Thomas R. Teehan
Senior Counsel

June 27, 2011

VIA HAND DELIVERY & ELECTRONIC MAIL

Luly E. Massaro, Commission Clerk
Rhode Island Public Utilities Commission
89 Jefferson Boulevard
Warwick, RI 02889

RE: Docket 4232 - Review of the Use of Backup Rates
Responses to TEC-RI Data Requests – Set 1

Dear Ms. Massaro:

On behalf of National Grid[1] enclosed are ten (10) copies of the Company's responses to the TEC-RI's First Set of Data Requests issued in the above-captioned proceeding.

Please note that the Company's response to TEC-RI 1-6 is not included in this transmittal and will be forthcoming shortly.

Thank you for your attention to these responses. If you have any questions please feel free to contact me at (401)784-7667.

Very truly yours,

Thomas R. Teehan

cc: Docket 4232 Service List
Leo Wold, Esq.
Steve Scialabba, Division

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

TEC-RI 1-1

Request:

Please provide the total kWh provided to the system by distributed generation during 2010.

a. Percent of total kWh throughput represented by the above.
b. A breakdown by kWh of how much is from renewable and how much is from nonrenewable generation.

Response:

a. The Company records excess generation of net metered customers for purposes of providing net metering credits pursuant to the provisions of Section III.B of the Company's Qualifying Facilities Power Purchase Rate, R.I.P.U.C. No. 2035 ("QF Rate"). The Company also records excess generation of distributed generation customers who, as Qualifying Facilities (QFs), sell excess generation to the Company pursuant to Section III.A of the QF Rate. During 2010, approximately 3.5 million kWhs of excess generation was provided to the distribution system by net-metered customers and approximately 12.6 million kWhs of excess generation was provided to the distribution system by other non-net-metered QFs. The total kWhs delivered into the system, 16.1 million kWhs, divided by the total kWh deliveries to all customers during 2010, of 7,752 million kWhs, is approximately 0.21%.

b. Of the 16.1 million kWh of excess generation provided to the distribution system by Qualifying Facilities and other net metered customers during 2010, all but 0.6 million kWh was generated by renewable resources.

Prepared by or under the supervision of: Jeanne Lloyd and Margaret Janzen

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TEC-RI 1-2

Request:

Please provide the total kWh displaced by distributed generation (kWh used by the self-generator) during 2010.

a. A breakdown by kWh of how much is from renewable and how much is from non-renewable generation.

Response:

The Company does not have information available to calculate the kWh displaced by self-generators. However, the estimated kWh generated by renewable and non-renewable generation during 2010 is as follows:

Generation Type	kWhs
Renewables	26,587,407
Non-renewables	134,468,786
Total kWhs	161,056,193

The generated kWhs were estimated by multiplying a capacity factor appropriate for each type of generation by the capacity of the unit, then multiplying by 8760, representing the number of hours in a year. See the Company's response to TEC-RI 1-5 for a list of the capacity factors for each type of generator.

Prepared by or under the supervision of: Margaret Janzen

TEC-RI 1-3

Request:

Please provide the total current capacity in MW of distributed generation on the system.

a. A breakdown of how much is from renewable and how much is from non-renewable generation.

Response:

Presently, an aggregate of approximately 40.0 MW of distributed generation is interconnected with the Company's distribution system. Of this, approximately 75% of the facilities are non-renewable resources.

Prepared by or under the supervision of: Margaret Janzen

TEC-RI 1-4

Request:

Please provide the total cost of electricity purchases by NGrid from net metering in 2010.

a. Total kWh the above represents.
b. Average cost per kWh purchased through net metering.
c. Total capacity eligible for net metering (name plate and actual).

Response:

a. The total amount of net metering credits paid to eligible facilities during 2010 was $336,352. This represents approximately 3.5 million kWhs of excess generation.

b. The total net metered credits paid during 2010 of $336,352 divided by the total kWh deliveries to all customers during 2010 of 7,751,887,420 is $0.00004.

c. Presently, wind and solar facilities comprise approximately 3.4 MW of aggregate nameplate capacity interconnected with the Company's distribution system.

Prepared by or under the supervision of: Jeanne A. Lloyd and Margaret Janzen

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TEC-RI 1-5

Request:

What are the capacity factors (estimates or averages are acceptable) of the following distributed generation technologies currently on the system?

a. Wind
b. Solar PV
c. Hydro
d. Methane
e. Gas turbine
f. Reciprocating engine
g. Other

Response: The following is a general rule of thumb used in the industry. However, the actual capacity factor of any give generating facility will depend on the specific circumstances of that facility including it siting, maintenance, location, and installation.

Generation Type	Capacity Factor*
Wind	0.23
Solar PV	0.14
Hydro	0.46
Methane	0.46
Gas Turbine	0.91
Reciprocating engine	0.46
Other	0.46

**The capacity factor is the rate of estimated operating hours to the total hours available in a year which is analogous to the actual power output to the maximum power output.*

Prepared by or under the supervision of: Margaret Janzen

TEC-RI 1-7

Request:

What is the total dollar value of the Backup Service distribution demand charge revenue for 100 MW of distributed generation capacity under the current rates?

a. What is the average cost per kWh of this based on the total system throughput?
b. What is the total kWh that would be generated from 100 MW of distributed generation capacity provided to the system?

Response:

a. Based upon rates currently in effect, 100 MW of backup demand billed to customers receiving service on Rate B-32 would generate approximately $6.2 million in Backup Service demand charges. This amount, divided by total kWh deliveries to all customers is $0.00080 per kWh. 100 MW of backup demand billed to customers receiving service on Rate B-62 would generate approximately $3.4 million in Backup Service demand charges. This amount, divided by total kWh deliveries to all customers is $0.00040 per kWh. Alternatively, the annual dollar values if divided by annual kWh deliveries to Rate Classes B-32, B-62, G-32 and G-62 only, is equal to $0.00230 per kWh if the backup service customers were receiving service on Rate Class B-32 and $0.00130 if customers were receiving service on Rate Class B-62.

b. The annual generation produced by a 100 MW of distributed generation depends upon the availability of the units during the year.

Prepared by or under the supervision of: Jeanne A. Lloyd

TEC-RI 1-8

Request:

What is the typical efficiency of a fossil fuel plant that is providing electricity under NGrid's standard offer service? (How many BTUs are required to generate and deliver one kWh to the customer's meter?).

Response:

A heat rate is the measure of efficiency in converting input fuel to electricity. A lower heat rate indicates a more efficient generator because it requires less input fuel to generate electricity.

National Grid procures its electricity supply for Standard Offer Service from system power contracts, not from specific generating units. Therefore, the Company's sources of electricity would be the same as the ISO-NE fuel mix, with the exception of Renewable Energy Certificates required to comply with the Renewable Energy Standard. Unfortunately the Company does not have access to the generators' heat rates used to construct the ISO-NE fuel mix because these values are not published by ISO-NE or the generators.

In May 2010, the ISO issued its Annual Markets Report. Table 8-1 shows the average and minimum heat rates of generating resources in New England by generation technology type and input fuel in 2009. Below is a reproduction of this table which can be found at http://www.iso-ne.com/markets/mktmonmit/rpts/other/amr09_final_051810.pdf.

Table 8-1
Average and Minimum
Heat Rates for New England Generators, 2009, Btu/MWh

Technology	Fuel Type	Average Heat Rate	Minimum Heat Rate
Combined cycle	Gas	7,800	6,900
	No. 6 oil (1%)	11,100	10,100
	Diesel	12,200	11,400
Combustion turbine	Gas	11,000	8,900
	Jet Fuel	13,800	10,500
	No. 2 oil	16,100	15,500
	Coal	9,700	8,700
Steam	Gas	11,000	10,200
	No. 6 oil (1%)	10,500	9,000
	Other	10,300	10,000
	Wood	12,400	10,000

In March 2011, the ISO issued its 2009 ISO New England Electric Generator Air Emissions Report. The

TEC-RI 1-8 (continued)

marginal heat rate for 2009 is 7.774 (mBtu/MWH). The calculated marginal heat rate reflects the average annual efficiency of all of the marginal fossil units dispatched throughout 2009. Marginal fossil units are defined as natural gas and oil-fired generators and are expected to increase their load during periods of high energy demand. This report can be accessed at http://www.iso-ne.com/genrtion_resrcs/reports/emission/final_2009_emissions.pdf.

Prepared by or under the supervision of: Margaret M. Janzen

TEC-RI 1-9

Request:

What is NGrid's estimated budget for expanding distribution and transmission service over the next five years? Ten years?

a. How will these costs be recovered from rate payers?

Response:

a. The Company's forecast of capital expenditures is prepared for internal planning purposes and is not publicly available information. Generally, costs approved by the Commission for recovery from customers related to the expansion of distribution and transmission services would be recovered from customers through an appropriate rate mechanism, such as the Infrastructure, Safety and Reliability Provision or the Transmission Cost Adjustment Provision, or through base rates approved as part of a general rate case.

Prepared by or under the supervision of: Jeanne A. Lloyd