MEMORANDUM

To: The New Jersey Board of Public Utilities Staff

From: Statewide Evaluator

Date: February 28, 2023

Subject: Summary of New Jersey Cost Test Committee Recommendations for Updates to NJCT for the Second Triennium

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Abstract

This Statewide Evaluator (SWE) submits and supports this summary document as the administrator of the New Jersey Cost Test (NJCT) Committee (NJCTC) and advisor to the New Jersey Board of Public Utilities (BPU or Board) staff. The body of this memo reflects 22 recommendations discussed among the NJCTC members concerning updates for Triennium 2 to the NJCT design, content, methodologies, and sources that should be used to calculate the values contained in the NJCT. The memo discusses context, considerations, recommendations, and follow-on steps and future directions. While this memo reflects input from NJCTC members, it should not be considered a consensus document. This memo footnotes areas where consensus has not been achieved.

SWE notes that there are many changes (including changes beyond this memo or committee) suggested for Triennium 2, and all interactions cannot be foreseen. Therefore, separate from the deliberations of the committee, SWE suggests it will be prudent for the BPU to include an internal and stakeholder review process of Utility submittals of avoided costs values and their derivation that incorporate these recommendations, prior to approval or denial of the use of specific avoided cost values to be used in Triennium 2 filings.

Toward this end, the Utilities have provided sample avoided cost values developed to illustrate the values associated with the methodologies contained in the SWE NJCT recommendations described herein.

Introduction and Background

On August 24, 2020, the Board issued an Order establishing the NJCT as the primary evaluation test to assess the cost-effectiveness of energy efficiency (EE) programs in New Jersey.[1] This order established an interim NJCT (iNJCT) for use in evaluating three-year program filings from July 1, 2021 through June 30, 2023, known as the first triennium.

[1] Order Adopting the First New Jersey Cost Test. August 24, 2020. Docket Nos. QO19010040 & QO20060389.

As part of the Board's June 10, 2020 Order Establishing Energy Efficiency Programs, the Board also authorized the creation of several working groups, including an Evaluation, Measurement, and Verification (EM&V) working group. One of the tasks of the EM&V working group was to evaluate and propose updates to the iNJCT. That process was undertaken within a sub-working group termed the New Jersey Cost Test Committee. The SWE was tasked with overseeing the NJCTC in order to identify priority updates to the NJCT for the Triennium 2[2] portfolios scheduled to be filed with the BPU by November 2023.

The NJCTC was formed with a goal for stakeholders to discuss the design, methodologies, values, and value sources used to calculate the NJCT. Within this focus, the NJCTC held bi-weekly meetings over the past year to discuss each existing and potential component for inclusion in the NJCT, with a goal of using the discussion to develop a consensus position and document. The membership of the committee comprised representatives from BPU, Rate Counsel, Rutgers, each Utility program administrator and the statewide program administrator, and the SWE.

Development of the Recommendation Document

SWE submits and supports this summary document, reflecting key NJCTC discussions and recommendations, as the administrator of the NJCTC and advisor to BPU staff. Over the year-long process, the NJCTC considered 22 avoided cost and cost test components, and the meetings sought feedback, robust discussion, and, ultimately, consensus on each. The process allowed any stakeholder to raise candidate discussion topics, and a schedule was developed. The meetings considered each component in turn, discussing whether the component should be included in the NJCT and, if so, the most appropriate methodology and source(s) that should be used to calculate the values for that component. Only limited disagreement was voiced during the meeting discussions.

SWE submitted a draft memorandum to NJCTC members, received comments, and addressed comments to a substantial degree. The NJCTC did not come to consensus on some components, illustrated through comments received on the memorandum. In particular, SWE notes Rate Counsel's disagreement with a number of the elements. SWE notes that, as with all elements of the Board Order, BPU staff will be conducting a public stakeholder process regarding the proposed Triennium 2 framework, before providing BPU staff's final recommendations to the Board.

Comments and Opinions

The Utilities provided comments, generally disagreeing with the recommendation that the Utilities provide calculated values for the avoided costs prior to filings. A few additional comments are noted in the discussions below. SWE generally supports the suggested approaches but cannot fully endorse some of them without seeing the specific method and data used. Rutgers provided comments on some items but did not support or oppose any of the suggested approaches. Rate Counsel provided

[2] The Triennium 2 period begins July 1, 2024 and runs through June 30, 2027.

overarching comments[3] objecting to the proposal to change the method by which avoided electric energy costs are calculated and the lack of analysis of how the change may impact cost-effectiveness; they support the SWE recommendation for review of values prior to the filings. In addition, Rate Counsel provided comments to individual components of the draft memo, as noted in this document.

Considerations and Next Steps

This memo discusses, in turn, each cost and benefit proposed for inclusion in the NJCT. The discussions focus on updates to structure, methodologies, values, and sources for values and identify the rationale for revisions and resolution. Note that there is general agreement on the intent, directions, and methodologies for these 22 updates; however, Rate Counsel and SWE cannot fully endorse the principles outlined in this straw proposal without seeing the underlying data and final cost values.

Within these discussions, each benefit or cost category is described, laying out the methodology used in the iNJCT, where applicable, as well as providing the recommendation of the NJCTC for an updated methodology or approach. For most elements, this document is not intended to provide specific NJCT values but, rather, specific approaches to and sources for developing such values. However, all data and values are not yet known, and the results and interactions of these corrections and updates cannot fully be known until the filings are submitted. Furthermore, new values for other portions of filings are being submitted through other efforts (incremental measure costs, Technical Reference Manual values, etc.), which will also have effects on filing results.

Therefore, SWE recommends that it will be prudent for the BPU to include an internal and stakeholder review of Utility submittals of estimated avoided costs values and derivation that incorporate these recommendations, prior to approval or denial of the use of specific avoided cost values to be used in Triennium 2 filings.

Toward this end, the Utilities have provided sample avoided cost values developed to illustrate the values associated with the methodologies contained in the SWE NJCT recommendations described herein. Please see the "NJ Sample Avoided Costs – April 2023" spreadsheet.

[3] Rate Counsel's overarching comments are summarized here and referenced where relevant within the 22 items. As a general matter, Rate Counsel objects to the proposal to change the method by which avoided electric energy costs are calculated. Rate Counsel argues that the proposal does not address any specific modeling or measurement challenge identified in the Board's NJCT Order. Further, Rate Counsel holds that the proposal offers this change without any analysis of how the change may impact cost-effective (CE) potentials, nor how such a change could impact proposed CE program budgets and ultimately New Jersey customer rates. Rate Counsel's position is that no comprehensive analysis, backcasting, or other evidence has been provided to Committee members evaluating how this proposed change may impact the selection of cost-effective EE measures either on an individual proposal or cumulative proposal basis. Further, Rate Counsel argues that the Committee has not shown how the proposed measurement change will impact utility administrative costs in estimating CE potentials.

Discussion and Recommendations for Updates to the NJCT for Triennium 2

The following chart summarizes each of the costs and benefits proposed in this document for inclusion in the NJCT, as well as whether it was previously included in the iNJCT and, if so, whether an update to the methodology used to calculate the cost or benefit is recommended. The memo steps through each in turn.

	Benefit Category	Included in iNJCT[4]	Methodology Change From iNJCT
1	Avoided Electric Energy Costs	Yes	Yes
2	Avoided Electric Capacity Costs	Yes	Yes
3	Avoided Electric T&D Costs	Yes	Yes
4	Avoided Natural Gas T&D Costs	No	
5	Avoided Electric Ancillary Costs	Yes	
6	Avoided Natural Gas Costs	Yes	Yes
7	Avoided Delivered Fuel Costs	Yes	Yes
8	Electric Energy DRIPE	Yes	Yes
9	Electric Capacity DRIPE	Yes	
10	Natural Gas DRIPE	No	
11	Avoided CO2 Emissions Impacts	Yes	
12	Avoided SO_2, NO_X, & $PM_{2.5}$ Emissions Impacts	No	
13	Avoided RPS Costs	No	
14	Avoided Volatility Costs (Hedge Benefits)	No	
15	Economic Development Benefits	No	
16	Non-Energy Benefits/Non-Energy Impacts	Yes	Yes
	Cost Category		
17	Incremental Costs	Yes	
18	Program Administration Costs	Yes	
	Other Factors		
19	Other Cost Considerations	New	
20	Discount Rate	Yes	Yes
21	Avoided Electric Line Losses	Yes	
22	Avoided Natural Gas Losses	Yes	

Category Descriptions

Each cost and benefit category contained in the chart above is described in detail below.

1. Avoided Electric Energy Costs – Included in iNJCT with a recommended change in methodology

Description

Avoided electric energy costs represent the value of wholesale electricity that would have been purchased but for the reductions in energy consumption associated with the installation of EE measures.

iNJCT Methodology

Calculated using the three-year rolling average of historic PJM wholesale prices multiplied by the quantity of electricity not consumed.

Rationale for Change

Avoided costs should be based on forward, not historic, costs. The quick timeline for development of the iNJCT did not allow for these values to be developed fully within the meeting. The discussions also identified that it is important to have on-peak and off-peak values.

NJCTC Recommendation

Calculated using a forward-looking jurisdictional-specific monthly forecast of on- and off-peak prices utilizing recent forward/future traded settlements. If zonal forwards are unavailable, Western Hub forwards should be congestion-adjusted to the applicable jurisdiction. Utilities should use Utility-specific data if available; State programs should use NJ-hub specific data. Forwards should be used for a period of no more than five years and thereafter escalated by the generation forecast for PJM-E contained in the Energy Information Administration's (EIA's) most current Annual Energy Outlook (AEO).

Comments and Objections

The Utilities did not object to or comment on this item. Rutgers also did not comment on this item. Rate Counsel cited their general objection above. SWE commented that PJM energy costs are based on regional supply of energy that may not reflect how NJ's GHG policies may limit the use of fossil fuels. SWE recommends that a NJ GHG policy-compliant, modeling-based study be performed for Triennium 3.

2. Avoided Electric Capacity Costs – Included in iNJCT with a recommended change in methodology

Description

Avoided electric capacity costs represent the value of wholesale electric capacity that would have been purchased but for (or the value of electric capacity revenues that is earned by the sale of) the reductions in energy demand associated with the installation of energy efficiency measures.

iNJCT Methodology

Calculated as either: (1) revenues earned from the PJM capacity market associated with offering and clearing EE into the Reliability Pricing Model (RPM); or (2) for customers that do not monetize their capacity into the RPM, the direct savings are equal to the difference in capacity costs at their pre-EE measure baseline load minus their load after the EE improvements are made.

NJCTC Recommendation

For periods where actual PJM auctions have occurred (PJM capacity auctions occur on a forward basis) the actual jurisdictional-specific auction clear price should be used. For periods after when actual auctions have occurred, the average of the three most recent utility-specific auction clearing prices should be used, escalated by an inflation rate consistent with that discussed in the Discount Rate section of these recommendations. Utilities should use utility-specific data if available; State programs should use a weighted average of clearing prices, weighted based upon the Preliminary Zonal Peak Load Forecast less Fixed Resource Requirement (FRR) load for each utility in New Jersey from PJM's most current planning parameters.

Comments and Objections

The Utilities did not object to or comment on this item. Rutgers also did not comment on this item. Rate Counsel cited their general objection above. SWE commented that PJM capacity costs are based on regional supply of capacity that may not reflect how NJ's GHG policies may limit the use of fossil fuels. SWE recommends that a NJ GHG policy-compliant, modeling-based study be performed for Triennium 3.

3. <u>Avoided Electric Transmission and Distribution Costs – Included in iNJCT with a recommended change in methodology</u>

Description

Avoided electric transmission and distribution (T&D) costs represent the value of avoiding or delaying future investments in the electric T&D system as a result of reductions in energy consumption associated with the installation of EE measures.

iNJCT Methodology

Avoided transmission costs are calculated by using the most recent Network Integration Transmission Service (NITS) Rate as applicable to individual utility service territories.

Avoided distribution costs are calculated by determining the total annual distribution charges that the customer would have paid before its participation in the program and then subtracting the total distribution charges the customer paid after the implementation of the EE measures.

Rationale for Change

It is desirable to move toward a marginal/avoided value instead of the retail value initially included in the Board Order. The proxy should be based upon future infrastructure investment, not the cost recovery of existing infrastructure.

NJCTC Recommendation

Calculated using a survey of avoided T&D cost studies to determine a proxy value of avoided future T&D costs. Examples of existing studies include Synapse Energy Economics' *Avoided Energy Supply Costs in New England* report and The Mendota Group's *Benchmarking Transmission and Distribution Costs Avoided by Energy Efficiency Investments* study.[5,6]

Comments and Objections

The Utilities and SWE did not oppose or comment on this item. Rate Counsel cited their general objection above. In addition, Rate Counsel argued that the proposed change is vague and discretionary, particularly when compared to the Board's prior-adopted measurement approach identified in its NJCT Order.[7]

Rutgers questioned the source of the values and was uncertain whether the Utilities' and State programs will all use the same value.

4. Avoided Natural Gas Transmission and Distribution Costs — New Category

Description

Avoided natural gas T&D costs represent the value of avoiding or delaying future investments in the natural gas transmission and distribution system as a result of reductions in energy consumption associated with the installation of energy efficiency measures.

iNJCT Methodology

Transmission was not quantified. Distribution was based on avoided bill costs from program participants.

Rationale for Change

There was not enough in the iNJCT process to include these costs. Reductions are likely to occur but are also likely to be small and, as such, may not be worth developing.

NJCTC Recommendation

[5] https://www.synapse-energy.com/sites/default/files/AESC%202021_20-068.pdf

[6] https://mendotagroup.com/wp-content/uploads/2018/01/PSCo-Benchmarking-Avoided-TD-Costs.pdf

[7] The detail for Rate Counsel's comment follows. "For instance, the recommendation does not specifically define what is meant by 'similarly situated' utilities. No benchmarking criteria relative to size, geographic region, nor ownership type has been identified. The recommendation does not define what is meant by 'future infrastructure investment' nor how this investment will be measured, such as by voltage class, dollar valuations, circuit-miles, or some other facility-type measure. Rate Counsel is also concerned about using 'future investment' and not the 'cost recovery' of existing infrastructure since the unchallenged use of 'future investment' estimates assumes that all of these investments are all used and useful and prudent. While the Board's current method is not forward looking, and 'marginal' in nature, it does have the benefit of having been determined in the past as being used and useful, prudent, thereby resulting in rates that are fair, just, and reasonable. Lastly, the proposed method is unreasonable on a forward-looking basis since it makes no provisions or adjustments to remove or correct for the large number of utility-investments dedicated to safety, reliability, resiliency and modernization – one could easily argue that such investments are unavoidable and should not be considered in such a CE calculation."

Avoided distribution value estimated using survey studies to determine a proxy value of avoided future T&D costs. Avoided transmission value estimated using recent cost estimates to construct interstate natural gas transmission pipeline capacity. An example of an existing study is Synapse Energy Economics' *Avoided Energy Supply Costs in New England* report.[8]

Comments and Objections

The Utilities and SWE did not oppose or comment on this item. Rate Counsel cited their general objection above. In addition, Rate Counsel suggested that the proposed change is vague and discretionary, particularly when compared to the Board's prior-adopted measurement approach identified in its NJCT Order. They noted the ambiguity of "similarly-situated" utilities and the use of interstate transmission line construction costs as a proxy in CE tests.[9] Rutgers questioned the source of the values and were uncertain whether the Utilities' and State programs will all use the same value.

5. Avoided Electric Ancillary Costs – Included in iNJCT with a recommended change in methodology

Description

Avoided electric ancillary service costs represent the value of electric ancillary services that would have been purchased but for the reductions in energy consumption associated with the installation of EE measures.

iNJCT Methodology

Calculated using a three-year rolling average of historic prices multiplied by the quantity of ancillary services products not purchased.

Rationale for Change

Methodology did not change but description updated for clarity.

NJCTC Recommendation

[8] https://www.synapse-energy.com/sites/default/files/AESC%202021_20-068.pdf

[9] Rate Counsel's concerns follow in detail. "For instance, the recommendation does not specifically define what is meant by 'similarly situated' utilities. No benchmarking criteria relative to size, geographic region, nor ownership type has been identified. Rate Counsel is also concerned about using any measure of 'future' T&D investment since the unchallenged use of 'future' estimates assumes that all of these investments are all used and useful and prudent. While the Board's current method is not forward looking, and 'marginal' in nature, it does have the benefit of having been determined in the past as being used and useful, prudent, thereby resulting in rates that are fair, just, and reasonable. In addition, the proposed method is unreasonable on a forward-looking basis since it makes no provisions or adjustments to remove or correct for the large number of utility-investments dedicated to safety, reliability, and resiliency as well as decarbonization/modernization (such as blue/green hydrogen investments, renewable natural gas, responsibility sourced natural gas, etc.) – one could easily argue that such investments are unavoidable and should not be considered in such a CE calculation. Rate Counsel is also strongly opposed to the use of interstate transmission line construction costs as any proxy for use in a CE test. First, interstate transmission line costs can vary widely depending upon the nature, length, location and type or project and the use of the most recently developed line could lead to wildly differing values. Second, the use of interstate transmission line costs is inappropriate since they are not overseen or regulated by the Board: to the extent any costs are utilized they should be for intrastate assets not interstate projects. Third, New Jersey has a policy of discontinuing the use of fossil fuels and, as such, should not be incorporating the costs of continued fossil fuel infrastructure in any CE analysis."

Calculated using the three-year average of Monitoring Analytics', PJM's market monitor, PJM State of the Market Report. The value is likely to be very small, in the range of $0.001/kWh. This rate should be escalated at the same rate as the avoided electric energy costs over the long-term.

Comments and Objections

The Utilities and SWE did not oppose and did not comment on this item. Rutgers also did not comment on this item. Rate Counsel noted that avoided ancillary services costs are likely to be very relative to other factors impacting CE potentials. Rate Counsel argued that the proposed approach has not shown how a change in measurement will meaningfully and productively measure avoided ancillary services costs and suggested that an adjustment may not be needed given the Board's three-year-average approach.[10]

6. Avoided Natural Gas Costs -- Included in iNJCT with a recommended change in methodology

Description

Avoided natural gas costs represent the value of natural gas that would have been purchased but for the reductions in energy consumption associated with the installation of energy efficiency measures.

iNJCT Methodology

Calculated using New York Mercantile Exchange (NYMEX) forward trading prices multiplied by the quantity of gas not purchased.

Rationale for Change

Methodology did not change but description updated for clarity.

NJCTC Recommendation

Calculated using a forward-looking, jurisdictional-specific monthly forecast utilizing recent forward/future traded settlements for Henry Hub commodity as well as transportation basis for the applicable delivery zone. Utilities should use utility-specific basis delivery characteristics; State programs should use Transco Z6-NY for basis delivery. Forwards should be used for a period of no more than five years and thereafter escalated by the Henry Hub forecast contained in the EIA's current AEO.

Comments and Objections

The Utilities and SWE did not oppose this change and did not comment. Rutgers also did not comment on this item. Rate Counsel did not oppose this change. As a general matter, Rate Counsel objected to the proposal to change the method by which avoided natural gas costs are calculated. However, Rate Counsel noted that, if the Board believes that its prior NJCT methods should be changed, Rate Counsel

[10] Rate Counsel elaborates as follows. "The Straw has also not shown how the Board was in error in defining how this avoided cost would be measured in its NJCT Order. Lastly, the Straw's recommendation is vague since it does not define the 'escalation' of avoided electricity energy costs nor how that escalation will be differentiated from monetary/price inflation, if at all. Rate Counsel questions whether such an adjustment is even needed given the Board's reasonable approach at defining a three-year average. An additional escalation appears to be unnecessary since any valuation changes will move in accordance with the three-year average."

would not object to the proposed method.

7. Avoided Delivered Fuel Costs – Included in iNJCT with recommended change in methodology

Description

Avoided delivered fuel costs represent the value of delivered fuel, such as oil or propane, that would have been purchased but for the reductions in energy consumption or switch from equipment reliant upon delivered fuels associated with the installation of EE measures.

iNJCT Methodology

Calculated using a three-year rolling average of historic EIA NJ residential fuel oil and propane prices multiplied by the quantity of fuel not purchased.

Rationale for Change

Methodology did not change but description updated for clarity.

NJCTC Recommendation

Calculated using the average of the three previous years of average historic EIA NJ residential fuel oil and propane prices, escalated by the most current EIA AEO forecast for delivered fuel.

Comments and Objections

The Utilities and SWE did not oppose or comment on this item. Rutgers also did not comment on this item. Rate Counsel cited their general objection above. Rate Counsel noted that, if the Board believes that its prior NJCT methods should be changed, Rate Counsel would not object to the method proposed provided that the escalation of prices represents a measure of scarcity value and not monetary/pricing inflation. Rate Counsel recommended that all variables used in any CE calculation be based on real values, not nominal values.

8. Electric Energy Demand Reduction Induced Price Effects – Included in iNJCT with recommended change in methodology

Description

Electric energy demand reduction induced price effects ("DRIPE") represent the value of lower electricity costs for all customers due to wholesale energy market price suppression spurred from diminished demand in electric energy markets as a result of reductions in energy consumption associated with the installation of EE measures.

iNJCT Methodology

Calculated by regressing historical electric energy prices as a function of load to determine the impact of load on electric energy prices.

Rationale for Change

The NJCTC discussed using one of two methods of regression as used in iNJCT or running two dispatch models: with and without EE. The difference in cost is the DRIPE. iNJCT did not include gas or LMP, but it should be included in this update.

NJCTC Recommendation

Calculated using a jurisdiction-specific multivariate regression that incorporates historic wholesale electric energy prices (LMP), load, and natural gas prices. Regression coefficients used to calculate DRIPE values should not be escalated in future years. Utilities should use utility-specific data if available; State programs should use NJ-hub specific data and Transco Z6-NY basis prices for natural gas.

Comments and Objections

The Utilities and SWE did not oppose or comment on this item. Rutgers also did not comment on this item. Rate Counsel cited their general objection above.

9. Electric Capacity Demand Reduction Induced Price Effects – Included in iNJCT with no change in methodology

Description

Electric capacity DRIPE represent the value of lower electricity costs for all customers due to wholesale capacity market price suppression spurred from diminished demand (or increased low-cost supply) in electric capacity markets as a result of reductions in energy consumption associated with the installation of EE measures.

iNJCT Methodology

Calculated using a linear extrapolation of price differentials between auction results and the scenario in which PJM removes 3000 MW of capacity supply from the bottom of the supply curve in MAAC.

NJCTC Recommendation

Calculated using a jurisdiction-specific linear extrapolation of price differentials between auction results and Scenario Analysis provided by PJM which removes 3,000 MWs of capacity supply from the bottom of the supply curve in MAAC. For periods where an auction has already occurred (the PJM auction occurs on a forward basis), the actual delivery year Scenario Analysis should be used. For periods beyond when actual auctions have occurred, the average of the most recent three auctions' Scenario Analysis should be used as a proxy, without any escalation. Utilities should use Utility-specific data if available; State programs should use a weighted average of clearing prices, weighted based upon the Preliminary Zonal Peak Load Forecast less FRR load for each Utility in New Jersey from PJM's most current planning parameters.

Comments and Objections

The Utilities and SWE did not oppose or comment on this item. Rutgers also did not comment on this item. Rate Counsel cited their general objection above.

10. Natural Gas Demand Reduction Induced Price Effects — New Category

Description

Natural gas DRIPE represent the value of lower natural gas costs for all customers due to wholesale natural gas market price suppression spurred from diminished demand in natural gas markets as a result of reductions in energy consumption associated with the installation of EE measures.

iNJCT Methodology

Not quantified.

Rationale for Change

There was insufficient time in preparing the iNJCT to include this component.

NJCTC Recommendation

Calculated using jurisdiction-specific (based upon applicable pipeline transportation city gates) regression that incorporates historical gas flow quantities and prices. Regression coefficients used to calculate DRIPE values should not be escalated in future years. Utilities should use Utility-specific basis delivery pipeline; State programs should use Transco Z6-NY for basis delivery.

Comments and Objections

The Utilities and SWE did not oppose or comment on this item. Rutgers also did not comment on this item. Rate Counsel cited their general objection above.

11. Avoided CO_2 Emissions Impacts – Included in iNJCT with no change in methodology

Description

Avoided CO_2 emissions represent the value of limiting harmful emission into the environment and atmosphere as a result of reductions in energy consumption associated with the installation of EE measures.

iNJCT Methodology

Calculated for electric and natural gas using the 3% discount rate "Annual SC-CO2," adjusted for today's dollars, as published in the 2016 Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis by the Interagency Working Group on Social Cost of Greenhouse Gases.

NJCTC Recommendation

The quantity of avoided electric CO_2 emissions should be calculated based upon the most recent Environmental Protection Agency (EPA) eGRID non-baseload emissions values, de-escalated based upon emissions forecast from the most current EIA AEO for PJM-E. The quantity of avoided natural gas emissions should be calculated based upon the Natural Gas Emissions Values contained in the NJ Protocols for Energy Savings (11.7 pounds per therm saved of CO_2), un-escalated into the future.

Avoided CO_2 damage values should be calculated for electric and natural gas using the most current federal assessment of emissions damages, such as from the Interagency Working Group on Social Cost of Greenhouse Gases or the EPA's Regulatory Impact Analysis. The emissions scenario should be that which is mostly closely in-line with the discount rate used in the NJCT.

Comments and Objections

The Utilities and SWE did not oppose or comment on this item. Rutgers also did not comment on this item. Rate Counsel did not oppose this change. As a general matter, Rate Counsel objected to the proposal to change the method used to estimate avoided CO_2 emissions. To the extent that the Board believes that it needs to change its prior methodology, Rate Counsel noted that it would not be opposed to the proposed use of eGrids data for carbon emissions.

12. Avoided SO_2, NO_X, & $PM_{2.5}$ Emissions Impacts – New Category

Description

Avoided SO_2, NO_X, & $PM_{2.5}$ emissions represent the value of limiting harmful emission into the environment and atmosphere as a result of reductions in energy consumption associated with the installation of EE measures.

iNJCT Methodology

Not quantified.

Rationale for Change

There was insufficient time in preparing the iNJCT to include this component.

NJCTC Recommendation

The quantity of avoided electric (SO_2, NO_X, & $PM_{2.5}$) emissions should be calculated based upon the most recent EPA eGRID non-baseload emissions values, de-escalated based upon emissions forecast from the most current EIA AEO for PJM-E. The quantity of avoided natural gas emissions should be calculated based upon the Natural Gas Emissions Values contained in the NJ Protocols for Energy Savings (0.0092 pounds per therm saved of NO_X), un-escalated into the future.

Avoided SO2, NO_X, and $PM_{2.5}$ damage values should be calculated for electric and natural gas using the average of the high case and low case estimates from the EPA report (updated in January 2022) entitled *Estimating the Benefit per Ton of Reducing Directly-Emitted PM2.5, PM2.5 Precursors and Ozone Precursors from 21 Sectors*.

Comments and Objections

The Utilities and SWE did not oppose or comment on this item. Rutgers also did not comment on this item. Rate Counsel noted they will not oppose a minor change. To the extent that the Board believes that it needs to change its prior methodology, Rate Counsel recommended a small addition to the administratively-determined non-economic benefit (NEB) adder.

13. Avoided Renewable Portfolio Standard Costs – New Category

Description

Avoided Renewable Portfolio Standard (RPS) costs represent the value of Renewable Energy Certificates (RECs) that would have been purchased but for decreases in state load as a result of reductions in energy consumption associated with the installation of EE measures.

iNJCT Methodology

Not quantified.

Rationale for Change

There was insufficient time in preparing the iNJCT to include this component.

NJCTC Recommendation

Calculated using broker sheets or NJ Class 1, Class II, and Solar Renewable Energy Certificate (SREC) forwards in the short-term. These short-term estimates should be escalated in the long-term by using a supply-demand analysis to determine long-term pricing trends. The calculation must recognize which RPS programs are impacted by reduced load (legacy SREC, Class I, Class II) and which are not (solar transition, solar successor, Offshore Renewable Energy Certificate) when calculating avoided RPS costs.

Comments and Objections

The Utilities and SWE did not oppose or comment on this item. Rate Counsel cited their general objection above. Rutgers noted concern that data is only available via subscription-based options.

14. Avoided Volatility Costs (Hedge Benefits) – New Category

Description

Avoided volatility costs occur because reductions in energy consumption associated with the installation of EE measures provide customers with a natural hedge against fluctuations in energy prices.

iNJCT Methodology

Not quantified.

Rationale for Change

There was insufficient time in preparing the iNJCT to include this component.

NJCTC Recommendation

Calculated using a survey of existing studies that quantify hedge benefit of energy efficiency and other demand-side technologies. Examples of existing studies include ACEEE's *Estimating the Value of Energy*

Efficiency to Reduce Wholesale Energy Price Volatility report,[11] Synapse Energy Economics' *Net Metering in Mississippi* report,[12] Rocky Mountain Power's *2013 Integrated Resource Plan*,[13] and Lawrence Berkeley National Labs' *Quantifying the Value that Energy Efficiency and Renewable Energy Provide As a Hedge Against Volatile Natural Gas Prices* paper.[14]

Comments and Objections

The Utilities and SWE did not oppose or comment on this item. Rate Counsel cited their general objection above. Rutgers noted concern that the same data should be used by all.

15. Economic Development Benefits – New Category

Description

Economic development benefits occur due to spending and re-spending of money in New Jersey's economy from the installation of EE measures.

iNJCT Methodology

Not quantified.

Rationale for Change

There was insufficient time in preparing the iNJCT to include this component.

NJCTC Recommendation

Calculated on a jurisdiction-specific basis using IMPLAN, a highly-recognized input-output economic model to calculate the incremental economic impacts and job-creation from program expenditures, customer bill savings, and cost recovery.

Comments and Objections

The Utilities and SWE did not oppose or comment on this item. Rutgers also did not comment on this item. Rate Counsel cited their general objection above. Rate Counsel recommended acceptance, with a modification. To the extent that the Board believes that it needs to change its NJCT methodology, Rate Counsel stated that it is not opposed to the recommendation, provided that net economic development benefits are utilized in the analysis whereby the negative economic development costs (i.e., increased rates) are netted from the additional economic development benefits.

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[11] https://www.aceee.org/research-report/u1803

[12] synapse-energy.com/sites/default/files/Net%20Metering%20in%20Mississippi.pdf

[13] pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Integrated_Resource_Plan/2013IRP/PacifiCorp-2013IRP_Vol1-Main_4-30-13.pdf and pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Integrated_Resource_Plan/2013IRP/PacifiCorp-2013IRP_Vol2-Appendices_4-30-13.pdf;

[14] aceee.org/files/proceedings/2002/data/papers/SS02_Panel5_Paper02.pdf

16. Non-Energy Benefits/Non-Energy Impacts – Included in iNJCT with a recommended change in methodology

Description

Non-energy benefits (NEBs) represent the additional value of EE that is not directly related to energy savings.

iNJCT Methodology

5% adder for NEBs. 10% adder for low-income.

Rationale for Change

A review of literature indicates that higher non-energy impacts are generated by EE program activity.

NJCTC Recommendation

Determined based upon the findings of SERA's memo "Non-Energy Benefits / Non-Energy Impacts (NEBs/NEIs): Analysis of Alternatives for the State of New Jersey Updates," which provides information to the NJCTC with respect to NEBs/NEIs and quantifies the average and range of actual NEBs/NEIs used and approved by other Commissions throughout the country. Program administrators should incorporate the average NEB adders, as contained in Figure 0.1 of the report. These values represent a reasonable midpoint between the higher end of the existing estimates and the currently used NEB adders.

Accordingly, the NJCT should incorporate a NEB/NEI adder of 23% (applied to wholesale electric and gas bill savings) for all programs. Low- and moderate-income programs should have a total adder of 36%, comprised of the 23% NEB adder plus an additional 13% for low- and moderate-income customers.

Comments and Objections

The Utilities and SWE did not oppose or comment on this item. Rate Counsel cited their general objection above. Rate Counsel considered the NEB study underlying the recommendation flawed.[15] Rutgers had follow-up questions about possible changes in application. They noted that the NEB adder was previously applied to avoided wholesale electricity and natural gas, as well as avoided capacity and avoided T&D (all energy related savings), and were uncertain if the new method will apply the multiplier to avoided wholesale electricity and natural gas. SWE disagreed with a number of the Rate Counsel comments regarding the NEB research.

[15] Rate Counsel notes the following. "The NEB study and resulting recommendation presented to the Straw was highly flawed because it failed to adjust a retail NEB estimate for wholesale savings, failed to adjust for cost/rate differences between differing states upon which TRM values have been utilized, and misrepresented certain state uses of NEB values. Rate Counsel notes that the guiding support for NEBs should be state regulatory decisions, not the literature. Rate Counsel finds that: most states do not use NEBs (31 states do not); states that use NEBs have values comparable to NJ's currently allowed levels; and states with NEBs have had them in place, on average, over a decade and have rarely changed values despite changes in the literature."

17. Incremental Costs – Included in iNJCT but not a recommended change in methodology

Description

Incremental costs represent the marginal cost customers are expected to pay between the cost of an EE measure and the cost of a baseline measure (i.e., the difference in price to install energy efficient equipment).

iNJCT Methodology

Monetized.

Rationale for Change

The NJCTC agreed that updated values were needed that were also consistent across Utilities' and State programs. A study under the direction of Rutgers and implemented by DNV is underway.

NJCTC Recommendation

DNV is currently undertaking a limited, secondary source analysis of incremental costs for some measures. This study, if provided with ample time prior to program filings, should be the basis of incremental costs and incorporated into the NJCT. Utilities may propose alternative values for measures excluded from the DNV study or instances where primary New Jersey-specific data is available.

Comments and Objections

The Utilities and SWE did not oppose or comment on this item. Rutgers also did not comment on this item. Rate Counsel also did not object to the recommendation.

18. Program Administration Costs – Included in iNJCT with no change in methodology

Description

Program administration costs capture the cost of administering programs not related to incentives, rebates, or loans. This includes categories such as marketing, outside services, utility administration, inspections and quality control, and evaluation.

iNJCT Methodology

Monetized.

NJCTC Recommendation

Developed on a program administrator-specific basis. Should include costs related to administering and implementing programs not inclusive of incentives, rebates, or loans.

Comments and Objections

The Utilities and SWE did not oppose or comment on this item. Rutgers also did not comment on this item. Rate Counsel supported the use of utility-specific values where available.

19. Other Cost Considerations — New Category

Description

Based on direction from the BPU, program administrators may be directed to specific non-program specific costs. These costs, while providing benefit to New Jersey, may not directly or indirectly contribute to energy savings or may not be essential to program delivery. These types of costs include public policy initiatives such as workforce development, where additions to the EE workforce may allow the Utilities and the State to provide greater or enhanced services.

iNJCT Methodology

Not addressed.

NJCTC Recommendation

The NJCT should exclude policy-driven initiatives that do not directly result in energy savings. This includes costs such as workforce development. The benefits of these initiatives should be analyzed separately from the NJCT.

Comments and Objections

The Utilities did not oppose or comment on this item. Rutgers also did not comment on this item. Rate Counsel agrees that Workforce Development cost be excluded.

SWE recommended that, for Triennium 2, costs for workforce development not be included. SWE recommended that, for Triennium 3, evaluation studies be performed to determine what costs and benefits from these directives and utility-initiated activities that may produce indirect savings belong in the NJCT.

20. Discount Rate – Included in iNJCT but change in methodology is recommended

Description

Discount rates are used to compare cashflows across differing time periods on a common basis by normalizing costs and benefits for the changing time value of money.

iNJCT Methodology

3% real.

NJCTC Recommendation

The NJCT should utilize a 3% real discount rate. This rate may be converted to a nominal value using the gross domestic product (GDP) deflator estimate from the most recent EIA AEO. All values should be presented in consistent real or nominal format for analysis.

Comments and Objections

The Utilities and SWE did not oppose or comment on this item. Rutgers also did not comment on this item. Rate Counsel agreed with the Board's original NJCT finding that a 3%real discount rate is the

appropriate social discount factor to use in the NJCT. Rate Counsel recommended that all CE modeling be done in real values, thereby rendering moot the need for conversion to "nominal" values.

21. Avoided Electric Line Losses – Included in iNJCT with no change in methodology

Description

Avoided electric line losses occur from less electricity being transported across the distribution and transmission system as a result of reductions in energy consumption associated with the installation of EE measures.

iNJCT Methodology

Utility-specific line loss factor grossed up for marginal losses by 1.5.

NJCTC Recommendation

Jurisdiction-specific line loss factor as defined in the tariff, grossed up for marginal losses by 1.5. Utilities should use utility-specific data if available; State programs should use EIA statewide average of losses.

Comments and Objections

The Utilities and SWE did not oppose or comment on this item. Rutgers also did not comment on this item. Rate Counsel did not object to the recommendation.

22. Avoided Natural Gas Losses — Included in iNJCT with no change in methodology

Description

Avoided natural gas losses occur from less gas being transported across the T&D system as a result of reductions in energy consumption associated with the installation of EE measures.

iNJCT Methodology

Utility-specific loss factor.

NJCTC Recommendation

Jurisdictional-specific loss factor as defined in the tariff or other regulatory filing. Utilities should use Utility-specific data if available; State programs should use weighted average of utility values, weighted based upon recent Utility throughput.

Comments and Objections

The Utilities and SWE did not oppose or comment on this item. Rutgers also did not comment on this item. Rate Counsel supported continued use of the interim recommendation regarding avoided natural gas losses in the iNJCT calculation, which utilizes a Utility-specific loss factor.

Conclusion and Directions for Additional Work and Studies

This document is meant to provide guidance for program administrators to understand the design and methodology that should be included in the NJCT and how those categories should be calculated. It is expected to be used in program development for the second triennial period. It is expected that the NJCTC will continue working through the second triennial period and will provide additional recommendations ahead of the third triennial period that align costs and benefits with realities in New Jersey.

SWE has also recommended several evaluation studies to support further development of NJCT elements within Triennium 2, including several New Jersey-specific studies to develop improved avoided cost values for Triennium 3. Recommendations for additional studies could include studies focused on determining New Jersey-specific benefits, with several examples of such studies as primary research or analysis pertaining to:

- Energy, capacity, and GHG emissions (NJ GHG policy-compliant, modeling-based study)
- NEBs/NEIs
- Avoided T&D for electric and natural gas
- Water savings
- Avoided volatility hedge benefits
- Incremental line losses
- Avoided ancillary costs
- Cost items with indirect or unquantified savings

Unless otherwise specified in a BPU Order, specifics for calculating each of the costs and benefits described in this document is placed on the discretion of each of the program administrator. Program administrators must provide support for all calculations and justification for any deviations from the methods described herein.