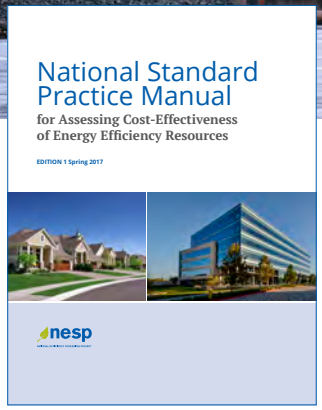
National Standard Practice Manual

CASE STUDY:

Minnesota



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NATIONAL EFFICIENCY SCREENING PROJECT

National Standard Practice Manual

Case Study: Minnesota

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The National Efficiency Screening Project

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1. INTRODUCTION

In 2017, the National Efficiency Screening Project released a comprehensive framework for assessing the cost-effectiveness of energy efficiency (EE) resources. Developed as a collaborative effort by some of the nation's top EE experts, this National Standard Practice Manual (NSPM) is directly applicable to all types of electric and gas utilities and all jurisdictions where EE resources are funded by and implemented on behalf of electric or gas utility customers (NESP 2017).

The NSPM offers a set of guiding principles for EE cost-effectiveness analyses. The principles, based on sound economic practices, present a foundation that states can use as the basis for their cost-effectiveness framework for energy efficiency. The principles and concepts in the NSPM also apply to the cost-effectiveness of distributed energy resources.

The purpose of this case study is to provide an example of how one state, Minnesota, is working to develop an EE cost-effectiveness framework that incorporates the key principles in the NSPM.

Table 1, below, summarizes the NSPM's six guiding principles that are fundamental to helping jurisdictions develop their primary cost-effectiveness test. This case study summarizes the key findings from a comprehensive study conducted for the Minnesota Department of Commerce (the MN Department), described further herein.

Table 1. NSPM Guiding Principles

Efficiency as a Resource	Energy efficiency should be compared with other energy resources (both supply-side and demand-side) in a consistent and comprehensive manner.
Policy Goals	A jurisdiction's primary cost-effectiveness test should account for its energy and other applicable policy goals and objectives.
All Relevant Impacts	Cost-effectiveness practices should account for all relevant, substantive impacts (as identified by policy goals,) even those that are difficult to quantify and monetize.
Symmetry	Cost-effectiveness practices should be symmetrical, where both costs and benefits are included for each relevant type of impact.
Forward-Looking Analysis	Cost-effectiveness practices should apply a forward-looking, long-term approach that captures incremental impacts of energy efficiency.
Transparency	Cost-effectiveness practices should be completely transparent and should fully document all relevant inputs, assumptions, methodologies, and results.

2. Cost-Effectiveness in Minnesota

Minnesota's energy policy history is extensive, dating back as far as 1980 for energy efficiency. Since then, Minnesota has developed comprehensive policy goals and specific rules/targets for EE resources.

One of the key goals is to achieve energy savings equivalent to 1.5 percent of electricity sales each year. Minnesota also has many broad policy goals that support reducing customer utility bills, protecting the environment, and reducing fuel imports, among other goals. With it's long history of implementing successful EE programs, Minnesota is among the top states in the American Council for an Energy-Efficient Economy's Scorecard (ACEEE 2018).

Key Minnesota Policy Goals

- Achieve 1.5% electricity savings annually
- Reduce customer bills
- Reduce environmental impacts
- Reduce fuel imports

The Next Generation Energy Act (NGEA) passed in 2007 dictates that in assessing EE cost-effectiveness, Minnesota utilities and stakeholders should examine the costs and benefits to society, the utility, the participant, and ratepayers (Minn. Stat. § 216B.241, (f)). In practice, this has resulted in the use of four traditional benefit-cost tests: the Societal Cost Test (SCT), the Utility Cost Test (UCT), the Participant Cost Test (PCT), and the Ratepayer Impact Measure Test (RIM). While the utilities calculate results for all four tests in their EE plans and reports, the SCT is the primary determinant of cost-effectiveness. The other three tests are provided for informational purposes, to inform program design and to determine performance incentives.

3. Review of Cost-Effectiveness Practices in Minnesota

Review of Minnesota Practices

In 2018, the MN Department conducted a study titled "Updating the Energy Efficiency Cost-effectiveness Framework in Minnesota" (the Framework Study) to review the state's EE cost-effectiveness practices and to assess how well they align with the principles in the NSPM (Synapse 2018). The purpose of the study was to inform stakeholder discussions about whether and how to improve Minnesota's EE practices. The Framework Study included:

- an assessment of Minnesota's energy policy goals;
- an evaluation of the state's current EE cost-effectiveness practices;
- application of the NSPM resource value framework for determining the primary EE cost-effectiveness test for Minnesota;
- recommendations for primary and secondary EE tests; and
- recommendations for further research.

Much of this case study is based on the results of the Framework Study.

Alignment with NSPM Principles

Table 2 summarizes the extent to which current Minnesota energy efficiency cost-effectiveness practices are in alignment with the NSPM guiding principles. As indicated, there are several important instances where practices do not adhere to key NSPM principles.

Table 2. Minnesota Practices Compared with NSPM Guiding Principles

Efficiency as a Resource	Aligned. Minnesota law and current practice treat energy efficiency as a resource to be compared comparably with other resources.
Policy Goals	Not aligned. The primary cost-effectiveness test does not include impacts related to several statutory policy goals, including participant NEBs, other fuel impacts, job impacts, public health and safety, and energy security.
All Relevant Impacts	Not aligned. Some utility system impacts are not included; participant NEBs are not included; and some societal impacts are not included.
Symmetry	Not aligned. Participant costs are included, but not participant NEBs.
Forward-Looking Analysis	Aligned. The Societal, Utility, and Participant tests use forward-looking, incremental, long-term costs; and the RIM test is not used in practice.
Transparency	Partly aligned. The current screening tools are not transparent and do not provide supporting measure or cost details.

Application of the Resource Value Framework

The Minnesota Framework Study applied the resource value framework from the NSPM to develop a primary cost-effectiveness test that reflects Minnesota energy policy goals and adheres to the guiding principles in the NSPM. The study refers to the new primary test as the "Minnesota Test." The key steps in the resource value framework as applied to Minnesota are summarized below.

Key steps to develop the Minnesota Test

- Articulate energy policy goals
- Include all utility system impacts
- Determine which non-utility system impacts to include
  - Participant impacts
  - Low-income impacts
  - Other fuel impacts
  - Societal impacts

Articulate energy policy goals

Minnesota has a comprehensive set of of policy goals related to EE programs and cost-effectiveness. Appendix A presents a summary of the Minnesota energy policy goals. It refers to relevant statutes and reports and lists the relevant policy goals, including: procuring least-cost resources, promoting fuel diversity, protecting low-income customers, mitigating environmental damage, promoting customer choice, and promoting reliability. Some of the most relevant Minnesota energy policy directives are:

> The legislature finds that energy savings are an energy resource, and that cost-effective energy savings are preferred over all other energy resources (Minn. Stat. § 216B.2401).

> In determining cost-effectiveness, the commissioner shall consider the costs and benefits to ratepayers, the utility, participants, and society (Minn. Stat. § 216B.241, subd. 1c (f)).

> The legislature further finds that cost-effective energy savings should be procured systematically and aggressively to reduce utility costs for businesses and residents, improve the competitiveness and profitability of businesses, create more energy-related jobs, reduce the economic burden of fuel imports, and reduce pollution and emissions that cause climate change (Minn. Stat. § 216B.241).

Include all utility system impacts

Minnesota utilities currently do not include all utility system impacts in their cost-effectiveness analyses. The Minnesota Cost-effectiveness Framework Study recommends that all utility system impacts be included in the Minnesota Test (as well as any application of the Utility Cost and Societal Cost tests). This requires adding the following impacts to those that are already accounted for:

- ancillary services
- wholesale price suppression effects
- improved reliability
- avoided credit and collection costs
- avoided renewable portfolio standards costs
- avoided cost of environmental compliance
- reduced risk

Determine which non-utility system impacts to include

Participant impacts. Some of the Minnesota statutes suggest that participant impacts should be included in the EE cost-effectiveness analysis. In the primary test currently in use in Minnesota, the Societal Cost test, utilities include participant costs but not participant non-energy benefits (NEBs). Interviews with stakeholders indicate that there is much concern about the uncertainty and lack of information regarding estimates of participant NEBs. The Minnesota Cost-effectiveness Framework Study notes that Minnesota stakeholders have a choice: either include both participant costs and participant benefits (including NEBs) or include neither of them. While the decision is up to the Minnesota stakeholders, and ultimately the Minnesota Commission, the Minnesota Energy Efficiency Study recommends that the Minnesota Test include neither the participant costs nor the participant benefits, because of the concerns raised by stakeholders about participant NEBs.

Participant Impacts

The Framework Study recommends that the Minnesota Test include neither the participant costs nor the participant benefits, because of concerns raised by stakeholders about participant NEBs.

Low-income impacts. There is clear support for recognizing the low-income participant NEBs, based on the current practice of approving low-income efficiency programs regardless of whether they pass the cost-effectiveness tests. The Minnesota Energy Efficiency Study recommends that this current practice be continued, unless and until the values of low-income participant NEBs are monetized and included in the Minnesota Test.

Other fuel impacts.[1] Minnesota has several policy goals regarding the reduction of greenhouse gases, the reduction in the use of fossil fuels, and the promotion of strategic electrification. All of these goals require multi-fuel programs and the consideration of other fuel benefits in the cost-effectiveness tests. Further, there was strong support from Minnesota stakeholders to account for other fuel benefits of the

[1] The term "other fuels" refers to fuels that are not provided by the utility that delivers the energy efficiency program, e.g., when a program delivered by an electric utility saves natural gas, oil, propane or other types of fuels.

EE programs. Consequently, the Minnesota Cost-effectiveness Framework Study recommended that these benefits be included in the Minnesota Test.

Societal impacts. There is clearly support to include environmental impacts, given multiple policy directives in the state and the fact that they are already included in the primary test in Minnesota. There is also legislative support for considering public health, economic development, and energy security impacts when evaluating EE cost-effectiveness. Consequently, the Minnesota Cost-effectiveness Framework Study recommended that all these societal impacts be included in the Minnesota Test.

The Minnesota Test

Table 3 presents a summary of the impacts that the Minnesota Framework Study recommended including in the Minnesota Test.

Table 3. Impacts Included in the Minnesota Test

Impacts	Description	Rationale for Inclusion
Utility System Impacts	All utility system costs and benefits	Should be included in any cost-effectiveness test
Other Fuel Impacts	Changes in fuels that are not provided by the utility offering the energy efficiency program	Consistent with Minnesota statutes referring to societal impacts, as well as emission reduction, reduced fuel imports, and energy security goals.
Environmental Impacts	Net impacts on CO_2 and other emissions	Consistent with Minnesota statutes referring to societal impacts, as well as emission reduction goals
Water Savings	Net impacts on water consumption	Consistent with Minnesota statutes referring to societal impacts, as well as impacts on program participants
Jobs and Economic Development	Net impacts on jobs or gross state product	Consistent with Minnesota statutes referring to societal impacts, especially those related to economic prosperity and job creation
Public Health	Reduced morbidity and mortality from fossil fuel generation	Consistent with Minnesota statutes referring to societal impacts, especially those related to the protection of the life and safety of citizens
Energy Security	Reduced fuel imports	Consistent with Minnesota statutes referring to societal impacts, especially those related to reduced fuel imports and increased fuel diversity and reliability

Secondary Tests

The NSPM notes that secondary tests are often useful for providing additional information beyond what is provided by the primary test (NESP page 43). Secondary tests might be especially important in Minnesota given that Minnesota statutes require consideration of several perspectives.

The Minnesota Framework Study recommends that utilities use both the Utility Cost and the Societal Cost tests as secondary tests. The former indicates the likely impact of EE on the total electricity (or gas) costs, while the latter indicates the likely impact of EE accounting for all Minnesota policy goals.

However, the Minnesota Framework Study recommends that both the Utility and Societal Cost tests be modified to be consistent with their theoretical definitions. The Utility Cost test should be expanded to include some impacts that are not currently included, as noted above. The Societal Cost test should also be expanded to include some impacts that are not currently included: the utility system impacts listed above, participant NEBs, other fuel impacts, jobs and economic development, public health impacts, and energy security.

4. Next Steps

The purpose of the Minnesota Cost-effectiveness Framework Study was to provide information and recommendations for the MN Department and other stakeholders to consider when evaluating the Minnesota EE cost-effectiveness practices. The study was presented to the MN Department in August 2018, and the authors presented the results at a stakeholder workshop in September 2018.

At the time this case study was prepared, the MN Department is evaluating Synapse's recommendations, determining what cost-effectiveness updates to prioritize, and establishing a timeline for a regulatory review process. It is anticipated that updates to Minnesota's cost-effectiveness methodologies would be implemented in 2019 as part of a formal regulatory review/approval process for Minnesota's electric and gas utilities.

5. References

American Council for an Energy-Efficient Economy (ACEEE). 2018. "The 2018 State Energy Efficiency Scorecard, Report U1710." http://aceee.org/state-policy/scorecard.

National Efficiency Screening Project (NESP). 2017. "National Standard Practice Manual for Assessing Cost-Effectiveness of Energy Efficiency Resources." https://nationalefficiencyscreening.org/wp-content/uploads/2017/05/NSPM_May-2017_final.pdf.

Synapse Energy Economics (Synapse). 2018. "Updating the Energy Efficiency Cost-Effectiveness Framework in Minnesota: Application of the National Standard Practice Manual to Minnesota," a Conservation Applied Research and Development grant report, prepared for the Minnesota Department of Commerce.

APPENDIX A. SUMMARY OF MINNESOTA ENERGY POLICY GOALS

Table 3 presents a summary of Minnesota energy policy goals as indicated by statutes and recent reports. For a more detailed presentation, see Appendix D of the Minnesota Framework Study.

Table 3. Summary of Minnesota policy goals

Policy	Citation	Policy Impacts Reflected in Policies						
		Least-Cost	Fuel Diversity	Risk	Reliability	Low-Income	Customer Choice	Environmental
Energy savings policy goal	Minn. Stat. § 216B.2401	✔	✔					✔
Legislative findings	Minn. Stat. § 216B.01	✔			✔			
Next Generation Energy Act of 2007, general provisions	NGEA § 2, subd. 1		✔	✔	✔			✔
Next Generation Energy Act of 2007, per capita fossil fuel use	NGEA § 2, subd. 2		✔					✔
Greenhouse gas emissions control, greenhouse gas emissions-reduction goal	Minn. Stat. § 216H.02, Subd. 1							✔
Energy conservation improvement, peak demand deficit	Minn. Stat. § 216B.241, subd. 1a (d)			✔	✔			
Energy conservation improvement, energy-savings goals	Minn. Stat. § 216B.241, subd. 1c (b)	✔	✔					✔
Energy conservation improvement, cost-effectiveness	Minn. Stat. § 216B.241, subd. 1c (f)	✔	✔					✔
Energy conservation improvement, technical assistance	Minn. Stat. § 216B.241, subd. 1d (a)				✔			
Energy conservation improvement, free choice of measures and installers	Minn. Stat. § 216B.241, subd. 2(a)						✔	
Energy conservation improvement, less expensive than new supply	Minn. Stat. § 216B.241, subd. 2(b)	✔						

Policy	Citation	Policy Impacts Reflected in Policies						
		Least-Cost	Fuel Diversity	Risk	Reliability	Low-Income	Customer Choice	Environmental
Energy conservation improvement, Department decisions	Minn. Stat. § 216B.241, subd. 2(e)					✔	✔	
Energy conservation improvement, low-income programs	Minn. Stat. § 216B.241, subd. 7(a)					✔		
Reasonable rate	Minn. Stat. § 216B.03	✔						
Renewable energy objectives, eligible energy objectives	Minn. Stat. § 216B.1691, Subd. 2		✔					
Renewable energy objectives, local benefit	Minn. Stat. § 216B.1691, Subd. 9	✔	✔		✔			
Resource planning, resource plan filing and approval	Minn. Stat. § 216B.2422, Subd. 2(c)	✔	✔					
Resource planning, long-range emission reduction planning	Minn. Stat. § 216B.2422, Subd. 2c							✔
Resource planning, environmental costs	Minn. Stat. § 216B.2422, Subd. 3(a)		✔					✔
Resource planning, preference for renewable energy facility	Minn. Stat. § 216B.2422, Subd. 4		✔		✔			
Distributed energy resources, generation projects	Minn. Stat. § 216B.2411, Subd. 1 (b)	✔					✔	✔
Minnesota's 2025 Energy Action Plan	Report, page 7	✔		✔	✔			✔
Climate solutions and economic opportunities	Report, page 3							✔