Q. **a)** Explain in detail how the conductor size was selected for both scopes of work and reconcile why the Upgrade Worst-Performing Distribution Feeders (2025-2027) program recommended maintaining the 1/0 conductor size for the higher estimated load while the CIAC project recommended using the larger conductor size of 4/0 for the smaller estimated load.

**b)** Further to Schedule 1, Attachment 1, Table 4, page 10 of 12, please complete the table below showing conductor planning ratings for the different conductor sizes assuming three-phase loads and 90% power factor.

| Conductor Size and Type | Cont. Island Winter Loading (kW) | Planning Factor = 2.0 Island Winter Loading (kW) | Planning Factor = 1.33 Island Winter Loading (kW) |
|---|---|---|---|
| 1/0 AASC | | | |
| 4/0 AASC | | | |
| 477 ASC | | | |

A. **a)** The Worst-Performing Feeders Program[1] did not contain a specific recommendation regarding maintaining the 1/0 AASC conductor. Newfoundland and Labrador Hydro had not completed analysis regarding voltage regulation when the Worst-Performing Feeders Program was proposed; 1/0 AASC was assumed to be the size of the new conductor for the purposes of developing a cost estimate as it matched what was already installed. During detailed project engineering, a sizing analysis recommended that the 1/0 AASC be replaced with 4/0 AASC.

[1] Please refer to Upgrade Worst-Performing Distribution Feeders (2025–2027) program ("Worst Performing Feeders program"), which was included as Program 2 of the 2025 Capital Budget Application, Newfoundland and Labrador Hydro, July 16, 202**4**. In the 2026 Capital Budget Application, Newfoundland and Labrador Hydro ("Hydro") recategorized the Upgrade Worst Performing Distribution Feeders program to a project.

**b)** The need for larger conductors in English Harbour West ("EHW") is not related to the ampacity of the conductor, or the planning rating of the conductor. It is required because larger conductor, made of the same material, has lower impedance and will cause less of a voltage drop along the line. Conductor planning ratings are included in Table 6 of RP-S-003 Hydro Distribution Planning Criteria included as Attachment 1 of Schedule 1 of this Application. The kW rating of these conductors can only be calculated at given voltages which are not provided in the request for information. The kW rating assuming a system voltage of 24.94 kV, as is the case in EHW, are included in Table 1.

**Table 1: Conductor Planning Ratings at 24.94 kV and 90% Power Factor**

| Conductor Size and Type | Const. Island Winter Loading (kW) | Planning Factor = 2.0 Island Winter Loading (kW) | Planning Factor = 1.33 Island Winter Loading (kW) |
|---|---|---|---|
| 1/0 AASC | 12,325 | 6,182 | 9,253 |
| 4/0 AASC | 19,168 | 9,603 | 14,386 |
| 477 ASC | 31,104 | 15,552 | 23,328 |