

1 Q. Page 1, Footnote 4: Please provide a copy of forecast market results and model description.

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4 A. This response has been provided by Christensen Associates Energy Consulting.

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6 A copy of the forecast market has been provided as PUB-NLH-021, Attachment 1.
 7 The model used to determined projections of marginal costs is discussed in
 8 section 2 of report, "Cost Estimates and Methodology for Generation and
 9 Transmission Services, 2021-2029", sections 2.3.1, 3.2, 3.3, 3.4, and 3.5. The
 10 general framework described in section 3.2 is more fully detailed below:

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SPECIFICATION

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MARGINAL COST MODEL, NEWFOUND-LABRADOR HYDRO

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MODEL #1

$$M_Cost_h^{NLH} = \left\{ (MEP_h^{Market J} + MRP_h^{Market J}) * LF_{Path J} + (M_{G_Cap_h}^{NLH}) + (M_{T_Cap_h}^{NLH}) \right\} * LF_h^{NLH}$$

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where,

$MEP_h^{Market J}$ = Marginal Energy Price, hour h, Market J

$MRP_h^{Market J}$

= (Marginal Reserve Price, hour h, Market J)
 * (OperatingReserve%^{NLH})

$M_{G_Cap_h}^{NLH}$

= (Marginal Generation Capacity Cost/kW-year)
 * (PeakLoad Allocation_{hour h})

$M_{T_Cap_h}^{NLH}$

= (Marginal Transmission Capacity Cost/kW-year)
 * (PeakLoad Allocation_{hour h})

$LF_{Path J} = (1 - LossPercentage_{Path to Market J})$

$LF_h^{NLH} = (1 / (1 - Marginal Losses_h^{NLH}))$

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Regions, Paths:

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J =

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1 (Quebec to New York ISO); 2(Nova Scotia –
 New Brunswick to New England)

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Forecast Date: 4/11/2018												
NEPOOL at NB						ISO NE Peak						
	January	February	March	April	May	June	July	August	September	October	November	December
2021	\$91.10	\$89.87	\$55.72	\$35.24	\$36.83	\$35.98	\$41.19	\$40.30	\$36.04	\$36.48	\$41.53	\$57.93
2022	\$87.00	\$82.30	\$53.14	\$36.59	\$36.67	\$36.57	\$41.89	\$40.27	\$36.48	\$36.30	\$43.40	\$60.66
2023	\$78.69	\$75.24	\$50.56	\$36.29	\$36.86	\$36.71	\$41.28	\$40.11	\$36.47	\$38.81	\$42.24	\$59.14
2024	\$77.38	\$68.76	\$47.00	\$34.60	\$36.07	\$37.84	\$41.47	\$40.64	\$36.63	\$41.24	\$49.47	\$61.12
2025	\$81.70	\$70.46	\$46.84	\$36.65	\$37.91	\$39.00	\$43.69	\$43.27	\$39.01	\$40.39	\$50.22	\$60.28
2026	\$75.38	\$70.29	\$53.14	\$39.04	\$39.47	\$40.71	\$46.13	\$44.55	\$40.52	\$41.74	\$52.32	\$61.59
2027	\$76.92	\$69.73	\$52.20	\$39.07	\$41.40	\$43.57	\$47.62	\$46.29	\$41.52	\$45.75	\$54.54	\$61.64
2028	\$81.31	\$74.56	\$54.59	\$42.46	\$45.52	\$47.64	\$53.28	\$51.54	\$46.06	\$48.37	\$58.56	\$65.84
2029	\$79.90	\$78.62	\$61.06	\$47.18	\$48.02	\$51.00	\$56.43	\$56.18	\$49.95	\$51.51	\$61.77	\$68.38
NEPOOL at NB												
	January	February	March	April	May	June	July	August	September	October	November	December
2021	\$69.48	\$68.28	\$46.02	\$25.32	\$32.19	\$31.20	\$31.55	\$32.98	\$30.80	\$32.63	\$37.80	\$53.33
2022	\$68.03	\$64.57	\$46.84	\$32.05	\$32.29	\$31.80	\$31.98	\$33.09	\$31.29	\$31.59	\$39.60	\$54.69
2023	\$68.11	\$60.13	\$43.99	\$32.63	\$31.67	\$31.95	\$31.79	\$33.24	\$31.61	\$34.32	\$38.91	\$53.99
2024	\$64.29	\$58.44	\$43.09	\$30.03	\$30.79	\$33.25	\$32.74	\$33.54	\$31.62	\$36.96	\$45.34	\$56.03
2025	\$69.23	\$61.89	\$42.04	\$32.43	\$33.53	\$34.15	\$34.15	\$36.07	\$33.36	\$34.45	\$46.66	\$55.41
2026	\$70.50	\$63.23	\$47.81	\$35.20	\$34.52	\$35.56	\$35.98	\$37.01	\$34.95	\$36.66	\$48.52	\$56.89
2027	\$68.84	\$63.63	\$46.27	\$33.57	\$35.50	\$37.78	\$37.14	\$38.67	\$36.03	\$40.34	\$50.25	\$57.55
2028	\$72.15	\$66.50	\$48.72	\$37.79	\$40.16	\$41.17	\$41.60	\$43.33	\$40.65	\$41.62	\$54.22	\$61.58
2029	\$76.01	\$69.23	\$54.41	\$42.61	\$41.75	\$44.93	\$45.19	\$46.82	\$43.95	\$44.59	\$57.27	\$64.00

Units are provided in \$ per MWh.