

New York State Electric & Gas – Avangrid Company (formerly known as Iberdrola)

In November 2017, the PSC approved a proposal by NYSEG to add LED options, making a number of valuable modifications to NYSEG’s original proposal that expanded the utility’s offerings, reduced the rates, and improved energy savings. At the Commission’s direction, NYSEG offers customers a choice of LED color temperatures, including 4,000 Kelvin (a neutral color temperature) or 3,000 Kelvin (a warmer light). Four wattage options are available to replace 15 light types and wattages in the service territory.

Fixture wattages:

As shown in Table 5, below, the LED wattages fall within optimal ranges as replacements for most existing light types and sizes. One notable exception is the LED replacement for the 100w HPS, which accounts for about 30 percent of NYSEG’s 87,000 street lights across the state.¹ It is possible that, once a community-level lighting assessment is undertaken, municipalities may determine that the 25w LED is an appropriate substitute for the 100w HPS—particularly in residential neighborhoods. The replacement option for the 150-watt HPS, which account for about 14% of the lights in the service territory, is also higher than the optimal wattage range.

Table 1 - NYSEG LED Replacement Wattages Within Optimal Efficiency Ranges ²

Existing fixtures	Annual (kWh) energy consumed	Optimal LED replacement range (watts)	Annual (kwh) consumed: Optimal range	Utility LED Options within optimal range	Utility LED Options outside optimal range	Recommended LED lumens (at 25-30 ft. mounting height)
50w HPS	244	20-28w	84-118	25w		1900-2200
70w HPS	350	20-28w	84-118	25w		2500-2800
70w MH	400	20-28w	84-118	25w		2500-2800
100w HPS	493	35-42w	147-177		67w	3800-4200
100w MH	506	20-28w	84-118	25w		3800-4200
100w MV	535	15-28w	63-118	25w		1900-2200
150w HPS	720	48-54w	202-228		67w	5800-6400
175w MV	885	20-28w	84-118	25w		2000-2400
175w MH	885	48-54w	202-228		67w	5800-6400
250w MV	1230	25-54w	105-228	25w		3500-3800
250w MH	1319	90-100w	379-421		113w	11000-12000
250w HPS	1319	85-100w	358-421		113w	11000-12000
400w MV	1938	35-80w	147-337	67w		11000-12000
400w MH	2048	90-120w	379-506	113w	166w	11000-12000
400w HPS	2048	85-120w	358-506	113w	166w	11000-12000

¹ NYSEG’s territory extends well beyond the Mid-Hudson region.

² This table is for evaluative purposes only. Local governments should select utility replacement wattages based on a lighting design plan that takes into local lighting needs and conditions as well as specifications of the utility’s fixtures, including the fixture efficacy. The lower the efficacy of the LED fixture, the higher the wattage has to be in order to obtain a given level of illumination.

Fixture rates:

As shown in Table 6, below, NYSEG’s LED rates are in most case lower than the rates for the lights they are replacing. When energy cost savings are taken into account, municipalities would see across the board savings by upgrading to LEDs.³ The analysis in Chapter 5 finds that a typical municipality would see a cost savings of up to 45 percent by converting to LEDs, once the stranded costs of replacing the existing lights are paid off.

Table 2 - Per Fixture Savings from LED Conversion: NYSEG (May 2017-May 2018)⁶⁰

Existing Fixture	12-month fixture charges	Estimated annual supply & volumetric charges	Total estimated 2017 costs: existing fixtures	Utility LED replacement	12-month fixture charge	Estimated annual supply & volumetric charges	Total per fixture costs	Total per fixture savings/(costs) from utility LEDs
50w HPS	\$ 93.48	\$ 18.66	\$ 112.14	25w	\$ 50.76	\$ 8.05	\$ 58.81	\$ 53.34
70w HPS	\$ 93.48	\$ 26.71	\$ 120.19	25w	\$ 50.76	\$ 8.05	\$ 58.81	\$ 61.38
70w MH	\$ 57.12	\$ 30.57	\$ 87.69	25w	\$ 50.76	\$ 8.05	\$ 58.81	\$ 28.89
100w HPS	\$ 93.48	\$ 37.65	\$ 131.13	25w	\$ 50.76	\$ 8.05	\$ 58.81	\$ 72.33
100w MH	\$ 57.12	\$ 38.62	\$ 95.74	25w	\$ 50.76	\$ 8.05	\$ 58.81	\$ 36.93
100w MV	\$ 51.00	\$ 40.87	\$ 91.87	25w	\$ 50.76	\$ 8.05	\$ 58.81	\$ 33.06
150w HPS	\$ 93.48	\$ 55.03	\$ 148.51	67w	\$ 57.48	\$ 21.56	\$ 79.04	\$ 69.47
175w MV	\$ 51.00	\$ 67.58	\$ 118.58	67w	\$ 57.48	\$ 21.56	\$ 79.04	\$ 39.54
175w MH	\$ 56.16	\$ 67.58	\$ 123.74	67w	\$ 57.48	\$ 21.56	\$ 79.04	\$ 44.70
250w MV	\$ 53.28	\$ 93.97	\$ 147.25	104w	\$ 70.68	\$ 33.47	\$ 104.15	\$ 43.10
250w MH	\$ 181.92	\$ 100.72	\$ 282.64	104w	\$ 70.68	\$ 33.47	\$ 104.15	\$ 178.50
250w HPS	\$ 93.48	\$ 100.72	\$ 194.20	104w	\$ 70.68	\$ 33.47	\$ 104.15	\$ 90.06
400w MV	\$ 54.12	\$ 148.03	\$ 202.15	166w	\$ 147.72	\$ 53.42	\$ 201.14	\$ 1.01
400w MH	\$ 181.92	\$ 156.40	\$ 338.32	166w	\$ 147.72	\$ 53.42	\$ 201.14	\$ 137.18
400w HPS	\$ 98.76	\$ 156.40	\$ 255.16	166w	\$ 147.72	\$ 53.42	\$ 201.14	\$ 54.02

Note that the savings calculated in the Table are for the rate year of May 2017 - May 2018. NYSEG’s fixture charges increase by about four percent each year under the approved tariff at the time of writing.

Stranded costs:

NYSEG, like the other utilities, will charge municipalities for the stranded costs of the lights being replaced with LEDs. Unlike the other utilities, however, this charge would be determined by the company at the time of conversion, based on the age and composition of the fixtures in the community. NYSEG’s record-keeping for its street light inventory has been shown to be inaccurate in some cases, making it important for local governments to undertake a billing audit prior to any decision to upgrade to utility-owned LEDs.⁴ (See chapter 3 for a discussion of billing audits.)

³ See Chapter 5.

⁴ As discussed in Chapter 3, refunds to local governments in NYSEG territories that have resulted from billing audits have been substantial.

If converting to NYSEG's LEDs, local governments must agree in writing to compensate the utility for the stranded costs, and can either make a one-time payment or finance payments on their street lighting bill through energy savings over a maximum of five years. Utilizing on-bill financing will require that local governments pay interest.⁵

Conversion timeframe:

NYSEG will upgrade municipalities' lights, upon request, on a first-come, first-serve basis, with a maximum service territory-wide conversion of 20 percent of its inventory per year. Local governments must commit to converting at least 20 percent of their lights, or a minimum of 100 lights, whichever is greater, in one year. The company may agree to convert a community's entire inventory of lights within a year, but is not required to.

Conclusion:

NYSEG's LED options, as proposed would deliver savings to local governments—43 percent for a municipality with a typical portfolio—once they have paid off the stranded asset costs of the older lights. NYS Department of Public Service Staff estimates a payback period of less than a year, on average. Proposed limitations on annual LED upgrades per year mean that some municipalities could see their requests met sooner, while others will have to wait. A territory-wide conversion would take a minimum of five years if all municipalities requested upgrades.

Utility-Owned LED Street Lights in Perspective

A conversion to utility-owned LEDs will result in sizeable bill savings in all three Mid-Hudson service territories, once the stranded asset charges for replacing the existing lights are paid off. In the case of both O&R and Central Hudson, the fixture rates ("rent") for LEDs are lower than the rates for the lights they are replacing, and energy savings result in added cost savings. In NYSEG's case, the rates for LEDs are mostly lower, but even in cases where they are not, the energy savings more than compensate for the higher fixture costs. The obligation of municipalities to pay the stranded costs of the existing lights being replaced creates an upfront cost for municipalities, with paybacks of under a year in NYSEG territory, about three years in Central Hudson territory, and two to three years in O&R territory. Municipalities can pay these costs with their energy savings through utility on-bill financing. This would eliminate the need to budget additional resources to cover this upfront cost, but will require that local governments pay interest to the utility over the financing term. Local governments should check with their utility to see if any financial incentives for street light conversion are available through utility energy efficiency programs.

Because of the superior energy efficiency of LEDs, municipalities converting to utility LED options will see substantial energy savings compared to existing lights. As shown in Chapter 5,

⁵ Lori Cole, Manager-Regulatory & Tariffs, Avangrid, Cover Letter, Compliance Filing, Tariff filing by New York State Electric & Gas Corporation to Revise Tariff Schedule, P.S.C. No. 121 to Offer Company-Owned LED Street Lighting Options for Customers Under Service Classification No. 3, Case 16-E-0710, November 21, 2017.

these savings can be 62 to 81 percent in O&R territory; up to 73 percent in Central Hudson territory;⁶ and up to 70 percent in NYSEG territory, depending on which utility LED wattage options communities choose as part of their replacement plan. Savings will vary depending upon the utility wattages selected as replacements by municipalities. In O&R territory, for instance, local governments have three different LED wattage options to replace 150-watt HPS lights.

The utilities' choices of LED replacement wattages are generally within optimal ranges for energy savings, based on today's LED technology. Central Hudson's and NYSEG's portfolio of LED options would benefit from additional wattage options—in some cases, replacement wattages are higher than necessary. Overall, however, substantial energy savings will result from converting to LEDs because of the superior efficiency of this technology compared to existing lights types.

It is important to note that local governments will need to undertake an assessment of their existing lights and lighting needs in order to communicate to the utility which of the utility LED wattage options should be installed where. The PSC has directed utilities to coordinate with municipalities on the replacement plan. This involves a level of effort and engagement by local governments in utility upgrades that has not been required in past. Communities greatly benefit from a well-designed lighting plan that meets their various lighting needs, ensures lighting uniformity and proper lighting levels, and maximizes energy and cost savings. Utilities will not have the needed information to make LED replacement decisions for individual communities. Chapters 3 and 6 provide information on community energy audits, and additional guidance can be obtained from the Mid-Hudson Street Light Consortium and regional NYSERDA Clean Energy Communities Coordinators.

It is in the interest of municipalities to seek a conversion to LEDs as quickly as possible in order to maximize energy and savings. Central Hudson is only required to upgrade 20 percent of a municipality's lights per year under its tariff; and O&R and NYSEG have no obligation to complete a percentage of upgrades within a given year. Municipalities pursuing utility LEDs upgrades should seek agreement from the utility on a mutually beneficial installation schedule.

Finally, and importantly, utility LEDs options should be considered in comparison to the costs and benefits of a municipal ownership model in which the local government purchases its street light system and upgrades to LED fixtures of its choosing. An audit undertaken by the New York State Comptroller's Office, released in January 2008, examined the street light voucher data of five municipalities whose lights were owned by the utility, and concluded that these municipalities could collectively save \$13 million over the term of a 20-year bond to purchase their street light system—even before converting to LEDs.⁷ The reason: the 'rent'—or

⁶ The potential savings depends upon how quickly Central Hudson converts the lights to LEDs—the quicker the conversion, the greater the savings.

⁷ Office of the New York State Comptroller, January, 2008. The audit used data from the Town of Union's purchase of its street light system as the basis for benchmarks that were applied to

fixture charges—are the most significant portion of a utility street lighting bill. The cost of electricity delivery is relatively small by comparison.

The next chapter explores the costs and benefits of a municipal-ownership pathway to LED conversion, and identifies issues local governments should consider when deciding whether to remain with the utility or purchase their street light system. Chapter 5 then undertakes a cost analysis comparing utility-ownership and municipal ownership pathways in each of the three utility service territories in the Mid-Hudson region.

the five municipalities to compare the costs of purchasing and owning the street lights, compared to continuing with the status quo of renting them.

