

1 Q. **Reference: Application, Attachment 1, Page 23, Section 4.2**

2 Please provide a capital cost estimate for the straightforward direct rebuild of the  
3 Charlottetown diesel generating station building to the same specifications that existed prior to  
4 the 2019 fire that destroyed the building. In the capital cost estimate for this alternative include  
5 diesel gensets of similar size to what existed previously, construction on the existing site, no  
6 voltage conversion for the distribution feeder and no additional dedicated distribution feeder  
7 for the shrimp processing plant.

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10 A. The direct rebuild of the Charlottetown Diesel Generating Station to the same specifications that  
11 existed prior to the 2019 fire is not a viable alternative for long-term supply for Charlottetown. It  
12 would be imprudent for Newfoundland and Labrador Hydro (“Hydro”) to rebuild the exact  
13 facility that previously existed without consideration for the current and future needs of the  
14 facility and community.

15 For example, the previous generating station, placed in-service in 1989, did not have a fire  
16 suppression system. Hydro is currently in the process of adding fire suppression to its diesel  
17 facilities and would not construct a new diesel facility without a fire suppression system.

18 Additionally, the previous generating station did not have adequate capacity to meet Hydro’s  
19 firm capacity criteria without the support of mobile units to support peak summer loading  
20 conditions.

21 The alternative in Hydro’s application,<sup>1</sup> which describes a new diesel generating station in  
22 Charlottetown, outlines the requirements Hydro believes would be necessary for a direct  
23 replacement of the Charlottetown Diesel Generating Station.

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<sup>1</sup> “Long-Term Supply for Southern Labrador – Phase 1,” Newfoundland and Labrador Hydro, July 16, 2021, att. 1, sec. 4.2, pp. 23–25.

1           Although Hydro does not consider this to be a viable alternative for long-term supply, for  
 2           information purposes, a capital cost estimate for a direct replacement of the Charlottetown  
 3           Diesel Generating Station building with similar<sup>2</sup> specifications that existed prior to the 2019 fire  
 4           that destroyed the building is provided in Table 1.

**Table 1: Capital Cost Estimate – Direct Rebuild with Similar Specifications to Previous Facility<sup>3</sup>**  
 (\$ Millions)

Project Cost	2021	2022	2023	2024	Total
Material Supply	0.0	496.3	418.0	942.0	1,856.3
Labour	177.2	819.6	425.2	748.4	2,170.4
Consultant	25.4	173.1	182.0	137.0	517.5
Contract Work	0.0	936.0	1,170.0	810.0	2,916.0
Other Direct Costs	15.5	282.3	112.8	289.5	700.2
Interest and Escalation	11.6	218.4	400.1	628.7	1,258.8
Contingency	21.8	270.7	230.8	292.7	816.0
<b>Total</b>	<b>251.5</b>	<b>3,196.5</b>	<b>2,938.9</b>	<b>3,848.3</b>	<b>10,235.2</b>

5           This estimate assumes the following:

- 6           • Replacement of three gensets including two 545 kW units and a 725 kW unit, similar to the
- 7           units at the existing Charlottetown Diesel Generating Station, all at 600 volts;
- 8           • Construction on the existing site but replacement of the concrete floor due to fire damage;
- 9           • No voltage conversion and no dedicated distribution feeder costs; and
- 10          • No fire suppression.

11          From a lifecycle cost perspective, a direct rebuild of the existing plant could be approximated to  
 12          be essentially equivalent to that of Alternative 1, as defined in the application, involving the  
 13          continued of mobile gensets. The capital cost of \$10.2 million defined above is approximately  
 14          equivalent to the \$10.4 million cost described in the application.

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<sup>2</sup> Estimates were developed with current technology any equipment that is obsolete and/or not manufactured anymore was not considered an upgrade.

<sup>3</sup> This estimate does not include costs associated with removal and decommissioning of the existing Charlottetown Diesel Generation Station to prepare the site for construction of the new facility.

1 A cumulative present worth (“CPW”) analysis was performed where the capital cost of  
2 Alternative 2 (Charlottetown Plant Replacement) was reduced to \$10.2 million with all other  
3 lifecycle costs unchanged. As per the plot below, the resulting lifecycle cost is demonstrated to  
4 be approximately equivalent to that of Alternative 1. On this basis, a direct rebuild would result  
5 in approximately the same increased CPW expenditure of \$22 million as Alternative 1 over the  
6 study period, as compared to a regional interconnection.<sup>4</sup> It is therefore concluded that such an  
7 approach will not provide a least-cost solution for the long-term supply of the region.

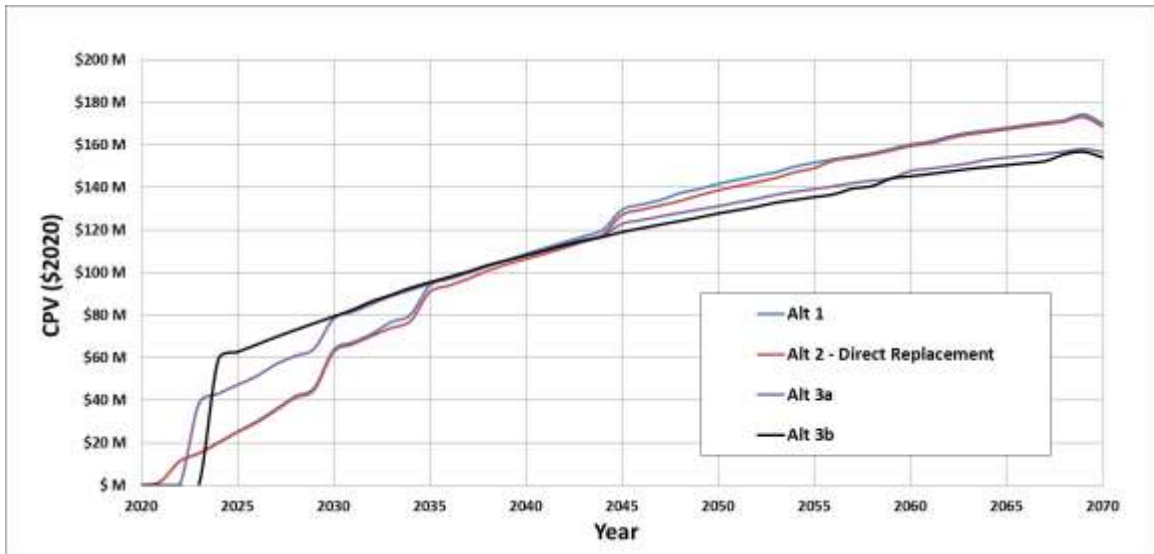


Figure 1: Lifecycle Cost Assessment Including Direct Replacement of Charlottetown Plant

<sup>4</sup> As per analysis results presented in “Long-Term Supply for Southern Labrador – Phase 1,” Newfoundland and Labrador Hydro, July 16, 2021, sch. 1, att. 1, sec. 5.3, pp. 36–38.