nationalgrid

Andrew S. Marcaccio
Senior Counsel

May 7, 2020

VIA ELECTRONIC MAIL

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

RE: Docket 4978 - 2021 Last Resort Service Procurement Plan
<u>Responses to PUC Data Requests – Set 1</u>

Dear Ms. Massaro:

On behalf of National Grid,[1] I have enclosed the electronic version of the Company's responses to the Public Utilities Commission's First Set of Data Requests[2] in the above-referenced docket.

Thank you for your attention to this matter. If you have any questions, please contact me at 401-784-4263.

Very truly yours,

Andrew S. Marcaccio

Enclosure

cc: Docket 4978 Service List
Christy Hetherington, Esq.
John Bell, Division

[1] The Narragansett Electric Company d/b/a National Grid (National Grid or Company).
[2] Per practice during the COVID-19 emergency period, the Company is providing a PDF version of the response to the PUC's data request referenced above. The Company will provide the Commission Clerk with a hard copy and, if needed, additional hard copies of this response at a later date.

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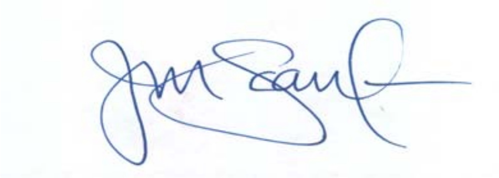
Certificate of Service

I hereby certify that a copy of the cover letter and any materials accompanying this certificate was electronically transmitted to the individuals listed below.

The paper copies of this filing are being hand delivered to the Rhode Island Public Utilities Commission and to the Rhode Island Division of Public Utilities and Carriers.



Joanne M. Scanlon

May 7, 2020
Date

Docket No. 4978 - National Grid – 2021 Last Resort Service Procurement Plan
Service List updated 5/7/2020

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PUC 1-1

Request:

National Grid proposes not to file annual Last Resort Service (LRS) procurement plans.

a. What criteria is the Company using to assess whether circumstances have changed to require a modification to the LRS procurement plan?
b. How often will such a review occur?

Response:

The Last Resort Service (LRS) Procurement Plan (Plan) is designed to provide rate stability at competitive prices. If circumstances change and the LRS Plan no longer meets these objectives, the Company would investigate the cause and may propose a modification to the LRS Plan. Two examples would be a decrease in the competitiveness of the Company's solicitations or an increase in the difference between the bid prices received and the Company's expected prices. These examples are reviewed quarterly with each competitive solicitation.

The Company would also consider a modification to the LRS Plan if there is a policy change. For example, if a new rate structure is implemented, a modification to the LRS Plan to align procurement and rate structure may make sense. The Company would review the LRS Plan in relation to any new proposed policy that may impact it and recommend adjustments if necessary.

PUC 1-2

Request:

What number of municipalities in Rhode Island have requested their load data in anticipation of exploring municipal aggregation?

Response:

Three municipalities have requested aggregated load data in anticipation of exploring municipal aggregation.

Prepared by or under the supervision of: James Ruebenacker

PUC 1-3

Request:

If all of the municipalities in Rhode Island who have requested their load data were to go to municipal aggregation, what would be the effect on the current standard offer service load?

Response:

The 2019 Standard Offer Service (SOS) load was 4,170,969 MWH. The annual load for the three municipalities for the April 2019 to March 2020 period is 663,657 MWH (including estimated losses). If all the customers in the municipalities elected to switch to municipal aggregation, the SOS load would be reduced by approximately 16%.

Prepared by or under the supervision of: James Ruebenacker

PUC 1-4

Request:

Several municipalities in Rhode Island are exploring municipal aggregation. Has the Company conducted any review of additional risk a standard offer or LRS supplier might face if municipalities implement municipal aggregation plans?

Response:

The Company is aware of additional risks for wholesale suppliers in the event that municipal aggregation proposals are implemented. However, the Company has not conducted any specific review related to municipal aggregations in Rhode Island.

Wholesale suppliers participating in competitive solicitations must address uncertainty in load due to municipal aggregations. Large number of customers may leave or return to LRS during the applicable period on which the wholesale suppliers are bidding. Consequently, this potential migration may lead to either higher LRS prices if a wholesale supplier includes risk premiums for migration risk in its bid or lack of participation in the competitive solicitation if the uncertainty is too great. As a result, customers on LRS could experience higher prices.

The Company's affiliates, Massachusetts Electric Company and Nantucket Electric Company d/b/a National Grid (together, Mass. Electric), utilize Full Requirements Service contracts to procure Basic Service in Massachusetts. Massachusetts has a robust municipal aggregation program, with over 50 active municipal aggregations in Mass. Electric's service territory. Formally and informally, wholesale suppliers have noted the additional risk posed by municipal aggregations. Two suppliers that participate in the Company's competitive solicitations do not participate in Massachusetts because of the risk due to municipal aggregations. Wholesale suppliers provided comments regarding the risk due to municipal aggregation in the Massachusetts Department of Public Utilities' proceeding D.P.U. 15-40, Investigation by the Department of Public Utilities on its own Motion into the Provision of Basic Service. See, e.g., D.P.U. 15-40, Exelon Generation Initial Comments, at 7-8 (Jul. 7, 2015); D.P.U. 15-40, TransCanada Initial Comments, at 7-9 (Jul. 7, 2015).

Prepared by or under the supervision of: James Ruebenacker

PUC 1-5

Request:

What are some ways the LRS procurement plan could be adjusted to lessen the potential risk on LRS customers of the uncertainty of switching large loads (either away from LRS or back)?

Response:

In general, load volatility (and the associated risk premiums) will be greater for transactions with contract periods further from the execution date. Load volatility is due to migration, economic factors, and weather. Municipal aggregations will increase the migration component of the load volatility. The Last Resort Service (LRS) Procurement Plan (Plan) could be adjusted to include shorter term transactions (for example, not solicit 18- and 24-month contracts).[1] However, that would decrease the advantages associated with the laddered and layered Full Requirements Service procurement approach included in the LRS Plan. The laddering and varying lengths of the Full Requirements Service contracts allows for mitigation of price volatility because the individual contracts are procured at different times and are dollar-cost averaged to create a blended supply rate. In a decreasing electric prices market, the lower-cost most recent transactions will help offset the higher-cost older transactions. Conversely, in an increasing electric prices market, the higher-cost most recent transactions will be partially offset by the lower-cost older transactions.

As described in the Company's response to PUC 1-1, the Company would investigate a decrease in the competitiveness the Company's solicitations or an increase difference between the bid prices received and the Company's expected prices. If the municipal aggregations impact the competitive solicitations significantly, the Company would evaluate other procurement activities.

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[1] The term "contracts" used in this context may in fact be several "bid blocks" or "segments" that add up to the total load solicited. The smaller bid blocks are designed to benefit pricing and supplier diversity.

PUC 1-6

Request:

Where in rates is the Standard Offer Service "billing adjustment" currently socialized? Does National Grid propose a change to this socialization in the current proposal?

Response:

The Standard Offer Service "billing adjustment" is currently socialized to all retail delivery customers through an adjustment in the Revenue Decoupling Mechanism. The Company does not propose to change this socialization in the current proposal.

Prepared by or under the supervision of: Robin E. Pieri

PUC 1-7

Request:

Please explain in detail how line losses are calculated. Provide an equation. Provide an example of the calculation for one month of supply to residential customers and include at least two Standard Offer Suppliers contributing to the Standard Offer Service load and two non-regulated suppliers contributing to competitive supply load.

Response:

Line losses are applied per Attachment PUC-1-7.
For the examples, the calculations are the same for any Standard Offer Service (SOS) supplier or from any non-regulated power producer (NPP).

Hourly load estimation for each customer is different depending on the type of customer. The types of customers are as follows: profiled load customers (no interval meters (e.g., Rates A-16, A-60, C06, G02), customers who have interval metered data available (Rate G-32), and customers who are telemetered customers (those Rate G-32 customers with remote communication to the meter).

Where:
kWh usage of a profiled load customer = the usage by the customer adjusted by distribution losses

Example: Residential(A16) settlement kWhs = kWh reading x distribution loss**

214 kWhs = 200 kWhs x 1.069

kWh usage of an interval metered customer = the usage for an interval metered customer adjusted by distribution losses.

Example: Large Demand(G32) = kWh reading x distribution loss**

1,557 kWhs = 1,500 kWhs x 1.038

kWh usage of a telemetered customers = the actual usage for a telemetered metered customer for the load date adjusted by distribution losses**

Example: Large Demand(G32) = kWh reading x distribution loss**

1,557 kWhs = 1,500 kWhs x 1.038

Prepared by or under the supervision of: Timothy Roughan

PUC 1-7, page 2

** Distribution Loss Factors are determined by rate class

Primary Voltage Customers – 1.038

Primary Voltage Customer with High Voltage discount – 1.027

Secondary Voltage customers – 1.069

Prepared by or under the supervision of: Timothy Roughan

SUPPLIER LOAD ESTIMATION
ALLOCATION OF LOSSES TO SUPPLIERS

- **Loss Allocation Process**

National Grid calculates Supplier hourly loads, including distribution and transmission losses, in a two step process. First, the hourly loads of each retail customer are estimated at the customer's meter and multiplied by one of three distribution loss factors, depending upon the customer's rate class. Customer hourly loads including these distribution loss factors are then summed by Supplier and the total is compared to the distribution company "Delivered load." Delivered load is defined as load measured at substation and tie-line metering points inside the National Grid System. Delivered load includes all distribution line losses but no transmission losses. Differences between the sum of estimated customer hourly loads, including distribution loss factors, and actual Delivered loads are allocated to Suppliers based on their share in total estimated load. These differences can be positive or negative and vary by hour, but their expected value is zero.

Second, National Grid calculates transmission losses as the difference between "System load" and Delivered load. System load is defined as net load at generation and tie-line metering points that connect National Grid to NEPOOL transmission facilities (PTF). However, municipal load within the National Grid system and low-voltage PTF losses, as estimated by NEPOOL, are both subtracted from System load before calculating transmission losses. National Grid then allocates the resulting non-PTF transmission losses, which vary by hour, to each Supplier based on the Supplier's share in total Delivered load.

After National Grid reports loads which include distribution and non-PTF transmission losses to the ISO-NE, the ISO further allocates PTF losses to each Supplier in NEPOOL. In this way, the hourly loads used for Settlement include the total energy requirements of each customer served.

- **Distribution Loss Factors**

The distribution loss factors which National Grid multiplies by the estimated hourly loads – at the meter – of each retail customer are as follows:

Primary Voltage Customers: 1.038

Primary voltage customers are those on the following rates:

Massachusetts and Nantucket Electric's G3 rate
Narragansett Electric's G32 and G62 rates
Granite State Electric's G01 rate

Primary Voltage Customers with High Voltage Discount: 1.027

These are large customers on the Primary Voltage rates above who also receive a special high voltage discount and distribution loss adjustment factor because their meter is on the high side of the transformer. Check with your customer to see if they are receiving a high voltage discount rate.

Secondary Voltage Customers: 1.069

All other customers.

- **Transmission Loss Factors: 1.0007**

National Grid allocates non-PTF transmission losses to each Supplier based on its share in total Delivered load. These loss factors average **1.0007** for all hours and customers. The table below presents values the Supplier can expect to have allocated to it for non-PTF transmission losses. The losses are expressed as the ratio of System load to Delivered load:

TRANSMISSION LOSS FACTORS
RANGE OF EXPECTED VALUES*

EXPECTED VALUE	LOW (5% QUANTILE)	HIGH (95%QUANTILE)
1.0007	**0.9810**	**1.0400**

* Statistical results are for the period January 1, 2018 through December 31, 2018

- **Total National Grid Loss Allocation**

The table below shows the total amount of losses Suppliers can expect to have allocated to them, on average, for different types of customer load:

TOTAL LOSSES APPLIED BY NATIONAL GRID ON AVERAGE
(DISTRIBUTION PLUS AVERAGE TRANSMISSION)

LOSS TYPE	PRIMARY VOLTAGE CUSTOMERS	HIGH VOLTAGE DISCOUNT CUSTOMERS	SECONDARY VOLTAGE CUSTOMERS
Distribution	1.038	1.027	1.069
Average Transmission	**1.001**	**1.001**	**1.001**
Total	**1.039**	**1.028**	**1.070**

- **PTF Losses**

After National Grid reports Supplier hourly loads to ISO-NE, the ISO allocates PTF losses to each Supplier within NEPOOL. For more information on these losses, their magnitude and how they are allocated to Suppliers, contact ISO-NE Customer Service (contact information is available on the ISO-NE website under the Customer Service button).

PUC 1-8

Request:

Does behind-the-meter distributed generation affect actual line losses (the actual amount of energy lost) on:

a. National Grid's distribution system, and
b. the transmission system?

Please explain why or why not in the responses to parts a and b.

Response:

a. Behind-the-meter distributed generation (BTM DG) can affect actual line losses on the distribution system. The impact of BTM DG on line losses depends on where the generator is located in proximity to the load and circuit configuration. Additionally, the distributed generation output versus load levels impacts actual losses. Generally, during peak load conditions, system losses can decrease because of distributed generation; however, during off peak or light load conditions, losses could actually increase. BTM DG is often located with some amount of load, so under most conditions BTM DG reduces actual losses.

b. BTM DG can affect actual line losses on the transmission system in a similar manner to the distribution system. However, since transmission currents are lower than distribution currents for the same power magnitude, the loss impact is less.

Prepared by or under the supervision of: Timothy Roughan

PUC 1-9

Request:

Does behind-the-meter distributed generation affect calculated line losses (the actual amount of energy lost) on:

a. National Grid's distribution system, and
b. the transmission system?

Please explain why or why not in the responses to parts a and b.

Response:

a. Behind-the-meter distributed generation (BTM DG) can affect calculated line losses on the distribution system. The impact of BTM DG on line losses depends on where the generator is located in proximity to the load and circuit configuration. Additionally, the distributed generation output versus load levels impacts losses. Calculated losses use the difference at meter points to determine the loss amount. The meter points would automatically measure the losses increased or decreased. As only BTM DG of 25 kW or larger is settled as SOGs (see the response to PUC 1-14), it results in slightly less load to be settled for Last Resort Service/Standard Offer Service and nonregulated power producers' supply.

b. As the culmination of BTM DG connected to the distribution system can, at time, reduce losses, then losses could be reduced under high load conditions on the transmission system. But as indicated above, at light load conditions, losses could increase.

Prepared by or under the supervision of: Timothy Roughan

PUC 1-10

Request:

Does front-of-the-meter distributed generation (including Residential Renewable Energy Growth installations) affect actual line losses (the actual amount of energy lost) on:

a. National Grid's distribution system, and
b. the transmission system?

Please explain why or why not in the responses to parts a and b.

Response:

a. Front-of-the-meter distributed generation (FTM DG) refers to DG connected directly to the distribution system with no associated load (except for station service load). A FTM DG is a metered account, and therefore, FTM systems act similarly in response to losses as behind-the-meter (BTM) systems. The impact of FTM DG on line losses depends on where the generator is located in proximity to the load and circuit configuration. Additionally, the DG output versus load levels impacts actual losses. Generally, during peak load conditions, system losses can decrease because of distributed generation; however, during off peak or light load conditions, losses could actually increase. FTM DG can be located in areas remote to load centers and has a potential to increase losses more than BTM DG.

b. FTM DG can affect actual line losses on the transmission system in a manner similar to the distribution system. However, since transmission currents are lower than distribution currents for the same power magnitude, the loss impact is less.

Prepared by or under the supervision of: Timothy Roughan

PUC 1-11

Request:

Does front-of-the-meter distributed generation (including Residential Renewable Energy Growth installations) affect calculated line losses (the actual amount of energy lost) on:

a. National Grid's distribution system, and
b. the transmission system?

Please explain why or why not in the responses to parts a and b.

Response:

Please see the Company's response to PUC 1-9.

Prepared by or under the supervision of: Timothy Roughan

PUC 1-12

Request:

Does National Grid register certain behind-the-meter distributed generators in ISO-NE's Market Settlement System for the purpose of selling the net energy output of that facility? If so, please explain how these facilities effect ISO-NE's calculation of Installed Capacity Requirement (ICR). For example, is all, some, or none of the facilities' output included in ISO-NE's model of behind-the-meter generation used in ICR calculations.

Response:

The Company does register projects 25 kWs and over that have an interval meter with ISO-NE in order to earn wholesale revenues to offset the costs of net metering, REG, and DG contracts that are recovered from all customers. These projects are set up as either settlement-only-generators (SOGs) if they are less than 5 MWs in size with the Company as the Lead Market Participant (LMP), or as Modeled Generators (MOGs) for projects of 5 MWs or more and with the project owner as the LMP due to the ISO-NE operational requirements of an MOG. In both cases the Company is the Asset Owner and receives the wholesale revenues earned.

> When the ISO looks to set the ICR, they only look at assets that are participating in the Forward Capacity Market (FCM) as supply and only treat behind-the-meter generation that are not set up as energy assets as load reducers. Behind-the-meter assets that are settled with the MSS are considered energy only resources and do not reduce the ICR, as based on the proportion of such assets of all solar PV resources forecast to be developed in RI, as used by ISO-NE in projecting future capacity needs.

National Grid has enrolled nine (9) REG facilities in the FCM. These resources were able to clear the auction using the Renewable Technology Resource (RTR) exemption, which allows new resources to offer capacity during the auction at prices lower than the Internal Market Monitor-assigned Offer Review Trigger Price. Under ISO-NE's Competitive Auctions for Sponsored Policy Resources (CASPR) tariff revisions, the RTR exemption was capped and set to expire in Forward Capacity Auction (FCA)-15, which will be conducted in February 2021. The RTR cap was exceeded in FCA-14 and all RTR resources were prorated to 44 percent of their qualified capacity. While an additional 19 MWs of the RTR exemption are available in FCA-15, National Grid anticipates that the value of these resources after proration will not exceed the cost of qualification. Since the RTR exemption expires completely after FCA-15, National Grid does not plan to participate any new REG facilities in the ISO-NE capacity market.

Prepared by or under the supervision of: Timothy Roughan

PUC 1-13

Request:

Please explain what data will be used in solicitations for Last Resort Service supplier RFPs. Please explain how changes in distributed generation on the National Grid's distribution system are captured in this data.

Response:

The Company provides information on its website to assist wholesale suppliers with forecasting potential load requirements. This information includes historical hourly load data by customer group for Standard Offer Service and competitive supply. The hourly load data is provided inclusive and exclusive of losses. The Company also provides class average load shapes at the retail meter point.

To the extent distributed generation impacts hourly load, the historical hourly load data and class average load shapes would change. The wholesale suppliers will then utilize any updates to historical data and apply their own expectations in creating their forecasts.

Prepared by or under the supervision of: James Ruebenacker

PUC 1-14

Request:

Considering behind-the-meter distributed generation, how would the supply obligation of Last Resort Service suppliers be affected by negative meter reads of non-interval- and interval-metered customers? For example, are negative hourly load profiles calculated or measured?

Response:

Behind-the-Meter (BTM) Distributed Generation (DG) assets greater than 25 kW are set up as generator assets at the ISO-NE and have an interval meter installed. Each customer with a BTM DG system also has a load asset (like all retail customers) at the ISO-NE. When reporting data to these assets, a meter reader (like the Company), cannot report negative values. When a customer who has generation at their site has more load than generation for an hour (the ISO-NE markets settle hourly), then the load asset registers the load, and corresponding generator asset registers zero generation. When there is more generation than load over an hour, then the generator asset registers the generation, and the corresponding load asset registers zero load.

Non-settled BTM DG assets, those 25 kW and smaller, are not settled as profiled loads with ISO-NE, and negative reads are not allowed. Any negative reads are only used for monthly netting and not sent to the ISO. If there is a negative reading at the end of a billing month, the profiled load settlement for that account is set to zero for all hours of the month even if there is usage at night. As Last Resort Service load is calculated at the retail meter delivery point any hourly zero reads in the settlement system will reduce the amount of last resort service needed.

Prepared by or under the supervision of: Timothy Roughan

PUC 1-15

Request:

For customers enrolled in National Grid's Residential Renewable Energy Growth Program, does National Grid currently include all load measured at the residence in the load served by Standard Offer Service suppliers? If so,

a. What changes to Last Resort Service supplier contracts and/or agreements would be necessary to net the on-site generation against on-site load, as is the case for net metering installations?
b. What changes to data collection, tabulation, and reporting would be necessary to net on-site generation against on-site load?

Response:

Load from residential customers participating in the Renewable Energy Growth (RE Growth) Program is included in the load served by Standard Offer Service suppliers if those customers have not opted to take service from Nonregulated Power Producers.

a. The Company does not believe any changes to Last Resort Service (LRS) supplier contracts would be needed to net load of on-site generation against on-site load for customers enrolled in the RE Growth residential solar tariff. At present, generation from residential RE Growth facilities slightly reduces purchases of Standard Offer Service (SOS) supply, as well as customers' purchases from nonregulated power producers by lowering losses in the state. Through the RE Growth Program, the Company provides credit for all generation up to the amount of a customer's on-site use in a month as "bill credits" to provide individual benefit, or netting, of generation against load. At the same time, all customers, who in total pay for the RE Growth program, benefit from the reductions in energy supply needed to meet local loads. A change to the RE Growth Program that required the Company to net on-site generation against on-site load for each RE Growth customer on an hourly, daily, or other basis may introduce additional load volatility for the LRS suppliers but could be possible.

In order to capture 100 percent of the on-site generation as an offset to measured LRS load, advanced meter functionality with interval metering of residential customers and changes in the calculation of load settlement by the Company's Meter Data Services department would be required. This would be a change in the payments to LRS suppliers; RE Growth customers would also need to see adjustments on their bills to show self-supply and any amount still provided from the SOS supplier.

Prepared by or under the supervision of: James Ruebenacker