



Midwest Energy Solutions Conference  
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**Minnesota Case Study – Cost-Effectiveness Practices**

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# Overview

1. Minnesota Background
2. Minnesota's Cost-Effectiveness Framework
3. Overview of Synapse's Cost-effectiveness Study
4. Current Cost-Effectiveness Updates



# Utility Driven Efficiency Programs in MN

**1980:**

PUC directed to initiate a pilot to demonstrate the “feasibility” of investments in EE.

**1983:** Utilities with revenues greater than \$50 million were required to operate at least 1 conservation program. Required “significant” investment.

**1989:** All Public utilities were required to operate conservation improvement programs. Oversight transferred from PUC, low-income requirements added.

**1991:**

A specific level of spending was required (1.5% electric, 0.5% gas) & munis and coops were included.

**2007:**

Next Generation Energy Act Passes.

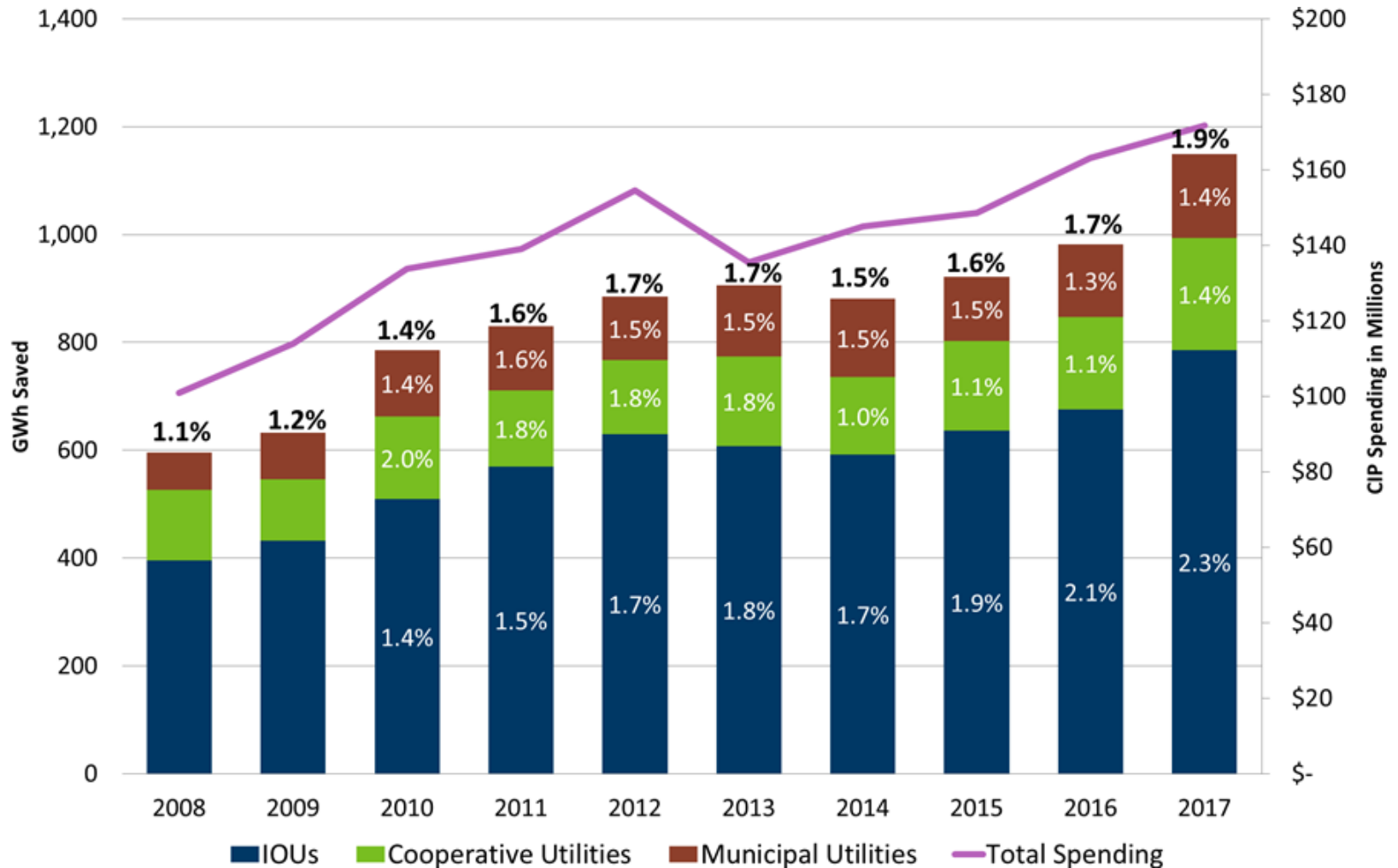
**2010:**

1.5% Savings Goal for Utilities takes Effect

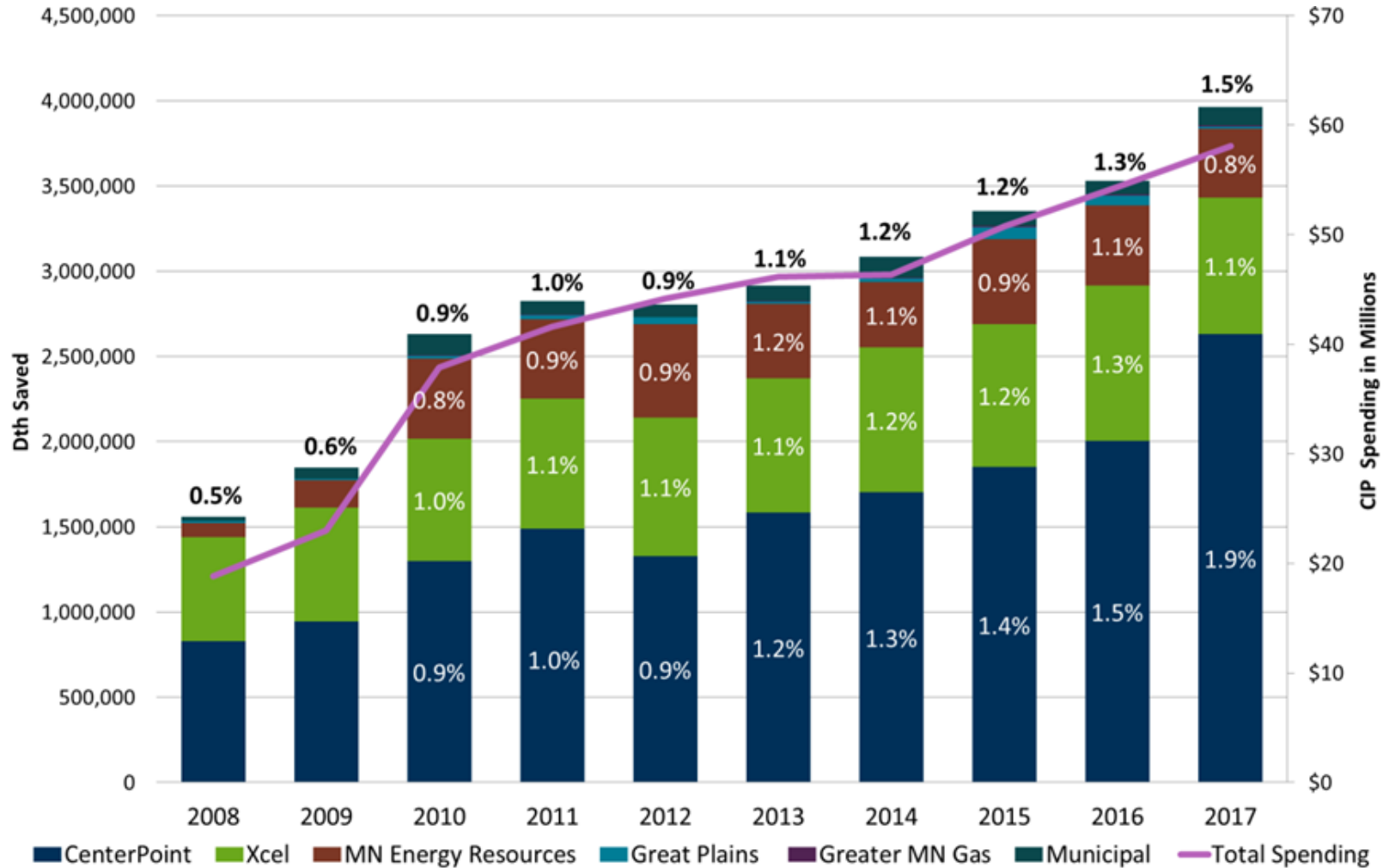
**2017:**

Munis and Coops meeting a specific threshold exempted from CIP.

# MN Efficiency Achievements - Electric



# MN Efficiency Achievements – Natural Gas



# MN Cost-Effectiveness Study

**Task 1: Review Current MN Screening Practices**

**Task 3: Apply NSPM Guidance to Inputs**

**Task 5: Final Report and Dissemination of Results**



**Task 2: Apply the Resource Value Framework to MN**

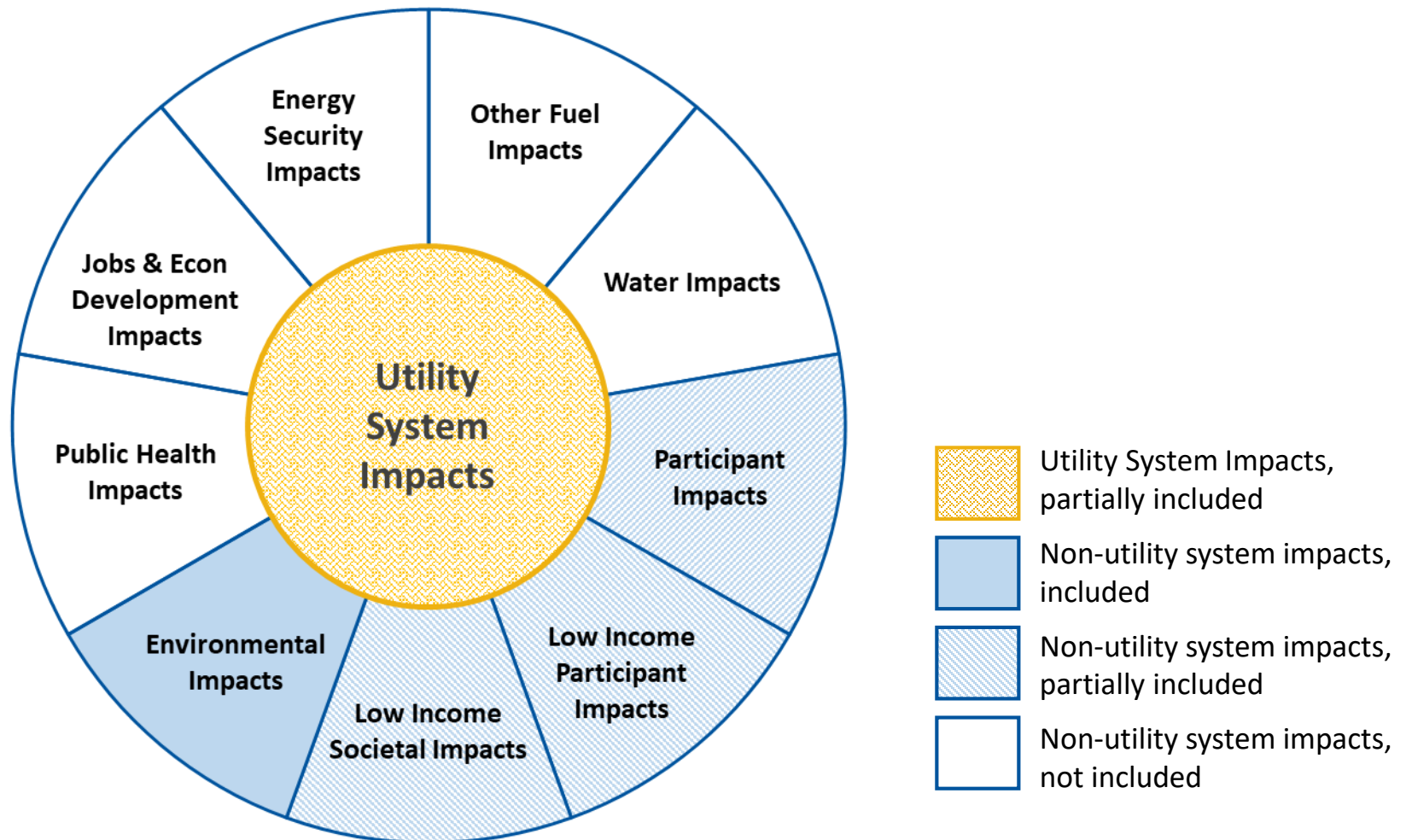
**Task 4: Prepare Recommendations**

**Study's Goal:** Evaluate how key elements of the NSPM could be applied to energy efficiency cost-effectiveness analyses in MN

# MN Current Practice - Cost-Effectiveness Tests

- 2007 Next Generation Energy Act:
  - In determining cost-effectiveness, the commissioner shall consider the costs and benefits to ratepayers, the utility, participants, and society.
- Consequently, utilities calculate results for:
  - Rate impact measure (RIM) test
  - Utility cost (UC) test
  - Participant cost (PC) test
  - Societal cost (SC) test
- The societal cost test is used as the primary test for determining cost-effectiveness.

# Societal Cost Test as Applied in MN





# Synapse's Cost-Effectiveness Recommendations

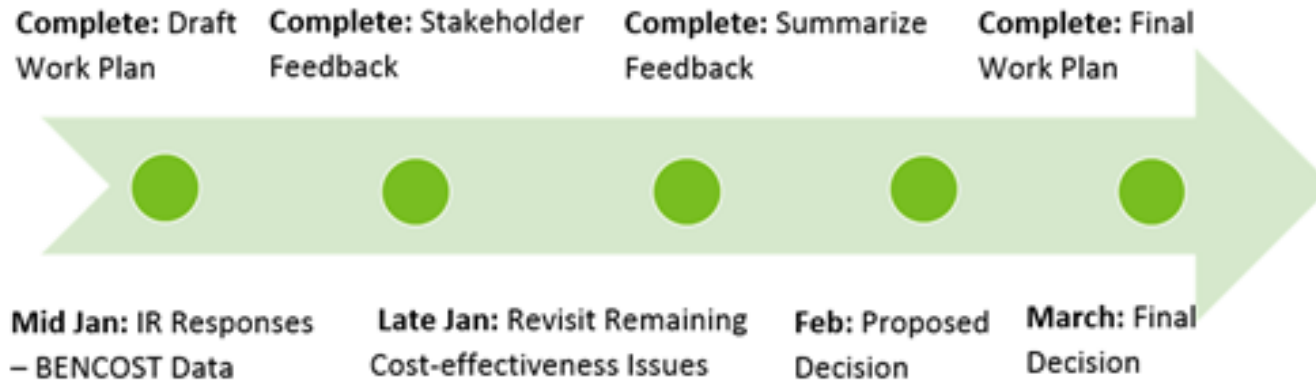
1. Decide whether to include participant impacts in primary test.
2. Decide whether to include other fuel impacts in primary test.
3. Reconsider discount rates.
4. Include missing elements of the Utility Cost test.
5. Develop an additional test called the “Minnesota Test”

# How MN Is Applying Synapse's Findings

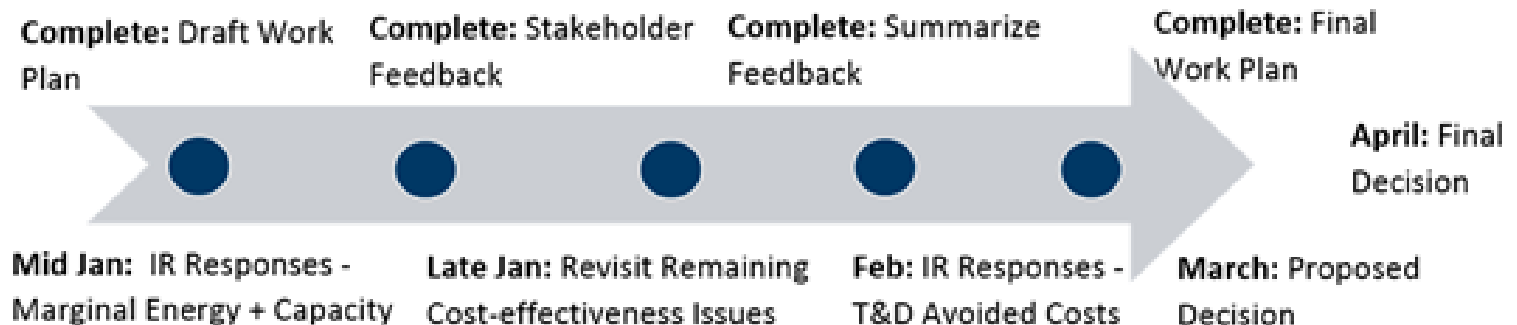
- Synapse's study was very a helpful, comprehensive look at MN's cost-effectiveness tests.
- Applying the NSPM helps clarify the scope of each cost test and how they relate to MN's energy policies.
- Process is replicable to other states exploring cost-effectiveness issues.
- Department is using some of Synapse's recommendations to inform the review process to update cost-effectiveness inputs.

# MN's Cost-Effectiveness Review Process – Timelines

## Gas Utility Review Timeline



## Electric Utility Review Timeline



# MN Cost-effectiveness Review - Key Issues Exploring

1. Establish Both a Near-Term and Longer-Term Cost-Effectiveness Update Proceeding.
2. Use the Societal Discount Rate for Utility Cost Test (Instead of the Weighted Average Cost of Capital).
3. Examine How to Standardize Avoided Marginal Energy and Capacity Methodologies.

# MN Cost-Effectiveness Review - Gas Updates (Docket No. CIP-18-782)

Updated General Inputs	2017-2019	2020-2022
Gas Escalation Rate (%)	4.0%	4.69%
Non-Gas Escalation Rate (%)	3.22%	3.59%
Commodity Cost (\$/MCF)	\$4.27	\$3.25
Peak Reduction Factor (%)	1.0%	1.0%
Non-Gas Fuel Cost (\$/fuel unit)	\$21.53	\$26.57
Non-Gas Fuel Loss Factor (%)	5.28%	7.70%
Gas Environmental Damage Factor (\$/MCF)	\$0.38/MCF	\$1.84/MCF
Non-Gas Environmental Damage Factor (\$/MWh)	\$23.22/MWh	\$17.60/MWh
GDP Escalation Rate (%)	2.16%	2.3%
Participant Discount Rate (%)	2.55% (for residential customers)	3.02% (for residential customers)
Societal Discount Rate (%)	2.55%	3.02%

# MN Cost-Effectiveness Review

## Sensitivity Analysis of Discount Rates

	Societal cost test		Utility cost test (societal discount rate)		Utility cost test (WACC rate)	
	Max achievable	Program	Max achievable	Program	Max achievable	Program
<b>Total net benefits (millions)</b>	\$14,500	\$10,100	\$8,000	\$9,000	\$1,700	\$4,000
<b>Benefit-cost ratio</b>	2.1	2.2	1.6	2.8	1.2	2.2

# Thank You!

**Adam Zoet**

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