Xcel Energy®

Recommissioning for energy savings and comfort

A guidebook to Recommissioning

Recommissioning overview

To improve buildings and capture the sizable energy opportunities that exist within them, commissioning principles—often called retrocommissioning or recommissioning—are applied to existing buildings. When appropriately applied, these principles go beyond quick-fix solutions to systematically optimize building systems so that they operate efficiently and effectively, often eliminating the need for costly capital improvements.

Is your building energy efficient?

There are several visible problems that will help you determine if your building is less than energy efficient:

- Adjustable speed drives that are no longer adjusting appropriately
- Equipment that is running more than necessary or running inefficiently because of improper operating strategies
- Energy management systems that were never installed or programmed to take full advantage of their capabilities or that have degraded over time
- Controls that are out of calibration or are improperly sequencing
- Simultaneous heating and cooling

Each of these problems can have a sizable affect on the operation of your building. Recommissioning existing buildings can not only correct these problems, but also optimize systems so that they can operate in an integrated manner.

Practices that saves energy

Commissioning is a systematic and documented process of ensuring that specific building systems perform interactively according to the design intent and the owner's operational needs. With today's buildings and systems becoming more complex, the need for commissioning continues to grow. Unfortunately, commissioning remains an uncommon practice.

Recommissioning takes another look at a building that was previously commissioned to ensure it is once again running at optimal performance.

Retrocommissioning involves tuning up an existing building that was never formally commissioned. Unless you requested commissioning, it's likely your building's systems never were properly calibrated for ongoing efficiency.

Xcel Energy's Recommissioning program covers both recommissioning and retrocommissioning.

The benefits of existing building commissioning

What are the benefits to my business?

It's important to know how recommissioning an existing building will positively affect your organization's bottom line.

Consider the following:

- Recommissioning is an asset management activity
- It can reduce the risk of tenant loss, early equipment failure and indoor air quality issues
- Recommissioning is an internal benchmarking technique
- Rebate opportunities on both the cost of the study and measures implemented
- Save as much as 15 percent on energy bills
- Earn valuable credits for environmental programs and increase your ENERGY STAR® score
- Achieve comfortable and convenient energy efficiency for both your organization and/or tenants
- Receive independent, objective and expert direction on energy-saving options

In addition to energy savings, the benefits of recommissioning include extended equipment life, improved comfort and reduced operation and maintenance costs.

Is existing building commissioning a good fit for me?

Before beginning a Recommissioning project, it is important to understand what resources are available for getting the work accomplished.

What resources are available for the project?

The most cost-effective projects usually have at least one in-house staff person assigned to the project. This person should have expertise in the building's control systems, HVAC equipment and lighting systems. It's best to assign a building operator who knows the building's history and why and how systems are operated and maintained. A benefit of allowing in-house staff to work on the project is the training they receive.

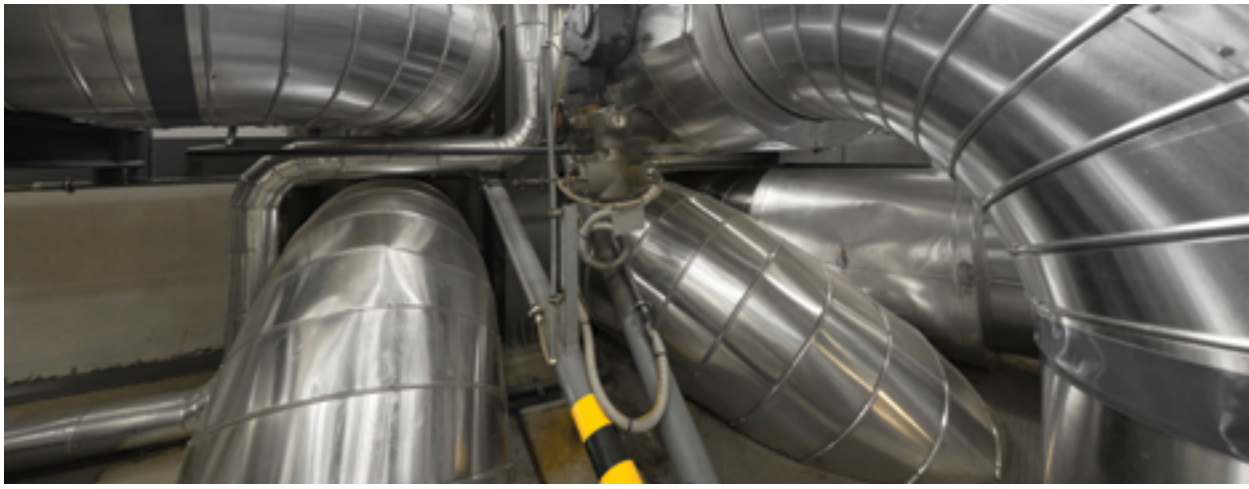
Is recommissioning appropriate for my building?

For buildings with newer equipment (less than 12 years old), recommissioning may be the most appropriate first step for optimizing building performance and obtaining cost savings. You can use recommissioning to obtain low-cost, energy-saving opportunities before considering more expensive capital improvements. In some cases, the savings may help pay for needed capital improvements.

It's easier to answer this question by understanding when recommissioning is not appropriate. Generally, recommissioning is not appropriate for buildings in cases where;

- Most of the equipment and systems are either outdated or at the end of their life. In this case, it may be better to replace the equipment.
- Major system design problems exist
- Major equipment malfunctions exist and best course of action is equipment replacement

The main purpose of commissioning your existing building is to improve and optimize how your systems operate. It is not a method for keeping old, inefficient equipment running. Recommissioning should not be performed in lieu of making needed capital improvements. However, budgets often times do not allow for buying new equipment unless existing equipment is broken beyond repair. Under these circumstances, it may be better to invest in the recommissioning process than continue doing nothing. This is particularly true for control systems which sometimes become outdated but are not necessarily broken.



Benefit from our Recommissioning program

Take advantage of our rebates for Recommissioning studies (with preapproval) as well as implementation rebates for the recommended energy efficiency options you choose to complete. For complete program information, please visit **xcelenergy.com/Recomm**. Our rebates can help pay for not only the diagnostic part of your study, but can decrease your implementation payback period making the entire project more cost effective.

The process is easy. Just follow these simple steps to get started:

- Choose a recommissioning provider or take a look at our provider list to get quotes
- Contact your Xcel Energy account manager or the Business Solutions Center at 855.839.8862 to apply for project preapproval
- Get started on your study after you receive preapproval from Xcel Energy

Study funding

Xcel Energy provides study funding of up to 75 percent of the cost of your Recommissioning study, up to $25,000.

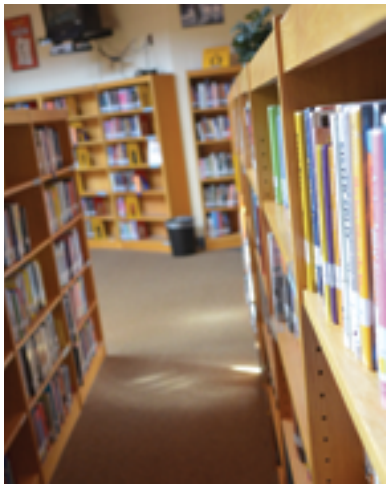
Implementation rebates

When you implement energy savings measures that are identified in your study, you may qualify for rebates of up to 60 percent of the cost of implementing.

Bonus rebates

Bonus implementation rebates may also be available. Go **online** to find out the program details for your state.

Comparing the energy usage of your building to other similar buildings is a simple way to get a rough assessment of building performance. Benchmarking your building using our new benchmarking portal is one way to get comparison data.



Xcel Energy's Recommissioning program process

Three phase flow chart

Phase 1: Preapproval

1. Customer selects a Recommissioning study provider and reviews the study provider's project proposal
2. Customer completes Xcel Energy's Recommissioning program study preapproval application and sends application and project proposal (including Addendum A) to the customer's Xcel Energy account manager
3. Xcel Energy reviews the preapproval application and project proposal and sends a preapproval letter with the preapproved study funding amount to the customer and customer's study provider

Phase 2: Study Approval/Study Rebate

Study is reviewed and a study rebate is paid.

4. Study provider completes the study and sends a copy to Xcel Energy's energy efficiency engineer and account manager
5. Xcel Energy reviews the study and other supporting documents
   - Energy Conservation Opportunity (ECO) form
   - Recommissioning calc tool
   - If applicable, other ECO calcs submitted by the study provider
6. Xcel Energy approves the final study and sends the customer and study provider a study approval letter and final ECO form
7. Study provider schedules a meeting with customer and Xcel Energy account manager to present the final Recommissioning study; customer is then invoiced for the cost of the study
8. Customer completes the study rebate application and sends the signed application, copy of the study invoice, and the ECO form's implementation plan tab to the Xcel Energy account manager
9. Xcel Energy pays the study rebate to the customer

Phase 3: Implementation

10. Customer implements recommended ECO measures
11. Customer signs the implementation plan tab of the ECO form and sends the ECO form with ECO itemized invoices to the Xcel Energy account manager
12. Xcel Energy pays the implementation rebates to the customer; implementation rebate amounts are based on actual costs of ECO implementation

Timing key

Please note: Timing depends entirely on the quality of the data provided to Xcel Energy.

- Study preapprovals take two weeks or less.
- Study approvals take two weeks or less.
- Rebates take three to six weeks to process.

Selecting a recommissioning provider

One of the most important decisions you can make is selecting your recommissioning provider. Two primary methods exist for selecting a provider: competitive bid and selection by qualification. Xcel Energy provides a list of providers who have participated in our program in the past at **xcelenergy.com/Recomm**.

What to consider when selecting your recommissioning provider

- Evaluate experience
- Request and contact references
- Evaluate other skills such as diplomacy, negotiation, communications, meeting facilitation, investigation and reporting abilities
- Is recommissioning existing buildings a core business or a primary business component of a firm?
- Are final recommissioning sample reports available for review?

No matter who you choose to act as your recommissioning provider, there are certain minimum qualifications any provider ought to have. The following list is not all-inclusive; certain projects may require more or less experience, depending on size, complexity and specific building characteristics. The provider chosen should be directed to subcontract work in which he or she lacks sufficient experience.

Recommended minimum qualifications

- Experience in design, specification or installation of commercial building mechanical and control systems and other systems being recommissioned
- History of responsiveness and proper references
- Meet owner's liability requirements
- Experience working with project teams, project management and conducting scoping meetings; good communication skills
- Experience recommissioning at least two projects of similar size and of similar equipment to the current project—one of which was in the last three years. This experience includes the writing of functional performance test plans.
- Demonstrated familiarity with metering and monitoring procedures
- Overall understanding by the recommissioning team of all building systems including building envelope, structural, and fire/life safety components

The cost of recommissioning varies depending on the size and complexity of the building. The average cost of Recommissioning studies that are rebated through Xcel Energy's program is around $25,000.

What to expect from your Recommissioning study

When your facility is running at its peak performance, your business gains a competitive edge because your equipment and your staff are operating at maximum efficiency.

Customers can find an energy cost savings of 15 percent* and payback less than a year.

Typical recommendations that you may expect to see are:

- Damper modifications
- Adjustable speed drive modifications
- Lighting scheduling
- Economizer optimization
- Outside air optimization
- Prevention of simultaneous heating/cooling
- Equipment scheduling and run-time reductions

Ready to get started? Contact us today!

Contact your Xcel Energy account manager or our Business Solutions Center at **855.839.8862** or by email at **energyefficiency@xcelenergy.com**.

*Lawrence Berkeley National Laboratory "*The Cost-Effectiveness of Commissioning New and Existing Commercial Buildings: Lessons from 224 Buildings*" http://evanmills.lbl.gov/pubs/pdf/ncbc_mills_6apr05.pdf

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