



Government of Newfoundland and Labrador  
Department of Natural Resources

February 21, 2020



**Re: Your request for access to information under Part II of the *Access to Information and Protection of Privacy Act* (File # NR-33-2020)**

On February 3, 2020, the Department of Natural Resources received your request for access to the following records/information:

**All briefing notes, meeting agendas, or any related documents concerning the three synchronous condensers at Soldier's Pond prepared for Minister, Deputy Minister, and/or Assistant Deputy Minister in last 12 months.**

I am pleased to inform you that a decision has been made by the Department of Natural Resources, confirmed by the Deputy Minister, to provide access to the requested records. The responsive record is attached.

Although the Department has only one responsive record, there is much more information publically available on this topic, found on the following websites:

<https://muskratfalls.nalcoreenergy.com/newsroom/reports/#1527523859344-67479b2e-e048>

<http://www.pub.nf.ca/index.htm>

As set out in section 42 of the Act you may ask the Information and Privacy Commissioner to review the department's decision to provide access to the requested information. A request to the Commissioner must be made in writing within 15 business days of the date of this letter or within a longer period that may be allowed by the Commissioner. Your request should identify your concerns with the department's response and why you are requesting a review.

The request for review may be addressed to the Information and Privacy Commissioner is as follows:

Office of the Information and Privacy Commissioner  
2 Canada Drive  
P.O. Box 13004, Stn. A  
St. John's, NL. A1B 3V8

Telephone: (709) 729-6309  
Toll-Free: 1-877-729-6309  
Facsimile: (709) 729-6500

Pursuant to section 52 of the Act, you may also appeal directly to the Supreme Court Trial Division within 15 business days after receiving the department's decision.

Please be advised that responsive records will be published following a 72 hour period after the response is sent electronically to you or five business days in the case where records are mailed to you. It is the goal to have the responsive records posted to the Completed Access to Information Requests website within one business day following the applicable period of time. Please note that requests for personal information will not be posted online.

For further details about how an access to information request is processed, please refer to the Access to Information Policy and Procedures Manual at <http://www.atipp.gov.nl.ca/info/index.html>.

If you have any questions, please feel free to contact me at 709-729-0463 or [rhynes@gov.nl.ca](mailto:rhynes@gov.nl.ca).

Sincerely,



Rod Hynes  
ATIPP Coordinator

**Information Note**  
**Department of Natural Resources**

**Title:** Application of Emergency Transmission Planning Criteria for a Labrador Island Link Bipole Outage

**Issue:** To provide an overview of Newfoundland and Labrador Hydro's (NLH) technical note on application of Emergency Transmission Planning Criteria for a Labrador Island Link (LIL) bipole outage filed with the Board of Commissioners of Public Utilities (PUB).

**Background and Current Status:**

- NLH's Reliability and Resource Adequacy Study (Reliability study) is currently under review before the PUB. As part of its Reliability study commitment to work with the PUB and stakeholders to further the understanding of NLH's ability to supply power to customers in the unlikely event of the prolonged loss of the LIL bipole, NLH filed the Avalon Capacity Study with the PUB on May 24, 2019.
- NLH committed to use the findings of the Study to develop criteria for emergency system operations in the event of a prolonged outage of the LIL bipole.
- On July 31, 2019, NLH filed its Transmission Planning Technical Note "TP-TN-068 Application of Emergency Transmission Planning Criteria for a Labrador Island Link Bipole Outage" seeking the approval to adopt the criteria.
- The AC Study performed a review power delivery to the Avalon Peninsula in the event of the LIL bipole outage. The study assessed a series of operating conditions and identified violations to Transmission Planning Criteria including a review of the transmission system upgrades that would be required to meet peak load without violations to criteria.
- As an extension to the Avalon Capacity study NLH conducted analysis included in the technical note to help determine as to whether Emergency Transmission Planning Criteria should be adopted or if transmission system upgrades are required. NLH notes that the IIS faces a significant generation shortfall during a LIL bipole outage if no incremental capacity is installed and the objective of the analysis in the technical note is to define appropriate actions for the existing transmission system without incremental generation.
- Base case scenarios were developed assuming that no transmission system upgrades or incremental generating resources are installed on the IIS with available generation of 1408.6 MW from all existing sources.
- Base Case 1 includes maximum Island generation of 1700 MW including a 300 MW of Maritime Link (ML) imports and a regulating reserve of 70 MW. Under this scenario, a customer load of 1530 MW can be supported. Base Case 2 includes maximum Island generation of 1400 MW with no ML imports and a regulating reserve of 70 MW. Under this scenario, a customer load of 1260 MW can be supported.
- The Transmission Planning Criteria were assessed for both cases and the analysis showed that criteria were met for all contingences except in Base Case 1, thermal overloading of Transmission Line (TL) 217 and TL 201 was noted and a three phase fault at Sunnyside

terminal station followed a by a trip in TL 267. For Base Case 2 involving no ML imports, thermal overloading of TL 201 for loss of TL 217 was noted.

- NLH notes that in case of the loss of TL 201, 40 MW load shedding is required east of Soldiers Pond Terminal Station while 200 MW load shed is required east of Soldiers Pond in case of loss TL 217. Additionally NLH notes that a three-phase fault at Sunnyside terminal station with a trip of TL 267 does not result in customer impact, but the criteria is violated.
- NLH notes that in Base Cases 1 and 2, the power flow east of Bay d'Espoir equates to approximately 40% of Island demand and a total Island Demand of approximately 1540 MW could be supported without risk of instability to the Bay d'Espoir transmission corridor.
- The note suggests that for Base case 2 with no ML imports, approximately 65 MW load shedding on Avalon Peninsula is required in case of the loss of TL 217 to mitigate the thermal overload of TL 201.
- NLH notes that results presented in the technical note indicate that when the LIL bipole is out of service, the Transmission Planning Criteria is violated. Therefore, NLH should determine to either install system upgrades or define Emergency Planning Criteria for this mode of operation.
- NLH states that if no transmission system upgrades were performed, the following criteria would be required; a) In the event that the LIL bipole is out of service, load shedding is permitted in response to a transmission line outage to avoid thermal overloading. b) In the event of a three-phase fault while the LIL bipole is out of service, the suppression of transient recovery voltages is acceptable as long as stable operation is maintained c) As per normal operation, three-phase faults at Bay d'Espoir terminal station are excluded from consideration. Such faults may result in instability in cases with high power flows eastward from Bay d'Espoir.
- NLH further notes that if these criteria are adopted, the following operational considerations would need to be assessed to minimize customer impact:
  - I) **Develop/Modify Restoration Procedures:** NLH is in the process of developing/ restoring procedures to black start the IIS. Such procedures will need to be in place to ensure rapid restoration in the event of a system-wide outage resulting from instability.
  - II) **Develop a Rapid Load Shedding Procedure:** Since a 200 MW load shedding will be required on Avalon Peninsula to avoid thermal overloading and resulting damage to TLs, the load shedding should be completed in an acceptable timeframe. A review would therefore be required in consultation with Newfoundland Power to develop load shedding procedure.
  - III) **Review Protection Settings:** In the event of a trip of TL201 or TL217, overloads of up to 154% may be experienced on the remaining line. It is recommended that a protection review be performed to ensure overloads of this magnitude do not result in activation of protection systems.

#### *Alternatives to Emergency Transmission Planning Criteria*

- NLH notes that if the above-mentioned criteria were not adopted, incremental generation resources or transmission upgrades would be required. Based on the results of the Avalon

Capacity Study, the following upgrades would need to be considered: a) Transmission upgrades in the 230 KV Corridor between Western Avalon Terminal Station and Soldiers Pond; b) Reactive support in the area of Sunnyside terminal station in the form electronic devices such as capacitor bank and synchronous condensers; and c) The addition of generation on the Avalon Peninsula.

#### *Recommendations*

- NLH's Reliability & Resource Adequacy Study is ongoing which involves an extensive review of the capacity of the IIS and will determine any incremental generation requirement. NLH notes that system performance is heavily dependent on the location of the incremental sources of supply. Import capacity over the ML increases the number of criteria violations and exposure to instability. Conversely, the addition of generation on the Avalon Peninsula would offload eastward power flows from Bay d'Espoir and reduce or eliminate transmission system upgrades requirements.
- NLH recommends the adoption of the Emergency Transmission Planning Criteria as its Reliability and Resource Adequacy study continues.

#### **Analysis**

- NLH's recommendation will have the following outcomes: a) If no incremental capacity or imports are available, the IIS is generation constrained during peak periods resulting in limiting power flows within the transmission system and only one violation to Transmission Planning Criteria. This violation would be the load shedding required because of thermal overloads following the loss of TL217. b) Incremental capacity imported over the ML has an increased risk of customer impact due to transmission system limitations. Outages to TL201 or TL217 would require load shedding to avoid overload conditions. There would also be an exposure to system instability in the event of a three-phase fault at Bay d'Espoir Terminal Station.
- NLH notes that curtailment of 1 MW of demand would represent approximately 165 customers impacted on Avalon Peninsula.
- NLH advises that currently a primary issue is not having sufficient capacity (generation) to serve IIS load and having incremental generation on the Avalon Peninsula (close to the load) will likely resolve the aforementioned transmission issues. Conversely, incremental generation farther from the Avalon Peninsula will exacerbate transmission issues.
- NLH advises that they will wait to assess the technical performance of the LIL once it becomes operational by comparing design data with actual performance. These assessments will further inform the decision on adding new generation or transmission to the system.

#### **Action Being Taken:**

- NR will continue to monitor developments with the Reliability and Resource Adequacy Study.

Prepared by/Reviewed by: Y. Khan/R. Bates

Approved by: FOR DIVISIONAL USE

August 15, 2019