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October 30, 2020

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 of Corporate Services & Board Secretary

Dear Ms. Blundon:

Re: Rolling 12 Month Performance of Newfoundland and Labrador Hydro's Generating Units

In accordance with item 2.8 of the Liberty Report Recommendations dated December 17, 2014, please find enclosed a copy of Newfoundland and Labrador Hydro's ("Hydro") "Quarterly Report on Performance of Generating Units for the Quarter Ended September 30, 2020" ("Report").

On November 16, 2018, Hydro filed the "Reliability and Resource Adequacy Study" ("Study") with the Board of Commissioners of Public Utilities ("Board"). The Study included Hydro's proposed planning assumptions for consultation and discussion with the Board and other stakeholders. For the Report, which covers the performance of Hydro's generating units for the quarter ended September 30, 2020, the assumptions that were reported in the previous quarterly reports have been maintained for clarity prior to the transition to reporting against the new assumptions.

We trust the foregoing is satisfactory. If you have any questions or comments, please contact the undersigned.

Yours truly,

NEWFOUNDLAND AND LABRADOR HYDRO

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

Encl.

ecc: **Board of Commissioners of Public Utilities**
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Maureen P. Greene, Q.C.
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Randy Dillon, Town of Happy Valley-Goose Bay

Quarterly Report on Performance of Generating Units for the Quarter Ended September 30, 2020

October 30, 2020

A Report to the Board of Commissioners of Public Utilities

newfoundland labrador hydro
a nalcor energy company

Contents

1.0 Introduction

In this report, Newfoundland and Labrador Hydro ("Hydro") provides data on forced outage rates of its generating facilities. The data provided pertains to historical forced outage rates and assumptions Hydro uses in its assessments of resource adequacy. This report covers the performance of Hydro's generating units for the quarter ended September 30, 2020.

This report contains forced outage rates for the current 12-month reporting period of October 1, 2019 to September 30, 2020 for individual generating units at hydraulic facilities, the Holyrood Thermal Generating Station ("Holyrood TGS"), and Hydro's gas turbines. The report also provides, for comparison purposes, the individual generating unit data on forced outage rates for the previous period of October 1, 2018 to September 30, 2019. Further, total asset class data is presented based on the calendar year for the years 2006 to 2018.

The forced outage rates of Hydro's generating units are calculated using three measures: 1) Derated Adjusted Forced Outage Rate ("DAFOR") for the hydraulic and thermal units, 2) Utilization Forced Outage Probability ("UFOP"), and 3) Derated Adjusted Utilization Forced Outage Probability ("DAUFOP") for the gas turbines.

DAFOR is a metric that measures the percentage of the time that a unit or group of units is unable to generate at its maximum continuous rating due to forced outages or unit deratings. The DAFOR for each unit is weighted to reflect differences in generating unit sizes in order to provide a company total and reflect the relative impact a unit's performance has on overall generating performance. This measure is applied to hydraulic and thermal units; however, it is not applicable to gas turbines because of their operation as standby units and their relatively low operating hours.

UFOP and DAUFOP are measures used for gas turbines. UFOP measures the percentage of time that a unit or group of units will encounter a forced outage and not be available when required. DAUFOP is a metric that measures the percentage of time that a unit or group of units will encounter a forced outage and not be available when required. This metric includes the impact of unit deratings.

The forced outage rates include outages that remove a unit from service completely, as well as instances when units are derated. If a unit's output is reduced by more than 2%, the unit is considered derated under Canadian Electricity Association ("CEA") guidelines. CEA guidelines require that derated levels of a

generating unit are calculated by converting the operating time at the derated level into an equivalent outage time.

In addition to forced outage rates, this report provides details for those outages that contributed materially to forced outage rates exceeding those used in Hydro's generation planning analysis for both the near- and long-term.

Note that the data for 2006 to 2018 in Figures 1 through 7 are annual numbers (January 1 to December 31), while the data for 2019 and 2020 are 12-month rolling numbers (October 1 to September 30 for each year).

The assumptions referred to throughout this report are the same as those reported in the 2018 quarterly reports except for the new assumptions identified in Table 12. As part of its Reliability and Resource Adequacy Study ("Study"), Hydro detailed the process undertaken to determine the forced outage rates most appropriate for use in its near-term reliability assessments and long-term resource adequacy analysis. The values have been updated to reflect the most current outage data and the revised forced outage rates that resulted from this process are included in Sections 8.0 and 9.0 of this report. The potential impacts of these revised forced outage rates on future performance reporting are also discussed. While the new assumptions form the basis of Hydro's current planning processes, this report includes the historic assumptions and style to maintain similarity to previous reports.

2.0 Overview for Period Ending September 30, 2020

Table 1: DAFOR, UFOP, and DAUFOP Overview (%)

Class of Units	Oct 1, 2018 to Sep 30, 2019	Oct 1, 2019 to Sep 30, 2020	Base Planning Assumption	Near-Term Planning Assumption[1]
Hydraulic (DAFOR)	0.65	1.25	0.90	2.60
Thermal (DAFOR)	6.08	2.08	9.64	14.00
Combined Gas Turbine (UFOP)	4.35	8.31	10.62	20.00
Holyrood Gas Turbine (UFOP)	0.00	7.59	5.00	5.00
Hardwoods/Stephenville Gas Turbine (DAUFOP)	17.81	17.83	-	30.00
Happy Valley Gas Turbine (DAUFOP)	0.00	6.70	-	15.00
Holyrood Gas Turbine (DAUFOP)	0.00	7.59	-	5.00

[1] Refer to "Near-Term Generation Adequacy Report," Newfoundland and Labrador Hydro, November 15, 2017, s 5.0 for further details.

There was a decline in hydraulic DAFOR performance and an improvement in thermal DAFOR performance for the current 12-month period ending September 30, 2020 compared to the previous 12-month period ending September 30, 2019 (Table 1). The gas turbine UFOP and DAUFOP show a decline in performance for all units for the current period compared to the previous period.

Hydro began reporting DAUFOP performance in January 2018 for its gas turbines.

3.0 Generation Planning Assumptions

The Study introduced new generation planning assumptions; however, the assumptions used throughout this report are the same as reported in previous quarterly reports. The potential impacts of these revised assumptions on reporting of generation unit performance are discussed in Section 9.0 of this report. While the new assumptions form the basis of Hydro's current planning processes, this report includes the historic assumptions and style to maintain similarity to previous reports while the regulatory process surrounding the Study remains underway.

Hydro produces reports based on comprehensive reviews of energy supply for the Island Interconnected System. This is part of Hydro's analysis of energy supply up to the Muskrat Falls interconnection. The "Near-Term Generation Adequacy Report," filed on May 22, 2018, contains analysis based on the near-term DAFOR and DAUFOP and the resulting implication for meeting reliability criteria until the interconnection with the North American grid. The near-term analysis has been updated since that time to reflect changes in assumptions with respect to the in-service of the Labrador-Island Link ("LIL"). The results of this analysis were presented to the Board as part of the "Labrador-Island Link In-Service Update" submitted October 1, 2018.

Hydro's DAFOR and UFOP planning assumptions are provided in Table 2. The Holyrood Gas Turbine has a lower expected rate of unavailability than the older gas turbines (5% compared to 10.62%) as the unit is new and can be expected to have better availability than the older units.[2]

[2] Hydro selected a 5% UFOP for the new Holyrood Gas Turbine following commentary on forced outage rates contained in the "Independent Supply Decision Review," Navigant Consulting Ltd., September 14, 2011.

Table 2: 2017[3] DAFOR and UFOP Long-Term Planning Assumptions (%)

	DAFOR		UFOP	
	Base Planning Assumption	Sensitivity	Base Planning Assumption	Sensitivity
Hydraulic Units	0.90	0.90		
Thermal Units	9.64	11.64		
Gas Turbines: Existing			10.62	20.00
Gas Turbines: New			5.0	10.0

The DAFOR and DAUFOP assumptions used in developing the May 2018 "Near-Term Generation Adequacy Report" are noted in Table 3.

Table 3: DAFOR and DAUFOP Near-Term Generation Adequacy Analysis Assumptions (%)

	DAFOR Near-Term Generation Adequacy Assumption	DAUFOP Near-Term Generation Adequacy Assumption
All Hydraulic Units	2.6	
Bay d'Espoir Hydraulic Units	3.9	
Other Hydraulic Units	0.7	
Holyrood TGS	14.0	
Hardwoods and Stephenville Gas Turbines		30.0
Happy Valley Gas Turbine		15.0
Holyrood Gas Turbine		5.0

4.0 Hydraulic Unit DAFOR Performance

Detailed results for the 12-month period ending September 30, 2020 are presented in Table 4, as well as the data for the 12-month period ending September 30, 2019. These are compared to Hydro's short-term generation adequacy assumptions, as used in the May 2018 "Near-Term Generation Adequacy Report," and Hydro's long-term generation planning assumptions for the forced outage rate.

[3] Refer to "Near-Term Generation Adequacy Report," Newfoundland and Labrador Hydro, November 15, 2017, s 5.0 for further details.

Table 4: Hydraulic Weighted DAFOR

Generating Unit	Maximum Continuous Unit Rating (MW)	12 Months Ending September 2019 (%)	12 months ending September 2020 (%)	Historic Base Planning Assumption (%)	Historic Near-Term Planning Assumption (%)
All Hydraulic Units - weighted	954.4	0.65	1.25	0.90	2.60
Hydraulic Units					
Bay D'Espoir 1	76.5	2.40	3.18	0.90	3.90
Bay D'Espoir 2	76.5	2.38	1.63	0.90	3.90
Bay D'Espoir 3	76.5	0.00	3.72	0.90	3.90
Bay D'Espoir 4	76.5	0.08	4.96	0.90	3.90
Bay D'Espoir 5	76.5	0.39	1.13	0.90	3.90
Bay D'Espoir 6	76.5	0.09	0.67	0.90	3.90
Bay D'Espoir 7	154.4	0.00	0.17	0.90	3.90
Cat Arm 1	67	0.13	0.22	0.90	0.70
Cat Arm 2	67	0.15	0.27	0.90	0.70
Hinds Lake	75	0.05	1.95	0.90	0.70
Upper Salmon	84	0.05	0.09	0.90	0.70
Granite Canal	40	0.68	0.70	0.90	0.70
Paradise River	8	7.29	2.72	0.90	0.70

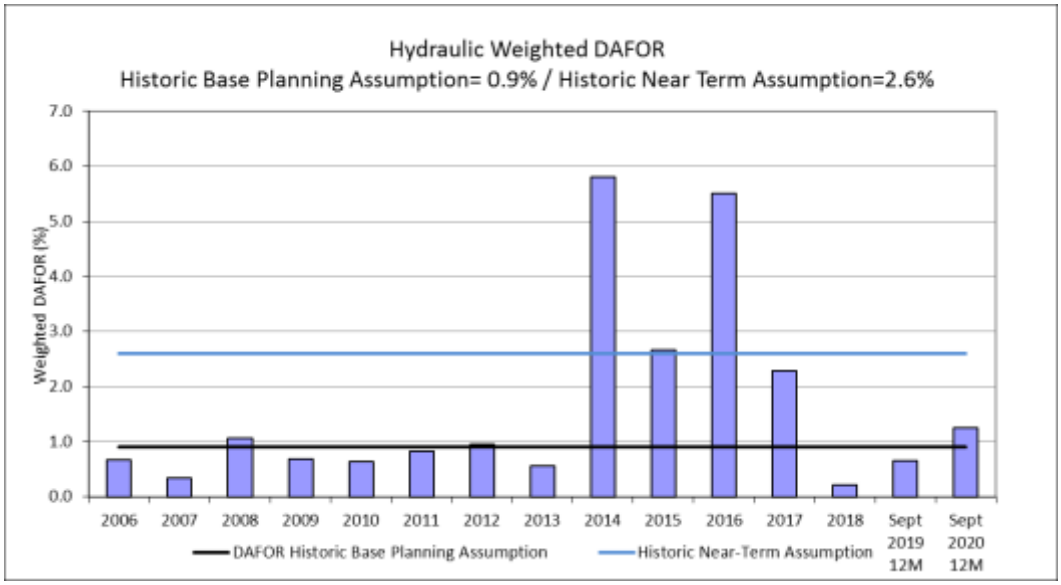

Figure 1: Hydraulic Weighted DAFOR

Considering individual hydraulic unit performance, the Bay d'Espoir Unit 4 DAFOR of 4.96% did not meet either the historic base planning assumption of 0.9% or the historic near-term planning assumption of 3.9% for an individual Bay d'Espoir unit. The Bay d'Espoir Units 1, 2, 3, and 5 DAFOR of 3.18%, 1.63%, 3.72%, and 1.13%, respectively, did not meet the historic base planning assumption of 0.9% but are below the historic near-term planning assumption of 3.9% for an individual Bay d'Espoir unit.

As previously reported, Bay d'Espoir Units 1 and 2 experienced forced outages for the period of September 22, 2019 to October 4, 2019, as a result of a leak in Penstock 1. This leak has since been repaired and the units have been returned to service. The subsequent internal inspection of Penstock 1, completed in July 2020, revealed no material issues at this time. Additionally, since the previous filing, Bay d'Espoir Unit 1 experienced a forced outage on July 11, 2020 which was the result of ambient humidity causing moisture in stator windings following the annual planned outage. Corrective measures were implemented to improve the humidity levels and the unit was successfully returned to service on July 15, 2020.

As previously reported, Bay d'Espoir Unit 3 experienced a forced derating from 76.5 MW to 70 MW for the period of October 4, 2019 to November 29, 2019, as a result of increased vibration at higher output. The generator thrust and guide bearings were replaced in November 2019 and the unit returned to full capacity. Since the previous filing of this report, Bay d'Espoir Unit 3 and Unit 4 experienced forced deratings, from 76.5 MW to 25 MW and 45 MW respectively, in the month of July due to increased bearing temperatures resulting from fouling of the generator bearing coolers and oil degradation. The coolers have since undergone a chemical cleaning and the oil degradation issues addressed. The units are now operating at rated capacity. A more comprehensive review is ongoing to provide long-term solutions to further reduce generator bearing temperatures associated with Bay d'Espoir Units 1 to 6.

As previously reported, Bay d'Espoir Unit 5 experienced a forced outage for the period of June 2, 2020 to June 4, 2020 as a result of the unit's PMG[4] becoming decoupled during operation. This issue was repaired and the unit returned to service.

The Hinds Lake unit DAFOR of 1.95% did not meet either the historic base planning assumption of 0.9% or the historic near-term planning assumption of 0.7% for the unit. This was the result of four forced outages, as previously reported, all of which have been resolved. These outages include a forced outage to investigate arcing on the slip ring assembly on January 23, 2020, an issue with the brake speed switch on March 11, 2020, a failure to stop due to excessive wicket gate leakage on April 15, 2020, and a trip due to a faulty scroll case pressure switch on June 4, 2020.

[4] Permanent Magnet Generator ("PMG").

The Paradise River unit DAFOR of 2.72% did not meet either the historic base planning assumption of 0.9% or the historic near-term assumption of 0.7% for the unit. This was the result of two forced outages. The first, as previously reported, a forced outage from November 18, 2019 to November 20, 2019, as a result of an issue with the unit breaker operating mechanism, which was resolved. Since the last filing, another forced outage occurred from August 8, 2020 to August 11, 2020, the result of an issue with the unit breaker auxiliary position switch. This issue was resolved, and a plan has been developed to replace the unit breaker with a spare during the 2020 annual maintenance outage, scheduled for November.

5.0 Thermal Unit DAFOR Performance

Detailed results for the 12-month period ending September 30, 2020, are presented in Table 5, as well as the data for the 12-month period ending September 30, 2019. These results are compared to Hydro's short-term generation adequacy assumptions, as used in the May 2018 "Near-Term Generation Adequacy Report," and Hydro's long-term generation planning assumptions for the forced outage rate.

Table 5: Thermal DAFOR

Generating Unit	Maximum Continuous Unit Rating (MW)	12 Months Ending September 2019 (%)	12 months ending September 2020 (%)	Historic Base Planning Assumption (%)	Historic Near-Term Planning Assumption (%)
All Thermal Units - weighted	490	6.08	2.08	9.64	14.00
Thermal Units					
Holyrood 1	170	3.25	0.38	9.64	15.00
Holyrood 2	170	9.56	4.59	9.64	10.00
Holyrood 3	150	4.01	0.31	9.64	18.00

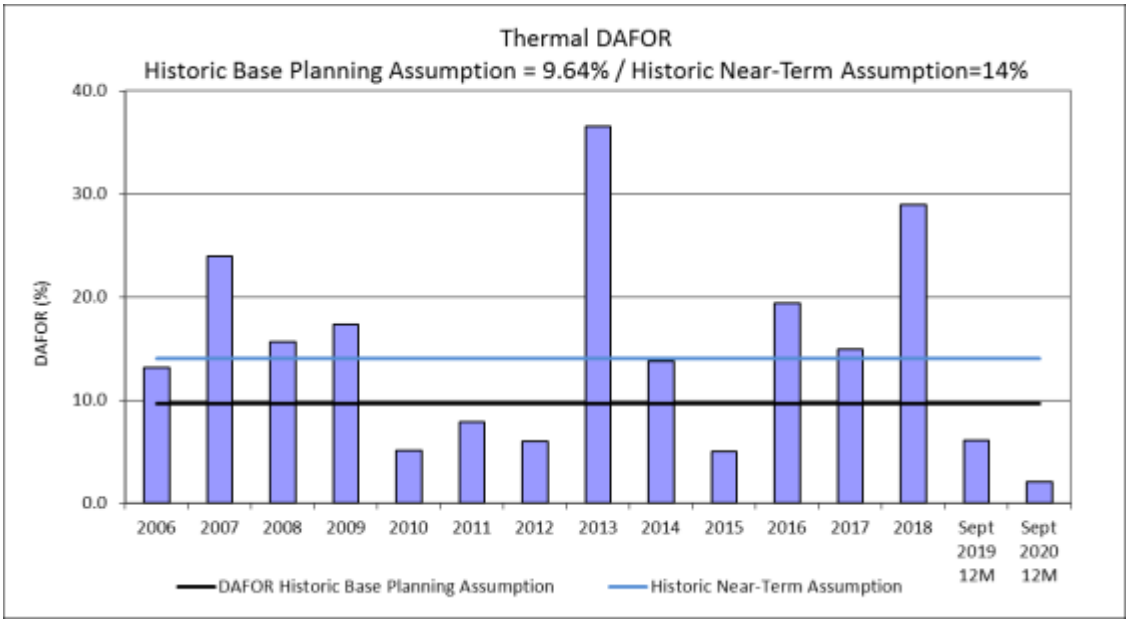

Figure 2: Thermal DAFOR

For the 12-month period ending September 30 2020, the weighted DAFOR for all thermal units of 2.08% is below the historic base planning assumption DAFOR value of 9.64% and the historic near-term planning assumption of 14.00%. Unit 1 DAFOR was 0.38%, which is below the historic base planning assumption of 9.64% and the historic near-term planning assumption of 15%. Unit 2 DAFOR was 4.59%, which is below the historic base planning assumption of 9.64% and the historic near-term assumption of 10.0%. Unit 3 DAFOR was 0.31%, which is below the historic base planning assumption of 9.64% and the historic near-term planning assumption of 18%.

The current period DAFOR for all units is improved over the previous period.

6.0 Gas Turbine UFOP Performance

The combined UFOP for the Hardwoods, Happy Valley, and Stephenville Gas Turbines was 8.31% for the 12-month period ending September 30, 2020 (Table 6 and Figure 3). This performance is better than the base planning assumption of 10.62% and the near-term assumption of 20.00% but has declined over the previous period. The Hardwoods Gas Turbine UFOP for the current period is 6.03%, as compared to the base planning assumption of 10.62%. The Stephenville Gas Turbine UFOP for the current period is 10.97%, which is above the historic base planning assumption of 10.62%, but below the historic near-term planning assumption of 20.00%. The Stephenville unit UFOP in the current period was impacted by three outages experienced in the first three quarters of 2020. These outages included the inadvertent

discharge of the fire suppression system resulting in the unit being unavailable from January 22–25, a trip resulting from loose wiring in the vibration system on April 28, and a trip caused by the failure of a radiator fan on the alternator cooler on September 5. The Happy Valley Gas Turbine UFOP is 6.70% for the current period, as compared to the base planning assumption of 10.62%. On an individual unit basis, gas turbine UFOP performance for the Hardwoods Gas Turbine for the current period is consistent with the previous period. The UFOP performance for Stephenville and Happy Valley units for the current period is declined over the previous period.

Table 6: Gas Turbine UFOP

Gas Turbine Units	Maximum Continuous Unit Rating (MW)	12 months ending September 2019 (%)	12 months ending September 2020 (%)	Historic Base Planning Assumption (%)	Historic Near-Term Planning Assumption (%)
Combined Gas Turbines	125	4.35	8.31	10.62	20.00
Stephenville	50	2.01	10.97	10.62	20.00
Hardwoods	50	6.08	6.03	10.62	20.00
Happy Valley	25	0.00	6.70	10.62	20.00

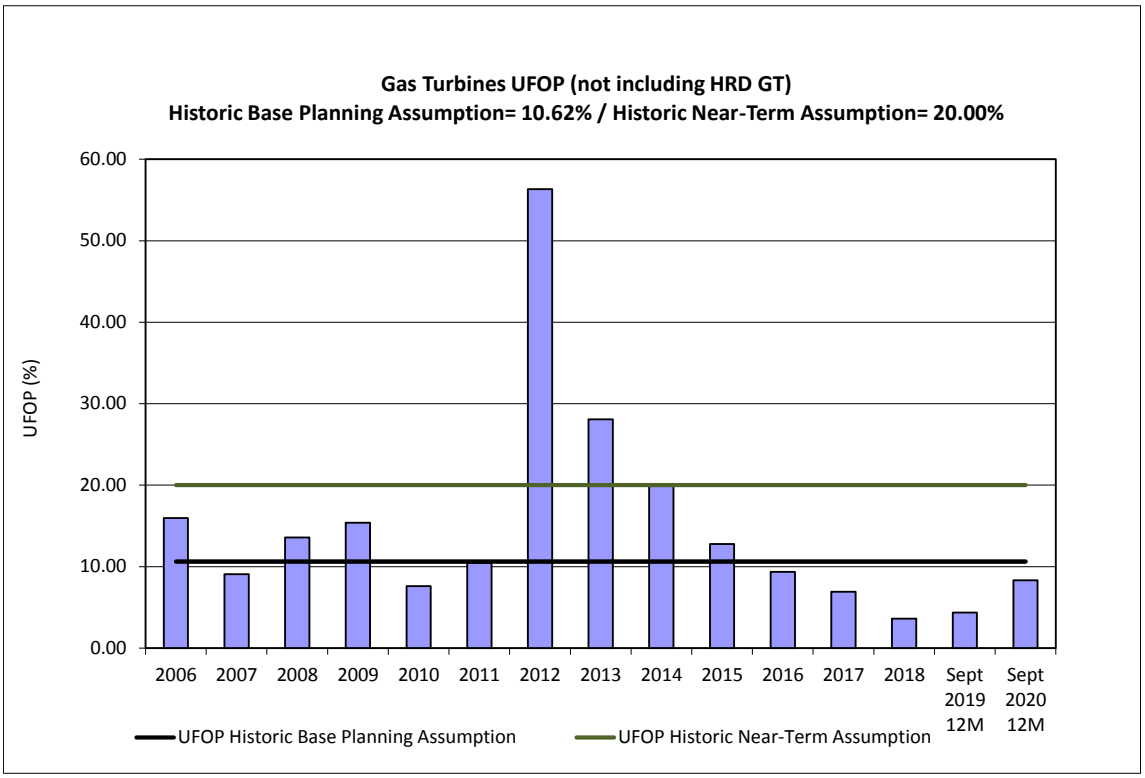

Figure 3: Gas Turbine UFOP: Hardwoods/Happy Valley/Stephenville Units

The Holyrood Gas Turbine UFOP for the current period is 7.59%, which is above the historic base and near-term planning assumptions of 5.00% (Table 7 and Figure 4) but has declined over the UFOP for the previous period. The UFOP performance for the Holyrood Gas Turbine was impacted by three forced outages in the current period. The first outage, a forced outage from May 26 to May 27 was the result of an issue with the units turning gear motor electrical circuit, which has since been resolved. The second and third outages were both approximately two hours in duration and occurred on August 11, due to fuel pressure differential and on September 3, due to the Automatic Voltage Regulator configuration following a planned outage. Both of these issues are isolated events and are considered resolved.

Table 7: Holyrood Gas Turbine UFOP

Gas Turbine Units	Maximum Continuous Unit Rating (MW)	12 months ending September 2019 (%)	12 months ending September 2020 (%)	Historic Base Planning Assumption (%)	Historic Near-Term Planning Assumption (%)
Holyrood GT	123.5	0.00	7.59	5.00	5.00

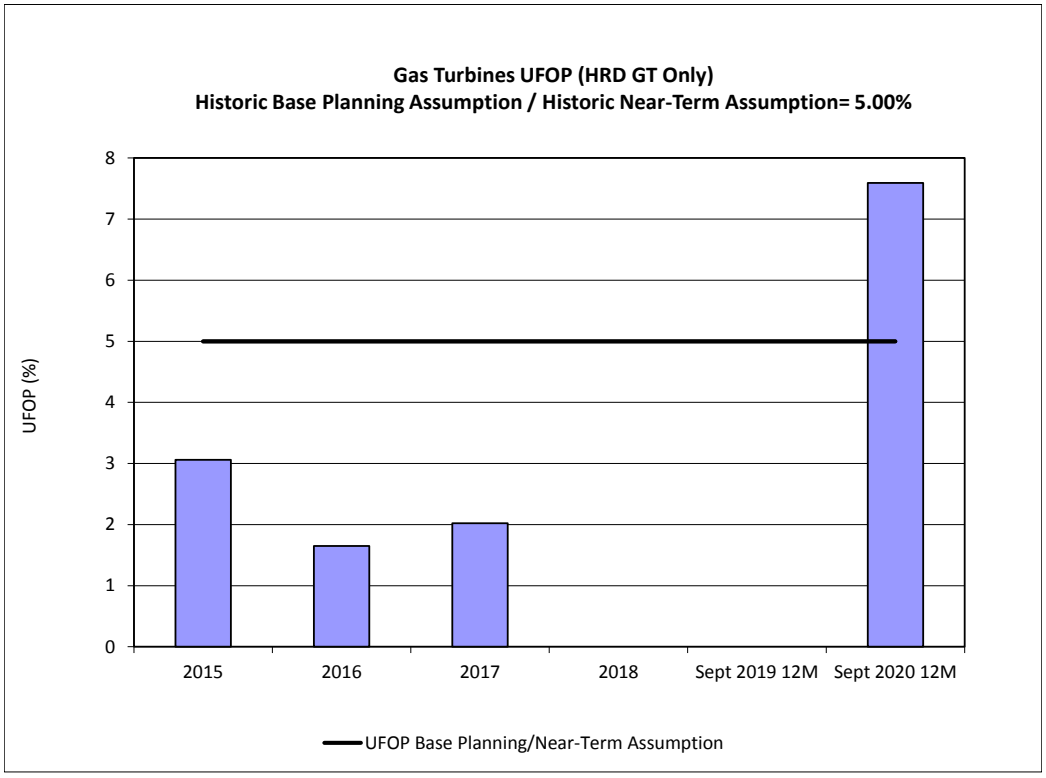

Figure 4: Gas Turbine UFOP: Holyrood Unit

7.0 Gas Turbine DAUFOP Performance

The combined DAUFOP for the Hardwoods and Stephenville Gas Turbines was 17.83% for the 12-month period ending September 30, 2020 (Table 8 and Figure 5). This is below the near-term planning assumption of 30.00%. The Hardwoods Gas Turbine DAUFOP for the current period is 19.87%, which is below the near-term planning assumption of 30.00% but above the DAUFOP for the previous period. The Stephenville Gas Turbine DAUFOP for the current period is 11.89%, which is below the near-term planning assumption of 30.00%, and improved over the previous period.

Table 8: Hardwoods/Stephenville Gas Turbine DAUFOP

Gas Turbine Units	Maximum Continuous Unit Rating (MW)	12 months ending September 2019 (%)	12 months ending September 2020 (%)	Historic Near-Term Planning Assumption (%)
Gas Turbines (HWD/SVL)	100	17.81	17.83	30.00
Stephenville	50	16.22	11.89	30.00
Hardwoods	50	18.47	19.87	30.00

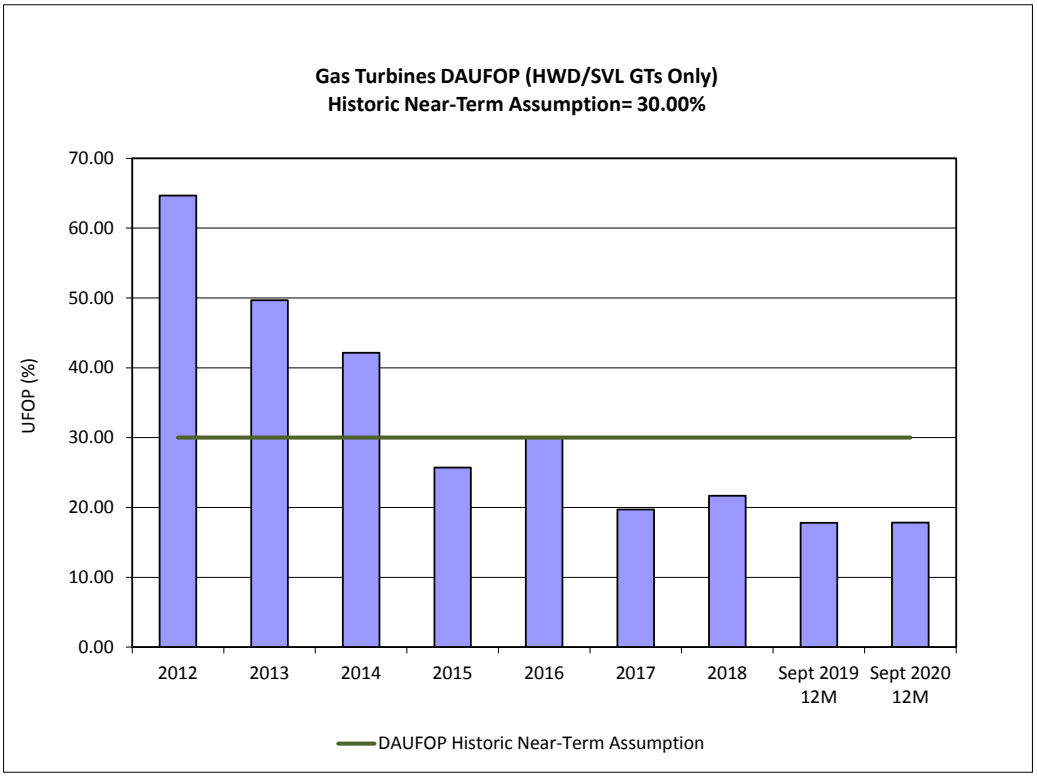

Figure 5: Gas Turbine DAUFOP: Hardwoods/Stephenville Units

The DAUFOP for the Happy Valley Gas Turbine was 6.70% for the 12-month period ending September 30, 2020 (Table 9 and Figure 6). This is below the near-term planning assumption of 15.00%, and declined over the previous period.

Table 9: Happy Valley Gas Turbine DAUFOP

Gas Turbine Units	Maximum Continuous Unit Rating (MW)	12 months ending September 2019 (%)	12 months ending September 2020 (%)	Historic Near-Term Planning Assumption (%)
Happy Valley	25	0.00	6.70	15.00

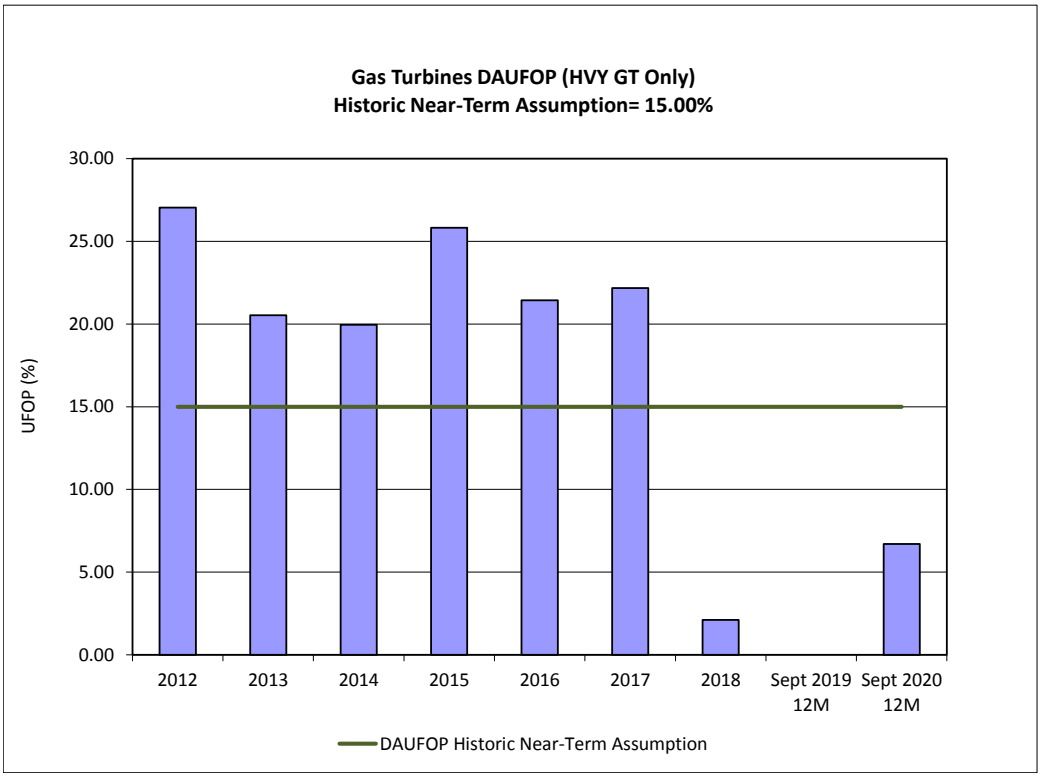

Figure 6: Gas Turbine DAUFOP: Happy Valley Unit

The Holyrood Gas Turbine DAUFOP of 7.59% for the current period is above than the near-term planning assumption of 5.00% (Table 10 and Figure 7) and declined over the previous period. The DAUFOP performance of the Holyrood Gas Turbine was impacted by the forced outages previously discussed in Section 6.0.

Table 10: Holyrood Gas Turbine DAUFOP

Gas Turbine Units	Maximum Continuous Unit Rating (MW)	12 months ending September 2019 (%)	12 months ending September 2020 (%)	Historic Near-Term Planning Assumption (%)
Holyrood GT	123.5	0.00	7.59	5.00

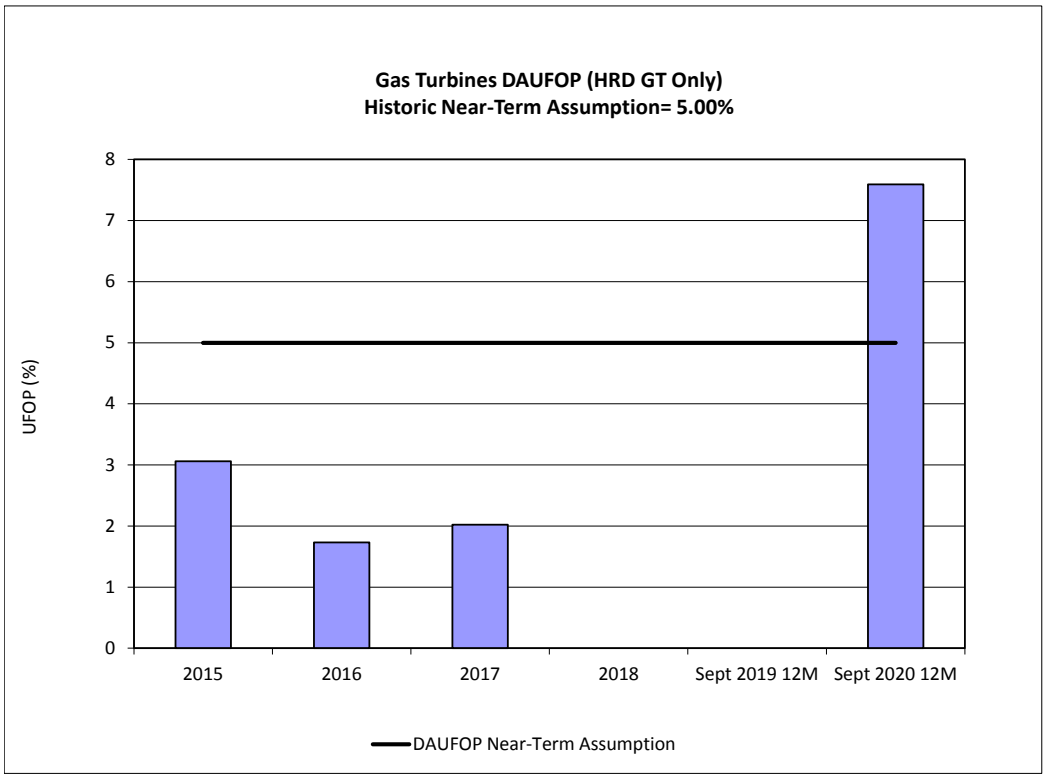

Figure 7: Gas Turbine DAUFOP: Holyrood Unit

8.0 Updated Planning Assumptions/Analysis Values

As part of the Study, Hydro detailed the process undertaken for determining the forced outage rates most appropriate for use in its near-term reliability assessments and long-term resource adequacy analysis. Table 11 summarizes the most recent forced outage rate assumptions as calculated using the forced outage rate methodology.[5]

[5] Values indicated for Hydro's near-term analysis reflect those used in Hydro's "Near-Term Generation Adequacy Report," filed with the Board on May 15, 2020.

Table 11: Hydro's Reliability and Resource Adequacy Study Analysis Values

Unit Type	Measure	Near-Term Analysis Value (%)	Resource Planning Analysis Value (%)
Hydraulic	DAFOR	2.8	2.1
Thermal	DAFOR	15.0	N/A
Gas Turbines			
Happy Valley	DAUFOP	9.8	9.7
Hardwoods and Stephenville	DAUFOP	30.0	N/A
Holyrood	DAUFOP	1.7	1.7

For the hydroelectric units (Bay d'Espoir, Cat Arm, Hinds Lake, Granite Canal, Upper Salmon, and Paradise River) a 3-year capacity-weighted average was applied to these units for the near-term analysis, resulting in a DAFOR of 2.8%, while a 10-year capacity-weighted average was applied for use in the resource planning model, resulting in a DAFOR of 2.1%. The DAFOR value was based on historical data reflective of Hydro's maintenance program over the long-term.

DAFORs of 15%, 18%, and 20% were applied to each of the units at the Holyrood TGS to determine the sensitivity of the system to Holyrood TGS availability in the near-term. This is consistent with the May 2018 "Near-Term Generation Adequacy Report." As the Holyrood TGS units are being retired from generation mode in the near term, the units were not included in the long-term analysis and thus there is no resource planning analysis value listed for these units. For the total plant, an all units weighted value of 15% is used for the near-term.

As the gas turbines in the existing fleet are in varied condition, each was considered on an individual basis, rather than applying a weighted average across all units. For the Happy Valley Gas Turbine, a 3-year capacity-weighted average was applied to the unit for the near-term analysis, resulting in a DAUFOP of 9.8%, while a 10-year capacity-weighted average was applied for use in the resource planning model resulting in a DAUFOP of 9.7%. The DAUFOP values were based on historical data founded upon the unit's past reliable performance. For the Holyrood Gas Turbine, a 3-year capacity-weighted average was applied to the unit for the near-term analysis, resulting in a DAUFOP of 1.7%. For the Hardwoods and Stephenville Gas Turbines, a DAUFOP of 30% was used for the near-term analysis, consistent with the metrics that were considered in Hydro's May 2018 "Near-Term Generation Adequacy Report." As the Hardwoods and Stephenville Gas Turbines are being considered for

retirement in the near term, these units were not included in the long- term analysis and, therefore, have no resource planning analysis value listed.

9.0 Comparison of Planning Assumptions and Analysis Values

As Hydro's reliability and adequacy planning assumptions have been historically used in reporting on the performance of Hydro's generating units, a comparison of the values used historically to the most recent analysis is provided in Table 12 for clarity.

Hydro notes that the Study did not utilize UFOP in its analysis. The analysis instead utilized the DAUFOP measure with changes as shown in Table 12.

Table 12: Comparison of Hydro's Planning Assumptions (%)

		Historical Planning Assumptions		Reliability and Resource Planning Assumptions	
Generating Unit Type	**Measure**	**Historic Base Planning Assumption**	**Historic Near-Term Planning Assumption**	**Near-Term Analysis Value**	**Resource Planning Analysis Value**
Hydraulic	DAFOR	0.9	2.6	2.8	2.1
Thermal	DAFOR	9.64	14.0	15.0	N/A
Gas Turbines					
Happy Valley	DAUFOP	-	15.0	9.8	9.7
Hardwoods and Stephenville	DAUFOP	-	30.0	30.0	N/A
Holyrood	DAUFOP	-	5.0	1.7	1.7

The generating unit performance presented earlier in this report is again presented in Tables 13 to 17 with comparison to the previous assumptions, as well as the recently revised values. No data is provided for the UFOP performance, as Hydro does not plan to use this metric in future for reliability assessments. Hydro notes that on an asset class basis, the 12-month rolling performance of its generating units has no violations of Hydro's current planning assumptions pertaining to asset availability, with the exception of the Holyrood Gas Turbine.

Table 13: Hydraulic Weighted DAFOR Performance Comparison

				May 2018		November 2019	
Generating Unit	**Maximum Continuous Unit Rating (MW)**	**12 months ending September 2019 (%)**	**12 months ending September 2020 (%)**	**Historic Base Planning Assumption (%)**	**Historic Near-Term Planning Assumption (%)**	**Near-Term Planning Analysis Value (%)**	**Resource Planning Analysis Value (%)**
All Hydraulic Units - weighted	954.4	0.65	1.25	0.90	2.60	2.80	2.10
Hydraulic Units							
Bay D'Espoir 1	76.5	2.40	3.18	0.90	3.90	2.80	2.10
Bay D'Espoir 2	76.5	2.38	1.63	0.90	3.90	2.80	2.10
Bay D'Espoir 3	76.5	0.00	3.72	0.90	3.90	2.80	2.10
Bay D'Espoir 4	76.5	0.08	4.96	0.90	3.90	2.80	2.10
Bay D'Espoir 5	76.5	0.39	1.13	0.90	3.90	2.80	2.10
Bay D'Espoir 6	76.5	0.09	0.67	0.90	3.90	2.80	2.10
Bay D'Espoir 7	154.4	0.00	0.17	0.90	3.90	2.80	2.10
Cat Arm 1	67	0.13	0.22	0.90	0.70	2.80	2.10
Cat Arm 2	67	0.15	0.27	0.90	0.70	2.80	2.10
Hinds Lake	75	0.05	1.95	0.90	0.70	2.80	2.10
Upper Salmon	84	0.05	0.09	0.90	0.70	2.80	2.10
Granite Canal	40	0.68	0.70	0.90	0.70	2.80	2.10
Paradise River	8	7.29	2.72	0.90	0.70	2.80	2.10

Table 14: Thermal DAFOR Performance Comparison

				May 2018		November 2019	
Generating Unit	**Maximum Continuous Unit Rating (MW)**	**12 months ending September 2019 (%)**	**12 months ending September 2020 (%)**	**Historic Base Planning Assumption (%)**	**Historic Near-Term Planning Assumption (%)**	**Near-Term Planning Analysis Value (%)**	**Resource Planning Analysis Value (%)**
All Thermal Units - weighted	490	6.08	2.08	9.64	14.00	15.00	N/A
Thermal Units							
Holyrood 1	170	3.25	0.38	9.64	15.00	15.00	-
Holyrood 2	170	9.56	4.59	9.64	10.00	15.00	-
Holyrood 3	150	4.01	0.31	9.64	18.00	15.00	-

Table 15: Hardwoods/Stephenville Gas Turbine DAUFOP Performance

				May 2018		November 2019	
Gas Turbine Units	**Maximum Continuous Unit Rating (MW)**	**12 months ending September 2019 (%)**	**12 months ending September 2020 (%)**	**Historic Base Planning Assumption (%)**	**Historic Near-Term Planning Assumption (%)**	**Near-Term Planning Analysis Value (%)**	**Resource Planning Analysis Value (%)**
Gas Turbines (HWD/SVL)	100	17.81	17.83	N/A	30.00	30.00	N/A
Stephenville	50	16.22	11.89	N/A	30.00	30.00	N/A
Hardwoods	50	18.47	19.87	N/A	30.00	30.00	N/A

Table 16: Happy Valley Gas Turbine DAUFOP Performance Comparison

				May 2018		November 2019	
Gas Turbine Units	**Maximum Continuous Unit Rating (MW)**	**12 months ending September 2019 (%)**	**12 months ending September 2020 (%)**	**Historic Base Planning Assumption (%)**	**Historic Near-Term Planning Assumption (%)**	**Near-Term Planning Analysis Value (%)**	**Resource Planning Analysis Value (%)**
Happy Valley	25	0.00	6.70	N/A	15.00	9.80	9.70

Table 17: Holyrood Gas Turbine DAUFOP Performance Comparison

				May 2018		November 2019	
Gas Turbine Units	**Maximum Continuous Unit Rating (MW)**	**12 months ending September 2019 (%)**	**12 months ending September 2020 (%)**	**Historic Base Planning Assumption (%)**	**Historic Near-Term Planning Assumption (%)**	**Near-Term Planning Analysis Value (%)**	**Resource Planning Analysis Value (%)**
Holyrood GT	123.5	0.00	7.59	N/A	5.00	1.70	1.70