

Jennifer Brooks Hutchinson
Senior Counsel
PPL Services Corporation
JHutchinson@pplweb.com

280 Melrose Street
Providence, RI 02907
Phone 401-784-7288



May 15, 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 Mission:data Coalition Data Requests – MDC Set 2**

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 Mission:data Coalition’s Second 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,

A handwritten signature in blue ink, appearing to read "Jennifer Brooks Hutchinson", with a long horizontal line extending to the right.

Jennifer Brooks Hutchinson

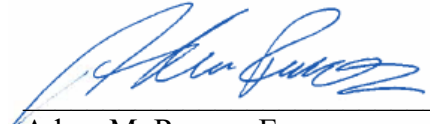
Enclosures

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 15th day of May, 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 4/17/2023

Name/Address	E-mail Distribution List	Phone
The Narragansett Electric Company d/b/a Rhode Island Energy Jennifer Hutchinson, Esq. 280 Melrose Street Providence, RI 02907	JHutchinson@pplweb.com ;	401-784-7288
	JScanlon@pplweb.com ;	
	COBrien@pplweb.com ;	
	CAGill@RIEnergy.com ;	
	JOliveira@pplweb.com ;	
	BLJohnson@pplweb.com ;	
	SBriggs@pplweb.com ;	
	KGrant@RIEnergy.com ;	
	wanda.reder@gridxpartners.com ;	
Hinckley Allen Adam Ramos, Esq. 100 Westminster Street, Suite 1500 Providence, RI 02903-2319	aramos@hinckleyallen.com ;	401-457-5164
	cdieter@hinckleyallen.com ;	
	cwhaley@hinckleyallen.com ;	
	ssuh@hinckleyallen.com ;	
Division of Public Utilities (Division) Leo Wold, Esq. Christy Hetherington, Esq. Division of Public Utilities and Carriers 89 Jefferson Blvd. Warwick, RI 02888	Leo.Wold@dpuc.ri.gov ;	401-780-2177
	Christy.Hetherington@dpuc.ri.gov ;	
	Margaret.L.Hogan@dpuc.ri.gov ;	
	John.bell@dpuc.ri.gov ;	
	Al.contente@dpuc.ri.gov ;	
	Joel.munoz@dpuc.ri.gov ;	
	Linda.George@dpuc.ri.gov ;	
	Ellen.golde@dpuc.ri.gov ;	
Machaela.Seaton@dpuc.ri.gov ;		

	Al.mancini@dpuc.ri.gov ;	
	Paul.Roberti@dpuc.ri.gov ;	
	Thomas.kogut@dpuc.ri.gov ;	
	John.spirito@dpuc.ri.gov ;	
Mike Brennan	mikebrennan099@gmail.com ;	
Robin Blanton	robin.blanton@ieee.org ;	
William Watson	wfwatson924@gmail.com ;	
David Littell	dlittell@bernsteinshur.com ;	
Gregory L. Booth, PLLC 14460 Falls of Neuse Rd. Suite 149-110 Raleigh, NC 27614	gboothpe@gmail.com ;	
Linda Kushner L. Kushner Consulting, LLC 514 Daniels St. #254 Raleigh, NC 27605	lkushner33@gmail.com ;	
Office of Attorney General Nick Vaz, Esq. 150 South Main St. Providence, RI 02903	nvaz@riag.ri.gov ;	401-274-4400 x 2297
	mbedell@riag.ri.gov ;	
Office of Energy Resources (OER) Albert Vitali, Esq. Dept. of Administration Division of Legal Services One Capitol Hill, 4 th Floor Providence, RI 02908	Albert.Vitali@doa.ri.gov ;	401-222-8880
	nancy.russolino@doa.ri.gov ;	
	Christopher.Kearns@energy.ri.gov ;	
	Shauna.Beland@energy.ri.gov ;	
	Matthew.Moretta.CTR@energy.ri.gov ;	
	Anika.Kreckel@energy.ri.gov ;	
	Steven.Chybowski@energy.ri.gov ;	
	Nathan.Cleveland@energy.ri.gov ;	
	William.Owen@energy.ri.gov ;	
Mission:data Coalition James G. Rhodes, Esq. Rhode Consulting LL 160 Woonsocket Hill Rd. North Smithfield, RI 02896	james@jrhodeslegal.com ;	401-225-3441
George Wiley Center Jennifer L. Wood, Executive Director R.I. Center for Justice 1 Empire Plaza, Suite 410	jwood@centerforjustice.org ;	
	georgewileycenterri@gmail.com ;	

Providence, RI 02903	camiloviveiros@gmail.com ;	
NRG Retail Companies Craig Waksler, Esq. Eckert Seamans Cherin & Mellott, LLC Two International Place, 16 th Floor Boston, MA 02110	CWaksler@eckertseamans.com ;	617-342-6890
	Kmoury@eckertseamans.com ;	717-237-6000
	sstoner@eckertseamans.com ;	
Conservation Law Foundation (CLF) James Crowley, Esq. Conservation Law Foundation 235 Promenade Street Suite 560, Mailbox 28 Providence, RI 02908	jcrowley@clf.org ;	401-228-1905
	mcurran@clf.org ;	
Original & 9 copies file w/: Luly E. Massaro, Commission Clerk Public Utilities Commission 89 Jefferson Blvd. Warwick, RI 02888	Luly.massaro@puc.ri.gov ;	401-780-2107
	Cynthia.WilsonFrias@puc.ri.gov ;	
	Alan.nault@puc.ri.gov ;	
	Todd.bianco@puc.ri.gov ;	
	Emma.Rodvien@puc.ri.gov ; Christopher.Caramello@puc.ri.gov ;	
Interested Parties:		
Victoria Scott (GOV)	Victoria.Scott@governor.ri.gov ;	
Seth Handy, Esq.	seth@handylawllc.com ;	
Stephan Wollenburg	swollenburg@seadvantage.com ;	
Mary McMahon	mmcmahon@seadvantage.com ;	
Jim Kennerly	jgifford@seadvantage.com ;	
Amy Moses	amoses@utilidata.com ;	
Amy Boyd, RI Director, Acadia Center	aboyd@acadiacenter.org ;	401-276-0600
Oliver Tully, Acadia Center	otully@acadiacenter.org ;	
Amanda Barker	amanda@greenenergyconsumers.org ;	
Larry Chretien	larry@greenenergyconsumers.org ;	
Nancy Lavin	nlavin@rhodeislandcurrent.com ;	

In Re: Rhode Island Energy Advanced Metering Functionality Business Case and
Cost Recovery Program
Responses to Mission:Data Coalition's Second Set of Data Requests
Issued on April 24, 2023

MDC 2-1

Request:

Does RI Energy or its affiliates have any experience deploying Distributed Intelligence (DI) capable advanced meters? If so, please provide:

- a. Description of hardware and software vendors were used.
- b. Identification as to how many software applications ("apps") it deployed onto each meter.
- c. Documentation concerning material software or deployment errors or malfunctions that resulted in additional, unplanned costs to remedy.
- d. What fees, if any, the DI platform provider charged to third-party software developers to test or deploy apps.

Response:

(a) through (d)

No. Neither Rhode Island Energy nor any of its affiliates have experience deploying Distributed Intelligence ("DI") capable meters. DI meters, capable of having internal computing capacity to perform a variety of functions and analysis at the grid-edge, are a new and emerging technology with an embedded grid-edge computing platform. This innovation enables a range of use cases not possible with the previous generation of advanced metering infrastructure ("AMI") used in Pennsylvania and Kentucky unlocking new value for customers and the Company. The grid-edge computing platform mitigates technology obsolescence risk by enabling new benefits and expanding AMI functionality that can be incorporated over time through software updates rather than through additional hardware or costly infrastructure solutions. A few deployments have just begun across the United States, such as National Grid USA's deployments, which recently received approval to proceed with DI-capable meters for their service territories in New York and Massachusetts.

In Re: Rhode Island Energy Advanced Metering Functionality Business Case and
Cost Recovery Program
Responses to Mission:Data Coalition's Second Set of Data Requests
Issued on April 24, 2023

MDC 2-2

Request:

Please provide the technical specifications by which a meter-based software app can query data from the meter. What information is accessible to apps (voltage, current, power, waveform details, etc.) and with what frequency (once per second, a thousand times per second, ten thousand times per second, etc.)?

Response:

The technical specifications for the Landis+Gyr Revelo meter - the type of meter being proposed for Rhode Island - were provided in the response to record request PUC RR-2. A Revelo product specification sheet can be found here at the following link and is also being provided as Attachment MDC 2-2:

<https://www.landisgyr.eu/webfoo/wp-content/uploads/2020/01/Meet-Revelo-IoT-Grid-Sensing-Meter-5.1.pdf>

Meter-based software application data query is a future capability that will be supported by a software development toolkit. Although not finalized, Rhode Island Energy anticipates that it will follow a similar approach to that being taken by National Grid USA ("National Grid") in New York and Massachusetts to facilitate the proper treatment of applications that are installed on meters while protecting customer privacy and security. The approach was defined in National Grid's Advanced Metering Infrastructure ("AMI") Grid-Edge Computing Report that was published for the State of New York on March 21, 2022, which indicates, "At the data layer, the grid-edge computing platform provides raw, high-resolution (i.e., on the order of magnitude of kHz) current and voltage readings. That raw data could be processed by a set of value-added analytics, enabling sharing of synthesized data and intelligence through the grid-edge computing platform. Distributed computing applications could then be built on top of the raw data, or the synthesized intelligence. Such applications may also leverage additional capabilities in the meter, such as the Wi-Fi radio for real-time data access or to connect with behind-the-meter smart devices."

Meet Revelo[®]

The IoT Grid Sensing Meter



The Revelo metering family is the industry's first IoT grid sensing electric meters benefiting both utilities and their customers. Demands on the grid edge are changing – today's energy consumers want more insight and control to manage energy better. Enhanced reliability, safety, and the growing adoption of distributed energy resources (DER) require more than traditional meter-to-cash capabilities. Revelo is a true grid sensor, providing unprecedented insight and control through industry-leading waveform data technology, offering superior edge computing capabilities and a greater ability to sample, process, store, and deliver data to the right places in real-time.

FEATURES

- High resolution current and voltage streaming to an integrated Edge Intelligence Card
- Gridstream[®] Connect App OS enabled sensor
- Communications flexibility
- E360 available in 200 amp and 320 amp disconnect to facilitate residential growth in load due to electrical vehicle chargers, heat pumps, etc.
- E660 available in wide voltage (120-480V) without a disconnect switch for C&I use.
- Millisecond resolution network time to aid phase and grid anomaly detection
- Micro arc sensing for early detection of hot socket conditions
- Wi-Fi Certified and internet enabled open application ecosystem with third-party and utility partner application creation potential
- Enhanced power quality and richer harmonics measurement
- High-resolution billing system (ready for the future of transactive energy)
- Wi-SUN certified to enable the future of Wireless Smart Utility Network interoperability

Revelo® – The IoT Grid Sensing Meter

PRODUCT SPECIFICATIONS

GENERAL	
Metering Features	<ul style="list-style-type: none"> Standard Active and Reactive Metrics Time-of-Use with perpetual Calendar Load Profile <ul style="list-style-type: none"> 2 independent recorders 16 channels per recorder, 32 channels total 2MB of interval memory with configurable allocation between recorders Energy, demand, and PQ channel sources Tamper Detection Features <ul style="list-style-type: none"> Cover removal switch Magnet tamper sensor Meter removal and insertion detection Meter inversion detection Safety Related Features <ul style="list-style-type: none"> Multi-sensor temperature monitoring Micro-arc sensor Meter orientation change detection Form 2S virtual neutral for improved load-side voltage monitoring
E360 SERVICE DISCONNECT SPECIFICATIONS	
200 Amp Disconnect	<ul style="list-style-type: none"> 10,000 operations at 200 Amps <ul style="list-style-type: none"> 5,000 open/close cycles (10,000 operations) Available Forms: 1S, 2S, 12S, 25S
320 Amp Disconnect	<ul style="list-style-type: none"> 6,000 operations at 320 Amps <ul style="list-style-type: none"> 3,000 open/close cycles (6,000 operations) Available Forms: 2SE
PERFORMANCE SPECIFICATIONS	
Accuracy Class	ANSI C12.1 Class 0.2%
Voltage Accuracy	+/- 0.2% typical
Frequency	Rated accuracy across 50Hz and 60 Hz +/- 5%
Starting Load	<ul style="list-style-type: none"> Class 20: 5 mA Class 100: 20 mA Class 200: 40 mA Class 320: 80 mA
Operating Temperature	-40C to +85C under the cover
Humidity	Up to 95% relative humidity, non-condensing
Design Life	20+ years
Over Voltage Withstand	Temporary (1/2 sec) 150% rated voltage Continuous (5 hours) 130% rated voltage
Voltage Burden	< 5.0 W max
Nominal E360 Voltage	<ul style="list-style-type: none"> E360 Form 2S-SD / 2SE-SD: 240 VAC (line-to-line) E360 Form 1S-SD: 120V VAC (line-to-neutral) E360 Form 12S-SD / 25S-SD: 120 VAC (line-to-neutral)
Nominal E660 Voltage	All E660 forms 120 – 480 VAC

AVAILABLE FORMS			
E360 Self-contained (S-Base)	2S-SD, 2SE-SD, 1S-SD, 12S-SD, 25S-SD		
E660 Self-contained (S-Base)	1S, 2S, 2SE, 12S, 12SE, 16S, 16SE		
E660 Transformer Rated	3S, 4S, 5/45S, 6/36S, 9S		
COMMUNICATIONS			
	Technology	Speeds	Output Power
Series 6 RF	IEEE 802.15.4-2015 900 MHz FSK/OFDM	50–2400 kbps	500 mW Max
Wi-Fi Certified	Certification ID: WFA118337	Up to 72.2 Mbps	32mW Max
Optical Port	ANSI C12.18	9600–38400 bps	N/A
EDGE INTELLIGENCE			
Operating System	Landis+Gyr Linux with App OS sandbox environment		
Streaming Sensor Data	<ul style="list-style-type: none"> 14.6 kHz sampled voltage and current waveform data 100ms aggregate metrology and sensor data 		
SECURITY			
Encryption	256-bit AES		
Wi-Fi	WPA2 & WPA3		
Digital Image Signing	Signature validation for all firmware and application images		
Physical Hardening	Port security and Data at Rest Encryption		
APPLICABLE STANDARDS			
ANSI C12.1	Code For Electricity Metering		
ANSI C12.10	Physical Aspects Of Watthour Meters - Safety Standard		
ANSI C12.18	Protocol Specification for ANSI Type 2 Optical Port		
ANSI C12.19	Utility Industry End Device Data Tables		
ANSI C12.20	American National Standard for Electricity Meters—0.1, 0.2, and 0.5 Accuracy Classes		
UL 2735	UL Standard for Safety Electric Utility Meters		

GET IN TOUCH.

For more information and nationwide warranty terms, visit us at landisgyr.com or call us at 888-390-5733.



LET'S BUILD A BRIGHTER FUTURE TOGETHER

Since 1896, Landis+Gyr has been a global leader of energy management solutions. We've provided more than 3,500 utility companies all over the world with the broadest portfolio of products and services in the industry. With a worldwide team of 1,300+ engineers and research professionals, as well as an ISO certification for quality and environmental processes, we are committed to improving energy efficiency, streamlining operations, and improving customer service for utility providers.

In Re: Rhode Island Energy Advanced Metering Functionality Business Case and
Cost Recovery Program
Responses to Mission:Data Coalition's Second Set of Data Requests
Issued on April 24, 2023

MDC 2-3

Request:

- a. What restrictions, if any, will third-party software applications have regarding the use of the meter's WIFI system? For example, will RI Energy-developed DI software applications have full WIFI access whereas third party-developed DI software applications will have limited or no WIFI access?
- b. Will RI Energy limit or prohibit DI software applications from communicating over the customer's WIFI network to a remote server not controlled by RI Energy? Why or why not?

Response:

- a. and b.

Rhode Island Energy has not finalized the details around the grid edge computing approach. The approach the Company will use for third-party software application access, the use of the meter's WIFI system, and use of a remote server that is not controlled by Rhode Island Energy needs to comply with the Company's Data Privacy and Governance Policy, which is included in Attachment G of the AMF Business Case and will be further defined as platform capabilities through grid-edge computing take shape, which will guide requirements for third-party software applications' use of the meter WIFI system. The Company is committed to protecting customers' privacy. Toward this end, the Company will collect, process, retain, use, and disclose smart meter energy usage data only: (a) for Rhode Island Energy's utility-related business purposes, or (b) as specified by a customer's express consent to disclose such information to a third-party using secure transfer protocols. There are many factors to consider given the sensitive nature of energy usage data that will be available on the platform, such as customer privacy and security. Likewise, access for all application developers to the grid-edge computing development platform will be governed by the advanced metering functionality ("AMF") vendor to ensure any grid-edge computing applications do not affect the Meter Engine metrology or otherwise create a cybersecurity vulnerability.

In Re: Rhode Island Energy Advanced Metering Functionality Business Case and
Cost Recovery Program
Responses to Mission:Data Coalition's Second Set of Data Requests
Issued on April 24, 2023

MDC 2-4

Request:

Will a customer be able to select a particular app s/he wishes to have downloaded and installed onto their advanced meter? Why or why not?

Response:

The details around how customers select apps have not been finalized. The vision is that a customer will be able to select an app that has been fully approved and loaded for use in the app store to have it downloaded and installed on the meter by the Company. There will be a series of approvals that involve the Company and the AMF provider at a minimum before an app will be made available.

In Re: Rhode Island Energy Advanced Metering Functionality Business Case and
Cost Recovery Program
Responses to Mission:Data Coalition's Second Set of Data Requests
Issued on April 24, 2023

MDC 2-5

Request:

What conflict of interest provisions guide RI Energy's actions if it sought to purchase DI software apps made by the Company's regulated or unregulated affiliates and sought to recover those costs in rates?

Response:

The Company is not aware of any existing conflict of interest policies or provisions that specifically address the hypothetical scenario set forth in the question. As stated in the response to question MDC 2-1, Distributed Intelligence is an emerging technology and marketplace, and the Company does not currently have Distributed Intelligence on its meters in Pennsylvania and Kentucky.

Notwithstanding the above, the Rhode Island affiliate rules, set forth in R.I. Gen. Laws §§ 39-3-28 through 39-3-30, and PPL Corporation's ("PPL") cost allocation methodology, together with general ratemaking principles, generally govern transactions with affiliates and may apply to the hypothetical future scenario described in the question.

Rhode Island General Laws § 39-3-28 requires the Company to file with the Rhode Island Division of Public Utilities and Carriers ("Division") "any contract or arrangement . . . the consideration of which exceeds five hundred dollars (\$500) . . . entered into between a public utility and an affiliate providing for the furnishing of managerial, supervisory, construction, engineering, accounting, purchasing, financial, or any other services, either to or by a public utility or an affiliate." See R.I. Gen. Laws § 39-3-28. The Division has the power and authority to investigate "any contract, arrangement, purchase, or sale, and if the [D]ivision, after notice and hearing, shall find the contract, arrangement, purchase, or sale to be unjust or unreasonable, the [D]ivision may make such reasonable order relating thereto as the public good requires." See R.I. Gen. Laws §39-3-30. The Company has the burden to prove the reasonableness of any contract, arrangement, purchase, or sale with, from, or to an affiliate, and if the Company fails to meet its burden, the Division may disapprove the transaction, or disallow the payments. Section 39-3-30 further provides that any payments disallowed by the Division may not be "capitalized or included as an operating cost of the public utility in the fixing of rates or as an asset in fixing a rate base." *Id.*

In addition, the PPL Cost Allocation Manual, which is based on FERC accounting rules and guidelines explains the basis and sources for allocations. The Cost Allocation Manual states,

In Re: Rhode Island Energy Advanced Metering Functionality Business Case and
Cost Recovery Program
Responses to Mission:Data Coalition's Second Set of Data Requests
Issued on April 24, 2023

The following Guidelines for Cost Allocations and Affiliate Transactions (Guidelines) are intended to provide guidance to jurisdictional regulatory authorities and regulated utilities and their affiliates in the development of procedures and recording of transactions for services and products between a regulated entity and affiliates. The prevailing premise of these Guidelines is that allocation methods should not result in subsidization of non-regulated services or products by regulated entities unless authorized by the jurisdictional regulatory authority. These Guidelines are not intended to be rules or regulations prescribing how cost allocations and affiliate transactions are to be handled. They are intended to provide a framework for regulated entities and regulatory authorities in the development of their own policies and procedures for cost allocations and affiliated transactions. Variation in regulatory environment may justify different cost allocation methods than those embodied in the Guidelines.

In Re: Rhode Island Energy Advanced Metering Functionality Business Case and
Cost Recovery Program
Responses to Mission:Data Coalition's Second Set of Data Requests
Issued on April 24, 2023

MDC 2-6

Request:

In what cases would RI Energy seek to obtain the customer's permission prior to downloading a DI software app to the customer's meter?

Response:

Rhode Island Energy has not finalized the details around how customers will select and receive apps. The vision is that, for customer facing applications, the customer will be requesting the app so permission to download the app would be provided as a part of that request.