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Rhode Island Energy™
a PPL company

March 28, 2023

VIA ELECTRONIC MAIL

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

RE: Docket No. 22-49-EL-The Narragansett Electric Company d/b/a Rhode Island Energy
Advanced Metering Functionality Business Case
Responses to OER Data Requests – OER Set 1

Dear Ms. Massaro:

On behalf of The Narragansett Electric Company d/b/a Rhode Island Energy ("Rhode Island Energy" or the "Company"), attached is the electronic version of Rhode Island Energy's responses to the Office of Energy Resources' First Set of Data Requests in the above-referenced matter.[1]

Thank you for your time and attention to this matter. If you have any questions, please contact Jennifer Brooks Hutchinson at 401-316-7429.

Very truly yours,

Jennifer Brooks Hutchinson

Enclosures

cc: Docket No. 22-49-EL Service List
John Bell, Division
Leo Wold, Esq.

[1] Per communication from Commission counsel on October 4, 2021, the Company is submitting an electronic version of this filing followed by hard copies filed with the Clerk within 24 hours of the electronic filing.

CERTIFICATE OF SERVICE

I certify that a copy of the within documents was forwarded by e-mail to the Service List in the above docket on the 28th day of March, 2023.

Adam M. Ramos, Esq.

The Narragansett Electric Company d/b/a Rhode Island Energy
Docket No. 22-49-EL Advanced Meter Functionality (AMF)
Service list updated 2/27/2023

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OER 1-1

Request:

The testimony of Mr. Bonenberger, AMF Book 1 at 13:13-14, states that Rhode Island customers will be able to "adopt technologies that can automate their responses to time varying rates to make it easy for them to participate." Later, in its response to MDC –15(b), the Company notes that the Company's Kentucky and Pennsylvania affiliates have adopted a ZigBee-based, "bring your own device" approach to allowing customers to connect in-home devices to their meter. The Company also states that it "needs to conduct an analysis of the impacts of connecting a device by Wi-Fi, as well as the types of devices in the market, before it can specify the types if [sic] devices to include."

(a) In the Bonenberger testimony, is the Company stating that this automation would occur by enabling customers to connect their appliances directly to the AMF meter through the Home Area Network ("HAN") or by some other means? If by some other means, please describe how the company is planning for customers to automate their responses to time varying rates.

(b) Given that it cannot yet provide a list of devices or device types that Rhode Island customers would be able to connect to their meters, please describe the criteria the Company would use in identifying which devices would be allowed to connect to the HAN.

(c) Please provide the list of devices or device types that customers of the Company's Kentucky and Pennsylvania affiliates can currently connect to their meters. Please also provide any data on the number of devices (by customer and total devices) that have connected through the Company's "bring your own device" approach.

Response:

(a) Yes, the automation referenced in the testimony would occur by enabling the customer to connect their appliances indirectly to the AMF meter through the HAN by way of the Wi-Fi functionality.

(b) The general criteria the Company currently plans to use to identify devices that would be allowed to connect to the HAN are:

- Ability to receive and send secure communications with the Company or third-party market entities.
- Ability to enable real-time customer access to meter data.

- Ability to enable real-time integration with smart devices such as thermostats, water heaters, and other appliances.
- Flexibility and adaptability to meet evolving customer and electric distribution system needs.

(c) Customers of the Company's Kentucky and Pennsylvania affiliates currently can connect devices that support Zigbee Smart Energy Profile 1.2b to their meters. In Pennsylvania, there are approximately 1,300 HAN customer-owned devices installed. PPL's Kentucky affiliate has approximately 50 HAN devices currently installed.

OER 1-2

Request:

Please reference the Company's response to MDC 1-2 (a), in which the Company states that it "has not yet determined specific access eligibility for the Rhode Island Energy Supplier Portal" and that it "will determine specific access eligibility as part of the detailed design phase for AMF implementation." In the same response, the Company also states that licensed competitive suppliers can access its Pennsylvania Supplier portal and that this portal will serve as a "template" for Rhode Island.

(a) To confirm, are any entities that are not licensed competitive suppliers able to access the Company's Pennsylvania Supplier Portal?

(b) What criteria will be used to determine specific access eligibility in Rhode Island? What considerations could lead the Company to develop eligibility criteria for accessing the Rhode Island Supplier Portal that are different than eligibility criteria used in Pennsylvania?

(c) If not through the Competitive Supplier Portal, how might service providers (e.g., energy storage providers that would like to estimate potential savings for customers under a future time varying rate) access customer usage data available through the Supplier Portal? Please describe all options besides Green Button Connect (based on our understanding that this would require customers to log into their account, download data, then transmit it to a third party).

Response:

(a) Yes, in addition to competitive suppliers, energy brokers and curtailment service providers are able to access the Pennsylvania Supplier Portal.

(b) The Supplier Portal in Pennsylvania will be used as the starting point for the design of the Rhode Island Supplier Portal. Both markets will have the same guidelines around access criteria based on the type of entity requesting access. Competitive suppliers must be licensed nonregulated power producers in Rhode Island and will have to complete the Rhode Island Energy electronic data interchange ("EDI") transaction certification testing process. After competitive suppliers are approved, they would have access to customer usage data and installed capacity ("ICAP") data. Brokers and curtailment service providers may also request access to the Portal but will only have the ability to see ICAP information.

(c) The options available would be Green Button Connect and through the EDI process, which is available to licensed suppliers that have completed EDI certification and have sent the Company an 814 HU (Historical Usage) or enrollment request.

OER 1-3

Request:

The Business Case, at Bates Page 9, notes that the Company's Pennsylvania affiliate replaced its meters in 2002-2004 and again in 2015-2019. Did the 2015-2019 replacement involve replacing meters before the end of their design lives? What lessons, if any, can be drawn from what appears to be a short interval between meter replacements?

Response:

No, the 2016-2019 replacement did not involve replacing meters before the end of their design lives. The 2002-2004 meters had fixed 15 year lives in the asset system. They had reached, or nearly reached, the end of their useful lives and were being replaced. The installation of AMI meters in 2016-2019 resulted from the Pennsylvania Public Utility Commission determining that PPL Electric's existing metering system did not fully meet the requirements of Pennsylvania Act 129 of 2008 regarding the functionality of smart meters. *See* "Petition of PPL Electric Utilities Corporation for Approval of Smart Meter Technology Procurement and Installation Plan", Docket No. M-2009-2123945 (Order entered June 24, 2010); and "Exceptions of PPL Electric Utilities Corporation, et al.", Docket No. M-2014-2430781 (Order entered September 3, 2015).

OER 1-4

Request:

Section 2.8 of the Business Case states that the Company's Pennsylvania affiliate proposed new requirements for smart inverters in 2019, which enabled a pilot the Company describes in the same section of the Business Case. Are the requirements included the Company's Electric System Bulletin No. 756 (version 8.0), which specifies requirements for parallel generation connecting to the Company's Rhode Island system and references IEEE 1547-2018, consistent with the inverter requirements in the Company's Pennsylvania territory? Does the Company anticipate introducing new inverter requirements that would enable functionality similar to that being tested in the Company's Pennsylvania affiliate territory?

Response:

Yes. The requirements included the Company's Electric System Bulletin No. 756 (version 8.0)[1], specifying parallel generation connecting to the Company's Rhode Island system that references IEEE 1547-2018 is generally consistent with the inverter requirements in the Company's affiliate's Pennsylvania territory. On page 5, two of the applicable national standards that may apply include IEEE 1547 "IEEE Standard for Interconnection and Interoperability of Distributed Energy Resources with Associated Electric Power Systems Interfaces" and UL 1741 "Standard for Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources." Appendix A is Electric System Bulletin No. 756 7.0, which requires UL 1741 SB certified inverters after December 2022. For PPL Electric Utilities Corporation ("PPL Electric"), IEEE 1547-2018 is required in conjunction with UL 1741 SB certified inverters on or after 1/1/2023. The Company is anticipating introducing and proposing additional requirements that ensure compliance with the standard for Rhode Island Energy and would enable future functionality similar to that being piloted in PPL Electric's territory. The Company described this functionality in the Grid Modernization Plan filed in Docket No. 22-56-EL at Bates page 282.

[1] https://www.nationalgridus.com/media/pronet/shared_constr_esb756.pdf

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OER 1-5

Request:

The Company proposes to provide "an integrated marketplace for customer research of solar PV adoption" in the testimony of Mr. Warnock and Ms. Reder, in Book 1 at 49. Is the full cost of this marketplace included in the Company's AMF filing? Would the marketplace also be funded through additional means (e.g., payments from participating installers)? Would the Company receive any revenue from a marketplace provider, solar installers, or other entities for its integration of the PV marketplace into the customer portal?

Response:

The full cost of the marketplace is included in the Company's advanced metering functionality ("AMF") filing. The AMF specific costs associated with the solar marketplace functionality are for integrations based on leveraging existing Pennsylvania and Rhode Island knowledge, processes, and code and include planning, design, coding modifications, testing and implementation. The marketplace will not be funded through any additional means, and Rhode Island Energy will not receive any additional revenue from a marketplace provider, solar installers, or other entities.

OER 1-6

Request:

Please refer to Figure 6.4 in the Company's Business Case, which describes the AMF functionality of "Streamlined Energy Efficiency & Demand Response Program Signup" as providing "customers with streamlined ways to access information and programs on ways to reduce energy consumption." Please further describe the "streamlined ways" customers would access information and programs. Please specifically how these "streamlined ways" are enabled by AMF.

Response:

Figure 6.4 in the Company's advanced metering functionality ("AMF") Business Case at Bates page 74 provides AMF future functionalities that will be evaluated and if viable, developed and implemented after AMF deployment has been completed. One of the future functionalities that currently is envisioned is to enable customers with streamlined ways to access information and programs to reduce energy consumption. AMF can provide added information through the AMF meter connecting to a Home Area Network via WiFi and/or through the Customer Portal. The concept is to provide effective communication channels and interaction with the customer (and perhaps directly to devices) to make demand response and energy efficiency easier and more effective.

OER 1-7

Request:

The Company proposes to use "pre-sweeps" to identify and mitigate potential meter installation issues. Will the Company share the number of meters that it finds to be inaccessible during these pre-sweeps before attempting meter swaps in a given area?

Response:

The Company will be able to share the information on the results from the pre-sweep verifications. Because the installation approach is by geographic sector and a continued process, the Company may not be able to share the information before performing a meter exchange.

OER 1-8

Request:

On Bates Page 110 of the Business Plan, the Company states that the meter installer will inform the customer "of the potential brief interruption of power." Please elaborate on what determines whether a customer will or will not lose power and the duration of the power interruption. Does the Company take any specific mitigating steps for customers with life-sustaining equipment or other critical loads?

Response:

The meter base installed at the premise determines whether the meter can be exchanged without the customer experiencing an interruption. If the meter base includes a bypass mechanism, the meter can be exchanged without a service interruption. In most cases, bypass switches are found only on commercial installations; so the Company expects that most of the standard residential meters will require a service interruption that will typically be less than five minutes. Customers (including those with life-sustaining equipment) will receive notifications 45 days, 21 days, and 1 day prior to a meter exchange. These notifications all will include contact information for the customer to call if they have any concerns or want to schedule an appointment for the meter exchange at a time that is convenient for them. Copies of these notifications also will be on the website. For other critical loads, Rhode Island Energy will utilize Key Account Managers to proactively contact these customers to coordinate the meter exchange.

OER 1-9

Request:

On page 34 of Attachment D to the Business Plan, the Company notes that customers with solar PV systems <25 kW "may need to have the system de-energized" and that, in such cases, the field installation vendor will schedule an appointment with the customer. When will the Company be able to determine if the system needs to be de-energized – during the pre-sweep, during the meter swap, or at some other point? Has the Company experienced concerns from customers with distributed generation about lost production when completing meter swaps in the Company's other affiliate territories?

Response:

The current Rhode Island Energy business process is to disconnect any distributed generation ("DG") equipment, including solar PV systems <25 kW, that does not have a bypass lever installed to avoid dangerous reverse energy flows, or back feed, that could cause electrical shock when a meter is exchanged. The Company will use this practice during the advanced metering functionality ("AMF") deployment as well. Rhode Island Energy will use existing database records and the results of the pre-sweep verifications to determine if a bypass lever is installed and can be used to complete the meter exchange without de-energizing a customer's solar PV system.

Lost production while the solar PV system was de-energized was not an area of concern for PPL Electric Utilities Corporation in Pennsylvania because the meter exchange typically takes less than 5 minutes to complete. Likewise, PPL's Kentucky affiliate has not seen this as a concern to date.

OER 1-10

Request:

Bates Page 105 of the Business Case states that the Company will "ensure that all educational materials are available in various languages, including Spanish and Portuguese, based on Rhode Island customer demographics." Please specify what the other languages educational materials will be available in. Please also describe how limited English proficiency customers would access educational materials in other languages.

Response:

Rhode Island Energy's current plan is to have communications materials available in English, Spanish, and Portuguese as these languages constitute the largest demographics. These communications materials include content on the website as well as letters sent to customers in advance of the pre-sweeps and meter exchanges. Additional translation of communications materials into languages beyond English, Spanish, and Portuguese will be determined on a case-by-case basis depending on the number of customers impacted.

OER 1-11

Request:

Please refer to Section 9.11 of the Business Case, where the Company states that renters are typically account holders and account holders are "expected to make the Opt-Out decision." Please describe the process the Company will follow when an account holder that opted-out of an AMF meter moves out. Specifically, what efforts will the Company take, if any, to encourage the new account holder to switch to an AMF meter? Will the new account holder be billed Opt-Out meter charges?

Response:

Customers who opt-out of receiving an advanced metering functionality ("AMF") meter will be noted in the Company's Customer Information System for their account. The opt-out status is tied to the customer of record on the account, not the premises. Provided the existing customer of record notifies the Company that they are moving out and to turn off service at the premises, and the new occupant moving in establishes a new active account with the Company at that premises, the opt-out status will not transfer to the new customer of record and the new customer of record will not be billed any charges associated with the prior customer's opt out. The Company will plan to exchange the new customer's old meter with an AMF meter unless they notify the Company that they elect to opt out, in which case they will be charged the applicable opt out fee.

OER 1-12

Request:

Please refer to the Company's response to PUC 3-19 (a). The Company states that AMF meters enable "better system power flow and voltage profile system visibility where actions can be initiated through the ADMS/DERMS software platform to mitigate violations and optimize operations." Please describe these "actions" referenced and clarify whether these actions are enabled solely through investments proposed in this filing or whether some would also require investments contemplated in the GMP or not otherwise yet proposed.

Response:

Advanced metering functionality ("AMF") meters provide granular, 15-minute interval load and voltage data at the point where electric service is provided to the customer. This granularity greatly improves the visibility of the system status compared to today because the functionality does not exist with the current automated meter reading ("AMR") meters. The actions that Rhode Island Energy can initiate using granular 15-minute interval data to improve operations include: (i) understanding and following load curve and power flow changes, (ii) becoming aware of voltage violations, (iii) understanding hidden load that must be served during a distribution switching routine, and (iv) having the ability to implement dynamic pricing and to assess changes in usage trends.

Granular data from AMF meters is an input to solutions described in the Grid Modernization Plan ("GMP"). Fifteen-minute interval data from AMF meters provides locational visibility of the operating state and condition of the distribution grid and distributed energy resources ("DER") assets. This information is utilized by GMP solutions to improve distribution observability and system management. Broader descriptions that describe the links between AMF meters and GMP solutions for various functionalities are provided in the GMP filed in Docket No. 22-56-EL at Bates pages 156 and 157. The information from AMF enhances GMP observability and system management functionality, which is increasingly important over time to operate the grid safely and reliability, especially as the accumulated effect of intermittent DER will increase operational variability, increase operational uncertainty and require localized knowledge of system conditions.

OER 1-13

Request:

On Bates Page 55 of the Business Case, the Company states that "by having knowledge of actual DER output, DER hosting capacity can be increased compared to using nameplate capacity assumptions, thereby enabling additional DER and energy storage interconnections."

(a) Please further describe this increase in hosting capacity enabled by AMF, specifically addressing what alternatives to name place capacity assumptions the Company will use. Are there additional ways in which AMF (without additional GMP-associated investments) increases hosting capacity? If so, please describe.

(b) Please describe any specific changes to the interconnection study process that the Company would implement following AMF rollout.

(c) Please describe any estimates or relevant data or studies that may indicate how much hosting capacity may be increased as a result of the implementation of AMF (without additional GMP investments).

Response:

a) Current interconnection analysis uses the distributed energy resource ("DER") nameplate in comparison to localized system ratings with a minimum load value. There is currently no data available to consider the timing of the DER peak to the timing of minimum load. Advanced metering functionality ("AMF") would allow for daily load cycle analysis of existing sites to develop new analysis assumptions considering the actual DER output and minimum load at the time that the DER is peaking. The following cases highlight the opportunity.

- Case 1 – Current analysis method (no time data available)
  - DER Nameplate = 10
  - DER Output = Nameplate = 10
  - System Device Rating = 7
  - Minimum Load =2
  - Hosting Capacity = 7+2 = 9
  - Hosting Capacity < DER Output = Upgrades Required

- Case 2 –11 AM with AMF Data
  - DER Nameplate = 10
  - DER Output = 9

- System Device Rating = 7
- Minimum Load =2
- Hosting Capacity = 7+2 = 9
- Hosting Capacity = DER Output = No Upgrades Required

- Case 3 –1 PM with AMF Data
  - DER Nameplate = 10
  - DER Output = 10
  - System Device Rating = 7
  - Minimum Load =3
  - Hosting Capacity = 7+3 = 10
  - Hosting Capacity = DER Output = No Upgrades Required

b) It is unlikely that any changes will be necessary to the interconnection process. AMF will provide better information that will replace assumptions that have to be made without such data.

c) The Company has not created estimates that would indicate how much hosting capacity may be increased from AMF without additional GMP investments.

OER 1-14

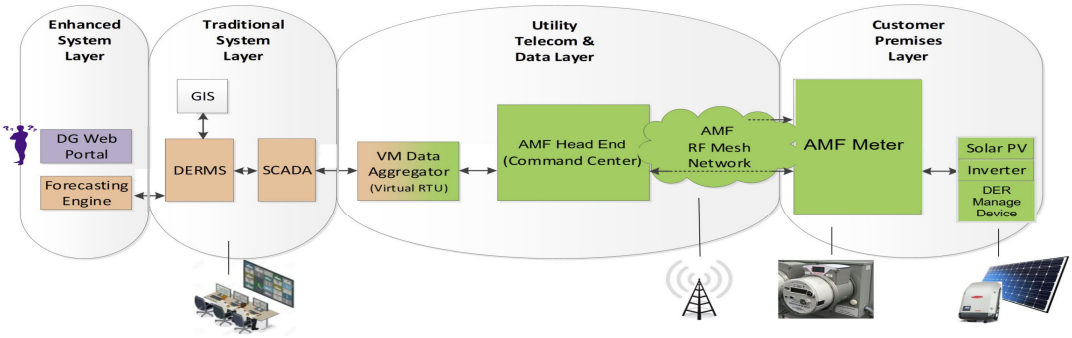
Request:

On Bates Page 51 of the Business Case, the Company states it plans to "pursue a DER Management Plan in Rhode Island contingent upon the functionality being available to support it." Please specify the functionality required to support a DER Management Plan. Please also describe key elements of the DER Management Plan the Company intends to pursue.

Response:

Attachment G of the Grid Modernization Plan ("GMP") filed in Docket No. 22-56-EL, which is found at Bates pages 271-286, describes the approach and functionality for distributed energy resources ("DER") Management where the capability is achieved through coordination with the advanced distribution management system ("ADMS") using the advanced metering functionality ("AMF") radio frequency ("RF") mesh communication network. DER Management functionality improves visibility and management of DER to offer more reliable and safer service during emergent and non-emergent conditions. Standards-compliant smart inverters that communicate with the ADMS provide remote setting configuration and emergent disconnect, which can be used to improve planning, offer operational flexibility, increase hosting capacity, improve power quality, and reduce interconnection costs. Unlike traditional inverters, smart inverters offer the ability to absorb and generate reactive power to help reduce fluctuations in the output voltage of the facility as well as help manage voltage on the distribution system. With DER Management, smart inverters also can be configured with voltage and frequency ride through functionality to avoid escalating system conditions (i.e., over-frequency conditions) and can help maintain balance of generation and load.

The elements of DER Management were included in GMP Attachment G at Bates page 284, Figure G.2: Preliminary DER Monitor/Manage Architectural Design, which is shown below. Further descriptions are set forth in the GMP at Bates pages 284 and 285.



Prepared by or under the supervision of: Philip J. Walnock and Wanda Reder