

PROCESS EFFICIENCY PROGRAM IN MINNESOTA

PROGRAM SUMMARY

Participants:	Existing industrial customers with conservation potential ¹ of at least 0.5 GWh for electric customers or 4,000 dekatherms (Dth) for natural gas customers.
Customers are incentivized to:	Identify gaps in efficiency strategies and improve business practices that drive continuous improvement in energy efficiency.
Incentives:	The program provides funding for engineering and technical studies to develop energy-saving opportunities. A participant's contribution to fund a study is limited to 25%, with a cap of \$7,500. ² Customers are also eligible for equipment and system-level rebates as well as bonus rebates for adhering to or exceeding an energy plan.
Support provided to customers:	Account managers, program managers, field engineers, energy efficiency engineers, and consultants provide guidance on identifying energy efficiency opportunities, setting goals, and developing an action plan.
Impact:	Cumulative energy savings of 530 GWh and avoided generation capacity of 61 MW since 2010, ³ in addition to production improvements, carbon reductions, and reduced maintenance.

Xcel Energy's Process Efficiency Program⁴ provides guidance and technical support to empower participants to improve the efficiency of their industrial processes. Different versions of the Process Efficiency Program cover Xcel Energy's service territories in Minnesota and Colorado. This case study focuses on the Minnesota version of the Process Efficiency Program. The program is geared toward the largest industrial users of energy in Minnesota.

Because program participation can be time-intensive, a key ingredient to success is to secure early support from the participating company's management team. Top-level management support enables the participating company to dedicate staff time and resources toward following through on the energy management plans developed through the program.

Systems Efficiency Benefits. The Process Efficiency Program differs from many of Xcel Energy's traditional equipment efficiency programs in that it offers a holistic, top-down investigation into a facility's energy balances. The guidance provided supports comprehensive strategies that address behavioral/operational changes and technology upgrades that improve energy efficiency across multiple building systems. To reach the large degree of energy savings potential (0.5 GWh or 4,000 Dth) required to participate in the program, it is often necessary to adopt a strategic energy plan to capture savings from multiple building systems.

¹ Conservation potential is assumed to be 10% of annual energy consumption.

² Xcel Energy (2017), [Information Sheet, Minnesota, Process Efficiency](#)

³ Cumulative through 2019.

⁴ Xcel Energy (2019), [Process Efficiency](#)

CUSTOMER BENEFITS

Xcel Energy provides extensive technical support for the development of highly customized energy management plans.

Xcel Energy provides technical support in stages to help participants identify and act on energy saving opportunities. Throughout the process, a participant has access to an Xcel Energy team that consists of a program manager, dedicated account manager, field engineer, and energy efficiency engineer. The field engineer provides critical in-person engagement to help the participant gain traction in deploying the energy efficiency measures onsite. Xcel Energy hires a consultant (Graphet Data Mining) to help deliver the program services in stages:

"If there is an energy plan, the likelihood of completing a project is higher ... and that plan has to be customized to each individual customer to address their unique business needs."

-Lori Nielsen, Product Portfolio Manager, Customer Solutions, Xcel Energy

1. Diagnostic Phase. In the diagnostic phase, Graphet Data Mining conducts question-and-answer sessions with the participant's team including upper management to assess current energy consumption and potential areas of energy waste.
2. Scoping Phase. The scoping phase can take months to complete and involves developing an energy plan and making projections for returns on investments.
 - ✔ Energy Plan. During the scoping phase, the participant provides Graphet Data Mining with data on the facility's energy billing, energy consumption, and production. This data, along with spot monitoring, is used to generate an energy flow map as well as engineering and technical studies that identify specific opportunities for improvement to include in the energy plan.
 - ✔ Financial Outlook. Because the upfront investments required to develop and act on an energy plan can be a challenge, it is critical for the participants to be able to objectively quantify the potential for energy and cost savings in order to justify the investment. Because many customers do not have the resources to demonstrate the return-on-investment outlook for their management team, the Process Efficiency Program provides tools and support to demonstrate how making energy efficiency improvements can be cost-effective and potentially lead to increased production.
3. Energy Plan Phase. Xcel Energy helps the participant develop an energy plan, which may involve operational changes as well as capital upgrades that would take place over the course of up to five years. Graphet Data Mining also considers the perspectives of the participating company's management team to help tailor their energy plans to support business plans. The progress and outcomes of energy plan implementation are assessed through several avenues:
 - ✔ An account manager may hold weekly or quarterly calls with a participant to check in on progress on the energy plan.
 - ✔ After the energy plan is complete, the account manager assesses the energy consumption data and may award bonus rebates – in addition to the standard energy efficiency rebates available – for adhering to or exceeding the energy savings plan.

Cost/benefits of the program. The program is funded by a conservation improvement rider included on all customers' energy bills.⁵ Due to the customized level of support offered to program participants, which requires Xcel Energy to hire consultants, this program is more costly than many of Xcel Energy's other energy efficiency programs. It typically takes at least one year for participants to develop the energy plan and some participants may not realize savings until two or three years into the plan's implementation. However, the program is cost-effective over the long-term because it is targeted toward highly energy-intensive industrial customers and achieves significant energy savings. Customers undergo a cost/benefit analysis before participating.

Co-benefits. In addition to energy savings, the program fosters best practices that result in several co-benefits, including:

- ✔ Emissions reductions: If a participant wants to incorporate emissions benefits into their energy plan tracking process, Xcel Energy provides an estimate on energy-related greenhouse gas emissions reductions.
- ✔ Tenant comfort: If a participant is interested in improving tenant comfort and productivity, Xcel Energy will help them integrate those goals into their plans and quantify their progress.
- ✔ Equipment productivity: The program helps participants document operational changes and adopt a process for enforcing the changes to prevent falling back into old habits. This includes operational changes that improve the productivity of equipment, e.g., ensuring machines are operating at optimal performance.
- ✔ Quality and reliability: The program helps participants establish critical quality requirements for energy-intensive operations and support systems while enhancing reliability.
- ✔ Peak demand savings: The program highlights the benefits of reducing peak demand savings and encourages interval metering and shifting loads to improve alignment with Xcel Energy's power generation strategies.

LOOKING FORWARD

Xcel Energy continues to target large and energy-intensive customers and aims to integrate more creative strategies to reduce energy consumption.

There are currently about 130 industrial customers participating in the Process Efficiency Program in Minnesota. The flexible design of the program accommodates customers' changing business circumstances: customers can stay enrolled in the program over several years and update or refine their customized energy plan as needed. Changes to business circumstances may include when the company is hiring new staff that can devote time to program participation, implementing a new technology to improve efficiency, or seeking guidance on investing new capital in energy efficiency.

Xcel Energy is open to sharing best practices in administering this program with utilities in different states, while recognizing that there will be some application differences based on the regulatory requirements in various jurisdictions.

⁵ Energy efficiency programs benefit not only participating customers, but all customers, which is why conservation improvement riders can be applied to all customers' energy bills. "[Energy efficiency programs] reduce utility costs over time and translate into reduced rates for customers" as outlined in ACEEE's 2015 report titled "[Everyone Benefits: Practices and Recommendations for Utility System Benefits of Energy Efficiency.](#)"

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