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## Energy Efficiency – the US Midwest Experience (Minnesota)<sup>1</sup>

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### Minnesota's Conservation Improvement Program (CIP) Goals

The goals of utility conservation improvement programs are to:

- Promote awareness and adoption of energy efficient technologies
- Help households and businesses reduce their energy costs
- Defer costly utility infrastructure investments
- Reduce emissions and conserve resources

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<sup>1</sup> Energy Efficiency vs. Energy Conservation (From EnergyDSM.com <http://www.energydsm.com/2010/03/energy-efficiency-vs-energy-conservation/>)

### **What is Energy Efficiency?**

Energy efficiency involves technology that produces the same end product while using less energy. For example, an energy efficient air conditioner produces the same level of cooling capability while using less energy than the average air conditioner on the market. This technology is always changing because a device that was energy efficient 30 years ago is probably not energy efficient today.

Energy efficiency programs have become increasingly popular as global warming has become more of a threat. As many people in the industry say, “the cleanest energy is the energy never used.” For example, consider a business that installs solar panels on its office buildings, but does not replace its inefficient light bulbs and air conditioners. If the inefficient devices were replaced by efficient ones, there may not have even been a need for the solar panels in the first place. Clean energy powering dirty devices does the world no good. For this reason, Barack Obama calls energy efficiency “the cheapest, cleanest, fastest energy source.”

### **What is Energy Conservation?**

Although energy conservation is often confused with energy efficiency, it is quite different. Both involve a reduction in overall energy use, but achieve that goal in different ways. Conservation involves cutting waste of energy whereas energy efficiency does not. For example, I can replace my old air conditioner with an energy efficient one, but can still waste energy by running it while I'm not home. I may have been able to save more energy by changing my behavior or programming my thermostat as opposed to replacing my air conditioner. Energy conservation has not been as popular as energy efficiency because it is often associated with sacrifice. If I do not have my air conditioner on while I'm not home, I might be uncomfortable for a few minutes while the house cools down when I get home and turn it on. If I buy an energy efficient air conditioner instead, I save energy without changing my behavior. For utilities, it is also much easier to measure the impact of installing an energy efficient device because the energy savings do not depend on human behavior.

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### Utility Conservation Improvement Plans

Each electric and natural gas utility develops its own conservation plan, offering a variety of programs to assist residential and business customers become more energy efficient. The responsible Minnesota agency, the Office of Energy Security (OES), reviews and approves each plan and the associated energy savings calculations. Utilities that meet their annual State approved energy savings goal are compensated financially.

Traditionally, utility programs have focused on incenting customers to purchase energy efficient products over standard efficiency products. Moving forward, as utilities strive to meet higher energy savings goals, the OES and Minnesota utilities are piloting new approaches to save energy such as offering packaged services and measuring savings that result from operation and maintenance or behavioral measures, such as fine-tuning building control systems or simply turning off lights when not in use.

When reviewing a utility's CIP plan, the OES looks for programs that are cost-effective and that reach a broad spectrum of the utility's customers including residential, commercial, industrial and agricultural customers. Special programs that specifically meet the needs of low-income customers are also required by statute.

Typical programs for residential customers include:

- Energy audits, where a trained energy consultant examines a home and offers the owner specific advice on energy improvements
- Rebates on high efficiency heating, cooling, and water heating appliances
- Air-conditioner cycling programs, which allow the utility to manage its peak energy demand in return for discounted electric bills for participating customers
- Compact fluorescent lighting rebates
- Low-flow showerhead rebates, which serve a dual purpose by conserving water and the energy needed to heat the water
- Energy efficient home construction guidelines, calling for high insulation levels coupled with mechanical ventilation systems and efficient appliances

Typical programs for commercial or industrial customers include:

- Rebates for high efficiency boilers, chillers, and rooftop units
- Rebates for high efficiency lighting and lighting control systems
- Rebates for high efficiency motors and drives
- Building recommissioning studies
- Manufacturing process improvements that reduce energy intensity and improve productivity

### Statutory Requirements (see Minnesota Statutes 216B.241)

The Next Generation Energy Act of 2007 (NGEA) established an energy savings goal of 1.5 percent of average retail sales for each electric and gas utility beginning in 2010. Utilities may petition the Director of the OES to adjust their savings goals to a minimum of 1 percent

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based on a conservation potential study, a utility's historic CIP experience, or other factors at the discretion of the Director. Legislation passed in 2009 established an interim savings goal of 0.75 percent over 2010-2012 for qualifying natural gas utilities.

The NGEA further established the potential for electric utilities to count the savings that result from qualified improvements to its generation, transmission, or distribution infrastructure, or conservation measures in its own facilities toward the 1.5 percent savings goal, once plans are in place to achieve at least 1 percent savings through conservation improvements. Further legislation passed in 2009 also allowed natural gas utilities to count biomethane purchases toward their savings goal in a similar fashion.

The CIP statutes contain important stipulations in regards to how utilities spend CIP funds:

- Electric utilities, except for Xcel Energy, must spend a minimum of 1.5 percent of annual gross operating revenues (GOR) on CIP programs. As an owner of nuclear generation facilities, Xcel Energy must spend at least 2 percent of annual GOR.
- Natural gas utilities must spend a minimum of 0.5 percent of annual GOR on CIP programs
- At least 0.2 percent of residential GOR must be spent on programs specifically serving low income customers
- Up to 10 percent of the overall minimum spending requirement may be spent on R&D projects
- Up to 10 percent of the overall minimum spending requirement may be spent on qualifying solar energy projects. Up to 5 percent of the overall minimum spending requirement may be spent on other renewable and distributed generation projects.
- Each electric utility must include in its CIP plan programs intended to encourage the use of energy efficient lighting by its customers and recycling of spent lamps.

Utilities must file their CIP plans with the OES at least every three years. Utilities report their actual CIP spending and savings achieved on an annual basis to the OES.