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June 25, 2015

Via Electronic Mail and Hand Delivery

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

Re: Docket No. 4513 – Revised Street Light Metering Pilot Proposal

Dear Ms. Massaro:

Enclosed for filing in the above-referenced matter are an original and nine (9) copies of:

1. The Narragansett Electric Company d/b/a National Grid's (National Grid or the Company) Responses to the Rhode Island Public Utilities Commission's Second Set of Data Requests Directed to National Grid (Issued June 11, 2015); and
2. National Grid's Responses to the Rhode Island Public Utilities Commission's Third Set of Data Requests Directed to National Grid (Issued June 12, 2015).

Thank you for your attention to this filing. If you have any questions, please feel free to contact me at (401) 457-5164.

Very truly yours,

A handwritten signature in blue ink, appearing to read 'Adam M. Ramos'.

Adam M. Ramos

AMR:cw
Enclosures

cc: Karen Lyons, Esq.
Docket No. 4513 Service List (electronically only)

▶ ALBANY ▶ BOSTON ▶ CONCORD ▶ HARTFORD ▶ NEW YORK ▶ PROVIDENCE

HINCKLEY, ALLEN & SNYDER LLP, ATTORNEYS AT LAW

PUC 2-1

Request:

In the revised pilot, National Grid discusses the laboratory testing of the metering technology. Will the laboratory testing be robust enough to assess the accuracy of the metering technologies tested in order to meet the Division of Public Utilities' and Carriers regulations governing meter accuracy and testing absent the participation of a municipality?

Response:

No, the laboratory testing will not be robust enough to assess the accuracy of the metering technologies absent the participation of a municipality. To get a complete assessment of meter accuracy, the Company must stress test the metering technology. It is necessary to include a municipality to perform this stress test. It is also necessary to include a municipality to permit assessment of the accuracy of metering technology from multiple manufacturers.

The Company understands the definition of "metering technology" to include the following unique elements:

- (1) the energy measurement device (integrated circuit meter or "chip"),
- (2) the ancillary electronics within each device or node to promote the required support of the metering device during emergency conditions,
- (3) the proprietary wireless communication electronics (or communications board) contained within each device or node,
- (4) the criteria and performance characteristics of the proprietary wireless system including all necessary electronic support infrastructure (backhauls, collection devices, communication interfaces, etc.),
- (5) the proprietary service provider's front-end server interface and management system.

A real world stress test in a municipality is necessary to understand all the variables that will be encountered during a full implementation of a complete system from the design, commissioning, and operation of that system. Including a municipality in the pilot will allow the Company to manage and test the results of dropped meter communications, missed reads, re-reads, and other situations to determine the impact on the billing system.

PUC 2-1, page 2

As referenced in sections 5.2, 5.3, 6.5 and 7.1 of the revised Street Light Meter Pilot Proposal, the laboratory test plan will conform to Division and industry standard testing protocols for this type of meter application. The nodes to be laboratory tested will be the same as those proposed for field test applications. While the field testing applications in the DOT pilot propose to test only the different node manufacturers that comply with the respective communication systems, the laboratory testing proposes to test approximately three separate integrated circuit meter manufacturers, with each potentially providing the 2% and 0.5% accuracy grades. The following table identifies the products proposed to be tested at the time of the filing of the revised pilot proposal.

Field Application	Communication Service Provider	Node Manufacturer	IC Meter Manufacturer	Meter Accuracy
DOT Phase 1	Cimcon	Cimcon	Cirrus Logic	2% & 0.5%
DOT Phase 2	Cimcon	Cimcon	Cirrus Logic	2% & 0.5%
DOT Phase 3	Cimcon	Cimcon	Cirrus Logic	2% & 0.5%
Municipality	Silver Spring	Cimcon	Cirrus Logic	2% & 0.5%
Municipality	Silver Spring	Sunrise Technologies	Analog Devices	2% & 0.5%
Municipality	Silver Spring	SELC	ST Microelectronics	2% & 0.5%

Testing multiple IC meter manufacturers' products will enable the Company to gain knowledge and awareness of variable product accuracy, reliability and general quality of each accuracy grade. This information and awareness of product quality, metering limitation and/or accuracy variation performance is critical in assessing the metering technology for the purpose of street lighting energy consumption billing.

There are numerous other IC meter manufacturers. Only one service provider and meter manufacturer is in use in the DOT projects. The Company proposes to use a single communication service provider within the municipality that will allow it to assess the meter accuracy in real world conditions for three different IC meter manufacturers. Under the statute permitting municipalities to purchase their street lights, there are no restrictions on what manufacturers the municipalities purchase. Thus, it is critical that National Grid assess multiple manufacturers.

PUC 2-2

Request:

Where the DOT streetlights are metered, will the DOT pilot provide sufficient information to compare "real world" meter accuracy absent the participation of a municipality in a pilot?

Response:

The integrated circuit meter or meter chip accuracy will be achieved through the performance of the laboratory testing portion of the pilot.

The Company removed a comparative accuracy assessment of individual IC meters against ERT meters from the pilot based upon the recommendation of the Division's consultant, Mr. Hahn, as referenced on page 2 of his filed memorandum, dated January 7, 2015.

The Company recognizes that the DOT pilots will provide relative energy consumption measurement comparisons of multiple IC meters to an individual ERT meter. These comparisons will evaluate the aggregation of individual IC meter readings per luminaire against the street light circuit's energy consumption reading at the ERT meter over an established period. This comparison will not provide any significant assessment of meter accuracy for either technology other than the general comparison of total energy consumption over the bill cycle.

A real world stress test in a municipality, however, would provide much more information and a better understanding of all the variables that will be encountered during full implementation of a complete system from the design, commissioning, and through the operation.

PUC 2-3

Request:

Will the DOT pilot (all three phases) provide National Grid with sufficient information to assess billing system integration?

Response:

The DOT pilots are planned to provide real energy consumption data to be made available to the Company through the service provider's head-end data management system, as referenced in section 8.4 of the pilot proposal. These installations will not provide sufficient information for the Company to determine any necessary changes to its billing systems.

The DOT pilots use a single, proprietary communication service provider (Cimcon), which uses a single compatible node device. The minimally acceptable threshold for this pilot's assessment of billing system integration must include analysis and evaluation of: (1) individual node performance, (2) quality, reliability, and security of the communication system, and (3) the functionality of the head-end software, (which, as a whole, is necessary to assess the integration requirements with the Company's meter data management and billing systems). Depending on who ultimately owns the metering technology, the Company may have no control over the systems that are chosen or procured by the various municipalities. To prepare for this possibility, the Company must do a baseline study of multiple vendors to determine how to manage multiple proprietary systems operating independently.

Using multiple proprietary communication service providers to understand and develop acceptable interface architecture standards for the Company's systems would accommodate the potential broad range of proprietary systems. However, in consideration of scope and cost constraints of the pilot, the Company proposed to analyze the two communication service providers (Cimcon and Silver Spring) to provide intelligence on the difference between the network systems and variable nature of the interface required to facilitate the accurate and timely receipt of meter data.

Although responsibility for the communication network has been discussed and agreed upon to be the responsibility of the system owner or contracted service provider, the Company must consider the potential impacts of daily natural events and restrictions, which have a greater likelihood of impacting the communication network within a municipal environment rather than the cleared right-of-way in an interstate environment. Analysis of these individual and uncertain impacts to data communications is necessary for the Company to understand and recognize the frequency and magnitude of these events and the ability of the systems to remedy the problems to accommodate an accurate billing data solution.

The Narragansett Electric Company
d/b/a National Grid
RIPUC Docket No. 4513
In Re: Street light Metering Pilot Proposal
Responses to Commission's Second Set of Data Requests
Issued June 12, 2015

PUC 3-1

Request:

Please update the Pilot Cost Estimate assuming that the Pilot moves forward with DOT Phases 1 through 3, but without the participation of a municipality.

Response:

The proposed cost estimate below includes an assumption that the Pilot moves forward with DOT Phases 1 through 3, but without participation of a municipality. Additionally, based on the DOT Phase 3 deployment information that the OER submitted to the Company during a meeting on June 11, 2015, the Company has assumed that the DOT will have commissioned the Cimcon control system to be in-service at the time of the pilot. Therefore, the Company has represented no costs associated with the implementation of an alternate communication service provider or the associated hardware for DOT Phase 3, as originally proposed.

The Narragansett Electric Company Street Light Metering Pilot Proposal Docket No. 4513 Revised Cost Estimate - Data Request 3-1						
	<u>Task Function</u>	<u>Labor</u>	<u>Materials</u>	<u>Contract</u>	<u>SubTotal</u>	<u>Comments</u>
Corporate						
	Project Management	\$85,000			\$85,000	Project Performance, Budget, Schedule, Reporting, Vendor Mgmt.
	Administrative & General	\$25,000			\$25,000	Legal, Procurement, Clerical, Expenses
	Pacific Northwest National Laboratories (PNNL)			\$0	\$0	
					\$110,000	
Stage 1 - Phase 1						
	Individual Meter Testing - TESCO			\$86,000	\$86,000	Preliminary Vendor Quote
	Meter Farm Testing - TESCO			Included		
					\$86,000	
Stage 1 - Phase 2						
	DOT Phase 1 (Exit 7)			\$0	\$0	DOT Project - Cimcon
	DOT Phase 2 (I-295)			\$0	\$0	DOT Project - Cimcon
	DOT Phase 3 (Park & Ride)			\$0	\$0	DOT Project - Cimcon
	Installation				\$0	
	Removal				\$0	
	Cimcon Network Services			\$0	\$0	MOU Agreement - DOT Contract
	RI Municipality (TBD - Single)			\$0	\$0	Deleted from pilot scope
	Installation				\$0	
	Removal				\$0	
					\$0	
Stage 2 - Phase 1						
	Information Systems Studies	\$45,000			\$45,000	Company/Contractor IS Services
					\$45,000	
Stage 2 - Phase 2						
	Billing Comparison Study	\$5,000			\$5,000	Company Regulatory Billing
					\$5,000	
		\$160,000	\$0	\$86,000		
					\$246,000	Pilot Total

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.

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

June 25, 2015
Date

**Docket No. 4513 - National Grid – Streetlight Metering Pilot Proposal
Service List updated 4/9/15**

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