Minnesota’s Potential for Energy Efficiency

Smart strategies needed to reach utility savings goals

Minnesota has a 30-plus year history of leadership in energy efficiency policy and achievements. To continue to maximize the benefits of cost-effective energy efficiency resource acquisition by utilities, the Minnesota Department of Commerce, Division of Energy Resources, commissioned the project team to:

1. Estimate statewide electric and natural gas energy efficiency and carbon-saving potential for 2020-2029
2. Produce actionable resources about market segments, end uses, measures, and programs to target for success.
3. Engage a wide variety of field stakeholders and consumer advocates to help advance robust energy policies and energy efficiency programs.

The resulting study is unprecedented in Minnesota, in terms of stakeholder engagement, data collection, and tailoring findings to address issues in specific utility service areas.

The final report shows that Minnesota utilities can continue to meet their savings goals through cost-effective energy efficiency, and lays out a practical course for implementation to benefit both residents and businesses.

Key insights

Looking forward, study findings broadly suggest that:

1. Residential electric programs will need to transition from lighting to cold-climate air-source heat pumps as largest source of savings.
2. Even as lighting declines in importance for the commercial sector, it will continue to represent a large portion of total savings through 2029.
3. Refrigeration is another major source of electric potential, about 20% of the 2029 cumulative total.
4. Space heating measures continue to dominate natural gas potential, with smart thermostats holding the largest new source of potential.

Minnesota Energy Efficiency Potential Study (2020 – 2029)

Multiyear research clarified state potential for electric, gas, and carbon savings on demand (customer-facing) side.

Full study details at: mncee.org/mnpotentialstudy
Summary results

Electric Utilities

Statewide, the economic potential of energy efficiency could decrease forecasted electric load by 33%, and program potential to reduce load by 14% in 2029. (See figure below.)

The incremental annual program savings ranges from 1.4% to as high as 2.0%, with maximum achievable potential in the range of 2.0% to 2.9%.

Space heating could provide nearly half of residential savings by 2029, while lighting declines to a small fraction of total savings. Just 17% of residential customers use electric space heating, but their massive energy use offers a big opening for savings.

Lighting, refrigeration, and system energy should account for about 60% of potential savings in 2029.

Gas Utilities

For natural gas, we estimate the state could economically decrease forecasted loads by 33%, with program potential to reduce load by about one-third of that, or 11%, in 2029. (See figure to right.)

The incremental annual natural gas savings over the study period increases from 0.7% in 2020, and levels off at 1.4% of annual sales around the middle of the decade for program potential.

Maximum achievable potential starts at 1.2% and increases to 2.3% of annual savings by 2029.
Best practice recommendations for utilities

For the continued improvement of CIP program implementation in 2020 and beyond, utilities and the regulators who oversee utility program investments can build on exemplary work while refining key strategies.

We recommend that Minnesota’s energy decision-makers concentrate efforts to:

1. **Continue to test promising new approaches.** Continued investment in testing out and evaluating new approaches will be essential to developing the new sources of efficiency.

2. **Offer comprehensive program designs for larger and harder-to-reach customers.** Work with customers to identify energy savings opportunities and provide implementation support.

3. **Develop upstream incentives and associated program support in selected markets.** Upstream programs provide incentives to manufacturers, distributors, and contractors.

4. **Incorporate operational savings into commercial and industrial programs.** Improve equipment operations to use only as much energy as is needed for occupant comfort and other outputs.

5. **Employ segment-specific strategies to reach customers.** In the commercial sector, strategies based on relationship-building with contractors and business owners are a proven engagement method.

6. **Deepen trade ally engagement and training efforts.** Further developing trade ally relationships can be an important strategy to bring overall program costs down.

7. **Incorporate AMI-enabled capabilities into programmatic strategies.** Advanced Metering Infrastructure includes smart meters that enable communication between customers and their utility.

8. **Leverage interest by local governments in energy efficiency.** Local governments are increasingly interested in improving their energy efficiency, and that of their residents and businesses.

**HISTORY: Minnesota’s Conservation Improvement Program**

Since the early 1980s, Minnesota’s investor-owned, cooperative, and municipal utilities have implemented CIP energy efficiency programs for business and residential customers, as required by state policy.

Today 140 of Minnesota’s 213 electric and natural gas utilities are covered under Minnesota’s CIP policy.

In 2010, CIP transitioned from being a spending goal to a savings goal of 1.5 percent of annual sales per year, with a minimum one percent requirement, and a spending requirement for low-income customers was retained.

*As a whole, Minnesota’s electric utilities have met or exceeded that goal in each year after 2010, and gas utilities have met the one percent minimum.*
Utility coordination

Especially for municipal and cooperative utilities, it will be essential to coordinate efforts to reach their efficiency potential. Two strategies to enhance utility coordination:

1. Coordinate more closely on trade ally outreach and training.
2. Work further towards coordinated and/or joint implementation of programs.

Trade allies have a major influence on customers’ decision-making, and coordinated, utility-funded engagement would help to increase familiarity and comfort with emerging energy efficiency techniques. Likewise, coordinated approaches to program implementation can result in enhanced program results. Partnering with nearby utility service territories would increase both cost-effectiveness and feasibility.

Utilities will need to scale up and work together, building on their history of proactive efforts to implement effective energy conservation programs.

Policy conclusions

The project team identified policy solutions to help ensure that Minnesota continues to maximize cost-effective energy efficiency resources into the next decade. Researchers synthesized stakeholder input and relevant study data to arrive at the following conclusions:

1. The 1.5% savings goal can continue to be achieved using the existing flexibility to adjust goals when justified.
2. Clarity on key regulatory topics could be accomplished through the creation of a CIP guide.
3. Consider whether to incorporate “integrated demand-side management” into the CIP framework — with appropriate safeguards.

Project partners

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