

Record Request No. 15

Request:

For special sector programs please identify what elements of the Rhode Island test for Energy Efficiency were not included in the BCA; if the reason such an element was not included was technical or policy based and whether an assessment of the excluded element could be provided qualitatively and if so please provide that qualitative assessment.

Response:

Please refer to the Company's response to Division 5-2, which describes each methodology or assumption included in special sector programs benefit-cost analyses (BCAs) that is different from the methodologies and assumptions used by the Company when modeling the cost-effectiveness of its energy efficiency programs.¹

As noted in the Company's response to Division 5-2, the cost-effectiveness of each Power Sector Transformation (PST) investment was evaluated based primarily on a Societal Cost Test. For each PST investment, the Company also has included the results of a Rate Impact Measure to present the monetary benefits to all customers relative to associated costs.² The benefits and costs included in the Societal Cost Test and Rate Impact Measure are shown in Appendix 2.1 - Program BCA of the Company's PST Plan.³ The cost-effectiveness of the Company's energy efficiency programs are evaluated based on the Rhode Island Benefit Cost Test (RI Test), pursuant to the Least Cost Procurement Standards (Standards) for the procurement of energy efficiency resources.⁴ The benefits and costs included in the RI Test for energy efficiency programs are listed in Attachment 4 – 2018 Rhode Island Test Description to the Company's 2018 Energy Efficiency Program Plan.⁵ Please refer to the Company's response to NERI 19-3⁶

¹ See The Narragansett Electric Company d/b/a National Grid Investigation as to the Propriety of the Proposed Tariff Changes, Rhode Island Public Utilities Commission, November 27, 2017, RIPUC Docket No. 4770, Responses to the Division's Fifth Set of Data Requests Issued January 3, 2018, [http://www.ripuc.org/eventsactions/docket/4770-NGrid-DR-DIV5%20\(Book%201%20Pages%20188\)%20Jan%2024,%202018.pdf](http://www.ripuc.org/eventsactions/docket/4770-NGrid-DR-DIV5%20(Book%201%20Pages%20188)%20Jan%2024,%202018.pdf) at pages 5-7.

² See *id.*, Schedule PST-1, Chapter 2 – 4600 Goals/Framework, at 5-6 (Bates Pages 36-37 of PST Book 1).

³ See *id.*, Appendix 2.1 – Program BCA, at 4 (Bates Page 196 of PST Book 1).

⁴ See Rhode Island Energy Efficiency and Resource Management Council (EERMC) – Proposed Energy Efficiency Savings Targets for The Narragansett Electric Company d/b/a National Grid's Energy Efficiency and System Reliability Procurement for the Period 2018-2020, RIPUC Docket No. 4684, Least Cost Procurement Standards, July 27, 2017, Section 1.2(B).

⁵ See 2018 Energy Efficiency Program Plan, Settlement of the Parties, RIPUC Docket No. 4755, Attachment 4 – 2018 Rhode Island Test Description, at 4-9.

⁶ See RIPUC Docket No. 4770, Responses to NERI's Nineteenth Set of Data Requests Issued March 12, 2018, [http://www.ripuc.org/eventsactions/docket/4770-NGrid-DR-NERI19%20\(Book%201%20Pages%207\)%20March%2031,%202018.pdf](http://www.ripuc.org/eventsactions/docket/4770-NGrid-DR-NERI19%20(Book%201%20Pages%207)%20March%2031,%202018.pdf) at pages 4-6.

and the PST Plan⁷ for an explanation of how the cost tests used to evaluate the PST investments were developed by the Company.

With the exception of economic development benefits, each benefit and cost listed in the RI Test for the Company's 2018 Energy Efficiency Program Plan aligns with a benefit or cost considered under the SCT, which was used to evaluate the proposed PST investments.⁸ As described in Chapter 2 of the PST Plan⁹, although the Company conducted an analysis of the potential economic development impacts associated with the proposed PST investment, these impacts are not included as quantified benefits in the Societal Cost Test. The reason for this exclusion is technical: The economic development benefits estimated by the Company are large, making it more difficult to evaluate accurately the PST investments on their own, more direct impacts. Further, significantly more work would be required to validate the accuracy of the economic impact analysis results and to ensure that there is no double-counting or overlap between the inputs to the economic impact analysis and the other benefits and costs included in the cost tests.¹⁰ Because of these reasons, the Company included economic development benefits qualitatively in Chapters 4 through 8 of the PST Plan as part of the overall business case for each proposed investment. A detailed description of the economic impact analysis used by the Company to estimate economic development benefits is provided as Appendix 2.2 to its Power Sector Transformation Plan.¹¹

In addition to the treatment of economic development benefits, methodologies and assumptions used to estimate avoided transmission and distribution capacity infrastructure costs, non-electric avoided fuel costs, and the net present value of the PST investments differ from those used in the RI Test for energy efficiency programs. These differences and the technical reasons for them are explained in the Company's response to Division 5-2.

⁷ See *id.*, Schedule PST-1, Chapter 2 – 4600 Goals/Framework, at 6 (Bates Page 37 of PST Book 1).

⁸ Under the SCT, which the Company used to evaluate the proposed PST investments, any water and sewer benefits resulting from the proposed investments would be a sub-category of Net Non-Energy Benefits; natural gas benefits would be considered under Non-Electric Avoided Fuel Costs.

⁹ See RIPUC Docket No. 4770, Schedule PST-1, Chapter 2 – 4600 Goals/Framework, at 6 (Bates Page 37 of PST Book 1).

¹⁰ See *id.*

¹¹ See *id.*, Schedule PST-1, Appendix 2.2: Economic Development (Bates Pages 274-277 of PST Book 1).

Division 5-2

Request:

For each benefit-cost analysis included in the rate case filing, please describe each methodology or assumption that is different from the methodologies and assumptions used by the Company when modeling the cost-effectiveness of its energy efficiency programs.

Response:

Wherever applicable and appropriate, the benefit-cost analysis (BCA) methodologies and assumptions relied upon for each of the investments proposed in the Company's Power Sector Transformation (PST) Plan are aligned with those used by the Company when modeling the cost-effectiveness of its energy efficiency programs. The methodologies and assumptions used for the PST BCAs that differ from those used by the Company when modeling the cost-effectiveness of energy efficiency programs in its 2018 Energy Efficiency Program Plan (EEP)¹ are as follows:

- **Cost test:** The cost-effectiveness of each PST investment was evaluated based primarily on a Societal Cost Test (SCT). For each PST investment, the Company also has included the results of a Rate Impact Measure (RIM) to present the monetary benefits to all customers relative to associated costs.² The benefits and costs included in the SCT and RIM are shown in Appendix 2.1 - Program BCA of the Company's Power Sector Transformation Plan.³ The benefits and costs included in the SCT were those benefits and costs listed in Appendix B: Benefit-Cost Framework of the Docket 4600 Stakeholder Working Group Process, Report to the Public Utilities Commission (Stakeholder Report), which the Public Utilities Commission (PUC) incorporated into its Guidance on Goals, Principles and Values for Matters Involving The Narragansett Electric Company d/b/a National Grid (Docket 4600 Guidance Document),⁴ and which represent net societal impacts resulting from utility investment that the Company was able to quantify and monetize based on available data and methods. The benefits and costs included in the RIM test were those benefits and costs listed in Appendix B of the Docket 4600

¹ The Narragansett Electric Company d/b/a National Grid, 2018 Energy Efficiency Program Plan (EEP) 8, Settlement of the Parties, RIPUC Docket No. 4755, November 1, 2017, Attachment 4– 2018 Rhode Island Test Description.

² See The Narragansett Electric Company d/b/a National Grid, Investigation as to the Propriety of the Proposed Tariff Changes, Rhode Island Public Utilities Commission, RIPUC Docket No. 4770, November 27, 2017, Schedule PST-1, Chapter 2 – 4600 Goals/Framework, at 5-6 (Bates Pages 36-37 of PST Book 1).

³ See *Id.*, Appendix 2.1 – Program BCA, at 4 (Bates Page 196 of PST Book 1).

⁴ See Docket 4600 Stakeholder Working Group Process, Report to the Public Utilities Commission (Stakeholder Report), RIPUC Docket No. 4600, April 5, 2017, Appendix B: Benefit-Cost Framework; *see also* Report and Order No. 22851, RIPUC Docket No. 4600, at 23, 29 (July 31, 2017) (accepting the Stakeholder Report and adopting the Benefit-Cost Framework).

Guidance Document, which represent net monetary ratepayer impacts resulting from utility investment that the Company was able to quantify and monetize based on available data and methods.

The cost-effectiveness of the Company's energy efficiency programs are evaluated based on the Rhode Island Benefit Cost Test (RI Test), pursuant to the Least Cost Procurement Standards (Standards) for the procurement of energy efficiency resources.⁵ The benefits and costs included in the RI Test for energy efficiency programs are listed in Attachment 4 – 2018 Rhode Island Test Description to the Company's 2018 EEP.⁶ With the exception of economic development benefits, each benefit and cost listed in the RI Test Description for the Company's 2018 EEP aligns with a benefit or cost considered under the SCT that the Company to evaluate the proposed PST investments.⁷ As described in Chapter 2 of the PST Plan⁸, economic development benefits are not included in the SCT that the Company used to evaluate the proposed PST investments, but are included as qualitative benefits in Chapters 4 through 8 of the PST Plan as part of the overall business case for each proposed investment.

- **Discount rate:** The discount rate used to estimate the net present value of the costs and benefits associated with each PST investment is the Company's after-tax weighted average cost of capital (WACC). The discount rate used by the Company to evaluate energy efficiency programs for the Annual Energy Efficiency Plan for 2018 is the twelve-month average of the historic yields from a ten-year United States Treasury note, using the 2016 calendar year to determine the twelve-month average.⁹ Please refer to the Company's response to Division 5-4 for more information on this difference.
- **Electric Transmission Capacity and Distribution Capacity Benefits/Avoided Transmission and Distribution Capacity Infrastructure:** Under the RI Test that the Company used to evaluate statewide energy efficiency programs, a statewide marginal cost of transmission and distribution capacity is calculated based on Company-specific historical and forecast incremental capital investments caused by load growth and is applied to summer demand reductions resulting from the energy efficiency measure.¹⁰

⁵ See Rhode Island Energy Efficiency and Resource Management Council (EERMC) – Proposed Energy Efficiency Savings Targets for The Narragansett Electric Company d/b/a National Grid's Energy Efficiency and System Reliability Procurement for the Period 2018-2020, RIPUC Docket No. 4684, Least Cost Procurement Standards, , July 27, 2017, Section 1.2(B).

⁶ See 2018 EEP, Settlement of the Parties, Attachment 4– 2018 Rhode Island Test Description, at 4-9.

⁷ Under the SCT, which the Company used to evaluate the proposed PST investments, any water and sewer benefits resulting from the proposed investments would be a sub-category of Net Non-Energy Benefits; Natural gas benefits would be considered under Non-Electric Avoided Fuel Costs.

⁸ See Investigation as to the Propriety of the Proposed Tariff Changes, Schedule PST-1, Chapter 2 – 4600 Goals/Framework, at 6 (Bates Page 37 of PST Book 1).

⁹ See 2018 EEP, Settlement of the Parties, Attachment 4– 2018 Rhode Island Test Description, at 18.

¹⁰ 2018 EEP, Settlement of the Parties, Attachment 4– 2018 Rhode Island Test Description, at 7-8.

The methodology used to evaluate the proposed PST investments calculates avoided transmission and distribution capacity infrastructure benefits based on location-specific peak demand reductions valued at the marginal cost of distribution system infrastructure avoided or deferred by the project.¹¹ This methodology is included in the list of candidate methodologies for the distribution capacity costs benefit/cost category in Appendix B: Benefit-Cost Framework, which is incorporated into the Docket 4600 Guidance Document.¹²

- **Delivered Fuel Benefits/Non-Electric Avoided Fuel Cost:** The proposed Electric Heat Initiative BCA relies on the 2017 EIA Annual Energy Outlook forecasts¹³ for oil and propane fuel price assumptions, while the Annual Energy Efficiency Plan for 2018 relies on oil and propane fuel price forecasts from the Avoided Energy Supply Costs in New England: 2015 Report.¹⁴ The 2017 EIA forecast was chosen for evaluating the proposed Electric Heat Initiative investment to reflect the most recently modeled projections available at the time.

(This response is identical to the Company's response to Division 1-2 in Docket No. 4780.)

¹¹ The five proposed PST investments are not expected to result in load reduction impacts that avoid the need for incremental transmission or distribution infrastructure; therefore, these benefits are not included in the BCA results presented in Chapters 4 through 8 of the PST Plan.

¹² See Stakeholder Report, Appendix B: Benefit-Cost Framework.

¹³ See U.S. Energy Information Administration, Annual Energy Outlook 2017, Table: Energy Prices by Sector and Source, New England Residential Energy Price Forecast, Reference Case.

¹⁴ See Hornby, Rick et al., Avoided Energy Supply Costs in New England: 2015 Report, March 27, 2015, Revised April 3, 2015, Appendix D, Avoided Costs of Other Fuels.

NERI 19-3

Request:

Please reference Chapter 2, p. 36 to 37.

- a. Did the Company solicit stakeholder engagement in developing the Rhode Island specific benefit cost assessment (BCA) methodology, including, but not limited to, stakeholders who participated in Docket 4600?
- b. Why did the Company develop a new BCA methodology, rather than using the stakeholder developed Docket 4600 BCA Framework?

Response:

- a. Yes. When developing the Rhode Island-specific benefits cost assessment (BCA), the Company solicited stakeholder engagement from the Division of Public Utilities and Carriers (Division) and the Division's consultant, Tim Woolf, Vice President of Synapse Energy Economics, Inc., to develop the BCA methodology applied in the Company's Power Sector Transformation (PST) Plan. The stakeholder input from Docket 4600 led to the development of the Rhode Island Docket 4600 Benefit-Cost Framework (the Framework), which the Company then used to develop the Rhode Island-specific test.
- b. The Company developed a Rhode Island-specific BCA methodology to evaluate many of the investments proposed in the PST Plan. This BCA methodology is based on the guidance provided in the Framework. Although the Docket 4600 Guidance Document¹ calls for the application of a quantitative cost-effectiveness test, it does not explicitly specify which type of cost-effectiveness test(s) should be used or the economic perspective(s) from which investments should be evaluated. The Docket 4600 Guidance Document states that "there is still significant work [sic] left to be done so that the Framework can be applied in a fully quantitative manner."² Furthermore, the Stakeholder Report³, sections of which the Public Utilities Commission (PUC) adopted in its Report and Order in Docket 4600, noted "the Framework is meant to be refined or modified over time as the PUC and parties to dockets gain experience in applying it."⁴ The PUC also held that, although the Framework should be relied upon, "it should not be the exclusive

¹ Public Utilities Commission's Guidance on Goals, Principles and Values for Matters Involving The Narragansett Electric Company d/b/a National Grid (October 27, 2017) (the Docket 4600 Guidance Document).

² Id. at 6.

³ Raab Associates, Ltd. with Paul Centolella & Associates and Tabors Caramanis Rudkevich (TCR), Docket 4600: Stakeholder Working Group Process, Report to the Rhode Island Public Utilities Commission (April 5, 2017) (the Stakeholder Report).

⁴ Report and Order, Docket No. 4600, at 9 (July 31, 2017).

measure of whether a specific proposal should be approved. Rather, the Framework should serve as a starting point in making a business case for a proposal.”⁵

The Company determined through analysis of the Docket 4600 Guidance Document, stakeholder input, and stated Rhode Island policy goals that the primary quantitative cost-effectiveness test to be included in the Company's business case for its PST investments is the societal cost test (SCT). Further, analysis of the Docket 4600 Guidance Document also suggests that inclusion of a quantitative test to present the monetary benefits and costs from a customer perspective is also appropriate. To present the monetary benefits and costs from a customer perspective, the Company relied on a rate impact measure. As provided in the Docket 4600 Guidance Document, benefits and costs included in Appendix 2.1 of the Docket 4600 Guidance Document that were not applicable to these cost tests or that are not quantifiable given currently available data and methods were included qualitatively in the overall business case.⁶

In addition, the Company relied on sources and methodologies that have been previously vetted with stakeholders in Rhode Island and other states to develop the input assumptions used in the BCA models:

- Wherever applicable and appropriate, the BCA methodologies and assumptions relied upon for each of the investments proposed in the Company's PST Plan are aligned with those used by the Company when modeling the cost effectiveness of its energy efficiency programs in Rhode Island. These assumptions and methodologies have been developed over several years with significant input from Rhode Island stakeholders.
- Second, avoided energy, capacity, RECs, and environmental compliance and externality cost values, as well as wholesale market price impact assumptions and general methodology for their application, were taken from the Avoided Energy Supply Costs (AESC) in New England: 2015 Report.⁷ The AESC study is sponsored and overseen by a group of New England electric and gas utilities, other efficiency program administrators, non-utility parties, and consultants, and is used by the Company and other utilities throughout New England to evaluate energy efficiency programs.

⁵ *Id.*, at 23.

⁶ Docket 4600 Guidance Document at 6.

⁷ The AESC 2015 Report was sponsored by a group of electric utilities, gas utilities, and other efficiency program administrators including National Grid (collectively, “program administrators”). The sponsors, along with non-utility parties and their consultants, formed an AESC 2015 Study Group to oversee design and execution of the report.

- Where applicable and appropriate, the Company also relied on assumptions and methodologies developed for similar projects previously proposed for its Massachusetts and New York operating companies and subjected to stakeholder engagement in those jurisdictions.

(This response is identical to the Company's response to NERI 2-3 in Docket No. 4780)