Division 6-1

Request:

RIE has stated that the 15-minute data will be brought back and used for real-time analysis. How long will it take to process the data once it is received by RIE and is available for use?

Response:

Rhode Island Energy intends to provide near real time 15-minute interval data, meaning that data will be brought back from the meter, through the network, and to the head-end system every 15-20 minutes. This raw data will then flow through the meter data management system ("MDMS") to the customer portal and be available to customers on a 30 to 45-minute delay. Billing quality data will be available within 24 hours, which includes time for the raw data to complete the Validation, Estimating, and Editing (VEE) process.

Division 6-2

Request:

In the RIE response to Division 5-1 Page 3, L&G states "Up to REDACTED of 15-minute interval data transmitted every 4 hours from all residential electric Endpoints." If data is transmitted every 4 hours, please explain how it will provide real time load data?

Response:

The quoted language in the question comes from Paragraph 7 of the Landis+Gyr Hardware Proposal Letter dated December 7, 2022, provided as Supplemental Attachment RR 1-1. This statement was an error in that letter. Intervals from both commercial and residential meters will be transmitted every 15 minutes to provide near real-time load data. The Landis+Gyr Software as a Service and Services Agreement ("SaaS Agreement") provided as Supplemental Attachment RR1-3, REQ-03088 states the AMF Head End shall receive 5 or 15-minute interval electric meter read data at 20-minute intervals. Additionally, the intent is to capture this same requirement in the proposed network installation and hardware equipment statement of work, which is currently in draft form and is in final negotiations.

Division 6-3

Request:

Is this data transmission staggered over the course of the 4-hour window? Please explain.

Response:

Please reference the Company's response to Division 6-2. The data transmission from the meters over the RF mesh network will be staggered over every 15 minutes.

Division 6-4

Request:

Will data from all meters be brought back faster than the 4 hours as stated? If so, what is this interval?

Response:

Yes, the data from all AMF meters will be brought back faster than the 4 hours as stated. Please reference the Company's response to Division 6-2, which explains that the 4 hours referenced in the December 7, 2022 Landis+Gyr Hardware Proposal Letter was an error and that intervals from both commercial and residential meters will be transmitted every 15 minutes to provide near real-time load data.

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Division 6-5

Request:

In Book 2 of 3 on Page 30, RIE states "The need to obtain real-time visibility and awareness of system conditions can be achieved in multiple ways such as using information from the AMF system in conjunction with GMP technologies." What is real-time? What information from the AMF system will be used in real-time?

Response:

In Book 2 of 3 on Page 30, Rhode Island Energy states "The need to obtain near real-time visibility and awareness of system conditions can be achieved in multiple ways such as using information from the AMF system in conjunction with GMP technologies." The language quoted in this request omitted the word "near". The Company used the word "near" to differentiate from SCADA data that is real time. AMF-sourced near real-time data is available in 15-minute increments sent over the RF mesh communication system to the back-office systems. Near real-time information is available from raw usage data and can be configured to be available upon incident. The Company's response to Division 6-1 provides a description of how fast the raw 15-minute interval data becomes available for viewing (30 to 45 minutes after meter registration). Timeliness of the data is dependent upon the RF communication network design. Rhode Island Energy has designed the RF network communications to achieve near real-time capability. Figure 5.7 in the AMF Business Case, at Book 2, Bates page 67, lists AMF functionality that uses near real-time raw data. The functionalities include customer data access, integration with in-home technologies, TVR – customer and DER, theft detection, voltage measurement, and load and voltage data. Alarms such as temperature, voltage, network alarms, Power Up and Last Gasp notifications are configurable to be brought back with the 15-minute interval data or available upon incident.

Division 6-6

Request:

Will AMF data be accumulated for circuits or for sections of a circuit? If accumulated on a circuit basis, how would AMF data compare to existing SCADA data in terms of being "real-time"? Please explain.

Response:

Please reference the Company's response to Division 6-5, which explains the availability of the near real-time AMF data compared to SCADA data. SCADA data is real-time; AMF data is near-real time.

AMF data will be accumulated both for circuits and for sections of the circuit. The AMF data will be correlated to the geographic information system (GIS) model and used with the appropriate operating and planning systems for engineering analysis and operational decisions. AMF data can be analyzed on a circuit-by-circuit or section-by-section basis and used for operations and planning purposes. By leveraging the AMF data to form a network model of near real-time information, the Company will be able to utilize the database for assessing trends, recognizing patterns, and analyzing load flows in ways that have not previously been possible. Timing of AMF analytic availability will depend upon many variables, such as the level of information that is being sought for the system, the size of the data set, computational capability, and complexity of the analysis.

Division 6-7

Request:

RIE wants to use the "last gasp" feature of the AMF meter to determine outages. Will RIE roll a truck immediately every time a meter does not communicate since this could be a comms issue, a loss of power, etc.? If not, how will RIE use the "last gasp" function? Please explain.

Response:

Rhode Island Energy will not roll a truck immediately every time a meter does not communicate. Last Gasp meter alerts are generated only when the meter experiences a loss of line side power indicating an outage at the meter. If a meter stops communicating with the RF network but is not experiencing a loss of line side power, it will not generate a Last Gasp meter alert. As the Company explained in its response to Division 3-17, "The implementation of Last Gasp meter alerts in Pennsylvania will serve as the foundation for Rhode Island Energy. The system technical plan and business process designs used in Pennsylvania will be leveraged for the Rhode Island Energy implementation." Currently in Pennsylvania, and as anticipated for Rhode Island Energy, both customer-initiated outage notifications and Last Gasp meter alerts are sent to the Outage Management System to analyze and predict the scope and location of the outage. System operators then decide where to send resources to correct the problem causing the outage.

Division 6-8

Request:

Will the "last gasp" be used to confirm outage calls rather than the first indication of an outage? If so, please explain how it will provide a 22-minute improvement in an outage?

Response:

Because Last Gasp meter alerts are sent automatically once a meter experiences loss of line side power, they are typically received before a customer-initiated outage notification. Thus, Last Gasp alerts are the first notification of an outage received by the Company rather than being used to confirm an outage. Both Last Gasp meter alerts and customer-initiated outage notifications will be sent to the Outage Management System which will define the predicted scope and location of the outage. The topic of Last Gasp meter alerts and the 22-minute analysis are discussed in several responses to Division Set 3. In the Company's response to Division 3-4, the Company discussed the calculation of the 22-minute improvement in the time to receive notification of an outage in detail. In its response to Division 3-5, the Company defined customer-initiated outage notifications and Last Gasp notifications. Finally, the Company's response to Division 3-17 states: "The implementation of Last Gasp meter alerts in Pennsylvania will serve as the foundation for Rhode Island Energy. The system technical plan and business process designs used in Pennsylvania will be leveraged for the Rhode Island Energy implementation." These responses support the Company's determination that Last Gasp meter alerts will result in a 22-minute improvement in outage notification times, which will result in a 22-minute reduction of the amount of time a customer experiences an outage.

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Division 6-9

Request:

Regarding hosting capacity, RIE's response to OER 1-13 states that "there is currently no data available to consider the timing of the DER peak to the timing of minimum load." Does RIE currently collect data from certain DG customers using MV-90 meters? Would those meters indicate the DER peak? In what instances will AMF data be used to increase hosting capacity?

Response:

As described in the Company's response to Division 4-22, there are two primary ways that Rhode Island Energy "meters" customers that have distributed energy resources ("DER") depending on the type of customer, size of the DER, and the applicable tariff.

Customers that have installed distributed generation ("DG") that is less than 25 kW use automated meter reading ("AMR") meters that are read monthly with the drive-by system. Residential customers can participate in Net Metering or the Renewable Energy Growth ("RE Growth") program (RE-Growth feed-in tariff), which have different metering requirements. Residential customers participating in Net Metering have one meter that provides a net value (kWh) of the usage and production into the billing system. Residential customers participating in the RE Growth program have two meters measuring production and usage separately. For these DER installations, Rhode Island Energy does not collect interval data from MV90 meters and therefore does not have visibility of the DER contribution. With AMF meters, the Company will gain additional visibility into these DER installations.

Commercial customers that have DG greater than 25 kW and who are retail customers use an MV90 data collection system. The Company accesses the MV90 interval data nightly using hard-wired or wireless communications. The MV90 data collection system provides 5-minute interval data that can measure bi-directionally. Commercial customers that have DG greater than 1MW and who are wholesale customers also use the MV90 system. For these DER installations, the Company does have visibility of the DER contribution.

Please see the Company's response to subpart (a) of OER 1-13 for how AMF increases hosting capacity without any increase in system capacity (which is reproduced below). Current interconnection analysis uses the 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.

o 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

o 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

Division 6-10

Request:

Can RIE develop and implement time varying rates with existing AMR meters? Please explain.

Response:

No. Rhode Island Energy is not able to fully develop and implement time varying rates ("TVR")[1] with the existing AMR meters. AMR meters refers to the presently used metering systems solution in Rhode Island to collect billing information with a "drive-by" technology (facilitated by ERTs), as indicated in the AMF Business Case at Bates page 1. There are currently 491,538 single ERT meters and 20,562 triple ERT meters that provide monthly billing readings via the AMR drive-by system. A single ERT can provide only one element of data and a triple ERT can provide only three elements of data. The existing triple ERT AMR meters that are installed on Rhode Island Energy's system are currently deployed to bring back total kWh, Peak kW and peak kVA monthly for polyphase customers.

Time varying rates require meters that either have interval reading capability or are pre-programmed with specific time of use ("TOU") channels for a simplistic TOU deployment. More complex time varying rates such as critical peak pricing ("CPP"), peak time rewards ("PTR") and variable peak pricing ("VPP") rates all require interval data, which is not available with existing AMR meters, and, therefore, cannot be used to implement these complex TVR rate structures. Using the AMR meters for TOU requires programming to capture usage that comes from on-peak and off-peak periods. A single ERT meter is incapable of being programmed to have these specific channels because it is only capable of communicating one measurement per month. A triple ERT AMR meter could be used to capture readings for on-peak, off peak and total kwh. However, the existing triple ERT meters that are currently installed are unable to do so because the measurement capability in the meters is fully utilized for polyphase billing and cannot be extended. For these reasons, the existing AMR meters that are currently in service will not support TVR of any rate structure. In addition to the single ERT AMR meters and the triple

[1] TVR as explained in Section 13 of the AMF Business Case, Book 2 at Bates pages 179-189, is where the price changes over time and is applied to volumetric or demand-based billing elements and can be used to incentivize behavior by better reflecting the actual cost of both supply and delivery service. TVR can be implemented in various forms such as Time of Use ("TOU"), Peak Time Rewards ("PTR"), Variable Peak Pricing ("VPP"), Critical Peak Pricing ("CPP") and more.

ERT AMR meters, the Company also currently has some interval meters in service. These interval meters are read in various ways other than with "drive-by" technology, and therefore are not AMR meters. These are the meters currently in use for the 1083 enrolled customers (effective Feb. 2023) currently enrolled in TOU rates. Although these interval meters technically could have the capability of capturing and storing the data to calculate and apply more complex TVR structures, the logistical challenges with retrieving and processing the data from these interval meters make it impractical to fully develop TVR using these interval meters, and, in any event, they represent only a *de minimus* portion of the current meter population.

Although TOU can hypothetically be implemented with AMR, it could only be achieved through a meter exchange upgrade to a triple ERT AMR meter and specialized programming that would need to be manually changed if the time blocks are altered in the future. Because of this effort and the limitation of AMR meters to deliver only simplified TOU rates, the Company does not believe that TOU with AMR is practical today or beneficial in the future as reflected by an analysis of the related benefits that were captured in the AMF BCA. The TVR benefits in the AMF Business Case were developed for Whole House and EV considering joint application of Time Of Use (TOU) & Critical Peak Pricing (CPP) rates for a residential customer as explained in Section 13.1 of the AMF Business Case at Bates pages 190-192 and summarized in the chart below.

	Nominal ($M)		NPV ($2022M)	
Electric Vehicle CPP	$	106.09	$	75.45
Electric Vehicle TOU	$	6.35	$	4.01
Whole House CPP	$	104.38	$	76.81
Whole House TOU	$	10.72	$	7.32
Total CPP	$	210.47	$	152.26
Total TOU	$	17.07	$	11.33

A comparative analysis can be done using the information in the chart above to better understand the relative benefit of CPP to TOU. Note that the total nominal benefit from CPP is over 12 times that of TOU and even greater comparing the relative benefit of CPP to TOU on an NPV basis. Significant AMF benefit can be realized when the AMF interval data is applied to variable pricing, which will be necessary to shift demand dynamically. This benefit would be sacrificed by using AMR for a simplistic TOU deployment that is incapable of being scaled in the future to dynamically manage load and effectively integrate distributed energy resources ("DER") on the electric distribution system.

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