

1 Q. **Re: Page 10, lines 18-19**

2 Hydro states that “*while the results of the new model are consistent with those*
3 *calculated in previous Near-Term Generation Adequacy reports ...*” Please explain
4 how Hydro determined that the results from the new Plexos model are consistent
5 with previous results from the Strategist modelling platform.
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9 A. As discussed in Hydro’s response to PUB-NLH-025, Hydro has recently transitioned
10 from using Strategist to Plexos for generation planning. Throughout the transition
11 process, Hydro worked extensively with Energy Exemplar, the company that
12 produces the Plexos software, to develop a model that accurately represents the
13 Island Interconnected System.

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15 To compare the results from the newly developed Plexos model with results from
16 the Strategist model, Hydro modelled the assumptions used in the 2017 Near-Term
17 Generation Adequacy Report in Plexos. The comparison between the two models
18 was completed on the basis of loss of load hours (LOLH). Results are provided in
19 Table 1. The delta between the results for cases analyzed shows high correlation of
results.

Table 1: Comparison of Modelling Results

Summary of Results P90 Analysis				
	2019	2020	2021	2022
HRD DAFOR 15%	LOLH			
Plexos results using 2017 NTGA modelling assumptions and approach ¹	0.47	0.39	0.31	0.22
Strategist results from November 2017 NTGA	0.49	0.43	0.34	0.24
Delta	(0.02)	(0.04)	(0.03)	(0.2)
HRD DAFOR 20%	LOLH			
Plexos	0.91	0.76	0.62	0.45
Strategist ²	0.99	0.88	0.71	0.51
Delta	(0.08)	(0.12)	(0.09)	(0.06)

- 1 Plexos and Strategist perform similar analysis but there are significant differences in
2 how the two calculate reliability metrics thus creating results that would not
3 necessarily match. The most important differences are as follows:
- 4 • Plexos uses a full hourly load shape compared to Strategist, which uses a typical
5 week per month to develop a load shape. The full hourly load shape more
6 accurately captures monthly peaks and daily variation in load;
 - 7 • Plexos models Hydroelectric units and interruptible contracts as dispatchable
8 units whereas Strategist models Hydroelectric units as a subtraction from load.
9 This can make a significant difference in a system like the Island Interconnected
10 System where a large percentage of the generation capacity is provided by
11 Hydroelectric units; and

¹ Modelling assumptions include use of load shape, peak demand forecast, and load factor.

² Source: November 2017 Near-Term Generation Adequacy Report, Table 8 – Expected case.

- 1 • The load shape has been updated from the Strategist model to reflect the
2 addition of new industrial load at Long Harbour. The load shape used is based
3 on the 2015 Island Load Shape, which is the most onerous load shape of the
4 three years examined (2015, 2016, and 2017).

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6 All of these differences represent improvements to the modelling process, which
7 result in a model that more accurately represents the Island Interconnected
8 System. Hydro continues to refine the Plexos model and will have a model that fully
9 incorporates the Island Interconnected and Labrador Interconnected systems by
10 the November 2018 Reliability Assessment.