

Recommissioning

STUDY PREAPPROVAL APPLICATION

Business Customer Information

Company name _____ Date submitted _____

Building address _____ City _____ State _____ ZIP _____

Mailing address (IF DIFFERENT) _____ City _____ State _____ ZIP _____

Contact person (PRINT) _____ Phone _____ Fax _____

E-mail* _____ Building Sq. Ft. _____

* By providing your e-mail address, you are granting Xcel Energy permission to send further e-mails regarding our programs and services.

Xcel Energy premise number: (ELEC) (NATURAL GAS)

Customer is an Xcel Energy Electric customer Gas customer Rate Code _____

Type of space (i.e. office, school) _____

Is the heating system: steam/hot water electric gas other no heating system

Is the cooling system: chilled water direct expansion both chilled water & direct expansion no cooling system

Engineering Firm Information

Engineering Firm performing study (consulting firm) _____

Engineering Firm address _____ City _____ State _____ ZIP _____

Principal Investigator performing study _____

E-mail* _____

Phone _____ Fax _____

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Xcel Energy Funding

Xcel Energy will provide a study rebate for studies to help customers identify and implement energy-saving recommissioning opportunities. Customers may qualify for a rebate of UP TO 75 PERCENT of the study cost, not to exceed \$25,000. Funding levels vary and may be dependant upon projected energy savings at the facility.

Note: The Xcel Energy Funding Authorization section of the application must be signed prior to initiation of a Study to qualify for Xcel Energy study rebate. The Study is limited to the evaluation of potential energy impact recommissioning project(s).

Study Preapproval and Approval Process

- To obtain Xcel Energy rebate preapproval for a study, the customer and engineering firm should follow the steps below.
- Please submit the following to Xcel Energy at the preapproval application phase:
1. Completed Recommissioning study preapproval application.
 2. Copy of the study proposal from the engineering firm. The proposal should provide a description of energy impact measures that will be investigated as well as a building description. The proposal should address the following items:
 - a) What are the existing HVAC, lighting and controls systems included in this study?
 - b) What are the customer's concerns, issues or problems that you found in your walkthrough?
 - c) What are the preliminary recommendations to be proposed in this study based on your initial walkthrough?

3. Completed Addendum A (list of measures) to be filled out by the engineering firm. The measures are found below under Study Requirements and the form and the detailed descriptions can be found on xcelenergy.com/recomm. The engineering firm should review the list of measures and identify if there are any measures that aren't applicable to the building being studied and document the reasons why. All other measures should be analyzed during the study.

Please submit the following to Xcel Energy at the study approval phase:

1. Draft study.
2. Energy calculations.
3. Energy Conservation Opportunities (ECO) form.
4. Completed Addendum A (list of measures). Check off the measures that you suggested within the study. For any measures that were not suggested, please identify why.
5. Copy of Xcel Energy recommissioning calculator tool, if it was used for the study.

Upon Xcel Energy approval of the final study, the engineering firm should send a final copy of the study and the invoice to the customer and the Xcel Energy account manager. The engineering firm should invite the Xcel Energy account manager to the final report presentation meeting. The study should not be presented to the customer until Xcel Energy has approved it, as changes to the report often occur during review.

To receive the study rebate, the customer should submit the study rebate form, implementation plan and a copy of their paid invoice to Xcel Energy within three months.

Study Requirements

Recommissioning Strategy Measures:

The following list of measures contains common recommissioning measures that can be found during a building investigation. **Study providers are required to analyze the following measures during their recommissioning investigation.** If the building has electric heat, direct expansion cooling or does not have heating/cooling, only a subset of the measures need to be analyzed (see exemptions below the table). This list is not an exhaustive list. You may also include other measures that you may find during the investigation.

Many of the measures can be found within Xcel Energy's recommissioning calculator tool, which is a tool that will calculate energy savings for study providers. Please contact Xcel Energy if you would like access to the recommissioning calculator tool.

After the study provider has completed the investigation, they are required to complete Addendum A documenting which measures they found and providing reasons for not identifying measures on the list.

Required List of Measures to be Analyzed (please refer to Addendum A on xcelenergy.com/recomm for full measure explanation)

1. Replace/repair/calibrate sensor	14. Add/replace/repair damper, linkage and/or actuators	27. Trim pump impeller
2. Tune/upgrade controls	15. Heating plant enable	28. Pump flow reduction
3. Reduce equipment runtime	16. Waterside economizer & cooling plant enable	29. Pressure differential change
4. Reduce lighting schedule	17. Revise control sequence	30. Reduce/reset the differential pressure set point
5. Adjust photocell/occupancy/daylight sensor	18. Optimize airside economizer	31. Add/optimize chiller staging
6. Reduce valve leakage	19. Add/optimize SAT reset	32. Optimize waterside economizer
7. Reduce AHU/RTU air leakage	20. Lower/reset VAV box flow	33. Add/optimize chiller lockout
8. Reduce AHU/RTU fan static by coil cleaning	21. Adjust space static controls	34. Add/optimize cooling tower staging
9. Restore VFD to 'auto'	22. Adjust outside air min flow set point	35. Add/optimize CWST reset
10. Reduce equipment/actuator cycling	23. Add/optimize demand control ventilation	36. Add/optimize CHWST reset
11. Relocate/shield temp sensor	24. Add/optimize zone setup/setback	37. Add/optimize HWST reset
12. Increase dead band	25. Add/optimize optimum start/stop	38. Add/optimize boiler lockout
13. Eliminate simultaneous heating and/or cooling	26. Reduce/reset DSP set point	

Exemptions:

If a customer has electric heat, you only need to analyze measures 1-36.

If a customer has direct expansion cooling, you only need to analyze measure 1-29 and 37-38.

If a customer does not have heating/cooling, you only need to analyze measures 1-5 and 27-38.

Customer's Declarations

The information in this application is accurate and complete. I have read, understood and agree to the "Terms and Responsibilities" section of this application.

I, (Customer name) _____, agree to pay the full cost of the Study, after Xcel Energy has approved the final report, and am fully responsible for supervising and directing the engineering firm in the performance of the Study. We understand that if Xcel Energy does not approve the final report submitted by the engineering firm, that Xcel Energy will not provide the customer a study rebate.

I give permission for Xcel Energy to release billing history for affected business facilities to the firm conducting the recommissioning study, solely for the purpose of completing the study.

My organization agrees to turn in signed, completed paperwork to Xcel Energy when identified opportunities have been implemented. We understand that failing to implement identified opportunities and/or failing to turn in completed measure paperwork may limit future study rebates for my organization.

Signature _____ Title _____ Date _____

Engineering Firm's Declaration

(Engineering Firm's name) _____ will produce a study according to the Study Requirements and Workscope section of the application and has read, understood, and agreed to the "Terms and Responsibilities" section of this application. We also do not expect customer payment until Xcel Energy has approved the final report submitted by us. The cost for performing the Study is \$ _____

Signature _____ Title _____ Date _____

Name (PRINT) _____ Phone _____ Fax _____

E-Mail* _____

*By providing your e-mail address, you are granting Xcel Energy permission to send further e-mails regarding our programs and services.

Estimated study completion date: _____

Xcel Energy Study Funding Authorization

INTERNAL use only – do not write in this section

Account Managers, please attach 12 months building usage history for all meters at the building and complete the following. The application can't be reviewed without this information.

Xcel Energy Account Manager (PRINT) _____ Phone _____

Peak kW _____ Annual kWh _____ Dth _____

For CO customers only: Is customer on gas transport? Yes No

Xcel Energy agrees to fund this project up to \$ _____ The customer is responsible for paying the balance of the study cost.

Authorized by (PRODUCT PORTFOLIO MANAGER) _____ Date _____

Authorized by (TECHNICAL CONSULTANT) _____ Date _____

Terms and Responsibilities

1. Study rebates are available to Xcel Energy business customers in Minnesota and Colorado. Colorado gas transport customers do not qualify for gas rebates.
2. Individuals with demonstrable experience, appropriate to the type of study being performed must be responsible for conducting the Study. Xcel Energy, at its discretion, may approve a non-P.E. to perform a study after reviewing their qualifications.
3. The engineering firm performing this Study must do so with impartiality towards equipment suppliers, distributors, and all equipment or product brand names.
4. The Study must be performed according to the Study Requirements and Workscope Section of this application.
5. Xcel Energy makes no warranties regarding the Study. All such warranties are between the engineering firm and the customer. Rebate qualifications do not imply any representation or warranty of the Study by Xcel Energy.
6. Xcel Energy's decision relating to customer eligibility for the Study or other issues will be final and binding for all parties.
7. The customer shall be responsible for directing the work of the consultant or the contractor; at no time shall the consultant or contractor be considered an agent, employee, or a contractor of Xcel Energy.
8. The Xcel Energy Funding Authorization section of this application must be signed prior to initiation of the Study.
9. The Study must be completed within three (3) months of the Xcel Energy Funding Authorization Date.
10. Xcel Energy reserves the right to perform pre- and post-installation energy testing and data collection.
11. Xcel Energy reserves the right to accept or reject any application, study, or portion thereof.
12. Customers must submit documentation to Xcel Energy when opportunities have been implemented.
13. Xcel Energy reserves the right to limit future study rebates if customer fails to turn in completed paperwork after the opportunity has been completed.

Study Workscope: Business Case Justification

Requirements: The purpose of the Study is to provide a customer with the necessary business case justification to implement the energy-saving opportunity. All studies should include the information listed in the business case justification and the program requirements section.

A. Executive summary

Report will include an Energy Conservation Opportunities form briefly describing the purpose of the Study, existing conditions and options considered.

B. Introduction

In addition, the report will contain an introduction section consisting of customer information and an Xcel Energy (Company) disclaimer.

C. Study summary

The Engineer will fill out the Energy Conservation Opportunities (ECO) form (i.e. material and/or format provided by company) of capital costs, incentives, energy reduction/increase in kW and/or kWh, and reduction/increase in natural gas Dth, reduction/increase in district cooling energy use, reduction/increase in other fuels/utilities.

D. Project description

The following will be provided for retrofit opportunities:

- Description of existing equipment; and
- Explanation of how the proposed project, measure or ECO will modify the plant process or building.

The following will be provided for equipment upgrade situations:

- Description of the proposed energy alternative(s) and the comparable "standard" or "normal" alternative;
- Description of plant upgrade and how the different energy alternatives will affect operation and function;
- Describe the energy use relative to the "standard" alternatives.

E. Energy estimate

The following energy-use calculations and calculated estimates will be provided with regard to the project scope of work:

- **Document all calculations on an Excel spreadsheet and submit as part of the Study.**
- A calculated estimate of annual electric energy use in kWh, monthly maximum demand in kW and/or natural gas Dth. This calculation will include an indication of when, during the day and year, the demand and energy consumption will occur.
- A calculated estimate of annual electricity/natural gas reductions/increases in use and cost, based on the rate schedule most appropriate for the customer. Request rate information from the customer's company account manager.
- Indication of how estimate data was derived (e.g., theoretical calculations, field measurements, manufacturer's data, etc.)
- An estimate of the project cost and payback period.

- A description of the existing equipment and the proposed modifications to improve energy efficiency.
- Calculation of weather-influenced variables must use, at a minimum, the temperature bin method.

F. Measurement of energy

The Study will include a plan to verify the electric energy use (e.g., after the project is implemented how will the building owner or plant manager know that the project is using/reducing the energy estimated). Costs associated with verification must be identified.

G. Non-energy project impacts

- The Study will estimate other quantifiable benefits and costs to implement the potential energy project, such as impact on production or building function levels, operating and maintenance costs, and plant reliability. Positive and negative impacts will be considered.
- The Study also will provide an indication of project impacts that may be difficult to quantify, such as safety and environmental considerations and product quality.

H. Project costs/vendor quotations

Estimated and/or vendor quotations of the incremental project costs will be provided. This will involve a category breakdown of the major pieces of equipment to be installed, removed or replaced, subdivided into internal customer labor, external contractor labor, additional engineering, and equipment component costs. Also, any incremental operating and maintenance costs compared to the existing process or equipment operation should be identified.

I. Financial analysis

The Study will include a financial analysis according to criteria established by the customer (i.e. payback requirements, return on investment requirements).

Xcel Energy's ECO Form, to be filled out with all studies, will calculate simple paybacks and applicable recommissioning rebates. This analysis takes into consideration all energy and non-energy project costs and benefits including applicable company prescriptive rebate amounts. If the customer has no preference, then Simple Payback should be used. The engineering firm is responsible for calculating prescriptive rebate estimates.

J. Implementation

The Study is designed to provide business case justification and sufficient information to proceed with implementation.

K. If applicable, assess cost savings from improved building power factor ratchet charges and Company's Saver's Switch program and Electric Rate Savings program, including Time of Day and Peak-Controlled Tiers I and II.

Study Workscope: Program Requirements

The Study prepared by the engineering firm must contain the following when appropriate, in addition to A–K details. Recommissioning studies are focused on low cost and/or short payback opportunities that optimize the operation of existing HVAC systems. Air test and balancing is not considered part of this program, although it may be a recommendation. Qualifying customers must indicate a willingness to support the recommissioning program using on-site staff, and must be willing to commit funding to support up-front diagnostic study costs, perform repairs, and modify control system strategies.

- Consider all existing buildings within scope and their control systems including central heating/cooling strategies, and site maintenance activities/schedules.
- Develop a recommissioning plan that:
 - Provides a description of the mechanical systems, their operation/control strategies, and site maintenance activities/schedules.
 - Identifies and describes the role of the building operations staff during the diagnostic investigative phase.
 - Describes and documents recommended energy and cost saving strategies and energy savings (kW, kWh, Dth) based on standard engineering calculations and site measurement data.
 - The plan can include provisions to provide measurement and verification of energy savings through a combination of engineering calculations using spot check data and on-line monitoring and trending using the existing building energy management system and/or data loggers.
 - Document a plan for building operator awareness training aimed at sustaining optimum system operation by performing continuous system monitoring, assessment, and maintenance (e.g., maintenance activities and schedules, training).
 - Identifies any potential prescriptive or Custom Efficiency rebate opportunities that might facilitate system optimization.

Incentives

Additional incentives for implementing identified conservation measures will be determined by Xcel Energy upon completion of the study. The incentive amounts are based on Xcel Energy prescriptive, Custom Efficiency, and/or Recommissioning rebate programs.

