

**STATE OF NEW YORK
PUBLIC SERVICE COMMISSION**

Comments of the Mid-Hudson Streetlight Consortium in the matter of the tariff filing by New York State Electric & Gas Corporation to revise its electric tariff schedule, P.S.C. No. 21, to offer Company-owned LED street lighting options.

Case 16-E-0710

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1. Introductory Statement

The Mid-Hudson Streetlight Consortium (“MHSC”) welcomes the proposed addition of LED options by New York State Electric & Gas Corporation (“the Company”) to its tariff schedule. The MHSC offers comments in four areas related to the proposed tariff amendments: 1) fixture specifications; 2) fixture rates; 3) stranded asset charges; and 4) the Company’s LED replacement plan.

2. Fixture Specifications

The Company’s LED proposal includes four wattage options to replace the various light types and wattages in its service territory. These options have a Correlated Color Temperature (“CCT”) of 4,000 Kelvin. We recommend that the Company include options with a CCT of 3,000 Kelvin, which is consistent with International Dark Sky Association standards, as well as the preferences of many municipalities for “warmer” lighting. It is worth noting in this regard that

Central Hudson is adding options with a CCT of 3,000 Kelvin in response to some negative feedback the utility has received regarding the light quality of 4,000 Kelvin LEDs that the Company has been installing in its service territory. It is our belief, however, that the over-sizing of the LEDs by Central Hudson, and the excessive brightness that resulted, was an important contributing factor in customer complaints about the light quality, and possibly the most important factor in many cases. NYSEG would best meet the range of customer preferences by offering both 3,000 and 4,000 Kelvin fixtures, while ensuring in all cases that the options are appropriately sized in terms of wattage.

As Table 1, below, illustrates, the LED options proposed by the Company are, with one important exception, over-sized, and risk causing complaints by the public about brightness and glare. Over-sizing also results in reduced energy and cost savings to municipalities, and is not in the public interest from the perspective of maximizing reductions in greenhouse gas emissions through energy efficiency. The optimal wattage ranges in the table, below, assume a fixture efficacy of at least 100 lumens per watt, which many products in today’s market now exceed. Appropriate lighting levels would be better ensured if LED replacements were based on lumen output rather than wattage to accommodate the rapidly improving technology. As an example, the effective lumen output of a 50-watt HPS lamp is around 2,200 lumens. Some technologies can achieve this output with less than 20 watts.

Table 1: Proposed NYSEG LED Replacements Compared to Optimal Wattage Range

Existing fixtures	Optimal LED replacement (range)	Utility LED replacement	LED potential oversizing	Lost annual energy savings potential per streetlight (kWh)	Lost annual financial savings potential per light
50w HPS	20-28w	34w	21-70%	25-59	\$1.93-4.51
70w HPS	20-28w	34w	21-70%	25-59	\$1.93-4.51
70w MH	20-28w	34w	21-70%	25-59	\$1.93-4.51

100w HPS	35-42w	34w	-19-3%	-34--4	\$-2.57--.32
100w MH	20-28w	34w	21-70%	25-59	\$ 1.93-4.51
100w MV	15-28w	34w	21-127%	25-80	\$1.93-6.11
150w HPS	48-54w	66w	22-38%	51-76	\$ 3.86-5.79
175w MV	15-28	66w	136-340%	160-215	\$12.23-16.41
175w MH	48-54	66w	22-38%	51-76	\$3.86-5.79
250w MV	25-54	113w	109-352%	249-371	\$18.99-28.32
250w MH	90-100	113w	13-26%	55-97	\$4.18-7.40
250w HPS	85-100	113w	13-33%	55-118	\$4.18-9.01
400w MV	35-80	166w	108-374%	362-552	\$27.67-42.16
400w MH	90-120	166	38-84%	194-320	\$14.80-24.46
400w HPS	85-120	166	38-95%	194-341	\$27.67-42.16

We would like to note that the Company’s proposed LED replacement for the 100-watt HPS—the most common fixture in the service territory—is well-sized (assuming the existing HPS lights are themselves appropriately sized), and we recommend that replacement wattages for other street light types and sizes be selected from within the optimal ranges shown above. (Central Hudson, for example, has proposed an LED replacement range averaging 25-watts for its 70-watt HPS.)

3. Fixture Rates

An analysis by the MHSC for a forthcoming report on conversion options for Mid-Hudson communities (still in review draft form) assessed a variety of conversion scenarios for each utility territory and found that the Company’s proposal before the Commission would result in slightly lower costs for municipalities than remaining with their current fixtures on an on-going basis, if they have a portfolio of lights that is broadly representative of service territory in terms of the percentage distribution of light types and wattages. The rates should, however, be even lower, as the assumed maintenance costs are high. The Company assumes that O&M for LEDs will be 20% of the costs of existing lights. LEDs have a life span that is up to three times that of HPS fixtures (estimated life spans of 15-20 years for LEDs, compared to a little under 6 years for HPS lamps). The City of Los Angeles experienced a failure rate of 0.89 percent annually for

170,000 LED street lights that were installed over seven years.¹ By contrast, in the experience of MHSC partner George Woodbury, failure rates for HPS lights have been around 18% per year.² In addition to the reduction in maintenance needs, the higher reliability of LED lighting will result in less material ordering, handling and stockage, less work orders being processed, less outage calls, less wear and tear on equipment, etc. Finally, ten-year warranties on LED products are standard, further reducing costs. For these reasons, when Central Hudson filed its tariff amendments with LED options, the Company did not include any O&M costs in the rate structure; instead, Central Hudson included an (overly conservative) initial failure rate of 2%.³ An assumed rate of 1% would be sufficiently conservative, given the experience with today's LEDs.

While information was not shared in the filing regarding NYSEG's estimated pricing for LEDs, the MHSC would like to share with Staff the LED fixture pricing data, below, based on prices obtained Woodbury. We hope this data will be useful in evaluating NYSEG's estimates. The low-end estimates assume a bulk purchase discount.

¹ Email communication with Ed Ebrahimiian, Director, City of Los Angeles Bureau of Street Lighting, January 14, 2017.

² MHSC project partner George Woodbury, LightSmart Consulting, has had many years of experience with both HPS and LED maintenance costs as a consultant to municipalities in other states purchasing their street light systems from their utility. Woodbury has overseen LED conversions completed in about 70 communities, and is currently assisting another 25 communities outside of New York. Previously, Woodbury worked for Republic ITS, in Massachusetts, maintaining over 70,000 HPS lights in 27 or more communities at any one time.

³ See the filing by Central Hudson Gas and Electric in Case 15-E-0126, "Tariff filing by Central Hudson Gas & Electric Corporation to update Service Classification No. 8 - Public Street and Highway Lighting to reflect LED lighting options contained in P.S.C. No. 15 – Electricity," Feb. 26, 2015.

Current Fixture	Average LED Wattage	Low end cost	High end cost
70w HPS	24	\$ 110.00	\$ 145.00
175w MV	24	\$ 110.00	\$ 145.00
100w MV	22	\$ 110.00	\$ 145.00
150w HPS	51	\$ 135.00	\$ 165.00
100w HPS	39	\$ 110.00	\$ 145.00
250w HPS	93	\$ 235.00	\$ 285.00
400w HPS	103	\$ 235.00	\$ 285.00
400w MV	58	\$ 110.00	\$ 200.00
250w MV	40	\$ 110.00	\$ 165.00

4. Stranded Asset Charges

Unlike other utilities in the Mid-Hudson region, which are using, or propose to use, an average price per fixture based on net-book value to calculate the stranded asset costs to municipalities of upgrading to LEDs, NYSEG proposes to calculate this cost on a case-by-case basis. We would like to bring to the attention of the Commission the fact that the stranded asset costs on the utility's books may not reflect the utility's actual inventory. This is true of all the utilities. Errors in utility record-keeping are very common, and in cases where municipalities have contracted with billing audit experts to undertake a paper audits of street lighting bills, these audits have typically resulted in refunds by the utility for over-charges. According to one company that performs these audits, the refunds have been as high as \$100,000 in NYSEG territory, \$75,000 in Central Hudson territory, and \$25,000 in Orange and Rockland territory.⁴ Such widespread practices of poor record-keeping should be corrected, as customers are being routinely over-charged.

To understand the potential impact of having to pay stranded costs in order to convert to LEDs in NYSEG territory, the MHSC analysis used as a proxy the weighted average per fixture purchase prices in two recent sales of street light systems in NYSEG territory-- \$220 per light—and found that it would take six to 14 years to see a net cost savings from conversion, despite substantial energy savings. The actual stranded asset charges will likely be less since purchase prices for street lights in NYSEG territory are not based on net-book value, alone.

⁴ Email communication with David Rose, Principal, Computel Consultants.

As the MHSC has argued elsewhere, requiring municipalities to pay the stranded asset charges will likely deter them from upgrading to LEDs, since they will not see net savings for a number of years. Such an outcome is not in the interests of New York State, which has set targets for reducing carbon emissions by 40% by 2030 and 80% by 2050 below 1990 levels in order to address the climate crisis. Our analysis has found that conversion to LED street lights would reduce greenhouse gas emissions by 2,787 metric tons annually in the Company's Mid-Hudson region territory, alone—a total reduction of 66 percent. We urge the Commission to prioritize energy efficiency in line with State climate and energy goals, and reduce the barriers to an accelerated conversion to LED street lights. To this end, elimination of stranded asset charges would make a major difference. The wider societal benefits of reduced fossil fuel consumption outweigh the insignificant additional costs to ratepayers.

5. Replacement Plan

Under the proposal, the Company would only upgrade a maximum of 15% of the street lights in the service territory per year through combined requests from municipalities. This restriction would unnecessarily delay a complete LED conversion, along with the full realization of cost savings and emissions reduction benefits, to seven years from now. The MHSC urges the Commission to require the Company to reclassify HPS fixtures as non-standard fixtures, as Central Hudson has proposed to do, and begin replacing existing fixtures with LEDs in the course of routine maintenance, as Central Hudson is currently doing and as O&R has proposed to do. It is inconsistent with the State's energy goals to continue servicing street light fixtures that are highly inefficient and no longer meet today's lighting standards. The MHSC further recommends that the Commission require the Company to enable a minimum LED conversion of 35% of the street lights in the utility service territory per year that can be achieved through a combination of maintenance upgrades and approval of requests by municipalities for an accelerated conversion.

Finally, the MHSC recommends that language be added to the tariff specifying the process for conversion to utility LEDs. It should be made clear in the tariff that municipal customers can choose from the available utility LED fixtures which LED wattages they would like to install at what locations as replacements for existing lights, based upon their own lighting design plan. The utility should update Leaf 7, paragraph 6, accordingly.

6. Conclusion

The MHSC welcomes the addition of LED options to the Company's tariff, and urges the Commission to consider our recommendations with regard to fixture choices, stranded asset costs, and replacement plans, which we believe will contribute to a more successful LED street light conversion in the service territory.

Sincerely,



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On Behalf of the Mid-Hudson Streetlight Consortium

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