

MN CIP Cost-Effectiveness Advisory Committee (CAC)

Applying the NSPM to Minnesota CIPs Workshop #3

June 15, 2022
10:30 a.m. – 12:30 p.m.

Type of Meeting: Microsoft Teams Meeting

Attendees: 38

Name	Organization	Name	Organization	Name	Organization
Adam Zoet	MN Dept. of Commerce	David Bael	MPCA	Kristin Berkland	Office of Minnesota Attorney General
Adway De	MN Dept. of Commerce	David Siddiqui	Oracle Corporation	Kristine Anderson	Greater Minnesota Gas
Amalia Hicks	Cadmus	Ethan Warner	CenterPoint Energy	Laura Silver	MN Dept. of Commerce
Andy Bahn	Minnesota Public Utilities Commission	Gregory Ehrendreich	Midwest Energy Efficiency Alliance	Lisa Beckner	Minnesota Power
Anna Roberts	Otter Tail Power	Grey Staples	The Mendota Group	Martin Kushler	American Council for an Energy-Efficient Economy
Anthony Fryer	MN Dept. of Commerce	Jamie Stallman	Great River Energy	Martin X. Kapsch	CenterPoint Energy
Audrey Partridge	Center for Energy and Environment	Jeremy Peterson	Jeremy Petersen	Matt Wisnefske	Cadmus
Baishali Bakshi	MPCA	Jon Vesta	Frontier Energy	Nicholas VanDuzee Jr.	Centerpoint Energy
Caitlin Eichten	Fresh Energy	Joseph Dammel	Fresh Energy	Rachel Sours-Page	The Mendota Group
Chris Baker	Willdan	Kathy Baerlocher	Great Plains Natural Gas	Russ Landry	Center for Energy and Environment
Cory Hetchler	Connexus Energy	Katie O'Rourke	Minnesota Energy Resources Corporation	Tim Woolf	Synapse Energy Economics
Courtney Lane	Synapse Energy Economics	Kevin Lawless	The Forward Curve	Tom Sagstetter	Elk River Municipal Utilities

AGENDA

- Discuss Straw Proposal
 - Participant costs and benefits
 - Other impacts included
 - Other impacts excluded
- Step 4: Ensure benefits and costs in primary test are properly addressed
 - Symmetry
 - No double-counting
 - All relevant material impacts
- Step 5: Establish comprehensive, transparent documentation
- Secondary tests
- Next steps for remaining workshops

NOTES

Meeting Began: 10:30 a.m.

Grey began meeting, then turned it over to **Courtney**.

Slide 4

Today's Workshop

STEP 1 Articulate Applicable Policy Goals
Articulate the jurisdiction's applicable policy goals related to DERs.

STEP 2 Include All Utility System Impacts
Identify and include the full range of utility system impacts in the primary test, and all BCA tests.

STEP 3 Decide Which Non-Utility System Impacts to Include
Identify those non-utility system impacts to include in the primary test based on applicable policy goals identified in Step 1:

- Determine whether to include host customer impacts, low-income impacts, other fuel and water impacts, and/or societal impacts.

STEP 4 Ensure that Benefits and Costs are Properly Addressed
Ensure that the impacts identified in Steps 2 and 3 are properly addressed, where:

- Benefits and costs are treated symmetrically.
- Relevant and material impacts are included, even if hard to quantify.
- Benefits and costs are not double-counted.
- Benefits and costs are treated consistently across DER types.

STEP 5 Establish Comprehensive, Transparent Documentation
Establish comprehensive, transparent documentation and reporting, whereby:

- The process used to determine the primary test is fully documented.
- Reporting requirements and/or use of templates for presenting assumptions and results are developed.

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Courtney:

- At Step 3 – Synapse developed Straw Proposal based on committee input. Will present Straw Proposal.
- Interested in getting feedback today. But, can also provide written comments.
- Discuss potential participant impacts (Non-Energy Impacts – NEIs).

Straw Proposal							
	Category	Impact	Straw Proposal	Map to Policy	Homework Assignment		
					Yes	Maybe	No
Utility System	Electric Utility System	All	✓	na			
	Gas Utility System	All	✓	na			
	Other Fuels	Other Fuels	✓	✓	9	3	0
Non-Utility System	Water	Water	-		7	2	3
	Participant	Participant Costs	✓	✓	7	4	1
		Participant Benefits	✓	✓	5	6	1
	Low-Income	Low-Income	✓	✓	7	3	1
		GHG Emissions	✓	✓	12	0	0
Societal	Societal Impacts	Criteria Air Emissions	✓	✓	6	5	0
		Solid Waste	Include in Other Environmental	✓	1	6	5
		Water Impacts	Include in Other Environmental		4	5	3
		Land Impacts	Include in Other Environmental		1	6	5
		Other Environmental	✓	✓	1	8	3
		Public Health	-		3	7	2
		Economic and Jobs	✓	✓	1	7	3
		Energy Security	✓	✓	6	3	3
		Energy Equity	✓	✓	5	6	1
		Resilience	-	✓	4	6	1

Courtney:

- Slide from previous presentation – based on CAC member input.
- Provide context for Straw Proposal.

Potential Participant Impacts, Including NEIs		
Type	Participant Impact	Description
Participant	Participant portion of DER costs	Costs incurred to install and operate DERs
	Participant transaction costs	Other costs incurred to install and operate DERs
Participant	Risk	Uncertainty including price volatility, power quality, outages, and operational risk related to failure of installed DER equipment and user error; this type of risk may depend on the type of DER
	Reliability	The ability to prevent or reduce the duration of host customer outages
Participant	Resilience	The ability to anticipate, prepare for, and adapt to changing conditions and withstand, respond to, and recover rapidly from disruptions
	Tax incentives	Federal, state, and local tax incentives provided to host customers to defray the costs of some DERs
Participant	Participant NEIs	Benefits and costs of DERs that are separate from energy-related impacts

NEIs	Description
Water	Changes in water consumption resulting from a DER (e.g., reductions from low-flow showerheads, spray valves, clothes washers).
Asset value	Changes in the value of a home or business as a result of the DER (e.g., increased building value, improved equipment value, extended equipment life)
Productivity	Changes in a customer's productivity (e.g., changes in labor costs, operational flexibility, O&M costs, reduced waste streams, reduced spoilage)
Economic well-being	Economic impacts beyond bill savings (e.g., reduced complaints about bills, reduced terminations and reconnections, reduced foreclosures—especially for low-income customers)
Comfort	Changes in comfort level (e.g., thermal, noise, and lighting impacts)
Health & safety	Changes in customer health or safety (e.g., fewer sick days from work or school, reduced medical costs, improved indoor air quality, reduced deaths)
Empowerment & control	The satisfaction of being able to control one's energy consumption and energy bill
Satisfaction & pride	The satisfaction of helping to reduce environmental impacts (e.g., one of the reasons why residential customers install rooftop PV)

Courtney: List of potential Non-Energy Impacts (NEIs).

Discussion: Participant Impacts

NSPM Principles

- Symmetry Principle
 - If participant costs are included, then participant benefits should be too (including NEIs)
 - If participant benefits are not included, participant costs should not be
- Hard-to-Quantify Principle
 - Relevant impacts cannot be ignored just because they are difficult to quantify

Summary of Comments

- Stakeholders are mostly supportive of including participant impacts
- Those indicating “maybe” stated need for symmetry of costs and benefits

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Courtney:

- Need for symmetry.
- If including participant costs, should be including participant benefits. Including NEIs.
- In statute, not strong linkage to the requirement to include participant costs.

Participant Non-Energy Impacts

Points to Consider

- There are many participant non-energy impacts
- Most of them are participant benefits
- Some can be very large
- Some of them are more important to customers than energy benefits
- They vary significantly across programs
- They can be difficult to measure, quantify, and monetize
- Estimates are often approximate and uncertain

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Protecting Program Participants

- Participants are (essentially) always better off
- The Participant Cost Test can be used as a secondary test
- TRC Test and Societal Cost Test (SCT) do not fully capture participant impacts
 - In practice, participant benefits are reduced bills
 - TRC Test and SCT benefits are system-wide avoided costs, not bill savings

Courtney:

- Why important. Participants generally always better off. Caveat on fuel switching. Can depend on cost of other fuel. Most programs, participants are better off.
- Participant cost can be used in a secondary test (based on statute).
- TRC and SCT are not fully including all participant impacts.

Tim:

- Lots of time there is interest in including participant impacts to protect participants.
- Bottom bullets. Adding in participant costs and benefits – disconnect ... just another point to make. Including costs is not fully capturing effect on participants.
- Is capturing the “total resource cost”.
- Some are uncomfortable with just including the utility \$ (ignoring participants).
- If including participant costs – may be a valid reason.
- Not protecting customers. Just making sure you’re covering all the customer costs ... should include benefits.

Implications of Including Participant Costs and Benefits

MN 2021 BCA - Portfolio

Test	BCR
UCT	2.86
TRC (participant costs only)	1.12

RI 2021 BCA – Residential Programs

- NEIs typically have the largest impact on residential and low-income programs
- For RI, the UCT is not cost-effective due to the focus on oil and propane savings

Test	BCR
UCT	0.70
TRC (participant costs only)	0.93
TRC (participant costs & benefits)	1.04

Courtney:

- Shows results by looking at Xcel’s filing.
- Compare to Rhode Island (National Grid)

Kristen Berklund:

- In MN, the OAG charge is ratepayer and small business advocate before the PUC. For rebate programs, group of folks who qualify for program, but costs are paid by all other ratepayers. Rebates may benefit one group but detriment others who don’t qualify. Where does that piece fit into the concept?

Tim:

- All customers pay for EE programs but only a portion of customers participate.
- Equity issue. Addressed by having programs available to all customers.
- Encourage all to participate. More that participate, more can mitigate equity. Utilities can identify who hasn’t participated – reach out to them.
- Make programs as equitable as possible.

Kristen: Model based. Slide 9. “Participants are always better off.” If reflecting benefit to rebate participant ... model also reflect cost to the non-participating customers? Do ultimately pay.

Audrey: Kristen referring to RIM test. Not good for EE. Why it’s particularly problematic for EE. Don’t typically use.

Tim: Just because is problematic, doesn’t mean you ignore. Instead, do a separate analysis of bills, rates, participant rates. Equity issue not as big as some think it might be.

Kristen: Participation is what it is. Limitations for the programs. Make sure understand are operating ... that it’s being balanced.

Courtney: Straw proposal as currently drafted. Total utility system costs/benefits are included.

Kristen: Will follow-up with Audrey. Cost to utility and not considering costs of those not participating. Have a cost with no corresponding benefit.

Slide 11

Example: Magnitude of Non-Energy Impacts

Sector	Program	NEIs as % of Total Benefits
Residential	New Construction	2%
	HVAC	3%
	Single-Family Retrofit	8%
	Multi-Family Retrofit	31%
	Behavioral	0%
Low-Income	Products	0%
	Single-Family Retrofit	44%
Commercial & Industrial	Multi-Family Retrofit	47%
	New Construction	5%
	Retrofit	14%
	Small Business	15%

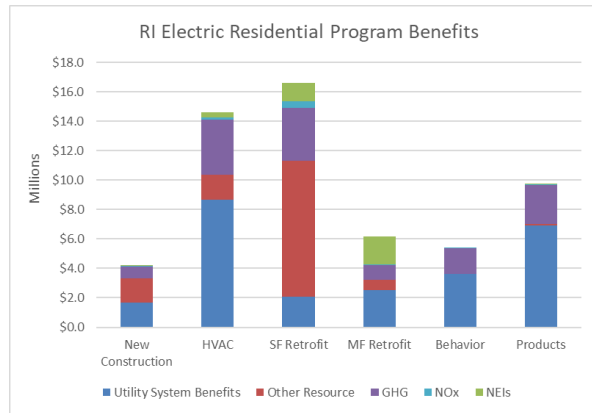
Source: National Grid Rhode Island, 2022 Energy Efficiency Plan, Attachment 5, Table E-6 (without CHP Project and Economic Benefits)

Courtney:

- Higher baseline for New Construction (NC) programs. Both NC and retrofit have same baselines. Evaluations show you get smaller \$ value in NC.
- Low income. NEIs are higher for them.

Slide 12

Example: Magnitude of Non-Energy Impacts



Source: National Grid Rhode Island, 2022 Energy Efficiency Plan, Attachment 5, Table E-6 (Economic Benefits Removed)

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Ethan: Clarify. Example numbers representative of state or an individual utility?

- Courtney: For National Grid B/C plan for 2022 plan. Only utility in state.

Marty in chat: Another way to look at 'non-participants': If programs are widely available, and a customer chooses not to participate and continue "inefficient use"...they are in fact raising utility system costs for all other customers. That is an important "IF", but if that is met, I don't have a lot of concern for voluntary non-participants.

- *Audrey agrees.*

Slide 13

Options for Incorporating NEIs

- Jurisdiction and program specific studies
- Leverage existing studies that have already quantified NEIs though primary research (CA, MA, RI)
 - Factors to consider when using other state's studies: climate, housing stock, economic conditions, and inflation
 - Dollar value or percent of total energy benefits can be used
- NEI proxies
 - Typically, a percentage adder that is applied to total energy benefits for a specific program or sector

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Courtney: Options for incorporating NEIs.

- Discussing not how to quantify ... instead what they are.
- Ways to incorporate.
 - Can do jurisdiction-specific studies.
 - Cites CA, MA, RI – take \$ from another state’s study. RI uses MA.
 - Get to proxies. Take some percentage adder for a sector.

Audrey in chat: I think the Utility Cost Test is much for reflective of the impact on non-participating customers. It shows whether the utility system will be higher or lower cost due to energy efficiency. Those costs flow to ratepayers, not the utility itself. The bottom line is that the energy need will be served by EE or another resource (likely a supply side resource). The utility cost tells us which is cheaper.

Slide 14

Sample of Participant NEI Proxies

State	Adder
Colorado	10% electric 5% gas 15% low-income
D.C.	5% NEI adder 5% risk 15% low-income solar measures
Nevada	10% non-low-income 25% low-income
New Hampshire*	25% residential 10% C&I
New Jersey	5% non-low-income 10% low-income
Vermont	15% across all programs Additional 15% for low-income

*Secondary Test
Sources: ACEEE Guidelines for Low-Income Energy Efficiency Programs and NEEP Non-Energy Impacts Approaches and Values: an Examination of the Northeast, Mid-Atlantic, and Beyond, 2017.
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Tim: Sample of Participant NEI Proxies.

- Numbers look convenient. Nice to have. Very simplistic.
- Settled number or pulled out of the air.
- Least well founded assumptions you tend to see in EE programs.

Marty: As an evaluator, likes NEIs (provides work for evaluators). Wearing regulator hat, lots of costs to measure variables that are difficult to measure. Easiest path forward for MN Test, remove costs and benefits. If go forward with participant impacts. Propose that we start with Utility Cost Test (UCT) and then see how well can do to quantify benefits (benefits are especially difficult).

- **Audrey** agrees with Marty. Difficult to quantify. End up with an adder, that could be vulnerable. Politically, EE is vulnerable in many states. Without having a robust quantification for NEIs. Problematic. Remove both costs and benefits. Not strong statutory language requiring include both costs and benefits. Handle scrutiny better.
- **Jeremy:** If we remove the costs and benefits could have issues. What does the primary test become? Is it compare system benefits and utility admin costs?

- **Tim:** Foundation is the utility system. What utility pays for incentives, admin, etc. Revenue requirements that customers have to pay. Clean and clear. If add participant costs, you're revealing total cost of resource. Example –
 - If have a measure, a motor, incremental cost is \$100. Utility pays rebate of \$25, participant pays \$75. Count \$25, are just showing what the utility is experiencing.
 - If utility is buying power from a renewable developer, all that is counted is what they pay for it. That's what UCT is.
 - Some say, "I don't care ...I just care about what the utility pays." Some may be concerned about total resource cost (with participants) because feel only looking at a piece of the puzzle. Respects the position but only makes sense if including the participant benefits.
- **Courtney:** Would just take out the Participant line item in the slide 5 graphic. This one:

Straw Proposal

	Category	Impact	Straw Proposal	Map to Policy	Homework Assignment			
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Utility System	Electric Utility System	All	✓	na				
	Gas Utility System	All	✓	na				
Non-Utility System	Other Fuels	Other Fuels	✓	✓	9	3	0	
	Water	Water	-		7	2	3	
	Participant	Participant Costs		✓	✓	7	4	1
		Participant Benefits		✓	✓	5	6	1
Low-Income	Low-Income		✓	✓	7	3	1	
Societal	Societal Impacts	GHG Emissions	✓	✓	12	0	0	
		Criteria Air Emissions	✓	✓	6	5	0	
		Solid Waste	Include in Other Environmental		✓	1	6	5
		Water Impacts	Include in Other Environmental			4	5	3
		Land Impacts	Include in Other Environmental			1	6	5
		Other Environmental		✓	✓	1	8	3
		Public Health		-		3	7	2
		Economic and Jobs		✓	✓	1	7	3
		Energy Security		✓	✓	6	3	3
		Energy Equity		✓	✓	5	6	1
Resilience		-	✓	4	6	1		

- **Jeremy:** So, would rebates be counted as a cost in the primary test or a pass through?
- **Tim:** Is a cost. Anything that is a revenue requirement is a cost (or a benefit if revenue requirements are reduced).
- **Jeremy:** That is a change from current practice where rebates are a pass through.
- **Grey:** Basically, yes. But that's because, in the TRC, are using full participant costs (and rebate doesn't really factor in).

Kevin: May have voted for including participant costs and benefits. Now thinking shouldn't include either.

- On an electrification program. What is the total expenditure going to happen to make programs work. On EVs. Who can afford to pay \$50K for an EV. To save \$ on fuel.
- Appropriate analysis would be incremental cost vs. change in fuel costs. Still means society as a whole ... make huge infrastructure investments. Individuals have to make those investments. How do we account for those? Seems we're underplaying how much it's going to cost in the EE or electrification realm. Participants, unless they need a new appliance. Big investment they need to make that doesn't get included.

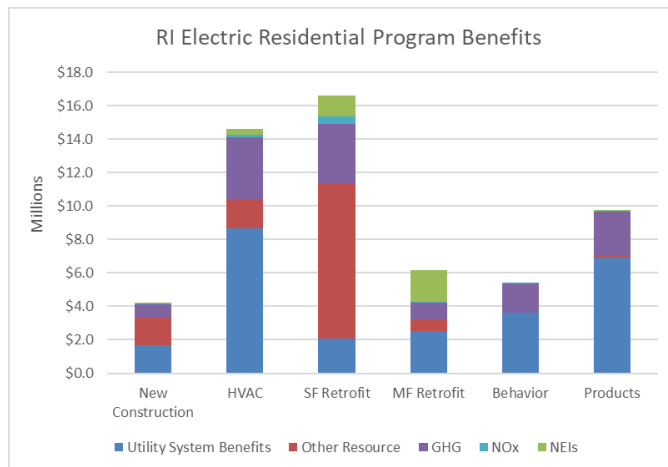
- **Tim:** Participant perspective. Participant cost test is very useful. How to make program work? Overcomes all market barriers so they'll participate – don't want to give them more. Participant cost test is perfect for designing program. Additional investment to make that happen. Include it if you have good numbers. Policy decision.
- **Kevin:** Impact of putting a charging network in place. Requires utility investments. Often not paid by utilities. Paid by governments (DOE).
- **Courtney:** Whether to include tax incentives when looking at participant costs.
- **Marty:** Agree useful to think about what the total cost to achieve goals. Climate, etc. planners and policymakers should be thinking. Difficult to use to screen programs. The reasons why humans make decisions. If you valued all those things, would increase CE values. Difficult to quantify.

Courtney: Some folks feel that they want to exclude costs and benefits. Anyone feel differently?

- Does think that participant cost test is important for LI customers.
- **Audrey** thinks utilities do a good job of estimating costs and benefits.
- **Joe Dammel** echoes Audrey. Potential for really rich use for LI programs. Understand impact on other program types. Preserve for LI programs ... higher adder for those programs. Preserve that for future applications for LI programs. Imprecision of adders vs. measured value. Compare states that have done value of participant benefits. States that just use percentage adder.
- **Tim:** Graph of RI. Shows slide 12.

This one:

Example: Magnitude of Non-Energy Impacts



Source: National Grid Rhode Island, 2022 Energy Efficiency Plan, Attachment 5, Table E-6 (Economic Benefits Removed)

- **Tim:** Bothered about proxies. Added on top of others. If gas or electric costs swing wildly, then so do the adders.

Greg in chat: I'm in concurrence with not using participant impacts in the primary test, but using PCT as a secondary test for program design & etc.

Adway in chat: What was the basis of quantifying these proxies for different states?

- **Tim:** Are mostly settled numbers (part of settlements between parties).

- **Greg** thinks they look nice.

Courtney: Currently doing work in DC to recommend adders. Looking at MA and RI.

David Siddiqui: States that did studies on NEIs and the potential. What is potential for those being reasonably accurate for MN? Are those NEIs comparable?

- **Courtney:** Recommends pulling the evaluation. Would have look at residential retrofit programs in MA. If climate is similar enough. if measures are akin to those offered in MA program. Could take the \$ value/heating system installed ... RI uses MA studies. Enough similarity between housing stock, etc. to apply.
- **Tim:** Some cases are easily transferrable. Sometimes not so much.

***Jeremy in chat:** Can we also address attribution/free-ridership? We expect that the marginal measures that rely on participant NEIs to pass the primary test have may not be influenced by the utility programs or energy savings. Would the primary test include net-to-gross adjustments to account for this?*

- **Tim:** Chat comment about free ridership. Tim says it's relevant to all tests.
- **Jeremy:** Current use of participant costs. Helps minimize the amount of free ridership. Bounded by incremental costs to measures that have energy cost savings that exceed cost of equipment. But if remove, if only using rebates ... comparing to costs. Not measuring the effect of that spend on adoption. Marginal technologies will be more costly installs ... rely less and less on energy savings for customer to install equipment. Everything to saves energy now ... can participate. "Huge attribution considerations ..." if allow in the portfolio.
- **Courtney:** How is NTG applied in MN? Jeremy. 100% NTG.
- **Courtney:** Would be good to develop NTG factors for programs. Would apply to programs with participant NEIs. NH is using 100% NTG.
- **Jeremy:** Is there a correlation between free ridership and measures that rely on NEIs to pass tests?
- **Tim:** Might be. Haven't seen it studied. Not sure it's intuitively obvious.
- **Jeremy:** Windows as a measures. If rebates are 5% of cost of windows but benefits are marginal. Wouldn't be excluded with UCT.
- **Tim:** You're getting at program design. Distinction between program design and screening. Want, with program design, not to have too much free ridership. Design to minimize free riders. Then apply screening.
- **Jeremy:** Marginal technologies – will they have more program design issues than those which are only screened by UCT. More and more costly equipment installed than would have been allowed.
- **Marty** says problem with assumption is that you are ignoring participant benefits. Can't just load in the participant cost. Whole thing is about imbalance.
- **Jeremy:** If doing because other benefits ... isn't that free ridership? How many participants would have done it without the program's intervention?
- **Marty:** Is program design issue.
- **Jeremy:** More program design issues by removing participant costs from primary test.
- **Marty:** If properly include participant benefits, most likely increase the benefits. Not sure how solves the problem.

Adway: Raise issues that DOC is thinking about. Don't feel comfortable removing all the participant costs as interim solution. Participant costs for certain measures are quite high and rebates are low (like air source heat pumps). Direction of moving ... have participant costs included in primary test and look at how states are including benefits. Get to symmetry. Set proxy values. What additional studies need to be done.

- Care about what kind of reputation EE programs have ... participants paying a large part of the measures ... should be considered when thinking about which measures are cost-effectiveness.

Russ Landry: Rather than having participant cost in the primary test for screening. Think about having a second primary test - participant cost test. Program design issues. Programs with low rebates ... if states brings in correct use of NTG ratios. Would account for free ridership issue. Make the programs not look cost effective.

Tim: Appreciates comment. Can get to secondary tests in a moment. Beauty of secondary test. If reach impasse, secondary test gives the option of having primary including participant cost/benefits ... secondary pulls them out. Have the discussion.

Chris Baker: Ratepayers. If not cost-effective for them, won't do it. Baked in protection. Ratepayers don't get a say whether the program exists. Need to be protected to make sure non-participating ratepayers are included. If go to NTG, then apply NTG to costs and benefits (Tim agrees).

Anthony:

- NTG. To date. This is a conversation that hasn't been brought to DOC's attention in a long time. No indication that there is stakeholder preference to change NTGs. Would need greater evaluation. Where Department is at the moment.
- Adway raised interesting points. Within Department, we have multiple units. CIP – Anthony. The CIP unit does not have a firm position on the issues raised today. Adway is representing the rates/planning unit's perspective.
- **Audrey:** Question to Anthony: interested in having the conversation. If not open to taking costs and benefits out of test. Useful to pivot to getting to close as possible to symmetrical. Get a strong and robust value for NEIs will be an extensive effort.
- **Anthony:** All options laid out are on the table. Adway would be considered in this discussion as quasi-stakeholder. Important. For CIP, have a consultant. Lucky to have Synapse on board as well.
- *Marty in chat: Thanks, Anthony. I appreciate the clarification on that point of what is on the table for consideration in this current process.*
- **Kevin:** MN has taken a practical approach historically. 100% NTG ratio. Personally, likes that. Pretty good. NTG ratio analysis has a bias towards looking to free ridership vs. looking at other side of the equation. Free drivership gets neglected. NTG ... will create a lot of noise.
- *Lisa Beckner in chat: I agree with Kevin here, especially on the free drivers, MN utilities have done a good job of getting customers to understand the benefits of EE overtime and there is a lot of value from that work over time that might not get easily captured in a net to gross study*

Other Impacts Included in the Straw Proposal

	Category	Impact
Utility System	Electric Utility System	All
	Gas Utility System	All
Non-Utility System	Other Fuels	Other Fuels
	Low-Income	Low-Income
Societal	Societal Impacts	Greenhouse Gas Emissions
		Criteria Air Emissions
		Other Environmental (solid waste, water, land, others)
		Economic and Jobs
		Energy Security
		Energy Equity

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Courtney: Listing the other impacts proposed to include in Straw Proposal. All linked to policy goals and CAC members supported. Whether or not to include compact, not how to quantify.

- **Tim:** No concerns about including these?
- **Kristen:** Doesn't have concerns. In observer capacity. If folks who voted "yes" on water. Would be good to understand why that's important. Not critical.
 - **Courtney:** Other environmental – wasn't support for water. But, at last meeting, discussion re: "other environmental" being placeholder for items such as water conservation (can be a catch-all). – not attached to a policy goal. Is a catch all for other stuff.
 - **Kristen:** So, more of a placeholder.

Discussion: Macroeconomic

Description of Impact

- The value of any incremental economic development and jobs provided by EE
- Common practice to estimate net-job impacts in the state

Treatment of macroeconomic impacts in a BCA

- Monetary value of macroeconomic impacts should not be added to monetary values of BCA because that would result in double-counting
- Nonetheless, job impacts can be included in a quantitative way and reported separately from BCA

Summary of comments

- Recommended definitions: net jobs or reduced dollar drain from imported energy (also mentioned for macroeconomic)
- Not for primary test
- Difficult to incorporate

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Courtney: Placeholder if folks wanted to dig in more.

Discussion: Energy Security

Description of Impact

- Reductions in imports of various forms of energy help advance the goals of energy independence & security.
- Focus tends to be on costs, risks, volatility of fossil fuel imports.
- There is potential for overlap with utility system reliability and risk.

Summary of comments

- Recommend quantifying reduced economic burden of fuel imports, reduced dollar drain
- Supported by several policies
- Concerns of double counting with low-income
- Include in utility system risk and reliability instead

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Courtney: Placeholder if folks wanted to dig in more.

Impacts Excluded from the Straw Proposal

Non-Utility System Impacts

- Water

Societal Impacts

- Public Health
- Resilience

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Courtney: Placeholder if folks wanted to dig in more. Items excluded from Straw Proposal. Water as a participant benefit made sense, but not necessarily here (could be part of . Also excluded societal impacts of public health/resilience. Public health not tied to specific policy goal. Would be embedded in utility system costs. Or, included in criteria air emissions.

- Resilience excluded because utilities thinking was already accounted for. Listed also as utility system impact. Accounted for there.
- **Joe Dammel:** Public health impacts. Societal impacts. Do other states include in their tests? Do they have a more specific policy or statutory goal related to public health?
 - **Courtney:** Has not seen it as a stand-alone societal benefits. Haven't seen anyone look at incremental benefit to society above what's accounted in other categories. Include as a low-income benefit.
 - **Tim:** To clarify, there is a participant impact. Homes are safer. Reduced indoor air pollution from EE. What we mean by participant public health benefits. Separate are societal public health benefits. Less cases of asthma, etc. There are states that account for societal public health benefits (as part of Societal test). EPA has

estimates of these (AVERT) public health benefits. Savings per kWh. Also EPA has BPK (benefits per kWh) of reduced emissions calculations. Lots of interest in that area. Overlap between criteria air pollutants that cause impacts and the impacts themselves. Avoid double counting. If group wants to be sure is not to be ignored, can look at criteria air emissions.

- **Courtney:** May want to combine. More familiar with criteria air pollutants. Haven't seen both. Could get rid of criteria air pollutants and consider it part of public health.
- **Marty:** Clarify regarding water. Understand that it makes sense to exclude water impacts from societal (lakes and rivers) but assuming that water savings in homes from EE would be quantified. Even if not based on participants ... could account just like you would other fuels benefits.
- **Courtney:** If don't include participant benefits. Can carve out and treat like other fuels.
- **Kevin:** Public health. Most current issue is Covid. Have you seen states include estimates from EE measures improving indoor air quality (from a Covid perspective)?
 - **Tim** hasn't seen it linked to EE programs. Might be more relevant to large commercial facilities or schools.
- **Audrey in chat:** *Kevin, that is a really interesting idea.*
- **Amalia in chat:** *Amalia. Wisconsin adds health benefits to SCT.*
- **Audrey:** MN includes criteria pollutants in SCT.
 - **Tim: M.** Air emissions are broader. Includes public health benefits. Really a subset of air pollutants. Should combine the two. That's how it really plays out.
- **Joe Dammel in chat:** *I would support further consideration of public health impacts within criteria air pollutant analyses.*

Courtney: Good to record. Does anyone not support including water as a non-utility system impact as we would other fuels? Not linked to a policy goal. Goes back to Slide 5. This one:

Courtney: Sounds like folks are okay with making a checkmark.

- No response (positive or negative).
- Kristen points out they are not taking a position one way or the other. In observer role.

Tim: Straw proposal column hasn't changed except people want to include water. Need to figure out what to do with Participant impacts in terms of secondary tests. Any other opinions on that? No response.

Discussion: Public Health

Description of Impact

- Includes health impacts that are not included in participant impacts or other societal impacts. These can include, for example, reduced incidents of asthma or healthcare costs such as societal investment required in medical facility infrastructure.
- Should be incremental to what is embedded in utility system costs (e.g., environmental compliance).

Summary of Comments

- Concerns related to potential double counting with low-income and criteria air emissions.
- May not be appropriate for primary test
- Concerns regarding valuing the impact

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- No discussion

Discussion: Resilience

Description of Impact

- The ability to anticipate, prepare for, and adapt to changing conditions and withstand, respond to, and recover rapidly from disruptions.
- EE can increase resilience by reducing the amount of load that needs to be served to recover from an outage. It is important to avoid double-counting of risk, reliability, and resilience impacts.

Summary of comments

- Most comments are supportive but concerns for how to quantify
- Should this be captured in reliability

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- No discussion

Steps 4 & 5

- Step 4: Ensure benefits and costs in primary test are properly addressed
 - Symmetry
 - No double-counting
 - All relevant material impacts

- Step 5: Establish comprehensive, transparent documentation
 - The Working Group report will provide transparency for this working group process.
 - Transparency also requires that CIP Plans and Annual Reports adequately document all the impacts included, and their values.

Courtney:

- Have been considering items on this slide throughout discussions today.
- Straw proposal accomplished Step 4. Step 5 is next step.
- Adam and Grey will create WG report document and consensus and non-consensus items. Create transparency around WG process. Next triennial plans. Adequately documenting what's include and how they were quantified. Like a Technical Reference Manual (this is Step 5).

Secondary Tests

- What are secondary tests used for?
 - Inform decisions on how to prioritize EE investments
 - Inform decisions regarding marginally cost-effective measures or programs

	Case 1	Case 2	Case 3
Primary test (no GHG)	2.1	0.96	0.96
Secondary test (with GHG)	Not needed	1.8	0.98
Investment Decision	accept	accept	reject

- MN Statutes already require utilities to present results for the following tests:
 - Utility Cost Test, Total Resource Cost Test, Participant Test, Societal Test
 - These are all secondary tests

- Is there a need for an additional secondary test?

Courtney: What is a secondary test? Table is hypothetical situation for utility.

- Different cases. Primary test not cost-effective ... go to secondary test. (Case 2) Regulator decides overall beneficial based on secondary test. (Case 3) Not okay based on Primary or Secondary.
- Might be need for a secondary participant cost test. Hear from group. Additional secondary tests beyond what's in statute?
 - **Audrey:** Need a way to consider, more holistically across utility systems. Allow fuel switching, costs-benefits to the electric and gas systems together when consider fuel switching.
 - **Tim:** Electrification program. Switch gas to electric. Would increase costs of electric system, would also incorporate reduced costs of gas. Is that what you mean?
 - **Audrey:** Tests have looked at, say electricity system, only. Have only look at one system. Haven't been able to accommodate the costs and benefits of fuel switching. ... not a new test. Same benefits and costs ... would pertain to both. Have to figure out how to develop something that includes both costs and benefits.
 - **Tim:** Work on models.
 - **Jeremy:** On electrification. RIM may become important with electrification, especially if on electric side you are providing bill incentives to incentivize electrification.
 - **Tim:** Doesn't think RIM test has value whether or not doing fuel switching. Little value. If want to look at rate impacts, should do separate rate impact analysis.
 - Rate impact analysis takes same inputs for B-C test. Only look at the rates. Anything that raises or lower rates is included. Also look at lost revenues (or increases if electrification). Account for lost or increased revenues in analysis. What is percent increase in rates? If use RIM test (BCR of .6), tells you nothing about size of rate impacts. Keeping separate metrics is better.
 - Doing these analyses in RI, MA, Nova Scotia, NH. Would like to see more states do it. More common as a way to recognize rate impacts are important. Make it transparent and easy to understand. It's important.
 - **Jeremy:** As long as rates are somehow included.
 - **Tim:** Agrees. With fuel switching, should look at rate impacts. May see downward pressure on electric rates and possibly upward pressure on gas rates.

Tim: Hearing that there may be room to have a secondary test re: participant impacts. Easy way to resolve something where don't have complete agreement. Only remaining question: Should primary test include participant cost/benefits and secondary exclude them. Or vice versa? Primary test tends to dominate. Perhaps do this offline.

***Kristen** in chat: Kevin/Audrey - under the concept of symmetry, how would folks who are teleworking (not getting the benefit of improved air quality programs) be accounted for? Or would you consider that too far removed for consideration?*

***Kevin** in chat: Kristin, if there were an IAQ program focused on Covid prevention, teleworking participants would be non-participants like in other programs. So they would help pay for the*

program but would benefit from lower long-term energy costs and potentially from lower rates of infection.

Kevin in chat: *Lower infection rates in society as a whole*

Anthony: Regarding secondary test. From a regulatory standpoint, how would you incorporate a primary test and a secondary test when you DOC is approving CIPs at a segment level? How funneling up? Would have case 1, 2 and 3 within a segment. Segment defines as customer sector – residential, commercial, etc.

- **Tim:** So, doing at segment level?
- **Anthony:** Report at program level but approve at segment level.
- **Tim:** That's great. Word report there is critical. The more info you give to regulators, better off you are. Provide results from 5 tests. End of process, tell the results for all five tests plus the primary and the secondary tests. 7 tests total. Sounds like a lot of work, but is just mixing and matching the benefits-costs. Don't think it matters at what level are approving.
- **Courtney:** Make it clear that utilities would design programs according to primary test. If something not CE under primary, will consider results from secondary. Provides more information about how programs are impacting participants, society, etc.
- **Kevin in chat:** *I don't think 7 test makes sense. while it may be 'simple' to calculate, it's an unnecessary administrative burden*
- **Anthony:** When getting to 7 tests, makes regulator head spin. Flexibility at program level. Can approve non cost-effective programs if pass at segment level. Not sure need secondary tests to do that. Already have 4 other perspectives reported.
- **Tim:** Misleading to say 7 tests. RIM shouldn't be used for program screening. Participant test is for program design not screening. TRC doesn't have a lot of value now. Now worked through all policies, priorities. Legacy test don't use. Even societal test. Helpful and should report it.
- **Tim:** In my view, primary test is primary. Utility cost test is extremely helpful to look at utility revenue requirements. Also helpful in looking at rates. One primary test, the Minnesota test. Two secondary tests – utility cost test and the one we're talking about that excludes participant benefits. Not head spinning ... really boils down to a handful of tests. Well vetted in terms of what's important and what's not.

Marty: Modest proposal. Propose that primary test, for the initial phase, exclude participant impacts but that parties agree that participant impacts get examined for the next Triennial. Tough to get NEIs. Short timeframe before next Triennial. Learn what might need to be included a primary test. "Wouldn't try to jam this into the primary test".

- **Audrey** agrees with Marty's proposal. Response to something Anthony said. How apply secondary test ... perhaps can have different tests for different segments? Can we flag which test is emphasized for each segment? Particular test is good for LI customers.
 - **Tim:** Not out of the question but makes him nervous.
- **Joseph Dammel in chat:** *Point taken re Marty's point, but I'd like to use the comment period (2 weeks) to consider participant impacts further for Fresh Energy.*
- **Russ Landry:** For ECO, need to have participant cost test. For fuel switching. Consistent across programs.
- **Tim:** Straw proposal. Other fuels can be separated out. Can be included in the test.
 - **Russ** stands corrected.

Next Steps

Written Comments

- Written feedback on Synapse's draft Straw Proposal due by 6/29.
- Written responses should outline specific areas of agreement and disagreement with the Straw Proposal.
- Email written responses to adam.zoet@state.mn.us and gstaples@mendotagroup.com

Final Working Group Report

- Mendota Group/Commerce will prepare and distribute a final report to the CAC prior to next meeting.
- The report will outline what was agreed to, what was not agreed to, and what will be quantified in the next phase of CAC process.

Workshop #4 (7/20 from 10:00-12:30)

- Discuss Final Working Group Report.
- Mendota Group transitions to next phase of CAC process focused on quantifying MN's primary test impacts.
- Roadmap of the key tasks and timeline for this phase of the CAC process.
- Initial discussion of priority impacts that will work to quantify.
- Initial discussion of resources that could be used to quantify priority impacts.

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Adam:

- Thank you to Synapse for running us through the various tests.
- Asking for written feedback by June 29.
- At July 20 meeting. Will go through Working Group report. Transition to next phase which will focus on quantifying the primary test impacts. Timeline for next steps. Any resources can use to quantify the priority impacts.
 - **Kevin:** Roadmap. Does that include the steps that utilities have to take ... and DOC has to talk to implement this? Areas that need to quantify. Utilities will need to change their CE engines and reporting requirements. Only about a year away?
- **Adam:** Roadmap will outline next phase of committee process. Key tasks for next phase.

End at 12:30.