

The Narragansett Electric Company
d/b/a National Grid
RIPUC Docket No. 4929
In Re: Review of Power Purchase Agreement
Responses to Commission's Fourth Set of Data Requests
Issued on April 3, 2019

PUC 4-1

Request:

Chart 1 (RFP Schedule) in National Grid's RFP issued pursuant to the PUC's decision in Docket No. 4822 lists RFP events and anticipated dates. Please add a column to this table indicating the actual date the event occurred or, for events that have not yet occurred, the currently anticipated date.

Response:

At this time, the Company is currently projecting a five-week delay on the previously published upcoming dates for the RFP soliciting up to 400 MW of renewable energy, largely due to the need for analysis and engagement of the evaluation team and its consultant in this docket.

**Chart 1
RFP Schedule**

Event	Anticipated Dates	Date Completed/ Revised Date
Issue RFP	September 12, 2018	September 12, 2018
Bidders Conference	September 26, 2018	September 26, 2018
Submit Notice of Intent to Bid	September 28, 2018	September 28, 2018
Deadline for Submission of Questions	September 28, 2018	September 28, 2018
Due Date for Submission of Proposals	October 29, 2018 by 12:00 p.m. (noon) EPT	October 29, 2018 by 12:00 p.m. (noon) EPT
Review of Bids with the Rhode Island Office of Energy Resources ("OER") and the Rhode Island Division of Public Utilities and Carriers ("Division")	November 5, 2018	November 5, 2018
Conditional selection of Bidder(s) for negotiation	May 2, 2019	June 14, 2019
Negotiate and Execute Contracts	July 29, 2019	September 10, 2019
Submit Contracts for PUC Approval	August 30, 2019	October 12, 2019

PUC 4-2

Request:

The unredacted portion of National Grid's response to PUC 2-35 lists thirty projects that responded to National Grid's RFP issued pursuant to Docket No. 4822. Please indicate which of these proposals are mutually exclusive—in other words, if one proposal is selected, the option to select another proposal in the list is automatically eliminated.

Response:

The following bidders submitted bids that are mutually exclusive:

Number Nine Wind Farm LLC - Number Nine Wind Farm (200 MW)
- Number Nine Wind Farm (250 MW)
- Number Nine Wind Farm (350 MW)

Vineyard Wind LLC - Vineyard Wind Rhode Island (200 MW)
- Vineyard Wind Rhode Island (350 MW)

PUC 4-3

Request:

Using the information provided in response to 4-2 to eliminate mutually exclusive options, please list the projects offered that have a total energy-plus-REC price below the total energy-plus-REC price in the DWW Rev I, LLC (Revolution I) PPA. Please provide this list in the same format as was provided in National Grid's response to PUC 2-35, and add a line at the bottom of the table indicating the total capacity and annual energy that would be expected from these facilities. If the capacity included in the response is offered with price escalators or for terms other than twenty years, please response in two ways:

- a. Comparing the unadjusted (or-as offered) term and escalated prices to the non-escalating, twenty-year Revolution I PPA, and
- b. Comparing adjusted terms and/or levelized prices to the Revolution I PPA. For this case, use whatever methodology of adjustment National Grid would typically use to evaluate mixed terms and pricing offers, and please file the mathematics or a description of that methodology.

Response:

- a. Please refer to Attachment PUC 4-3-1 - CONFIDENTIAL, for a summary list of projects with a Levelized Nominal Bid Price below the Revolution Wind Levelized Nominal Price of \$98.425 per megawatt-hour (MWh).
 - The calculated levelized nominal\$ unit cost (\$/MWh) for each project is the net present value of the annual project cost in nominal\$, divided by the net present value of the annual energy from the project over the term of its contract. A discount rate of 6.99% was used to calculate the net present values.
- b. Please refer to Attachment PUC 4-3-2 - CONFIDENTIAL, for a summary list of projects with a Levelized 2018\$ Bid Price below the Revolution Wind Levelized 2018\$ Price of \$75.16/MWh.
 - The calculated levelized 2018\$ unit cost (\$/MWh) for each project is the net present value of the annual project cost in 2018\$, divided by the net present value of the annual energy from the project over the term of its contract. A real discount rate of 4.892% was used to calculate the net present values.

Confidential: NG Evaluation Team Information – DO NOT FORWARD

2018 Rhode Island Long-Term Contracts for Renewable Energy Solicitation (Docket No. 4822)

List of Projects with a Levelized Nominal Bid Price below the Revolution Wind Levelized Nominal Price of \$98.425/MWh.

Company	Bidder Name	Project Title	Resource Type	Storage Included	Guaranteed COD	Contract Maximum Amount (MW)	Proposal Net Capacity Factor (%)	Proposed Annual Delivery (MWh)	Lowest Pricing Option Levelized Nominal Cost (\$/MWh)	Pricing Option #1			Pricing Option #2			Project Site/ Location	Proposed Interconnection Point	ISO-NE Load Zone
										Pricing Option	Term (years)	Energy Pricing (Pricing Range) (\$/MWh)	REC Pricing (Pricing Range) (\$/MWh)	Total Pricing (Pricing Range) (\$/MWh)	Pricing Option			
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2018 Rhode Island Long-Term Contracts for Renewable Energy Solicitation (Docket No. 4822)

List of Projects with a Levelized 2018\$ Bid Price below the Revolution Wind Levelized 2018\$ Price of \$75.16/MWh.

Company	Bidder Name	Project Title	Resource Type	Storage Included	Guaranteed COD	Contract Maximum Amount (MW)	Proposal Net Capacity Factor (%)	Proposed Annual Delivery (MWh)	Lowest Pricing Option Levelized 2018\$ Cost (\$/MWh)	Pricing Option #1			Pricing Option #2			Project Site/ Location	Proposed Interconnection Point	ISO-NE Load Zone
										Pricing Option	Term (years)	Energy Pricing (Pricing Range) (\$/MWh)	REC Pricing (Pricing Range) (\$/MWh)	Total Pricing (Pricing Range) (\$/MWh)	Pricing Option			
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PUC 4-4

Request:

The unredacted portion of National Grid’s response to PUC 2-35 lists two offshore wind projects offered by Deepwater Wind (projects 4 and 5) and two offshore wind projects offered by Vineyard Wind LLC. Please indicate if the total price for each of these projects is less than, equal to, or greater than:

- a. The Revolution I PPA price, and
- b. The 800-MW Vineyard Wind PPA price offered and selected through Massachusetts 83C RFP for offshore wind (Vineyard Wind), and
- c. The 200-MW Revolution Wind PPA price offered and selected for procurement in Connecticut (Revolution Wind Connecticut).

Response:

Project	Term (years)	400-MW Revolution I PPA	800-MW Vineyard Wind PPA (83C)	200-MW Revolution Wind PPA
Revolution Wind Expansion (104MW)	15			
Revolution Wind Expansion (104MW)	20			
Independent Wind (352MW)	15			
Independent Wind (352MW)	20			
Vineyard Wind RI (200MW)	15			
Vineyard Wind RI (200MW)	20			
Vineyard Wind RI (350MW)	15			
Vineyard Wind RI (350MW)	20			

* Based on Comparison of Levelized Nominal Pricing

PUC 4-5

Request:

Please provide the following:

- a. The Revolution 1 PPA nameplate capacity divided by National Grid's system peak for the Rhode Island distribution system.
- b. The Revolution 1 PPA nameplate capacity divided by National Grid's customer count for Rhode Island.
- c. The annual number of kilowatt-hours expected from Revolution I by the annual number of customers' kilowatt-hours on which the LTCRER will be charged.
- d. Please provide the same data as requested in parts a through c, but for
 - i. The Vineyard Wind PPA, and
 - ii. The Revolution Wind Connecticut PPA.
If National Grid only has this data for its Massachusetts territory and customers, please indicate that and respond using data for just that jurisdiction.

Response:

The following responses are provided using 2018 National Grid Rhode Island system peak, customer count, and annual kilowatt-hour (kWh) data:

- a. Revolution 1 PPA nameplate capacity: 400 MW
National Grid RI distribution system peak: $1,845 \text{ MW} / (1 + 0.08) = 1,708.3 \text{ MW}$ ⁽¹⁾
Result = $400 \text{ MW} / 1,708.3 \text{ MW} = 23.41\%$

⁽¹⁾ Note: The calculation of the RI distribution system peak is based on estimated system losses of 8%.

- b. Revolution 1 PPA nameplate capacity: 400 MW
National Grid Rhode Island customer count: 497,042
Result = $400 \text{ MW} / 497,042 = 0.000805 \text{ MW/customer}$
- c. Revolution I PPA annual kWh: 1,631,795,000 kWh
Rhode Island Forecasted kWh: 7,544,405,103 kWh

REDACTED

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Result = $1,631,795,000 \text{ kWh} / 7,544,405,103 \text{ kWh} = 21.63\%$

- d. Please see the Company's responses, below:
- i. The following responses are provided using 2018 National Grid's Massachusetts system peak, its customer count, and its annual kWh data (note: Vineyard Wind consists of two PPAs and provided is the sum of both PPAs):
 - a. Vineyard Wind PPA nameplate capacity: 369.28 MW (*NG share*)
National Grid MA distribution system peak: $4,669.6 \text{ MW} / (1 + 0.08) = 4,323.7 \text{ MW}^{(2)}$
Result = $369.28 \text{ MW} / 4,323.7 \text{ MW} = 8.54\%$
 - (²) Note: The calculation of the MA distribution system peak is based on estimated system losses of 8%.
 - b. Vineyard Wind PPA nameplate capacity: 369.28MW (*NG share*)
National Grid Massachusetts customer count: 1,332,256
Result = $369.28 \text{ MW} / 1,332,256 = 0.000277 \text{ MW/customer}$
 - c. Vineyard Wind PPA annual kWh: [REDACTED] kWh (*NG share*)
National Grid Massachusetts Forecasted kWh: 20,243,540,060 kWh
Result = [REDACTED] / 20,243,540,060 kWh = [REDACTED]
 - ii. The Company does not have similar information for Revolution Wind Connecticut PPA or the Connecticut service area.

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PUC 4-6

Request:

From 1998 to 2009, please provide the total cost, in the aggregate, by year, of the Standard Offer Service contracts. Include totals where appropriate.

Response:

Summary of Standard Offer Service ("SOS") Expense

Year	SOS Base Expense	Fuel Index Payments	Total SOS Expense
1998	not available	not available	not available
1999	not available	not available	not available
*2000	\$60,410,524	\$24,619,324	\$85,029,848
2001	\$248,814,766	\$144,319,594	\$393,134,359
2002	\$280,087,741	\$29,445,495	\$309,533,236
2003	\$342,236,334	\$85,058,350	\$427,294,681
2004	\$346,875,587	\$84,531,056	\$431,406,641
2005	\$380,991,131	\$113,339,080	\$494,330,210
2006	\$393,588,651	\$197,539,978	\$591,128,630
2007	\$431,622,544	\$178,595,185	\$610,217,730
2008	\$430,121,822	\$286,710,120	\$716,831,944
2009	\$377,130,612	\$129,685,200	\$506,815,813

* Only 3 Months, October - December