Q. Reference PUB-NLH-279: Please state whether or not Hydro expects to provide sufficient generation capacity within the IIS so that the peak demand could be met at all times in the absence of the LIL but with support from ML. If the answer is no, please provide an estimate of the additional cost that the provision of this level of generation would incur and estimate the extra annual cost that would have to be recovered from the average domestic consumer. In the response state what would the maximum power and energy delivered via the ML be and how often statistically would import via the ML be required.

A. Hydro has not yet completed its review of the generation capacity planning criteria to be applied following the interconnections via the ML and LIL which will lead to the identification of new generation capacity additions. In the absence of the LIL the existing generation plus support from the MIL would be sufficient to meet demand until 2024 (see Table 2). In order to continue to meet the peak demand under these conditions, additions as noted in Table 1 and Table 2 would be required. Additions are required due to both increases in the load forecast and to asset retirements such as the Stephenville CT in 2025 and the Hardwoods CT in 2028.

Generation Additions

| Year | Addition |
|---|---|
| 2024 | 1 x 100 MW CT |
| 2027 | 1 x 100 MW CT |
| 2030 | 1 x 50 MW CT |
| 2033 | 1 x 50 MW CT |

Table 1

The Net Present Value of these additions is $391.8 million. Other alternatives, such as interruptible contracts or customer curtailable load, could also be considered at the time as alternatives to additional generation. It is also possible that by the time additional capacity were required the existing system constraints in the Maritime provinces could be alleviated allowing for the import of up to an additional 200 MW over the Maritime Link.

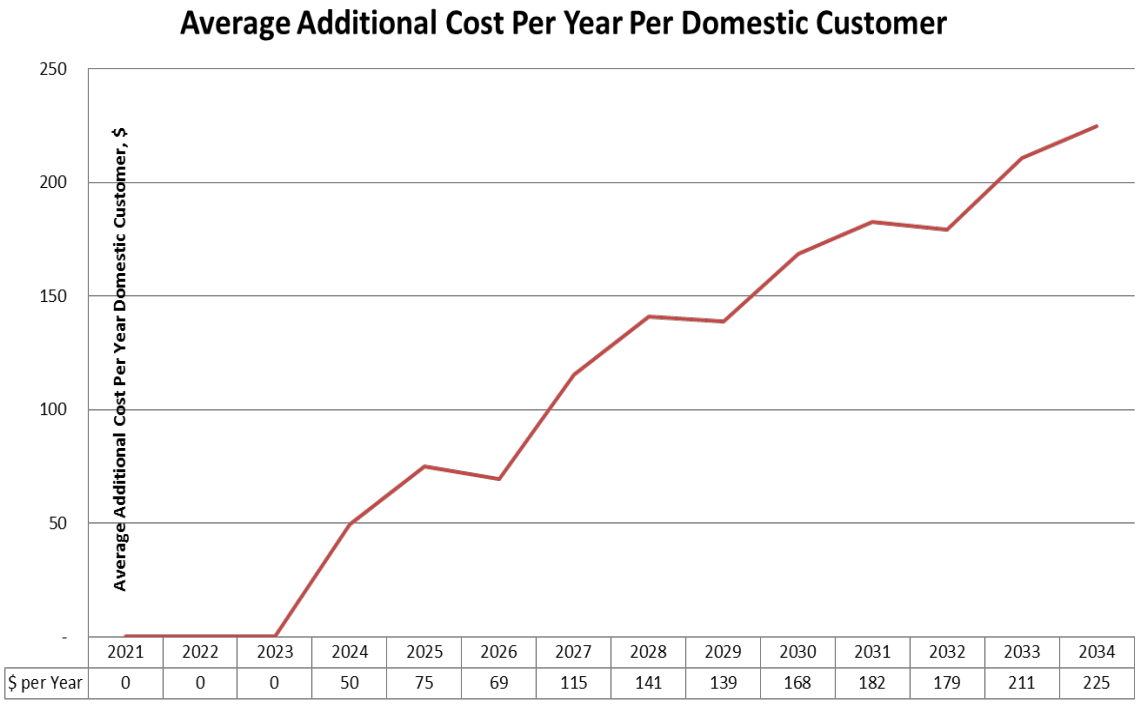
**Generation Additions in the Absence of LIL**

| | Island Interconnected Peak Demand | NL Hydro Hydro | NL Hydro Thermal[4] | Customer[5] Generation | NUG[3,6] Purchases | Labrador Island Link | Maritime Island Link[2] | Continuous Capacity at Winter Peak | Reserve | Reserve Margin | Additions Total | Reserve with Additions | Additions - CTs | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (MW) | (MW) | (MW) | (MW) | (MW) | (MW) | (MW) | (MW) | (MW) | (%) | (MW) | (MW) | 50 MW | 100 MW |
| 2020 | 1736 | 954 | 738.2 | 217 | 89 | 0 | 300 | 2,298 | 562 | 32.4% | 0 | 562 | | |
| 2021 | 1744 | 954 | 738.2 | 217 | 89 | 0 | 300 | 2,298 | 555 | 31.8% | 0 | 555 | | |
| 2022 | 1755 | 954 | 238.2 | 217 | 89 | 0 | 300 | 1,798 | 44 | 2.5% | 0 | 44 | | |
| 2023 | 1764 | 954 | 238.2 | 217 | 81 | 0 | 300 | 1,790 | 26 | 1.5% | 0 | 26 | | |
| 2024 | 1777 | 954 | 238.2 | 217 | 81 | 0 | 300 | 1,790 | 13 | 0.7% | 100 | 113 | | 1 |
| 2025 | 1793 | 954 | 238.2 | 217 | 81 | 0 | 300 | 1,790 | -3 | -0.2% | 100 | 97 | | |
| 2026 | 1813 | 954 | 188.2 | 217 | 81 | 0 | 300 | 1,740 | -73 | -4.0% | 100 | 27 | | |
| 2027 | 1831 | 954 | 188.2 | 217 | 81 | 0 | 300 | 1,740 | -91 | -5.0% | 200 | 109 | | 1 |
| 2028 | 1853 | 954 | 188.2 | 217 | 81 | 0 | 300 | 1,740 | -112 | -6.1% | 200 | 88 | | |
| 2029 | 1873 | 954 | 138.2 | 217 | 81 | 0 | 300 | 1,690 | -183 | -9.8% | 200 | 17 | | |
| 2030 | 1885 | 954 | 138.2 | 217 | 81 | 0 | 300 | 1,690 | -195 | -10.4% | 250 | 55 | 1 | |
| 2031 | 1905 | 954 | 138.2 | 217 | 81 | 0 | 300 | 1,690 | -214 | -11.3% | 250 | 36 | | |
| 2032 | 1922 | 954 | 138.2 | 217 | 81 | 0 | 300 | 1,690 | -232 | -12.1% | 250 | 18 | | |
| 2033 | 1938 | 954 | 138.2 | 217 | 81 | 0 | 300 | 1,690 | -248 | -12.8% | 300 | 52 | 1 | |
| 2034 | 1956 | 954 | 138.2 | 217 | 81 | 0 | 300 | 1,690 | -266 | -13.6% | 300 | 34 | | |
| 2035 | 1972 | 954 | 138.2 | 217 | 81 | 0 | 300 | 1,690 | -282 | -14.3% | 300 | 18 | | |

1. There are currently no demand management initiatives, other than the potential use of interruptible contracts, forecast during this period.
2. Assumes capacity is available through market or other contractual means to enable full use of the available transmission capacity.
3. Assumes that CBPP Co-Generation NUG contract is not renewed in 2023.
4. Assumes that Holyrood shuts down in 2021, Stephenville GT shuts down in 2025 and Hardwoods GT shuts down in 2028
5. Assumes capacity at winter peak of 117.9 MW for NP and 99.1 MW for Deer Lake Power.
6. Assumes capacity at winter peak of 18 MW for Star Lake, 8 MW for Corner Brook Co-gen and 63 MW for Nalcor Grand Falls and Bishop's Falls. Rattle Brook, Nalcor Buchans, St. Lawrence Wind and Fermeuse Wind are assumed to have 0 MW capacity at winter peak.

Table 2

The extra annual cost that would have to be recovered from the average domestic[1] consumer is shown in Figure 1.




| | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $ per Year | 0 | 0 | 0 | 50 | 75 | 69 | 115 | 141 | 139 | 168 | 182 | 179 | 211 | 225 |

**Figure 1**

Based on demand and unavailable generation at any given time, up to 300 MW (the capacity of the ML) could be required from the ML. The maximum energy required would depend on the requirements of the IIS. Table 3 gives the average annual energy expected over the ML during an emergency situation.

It is difficult to determine statistically how often imports would be required via the ML, but the results of Table 3 would indicate that on average full load over the ML would be required less than an hour or two per year.

[1] Domestic in this instance is interpreted as residential customers.

| Year | Total MIL Energy |
|---|---|
| | GWH |
| 2020 | 0.2 |
| 2021 | 0.2 |
| 2022 | 0.2 |
| 2023 | 0.2 |
| 2024 | 0.2 |
| 2025 | 0.2 |
| 2026 | 0.2 |
| 2027 | 0.2 |
| 2028 | 0.2 |
| 2029 | 0.3 |
| 2030 | 0.4 |
| 2031 | 0.4 |
| 2032 | 0.4 |
| 2033 | 0.5 |
| 2034 | 0.6 |
| 2035 | 0.6 |

**Table 3**