

City of Berlin
Rebuttal Testimony of George E. Sansoucy, P.E.

Exhibit 1 -
Figure 1 of KEMA, Inc. Report on Transmission Cost
Allocations

Intentionally omitted as it is an oversized document and is available at
www.puc.nh.gov/TransmissionCommission.htm

City of Berlin
Rebuttal Testimony of George E. Sansoucy, P.E.

Exhibit 2 - PSNH Franchise Map

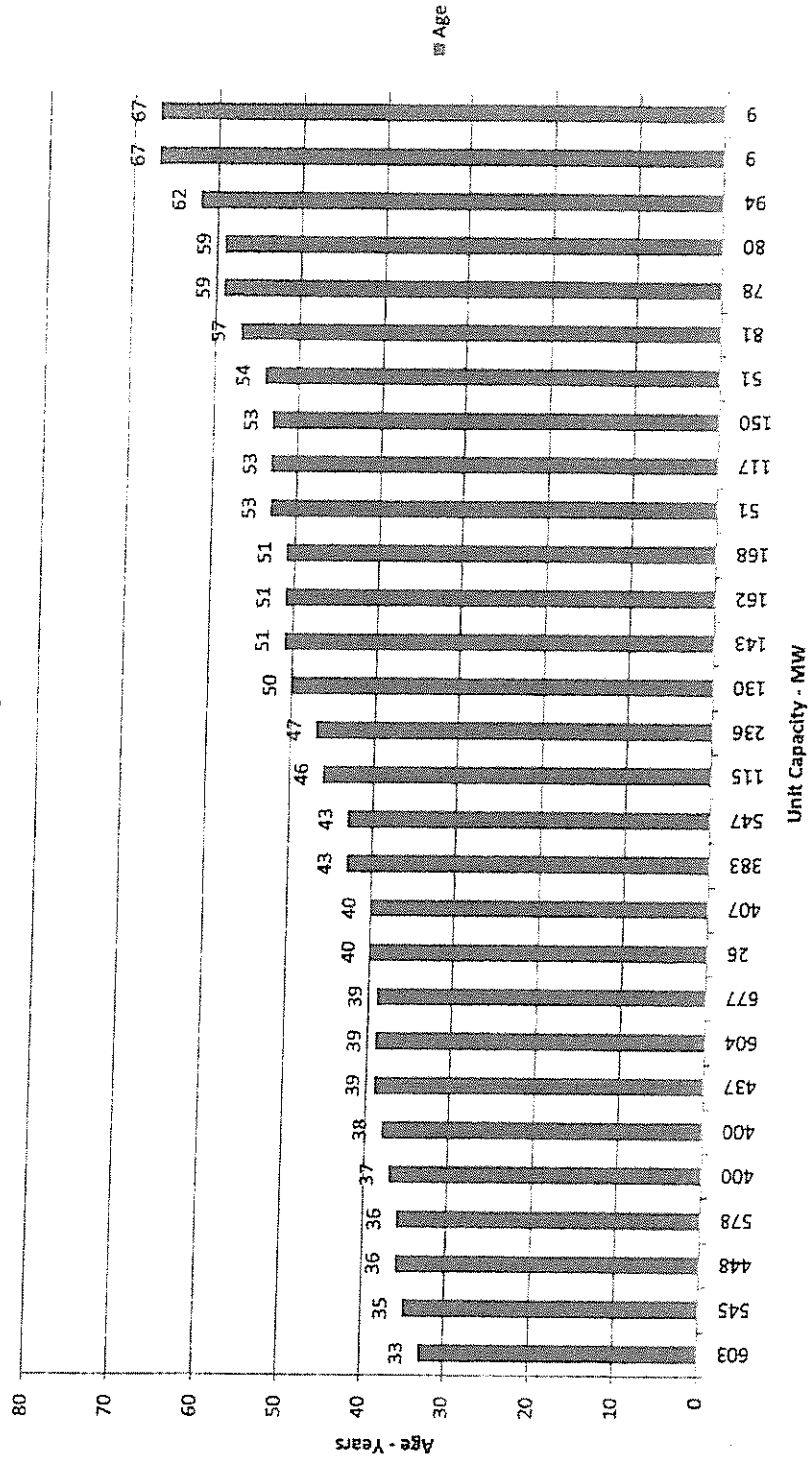
Intentionally omitted as it is an oversized map
which can be found on the PUC website.

Potential Power Plant Retirements in the New England ISO

Generator Name	Unit Type	Fuel Type	Capacity	Date of Original Construction	Unit Age as of 12/31/10
Yarmouth 4	F	Oil	603	1978	33
Canal 2	F	Oil/Gas	545	1976	35
Mystic 7	F	Oil/Gas	578	1975	36
New Haven Harbor	F	Oil/Gas	448	1975	36
Newington 1	F	Oil/Gas	400	1974	37
Middletown 4	F	Oil	400	1973	38
Salem Harbor 4	F	Oil	437	1972	39
Pilgrim Nuclear Power Station	N	Nuclear	677	1972	39
VT Yankee Nuclear Power Station	N	Nuclear	604	1972	39
Cleary 8	F	Oil	26	1971	40
Montville 6	F	Oil	407	1971	40
Bridgeport Harbor 3	F	Coal/Oil	383	1968	43
Canal 1	F	Oil	547	1968	43
Yarmouth 3	F	Oil	115	1965	46
Middletown 3	F	Oil/Gas	236	1964	47
Bridgeport Harbor 2	F	Oil	130	1961	50
Mt. Tom	F	Coal	143	1960	51
Norwalk Harbor 1	F	Oil	162	1960	51
Norwalk Harbor 2	F	Oil	168	1960	51
Middletown 2	F	Oil/Gas	117	1958	53
Salem Harbor 3	F	Coal	150	1958	53
Yarmouth 2	F	Oil	51	1958	53
Yarmouth 1	F	Oil	51	1957	54
Montville 5	F	Oil/Gas	81	1954	57
Salem Harbor 1	F	Coal	80	1952	59
Salem Harbor 2	F	Coal	78	1952	59
West Springfield 3	F	Oil/Gas	94	1949	62
Holyoke 6/Cabot 6	F	Oil/Gas	9	1944	67
Holyoke 8/Cabot 8	F	Oil/Gas	9	1944	67
TOTAL:			7,729		
TOTAL FOSSIL FUEL:			7,480		
TOTAL NUCLEAR:			249		

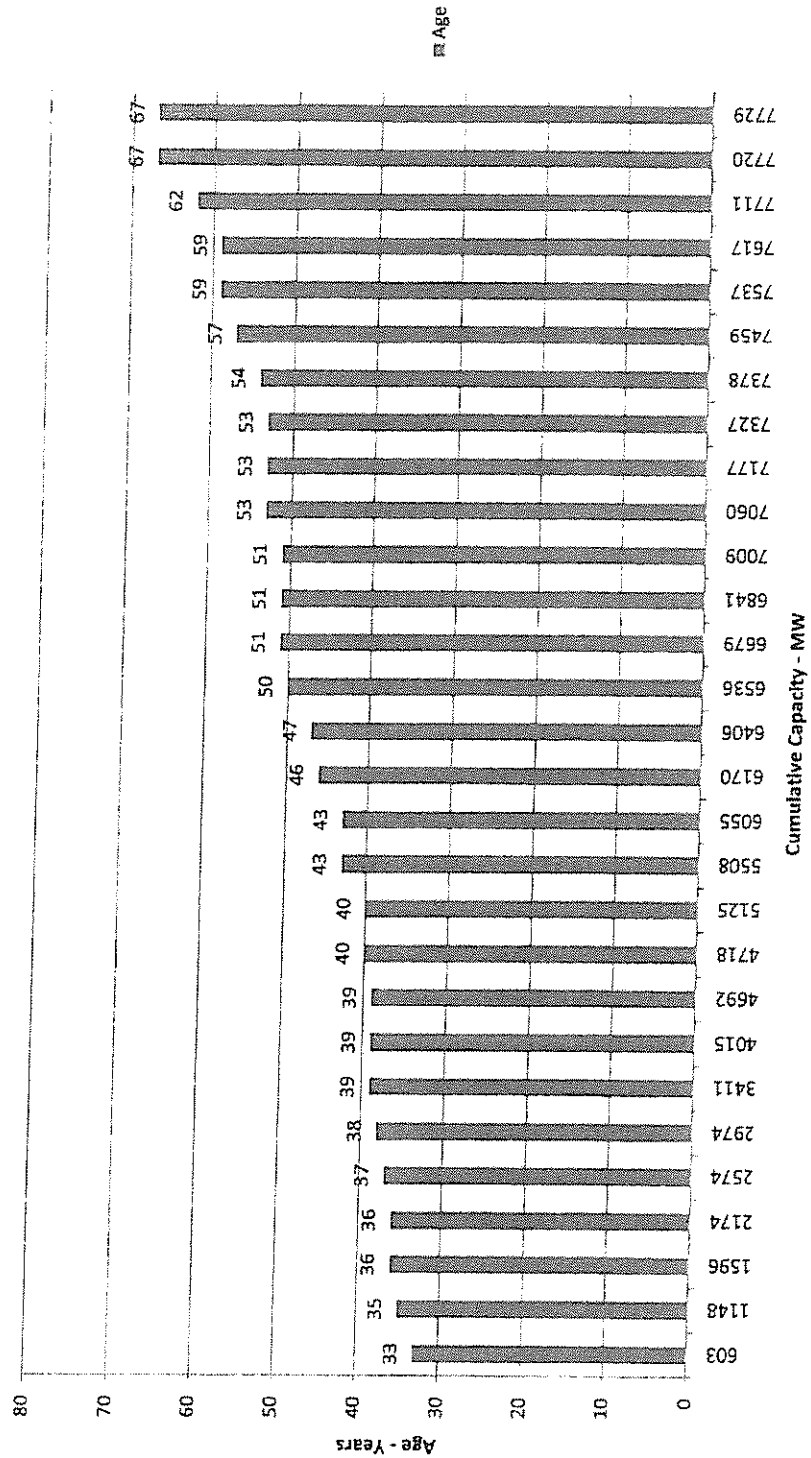
Source Material: New England ISO Seasonal Claimed Capacity Values as of 12/31/2010

EXHIBIT 4
Unit Capacity by Age
Which May be Retired



Docket: DE 10-195
 George E. Sansoucy, P.E., LLC
 January 2011

EXHIBIT 4-A
Cumulative Capacity by Age
Which May be Retired



Docket: DE 10-195
 George E. Sansoucy, P.E., LLC
 January 2011

EXHIBIT 5

TOTAL ISO NEW ENGLAND CAPACITY LOAD GROWTH (1% CAGR) 2010 TO 2034

ROW	YEAR	A	B	C	D	E	F	G
		ANNUAL PEAK LOAD	ANNUAL PEAK LOAD GROWTH	ANNUAL INCREASE	CUMULATIVE INCREASE	REQUIRED CAPACITY WITH RESERVE OF 15%	SUMMER CAPACITY SHORTFALL WITH 32,000 MW AVAILABLE	SUMMER CAPACITY SHORTFALL WITH 32,000 MW AVAILABLE AND 2.5% ANNUAL CLOSURE RATE (193MW) PER YEAR
1	2010	27,100	27,371	271	271	31,165	0	0
2	2011	27,371	27,645	274	545	31,477	0	0
3	2012	27,645	27,921	276	821	31,792	0	0
4	2013	27,921	28,200	279	1,100	32,109	109	302
5	2014	28,200	28,482	282	1,382	32,430	430	816
6	2015	28,482	28,767	285	1,667	32,754	754	1,333
7	2016	28,767	29,055	288	1,955	33,082	1,082	1,854
8	2017	29,055	29,346	291	2,245	33,413	1,413	2,378
9	2018	29,346	29,639	293	2,539	33,748	1,748	2,906
10	2019	29,639	29,935	296	2,835	34,085	2,085	3,436
11	2020	29,935	30,234	299	3,135	34,425	2,425	3,969
12	2021	30,234	30,536	302	3,437	34,769	2,769	4,506
13	2022	30,536	30,841	305	3,742	35,116	3,116	5,046
14	2023	30,841	31,149	308	4,051	35,467	3,467	5,590
15	2024	31,149	31,460	311	4,362	35,821	3,821	6,137
16	2025	31,460	31,775	315	4,677	36,179	4,179	6,688
17	2026	31,775	32,093	318	4,995	36,541	4,541	7,243
18	2027	32,093	32,414	321	5,315	36,907	4,907	7,802
19	2028	32,414	32,738	324	5,640	37,276	5,276	8,364
20	2029	32,738	33,065	327	5,967	37,649	5,649	8,930
21	2030	33,065	33,396	331	6,298	38,025	6,025	9,499
22	2031	33,396	33,730	334	6,632	38,405	6,405	10,072
23	2032	33,730	34,067	337	6,969	38,790	6,790	10,650
24	2033	34,067	34,408	341	7,310	39,177	7,177	11,230
25	2034	34,408	34,752	344	7,654	39,569	7,569	11,815

Energy/Peak = Generation - Net Flow Over the External Ties - Pumping Load
 External Ties: Imports are Negative, Exports are Positive

	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000
System Peak Load (MW)	25100	26111	26145	28130	26885	24116	24685	25422	25072	22005
Pumping Load	0	0	0	0	0	0	0	0	0	0
Generation	22785	25019	24351	26751	25071	22406	23062	22416	22761	19030
Net Flow Over External Ties	-2315	-1092	-1794	-3879	-1815	-1710	-1623	-3006	-2312	-2975
Imports	-2774	-1852	-2279	-2386	-2144	-2218	-2182	-3006	-2519	-2975
Exports	459	761	485	507	329	508	559	0	207	0
Month	August	June	August	August	July	August	August	August	August	June
Net Energy for Load (GWh)	126838	131753	134466	132087	136355	132517	130776	128027	126484	125394
Pumping Load	1963	2247	2403	2156	1819	1849	1861	2327	2589	2636
Total Generation (GWh)	119437	124749	130723	128050	131877	129459	127195	120539	114627	110198
Coal	14558	18396	19770	19375	20789	18922	17251	19097	19464	19769
Oil	895	1918	2877	2030	5652	5405	7414	4701	6901	9086
Gas	38163	38338	39367	39425	38583	38313	39894	36806	26262	16159
Oil/Gas	12487	12721	15791	13542	16567	15811	13248	12261	14831	15104
Hydro-Pump Storage	1419	1623	1744	1582	1339	1351	1348	1685	1870	1902
Hydro-Run/River & Pondage	8354	8466	6385	7498	6739	5826	6223	4650	3833	5565
Nuclear	36231	35547	36372	36923	34609	36514	34779	33945	33436	34345
Renewables	7331	7539	7818	7675	7599	7317	7038	7392	8030	8268
Net Flow Over External Ties										
Total	-9363	-9251	-6146	-6193	-6297	-4907	-5441	-9815	-14446	-17832
New Brunswick	-1569	-1285	-896	-1047	-1620	-1330	-1645	-2883	-3523	-3957
Hydro-Quebec	-10826	-9495	-7727	-6023	-4792	-3689	-4235	-7339	-7539	-11433
New York	3031	3529	2477	877	115	112	438	407	-3383	-2443
Imports										
Total	-15226	-14256	-12269	-10762	-10152	-8174	-9051	-17421	-15371	-19383
New Brunswick	-1798	-1615	-1173	-1252	-1663	-1487	-1784	-2869	-3225	-3958
Hydro-Quebec	-10833	-9621	-8337	-6486	-5445	-4394	-5022	-7558	-7596	-11436
New York	-2595	-3020	-2760	-3024	-3045	-2293	-2245	-1973	-4251	-3989
Exports										
Total	5863	5005	6122	4569	3855	3267	3610	2606	925	1550
New Brunswick	229	330	277	205	42	157	139	6	1	1
Hydro-Quebec	7	126	609	464	654	705	787	219	57	3
New York	5627	4548	5236	3901	3159	2405	2683	2380	867	1546

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Gas	38163	38338	39367	39425	38583	38313	39894	36806	26262	16159
Oil/Gas	12487	12721	15791	13542	16567	15811	13248	12261	14831	15104
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Hydro-Run/River & Pondage	8354	8466	6385	7498	6739	5826	6223	4650	3833	5565
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Renewables	7331	7539	7818	7675	7599	7317	7038	7392	8030	8268
Net Flow Over External Ties										
Total	-9363	-9251	-6146	-6193	-6297	-4907	-5441	-9815	-14446	-17832
New Brunswick	-1569	-1285	-896	-1047	-1620	-1330	-1645	-2883	-3523	-3957
Hydro-Quebec	-10826	-9495	-7727	-6023	-4792	-3689	-4235	-7339	-7539	-11433
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New Brunswick	-1798	-1615	-1173	-1252	-1663	-1487	-1784	-2869	-3225	-3958
Hydro-Quebec	-10833	-9621	-8337	-6486	-5445	-4394	-5022	-7558	-7596	-11436
New York	-2595	-3020	-2760	-3024	-3045	-2293	-2245	-1973	-4251	-3989
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Year to		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Date													
System Peak Load (MW)		19902	19289	18202	16356	22823	24237	27100	25681	25894	18274	18235	
Generation		19350	18424	16663	16038	21416	23359	26083	23164	23482	17545	17313	
Pumping Load		0	0	0	0	0	0	0	0	0	0	0	
Net Flow Over External Ties		-552	-865	-1539	-318	-1407	-878	-1017	-2517	-2412	-730	-922	
Imports		-1910	-1697	-2154	-1908	-2062	-1913	-1889	-3000	-2880	-1185	-1621	
Exports		1358	832	615	1590	655	1035	872	482	468	455	699	
System Minimum Load (MW)		10682	10626	9354	9155	9350	9787	10229	10298	9478	9324	9946	
Net Energy for Load (GWh)		119169	11569	10351	9373	10173	11230	13386	12258	10675	9949	10063	
Generation		115294	10813	9589	8658	9294	11147	13123	12175	10754	10216	10128	
Pumping Load		1053	195	168	123	85	67	66	54	24	39	72	
Net Flow Over External Ties		-4928	-951	-908	-838	-964	-150	-329	-136	56	229	-7	
Imports		-11640	-1485	-1505	-1347	-1321	-934	-1086	-878	-573	-485	-667	
Exports		6712	534	574	509	358	785	757	742	629	714	660	

(Energy/Peak = Generation - Net Flow Over the External Ties - Pumping Load)

Exhibit 8
Natural Gas Price and Volatility
Henry Hub Pricing
January 1990 Through October 2010

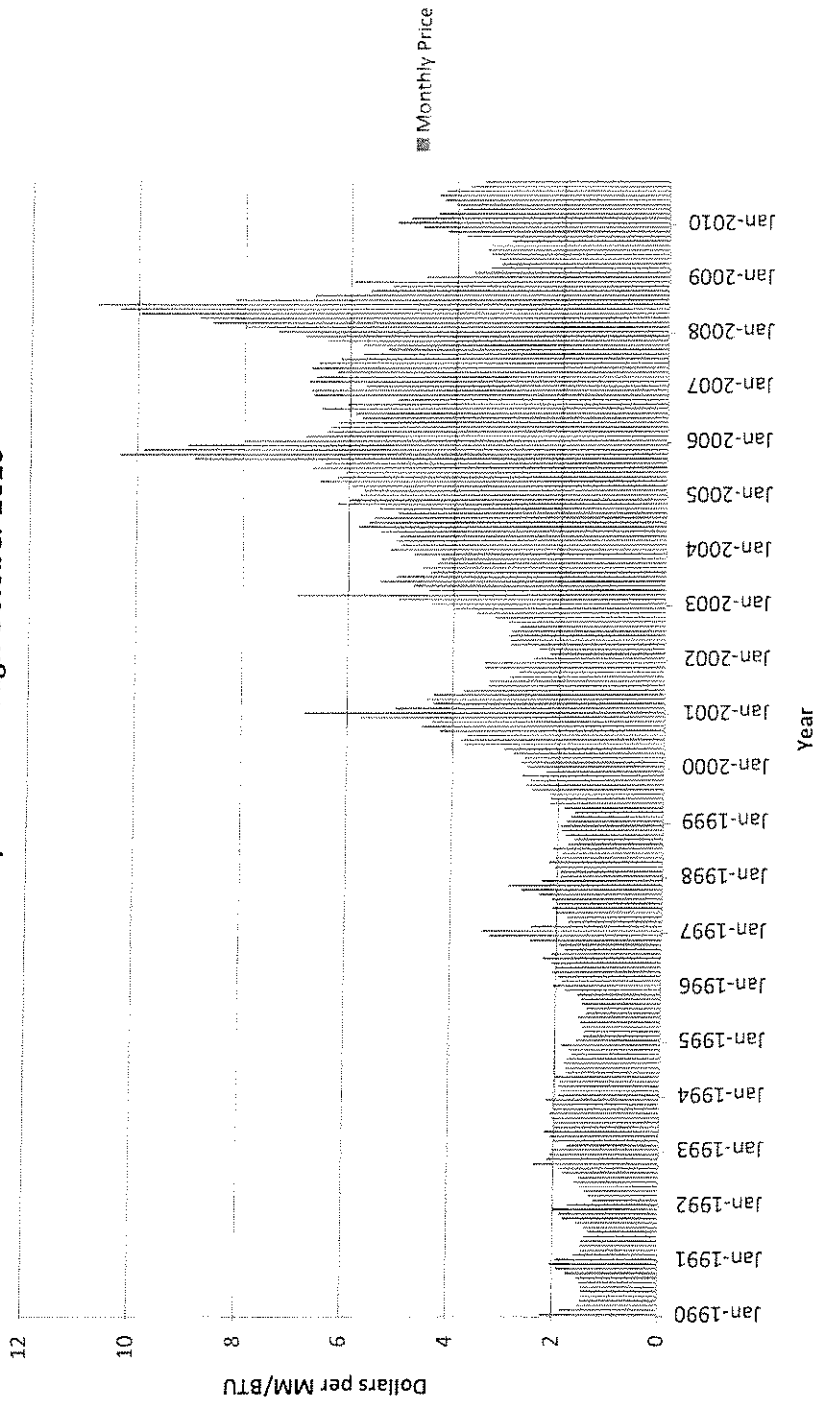


Exhibit 9

Laidlaw Berlin Biopower PPA and Market Price Forecast

Row	A	B	C	D	E	F	G	H	I	J	K	L	M
			Total Laidlaw Payment (\$/MWH)	Total Forecasted Market Price without Carbon (\$/MWH)	Total Forecasted Market Price with Carbon (\$/MWH)	Total Laidlaw Energy Price (\$/MWH)	Total Market Energy Price without Carbon	Total Market Energy Price with Carbon	Total Laidlaw Capacity Price (\$/kw-mo)	Total Market Capacity Price (\$/kw-mo)	Laidlaw Capacity Price (\$/MWH)	Market Capacity Price (\$/MWH)	Laidlaw REC Price (\$/MWH)
1	Year 1	2014	\$ 144.08	\$ 116.54	\$ 121.37	\$ 83.00	\$ 57.88	\$ 62.71	\$ 4.25	\$ 3.00	\$ 7.28	\$ 4.86	\$ 53.80
2	Year 2	2015	\$ 146.96	\$ 129.36	\$ 149.87	\$ 84.53	\$ 61.65	\$ 82.16	\$ 4.25	\$ 7.75	\$ 7.28	\$ 12.56	\$ 55.15
3	Year 3	2016	\$ 149.90	\$ 134.80	\$ 156.20	\$ 86.10	\$ 65.31	\$ 86.71	\$ 4.25	\$ 8.00	\$ 7.28	\$ 12.96	\$ 56.53
4	Year 4	2017	\$ 152.92	\$ 142.17	\$ 163.36	\$ 87.71	\$ 69.65	\$ 90.84	\$ 4.25	\$ 9.00	\$ 7.28	\$ 14.58	\$ 57.94
5	Year 5	2018	\$ 156.02	\$ 146.35	\$ 171.57	\$ 89.35	\$ 71.70	\$ 96.92	\$ 4.25	\$ 9.42	\$ 7.28	\$ 15.26	\$ 59.39
6	Year 6	2019	\$ 155.65	\$ 148.98	\$ 172.84	\$ 91.04	\$ 75.71	\$ 99.57	\$ 4.40	\$ 10.00	\$ 7.53	\$ 16.20	\$ 57.07
7	Year 7	2020	\$ 159.06	\$ 141.16	\$ 181.78	\$ 92.77	\$ 66.59	\$ 107.21	\$ 4.55	\$ 9.92	\$ 7.79	\$ 16.07	\$ 58.50
8	Year 8	2021	\$ 162.55	\$ 158.49	\$ 183.53	\$ 94.55	\$ 81.38	\$ 106.42	\$ 4.70	\$ 10.58	\$ 8.05	\$ 17.15	\$ 59.96
9	Year 9	2022	\$ 166.13	\$ 162.20	\$ 190.51	\$ 96.37	\$ 83.19	\$ 111.50	\$ 4.85	\$ 10.83	\$ 8.30	\$ 17.55	\$ 61.46
10	Year 10	2023	\$ 169.79	\$ 167.16	\$ 203.43	\$ 98.23	\$ 86.89	\$ 123.16	\$ 5.00	\$ 10.67	\$ 8.56	\$ 17.28	\$ 62.99
11	Year 11	2024	\$ 169.22	\$ 166.93	\$ 204.81	\$ 100.14	\$ 88.17	\$ 126.05	\$ 5.15	\$ 11.42	\$ 8.82	\$ 18.50	\$ 60.26
12	Year 12	2025	\$ 172.95	\$ 172.60	\$ 218.14	\$ 102.10	\$ 92.06	\$ 137.60	\$ 5.30	\$ 11.58	\$ 9.08	\$ 18.77	\$ 61.77
13	Year 13	2026	\$ 176.76	\$ 178.23	\$ 224.93	\$ 104.11	\$ 96.01	\$ 142.71	\$ 5.45	\$ 11.67	\$ 9.33	\$ 18.90	\$ 63.32
14	Year 14	2027	\$ 180.65	\$ 184.51	\$ 234.74	\$ 106.16	\$ 100.03	\$ 150.26	\$ 5.60	\$ 12.08	\$ 9.59	\$ 19.58	\$ 64.90
15	Year 15	2028	\$ 184.64	\$ 190.27	\$ 243.95	\$ 108.27	\$ 103.77	\$ 157.45	\$ 5.75	\$ 12.33	\$ 9.85	\$ 19.98	\$ 66.52
16	Year 16	2029	\$ 169.24	\$ 178.35	\$ 238.63	\$ 110.44	\$ 109.40	\$ 169.68	\$ 5.90	\$ 12.50	\$ 10.10	\$ 20.25	\$ 48.70
17	Year 17	2030	\$ 172.93	\$ 185.07	\$ 249.25	\$ 112.65	\$ 114.09	\$ 178.27	\$ 6.05	\$ 13.00	\$ 10.36	\$ 21.06	\$ 49.92
18	Year 18	2031	\$ 176.71	\$ 190.74	\$ 259.13	\$ 114.92	\$ 117.83	\$ 186.22	\$ 6.20	\$ 13.42	\$ 10.62	\$ 21.74	\$ 51.17
19	Year 19	2032	\$ 180.57	\$ 197.78	\$ 277.68	\$ 117.25	\$ 124.40	\$ 204.30	\$ 6.35	\$ 12.92	\$ 10.87	\$ 20.93	\$ 52.45
20	Year 20	2033	\$ 184.53	\$ 205.46	\$ 292.99	\$ 119.64	\$ 130.91	\$ 218.44	\$ 6.50	\$ 12.83	\$ 11.13	\$ 20.79	\$ 53.76
21													
22	Notes:												
23													
24													
25													

1) Assumes biomass fuel price of \$34/ton in 2014, escalating at 2.5% annually

2) Capacity payment (\$/MWH) assumes a facility capacity factor of 80%

3) REC prices assume the 2010 ACP price escalates at 2.5% annually

4) Energy price is exclusive of the PPA "Cumulative Reduction" provision

Exhibit 10

Gross Operating Revenue by Energy Pricing Scenario and Long Term Savings

A	B	C	D	E	F
Year	Base Case	Energy @ Ventyx Fall 2009	Capacity @ Ventyx Fall 2010	Combined Ventyx Energy & Capacity	Variance Between Base Case & Combined Ventyx Energy & Capacity (B minus E)
2014	\$62,038	\$55,331	\$61,168	\$54,461	\$7,577
2015	\$63,281	\$57,140	\$65,717	\$59,576	\$3,705
2016	\$64,555	\$59,744	\$67,165	\$62,354	\$2,201
2017	\$65,860	\$62,694	\$69,166	\$66,000	(\$140)
2018	\$67,194	\$65,695	\$70,790	\$69,291	(\$2,097)
2019	\$67,026	\$66,910	\$70,924	\$70,807	(\$3,781)
2020	\$68,495	\$69,834	\$72,231	\$73,569	(\$5,074)
2021	\$69,999	\$72,513	\$74,094	\$76,607	(\$6,608)
2022	\$71,537	\$75,472	\$75,702	\$79,636	(\$8,099)
2023	\$73,106	\$79,890	\$77,050	\$83,834	(\$10,729)
2024	\$72,856	\$83,493	\$77,218	\$87,855	(\$14,999)
2025	\$74,459	\$88,253	\$78,832	\$92,626	(\$18,167)
2026	\$76,101	\$92,425	\$80,428	\$96,752	(\$20,651)
2027	\$77,773	\$95,799	\$82,285	\$100,312	(\$22,539)
2028	\$79,488	\$99,341	\$84,070	\$103,923	(\$24,435)
2029	\$72,834	\$97,023	\$77,427	\$101,616	(\$28,783)
2030	\$74,420	\$102,063	\$79,257	\$106,901	(\$32,481)
2031	\$76,044	\$104,137	\$81,067	\$109,160	(\$33,116)
2032	\$77,708	\$108,720	\$82,278	\$113,290	(\$35,583)
2033	\$79,410	\$112,940	\$83,818	\$117,348	(\$37,938)
Totals	1,434,184	1,649,418	1,510,686	1,725,920	(\$291,736)