

Natural Gas Plant Assumptions Characteristics

Source: NERA_PSNH Scrubber Analysis_Spring 2008

	Units	2008	Notes
Plant Capacity	MW	432.5	Same as Merrimack
Capacity Factor	%	83%	Same as Merrimack
Annual Generation	GWh	3,128	
Heat rate	(MMBtu/MWh)	6.752	Assumptions to AEO 2008, Table 47 p. 92
FERC Capital Costs (approximate)			
Low Capital Costs	(2008\$/KW)	800	
High Capital Costs	(2008\$/KW)	1,500	
Midpoint Capital Costs	(2008\$/KW)	1,150	
Low Capital Costs	(2012\$/KW)	883	
High Capital Costs	(2012\$/KW)	1,656	
Midpoint Capital Costs	(2012\$/KW)	1,269	
Low Plant Cost	(2012\$, 000)	381,919	
High Plant Cost	(2012\$, 000)	716,099	
Midpoint Plant Cost	(2012\$, 000)	549,009	
Years to Recover (book)	Straight-line	30	
Tax Amortization	MACRS	20	
Fixed O&M	(2006\$/KW)	11.38	Assumptions to AEO 2008, Table 38 p. 79
Fixed O&M	(2012\$/KW)	13.20	
Variable O&M	(2006\$ / MWh)	1.95	Assumptions to AEO 2008, Table 38 p. 79
Variable O&M	(2012\$ / MWh)	2.26	
Emissions Rates (lbs/mmBtu)			
SO2		0.0006	per ISO-NE New England Electricity Scenario Analysis, Table 2-3 pg. 28
NOx		0.01	per ISO-NE New England Electricity Scenario Analysis, Table 2-3 pg. 28
CO2		120	per ISO-NE New England Electricity Scenario Analysis, Table 2-3 pg. 28
Annual Emissions			
SO2	tons	6.34	
Nox	tons	106	
CO2	tons	1,267,042	

ORIGINAL	
N.H.P.U.C. Case No.	DC11-250
Exhibit No.	#129
Witness	Panel 5
DO NOT REMOVE FROM FILE	

		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Natural Gas Prices as of 2008																					
EIA Natural Gas Prices (Delivered to NE utility)																					
AEO Prices2008	AEO 2008 Reference Case (2006\$ / mmbtu)	7.90	8.23	7.66	7.42	7.16	6.91	6.63	6.42	6.34	6.37	6.40	6.40	6.31	6.19	6.29	6.33	6.43	6.51	6.61	6.64
	AEO 2008 Reference Case (nominal\$ / mmbtu)	8.30	8.86	8.46	8.39	8.31	8.21	8.07	8.02	8.11	8.36	8.61	8.83	8.92	8.96	9.34	9.63	10.02	10.41	10.84	11.15
LW AEO Prices2008	EIA L/W Service Case (2006\$ / mmbtu)	7.90	8.18	7.64	7.32	8.05	7.81	7.68	7.53	7.42	7.48	7.49	7.64	7.70	7.65	7.71	7.86	7.98	8.11	8.36	8.66
	EIA L/W Service Case (nominal\$ / mmbtu)	8.30	8.81	8.43	8.28	9.33	9.29	9.35	9.41	9.50	9.81	10.07	10.53	10.88	11.07	11.45	11.96	12.45	12.97	13.70	14.55
NYMEX Natural Gas Futures																					
	June 2008 Futures Delivered (nominal\$ / mmbtu)	13.05	11.92	10.75	10.37	10.39	10.57	10.78	11.00	11.61											
	Transportation Adders (per (nominal\$ / mmbtu)	1.46	1.79	1.62	1.52	1.43	1.43	1.46	1.50	1.53											
	Futures Delivered Prices (nominal\$ / mmbtu)	14.51	13.71	12.38	11.89	11.82	11.99	12.24	12.50	13.14											
AEO-Futures Blend2008	Futures / AEO Blend (nominal\$ / mmbtu)	14.51	13.71	12.38	12.03	11.69	11.34	10.99	10.65	10.30	9.96	9.61	9.27	8.92	8.96	9.34	9.63	10.02	10.41	10.84	11.15
LW AEO-Futures Blend2008	Futures / L-W Blend (nominal\$ / mmbtu)	14.51	13.71	12.38	12.23	12.08	11.93	11.78	11.63	11.48	11.33	11.18	11.03	10.88	11.07	11.45	11.96	12.45	12.97	13.70	14.55
Futures Case2008	Futures Case (nominal\$ / mmbtu)	14.51	13.71	12.38	11.89	11.82	11.99	12.24	12.50	13.14	13.47	13.81	14.15	14.51	14.87	15.24	15.62	16.01	16.41	16.82	17.24

NG Plant Inputs

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	Units	2009	Notes
Plant Capacity	MW	432.5	Same as Merrimack
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Heat rate	(MMBtu/MWh)	6.752	Assumptions to AEO 2009, Table 8.2 p. 89
FERC Capital Costs (approximate)			
Low Capital Costs	(2008\$/KW)	800	
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Midpoint Capital Costs	(2008\$/KW)	1,150	
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Midpoint Plant Cost	(2012\$, 000)	549,009	
Years to Recover (book)	Straight-line	30	
Tax Amortization	MACRS	20	
Fixed O&M	(2007\$/KW)	11.70	Assumptions to AEO 2009, Table 8.2 p. 89
Fixed O&M	(2012\$/KW)	13.24	
Variable O&M	(2007\$ / MWh)	2.00	Assumptions to AEO 2009, Table 8.2 p. 89
Variable O&M	(2012\$ / MWh)	2.26	
Emissions Rates (lbs/mmBtu)			
SO2		0.0006	per ISO-NE New England Electricity Scenario Analysis, Table 2-3 pg. 28
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Annual Emissions			
SO2	tons	6.34	
Nox	tons	106	
CO2	tons	1,267,042	

Natural Gas Prices as of 2009		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
EIA Natural Gas Prices (Delivered to NE utility)																					
AEO Prices2009	AEO 2009 Reference Case (2007\$ / mmbtu)		5.52	6.15	6.77	6.37	6.35	6.45	6.63	6.77	6.93	7.15	7.35	7.63	7.80	7.85	7.73	7.71	7.71	7.88	8.16
	AEO 2009 Reference Case (nominal\$ / mmbtu)		5.80	6.62	7.48	7.21	7.37	7.67	8.08	8.45	8.88	9.38	9.88	10.52	11.02	11.38	11.47	11.73	12.02	12.59	13.36
WM AEO Prices2009	EIA W/M Service Case (2007\$ / mmbtu)		5.51	6.07	6.68	7.55	7.59	7.76	8.20	8.29	8.50	8.67	8.80	9.01	8.98	9.02	9.02	9.13	9.21	9.50	9.69
	EIA W/M Service Case (nominal\$ / mmbtu)		5.79	6.53	7.37	8.54	8.80	9.23	9.99	10.36	10.87	11.37	11.83	12.42	12.69	13.06	13.38	13.89	14.36	15.19	15.88
NYMEX Natural Gas Futures																					
	March 2009 Futures Prices (nominal\$ / mmbtu)		4.54	5.89	6.51	6.72	6.85	6.92	6.99	7.15											
	Transportation Adders (per nominal\$ / mmbtu)		1.79	1.62	1.52	1.43	1.43	1.46	1.50	1.53											
	Futures Delivered Prices (nominal\$ / mmbtu)		6.33	7.51	8.02	8.14	8.28	8.39	8.49	8.69											
AEO-Futures Blend2009	Futures / AEO Blend (nominal\$ / mmbtu)		6.33	7.51	8.02	8.30	8.58	8.86	9.13	9.41	9.69	9.97	10.24	10.52	11.02	11.38	11.47	11.73	12.02	12.59	13.36
WM AEO-Futures Blend2009	Futures / W/M Blend (nominal\$ / mmbtu)		6.33	7.51	8.02	8.51	9.00	9.49	9.98	10.47	10.96	11.44	11.93	12.42	12.69	13.06	13.38	13.89	14.36	15.19	15.88
Futures Case2009	Futures Case (nominal\$ / mmbtu)		6.33	7.51	8.02	8.14	8.28	8.39	8.49	8.69	8.90	9.13	9.35	9.59	9.83	10.07	10.33	10.58	10.85	11.12	11.40

