

1 **Reference: 3.1 2024 Transmission Line Rebuild**

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 3 **Q. Page 8. It is stated that recent analyses showed that a loss of Transmission**
 4 **Line 146L during peak load conditions would result in voltage levels within**
 5 **the looped transmission system dropping into the emergency range,**
 6 **increasing the risk of load shedding and customer outages. Please provide the**
 7 **analyses.**

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 9 A. Newfoundland Power’s normal and emergency voltage limits for transmission lines are
 10 shown in Table 1.

Table 1 Transmission Line Voltage Limits		
Operating Condition	Minimum Per Unit Voltage	Maximum Per Unit Voltage
Normal	0.95	1.05
Emergency	0.90	1.06

11 The Company uses power system modeling software to conduct N-1 analyses of its
 12 major looped transmission systems as part of Newfoundland and Labrador Hydro’s
 13 annual planning assessment.¹ Lowest voltages observed for each 138 kV transmission
 14 line within the Central Newfoundland 138 kV Looped Transmission System, with
 15 Transmission Line 146L disconnected during peak load are provided in Table 2.
 16 Voltages and substation buses that fall within the emergency range are highlighted in
 17 red.

¹ The latest Newfoundland and Labrador Hydro annual planning assessment was filed with the Board on May 17, 2023.

Table 2
138 kV Central Newfoundland Looped Transmission System Voltages
With
Transmission Line 146L Disconnected During Peak Load

Transmission Line ID	Transmission Line Location	Lowest Per Unit Voltage	Lowest Voltage Bus Location
100L / 109L	Clarenville - Sunnyside	0.984	Clarenville
121L	Gambo – Glovertown	0.945	Gambo
124L	Glovertown - Clarenville	0.952	Glovertown
144L	Cobbs Pond - Gander	0.929	Gander
130L / 132L / 133L	Stony Brook – Grand Falls - Bishop’s Falls	0.980	Bishop’s Falls
136L / 137L	Bishops Falls – Rattling Brook - Lewisporte	0.953	Lewisporte
147L	Lewisporte – Cobb’s Pond	0.931	Cobb’s Pond
TL210	Stony Brook – Cobb’s Pond	0.931	Cobb’s Pond