Raquel J. Webster
Senior Counsel

December 29, 2014

BY HAND DELIVERY & ELECTRONIC MAIL

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

RE: Docket No. 4513 - Street light Metering Pilot Proposal
Response to Division's Data Requests – Set 1

Dear Ms. Massaro:

I have enclosed National Grid's[1] responses to the Rhode Island Division of Public Utilities and Carriers' (the Division) First Set of Data Requests in the above-referenced docket. Please note that the Company has not included a response to Division 1-8. The Company has discussed this data request with Counsel for the Division, who has indicated that a response to Division 1-8 is not necessary at this time.

Thank you for your attention to this matter. If you have any questions regarding this filing, please contact me at (781) 907-2121.

Very truly yours,

Raquel J. Webster

Enclosure

cc: Docket 4513 Service List
Steve Scialabba
Karen Lyons, Esq.

[1] The Narragansett Electric Company d/b/a National Grid (National Grid or the Company).

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Docket No. 4513 - National Grid – Streetlight Metering Pilot Proposal
Service List updated 10/30/14

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Division 1-1

Request:

The following questions pertain to a PDF file filed by NGRID on 12/10/2014 named "4513-NGrid Testimony (PUC 12-10-14).pdf"

PDF page 52 provides a project schedule. Please identify the stage and phase of the pilot project for each line item in the schedule.

Response:

Project Schedule Item	Associated Project Stage / Phase
Regulatory Approval	Start-up
Project Management Initiation	Start-up
Municipal Participation Meetings	Stage 1, Phase 1
Municipal MOU Agreement Development	Stage 1, Phase 2
Municipal MOU Agreement Execution	Stage 1, Phase 2
Consultant Agreement Development	Start-up
Consultant Agreement Execution	Start-up
Silver Spring Services Procurement Agreement	Start-up
The Eastern Specialty Company Service Procurement Agreement	Stage 1, Phase 1
Meter Node Procurement Process	Start-up
LED Luminaire Procurement Process	Start-up
Meter Qualification Test Data Review	Stage 1, Phase 1
Municipal Lighting Study Design	Stage 1, Phase 2
Meter Field Trail Design	Stage 1, Phase 2
Communication Network Design	Stage 1, Phase 2
Meter Node Material Delivery	Start-up
Light Emitting Diode (LED) Luminaire Material Delivery	Start-up
Laboratory Meter Testing	Stage 1, Phase 1
Communication Network Deployment	Stage 1, Phase 2
Luminaire/Meter Node Deployment	Stage 1, Phase 2
Communication Network Commissioning	Stage 1, Phase 2
Central Management System Commissioning	Stage 2, Phase 1
Comparative Meter Testing	Stage 2, Phase 2
Pilot Test – Luminaire/Meter Operations	Stage 1, Phase 2
Network Billing Interface Assessment	Stage 1, Phase 2

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Div. 1-1, page 2

Meter Test Results Summary	Stage 2, Phase 1
Metered/Unmetered Analysis	Stage 2, Phase 2
Summary Documentation / Final Report	Completion/Pilot Closure
Pilot Decommissioning / Equipment Removal	Completion/Pilot Closure

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Division 1-2

Request:

PDF page 53 provides a project budget. Please provide a detailed breakdown of the budget by the stage and phase of the pilot project. Specify how many LED luminaires are being installed by $360,000 and the installation cost of $800,000. Also describe in detail the basis for the $1,000,000 cost in equipment removal, including but not limited to a description and quantity of the equipment being removed.

Response:

The table below provides the detail behind the cost estimate assuming Company ownership of the luminaire equipment.

Cost Estimate Category (Company Luminaire Equipment)	Pilot Estimate ($000)	Stage 1 ($000)		Stage 2 ($000)	
		Phase 1	Phase 2	Phase 1	Phase 2
Project Management	$200	$20	$100	$40	$40
Laboratory Testing Services	$100	$100			
Communications Network (SSN)	$300	$100	$200		
Materials – Control Device Nodes	$150	$25	$125		
Materials – LED Luminaires	$360		$360		
Materials – Ancillary Equipment	$20		$20		
Equipment Installation	$800		$800		
Equipment Removal	$1,000		$1,000		
Information Systems Studies	$100			$100	
Administrative & General	$50	$5	$30	$5	$10
Subtotals	$3,080	$250	$2,635	$145	$50

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Division 1-2, page 2

The table below provides the detail behind the cost estimate assuming municipal ownership of the luminaire equipment.

Cost Estimate Category (Municipal Luminaire Equipment)	Pilot Estimate ($000)	Stage 1 ($000)		Stage 2 ($000)	
		Phase 1	Phase 2	Phase 1	Phase 2
Project Management	$200	$20	$100	$40	$40
Laboratory Testing Services	$100	$100			
Communications Network (SSN)	$300	$100	$200		
Materials – Control Device Nodes	$150	$25	$125		
Materials – LED Luminaires	$0				
Materials – Ancillary Equipment	$20		$20		
Equipment Installation	$180		$180		
Equipment Removal	$20		$20		
Information Systems Studies	$100			$100	
Administrative & General	$50	$5	$30	$5	$10
Subtotals	$1,120	$250	$675	$145	$50

The Company estimated procurement and installation costs for 2,000 LED luminaires in the event that the participating municipalities did not have existing LED luminaires at the proposed test locations. This estimate also included costs associated with the installation of desired encoder receiver transmitter (ERT) meters and any required street lighting system modifications of existing ancillary equipment (i.e., brackets, circuit wiring/grounding, etc.) to promote a test application site meeting applicable industry design standards and manufacturer installation recommendations.

Based on the Company's proposal to change existing high intensity discharge (HID) street lighting luminaires to the 2,000 LED luminaires at the commencement of the pilot, the Company plans to remove the test LED luminaires and re-install appropriate new HID luminaires at the completion of the pilot to conform with the currently applicable tariff and billing.

The estimated "removal" cost incorporates various costs associated with the transition from the LED luminaires to the HID facilities at the conclusion of the pilot. Several of these costs include, but are not limited to, HID luminaire procurement, handling, installation, work-zone-protection, and removal of the LED luminaires and the communication network components.

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Division 1-3

Request:

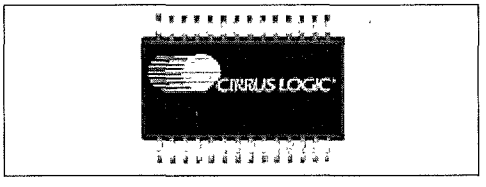
On PDF page 16, it states that "The Company plans to only test the IC meters used within network-controlled street lighting nodes."

a. Please provide a picture of the control node with and without the IC meter.
b. Who will own the control node?
c. What is the size of the area that can be controlled by the control node?
d. How many street lights can be controlled by each control node?
e. Who will own the IC meter portion?
f. In prior discussions of streetlight metering, including but not limited to Docket 4442, did NGRID mention metering only at the control node? If so, please provide documentation that indicates that such discussions occurred.
g. Will all streetlights within the coverage area of a control node be controlled in the same manner (i.e., all on or all off), or will individual luminaires be controllable in different manner from others within the coverage area of the same control node?
h. If the answer to part g of this question is that all lights will be controlled in the same manner, will a municipality be able to install control device on luminaires that it owns? Please explain why or why not.
i. If the answer to part g of this question is that all lights will be controlled in the same manner, will a municipality be able to install different types of luminaires within the coverage area of a control node? Please explain why or why not.

Response:

a.
The following pictures/illustrations are provided with supporting descriptions and/or commentary.

Figure (1-3A) - IC Meter



Single-Phase Bi-Directional Power/Energy IC Meter (Chip)

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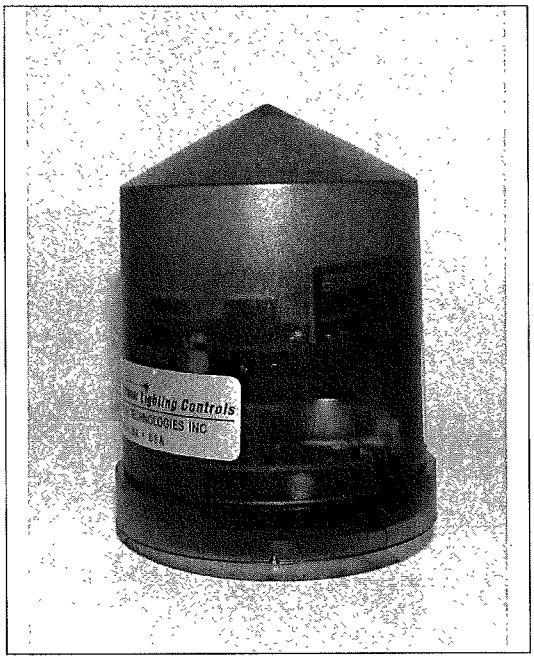
Division 1-3, page 2

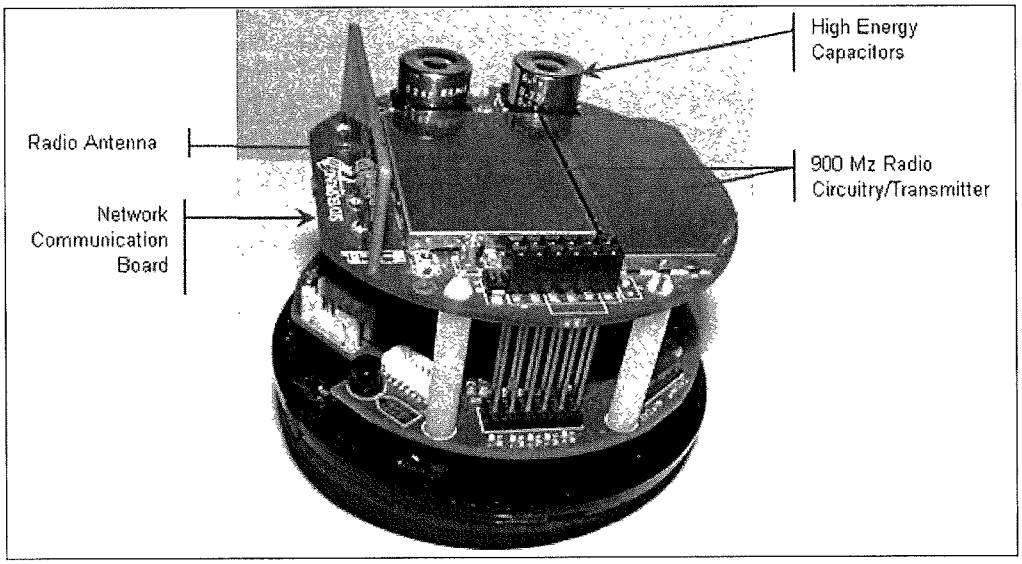
Figure (1-3B) - Network Communication Control Node



Sunrise Technologies OPENGRID Light Control Node

- Network Communications Platform including antenna, two-way radio transmitter, high energy capacitors
- Control Platform including I/R filtered photo sensor, DC power supply, surge protection, IC meter, zero cross relay switching
- 7 Pin NEMA (ANSI C136.41) twist-lock compatible

Figure (1-3C) - Network Communication Platform



Network Communication Platform

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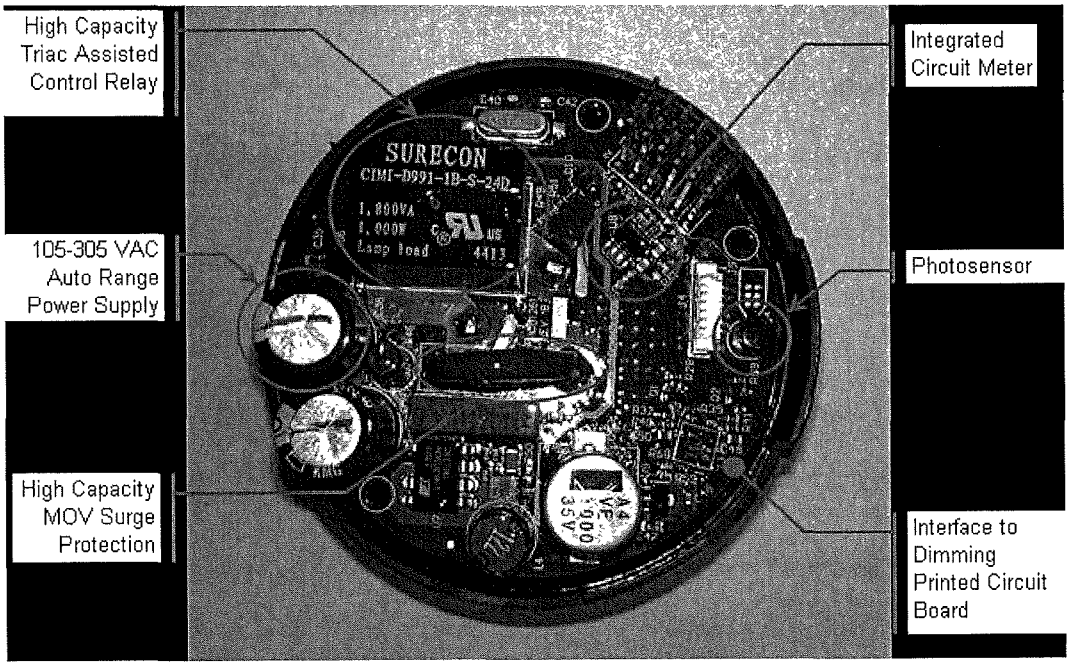
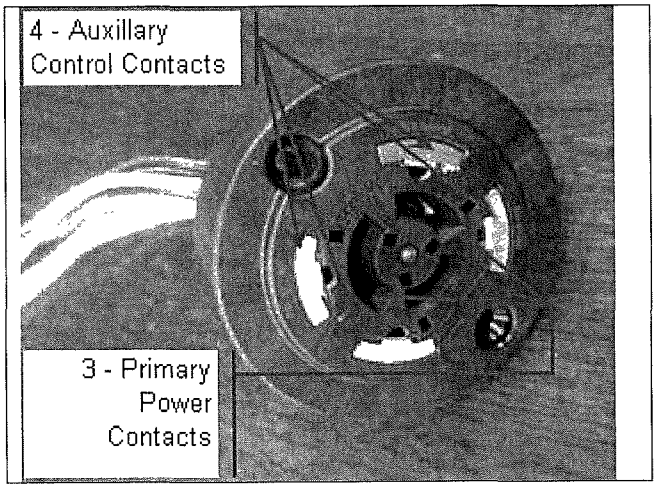
Division 1-3, page 3

Figure (1-3D) - Control Platform



Control Platform

Figure (1-3E) – NEMA Twist-lock Receptacle



7 Pin NEMA Twist-lock Receptacle
ANSI C136.41compliant

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Division 1-3, page 4

b.

The Company will procure and own the control node.

c.

The control node will only control the operation of the individual street light to which it is installed. The radio communication signal from the control node is rated by the manufacturer to reliably perform at an approximate radius of 1500 feet from the control node, provided a reasonable line of sight is achieved to the contact device.

d.

The control node will only control the operation of the individual street light to which it is installed.

e.

The Company will own the integrated IC meter during the Pilot.

f.

The Company described industry available street light metering technology within devices that could be located upon the luminaire (node), within the luminaire, and within the supporting structure, as presented in the illustrations provided at the Technical Session on May 6, 2014 in Docket 4442. A portion of the original illustration is provided below as Figure 1-3F. The Company primarily supports the control node application to address access related concerns and for the additional reasons as presented on Page 12 of 46 in the Company's Joint Pre-filed Direct Testimony in this docket (No. 4513). The Company's focus on utilizing the node as the adaptive control or smart control was communicated by witness John E. Walter during the hearing in Docket 4442 on December 3, 2013. See December 3, 2013 hearing transcript at page 60 lines 3-14. See also the Figure 1-3G illustrations, which the Company originally provided to the PUC during the May 6, 2014 Technical Session in Docket 4442.

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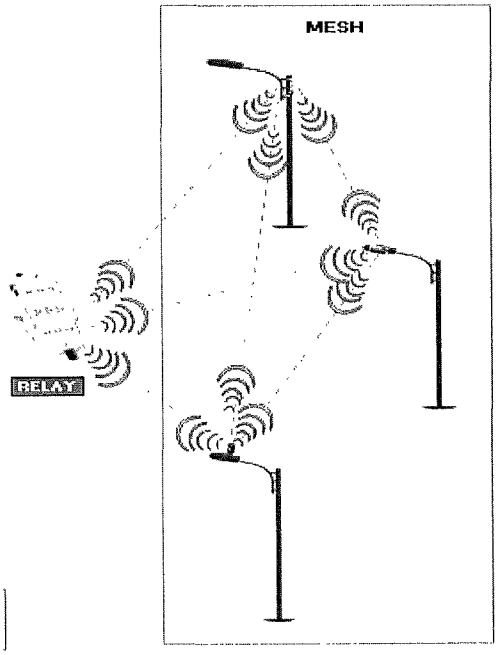
Division 1-3, page 5

Figure 1-3F



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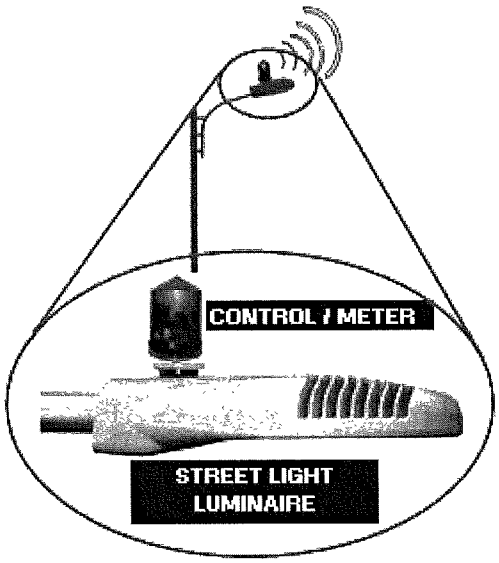
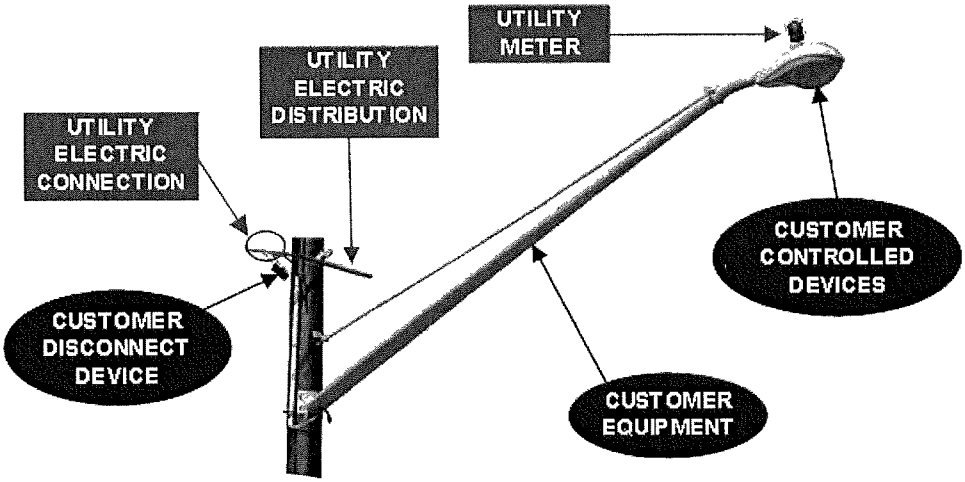
Division 1-3, page 6

Figure 1-3G





STREET LIGHT METER APPLICATION

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Division 1-3, page 7

g.

The street lights operated by a control node will have the ability to be individually operated. However, the control system software also provides the user with the ability to address multiple individually-controlled luminaires to operate in a uniform mode. For example, all individual street lights within a residential community will function on a specified operating and dimming schedule except for all individual street lights located at intersections, which can be programmed to function on a separate schedule.

h.

Municipalities will be able to control the luminaires.

i.

The availability of a communication network provides the ability of individually-controlled outdoor lighting luminaires if specific compatibility conditions are met. The control node must be compatible with the communication network. The luminaire must meet the adaptation requirements of the control node. Utilization of the industry standard 7-pin NEMA receptacle accommodates most current control node products. The ability of the control node to manage the operation of the luminaire will be limited to the specific luminaire components and light (lamp) source.

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Division 1-4

Request:

What kind of data recording capability will each IC meter have? Will these meters be able to record interval data usage, such as hourly, or time-of-day? Please describe in as much detail as possible.

Response:

The IC meter operates as a continuous measurement device. The integration of the IC meter within the network provider's control platform board allows the measurement of data to be managed seamlessly by the network interface controller (NIC). The Company's selected network service provider's NIC supports continuous data collection at user-specified time increments as frequently as every minute. The data/time series information is then retrieved during the scheduled network transmission read time, which can be anywhere from 1 to 6 times per day. The data communications per scheduled network transmission supports the following eight data functions:

- Voltage
- Current
- Energy
- Power
- Power Factor
- Temperature (internal)
- Frequency
- Ambient Light Level

The IC meter retains the data of all functions for a period of 30 days before rolling data by dropping the oldest data and storing the current data.

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Division 1-5

Request:

Would it be technically feasible to install IC meters in control nodes, but allow a municipality to install devices in or on individual luminaires that control luminaire operation? Please explain why or why not.

Response:

The Company can only respond to the question based upon conceptual assumptions because the Company is not involved in the technical design of the various components of the control node devices.

The IC meter is a unique component that is designed into the circuit configuration of the control board. It is conceivable that one could create a device that only includes the IC meter, necessary communication components, and an appropriate circuit connection application to the luminaire. Using this approach, it is possible to have a device that provides only the control technology, necessary communication components, and an appropriate circuit connection application to the luminaire circuitry. If both devices are used on the same luminaire, it could create communication redundancies, circuit wiring and mounting space issues, and require fixture housing antenna penetrations. In addition to these physical concerns, the costs created by technical redundancies make this an impractical design. For these reasons, at a minimum, the industry has designed the external control node to incorporate all desired functionality (metering, control, diagnostics, global positioning, photo-sensor, communications, etc.) with an industry standard twist-lock mount.

In general, many providers of street light control technology provide all the desired control functionality, some level of metering and other capabilities, in addition to a form of two-way communication network. The feasibility to operate, control, or otherwise communicate with the luminaire through the communication network is a function of proprietary software. This software typically provides the ability for specific users to distinctly and securely control or manage the individual functional components within the control node. Therefore, as desired, individual users could independently operate the luminaire and obtain meter read information.

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Division 1-6

Request:

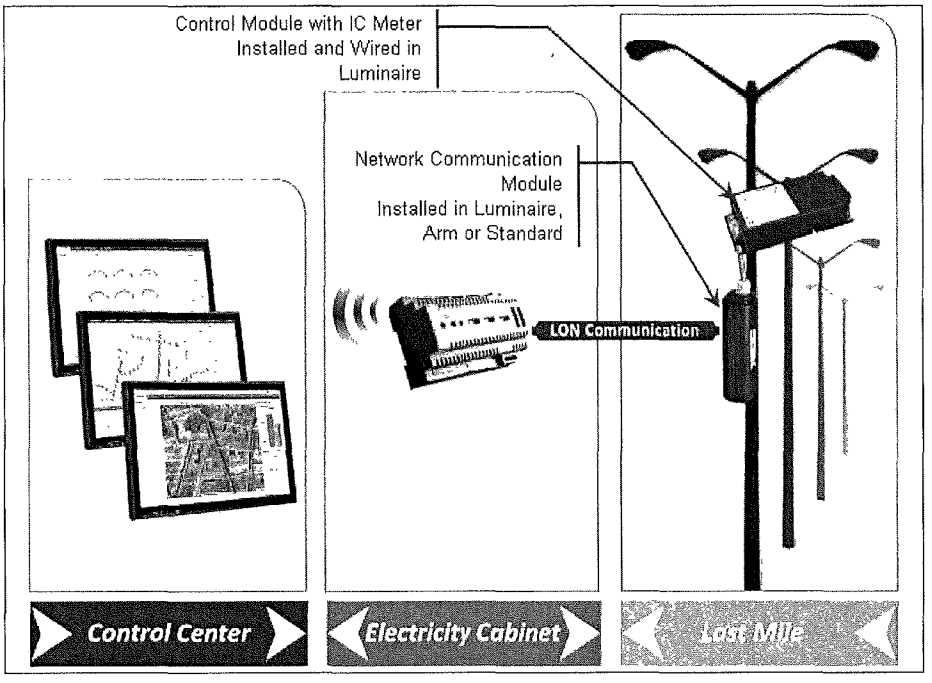
PDF page 17 explains why the company chose not to install IC meters on each luminaire. Would it be technically feasible to install IC meters in individual luminaires? Please explain why or why not.

Response:

To clarify, the Company proposes to use control nodes with embedded IC meters that mount externally on individual luminaires in the test areas.

It is technically feasible to install IC meter technology within individual luminaires. It is also technically feasible to place the IC meter technology in the luminaire's support infrastructure. As represented in the following figures, certain street light network control vendors provide the equipment that is required to facilitate the meter functionality in devices that are installed in individual luminaires or the supporting structure.

Figure (1-6A) - Alternate Street Light Network Control Applications – Power Line Carrier



Power Line Carrier Technology

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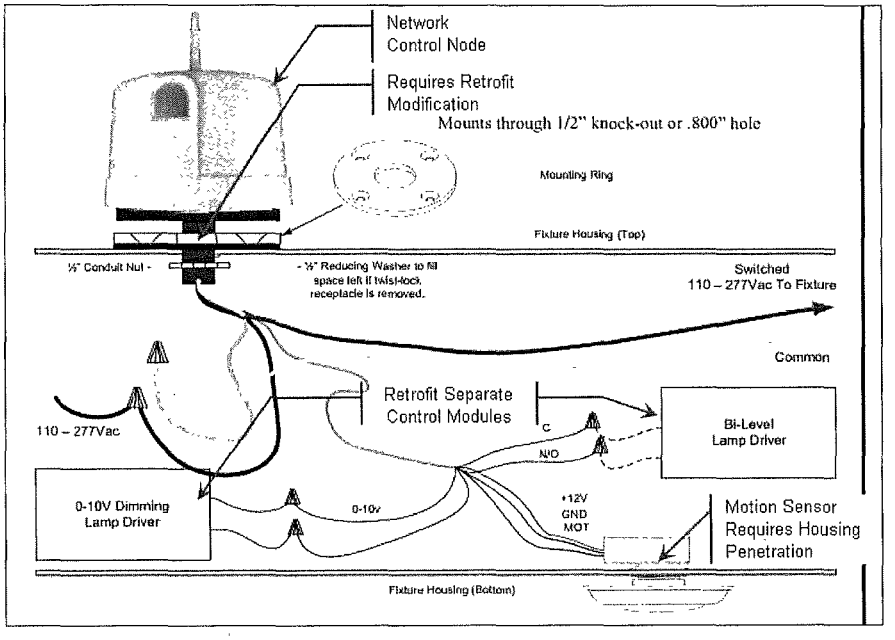
Division 1-6, page 2

Figure (1-6B) -Alternate Wireless Network Control Application



Alternate Wireless Network Control Application

Network Control Node includes: Communication Platform, Antenna, Photo-sensor, Control Platform, IC meter, etc.

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Division 1-7

Request:

Are the IC meters listed on PDF page 18 seamlessly interchangeable? Please explain why or why not.

Response:

The IC meters are not seamlessly interchangeable. The IC meter component is permanently affixed to the printed circuit board within each control device. The circuit board design and related electronic components are specifically engineered to incorporate the unique IC meter chip that is used in each manufacturer's control device.

Division 1-9

Request:

On PDF page 23, it states that to be including in field testing, each IC meter must have industry standard test results certified by an independent third party. Please explain how this differs from the lab test that the company will do?

Response:

There are two steps associated with the proposed lab testing: 1) Device Testing, and 2) End-to-End Testing.

Meter device testing criteria is based strictly on the ANSI C12.20 standard. A standard industry practice is to test a random small sample of production products. In this pilot, the Company proposes to use The Eastern Specialty Company to test four of each IC meter device, consistent with past Company practice.

The proposed meter device test plan is designed to be consistent with the meter testing criteria specified by the New York Public Service Commission (PSC), which reflects the most stringent regulatory requirements governing National Grid territories as described below:

1. Third-party IC meter device testing results must be submitted for Company and PSC compliance review with ANSI C12.20.
2. The Company verifies the third-party testing by employing its own laboratory capabilities to run the ANSI C12.20 testing. If the meter device performs satisfactorily, the Company provides a letter of intention to use; if the PSC approves the meter.
3. Upon receipt of the intention to use letter, the PSC schedules its own metrology experts to witness the testing performed at the Company's lab facilities.
4. If test results are considered acceptable in step 3, the PSC approves the meter for use.

The Company follows the above steps for all meters to gain regulatory approval for use in all its territories so the same meters can be purchased and employed in all territories. The economies of scale for training, inventory, and purchasing leverage justify this practice.

The above practice is intended to provide assurance of both accuracy and safe use of the meters employed by the Company. Historically, these steps have been effective to promote the use of accurate and safe meters. However, as stringent as the above process is, there are still cases where both accuracy and safety have been compromised and has required mitigation even after approval and deployment of the electric meters.

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Division 1-9, page 2

Therefore, due to the newness of the proposed meter technology, it is important to fully employ this device testing process.

The end-to-end lab testing program follows the lab device testing. The end-to-end testing is proposed to be performed on a meter farm by The Eastern Specialty Company. A meter farm is an outdoor location of several acres where hundreds of meters, their communication networks, and all supporting software can be connected end-to-end to simulate the real world installation in controlled testing. End-to-end testing is an evolving protocol being developed under the guidance of the National Institute of Standards and Technology (NIST) in response to the power industry's "Smart Grid". The goal is to develop general interoperability standards for interconnecting products (e.g., head end software, communications, end use devices) to allow power systems to be built to accommodate products regardless of the vendor of the product.

For this pilot, the Company knows the specific vendors (e.g., IC metering chips that pass device testing, Silver Springs Network Communications, and existing legacy head end systems) will be tested end-to-end. The Company will connect the proposed system end-to-end and run testing scenarios that will determine if the system operates in the elements of the meter farm and provides accurate and safe operation.

The testing scenarios will be pulled from Smart Grid testing scenarios developed for end-to-end systems testing of Smart Grid products. The testing scenarios range from collection and verification of energy usage data to reporting the status of the communication system components. In other words, operating the system as it would be used in the real world when connected to company legacy systems.

Division 1-10

Request:

On PDF page 24, it states that 2,000 nodes will be a statistically significant sample. How many luminaires does this represent? Please provide the analysis and all assumptions and workpapers that led to this conclusion.

Response:

As referenced in the Company's responses to Division 1-3 and 1-6, the individual control nodes will be installed on individual luminaires. Therefore, the 2,000 node sample reflects 2,000 luminaires.

The Company desired to promote a field test population of control nodes that would provide the participating municipalities with a sufficient quantity of street lights to achieve the intended objectives of their lighting quality studies. This selected quantity is further defined on pages 18-19 of the Company's Joint Pre-filed Direct Testimony in this docket.

The Company's use of the term "statistically significant" was intended to denote that the testing population would be statistically valid and was not meant to be used in the strictest statistical mathematic definition.

The Company's recommended sample size of 2,000 nodes is consistent with the ANSI Z1.4 standard, "Sampling Procedures and Tables for Inspection by Attributes". This sample size quantity is based upon the selected criterion, as referenced in the standard, which defines a "Lot or batch size of 50,001 and over" to represent the number of nodes that could be installed in a full implementation should the pilot be successful. Also as referenced in the standard, the Company chose a "general inspection level II", resulting in the use of Code Letter Q. The Company chose these criteria as the 'responsible authority' administering the standard as defined in the standard. The Acceptable Quality Level (AQL), also determined by the responsible authority, was set at a conservative, "one nonconformance in one hundred", to reflect the fact that the Company has no experience and/or justification to adopt a less stringent AQL. Based on the previous steps the standard calls for a sample size of 2,000 units in Table II-A; Single Sampling Plans of Normal Inspection, (Master table).

The Company has no additional work papers or written analysis regarding this subject.

Prepared by or under the supervision of: John E. Walter and Larry G. Durante

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Division 1-11

Request:

On PDF page 25, its states that "in specific locations, Company ERT meters will be installed in parallel with the IC meter nodes to provide a comparison of the new IC meter technology against the industry proven existing meter technology." How many such ERT meters will be installed? Are these the same ERT meters used by the company to read its residential meters now with the drive-by van? What kind of data recording capability do these ERT meters have? Will these meters be able to record interval data usage, such as hourly, or time-of-day? Please describe in as much detail as possible.

Response:

As described on page 25 of the Company's metering pilot proposal, the number of ERT meters the Company installs will be determined based on the individual deployment plans for each participating municipality. The Company anticipates that trials will be performed on both 1:1 (ERT to node) applications and also with ERT meters measuring an entire street lighting circuit, while individual meter control nodes will measure each luminaire on that circuit.

The ERT meters that the Company plans to use are the same as those used for standard residential energy measurement with recorded data read by the drive-by technology.

These residential ERT meters capture and record total kWh only.

These residential ERT meters do not record hourly, time-of-use or other interval measurement energy usage data. Based on Company rate design concepts associated with metered street lighting service, the Company may find it beneficial to install another ERT meter type that records energy consumption on specified interval periods.

Prepared by or under the supervision of: John E. Walter

Division 1-12

Request:

Referring to PDF page 37, it states that all billing will continue according to the existing installed street lighting components and tariff rules. Does this mean that the company will not use actual meter data to bill municipalities during the pilot project? If so, please explain in detail why or why not.

Response:

The Company will not utilize meter data obtained during the pilot for billing purposes. The Company does not have an approved street light metered energy rate, and the billing system can neither determine nor produce a bill for metered street lighting service. Additionally, if Company-owned LED luminaires are used during the pilot, there are no current rates for the associated facilities.

Prepared by or under the supervision of: John E. Walter

Division 1-13

Request:

On PDF page 42, it states that because the full capabilities of IC metering technology only works on LED lights, the Company must exchange its high pressure sodium lights for LED lights in order for the lighting locations to be part of the Pilot. Please explain in detail why metering capability, as opposed to control capability (i.e., on, off, or dimmed), works only on LED luminaires.

Response:

The testing of IC meter technology used with the control nodes is best supported by light sources and luminaires that have a variable range of operation to which the metered energy consumption will correspond. The industry has raised concerns regarding IC meter accuracy associated with minimal energy consumption at extreme dimming levels of LED luminaires. Therefore, the reliability and accuracy of IC meters must be tested against the full operating range of the LED luminaires. This meter testing of full operating range cannot be achieved if applied to the existing in-service High Intensity Discharge (HID) technology, which includes the lamp source types of High Pressure Sodium, Mercury Vapor and Metal Halide. The HID luminaire can be dimmed if they include an electronic ballast. The Company's in-service HID luminaires do not have the electronic ballast and, therefore, cannot be dimmed.

Prepared by or under the supervision of: John E. Walter

Division 1-14

Request:

PDF page 49 states that the Company is proposing to recover pilot project costs through a fully reconciling surcharge to customers receiving retail delivery service on Rates S-05, S-06, S-10 and S-14. Please provide annual revenues and KWH sales for each of these rate categories for the most recent three years.

Response:

Attachment Division 1-14 includes annual kWh deliveries and total billings for Rate Classes S-10, Limited Service - Private Lighting, and S-14, General Street and Area Lighting for the most recent three years. Please note that there are no customers presently receiving service on Rate Classes S-05, Street and Area Lighting - Customer Owned Equipment and S-06, Decorative Street and Area Lighting.

Prepared by or under the supervision of: Jeanne A. Lloyd

		S-10		S-14	
Year	Month	Revenue (1)	kWh Deliveries	Revenue (1)	kWh Deliveries
2011	DECEMBER	$147,309.33	937,551	$969,576.30	5,771,696
2012	JANUARY	$171,795.17	1,028,955	$1,062,973.22	6,354,048
	FEBRUARY	$143,463.90	821,762	$920,405.33	5,089,073
	MARCH	$135,127.82	778,724	$933,342.42	4,813,186
	APRIL	$139,640.51	741,724	$1,007,982.31	4,582,340
	MAY	$124,901.59	602,570	$940,348.28	3,744,906
	JUNE	$115,932.56	535,126	$745,411.84	3,324,335
	JULY	$128,768.42	609,308	$1,020,404.12	3,794,515
	AUGUST	$121,434.30	616,257	$939,780.24	3,827,157
	SEPTEMBER	$131,081.59	731,161	$990,119.02	4,547,342
	OCTOBER	$128,115.59	766,502	$946,993.81	4,816,871
	NOVEMBER	$136,142.75	848,375	$963,876.96	5,289,878
	DECEMBER	$149,489.78	920,085	$1,011,979.28	5,755,742
2013	JANUARY	$185,176.95	1,046,695	$1,147,507.43	6,457,736
	FEBRUARY	$160,619.56	833,414	$1,123,173.93	5,283,471
	MARCH	$138,415.17	717,945	$1,065,472.78	4,514,872
	APRIL	$153,529.90	749,747	$1,239,463.47	4,690,866
	MAY	$130,049.98	592,469	$1,105,564.72	3,703,511
	JUNE	$130,161.96	559,632	$1,137,470.82	3,509,807
	JULY	$135,226.16	563,726	$1,142,242.50	3,529,852
	AUGUST	$146,110.75	644,330	$1,198,186.30	4,043,137
	SEPTEMBER	$137,842.13	675,242	$1,109,679.94	4,240,743
	OCTOBER	$145,552.03	756,651	$1,133,687.13	4,765,423
	NOVEMBER	$155,951.81	829,357	$1,159,729.73	5,234,804
	DECEMBER	$188,098.13	963,108	$1,315,717.94	6,076,364
2014	JANUARY	$214,195.83	964,797	$1,348,211.01	6,084,189
	FEBRUARY	$204,038.00	870,049	$1,292,460.78	5,512,083
	MARCH	$157,209.95	731,845	$1,148,256.73	4,590,320
	APRIL	$140,897.39	649,639	$1,158,376.19	4,209,666
	MAY	$143,987.51	628,697	$1,243,021.33	4,050,574
	JUNE	$118,918.49	485,733	$1,038,043.44	3,120,072
	JULY	$136,168.31	530,414	$1,123,734.78	3,397,637
	AUGUST	$137,877.69	564,597	$1,105,862.57	3,625,751
	SEPTEMBER	$150,318.40	713,128	$1,246,591.87	4,590,976
	OCTOBER	$154,882.73	760,671	$1,196,606.35	4,909,814
	NOVEMBER	$168,147.24	807,337	$1,220,481.20	5,229,194
Dec 2011 - November 2012		$1,623,713.53	9,018,015	$11,441,213.85	55,955,347
Dec 2012 - November 2013		$1,768,126.18	8,889,293	$13,574,158.03	55,729,964
Dec 2013 - November 2014		$1,914,739.67	8,670,015	$14,437,364.19	55,396,640

(1) Includes billings associated with all delivery service and Standard Offer Service charges, including gross earnings tax