

1 Q. **Reference: Volume I, Section 2.3.4, page 2.37**

2 a) Hydro identified electrification trends as a challenge with the rural deficit and as a factor
3 beyond Hydro's control. Describe Hydro's approach to managing electrification and
4 capital investments to serve load growth on isolated systems.

5 b) Provide details on the projected acceleration of capital investments for new generation
6 facilities on isolated systems primarily resulting from electrification including the
7 timeline for having new additional generation in-service.

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10 A. a) Newfoundland and Labrador Hydro's ("Hydro") approach to managing load growth in its
11 isolated systems takes place in the context of provincial legislation, government direction,
12 and the challenges associated with obtaining non-electricity services in isolated
13 communities. Within this context, Hydro manages electrification-related load growth on
14 isolated systems through (i) forecasting and annual system reviews, (ii) conservation and
15 demand management programs, (iii) engagement with communities and major customers
16 regarding future developments, and (iv) least-cost evaluation of technically feasible
17 infrastructure solutions when system upgrades become necessary. However, Hydro's ability
18 to influence customer adoption of electrification in isolated systems is limited by statutory
19 obligations to serve customers and by customer rate structures established pursuant to
20 government policy.

21 ***Management Context***

22 Section 3(b)(ii) of the *Electrical Power Control Act, 1994* ("EPCA") states:

23 It is declared to be the policy of the province that... all sources and facilities for
24 the production, transmission and distribution of power in the province should
25 be managed and operated in a manner... that would result in consumers in the
26 province having equitable access to an adequate supply of power.

1 In order to ensure isolated system customers have equitable access to an adequate supply
2 to power consistent with the *EPCA*, Hydro cannot deny or limit service requests based on
3 the purpose for which service is being requested, including those requests that relate to
4 electrification. Although Hydro has previously sought and received Board of Commissioners
5 of Public Utilities (“Board”) approval for load restrictions,¹ these were proposed as
6 temporary system-wide restrictions to allow the continued provision of reliable service to
7 customers in Labrador East and Labrador West pending the completion of the regulatory
8 process related to the Network Additions Policy and the Expansion Study. Section 54(4) of
9 the *Public Utilities Act* allows Hydro to request relief from the statutory obligation to provide
10 electrical energy to a customer or group of customers; however, these are only justified
11 when the request is for good cause and in the public interest.

12 Hydro's view is that broad restrictions specifically targeting Isolated system electrification
13 would require consideration of broader public interest objectives including equity of access
14 to electricity service, environmental policy objectives, energy security considerations, and
15 the availability of alternative heating fuels in isolated communities. Within this context,
16 Hydro does not consider broad load restrictions intended to prevent electrification in
17 isolated systems to be in the public interest.

18 Within the direction set by government regarding isolated systems, Hydro is limited with
19 respect to customer rates, with current Isolated system customer rates significantly below
20 Hydro's cost of service. As a result is that customers do not receive a price signal when
21 considering undertaking electrification projects. Hydro's Domestic Diesel rate class (1.2D)
22 features an inclining block rate where the third block reflects a price of 23.341 cents/kWh.²
23 However, the financial signal from this rate is muted on a total bill basis for many customers
24 in Labrador isolated systems, where the Northern Strategic Plan reduces the cost of the first
25 block to the same rate as paid by domestic customers on the Labrador Interconnected
26 System (3.154 cents/kWh). As a result, Labrador Isolated system domestic customers who
27 benefit from the Northern Strategic Plan achieve the same total bill as Island Interconnected

¹ Please refer to Board Order No's. P.U. 36(2018), P.U. 18(2019), and P.U. 34(2019).

² This rate is less than 25% of Hydro's cost of service, as charged and approved in rate 1.2G at 100.145 cents/kWh.

1 Customers for average use of approximately 2,300 kWh per month or 27,600 kWh per year.³
2 It is only for usage above this level where Labrador Isolated customer total average bills
3 exceed those on the Island Interconnected System, and the price signal from the third block
4 begins to have a significant effect on total bills.⁴ Hydro does not track all-electric usage in
5 isolated communities specifically; however, Hydro notes that all-electric use on the L'Anse-
6 au-Loup system is approximately 23,000 kWh per year or 1,915 kWh/month on average.
7 These rate structures are established through government policy and are not mechanisms
8 that Hydro can independently adjust to influence isolated system customer electrification
9 decisions.

10 Additionally, there are significant challenges associated with non-electric space heating in
11 Hydro's isolated systems. As noted in Chapter 2, Section 2.3.4 of Hydro's 2026 General Rate
12 Application ("GRA"), the community of St. Brendan's is experiencing challenges maintaining
13 heating oil delivery for the community. Without a reliable source of heating oil, Hydro
14 anticipates more customers will choose to electrify their heating sources. Hydro has also
15 spoken to customers in isolated systems who chose to electrify heating sources despite an
16 overall increase in energy costs (oil vs electricity), in response to challenges securing oil
17 service technicians in remote areas of the province. These qualitative factors are expected
18 to drive increased interest in space heating electrification in Hydro's isolated systems.

19 ***Hydro's Approach – CDM***

20 Within this context, Hydro seeks to manage space heating electrification in Isolated systems
21 through a combination of Conservation and Demand Management ("CDM") programs,
22 appropriate system planning and study, and regular communication with the effected
23 communities.

24 Hydro offers a suite of CDM programming in isolated communities that target energy
25 savings for homes, commercial buildings, and manufacturing facilities. Details around this
26 programming are provided in Chapter 2, Section 2.3.3 of Hydro's 2026 GRA. Of particular

³ Based on currently approved rates, averaged across 12 months to reflect varying block sizes.

⁴ Customers on other isolated systems who do not receive the Northern Strategic Plan benefit do not have this same price signal.

1 note are the Green Industrial Facilities Manufacturing Program (“GIFMP”) and the planned
2 Canada Greener Home Affordability Program (“CGHAP”); both of these programs target
3 deep energy retrofits which will serve to offset the impacts of space heating electrification
4 with external funding. For example, under the GIFMP program, Hydro supported the
5 installation of commercial heat pumps to displace electric resistance heat in isolated fish
6 plants. CGHAP is planned to include home envelope improvements such as insulation and
7 air sealing which will lessen the impact on the electrical system from electric space heating.
8 Hydro is also careful not to create an incentive for electrification of space heating through
9 CDM programming that excludes other primary heat sources. Therefore, CGHAP is
10 structured to be offered to all residences (electric, oil, and wood) and is forecast to remain
11 cost effective through a high ratio of external funding (70:30).

12 In addition to these new energy efficiency programs, Hydro is targeting space heating pilots
13 in isolated communities. The goal of these programs is to identify customer interest and
14 acceptability of non-electric and energy efficient technologies. For example, Hydro offered
15 new wood stoves installed at no cost to customers in certain isolated communities in
16 Labrador. Unfortunately, due to very low customer interest, this program has been
17 cancelled. Hydro continues to see value in a wood supply pilot program as there are
18 indications that the existing woodstove stock is underutilized due to an inadequate supply
19 of properly seasoned wood; however, at this time there appears to be little customer
20 interest in adding new woodstoves.⁵

21 Based on these results, Hydro is now planning to offer a solar heat pump pilot program in
22 Labrador isolated communities. These systems can be grid-connected (to offset electric
23 resistance heat when solar potential is low) or fully off-grid. Hydro intends to report the
24 results of these programs in its annual CDM reports to the Board.

⁵ Hydro is aware of woodstove replacement programs which have been successful in this region of the province. These programs seek to replace existing woodstoves with high efficiency units.

Hydro's Approach – System Planning and Study

To ensure there is adequate capacity, Hydro completes a system review of each system on an annual basis. These reviews start with completing load forecasts for each isolated system followed by a technical review.

The methodology for the rural systems' load forecast is a combination of statistical analysis and analytical judgment. Generally, the principal rate classes for each individual system are reviewed and projected separately, with larger general service customer accounts individually evaluated. Hydro uses historical data, current trends (including electrification), and new service requests to help inform forecast demand and energy requirements. To facilitate distribution and generation planning, the focus of this work is on ensuring reliable supply during system peak demand.

Each review involves conducting load flows using a software model of the distribution and isolated generation system to predict voltages and current at all points on the system. By conducting a load flow using forecasted peak loads, future voltages and equipment loading can be predicted. When these results are compared to the appropriate system planning criteria, criteria violations can be identified before they occur. This approach ensures that capital additions to the system are not performed until required, which assists Hydro in providing least-cost electrical service to its customers.

When criteria violations are identified, various alternatives are identified as solutions. When multiple alternatives are determined to be technically feasible, a cost-benefit analysis is conducted to determine which of the technically feasible alternatives has the least cost over the project's lifespan. This analysis includes future costs such as operational costs, and fuel savings.

Hydro is currently conducting a review of its isolated marginal cost approach to determine if a more detailed cost model is prudent. This ongoing review consists of a jurisdictional review and a comparison of the administration costs of maintaining a complex model in relation to the benefits it could potentially identify.

Hydro's Approach – Community

The majority of the forecasted load growth across Hydro's isolated systems is located in Nunatsiavut communities. This is primarily based on plans to increase the number of housing units in these communities. In response, a load growth working group has been established between Hydro and representatives of the Nunatsiavut Government.

The objectives of the working group are to promote and provide a means of sharing information related to load growth in Nunatsiavut, to improve energy security, discuss energy efficiency opportunities, and facilitate the provision of safe, reliable electricity in an environmentally responsible manner consistent with least-cost.

These objectives are primarily met by focusing on maintaining a list of ongoing, upcoming, and potential new service requests, and for Hydro to share updates on its work relating to new service and potential energy efficiency program funding. When specific Nunatsiavut infrastructure projects are advanced that could have a material impact on system load in an isolated community, Hydro participates in meetings with their building design consultants to have similar discussions on energy efficiency designs and the process of being interconnected. This list of service requests is one of the inputs into Hydro's load forecasts discussed above.

b) Hydro's most recent annual system review of its Isolated generation system, completed in 2025, examined Hydro's Spring 2025, 10-year load forecast and compared it to Hydro's isolated generation planning criteria. Within this analysis, Hydro identified the following planning criteria violations, which are due to a combination of load growth and higher average use reflecting increasing levels of space heating electrification:

- Hydro forecasts that, due to load growth, the Nain diesel plant will violate its firm capacity criteria in 2031. To prevent this violation, Hydro plans to replace Unit 576 with a larger unit in 2030, when the existing unit is expected to require replacement after reaching its maximum operating hours.⁶

⁶ Unit Replacements for Load Growth are completed under Hydro's "Additions for Load Growth – Isolated Generating Stations" program within its capital budget applications.

- 1 • Hydro forecasts that the Hopedale diesel plant will violate its firm capacity criteria in
2 2033. To prevent this violation, Hydro plans to replace Unit 2074 with a larger unit in
3 2033, when the existing unit is expected to require replacement after reaching its
4 maximum operating hours.
- 5 • Hydro is currently monitoring load growth in St. Brendan's in response to a potential
6 disruption in home heating fuel supply to the region.
- 7 • Hydro previously received approval for upgrades at the Rigolet Diesel Generating
8 Station in Board Order No. P.U. 25(2024), in response to new load in the community.