

1 Q. **Reference: Application Rev. 1, Volume 1, page 13**

2 It is stated (lines 23 to 25) *“Hydro’s proposal to modernize its street lights is consistent with*  
3 *Newfoundland Power’s plan to transition to LED street lights and will result in reduced street and*  
4 *area light rates to Hydro’s customers.”*

5 a. Please provide Hydro’s proposed LED street lighting replacement program and highlight any  
6 differences from Newfoundland Power’s plan along with an explanation of why there are  
7 differences.

8 b. Could the LED street lighting program be deferred? Please explain the impact on customers  
9 if this project were delayed by a year.

10 c. Are there other projects that might be comparable to this program such as replacement of  
11 household/commercial lighting with LEDs and replacement of residential/commercial  
12 electric resistance heating with high efficiency heat pumps?

13 d. Six years from now what percentage of street lights would be replaced with LED lights under  
14 the current program?

15 e. Please identify the expected savings in operations and maintenance costs in each year of the  
16 LED Street Lighting Replacement Plan.

17 f. Owing to the effectiveness of LED lighting, is it possible to reduce the number of required  
18 streetlights? Has Hydro attempted to assess the optimal number of streetlights after all  
19 have been replaced with LEDs?

20 g. Who is the manufacturer of LED street lights that are currently installed in the Province and  
21 where were they manufactured?

22 h. Are these lights designed specifically for the NL climate and environmental conditions?

23 i. What type of warranty is on the currently installed street lights and what type of warranty  
24 does Hydro expect on new LED street lights that it proposes to purchase? Please confirm  
25 that Hydro expects the warranty to be adequate for environmental conditions in the  
26 Province.

1 A.

- 2       **a.** The proposed Newfoundland and Labrador Hydro (“Hydro”) streetlight modernization plan  
3       will be six years in duration and will see the complete replacement of mercury vapor (“MV”)  
4       and/or high pressure sodium (“HPS”) fixtures with light emitting diode (“LED”) equivalents  
5       for all existing street lighting customers. Any new installations will be of LED technology. The  
6       upgrading methodology will be to install a new LED fixture at any location which already has  
7       an HPS/MV streetlight that requires maintenance for any reason e.g., photocell, bulb,  
8       ballast, etc. It is projected that an electric arc bulb will last six years maximum and will  
9       require a maintenance visit by Hydro crews during that time period. This was determined to  
10      be the most effective use of labor to perform the conversion to take advantage of existing  
11      maintenance visits and promote equality of the process between communities. There  
12      appear to be no differences between Hydro’s proposed plan and Newfoundland Power’s  
13      replacement strategy.
- 14      **b.** If this project is deferred, there will be a delay to Hydro customers in receiving the reduced  
15      billings available for LED fixtures compared to the HPS fixture. Additionally, Hydro will be  
16      required to dedicate further labor/budget on maintaining HPS fixtures into the future.
- 17      **c.** Hydro offers several other programs similar to those mentioned above. Most of these are  
18      promoted through Hydro’s joint partnership with Newfoundland Power called  
19      TakeChargeNL. During the Instant Rebate campaign that runs from September 18, 2020 to  
20      November 18, 2020, residential customers can obtain at-cash rebates on LED lighting. The  
21      Business Efficiency Program offers rebates for off-the-shelf energy-efficient lighting  
22      products and custom solutions for business customers throughout the province. The  
23      Isolated Energy Efficiency Program operates in Hydro diesel system communities and  
24      provides LED lightbulbs, free of charge to homes and businesses. TakeChargeNL also  
25      provides financing to residential customers who convert to high efficiency heat pumps. A

1 complete list of programs offered to Hydro's residential and commercial customers is  
2 available on the TakeChargeNL website.<sup>1</sup>

3 The energy efficiency projects under the TakeChargeNL program relate to customer-owned  
4 facilities and provide savings to participants through lower energy usage. While the plan to  
5 transition to LED street lights also involves efficiency improvements, the lighting being  
6 replaced is owned by Hydro and the transition to LED lighting will result in savings to Hydro  
7 which will be passed on to customers through lower rates for street and area lighting.

8 **d.** Under the specified program, it is expected that all HPS fixtures in the Hydro interconnected  
9 distribution systems would have been converted to LED after the six-year period.

10 **e.** The total anticipated annual savings once the project is complete is \$445,000 per year. The  
11 overall savings during the process will be minimal because the maximum maintenance and  
12 energy efficiency reductions will not be realized until the majority of streetlights have been  
13 converted.

14 Please refer to Table 1 for program costs and estimated operational savings in each year.

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<sup>1</sup> TakeChargeNL <<https://takechargenl.ca/>>

**Table 1: Program Costs and Estimated Operational Savings**

Year	Completion %	Savings \$ (O&M & Energy Savings)	Capital Cost \$	No. Fixtures Converted
1	16.67	0	511,592	1281
2	33.34	74,131	511,592	2562
3	50	148,219	511,592	3843
4	66.67	222,350	511,592	5124
5	83.34	296,437	511,592	6405
6	100	370,568	511,592	7686
7	100	444,700	0	7686

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- f. Hydro installs streetlights by request from individual customers. The number and placement is dictated by customer requirements; Hydro provides design advice if requested. Any advice provided is based on an accepted Hydro standard which is modeled around modern design criteria.
- g. The current vendor of LED fixtures to Hydro is Graybar supplied by American Electric Lighting and manufactured in Mexico.
- h. Yes. The Hydro streetlight luminaire standard has been updated with LED technology and outlines the required aspects of durability for the Newfoundland and Labrador climate. The same applies for the HPS fixtures.
- i. LED fixtures being purchased to date have a warranty of five years for the fixture and ten years for the photocell. The five-year warranty is sufficient to protect Hydro from any manufacturing defects or “infant” mortality of the new devices. The fixtures have a design life of >100,000 hours (>20 years of operation) and the specification has been created robust enough that Hydro is confident in the fixtures will endure the harsh environment. The photocell is the weakest component of the installation and has a stronger warranty to compensate.