

1 Q. The Application states on page 7, line 17, that Hydro requires payment to perform  
2 any upgrading to distribution systems or installing metering equipment.

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4 (a) What, on average, does Hydro anticipate would be the cost for such a  
5 customer for such upgrading and installations?

6 (b) How much work would be involved by Hydro? Please elaborate.

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9 A. (a) Newfoundland and Labrador Hydro believes it is unlikely to require upgrades  
10 to its distribution systems for net metering customers. However, depending on the  
11 size and location of the installation, distribution upgrades may be required.  
12 Distribution upgrades can range greatly in price, and cannot be meaningfully  
13 estimated without more detailed information around the specific installation.

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15 Most installations will only require installing metering equipment capable of  
16 recording bi-directional power flow. Hydro is currently conducting research on the  
17 investment required to use bi-directional meters in serving customers.

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19 (b) The amount of work required to upgrade a distribution system or install  
20 metering equipment will vary depending on the location and size of the net  
21 metering customer's generation. These additional costs would be borne by the  
22 customer, but the work would be done by Hydro. A few specific situations are  
23 provided for context below:

- 24 • Net metering installations may require Hydro to upgrade customer metering  
25 equipment. This will involve purchasing and installing a new meter.

- 1           • Net metering installations above 10 kW may require Hydro to install a dedicated  
2           transformer for customers who are not supplied by a dedicated transformer.  
3           This will help ensure that the net metering generating facility does not  
4           contribute any significant fault currents to other customers' electrical systems.  
5           This will involve purchasing and installing a new service transformer and  
6           associated equipment.
- 7           • Net metering installations that include three phase generators may require  
8           three phase line upgrade if the customer is currently supplied with single phase  
9           power. This would involve rebuilding the distribution system between the  
10          customer and the nearest three phase distribution line.

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12          Due to the comparatively low capacity of Hydro isolated systems, the addition of  
13          non-firm renewable generation could negatively impact reliability. If a customer  
14          wants to offset their entire energy use with their own generation, Hydro may have  
15          to upgrade their diesel plant and/or distribution system to prevent the diesel  
16          generators from operating outside of their minimum loading limits. This may  
17          involve installing a communication system to link the two sources of generation  
18          and/or reprogramming and installing additional control equipment within the diesel  
19          plant.