

**Public Service Company of New
Hampshire
Docket No. DE 10-195**

Data Request STAFF-06

**Dated: 11/30/2010
Q-STAFF-002
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**Witness: Richard C. Labrecque
Request from: New Hampshire Public Utilities Commission Staff**

Question:

Ref. PSNH Response to Staff 1-11, Attachment 3. Regarding the market energy price base case projection, please respond to the following:

- (i) Explain how the price projection was developed and include in your response all related data and assumptions.
- (ii) If the price projection is based on a natural gas futures prices, provide those prices, and specify the source and date to which they relate. Also, if the futures prices do not span the full 20-year term of the PPA, explain how the market energy prices for the remaining period were developed.
- (iii) Provide in electronic format the Excel spreadsheet that created the price projection with all formula intact.

Response:

- (i) The price projection uses NYMEX electricity and natural gas price quotes from Dec 31, 2009. Electricity prices are available through 2014. Natural gas quotes are available through 2022. Natural gas basis quotes (TETCO M3) are available through Oct 2013. The final twelve months of TETCO M3 quotes are assumed to be applicable through 2022.

The 2010 - 2014 relationship between electricity price quotes and natural gas prices quotes (i.e. the implied heat rates) is used to convert 2015 - 2022 natural gas prices into indicative electricity price quotes for 2015 - 2022.

For 2023 - 2030, the electricity prices are calculated by taking the prior years price and multiplying by the average escalation in prices from 2017 - 2022.

- (ii) see response to (i) above.
- (iii) see the attached spreadsheet

12/31/09 Markets

	Peak	Off			Q4 Electric	Q4 Gas	
	Peak	Off			Peak	Off	
Jan-10	73.40	60.90			73.40	60.90	8.36
Feb-10	70.33	57.25			70.33	57.25	6.95
Mar-10	62.25	49.25			62.25	49.25	6.34
Apr-10	59.20	46.50			59.20	46.50	6.03
May-10	57.69	45.25			57.69	45.25	6.06
Jun-10	60.96	45.58			60.96	45.58	6.12
Jul-10	66.88	48.92			66.88	48.92	6.19
Aug-10	66.88	48.92			66.88	48.92	6.26
Sep-10	59.13	46.00			59.13	46.00	6.29
Oct-10	60.75	48.97			60.75	48.97	6.39
Nov-10	61.60	48.97			61.60	48.97	6.68
Dec-10	69.00	48.97			69.00	48.97	7.37
Jan-11	79.08	64.50	1.17	1.22	79.08	64.50	8.37
Feb-11	79.08	64.50	1.17	1.22	79.08	64.50	8.27
Mar-11	65.87	50.13	0.97	0.95	65.87	50.13	7.10
Apr-11	65.87	50.13	0.97	0.95	65.87	50.13	6.40
May-11	59.93	46.00	0.88	0.87	59.93	46.00	6.36
Jun-11	64.18	47.50	0.95	0.90	64.18	47.50	6.41
Jul-11	69.88	50.75	1.03	0.96	69.88	50.75	6.47
Aug-11	69.88	50.75	1.03	0.96	69.88	50.75	6.53
Sep-11	62.75	47.75	0.93	0.90	62.75	47.75	6.56
Oct-11	62.50	51.73	0.92	0.98	65.68	54.36	6.68
Nov-11	64.58	53.45	0.95	1.01	65.68	54.36	6.90
Dec-11	69.96	57.90	1.03	1.09	65.68	54.36	7.47
Jan-12	80.80	65.81			69.27	54.00	
Feb-12	80.80	65.81			69.27	54.00	
Mar-12	67.30	51.15			69.27	54.00	
Apr-12	67.30	51.15			69.27	54.00	
May-12	61.23	46.94			69.27	54.00	
Jun-12	65.57	48.47			69.27	54.00	
Jul-12	71.40	51.78			69.27	54.00	
Aug-12	71.40	51.78			69.27	54.00	
Sep-12	64.11	48.72			69.27	54.00	
Oct-12	63.86	52.78			69.27	54.00	
Nov-12	65.98	54.54			69.27	54.00	
Dec-12	71.48	59.08			69.27	54.00	
Jan-13	84.06	67.77			72.07	55.61	
Feb-13	84.06	67.77			72.07	55.61	
Mar-13	70.02	52.67			72.07	55.61	
Apr-13	70.02	52.67			72.07	55.61	
May-13	63.71	48.33			72.07	55.61	
Jun-13	68.23	49.91			72.07	55.61	
Jul-13	74.28	53.33			72.07	55.61	
Aug-13	74.28	53.33			72.07	55.61	
Sep-13	66.71	50.17			72.07	55.61	
Oct-13	66.44	54.35			72.07	55.61	
Nov-13	68.65	56.16			72.07	55.61	
Dec-13	74.37	60.84			72.07	55.61	
Jan-14	88.44	71.08			75.82	58.32	
Feb-14	88.44	71.08			75.82	58.32	
Mar-14	73.67	55.24			75.82	58.32	
Apr-14	73.67	55.24			75.82	58.32	
May-14	67.02	50.69			75.82	58.32	
Jun-14	71.78	52.34			75.82	58.32	
Jul-14	78.15	55.92			75.82	58.32	
Aug-14	78.15	55.92			75.82	58.32	
Sep-14	70.18	52.62			75.82	58.32	
Oct-14	69.89	57.00			75.82	58.32	
Nov-14	72.22	58.90			75.82	58.32	
Dec-14	78.24	63.81			75.82	58.32	

						8.70	
	NYMEX	NYMEX		NYMEX	NE Gas Basis	NE Gas (NYMEX	Implied Ht
	Pk	Off-Pk	24 hr	Hub Gas	[Tetco M3]	plus basis)	Rate
Cal 10	64.01	49.62	56.46	5.91	0.68	6.59	8.57
Cal 11	67.80	52.92	59.99	6.38	0.58	6.96	8.62
Cal 12	69.27	54.00	61.25	6.52	0.55	7.07	8.66
Cal 13	72.07	55.61	63.43	6.65	0.63	7.28	8.72
Cal 14	75.82	58.32	66.63	6.82	0.63	7.45	8.94
Cal 15				7.02	0.63	7.65	
Cal 16				7.22	0.63	7.85	
Cal 17				7.42	0.63	8.05	
Cal 18				7.64	0.63	8.26	
Cal 19				7.85	0.63	8.48	
Cal 20				8.07	0.63	8.70	
Cal 21				8.28	0.63	8.91	
Cal 22				8.49	0.63	9.12	
Nominal dollars							

sources

NYMEX gas 2010 - 2022: NYMEX Dec 31 2009 closing data

NYMEX Tetco M3 Basis 2010 - 2012: NYMEX Dec 31 2009 closing data

NYMEX Tetco M3 Basis 2013 - 2022: used relationship implied by 2012 data

Implied Heat Rates: used relationship between NYMEX Electric and NYMEX Gas + TM3

Energy \$/MWh: NYMEX x Ht Rate years 2023-2030 developed using avg 2018-2022 growth rate

	Energy \$/mwh		
	NYMEX Gas x		Yr / Yr %
year	Ht Rate		NYMEX
2010	56.46		
2011	59.99		106%
2012	61.25		102%
2013	63.43		104%
2014	66.63		105%
2015	66.60		100%
2016	68.32		103%
2017	70.06		103%
2018	71.92		103%
1.027	2019	73.80	103%
1.026	2020	75.67	103%
1.025	2021	77.53	102%
1.025	2022	79.37	
1.024	2023	81.38	
	2024	83.43	
	2025	85.54	
	2026	87.70	
	2027	89.92	
	2028	92.19	
	2029	94.52	
	2030	96.91	