# NEWFOUNDLAND POWER INC.

## Load Research and Rate Design Update

**March 31, 2026**


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# TABLE OF CONTENTS

## 1.0 INTRODUCTION

In Order No. P.U. 3 (2025) in relation to Newfoundland Power Inc.'s ("Newfoundland Power" or the "Company") *2025/2026 General Rate Application*, the Newfoundland and Labrador Board of Commissioners of Public Utilities (the "Board") requested Newfoundland Power to provide updates every six months on the status of its Load Research Study and Rate Design Review, on or before April 1, as part of its annual return, and also on September 30 each year.[1]

The *Load Research and Rate Design Update – March 31, 2026* provides an update to Newfoundland Power's load research and rate design activities and plans since the *Load Research and Rate Design Update – September 30, 2025* (the "September 2025 Update") was provided to the Board. Newfoundland Power remains within its overall forecast expenditures and schedule outlined in the September 2025 Update.[2]

## 2.0 BACKGROUND

Periodic reviews of Newfoundland Power's rate designs are necessary to ensure the Company's rate designs are consistent with good rate making principles and consider utility cost dynamics. Customer load research is periodically required to ensure the appropriate allocation of costs among Newfoundland Power's customer rate classes.

On May 16, 2024, the Provincial Government announced the finalization of its Rate Mitigation Plan. This provided greater clarity in the near term in relation to customer rate increases associated with the Muskrat Falls Project and Newfoundland and Labrador Hydro ("Hydro") until 2030.[3] In January 2025, Hydro's Utility rate to Newfoundland Power was revised to ensure that energy charges from Hydro to Newfoundland Power more closely reflect Hydro's marginal cost of energy and to mitigate customer rate volatility.[4]

A review of Newfoundland Power's rate designs is timely considering changes to supply cost dynamics resulting from the integration of the Muskrat Falls Project into the provincial electrical system and recent changes to the Utility rate charged by Hydro to Newfoundland Power. Customer load research at this time provides updated customer load profiles and data that are necessary to evaluate current customer end use activities, rate designs, and cost recovery within Newfoundland Power's various rate classes.

## 3.0 LOAD RESEARCH

Load research data combined with industry-standard statistical analysis techniques are used to assess the reasonableness of cost recovery from each customer rate class. The output of the analysis provides a means to estimate customer rate class demands on Newfoundland Power's electrical system at specific times. This is used to determine the portion of system demand costs that should be recovered from each customer class.

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1 See Order No. P.U. 3 (2025), page 58, lines 30-32.
2 See Load Research and Rate Design Update – March 31, 2025, page 4 Table 1 and page 7, Table 2.
3 See Government of Newfoundland and Labrador News release *Provincial Government Announces Finalization of Rate Mitigation Plan*, May 16, 2024.
4 See Order No. P.U. 1 (2025).

The Island Interconnected System is a winter peaking system. Customer demand requirements are approximately twice as high in winter months than in summer months. Generation and transmission demand costs are allocated by customer classes in the cost of service study based on each customer class's contribution to the winter system peak (i.e., based on coincident peak).[5] Distribution demand costs are allocated based on the relative size of the class peak demands (i.e., based on non-coincident peak).

## *3.1 Load Research Study Update*

Since the September 2025 Update, Newfoundland Power and its load research consultant, DNV Energy Service ("DNV"), completed several milestones related to its Load Research Study. These included: (i) completion of the *Load Research Analysis 4-Months Ending March 31, 2025* report (the "*2024-2025 DNV Report*") which analyzed customer load data over the 2024-2025 winter season; (ii) installation of additional load research meters to ensure the statistical integrity of customer load data is maintained; and (iii) continual data validating, editing, and estimating activities.

### *The 2024-2025 DNV Report*

The *2024-2025 DNV Report* was circulated to the Consumer Advocate, Hydro, and the Board (together "the Parties") in March 2026.[6] The report provides an analysis of customer load data received over the 4-month period from December 1, 2024 to March 31, 2025. The *2024-2025 DNV Report* captured customer load data for each rate class during the 2024-2025 winter season. This included during Newfoundland Power's 2024-2025 winter peak of 1,429,407 kW, which occurred at 8:06am on January 23, 2025.[7]

The *2024-2025 DNV Report* describes the analysis completed during the winter 2024-2025 period and summarizes the findings. The *2024-2025 DNV Report* showed that the class peaks were highly coincident with the system peak, having a coincidence factor of over 97%. The relative precision of the individual class peaks for each rate class met the <10% threshold at the 90% confidence interval.[8] This demonstrates that the methodology deployed to conduct the Load Research Study is achieving the desired results.[9]

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5 This is referred to as the single coincident peak method (1 CP). For the purposes of the Load Research Study, the system peak is based on the time of Hydro's system peak because the majority of the Company's generation and transmission demand costs are related to Hydro's assets.

6 Newfoundland Power provided the DNV 2024-2025 Report to the Parties on March 27, 2026.

7 As per Newfoundland and Labrador Hydro's April 4, 2025 letter *Re: Weather-Adjusted Native Load by Newfoundland Power Inc.* Newfoundland Power's maximum native load occurred on Thursday, January 23, 2025, at 8:06 am was 1,429,407 kW. The weather-adjusted maximum native load for the 2024-2025 winter season was 1,457,658 kW.

8 Generally accepted relative precisions for load research were originally established by the Public Utilities Regulatory Policy Act of 1978 which provided guidance that for rate classes that were at least 10% of the total system sales should be measured at ±10% at the 90% level of confidence. See DNV's Load Research Study Plan – Newfoundland Power Inc., June 15, 2023, which was circulated to the Parties on June 16, 2023, page 5, footnote 1.

9 This was done by using load research meters capable of recording customer load data over 15-minute intervals. To minimize costs, data collection from these meters was accomplished by leveraging the Company's existing meter reading infrastructure and meter reading processes.

The *2024-2025 DNV Report* describes the methodology used by DNV and includes a range of analyses related to customer load data. This includes: (i) monthly load profiles; (ii) load profiles in relation to temperature; (iii) EnergyPrints showing customer load intensity based on month and time of day; (iv) relative precision of the load research samples; and (v) estimates of annual load factors.

In addition to class specific customer load data analysis, the *2024-2025 DNV Report* also captured customer load data associated with customers who have electric vehicles ("EVs") and heat pumps.[10] The *2024-2025 DNV Report* also includes an analysis of Memorial University's ("MUN") electrical load characteristics compared to the aggregate of all other customers in the General Service Rate #2.4 (1000 kVA and Over) customer rate class.[11] Finally, the *2024-2025 DNV Report* provides analysis of data from customers that receive service from Newfoundland Power at transmission level voltages.[12]

Feedback from the Parties in relation to the *2024-2025 DNV Report* will be used by DNV to complete its next report which will include annual customer load data and the results from the 2025-2026 winter season.

## *Installation of Additional Meters*

Data collection continued throughout 2025 and into 2026. To ensure the statistical integrity of the customer load data was maintained, Newfoundland Power installed 65 additional customer load research meters in advance of the 2025-2026 winter season. This included 41 meters for Domestic customers and 24 meters for General Service customers.

Three customers, representing approximately 4.6% of the 65 customers chosen to participate in the deployment of additional load research meters, opted not to participate in the Load Research Study. Three new customers were recruited and had load research meters installed. This aligns with the initial deployment of load research meters and reflects successful customer recruitment efforts.[13]

## *Continual Data Validating, Editing and Estimating ("VEE")*

DNV uses industry standard best practices to validate, edit, and estimate customer load data each month. Data VEE is necessary to ensure that as much original data as possible is captured and maintained for the load research analysis. The process employed by DNV identifies missing intervals, zero intervals, and peak outliers. In addition, the consumption derived from aggregating the load research meter interval data is checked against billing consumption. Any data flagged as missing or potentially erroneous is estimated using time-temperature regression modelling and is flagged as estimated data.

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10 The size of the customer sample was increased prior to commencing the Load Research Study to include customers with EVs as well as customers with heat pumps.

11 This comparison does not include MUN's electric boiler load since that load has not yet been connected to MUN's electrical system.

12 Newfoundland Power's transmission customers are those that receive supply at 33 kV to 138 kV.

13 Approximately 4% of customers chosen to participate in the initial deployment of load research meters opted not to participate in the Load Research Study.

For the *2024-2025 DNV Report*, the customer samples have complete data with approximately 2% of the data intervals being estimated. Less than 0.001% of the intervals were flagged as outliers. This demonstrates the high quality of the load research data being received as part of the Load Research Study. Each month, DNV continues to complete its VEE process to ensure the quality of the customer load data received from the load research meters.

## *3.2 Upcoming Load Research Activities*

Newfoundland Power continues to manage its Load Research Study toward completion. The Company is collecting customer load data each month from its load research meters and routinely works with DNV to complete the necessary VEE activities. Following any feedback received from the Parties in relation to the *2024-2025 DNV Report*, and once customer load data has been received for the 2025-2026 winter season, DNV will prepare a second report detailing the results for a full calendar year together with a comparison of how the results from the 2025-2026 winter season compared to the 2024-2025 winter season. The report will be provided to the Parties once complete.

## *3.3 Updated Load Research Study Cost Estimate*

Newfoundland Power has updated its cost estimate to reflect Load Research Study progress to date. Table 1 provides the updated cost estimate.

**Table 1:**
**Updated Cost Estimate**
**Load Research Study**
**($000s)**

| Description | 2022 | 2023 | 2024 | 2025 | 2026E | Total |
|---|---|---|---|---|---|---|
| Internal Labour | 15 | 73 | 111 | 66 | 90 | 355 |
| External Labour | -- | 42 | 48 | 120 | 110 | 320 |
| Metering Costs | -- | -- | 325 | 1 | 0 | 326 |
| **Total** | **15** | **115** | **484** | **187** | **200** | **1,001** |

Costs incurred for the Load Research Study in 2025 are primarily related to internal and external labour associated with: (i) continued VEE activities; (ii) analysis of the customer load research data; (iii) preparation of the *2024-2025 DNV Report*; and (iv) customer recruitment activities related to the installation of additional meters.

Costs in 2025 were lower than estimated.[14] This is primarily due to: (i) sufficient load research meters remaining from 2024 to accommodate the additional 65 Domestic Service and General Service meters deployed in 2025[15]; and (ii) lower internal labour costs enabled by efficient, dependable processes and systems established in 2024 to obtain accurate customer load data.

[14] Costs associated with the Load Research Study in 2025 were $187,000. This compares to estimated costs of $280,000 as detailed in the *Load Research and Rate Design Update – March 31, 2025*, page 4.

[15] Due to the long-lead times associated with the load research meters, Newfoundland Power procured enough meters in its initial order to ensure adequate supply for the second winter season.

## 4.0 RATE DESIGN

Newfoundland Power serves approximately 279,600 customers. This includes approximately 243,400 Domestic customers, 24,600 General Service customers, and 11,600 Street and Area Lighting customers. The majority of the Company's Domestic customers' rates include monthly Basic Customer Charges and a flat kWh energy rate.[16] General Service customers' rates include monthly Basic Customer Charges, demand charges that vary by season, and energy charges that vary depending on monthly consumption.[17] Street and Area Lighting customers pay a monthly rate based on the type and size of lighting equipment installed.

The standard for assessing the appropriateness of customer rate design is guided by the Criteria of Sound Rate Structure described by James Bonbright in *Principles of Public Utility Rates.*[18] These criteria include effectiveness, practicality, stability, revenue sufficiency, price efficiency, and fairness. The Board has previously recognized these criteria in establishing customer rates.[19]

The Company is continuing with its phased approach to the Rate Design Review as described in the Load Research and Rate Design Framework.

### *4.1 Phase One*

Newfoundland Power completed Phase One of its Rate Design Review in 2024. This included completion of the Christensen Associates Energy Consulting ("Christensen") *Rate Design Review: Phase 1* report (the "Phase One Report") which was provided to the Parties on April 2, 2024. The Phase One Report included: (i) a review of Newfoundland Power's existing rates; (ii) a review of Newfoundland Power's existing metering capabilities; (iii) anticipated changes in Newfoundland Power's marginal supply costs; (iv) a review of customer rates in other Canadian jurisdictions; and (v) a description of alternatives that should be considered in Phase Two of the Rate Design Review.

The Phase One Report indicated that Newfoundland Power seems well-positioned with its current rate designs. The Phase One Report recommended the Company leave current rate designs in place, adjusting the customer, energy, and demand charges to ensure full cost recovery under Hydro's new price levels and to more adequately reflect changes in Hydro's marginal costs. The Phase One Report also recommended consideration of seasonal prices for the Company's default rate designs, a dual electric space heating rate, and a longer-term curtailable rate for large customers.

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[16] Approximately 1,100 of Newfoundland Power's customers avail of the Domestic Seasonal – Optional rate which includes seasonal energy charges for consumption during December through April and May through November. Domestic Seasonal – Optional customers are charged the same monthly Basic Customer Charge as all other Domestic customers. Domestic customer Basic Customer Charges are dependent on the size of the customer's service (i.e. those not exceeding 200 Amp Service, and those exceeding 200 Amp Service). Newfoundland Power's Domestic customer rates also include a 1.5% early payment discount.

[17] Newfoundland Power's three General Service Rate Classes include: Rate 2.1 0-100 kW (110 kVA); Rate 2.3 110 kVA (100 kW) – 1000 kVA; and Rate 2.4 1000 kVA and Over. General Service customer charges also include a 1.5% early payment discount, a Minimum Monthly Charge, and a Maximum Monthly Charge.

[18] Bonbright, *Principles of Public Utility Rates,* Public Utilities Reports, 1988, Pages 383-384.

[19] See, for example, Order No. P.U. 19 (2003).

## *4.2 Phase Two*

The purpose of Phase Two is to evaluate the impact of alternative rate designs on Newfoundland Power's customers with consideration given to changing marginal supply costs, embedded costs, and updated load research.

Newfoundland Power is currently conducting Phase Two of the rate design review. This follows: (i) the completion of Phase One Rate Design Review; (ii) additional clarity regarding cost recovery associated with the Muskrat Falls Project due to finalization of the Provincial Government rate mitigation plan; and (iii) the establishment of a new Utility rate charged from Hydro to Newfoundland Power which more accurately reflects marginal supply costs.[20] In addition, initial results from the ongoing Load Research Study will enable the Company to evaluate alternative rate designs with updated customer load data.

Key tasks in-progress related to Newfoundland Power's Rate Design Review include: (i) finalizing the customer rate design survey with the Parties so that it can be circulated to customers; (ii) evaluating customer rate designs using models developed by Christensen; (iii) a marginal distribution cost study; and (iv) additional work outlined by the Board in Order No. P.U. 3 (2025) related to an assessment of the reasonableness of the existing rate structure for MUN and customers primarily served by transmission assets, as well as a review of the Company's general service contribution policy for transmission assets.[21]

### *Customer Engagement*

Newfoundland Power engaged MQO Research ("MQO") to aid in the development of a customer engagement plan and facilitate customer engagement activities. The *Rate Design Review Customer Engagement Plan* (the "Customer Engagement Plan") was circulated to the Parties for review in October 2025.

The *Customer Engagement Plan* includes a survey of residential and general service customers. The survey will gather customer feedback on the rate designs and alternatives discussed in the Phase One Report including: (i) seasonal rates; (ii) time-of-use rates; (iii) critical peak pricing rates; (iv) ultra-low overnight rates; and (v) dual-energy heating system rates. Simplified descriptions and diagrams that illustrate the rate alternatives have been developed and will be used to assist customers in better understanding the rate alternatives. The online survey also includes questions that request information on customer profile, usage, and demographics. This information will provide insight into whether certain customer groups have a preference toward particular rate alternatives.

Newfoundland Power provided the Domestic Service Survey and General Service Survey to the Parties for feedback in October 2025. The survey will be released once all feedback has been received and incorporated.

[20] Changes to Hydro's Utility rate to Newfoundland Power was approved by the Board in Order No. P.U. 1 (2025).

[21] This is consistent with direction from the Board following Newfoundland Power's *2025/2026 General Rate Application*. See Order No. P.U. 3 (2025), page 59, lines 27-30, and page 60, lines 26-27.

## *Evaluation of Alternative Rate Designs*

In 2025, Newfoundland Power's rate design consultant, Christensen, developed a model to evaluate the Company's customer rate designs and alternate rate designs. The model is currently being used to evaluate the effect of variations in alternative rate designs on Newfoundland Power's Domestic and General Service customer rate classes. The model uses Stata software which incorporates the Company's customer billing determinants from April 1, 2024, through March 31, 2025, for a large sample of customers from all classes.[22]

Evaluation and technical analysis of customer rate alternatives is continuing in 2026. Further work in this area will be informed by customer load research data and customer engagement activities including the responses to the Domestic Service Survey and General Service Survey.

## *Marginal Distribution Costs*

Newfoundland Power and Christensen are continuing towards completion of Newfoundland Power's distribution marginal cost study. Christensen is utilizing the Company's data and information pertaining to facility investments and operating expense for each element of the Company's system necessary for providing service. This includes transmission lines, distribution substations, primary lines, transformers, and secondary lines. Customer related expenses are also being considered in the marginal cost study including costs related to service drops, meter installation, meter reading, billing and customer service. The marginal cost study is planned for completion in 2026.

## *Additional Work Outlined in Order No. P.U. 3 (2025)*

In accordance with Order No. P.U. 3 (2025), Newfoundland Power has increased the scope of its Rate Design Review to consider the reasonableness of the existing rate structure and cost recovery for MUN and other customers primarily serviced by transmission assets. This work is ongoing and load profiles associated with MUN and customers primarily serviced by transmission assets has been separately reviewed as part of the *2024-2025 DNV Report* which was recently provided to the Parties.[23]

In addition to a review of rates charged to MUN and other customers primarily served by transmission assets, Order No. P.U. 3 (2025) required Newfoundland Power to address its general service contribution policy for transmission assets as part of the Rate Design Review. This work has been added to the ongoing work undertaken by Christensen. The results of this review will be provided to the Parties once complete.

[22] Stata is an integrated statistical software package commonly used to evaluate and model large datasets (https://www.stata.com/).

[23] While the *2024-2025 DNV Report* has provided analysis related to MUN load compared to other customers in the General Service Rate #2.4 customer rate class, the load profile does not include electrical load from MUN's electric boiler project since the electric boilers are not yet in service.

### *4.3 Updated Rate Design Review Cost Estimate*

Newfoundland Power has updated its cost estimate to reflect Rate Design Review progress to date. Table 2 provides the updated cost estimate.

**Table 2:**
**Updated Cost Estimate**
**Rate Design Review**
**($000s)**

| Description | 2022 | 2023 | 2024 | 2025 | 2026E | Total |
|---|---|---|---|---|---|---|
| Internal Labour | 13 | 57 | 61 | 64 | 40 | 235 |
| External Labour | -- | 70 | 93 | 251 | 180 | 594 |
| Customer Engagement | -- | -- | -- | 6 | 44 | 50 |
| **Total** | **13** | **127** | **154** | **321** | **264** | **879** |

Costs incurred in 2025 are primarily related to Phase Two of the Rate Design Review. Costs in 2025 were comparable to those estimated in the March 31, 2025 Update.[24] Costs in 2026 are primarily related to completing customer engagement activities and the conclusion of various work activities assigned to Christensen including additional work following the conclusion of Newfoundland Power's *2025/2026 General Rate Application*. This work includes: (i) completion of Phase 2 Rate Design Review; (ii) completion of the marginal distribution cost study; (iii) assessing the reasonableness of the existing rate structure and cost recovery for MUN and other customers primarily serviced by transmission assets; and (iv) a review of general service contribution policies for transmission assets.

The overall estimated cost associated with the Load Research Study and the Rate Design Review is consistent with the Load Research and Rate Design Framework.[25]

## 5.0 CONCLUSION

Newfoundland Power continues to advance its Load Research Study and Rate Design Review towards completion. Data received from the load research meters installed throughout the Company's service territory continue to provide reliable and accurate data and additional load research meters were installed prior to the 2025-2026 winter season to further ensure the statistical integrity of the customer load data. Newfoundland Power's load research consultant completed the *2024-2025 DNV Report* which was circulated to the Parties in March. Feedback from the Parties will be used in the development of the second report detailing the results for a full calendar year together with a comparison of how the results from the 2025-2026 winter season compared to the 2024-2025 winter season.

[24] Costs associated with the Rate Design Review were $321,000 in 2025. This compares to estimated costs of approximately $325,000 as detailed in the *Load Research and Rate Design Update – March 31, 2025,* page 7, Table 2.

[25] The overall estimated cost of the Load Research Study and Rate Design Review, as detailed in the *Load Research and Rate Design Framework* provided to the Board on December 30, 2022, was $1,900,000. The current overall estimate is $1,880,000.

The Rate Design Review has also been progressing throughout 2025 and into 2026. With the completion of Phase One, focus in 2025 and 2026 has been directed towards Phase Two activities. Christensen has developed a rate design model which is being used to model and evaluate customer rate alternatives. In addition, Christensen has undertaken additional work resulting from *Newfoundland Power's 2025/2026 GRA*. In October 2025, Newfoundland Power circulated its *Customer Engagement Plan* to the Parties for feedback. MQO has since developed an online version of the survey which will be released once all feedback has been received and incorporated.