CONFIDENTIAL APPENDIX E

Net Present Value Inputs and Calculations

Net Present Value Analysis
Battery Energy Storage System
Net Present Cost

Inputs	
Nominal Capacity (MW)	10
Energy Storage Capacity (MWh)	40
Type	Lithium-Ion
Useful Life (years)	20
Total Installed Cost ($ x 1,000)	27,137
Augmentation Cost at Year 10 ($ x 1,000)	1,671
Year 1 Operation and Maintenance Cost ($ x 1,000)	214
Corporate Income Tax Rate	31%
Accelerated Capital Cost Allowance Rate	50%
Normal Capital Cost Allowance Rate	8%
Normal Capital Cost Allowance Plant	5%
Debt Ratio	60%
Equity Ratio	40%
Debt Interest Rate	4.91%
Equity Return Rate	9.35%
Weighted Cost of Capital/NPV Rate of Return	6.69%

Project Cashflows ($ x 1,000)						
Year	**Amort.**	**O&M**	**Debt Interest**	**Equity Return**	**Income Taxes**	**Total**
1	746	214	744	945	1,856	4,505
2	1,532	207	643	817	2,656	5,855
3	1,532	203	566	718	1,094	4,112
4	1,532	199	511	649	313	3,204
5	1,532	194	469	595	-78	2,712
6	1,532	190	432	548	-273	2,428
7	1,532	185	398	505	-371	2,249
8	1,532	185	365	463	-420	2,126
9	1,532	185	333	423	-444	2,029
10	1,532	185	302	383	-457	1,945
11	1,615	185	313	397	-238	2,273
12	1,699	185	277	352	-392	2,121
13	1,699	185	241	305	-456	1,974
14	1,699	185	205	260	-489	1,861
15	1,699	185	170	216	-505	1,766
16	1,699	185	135	172	-513	1,679
17	1,699	185	101	128	-517	1,596
18	1,699	185	66	84	-519	1,515
19	1,699	185	32	40	-520	1,436
20	1,699	185	-3	-4	-521	1,356
Total	**31,438**	**3,802**	**6,299**	**7,997**	**-795**	**48,741**
NPC	**17,579**	**2,233**	**4,494**	**5,705**	**2,461**	**32,472**

Net Present Value Analysis
Combustion Turbine with Synchronous Condenser
Net Present Cost

Inputs	
Nominal Capacity (MW)	50
Fuel Type	Diesel
Useful Life (years)	50
Total Installed Cost ($ x 1,000)	155,990
Year 1 Operation and Maintenance Cost ($ x 1,000)	598
Operation and Maintenance Inflation Rate	2%
Corporate Income Tax Rate	31%
Normal Capital Cost Allowance Rate	8%
Debt Ratio	60%
Equity Ratio	40%
Debt Interest Rate	4.91%
Equity Return Rate	9.35%
Weighted Cost of Capital/NPV Rate of Return	6.69%

Project Cost ($ x 1,000)						
Year	**Amort.**	**O & M**	**Debt Interest**	**Equity Return**	**Income Taxes**	**Total**
1	1,716	598	4,554	5,782	2,598	15,247
2	3,467	610	4,426	5,619	2,524	16,646
3	3,467	623	4,255	5,401	2,427	16,172
4	3,467	635	4,092	5,194	2,334	15,722
5	3,467	648	3,936	4,997	2,245	15,292
6	3,467	661	3,787	4,808	2,160	14,882
7	3,467	674	3,645	4,627	2,079	14,491
8	3,467	687	3,508	4,453	2,001	14,116
9	3,467	701	3,376	4,286	1,926	13,756
10	3,467	715	3,250	4,125	1,853	13,410
11	3,467	729	3,127	3,970	1,784	13,078
12	3,467	744	3,009	3,821	1,716	12,757
13	3,467	759	2,895	3,676	1,651	12,448
14	3,467	774	2,785	3,535	1,588	12,149
15	3,467	790	2,677	3,399	1,527	11,859
16	3,467	805	2,573	3,266	1,467	11,578
17	3,467	821	2,471	3,137	1,409	11,305
18	3,467	838	2,372	3,011	1,353	11,040
19	3,467	855	2,275	2,888	1,297	10,781
20	3,467	872	2,180	2,767	1,243	10,529
21	3,467	889	2,087	2,649	1,190	10,282
22	3,467	907	1,996	2,534	1,138	10,041
23	3,467	925	1,906	2,420	1,087	9,805
24	3,467	944	1,818	2,308	1,037	9,574
25	3,467	962	1,732	2,198	988	9,347

26	3,467	982	1,646	2,090	939	9,124
27	3,467	1,001	1,562	1,983	891	8,905
28	3,467	1,021	1,479	1,878	844	8,689
29	3,467	1,042	1,397	1,774	797	8,477
30	3,467	1,063	1,316	1,671	751	8,268
31	3,467	1,084	1,236	1,569	705	8,061
32	3,467	1,106	1,157	1,468	660	7,857
33	3,467	1,128	1,078	1,368	615	7,656
34	3,467	1,150	1,000	1,269	570	7,457
35	3,467	1,173	922	1,171	526	7,260
36	3,467	1,197	846	1,073	482	7,065
37	3,467	1,221	769	976	439	6,872
38	3,467	1,245	693	880	395	6,681
39	3,467	1,270	618	784	352	6,491
40	3,467	1,295	543	689	310	6,303
41	3,467	1,321	468	594	267	6,117
42	3,467	1,348	394	500	225	5,932
43	3,467	1,375	320	406	182	5,749
44	3,467	1,402	246	312	140	5,567
45	3,467	1,430	172	219	98	5,386
46	3,467	1,459	99	126	56	5,207
47	3,467	1,488	26	33	15	5,029
48	3,467	1,518	-47	-59	-27	4,851
49	3,467	1,548	-119	-152	-68	4,676
50	3,467	1,579	-192	-244	-109	4,501
Total	**171,588**	**50,612**	**92,358**	**117,250**	**52,678**	**484,487**
NPC	**51,392**	**12,182**	**45,569**	**57,850**	**25,991**	**192,984**

Net Present Value Analysis
Reciprocating Internal Combustion Engine Plant
Net Present Cost

Inputs	
Nominal Capacity (MW)	90
Fuel Type	Diesel
Useful Life (years)	50
Total Installed Cost ($ x 1,000)	243,869
Year 1 Operation and Maintenance Cost ($ x 1,000)	1,607
Operation and Maintenance Inflation Rate	2%
Corporate Income Tax Rate	31%
Normal Capital Cost Allowance Rate	8%
Debt Ratio	60%
Equity Ratio	40%
Debt Interest Rate	4.91%
Equity Return Rate	9.35%
Weighted Cost of Capital/NPV Rate of Return	6.69%

Project Cost ($ x 1,000)						
Year	**Amort.**	**O & M**	**Debt Interest**	**Equity Return**	**Income Taxes**	**Total**
1	2,683	1,607	7,120	9,039	4,061	24,509
2	5,420	1,639	6,919	8,784	3,946	26,708
3	5,420	1,672	6,652	8,444	3,794	25,981
4	5,420	1,705	6,397	8,121	3,648	25,291
5	5,420	1,739	6,153	7,812	3,510	24,634
6	5,420	1,774	5,921	7,516	3,377	24,008
7	5,420	1,809	5,698	7,233	3,250	23,410
8	5,420	1,846	5,484	6,962	3,128	22,839
9	5,420	1,882	5,278	6,701	3,011	22,292
10	5,420	1,920	5,080	6,450	2,898	21,767
11	5,420	1,958	4,889	6,207	2,789	21,264
12	5,420	1,998	4,705	5,973	2,684	20,779
13	5,420	2,038	4,526	5,746	2,582	20,312
14	5,420	2,078	4,353	5,527	2,483	19,861
15	5,420	2,120	4,185	5,313	2,387	19,426
16	5,420	2,162	4,022	5,106	2,294	19,004
17	5,420	2,206	3,863	4,904	2,203	18,595
18	5,420	2,250	3,708	4,707	2,115	18,198
19	5,420	2,295	3,556	4,514	2,028	17,813
20	5,420	2,341	3,408	4,326	1,944	17,438
21	5,420	2,387	3,262	4,142	1,861	17,072
22	5,420	2,435	3,120	3,961	1,779	16,715

23	5,420	2,484	2,980	3,783	1,700	16,367
24	5,420	2,533	2,843	3,609	1,621	16,026
25	5,420	2,584	2,707	3,437	1,544	15,692
26	5,420	2,636	2,574	3,268	1,468	15,365
27	5,420	2,689	2,443	3,101	1,393	15,045
28	5,420	2,742	2,313	2,936	1,319	14,730
29	5,420	2,797	2,185	2,773	1,246	14,421
30	5,420	2,853	2,058	2,612	1,174	14,117
31	5,420	2,910	1,932	2,453	1,102	13,818
32	5,420	2,968	1,808	2,296	1,031	13,523
33	5,420	3,028	1,685	2,139	961	13,233
34	5,420	3,088	1,563	1,984	892	12,947
35	5,420	3,150	1,442	1,831	823	12,665
36	5,420	3,213	1,322	1,678	754	12,387
37	5,420	3,277	1,202	1,527	686	12,112
38	5,420	3,343	1,084	1,376	618	11,841
39	5,420	3,410	966	1,226	551	11,572
40	5,420	3,478	848	1,077	484	11,307
41	5,420	3,547	732	929	417	11,045
42	5,420	3,618	615	781	351	10,786
43	5,420	3,691	500	634	285	10,529
44	5,420	3,765	384	488	219	10,276
45	5,420	3,840	269	342	154	10,025
46	5,420	3,917	155	197	88	9,776
47	5,420	3,995	41	52	23	9,530
48	5,420	4,075	-73	-93	-42	9,287
49	5,420	4,156	-187	-237	-107	9,046
50	5,420	4,240	-300	-381	-171	8,807
Total	**268,256**	**135,887**	**144,389**	**183,305**	**82,354**	**814,191**
NPC	**80,345**	**32,707**	**71,241**	**90,441**	**40,633**	**315,366**

Net Present Value Analysis
Standalone Synchronous Condenser
Net Present Cost

Inputs	
Nominal Capacity (MW)	50
Useful Life (years)	50
Total Installed Cost ($ x 1,000)	30,000
Year 1 Operation and Maintenance Cost ($ x 1,000)	30
Operation and Maintenance Inflation Rate	2%
Corporate Income Tax Rate	31%
Normal Capital Cost Allowance Rate	8%
Debt Ratio	60%
Equity Ratio	40%
Debt Interest Rate	4.91%
Equity Return Rate	9.35%
Weighted Cost of Capital/NPV Rate of Return	6.69%

Project Cost ($ x 1,000)						
Year	**Amort.**	**O & M**	**Debt Interest**	**Equity Return**	**Income Taxes**	**Total**
1	330	30	876	1,112	500	2,847
2	667	31	851	1,081	485	3,115
3	667	31	818	1,039	467	3,022
4	667	32	787	999	449	2,933
5	667	32	757	961	432	2,849
6	667	33	728	925	415	2,768
7	667	34	701	890	400	2,691
8	667	34	675	856	385	2,617
9	667	35	649	824	370	2,546
10	667	36	625	793	356	2,477
11	667	36	601	764	343	2,411
12	667	37	579	735	330	2,348
13	667	38	557	707	318	2,286
14	667	39	536	680	305	2,226
15	667	39	515	654	294	2,168
16	667	40	495	628	282	2,112
17	667	41	475	603	271	2,057
18	667	42	456	579	260	2,004
19	667	43	437	555	249	1,952
20	667	44	419	532	239	1,901
21	667	44	401	509	229	1,851
22	667	45	384	487	219	1,802
23	667	46	367	465	209	1,754
24	667	47	350	444	199	1,707
25	667	48	333	423	190	1,661

26	667	49	317	402	181	1,615
27	667	50	300	381	171	1,570
28	667	51	285	361	162	1,526
29	667	52	269	341	153	1,482
30	667	53	253	321	144	1,439
31	667	54	238	302	136	1,396
32	667	55	222	282	127	1,354
33	667	56	207	263	118	1,312
34	667	58	192	244	110	1,270
35	667	59	177	225	101	1,229
36	667	60	163	206	93	1,188
37	667	61	148	188	84	1,148
38	667	62	133	169	76	1,108
39	667	63	119	151	68	1,068
40	667	65	104	132	60	1,028
41	667	66	90	114	51	988
42	667	67	76	96	43	949
43	667	69	61	78	35	910
44	667	70	47	60	27	871
45	667	72	33	42	19	832
46	667	73	19	24	11	794
47	667	74	5	6	3	755
48	667	76	-9	-11	-5	717
49	667	77	-23	-29	-13	679
50	667	79	-37	-47	-21	641
Total	**33,000**	**2,531**	**17,762**	**22,550**	**10,131**	**85,974**
NPC	**9,884**	**609**	**8,764**	**11,126**	**4,999**	**35,381**

Net Present Value Analysis
BESS, CT4 and RICE
Avoided Capacity and Ancillary Service Costs

Inputs	
BESS Nominal Avoided Capacity (MW)	10
CT4 Nominal Avoided Capacity (MW)	50
RICE Nominal Avoided Capacity (MW)	90
BESS Load Following Assignment (MW)	2.2
BESS Spinning Reserve Assignment (MW)	7.8
BESS Load Following and Spinning Reserve Number of Months	9
Year 1-3 NB Power Firm Capacity Rate ($/MW-mo)	[redacted]
Year 1 NB Power Load Following Rate ($/MW-mo)	
Year 1 NB Power Spinning Reserve Rate ($/MW-mo)	
NB Power Costs Inflation Rate	
Weighted Cost of Capital/NPV Rate of Return	6.69%

	NB Power Rates ($/MW-yr)			Avoided Cost ($ x 1,000)					
Year	**Firm Capacity**	**Load Following**	**Spinning Reserve**	**BESS Capacity**	**CT4 Capacity**	**RICE Capacity**	**BESS Load Following**	**BESS Spinning Reserve**	**Total**
[redacted]									

[redacted]

[redacted]										
Total	**34,584,060**	**58,324,580**	**58,256,928**		**31,846**	**1,729,203**	**3,112,565**	**8,905**	**31,534**	**4,914,054**
NPC	**4,384,325**	**7,416,057**	**7,407,455**		**15,791**	**219,216**	**394,589**	**4,434**	**15,703**	**649,734**

Net Present Value Analysis
BESS, CT4 AND RICE
Summary

	Present Value (2024 $ x 1,000)			
	BESS	**CT4 with Synch. Cond.**	**RICE**	**Total**
Nominal Capacity (MW)	10	50	90	150
Useful Life	20	50	50	
Total Installed Cost ($ x 1,000)	27,137	155,990	243,869	426,995
Annual Fixed O&M in Year 1 ($ x 1,000)	214	598	1,607	2,419
Project Cost				
Amortization	17,579	51,392	80,345	149,316
Operating and Maintenance	2,233	12,182	32,707	47,121
Debt Interest	4,494	45,569	71,241	121,303
Equity Return	5,705	57,850	90,441	153,997
Income Taxes	2,461	25,991	40,633	69,084
Total Project Cost	32,472	192,984	315,366	540,822
Avoided Cost				
Off-Island Firm Capacity	15,791	219,216	394,589	629,596
Off-Island Load Following	4,434	0	0	4,434
Off-Island Spinning Reserve	15,703	0	0	15,703
Standalone Synchronous Condenser	0	35,381	0	35,381
Total Avoided Cost	35,928	254,597	394,589	685,115
Net Present Value	**3,456**	**61,613**	**79,223**	**144,293**
% Savings	***10%***	***24%***	***20%***	***21%***