Q. **References: Application, Schedule 1, pages 3 and 4 of 21**

The project is justified on the desire to establish "*priority areas that will continue to receive power when other feeders are either rotated, or switched off due to lack of supply*. […]

Table 2: Happy Valley-Goose Bay Priority Areas - 2018 Peak Load

Area	Feeder	Load (MW)
Hamilton River Road South commercial/service area	HV10	9.9
Hamilton River Road South commercial/service area	CR5	1.6
Hamilton River Road North and Loring Drive commercial/service area	HV15	7.3
Hamilton River Road North and Loring Drive commercial/service area	HV16	1.1
Core of Sheshatshui and North West River	HV7	5.2
Total		**25.1**

To enable the concurrent energization of multiple priority areas during a loss of supply, the system must be configured to allow areas to be grouped together on the same feeders. Additionally, non-priority areas must be grouped together and separated from the priority areas to ensure the minimal amount of switching."

Please indicate the system maximum distribution capacity.

A. The capacity of a distribution system is not a single value. Rather, it depends on multiple factors with varying levels of capacity that may be applicable under different scenarios. For every load addition to the system, analysis is required to

determine if the demand load can be added to the system in the requested location.

The capacity of the distribution system depends on many factors including:

- location of load relative to the terminal station;
- location of load relative to other equipment (e.g. voltage regulators, protection equipment, conductor type);
- number of services the load is divided amongst;
- system power factor;
- timing of the peak load relative to seasonal temperatures (i.e. many pieces of equipment have greater capacity in colder temperatures); and
- amount of cold load pick up expected (varies by feeder and customer type).

Table 1 shows the capacity of the individual distribution feeders immediately at the Happy Valley Terminal Station. However, the actual load that can be added to each distribution feeder is highly dependent on the location of the load on the feeder. For example, if a load request that exceeded the capacity of a voltage regulator was in a location after the voltage regulator, the load could not be added until the voltage regulator was replaced with a larger one and the distribution system capacity after the voltage regulator was increased. If the same load was requested at a location before the voltage regulator, the load may be allowed in that location and the existing distribution system capacity would not require any change. System maximum distribution capacity is highly variable depending on the load magnitude and location, and, therefore, the system maximum distribution capacity cannot be quoted as a single number.

Table 1: Feeder Capacity at Happy Valley Terminal Station

Feeder	Planning Rating[1] of Limiting Equipment Near Terminal Station	Maximum Rating[2] of Limiting Equipment Near Terminal Station
L1	432 A (18.7 MVA)	557A (24.9 MVA)
L7	420 A (18.1 MVA)	840 A (36.3MVA)
L8	420 A (18.1 MVA)	840 A (36.3MVA)
L10	269 A (11.6 MVA)	358 A (15.1 MVA)
L15	796 A (34.4 MVA)	1058 A (45.7 MVA)
L16	418 A (18.7 MVA)	557 A (24.9 MVA)
L17	796 A (34.4 MVA)	1058 A (45.7 MVA)

[1] Planning ratings of equipment take into account cold load pick up and sectionalizing factors, which vary based on types of customers on the feeder and resources to sectionalize feeder upon feeder restoration. These ratings are used when considering normal continuous loading.

[2] Maximum equipment capacity is based on factors such as short duration overload or thermal rating. These ratings are used when using detailed cold load pick up values and studying temporary feeder configurations or emergency situations.