

**STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
PUBLIC UTILITIES COMMISSION**

_____))
IN RE: PROCEEDING TO ESTABLISH A PILOT)
METERING PROGRAM FOR MUNICIPALLY-)
OWNED STREETLIGHTS)
_____)

DOCKET NO. 4513

**THE RHODE ISLAND LEAGUE OF CITIES AND TOWNS AND
THE WASHINGTON COUNTY REGIONAL PLANNING COUNCILS’
OBJECTION TO COMPLIANCE FILING**

By its attorneys, the Rhode Island League of Cities and Towns and the Washington County Regional Planning Council object to National Grid’s October 23, 2014, compliance filing in this docket. Together these parties represent all of the cities and towns in Rhode Island. The Commission’s July 25, 2014, memorandum required that the proposed pilot “address the technical issues that would need to be addressed, such as interfacing with National Grid’s billing system, the types of meters that would be compatible, and access issues.” It stated that the “goals of the pilot should, at a minimum, address meter accuracy, integration with the billing system, a comparison to the unmetered rates, and cost allocation.” First, the proposed pilot makes it even clearer that a metering pilot is not necessary at this time. Moreover, the scope and methodology of the pilot is fundamentally too time consuming and expensive, mainly because it neglects significant work already done to evaluate and standardize streetlight meters.

Rhode Island’s cities and towns will not repeat all of their advocacy from the technical session on metering in Docket 4442, because that is all part of this docket by administrative notice. However, the Towns still submit that a metering pilot is not necessary. The word

“controls,” as used in the Municipal Streetlights Investment Act, was intended to mean networked controls that allow remote dimming and part-night operations and that include an accurate metering chip. A pilot is not necessary because control technology with metering capability exists and is in the commercial marketplace (see Pre-filed Testimony of George Woodbury, attached as Exhibit A). Other utilities have accepted it, and National Grid should too. All that is needed is a little time for National Grid to prepare their billing systems.

The scope of the proposed pilot is too broad. In it, National Grid proposes to study issues that are already well resolved. There is no reason National Grid needs to expend six months and substantial dollars to lab test multiple meter types. Experience throughout this country and in Europe clearly indicates which meters will best serve Rhode Island’s purposes.

As set out in George Woodbury’s testimony, there is no question that AMI and AMR systems are compatible with and can be integrated into any meter data management system (MDMS). The only possible question here is whether data from streetlight metering systems is transmitted in a similar format employed by currently used MDMS systems. The streetlight data clearly is compatible, since this capacity has been proven by the integration of the Silver Spring Network streetlight metering systems into the MDMS in Florida, San Diego, Los Angeles and Europe. Compatibility requires no further study; it can be established simply by reference to other jurisdictions.

Meter accuracy is also simply established by compliance with the ANSI C12.20-2010 standard. Streetlight metering systems already comply with this standard. Thus, the only apparent purpose of the accuracy component of this pilot is to demonstrate the relative inaccuracies of the unmetered billing system. Rhode Island cities and towns should not have to pay to document the inaccuracies of billing mechanisms to which they have been subjected

for many, many years.

National Grid's proposed "lighting study" is beyond the scope of the PUC's mandate and is not justifiable as a streetlight ratepayer expense.

It makes no sense to Rhode Island's cities and towns to spend \$4.2 million of streetlight ratepayer money to prove out capacity that has been demonstrated in other jurisdictions and accuracy that is required by national quality standards. Moreover, even if the scope of work were justified, the proposed cost of equipment and installation is excessive (Woodbury, Exh. A, p. 3). The proposal to charge \$1.02 million for system removal is foolhardy when those municipalities proposed for the pilot will have been selected based on their interest in ultimately adopting the metering technology.

It is inappropriate for National Grid to propose an egregiously expensive pilot and have our cities and towns with streetlights pay for it. The proposed pilot states, "The Company proposes that all costs associated with this pilot will be recovered through a fully reconcilable mechanism from customers receiving service on outdoor lighting Rates S-05, S-06, S-10 and S-14." Not all communities will want to meter their lights. Metered streetlights, using currently available technology, are only cost effective when applied in relatively dense areas. Much of Rhode Island is rural, with streetlights far beyond the distance limitation on most reasonably priced metering control systems. There is much analysis needed before purchasing decisions are reached, and even more before a community will know whether or not a networked system is feasible for their lights. Only after these analyses can a community make the choice of whether or not to install such a system.

Rhode Island's cities and towns ask the Commission to reconsider the phased adoption proposal attached at Exhibit B. In it, the municipalities proposed a simpler way to integrate

metered controls. Municipal customers that want networked metered controls would pay for them, perhaps with a subsidy from efficiency funds or the RGGI allocation. There would be no cost to ratepayers and no cost to be shared by municipalities that do not want streetlight metering. The phased-in approach allows ample time for National Grid to prepare its billing system to accept data in a standard format and allow for smart metering. The Commission should simply approve a phase-in of networked controls in order to comply with the intentions of the Municipal Streetlight Investment Act.

Rhode Island's cities and towns are grateful for the Commission's oversight in Docket 4442. Municipalities are moving steadily toward the implementation of streetlight reform. Your oversight of that docket will help save municipal ratepayers nearly \$8 million annually.

Rhode Island's cities and towns respectfully request that the Commission reject National Grid's proposed metering pilot and approve the municipalities' proposed phased introduction of proven metering technology. If the Commission will not accept the phased in adoption, please substantially revise the proposed pilot per these comments or deny it.

Respectfully submitted,

THE RHODE ISLAND LEAGUE OF CITIES
AND TOWNS and THE WASHINGTON
COUNTY REGIONAL PLANNING COUNCIL


By their attorney,



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CERTIFICATE OF SERVICE

I hereby certify that on October 30, 2014, I mailed this original pleading and 9 photocopies to the PUC and sent a true copy of the document by electronic mail to the parties.


Seth H. Handy

State of Rhode Island Public Utilities Commission

Proceeding to Establish a Pilot Metering Program
for Municipal-Owned Streetlights

Docket No. 4513

EXHIBIT A

Pre-Filed Testimony of

George A. Woodbury

October 30, 2014

1 **Q. Please state your name and business address.**

2 A. My name is George Woodbury and my business address is 1052 Johnson Farm Road,
3 Lillington NC27546.

4 **Q. By whom are you employed and in what capacity?**

5 A. I am the Executive Vice President of SolLux Technologies which is a company I co
6 founded to assist communities with the opportunities street lights can provide to support
7 more than just roadway lighting in this rapidly expanding technological age.

8 **Q. Please describe your educational background and training.**

9 A. In 1969 I graduated from The United States Military Academy with a Bachelor of
10 Science degree. In 1977 I graduated from the University of Florida with a Masters
11 degree in Construction Management.

12 **Q. Please describe your professional experience.**

13 A. After a career in the military where I earned the rank of Colonel and commanded
14 engineering and other units, I was the Municipal Utility Director and the Public Works
15 Director for Fort Knox, Kentucky from 1992 to 1995. Fort Knox is the sixth largest city
16 in Kentucky and the Municipal Utility is the largest single customer energy load of
17 Louisville Gas and Electric. During my tenure I instituted demand management
18 programs that reduced our energy costs by 24%. From 1995 to 2000 I was the Director
19 of Public Works in Lexington MA. During that time I authored the legislation in
20 Massachusetts that provided for municipal ownership of street lighting and for municipal
21 aggregation, and played a lead role in the Massachusetts Municipal Association's

1 streetlight maintenance program. From 2000 until the present I have helped 80
2 communities in eleven states acquire their streetlight systems and implement energy
3 savings. In this capacity I negotiated Purchase and Sale and License Agreements with
4 various utilities. For five years, from 2007 thru 2013, I worked for Republic Electric
5 (now a division of Siemens) as a Municipal Consultant on street lighting matters.
6 Republic Electric is the largest streetlight maintenance company in the country. In this
7 position I was able to gain detailed insights into the maintenance and service
8 requirements of streetlighting systems. Among my current clients is a group of
9 communities in Maine, where I have assisted with the passage of legislation allowing
10 municipal ownership of streetlighting. I have testified numerous before various utility
11 commissions on streetlighting matters. Today my company is assisting two
12 Massachusetts communities install complete LED systems with intelligent controls for
13 some 5595 streetlights.

14 **Q. What is the purpose of your testimony in this docket?**

15 A. The purpose of this testimony is to review the proposed streetlight metering pilot and
16 to share my observations based on experience with the implementation of municipal
17 streetlight programs and metering technology. It is my hope that by sharing my
18 knowledge and experience I can help make the implementation of streetlight metering in
19 Rhode Island a success.

20

1 **Q. In sum, what is your expert assessment of the proposed metering pilot?**

2 A. I appreciate the effort put into this document and the level of technological
3 consideration. However, it fails to recognize that there is substantial information from
4 ongoing pilots and deployments in other parts of the country from which a great deal
5 could be learned in less time at minimal cost. The price proposal for this pilot is
6 excessive and is not designed with the best interests of the ratepayers in mind.

7 **Q. What are your concerns about the proposed scope of the metering pilot with**
8 **regard to metering compatibility?**

9 A. The purposes of the pilot, as defined by the PUC, are to address certain technical
10 issues such as interfacing with NGRID's billing system, the types of meters that would be
11 compatible and access issues. At a minimum, it is meant to address meter accuracy,
12 integration with the billing system, a comparison to the unmetered rates, and cost
13 allocation.

14 As demonstrated during the technical session for Docket 4442, streetlight
15 metering is not new science. Metered streetlights are a reality in other parts of the
16 country. The Company already has a metered rate for streetlights that typically applies to
17 downtown lights fed from a single power box. All that is needed now is to add to that rate
18 (or to the S-5 rate) the ability of the customer to employ the smart photocell or controls
19 on individual streetlights that are currently unmetered. Technology exists today that
20 permits remote operation of streetlights and also provide meter grade accuracy
21 measurements of the streetlights energy consumption using these controls or smart

1 photocells. These devices permit dimming, timed operations and a number of other
2 options for the community, like emergency signaling and receptacles to mount
3 community services like cameras and Wi-Fi devices. These smart photocell devices also
4 provide directly to the utility the metered consumption of the lights. It is important the
5 utility not be allowed to impede the ability of the communities to use the latest
6 technologies and or their streetlights in ways that benefit their communities.

7 Utility companies began switching to electric meters using similar technology
8 many years ago. In 2008 there were over 39 million of these devices deployed in Europe
9 and over 17.4 million being deployed in the United States annually. Referred to as AMI
10 or AMR systems, they all employ an electronic transmission of the usage data to a
11 receiver that is then integrated into the utility MDMS (Meter Data Management System).
12 NGRID currently uses an AMR system that communicates with hand held devices and is
13 exploring the transition to AMI systems where the meters communicate with a large
14 communication infrastructure thereby eliminating the need for driving by the meters. In
15 both systems, usage data is collected and transmitted wirelessly to a receiver. With AMI
16 system use mesh or point to point communications to transmit the data to an receiver that
17 connects through the internet or direct to the utility with out the need to drive around to
18 collect the data. AMR meters and AMI systems operate in exactly the same way as an
19 intelligent photocell. There is widespread knowledge of the capacity to integrate
20 electronic data into MDMS as a result of the deployment of AMR meters And AMI
21 systems

1 The only open question is whether or not the data provided from the streetlight
2 control is transmitted in a similar format as the current systems that are widely used. One
3 of the systems selected is produced by Silver Spring Networks, SSN. SSN is one of the
4 leading manufacturers of AMI communication network systems. The communication
5 device deployed in the electric meters is the same device employed in the Sunrise
6 Technology intelligent photo control. Florida Power and Light is currently deploying
7 20,000 of these streetlight controls in Florida using the SSN. San Diego has also
8 embarked on a major pilot, as has Los Angeles and San Jose. There are major
9 installations in Europe as well, including one by SSN in Paris and much of Copenhagen.
10 There is extensive information already available to address the concern regarding
11 compatibility with the MDMS.

12 With regard to concerns raised that adding 100,000 accounts (1 per streetlight) to
13 National Grid's system would be difficult or impossible, the Towns have never proposed
14 individual streetlight metering. Networked controls that include meters are designed to
15 aggregate many metered lights into one or more accounts. There will be the same or
16 fewer municipal streetlight accounts, not more. Please note, though, that the systems
17 capture and retain records from each individual light, so if National Grid wished to
18 question any municipal account, it could be given access to the full data records.

19

1 **Q. What are your concerns about the proposed scope of the metering pilot with**
2 **regard to meter accuracy?**

3 A. All electric meters undergo standardized testing in accordance with the protocols
4 established under ANSI C12.20-2010. ANSI is also currently considering the applicable
5 standard to be applied to streetlight metering controls. Currently streetlights are
6 unmetered and billed based on an inconsistently applied mathematical formula that must
7 be considered as the baseline condition against which to evaluate metering accuracy. The
8 variance of these formulas from utility to utility is not insignificant. As an example,
9 NGRID uses 86 watts for a 70 watt HPS street light in both Rhode Island and
10 Massachusetts but in their NIMO territory they assign it an 82 watt usage. NSTAR
11 assigns 86 watts to a 70 watt HPS fixture in the Commonwealth Electric (CE) Service
12 territory. NGrid uses 4175 operating hours per year as the basis for its rate calculations.
13 In Massachusetts, NSTAR uses 4200.003 hours in the old Boston Electric (BECO)
14 service territory and 4000 hours for the old Commonwealth Electric service territory.
15 They do not list the 70 watt fixture in the BECO tariff but by comparison they use 63
16 watts for a 50w HPS fixture in CE and 58 watts in BECO territory. Western Mass
17 Electric uses 4150 hours and 61 watts for the 50 watt fixture. We have completed well
18 over 50 streetlight system audits and it is typical to find numerous lights not working and
19 some lights burning continuously (“day burners”). The number of lights in the field is
20 typically different from the inventory on which the bill is based. The inventory errors
21 typically average 7%. As an example in Providence 396 lights were inspected and 22
22 lights on the inventory did not exist and there were 6 lights in the field that were not on

1 the inventory. An inspection of the 7,700 lights in Brockton revealed that 359 were not
2 operating. These numbers certainly beg the question as to the accuracy of the current
3 billing system to begin with. As a result we believe the relevant issue is whether or not
4 the intelligent control can accurately report the usage data and this has been extensively
5 tested in the laboratory by independent companies in order for these devices to be
6 certified under ANSI C12.20 standards. The only remaining question is whether these
7 systems will accurately report usage - that is, whether each of the nodes will deliver its
8 information with sufficient reliability for reporting purposes when employed across a city
9 streetlight system. Given that these metering systems use the same mesh network and
10 communication devices that are used in AMI systems and the utilities have embraced this
11 technology widely, this question has already been answered. The one new product of the
12 proposed pilot may very well be to illustrate the inaccuracies of the current unmetered
13 billing system, but that does not justify its time and cost to ratepaying customers.

14 **Q. What are your concerns about the proposed terms of the metering pilot**
15 **regarding cost allocation?**

16 A. NGRID has proposed a 4.2 million dollar study to establish what has already been
17 well established or is currently being demonstrated in other parts of the country and the
18 world. These costs are not reasonable even if such a study were required. The proposed
19 \$300,000 cost for SSN's equipment is excessive. We are purchasing Sunrise Technology
20 nodes for two communities in Massachusetts at a cost of \$130 per unit and they are
21 installed as a part of the standard installation of a LED fixture using the ANSI 136.41

1 seven pin standard twist lock photocell receptacle. There is no added cost for the
2 installation, as the process is identical to the standard photocell. Some costs must be
3 allocated to the AP units (central device that collects the information from multiple nodes
4 and connects to the internet or a cellular serve to transmit the collected data to the client)
5 and their installation but these numbers are relatively small. The equipment installation
6 cost in two towns where we are installing 5,595 units is substantially less than the
7 \$600,000 proposed here. The AP devices cost \$5,500 and about \$600 to install and for
8 5,595 lights we will require only four to five of these and approximately 8 relays at a cost
9 of \$1200 dollars each. NGrid budgets \$980,000 to install 2000 LED lights with controls.
10 The cost to install over 5,595 LED lights with the ANSI 136.41 photocell receptacle and
11 the 0-10 volt diming capability for the two towns in Massachusetts is under \$223,800
12 dollars, including the labor to install the needed gateways and relays. NGrid proposes
13 \$1.02 million for system removal. This makes no sense because the Towns will most
14 certainly want to keep this equipment in service, even in the Company luminaire portion
15 of the study. NGRID has already said the communities will be selected based on an
16 expressed desire to participate. We have met with more than half of the communities in
17 this state and all have expressed interest in taking over their lights and converting them to
18 LED technology. It would make the most sense to partner with one of these communities
19 and share the costs. NGRID would pay for only the portion over and above the LED
20 conversion. If the community wanted the controls than those costs could be shared. In
21 this manner, the costs are greatly reduced, the community gets what it wants, and NGRID
22 gets what it needs at much lower costs. NGRID proposes to recover their costs from only

1 streetlight ratepayers. If cost recovery is granted, we have a responsibility to minimize
2 costs. Given the energy savings that will be realized through widespread use of this
3 technology, the pilot should be funded with energy efficiency funds.

4 **Q. What would you propose?**

5 We should identify communities for the pilot that wish to participate and have a desire to
6 take ownership of the lights as provided under the statute and that want to convert their
7 lights to LED technology. Those communities would transition to municipally owned
8 lights and they would fund the conversion to the LED lights with the ANSI 136.41
9 photocell receptacle and the 0-10 volt dimming driver to make the lights intelligent
10 control ready. Included as part of the project the selected intelligent control would be
11 installed. NGRID would install the AP and communication network in cooperation with
12 SSN. At the end of the project all equipment installed would remain in place. Keep in
13 mind the intelligent control will function like a standard photocell if it is not connected to
14 a network. Depending on the outcome of the pilot the Town would have the option of
15 purchasing the network from NGRID for a fair price. In this way NGRID partners with
16 communities.

17 **Q. Does this conclude your testimony**

18 Yes

19

EXHIBIT B

Municipal Compromise Offer Regarding Metering Controls

The municipalities propose a compromise to allow National Grid time to prepare for metered streetlights. We propose that:

- No metering controls will be deployed for six months from approval (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)
- 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.
- During the Introduction Period, the metered lights will be billed as unmetered, and the metering data used for comparison.
- Upon completion of the Introduction Period, the S-05 Rate tariff will be amended to contain both metered and non-metered provisions
- 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.

PROPOSED TARIFF LANGUAGE FOR 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.