
Memorandum

TO: DON KREIS, OFFICE OF THE CONSUMER ADVOCATE

FROM: TIM WOOLF AND DANIELLE GOLDBERG, SYNAPSE ENERGY ECONOMICS

DATE: JANUARY 31, 2023

RE: **RESPONSE TO PUC REPORT ON ENERGY EFFICIENCY PLANNING, PROGRAMING, & EVALUATION**

1. Introduction and Summary

On January 13, 2023, the Public Utilities Commission (Commission) issued a *Report on Energy Efficiency Planning, Programming, & Evaluation* (referred to here as the Zelle Report, for the reasons stated in the Consumer Advocate’s transmittal letter). This report appears to have been issued in response to the comments received by the Commission to its November 4, 2022, record request as part of its Investigation of Energy Efficiency Planning, Programming, and Evaluation (Docket IR 22-042). This includes comments (December Comments) that Synapse Energy Economics (Synapse) drafted on behalf of the Office of the Consumer Advocate (OCA). The purpose of this memo is to provide substantive responses to the Zelle Report on behalf of the OCA.

While the Zelle Report claims that the “goal of this study was to provide the Commission and the participants, including state policymakers, with increased clarity of key EE topics and the impact on Granite Staters,” the document does just the opposite. The Zelle Report does not recognize or address the history of these issues in New Hampshire, or the critical information and recommendations provided by the utilities and other stakeholders in this docket. The Zelle Report makes many misleading or erroneous claims, provides analyses that are not relevant or constructive, and makes many negative inferences about current practices without offering direction or guidance. In sum, the Zelle Report creates more uncertainty and confusion than clarity.

Our primary concerns are that the Zelle Report:

- Incorrectly claims that the Granite State Test (GST) is asymmetrical and inconsistent with industry norms.
- Misconstrues the key distinction between the GST and the New Hampshire Total Resource Cost Test (NHTRCT), which is the inclusion of participant costs and benefits. Consequently, the PUC EE Report comparisons of the two are misleading and confusing.
- In the discussion of discount rates, focuses on an out-of-context reference in the National Standard Practice Manual (NSPM), and then ignores all the rest of the guidance

from the NSPM to draw a conclusion that is inconsistent with the ultimate recommendations in the NSPM.¹

- In the discussion of market barriers, raises doubts about the justification of energy efficiency programs while ignoring or misconstruing the materials offered by stakeholders in this docket, and ignoring many years of experience in New Hampshire and other states.

2. The Granite State Test

Report Highlights

In the report highlights, the Zelle Report claims that:

The statutory tests used to determine cost-effectiveness of New Hampshire's EE programming are unique to the State, do not appear to align with industry norms regarding symmetrical balancing of costs and benefits, and are primarily based on predictions, not observational data.²

This claim is misleading in that it fails to acknowledge the most important aspect of the statutorily required GST: that it was developed by a lengthy working group (B/C Working Group) process with input from energy efficiency stakeholders and was designed to address uniquely the specific policy goals of the State. Thus, the fact that the GST is unique to New Hampshire is a positive thing, not something negative as implied by the quote above. Further, the statutorily required Total Resource Cost Test (TRCT) is not unique to the state, and is in fact used by most states, as noted in the Zelle Report later.³

In addition, this claim is incorrect because both the NHTRCT test and the GST do align with industry norms and do include a symmetrical balancing of costs and benefits, as will be discussed further below.

The concluding reference to predictions and observational data is both misleading and unclear. Cost-effectiveness tests in general are not based on either predictions or observational data. The Zelle Report seems to be conflating the *application* of cost-effectiveness tests (which requires inputs that could be based on observational data or predictions), with the applicable *definition* of cost-effectiveness embedded in the tests (which does not require any inputs at all). Thus, this final point in the quote above has no relevance to the definitions of any cost-effectiveness test; either the statutorily required tests or the tests previously used in New Hampshire. Further, all cost-effectiveness analyses must be based on predictions because they evaluate costs and benefits that will occur in the future.

¹ National Energy Screening Project, *National Standard Practice Manual for Benefit-Cost Analysis of Distributed Energy Resources*, August 2020. (NSPM 2020)

² Zelle Report at 1.

³ *Id.* at 11 and Figure 8.



Framing and Analysis of the GST

The Zellem Report presents several formulas of the benefits, costs, and benefit-cost ratios of both the GST and the NHTRC, in an attempt to compare the two tests. However, the report’s framing of these two tests does not identify the key distinction between the tests and therefore creates more confusion than clarity about them.

Table 1 shows a comparison of the GST and the NHTRCT, and more clearly distinguishes the differences between the two. In sum, the key difference between the two tests is that the NHTRCT includes participant costs and benefits, while the GST does not.

This distinction is made clear in the PUC Staff report summarizing the results of the B/C Working Group process used to develop the GST: “A primary difference between the GST and the current version of the New Hampshire TRCT is that the GST does not include many of the participant benefits or costs included within the NHTRCT except for those related to low-income participants, and instead places greater emphasis on utility system costs and benefits.”⁴

Table 1. Costs and Benefits of the NHTRCT and the Granite State Tests

		NHTRCT Prior to 2020	NHTRCT	Granite State Test
Costs	Utility System	✓	✓	✓
	Participants	✓	✓	X
	Non-electric resource benefits (end-use fuel and water)	✓	✓	✓
	Fossil emissions based on RGGI	✓	✓	✓
	Income eligible	✓	✓	✓
	Fossil emissions	✓	✓	✓
Benefits	Utility System	✓	✓	✓
	Participants (non-energy impacts – NEIs)	X	✓	X
	Non-electric resource benefits (end-use fuel and water)	✓	✓	✓
	Fossil emissions based on RGGI	✓	✓	✓
	Income eligible	✓	✓	✓
	Fossil emissions	✓	✓	✓

The B/C Working Group discussed at length the advantages and disadvantages of including participant costs and benefits in cost-effectiveness testing. For the purpose of the primary screening test, i.e., the GST, the B/C Working Group determined that the disadvantages outweighed the advantages and that

⁴ Letter of October 31, 2019 to PUC from PUC Staff Members Elizabeth Nixon and Brian D. Buckley (transmitting recommendations of Benefit-Cost Working Group), filed in Docket No. DE 17-136 (tab 154), at 5.

there was no policy directive that requires the inclusion of participant impacts. Therefore, the B/C Working Group recommended excluding both participant costs and benefits in the GST.

Table 1 also shows the NHTRCT test that was in use prior to the B/C Working Group discussions. The previous NHTRCT test included all the participant costs but did not include the participant benefits (i.e., the non-energy impacts). The B/C Working Group recognized that the previous version of the NHTRCT was asymmetrical in that it included participant costs but did not include participant benefits. The B/C Working Group decided to remedy this problem going forward by adding participant non-energy benefits to the NHTRCT test. These impacts are challenging to quantify and monetize, so the NH Utilities have developed a rough proxy to account for these costs.

The proper framing of the differences between these tests is important for several reasons. First, it clarifies that both the NHTRCT and the GST are symmetrical in how they treat costs and benefits, contrary to the claim in the Zelle Report. Second, it clarifies that the primary difference between the previous NHTRCT, the new NHTRCT, and the GST is the inclusion of participant costs and benefits.

If the PUC seeks to question the advantages and disadvantages of including participant costs and benefits, it can simply review the B/C Working Group report that discussed this question.⁵ Instead, it includes a confusing and misleading discussion of the GST and the NHTRCT, implying that there are problems with the tests, without clearly stating what those problems are or how they should be addressed. For example:

- Regarding benefit-cost ratios, the Zelle Report states that “the impact on the benefit-to-cost ratios of the use of either the GST or the NHTRCT is entirely dependent on how the ratio of participants' cost to the total resource cost *differs* from the ratio of the NEI Adder (eliminated from the GST) to the NHTRCT benefits,” implying that this is a negative thing and using Figure 1 to make the point.⁶ Instead, the Zelle Report could have simply said (a) the NHTRCT test includes participant impacts while the GST does not, and (b) removing participant impacts from the test indicates that the programs are more cost-effective.
- Regarding benefits, the Zelle Report states that “In the GST and the NHTRCT metrics used by the Utilities, the benefits in the numerators include utility-focused avoided costs that benefit both participants and non-participants.”⁷ It is true that the utility system avoided costs do result in benefits that accrue to all customers, both participants and non-participants. However, this is a positive outcome: that all customers experience some benefits of energy efficiency programs. Further, the Zelle Report conflates these benefits that accrue to all customers with those that accrue *exclusively* to energy efficiency program participants. It is the impacts that accrue exclusively to participants

⁵ Synapse Energy Economics, *New Hampshire Cost-Effectiveness Review: Application of the National Standard Practice Manual to New Hampshire*, prepared for the New Hampshire Evaluation, Measurement, and Verification Working Group, October 2019, appended to the letter cited *supra* at n. 4. See especially pages 26-28.

⁶ Zelle Report at 8.

⁷ *Id.* at 9.

that are at issue when deciding whether to include participant impacts in a cost-effectiveness test, in the same way that the participant costs include costs that accrue exclusively to participants.

- Regarding costs, the Zelle Report states that “[i]n the GST model, while the non-participants’ costs are included fully, a significant part of the participants’ costs are not included.”⁸ This statement is misleading in that it is based on conflating the costs that accrue to all customers with the costs that accrue *exclusively* to participants. Both participants and non-participants pay for the incentive portion of energy efficiency measures, while participants exclusively pay for the costs of the measure not covered by incentives. This is a positive outcome because having participants pay for a part of the efficiency measure helps to reduce the cost of the program for all customers on average. The way this issue is framed in the quote above implies that excluding “a significant part of participants’ cost” is somehow asymmetrical when it is not. The GST is entirely symmetrical in that it includes the costs and benefits that accrue to all customers on average, and it does not include the costs and benefits that accrue exclusively to participants.
- Regarding symmetry, the Zelle Report refers to one of the principles in the National Standard Practice Manual, which requires that “[e]fficiency assessment practices should be symmetrical, for example, by including both costs and benefits for each relevant type of impact.”⁹ The Zelle Report then correctly points out that the NHTRCT “appears to compare benefits and costs more symmetrically than the NHTRCT as used in other jurisdictions,” because it includes both participant costs and benefits while many states TRC tests include only participant costs.¹⁰ But then the Zelle Report incorrectly claims that the “GST appears to compare benefits and costs less symmetrically than the NHTRCT.”¹¹ As explained above, the GST is entirely symmetrical in that it includes the costs and benefits that accrue to all customers on average, and it does not include the costs and benefits that accrue exclusively to participants.
- Regarding end-use benefits by measure, the Zelle Report claims that “[t]he fact that lighting has a higher share of the electric benefits than the total GST benefits is due to the weighting that is given to other system benefits categories in the GST.”¹² This is a misleading characterization of the GST. Categories are not weighted in the GST (or the NHTRCT, or any test). It is just that the GST includes fuel savings that are most relevant for insulation measures, which are predominantly installed in homes with delivered fuels. When additional benefits are added, the percent impact of all electric-savings measures, not just lighting, are reduced. The assertion that the GST includes a weighting of certain benefits is incorrect. A more accurate description of the GST is that it includes

⁸ *Id.*

⁹ *Id.*

¹⁰ *Id.* at 10. In the interest of full disclosure, we note that Synapse Energy Economics was the lead author of the National Standard Practice Manual.

¹¹ *Id.*

¹² *Id.* at 13.



certain benefits because the B/C Working Group, and ultimately the Commission, determined that there was a compelling policy reason to do so.

Despite the Zellem Report's claim that its goal is to clarify some of the key cost-effectiveness issues, this analysis merely serves to conflate and confuse the issues.

Inconsistency With Previous PUC Order on the Granite State Test

What is most striking about the negative light that the Zellem Report casts on the GST, is how inconsistent that is with the Commission's order approving that test.

The previous PUC order clearly recognized the value of the B/C Working Group process, stating that the "stakeholders have consistently worked in a collaborative manner and serve as an example of how constructive stakeholder processes can aid the Commission in its decision-making duties and allow parties to reach a result in line with their expectations."¹³

The previous PUC order clearly recognized the value of accounting for the specific state energy policy goals when developing the GST, stating the "proposed cost-effectiveness framework was informed by an extensive review of state policies as defined by statute, interpreted by Commission precedent, and guided by the state energy strategy," and noting that "we appreciate that the benefits and costs within the GST are based on a review of New Hampshire's existing statutes and policies."¹⁴

Most importantly, the previous PUC order (a) understood that the key aspect of the GST was the exclusion of participant impacts, and (b) agreed that excluding those impacts would be in the public interest. The Commission stated that "[w]e find that this emphasis on utility system impacts, which accrue to program participants and non-participants equally, will more appropriately target those measures and programs that lower utility system costs, minimizing disparate treatment of program participants and non-participants."¹⁵

3. Discount Rates

In its discussion of discount rates, the Zellem Report refers to the National Standard Practice Manual (NSPM), which in turn refers to a report from the U.S. Department of Energy and the U.S. Environmental Protection Agency (DOE/EPA Report). The Zellem Report claims that the NSPM seeks to highlight some claims in the DOE/EPA Report on discount rates. However, this statement is incorrect and takes the NSPM quote out of context. The NSPM does not highlight those claims in support of them; instead, it presents those claims as a point-of-departure for the rest of the discount rate discussion. The Zellem Report neglects to mention the text immediately following that quote in the NSPM:

¹³ PUC Order No. 26,322 (approving recommendations of Benefit-Cost Working Group), December 30, 2019 at 8.

¹⁴ *Id.*

¹⁵ *Id.*

While there is some logic to the concept of matching the discount rate to the perspective of the test used, this logic must be applied carefully. First, it is important to recognize the role of the applicable policies in developing the cost-effectiveness test and in determining the appropriate time preference. Second, it is important to be clear on whose perspective is actually represented in particular discount rates. These issues are discussed in the following sections.¹⁶

The following sections in the NSPM go on to make several points about choosing a discount rate:

- “The regulatory perspective is the most relevant perspective for determining a discount rate for the primary cost-effectiveness test. The regulatory perspective includes the full scope of issues for which regulators and other relevant decision-makers are responsible. It is typically based upon statutes, regulations, executive orders, commission orders, and ongoing policy discussions.”¹⁷
- “The utility WACC [weighted average cost of capital] is typically used to indicate the time preference for investor-owned utilities The key goal of utility investors is to maximize the returns on their investments. Therefore, the time preference of utility investors is not necessarily the same as the time preference of utility customers, or the regulatory time preference. Regulators/decision-makers should recognize this important distinction when considering whether to use the utility WACC as a discount rate. The primary objective of the cost-effectiveness analysis is to identify those utility resources that will best serve customers with safe, reliable, low-cost energy services over the long term. This objective is fundamentally different from the objective of maximizing utility investors’ returns. These different objectives dictate different time preferences.”¹⁸
- “It is also important to consider whether the concept of using the investor-owned utility WACC for a discount rate is appropriate for regulated utilities. While this concept is standard practice for unregulated companies, there are several important differences between unregulated businesses and regulated utilities.”¹⁹
- “Ultimately, the choice of discount rate is a policy decision—a decision regarding how much weight to give to long-term versus short-term costs and benefits. When determining the discount rate for the RVT [the primary cost-effectiveness test], this policy decision should be guided by the regulatory perspective, the same perspective that is used to define that test.”²⁰

¹⁶ The National Energy Screening Project prepared two NSPMs. The first one focused on energy efficiency only and was released in May 2017 (NSPM for EE). The second one addressed all types of distributed energy resources, including energy efficiency, and was released in August 2020 (NSPM 2020). The B/C Working Group used the NSPM for EE in its discussions because the NSPM 2020 was not available yet. The referenced quote from the Zelle Report is taken from the NSPM for EE, page 76. In the interest of full disclosure, Synapse was the lead author of both the NSPM for EE and the NSPM 2020.

¹⁷ NSPM for EE at 77.

¹⁸ *Id.*

¹⁹ *Id.* at 78.

²⁰ *Id.* at 81.

- Regulators and other decision-makers can take the following steps to determine the appropriate discount rate for their jurisdiction: (a) articulate policy goals; (b) consider the utility investor perspective; (c) consider the average customer discount rate; (d) consider the societal discount rate; (e) consider an alternative discount rate; and (f) consider risk implications.²¹

The Zelle Report ignores all these key points in the NSPM about choosing a discount rate and instead uses a line of argument that is inconsistent with these recommendations from the NSPM. The Zelle Report concludes that “[g]iven the elimination of participants’ impacts (costs and benefits) from the GST relative to the NHTRCT, NSPM standards indicate that the GST is more in line with the UCT than SCT, and appears apt for an application of WACC as the discount rate rather than the social discount rate.”²² The first part of this sentence is generally true: the NHTRCT includes more non-utility (i.e., societal) impacts than the GST. This point, however, is not in any way sufficient to justify the conclusion that the WACC is the appropriate discount rate for the GST, and such a conclusion is contradictory to the guidance provided by the NSPM.

In sum, the discussion of discount rates in the Zelle Report focuses entirely on an out-of-context reference in the NSPM, and then ignores all the rest of the guidance from the NSPM to draw a conclusion that is inconsistent with the ultimate guidance in the NSPM.

4. Market Barriers

The Zelle Report correctly acknowledges that the purpose of utility-funded energy efficiency programs is to overcome market barriers.²³ And the Zelle Report correctly acknowledges that shifts in market barriers over time should be accounted for in utility EE program designs:

As markets transform, opportunities arise to shift resources to areas where market barriers continue to exist. This shift is critical to ensure that ratepayer-funded EE investments generate the greatest possible return by lowering the energy expenditures of individual ratepayers.²⁴

However, many references in the Zelle Report cast doubt on whether sufficient barriers remain to support utility-funded energy efficiency programs. For example, the Zelle Report states:

²¹ *Id.* at 81-83.

²² Zelle Report at 13.

²³ *Id.* at 17 (citing RSA 364-F:3, X).

²⁴ Zelle Report at 2. [Further, we agree with the January 26, 2023 comments of Attorney Fossum in this docket that generating the "greatest possible return" should not be the goal of ratepayer-funded energy efficiency programs. We assume that the term "greatest possible return" as used here does not refer to returns to utility shareholders, but instead refers to the greatest amount of net benefits to customers.](#)

- “[A]nalysis of what barriers exist and whether these barriers have been reduced or eliminated by EE programming is inconclusive.”²⁵
- “No uniform definition of ‘market barriers’ has been adopted by the Utilities.”²⁶
- “While the Utilities provided their respective perspectives on the “markets” targeted by their existing EE programs, the issue of whether the current programs or new initiatives should be targeted remains ripe.”²⁷
- “It is not clear whether market barriers cause cost-effective opportunities to be lost or can be reduced by the State’s EE programming.”²⁸

The existence of market barriers to cost-effective energy efficiency savings has been widely accepted throughout the industry for over 30 years. As far back as 1988 a study conducted for the National Association of Regulatory Commissioners by the Lawrence Berkeley National Laboratory identified and defined these market barriers and clearly articulated why utility-funded energy efficiency programs are needed to overcome them.²⁹ The Zellem Report’s claim that “no uniform definition of ‘market barriers’ has been adopted by the utilities” implies that these barriers are not well understood when in fact they are. This claim also downplays the fact that many useful definitions of market barriers do exist, even if they are not all perfectly “uniform.”³⁰

These barriers are the very reason why utility-funded energy efficiency programs exist in the first place: If customers were able to adopt cost-effective energy efficiency measures on their own, there would not be any need for any utility-funded energy efficiency program in any state. The fact that utility-funded energy efficiency programs are offered in every state in the U.S. is a testament to the fact that market barriers to energy efficiency still exist.

The introduction of competitive wholesale electricity markets in some parts of the United States has done very little to overcome these market barriers because these markets focus on the wholesale generation of electricity, not the provision of energy efficiency services at the retail, end-use level. Many of the most expansive and successful utility-funded energy efficiency programs in the country are currently offered by states that are in regions with wholesale competitive electricity markets. In fact, nine of the top ten states offering energy efficiency programs are in regions with competitive wholesale

²⁵ *Id.* at 4.

²⁶ *Id.* at 17.

²⁷ *Id.* at 18.

²⁸ *Id.*

²⁹ National Association of Regulatory Commissioners, *Least-Cost Utility Planning Handbook for Public Utility Commissioners, Volume 2, the Demand Side: Conceptual and Methodological Issues*, prepared by Lawrence Berkeley National Laboratory, December 1988. See especially Chapter II.

³⁰ In addition to the different definitions of market barriers offered by the NH Utilities in this docket, see the definition offered by the OCA in its December Comments, on page 10.

markets: including California (#1), Massachusetts (#2), New York (#3), Vermont (#4), Maine (#5), Washington DC (#6), Rhode Island (#7), Maryland (#8), and Connecticut (#9).³¹

It is true that some market barriers can be permanently eliminated and markets for some energy efficiency measures can be completely transformed to be supported by customer actions alone. The market for most efficient lighting products is a great example of this. However, it is also true that many, many market barriers to energy efficiency remain.

We agree with the point that market barriers should be assessed periodically to ensure that energy efficiency programs are designed to overcome them at the lowest cost to utility customers. We recommend that all energy efficiency program administrators consider market barriers whenever they design and implement programs, including ways to minimize free riders and ways to transform markets where possible. It is our understanding that the NH Utilities consider these barriers when designing their energy efficiency programs.³²

But we disagree with the implications of the Zelle Report that it “is not clear whether market barriers cause cost-effective opportunities to be lost or can be reduced by the State’s EE programming.” This conclusion is completely at odds with the rest of the energy efficiency industry and with the clear evidence that many market barriers remain and utility-funded energy efficiency programs are just as vital now as they ever were.

5. Energy Efficiency Programs for Income Eligible Customers

The Zelle report appears to be critical of the HEA income-eligible efficiency program. The report does not directly criticize these programs. Instead, it attempts to indirectly put these programs in a negative light.

In Table 8, the report presents the benefit cost ratios for the utility HEA programs without the adder that is used to represent some of the benefits of that program. While the Zelle report does not draw any conclusions from these results, the information presented implies that the some of the HEA programs are not cost-effective without this adder. Such an implication is misleading and erroneous. Subtracting one of the benefits of the HEA programs will, by definition, make the program appear less cost-effective. But there is no basis, and no justification provided, for subtracting these benefits from the analysis. By this logic, one could just as easily subtract some of the costs of these programs to demonstrate that the programs are much more cost-effective than they really are.

The Zelle report also notes that the HEA programs for two of the utilities yield benefit cost ratios less than 1.0, implying that the programs are not in the public interest. This implication is inconsistent with the clear directive from the New Hampshire legislature that requires a minimum of 20 percent of SBC

³¹ American Council for an Energy-Efficient Economy, 2022 State Energy Efficiency Scorecard, December 2022. See especially Table3.

³² Joint Utility Comments filed in IR 22-042 (tab 61) on January 26, 2023 at 3.

and LDAC Funds raised for the EE program to be expended on applicable income-eligible programs. This legislative directive does not require that the income-eligible programs be justified by cost-effectiveness analyses. The Legislature clearly recognized that income-eligible programs are in the public interest because of the role they play in reducing low-income customer energy burdens.

In sum, the Zelle report calls into question the validity of the income-eligible programs without recognizing some of the key, unquantified benefits of these programs and without acknowledgement of the clear policy directive from the Legislature supporting these programs.

