

# LED Street Light Conversion Program

Since 2016, National Grid's street light conversion program has promoted the transition of company-owned roadway (cobra head) style street lights to more energy efficient light emitting diode (LED) technology.

The program is open to all Upstate New York municipal and other governmental street lighting customers with National Grid-owned roadway luminaires taking service under the Company's Service Classification No. 2 street light offering.

Eligible customers should contact their National Grid representative, who can outline the program details, estimate annual savings, review the conversion cost, describe National Grid and NYSERDA energy efficiency incentives for LED conversion, and next steps.

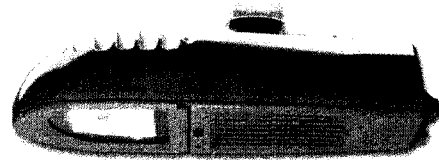
## Benefits of Converting to LED Street Lighting

Municipalities are very interested in reducing energy consumption, and street lights often represent the single largest portion of their monthly electricity usage. LED street lights are more energy efficient, consuming just one-third to one-half the kilowatt hours that power the high pressure sodium (HPS) and metal halide (MH) lights that are commonly in use today. LEDs have no filament, produce less heat, and are anticipated to require far less maintenance over time. They are instant on, requiring no warmup period to reach full brightness, and provide far greater color rendering, making it easier for drivers and pedestrians to recognize objects.

## LED Conversion Process

Following initial conversations with their National Grid representative, interested customers should submit a written request for the cost of LED conversion.

National Grid will calculate the per-unit conversion cost, which represents the average, undepreciated (net book) value of each high-intensity discharge (HID) roadway luminaire type in the customer's taxing district. To take advantage of the conversion program, the customer would be required to provide upfront payment of the



remaining asset value of the in-service luminaires being removed.

The cost of the new LED luminaire, installation and future maintenance is included in the monthly facility rate stated in the tariff, similar to all other company-owned street light offerings.

## The company will provide to the customer:

- The inventory of existing HID roadway luminaires, including luminaire information for each location.
- The per-unit net book value (NBV) for each HID roadway luminaire type in the customer's taxing district, which is valid for 180 days.

## The customer will:

- Provide the company a formal request on customer letterhead by an authorized representative to proceed with a conversion plan including:
  - The total number of roadway street lights to be converted and their locations, and;
  - The desired LED luminaires per location.
- Commit to convert a minimum of 15 percent of its total roadway luminaires or a minimum of 100 luminaires, (whichever quantity is greater).
- Determine the financing option and method of payment for the retirement of the existing roadway luminaires:
  - A single, upfront payment to National Grid.
  - Independent financing, such as through the NY Green Bank (see page 3).

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- Funding through National Grid as a “Bill Surcharge” to be applied in equal monthly payments over a period not to exceed 10 years. The interest payment on the value funded by the company will be based upon the company’s current average cost of capital over the period designated by the customer.
- Provide a purchase order, promissory note or other acceptable form of payment.

### Limitations or Restrictions

- National Grid can convert up to 20 percent of its roadway luminaires to LED technology annually. Customer participation is on a first-come, first-served basis. Interested customers must commit to converting a minimum of 15 percent of their total roadway luminaires or a minimum of 100 luminaires per year (whichever number is greater). The plan does not provide for individual end-of-life replacement or repositioning/relocation or other support facility changes for the LED luminaires. Replacement schedules are based on anticipated availability of LED fixtures and labor resources.

### National Grid Energy Efficiency Incentive

National Grid offers an energy efficiency incentive program to assist Upstate New York municipal street light customers with reducing the upfront cost of converting HID roadway street lights to LED technology.

The initial cost of converting to LED is a barrier to many interested communities. National Grid’s program provides an incentive of \$50 - \$100 per fixture, based on the fixture wattage installed. The incentive is available on a first-come, first-served basis and is issued following the conversion of customer-owned and company-owned roadway (cobra head style) luminaires.

### Process for Company-owned Luminaires

Customers wanting to convert company-owned luminaires to LED:

- Submit a request in writing to their National Grid representative
- Commit to converting a minimum of 15 percent of their total roadway luminaires or a minimum of 100 luminaires (whichever quantity is greater)
- Pay the undepreciated (net book) value of the existing HID luminaires to be removed

### Upon receipt of the written request, National Grid will provide customers with:

- The per unit conversion cost for their municipality, representing the net book value of the installed roadway luminaires, which is valid for 180 days
- The number and inventory of existing roadway luminaires, including luminaire information for each location

### National Grid is offering the following per-fixture incentives:

Eligible customers can learn more by contacting their National Grid representative, who can outline the program details, present the per-unit energy savings and cost differences, and discuss the energy efficiency incentive offering.

National Grid Tariff Luminaire Reference	LED Luminaire Delivered Lumens	LED Luminaire System Wattage	Proposed EE Incentive Payment
	(L)	(W)	(\$)
Customer-Owned	1-2000	0-24	0.00
National Grid B	2001-4000	25-47	50.00
National Grid C	4001-8000	48-95	65.00
National Grid D	8001-14000	96-153	75.00
Customer-Owned	14001-20000	154-209	85.00
National Grid F	20001-30000	210+	100.00

## LED Street Light Conversion Program cont.

- National Grid's selection of LED luminaire units from which to choose

### The customer then provides to the company:

- The number, type and location of luminaires it wants converted
- The specific National Grid LED luminaire it chooses to have installed for each HID type and wattage

Following payment of the NBV of the undepreciated HID luminaires, National Grid will add the conversion to its work schedule and then confirm and commit the applicable incentive dollars.

When the installation of the new LED fixtures is completed the incentive payment will be released to the customer when available.

### Process for Customer-owned Luminaires

Customers wanting to convert customer-owned luminaires to LED:

- Submit a request in writing to their National Grid representative
- Provide a listing of the number, type and location of luminaires it wants converted
- Provides sales cut sheets of the new LED street lights to be installed

### Additional Information:

#### Characteristics of LED street lighting technology

The human eye responds differently to the spectrum of light produced by LEDs when compared to light from high pressure sodium lamps. This makes it possible for a LED street light to appear as bright, or brighter, than an HPS street light, at a lower level of delivered lumens.

Visually, LEDs produce a distinctly "whiter" light compared to high pressure sodium's more "yellow" hue. This difference should be considered when specifying which luminaires to convert, particularly in situations where LED and HPS street lights may be on the same street or in close proximity.

In 2016, the American Medical Association cautioned that exposure to blue-rich, high intensity LED light may

result in excessive road glare and health-related issues in both humans and animals. The U.S. Department of Energy (DoE) responded that "there's nothing inherently dangerous about LED lighting, it should be used with the same prudence with which we use any other technology."

National Grid encourages customers considering LED conversion to seek additional information from their knowledgeable lighting professionals in order to make fully informed decisions.

Please refer to the links below to learn more:

AMA: <https://www.ama-assn.org/ama-adopts-guidance-reduce-harm-high-intensity-street-lights>

DoE: <https://energy.gov/eere/ssl/articles/get-facts-led-street-lighting>

### NYSERDA Clean Energy Communities Program

The New York State Energy Research and Development Authority's (NYSERDA) program offers local governments grant funding after completing four of 10 High Impact Actions and earning a Clean Energy Community designation. Included among the 10 High Impact Actions is the conversion of municipal and utility-owned cobra head style street lights to LED technology. Local governments must convert a minimum of 50 percent of these street lights to LED within their geographic jurisdiction.

Visit <https://www.nyserda.ny.gov/All-Programs/Programs/Clean-Energy-Communities> for details on NYSERDA's Clean Energy Communities program.

### NY Green Bank Financing Option

The NY Green Bank, a division of NYSERDA, offers an option for customers seeking ways to finance the obligation owed on the existing luminaires to be removed. The financial arrangement is directly tied to the energy savings resulting from the conversion of roadway fixtures to LED technology. Interested customers will need specific information provided by National Grid before they can begin discussions about financial arrangements with NY Green Bank.

Visit <https://greenbank.ny.gov/> to contact or learn more about NY Green Bank.