



Nova Scotia Utility and Review Board

Mailing address

PO Box 1692, Unit "M"
Halifax, Nova Scotia
B3J 3S3
board@novascotia.ca
<http://nsuarb.novascotia.ca>

Office

3rd Floor, 1601 Lower Water Street
Halifax, Nova Scotia B3J 3P6
1 855 442-4448 (toll-free)
902 424-4448 t
902 424-3919 f

June 25, 2020

Brian Curry
Senior Regulatory Counsel
Nova Scotia Power Inc.
1223 Lower Water Street
PO Box 910
Halifax, NS B3J 2W5

brian.curry@nspower.ca

Dear Mr. Curry:

M09472 – Nova Scotia Power Inc. re 2019 Annual Performance Standards – (E-R-20)

On February 19, 2020, pursuant to the *Public Utilities Act*, Nova Scotia Power Inc. (NS Power) filed its 2019 Performance Standards Annual Report. Subsequently, on February 21, 2020, the Nova Scotia Utility and Review Board invited comments from stakeholders and reply comments from NS Power. The Consumer Advocate (CA) and the Small Business Advocate (SBA) filed comments on March 30, 2020. Reply comments were filed by NS Power on April 15, 2020.

Background

Section 52A of the *Public Utilities Act* requires the Board to establish performance standards for NS Power in respect of reliability and response to adverse weather conditions, while section 52B requires the Board to establish performance standards in respect of “such areas of Nova Scotia Power Incorporated’s customer service as it determines appropriate”. Sections 52C to 52E provide for reporting in relation to NS Power’s performance compared to the standards, as well as the Board’s oversight with respect to NS Power’s compliance.

The Board has the authority under the *Act* to take measures to ensure NS Power’s compliance with the performance standards, including ordering NS Power to pay an administrative penalty (up to one million dollars) or to develop and file a plan for bringing itself into compliance with a performance standard, or both. Any administrative penalty that is levied must be determined by the Board to be appropriate in order to promote future compliance with the performance standards and not for punitive purposes or effects, or for redressing a wrong done to society at large (see s.52E).

In accordance with the *Act*, the Board established performance standards for NS Power regarding reliability, response to adverse weather, and customer service. The Board’s Order dated December 20, 2016, identified 13 performance standard metrics, which are listed below, as well as targets for those metrics. Some of the targets will remain in place for five years, while others are to be adjusted each year based on approved formulas.

Reliability

- System Average Interruption Frequency Index (SAIFI)
- System Average Interruption Duration Index (SAIDI)
- Circuit Average Interruption Frequency Index (CKAIFI)
- Circuit Average Interruption Duration Index (CKAIDI)

Response to Adverse Weather

- Customer notification of an oncoming severe weather event within a specific time frame
- Percentage of calls answered within 45 seconds during a severe outage event
- Polite disconnect rate for all outage calls
- Estimated Time to Restore (ETR) updates communicated to customers during an outage
- Percentage of customers restored within 48 hours of a severe weather event -- separately for Major Event Days (MEDs) and Extreme Event Days (EEDs)

Customer Service

- Percentage of calls answered within 30 seconds
- Percentage of customer bills that can be estimated
- Customer notification of outages
- New service connection times
 - Service Installation -- No Poles
 - Service Installation -- Pole or Transformer
 - Service Installation -- Temporary to Permanent
 - Service Installation -- Line Extension less than 10 Poles
 - Service Installation -- Line Extension greater than or equal to 10 Poles

In its Decision regarding the 2018 Performance Standards Report (M09115), the Board approved 2019 targets for these metrics, as shown in Attachment 1.

The Board's earlier Decision regarding the 2017 Performance Standards Report (M08574) included several directives for NS Power to expand its reporting in subsequent years.

Regarding reliability, NS Power was directed to:

- a) Include a year-over-year comparative analysis of planned outages, including a summary of steps taken to reduce the number and duration of planned interruptions; and
- b) Include all-inclusive SAIFI and SAIDI indices in order to provide a broader portrayal of the overall service levels being experienced by customers.

Regarding the response to adverse weather, NS Power was directed to:

- a) Undertake an analysis comparing the Estimated Time to Restore (ETR) with actual restoration times, to determine the level of accuracy, and whether any further refinements could be incorporated into the estimates. In addition, the analysis is to illustrate whether the ETRs actually become more accurate as the restoration process progresses; and
- b) Undertake an analysis of the wide gap between the targets for restoring customers within 48 hours of adverse weather and the actual restoration times, to determine if those targets should be adjusted.

Performance Results for 2019

Based on the results filed in its annual report, NS Power failed to achieve 6 of the 13 performance targets established for 2019.

- The province-wide reliability performance for outage frequency (SAIFI) and outage duration (SAIDI) were both worse than the targets for those metrics. The SAIFI performance of 5.99 exceeded the target of 4.29, and the SAIDI performance of 2.58 exceeded the target of 2.05.
- Circuit reliability targets for outage frequency (CKAIFI) and outage duration (CKAIDI) were also not achieved for three of the seven chronic circuits identified for 2019.
 - ❖ Of the four chronic circuits identified with a CKAIFI target of ≤ 6.16 , Wreck Cove circuit 85S-401 exceeded the target with a performance result of 7.64, and SW Margaree circuit 58C-403 exceeded the target with a performance result of 7.21.
 - ❖ Of the three chronic circuits identified with a CKAIDI target of ≤ 20.51 , Wreck Cove circuit 85S-401 exceeded the target with a performance result of 38.34.
- In addition, two of the customer service targets were not achieved in 2019.
 - ❖ The Regular Business Call Answer Rate performance of 66.67% did not achieve the target of 70.00%.
 - ❖ The Percentage of Bills Estimated performance of 2.4% did not achieve the target of 2%.

All other 2019 annual performance targets were achieved; however, certain results during a specific month or during a specific weather event did fall short of the corresponding annual targets.

As in the previous year, in accordance with the Board's directive, NS Power included information regarding planned outages. The directive required NS Power to include a year-over-year comparison and to provide a summary of steps taken to reduce the number and duration of planned interruptions. Targets regarding planned outages have not been established within the 2017 to 2021 Performance Standards metrics.

NS Power's report provided information on its internal review and approval process for planned interruptions and noted that NS Power explores all options to perform work under live line techniques to avoid planned outages. The report also noted that about:

- 35% of customers experienced a planned outage event in 2017,
- 29% of customers experienced a planned outage event in 2018, and
- 28% of customers experienced a planned outage event in 2019.

In addition, there were 18 fewer planned outages in 2019 as compared to 2018, resulting in a marginal decrease of 4.3%. Although the number of outages decreased, a calculation based on data presented in Appendix K reveals that there was a significantly large increase of 74% in the average duration of planned outages:

- 2.3 hours in 2017,
- 1.9 hours in 2018, and
- 3.3 hours in 2019.

It should be noted that these durations are averages for the planned outage events, regardless of the number of customers affected, which is different from the system duration index SAIDI.

Although not formally included as performance standards, the Board previously directed NS Power to report "all-inclusive" SAIFI and SAIDI indices to provide a broader portrayal of overall service levels being experienced by customers. The following results were presented in Appendix H of NS Power's 2019 and 2018 reports:

Table 1 – All-Inclusive SAIFI and SAIDI Results

	ALL-In SAIFI	ALL-In SAIDI
2017	2.81	8.57
2018	4.56	16.26
2019	4.52	43.88

Both indices indicate that the broader customer experience, from an outage frequency and duration perspective, is significantly worse than the SAIFI target of 2.00 and SAIDI target of 4.29, established for outages that exclude MEDs, EEDs, and planned interruptions.

In its Decision regarding the 2017 performance results, the Board directed NS Power to report on the accuracy of its estimated time to restore (ETR) outages, and whether the accuracy improved when subsequent ETRs were announced. NS Power stated that automated ETRs communicated during a storm refer to the time when 95% of customers will be restored. Therefore, the first customers restored tend to experience large deviations to those initial ETRs.

In 2019, NS Power managed 20,171 outage events, compared to 15,540 outage events in 2018. The increase in volume was attributed to the impact of Hurricane Dorian. Of the 20,171 outage events, approximately 50% received only a single ETR.

Figure 17 of the report provides a graphical representation of the percentage of events restored within plus or minus four hours of the communicated ETRs. Figure 17 shows that:

- the overall accuracy of ETRs for all outages in 2019 ranged from 55% to 69%
- the accuracy improved when second or third ETRs were communicated, but little change was noted for subsequent ETRs
- a similar trend was experienced in 2018, but the accuracy was better, ranging from 62% to 77%
- the accuracy decreased by about 9% in 2019 over 2018, which NS Power attributed to the impact of Hurricane Dorian.

In addressing these results, NS Power stated that it advanced its ETR capabilities in 2019 by adding the ability to implement fixed time ETR strategies by region, urban vs rural, and the number of customers impacted. That change is intended to enable the automated ETRs assigned to an event to be customized to a more discrete area, thereby improving the accuracy. For storm events, the updated functionality was implemented throughout the year, but regular business ETR changes were only implemented in December.

CA Comments

The CA raised concerns with NS Power's performance results in several categories. Regarding annual SAIFI and SAIDI performance, the CA noted that NS Power attributed its failure to achieve the targets to severe weather associated with climate change. It is the CA's view that more needs to be done to improve electrical service reliability, and NS Power needs to increase the resilience of the electrical grid to withstand the increasing frequency of severe weather.

This concern was also raised regarding CKAIFI and CKAIIDI results. In its report, NS Power noted that a contributing factor to the poor performance of circuits 85S-401 and 58C-403 is that both circuits run along an exposed coastline. The CA commented that while severe weather

contributed to this poor service restoration performance, some facets of severe weather have been becoming increasingly severe over the past decade.

In reviewing the SAIFI and SAIDI reliability performance, the CA noted that those standards exclude a substantial portion of the outages that customers experience. While the all-inclusive reliability index performance, which includes MEDs, EEDs, and planned outages, is not subject to reliability standards, recent performance in 2018 and 2019 appeared to reflect major declines in electrical service reliability compared to the other three years reflected in the five-year average. The CA suggested that NS Power's recent all-inclusive reliability performance makes it clear that restoration standards, as currently configured, are not effective at maintaining reliability during weather events.

On the issue of service restoration standards, the CA noted NS Power's reasoning for failing to meet the Percent Customers Restored within 48 hours target during September 9 and 11, 2019, was that the timing of restoration events was prioritized by the Provincial and Regional Emergency Management Offices. However, the Consumer Advocate remains of the view that the current and proposed service restoration standards are well below NS Power's capabilities and do not represent a reasonable goal for electrical service restoration following storms.

Regarding ETR performance, the CA noted that changes made by NS Power in 2019 to improve the accuracy were positive steps, but more is needed. The CA highlighted the following concerns:

Three things stand out regarding the 2019 ETR data. First, it appears that NSPI is continuing to provide an initial ETR before a damage assessment has been performed, compromising the accuracy of the information provided to its customers. Second, the ETR analysis provides reduced granularity of data compared to 2018. Third, the 2019 percentage of events restored within four hours of the communicated ETRs decreased considerably compared to 2018, due to severe weather events which are increasing in frequency.

[Exhibit N-4, p. 5]

Regarding performance with customer service response metrics, the CA noted NS Power's explanation that Hurricane Dorian impeded its ability to achieve the Estimated Bills target and the Regular Business Call Answer Rate target. However, the CA also stated:

Given NSPI's statements that it is experiencing more intense storms and weather attributable to climate change, it is the Consumer Advocate's position that the Company must adapt its business planning to enable it to meet its targets despite foreseeable climate change events, including the increased frequency of hurricanes and sustained high winds.

[Exhibit N-4, p. 7]

SBA Comments

The SBA acknowledged that the impact of Hurricane Dorian contributed to certain missed performance targets but was concerned with metrics not directly connected to the hurricane.

The SBA noted that although NS Power reframed the impact of events with wind gusts > 80 kph in its report, the adjusted results for SAIFI and SAIDI still showed that NS Power exceeded those metrics in the last three months of 2019.

Also, although the result for estimated bills was close to the target, the SBA stated that the impact is unknown, since the total kWh and dollar impacts, based on actuals, are not known until the next bills are issued.

A further concern was raised regarding the CKAFI and CKADI performance of Wreck Cove circuit 85S-401. The SBA noted that Hurricane Dorian happened in September 2019, but the Wreck Cove improvement plan is a multi-year plan. For the SBA, that raised the question of what activities NS Power pursued to improve this circuit during the preceding spring and summer months, and if the hurricane was a setback or just a delay in the improvement plan.

In addition, the SBA noted incorrect labelling of the year 2020 in Figure 26 on page 47.

NS Power Reply to SBA Comments

In addressing the SBA's comments regarding the Q4 2019 SAIFI and SAIDI results, NS Power referred to the cumulative hours of wind gusts greater than 80 kph being significantly higher in 2019 than in the 2012 to 2016 period, which was used to establish the performance standards. NS Power noted that this change in severe weather requires a change in reliability investment and operational response. As such it is "investigating reliability solutions such as battery storage, micro-grids and distributed generation, through the intelligent feeder project, as well as developments with other traditional and emerging technologies to strengthen the reliability and resiliency of the grid and improve service for customers".

Regarding the impact of estimated bills, NS Power explained that customer meters were read after Hurricane Dorian and any impact in terms of usage or dollar amounts was addressed in the October, November, and December bills.

In responding to the SBA's comments about Wreck Cove circuit 85S-401, NS Power highlighted the amount of capital expenditure and work that was undertaken, and work that is still planned, to improve the reliability of that circuit. As a result of investments in the area, NS Power noted that customers experienced a 43% improvement in CKADI and a 56% improvement in CKAFI year over year. In addition, by the end of 2019, it completed 70% of a project to bring sections of 85S-401 to the roadside and that it is in the final stages of completing a project "that is expected to significantly improve the reliability of the feeder". In addition, NS Power also noted the transmission and distribution enhancements it undertook to improve the reliability of Southwest Margaree circuit 58C-403.

Regarding the date error on Figure 26, NS Power confirmed that 2020 should be 2019.

NS Power Reply to CA Comments

In addressing the CA's comments about reliability performance of circuits 85S-401 and 58C-403, NS Power referred to its response to the SBA's concern.

On the broader issue that the current restoration standards may not be effective in maintaining reliability during severe weather events, NS Power highlighted that five standards have been approved for evaluating its response during adverse weather and that the SAIFI and SAIDI performance results are being reported in accordance with Board approved standards. In addition, the all-inclusive results are being reported to ensure a complete understanding of the outage experience. Furthermore, NS Power stated that the metrics are designed to acknowledge the unpredictable nature of the damage that occurs during severe events and the difference in the operational response during regular business activities and storm events.

Regarding the CA's suggestion that the service restoration standards for MEDs and EEDs are below NS Power's capabilities, NS Power stated that the standards were established following a full regulatory process, and that it is premature to speculate at this time whether the standards

are below its capabilities. It suggested that this issue can be revisited when the current standards are due for review, following the initial 2017 to 2021 time period.

In responding to ETR issues raised by the CA, NS Power stated that changes in the 2019 reporting were made in an effort to improve reporting and comprehension. Its reply submission provided additional details and noted that it could continue to include such detail in future annual reports. NS Power also noted that it has integrated remotely piloted drones into its operations to facilitate restoration time estimates and continues to monitor other technologies. Feedback received from its customers indicated a satisfaction with the ETRs for 83% of the time during regular business and 67% during storm events.

Regarding the customer service response standards, NS Power referred to its response to the SBA's comments on the Estimated Bills target and the Percentage of Calls Answered target, both of which it said were impacted by the effects from Hurricane Dorian.

In its reply submission, NS Power also provided corrected versions of figures in Appendix H which it said were incorrectly labelled.

In its summary remarks, NS Power stated that it is focused on long term solutions to improve reliability in response to the increased intensity and frequency of severe weather events. It went on to state that it has already taken action to address compliance with standards that were missed in 2019 and that neither a penalty to promote future compliance, nor the need to file a plan to bring itself into compliance with any standards, was necessary.

Board Review and Findings

i) Reliability Performance

In addition to reviewing NS Power's performance during 2019, it is important to also view a comparison of results for the two previous years since the performance standards were established. Information extracted from the reports for each of 2017, 2018, and 2019 is presented in the tables that follow.

Table 2 – Overall System Reliability Performance

	TARGET	ACTUAL	ALL-Inclusive ACTUAL
SAIFI			
2017	2.05	1.73	2.81
2018	2.05	2.00	4.56
2019	2.05	2.58	4.52
2020	2.05		
SAIDI			
2017	4.29	3.40	8.57
2018	4.29	4.43	16.26
2019	4.29	5.99	43.88
2020	4.29		

Table 3 – Annual Listings of Chronic Circuits

	2017	2018	2019	2020
CKAIFI	Weymouth 16V-314 Pt. Tupper 1C-411 North Sydney 3S-301 Trenton 50N-410	Pugwash 7N-302 Whycocomagh 67C-411	Wreck Cove 85S-401 Upper Burlington 18V-413 SW Margaree 58C-403 Martins Brook 78W-302	Wreck Cove 85S-401 Upper Musquodoboit 88H-402 SW Margaree 58C-403
CKAIDI	Weymouth 16V-314 Wreck Cove 85S-402 Weymouth 16V-315 Parrsboro 37N-312	Wreck Cove 85S-401 Wreck Cove 85S-402 Port Hastings 2C-402	Wreck Cove 85S-401 Wreck Cove 85S-402 Upper Burlington 18V-413	Wreck Cove 85S-401 Upper Musquodoboit 88H-402 Aberdeen 9C-303 Whycocomagh 67C-411 Parrsboro 37N-413

From Table 2, it is clear that NS Power’s SAIFI and SAIDI reliability performance, excluding MEDs, EEDs, and planned outages, has worsened in each successive year. As a result of that negative trend, the performance targets have remained constant since the time they were initially established. During 2019, NS Power failed to achieve both of its reliability targets.

Although the All-Inclusive reliability categories have not been assigned performance targets, reviewing those results shows that customers are experiencing deteriorating reliability service levels. In its report, NS Power makes numerous references to the increased intensity and severity of weather events, and in particular, the number of hours that wind exceeded 80 kph.

Adverse weather conditions were also highlighted in NS Power’s previous report regarding 2018 performance results. In its Decision letter [M09115] regarding those results the Board stated:

In addressing its failure to meet the province-wide SAIDI target, NS Power largely attributed that performance to adverse weather conditions during the month of November, and stated “November 2018 was the worst performing November in the last 10 years due to multiple wind, snow and ice events within the month”. In addition, it stated that this result was further impacted by the longer duration of severe events. The SAIDI performance is based on the full 12-month period and does not include Major Event Days (MEDs) or Extreme Event Days (EEDs). The Board notes that although November weather conditions were not favourable, there is no indication that overall weather conditions during the other eleven months were also much more severe than corresponding months over the previous 10 years.

[Decision Letter, May 16, 2019, p. 5]

Weather intensity is not a new phenomenon, nor is it an anomaly, since it has been observed for several years. A similar observation was made by the CA, and indeed by NS Power itself, on pages 49 and 50 of its report. With that knowledge, it is incumbent upon NS Power to ensure that it has taken sufficient measures to improve the resiliency of its network to withstand higher stresses and improve, or at least maintain, overall service reliability. Performance standards were established to promote continuous improvement. Changing weather patterns should be viewed as a challenge for improving performance, not as a reason for accepting deteriorating performance levels.

Regarding distribution circuit reliability performance, NS Power failed to achieve the performance standards for CKAIFI or CKAIDI on three of the seven chronic circuits identified for 2019.

A considerable portion of the report was devoted to explaining the measures taken to improve the performance of Wreck Cove circuit 85S-401, and to a lesser degree, the Southwest Margaree circuit 58C-403. Both of those circuits have been identified as chronic circuits regarding outage frequency for a second consecutive year.

Wreck Cove circuit 85S-401 experienced 215 outage events in 2019, which is 12 outages more than in 2018. However, the number of outages impacting 2,000 or more customers was reduced from 15 to four. NS Power stated that investments to date have produced a 43% improvement in the outage duration index CKAIID, and a 56% reduction in the outage frequency index CKAIIF, over that experienced in 2018.

During 2019, 59% of the outages on circuit 85S-401 were caused by falling trees or adverse weather. In recent years, NS Power has made investments of \$7.7 million on the Wreck Cove circuit 85S-401, and about \$1.5 million of that total has been directly allocated to vegetation management or right-of-way widening. Despite that investment, this circuit has now been flagged as a chronic circuit regarding outage duration for a third consecutive year. NS Power plans to invest a further \$1.3 million for upgrades on this circuit in 2020.

The CKAIID performance target is based on average outage durations, plus two standard deviations. In the Board's view, the two standard deviation allowance should provide significant opportunity to avoid consecutive chronic performance. On pages 79 to 82 of its report, NS Power addressed metric sensitivity regarding the CKAIIF and CKAIID performance indices; however, no alternative metrics were presented for future consideration.

Regarding planned interruptions, although there were 18 fewer planned outages in 2019 as compared to 2018, the Board is concerned that the average duration of those outages increased by 74% over those in 2018, from 1.9 hours to 3.3 hours. The Board is mindful that planned interruptions are not part of the performance standards.

ii) Response to Adverse Weather

NS Power's customer restoration performance results regarding Major Event Day and Extreme Event Day storms for 2019 and the two previous years are summarized in the table below:

Table 4 – Annual Service Restoration During MEDs and EEDs

	TARGET	ACTUAL
MED		
2017	86.5 %	99.31% (4 event days)
2018	87.44%	99.86% (6 event days)
2019	88.41%	90.93% (6 event days)
2020	88.41%	
EED		
2017	65.3 %	98.41% (1 event day)
2018	66.28%	99.9% (2 event days)
2019	68.71%	76.06% (2 event days)
2020	68.71%	

Although some improvement was noted in the two previous years, the results from 2019 were such that the targets from 2019 will be retained for 2020. As noted in Table 4, and raised by the CA, there is a significant gap between the target level and NS Power's actual performance. However, any potential amendment to these metrics should be addressed at the conclusion of the initial 5-year period, which was established as 2017 to 2021.

Another aspect of the adverse weather response standards that was raised again this year by the CA is that of the Estimated Time to Restore, or ETR. In its Decision last year [M09115], the Board stated:

Regarding the accuracy of ETRs, NS Power's current automated estimates refer to the time when service to 95% of the affected customers will be restored. Based on a "plus or minus four-hour window", the accuracy of those estimates was between 55% to 66% for outages receiving up to three ETRs. The Board agrees with the CA that further improvements can be made. Exploring opportunities to identify outages under smaller geographic areas, or smaller customer groupings, could lead to a narrower window of accuracy from the current plus or minus four hours.

[Decision Letter, May 16, 2019, p. 6]

The Board notes that NS Power has taken steps to improve the accuracy of its ETRs. As stated in its report, ETR capabilities were advanced in 2019 by adding the ability to implement fixed time ETR strategies by region, urban vs rural, and the number of customers impacted. That change is intended to enable the automated ETRs assigned to an event to be customized to a more discrete area, thereby improving the accuracy. For storm events, the updated functionality was implemented throughout the year, but regular business ETR changes were only implemented in December. In addition, in responding to the CA, NS Power also noted that it has integrated remotely piloted drones into its operations to facilitate restoration time estimates and continues to monitor other technologies.

NS Power's analysis of its ETR accuracy has been focused on a plus-or-minus four-hour window. In its next report, the Board directs NS Power to present its accuracy analysis based on a plus-or-minus two-hour window. Also, given that most storm events result in a significant number of single customer outages, the Board directs an analysis of ETR accuracy if it was based on a restoration factor other than 95% of customers affected, and how such a change might impact customer satisfaction of the current ETR communications.

iii) Customer Service

There are four primary customer service performance targets established in the customer service category. Two of those targets were not achieved in 2019:

- the Regular Business Call Answer Rate performance of 66.67% did not achieve the target of 70.00%; and
- the Percentage of Bills Estimated performance of 2.4% did not achieve the target of 2%.

NS Power attributed both of those failures primarily to the impact of Hurricane Dorian in September. The Board recognizes that the severity of that weather event affected the meter reading function and would have resulted in a buildup of regular business calls following that event. However, Appendix A of NS Power's report shows that the 70% target for regular business calls was not achieved even in months prior to the hurricane. Results for June to November inclusive, were below the established annual target. As has been previously said, although the current target is based on annual performance results, the Board expects NS Power to work towards achieving that target level each month of the year, not just on a 12-month basis.

Regarding the five metrics established under the New Service Connection Times, NS Power's results for 2019 and the two previous years are shown in the following table:

Table 5 – New Service Connection Performance (Days)

	TARGET	ACTUAL
2017		
No Poles	2.8	2.2
Pole or Transformer	5.9	4.2
Temporary to Permanent	2.9	2.3
Line Extension <10 Poles	8.8	5.2
Line Extension ≥10 Poles	31.7	12.1
2018		
No Poles	2.4	2.0
Pole or Transformer	5.2	4.0
Temporary to Permanent	2.8	2.1
Line Extension <10 Poles	7.4	5.1
Line Extension ≥10 Poles	26.9	12.2
2019		
No Poles	2.4	2.3
Pole or Transformer	5.2	4.6
Temporary to Permanent	2.8	2.5
Line Extension <10 Poles	7.4	6.3
Line Extension ≥10 Poles	26.9	21.5
2020		
No Poles	2.2	
Pole or Transformer	4.4	
Temporary to Permanent	2.8	
Line Extension <10 Poles	5.8	
Line Extension ≥10 Poles	25.8	

As can be seen in the above table, NS Power's actual performance in each of these categories has been better than the established targets and this has resulted in gradual improvements in the annual targets for new service connections. However, when viewed on a monthly basis, Appendix D shows that the established targets were not achieved in certain months under each category.

iv) Other Observations

Once again, similar to the 2018 report, the Board noted several errors or misprints in the report. This leads to some confusion regarding correct information for review. For example:

- Pages 13 & 14: The footnotes for Figures 2 and 3 incorrectly state that three of the CKAI DI and CKAI FI feeders met the 2019 targets and two did not.
- Page 42, Figure 22: This figure states that on November 28, the number of customers impacted was less than the actual number of customers restored.

- Page 46, Figure 25: This figure is incorrectly labelled as SAIDI when the chart presents monthly SAIFI results.
- Page 47, Figure 26: This figure is incorrectly labelled as SAIFI when the chart presents monthly SAIDI results.
- Page 49, Figure 27: The table below the graph incorrectly states the Percent Increase in average hours of wind speed ≥ 80 kph as 157% when it was only an increase of 57%.
- Page 112, Line 4: This line states that there were 420 planned outages in 2019 but Figure 82 on page 111 states it was 402.
- Page 119, Figure 92: Lines 4 & 5 state that Figure 92 identifies problem feeders for 2020, however, they appear to be 2019 problem feeders.
- Pages 2 of Appendix D: The 2020 target for Temporary to Permanent Service Installation is shown as an increase of 0.1 days, but it should remain at the 2019 level of 2.8 days.

Findings

As noted earlier, the Board has the authority under the *Act* to take measures to ensure NS Power's compliance with the performance standards, including ordering NS Power to pay an administrative penalty or to develop and file a plan for bringing itself into compliance with a performance standard, or both. However, any administrative penalty that is levied must be appropriate in order to promote future compliance with the performance standards and not for punitive purposes or effects or for redressing a wrong done to society at large.

The Board understands that several adverse weather events in 2019 presented NS Power with significant challenges regarding its service reliability and customer service performance. The utility was only able to achieve 7 of its 13 performance standards targets for 2019.

As noted above, increasing intensity, severity, or frequency of adverse weather events is not a new phenomenon. It is incumbent upon NS Power to face those challenges and to ensure that the system's resiliency and reliability is maintained at a satisfactory level. It is not sufficient to point to changing weather patterns as the reason for not achieving the performance standards that have been established under a comprehensive and public regulatory process.

This past year is the third consecutive year that NS Power has failed to meet certain of its performance targets. In 2017, one of the targets, CKAIID, was not achieved. In 2018, two of the performance targets, SAIDI and CKAIID, were not achieved. In 2019, performance further deteriorated to the point that six targets were not achieved. Those metrics are SAIFI, SAIDI, CKAIID, CKAIID, Percentage of (regular business) calls answered within 30 seconds, and Percentage of customer bills that can be estimated.

In its report regarding the missed CKAIID performance target in 2017 [M08574], NS Power stated:

...it is not necessary for the UARB to order NS Power to file a further plan to bring itself into compliance with the CKAIID standards approved by the UARB as this is already in place.

[Exhibit N-1, Page 30 of 62]

In its report regarding the missed SAIDI and CKAIID performance targets in 2018 [M09115], NS Power stated:

The \$158.5million of investment submitted for approval in the 2019 ACE plan is targeted to address system upgrades and storm hardening and will improve the system performance. Based on the mitigating measures, absent extraordinary circumstances such as those experienced in November 2018, NS Power is positioned to meet the 2019 SAIDI target. NS Power will continue to respond to these challenges and take steps to reduce their system impact. As such, there is no requirement for the UARB to order NS Power to develop a plan for bringing the Company into compliance or pay an administrative penalty to promote future compliance.

[Exhibit N-1, Page 42 of 110]

...based on the reliability improvement measures already completed and the work planned for the upcoming year, and under normal circumstances, NS Power is confident that it will improve the results for this feeder [Wreck Cove feeder 85S-401] and achieve its CKAIID targets in 2019.

[Exhibit N-1, Page 109 of 110]

Although the Board has not previously directed NS Power to file a plan for compliance with the performance standards, the Board has accepted NS Power's statements that its mitigating measures will result in CKAIID and SAIDI targets being achieved. However, CKAIID and SAIDI performance targets were again missed in 2019, as were four additional performance targets.

As already stated, the Board understands that NS Power has had to face some challenges in 2019. However, the performance standards were established under a comprehensive public process, with the intention of ensuring that customers are receiving an appropriate level of service for the rates and fees they are charged by the utility. It is not acceptable for the service levels to continue to decline and it is the Board's view that in order to promote future compliance an administrative penalty is warranted. Accordingly, the Board assigns an administrative penalty in the amount of \$250,000 to be credited to ratepayers via the FAM process no later than September 30, 2020.

Performance Targets for 2020

As noted earlier, several of the benchmark targets established for the performance standards will remain in effect during the initial five-year period of 2017 to 2021, inclusive. Those which are subject to an annual adjustment are listed below and the associated targets are approved by the Board for the 2020 calendar year:

- SAIFI and SAIDI are to be set based on a five-year rolling average plus one standard deviation; however, targets for any subsequent year must be equal to or better than the prior year's target. NS Power determined that the calculated 2020 targets for these metrics would exceed the 2019 target, so the 2020 targets are set at the same level as in 2019; i.e., SAIFI of 2.05 and SAIDI of 4.29. These are still the same targets that were established for 2017.
- Benchmark targets for CKAIIFI and CKAIID are determined each year based on the circuits appearing within the worst 5% of performers for two consecutive years. For 2020, the CKAIIFI circuits are Wreck Cove 85S-401, Upper Musquodoboit 88H-402, and Southwest Margaree 58C-403. The CKAIID circuits are Aberdeen 9C-303, Wreck Cove 85S-401, Whycomomagh 67C-411, Parrsboro 37N-413, and Upper Musquodoboit 88H-402.
- The MED and EED targets for percentage of customers restored within 48 hours of a severe weather event are based on the historical averages (since 2004) minus one standard deviation. Including the 2019 results, NS Power has determined that the average minus one standard deviation results in values that are less than the 2019 targets. Therefore, the benchmark targets have not improved so the values for 2020 will remain at 88.41% for MEDs and 68.71% for EEDs.

- The benchmark targets for new service connection times are set based on a five-year rolling average plus one standard deviation. New targets for 2020 are:
 - Service Installation -- No Poles 2.2 days
 - Service Installation -- Pole or Transformer 4.4 days
 - Service Installation -- Temporary to Permanent 2.8 days
 - Service Installation -- Line Extension less than 10 Poles 5.8 days
 - Service Installation -- Line Extension greater than or equal to 10 Poles 25.8 days

All other benchmark targets remain unchanged for 2020, as summarized in Attachment 2.

Yours truly,

Peter W. Gurnham, Q.C.
Chair

Roland A. Deveau, Q.C.
Vice Chair

Steven M. Murphy, MBA, P.Eng.
Member

c: S. Bruce Outhouse, Q.C., Board Counsel
Nicole Godbout, NS Power Director Regulatory Affairs
Participants

Attachments

Attachment 1 – 2019 Performance Standards

Metrics	Targets
Reliability	
System Average Interruption Frequency Index (SAIFI)	2.05
System Average Interruption Duration Index (SAIDI)	4.29
Circuit Average Interruption Frequency Index (CKAIFI)	Upper Burlington 18V-413 Southwest Margaree 58C-403 Martins Brook 78W-302 Wreck Cove 85S-401
Circuit Average Interruption Duration Index (CKAIDI)	Upper Burlington 18V-413 Wreck Cove 85S-401 Wreck Cove 85S-402
Response to Adverse Weather	
Customer notification of an oncoming severe weather event within a specific time frame	Within 4 hours of opening Emergency Operations Centre (EOC) (fixed for 2017 to 2021)
Percentage of calls answered within 45 seconds during a severe outage event	85% (fixed for 2017-2021)
Polite disconnect rate for all outage calls	10% or less (fixed for 2017-2021)
Estimated Time to Restore (ETR) updates communicated to customers during an outage	Provided without delay (fixed for 2017 to 2021)
Percentage of customers restored within 48 hours of a severe weather event ➤ Major Event Days (MEDs) ➤ Extreme Event Days (EEDs)	88.41% 68.71%
Customer Service	
Percentage of calls answered within 30 seconds	70% (fixed for 2017 to 2021)
Percentage of customer bills that can be estimated	No more than 2% (fixed for 2017 to 2021)
Customer notification of outages	As soon as known by NSPI (fixed for 2017 to 2021)
New service connection times ➤ Service Installation -- No Poles ➤ Service Installation -- Pole or Transformer ➤ Service Installation -- Temporary to Permanent ➤ Service Installation -- Line Extension less than 10 Poles ➤ Service Installation -- Line Extension greater than or equal to 10 Poles	2.4 days 5.0 days 2.8 days 7.2 days 26.7 days

Attachment 2 – 2020 Performance Standards

Metrics	Targets
Reliability	
System Average Interruption Frequency Index (SAIFI)	2.05
System Average Interruption Duration Index (SAIDI)	4.29
Circuit Average Interruption Frequency Index (CKAIFI)	Wreck Cove 85S-401 Upper Musquodoboit 88H-402 Southwest Margaree 58C-403
Circuit Average Interruption Duration Index (CKAIDI)	Aberdeen 9C-303 Wreck Cove 85S-401 Whycomomagh 67C-411 Parrsboro 37N-413 Upper Musquodoboit 88H-402
Response to Adverse Weather	
Customer notification of an oncoming severe weather event within a specific time frame	Within 4 hours of opening Emergency Operations Centre (EOC) (fixed for 2017 to 2021)
Percentage of calls answered within 45 seconds during a severe outage event	85% (fixed for 2017-2021)
Polite disconnect rate for all outage calls	10% or less (fixed for 2017-2021)
Estimated Time to Restore (ETR) updates communicated to customers during an outage	Provided without delay (fixed for 2017 to 2021)
Percentage of customers restored within 48 hours of a severe weather event > Major Event Days (MEDs) > Extreme Event Days (EEDs)	88.41% 68.71%
Customer Service	
Percentage of calls answered within 30 seconds	70% (fixed for 2017 to 2021)
Percentage of customer bills that can be estimated	No more than 2% (fixed for 2017 to 2021)
Customer notification of outages	As soon as known by NSPI (fixed for 2017 to 2021)
New service connection times > Service Installation -- No Poles > Service Installation -- Pole or Transformer > Service Installation -- Temporary to Permanent > Service Installation -- Line Extension less than 10 Poles > Service Installation -- Line Extension greater than or equal to 10 Poles	2.2 days 4.4 days 2.8 days 5.8 days 25.8 days