STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
PUBLIC UTILITIES COMMISSION

IN RE: THE NARRAGANSETT ELECTRIC COMPANY D/B/A NATIONAL GRID STREET LIGHT METERING PILOT PROPOSAL	)	DOCKET NO. 4513

MUNICIPALITIES'
RESPONSE TO DIVISION'S DATA REQUEST
ISSUED NOVEMBER 7, 2014

1-1. Please explain in detail how National Grid involved the municipalities in the development of the pilot proposal.

Response: The July 25 memo regarding PUC Docket 4513 called for a metering pilot and municipal outreach.

On Wednesday, September 3 National Grid held the only meeting with the municipalities. The pilot and survey were discussed in general terms. No agenda, written materials, distribution lists, or drafts were available.

Municipal Involvement in the survey:

On Sunday, September 21, National Grid distributed a draft survey via email, and on Friday, September 26, the municipalities responded with suggestions.

On Wednesday, October 1, National Grid sent the municipalities the final survey. It included most of the municipalities' suggestions and stated that the survey would be distributed on October 3 (Friday.) The survey was distributed on October 6.

Between October 1 and Monday, October 6, when the survey went out, the municipalities requested the distribution list multiple times. The municipalities hoped to help make the survey more effective by ensuring that it went to the correct municipal representatives.

On Monday October 6, after the survey was distributed to the communities, National Grid gave the municipalities a distribution list that included only names and email addresses, not the municipality or position. According to the League, there were 18 errors in the list. Since National Grid provided the list only after the survey was distributed, the municipalities could not correct the list. After distribution, the League and WCRPC received numerous telephone calls and emails from recipients expressing confusion and concerns about the survey.

Municipal involvement in the metering pilot:

After the PUC memo of July 25 and the general discussion at the September 3rd meeting, the first draft of a pilot was received on Thursday, October 16, when National Grid provided an 18-page draft proposal. No budget was included and the draft mentioned only that costs would be recoverable, but did not specify from whom.

On Tuesday, October 21, National Grid distributed a new metering pilot draft. This version still did not specify from whom costs would be recovered, but did include a budget of $6.36 million and a 54 week schedule.

On Thursday, October 23, National Grid submitted its 34-page metering pilot proposal to the Commission. This draft proposed a budget of $4.2 million and specified rate recovery "from customers receiving service under the Company's outdoor lighting Rates S-05, S-06, S-10 and S-14."

The municipalities did not have time to respond to the draft pilot until after it was filed with the PUC.

1-2. Please identify the two communities in Massachusetts that are installing controls with metering capability. Please identify the local distribution company. If the local distribution company has filed a tariff to bill those streetlights using metering data, please provide a copy.

Response: The two communities are Fitchburg, Massachusetts and Randolph, Massachusetts. The serving utility for the City of Fitchburg is Unitil, which has 2,949 lights with controls. There is no filed tariff for the metering controls in Fitchburg, but Unitil is working with the City to develop a tariff. The serving utility in Randolph is National Grid, which has 2,646 lights with controls. National Grid has not filed a tariff to accept the metering data. In both towns, the municipal decision was to purchase the control units for their functionality. In each control unit, a single chip provides the metering capability. While both towns expect to utilize this component in the future, that one chip did not drive the purchase of the control unit. For streetlights, there is no separate "meter," rather there is one chip on one of the three circuit boards in each control unit that allows metering data to be collected and distributed

1-3. Please identify the eleven states in which Mr. Woodbury has assisted customers in purchasing streetlights. Please indicate in which of the 80 communities, the streetlights are currently metered. Please provide any applicable tariffs where billing is based on the metering data.

Response: Mr. Woodbury has been working on legislation to provide for municipal ownership of street lighting in Maine, Rhode Island, Massachusetts, Maryland, and Ohio and has conducted preliminary discussions regarding similar legislation with the California Streetlight Association. In addition, Mr. Woodbury worked on the following specific projects. He worked with the Town of Amherst, NY in reviewing a purchase agreement with Niagara Mohawk, ultimately recommending against the terms of the acquisition. He worked with Lancaster, Pennsylvania on an acquisition from PP&L, but a change in tariffs during the process reduced the potential savings to less than 10%, which resulted in the City deciding against the initiative. Mr. Woodbury worked with the City of Omaha, Nebraska to examine their possible acquisition of streetlights and had some preliminary discussions with Omaha Public Power District. Mr. Woodbury worked with Mesa Arizona and their utility Salt River Project. He was involved in a proposal for the takeover of the streetlights served by TXU/Oncor through Republic Electric. Mr. Woodbury assisted with a program called Serge in the Town of Thetford, Vermont regarding acquisition of their streetlights. He assisted the City of Huntington Beach, California in their discussions with SCE to acquire their streetlights. Mr. Woodbury was involved in the preliminary discussions on behalf of Quincy

Illinois with their serving utility Ameren. Most recently, Mr. Woodbury has begun work with an organization called Pennsylvania Futures to intervene in a First Energy LED rate case to examine the possibility of legislation to provide for municipal ownership of street lighting, with the support of the PLCM (Pennsylvania League of Cities and Municipalities) and the State Association of Burroughs. Mr. Woodbury also has completed street light energy efficiency projects in Massachusetts, Pennsylvania, Florida and Oklahoma, New York and California.

Most communities have some streetlights that are metered and billed on a metered rate. We can provide numerous examples of such bills from National Grid and other utilities. There is no special tariff as said streetlights are billed under the small commercial rate frequently referred to as G1. The comparable Narragansett Electric rate is C-06. In these specific cases, multiple lights are served from a power box that is metered. In most instances, these lights are underground fed decorative lights and school parking lot lights. However, to our knowledge, there are no intelligent control devices mounted on lights to meter these uses.

The applicable tariffs where billing is based on the metering data is as follows:

San Diego Electric has adopted a tariff OL-1 for customer owned and metered lights specifically designed to support intelligent controls (see attached tariff).

National Grid's reference tariff in Massachusetts is:

M.D.P.U. No. 1151
Sheet 1
Canceling M.D.P.U. No. 1138
MASSACHUSETTS ELECTRIC COMPANY
GENERAL SERVICE - SMALL COMMERCIAL AND INDUSTRIAL G-1
RETAIL DELIVERY SERVICE
AVAILABILITY
Electric delivery service under this rate is available for all purposes, subject to the provisions of this section.
A new Customer will begin service on this rate if the Company estimates that its average use will not exceed 10,000 kWh/month or 200 kW of demand. A Customer may be transferred from rate G-1 at its request or at the option of the Company if the Customer's 12 month average monthly usage exceeds either 10,000 kWh/month or 200 kW of demand for 3 consecutive months.

A Municipality which owns and maintains street light fixtures served by underground circuitry may take delivery service under the unmetered service provision of this rate if the Municipality signs an Underground Electric Service for Non-Conforming Street Lighting Contract with the Company for underground electric delivery service for street lighting.

1-4. Please identify the communities in Rhode Island that would be most likely to benefit from billing based on metered streetlights.

Response: All communities in Rhode Island would benefit from metered controls as it would eliminate the current error rates in streetlight billing and provide a method of self-reporting power outages, thereby making repairs more timely. As a practical matter, communities such as Little Compton that are rural in nature and where the lights are limited and widespread, the cost of installing a mesh network would be impractical. Larger communities that are more urban and where streetlights are located on most of its streets would benefit from a mesh network. In time, we expect that the cost of this technology for rural areas will drop enough that it will make economic sense for them to participate as well. This may be only a few years away.

It is important to note that typical nonmetered billing has inherent errors. At any given time some percentage of the lights in a municipality are not working because one or more of its components have failed. For example, a night audit of 7736 lights in Brockton, MA (a NGRID community) found 359 lights not working or about 4.6%. Also, some lights mistakenly operate continuously because the photocell fails and for safety reasons when it fails, it fails on. Again, with metered controls, those failures would be reported immediately, resulting in more timely repairs and therefore, result in cost savings.

1-5. Please identify the ongoing pilots and deployments in other parts of the country, the status, and links to any public filings/documentation of results.

Response:

San Diego. Pilot includes approximately 2,100 lights using the GE intelligent control system and a tariff adopted by San Diego Electric. Link to an article is listed below
http://www.fiercesmartgrid.com/story/san-diego-pilots-first-street-light-energy-grid/2013-11-20
http://cleantechsandiego.wordpress.com/category/intelligent-streetlights/

Chattanooga. Pending project for 21,000 streetlights with controls.

San Jose http://www.sanjoseca.gov/index.aspx?NID=1898

http://www.ledsmagazine.com/ugc/2009/04/city-of-san-jose-selects-echelon-s-intelligent-controls-technology-for-led-streetlight-demonstration.html

Pacific Gas and Electric did a report as far back as 2009. Since that time the cost of LED lights and their relative efficiency has improved significantly. The link to this report is below.

http://www.etcc-ca.com/sites/default/files/OLD/images/pge_0913_san_jose_efficient_street_light_report_final.pdf

Florida Power and light is working with Silver Spring Networks to install 20,000 controls, primarily because of their ability to self-report, but they will also be capturing usage data.

http://www.silverspringnet.com/article/silver-spring-showcases-networked-street-lights-and-smart-city-momentum-at-2014-ies-street-and-area-lighting-conference/#.VGDl995vf8s

http://www.smartgridnews.com/artman/publish/End_Use_Efficiency/Why-smart-streetlights-are-the-gateway-drug-for-smart-grids-and-smart-cities-6412.html#.VGDmdN5vf8s

1-6. Please explain why streetlight metering controls may be subject to a different standard than other meters.

Response: Typical unmetered streetlight billing has inherent errors as we discussed in our original comments to the Commission. NGRID has proposed a tariff for LED streetlights which sets group tiers with all lights in the group being billed at the center of the tier, thereby introducing additional errors in the billing. It is evident the utilities are not currently concerned with the accuracy of the billing for streetlights, because the lights operate off peak and use available unused capacity so the marginal cost to serve street lighting from a grid capacity is zero. The question is how do we accurately measure the consumption of a single streetlight? Clearly the higher the demand for accuracy, the more expensive the control will be. Currently the ANSI committee is considering values ranging from ± 2% to ± 5% accuracy. Given that the maximum usage such a control would measure is on the order of less than 100 kWh per month and the majority of streetlights consume less than 16kWh per month (the most common streetlight across the county is 100 watts or less and this can be replaced by a 45 watt LED fixture and using NGRID's formula of 4175 hours per year, this would be an average of 15.66 kWh per month), a 2% error is quite minor and significantly better than the current billing accuracy.