



Municipal Response
To
National Grid's Handouts and Comments
At the May 6, 2014
RI PUC Technical Session
Docket 4442



Ms. Margaret Curran
Chair, RI Public Utilities Commission
88 Jefferson Boulevard
Warwick, RI 02888

Dear Chairperson Curran and Members of the Commission,

Thank you for conducting a long and impartial Technical Session on the potential metering of municipal streetlights. The municipalities of Rhode Island are grateful for the thorough vetting of the many issues still in dispute in what has unfortunately turned out to be a highly contested S-05 Customer Owned Streetlight Tariff in Docket 4442. This letter summarizes the Towns' responses to the material that National Grid provided at the technical session. It further responds to some of the material that National Grid described (for which there was no actual handout) when the company estimated costs and timetables for implementing certain parts of the Act. In response to the Division's request, National Grid then provided these materials in an email Tuesday of this week. We have revised our Compromise Offer to include the timeframes that National Grid said at the Technical Session it would need to prepare internally for metered billing (see Attachment 2).

While the parties may agree that the implementation of metering is in everyone's interest, the major question and issue is the timing and process of metering integration. There were four components to the positions that National Grid presented at the hearing: 1) National Grid would own the meters mounted on Town-owned streetlights, 2) the issues involved in deploying such meters are complex and allegedly not ready to be resolved at present, 3) such metering controls are too expensive to be considered cost-effective at this time; and 4) ensuring accuracy of the metering data management.

1. **Meter ownership:** National Grid has been clear since the beginning of these proceedings that setting a distinct demarcation point is critical to successfully separating company assets from municipal assets once a streetlight becomes municipally owned. That point on virtually all RI's overhead-wired streetlights is where the cable powering the streetlight separates from the secondary system well above the streetlights on the poles. Now, National Grid is proposing that it own a control that is well past this point; indeed it is physically mounted on the light itself and controls that light. This location is shown on the graphic image of a pole/streetlight that the company handed out as Exhibit 8 at the Technical Session.

There are many problems with this approach that do not exist if the municipality owns the controls that are integral to and essentially run its lighting system. First, the liability would be highly uncertain in case either the light (Town) or control (NGRID) failed and an accident or other injury ensued. Second, if a light fails, who would respond and how would that be determined? If a municipal service crew responds and finds the control to have failed, it would require a National Grid crew to then respond, and both parties would have to pay their crews. The same is true if a National Grid crew is dispatched and finds the bulb failed and then refers the call to a municipal crew. Third, the streetlight and control are an integrated system, and should be procured in a coordinated way. If NGRID owns one component it might choose a system that is not compatible with the municipal choice of lights or operating parameters. Municipalities are practiced at complex procurement, and this is no exception. Fourth, would National Grid expect to charge municipalities for the meter usage? If so, how much and under what conditions? How would those charges compare with the municipality owning its own system and capitalizing its own asset as it sees fit? Fifth, National Grid is concerned about meter accuracy. Metering control systems are more accurate than the current system that relies on estimates of darkness duration and estimates of wattage. It is well known that photocells turn lights on in storms or on cloudy evenings; it is also known that HPS lights use more electricity as they age. Metering controls, which are accurate +/- 2%, correct for these deficiencies.

Finally, meter accuracy needs to be tested in a manner that complies with all regulatory requirements and that is suited to the particular technology, both prior to deployment and during operations. There is no dispute on this point. We believe that this can be addressed by giving NGRID some control over the testing. First, they would set the requirements for the equipment based on ANSI approved standards. Secondly, the Communities would provide to NGRID a set number of units equal to the annual testing quantities for the community in question. NGRID would each year give notice to the Town the quantity required for testing and could even specify the location where they are to be taken from. The community would pick up the replacement units from NGRID and remove the units for testing and deliver them to NGRID. The cost of the testing would be incorporated into the delivery service rates just as it is for all other meter testing. In this way NGRID will control the testing and will be able to comply with the regulatory requirements and the issues outlined above would be avoided.

2. **Complex Issues allegedly not able to be resolved in this tariff's timeframe:** National Grid testified that they could be ready with the billing and many other issues within 6 months to a year. The Municipalities' proposed meter phase-in schedule could be amended to accommodate this time frame.

National Grid listed on its handout at the Technical Session many items that must be determined as part of a metering control deployment. These are attached as ATTACHMENT #1 including specific municipal responses.

There are no new issues in the table National Grid provided. Those that would need to be decided between National Grid and the controls owner can be worked out relatively easily if both parties enter the discussion with the common goal of a seamless, timely implementation of the municipalities' controlled lighting. This is simply a partial list of items to be decided when procuring a system of Networked LED streetlights. Many are between the owner and the vendor and would be specified in the RFP and the contracts. Some are internal to National Grid and a phased implementation would provide enough time for these to be worked out.

National Grid discussed a pilot to give them time to prepare for addressing these issues, and if National Grid were to own the system controlling municipal streetlights this might be a sensible approach. The municipalities floated this pilot idea four months ago and it was rejected by National Grid as being infeasible as part of this proceeding. Then, after researching the issues and solutions further, the municipalities determined that all issues could best be addressed with a collaborative municipal procurement and a phased deployment. The Towns strongly believe the control system must be owned and managed by the streetlight's owner—the municipality. The municipalities must be able to evaluate an investment in a comprehensive streetlight package now rather than phasing such an investment in pending another tariff proceeding.

The Towns have made a reasonable proposal to accommodate National Grid's implementation concerns by phasing in implementation of metering and are willing to adjust that proposal to the extent necessary for an efficient and effective, collaborative delivery process. Given National Grid's agreement that metering is inevitable and desirable, the persistent, adversarial resistance only causes unnecessary and costly process and delay (both in this docket and potentially beyond) that the Towns cannot afford. There is no good cause for continued argument and delay in the resolution and execution of such an agreement. Instead, phasing in the implementation to provide National Grid enough time to prepare its billing system is a much more viable approach to managing this public safety resource. It would also be possible for the old billing system to operate in parallel during the transition. This at least provides assurance to the communities that chose to make the added investment that they will benefit from it at sometime in the near future.

3. **Cost and cost-effectiveness:** Expenses in general are a critical issue for municipalities because they all have to provide more services with less funding than ever before. Municipalities can and will make their own financial decisions regarding their own capital assets and budgets related to streetlights. The Towns will analyze the purchase and operation of their streetlights as a comprehensive decision and have every confidence that metering will be deemed a sound investment as part of that complete strategy.

But streetlights are, first and foremost, a public safety resource, and municipalities simply seek the ability to manage them to protect the public interest. Financial considerations are important, but public safety must be paramount. Therefore, an overly simple analysis based

solely on cost, does not meet the municipalities' mandate to protect the public interest with appropriately lighted streets that can be controlled as needed as well as supporting other municipal operations at lower costs.

The Towns have considerable experience dealing with complex issues and making informed decisions. In the energy field alone, municipalities under the RI League of Cities and Towns formed the RI Energy Aggregation Program ("REAP") to take advantage of utility deregulation and reduce municipal energy expenditures by purchasing energy from third-party sources in the open market. Recognized as the most successful municipal aggregation program in the country, REAP has saved its members over \$42 million since its creation in 1999. Many Towns have investigated energy efficiency improvements in their buildings and other facilities; WCRPC alone has coordinated the analysis of over 150 such facilities in 11 Towns and 5 school districts, managed Investment Grade Audits in 120 of those facilities, and energy improvement construction in 46 facilities.

The municipalities have the expertise and the experience to form collaborative ventures to resolve complex projects. Our consultant team from SolLux Consulting has decades of experience with every aspect of streetlighting. A number of Rhode Island's towns under the Washington County Regional Planning Council's leadership are now forming "PRISM", the Partnership for Rhode Island Streetlights Management, specifically to implement the Municipal Streetlights Investment Act by coordinating streetlight purchases from National Grid, procuring a collaborative maintenance contract, upgrading to networked LED lighting with a smart, owner-friendly, control system. The streetlighting system must be addressed not only with the quick fix of LED conversions, but by including the maintenance savings and control operability improvements and cost savings in the analyses. Indeed, the Municipal Streetlights Investment Act specifies that a municipality must perform "...due diligence, including an analysis of the cost impact to the municipality..." The Towns drafted this legislation and are fully aware of the due diligence needed to make a system upgrade.

Table One below is a summary of the municipalities' preliminary analysis of the costs and benefits of implementing RIGL 39-30 on a statewide, system-wide basis. National Grid's testimony at the hearing revealed that they charge municipalities \$6-8 million annually for streetlights over and above their actual expenses. The municipalities will provide better maintenance for far less money, saving \$8 million annually for RI's cities and towns. The maintenance savings can then be used to facilitate more rapid the implementation of LED lights and controls that will provide for better operations and efficiency and significant additional savings (up to \$13 million annually). These figures in Table One are based on National Grid's PUC filings and on our work with various vendors and consultants. The figures should be considered preliminary and are not the full cost analysis that will be completed for each Town prior to purchase.

Please note that for this letter only, we have used 15.8 cents for the kWh charges because that is the figure National Grid used in its testimony at the Technical Session and in its

subsequent response to the Division. However, because most RI municipalities do not use the Standard Offer pricing, and instead use the RILCT's REAP program, their actual prices are between 3 and 4 cents below the 15.8 cents used by National Grid.

Table 1, Whole-System Preliminary Analysis

Rhode Island Annual Streetlights Budget					
	NGRID owned	Muni. Streetlights Purchase		LED Conversion with controls	
	Current Expenses	Purchase Year	Annual After Purchase Year	Lease year(s)	After Lease
Electricity (RILCT) + Distribution (NGRID)	\$ 7,104,315	\$ 7,104,315	\$ 7,104,315	\$ 2,628,597	\$ 2,628,597
Fixtures & Maintenance (NGRID)	\$ 13,817,056				
Maintenance (PRISM)		\$ 2,962,920	\$ 2,962,920	\$ 2,222,190	\$ 2,222,190
Purchase Price of Fixtures		\$ 7,550,000			
LED Conversion (10 year Lease purchase)				\$ 5,134,953	
Total Annual Expenses	\$ 20,921,371	\$ 17,617,235	\$ 10,067,235	\$ 9,985,740	\$ 4,850,787
Potential Annual Savings		\$3,304,136	\$10,854,136	\$10,935,631	\$16,070,584
Average cost per light per year	\$ 212	\$178	\$102	\$101	\$49
NOTE: Available energy efficiency incentives have not yet been included in this analysis. Several subsidizing grants are in preparation to lower the LED / controls conversion further LED/controls financing terms will vary as prices decrease in procurement; this table is conservative					

This model shows the cost-effectiveness of the municipal-owned system. It also reveals that there should be no question, the municipal vision of its potential streetlighting system is a vast improvement in operating and energy efficiency when compared with the expensive legacy system currently in place.

In its presentation and subsequent response to the Division, National Grid said, "The 50 watt HPS street light represents approximately 60% of National Grid's total street lighting population within Rhode Island." The Towns question this assertion, since the inventory provided by the company to the PUC reveals 41,300 50-watt HPS bulbs and over 57,464 other bulbs in the 98,764 light system. The 50 watt HPS is indeed they most prevalent, but only at 40%.

The Towns reject using any single light to represent the entire system. Decisions will be made statewide and town-by-town, but not one light size over others. Nevertheless, we will discuss the 50-watt HPS because it is National Grid's choice for analysis.

The 50-watt light is an interesting choice for several reasons. First, the company isolated the control costs from the other costs it would take to achieve the reformed system the Towns seek, like the maintenance savings that derive from the collaborative maintenance contemplated in the Act, and the 63% energy savings from LED conversion. The Towns feel that all these costs and savings should be considered when making such decisions. Therefore, we present below a revised analysis for the 50-watt bulb replacement.

The second reason that the 50-watt HPS bulb is an interesting choice is that it is the one streetlight that currently does not qualify for an energy efficiency incentive because the minimum to qualify must save 60 watts per fixture. If a 100 watt HPS, the second most prevalent bulb, were used in the analysis instead, each light would receive a \$75 incentive for conversion. The Towns also point out that having no current incentive in a bulb size with 41,300 lights in service is missing a tremendous opportunity to encourage savings. In this bulb size alone, converting to LED lighting could reduce the 10.5 million kWh currently

consumed to 3.3 million kWh, saving some 7.2 million kWh annually. Adding controls will save an additional 10-15% annually.

Table 2 at right is the 50-watt analysis to answer National Grid’s assertions. In order to make it more useful to the Commission, we have added the critical figures that National Grid chose to ignore: maintenance savings and LED conversion savings, because these are integral to the municipal due diligence.

Any community that is going to install a control system is not going to do so selectively by light wattage but rather they will look at the cost benefit of the system. The control system is dependent on the mesh network (which operates from one light to another) to operate effectively and provides many potential public safety benefits

beyond saving energy. The communication network of the control system can potentially support a variety of other municipal needs such as traffic signal synchronization, traffic monitoring, security cameras, emergency response, emergency evacuation, homeland security, etc. It is in the context of all of these benefits that Communities will decide if intelligent controls are a good investment. The energy savings do contribute to the overall consideration but are just one component. As discussed herein, analyzing a system can be done responsibly only by addressing the whole system. Anything less is shortsighted and misleading.

One related non-streetlight item illustrates why system-wide analysis is critical, and is now the norm even in National Grid’s Energy Efficiency work that is overseen by RI’s Energy Efficiency and Resource Management Council. In the new 2014 plan, the following statement shows how efficiency analysis has changed. *“In the past, cost-effectiveness screening was done at a measure level. Going forward, cost screening will be done at the project level and not the measure level. That will enable the bundling of more measures together in a meaningful project for customers.”* Source: Docket 4451, Attachment 2, Page 2 of 51.

4. **Meter Data Management.** Currently customer streetlights are billed based on an estimated 4,175 hours of operation per year. That is further broken down by month based on dawn to dusk times. These hours are multiplied by the wattages and quantities of each light in a community’s inventory. These calculations result in a calculated number of kWh for the system by month, which is multiplied times the approved per-kWh rate in the tariff. The use of intelligent controls would provide the total kWh of the system to NGRID without the need for calculations or adjustment based on changes made to the system during the

Table 2: NGRID 50w HPS vs. Muni 19w LED equivalent

Item	Ownership	NGRID owned	Municipal owned
		50 watt HPS	19 watt LED
Wattage		61	19
Number in service		41,300	41,300
Hours per year		4,175	4,175
kWh used		10,518,078	3,276,123
kWh charges	\$	1,661,856	\$ 368,891
Maintenance charges	\$	3,197,859	\$ 1,032,500
Total annual cost	\$	4,859,715	\$ 1,401,391
Total annual savings		0	\$ 3,458,324
Annual cost per light	\$	117.67	\$ 33.93
Annual savings per light		0	\$ 83.74
Note: This table uses a .158 kWh charge to match NGRID's filing. The Towns actually pay less through the RILCt's REAP program.			

month. Currently if during the month a light is added or changed in wattage it requires an exchange of paperwork and then a manual adjustment to the billing files for the Company and a service crew then may have to go out to each individual light to verify the adjustment. While some of this is still required for record keeping of the inventory, it is greatly simplified as it can be done on a periodic basis whereas the billing would adjust automatically. Today these adjustments take many months and then involve providing back credits and significant time on the part of both parties to verify the corrections were properly made. The intelligent control handles this automatically and in a timely fashion. Inventory adjustments can be made to the records at any time as the billing is correct and the timeliness of the records change does not have the same consequences that it currently does.

In closing, the municipalities of Rhode Island as represented by the Rhode Island League of Cities and Towns and the Washington County Regional Planning Council respectfully request that the RI Public Utilities Commission approve the S-05 Tariff in Docket 4442 with the municipalities' suggested changes that will allow, in a careful, deliberate, but timely manner, the implementation of an integrated network of LED lights that will reduce cost, save energy, measure consumption accurately, and improve public safety.

Very truly yours,



Jeffrey A. Broadhead
Executive Director
Washington County
Regional Planning Council



Daniel Beardsley
Executive Director
RI League of Cities and Towns

LIST OF ATTACHMENTS

Attachment 1: Itemized commentary on National Grid table

Attachment 2: Revised Compromise Offer from Municipalities

ATTACHMENT ONE

Municipal notes on National Grid's Table

Municipal Response for Technical Session
RI PUC Docket #4442

Town Responses are in Blue. In the three "Responsibility" columns, the Towns used "X" to mean full responsibility and "A" to mean advisory or review or notification.

Subject	Ownership Responsibility		Utility Responsibility	Issue/Comment (FROM NGRID)	TOWNS RESPONSE
	Initial Costs	Ongoing Costs			
System Selection & Deployment Design	X			<ul style="list-style-type: none"> ▪ Economy of scale (utility meter volume) ▪ System specification ▪ Limited system interoperability (sole source relationship) ▪ Developing industry standards (control, network, communication) ▪ Customer Acceptance – ex. National Security Agency (NSA)/Electro Magnetic Field (EMF), (Unmetered default service) 	<ul style="list-style-type: none"> ▪ Since the towns plan on statewide collaborative purchasing, they will achieve sufficient economy of scale ▪ A specification will be developed and shared with utility ▪ The towns plan on one system statewide ▪ Any municipal system will comply with all industry standards ▪ The selection of equipment that meets all published ANSI, UL and other applicable standards will ensure customer acceptance
System Procurement	X	X		Contract development Warranty application	The towns are fully capable of development a contract that includes warranty provisions
System Installation/Deployment	X	X	XA	Field Operations, Commissioning, Testing	These are a natural part of the procurement and deployment process
System Network/Com	X	X		<ul style="list-style-type: none"> ▪ Band Width - Usage 	These are all within the scope of work that will in the town's RFP and contracts. We will ensure any specific

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Subject	Ownership Responsibility		Utility Responsibility	Issue/Comment (FROM NGRID)	TOWNS RESPONSE
	Initial Costs	Ongoing Costs			
munication/Software				<ul style="list-style-type: none"> ▪ Frequency of Reads/Data Transmission ▪ Dashboard/Report Customization 	data requirements necessary for NGRID's billing and verification will be included in the bid/contract package
Meter Transactions / Data Collection / Communication	X	X	XA	<ul style="list-style-type: none"> ▪ Read frequency, accuracy, re-reads, check reads, missing (gap) reads, default usage, meter exchange correction ▪ Meter sets, removes, changes ▪ Data collection methods and technologies ▪ Multiple vendor protocols ▪ Development of company specific protocol <ul style="list-style-type: none"> ○ File exchanges? ○ Electronic Data Interchange? 	<p>These are all within the expected responsibility of the meter owner (town) and would be specified in town/vendor contracts. Certainly any utility interface issues will be discussed and agreed between the towns, the vendors, and the utility.</p> <p>The towns do not expect multiple vendors, but since this is possible, provision will be made for protection both for the towns and the utility. Further, we believe if NGRID specifies their requirements and equipment meeting national specifications then this should be of little consequence. By adopting equipment that meets ANSI and TALQ standards we can provide reasonable assurance to NGRID of data consistency both now and into the future.</p>
Systems Interfaces	X	X	X	<ul style="list-style-type: none"> ▪ Initial development and implementation ▪ Systems upgrades 	NOTE: Any response here??

Subject	Ownership Responsibility		Utility Responsibility	Issue/Comment (FROM NGRID)	TOWNS RESPONSE
	Initial Costs	Ongoing Costs			
Meter Data Management System	X	X	X	<ul style="list-style-type: none"> ▪ Application development to manage new meter data stream. <ul style="list-style-type: none"> ○ Large amounts of meter data ○ Storage and management of this data 	<p>This step is necessary with utility-owned meters, but will have lesser requirements with customer-owned meters. With customer-owned meters, the utility will have online access to all meter records but will not have to receive and store any such records. Additionally, because both the utility and the community will have access to the same data the potential for questions or discrepancies requiring historical data is greatly reduced.</p>
Billing System			X	<ul style="list-style-type: none"> ▪ Development of new functional business application within the billing system for metered service billing for both company and customer owned assets. ▪ Separation of energy and equipment billing (current unmetered model does both together) ▪ Billing at Time of Use (TOU) or other energy breakdown (other than single monthly kWh value) ▪ Could there be any changes regarding 3rd party energy supply (Energy Service Company (ESCO) / Marketer) 	<p>If the company intends to deploy meters for its own assets then this step will be necessary for the company to do for itself, but not for customer-owned meters. With customer-owned meters the company will be asked what data it needs for accurate billing. TOU records are kept for all intelligent meters and would be available if needed by the company. However, unless and until RI has TOU rates and these apply to customer owned streetlights, these records would primarily be used in case the town's power supplier chooses to procure energy based on streetlights off-peak demand schedule.</p> <p>The Towns will, of course, work with the company on what is needed for billing data.</p> <p>The Towns do not see the relevance of the company's remark regarding an ESCO. If such a company is utilized for any system improvements it would be as a contractor to the towns and would not have any impact on company operations. An ESCO is in reality simply a</p>

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Subject	Ownership Responsibility		Utility Responsibility	Issue/Comment (FROM NGRID)	TOWNS RESPONSE
	Initial Costs	Ongoing Costs			
					<p>company that coordinates construction with cash flow guarantees for energy savings.</p> <p>We believe National Grid is actually referencing third party suppliers who need usage information for their billing. This data is currently supplied to them by NGRID based on NGRID's billing data. How this number is determined is immaterial to the third party. This remains unchanged. Whatever the recorded kWh is for the month is provided to the third party supplier just as it is now.</p>
Meter Types and Program Types	X		XA	<p>Implementing new meter types and programs available within each type will affect all areas:</p> <ul style="list-style-type: none"> • Meter data collection and management • Meter transactions • Billing • Meter Shop – Inventory, Testing 	<p>Networked LED streetlights incorporate a new type of meter from the electro-magnetic ones the company traditionally uses. These will be specified and procured to the highest industry standards and specifications, and the company will be allowed to review and comment on the specifications prior to procurement.</p>
Meter Inventory and Quality Assurance Testing	X	X	X	<ul style="list-style-type: none"> ▪ Compliance with Division standards ▪ Acceptance testing - 100% ▪ Deployment/Use testing – American National Standards Institute – American Society for Quality, Std Z1.9 [ANSI-ASQ Z1.9] - MIL STD 105-E ,acceptance quality limit (statistical sampling) ▪ Field Operations 	<p>These are important standards and will be followed, except that 100% acceptance testing has not been determined as necessary since the integrated control and real-time data accessibility will identify problems quickly. For this provision, a protocol will be developed and utilized that combines sample testing with online verification. See also our discussion on possible solution to the testing requirements, which would provide NGRID their desired, control and meet</p>

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Subject	Ownership Responsibility		Utility Responsibility	Issue/Comment (FROM NGRID)	TOWNS RESPONSE
	Initial Costs	Ongoing Costs			
				Retrieval/Replacement <ul style="list-style-type: none"> ▪ Laboratory Operations Testing ▪ Device data management for scheduled testing (Meter Inventory Tracking System) - [MITS] ▪ Testing program - Equipment, Training 	the regulatory requirements.
Intelligent controls	X	X		No effect on monthly energy billing process?	Once the intelligent controls are used for metering, they would have no effect on the billing process except to provide the data for the bills.

ATTACHMENT TWO

Revised Municipal Compromise Offer

Municipal Compromise Offer Regarding Metering Controls

5.15.2014 JB for Towns

WCRPC wrote the Municipal Streetlights Investment Act with a specific provision for LED lights and controls. Controls were included to allow municipal owners to determine how and when they dimmed or brightened their lights based on their own operational considerations like public safety and energy conservation. Since the controls include metering capabilities that meet utility-grade meter standards (ANSI c12.20.2), are as accurate as standard electromagnetic meters and far more accurate than the “hours of darkness” model currently employed by National Grid in the S-14 and proposed S-05 tariffs, the municipalities did not predict or expect opposition to their deployment. The municipalities expected that the S-05 Rate Tariff would include these control features as called for in the Act, as well as allow for the current unmetered service on lights that are not upgraded from what National Grid has provided. The municipalities further recognize that virtually all of National Grid’s rate classes are metered, including those for municipal facilities and other outdoor lighting.

National Grid has opposed the metering provisions by stating in negotiating calls, “that is not how we interpret the statute,” (Attorney R. Webster) and “we are not ready for metering” (J. Walter). Instead, they proposed rigid dimming and part-night schedules and included only the nonmetered provisions in the tariff. The Company has suggested that another tariff be developed in the future that is for metered streetlights. (J. Walter)

The municipalities propose a compromise to allow National Grid time to prepare for metered streetlights but not require another rate tariff filing. We propose that:

- The S-05 Rate tariff contain both metered and non-metered provisions
- After the PUC approves the S-05 Rate Tariff:
 - No metering controls will be deployed for six months (Waiting Period)
 - After the Waiting Period, no more than 2,000 controls in no more than two municipalities will be deployed in the next six months (Introduction Period)
 - During the Introduction Period, the metered lights will be billed as unmetered, and the metering data used for comparison.
 - After the Introduction Period, any deployed metering controls will be used for billing purposes, and the municipalities will be free to control the lighting levels at their sole discretion, with no notice to National Grid of any operating changes, because the lights will be billed only on power distributed and consumed at the fixture and measured by the meter.

- National Grid and the Towns will work out a procedure for meter testing and verification that meets Division regulations. The Towns will bring National Grid meters for testing that are selected by the company from operating units in the field.

3.05.2014 JB

5.15.2014 JB (Revised)

Below is language to be added to the Tariff.

METERED SERVICE

At the Customer's sole discretion and expense, Customer may install metered control systems on its Facilities under this S-05 tariff. Customer must own and maintain the metering control systems, which will usually be mounted on Customer's luminaires in place of the photosensor. Any meter installed pursuant to this provision will comply with ANSI c12.20.5 standards or such standard as adopted by ANSI136 from time to time as applicable to street lighting..

Customer will electronically transmit its monthly aggregated kWh consumption to the Company in a form reasonably specified by Company and or provide direct access to the information supplied via the controls. Customer shall maintain disaggregated consumption data for two years and will provide this to Company if Company requires verification of usage. The amount of disaggregation shall be determined by the capacity of Customer's equipment.

Company will bill Customer for the kWh reported as actually used by Customers equipment in accordance with the approved street lighting S-05 tariff rates on a kilowatt hour basis and shall be the same regardless of the method of determining the kilowatt hours consumed either by calculation as is currently done or through metered usage provided through the controls system.

Street lighting shall be treated as a single customer account regardless of the means of determining the energy consumed for billing purposes and shall be subject to a single customer charge as approved from time to time in standard tariff proceedings.

The customer shall specify to the company what lights are to be billed to what account to accommodate municipal financing such as general funds, enterprise funds or school departments. The accounts shall be aggregated as much as practicable and multiple meters may be on each account.