

NON-CONFIDENTIAL

1 **Request IR-1:**

2
3 **Please provide copies of NS Power’s standards and any applicable CSA and CEC standards,**
4 **guiding operation under nominal and extreme voltage conditions.**

5
6 Response IR-1:

7
8 NS Power voltage variation is defined under the *Regulation* under section 2.7 as “For voltage
9 variation limits, refer to C.S.A. standard - CAN-C235-83 or any subsequent revision.”

10
11 A copy of the NS Power standards voltage is listed below.

Nichols – Infrastructure Concerns (NSEB M12730)
NSPI Responses to NSEB Information Requests

NON-CONFIDENTIAL

NOMINAL SYSTEM VOLTAGES	VOLTAGE VARIATION LIMITS APPLICABLE AT SERVICE ENTRANCE			
	EXTREME OPERATING CONDITIONS			
	NORMAL OPERATING CONDITIONS			
SINGLE – PHASE 120/240 240 600	106/212 212 530	110/220 220 550	125/250 250 625	127/254 254 635
THREE-PHASE 4-CONDUCTOR 120/208Y 347/600Y	110/190 306/530	112/194 318/550	125/216 360/625	127/220 367/635
THREE-PHASE 3-CONDUCTOR 240 600	212 530	220 550	250 625	254 635

NOTES:

A. WHERE THE SERVICE IS DIRECTLY FROM THE TRANSFORMER, THE SERVICE ENTRANCE VOLTAGES SHOULD NOT FALL BELOW THE NOMINAL VOLTAGE BY MORE THAN 5% FOR NORMAL OPERATING CONDITIONS AND 8% FOR EXTREME OPERATING CONDITIONS.

B. WHERE VOLTAGES LIE OUTSIDE THE NORMAL CONDITIONS, IMPROVEMENT WORK SHOULD BE TAKEN ON A PLANNED BASIS.

C. WHERE VOLTAGES LIE OUTSIDE OF EXTREME CONDITIONS, IMPROVEMENT WORK SHOULD BE TAKEN WITHOUT DELAY.



DISTRIBUTION STANDARDS

VOLTAGE VARIATION LIMITS
APPLICABLE AT SERVICE ENTRANCE

DATE:	1984-06-01	REV DATE:	2022-05-20
DRAWN:	M. HALASZ	STD NO:	V-1M
APPROVED:		SHT NO:	1 OF 1



The CSA and the CEC are both copyright protected documents and cannot be shared. However, the CAN-C235-19 under section 4 defines “Normal” and “Extreme” similarly to what NS Power lists under V-1M:

Normal operating conditions: Where voltages lie within the indicated limits under this heading, no improvement or corrective action is required.

Extreme operating conditions: Where voltages lie outside the indicated limits for normal operating conditions, but within the indicated limits for

NON-CONFIDENTIAL

1 extreme operating conditions, improvement or corrective action should be
2 taken.

3
4 Other operating conditions: Where voltages lie outside the indicated limits
5 for extreme operating conditions, improvement or corrective action should
6 be taken in accordance with the policies and procedures of the supply
7 authority. The urgency for such action will depend on many factors such as
8 location and nature of the energy exchange or circuit involved, extent to
9 which limits are exceeded with respect to voltage levels and duration, etc.

10

NON-CONFIDENTIAL

Request IR-2:

(a) Please confirm the maximum acceptable durations for operation under extreme voltage conditions.

(i) Please explain whether the logged extreme voltage events are consistent with NS Power's standards and applicable CSA and CEC standards.

(b) Please confirm whether NS Power normally has real-time voltage and current monitoring devices installed on primary and/or secondary systems of the feeder 92H-331.

(i) If yes, please identify the location of any such devices and how NS Power accesses the data, remotely or locally.

(ii) If no monitoring devices are currently installed, please indicate whether NS Power has plans to install monitoring devices, including anticipated timing and scope.

Response IR-2:

(a) As per the Regulation, NS Power can operate within the extreme voltage conditions. The regulation and the CSA standard do not define an acceptable duration and recommend that action should be taken to bring the voltage back to normal condition.

(i) The extreme voltage events observed during the severe weather event that impacted the province are consistent with standard voltages.

(b) NS Power has real-time voltage monitoring to the 12 kV primary voltage at 92H substation, to which 92H-331 is connected.

Nichols – Infrastructure Concerns (NSEB M12730)
NSPI Responses to NSEB Information Requests

NON-CONFIDENTIAL

- 1 (i) The monitoring is on the 12 kV Primary system. It is accessed remotely.
2
3 (ii) NS Power is in the process of installing additional remote communication devices
4 that will allow the remote monitoring of Voltage and Current of the individual
5 feeders.
6

NON-CONFIDENTIAL

Request IR-3:

(a) Please explain the reasons for NS Power's replacement of the service wire and confirm the type and size of service wire.

(b) Please explain how the replacement addresses the voltage issue.

Response IR-3:

(a) NS Power replaced the customer service conductor to improve the local voltage performance. The service conductor is a #4/0 AACS Triplex.

(b) The larger conductor has a lower resistance value, resulting in lower voltage drop between the point of interconnection and the customer residence.

NON-CONFIDENTIAL

Request IR-4:

(a) Please indicate the location of the power quality monitoring device and the approximate distance between the device and the customer's main panel.

(b) Please explain the difference between the Ch1 log and the Ch2 log.

Response IR-4:

(a) The power quality monitoring device was installed on the customer-owned meter base between the weather head and the customer main panel. NS Power does not have access to the actual distance between the customer meter base and the main panel.

(b) Ch1 monitors and logs voltage on the one conductor of the service conductor, while Ch2 monitors and log voltage on the second conductor of the service.

NON-CONFIDENTIAL

Request IR-5:

In the response to the complaint, NS Power identified several major projects as a long-term corrective action and referenced a contingency plan in the event of project delays.

(a) Please explain NS Power’s contingency plan to address the identified voltage issues.

(b) Please explain NS Power’s plan to continue monitoring voltage levels in the region to ensure that the corrective actions are implemented as planned and in a timely manner.

Response IR-5:

(a) As indicated in the response, if delays occur within the larger project, NS Power has identified potential alternatives to achieve improvements in this area to alleviate the capacity and power quality concerns on a short-term basis. These options are otherwise not necessary but could supplement the feeder constraints until the full solution is constructed.

The preferred option is to focus and prioritize on implementing the planned system infrastructure upgrades first. However, given the possibility for delays, NS Power has identified short term alternatives that appear easily implementable until the full project is completed.

These options include transferring load to another supply and increasing supply into larger subdivisions such as Bailee Dr by reconductoring or splitting load. NS Power completed extensive load balancing on the feeder in 2025; however, additional assessment in 2026 is possible to identify further improvements, if deemed necessary.

Nichols – Infrastructure Concerns (NSEB M12730)
NSPI Responses to NSEB Information Requests

NON-CONFIDENTIAL

1 (b) NS Power plans to monitor the voltage levels on the feeder by installing the remote
2 communication referenced in IR-2.
3

NON-CONFIDENTIAL

Request IR-6:

- (a) Please indicate whether the primary circuit serving the complainant's area is single-phase or three-phase.**
- (b) If the circuit is single-phase, please indicate whether NS Power has plans to expand it to three-phase to balance the load.**
- (c) If the circuit is three-phase, please indicate whether NS Power has carried out load-balancing activities.**

Response IR-6:

- (a) The primary circuit serving Mr. Nichols' area (street) is single-phase connected to the three-phase line Peggys Cove Road.**
- (b) Mr. Nichols is supplied with a single-phase service. While adding additional phases on the street would help further balance the load on the feeder, it does not provide significant benefit. As such, NS Power does not have current plans to upgrade the single-phase line to a three-phase line on Mr. Nichols' street.**
- (c) The circuit on Mr. Nichols's street is single-phase.**