keeping electricity prices affordable for customers.

Further, as a result of plans and commitments for 2013-2017, Xcel Energy will invest \$4.56 billion in infrastructure improvements to modernize its Colorado electricity and natural gas infrastructure. The important point is that the job of providing reliable, safe and affordable energy does not end with purchasing equipment, power lines and substations. Continuous upgrades and improvements are also vital and require consistent, experience-based investment.

While the environmental gains Xcel Energy has made are substantial, the company realizes more can be accomplished. The company is committed to reducing emissions aggressively while keeping customers’ bills affordable and maintaining its record of 99.9 percent reliability. Because of a balanced and proactive approach, the company is able to plan and complete projects efficiently and cost-effectively, deliver electricity—both renewables and fossil fuel based—at an affordable price for customers and still respond to major emergencies to restore service quickly and safely.

Xcel Energy’s Boulder customers have played a major role in developing and participating in the policies and programs that have made Colorado a national leader in reducing emissions. The best path forward is one in which Boulder customers and Xcel Energy continue to work together to chart a successful course toward a clean energy future.