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a nalcor energy company

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August 12, 2019

The Board of Commissioners of Public Utilities
Prince Charles Building
120 Torbay Road, P.O. Box 21040
St. John's, NL A1A 5B2

Attention: Ms. Cheryl Blundon
Director Corporate Services & Board Secretary

Dear Ms. Blundon:

Re: Newfoundland Power's 2020 Capital Budget Application – Requests for Information

Enclosed please find the original plus eight copies of Newfoundland and Labrador Hydro's Requests for Information NLH-NP-001 to NLH-NP-037 in relation to Newfoundland Power's 2020 Capital Budget Application.

Should you have any questions, please contact the undersigned.

Yours truly,

NEWFOUNDLAND AND LABRADOR HYDRO

SWalsh

Shirley A. Walsh
Senior Legal Counsel, Regulatory
SAW/sk

Encl.

cc: Gerard M. Hayes, Newfoundland Power
Paul L. Coxworthy, Stewart McKelvey
Dean A. Porter, Poole Althouse
Dennis Browne, Q.C., Browne Fitzgerald Morgan & Avis
Denis J. Fleming, Cox and Palmer

ecc: Gregory Moores, Stewart McKelvey
Senwung Luk, Olthuis Kleer Townshend LLP

IN THE MATTER OF the *Public Utilities Act*, (the "Act"); and

IN THE MATTER OF capital expenditures and rate base of Newfoundland Power Inc.; and

IN THE MATTER OF an application by Newfoundland Power Inc. for an order pursuant to Sections 41 and 78 of the Act:

(a) approving a 2020 Capital Budget of $96,614,000;
(b) approving certain capital expenditures related to multi-year projects commencing in 2020; and
(c) fixing and determining a 2018 rate base of $1,117,341,000

NEWFOUNDLAND AND LABRADOR HYDRO

Requests for Information

NLH-NP-001 to NLH-NP-037

August 12, 2019

NLH-NP-001 **Reference: "2020 Capital Budget Application," Newfoundland Power, July 5, 2019, Report 3.1 "2020 Transmission Line Rebuild," sec. 2.2, at p. 2.**

> In 2017, inspections identified significant deterioration of the line due to decay, splits and checks in the poles and spar arms, cracks in insulators and other hardware deficiencies. Many of these components were identified as being in advanced stages of deterioration and requiring replacement. The inspections also identified conductor damage requiring repair.

Has Newfoundland Power, at any time, removed any of the poles/crossarms identified as being deteriorated and had the components tested in a laboratory setting to critically evaluate effectiveness and residual strength of the components? If so, please provide results of such testing. If not, why not?

NLH-NP-002 **Reference: "2020 Capital Budget Application," Newfoundland Power, July 5, 2019, Report 3.1 "2020 Transmission Line Rebuild," sec. 2.2, at p. 2.**

> In 2017, inspections identified significant deterioration of the line due to decay, splits and checks in the poles and spar arms, cracks in insulators and other hardware deficiencies. Many of these components were identified as being in advanced stages of deterioration and requiring replacement. The inspections also identified conductor damage requiring repair.

What evaluation tools, techniques, and methods does Newfoundland Power use while inspecting various line components? Please provide details for each line component inspected.

NLH-NP-003 **Reference: "2020 Capital Budget Application," Newfoundland Power, July 5, 2019, Report 3.1 "2020 Transmission Line Rebuild," sec. 2.2, at p. 2.**

> In 2017, inspections identified significant deterioration of the line due to decay, splits and checks in the poles and spar arms, cracks in insulators and other hardware deficiencies. Many of these components were identified as being in advanced stages of deterioration and requiring replacement. The inspections also identified conductor damage requiring repair.

What criteria does Newfoundland Power use to determine when a pole fails inspection and requires replacement? Is this requirement the same for distribution poles? If not, what criteria are used to determine when a distribution pole has failed inspection and requires replacement?

NLH-NP-004 **Reference: "2020 Capital Budget Application," Newfoundland Power, July 5, 2019, Report 3.1 "2020 Transmission Line Rebuild," sec. 2.2, at p. 2.**

> In 2017, inspections identified significant deterioration of the line due to decay, splits and checks in the poles and spar arms, cracks in insulators and other hardware deficiencies. Many of these components were identified as being in advanced stages of deterioration and requiring replacement. The inspections also identified conductor damage requiring repair.

What percentage of poles on 363L were identified during the 2017 inspections as being in advanced stages of deterioration and requiring replacement?

NLH-NP-005 **Reference: "2020 Capital Budget Application," Newfoundland Power, July 5, 2019, Report 3.1 "2020 Transmission Line Rebuild," sec. 2.2, at p. 2.**

> In 2017, inspections identified significant deterioration of the line due to decay, splits and checks in the poles and spar arms, cracks in insulators and other hardware deficiencies. Many of these components were identified as being in advanced stages of deterioration and requiring replacement. The inspections also identified conductor damage requiring repair.

What evaluation criteria does Newfoundland Power use to determine when the rebuilding of a line or line section is proposed versus replacement of various deteriorated components?

NLH-NP-006 **Reference: "2020 Capital Budget Application," Newfoundland Power, July 5, 2019, Report 3.1 "2020 Transmission Line Rebuild," sec. 2.2, at p. 2.**

> In 2017, inspections identified significant deterioration of the line due to decay, splits and checks in the poles and spar arms, cracks in insulators and other hardware deficiencies. Many of these components were

> identified as being in advanced stages of deterioration and requiring replacement. The inspections also identified conductor damage requiring repair.

Has Newfoundland Power experienced any outages due to conductor failure on 363L? If so, please provide the dates and durations of these outages.

NLH-NP-007 **Reference: "2020 Capital Budget Application," Newfoundland Power, July 5, 2019, Report 3.1 "2020 Transmission Line Rebuild," sec. 2.3, at p. 3.**

> The line was also built without armour rods on the conductor at points where they are clamped on insulators. Newfoundland Power's standard is to use armour rods on conductor at all of the connections that produce mechanical stress on the conductor. Armour rods protect the conductor from conductor fatigue caused by aeolian vibrations. Transmission line 49L was constructed using older vintage porcelain suspension insulators, which have been known to form hairline cracks over time.

Has Newfoundland Power experienced any outages due to aeolian vibration-related failures on 49L? If so, please provide the dates and durations of these outages.

NLH-NP-008 **Reference: "2020 Capital Budget Application," Newfoundland Power, July 5, 2019, Report 3.1 "2020 Transmission Line Rebuild," sec. 2.3, at p. 3.**

> The line was also built without armour rods on the conductor at points where they are clamped on insulators. Newfoundland Power's standard is to use armour rods on conductor at all of the connections that produce mechanical stress on the conductor. Armour rods protect the conductor from conductor fatigue caused by aeolian vibrations. Transmission line 49L was constructed using older vintage porcelain suspension insulators, which have been known to form hairline cracks over time.

Please identify the manufacturer of the porcelain insulators, Newfoundland Power's failure history of these insulators, and reports of any mechanical or electrical testing of these insulators.

NLH-NP-009 **Reference: "2020 Capital Budget Application," Newfoundland Power, July 5, 2019, Report 3.1 "2020 Transmission Line Rebuild," sec. 2.3, at p. 3.**

> The line was also built without armour rods on the conductor at points where they are clamped on insulators. Newfoundland Power's standard is to use armour rods on conductor at all of the connections that produce mechanical stress on the conductor. Armour rods protect the conductor from conductor fatigue caused by aeolian vibrations. Transmission line 49L was constructed using older vintage porcelain suspension insulators, which have been known to form hairline cracks over time.

Have any outages been recorded due to failure of the insulators noted in NLH-NP-008? If so, please provide the dates and durations of these outages.

NLH-NP-010 **Reference: "2020 Capital Budget Application," Newfoundland Power, July 5, 2019, Report 2.1 "2020 Substation Refurbishment and Modernization," secs. 3.1 and 3.2**

On page 4, Newfoundland Power states "The installation of three 138 kV circuit breakers . . . will allow for the removal of the high-speed ground switch presently being utilized for transformer protection . . ."

On page 7, Newfoundland Power states "The installation of a 138 kV circuit breaker . . . will allow for the removal of the high-speed ground switch presently being utilized for transformer protection."

Please provide customer outage statistics for the past five years for outages caused by operation of the high-speed ground switches at Marystown and Bonavista Substations as well as the SAIDI and SAIFI statistics for the past three years for the feeders fed from the Marystown and Bonavista Substations.

NLH-NP-011 **Reference: "2020 Capital Budget Application," Newfoundland Power, July 5, 2019, Report 2.1 "2020 Substation Refurbishment and Modernization," sec. 2, at p. 2.**

> For 2020, Substation Refurbishment and Modernization Projects include planned refurbishment and modernization of 3 substations. This

> substation work is estimated to cost a total of $10,856,000, comprising approximately 96% of the total 2020 project cost. The remaining project cost includes $180,000 associated with Substation Monitoring Upgrades to upgrade substation communication systems.

Please provide a breakdown of the estimated cost of refurbishment for the Marystown, Bonavista, and Grand Bay Substations in the following categories:

a) Replacement of existing infrastructure (i.e., like for like);

b) Equipment upgrades (e.g., circuit breakers versus high-speed ground switches); and

c) Installation of new infrastructure (e.g., control buildings).

NLH-NP-012 **Reference: "2020 Capital Budget Application," Newfoundland Power, July 5, 2019, Report 2.1 "2020 Substation Refurbishment and Modernization," sec. 2, at p. 2.**

> For 2020, Substation Refurbishment and Modernization Projects include planned refurbishment and modernization of 3 substations. This substation work is estimated to cost a total of $10,856,000, comprising approximately 96% of the total 2020 project cost. The remaining project cost includes $180,000 associated with Substation Monitoring Upgrades to upgrade substation communication systems.

Please provide a list of the planned equipment replacement, including age and condition, for the Marystown, Bonavista, and Grand Bay Substations.

NLH-NP-013 **Reference: "2020 Capital Budget Application," Newfoundland Power, July 5, 2019, Report 2.1 "2020 Substation Refurbishment and Modernization," sec. 3.1, at p. 4, fn. 3; sec. 3.2, at p. 7, fn. 7; and sec. 3.3, at p. 11, fn. 16.**

> The Company's strategy for switches is to operate and maintain switches whenever opportunities and substation work permit, and to replace switches when they are more than 30 years old. Over the life of the switches there is mechanical wear and tear experienced by items such as hinge bushings, Teflon bushing liners and springs used to assist movement. The result is typically misalignment of switch blades and contact surfaces.

Has Newfoundland Power carried out an analysis to compare life cycle cost of replacing switches at 30 years versus maintaining beyond 30 years? If so, please provide analysis details. If not, why not?

NLH-NP-014 **Reference: "2020 Capital Budget Application," Newfoundland Power, July 5, 2019, Report 2.1 "2020 Substation Refurbishment and Modernization," sec. 3.3, at p. 12.**

> The existing 35-year-old control building at GBS Substation has insufficient space to accommodate the new protection and communication panels required to complete the protection upgrades. A new control building will be constructed to permit installation of the new protection and communications panels, with minimum disruption to the existing protections scheme and minimal impact to the integrity of the electrical system during construction.

Please provide the alternatives that were considered to address this issue and the costs associated with each alternative.

NLH-NP-015 **Reference: "2020 Capital Budget Application," Newfoundland Power, July 5, 2019, Report 1.4 "Topsail Hydro Plant Penstock Replacement," sec. 3.0, at p. 3.**

> Overall, the 38-year-old penstock is in poor condition. Issues have been noted with all components of the woodstave penstock including cradles, steel bands, wooden staves, site drainage and buried sections of penstock.

Please provide a table that shows the details of the annual maintenance and repair activities and related annual maintenance and repair costs for this penstock over the past 10 years.

NLH-NP-016 **Reference: "2020 Capital Budget Application," Newfoundland Power, July 5, 2019, Report 1.4 "Topsail Hydro Plant Penstock Replacement," sec. 3.0, at p. 3.**

> Overall, the 38-year-old penstock is in poor condition. Issues have been noted with all components of the woodstave penstock including cradles, steel bands, wooden staves, site drainage and buried sections of penstock.

Please provide Newfoundland Power's preventive maintenance manual for all woodstave penstocks and describe Newfoundland Power's plan to maximize the service life of all penstocks.

NLH-NP-017 **Reference: "2020 Capital Budget Application," Newfoundland Power, July 5, 2019, Report 1.4 "Topsail Hydro Plant Penstock Replacement," sec. 3.0, at p. 3.**

> Overall, the 38-year-old penstock is in poor condition. Issues have been noted with all components of the woodstave penstock including cradles, steel bands, wooden staves, site drainage and buried sections of penstock.

Please provide a list of Newfoundland Power's woodstave penstocks, detailing location, length, and year of construction.

NLH-NP-018 Please complete the following table:

Year	Total Salary and Benefits Paid by the Company ($) A	Total Salary and Benefits Charged to Capital Assets ($) B	Percent Capitalized Salaries and Benefits (%) C=B/A
2000			
2001			
2002			
2003			
2004			
2005			
2006			
2007			
2008			
2009			
2010			
2011			
2012			
2013			
2014			
2015			
2016			
2017			
2018			
2019 Forecast			

Year	Total Salary and Benefits Paid by the Company ($) A	Total Salary and Benefits Charged to Capital Assets ($) B	Percent Capitalized Salaries and Benefits (%) C=B/A
2020 Forecast			
2021 Forecast			
2022 Forecast			
2023 Forecast			

NLH-NP-019 Please provide a copy of Newfoundland Power's policy for General Expenses Capitalized including a copy of the most recent review supporting the policy development.

NLH-NP-020 Please provide a detailed listing of actual General Expenses Capitalized over the past five years (2014–2018) and a detailed listing of budgeted General Expenses Capitalized included in this application.

NLH-NP-021 In addition to General Expenses Capital, does Newfoundland Power capitalize costs of employee salaries and benefits which indirectly arise from the construction or acquisition of the item of property, plant, and equipment? If so, please provide a summary of these actual capitalized costs in dollars for the past five years (2014–2018) by operations and maintenance cost type and major asset category (i.e., generation, transmission, and distribution).

NLH-NP-022 Please describe Newfoundland Power's policy for the application of overhead expenses to capital projects and capital labour charges. Please provide a detailed listing of actual capitalized overhead expenses for the past five years (2014–2018) including, but not limited to, employee benefits, generalized expenses capitalized, administrative costs, and any other capitalized overhead costs.

NLH-NP-023 **a)** Please provide Newfoundland Power's policy on capitalizing "unavoidable costs" that are directly attributable to construction activity (i.e., costs that would have been avoided if the asset had not been constructed; for example, mobile gas turbine costs that are capitalized in a capital job).

b) Please provide a listing of "unavoidable costs" that are included in the 2020 capital budget and a five-year history of actual capitalized unavoidable costs (2014–2018), including a description of the unavoidable cost, the dollar amount of the unavoidable cost, and the corresponding capital project."

NLH-NP-024 Please complete the following table:

Year	Gross Additions to Capital Assets ($) A	Capitalized Indirect Costs/ Overheads ($) B	General Expenses Capitalized ($) C	Percent Capitalized Indirect Costs (%) D=(B+C)/A
2000				
2001				
2002				
2003				
2004				
2005				
2006				
2007				
2008				
2009				
2010				
2011				
2012				
2013				
2014				
2015				
2016				
2017				
2018				
2019 Forecast				
2020 Forecast				
2021 Forecast				
2022 Forecast				
2023 Forecast				

NLH-NP-025 **Reference: Newfoundland Power's "Consolidation of Retail and Transmission Operations on the Island Interconnected System: A Resource Assessment," Appendix D, Table D-1, at p. D-1, filed on June 5, 2019 as Attachment A to PUB-NP-084 as part of the *Rate Mitigation Options and Impacts Reference* proceeding.**

Table D-1: Estimated Labour Capitalization by Position			
Position	Capital	Operating	Total
MANAGEMENT & ENGINEERING			
Manager	68%	32%	100%
T&D Engineering	92%	8%	100%
Engineering/Asset Management	71%	29%	100%
Protection and Controls	93%	7%	100%
Power System Support	3%	97%	100%
Safety and Environment	0%	100%	100%
Transportation	80%	20%	100%
Technology	26%	74%	100%
Operations Support	47%	53%	100%
Human Resources	0%	100%	100%
CRAFT & SUPERVISION			
Line Supervisor	91%	9%	100%
Line Operations	66%	34%	100%
Planner	36%	64%	100%
Stores	90%	10%	100%
Maintenance Supervisor	10%	90%	100%
Electrical Maintenance	42%	58%	100%
Plant Operations	45%	55%	100%
Area Customer Representative	23%	77%	100%
Customer Service Supervisor	12%	88%	100%
Customer Service	9%	91%	100%
Meter Technician	90%	10%	100%
Power System Operator	39%	61%	100%

a) Please provide an update, if applicable, to Table D-1 as identified above.

b) Please provide details regarding the activities that support the capitalized percentages for each position.

NLH-NP-026 **Reference: Newfoundland Power's "Consolidation of Retail and Transmission Operations on the Island Interconnected System: A Resource Assessment," Appendix D, Table D-1, at p. D-1, filed on June 5, 2019 as Attachment A to PUB-NP-084 as part of the *Rate Mitigation Options and Impacts Reference* proceeding.**

Table D-1: Estimated Labour Capitalization by Position			
Position	Capital	Operating	Total
MANAGEMENT & ENGINEERING			
Manager	68%	32%	**100%**
T&D Engineering	92%	8%	**100%**
Engineering/Asset Management	71%	29%	**100%**
Protection and Controls	93%	7%	**100%**
Power System Support	3%	97%	**100%**
Safety and Environment	0%	100%	**100%**
Transportation	80%	20%	**100%**
Technology	26%	74%	**100%**
Operations Support	47%	53%	**100%**
Human Resources	0%	100%	**100%**
CRAFT & SUPERVISION			
Line Supervisor	91%	9%	**100%**
Line Operations	66%	34%	**100%**
Planner	36%	64%	**100%**
Stores	90%	10%	**100%**
Maintenance Supervisor	10%	90%	**100%**
Electrical Maintenance	42%	58%	**100%**
Plant Operations	45%	55%	**100%**
Area Customer Representative	23%	77%	**100%**
Customer Service Supervisor	12%	88%	**100%**
Customer Service	9%	91%	**100%**
Meter Technician	90%	10%	**100%**
Power System Operator	39%	61%	**100%**

Please provide a 10-year history of the capitalized percentages for each position. If any of the position percentages have changed in the past 10 years, please provide a variance analysis for each position.

NLH-NP-027 Please complete the following table:

Year	**Average Rate Base ($)** A	**Net Additions to Rate Base ($)** B	**Percent Growth in Rate Base (%)** C = B/A	**Cumulative Growth in Rate Base (%)** Subtotal of C
2000				
2001				
2002				
2003				
2004				

Year	Average Rate Base ($)	Net Additions to Rate Base ($)	Percent Growth in Rate Base (%)	Cumulative Growth in Rate Base (%)
	A	B	C = B/A	Subtotal of C
2005				
2006				
2007				
2008				
2009				
2010				
2011				
2012				
2013				
2014				
2015				
2016				
2017				
2018				
2019 Forecast				
2020 Forecast				
2021 Forecast				
2022 Forecast				
2023 Forecast				

1 **NLH-NP-028** Please complete the following table:

Year	Average Rate Base ($)	Weighted Average Cost of Capital (%)	Cost of Financing Rate Base ($)	Newfoundland Power Revenue Requirement Excluding Power Purchase Costs ($)	Cost of Financing Rate Base as a Percentage of Newfoundland Power's Own Costs (%)
	A	B	C=A×B	D	E=C/D
2000					
2001					
2002					
2003					
2004					
2005					
2006					
2007					
2008					
2009					
2010					

Year	Average Rate Base ($)	Weighted Average Cost of Capital (%)	Cost of Financing Rate Base ($)	Newfoundland Power Revenue Requirement Excluding Power Purchase Costs ($)	Cost of Financing Rate Base as a Percentage of Newfoundland Power's Own Costs (%)
	A	B	C=A×B	D	E=C/D
2011					
2012					
2013					
2014					
2015					
2016					
2017					
2018					
2019 Forecast					
2020 Forecast					
2021 Forecast					
2022 Forecast					
2023 Forecast					

NLH-NP-029 Please estimate the annual revenue requirement associated with Newfoundland Power's "2020 Capital Budget Application" assuming all projects are in-service in 2020 and the revenue requirement would be based on a 2021 Test Year.

NLH-NP-030 **Reference: "2019/2020 General Rate Application," Newfoundland Power, June 1, 2018, vol. 1, sec. 2.3.2, at p. 2-24, fig. 2-6 and p.2-22.**

"Under normal operating conditions, the duration of customer outages has remained relatively consistent since 2008, at approximately 2.3 to 3 hours per year."

Reference: "2019/2020 General Rate Application," Newfoundland Power, June 1, 2018, vol. 1, sec. 2.3.2, at p. 2-25, fig. 2-7 and p.2-23.

"Under normal operating conditions, customers have experienced an average of between 1 and 3 outages per year since 2008."

Reference: "2020 Capital Budget Application," Newfoundland Power, July 5, 2019, Report 4.1 "Distribution Reliability Initiative," sec. 3.1, at p. 2, Table 1

Table 1
Distribution Interruption Statistics
5-Year Average to December 31, 2018

Feeder	Customers	SAIFI	SAIDI	CHIKM	CIKM
DUN-01	1,049	4.90	9.54	62	32
GBY-03	762	3.35	6.94	49	24
GDL-04	1,472	1.27	2.23	222	127
Company Average	-	**1.37**	**1.82**	**55**	**45**

a) Please explain how the data in Table 1 compares to the data in Newfoundland Power's "2019/2020 General Rate Application," fig. 2-6 (SAIDI) and fig. 2-7 (SAIFI).

b) For the SAIFI of 1.37 and SAIDI of 1.82 data contained in Table 1, please clarify if any of the following data components, or any combination of components, have been removed:

i) Significant events;

ii) Loss of supply; and

iii) Planned events.

c) Using the same data components upon which the SAIFI of 1.37 and SAIDI of 1.82 data contained in Table 1 are based, please complete the following table for each of the years 1998 to 2018 for Newfoundland Power's annual historical performance and CEA Region 2 comparable data.

Year	Newfoundland Power		CEA Region 2	
	SAIDI	SAIFI	SAIDI	SAIFI
1998				
1999				
2000				
2001				
2002				
2003				
2004				
2005				

Year	Newfoundland Power		CEA Region 2	
	SAIDI	SAIFI	SAIDI	SAIFI
2006				
2007				
2008				
2009				
2010				
2011				
2012				
2013				
2014				
2015				
2016				
2017				
2018				

NLH-NP-031 **Reference: "2020 Capital Budget Application," Newfoundland Power, July 5, 2019, Report 4.1 "Distribution Reliability Initiative," sec. 3.1, at p. 2, Table 1**

Table 1
Distribution Interruption Statistics
5-Year Average to December 31, 2018

Feeder	Customers	SAIFI	SAIDI	CHIKM	CIKM
DUN-01	1,049	4.90	9.54	62	32
GBY-03	762	3.35	6.94	49	24
GDL-04	1,472	1.27	2.23	222	127
Company Average	-	**1.37**	**1.82**	**55**	**45**

Using the five-year average presented in Table 1 and the data composition used to produce this data, how many and what percentage of Newfoundland Power feeders perform worse than CEA Region 2 for SAIDI?

NLH-NP-032 **Reference: "2020 Capital Budget Application," Newfoundland Power, July 5, 2019, Report 4.1 "Distribution Reliability Initiative," sec. 3.1, at p. 2, Table 1**

Table 1
Distribution Interruption Statistics
5-Year Average to December 31, 2018

Feeder	Customers	SAIFI	SAIDI	CHIKM	CIKM
DUN-01	1,049	4.90	9.54	62	32
GBY-03	762	3.35	6.94	49	24
GDL-04	1,472	1.27	2.23	222	127
Company Average	-	**1.37**	**1.82**	**55**	**45**

Using the five-year average presented in Table 1 and the data composition used to produce this data, how many and what percentage of Newfoundland Power feeders perform worse than CEA Region 2 for SAIFI?

NLH-NP-033 Please advise whether, in Newfoundland Power's opinion, the execution of the following projects contribute to improved reliability performance for the feeders being worked on, as would be demonstrated in improved SAIDI, SAIFI, etc.? If not, why not?

a) Reconstruction project;

b) Rebuild Distribution Lines project;

c) Trunk Feeders project (Feeder GFS-06); and

d) Distribution Automation project.

NLH-NP-034 **Reference: "2020 Capital Budget Application," Newfoundland Power, July 5, 2019, Report 4.2 "Feeder Additions for Load Growth." secs. 2.1 and 2.3.**

On page 1, Newfoundland Power states "An overloaded section of conductor on a distribution line is at risk of failure. Failures are caused by overheating of the conductor as the customer load exceeds the conductor's capacity ratings."

On page 3, footnote 4, Newfoundland Power states "Newfoundland Power's planning criteria for maximum current on a single-phase distribution line is 85 amps."

Please provide details of Newfoundland Power's distribution planning criteria for maximum current on single-phase, two-phase, and three-phase lines and how the

criteria were developed. How long has the 85 amp criteria been in effect for single-phase lines?

NLH-NP-035 **Reference: "2020 Capital Budget Application," Newfoundland Power, July 5, 2019, Report 4.2 "Feeder Additions for Load Growth." secs. 2.1 and 2.3.**

On page 1, Newfoundland Power states "An overloaded section of conductor on a distribution line is at risk of failure. Failures are caused by overheating of the conductor as the customer load exceeds the conductor's capacity ratings."

On page 3, footnote 4, Newfoundland Power states "Newfoundland Power's planning criteria for maximum current on a single-phase distribution line is 85 amps."

Please indicate the percentage of outages, both in quantity and duration, that were caused by undesirable operation of the feeder protection due to heavily loaded single-phase taps on feeders OXP-01, PUL-05, and BCV-03 over the past five years.

NLH-NP-036 **Reference: "2020 Capital Budget Application," Newfoundland Power, July 5, 2019, Report 4.3 "GFS-06 Distribution Refurbishment," sec. 3.0, at p. 3.**

"Replace all poles and structures along the 20 km section of line to address deterioration and eliminate all non-standard distribution structures . . ."

Please provide the evaluation criteria used during the 2019 inspection to determine the need to replace poles.

NLH-NP-037 **Reference: "2020 Capital Budget Application," Newfoundland Power, July 5, 2019, Report 4.3 "GFS-06 Distribution Refurbishment," sec. 3.0, at p. 3.**

"Replace all poles and structures along the 20 km section of line to address deterioration and eliminate all non-standard distribution structures . . ."

Of the 146 structures proposed for replacement in the 20 km section, what percentage of poles are deteriorated to a point where pole replacement was deemed necessary as a result of the 2019 inspection?

DATED at St. John's, in the Province of Newfoundland and Labrador this 12 day of August, 2019.

Shirley A. Walsh
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Newfoundland and Labrador Hydro
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