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April 26, 2019

Luly E. Massaro, Commission Clerk
Rhode Island Public Utilities Commission
89 Jefferson Boulevard
Warwick, RI 02888

RE: Review of Proposed Power Purchase Agreements
Pursuant to R.I. Gen. Laws § 39-31
Docket No. 4929

Dear Ms. Massaro:

Enclosed for filing with the Rhode Island Public Utilities Commission (PUC) are the responses of National Grid[1] to the following Data Requests: PUC-3-7 Supplemental; PUC-3-30; and PUC-5-7.

This filing also includes a Motion for Protective Treatment in accordance with Rule 1.3(H)(2) of PUC's Rules of Practice and Procedure and R.I. Gen. Laws § 38-2-2(4)(B). The Company seeks protection from public disclosure of the highly sensitive and proprietary information contained in the confidential version of Attachments PUC 3-7-B, 5-7-A and 5-7-B. Accordingly, the Company has provided the PUC with one (1) complete, unredacted copy of the confidential document in a sealed envelope marked **"Contains Privileged Information – Do Not Release."**

Please contact me at 617-951-1400 if you have any questions regarding this filing.

Very truly yours,

John K. Habib

John K. Habib, Esq.
R.I. Bar # 7431

cc: Docket No. 4929 Service List

[1] The Narragansett Electric Company d/b/a National Grid (National Grid or the Company).

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
PUBLIC UTILITIES COMMISSION

Petition of Narragansett Electric Company d/b/a National Grid for Approval of Proposed Power Purchase Agreements Pursuant to R.I. Gen. Laws § 39-31	))))	Docket No. 4929

NATIONAL GRID'S PETITION
FOR PROTECTIVE TREATMENT OF CONFIDENTIAL INFORMATION

National Grid[1] hereby requests that the Rhode Island Public Utilities Commission (PUC) provide confidential treatment and grant protection from public disclosure of certain confidential, competitively sensitive, and proprietary information submitted in this proceeding, as permitted by PUC Rule 1.3(H) and R.I.G.L. § 38-2-1, *et seq.* National Grid further requests that, pending entry of findings pursuant to these provisions, the PUC preliminarily grant National Grid's request for confidential treatment pursuant to Public Information, PUC Rule 1.3(H)(2).

I. BACKGROUND

On February 6, 2019, National Grid filed with the PUC its request for approval of a 20-year Power Purchase Agreement entered into by National Grid for the purchase of energy and environmental attributes from DWW Rev I, LLC's (DWW) Revolution Wind Farm offshore wind facility (the PPA), pursuant to the Request for Proposals for Long-term Contracts for Offshore Wind Energy Projects issued by the Massachusetts Electric Distribution Companies[2] and the Massachusetts Department of Energy Resources (DOER), on June 29, 2017 (RFP). In support of its request for approval, National Grid submitted initial testimony and supporting

[1] The Narragansett Electric Company d/b/a National Grid (National Grid or the Company).

[2] The Massachusetts Electric Distribution Companies include Fitchburg Gas and Electric Light Company d/b/a/ Unitil, Massachusetts Electric Company and Nantucket Electric Company, each d/b/a National Grid, and NSTAR Electric Company d/b/a Eversource Energy.

exhibits, including a copy of the PPA and analyses calculating the net benefits of the project, including proprietary modeling information and analysis provided by the Company's third-party consultants.

Together with this petition, the Company is submitting responses to Data Requests from the PUC that include confidential information that should be protected from public disclosure. Specifically, the Company is seeking protective treatment for each of the following documents (together, the Confidential Information):

- Attachment PUC 3-7-B (Confidential), containing an updated Revolution Wind Quantitative Workbook prepared by Tabors Caramanis Redkevich (TCR) with additional Docket 4600 societal benefits analysis;
- Attachment PUC 5-7-A (Confidential), containing TCR's recalculation of the Revolution Wind net benefits assuming a high gas price sensitivity case; and
- Attachment PUC 5-7-B (Confidential), containing TCR's recalculation of the Revolution Wind net benefits assuming a low gas price sensitivity case.

The Company is not providing redacted versions of the Confidential Information because each document consists of a large working Excel file that cannot be converted to a format suitable for secure redaction. Therefore, National Grid requests that the PUC give the information contained in the un-redacted version of the document confidential treatment in its entirety.

II. LEGAL STANDARD

The PUC's Rule 1.3(H) provides that access to public records shall be granted in accordance with the Access to Public Records Act (APRA), R.I.G.L. §38-2-1 *et seq.*

Under the APRA, all documents and materials submitted in connection with the transaction of official business by an agency is deemed to be a "public record," unless the information contained in such documents and materials falls within one of the exceptions specifically identified in R.I.G.L. §38-2-2(4). Therefore, to the extent that information provided to the PUC falls within one of the designated exceptions to the public records law, the PUC has the authority under the terms of APRA to deem such information to be confidential and to protect that information from public disclosure. In that regard, R.I.G.L. §38-2-2(4)(B) provides that the following types of records shall not be deemed public:

> Trade secrets and commercial or financial information obtained from a person, firm, or corporation which is of a privileged or confidential nature.

The exception "protects persons who submit financial or commercial data to government agencies from the competitive disadvantages which would result from its publication." Critical Mass Energy Project v. Nuclear Regulatory Commission, 975 F.2d 871, 873 (D. D.C. Cir. 1992); see also Providence Journal Company v. Convention Center Authority, 774 A.2d 40 (R.I. 2001) (adopting Critical Mass). The Rhode Island Supreme Court has held that this confidential information exemption applies where disclosure of information would be likely to either: (1) impair the Government's ability to obtain necessary information in the future; or (2) cause substantial harm to the competitive position of the person from whom the information was obtained. Providence Journal, 774 A.2d at 47 (emphasis added).

The second prong of the Providence Journal test has been interpreted to not require "a sophisticated economic analysis of the likely effects of disclosure." New Hampshire Right to Life v. US Dept. of Health and Human Services, 778 F. 3d 43, 50 (1st. Cir. 2015) (quoting Pub. Citizen Health Research Grp., 704 F. 2d 1280, 1291 (1983)). The party opposing disclosure must establish "actual competition and a likelihood of substantial competitive injury" to bring

the information under the confidential exemption. Id. In determining whether information is confidential the court should not limit its assessment of bidding information in a singular ad-hoc manner, but rather should acknowledge the likelihood of additional bids in the future. Id., at 51.

III. BASIS FOR CONFIDENTIALITY

The information contained in the Confidential Information includes several iterations of detailed quantitative analysis of the DWW bid prepared by the Company's consultant, TCR. The release of the confidential material to the public would compromise the ability of the Company to negotiate future purchase-power contracts because that material contains proprietary and confidential information about the Company's market forecasts of energy and REC prices, and details regarding the method of analysis for determining quantitative benefits of proposals. The forecasts were used by the Company to evaluate the net benefits of the project and are considered proprietary by the consultants that produced them. More importantly, however, these projections must be protected from public disclosure because the Company has used this information to evaluate bids associated with the competitive procurements in the past, and may continue to use this forecast, or similar forecasts, to evaluate future bids for renewable generation services. If other parties gain access to the details of the Confidential Information, the assumptions regarding future energy and REC prices contained therein, and details concerning the Company's method of calculating net benefits, the Company's ability to negotiate the best deals possible on behalf of customers would be compromised. Accordingly, the PUC should protect the information in the document from the public record.[3]

[3] The PUC has protected proprietary confidential evaluation material historically. See Docket No. 4764 November 20, 2017 Hearing on Motion for Protective Treatment.

IV. CONCLUSION

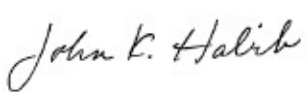
Accordingly, the Company requests that the PUC grant protective treatment above-listed Confidential Information.

WHEREFORE, the Company respectfully requests that the PUC grant its Motion for Protective Treatment as stated herein.

Respectfully submitted,

NATIONAL GRID

By its attorney,



John K. Habib, Esq. (RI Bar #7431)
Keegan Werlin LLP
99 High Street, Suite 2900
Boston, Massachusetts 02110
(617) 951-1400

Dated: April 26, 2019

PUC 3-7

Request:

Referencing Schedule NG-7 on Bates page 364 and Schedule NG-5 on Bates page 313:

a. Does National Grid believe the entire cost of the proposal in 2018$ is $1,333,945,342 or is National Grid reporting the program costs?

b. If National Grid is only reporting the program costs, please explain why the total costs of the Facility and related facilities, and all other costs associated with the PPA are not included in Schedule NG-7 and Schedule NG-5. Please specifically include an explanation of why the direct cost of the project does not include transmission.

c. Please provide National Grid's estimate for the following:

   i. costs of the Delivery Facility including financing costs, all associated system upgrades, operations and maintenance (O&M) costs, decommissioning costs, sitting and permitting costs, other legal and regulatory costs, administrative costs not captured in O&M costs, and any other costs associated with the construction and operation of the Delivery Facility;

   ii. costs of the Facility including financing costs, all associated operations and maintenance (O&M) costs, decommissioning costs, sitting and permitting costs, other legal and regulatory costs, administrative costs not captured in O&M costs, and any other costs associated with the construction and operation of the Delivery Facility, excluding sunk costs such as the costs associated with the RFP and the current proceeding;

   iii. projected losses of entities (inside and outside of Rhode Island) that sell (or otherwise monetize) energy and renewable energy products that will have reduced value because of the effect National Grid expects the Facility will have on markets for these products, including National Grid's own products purchased through Long-Term Contracting Standard for Renewable Energy, Distributed Generation Standard Contracts, and Renewable Energy Growth Program;

   iv. any administrative costs to National Grid for related to cost recovery and marketing products from the facility not included above;

v. costs and benefits to local tourism and businesses, in particular, any costs or benefits to commercial fishing, that are not captured in the "Economic Benefit to Rhode Island" category;

vi. environmental costs and benefits, including wildlife impact, not included in the societal impact of greenhouse gas and NOx emissions;

d. If National Grid does not have information responsive to parts c.i and c.ii, please provide National Grid's estimate for all revenues, including the PPA revenue, that are necessary to support the construction and operation of the Facility and Delivery Facility, and that will be ultimately paid for by entities other than DWW (e.g., taxpayers supporting an investment tax credit and ratepayers supporting Forward Capacity Market revenue).

e. Please update the RI Test for the proposal using information responsive to parts c and d.

Supplemental Response:

National Grid and its consultant, TCR, have completed additional analysis of the projected costs to entities inside and outside of Rhode Island that sell energy and RECs that will have reduced value because of the effect National Grid expects the Facility will have on markets for those products, including National Grid's products purchased through long-term contracts, as requested in part (c)(iii), above. Additionally, consistent with the intent of the Docket 4600 analysis to consider societal benefits and costs, TCR has also calculated indirect costs and benefits attributable to other New England states.

An updated RI Test for the proposal using this information is provided as Attachment PUC 3-7-A. In addition, a confidential version of the quantitative workbook supporting the updated RI Test is provided as Attachment PUC 3-7-B (Confidential). The Company has also prepared an updated version of Schedule NG-7 reflecting this additional analysis, provided as Attachment PUC 3-7-C.

The updated RI Test includes the following revised or additional indirect benefits:

- Indirect REC market price change impact;
- Impact of reduction in gas supply costs to other New England states gas customers;
- Indirect benefit – energy market price change impact for other New England states; and
- Indirect benefit – REC market price change impact for other New England states.

The updated RI Test includes the following additional indirect costs:

- Indirect energy revenue reduction for existing long-term contracts in Rhode Island;

- Indirect REC revenue reduction for existing long-term contracts in Rhode Island;
- Indirect energy revenue reduction for existing long-term contracts in other New England states; and
- Indirect REC revenue reduction for existing long-term contracts in other New England states.

Values reported for reduction in gas supply costs to other New England states includes Massachusetts and Connecticut, using data readily available to National Grid. While other states in ISO-NE may experience additional reduction in gas supply costs, National Grid is unable to quantify those costs and benefits at this time. The additional indirect benefits and cost for Energy and RECs from other New England states includes MA, CT, VT, NH and ME, using data contained in the quantitative workbook Attachment PUC 3-7-B (Confidential).

After considering the additional indirect benefits and costs to other New England states and the indirect energy and REC revenue reduction for existing long-term contracts in Rhode Island and other New England states, the projected total net benefits increase to approximately $3.5 billion, with a total benefit cost test ratio of 2.71.

RHODE ISLAND BENEFIT COST TEST - NEW ENGLAND PERSPECTIVE

Quantitative Analysis of Categories from the Docket 4600 Framework

Proposal Case - Portfolio RW400 + VW800 + RW200
Project - RW 400 MW Levelized 20 Year PPA

Filed under the Affordable Clean Energy Security Act ("ACES")

	Proposal Summary of Cost and Benefits for Business Case		2018$ Benefit/Cost Totals (NPV in 2018$)	% Total Benefits %
	Direct Cost of Project			
(1)	Proposal Case - Cost of energy from Project		($974,793,201)	
(2)	Proposal Case - Cost of RECs from Project		($359,152,141)	
(3)	**Direct Cost of Project energy + RECs**	*(3) = (1) + (2)*	**($1,333,945,342)**	
(4)	Market value of Energy from Project		$908,384,843	*16.4%*
(5)	Market value of Project RECs retired (used) for RES or sold		$430,227,231	*7.7%*
(6)	**Net Direct Benefits**	*(6) = (3) + (4) + (5)*	**$4,666,733**	
	Indirect Benefits			
(7)	RI Energy Market Price Change Impact (Distribution load * Change in Annual Energy Market Value)		**$86,967,434**	*1.6%*
(8)	REC Market Price Change Impact (Qty of RECs acquired at market price for distribution load * Change in REC Market Price)		**$99,787,079**	*1.8%*
(9)	Forward Commitment: Capacity Value	*beyond the capabilities of the modeling system to quantify accurately*		
(10)	Forward Commitment: Avoided Ancillary Services Value	*beyond the capabilities of the modeling system to quantify accurately*		
(11)	**Total Indirect Benefits**	*(11) = (7) + (8) + (9) + (10)*	**$186,754,512**	
(12)	**Total Net Benefits (Cost)**	*(12) = (6) + (11)*	**$191,421,245**	
	Other Benefits			
(13)	Societal Impact of Reduction in GHG Emissions		$533,172,942	*9.6%*
(14)	Societal Impact of Reduction in NOx Emissions		$10,761,161	*0.2%*
(15)	Economic Benefit to Rhode Island		$405,125,090	*7.3%*
(16)	Increase in Project PPA market value from year with extreme Winter fuel prices ocurring once in 15 years		$25,369,408	*0.5%*
(17)	Impact of Reduction in gas supply cost to RI gas customers		$28,701,165	*0.5%*
(18)	Impact of Reduction in gas supply cost to Other New England States gas customers		$274,589,076	*4.9%*
(19)	Indirect Benefit - Energy Market Price Change Impact for Other New England States		$1,157,491,307	*20.8%*
(20)	Indirect Benefit - REC Market Price Change Impact for Other New England States		$1,591,317,638	*28.7%*
(21)	**Total Other Benefits**	*(21) = (13) + (14) + (15) + (16) + (17) + (18) + (19) + (20)*	**$4,026,527,787**	
	Other Costs			
(22)	Indirect Energy Revenue Reduction for existing Long Term Contracts - RI		($13,464,506)	
(23)	Indirect REC Revenue Reduction for existing Long Term Contracts - RI		($99,787,079)	
(24)	Indirect Energy Revenue Reduction for existing Long Term Contracts - Other New England States		($73,399,550)	
(25)	Indirect REC Revenue Reduction for existing Long Term Contracts - Other New England States		($491,480,038)	
(26)	**Total Other Costs**	*(26) = (22) + (23) + (24) + (25)*	**($678,131,173)**	
(27)	**Total Net Benefits (Cost)**	*(27) = (6) + (11) + (21) + (26)*	**$3,539,817,859**	
(28)	**Program Remuneration**	*(28) = (3) x 2.75%* @ 2.75%	**($36,683,497)**	
(29)	**RI Test - Total Benefits**	*(29) = (4) + (5) + (11) + (21)*	**$5,551,894,374**	100.0%
(30)	**RI Test - Total Costs**	*(30) = (3) + (26) + (28)*	**($2,048,760,012)**	

RHODE ISLAND BENEFIT COST TEST (*Ratio*): 2.71

Notes and Sources

(11),(17)(18) (19)(20),(26) Indirect economic benefits to RI from the Proposal Case

(13) and (14) Environmental benefits shown are calculated on a societal level per Docket 4600 guidance. Using a 'Consumption-based' emission accounting methodology per the RI-EC4 Rhode Island Greenhouse Gas Emission Reduction Plan (December 2016) the Rhode Island state-level GHG and NOx reduction are $108,987,521 and $2,203,057 respectively.

(15) **Economic Benefit to Rhode Island from** Navigant Consulting in the "Advisory Opinion on the Economic Development Benefits of the Revolution Wind Project", Dated 10/5/2018. (Summary provided in Section 5.2 Conclusions).

(29) Total Benefits equal the sum of the NPV of each benefit component:
[Avoided market value or Energy + projected market value of RECs retired/sold + RI Energy Market Price Change Impact + REC Market Price Change Impact + Capacity Market Benefits + Ancillary Services Market Benefits] + [Non-embedded Greenhouse Gas Reduction Benefits + Non-embedded NOx Reduction Benefits + Economic Benefit to Rhode Island + Extreme Winter Market Value Impact + Gas supply cost reduction RI + Gas supply cost reduction Other NE States + Energy Market Price Change Impact for Other NE States + Energy Market Price Change Impact for Other NE States]

(30) Total Costs equal the sum of the NPV of each cost component:
[Proposal Cost of energy from Project + Proposal Cost of RECs from Project + Program Remuneration] + [Energy Revenue Reduction for existing Long Term Contracts RI + REC Revenue Reduction for existing Long Term Contracts RI + Energy Revenue Reduction for existing Long Term Contracts Other NE States + REC Revenue Reduction for existing Long Term Contracts Other NE States]

Rhode Island Benefit Cost Ratio = NPV Total Benefits / NPV Total Costs

REDACTED

Attachment PUC 3-7-B (Confidential), containing an updated Revolution Wind Quantitative Workbook prepared by Tabors Caramanis Redkevich (TCR) with additional Docket 4600 societal benefits analysis.

PUC 3-30

Request:

Referencing Schedule NG-8 on Bates page 365, please provide estimated benefits and costs for the Clean Energy RFP (PPAs approved in Docket No. 4764), RE Growth 2018 Program Year, and net metering.

Response:

Currently, Energy Efficiency is the only program with an established Benefit/Cost Test utilizing the Docket No. 4600 Benefit-Cost Framework. The Company provided estimated costs for the other programs listed.

The estimated benefits and costs for each PPA of the Clean Energy RFP (Docket No. 4764) were provided in RIPUC Docket No. 4764 - Responses to Commission's First Set of Data Requests, Issued on November 9, 2017, as Confidential Attachment PUC 1-14. On an aggregate basis, the total 20-year cost of the contracts was estimated as ($198,810,035), and total projected market revenues of energy and RECs over 20 years were estimated as $268,476,651 for a total net direct benefit over 20 years of $69,666,617. This value represents direct market net benefits only, and does not include any value of CO_2 emissions avoided, or other indirect benefits.

In 2017 the Brattle Group, Inc. prepared the report Renewable Energy Growth Program Analysis: Economic, Jobs and Environmental Impacts for Program Years 2015 and 2016 and the Overall Program Years 2015 to 2019[1] (Brattle Report). The report was prepared for the Rhode Island Office of Energy Resources and the Distributed Generation Board.

The Brattle Report does not provide a benefit-cost test, nor does it provide a detailed present value analysis, with calculations. It does provide tables describing the present value of labor income and gross domestic product along with a section describing the present value of environmental impacts. In addition, the report contains an appendix with annual assumed program costs and benefits, for the period 2015 – 2040. From the executive summary, tables and appendix A, of the Brattle Report, were the following:

- For the 2015-2019 Program Years the total capital investment will be $390 million.
- The investment will contribute approximately $236 million, on a present value basis, to state gross domestic product through 2040.
- REG will contribute to reducing carbon and criteria pollutant emissions totaling over $56 million through 2040, on a present value basis.

[1] Available at https://brattlefiles.blob.core.windows.net/files/7349_renewable_energy_growth_program_analysis.pdf

- The present value of the program's impact on labor income over the entire period is over $142 million.
- Appendix A provides the annual cost and benefits for the Regrowth Program, for the period 2015 – 2040, in nominal dollars.

At this time, National Grid is unable to provide a quantification of the net metering benefits in conjunction with the most current Net Metering Bill Credit Rates provided in Schedule NG-8 on Bates page 365.

PUC 5-7

Request:

PUC 3-20 has been withdrawn. Please recalculate lines 1-12 of the total net benefits table on Bates page 313 varying some model input to illustrate the sensitivity of model output. In the alternative, please provide the demonstrated accuracy of the model projections versus actual market prices and recalculate lines 1-12 using that range of energy market prices.

Response:

Please refer to Attachment PUC 5-7, which provides recalculations of lines 1-12 of the total net benefits table on Bates page 313 that illustrate the sensitivity of the model outputs to variations in the natural gas price forecast inputs used in the modeling underlying the values in that table. The results of the performed sensitivity analysis demonstrate that the net benefits from the project range from +$429 Million to -$95 Million to the extent that gas prices vary by 54% higher on average to 24% lower on average, compared to the gas price forecast used in the initial modeling. The Company's response to Data Request PUC 3–27 provided demonstrations of the accuracy of the model projections versus actual market prices.

Attachment 5-7-A (Confidential) provides a recalculation for a high gas price sensitivity case; i.e., modeling outputs based upon a natural gas price forecast input that is higher than the gas price forecast described on Bates page 306. The high gas price forecast used to develop the sensitivity analysis in Attachment 5-7-A (Confidential) is 54% higher on average over the study period than the gas price forecast used in the modeling underlying the values in the table on Bates page 313. That variation in the natural gas price forecast inputs results in annual market prices of electric energy in Rhode Island under the Proposal Case that are 34% higher on average over the study period than those underlying the values in the table on Bates page 313.

Attachment 5-7-B (Confidential) provides a recalculation for a low gas price sensitivity case; i.e., modeling outputs based upon a natural gas price forecast input that is lower than the gas price forecast described on Bates page 306. The low gas price forecast used to develop the sensitivity analysis in Attachment 5-7-B (Confidential) is 24% lower on average over the study period than the gas price forecast used in the modeling underlying the values in the table on Bates page 313. That variation in the natural gas price forecast inputs results in annual market prices of electric energy in Rhode Island under the Proposal Case that are 16% lower on average over the study period than those underlying the values in the table on Bates page 313.

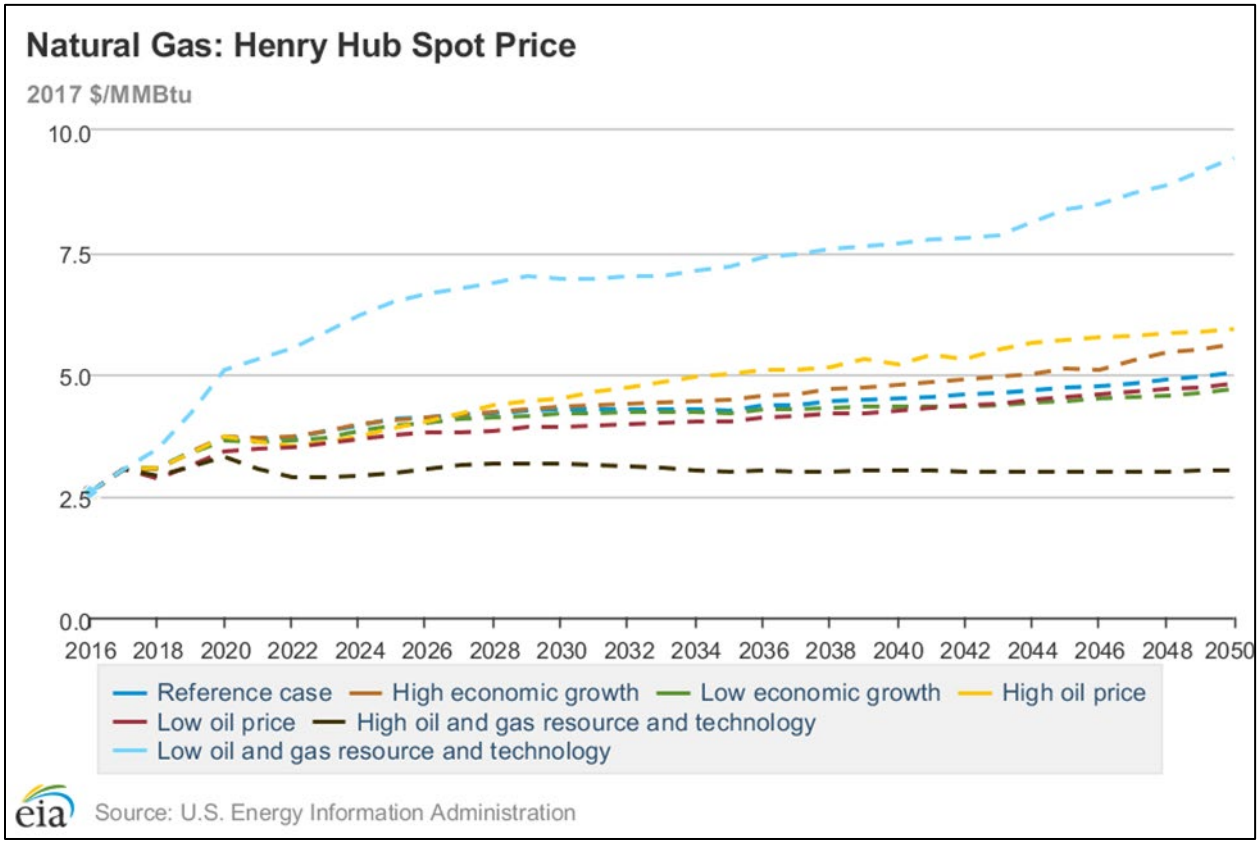
National Grid and its consultant TCR chose to vary the natural gas price forecast inputs to illustrate the sensitivity of model outputs for two reasons. First, it is generally recognized that natural gas prices are one of the most dominant inputs, if not the most dominant input, driving annual market

prices of electric energy in New England. Second, it is also generally recognized that the range of uncertainty in long-term forecasts of natural gas prices is greater than the range of uncertainty in the other nine categories of key input assumptions described on Bates pages 304 to 307. For example, Section 6.2.1 of the Avoided Energy Supply Costs in New England: 2015 Report (AESC 2015) did not find a material difference in annual energy prices between a Base Case and a BAU Case which had a materially lower load. AESC 2015 attributed this lack of a material price difference to the fact that in New England combined cycle gas-fired generation units set market prices in the majority of hours, and many of those units have similar heat rates. It also pointed to the absence of significant transmission congestion effectively combining all generating resources into a single supply stack serving the entire market, and to a market in equilibrium in which long-term decreases in demand are matched with corresponding decreases in capacity additions

As described on Bates page 306, the gas price forecast used in the modeling underlying the values in the total net benefits table on Bates page 313 is based upon projections of Henry Hub prices from the EIA AEO 2018 Reference Case plus projections of basis differentials to each New England market hub. The natural gas price forecast for the high gas price sensitivity case is based upon projections of Henry Hub prices from the EIA AEO 2018 Low Oil & Gas Resource and Technology Case plus projections of basis differentials to each New England market hub. The natural gas price forecast for the low gas price sensitivity case is based upon projections of Henry Hub prices from the High Oil & Gas Resource and Technology Case in the EIA AEO 2018 plus projections of basis differentials to each New England market hub.

TCR developed the high and low natural gas price forecasts from the AEO 2018 Low Oil & Gas Resource and Technology Case and High Oil & Gas Resource and Technology Case for several reasons. First, as indicated in Figure 1 from the EIA web page, those forecasts represent the upper and lower bounds of the range of natural gas price forecasts the EIA reported in AEO 2018. Second, for each of those forecasts, or cases, AEO 2018 provides corresponding projections of prices for residual and fuel oil, which TCR needs as inputs to its modeling. Third, the EIA forecasts are public and documented. TCR used the same projections of basis differentials to each New England market hub for the high and low gas price forecasts because it did not have corresponding public, documented alternative projections for that component.

Figure 1


Natural Gas: Henry Hub Spot Price
2017 $/MMBtu
10.0
7.5
5.0
2.5
0.0
2016 2018 2020 2022 2024 2026 2028 2030 2032 2034 2036 2038 2040 2042 2044 2046 2048 2050
Reference case
High economic growth
Low economic growth
High oil price
Low oil price
High oil and gas resource and technology
Low oil and gas resource and technology
eia
Source: U.S. Energy Information Administration

RHODE ISLAND BENEFIT COST TEST

Quantitative Analysis of Categories from the Docket 4600 Framework

Proposal Case - Portfolio RW400 + VW800 + RW200

Project - RW 400 MW Levelized 20 Year PPA

Filed under the Affordable Clean Energy Security Act ("ACES")

		2018$	2018$	2018$
	Proposal Summary of Cost and Benefits for Business Case	**As Filed**	**Sensitivity 1: High Gas Forecast**	**Sensitivity 2: Low Gas Forecast**
	Direct Cost of Project			
(1)	Proposal Case - Cost of energy from Project	($974,793,201)	($974,793,201)	($974,793,201)
(2)	Proposal Case - Cost of RECs from Project	($359,152,141)	($359,152,141)	($359,152,141)
(3)	**Direct Cost of Project energy + RECs** *(3) = (1) + (2)*	**($1,333,945,342)**	**($1,333,945,342)**	**($1,333,945,342)**
(4)	Market value of Energy from Project	$908,384,843	$1,210,734,485	$765,215,034
(5)	Market value of Project RECs retired (used) for RES or sold	$430,227,231	$387,564,021	$447,909,196
(6)	**Net Direct Benefits** *(6) = (3) + (4) + (5)*	**$4,666,733**	**$264,353,163**	**-$120,821,111**
	Indirect Benefits			
(7)	RI Energy Market Price Change Impact (Market load * Change in Annual Energy Market Value)	**$86,967,433**	**$164,767,090**	**$25,594,119**
(8)	REC Market Price Change Impact (Qty of RECs acquired at market price for distribution load * Change in REC Market Price)	**$0**	**$0**	**$0**
(9)	Forward Commitment: Capacity Value	*N/A*	*N/A*	*N/A*
(10)	Forward Commitment: Avoided Ancillary Services Value	*N/A*	*N/A*	*N/A*
(11)	**Total Indirect Benefits** *(11) = (7) + (8) + (9) + (10)*	**$86,967,433**	**$164,767,090**	**$25,594,119**
(12)	**Total Net Benefits (Cost) [Direct + Indirect]** *(12) = (6) + (11)*	**$91,634,166**	**$429,120,254**	**-$95,226,992**

REDACTED

Attachment PUC 5-7-A (Confidential), containing TCR's recalculation of the Revolution Wind net benefits assuming a high gas price sensitivity case.

REDACTED

Attachment PUC 5-7-B (Confidential), containing TCR's recalculation of the Revolution Wind net benefits assuming a low gas price sensitivity case.