

## **Appendix N**

### **Financial Pro-forma**

# Financial Pro-Forma @ P50 (w/out MassCEC Grant)

## Project Information:

Name Swampscott Middle School  
Client Town of Swampscott  
Location Swampscott  
MA  
MAI Job # 5247  
Prepared By DEG

## Key Assumptions:

WTG Manufacturer:  
WTG Faceplate (kW)  
WTG Hub Height (m)  
Blade Diameter (m)  
WTG Prod. (kWh/Year)  
WTG Capacity Factor

Elecon  
600  
60  
48  
1,100,912  
0.21

Total Project Cost  
Down Payment (%)  
Down Payment  
Loan Amount  
O+M Cost (%Energy Prod.)  
Fed Tax Rate (%)

\$2,200,000  
100  
-\$2,200,000  
\$0  
18  
0

Current Value of offset Electricity  
Value of Renewable Energy Certificate, \$/kWh  
Net Present Value Based on Discount Rate of:  
Annual Inflation on Utility Rates:  
Interest Rate on 20-yr Loan:  
Annual Inflation Rate on Operation and Maint.

\$0.13  
0.03  
6.00%  
2.50%  
5.00%  
2.50%

					Project Revenues			Project Costs		Project Cash Flows		
Project Year	Fiscal Year	Average Rates (\$/kWh)	Annual Energy Production	Capital Payment	Annual Revenue from Production	REC Revenue	Depreciation	Total O+M Cost per Year	Annual Loan Principal and Interest	Cash Flow	Cumulative Cash Flow	Net Present Value for Current Year
1	2011		0	-\$2,200,000	\$ -	\$0	\$0		\$0.00	-\$2,200,000.00	-\$2,200,000.00	-\$2,200,000
2	2012	\$ 0.1324	1,100,912		\$ 145,727.72	\$33,027	\$0	-\$26,231	\$0.00	\$152,524.09	-\$2,047,475.91	\$135,746
3	2013	\$ 0.1357	1,100,912		\$ 149,370.91	\$33,027	\$0	-\$26,887	\$0.00	\$155,511.51	-\$1,891,964.40	\$130,570
4	2014	\$ 0.1391	1,100,912		\$ 153,105.19	\$33,027	\$0	-\$27,559	\$0.00	\$158,573.61	-\$1,733,390.78	\$125,605
5	2015	\$ 0.1425	1,100,912		\$ 156,932.82	\$33,027	\$0	-\$28,248	\$0.00	\$161,712.27	-\$1,571,678.51	\$120,841
6	2016	\$ 0.1461	1,100,912		\$ 160,856.14	\$33,027	\$0	-\$28,954	\$0.00	\$164,929.39	-\$1,406,749.12	\$116,269
7	2017	\$ 0.1498	1,100,912		\$ 164,877.54	\$33,027		-\$29,678	\$0.00	\$168,226.94	-\$1,238,522.18	\$111,881
8	2018	\$ 0.1535	1,100,912		\$ 168,999.48	\$33,027		-\$30,420	\$0.00	\$171,606.93	-\$1,066,915.25	\$107,668
9	2019	\$ 0.1573	1,100,912		\$ 173,224.47	\$33,027		-\$31,180	\$0.00	\$175,071.42	-\$891,843.82	\$103,625
10	2020	\$ 0.1613	1,100,912		\$ 177,555.08	\$33,027		-\$31,960	\$0.00	\$178,622.52	-\$713,221.30	\$99,742
11	2021	\$ 0.1653	1,100,912		\$ 181,993.96	\$33,027		-\$32,759	\$0.00	\$182,262.40	-\$530,958.90	\$96,014
12	2022	\$ 0.1694	1,100,912		\$ 186,543.80	\$33,027		-\$33,578	\$0.00	\$185,993.28	-\$344,965.62	\$92,433
13	2023	\$ 0.1737	1,100,912		\$ 191,207.40	\$33,027		-\$34,417	\$0.00	\$189,817.43	-\$155,148.19	\$88,994
14	2024	\$ 0.1780	1,100,912		\$ 195,987.58	\$33,027		-\$35,278	\$0.00	\$193,737.18	\$38,588.99	\$85,690
15	2025	\$ 0.1825	1,100,912		\$ 200,887.27	\$33,027		-\$36,160	\$0.00	\$197,754.92	\$236,343.91	\$82,516
16	2026	\$ 0.1870	1,100,912		\$ 205,909.46	\$33,027		-\$37,064	\$0.00	\$201,873.11	\$438,217.03	\$79,467
17	2027	\$ 0.1917	1,100,912		\$ 211,057.19	\$33,027		-\$37,990	\$0.00	\$206,094.26	\$644,311.28	\$76,536
18	2028	\$ 0.1965	1,100,912		\$ 216,333.62	\$33,027		-\$38,940	\$0.00	\$210,420.93	\$854,732.21	\$73,720
19	2029	\$ 0.2014	1,100,912		\$ 221,741.96	\$33,027		-\$39,914	\$0.00	\$214,855.77	\$1,069,587.98	\$71,013
20	2030	\$ 0.2065	1,100,912		\$ 227,285.51	\$33,027		-\$40,911	\$0.00	\$219,401.48	\$1,288,989.46	\$68,410
21	2031	\$ 0.2116	1,100,912		\$ 232,967.65	\$33,027		-\$41,934	0	\$224,060.83	\$1,513,050.29	\$65,909
22	2032	\$ 0.2169	1,100,912		\$ 238,791.84	\$33,027		-\$42,983	0	\$228,836.67	\$1,741,886.96	\$63,503
23	2033	\$ 0.2223	1,100,912		\$ 244,761.64	\$33,027		-\$44,057	0	\$233,731.90	\$1,975,618.86	\$61,190
24	2034	\$ 0.2279	1,100,912		\$ 250,880.68	\$33,027		-\$45,159	0	\$238,749.52	\$2,214,368.38	\$58,966
25	2035	\$ 0.2336	1,100,912		\$ 257,152.69	\$33,027		-\$46,287	0	\$243,892.57	\$2,458,260.95	\$56,827
26	2036	\$ 0.2394	1,100,912		\$ 263,581.51	\$33,027		-\$47,445	0	\$249,164.20	\$2,707,425.15	\$54,769
27	2037	\$ 0.2454	1,100,912		\$ 270,171.05	\$33,027		-\$48,631	0	\$254,567.62	\$2,961,992.77	\$52,789
28	2038	\$ 0.2515	1,100,912		\$ 276,925.33	\$33,027		-\$49,847	0	\$260,106.13	\$3,222,098.90	\$50,885
29	2039	\$ 0.2578	1,100,912		\$ 283,848.46	\$33,027		-\$51,093	0	\$265,783.10	\$3,487,881.99	\$49,052
30	2040	\$ 0.2643	1,100,912		\$ 290,944.67	\$33,027		-\$52,370	0	\$271,601.99	\$3,759,483.98	\$47,289

## Financial Calculations

IRR  
NPV  
5 Years  
10 Years  
15 Years  
20 Years

Years to Postive Return 13

-\$1,687,238  
-\$1,148,054  
-\$702,407  
-\$333,262

# Financial Pro-Forma @ P50 (w/ MassCEC Grant)

## Project Information:

Name Swampscott Middle School  
Client Town of Swampscott  
Location Swampscott  
MA  
MAI Job # 5247  
Prepared By DEG

## Key Assumptions:

WTG Manufacturer:  
WTG Faceplate (kW)  
WTG Hub Height (m)  
Blade Diameter (m)  
WTG Prod. (kWh/Year)  
WTG Capacity Factor

Elecon  
600  
60  
48  
1,100,912  
0.21

Total Project Cost  
Down Payment (%)  
Down Payment  
Loan Amount  
O+M Cost (%Energy Prod.)  
Fed Tax Rate (%)

\$2,200,000  
100  
-\$1,879,500  
\$0  
18  
0

Current Value of offset Electricity  
Value of Renewable Energy Certificate, \$/kWh  
Net Present Value Based on Discount Rate of:  
Annual Inflation on Utility Rates:  
Interest Rate on 20-yr Loan:  
Annual Inflation Rate on Operation and Maint.

\$0.13  
0.03  
6.00%  
2.50%  
5.00%  
2.50%

					Project Revenues			Project Costs		Project Cash Flows		
Project Year	Fiscal Year	Average Rates (\$/kWh)	Annual Energy Production	Capital Payment	Annual Revenue from Production	REC Revenue	Depreciation	Total O+M Cost per Year	Annual Loan Principal and Interest	Cash Flow	Cumulative Cash Flow	Net Present Value for Current Year
1	2011		0	-\$1,879,500	\$ -	\$0	\$0		\$0.00	-\$1,879,500.00	-\$1,879,500.00	-\$1,879,500
2	2012	\$ 0.1324	1,100,912		\$ 145,727.72	\$33,027	\$0	-\$26,231	\$0.00	\$152,524.09	-\$1,726,975.91	\$135,746
3	2013	\$ 0.1357	1,100,912		\$ 149,370.91	\$33,027	\$0	-\$26,887	\$0.00	\$155,511.51	-\$1,571,464.40	\$130,570
4	2014	\$ 0.1391	1,100,912		\$ 153,105.19	\$33,027	\$0	-\$27,559	\$0.00	\$158,573.61	-\$1,412,890.78	\$125,605
5	2015	\$ 0.1425	1,100,912		\$ 156,932.82	\$33,027	\$0	-\$28,248	\$0.00	\$161,712.27	-\$1,251,178.51	\$120,841
6	2016	\$ 0.1461	1,100,912		\$ 160,856.14	\$33,027	\$0	-\$28,954	\$0.00	\$164,929.39	-\$1,086,249.12	\$116,269
7	2017	\$ 0.1498	1,100,912		\$ 164,877.54	\$33,027		-\$29,678	\$0.00	\$168,226.94	-\$918,022.18	\$111,881
8	2018	\$ 0.1535	1,100,912		\$ 168,999.48	\$33,027		-\$30,420	\$0.00	\$171,606.93	-\$746,415.25	\$107,668
9	2019	\$ 0.1573	1,100,912		\$ 173,224.47	\$33,027		-\$31,180	\$0.00	\$175,071.42	-\$571,343.82	\$103,625
10	2020	\$ 0.1613	1,100,912		\$ 177,555.08	\$33,027		-\$31,960	\$0.00	\$178,622.52	-\$392,721.30	\$99,742
11	2021	\$ 0.1653	1,100,912		\$ 181,993.96	\$33,027		-\$32,759	\$0.00	\$182,262.40	-\$210,458.90	\$96,014
12	2022	\$ 0.1694	1,100,912		\$ 186,543.80	\$33,027		-\$33,578	\$0.00	\$185,993.28	-\$24,465.62	\$92,433
13	2023	\$ 0.1737	1,100,912		\$ 191,207.40	\$33,027		-\$34,417	\$0.00	\$189,817.43	\$165,351.81	\$88,994
14	2024	\$ 0.1780	1,100,912		\$ 195,987.58	\$33,027		-\$35,278	\$0.00	\$193,737.18	\$359,088.99	\$85,690
15	2025	\$ 0.1825	1,100,912		\$ 200,887.27	\$33,027		-\$36,160	\$0.00	\$197,754.92	\$556,843.91	\$82,516
16	2026	\$ 0.1870	1,100,912		\$ 205,909.46	\$33,027		-\$37,064	\$0.00	\$201,873.11	\$758,717.03	\$79,467
17	2027	\$ 0.1917	1,100,912		\$ 211,057.19	\$33,027		-\$37,990	\$0.00	\$206,094.26	\$964,811.28	\$76,536
18	2028	\$ 0.1965	1,100,912		\$ 216,333.62	\$33,027		-\$38,940	\$0.00	\$210,420.93	\$1,175,232.21	\$73,720
19	2029	\$ 0.2014	1,100,912		\$ 221,741.96	\$33,027		-\$39,914	\$0.00	\$214,855.77	\$1,390,087.98	\$71,013
20	2030	\$ 0.2065	1,100,912		\$ 227,285.51	\$33,027		-\$40,911	\$0.00	\$219,401.48	\$1,609,489.46	\$68,410
21	2031	\$ 0.2116	1,100,912		\$ 232,967.65	\$33,027		-\$41,934	0	\$224,060.83	\$1,833,550.29	\$65,909
22	2032	\$ 0.2169	1,100,912		\$ 238,791.84	\$33,027		-\$42,983	0	\$228,836.67	\$2,062,386.96	\$63,503
23	2033	\$ 0.2223	1,100,912		\$ 244,761.64	\$33,027		-\$44,057	0	\$233,731.90	\$2,296,118.86	\$61,190
24	2034	\$ 0.2279	1,100,912		\$ 250,880.68	\$33,027		-\$45,159	0	\$238,749.52	\$2,534,868.38	\$58,966
25	2035	\$ 0.2336	1,100,912		\$ 257,152.69	\$33,027		-\$46,287	0	\$243,892.57	\$2,778,760.95	\$56,827
26	2036	\$ 0.2394	1,100,912		\$ 263,581.51	\$33,027		-\$47,445	0	\$249,164.20	\$3,027,925.15	\$54,769
27	2037	\$ 0.2454	1,100,912		\$ 270,171.05	\$33,027		-\$48,631	0	\$254,567.62	\$3,282,492.77	\$52,789
28	2038	\$ 0.2515	1,100,912		\$ 276,925.33	\$33,027		-\$49,847	0	\$260,106.13	\$3,542,598.90	\$50,885
29	2039	\$ 0.2578	1,100,912		\$ 283,848.46	\$33,027		-\$51,093	0	\$265,783.10	\$3,808,381.99	\$49,052
30	2040	\$ 0.2643	1,100,912		\$ 290,944.67	\$33,027		-\$52,370	0	\$271,601.99	\$4,079,983.98	\$47,289

## Financial Calculations

IRR	NPV	Years to Postive Return	12
5 Years	-\$1,366,738		
10 Years	-4% -\$827,554		
15 Years	3% -\$381,907		
20 Years	7% -\$12,762		

# PPA Financial Pro-Forma @ P50 (PPA)

## Project Information:

Name Swampscott Middle School  
Client Town of Swampscott  
Location Swampscott  
MA  
MAI Job # 5247  
Prepared By DEG

## Key Assumptions:

WTG Manufacturer:  
WTG Faceplate (kW)  
WTG Hub Height (m)  
Blade Diameter (m)  
WTG Prod. (kWh/Year)  
WTG Capacity Factor

Elecon  
600  
60  
48  
1,101,912  
0.21

Total Project Cost  
Down Payment (%)  
Down Payment  
Loan Amount  
O+M Cost (%Energy Prod.)  
Fed Tax Rate (%)

\$0.00  
100  
\$0  
\$0  
18  
0

Current Value of offset Electricity  
Value of Renewable Energy Certificate, \$/kWh  
Net Present Value Based on Discount Rate of:  
Annual Inflation on Utility Rates:  
Interest Rate on 20-yr Loan:  
Annual Inflation Rate on Operation and Maint.

\$0.01  
0  
6.00%  
0.00%  
5.00%  
2.50%

					Project Revenues			Project Costs		Project Cash Flows		
Project Year	Fiscal Year	Average Rates (\$/kWh)	Annual Energy Production	Capital Payment	Annual Revenue from Production	REC Revenue	Depreciation	Total O+M Cost per Year	Annual Loan Principal and Interest	Cash Flow	Cumulative Cash Flow	Net Present Value for Current Year
1	2011		0	\$0	\$ -	\$0	\$0		\$0.00	\$0.00	\$0.00	\$0
2	2012	\$ 0.0130	1,101,912		\$ 14,324.86	\$0	\$0	-\$2,578	\$0.00	\$11,746.38	\$11,746.38	\$10,454
3	2013	\$ 0.0130	1,101,912		\$ 14,324.86	\$0	\$0	-\$2,643	\$0.00	\$11,681.92	\$23,428.30	\$9,808
4	2014	\$ 0.0130	1,101,912		\$ 14,324.86	\$0	\$0	-\$2,709	\$0.00	\$11,615.85	\$35,044.15	\$9,201
5	2015	\$ 0.0130	1,101,912		\$ 14,324.86	\$0	\$0	-\$2,777	\$0.00	\$11,548.12	\$46,592.27	\$8,629
6	2016	\$ 0.0130	1,101,912		\$ 14,324.86	\$0	\$0	-\$2,846	\$0.00	\$11,478.70	\$58,070.97	\$8,092
7	2017	\$ 0.0130	1,101,912		\$ 14,324.86	\$0		-\$2,917	\$0.00	\$11,407.55	\$69,478.52	\$7,587
8	2018	\$ 0.0130	1,101,912		\$ 14,324.86	\$0		-\$2,990	\$0.00	\$11,334.62	\$80,813.14	\$7,111
9	2019	\$ 0.0130	1,101,912		\$ 14,324.86	\$0		-\$3,065	\$0.00	\$11,259.86	\$92,073.00	\$6,665
10	2020	\$ 0.0130	1,101,912		\$ 14,324.86	\$0		-\$3,142	\$0.00	\$11,183.24	\$103,256.24	\$6,245
11	2021	\$ 0.0130	1,101,912		\$ 14,324.86	\$0		-\$3,220	\$0.00	\$11,104.70	\$114,360.93	\$5,850
12	2022	\$ 0.0130	1,101,912		\$ 14,324.86	\$0		-\$3,301	\$0.00	\$11,024.19	\$125,385.12	\$5,479
13	2023	\$ 0.0130	1,101,912		\$ 14,324.86	\$0		-\$3,383	\$0.00	\$10,941.67	\$136,326.80	\$5,130
14	2024	\$ 0.0130	1,101,912		\$ 14,324.86	\$0		-\$3,468	\$0.00	\$10,857.10	\$147,183.89	\$4,802
15	2025	\$ 0.0130	1,101,912		\$ 14,324.86	\$0		-\$3,554	\$0.00	\$10,770.40	\$157,954.29	\$4,494
16	2026	\$ 0.0130	1,101,912		\$ 14,324.86	\$0		-\$3,643	\$0.00	\$10,681.54	\$168,635.83	\$4,205
17	2027	\$ 0.0130	1,101,912		\$ 14,324.86	\$0		-\$3,734	\$0.00	\$10,590.46	\$179,226.29	\$3,933
18	2028	\$ 0.0130	1,101,912		\$ 14,324.86	\$0		-\$3,828	\$0.00	\$10,497.10	\$189,723.39	\$3,678
19	2029	\$ 0.0130	1,101,912		\$ 14,324.86	\$0		-\$3,923	\$0.00	\$10,401.40	\$200,124.79	\$3,438
20	2030	\$ 0.0130	1,101,912		\$ 14,324.86	\$0		-\$4,022	\$0.00	\$10,303.32	\$210,428.10	\$3,213
21	2031	\$ 0.0130	1,101,912		\$ 14,324.86	\$0		-\$4,122	0	\$10,202.78	\$220,630.88	\$3,001
22	2032	\$ 0.0130	1,101,912		\$ 14,324.86	\$0		-\$4,225	0	\$10,099.73	\$230,730.61	\$2,803
23	2033	\$ 0.0130	1,101,912		\$ 14,324.86	\$0		-\$4,331	0	\$9,994.10	\$240,724.71	\$2,616
24	2034	\$ 0.0130	1,101,912		\$ 14,324.86	\$0		-\$4,439	0	\$9,885.83	\$250,610.53	\$2,442
25	2035	\$ 0.0130	1,101,912		\$ 14,324.86	\$0		-\$4,550	0	\$9,774.85	\$260,385.39	\$2,278
26	2036	\$ 0.0130	1,101,912		\$ 14,324.86	\$0		-\$4,664	0	\$9,661.10	\$270,046.49	\$2,124
27	2037	\$ 0.0130	1,101,912		\$ 14,324.86	\$0		-\$4,780	0	\$9,544.51	\$279,591.00	\$1,979
28	2038	\$ 0.0130	1,101,912		\$ 14,324.86	\$0		-\$4,900	0	\$9,425.00	\$289,016.00	\$1,844
29	2039	\$ 0.0130	1,101,912		\$ 14,324.86	\$0		-\$5,022	0	\$9,302.50	\$298,318.50	\$1,717
30	2040	\$ 0.0130	1,101,912		\$ 14,324.86	\$0		-\$5,148	0	\$9,176.95	\$307,495.45	\$1,598

## Financial Calculations

IRR		NPV	Years to Postive Return		0
5 Years		\$38,093			
10 Years	#DIV/0!	\$73,792			
15 Years	#DIV/0!	\$99,547			
20 Years	#DIV/0!	\$118,013			

# Financial Pro-Forma @ P50 (w/out MassCEC Grant)

## Project Information:

Name Swampscott Middle School  
Client Town of Swampscott  
Location Swampscott  
MA  
MAI Job # 5247  
Prepared By DEG

## Key Assumptions:

WTG Manufacturer:  
WTG Faceplate (kW)  
WTG Hub Height (m)  
Blade Diameter (m)  
WTG Prod. (kWh/Year)  
WTG Capacity Factor

Unison  
750  
60  
54  
1,317,973  
0.20  
Total Project Cost  
Down Payment (%)  
Down Payment  
Loan Amount  
O+M Cost (%Energy Prod.)  
Fed Tax Rate (%)

\$2,800,000  
100  
-\$2,800,000  
\$0  
18  
0  
Current Value of offset Electricity  
Value of Renewable Energy Certificate, \$/kWh  
Net Present Value Based on Discount Rate of:  
Annual Inflation on Utility Rates:  
Interest Rate on 20-yr Loan:  
Annual Inflation Rate on Operation and Maint.

\$0.13  
0.03  
6.00%  
2.50%  
5.00%  
2.50%

					Project Revenues			Project Costs		Project Cash Flows		
Project Year	Fiscal Year	Average Rates (\$/kWh)	Annual Energy Production	Capital Payment	Annual Revenue from Production	REC Revenue	Depreciation	Total O+M Cost per Year	Annual Loan Principal and Interest	Cash Flow	Cumulative Cash Flow	Net Present Value for Current Year
1	2011		0	-\$2,800,000	\$ -	\$0	\$0		\$0.00	-\$2,800,000.00	-\$2,800,000.00	-\$2,800,000
2	2012	\$ 0.1324	1,317,973		\$ 174,460.09	\$39,539	\$0	-\$31,403	\$0.00	\$182,596.46	-\$2,617,403.54	\$162,510
3	2013	\$ 0.1357	1,317,973		\$ 178,821.59	\$39,539	\$0	-\$32,188	\$0.00	\$186,172.89	-\$2,431,230.65	\$156,314
4	2014	\$ 0.1391	1,317,973		\$ 183,292.13	\$39,539	\$0	-\$32,993	\$0.00	\$189,838.73	-\$2,241,391.91	\$150,370
5	2015	\$ 0.1425	1,317,973		\$ 187,874.43	\$39,539	\$0	-\$33,817	\$0.00	\$193,596.22	-\$2,047,795.69	\$144,666
6	2016	\$ 0.1461	1,317,973		\$ 192,571.29	\$39,539	\$0	-\$34,663	\$0.00	\$197,447.65	-\$1,850,348.04	\$139,193
7	2017	\$ 0.1498	1,317,973		\$ 197,385.57	\$39,539		-\$35,529	\$0.00	\$201,395.36	-\$1,648,952.68	\$133,939
8	2018	\$ 0.1535	1,317,973		\$ 202,320.21	\$39,539		-\$36,418	\$0.00	\$205,441.77	-\$1,443,510.91	\$128,897
9	2019	\$ 0.1573	1,317,973		\$ 207,378.22	\$39,539		-\$37,328	\$0.00	\$209,589.33	-\$1,233,921.58	\$124,056
10	2020	\$ 0.1613	1,317,973		\$ 212,562.67	\$39,539		-\$38,261	\$0.00	\$213,840.58	-\$1,020,081.00	\$119,407
11	2021	\$ 0.1653	1,317,973		\$ 217,876.74	\$39,539		-\$39,218	\$0.00	\$218,198.12	-\$801,882.88	\$114,944
12	2022	\$ 0.1694	1,317,973		\$ 223,323.66	\$39,539		-\$40,198	\$0.00	\$222,664.59	-\$579,218.29	\$110,657
13	2023	\$ 0.1737	1,317,973		\$ 228,906.75	\$39,539		-\$41,203	\$0.00	\$227,242.73	-\$351,975.57	\$106,540
14	2024	\$ 0.1780	1,317,973		\$ 234,629.42	\$39,539		-\$42,233	\$0.00	\$231,935.31	-\$120,040.25	\$102,585
15	2025	\$ 0.1825	1,317,973		\$ 240,495.16	\$39,539		-\$43,289	\$0.00	\$236,745.22	\$116,704.97	\$98,786
16	2026	\$ 0.1870	1,317,973		\$ 246,507.53	\$39,539		-\$44,371	\$0.00	\$241,675.37	\$358,380.33	\$95,135
17	2027	\$ 0.1917	1,317,973		\$ 252,670.22	\$39,539		-\$45,481	\$0.00	\$246,728.77	\$605,109.11	\$91,626
18	2028	\$ 0.1965	1,317,973		\$ 258,986.98	\$39,539		-\$46,618	\$0.00	\$251,908.51	\$857,017.62	\$88,255
19	2029	\$ 0.2014	1,317,973		\$ 265,461.65	\$39,539		-\$47,783	\$0.00	\$257,217.75	\$1,114,235.36	\$85,014
20	2030	\$ 0.2065	1,317,973		\$ 272,098.19	\$39,539		-\$48,978	\$0.00	\$262,659.71	\$1,376,895.07	\$81,899
21	2031	\$ 0.2116	1,317,973		\$ 278,900.65	\$39,539		-\$50,202	0	\$268,237.72	\$1,645,132.79	\$78,904
22	2032	\$ 0.2169	1,317,973		\$ 285,873.17	\$39,539		-\$51,457	0	\$273,955.19	\$1,919,087.98	\$76,024
23	2033	\$ 0.2223	1,317,973		\$ 293,019.99	\$39,539		-\$52,744	0	\$279,815.59	\$2,198,903.57	\$73,255
24	2034	\$ 0.2279	1,317,973		\$ 300,345.49	\$39,539		-\$54,062	0	\$285,822.50	\$2,484,726.06	\$70,592
25	2035	\$ 0.2336	1,317,973		\$ 307,854.13	\$39,539		-\$55,414	0	\$291,979.58	\$2,776,705.64	\$68,031
26	2036	\$ 0.2394	1,317,973		\$ 315,550.48	\$39,539		-\$56,799	0	\$298,290.59	\$3,074,996.23	\$65,567
27	2037	\$ 0.2454	1,317,973		\$ 323,439.25	\$39,539		-\$58,219	0	\$304,759.37	\$3,379,755.60	\$63,197
28	2038	\$ 0.2515	1,317,973		\$ 331,525.23	\$39,539		-\$59,675	0	\$311,389.88	\$3,691,145.47	\$60,917
29	2039	\$ 0.2578	1,317,973		\$ 339,813.36	\$39,539		-\$61,166	0	\$318,186.14	\$4,009,331.62	\$58,723
30	2040	\$ 0.2643	1,317,973		\$ 348,308.69	\$39,539		-\$62,696	0	\$325,152.32	\$4,334,483.94	\$56,612

## Financial Calculations

IRR	NPV	Years to Postive Return	14
5 Years	-\$2,186,139		
10 Years	-8% -\$1,540,647		
15 Years	1% -\$1,007,135		
20 Years	4% -\$565,207		

# Financial Pro-Forma @ P50 (w/ MassCEC Grant)

## Project Information:

Name Swampscott Middle School  
Client Town of Swampscott  
Location Swampscott  
MA  
MAI Job # 5247  
Prepared By DEG

## Key Assumptions:

WTG Manufacturer:  
WTG Faceplate (kW)  
WTG Hub Height (m)  
Blade Diameter (m)  
WTG Prod. (kWh/Year)  
WTG Capacity Factor

Unison  
750  
60  
54  
1,317,973  
0.20

Total Project Cost  
Down Payment (%)  
Down Payment  
Loan Amount  
O+M Cost (%Energy Prod.)  
Fed Tax Rate (%)

\$2,800,000  
100  
-\$2,460,145  
\$0  
18  
0

Current Value of offset Electricity  
Value of Renewable Energy Certificate, \$/kWh  
Net Present Value Based on Discount Rate of:  
Annual Inflation on Utility Rates:  
Interest Rate on 20-yr Loan:  
Annual Inflation Rate on Operation and Maint.

\$0.13  
0.03  
6.00%  
2.50%  
5.00%  
2.50%

			Project Revenues					Project Costs		Project Cash Flows			
Project Year	Fiscal Year	Average Rates (\$/kWh)	Annual Energy Production	Capital Payment	Annual Revenue from Production	REC Revenue	Depreciation	Total O+M Cost per Year	Annual Loan Principal and Interest	Cash Flow	Cumulative Cash Flow	Net Present Value for Current Year	
1	2011		0	-\$2,460,145	\$ -	\$0	\$0		\$0.00	-\$2,460,145.00	-\$2,460,145.00	-\$2,460,145	
2	2012	\$ 0.1324	1,317,973		\$ 174,460.09	\$39,539	\$0	-\$31,403	\$0.00	\$182,596.46	-\$2,277,548.54	\$162,510	
3	2013	\$ 0.1357	1,317,973		\$ 178,821.59	\$39,539	\$0	-\$32,188	\$0.00	\$186,172.89	-\$2,091,375.65	\$156,314	
4	2014	\$ 0.1391	1,317,973		\$ 183,292.13	\$39,539	\$0	-\$32,993	\$0.00	\$189,838.73	-\$1,901,536.91	\$150,370	
5	2015	\$ 0.1425	1,317,973		\$ 187,874.43	\$39,539	\$0	-\$33,817	\$0.00	\$193,596.22	-\$1,707,940.69	\$144,666	
6	2016	\$ 0.1461	1,317,973		\$ 192,571.29	\$39,539	\$0	-\$34,663	\$0.00	\$197,447.65	-\$1,510,493.04	\$139,193	
7	2017	\$ 0.1498	1,317,973		\$ 197,385.57	\$39,539		-\$35,529	\$0.00	\$201,395.36	-\$1,309,097.68	\$133,939	
8	2018	\$ 0.1535	1,317,973		\$ 202,320.21	\$39,539		-\$36,418	\$0.00	\$205,441.77	-\$1,103,655.91	\$128,897	
9	2019	\$ 0.1573	1,317,973		\$ 207,378.22	\$39,539		-\$37,328	\$0.00	\$209,589.33	-\$894,066.58	\$124,056	
10	2020	\$ 0.1613	1,317,973		\$ 212,562.67	\$39,539		-\$38,261	\$0.00	\$213,840.58	-\$680,226.00	\$119,407	
11	2021	\$ 0.1653	1,317,973		\$ 217,876.74	\$39,539		-\$39,218	\$0.00	\$218,198.12	-\$462,027.88	\$114,944	
12	2022	\$ 0.1694	1,317,973		\$ 223,323.66	\$39,539		-\$40,198	\$0.00	\$222,664.59	-\$239,363.29	\$110,657	
13	2023	\$ 0.1737	1,317,973		\$ 228,906.75	\$39,539		-\$41,203	\$0.00	\$227,242.73	-\$12,120.57	\$106,540	
14	2024	\$ 0.1780	1,317,973		\$ 234,629.42	\$39,539		-\$42,233	\$0.00	\$231,935.31	\$219,814.75	\$102,585	
15	2025	\$ 0.1825	1,317,973		\$ 240,495.16	\$39,539		-\$43,289	\$0.00	\$236,745.22	\$456,559.97	\$98,786	
16	2026	\$ 0.1870	1,317,973		\$ 246,507.53	\$39,539		-\$44,371	\$0.00	\$241,675.37	\$698,235.33	\$95,135	
17	2027	\$ 0.1917	1,317,973		\$ 252,670.22	\$39,539		-\$45,481	\$0.00	\$246,728.77	\$944,964.11	\$91,626	
18	2028	\$ 0.1965	1,317,973		\$ 258,986.98	\$39,539		-\$46,618	\$0.00	\$251,908.51	\$1,196,872.62	\$88,255	
19	2029	\$ 0.2014	1,317,973		\$ 265,461.65	\$39,539		-\$47,783	\$0.00	\$257,217.75	\$1,454,090.36	\$85,014	
20	2030	\$ 0.2065	1,317,973		\$ 272,098.19	\$39,539		-\$48,978	\$0.00	\$262,659.71	\$1,716,750.07	\$81,899	
21	2031	\$ 0.2116	1,317,973		\$ 278,900.65	\$39,539		-\$50,202	0	\$268,237.72	\$1,984,987.79	\$78,904	
22	2032	\$ 0.2169	1,317,973		\$ 285,873.17	\$39,539		-\$51,457	0	\$273,955.19	\$2,258,942.98	\$76,024	
23	2033	\$ 0.2223	1,317,973		\$ 293,019.99	\$39,539		-\$52,744	0	\$279,815.59	\$2,538,758.57	\$73,255	
24	2034	\$ 0.2279	1,317,973		\$ 300,345.49	\$39,539		-\$54,062	0	\$285,822.50	\$2,824,581.06	\$70,592	
25	2035	\$ 0.2336	1,317,973		\$ 307,854.13	\$39,539		-\$55,414	0	\$291,979.58	\$3,116,560.64	\$68,031	
26	2036	\$ 0.2394	1,317,973		\$ 315,550.48	\$39,539		-\$56,799	0	\$298,290.59	\$3,414,851.23	\$65,567	
27	2037	\$ 0.2454	1,317,973		\$ 323,439.25	\$39,539		-\$58,219	0	\$304,759.37	\$3,719,610.60	\$63,197	
28	2038	\$ 0.2515	1,317,973		\$ 331,525.23	\$39,539		-\$59,675	0	\$311,389.88	\$4,031,000.47	\$60,917	
29	2039	\$ 0.2578	1,317,973		\$ 339,813.36	\$39,539		-\$61,166	0	\$318,186.14	\$4,349,186.62	\$58,723	
30	2040	\$ 0.2643	1,317,973		\$ 348,308.69	\$39,539		-\$62,696	0	\$325,152.32	\$4,674,338.94	\$56,612	

## Financial Calculations

IRR	NPV	Years to Postive Return	13
5 Years	-\$1,846,284		
10 Years	-6% -\$1,200,792		
15 Years	2% -\$667,280		
20 Years	6% -\$225,352		

# PPA Financial Pro-Forma @ P50 (PPA)

## Project Information:

Name Swampscott Middle School  
Client Town of Swampscott  
Location Swampscott  
MA  
MAI Job # 5247  
Prepared By DEG

## Key Assumptions:

WTG Manufacturer:  
WTG Faceplate (kW)  
WTG Hub Height (m)  
Blade Diameter (m)  
WTG Prod. (kWh/Year)  
WTG Capacity Factor

Unison  
750  
60  
54  
1,317,973

Total Project Cost  
Down Payment (%)  
Down Payment  
Loan Amount  
O+M Cost (%Energy Prod.)  
Fed Tax Rate (%)

\$0.00  
100  
\$0  
\$0  
18  
0

Current Value of offset Electricity  
Value of Renewable Energy Certificate, \$/kWh  
Net Present Value Based on Discount Rate of:  
Annual Inflation on Utility Rates:  
Interest Rate on 20-yr Loan:  
Annual Inflation Rate on Operation and Maint.

\$0.01  
0  
6.00%  
0.00%  
5.00%  
2.50%

					Project Revenues			Project Costs		Project Cash Flows		
Project Year	Fiscal Year	Average Rates (\$/kWh)	Annual Energy Production	Capital Payment	Annual Revenue from Production	REC Revenue	Depreciation	Total O+M Cost per Year	Annual Loan Principal and Interest	Cash Flow	Cumulative Cash Flow	Net Present Value for Current Year
1	2011		0	\$0	\$ -	\$0	\$0		\$0.00	\$0.00	\$0.00	\$0
2	2012	\$ 0.0130	1,317,973		\$ 17,133.65	\$0	\$0	-\$3,084	\$0.00	\$14,049.59	\$14,049.59	\$12,504
3	2013	\$ 0.0130	1,317,973		\$ 17,133.65	\$0	\$0	-\$3,161	\$0.00	\$13,972.49	\$28,022.08	\$11,732
4	2014	\$ 0.0130	1,317,973		\$ 17,133.65	\$0	\$0	-\$3,240	\$0.00	\$13,893.46	\$41,915.54	\$11,005
5	2015	\$ 0.0130	1,317,973		\$ 17,133.65	\$0	\$0	-\$3,321	\$0.00	\$13,812.46	\$55,728.00	\$10,321
6	2016	\$ 0.0130	1,317,973		\$ 17,133.65	\$0	\$0	-\$3,404	\$0.00	\$13,729.43	\$69,457.43	\$9,679
7	2017	\$ 0.0130	1,317,973		\$ 17,133.65	\$0		-\$3,489	\$0.00	\$13,644.32	\$83,101.75	\$9,074
8	2018	\$ 0.0130	1,317,973		\$ 17,133.65	\$0		-\$3,577	\$0.00	\$13,557.09	\$96,658.84	\$8,506
9	2019	\$ 0.0130	1,317,973		\$ 17,133.65	\$0		-\$3,666	\$0.00	\$13,467.67	\$110,126.51	\$7,971
10	2020	\$ 0.0130	1,317,973		\$ 17,133.65	\$0		-\$3,758	\$0.00	\$13,376.03	\$123,502.54	\$7,469
11	2021	\$ 0.0130	1,317,973		\$ 17,133.65	\$0		-\$3,852	\$0.00	\$13,282.08	\$136,784.62	\$6,997
12	2022	\$ 0.0130	1,317,973		\$ 17,133.65	\$0		-\$3,948	\$0.00	\$13,185.80	\$149,970.42	\$6,553
13	2023	\$ 0.0130	1,317,973		\$ 17,133.65	\$0		-\$4,047	\$0.00	\$13,087.10	\$163,057.52	\$6,136
14	2024	\$ 0.0130	1,317,973		\$ 17,133.65	\$0		-\$4,148	\$0.00	\$12,985.94	\$176,043.45	\$5,744
15	2025	\$ 0.0130	1,317,973		\$ 17,133.65	\$0		-\$4,251	\$0.00	\$12,882.24	\$188,925.70	\$5,375
16	2026	\$ 0.0130	1,317,973		\$ 17,133.65	\$0		-\$4,358	\$0.00	\$12,775.96	\$201,701.65	\$5,029
17	2027	\$ 0.0130	1,317,973		\$ 17,133.65	\$0		-\$4,467	\$0.00	\$12,667.02	\$214,368.67	\$4,704
18	2028	\$ 0.0130	1,317,973		\$ 17,133.65	\$0		-\$4,578	\$0.00	\$12,555.35	\$226,924.02	\$4,399
19	2029	\$ 0.0130	1,317,973		\$ 17,133.65	\$0		-\$4,693	\$0.00	\$12,440.89	\$239,364.91	\$4,112
20	2030	\$ 0.0130	1,317,973		\$ 17,133.65	\$0		-\$4,810	\$0.00	\$12,323.57	\$251,688.48	\$3,843
21	2031	\$ 0.0130	1,317,973		\$ 17,133.65	\$0		-\$4,930	0	\$12,203.32	\$263,891.80	\$3,590
22	2032	\$ 0.0130	1,317,973		\$ 17,133.65	\$0		-\$5,054	0	\$12,080.06	\$275,971.87	\$3,352
23	2033	\$ 0.0130	1,317,973		\$ 17,133.65	\$0		-\$5,180	0	\$11,953.72	\$287,925.59	\$3,129
24	2034	\$ 0.0130	1,317,973		\$ 17,133.65	\$0		-\$5,309	0	\$11,824.22	\$299,749.82	\$2,920
25	2035	\$ 0.0130	1,317,973		\$ 17,133.65	\$0		-\$5,442	0	\$11,691.49	\$311,441.30	\$2,724
26	2036	\$ 0.0130	1,317,973		\$ 17,133.65	\$0		-\$5,578	0	\$11,555.44	\$322,996.74	\$2,540
27	2037	\$ 0.0130	1,317,973		\$ 17,133.65	\$0		-\$5,718	0	\$11,415.98	\$334,412.72	\$2,367
28	2038	\$ 0.0130	1,317,973		\$ 17,133.65	\$0		-\$5,861	0	\$11,273.04	\$345,685.76	\$2,205
29	2039	\$ 0.0130	1,317,973		\$ 17,133.65	\$0		-\$6,007	0	\$11,126.52	\$356,812.28	\$2,053
30	2040	\$ 0.0130	1,317,973		\$ 17,133.65	\$0		-\$6,157	0	\$10,976.34	\$367,788.63	\$1,911

## Financial Calculations

IRR NPV Years to Postive Return 0  
5 Years \$45,562  
10 Years #DIV/0! \$88,261  
15 Years #DIV/0! \$119,066  
20 Years #DIV/0! \$141,152

# Financial Pro-Forma @ P50 (w/out MassCEC Grant)

## Project Information:

Name Swampscott Middle School  
Client Town of Swampscott  
Location Swampscott  
MA  
MAI Job # 5247  
Prepared By DEG

## Key Assumptions:

WTG Manufacturer:  
WTG Faceplate (kW)  
WTG Hub Height (m)  
Blade Diameter (m)  
WTG Prod. (kWh/Year)  
WTG Capacity Factor

EWT  
900  
75  
54  
1,747,888  
0.22

Total Project Cost  
Down Payment (%)  
Down Payment  
Loan Amount  
O+M Cost (%Energy Prod.)  
Fed Tax Rate (%)

\$3,000,000  
100  
-\$3,000,000  
\$0  
18  
0

Current Value of offset Electricity  
Value of Renewable Energy Certificate, \$/kWh  
Net Present Value Based on Discount Rate of:  
Annual Inflation on Utility Rates:  
Interest Rate on 20-yr Loan:  
Annual Inflation Rate on Operation and Maint.

\$0.13  
0.03  
6.00%  
2.50%  
5.00%  
2.50%

Project Revenues					Project Costs					Project Cash Flows		
Project Year	Fiscal Year	Average Rates (\$/kWh)	Annual Energy Production	Capital Payment	Annual Revenue from Production	REC Revenue	Depreciation	Total O+M Cost per Year	Annual Loan Principal and Interest	Cash Flow	Cumulative Cash Flow	Net Present Value for Current Year
1	2011		0	-\$3,000,000	\$ -	\$0	\$0		\$0.00	-\$3,000,000.00	-\$3,000,000.00	-\$3,000,000
2	2012	\$ 0.1324	1,747,888		\$ 231,367.93	\$52,437	\$0	-\$41,646	\$0.00	\$242,158.35	-\$2,757,841.65	\$215,520
3	2013	\$ 0.1357	1,747,888		\$ 237,152.13	\$52,437	\$0	-\$42,687	\$0.00	\$246,901.39	-\$2,510,940.26	\$207,303
4	2014	\$ 0.1391	1,747,888		\$ 243,080.94	\$52,437	\$0	-\$43,755	\$0.00	\$251,763.01	-\$2,259,177.26	\$199,420
5	2015	\$ 0.1425	1,747,888		\$ 249,157.96	\$52,437	\$0	-\$44,848	\$0.00	\$256,746.17	-\$2,002,431.09	\$191,856
6	2016	\$ 0.1461	1,747,888		\$ 255,386.91	\$52,437	\$0	-\$45,970	\$0.00	\$261,853.91	-\$1,740,577.18	\$184,597
7	2017	\$ 0.1498	1,747,888		\$ 261,771.58	\$52,437		-\$47,119	\$0.00	\$267,089.34	-\$1,473,487.85	\$177,630
8	2018	\$ 0.1535	1,747,888		\$ 268,315.87	\$52,437		-\$48,297	\$0.00	\$272,455.65	-\$1,201,032.19	\$170,942
9	2019	\$ 0.1573	1,747,888		\$ 275,023.77	\$52,437		-\$49,504	\$0.00	\$277,956.13	-\$923,076.06	\$164,522
10	2020	\$ 0.1613	1,747,888		\$ 281,899.36	\$52,437		-\$50,742	\$0.00	\$283,594.12	-\$639,481.95	\$158,357
11	2021	\$ 0.1653	1,747,888		\$ 288,946.85	\$52,437		-\$52,010	\$0.00	\$289,373.05	-\$350,108.89	\$152,438
12	2022	\$ 0.1694	1,747,888		\$ 296,170.52	\$52,437		-\$53,311	\$0.00	\$295,296.46	-\$54,812.43	\$146,753
13	2023	\$ 0.1737	1,747,888		\$ 303,574.78	\$52,437		-\$54,643	\$0.00	\$301,367.96	\$246,555.53	\$141,293
14	2024	\$ 0.1780	1,747,888		\$ 311,164.15	\$52,437		-\$56,010	\$0.00	\$307,591.24	\$554,146.77	\$136,048
15	2025	\$ 0.1825	1,747,888		\$ 318,943.25	\$52,437		-\$57,410	\$0.00	\$313,970.11	\$868,116.88	\$131,009
16	2026	\$ 0.1870	1,747,888		\$ 326,916.83	\$52,437		-\$58,845	\$0.00	\$320,508.44	\$1,188,625.32	\$126,167
17	2027	\$ 0.1917	1,747,888		\$ 335,089.76	\$52,437		-\$60,316	\$0.00	\$327,210.24	\$1,515,835.56	\$121,514
18	2028	\$ 0.1965	1,747,888		\$ 343,467.00	\$52,437		-\$61,824	\$0.00	\$334,079.58	\$1,849,915.14	\$117,043
19	2029	\$ 0.2014	1,747,888		\$ 352,053.67	\$52,437		-\$63,370	\$0.00	\$341,120.65	\$2,191,035.80	\$112,745
20	2030	\$ 0.2065	1,747,888		\$ 360,855.02	\$52,437		-\$64,954	\$0.00	\$348,337.75	\$2,539,373.55	\$108,613
21	2031	\$ 0.2116	1,747,888		\$ 369,876.39	\$52,437		-\$66,578	0	\$355,735.28	\$2,895,108.83	\$104,641
22	2032	\$ 0.2169	1,747,888		\$ 379,123.30	\$52,437		-\$68,242	0	\$363,317.75	\$3,258,426.58	\$100,823
23	2033	\$ 0.2223	1,747,888		\$ 388,601.38	\$52,437		-\$69,948	0	\$371,089.77	\$3,629,516.35	\$97,150
24	2034	\$ 0.2279	1,747,888		\$ 398,316.42	\$52,437		-\$71,697	0	\$379,056.10	\$4,008,572.45	\$93,619
25	2035	\$ 0.2336	1,747,888		\$ 408,274.33	\$52,437		-\$73,489	0	\$387,221.59	\$4,395,794.04	\$90,222
26	2036	\$ 0.2394	1,747,888		\$ 418,481.19	\$52,437		-\$75,327	0	\$395,591.21	\$4,791,385.26	\$86,955
27	2037	\$ 0.2454	1,747,888		\$ 428,943.22	\$52,437		-\$77,210	0	\$404,170.08	\$5,195,555.34	\$83,812
28	2038	\$ 0.2515	1,747,888		\$ 439,666.80	\$52,437		-\$79,140	0	\$412,963.41	\$5,608,518.75	\$80,788
29	2039	\$ 0.2578	1,747,888		\$ 450,658.47	\$52,437		-\$81,119	0	\$421,976.58	\$6,030,495.33	\$77,879
30	2040	\$ 0.2643	1,747,888		\$ 461,924.93	\$52,437		-\$83,146	0	\$431,215.08	\$6,461,710.41	\$75,079

## Financial Calculations

IRR  
NPV  
5 Years -\$2,185,901  
10 Years -4% -\$1,329,854  
15 Years 3% -\$622,312  
20 Years 7% -\$36,230

Years to Postive Return 12



# Financial Pro-Forma @ P50 (w/ MassCEC Grant)

## Project Information:

Name Swampscott Middle School  
Client Town of Swampscott  
Location Swampscott  
MA  
MAI Job # 5247  
Prepared By DEG

## Key Assumptions:

WTG Manufacturer:  
WTG Faceplate (kW)  
WTG Hub Height (m)  
Blade Diameter (m)  
WTG Prod. (kWh/Year)  
WTG Capacity Factor

EWT  
900  
75  
54  
1,747,888  
0.22

Total Project Cost  
Down Payment (%)  
Down Payment  
Loan Amount  
O+M Cost (%Energy Prod.)  
Fed Tax Rate (%)

\$3,000,000  
100  
-\$2,644,323  
\$0  
18  
0

Current Value of offset Electricity  
Value of Renewable Energy Certificate, \$/kWh  
Net Present Value Based on Discount Rate of:  
Annual Inflation on Utility Rates:  
Interest Rate on 20-yr Loan:  
Annual Inflation Rate on Operation and Maint.

\$0.13  
0.03  
6.00%  
2.50%  
5.00%  
2.50%

				Project Revenues				Project Costs		Project Cash Flows		
Project Year	Fiscal Year	Average Rates (\$/kWh)	Annual Energy Production	Capital Payment	Annual Revenue from Production	REC Revenue	Depreciation	Total O+M Cost per Year	Annual Loan Principal and Interest	Cash Flow	Cumulative Cash Flow	Net Present Value for Current Year
1	2011		0	-\$2,644,323	\$ -	\$0	\$0		\$0.00	-\$2,644,323.00	-\$2,644,323.00	-\$2,644,323
2	2012	\$ 0.1324	1,747,888		\$ 231,367.93	\$52,437	\$0	-\$41,646	\$0.00	\$242,158.35	-\$2,402,164.65	\$215,520
3	2013	\$ 0.1357	1,747,888		\$ 237,152.13	\$52,437	\$0	-\$42,687	\$0.00	\$246,901.39	-\$2,155,263.26	\$207,303
4	2014	\$ 0.1391	1,747,888		\$ 243,080.94	\$52,437	\$0	-\$43,755	\$0.00	\$251,763.01	-\$1,903,500.26	\$199,420
5	2015	\$ 0.1425	1,747,888		\$ 249,157.96	\$52,437	\$0	-\$44,848	\$0.00	\$256,746.17	-\$1,646,754.09	\$191,856
6	2016	\$ 0.1461	1,747,888		\$ 255,386.91	\$52,437	\$0	-\$45,970	\$0.00	\$261,853.91	-\$1,384,900.18	\$184,597
7	2017	\$ 0.1498	1,747,888		\$ 261,771.58	\$52,437		-\$47,119	\$0.00	\$267,089.34	-\$1,117,810.85	\$177,630
8	2018	\$ 0.1535	1,747,888		\$ 268,315.87	\$52,437		-\$48,297	\$0.00	\$272,455.65	-\$845,355.19	\$170,942
9	2019	\$ 0.1573	1,747,888		\$ 275,023.77	\$52,437		-\$49,504	\$0.00	\$277,956.13	-\$567,399.06	\$164,522
10	2020	\$ 0.1613	1,747,888		\$ 281,899.36	\$52,437		-\$50,742	\$0.00	\$283,594.12	-\$283,804.95	\$158,357
11	2021	\$ 0.1653	1,747,888		\$ 288,946.85	\$52,437		-\$52,010	\$0.00	\$289,373.05	\$5,568.11	\$152,438
12	2022	\$ 0.1694	1,747,888		\$ 296,170.52	\$52,437		-\$53,311	\$0.00	\$295,296.46	\$300,864.57	\$146,753
13	2023	\$ 0.1737	1,747,888		\$ 303,574.78	\$52,437		-\$54,643	\$0.00	\$301,367.96	\$602,232.53	\$141,293
14	2024	\$ 0.1780	1,747,888		\$ 311,164.15	\$52,437		-\$56,010	\$0.00	\$307,591.24	\$909,823.77	\$136,048
15	2025	\$ 0.1825	1,747,888		\$ 318,943.25	\$52,437		-\$57,410	\$0.00	\$313,970.11	\$1,223,793.88	\$131,009
16	2026	\$ 0.1870	1,747,888		\$ 326,916.83	\$52,437		-\$58,845	\$0.00	\$320,508.44	\$1,544,302.32	\$126,167
17	2027	\$ 0.1917	1,747,888		\$ 335,089.76	\$52,437		-\$60,316	\$0.00	\$327,210.24	\$1,871,512.56	\$121,514
18	2028	\$ 0.1965	1,747,888		\$ 343,467.00	\$52,437		-\$61,824	\$0.00	\$334,079.58	\$2,205,592.14	\$117,043
19	2029	\$ 0.2014	1,747,888		\$ 352,053.67	\$52,437		-\$63,370	\$0.00	\$341,120.65	\$2,546,712.80	\$112,745
20	2030	\$ 0.2065	1,747,888		\$ 360,855.02	\$52,437		-\$64,954	\$0.00	\$348,337.75	\$2,895,050.55	\$108,613
21	2031	\$ 0.2116	1,747,888		\$ 369,876.39	\$52,437		-\$66,578	0	\$355,735.28	\$3,250,785.83	\$104,641
22	2032	\$ 0.2169	1,747,888		\$ 379,123.30	\$52,437		-\$68,242	0	\$363,317.75	\$3,614,103.58	\$100,823
23	2033	\$ 0.2223	1,747,888		\$ 388,601.38	\$52,437		-\$69,948	0	\$371,089.77	\$3,985,193.35	\$97,150
24	2034	\$ 0.2279	1,747,888		\$ 398,316.42	\$52,437		-\$71,697	0	\$379,056.10	\$4,364,249.45	\$93,619
25	2035	\$ 0.2336	1,747,888		\$ 408,274.33	\$52,437		-\$73,489	0	\$387,221.59	\$4,751,471.04	\$90,222
26	2036	\$ 0.2394	1,747,888		\$ 418,481.19	\$52,437		-\$75,327	0	\$395,591.21	\$5,147,062.26	\$86,955
27	2037	\$ 0.2454	1,747,888		\$ 428,943.22	\$52,437		-\$77,210	0	\$404,170.08	\$5,551,232.34	\$83,812
28	2038	\$ 0.2515	1,747,888		\$ 439,666.80	\$52,437		-\$79,140	0	\$412,963.41	\$5,964,195.75	\$80,788
29	2039	\$ 0.2578	1,747,888		\$ 450,658.47	\$52,437		-\$81,119	0	\$421,976.58	\$6,386,172.33	\$77,879
30	2040	\$ 0.2643	1,747,888		\$ 461,924.93	\$52,437		-\$83,146	0	\$431,215.08	\$6,817,387.41	\$75,079

## Financial Calculations

	IRR	NPV	Years to Postive Return	10
5 Years		-\$1,830,224		
10 Years	-2%	-\$974,177		
15 Years	5%	-\$266,635		
20 Years	8%	\$319,447		

# PPA Financial Pro-Forma @ P50 (PPA)

## Project Information:

Name Swampscott Middle School  
Client Town of Swampscott  
Location Swampscott  
MA  
MAI Job # 5247  
Prepared By DEG

## Key Assumptions:

WTG Manufacturer:  
WTG Faceplate (kW)  
WTG Hub Height (m)  
Blade Diameter (m)  
WTG Prod. (kWh/Year)  
WTG Capacity Factor

EWT  
900  
75  
54  
1,747,888  
0.22

Total Project Cost  
Down Payment (%)  
Down Payment  
Loan Amount  
O+M Cost (%Energy Prod.)  
Fed Tax Rate (%)

\$0.00  
100  
\$0  
\$0  
18  
0

Current Value of offset Electricity  
Value of Renewable Energy Certificate, \$/kWh  
Net Present Value Based on Discount Rate of:  
Annual Inflation on Utility Rates:  
Interest Rate on 20-yr Loan:  
Annual Inflation Rate on Operation and Maint.

\$0.01  
0  
6.00%  
0.00%  
5.00%  
2.50%

					Project Revenues			Project Costs		Project Cash Flows		
Project Year	Fiscal Year	Average Rates (\$/kWh)	Annual Energy Production	Capital Payment	Annual Revenue from Production	REC Revenue	Depreciation	Total O+M Cost per Year	Annual Loan Principal and Interest	Cash Flow	Cumulative Cash Flow	Net Present Value for Current Year
1	2011		0	\$0	\$ -	\$0	\$0		\$0.00	\$0.00	\$0.00	\$0
2	2012	\$ 0.0130	1,747,888		\$ 22,722.54	\$0	\$0	-\$4,090	\$0.00	\$18,632.49	\$18,632.49	\$16,583
3	2013	\$ 0.0130	1,747,888		\$ 22,722.54	\$0	\$0	-\$4,192	\$0.00	\$18,530.23	\$37,162.72	\$15,558
4	2014	\$ 0.0130	1,747,888		\$ 22,722.54	\$0	\$0	-\$4,297	\$0.00	\$18,425.43	\$55,588.15	\$14,595
5	2015	\$ 0.0130	1,747,888		\$ 22,722.54	\$0	\$0	-\$4,405	\$0.00	\$18,318.00	\$73,906.15	\$13,688
6	2016	\$ 0.0130	1,747,888		\$ 22,722.54	\$0	\$0	-\$4,515	\$0.00	\$18,207.89	\$92,114.03	\$12,836
7	2017	\$ 0.0130	1,747,888		\$ 22,722.54	\$0		-\$4,628	\$0.00	\$18,095.02	\$110,209.05	\$12,034
8	2018	\$ 0.0130	1,747,888		\$ 22,722.54	\$0		-\$4,743	\$0.00	\$17,979.33	\$128,188.38	\$11,280
9	2019	\$ 0.0130	1,747,888		\$ 22,722.54	\$0		-\$4,862	\$0.00	\$17,860.75	\$146,049.13	\$10,572
10	2020	\$ 0.0130	1,747,888		\$ 22,722.54	\$0		-\$4,983	\$0.00	\$17,739.21	\$163,788.34	\$9,905
11	2021	\$ 0.0130	1,747,888		\$ 22,722.54	\$0		-\$5,108	\$0.00	\$17,614.62	\$181,402.96	\$9,279
12	2022	\$ 0.0130	1,747,888		\$ 22,722.54	\$0		-\$5,236	\$0.00	\$17,486.92	\$198,889.88	\$8,690
13	2023	\$ 0.0130	1,747,888		\$ 22,722.54	\$0		-\$5,367	\$0.00	\$17,356.03	\$216,245.92	\$8,137
14	2024	\$ 0.0130	1,747,888		\$ 22,722.54	\$0		-\$5,501	\$0.00	\$17,221.87	\$233,467.79	\$7,617
15	2025	\$ 0.0130	1,747,888		\$ 22,722.54	\$0		-\$5,638	\$0.00	\$17,084.35	\$250,552.14	\$7,129
16	2026	\$ 0.0130	1,747,888		\$ 22,722.54	\$0		-\$5,779	\$0.00	\$16,943.40	\$267,495.54	\$6,670
17	2027	\$ 0.0130	1,747,888		\$ 22,722.54	\$0		-\$5,924	\$0.00	\$16,798.92	\$284,294.46	\$6,239
18	2028	\$ 0.0130	1,747,888		\$ 22,722.54	\$0		-\$6,072	\$0.00	\$16,650.83	\$300,945.29	\$5,834
19	2029	\$ 0.0130	1,747,888		\$ 22,722.54	\$0		-\$6,224	\$0.00	\$16,499.04	\$317,444.33	\$5,453
20	2030	\$ 0.0130	1,747,888		\$ 22,722.54	\$0		-\$6,379	\$0.00	\$16,343.45	\$333,787.78	\$5,096
21	2031	\$ 0.0130	1,747,888		\$ 22,722.54	\$0		-\$6,539	0	\$16,183.97	\$349,971.75	\$4,761
22	2032	\$ 0.0130	1,747,888		\$ 22,722.54	\$0		-\$6,702	0	\$16,020.51	\$365,992.26	\$4,446
23	2033	\$ 0.0130	1,747,888		\$ 22,722.54	\$0		-\$6,870	0	\$15,852.96	\$381,845.22	\$4,150
24	2034	\$ 0.0130	1,747,888		\$ 22,722.54	\$0		-\$7,041	0	\$15,681.22	\$397,526.43	\$3,873
25	2035	\$ 0.0130	1,747,888		\$ 22,722.54	\$0		-\$7,217	0	\$15,505.18	\$413,031.62	\$3,613
26	2036	\$ 0.0130	1,747,888		\$ 22,722.54	\$0		-\$7,398	0	\$15,324.75	\$428,356.37	\$3,369
27	2037	\$ 0.0130	1,747,888		\$ 22,722.54	\$0		-\$7,583	0	\$15,139.81	\$443,496.17	\$3,140
28	2038	\$ 0.0130	1,747,888		\$ 22,722.54	\$0		-\$7,772	0	\$14,950.24	\$458,446.41	\$2,925
29	2039	\$ 0.0130	1,747,888		\$ 22,722.54	\$0		-\$7,967	0	\$14,755.93	\$473,202.34	\$2,723
30	2040	\$ 0.0130	1,747,888		\$ 22,722.54	\$0		-\$8,166	0	\$14,556.76	\$487,759.10	\$2,534

## Financial Calculations

IRR NPV  
5 Years \$60,424  
10 Years #DIV/0! \$117,052  
15 Years #DIV/0! \$157,905  
20 Years #DIV/0! \$187,195  
Years to Postive Return 0

# Financial Pro-Forma @ P50 (w/out MassCEC Grant)

## Project Information:

Name Swampscott Middle School  
 Client Town of Swampscott  
 Location Swampscott, MA  
 MAI Job # 5247  
 Prepared By DEG

## Key Assumptions:

WTG Manufacturer: GE Energy  
 WTG Faceplate (kW) 1500  
 WTG Hub Height (m) 80  
 Blade Diameter (m) 77  
 WTG Prod. (kWh/Year) 3,770,887  
 WTG Capacity Factor 0.29

Total Project Cost \$4,200,000.00  
 Down Payment (%) 100  
 Down Payment -\$4,200,000  
 Loan Amount \$0  
 O+M Cost (%Energy Prod.) 18  
 Fed Tax Rate (%) 0

Current Value of offset Electricity \$0.13  
 Value of Renewable Energy Certificate, \$/kWh 0.03  
 Net Present Value Based on Discount Rate of: 6.00%  
 Annual Inflation on Utility Rates: 2.50%  
 Interest Rate on 20-yr Loan: 5.00%  
 Annual Inflation Rate on Operation and Maint. 2.50%

					Project Revenues			Project Costs		Project Cash Flows		
Project Year	Fiscal Year	Average Rates (\$/kWh)	Annual Energy Production	Capital Payment	Annual Revenue from Production	REC Revenue	Depreciation	Total O+M Cost per Year	Annual Loan Principal and Interest	Cash Flow	Cumulative Cash Flow	Net Present Value for Current Year
1	2011		0	-\$4,200,000	\$ -	\$0	\$0		\$0.00	-\$4,200,000.00	-\$4,200,000.00	-\$4,200,000
2	2012	\$ 0.1324	3,770,887		\$ 499,152.31	\$113,127	\$0	-\$89,847	\$0.00	\$522,431.51	-\$3,677,568.49	\$464,962
3	2013	\$ 0.1357	3,770,887		\$ 511,631.12	\$113,127	\$0	-\$92,094	\$0.00	\$532,664.13	-\$3,144,904.37	\$447,235
4	2014	\$ 0.1391	3,770,887		\$ 524,421.90	\$113,127	\$0	-\$94,396	\$0.00	\$543,152.57	-\$2,601,751.80	\$430,228
5	2015	\$ 0.1425	3,770,887		\$ 537,532.45	\$113,127	\$0	-\$96,756	\$0.00	\$553,903.22	-\$2,047,848.58	\$413,909
6	2016	\$ 0.1461	3,770,887		\$ 550,970.76	\$113,127	\$0	-\$99,175	\$0.00	\$564,922.63	-\$1,482,925.95	\$398,248
7	2017	\$ 0.1498	3,770,887		\$ 564,745.03	\$113,127		-\$101,654	\$0.00	\$576,217.53	-\$906,708.42	\$383,218
8	2018	\$ 0.1535	3,770,887		\$ 578,863.65	\$113,127		-\$104,195	\$0.00	\$587,794.80	-\$318,913.62	\$368,790
9	2019	\$ 0.1573	3,770,887		\$ 593,335.24	\$113,127		-\$106,800	\$0.00	\$599,661.51	\$280,747.89	\$354,939
10	2020	\$ 0.1613	3,770,887		\$ 608,168.62	\$113,127		-\$109,470	\$0.00	\$611,824.88	\$892,572.77	\$341,640
11	2021	\$ 0.1653	3,770,887		\$ 623,372.84	\$113,127		-\$112,207	\$0.00	\$624,292.34	\$1,516,865.11	\$328,869
12	2022	\$ 0.1694	3,770,887		\$ 638,957.16	\$113,127		-\$115,012	\$0.00	\$637,071.48	\$2,153,936.59	\$316,605
13	2023	\$ 0.1737	3,770,887		\$ 654,931.09	\$113,127		-\$117,888	\$0.00	\$650,170.10	\$2,804,106.69	\$304,825
14	2024	\$ 0.1780	3,770,887		\$ 671,304.37	\$113,127		-\$120,835	\$0.00	\$663,596.19	\$3,467,702.88	\$293,509
15	2025	\$ 0.1825	3,770,887		\$ 688,086.98	\$113,127		-\$123,856	\$0.00	\$677,357.93	\$4,145,060.81	\$282,638
16	2026	\$ 0.1870	3,770,887		\$ 705,289.15	\$113,127		-\$126,952	\$0.00	\$691,463.71	\$4,836,524.53	\$272,192
17	2027	\$ 0.1917	3,770,887		\$ 722,921.38	\$113,127		-\$130,126	\$0.00	\$705,922.14	\$5,542,446.67	\$262,154
18	2028	\$ 0.1965	3,770,887		\$ 740,994.41	\$113,127		-\$133,379	\$0.00	\$720,742.03	\$6,263,188.70	\$252,507
19	2029	\$ 0.2014	3,770,887		\$ 759,519.27	\$113,127		-\$136,713	\$0.00	\$735,932.41	\$6,999,121.11	\$243,235
20	2030	\$ 0.2065	3,770,887		\$ 778,507.26	\$113,127		-\$140,131	\$0.00	\$751,502.56	\$7,750,623.67	\$234,322
21	2031	\$ 0.2116	3,770,887		\$ 797,969.94	\$113,127		-\$143,635	0	\$767,461.96	\$8,518,085.63	\$225,753
22	2032	\$ 0.2169	3,770,887		\$ 817,919.18	\$113,127		-\$147,225	0	\$783,820.34	\$9,301,905.97	\$217,514
23	2033	\$ 0.2223	3,770,887		\$ 838,367.16	\$113,127		-\$150,906	0	\$800,587.68	\$10,102,493.65	\$209,592
24	2034	\$ 0.2279	3,770,887		\$ 859,326.34	\$113,127		-\$154,679	0	\$817,774.21	\$10,920,267.87	\$201,973
25	2035	\$ 0.2336	3,770,887		\$ 880,809.50	\$113,127		-\$158,546	0	\$835,390.40	\$11,755,658.27	\$194,645
26	2036	\$ 0.2394	3,770,887		\$ 902,829.74	\$113,127		-\$162,509	0	\$853,447.00	\$12,609,105.26	\$187,596
27	2037	\$ 0.2454	3,770,887		\$ 925,400.48	\$113,127		-\$166,572	0	\$871,955.01	\$13,481,060.27	\$180,816
28	2038	\$ 0.2515	3,770,887		\$ 948,535.50	\$113,127		-\$170,736	0	\$890,925.72	\$14,371,985.99	\$174,292
29	2039	\$ 0.2578	3,770,887		\$ 972,248.88	\$113,127		-\$175,005	0	\$910,370.69	\$15,282,356.68	\$168,015
30	2040	\$ 0.2643	3,770,887		\$ 996,555.10	\$113,127		-\$179,380	0	\$930,301.80	\$16,212,658.48	\$161,975

## Financial Calculations

IRR NPV  
 5 Years -22% -\$2,443,666  
 10 Years 4% -\$596,832  
 15 Years 10% \$929,614  
 20 Years 13% \$2,194,026

Years to Postive Return 8

# Financial Pro-Forma @ P50 (w/ MassCEC Grant)

## Project Information:

Name Swampscott Middle School  
Client Town of Swampscott  
Location Swampscott MA  
MAI Job # 5247  
Prepared By DEG

## Key Assumptions:

WTG Manufacturer: GE Energy  
WTG Faceplate (kW) 1500  
WTG Hub Height (m) 80  
Blade Diameter (m) 77  
WTG Prod. (kWh/Year) 3,770,887  
WTG Capacity Factor 0.29

Total Project Cost \$4,200,000.00  
Down Payment (%) 100  
Down Payment -\$3,800,000  
Loan Amount \$0  
O+M Cost (%Energy Prod.) 18  
Fed Tax Rate (%) 0

Current Value of offset Electricity \$0.13  
Value of Renewable Energy Certificate, \$/kWh 0.03  
Net Present Value Based on Discount Rate of: 6.00%  
Annual Inflation on Utility Rates: 2.50%  
Interest Rate on 20-yr Loan: 5.00%  
Annual Inflation Rate on Operation and Maint. 2.50%

				Project Revenues				Project Costs		Project Cash Flows			
Project Year	Fiscal Year	Average Rates (\$/kWh)	Annual Energy Production	Capital Payment	Annual Revenue from Production	REC Revenue	Depreciation	Total O+M Cost per Year	Annual Loan Principal and Interest	Cash Flow	Cumulative Cash Flow	Net Present Value for Current Year	
1	2011		0	-\$3,800,000	\$ -	\$0	\$0		\$0.00	-\$3,800,000.00	-\$3,800,000.00	-\$3,800,000	
2	2012	\$ 0.1324	3,770,887		\$ 499,152.31	\$113,127	\$0	-\$89,847	\$0.00	\$522,431.51	-\$3,277,568.49	\$464,962	
3	2013	\$ 0.1357	3,770,887		\$ 511,631.12	\$113,127	\$0	-\$92,094	\$0.00	\$532,664.13	-\$2,744,904.37	\$447,235	
4	2014	\$ 0.1391	3,770,887		\$ 524,421.90	\$113,127	\$0	-\$94,396	\$0.00	\$543,152.57	-\$2,201,751.80	\$430,228	
5	2015	\$ 0.1425	3,770,887		\$ 537,532.45	\$113,127	\$0	-\$96,756	\$0.00	\$553,903.22	-\$1,647,848.58	\$413,909	
6	2016	\$ 0.1461	3,770,887		\$ 550,970.76	\$113,127	\$0	-\$99,175	\$0.00	\$564,922.63	-\$1,082,925.95	\$398,248	
7	2017	\$ 0.1498	3,770,887		\$ 564,745.03	\$113,127	\$0	-\$101,654	\$0.00	\$576,217.53	-\$506,708.42	\$383,218	
8	2018	\$ 0.1535	3,770,887		\$ 578,863.65	\$113,127		-\$104,195	\$0.00	\$587,794.80	\$81,086.38	\$368,790	
9	2019	\$ 0.1573	3,770,887		\$ 593,335.24	\$113,127		-\$106,800	\$0.00	\$599,661.51	\$680,747.89	\$354,939	
10	2020	\$ 0.1613	3,770,887		\$ 608,168.62	\$113,127		-\$109,470	\$0.00	\$611,824.88	\$1,292,572.77	\$341,640	
11	2021	\$ 0.1653	3,770,887		\$ 623,372.84	\$113,127		-\$112,207	\$0.00	\$624,292.34	\$1,916,865.11	\$328,869	
12	2022	\$ 0.1694	3,770,887		\$ 638,957.16	\$113,127		-\$115,012	\$0.00	\$637,071.48	\$2,553,936.59	\$316,605	
13	2023	\$ 0.1737	3,770,887		\$ 654,931.09	\$113,127		-\$117,888	\$0.00	\$650,170.10	\$3,204,106.69	\$304,825	
14	2024	\$ 0.1780	3,770,887		\$ 671,304.37	\$113,127		-\$120,835	\$0.00	\$663,596.19	\$3,867,702.88	\$293,509	
15	2025	\$ 0.1825	3,770,887		\$ 688,086.98	\$113,127		-\$123,856	\$0.00	\$677,357.93	\$4,545,060.81	\$282,638	
16	2026	\$ 0.1870	3,770,887		\$ 705,289.15	\$113,127		-\$126,952	\$0.00	\$691,463.71	\$5,236,524.53	\$272,192	
17	2027	\$ 0.1917	3,770,887		\$ 722,921.38	\$113,127		-\$130,126	\$0.00	\$705,922.14	\$5,942,446.67	\$262,154	
18	2028	\$ 0.1965	3,770,887		\$ 740,994.41	\$113,127		-\$133,379	\$0.00	\$720,742.03	\$6,663,188.70	\$252,507	
19	2029	\$ 0.2014	3,770,887		\$ 759,519.27	\$113,127		-\$136,713	\$0.00	\$735,932.41	\$7,399,121.11	\$243,235	
20	2030	\$ 0.2065	3,770,887		\$ 778,507.26	\$113,127		-\$140,131	\$0.00	\$751,502.56	\$8,150,623.67	\$234,322	
21	2031	\$ 0.2116	3,770,887		\$ 797,969.94	\$113,127		-\$143,635	0	\$767,461.96	\$8,918,085.63	\$225,753	
22	2032	\$ 0.2169	3,770,887		\$ 817,919.18	\$113,127		-\$147,225	0	\$783,820.34	\$9,701,905.97	\$217,514	
23	2033	\$ 0.2223	3,770,887		\$ 838,367.16	\$113,127		-\$150,906	0	\$800,587.68	\$10,502,493.65	\$209,592	
24	2034	\$ 0.2279	3,770,887		\$ 859,326.34	\$113,127		-\$154,679	0	\$817,774.21	\$11,320,267.87	\$201,973	
25	2035	\$ 0.2336	3,770,887		\$ 880,809.50	\$113,127		-\$158,546	0	\$835,390.40	\$12,155,658.27	\$194,645	
26	2036	\$ 0.2394	3,770,887		\$ 902,829.74	\$113,127		-\$162,509	0	\$853,447.00	\$13,009,105.26	\$187,596	
27	2037	\$ 0.2454	3,770,887		\$ 925,400.48	\$113,127		-\$166,572	0	\$871,955.01	\$13,881,060.27	\$180,816	
28	2038	\$ 0.2515	3,770,887		\$ 948,535.50	\$113,127		-\$170,736	0	\$890,925.72	\$14,771,985.99	\$174,292	
29	2039	\$ 0.2578	3,770,887		\$ 972,248.88	\$113,127		-\$175,005	0	\$910,370.69	\$15,682,356.68	\$168,015	
30	2040	\$ 0.2643	3,770,887		\$ 996,555.10	\$113,127		-\$179,380	0	\$930,301.80	\$16,612,658.48	\$161,975	

## Financial Calculations

IRR  
NPV  
5 Years -19% -\$2,043,666  
10 Years 6% -\$196,832  
15 Years 12% \$1,329,614  
20 Years 14% \$2,594,026

Years to Postive Return 7

# PPA Financial Pro-Forma @ P50 (PPA)

## Project Information:

Name Swamscott Middle School  
Client Town of Swamscott  
Location Swamscott MA  
MAI Job # 5247  
Prepared By DEG

## Key Assumptions:

WTG Manufacturer:  
WTG Faceplate (kW)  
WTG Hub Height (m)  
Blade Diameter (m)  
WTG Prod. (kWh/Year)  
WTG Capacity Factor

GE Energy  
1500  
80  
77  
3,770,887

Total Project Cost  
Down Payment (%)  
Down Payment  
Loan Amount  
O+M Cost (%Energy Prod.)  
Fed Tax Rate (%)

\$0.00  
100  
\$0  
\$0  
18  
0

Current Value of offset Electricity  
Value of Renewable Energy Certificate, \$/kWh  
Net Present Value Based on Discount Rate of:  
Annual Inflation on Utility Rates:  
Interest Rate on 20-yr Loan:  
Annual Inflation Rate on Operation and Maint.

\$0.01  
0  
6.00%  
0.00%  
5.00%  
2.50%

					Project Revenues			Project Costs		Project Cash Flows		
Project Year	Fiscal Year	Average Rates (\$/kWh)	Annual Energy Production	Capital Payment	Annual Revenue from Production	REC Revenue	Depreciation	Total O+M Cost per Year	Annual Loan Principal and Interest	Cash Flow	Cumulative Cash Flow	Net Present Value for Current Year
1	2011		0	\$0	\$ -	\$0	\$0		\$0.00	\$0.00	\$0.00	\$0
2	2012	\$ 0.0130	3,770,887		\$ 49,021.53	\$0	\$0	-\$8,824	\$0.00	\$40,197.66	\$40,197.66	\$35,776
3	2013	\$ 0.0130	3,770,887		\$ 49,021.53	\$0	\$0	-\$9,044	\$0.00	\$39,977.06	\$80,174.71	\$33,566
4	2014	\$ 0.0130	3,770,887		\$ 49,021.53	\$0	\$0	-\$9,271	\$0.00	\$39,750.95	\$119,925.66	\$31,486
5	2015	\$ 0.0130	3,770,887		\$ 49,021.53	\$0	\$0	-\$9,502	\$0.00	\$39,519.18	\$159,444.84	\$29,531
6	2016	\$ 0.0130	3,770,887		\$ 49,021.53	\$0	\$0	-\$9,740	\$0.00	\$39,281.62	\$198,726.47	\$27,692
7	2017	\$ 0.0130	3,770,887		\$ 49,021.53	\$0	\$0	-\$9,983	\$0.00	\$39,038.13	\$237,764.59	\$25,963
8	2018	\$ 0.0130	3,770,887		\$ 49,021.53	\$0		-\$10,233	\$0.00	\$38,788.54	\$276,553.13	\$24,336
9	2019	\$ 0.0130	3,770,887		\$ 49,021.53	\$0		-\$10,489	\$0.00	\$38,532.72	\$315,085.85	\$22,807
10	2020	\$ 0.0130	3,770,887		\$ 49,021.53	\$0		-\$10,751	\$0.00	\$38,270.50	\$353,356.34	\$21,370
11	2021	\$ 0.0130	3,770,887		\$ 49,021.53	\$0		-\$11,020	\$0.00	\$38,001.72	\$391,358.06	\$20,019
12	2022	\$ 0.0130	3,770,887		\$ 49,021.53	\$0		-\$11,295	\$0.00	\$37,726.22	\$429,084.29	\$18,749
13	2023	\$ 0.0130	3,770,887		\$ 49,021.53	\$0		-\$11,578	\$0.00	\$37,443.84	\$466,528.13	\$17,555
14	2024	\$ 0.0130	3,770,887		\$ 49,021.53	\$0		-\$11,867	\$0.00	\$37,154.40	\$503,682.53	\$16,433
15	2025	\$ 0.0130	3,770,887		\$ 49,021.53	\$0		-\$12,164	\$0.00	\$36,857.72	\$540,540.25	\$15,379
16	2026	\$ 0.0130	3,770,887		\$ 49,021.53	\$0		-\$12,468	\$0.00	\$36,553.63	\$577,093.88	\$14,389
17	2027	\$ 0.0130	3,770,887		\$ 49,021.53	\$0		-\$12,780	\$0.00	\$36,241.93	\$613,335.80	\$13,459
18	2028	\$ 0.0130	3,770,887		\$ 49,021.53	\$0		-\$13,099	\$0.00	\$35,922.44	\$649,258.24	\$12,585
19	2029	\$ 0.0130	3,770,887		\$ 49,021.53	\$0		-\$13,427	\$0.00	\$35,594.96	\$684,853.20	\$11,765
20	2030	\$ 0.0130	3,770,887		\$ 49,021.53	\$0		-\$13,762	\$0.00	\$35,259.30	\$720,112.50	\$10,994
21	2031	\$ 0.0130	3,770,887		\$ 49,021.53	\$0		-\$14,106	0	\$34,915.24	\$755,027.74	\$10,271
22	2032	\$ 0.0130	3,770,887		\$ 49,021.53	\$0		-\$14,459	0	\$34,562.58	\$789,590.32	\$9,591
23	2033	\$ 0.0130	3,770,887		\$ 49,021.53	\$0		-\$14,820	0	\$34,201.11	\$823,791.43	\$8,954
24	2034	\$ 0.0130	3,770,887		\$ 49,021.53	\$0		-\$15,191	0	\$33,830.60	\$857,622.03	\$8,355
25	2035	\$ 0.0130	3,770,887		\$ 49,021.53	\$0		-\$15,571	0	\$33,450.83	\$891,072.86	\$7,794
26	2036	\$ 0.0130	3,770,887		\$ 49,021.53	\$0		-\$15,960	0	\$33,061.56	\$924,134.42	\$7,267
27	2037	\$ 0.0130	3,770,887		\$ 49,021.53	\$0		-\$16,359	0	\$32,662.56	\$956,796.97	\$6,773
28	2038	\$ 0.0130	3,770,887		\$ 49,021.53	\$0		-\$16,768	0	\$32,253.58	\$989,050.56	\$6,310
29	2039	\$ 0.0130	3,770,887		\$ 49,021.53	\$0		-\$17,187	0	\$31,834.39	\$1,020,884.95	\$5,875
30	2040	\$ 0.0130	3,770,887		\$ 49,021.53	\$0		-\$17,617	0	\$31,404.71	\$1,052,289.65	\$5,468

## Financial Calculations

IRR  
NPV  
Years to Postive Return 0

5 Years #NUM! \$130,359  
10 Years #DIV/0! \$252,527  
15 Years #DIV/0! \$340,663  
20 Years #DIV/0! \$403,855

# Financial Pro-Forma @ P50 (w/out MassCEC Grant)

## Project Information:

Name Swampscott Middle School  
Client Town of Swampscott  
Location Swampscott  
MA  
MAI Job # 5247  
Prepared By DEG

## Key Assumptions:

WTG Manufacturer:  
WTG Faceplate (kW)  
WTG Hub Height (m)  
Blade Diameter (m)  
WTG Prod. (kWh/Year)  
WTG Capacity Factor

Elecon  
600  
60  
48  
1,100,912  
0.21

Total Project Cost  
Down Payment (%)  
Down Payment  
Loan Amount  
O+M Cost (%Energy Prod.)  
Fed Tax Rate (%)

\$2,200,000.00  
0  
\$0  
-\$2,200,000  
18  
0

Current Value of offset Electricity  
Value of Renewable Energy Certificate, \$/kWh  
Net Present Value Based on Discount Rate of:  
Annual Inflation on Utility Rates:  
Interest Rate on 20-yr Loan:  
Annual Inflation Rate on Operation and Maint.

\$0.13  
0.03  
6.00%  
2.50%  
5.00%  
2.50%

					Project Revenues			Project Costs		Project Cash Flows		
Project Year	Fiscal Year	Average Rates (\$/kWh)	Annual Energy Production	Capital Payment	Annual Revenue from Production	REC Revenue	Depreciation	Total O+M Cost per Year	Annual Loan Principal and Interest	Cash Flow	Cumulative Cash Flow	Net Present Value for Current Year
1	2011		0	\$0	\$ -	\$0	\$0		-\$174,228.32	-\$174,228.32	-\$174,228.32	-\$174,228
2	2012	\$ 0.1324	1,100,912		\$ 145,727.72	\$33,027	\$0	-\$26,231	-\$174,228.32	-\$21,704.22	-\$195,932.54	-\$19,317
3	2013	\$ 0.1357	1,100,912		\$ 149,370.91	\$33,027	\$0	-\$26,887	-\$174,228.32	-\$18,716.81	-\$214,649.34	-\$15,715
4	2014	\$ 0.1391	1,100,912		\$ 153,105.19	\$33,027	\$0	-\$27,559	-\$174,228.32	-\$15,654.70	-\$230,304.05	-\$12,400
5	2015	\$ 0.1425	1,100,912		\$ 156,932.82	\$33,027	\$0	-\$28,248	-\$174,228.32	-\$12,516.05	-\$242,820.09	-\$9,353
6	2016	\$ 0.1461	1,100,912		\$ 160,856.14	\$33,027	\$0	-\$28,954	-\$174,228.32	-\$9,298.92	-\$252,119.01	-\$6,555
7	2017	\$ 0.1498	1,100,912		\$ 164,877.54	\$33,027		-\$29,678	-\$174,228.32	-\$6,001.37	-\$258,120.38	-\$3,991
8	2018	\$ 0.1535	1,100,912		\$ 168,999.48	\$33,027		-\$30,420	-\$174,228.32	-\$2,621.38	-\$260,741.77	-\$1,645
9	2019	\$ 0.1573	1,100,912		\$ 173,224.47	\$33,027		-\$31,180	-\$174,228.32	\$843.11	-\$259,898.66	\$499
10	2020	\$ 0.1613	1,100,912		\$ 177,555.08	\$33,027		-\$31,960	-\$174,228.32	\$4,394.21	-\$255,504.45	\$2,454
11	2021	\$ 0.1653	1,100,912		\$ 181,993.96	\$33,027		-\$32,759	-\$174,228.32	\$8,034.09	-\$247,470.36	\$4,232
12	2022	\$ 0.1694	1,100,912		\$ 186,543.80	\$33,027		-\$33,578	-\$174,228.32	\$11,764.96	-\$235,705.40	\$5,847
13	2023	\$ 0.1737	1,100,912		\$ 191,207.40	\$33,027		-\$34,417	-\$174,228.32	\$15,589.11	-\$220,116.29	\$7,309
14	2024	\$ 0.1780	1,100,912		\$ 195,987.58	\$33,027		-\$35,278	-\$174,228.32	\$19,508.86	-\$200,607.42	\$8,629
15	2025	\$ 0.1825	1,100,912		\$ 200,887.27	\$33,027		-\$36,160	-\$174,228.32	\$23,526.61	-\$177,080.81	\$9,817
16	2026	\$ 0.1870	1,100,912		\$ 205,909.46	\$33,027		-\$37,064	-\$174,228.32	\$27,644.80	-\$149,436.02	\$10,882
17	2027	\$ 0.1917	1,100,912		\$ 211,057.19	\$33,027		-\$37,990	-\$174,228.32	\$31,865.94	-\$117,570.07	\$11,834
18	2028	\$ 0.1965	1,100,912		\$ 216,333.62	\$33,027		-\$38,940	-\$174,228.32	\$36,192.61	-\$81,377.46	\$12,680
19	2029	\$ 0.2014	1,100,912		\$ 221,741.96	\$33,027		-\$39,914	-\$174,228.32	\$40,627.45	-\$40,750.01	\$13,428
20	2030	\$ 0.2065	1,100,912		\$ 227,285.51	\$33,027		-\$40,911	-\$174,228.32	\$45,173.16	\$4,423.16	\$14,085
21	2031	\$ 0.2116	1,100,912		\$ 232,967.65	\$33,027		-\$41,934	0	\$224,060.83	\$228,483.99	\$65,909
22	2032	\$ 0.2169	1,100,912		\$ 238,791.84	\$33,027		-\$42,983	0	\$228,836.67	\$457,320.66	\$63,503
23	2033	\$ 0.2223	1,100,912		\$ 244,761.64	\$33,027		-\$44,057	0	\$233,731.90	\$691,052.56	\$61,190
24	2034	\$ 0.2279	1,100,912		\$ 250,880.68	\$33,027		-\$45,159	0	\$238,749.52	\$929,802.08	\$58,966
25	2035	\$ 0.2336	1,100,912		\$ 257,152.69	\$33,027		-\$46,287	0	\$243,892.57	\$1,173,694.65	\$56,827
26	2036	\$ 0.2394	1,100,912		\$ 263,581.51	\$33,027		-\$47,445	0	\$249,164.20	\$1,422,858.85	\$54,769
27	2037	\$ 0.2454	1,100,912		\$ 270,171.05	\$33,027		-\$48,631	0	\$254,567.62	\$1,677,426.47	\$52,789
28	2038	\$ 0.2515	1,100,912		\$ 276,925.33	\$33,027		-\$49,847	0	\$260,106.13	\$1,937,532.59	\$50,885
29	2039	\$ 0.2578	1,100,912		\$ 283,848.46	\$33,027		-\$51,093	0	\$265,783.10	\$2,203,315.69	\$49,052
30	2040	\$ 0.2643	1,100,912		\$ 290,944.67	\$33,027		-\$52,370	0	\$271,601.99	\$2,474,917.68	\$47,289

## Financial Calculations

	IRR	NPV	Years to Postive Return	20
5 Years		-\$231,013		
10 Years	#NUM!	-\$240,251		
15 Years	#NUM!	-\$204,418		
20 Years	0%	-\$141,509		

# Financial Pro-Forma @ P50 (w/ MassCEC Grant)

## Project Information:

Name Swampscott Middle School  
Client Town of Swampscott  
Location Swampscott  
MA  
MAI Job # 5247  
Prepared By DEG

## Key Assumptions:

WTG Manufacturer:  
WTG Faceplate (kW)  
WTG Hub Height (m)  
Blade Diameter (m)  
WTG Prod. (kWh/Year)  
WTG Capacity Factor

Elecon  
600  
60  
48  
1,100,912  
0.21

Total Project Cost  
Down Payment (%)  
Down Payment  
Loan Amount  
O+M Cost (%Energy Prod.)  
Fed Tax Rate (%)

\$2,200,000.00  
0  
\$320,500  
-\$1,879,500  
18  
0

Current Value of offset Electricity  
Value of Renewable Energy Certificate, \$/kWh  
Net Present Value Based on Discount Rate of:  
Annual Inflation on Utility Rates:  
Interest Rate on 20-yr Loan:  
Annual Inflation Rate on Operation and Maint.

\$0.13  
0.03  
6.00%  
2.50%  
5.00%  
2.50%

					Project Revenues			Project Costs		Project Cash Flows		
Project Year	Fiscal Year	Average Rates (\$/kWh)	Annual Energy Production	Capital Payment	Annual Revenue from Production	REC Revenue	Depreciation	Total O+M Cost per Year	Annual Loan Principal and Interest	Cash Flow	Cumulative Cash Flow	Net Present Value for Current Year
1	2011		0	\$320,500	\$ -	\$0	\$0		-\$148,846.42	\$171,653.58	\$171,653.58	\$171,654
2	2012	\$ 0.1324	1,100,912		\$ 145,727.72	\$33,027	\$0	-\$26,231	-\$148,846.42	\$3,677.67	\$175,331.26	\$3,273
3	2013	\$ 0.1357	1,100,912		\$ 149,370.91	\$33,027	\$0	-\$26,887	-\$148,846.42	\$6,665.09	\$181,996.35	\$5,596
4	2014	\$ 0.1391	1,100,912		\$ 153,105.19	\$33,027	\$0	-\$27,559	-\$148,846.42	\$9,727.20	\$191,723.55	\$7,705
5	2015	\$ 0.1425	1,100,912		\$ 156,932.82	\$33,027	\$0	-\$28,248	-\$148,846.42	\$12,865.85	\$204,589.40	\$9,614
6	2016	\$ 0.1461	1,100,912		\$ 160,856.14	\$33,027	\$0	-\$28,954	-\$148,846.42	\$16,082.98	\$220,672.37	\$11,338
7	2017	\$ 0.1498	1,100,912		\$ 164,877.54	\$33,027		-\$29,678	-\$148,846.42	\$19,380.53	\$240,052.90	\$12,889
8	2018	\$ 0.1535	1,100,912		\$ 168,999.48	\$33,027		-\$30,420	-\$148,846.42	\$22,760.52	\$262,813.41	\$14,280
9	2019	\$ 0.1573	1,100,912		\$ 173,224.47	\$33,027		-\$31,180	-\$148,846.42	\$26,225.01	\$289,038.42	\$15,523
10	2020	\$ 0.1613	1,100,912		\$ 177,555.08	\$33,027		-\$31,960	-\$148,846.42	\$29,776.11	\$318,814.53	\$16,627
11	2021	\$ 0.1653	1,100,912		\$ 181,993.96	\$33,027		-\$32,759	-\$148,846.42	\$33,415.99	\$352,230.51	\$17,603
12	2022	\$ 0.1694	1,100,912		\$ 186,543.80	\$33,027		-\$33,578	-\$148,846.42	\$37,146.86	\$389,377.37	\$18,461
13	2023	\$ 0.1737	1,100,912		\$ 191,207.40	\$33,027		-\$34,417	-\$148,846.42	\$40,971.01	\$430,348.38	\$19,209
14	2024	\$ 0.1780	1,100,912		\$ 195,987.58	\$33,027		-\$35,278	-\$148,846.42	\$44,890.76	\$475,239.15	\$19,855
15	2025	\$ 0.1825	1,100,912		\$ 200,887.27	\$33,027		-\$36,160	-\$148,846.42	\$48,908.51	\$524,147.65	\$20,408
16	2026	\$ 0.1870	1,100,912		\$ 205,909.46	\$33,027		-\$37,064	-\$148,846.42	\$53,026.70	\$577,174.35	\$20,874
17	2027	\$ 0.1917	1,100,912		\$ 211,057.19	\$33,027		-\$37,990	-\$148,846.42	\$57,247.84	\$634,422.19	\$21,260
18	2028	\$ 0.1965	1,100,912		\$ 216,333.62	\$33,027		-\$38,940	-\$148,846.42	\$61,574.51	\$695,996.70	\$21,572
19	2029	\$ 0.2014	1,100,912		\$ 221,741.96	\$33,027		-\$39,914	-\$148,846.42	\$66,009.35	\$762,006.05	\$21,817
20	2030	\$ 0.2065	1,100,912		\$ 227,285.51	\$33,027		-\$40,911	-\$148,846.42	\$70,555.06	\$832,561.11	\$21,999
21	2031	\$ 0.2116	1,100,912		\$ 232,967.65	\$33,027		-\$41,934	0	\$224,060.83	\$1,056,621.95	\$65,909
22	2032	\$ 0.2169	1,100,912		\$ 238,791.84	\$33,027		-\$42,983	0	\$228,836.67	\$1,285,458.61	\$63,503
23	2033	\$ 0.2223	1,100,912		\$ 244,761.64	\$33,027		-\$44,057	0	\$233,731.90	\$1,519,190.52	\$61,190
24	2034	\$ 0.2279	1,100,912		\$ 250,880.68	\$33,027		-\$45,159	0	\$238,749.52	\$1,757,940.03	\$58,966
25	2035	\$ 0.2336	1,100,912		\$ 257,152.69	\$33,027		-\$46,287	0	\$243,892.57	\$2,001,832.60	\$56,827
26	2036	\$ 0.2394	1,100,912		\$ 263,581.51	\$33,027		-\$47,445	0	\$249,164.20	\$2,250,996.80	\$54,769
27	2037	\$ 0.2454	1,100,912		\$ 270,171.05	\$33,027		-\$48,631	0	\$254,567.62	\$2,505,564.42	\$52,789
28	2038	\$ 0.2515	1,100,912		\$ 276,925.33	\$33,027		-\$49,847	0	\$260,106.13	\$2,765,670.55	\$50,885
29	2039	\$ 0.2578	1,100,912		\$ 283,848.46	\$33,027		-\$51,093	0	\$265,783.10	\$3,031,453.64	\$49,052
30	2040	\$ 0.2643	1,100,912		\$ 290,944.67	\$33,027		-\$52,370	0	\$271,601.99	\$3,303,055.63	\$47,289

## Financial Calculations

	IRR	NPV	Years to Postive Return	18
5 Years		\$197,842		
10 Years	#NUM!	\$268,498		
15 Years	#DIV/0!	\$364,034		
20 Years	#DIV/0!	\$471,556		



# Financial Pro-Forma @ P50 (w/out MassCEC Grant)

## Project Information:

Name Swampscott Middle School  
Client Town of Swampscott  
Location Swampscott  
MA  
MAI Job # 5247  
Prepared By DEG

## Key Assumptions:

WTG Manufacturer:  
WTG Faceplate (kW)  
WTG Hub Height (m)  
Blade Diameter (m)  
WTG Prod. (kWh/Year)  
WTG Capacity Factor

Unison  
750  
60  
54  
1,317,973  
0.20

Total Project Cost  
Down Payment (%)  
Down Payment  
Loan Amount  
O+M Cost (%Energy Prod.)  
Fed Tax Rate (%)

\$2,800,000.00  
0  
\$0  
-\$2,800,000  
18  
0

Current Value of offset Electricity  
Value of Renewable Energy Certificate, \$/kWh  
Net Present Value Based on Discount Rate of:  
Annual Inflation on Utility Rates:  
Interest Rate on 20-yr Loan:  
Annual Inflation Rate on Operation and Maint.

\$0.13  
0.03  
6.00%  
2.50%  
5.00%  
2.50%

					Project Revenues			Project Costs		Project Cash Flows		
Project Year	Fiscal Year	Average Rates (\$/kWh)	Annual Energy Production	Capital Payment	Annual Revenue from Production	REC Revenue	Depreciation	Total O+M Cost per Year	Annual Loan Principal and Interest	Cash Flow	Cumulative Cash Flow	Net Present Value for Current Year
1	2011		0	\$0	\$ -	\$0	\$0		-\$221,745.13	-\$221,745.13	-\$221,745.13	-\$221,745
2	2012	\$ 0.1324	1,317,973		\$ 174,460.09	\$39,539	\$0	-\$31,403	-\$221,745.13	-\$39,148.67	-\$260,893.80	-\$34,842
3	2013	\$ 0.1357	1,317,973		\$ 178,821.59	\$39,539	\$0	-\$32,188	-\$221,745.13	-\$35,572.24	-\$296,466.03	-\$29,867
4	2014	\$ 0.1391	1,317,973		\$ 183,292.13	\$39,539	\$0	-\$32,993	-\$221,745.13	-\$31,906.39	-\$328,372.43	-\$25,273
5	2015	\$ 0.1425	1,317,973		\$ 187,874.43	\$39,539	\$0	-\$33,817	-\$221,745.13	-\$28,148.90	-\$356,521.33	-\$21,034
6	2016	\$ 0.1461	1,317,973		\$ 192,571.29	\$39,539	\$0	-\$34,663	-\$221,745.13	-\$24,297.48	-\$380,818.81	-\$17,129
7	2017	\$ 0.1498	1,317,973		\$ 197,385.57	\$39,539		-\$35,529	-\$221,745.13	-\$20,349.77	-\$401,168.58	-\$13,534
8	2018	\$ 0.1535	1,317,973		\$ 202,320.21	\$39,539		-\$36,418	-\$221,745.13	-\$16,303.36	-\$417,471.94	-\$10,229
9	2019	\$ 0.1573	1,317,973		\$ 207,378.22	\$39,539		-\$37,328	-\$221,745.13	-\$12,155.80	-\$429,627.74	-\$7,195
10	2020	\$ 0.1613	1,317,973		\$ 212,562.67	\$39,539		-\$38,261	-\$221,745.13	-\$7,904.55	-\$437,532.29	-\$4,414
11	2021	\$ 0.1653	1,317,973		\$ 217,876.74	\$39,539		-\$39,218	-\$221,745.13	-\$3,547.01	-\$441,079.30	-\$1,869
12	2022	\$ 0.1694	1,317,973		\$ 223,323.66	\$39,539		-\$40,198	-\$221,745.13	\$919.46	-\$440,159.83	\$457
13	2023	\$ 0.1737	1,317,973		\$ 228,906.75	\$39,539		-\$41,203	-\$221,745.13	\$5,497.60	-\$434,662.24	\$2,577
14	2024	\$ 0.1780	1,317,973		\$ 234,629.42	\$39,539		-\$42,233	-\$221,745.13	\$10,190.19	-\$424,472.05	\$4,507
15	2025	\$ 0.1825	1,317,973		\$ 240,495.16	\$39,539		-\$43,289	-\$221,745.13	\$15,000.09	-\$409,471.96	\$6,259
16	2026	\$ 0.1870	1,317,973		\$ 246,507.53	\$39,539		-\$44,371	-\$221,745.13	\$19,930.24	-\$389,541.72	\$7,845
17	2027	\$ 0.1917	1,317,973		\$ 252,670.22	\$39,539		-\$45,481	-\$221,745.13	\$24,983.64	-\$364,558.08	\$9,278
18	2028	\$ 0.1965	1,317,973		\$ 258,986.98	\$39,539		-\$46,618	-\$221,745.13	\$30,163.38	-\$334,394.69	\$10,568
19	2029	\$ 0.2014	1,317,973		\$ 265,461.65	\$39,539		-\$47,783	-\$221,745.13	\$35,472.62	-\$298,922.08	\$11,724
20	2030	\$ 0.2065	1,317,973		\$ 272,098.19	\$39,539		-\$48,978	-\$221,745.13	\$40,914.58	-\$258,007.50	\$12,757
21	2031	\$ 0.2116	1,317,973		\$ 278,900.65	\$39,539		-\$50,202	0	\$268,237.72	\$10,230.23	\$78,904
22	2032	\$ 0.2169	1,317,973		\$ 285,873.17	\$39,539		-\$51,457	0	\$273,955.19	\$284,185.41	\$76,024
23	2033	\$ 0.2223	1,317,973		\$ 293,019.99	\$39,539		-\$52,744	0	\$279,815.59	\$564,001.00	\$73,255
24	2034	\$ 0.2279	1,317,973		\$ 300,345.49	\$39,539		-\$54,062	0	\$285,822.50	\$849,823.49	\$70,592
25	2035	\$ 0.2336	1,317,973		\$ 307,854.13	\$39,539		-\$55,414	0	\$291,979.58	\$1,141,803.07	\$68,031
26	2036	\$ 0.2394	1,317,973		\$ 315,550.48	\$39,539		-\$56,799	0	\$298,290.59	\$1,440,093.66	\$65,567
27	2037	\$ 0.2454	1,317,973		\$ 323,439.25	\$39,539		-\$58,219	0	\$304,759.37	\$1,744,853.03	\$63,197
28	2038	\$ 0.2515	1,317,973		\$ 331,525.23	\$39,539		-\$59,675	0	\$311,389.88	\$2,056,242.91	\$60,917
29	2039	\$ 0.2578	1,317,973		\$ 339,813.36	\$39,539		-\$61,166	0	\$318,186.14	\$2,374,429.05	\$58,723
30	2040	\$ 0.2643	1,317,973		\$ 348,308.69	\$39,539		-\$62,696	0	\$325,152.32	\$2,699,581.37	\$56,612

## Financial Calculations

IRR  
NPV  
5 Years -\$332,762  
10 Years -\$385,262  
15 Years -\$373,330  
20 Years -\$321,157

Years to Postive Return

21



# Financial Pro-Forma @ P50 (w/ MassCEC Grant)

## Project Information:

Name Swampscott Middle School  
Client Town of Swampscott  
Location Swampscott  
MA  
MAI Job # 5247  
Prepared By DEG

## Key Assumptions:

WTG Manufacturer:  
WTG Faceplate (kW)  
WTG Hub Height (m)  
Blade Diameter (m)  
WTG Prod. (kWh/Year)  
WTG Capacity Factor

Unison  
750  
60  
54  
1,317,973  
0.20

Total Project Cost  
Down Payment (%)  
Down Payment  
Loan Amount  
O+M Cost (%Energy Prod.)  
Fed Tax Rate (%)

\$2,800,000.00  
0  
\$339,855  
-\$2,460,145  
18  
0

Current Value of offset Electricity  
Value of Renewable Energy Certificate, \$/kWh  
Net Present Value Based on Discount Rate of:  
Annual Inflation on Utility Rates:  
Interest Rate on 20-yr Loan:  
Annual Inflation Rate on Operation and Maint.

\$0.13  
0.03  
6.00%  
2.50%  
5.00%  
2.50%

					Project Revenues			Project Costs		Project Cash Flows		
Project Year	Fiscal Year	Average Rates (\$/kWh)	Annual Energy Production	Capital Payment	Annual Revenue from Production	REC Revenue	Depreciation	Total O+M Cost per Year	Annual Loan Principal and Interest	Cash Flow	Cumulative Cash Flow	Net Present Value for Current Year
1	2011		0	\$339,855	\$ -	\$0	\$0		-\$194,830.42	\$145,024.58	\$145,024.58	\$145,025
2	2012	\$ 0.1324	1,317,973		\$ 174,460.09	\$39,539	\$0	-\$31,403	-\$194,830.42	-\$12,233.96	\$132,790.63	-\$10,888
3	2013	\$ 0.1357	1,317,973		\$ 178,821.59	\$39,539	\$0	-\$32,188	-\$194,830.42	-\$8,657.53	\$124,133.10	-\$7,269
4	2014	\$ 0.1391	1,317,973		\$ 183,292.13	\$39,539	\$0	-\$32,993	-\$194,830.42	-\$4,991.68	\$119,141.42	-\$3,954
5	2015	\$ 0.1425	1,317,973		\$ 187,874.43	\$39,539	\$0	-\$33,817	-\$194,830.42	-\$1,234.19	\$117,907.22	-\$922
6	2016	\$ 0.1461	1,317,973		\$ 192,571.29	\$39,539	\$0	-\$34,663	-\$194,830.42	\$2,617.23	\$120,524.46	\$1,845
7	2017	\$ 0.1498	1,317,973		\$ 197,385.57	\$39,539		-\$35,529	-\$194,830.42	\$6,564.94	\$127,089.40	\$4,366
8	2018	\$ 0.1535	1,317,973		\$ 202,320.21	\$39,539		-\$36,418	-\$194,830.42	\$10,611.35	\$137,700.75	\$6,658
9	2019	\$ 0.1573	1,317,973		\$ 207,378.22	\$39,539		-\$37,328	-\$194,830.42	\$14,758.91	\$152,459.66	\$8,736
10	2020	\$ 0.1613	1,317,973		\$ 212,562.67	\$39,539		-\$38,261	-\$194,830.42	\$19,010.17	\$171,469.82	\$10,615
11	2021	\$ 0.1653	1,317,973		\$ 217,876.74	\$39,539		-\$39,218	-\$194,830.42	\$23,367.70	\$194,837.52	\$12,310
12	2022	\$ 0.1694	1,317,973		\$ 223,323.66	\$39,539		-\$40,198	-\$194,830.42	\$27,834.17	\$222,671.70	\$13,833
13	2023	\$ 0.1737	1,317,973		\$ 228,906.75	\$39,539		-\$41,203	-\$194,830.42	\$32,412.31	\$255,084.01	\$15,196
14	2024	\$ 0.1780	1,317,973		\$ 234,629.42	\$39,539		-\$42,233	-\$194,830.42	\$37,104.90	\$292,188.90	\$16,412
15	2025	\$ 0.1825	1,317,973		\$ 240,495.16	\$39,539		-\$43,289	-\$194,830.42	\$41,914.80	\$334,103.70	\$17,490
16	2026	\$ 0.1870	1,317,973		\$ 246,507.53	\$39,539		-\$44,371	-\$194,830.42	\$46,844.95	\$380,948.65	\$18,440
17	2027	\$ 0.1917	1,317,973		\$ 252,670.22	\$39,539		-\$45,481	-\$194,830.42	\$51,898.36	\$432,847.01	\$19,273
18	2028	\$ 0.1965	1,317,973		\$ 258,986.98	\$39,539		-\$46,618	-\$194,830.42	\$57,078.09	\$489,925.10	\$19,997
19	2029	\$ 0.2014	1,317,973		\$ 265,461.65	\$39,539		-\$47,783	-\$194,830.42	\$62,387.33	\$552,312.43	\$20,620
20	2030	\$ 0.2065	1,317,973		\$ 272,098.19	\$39,539		-\$48,978	-\$194,830.42	\$67,829.29	\$620,141.72	\$21,149
21	2031	\$ 0.2116	1,317,973		\$ 278,900.65	\$39,539		-\$50,202	0	\$268,237.72	\$888,379.45	\$78,904
22	2032	\$ 0.2169	1,317,973		\$ 285,873.17	\$39,539		-\$51,457	0	\$273,955.19	\$1,162,334.63	\$76,024
23	2033	\$ 0.2223	1,317,973		\$ 293,019.99	\$39,539		-\$52,744	0	\$279,815.59	\$1,442,150.22	\$73,255
24	2034	\$ 0.2279	1,317,973		\$ 300,345.49	\$39,539		-\$54,062	0	\$285,822.50	\$1,727,972.71	\$70,592
25	2035	\$ 0.2336	1,317,973		\$ 307,854.13	\$39,539		-\$55,414	0	\$291,979.58	\$2,019,952.29	\$68,031
26	2036	\$ 0.2394	1,317,973		\$ 315,550.48	\$39,539		-\$56,799	0	\$298,290.59	\$2,318,242.88	\$65,567
27	2037	\$ 0.2454	1,317,973		\$ 323,439.25	\$39,539		-\$58,219	0	\$304,759.37	\$2,623,002.25	\$63,197
28	2038	\$ 0.2515	1,317,973		\$ 331,525.23	\$39,539		-\$59,675	0	\$311,389.88	\$2,934,392.13	\$60,917
29	2039	\$ 0.2578	1,317,973		\$ 339,813.36	\$39,539		-\$61,166	0	\$318,186.14	\$3,252,578.27	\$58,723
30	2040	\$ 0.2643	1,317,973		\$ 348,308.69	\$39,539		-\$62,696	0	\$325,152.32	\$3,577,730.59	\$56,612

## Financial Calculations

	IRR	NPV	Years to Postive Return	19
5 Years		\$121,991		
10 Years	#DIV/0!	\$154,211		
15 Years	#DIV/0!	\$229,451		
20 Years	#DIV/0!	\$328,931		

# Financial Pro-Forma @ P50 (w/out MassCEC Grant)

## Project Information:

Name Swampscott Middle School  
Client Town of Swampscott  
Location Swampscott  
MA  
MAI Job # 5247  
Prepared By DEG

## Key Assumptions:

WTG Manufacturer:  
WTG Faceplate (kW)  
WTG Hub Height (m)  
Blade Diameter (m)  
WTG Prod. (kWh/Year)  
WTG Capacity Factor

EWT  
900  
75  
54  
1,747,888  
0.22

Total Project Cost  
Down Payment (%)  
Down Payment  
Loan Amount  
O+M Cost (%Energy Prod.)  
Fed Tax Rate (%)

\$3,000,000.00  
0  
\$0  
-\$3,000,000  
18  
0

Current Value of offset Electricity  
Value of Renewable Energy Certificate, \$/kWh  
Net Present Value Based on Discount Rate of:  
Annual Inflation on Utility Rates:  
Interest Rate on 20-yr Loan:  
Annual Inflation Rate on Operation and Maint.

\$0.13  
0.03  
6.00%  
2.50%  
5.00%  
2.50%

					Project Revenues			Project Costs		Project Cash Flows		
Project Year	Fiscal Year	Average Rates (\$/kWh)	Annual Energy Production	Capital Payment	Annual Revenue from Production	REC Revenue	Depreciation	Total O+M Cost per Year	Annual Loan Principal and Interest	Cash Flow	Cumulative Cash Flow	Net Present Value for Current Year
1	2011		0	\$0	\$ -	\$0	\$0		-\$237,584.07	-\$237,584.07	-\$237,584.07	-\$237,584
2	2012	\$ 0.1324	1,747,888		\$ 231,367.93	\$52,437	\$0	-\$41,646	-\$237,584.07	\$4,574.28	-\$233,009.79	\$4,071
3	2013	\$ 0.1357	1,747,888		\$ 237,152.13	\$52,437	\$0	-\$42,687	-\$237,584.07	\$9,317.32	-\$223,692.46	\$7,823
4	2014	\$ 0.1391	1,747,888		\$ 243,080.94	\$52,437	\$0	-\$43,755	-\$237,584.07	\$14,178.94	-\$209,513.52	\$11,231
5	2015	\$ 0.1425	1,747,888		\$ 249,157.96	\$52,437	\$0	-\$44,848	-\$237,584.07	\$19,162.10	-\$190,351.42	\$14,319
6	2016	\$ 0.1461	1,747,888		\$ 255,386.91	\$52,437	\$0	-\$45,970	-\$237,584.07	\$24,269.84	-\$166,081.58	\$17,109
7	2017	\$ 0.1498	1,747,888		\$ 261,771.58	\$52,437		-\$47,119	-\$237,584.07	\$29,505.27	-\$136,576.31	\$19,623
8	2018	\$ 0.1535	1,747,888		\$ 268,315.87	\$52,437		-\$48,297	-\$237,584.07	\$34,871.59	-\$101,704.72	\$21,879
9	2019	\$ 0.1573	1,747,888		\$ 275,023.77	\$52,437		-\$49,504	-\$237,584.07	\$40,372.06	-\$61,332.66	\$23,896
10	2020	\$ 0.1613	1,747,888		\$ 281,899.36	\$52,437		-\$50,742	-\$237,584.07	\$46,010.05	-\$15,322.61	\$25,692
11	2021	\$ 0.1653	1,747,888		\$ 288,946.85	\$52,437		-\$52,010	-\$237,584.07	\$51,788.99	\$36,466.38	\$27,282
12	2022	\$ 0.1694	1,747,888		\$ 296,170.52	\$52,437		-\$53,311	-\$237,584.07	\$57,712.40	\$94,178.78	\$28,681
13	2023	\$ 0.1737	1,747,888		\$ 303,574.78	\$52,437		-\$54,643	-\$237,584.07	\$63,783.89	\$157,962.67	\$29,904
14	2024	\$ 0.1780	1,747,888		\$ 311,164.15	\$52,437		-\$56,010	-\$237,584.07	\$70,007.18	\$227,969.85	\$30,964
15	2025	\$ 0.1825	1,747,888		\$ 318,943.25	\$52,437		-\$57,410	-\$237,584.07	\$76,386.04	\$304,355.89	\$31,873
16	2026	\$ 0.1870	1,747,888		\$ 326,916.83	\$52,437		-\$58,845	-\$237,584.07	\$82,924.38	\$387,280.27	\$32,643
17	2027	\$ 0.1917	1,747,888		\$ 335,089.76	\$52,437		-\$60,316	-\$237,584.07	\$89,626.17	\$476,906.44	\$33,284
18	2028	\$ 0.1965	1,747,888		\$ 343,467.00	\$52,437		-\$61,824	-\$237,584.07	\$96,495.51	\$573,401.95	\$33,807
19	2029	\$ 0.2014	1,747,888		\$ 352,053.67	\$52,437		-\$63,370	-\$237,584.07	\$103,536.59	\$676,938.54	\$34,220
20	2030	\$ 0.2065	1,747,888		\$ 360,855.02	\$52,437		-\$64,954	-\$237,584.07	\$110,753.69	\$787,692.23	\$34,534
21	2031	\$ 0.2116	1,747,888		\$ 369,876.39	\$52,437		-\$66,578	0	\$355,735.28	\$1,143,427.51	\$104,641
22	2032	\$ 0.2169	1,747,888		\$ 379,123.30	\$52,437		-\$68,242	0	\$363,317.75	\$1,506,745.25	\$100,823
23	2033	\$ 0.2223	1,747,888		\$ 388,601.38	\$52,437		-\$69,948	0	\$371,089.77	\$1,877,835.03	\$97,150
24	2034	\$ 0.2279	1,747,888		\$ 398,316.42	\$52,437		-\$71,697	0	\$379,056.10	\$2,256,891.13	\$93,619
25	2035	\$ 0.2336	1,747,888		\$ 408,274.33	\$52,437		-\$73,489	0	\$387,221.59	\$2,644,112.72	\$90,222
26	2036	\$ 0.2394	1,747,888		\$ 418,481.19	\$52,437		-\$75,327	0	\$395,591.21	\$3,039,703.94	\$86,955
27	2037	\$ 0.2454	1,747,888		\$ 428,943.22	\$52,437		-\$77,210	0	\$404,170.08	\$3,443,874.01	\$83,812
28	2038	\$ 0.2515	1,747,888		\$ 439,666.80	\$52,437		-\$79,140	0	\$412,963.41	\$3,856,837.43	\$80,788
29	2039	\$ 0.2578	1,747,888		\$ 450,658.47	\$52,437		-\$81,119	0	\$421,976.58	\$4,278,814.01	\$77,879
30	2040	\$ 0.2643	1,747,888		\$ 461,924.93	\$52,437		-\$83,146	0	\$431,215.08	\$4,710,029.09	\$75,079

## Financial Calculations

	IRR	NPV	Years to Postive Return	18
5 Years		-\$200,140		
10 Years	-1%	-\$91,941		
15 Years	9%	\$56,764		
20 Years	13%	\$225,251		

# Financial Pro-Forma @ P50 (w/ MassCEC Grant)

## Project Information:

Name Swampscott Middle School  
Client Town of Swampscott  
Location Swampscott  
MA  
MAI Job # 5247  
Prepared By DEG

## Key Assumptions:

WTG Manufacturer:  
WTG Faceplate (kW)  
WTG Hub Height (m)  
Blade Diameter (m)  
WTG Prod. (kWh/Year)  
WTG Capacity Factor

EWT  
900  
75  
54  
1,747,888  
0.22

Total Project Cost  
Down Payment (%)  
Down Payment  
Loan Amount  
O+M Cost (%Energy Prod.)  
Fed Tax Rate (%)

\$3,000,000.00  
0  
\$355,677  
-\$2,644,323  
18  
0

Current Value of offset Electricity  
Value of Renewable Energy Certificate, \$/kWh  
Net Present Value Based on Discount Rate of:  
Annual Inflation on Utility Rates:  
Interest Rate on 20-yr Loan:  
Annual Inflation Rate on Operation and Maint.

\$0.13  
0.03  
6.00%  
2.50%  
5.00%  
2.50%

					Project Revenues			Project Costs		Project Cash Flows		
Project Year	Fiscal Year	Average Rates (\$/kWh)	Annual Energy Production	Capital Payment	Annual Revenue from Production	REC Revenue	Depreciation	Total O+M Cost per Year	Annual Loan Principal and Interest	Cash Flow	Cumulative Cash Flow	Net Present Value for Current Year
1	2011		0	\$355,677	\$ -	\$0	\$0		-\$209,416.34	\$146,260.66	\$146,260.66	\$146,261
2	2012	\$ 0.1324	1,747,888		\$ 231,367.93	\$52,437	\$0	-\$41,646	-\$209,416.34	\$32,742.01	\$179,002.67	\$29,140
3	2013	\$ 0.1357	1,747,888		\$ 237,152.13	\$52,437	\$0	-\$42,687	-\$209,416.34	\$37,485.05	\$216,487.72	\$31,473
4	2014	\$ 0.1391	1,747,888		\$ 243,080.94	\$52,437	\$0	-\$43,755	-\$209,416.34	\$42,346.67	\$258,834.40	\$33,543
5	2015	\$ 0.1425	1,747,888		\$ 249,157.96	\$52,437	\$0	-\$44,848	-\$209,416.34	\$47,329.83	\$306,164.23	\$35,368
6	2016	\$ 0.1461	1,747,888		\$ 255,386.91	\$52,437	\$0	-\$45,970	-\$209,416.34	\$52,437.57	\$358,601.79	\$36,966
7	2017	\$ 0.1498	1,747,888		\$ 261,771.58	\$52,437		-\$47,119	-\$209,416.34	\$57,673.00	\$416,274.79	\$38,356
8	2018	\$ 0.1535	1,747,888		\$ 268,315.87	\$52,437		-\$48,297	-\$209,416.34	\$63,039.32	\$479,314.11	\$39,552
9	2019	\$ 0.1573	1,747,888		\$ 275,023.77	\$52,437		-\$49,504	-\$209,416.34	\$68,539.79	\$547,853.90	\$40,569
10	2020	\$ 0.1613	1,747,888		\$ 281,899.36	\$52,437		-\$50,742	-\$209,416.34	\$74,177.78	\$622,031.68	\$41,420
11	2021	\$ 0.1653	1,747,888		\$ 288,946.85	\$52,437		-\$52,010	-\$209,416.34	\$79,956.72	\$701,988.40	\$42,120
12	2022	\$ 0.1694	1,747,888		\$ 296,170.52	\$52,437		-\$53,311	-\$209,416.34	\$85,880.13	\$787,868.53	\$42,680
13	2023	\$ 0.1737	1,747,888		\$ 303,574.78	\$52,437		-\$54,643	-\$209,416.34	\$91,951.62	\$879,820.15	\$43,111
14	2024	\$ 0.1780	1,747,888		\$ 311,164.15	\$52,437		-\$56,010	-\$209,416.34	\$98,174.91	\$977,995.06	\$43,423
15	2025	\$ 0.1825	1,747,888		\$ 318,943.25	\$52,437		-\$57,410	-\$209,416.34	\$104,553.77	\$1,082,548.83	\$43,627
16	2026	\$ 0.1870	1,747,888		\$ 326,916.83	\$52,437		-\$58,845	-\$209,416.34	\$111,092.11	\$1,193,640.93	\$43,731
17	2027	\$ 0.1917	1,747,888		\$ 335,089.76	\$52,437		-\$60,316	-\$209,416.34	\$117,793.90	\$1,311,434.84	\$43,744
18	2028	\$ 0.1965	1,747,888		\$ 343,467.00	\$52,437		-\$61,824	-\$209,416.34	\$124,663.24	\$1,436,098.08	\$43,675
19	2029	\$ 0.2014	1,747,888		\$ 352,053.67	\$52,437		-\$63,370	-\$209,416.34	\$131,704.32	\$1,567,802.40	\$43,530
20	2030	\$ 0.2065	1,747,888		\$ 360,855.02	\$52,437		-\$64,954	-\$209,416.34	\$138,921.42	\$1,706,723.81	\$43,316
21	2031	\$ 0.2116	1,747,888		\$ 369,876.39	\$52,437		-\$66,578	0	\$355,735.28	\$2,062,459.09	\$104,641
22	2032	\$ 0.2169	1,747,888		\$ 379,123.30	\$52,437		-\$68,242	0	\$363,317.75	\$2,425,776.84	\$100,823
23	2033	\$ 0.2223	1,747,888		\$ 388,601.38	\$52,437		-\$69,948	0	\$371,089.77	\$2,796,866.62	\$97,150
24	2034	\$ 0.2279	1,747,888		\$ 398,316.42	\$52,437		-\$71,697	0	\$379,056.10	\$3,175,922.72	\$93,619
25	2035	\$ 0.2336	1,747,888		\$ 408,274.33	\$52,437		-\$73,489	0	\$387,221.59	\$3,563,144.31	\$90,222
26	2036	\$ 0.2394	1,747,888		\$ 418,481.19	\$52,437		-\$75,327	0	\$395,591.21	\$3,958,735.52	\$86,955
27	2037	\$ 0.2454	1,747,888		\$ 428,943.22	\$52,437		-\$77,210	0	\$404,170.08	\$4,362,905.60	\$83,812
28	2038	\$ 0.2515	1,747,888		\$ 439,666.80	\$52,437		-\$79,140	0	\$412,963.41	\$4,775,869.01	\$80,788
29	2039	\$ 0.2578	1,747,888		\$ 450,658.47	\$52,437		-\$81,119	0	\$421,976.58	\$5,197,845.60	\$77,879
30	2040	\$ 0.2643	1,747,888		\$ 461,924.93	\$52,437		-\$83,146	0	\$431,215.08	\$5,629,060.68	\$75,079

## Financial Calculations

IRR  
NPV  
5 Years \$275,784  
10 Years \$472,647  
15 Years \$687,607  
20 Years \$905,604

Years to Postive Return

16

# Financial Pro-Forma @ P50 (w/out MassCEC Grant)

## Project Information:

Name Swampscott Middle School  
 Client Town of Swampscott  
 Location Swampscott MA  
 MAI Job # 5247  
 Prepared By DEG

## Key Assumptions:

WTG Manufacturer: GE Energy  
 WTG Faceplate (kW) 1500  
 WTG Hub Height (m) 80  
 Blade Diameter (m) 77  
 WTG Prod. (kWh/Year) 3,770,887  
 WTG Capacity Factor 0.29

Total Project Cost \$4,200,000.00  
 Down Payment (%) 0  
 Down Payment \$0  
 Loan Amount -\$4,200,000  
 O+M Cost (%Energy Prod.) 18  
 Fed Tax Rate (%) 0

Current Value of offset Electricity \$0.13  
 Value of Renewable Energy Certificate, \$/kWh 0.03  
 Net Present Value Based on Discount Rate of: 6.00%  
 Annual Inflation on Utility Rates: 2.50%  
 Interest Rate on 20-yr Loan: 5.00%  
 Annual Inflation Rate on Operation and Maint. 2.50%

			Project Revenues					Project Costs		Project Cash Flows			
Project Year	Fiscal Year	Average Rates (\$/kWh)	Annual Energy Production	Capital Payment	Annual Revenue from Production	REC Revenue	Depreciation	Total O+M Cost per Year	Annual Loan Principal and Interest	Cash Flow	Cumulative Cash Flow	Net Present Value for Current Year	
1	2011		0	\$0	\$ -	\$0	\$0			-\$332,617.69	-\$332,617.69	-\$332,618	
2	2012	\$ 0.1324	3,770,887		\$ 499,152.31	\$113,127	\$0	-\$89,847	-\$332,617.69	\$189,813.81	-\$142,803.88	\$168,934	
3	2013	\$ 0.1357	3,770,887		\$ 511,631.12	\$113,127	\$0	-\$92,094	-\$332,617.69	\$200,046.44	\$57,242.56	\$167,963	
4	2014	\$ 0.1391	3,770,887		\$ 524,421.90	\$113,127	\$0	-\$94,396	-\$332,617.69	\$210,534.87	\$267,777.43	\$166,763	
5	2015	\$ 0.1425	3,770,887		\$ 537,532.45	\$113,127	\$0	-\$96,756	-\$332,617.69	\$221,285.52	\$489,062.95	\$165,357	
6	2016	\$ 0.1461	3,770,887		\$ 550,970.76	\$113,127	\$0	-\$99,175	-\$332,617.69	\$232,304.94	\$721,367.89	\$163,766	
7	2017	\$ 0.1498	3,770,887		\$ 564,745.03	\$113,127		-\$101,654	-\$332,617.69	\$243,599.84	\$964,967.73	\$162,008	
8	2018	\$ 0.1535	3,770,887		\$ 578,863.65	\$113,127		-\$104,195	-\$332,617.69	\$255,177.11	\$1,220,144.84	\$160,101	
9	2019	\$ 0.1573	3,770,887		\$ 593,335.24	\$113,127		-\$106,800	-\$332,617.69	\$267,043.82	\$1,487,188.66	\$158,063	
10	2020	\$ 0.1613	3,770,887		\$ 608,168.62	\$113,127		-\$109,470	-\$332,617.69	\$279,207.19	\$1,766,395.85	\$155,908	
11	2021	\$ 0.1653	3,770,887		\$ 623,372.84	\$113,127		-\$112,207	-\$332,617.69	\$291,674.65	\$2,058,070.49	\$153,651	
12	2022	\$ 0.1694	3,770,887		\$ 638,957.16	\$113,127		-\$115,012	-\$332,617.69	\$304,453.79	\$2,362,524.28	\$151,304	
13	2023	\$ 0.1737	3,770,887		\$ 654,931.09	\$113,127		-\$117,888	-\$332,617.69	\$317,552.41	\$2,680,076.69	\$148,881	
14	2024	\$ 0.1780	3,770,887		\$ 671,304.37	\$113,127		-\$120,835	-\$332,617.69	\$330,978.50	\$3,011,055.19	\$146,392	
15	2025	\$ 0.1825	3,770,887		\$ 688,086.98	\$113,127		-\$123,856	-\$332,617.69	\$344,740.24	\$3,355,795.43	\$143,848	
16	2026	\$ 0.1870	3,770,887		\$ 705,289.15	\$113,127		-\$126,952	-\$332,617.69	\$358,846.02	\$3,714,641.45	\$141,258	
17	2027	\$ 0.1917	3,770,887		\$ 722,921.38	\$113,127		-\$130,126	-\$332,617.69	\$373,304.45	\$4,087,945.89	\$138,632	
18	2028	\$ 0.1965	3,770,887		\$ 740,994.41	\$113,127		-\$133,379	-\$332,617.69	\$388,124.34	\$4,476,070.23	\$135,977	
19	2029	\$ 0.2014	3,770,887		\$ 759,519.27	\$113,127		-\$136,713	-\$332,617.69	\$403,314.72	\$4,879,384.95	\$133,301	
20	2030	\$ 0.2065	3,770,887		\$ 778,507.26	\$113,127		-\$140,131	-\$332,617.69	\$418,884.87	\$5,298,269.82	\$130,610	
21	2031	\$ 0.2116	3,770,887		\$ 797,969.94	\$113,127		-\$143,635	0	\$767,461.96	\$6,065,731.78	\$225,753	
22	2032	\$ 0.2169	3,770,887		\$ 817,919.18	\$113,127		-\$147,225	0	\$783,820.34	\$6,849,552.12	\$217,514	
23	2033	\$ 0.2223	3,770,887		\$ 838,367.16	\$113,127		-\$150,906	0	\$800,587.68	\$7,650,139.80	\$209,592	
24	2034	\$ 0.2279	3,770,887		\$ 859,326.34	\$113,127		-\$154,679	0	\$817,774.21	\$8,467,914.01	\$201,973	
25	2035	\$ 0.2336	3,770,887		\$ 880,809.50	\$113,127		-\$158,546	0	\$835,390.40	\$9,303,304.42	\$194,645	
26	2036	\$ 0.2394	3,770,887		\$ 902,829.74	\$113,127		-\$162,509	0	\$853,447.00	\$10,156,751.41	\$187,596	
27	2037	\$ 0.2454	3,770,887		\$ 925,400.48	\$113,127		-\$166,572	0	\$871,955.01	\$11,028,706.42	\$180,816	
28	2038	\$ 0.2515	3,770,887		\$ 948,535.50	\$113,127		-\$170,736	0	\$890,925.72	\$11,919,632.14	\$174,292	
29	2039	\$ 0.2578	3,770,887		\$ 972,248.88	\$113,127		-\$175,005	0	\$910,370.69	\$12,830,002.83	\$168,015	
30	2040	\$ 0.2643	3,770,887		\$ 996,555.10	\$113,127		-\$179,380	0	\$930,301.80	\$13,760,304.63	\$161,975	

## Financial Calculations

	IRR	NPV	Years to Postive Return	13
5 Years	48%	\$336,400		
10 Years	61%	\$1,136,245		
15 Years	62%	\$1,880,321		
20 Years	62%	\$2,560,099		

# Financial Pro-Forma @ P50 (w/ MassCEC Grant)

## Project Information:

Name Swampscott Middle School  
Client Town of Swampscott  
Location Swampscott MA  
MAI Job # 5247  
Prepared By DEG

## Key Assumptions:

WTG Manufacturer: GE Energy  
WTG Faceplate (kW) 1500  
WTG Hub Height (m) 80  
Blade Diameter (m) 77  
WTG Prod. (kWh/Year) 3,770,887  
WTG Capacity Factor 0.29

Total Project Cost \$4,200,000.00  
Down Payment (%) 0  
Down Payment \$400,000  
Loan Amount -\$3,800,000  
O+M Cost (%Energy Prod.) 18  
Fed Tax Rate (%) 0

Current Value of offset Electricity \$0.13  
Value of Renewable Energy Certificate, \$/kWh 0.03  
Net Present Value Based on Discount Rate of: 6.00%  
Annual Inflation on Utility Rates: 2.50%  
Interest Rate on 20-yr Loan: 5.00%  
Annual Inflation Rate on Operation and Maint. 2.50%

			Project Revenues					Project Costs		Project Cash Flows		
Project Year	Fiscal Year	Average Rates (\$/kWh)	Annual Energy Production	Capital Payment	Annual Revenue from Production	REC Revenue	Depreciation	Total O+M Cost per Year	Annual Loan Principal and Interest	Cash Flow	Cumulative Cash Flow	Net Present Value for Current Year
1	2011		0	\$400,000	\$ -	\$0	\$0		-\$300,939.82	\$99,060.18	\$99,060.18	\$99,060
2	2012	\$ 0.1324	3,770,887		\$ 499,152.31	\$113,127	\$0	-\$89,847	-\$300,939.82	\$221,491.69	\$320,551.87	\$197,127
3	2013	\$ 0.1357	3,770,887		\$ 511,631.12	\$113,127	\$0	-\$92,094	-\$300,939.82	\$231,724.31	\$552,276.18	\$194,560
4	2014	\$ 0.1391	3,770,887		\$ 524,421.90	\$113,127	\$0	-\$94,396	-\$300,939.82	\$242,212.75	\$794,488.93	\$191,855
5	2015	\$ 0.1425	3,770,887		\$ 537,532.45	\$113,127	\$0	-\$96,756	-\$300,939.82	\$252,963.40	\$1,047,452.33	\$189,029
6	2016	\$ 0.1461	3,770,887		\$ 550,970.76	\$113,127	\$0	-\$99,175	-\$300,939.82	\$263,982.81	\$1,311,435.14	\$186,097
7	2017	\$ 0.1498	3,770,887		\$ 564,745.03	\$113,127		-\$101,654	-\$300,939.82	\$275,277.71	\$1,586,712.86	\$183,075
8	2018	\$ 0.1535	3,770,887		\$ 578,863.65	\$113,127		-\$104,195	-\$300,939.82	\$286,854.99	\$1,873,567.84	\$179,976
9	2019	\$ 0.1573	3,770,887		\$ 593,335.24	\$113,127		-\$106,800	-\$300,939.82	\$298,721.69	\$2,172,289.54	\$176,813
10	2020	\$ 0.1613	3,770,887		\$ 608,168.62	\$113,127		-\$109,470	-\$300,939.82	\$310,885.06	\$2,483,174.60	\$173,597
11	2021	\$ 0.1653	3,770,887		\$ 623,372.84	\$113,127		-\$112,207	-\$300,939.82	\$323,352.52	\$2,806,527.12	\$170,338
12	2022	\$ 0.1694	3,770,887		\$ 638,957.16	\$113,127		-\$115,012	-\$300,939.82	\$336,131.66	\$3,142,658.79	\$167,047
13	2023	\$ 0.1737	3,770,887		\$ 654,931.09	\$113,127		-\$117,888	-\$300,939.82	\$349,230.29	\$3,491,889.07	\$163,733
14	2024	\$ 0.1780	3,770,887		\$ 671,304.37	\$113,127		-\$120,835	-\$300,939.82	\$362,656.37	\$3,854,545.44	\$160,403
15	2025	\$ 0.1825	3,770,887		\$ 688,086.98	\$113,127		-\$123,856	-\$300,939.82	\$376,418.11	\$4,230,963.56	\$157,066
16	2026	\$ 0.1870	3,770,887		\$ 705,289.15	\$113,127		-\$126,952	-\$300,939.82	\$390,523.90	\$4,621,487.45	\$153,728
17	2027	\$ 0.1917	3,770,887		\$ 722,921.38	\$113,127		-\$130,126	-\$300,939.82	\$404,982.32	\$5,026,469.78	\$150,396
18	2028	\$ 0.1965	3,770,887		\$ 740,994.41	\$113,127		-\$133,379	-\$300,939.82	\$419,802.21	\$5,446,271.99	\$147,075
19	2029	\$ 0.2014	3,770,887		\$ 759,519.27	\$113,127		-\$136,713	-\$300,939.82	\$434,992.60	\$5,881,264.59	\$143,771
20	2030	\$ 0.2065	3,770,887		\$ 778,507.26	\$113,127		-\$140,131	-\$300,939.82	\$450,562.74	\$6,331,827.33	\$140,488
21	2031	\$ 0.2116	3,770,887		\$ 797,969.94	\$113,127		-\$143,635	0	\$767,461.96	\$7,099,289.29	\$225,753
22	2032	\$ 0.2169	3,770,887		\$ 817,919.18	\$113,127		-\$147,225	0	\$783,820.34	\$7,883,109.63	\$217,514
23	2033	\$ 0.2223	3,770,887		\$ 838,367.16	\$113,127		-\$150,906	0	\$800,587.68	\$8,683,697.31	\$209,592
24	2034	\$ 0.2279	3,770,887		\$ 859,326.34	\$113,127		-\$154,679	0	\$817,774.21	\$9,501,471.52	\$201,973
25	2035	\$ 0.2336	3,770,887		\$ 880,809.50	\$113,127		-\$158,546	0	\$835,390.40	\$10,336,861.93	\$194,645
26	2036	\$ 0.2394	3,770,887		\$ 902,829.74	\$113,127		-\$162,509	0	\$853,447.00	\$11,190,308.92	\$187,596
27	2037	\$ 0.2454	3,770,887		\$ 925,400.48	\$113,127		-\$166,572	0	\$871,955.01	\$12,062,263.93	\$180,816
28	2038	\$ 0.2515	3,770,887		\$ 948,535.50	\$113,127		-\$170,736	0	\$890,925.72	\$12,953,189.64	\$174,292
29	2039	\$ 0.2578	3,770,887		\$ 972,248.88	\$113,127		-\$175,005	0	\$910,370.69	\$13,863,560.34	\$168,015
30	2040	\$ 0.2643	3,770,887		\$ 996,555.10	\$113,127		-\$179,380	0	\$930,301.80	\$14,793,862.13	\$161,975

## Financial Calculations

IRR  
NPV  
5 Years #NUM! \$871,631  
10 Years #NUM! \$1,771,190  
15 Years #DIV/0! \$2,589,777  
20 Years #DIV/0! \$3,325,235

Years to Postive Return

12

# Financial Pro-Forma @ P90 (w/out MassCEC Grant)

## Project Information:

Name Swampscott Middle School  
Client Town of Swampscott  
Location Swampscott  
MA  
MAI Job # 5247  
Prepared By DEG

## Key Assumptions:

WTG Manufacturer:  
WTG Faceplate (kW)  
WTG Hub Height (m)  
Blade Diameter (m)  
WTG Prod. (kWh/Year)  
WTG Capacity Factor

Elecon  
600  
60  
48  
901,449  
0.17

Total Project Cost  
Down Payment (%)  
Down Payment  
Loan Amount  
O+M Cost (%Energy Prod.)  
Fed Tax Rate (%)

\$2,200,000.00  
100  
-\$2,200,000  
\$0  
18  
0

Current Value of offset Electricity  
Value of Renewable Energy Certificate, \$/kWh  
Net Present Value Based on Discount Rate of:  
Annual Inflation on Utility Rates:  
Interest Rate on 20-yr Loan:  
Annual Inflation Rate on Operation and Maint.

\$0.13  
0.03  
6.00%  
2.50%  
5.00%  
2.50%

					Project Revenues			Project Costs		Project Cash Flows		
Project Year	Fiscal Year	Average Rates (\$/kWh)	Annual Energy Production	Capital Payment	Annual Revenue from Production	REC Revenue	Depreciation	Total O+M Cost per Year	Annual Loan Principal and Interest	Cash Flow	Cumulative Cash Flow	Net Present Value for Current Year
1	2011		0	-\$2,200,000	\$ -	\$0	\$0		\$0.00	-\$2,200,000.00	-\$2,200,000.00	-\$2,200,000
2	2012	\$ 0.1324	901,449		\$ 119,324.80	\$27,043	\$0	-\$21,478	\$0.00	\$124,889.81	-\$2,075,110.19	\$111,151
3	2013	\$ 0.1357	901,449		\$ 122,307.92	\$27,043	\$0	-\$22,015	\$0.00	\$127,335.97	-\$1,947,774.22	\$106,914
4	2014	\$ 0.1391	901,449		\$ 125,365.62	\$27,043	\$0	-\$22,566	\$0.00	\$129,843.28	-\$1,817,930.94	\$102,848
5	2015	\$ 0.1425	901,449		\$ 128,499.76	\$27,043	\$0	-\$23,130	\$0.00	\$132,413.28	-\$1,685,517.67	\$98,947
6	2016	\$ 0.1461	901,449		\$ 131,712.26	\$27,043	\$0	-\$23,708	\$0.00	\$135,047.52	-\$1,550,470.15	\$95,203
7	2017	\$ 0.1498	901,449		\$ 135,005.06	\$27,043		-\$24,301	\$0.00	\$137,747.62	-\$1,412,722.52	\$91,610
8	2018	\$ 0.1535	901,449		\$ 138,380.19	\$27,043		-\$24,908	\$0.00	\$140,515.23	-\$1,272,207.30	\$88,161
9	2019	\$ 0.1573	901,449		\$ 141,839.69	\$27,043		-\$25,531	\$0.00	\$143,352.02	-\$1,128,855.28	\$84,850
10	2020	\$ 0.1613	901,449		\$ 145,385.69	\$27,043		-\$26,169	\$0.00	\$146,259.73	-\$982,595.55	\$81,671
11	2021	\$ 0.1653	901,449		\$ 149,020.33	\$27,043		-\$26,824	\$0.00	\$149,240.14	-\$833,355.41	\$78,618
12	2022	\$ 0.1694	901,449		\$ 152,745.84	\$27,043		-\$27,494	\$0.00	\$152,295.06	-\$681,060.35	\$75,686
13	2023	\$ 0.1737	901,449		\$ 156,564.48	\$27,043		-\$28,182	\$0.00	\$155,426.35	-\$525,634.00	\$72,870
14	2024	\$ 0.1780	901,449		\$ 160,478.60	\$27,043		-\$28,886	\$0.00	\$158,635.92	-\$366,998.08	\$70,165
15	2025	\$ 0.1825	901,449		\$ 164,490.56	\$27,043		-\$29,608	\$0.00	\$161,925.73	-\$205,072.35	\$67,566
16	2026	\$ 0.1870	901,449		\$ 168,602.82	\$27,043		-\$30,349	\$0.00	\$165,297.79	-\$39,774.57	\$65,069
17	2027	\$ 0.1917	901,449		\$ 172,817.90	\$27,043		-\$31,107	\$0.00	\$168,754.14	\$128,979.58	\$62,669
18	2028	\$ 0.1965	901,449		\$ 177,138.34	\$27,043		-\$31,885	\$0.00	\$172,296.91	\$301,276.49	\$60,363
19	2029	\$ 0.2014	901,449		\$ 181,566.80	\$27,043		-\$32,682	\$0.00	\$175,928.25	\$477,204.73	\$58,147
20	2030	\$ 0.2065	901,449		\$ 186,105.97	\$27,043		-\$33,499	\$0.00	\$179,650.37	\$656,855.10	\$56,016
21	2031	\$ 0.2116	901,449		\$ 190,758.62	\$27,043		-\$34,337	0	\$183,465.54	\$840,320.64	\$53,967
22	2032	\$ 0.2169	901,449		\$ 195,527.59	\$27,043		-\$35,195	0	\$187,376.09	\$1,027,696.73	\$51,998
23	2033	\$ 0.2223	901,449		\$ 200,415.78	\$27,043		-\$36,075	0	\$191,384.41	\$1,219,081.13	\$50,104
24	2034	\$ 0.2279	901,449		\$ 205,426.17	\$27,043		-\$36,977	0	\$195,492.93	\$1,414,574.06	\$48,283
25	2035	\$ 0.2336	901,449		\$ 210,561.82	\$27,043		-\$37,901	0	\$199,704.17	\$1,614,278.23	\$46,531
26	2036	\$ 0.2394	901,449		\$ 215,825.87	\$27,043		-\$38,849	0	\$204,020.68	\$1,818,298.91	\$44,846
27	2037	\$ 0.2454	901,449		\$ 221,221.52	\$27,043		-\$39,820	0	\$208,445.11	\$2,026,744.03	\$43,225
28	2038	\$ 0.2515	901,449		\$ 226,752.05	\$27,043		-\$40,815	0	\$212,980.15	\$2,239,724.18	\$41,665
29	2039	\$ 0.2578	901,449		\$ 232,420.86	\$27,043		-\$41,836	0	\$217,628.57	\$2,457,352.75	\$40,165
30	2040	\$ 0.2643	901,449		\$ 238,231.38	\$27,043		-\$42,882	0	\$222,393.20	\$2,679,745.95	\$38,721

## Financial Calculations

IRR	NPV	Years to Postive Return	16
5 Years	-\$1,780,140		
10 Years	-10% -\$1,338,645		
15 Years	-1% -\$973,741		
20 Years	3% -\$671,477		

# Financial Pro-Forma @ P90 (w/ MassCEC Grant)

## Project Information:

Name Swampscott Middle School  
Client Town of Swampscott  
Location Swampscott  
MA  
MAI Job # 5247  
Prepared By DEG

## Key Assumptions:

WTG Manufacturer:  
WTG Faceplate (kW)  
WTG Hub Height (m)  
Blade Diameter (m)  
WTG Prod. (kWh/Year)  
WTG Capacity Factor

Elecon  
600  
60  
48  
901,449  
0.17

Total Project Cost  
Down Payment (%)  
Down Payment  
Loan Amount  
O+M Cost (%Energy Prod.)  
Fed Tax Rate (%)

\$2,200,000.00  
100  
-\$1,879,500  
\$0  
18  
0

Current Value of offset Electricity  
Value of Renewable Energy Certificate, \$/kWh  
Net Present Value Based on Discount Rate of:  
Annual Inflation on Utility Rates:  
Interest Rate on 20-yr Loan:  
Annual Inflation Rate on Operation and Maint.

\$0.13  
0.03  
6.00%  
2.50%  
5.00%  
2.50%

					Project Revenues			Project Costs		Project Cash Flows		
Project Year	Fiscal Year	Average Rates (\$/kWh)	Annual Energy Production	Capital Payment	Annual Revenue from Production	REC Revenue	Depreciation	Total O+M Cost per Year	Annual Loan Principal and Interest	Cash Flow	Cumulative Cash Flow	Net Present Value for Current Year
1	2011		0	-\$1,879,500	\$ -	\$0	\$0		\$0.00	-\$1,879,500.00	-\$1,879,500.00	-\$1,879,500
2	2012	\$ 0.1324	901,449		\$ 119,324.80	\$27,043	\$0	-\$21,478	\$0.00	\$124,889.81	-\$1,754,610.19	\$111,151
3	2013	\$ 0.1357	901,449		\$ 122,307.92	\$27,043	\$0	-\$22,015	\$0.00	\$127,335.97	-\$1,627,274.22	\$106,914
4	2014	\$ 0.1391	901,449		\$ 125,365.62	\$27,043	\$0	-\$22,566	\$0.00	\$129,843.28	-\$1,497,430.94	\$102,848
5	2015	\$ 0.1425	901,449		\$ 128,499.76	\$27,043	\$0	-\$23,130	\$0.00	\$132,413.28	-\$1,365,017.67	\$98,947
6	2016	\$ 0.1461	901,449		\$ 131,712.26	\$27,043	\$0	-\$23,708	\$0.00	\$135,047.52	-\$1,229,970.15	\$95,203
7	2017	\$ 0.1498	901,449		\$ 135,005.06	\$27,043		-\$24,301	\$0.00	\$137,747.62	-\$1,092,222.52	\$91,610
8	2018	\$ 0.1535	901,449		\$ 138,380.19	\$27,043		-\$24,908	\$0.00	\$140,515.23	-\$951,707.30	\$88,161
9	2019	\$ 0.1573	901,449		\$ 141,839.69	\$27,043		-\$25,531	\$0.00	\$143,352.02	-\$808,355.28	\$84,850
10	2020	\$ 0.1613	901,449		\$ 145,385.69	\$27,043		-\$26,169	\$0.00	\$146,259.73	-\$662,095.55	\$81,671
11	2021	\$ 0.1653	901,449		\$ 149,020.33	\$27,043		-\$26,824	\$0.00	\$149,240.14	-\$512,855.41	\$78,618
12	2022	\$ 0.1694	901,449		\$ 152,745.84	\$27,043		-\$27,494	\$0.00	\$152,295.06	-\$360,560.35	\$75,686
13	2023	\$ 0.1737	901,449		\$ 156,564.48	\$27,043		-\$28,182	\$0.00	\$155,426.35	-\$205,134.00	\$72,870
14	2024	\$ 0.1780	901,449		\$ 160,478.60	\$27,043		-\$28,886	\$0.00	\$158,635.92	-\$46,498.08	\$70,165
15	2025	\$ 0.1825	901,449		\$ 164,490.56	\$27,043		-\$29,608	\$0.00	\$161,925.73	\$115,427.65	\$67,566
16	2026	\$ 0.1870	901,449		\$ 168,602.82	\$27,043		-\$30,349	\$0.00	\$165,297.79	\$280,725.43	\$65,069
17	2027	\$ 0.1917	901,449		\$ 172,817.90	\$27,043		-\$31,107	\$0.00	\$168,754.14	\$449,479.58	\$62,669
18	2028	\$ 0.1965	901,449		\$ 177,138.34	\$27,043		-\$31,885	\$0.00	\$172,296.91	\$621,776.49	\$60,363
19	2029	\$ 0.2014	901,449		\$ 181,566.80	\$27,043		-\$32,682	\$0.00	\$175,928.25	\$797,704.73	\$58,147
20	2030	\$ 0.2065	901,449		\$ 186,105.97	\$27,043		-\$33,499	\$0.00	\$179,650.37	\$977,355.10	\$56,016
21	2031	\$ 0.2116	901,449		\$ 190,758.62	\$27,043		-\$34,337	0	\$183,465.54	\$1,160,820.64	\$53,967
22	2032	\$ 0.2169	901,449		\$ 195,527.59	\$27,043		-\$35,195	0	\$187,376.09	\$1,348,196.73	\$51,998
23	2033	\$ 0.2223	901,449		\$ 200,415.78	\$27,043		-\$36,075	0	\$191,384.41	\$1,539,581.13	\$50,104
24	2034	\$ 0.2279	901,449		\$ 205,426.17	\$27,043		-\$36,977	0	\$195,492.93	\$1,735,074.06	\$48,283
25	2035	\$ 0.2336	901,449		\$ 210,561.82	\$27,043		-\$37,901	0	\$199,704.17	\$1,934,778.23	\$46,531
26	2036	\$ 0.2394	901,449		\$ 215,825.87	\$27,043		-\$38,849	0	\$204,020.68	\$2,138,798.91	\$44,846
27	2037	\$ 0.2454	901,449		\$ 221,221.52	\$27,043		-\$39,820	0	\$208,445.11	\$2,347,244.03	\$43,225
28	2038	\$ 0.2515	901,449		\$ 226,752.05	\$27,043		-\$40,815	0	\$212,980.15	\$2,560,224.18	\$41,665
29	2039	\$ 0.2578	901,449		\$ 232,420.86	\$27,043		-\$41,836	0	\$217,628.57	\$2,777,852.75	\$40,165
30	2040	\$ 0.2643	901,449		\$ 238,231.38	\$27,043		-\$42,882	0	\$222,393.20	\$3,000,245.95	\$38,721

## Financial Calculations

	IRR	NPV	Years to Postive Return	14
5 Years		-\$1,459,640		
10 Years	-8%	-\$1,018,145		
15 Years	1%	-\$653,241		
20 Years	4%	-\$350,977		



# PPA Financial Pro-Forma @ P90 (PPA)

## Project Information:

Name Swampscott Middle School  
Client Town of Swampscott  
Location Swampscott  
MA  
MAI Job # 5247  
Prepared By DEG

## Key Assumptions:

WTG Manufacturer:  
WTG Faceplate (kW)  
WTG Hub Height (m)  
Blade Diameter (m)  
WTG Prod. (kWh/Year)  
WTG Capacity Factor

Elecon  
600  
60  
48  
901,449  
0.17

Total Project Cost  
Down Payment (%)  
Down Payment  
Loan Amount  
O+M Cost (%Energy Prod.)  
Fed Tax Rate (%)

\$0.00  
100  
\$0  
\$0  
18  
0

Current Value of offset Electricity  
Value of Renewable Energy Certificate, \$/kWh  
Net Present Value Based on Discount Rate of:  
Annual Inflation on Utility Rates:  
Interest Rate on 20-yr Loan:  
Annual Inflation Rate on Operation and Maint.

\$0.01  
0  
6.00%  
0.00%  
5.00%  
2.50%

					Project Revenues			Project Costs		Project Cash Flows		
Project Year	Fiscal Year	Average Rates (\$/kWh)	Annual Energy Production	Capital Payment	Annual Revenue from Production	REC Revenue	Depreciation	Total O+M Cost per Year	Annual Loan Principal and Interest	Cash Flow	Cumulative Cash Flow	Net Present Value for Current Year
1	2011		0	\$0	\$ -	\$0	\$0		\$0.00	\$0.00	\$0.00	\$0
2	2012	\$ 0.0130	901,449		\$ 11,718.84	\$0	\$0	-\$2,109	\$0.00	\$9,609.45	\$9,609.45	\$8,552
3	2013	\$ 0.0130	901,449		\$ 11,718.84	\$0	\$0	-\$2,162	\$0.00	\$9,556.71	\$19,166.16	\$8,024
4	2014	\$ 0.0130	901,449		\$ 11,718.84	\$0	\$0	-\$2,216	\$0.00	\$9,502.66	\$28,668.82	\$7,527
5	2015	\$ 0.0130	901,449		\$ 11,718.84	\$0	\$0	-\$2,272	\$0.00	\$9,447.25	\$38,116.07	\$7,060
6	2016	\$ 0.0130	901,449		\$ 11,718.84	\$0	\$0	-\$2,328	\$0.00	\$9,390.46	\$47,506.53	\$6,620
7	2017	\$ 0.0130	901,449		\$ 11,718.84	\$0		-\$2,387	\$0.00	\$9,332.26	\$56,838.79	\$6,206
8	2018	\$ 0.0130	901,449		\$ 11,718.84	\$0		-\$2,446	\$0.00	\$9,272.59	\$66,111.38	\$5,818
9	2019	\$ 0.0130	901,449		\$ 11,718.84	\$0		-\$2,507	\$0.00	\$9,211.43	\$75,322.81	\$5,452
10	2020	\$ 0.0130	901,449		\$ 11,718.84	\$0		-\$2,570	\$0.00	\$9,148.75	\$84,471.56	\$5,109
11	2021	\$ 0.0130	901,449		\$ 11,718.84	\$0		-\$2,634	\$0.00	\$9,084.50	\$93,556.06	\$4,786
12	2022	\$ 0.0130	901,449		\$ 11,718.84	\$0		-\$2,700	\$0.00	\$9,018.64	\$102,574.70	\$4,482
13	2023	\$ 0.0130	901,449		\$ 11,718.84	\$0		-\$2,768	\$0.00	\$8,951.13	\$111,525.83	\$4,197
14	2024	\$ 0.0130	901,449		\$ 11,718.84	\$0		-\$2,837	\$0.00	\$8,881.94	\$120,407.77	\$3,928
15	2025	\$ 0.0130	901,449		\$ 11,718.84	\$0		-\$2,908	\$0.00	\$8,811.02	\$129,218.79	\$3,677
16	2026	\$ 0.0130	901,449		\$ 11,718.84	\$0		-\$2,981	\$0.00	\$8,738.32	\$137,957.12	\$3,440
17	2027	\$ 0.0130	901,449		\$ 11,718.84	\$0		-\$3,055	\$0.00	\$8,663.81	\$146,620.93	\$3,217
18	2028	\$ 0.0130	901,449		\$ 11,718.84	\$0		-\$3,131	\$0.00	\$8,587.43	\$155,208.36	\$3,009
19	2029	\$ 0.0130	901,449		\$ 11,718.84	\$0		-\$3,210	\$0.00	\$8,509.15	\$163,717.51	\$2,812
20	2030	\$ 0.0130	901,449		\$ 11,718.84	\$0		-\$3,290	\$0.00	\$8,428.91	\$172,146.42	\$2,628
21	2031	\$ 0.0130	901,449		\$ 11,718.84	\$0		-\$3,372	0	\$8,346.66	\$180,493.08	\$2,455
22	2032	\$ 0.0130	901,449		\$ 11,718.84	\$0		-\$3,456	0	\$8,262.35	\$188,755.43	\$2,293
23	2033	\$ 0.0130	901,449		\$ 11,718.84	\$0		-\$3,543	0	\$8,175.94	\$196,931.38	\$2,140
24	2034	\$ 0.0130	901,449		\$ 11,718.84	\$0		-\$3,631	0	\$8,087.37	\$205,018.75	\$1,997
25	2035	\$ 0.0130	901,449		\$ 11,718.84	\$0		-\$3,722	0	\$7,996.58	\$213,015.33	\$1,863
26	2036	\$ 0.0130	901,449		\$ 11,718.84	\$0		-\$3,815	0	\$7,903.53	\$220,918.86	\$1,737
27	2037	\$ 0.0130	901,449		\$ 11,718.84	\$0		-\$3,911	0	\$7,808.14	\$228,727.00	\$1,619
28	2038	\$ 0.0130	901,449		\$ 11,718.84	\$0		-\$4,008	0	\$7,710.38	\$236,437.38	\$1,508
29	2039	\$ 0.0130	901,449		\$ 11,718.84	\$0		-\$4,109	0	\$7,610.17	\$244,047.54	\$1,405
30	2040	\$ 0.0130	901,449		\$ 11,718.84	\$0		-\$4,211	0	\$7,507.45	\$251,554.99	\$1,307

## Financial Calculations

IRR		NPV	Years to Postive Return		0
5 Years		\$31,163			
10 Years	#DIV/0!	\$60,368			
15 Years	#DIV/0!	\$81,437			
20 Years	#DIV/0!	\$96,543			



# Financial Pro-Forma @ P90 (w/out MassCEC Grant)

## Project Information:

Name Swampscott Middle School  
Client Town of Swampscott  
Location Swampscott  
MA  
MAI Job # 5247  
Prepared By DEG

## Key Assumptions:

WTG Manufacturer:  
WTG Faceplate (kW)  
WTG Hub Height (m)  
Blade Diameter (m)  
WTG Prod. (kWh/Year)  
WTG Capacity Factor

Unison  
750  
60  
54  
1,075,497  
0.16

Total Project Cost  
Down Payment (%)  
Down Payment  
Loan Amount  
O+M Cost (%Energy Prod.)  
Fed Tax Rate (%)

\$2,800,000.00  
100  
-\$2,800,000  
\$0  
18  
0

Current Value of offset Electricity  
Value of Renewable Energy Certificate, \$/kWh  
Net Present Value Based on Discount Rate of:  
Annual Inflation on Utility Rates:  
Interest Rate on 20-yr Loan:  
Annual Inflation Rate on Operation and Maint.

\$0.13  
0.03  
6.00%  
2.50%  
5.00%  
2.50%

				Project Revenues				Project Costs		Project Cash Flows			
Project Year	Fiscal Year	Average Rates (\$/kWh)	Annual Energy Production	Capital Payment	Annual Revenue from Production	REC Revenue	Depreciation	Total O+M Cost per Year	Annual Loan Principal and Interest	Cash Flow	Cumulative Cash Flow	Net Present Value for Current Year	
1	2011		0	-\$2,800,000	\$ -	\$0	\$0		\$0.00	-\$2,800,000.00	-\$2,800,000.00	-\$2,800,000	
2	2012	\$ 0.1324	1,075,497		\$ 142,363.54	\$32,265	\$0	-\$25,625	\$0.00	\$149,003.01	-\$2,650,996.99	\$132,612	
3	2013	\$ 0.1357	1,075,497		\$ 145,922.63	\$32,265	\$0	-\$26,266	\$0.00	\$151,921.46	-\$2,499,075.53	\$127,556	
4	2014	\$ 0.1391	1,075,497		\$ 149,570.69	\$32,265	\$0	-\$26,923	\$0.00	\$154,912.88	-\$2,344,162.65	\$122,706	
5	2015	\$ 0.1425	1,075,497		\$ 153,309.96	\$32,265	\$0	-\$27,596	\$0.00	\$157,979.08	-\$2,186,183.57	\$118,051	
6	2016	\$ 0.1461	1,075,497		\$ 157,142.71	\$32,265	\$0	-\$28,286	\$0.00	\$161,121.93	-\$2,025,061.64	\$113,585	
7	2017	\$ 0.1498	1,075,497		\$ 161,071.28	\$32,265		-\$28,993	\$0.00	\$164,343.36	-\$1,860,718.28	\$109,298	
8	2018	\$ 0.1535	1,075,497		\$ 165,098.06	\$32,265		-\$29,718	\$0.00	\$167,645.32	-\$1,693,072.97	\$105,183	
9	2019	\$ 0.1573	1,075,497		\$ 169,225.51	\$32,265		-\$30,461	\$0.00	\$171,029.83	-\$1,522,043.14	\$101,232	
10	2020	\$ 0.1613	1,075,497		\$ 173,456.15	\$32,265		-\$31,222	\$0.00	\$174,498.95	-\$1,347,544.19	\$97,439	
11	2021	\$ 0.1653	1,075,497		\$ 177,792.55	\$32,265		-\$32,003	\$0.00	\$178,054.80	-\$1,169,489.39	\$93,797	
12	2022	\$ 0.1694	1,075,497		\$ 182,237.36	\$32,265		-\$32,803	\$0.00	\$181,699.55	-\$987,789.84	\$90,299	
13	2023	\$ 0.1737	1,075,497		\$ 186,793.30	\$32,265		-\$33,623	\$0.00	\$185,435.41	-\$802,354.42	\$86,939	
14	2024	\$ 0.1780	1,075,497		\$ 191,463.13	\$32,265		-\$34,463	\$0.00	\$189,264.68	-\$613,089.75	\$83,712	
15	2025	\$ 0.1825	1,075,497		\$ 196,249.71	\$32,265		-\$35,325	\$0.00	\$193,189.67	-\$419,900.07	\$80,611	
16	2026	\$ 0.1870	1,075,497		\$ 201,155.95	\$32,265		-\$36,208	\$0.00	\$197,212.79	-\$222,687.28	\$77,632	
17	2027	\$ 0.1917	1,075,497		\$ 206,184.85	\$32,265		-\$37,113	\$0.00	\$201,336.49	-\$21,350.80	\$74,769	
18	2028	\$ 0.1965	1,075,497		\$ 211,339.47	\$32,265		-\$38,041	\$0.00	\$205,563.28	\$184,212.48	\$72,018	
19	2029	\$ 0.2014	1,075,497		\$ 216,622.96	\$32,265		-\$38,992	\$0.00	\$209,895.74	\$394,108.22	\$69,373	
20	2030	\$ 0.2065	1,075,497		\$ 222,038.53	\$32,265		-\$39,967	\$0.00	\$214,336.51	\$608,444.73	\$66,831	
21	2031	\$ 0.2116	1,075,497		\$ 227,589.50	\$32,265		-\$40,966	0	\$218,888.30	\$827,333.02	\$64,387	
22	2032	\$ 0.2169	1,075,497		\$ 233,279.23	\$32,265		-\$41,990	0	\$223,553.88	\$1,050,886.90	\$62,037	
23	2033	\$ 0.2223	1,075,497		\$ 239,111.21	\$32,265		-\$43,040	0	\$228,336.11	\$1,279,223.01	\$59,778	
24	2034	\$ 0.2279	1,075,497		\$ 245,088.99	\$32,265		-\$44,116	0	\$233,237.89	\$1,512,460.90	\$57,605	
25	2035	\$ 0.2336	1,075,497		\$ 251,216.22	\$32,265		-\$45,219	0	\$238,262.21	\$1,750,723.11	\$55,515	
26	2036	\$ 0.2394	1,075,497		\$ 257,496.63	\$32,265		-\$46,349	0	\$243,412.14	\$1,994,135.25	\$53,504	
27	2037	\$ 0.2454	1,075,497		\$ 263,934.04	\$32,265		-\$47,508	0	\$248,690.82	\$2,242,826.07	\$51,571	
28	2038	\$ 0.2515	1,075,497		\$ 270,532.39	\$32,265		-\$48,696	0	\$254,101.47	\$2,496,927.54	\$49,710	
29	2039	\$ 0.2578	1,075,497		\$ 277,295.70	\$32,265		-\$49,913	0	\$259,647.39	\$2,756,574.93	\$47,920	
30	2040	\$ 0.2643	1,075,497		\$ 284,228.09	\$32,265		-\$51,161	0	\$265,331.95	\$3,021,906.88	\$46,197	

## Financial Calculations

	IRR	NPV	Years to Postive Return	17
5 Years		-\$2,299,075		
10 Years	-11%	-\$1,772,338		
15 Years	-2%	-\$1,336,980		
20 Years	2%	-\$976,356		

# Financial Pro-Forma @ P90 (w/ MassCEC Grant)

## Project Information:

Name Swampscott Middle School  
Client Town of Swampscott  
Location Swampscott  
MA Job # 5247  
Prepared By DEG

## Key Assumptions:

WTG Manufacturer:  
WTG Faceplate (kW)  
WTG Hub Height (m)  
Blade Diameter (m)  
WTG Prod. (kWh/Year)  
WTG Capacity Factor

Unison  
750  
60  
54  
1,075,497  
0.16

Total Project Cost  
Down Payment (%)  
Down Payment  
Loan Amount  
O+M Cost (%Energy Prod.)  
Fed Tax Rate (%)

\$2,800,000.00  
100  
-\$2,460,145  
\$0  
18  
0

Current Value of offset Electricity  
Value of Renewable Energy Certificate, \$/kWh  
Net Present Value Based on Discount Rate of:  
Annual Inflation on Utility Rates:  
Interest Rate on 20-yr Loan:  
Annual Inflation Rate on Operation and Maint.

\$0.13  
0.03  
6.00%  
2.50%  
5.00%  
2.50%

					Project Revenues			Project Costs		Project Cash Flows		
Project Year	Fiscal Year	Average Rates (\$/kWh)	Annual Energy Production	Capital Payment	Annual Revenue from Production	REC Revenue	Depreciation	Total O+M Cost per Year	Annual Loan Principal and Interest	Cash Flow	Cumulative Cash Flow	Net Present Value for Current Year
1	2011		0	-\$2,460,145	\$ -	\$0	\$0		\$0.00	-\$2,460,145.00	-\$2,460,145.00	-\$2,460,145
2	2012	\$ 0.1324	1,075,497		\$ 142,363.54	\$32,265	\$0	-\$25,625	\$0.00	\$149,003.01	-\$2,311,141.99	\$132,612
3	2013	\$ 0.1357	1,075,497		\$ 145,922.63	\$32,265	\$0	-\$26,266	\$0.00	\$151,921.46	-\$2,159,220.53	\$127,556
4	2014	\$ 0.1391	1,075,497		\$ 149,570.69	\$32,265	\$0	-\$26,923	\$0.00	\$154,912.88	-\$2,004,307.65	\$122,706
5	2015	\$ 0.1425	1,075,497		\$ 153,309.96	\$32,265	\$0	-\$27,596	\$0.00	\$157,979.08	-\$1,846,328.57	\$118,051
6	2016	\$ 0.1461	1,075,497		\$ 157,142.71	\$32,265	\$0	-\$28,286	\$0.00	\$161,121.93	-\$1,685,206.64	\$113,585
7	2017	\$ 0.1498	1,075,497		\$ 161,071.28	\$32,265		-\$28,993	\$0.00	\$164,343.36	-\$1,520,863.28	\$109,298
8	2018	\$ 0.1535	1,075,497		\$ 165,098.06	\$32,265		-\$29,718	\$0.00	\$167,645.32	-\$1,353,217.97	\$105,183
9	2019	\$ 0.1573	1,075,497		\$ 169,225.51	\$32,265		-\$30,461	\$0.00	\$171,029.83	-\$1,182,188.14	\$101,232
10	2020	\$ 0.1613	1,075,497		\$ 173,456.15	\$32,265		-\$31,222	\$0.00	\$174,498.95	-\$1,007,689.19	\$97,439
11	2021	\$ 0.1653	1,075,497		\$ 177,792.55	\$32,265		-\$32,003	\$0.00	\$178,054.80	-\$829,634.39	\$93,797
12	2022	\$ 0.1694	1,075,497		\$ 182,237.36	\$32,265		-\$32,803	\$0.00	\$181,699.55	-\$647,934.84	\$90,299
13	2023	\$ 0.1737	1,075,497		\$ 186,793.30	\$32,265		-\$33,623	\$0.00	\$185,435.41	-\$462,499.42	\$86,939
14	2024	\$ 0.1780	1,075,497		\$ 191,463.13	\$32,265		-\$34,463	\$0.00	\$189,264.68	-\$273,234.75	\$83,712
15	2025	\$ 0.1825	1,075,497		\$ 196,249.71	\$32,265		-\$35,325	\$0.00	\$193,189.67	-\$80,045.07	\$80,611
16	2026	\$ 0.1870	1,075,497		\$ 201,155.95	\$32,265		-\$36,208	\$0.00	\$197,212.79	\$117,167.72	\$77,632
17	2027	\$ 0.1917	1,075,497		\$ 206,184.85	\$32,265		-\$37,113	\$0.00	\$201,336.49	\$318,504.20	\$74,769
18	2028	\$ 0.1965	1,075,497		\$ 211,339.47	\$32,265		-\$38,041	\$0.00	\$205,563.28	\$524,067.48	\$72,018
19	2029	\$ 0.2014	1,075,497		\$ 216,622.96	\$32,265		-\$38,992	\$0.00	\$209,895.74	\$733,963.22	\$69,373
20	2030	\$ 0.2065	1,075,497		\$ 222,038.53	\$32,265		-\$39,967	\$0.00	\$214,336.51	\$948,299.73	\$66,831
21	2031	\$ 0.2116	1,075,497		\$ 227,589.50	\$32,265		-\$40,966	0	\$218,888.30	\$1,167,188.02	\$64,387
22	2032	\$ 0.2169	1,075,497		\$ 233,279.23	\$32,265		-\$41,990	0	\$223,553.88	\$1,390,741.90	\$62,037
23	2033	\$ 0.2223	1,075,497		\$ 239,111.21	\$32,265		-\$43,040	0	\$228,336.11	\$1,619,078.01	\$59,778
24	2034	\$ 0.2279	1,075,497		\$ 245,088.99	\$32,265		-\$44,116	0	\$233,237.89	\$1,852,315.90	\$57,605
25	2035	\$ 0.2336	1,075,497		\$ 251,216.22	\$32,265		-\$45,219	0	\$238,262.21	\$2,090,578.11	\$55,515
26	2036	\$ 0.2394	1,075,497		\$ 257,496.63	\$32,265		-\$46,349	0	\$243,412.14	\$2,333,990.25	\$53,504
27	2037	\$ 0.2454	1,075,497		\$ 263,934.04	\$32,265		-\$47,508	0	\$248,690.82	\$2,582,681.07	\$51,571
28	2038	\$ 0.2515	1,075,497		\$ 270,532.39	\$32,265		-\$48,696	0	\$254,101.47	\$2,836,782.54	\$49,710
29	2039	\$ 0.2578	1,075,497		\$ 277,295.70	\$32,265		-\$49,913	0	\$259,647.39	\$3,096,429.93	\$47,920
30	2040	\$ 0.2643	1,075,497		\$ 284,228.09	\$32,265		-\$51,161	0	\$265,331.95	\$3,361,761.88	\$46,197

## Financial Calculations

	IRR	NPV	Years to Postive Return	15
5 Years		-\$1,959,220		
10 Years	-9%	-\$1,432,483		
15 Years	0%	-\$997,125		
20 Years	3%	-\$636,501		

# PPA Financial Pro-Forma @ P90 (PPA)

## Project Information:

Name Swampscott Middle School  
Client Town of Swampscott  
Location Swampscott  
MA  
MAI Job # 5247  
Prepared By DEG

## Key Assumptions:

WTG Manufacturer:  
WTG Faceplate (kW)  
WTG Hub Height (m)  
Blade Diameter (m)  
WTG Prod. (kWh/Year)  
WTG Capacity Factor

Unison  
750  
60  
54  
1,075,497  
0.16

Total Project Cost  
Down Payment (%)  
Down Payment  
Loan Amount  
O+M Cost (%Energy Prod.)  
Fed Tax Rate (%)

\$0.00  
100  
\$0  
\$0  
18  
0

Current Value of offset Electricity  
Value of Renewable Energy Certificate, \$/kWh  
Net Present Value Based on Discount Rate of:  
Annual Inflation on Utility Rates:  
Interest Rate on 20-yr Loan:  
Annual Inflation Rate on Operation and Maint.

\$0.01  
0  
6.00%  
0.00%  
5.00%  
2.50%

					Project Revenues			Project Costs		Project Cash Flows		
Project Year	Fiscal Year	Average Rates (\$/kWh)	Annual Energy Production	Capital Payment	Annual Revenue from Production	REC Revenue	Depreciation	Total O+M Cost per Year	Annual Loan Principal and Interest	Cash Flow	Cumulative Cash Flow	Net Present Value for Current Year
1	2011		0	\$0	\$ -	\$0	\$0		\$0.00	\$0.00	\$0.00	\$0
2	2012	\$ 0.0130	1,075,497		\$ 13,981.46	\$0	\$0	-\$2,517	\$0.00	\$11,464.80	\$11,464.80	\$10,204
3	2013	\$ 0.0130	1,075,497		\$ 13,981.46	\$0	\$0	-\$2,580	\$0.00	\$11,401.88	\$22,866.68	\$9,573
4	2014	\$ 0.0130	1,075,497		\$ 13,981.46	\$0	\$0	-\$2,644	\$0.00	\$11,337.39	\$34,204.07	\$8,980
5	2015	\$ 0.0130	1,075,497		\$ 13,981.46	\$0	\$0	-\$2,710	\$0.00	\$11,271.29	\$45,475.36	\$8,423
6	2016	\$ 0.0130	1,075,497		\$ 13,981.46	\$0	\$0	-\$2,778	\$0.00	\$11,203.54	\$56,678.90	\$7,898
7	2017	\$ 0.0130	1,075,497		\$ 13,981.46	\$0		-\$2,847	\$0.00	\$11,134.09	\$67,812.99	\$7,405
8	2018	\$ 0.0130	1,075,497		\$ 13,981.46	\$0		-\$2,919	\$0.00	\$11,062.90	\$78,875.89	\$6,941
9	2019	\$ 0.0130	1,075,497		\$ 13,981.46	\$0		-\$2,992	\$0.00	\$10,989.94	\$89,865.83	\$6,505
10	2020	\$ 0.0130	1,075,497		\$ 13,981.46	\$0		-\$3,066	\$0.00	\$10,915.15	\$100,780.98	\$6,095
11	2021	\$ 0.0130	1,075,497		\$ 13,981.46	\$0		-\$3,143	\$0.00	\$10,838.49	\$111,619.47	\$5,710
12	2022	\$ 0.0130	1,075,497		\$ 13,981.46	\$0		-\$3,222	\$0.00	\$10,759.92	\$122,379.39	\$5,347
13	2023	\$ 0.0130	1,075,497		\$ 13,981.46	\$0		-\$3,302	\$0.00	\$10,679.38	\$133,058.77	\$5,007
14	2024	\$ 0.0130	1,075,497		\$ 13,981.46	\$0		-\$3,385	\$0.00	\$10,596.83	\$143,655.60	\$4,687
15	2025	\$ 0.0130	1,075,497		\$ 13,981.46	\$0		-\$3,469	\$0.00	\$10,512.21	\$154,167.82	\$4,386
16	2026	\$ 0.0130	1,075,497		\$ 13,981.46	\$0		-\$3,556	\$0.00	\$10,425.48	\$164,593.30	\$4,104
17	2027	\$ 0.0130	1,075,497		\$ 13,981.46	\$0		-\$3,645	\$0.00	\$10,336.58	\$174,929.88	\$3,839
18	2028	\$ 0.0130	1,075,497		\$ 13,981.46	\$0		-\$3,736	\$0.00	\$10,245.46	\$185,175.34	\$3,589
19	2029	\$ 0.0130	1,075,497		\$ 13,981.46	\$0		-\$3,829	\$0.00	\$10,152.06	\$195,327.40	\$3,355
20	2030	\$ 0.0130	1,075,497		\$ 13,981.46	\$0		-\$3,925	\$0.00	\$10,056.33	\$205,383.73	\$3,136
21	2031	\$ 0.0130	1,075,497		\$ 13,981.46	\$0		-\$4,023	0	\$9,958.20	\$215,341.93	\$2,929
22	2032	\$ 0.0130	1,075,497		\$ 13,981.46	\$0		-\$4,124	0	\$9,857.62	\$225,199.54	\$2,736
23	2033	\$ 0.0130	1,075,497		\$ 13,981.46	\$0		-\$4,227	0	\$9,754.52	\$234,954.06	\$2,554
24	2034	\$ 0.0130	1,075,497		\$ 13,981.46	\$0		-\$4,333	0	\$9,648.85	\$244,602.91	\$2,383
25	2035	\$ 0.0130	1,075,497		\$ 13,981.46	\$0		-\$4,441	0	\$9,540.53	\$254,143.44	\$2,223
26	2036	\$ 0.0130	1,075,497		\$ 13,981.46	\$0		-\$4,552	0	\$9,429.51	\$263,572.95	\$2,073
27	2037	\$ 0.0130	1,075,497		\$ 13,981.46	\$0		-\$4,666	0	\$9,315.71	\$272,888.65	\$1,932
28	2038	\$ 0.0130	1,075,497		\$ 13,981.46	\$0		-\$4,782	0	\$9,199.06	\$282,087.72	\$1,800
29	2039	\$ 0.0130	1,075,497		\$ 13,981.46	\$0		-\$4,902	0	\$9,079.50	\$291,167.22	\$1,676
30	2040	\$ 0.0130	1,075,497		\$ 13,981.46	\$0		-\$5,025	0	\$8,956.96	\$300,124.18	\$1,559

## Financial Calculations

IRR		NPV	Years to Postive Return		0
5 Years		\$37,180			
10 Years	#DIV/0!	\$72,023			
15 Years	#DIV/0!	\$97,161			
20 Years	#DIV/0!	\$115,184			

# Financial Pro-Forma @ P90 (w/out MassCEC Grant)

## Project Information:

Name Swampscott Middle School  
Client Town of Swampscott  
Location Swampscott  
MA  
MAI Job # 5247  
Prepared By DEG

## Key Assumptions:

WTG Manufacturer:  
WTG Faceplate (kW)  
WTG Hub Height (m)  
Blade Diameter (m)  
WTG Prod. (kWh/Year)  
WTG Capacity Factor

EWT  
900  
75  
54  
1,442,394  
0.18

Total Project Cost  
Down Payment (%)  
Down Payment  
Loan Amount  
O+M Cost (%Energy Prod.)  
Fed Tax Rate (%)

\$3,000,000.00  
100  
-\$3,000,000  
\$0  
18  
0

Current Value of offset Electricity  
Value of Renewable Energy Certificate, \$/kWh  
Net Present Value Based on Discount Rate of:  
Annual Inflation on Utility Rates:  
Interest Rate on 20-yr Loan:  
Annual Inflation Rate on Operation and Maint.

\$0.13  
0.03  
6.00%  
2.50%  
5.00%  
2.50%

					Project Revenues			Project Costs		Project Cash Flows		
Project Year	Fiscal Year	Average Rates (\$/kWh)	Annual Energy Production	Capital Payment	Annual Revenue from Production	REC Revenue	Depreciation	Total O+M Cost per Year	Annual Loan Principal and Interest	Cash Flow	Cumulative Cash Flow	Net Present Value for Current Year
1	2011		0	-\$3,000,000	\$ -	\$0	\$0		\$0.00	-\$3,000,000.00	-\$3,000,000.00	-\$3,000,000
2	2012	\$ 0.1324	1,442,394		\$ 190,929.69	\$43,272	\$0	-\$34,367	\$0.00	\$199,834.17	-\$2,800,165.83	\$177,852
3	2013	\$ 0.1357	1,442,394		\$ 195,702.94	\$43,272	\$0	-\$35,227	\$0.00	\$203,748.23	-\$2,596,417.60	\$171,071
4	2014	\$ 0.1391	1,442,394		\$ 200,595.51	\$43,272	\$0	-\$36,107	\$0.00	\$207,760.14	-\$2,388,657.47	\$164,565
5	2015	\$ 0.1425	1,442,394		\$ 205,610.40	\$43,272	\$0	-\$37,010	\$0.00	\$211,872.35	-\$2,176,785.12	\$158,323
6	2016	\$ 0.1461	1,442,394		\$ 210,750.66	\$43,272	\$0	-\$37,935	\$0.00	\$216,087.36	-\$1,960,697.76	\$152,333
7	2017	\$ 0.1498	1,442,394		\$ 216,019.42	\$43,272		-\$38,883	\$0.00	\$220,407.75	-\$1,740,290.01	\$146,584
8	2018	\$ 0.1535	1,442,394		\$ 221,419.91	\$43,272		-\$39,856	\$0.00	\$224,836.15	-\$1,515,453.87	\$141,065
9	2019	\$ 0.1573	1,442,394		\$ 226,955.41	\$43,272		-\$40,852	\$0.00	\$229,375.25	-\$1,286,078.61	\$135,767
10	2020	\$ 0.1613	1,442,394		\$ 232,629.29	\$43,272		-\$41,873	\$0.00	\$234,027.84	-\$1,052,050.77	\$130,680
11	2021	\$ 0.1653	1,442,394		\$ 238,445.02	\$43,272		-\$42,920	\$0.00	\$238,796.74	-\$813,254.03	\$125,795
12	2022	\$ 0.1694	1,442,394		\$ 244,406.15	\$43,272		-\$43,993	\$0.00	\$243,684.86	-\$569,569.17	\$121,104
13	2023	\$ 0.1737	1,442,394		\$ 250,516.30	\$43,272		-\$45,093	\$0.00	\$248,695.19	-\$320,873.98	\$116,598
14	2024	\$ 0.1780	1,442,394		\$ 256,779.21	\$43,272		-\$46,220	\$0.00	\$253,830.77	-\$67,043.21	\$112,270
15	2025	\$ 0.1825	1,442,394		\$ 263,198.69	\$43,272		-\$47,376	\$0.00	\$259,094.75	\$192,051.54	\$108,111
16	2026	\$ 0.1870	1,442,394		\$ 269,778.66	\$43,272		-\$48,560	\$0.00	\$264,490.32	\$456,541.86	\$104,116
17	2027	\$ 0.1917	1,442,394		\$ 276,523.13	\$43,272		-\$49,774	\$0.00	\$270,020.78	\$726,562.64	\$100,276
18	2028	\$ 0.1965	1,442,394		\$ 283,436.20	\$43,272		-\$51,019	\$0.00	\$275,689.51	\$1,002,252.15	\$96,586
19	2029	\$ 0.2014	1,442,394		\$ 290,522.11	\$43,272		-\$52,294	\$0.00	\$281,499.95	\$1,283,752.10	\$93,039
20	2030	\$ 0.2065	1,442,394		\$ 297,785.16	\$43,272		-\$53,601	\$0.00	\$287,455.65	\$1,571,207.75	\$89,630
21	2031	\$ 0.2116	1,442,394		\$ 305,229.79	\$43,272		-\$54,941	0	\$293,560.25	\$1,864,768.00	\$86,352
22	2032	\$ 0.2169	1,442,394		\$ 312,860.54	\$43,272		-\$56,315	0	\$299,817.46	\$2,164,585.46	\$83,201
23	2033	\$ 0.2223	1,442,394		\$ 320,682.05	\$43,272		-\$57,723	0	\$306,231.10	\$2,470,816.56	\$80,170
24	2034	\$ 0.2279	1,442,394		\$ 328,699.10	\$43,272		-\$59,166	0	\$312,805.08	\$2,783,621.64	\$77,256
25	2035	\$ 0.2336	1,442,394		\$ 336,916.58	\$43,272		-\$60,645	0	\$319,543.41	\$3,103,165.05	\$74,453
26	2036	\$ 0.2394	1,442,394		\$ 345,339.49	\$43,272		-\$62,161	0	\$326,450.20	\$3,429,615.25	\$71,757
27	2037	\$ 0.2454	1,442,394		\$ 353,972.98	\$43,272		-\$63,715	0	\$333,529.66	\$3,763,144.92	\$69,163
28	2038	\$ 0.2515	1,442,394		\$ 362,822.30	\$43,272		-\$65,308	0	\$340,786.11	\$4,103,931.03	\$66,668
29	2039	\$ 0.2578	1,442,394		\$ 371,892.86	\$43,272		-\$66,941	0	\$348,223.97	\$4,452,154.99	\$64,267
30	2040	\$ 0.2643	1,442,394		\$ 381,190.18	\$43,272		-\$68,614	0	\$355,847.77	\$4,808,002.76	\$61,957

## Financial Calculations

IRR  
NPV  
5 Years -\$2,328,189  
10 Years -8% -\$1,621,760  
15 Years 1% -\$1,037,882  
20 Years 4% -\$554,235

Years to Postive Return

14

# Financial Pro-Forma @ P90 (w/ MassCEC Grant)

## Project Information:

Name Swampscott Middle School  
Client Town of Swampscott  
Location Swampscott  
MA  
MAI Job # 5247  
Prepared By DEG

## Key Assumptions:

WTG Manufacturer:  
WTG Faceplate (kW)  
WTG Hub Height (m)  
Blade Diameter (m)  
WTG Prod. (kWh/Year)  
WTG Capacity Factor

EWT  
900  
75  
54  
1,442,394  
0.18

Total Project Cost  
Down Payment (%)  
Down Payment  
Loan Amount  
O+M Cost (%Energy Prod.)  
Fed Tax Rate (%)

\$3,000,000.00  
100  
-\$2,644,323  
\$0  
18  
0

Current Value of offset Electricity  
Value of Renewable Energy Certificate, \$/kWh  
Net Present Value Based on Discount Rate of:  
Annual Inflation on Utility Rates:  
Interest Rate on 20-yr Loan:  
Annual Inflation Rate on Operation and Maint.

\$0.13  
0.03  
6.00%  
2.50%  
5.00%  
2.50%

					Project Revenues			Project Costs		Project Cash Flows		
Project Year	Fiscal Year	Average Rates (\$/kWh)	Annual Energy Production	Capital Payment	Annual Revenue from Production	REC Revenue	Depreciation	Total O+M Cost per Year	Annual Loan Principal and Interest	Cash Flow	Cumulative Cash Flow	Net Present Value for Current Year
1	2011		0	-\$2,644,323	\$ -	\$0	\$0		\$0.00	-\$2,644,323.00	-\$2,644,323.00	-\$2,644,323
2	2012	\$ 0.1324	1,442,394		\$ 190,929.69	\$43,272	\$0	-\$34,367	\$0.00	\$199,834.17	-\$2,444,488.83	\$177,852
3	2013	\$ 0.1357	1,442,394		\$ 195,702.94	\$43,272	\$0	-\$35,227	\$0.00	\$203,748.23	-\$2,240,740.60	\$171,071
4	2014	\$ 0.1391	1,442,394		\$ 200,595.51	\$43,272	\$0	-\$36,107	\$0.00	\$207,760.14	-\$2,032,980.47	\$164,565
5	2015	\$ 0.1425	1,442,394		\$ 205,610.40	\$43,272	\$0	-\$37,010	\$0.00	\$211,872.35	-\$1,821,108.12	\$158,323
6	2016	\$ 0.1461	1,442,394		\$ 210,750.66	\$43,272	\$0	-\$37,935	\$0.00	\$216,087.36	-\$1,605,020.76	\$152,333
7	2017	\$ 0.1498	1,442,394		\$ 216,019.42	\$43,272		-\$38,883	\$0.00	\$220,407.75	-\$1,384,613.01	\$146,584
8	2018	\$ 0.1535	1,442,394		\$ 221,419.91	\$43,272		-\$39,856	\$0.00	\$224,836.15	-\$1,159,776.87	\$141,065
9	2019	\$ 0.1573	1,442,394		\$ 226,955.41	\$43,272		-\$40,852	\$0.00	\$229,375.25	-\$930,401.61	\$135,767
10	2020	\$ 0.1613	1,442,394		\$ 232,629.29	\$43,272		-\$41,873	\$0.00	\$234,027.84	-\$696,373.77	\$130,680
11	2021	\$ 0.1653	1,442,394		\$ 238,445.02	\$43,272		-\$42,920	\$0.00	\$238,796.74	-\$457,577.03	\$125,795
12	2022	\$ 0.1694	1,442,394		\$ 244,406.15	\$43,272		-\$43,993	\$0.00	\$243,684.86	-\$213,892.17	\$121,104
13	2023	\$ 0.1737	1,442,394		\$ 250,516.30	\$43,272		-\$45,093	\$0.00	\$248,695.19	\$34,803.02	\$116,598
14	2024	\$ 0.1780	1,442,394		\$ 256,779.21	\$43,272		-\$46,220	\$0.00	\$253,830.77	\$288,633.79	\$112,270
15	2025	\$ 0.1825	1,442,394		\$ 263,198.69	\$43,272		-\$47,376	\$0.00	\$259,094.75	\$547,728.54	\$108,111
16	2026	\$ 0.1870	1,442,394		\$ 269,778.66	\$43,272		-\$48,560	\$0.00	\$264,490.32	\$812,218.86	\$104,116
17	2027	\$ 0.1917	1,442,394		\$ 276,523.13	\$43,272		-\$49,774	\$0.00	\$270,020.78	\$1,082,239.64	\$100,276
18	2028	\$ 0.1965	1,442,394		\$ 283,436.20	\$43,272		-\$51,019	\$0.00	\$275,689.51	\$1,357,929.15	\$96,586
19	2029	\$ 0.2014	1,442,394		\$ 290,522.11	\$43,272		-\$52,294	\$0.00	\$281,499.95	\$1,639,429.10	\$93,039
20	2030	\$ 0.2065	1,442,394		\$ 297,785.16	\$43,272		-\$53,601	\$0.00	\$287,455.65	\$1,926,884.75	\$89,630
21	2031	\$ 0.2116	1,442,394		\$ 305,229.79	\$43,272		-\$54,941	0	\$293,560.25	\$2,220,445.00	\$86,352
22	2032	\$ 0.2169	1,442,394		\$ 312,860.54	\$43,272		-\$56,315	0	\$299,817.46	\$2,520,262.46	\$83,201
23	2033	\$ 0.2223	1,442,394		\$ 320,682.05	\$43,272		-\$57,723	0	\$306,231.10	\$2,826,493.56	\$80,170
24	2034	\$ 0.2279	1,442,394		\$ 328,699.10	\$43,272		-\$59,166	0	\$312,805.08	\$3,139,298.64	\$77,256
25	2035	\$ 0.2336	1,442,394		\$ 336,916.58	\$43,272		-\$60,645	0	\$319,543.41	\$3,458,842.05	\$74,453
26	2036	\$ 0.2394	1,442,394		\$ 345,339.49	\$43,272		-\$62,161	0	\$326,450.20	\$3,785,292.25	\$71,757
27	2037	\$ 0.2454	1,442,394		\$ 353,972.98	\$43,272		-\$63,715	0	\$333,529.66	\$4,118,821.92	\$69,163
28	2038	\$ 0.2515	1,442,394		\$ 362,822.30	\$43,272		-\$65,308	0	\$340,786.11	\$4,459,608.03	\$66,668
29	2039	\$ 0.2578	1,442,394		\$ 371,892.86	\$43,272		-\$66,941	0	\$348,223.97	\$4,807,831.99	\$64,267
30	2040	\$ 0.2643	1,442,394		\$ 381,190.18	\$43,272		-\$68,614	0	\$355,847.77	\$5,163,679.76	\$61,957

## Financial Calculations

IRR	NPV	Years to Postive Return	12
5 Years	-\$1,972,512		
10 Years	-6% -\$1,266,083		
15 Years	2% -\$682,205		
20 Years	6% -\$198,558		

# PPA Financial Pro-Forma @ P90 (PPA)

## Project Information:

Name Swampscott Middle School  
Client Town of Swampscott  
Location Swampscott  
MA  
MAI Job # 5247  
Prepared By DEG

## Key Assumptions:

WTG Manufacturer:  
WTG Faceplate (kW)  
WTG Hub Height (m)  
Blade Diameter (m)  
WTG Prod. (kWh/Year)  
WTG Capacity Factor

EWT  
900  
75  
54  
1,442,394  
0.18

Total Project Cost  
Down Payment (%)  
Down Payment  
Loan Amount  
O+M Cost (%Energy Prod.)  
Fed Tax Rate (%)

\$0.00  
100  
\$0  
\$0  
18  
0

Current Value of offset Electricity  
Value of Renewable Energy Certificate, \$/kWh  
Net Present Value Based on Discount Rate of:  
Annual Inflation on Utility Rates:  
Interest Rate on 20-yr Loan:  
Annual Inflation Rate on Operation and Maint.

\$0.01  
0  
6.00%  
0.00%  
5.00%  
2.50%

					Project Revenues			Project Costs		Project Cash Flows		
Project Year	Fiscal Year	Average Rates (\$/kWh)	Annual Energy Production	Capital Payment	Annual Revenue from Production	REC Revenue	Depreciation	Total O+M Cost per Year	Annual Loan Principal and Interest	Cash Flow	Cumulative Cash Flow	Net Present Value for Current Year
1	2011		0	\$0	\$ -	\$0	\$0		\$0.00	\$0.00	\$0.00	\$0
2	2012	\$ 0.0130	1,442,394		\$ 18,751.12	\$0	\$0	-\$3,375	\$0.00	\$15,375.92	\$15,375.92	\$13,685
3	2013	\$ 0.0130	1,442,394		\$ 18,751.12	\$0	\$0	-\$3,460	\$0.00	\$15,291.54	\$30,667.46	\$12,839
4	2014	\$ 0.0130	1,442,394		\$ 18,751.12	\$0	\$0	-\$3,546	\$0.00	\$15,205.05	\$45,872.51	\$12,044
5	2015	\$ 0.0130	1,442,394		\$ 18,751.12	\$0	\$0	-\$3,635	\$0.00	\$15,116.40	\$60,988.91	\$11,296
6	2016	\$ 0.0130	1,442,394		\$ 18,751.12	\$0	\$0	-\$3,726	\$0.00	\$15,025.53	\$76,014.44	\$10,592
7	2017	\$ 0.0130	1,442,394		\$ 18,751.12	\$0		-\$3,819	\$0.00	\$14,932.39	\$90,946.83	\$9,931
8	2018	\$ 0.0130	1,442,394		\$ 18,751.12	\$0		-\$3,914	\$0.00	\$14,836.92	\$105,783.75	\$9,309
9	2019	\$ 0.0130	1,442,394		\$ 18,751.12	\$0		-\$4,012	\$0.00	\$14,739.07	\$120,522.82	\$8,724
10	2020	\$ 0.0130	1,442,394		\$ 18,751.12	\$0		-\$4,112	\$0.00	\$14,638.77	\$135,161.59	\$8,174
11	2021	\$ 0.0130	1,442,394		\$ 18,751.12	\$0		-\$4,215	\$0.00	\$14,535.96	\$149,697.54	\$7,657
12	2022	\$ 0.0130	1,442,394		\$ 18,751.12	\$0		-\$4,321	\$0.00	\$14,430.58	\$164,128.12	\$7,172
13	2023	\$ 0.0130	1,442,394		\$ 18,751.12	\$0		-\$4,429	\$0.00	\$14,322.56	\$178,450.69	\$6,715
14	2024	\$ 0.0130	1,442,394		\$ 18,751.12	\$0		-\$4,539	\$0.00	\$14,211.85	\$192,662.54	\$6,286
15	2025	\$ 0.0130	1,442,394		\$ 18,751.12	\$0		-\$4,653	\$0.00	\$14,098.37	\$206,760.91	\$5,883
16	2026	\$ 0.0130	1,442,394		\$ 18,751.12	\$0		-\$4,769	\$0.00	\$13,982.05	\$220,742.96	\$5,504
17	2027	\$ 0.0130	1,442,394		\$ 18,751.12	\$0		-\$4,888	\$0.00	\$13,862.82	\$234,605.78	\$5,148
18	2028	\$ 0.0130	1,442,394		\$ 18,751.12	\$0		-\$5,011	\$0.00	\$13,740.62	\$248,346.39	\$4,814
19	2029	\$ 0.0130	1,442,394		\$ 18,751.12	\$0		-\$5,136	\$0.00	\$13,615.35	\$261,961.75	\$4,500
20	2030	\$ 0.0130	1,442,394		\$ 18,751.12	\$0		-\$5,264	\$0.00	\$13,486.96	\$275,448.71	\$4,205
21	2031	\$ 0.0130	1,442,394		\$ 18,751.12	\$0		-\$5,396	0	\$13,355.35	\$288,804.06	\$3,929
22	2032	\$ 0.0130	1,442,394		\$ 18,751.12	\$0		-\$5,531	0	\$13,220.46	\$302,024.52	\$3,669
23	2033	\$ 0.0130	1,442,394		\$ 18,751.12	\$0		-\$5,669	0	\$13,082.19	\$315,106.72	\$3,425
24	2034	\$ 0.0130	1,442,394		\$ 18,751.12	\$0		-\$5,811	0	\$12,940.47	\$328,047.19	\$3,196
25	2035	\$ 0.0130	1,442,394		\$ 18,751.12	\$0		-\$5,956	0	\$12,795.20	\$340,842.39	\$2,981
26	2036	\$ 0.0130	1,442,394		\$ 18,751.12	\$0		-\$6,105	0	\$12,646.31	\$353,488.70	\$2,780
27	2037	\$ 0.0130	1,442,394		\$ 18,751.12	\$0		-\$6,257	0	\$12,493.69	\$365,982.38	\$2,591
28	2038	\$ 0.0130	1,442,394		\$ 18,751.12	\$0		-\$6,414	0	\$12,337.25	\$378,319.63	\$2,414
29	2039	\$ 0.0130	1,442,394		\$ 18,751.12	\$0		-\$6,574	0	\$12,176.90	\$390,496.54	\$2,247
30	2040	\$ 0.0130	1,442,394		\$ 18,751.12	\$0		-\$6,739	0	\$12,012.55	\$402,509.09	\$2,092

## Financial Calculations

IRR NPV  
5 Years \$49,863  
10 Years #DIV/0! \$96,594  
15 Years #DIV/0! \$130,306  
20 Years #DIV/0! \$154,478  
Years to Postive Return 0

# Financial Pro-Forma @ P90 (w/out MassCEC Grant)

## Project Information:

Name Swampscott Middle School  
Client Town of Swampscott  
Location Swampscott MA  
MAI Job # 5247  
Prepared By DEG

## Key Assumptions:

WTG Manufacturer: GE Energy  
WTG Faceplate (kW) 1500  
WTG Hub Height (m) 80  
Blade Diameter (m) 77  
WTG Prod. (kWh/Year) 3,092,499  
WTG Capacity Factor 0.24

Total Project Cost \$4,200,000.00  
Down Payment (%) 100  
Down Payment -\$4,200,000  
Loan Amount \$0  
O+M Cost (%Energy Prod.) 18  
Fed Tax Rate (%) 0

Current Value of offset Electricity \$0.13  
Value of Renewable Energy Certificate, \$/kWh 0.03  
Net Present Value Based on Discount Rate of: 6.00%  
Annual Inflation on Utility Rates: 2.50%  
Interest Rate on 20-yr Loan: 5.00%  
Annual Inflation Rate on Operation and Maint. 2.50%

				Project Revenues				Project Costs		Project Cash Flows			
Project Year	Fiscal Year	Average Rates (\$/kWh)	Annual Energy Production	Capital Payment	Annual Revenue from Production	REC Revenue	Depreciation	Total O+M Cost per Year	Annual Loan Principal and Interest	Cash Flow	Cumulative Cash Flow	Net Present Value for Current Year	
1	2011		0	-\$4,200,000	\$ -	\$0	\$0		\$0.00	-\$4,200,000.00	-\$4,200,000.00	-\$4,200,000	
2	2012	\$ 0.1324	3,092,499		\$ 409,354.09	\$92,775	\$0	-\$73,684	\$0.00	\$428,445.33	-\$3,771,554.67	\$381,315	
3	2013	\$ 0.1357	3,092,499		\$ 419,587.94	\$92,775	\$0	-\$75,526	\$0.00	\$436,837.08	-\$3,334,717.59	\$366,777	
4	2014	\$ 0.1391	3,092,499		\$ 430,077.64	\$92,775	\$0	-\$77,414	\$0.00	\$445,438.64	-\$2,889,278.95	\$352,829	
5	2015	\$ 0.1425	3,092,499		\$ 440,829.58	\$92,775	\$0	-\$79,349	\$0.00	\$454,255.23	-\$2,435,023.72	\$339,446	
6	2016	\$ 0.1461	3,092,499		\$ 451,850.32	\$92,775	\$0	-\$81,333	\$0.00	\$463,292.24	-\$1,971,731.49	\$326,603	
7	2017	\$ 0.1498	3,092,499		\$ 463,146.58	\$92,775	\$0	-\$83,366	\$0.00	\$472,555.17	-\$1,499,176.32	\$314,276	
8	2018	\$ 0.1535	3,092,499		\$ 474,725.25	\$92,775	\$0	-\$85,451	\$0.00	\$482,049.67	-\$1,017,126.65	\$302,444	
9	2019	\$ 0.1573	3,092,499		\$ 486,593.38	\$92,775	\$0	-\$87,587	\$0.00	\$491,781.54	-\$525,345.11	\$291,085	
10	2020	\$ 0.1613	3,092,499		\$ 498,758.21	\$92,775	\$0	-\$89,776	\$0.00	\$501,756.70	-\$23,588.40	\$280,178	
11	2021	\$ 0.1653	3,092,499		\$ 511,227.17	\$92,775	\$0	-\$92,021	\$0.00	\$511,981.25	\$488,392.85	\$269,705	
12	2022	\$ 0.1694	3,092,499		\$ 524,007.85	\$92,775	\$0	-\$94,321	\$0.00	\$522,461.40	\$1,010,854.25	\$259,647	
13	2023	\$ 0.1737	3,092,499		\$ 537,108.04	\$92,775	\$0	-\$96,679	\$0.00	\$533,203.57	\$1,544,057.82	\$249,987	
14	2024	\$ 0.1780	3,092,499		\$ 550,535.74	\$92,775	\$0	-\$99,096	\$0.00	\$544,214.28	\$2,088,272.10	\$240,707	
15	2025	\$ 0.1825	3,092,499		\$ 564,299.14	\$92,775	\$0	-\$101,574	\$0.00	\$555,500.26	\$2,643,772.36	\$231,791	
16	2026	\$ 0.1870	3,092,499		\$ 578,406.62	\$92,775	\$0	-\$104,113	\$0.00	\$567,068.40	\$3,210,840.75	\$223,224	
17	2027	\$ 0.1917	3,092,499		\$ 592,866.78	\$92,775	\$0	-\$106,716	\$0.00	\$578,925.73	\$3,789,766.49	\$214,992	
18	2028	\$ 0.1965	3,092,499		\$ 607,688.45	\$92,775	\$0	-\$109,384	\$0.00	\$591,079.50	\$4,380,845.99	\$207,081	
19	2029	\$ 0.2014	3,092,499		\$ 622,880.66	\$92,775	\$0	-\$112,119	\$0.00	\$603,537.11	\$4,984,383.10	\$199,477	
20	2030	\$ 0.2065	3,092,499		\$ 638,452.68	\$92,775	\$0	-\$114,921	\$0.00	\$616,306.17	\$5,600,689.27	\$192,167	
21	2031	\$ 0.2116	3,092,499		\$ 654,414.00	\$92,775	\$0	-\$117,795	0	\$629,394.45	\$6,230,083.71	\$185,140	
22	2032	\$ 0.2169	3,092,499		\$ 670,774.35	\$92,775	\$0	-\$120,739	0	\$642,809.93	\$6,872,893.65	\$178,383	
23	2033	\$ 0.2223	3,092,499		\$ 687,543.70	\$92,775	\$0	-\$123,758	0	\$656,560.81	\$7,529,454.45	\$171,886	
24	2034	\$ 0.2279	3,092,499		\$ 704,732.30	\$92,775	\$0	-\$126,852	0	\$670,655.45	\$8,200,109.91	\$165,638	
25	2035	\$ 0.2336	3,092,499		\$ 722,350.60	\$92,775	\$0	-\$130,023	0	\$685,102.47	\$8,885,212.37	\$159,628	
26	2036	\$ 0.2394	3,092,499		\$ 740,409.37	\$92,775	\$0	-\$133,274	0	\$699,910.65	\$9,585,123.03	\$153,847	
27	2037	\$ 0.2454	3,092,499		\$ 758,919.60	\$92,775	\$0	-\$136,606	0	\$715,089.05	\$10,300,212.07	\$148,287	
28	2038	\$ 0.2515	3,092,499		\$ 777,892.59	\$92,775	\$0	-\$140,021	0	\$730,646.90	\$11,030,858.97	\$142,937	
29	2039	\$ 0.2578	3,092,499		\$ 797,339.91	\$92,775	\$0	-\$143,521	0	\$746,593.70	\$11,777,452.67	\$137,789	
30	2040	\$ 0.2643	3,092,499		\$ 817,273.41	\$92,775	\$0	-\$147,109	0	\$762,939.16	\$12,540,391.83	\$132,835	

## Financial Calculations

	IRR	NPV	Years to Postive Return	10
5 Years	-27%	-\$2,759,633		
10 Years	0%	-\$1,245,047		
15 Years	7%	\$6,789		
20 Years	10%	\$1,043,731		



# Financial Pro-Forma @ P90 (w/ MassCEC Grant)

## Project Information:

Name Swampscott Middle School  
 Client Town of Swampscott  
 Location Swampscott MA  
 MAI Job # 5247  
 Prepared By DEG

## Key Assumptions:

WTG Manufacturer: GE Energy  
 WTG Faceplate (kW) 1500  
 WTG Hub Height (m) 80  
 Blade Diameter (m) 77  
 WTG Prod. (kWh/Year) 3,092,499  
 WTG Capacity Factor 0.24

Total Project Cost \$4,200,000.00  
 Down Payment (%) 100  
 Down Payment -\$3,800,000  
 Loan Amount \$0  
 O+M Cost (%Energy Prod.) 18  
 Fed Tax Rate (%) 0

Current Value of offset Electricity \$0.13  
 Value of Renewable Energy Certificate, \$/kWh 0.03  
 Net Present Value Based on Discount Rate of: 6.00%  
 Annual Inflation on Utility Rates: 2.50%  
 Interest Rate on 20-yr Loan: 5.00%  
 Annual Inflation Rate on Operation and Maint. 2.50%

				Project Revenues				Project Costs		Project Cash Flows			
Project Year	Fiscal Year	Average Rates (\$/kWh)	Annual Energy Production	Capital Payment	Annual Revenue from Production	REC Revenue	Depreciation	Total O+M Cost per Year	Annual Loan Principal and Interest	Cash Flow	Cumulative Cash Flow	Net Present Value for Current Year	
1	2011		0	-\$3,800,000	\$ -	\$0	\$0		\$0.00	-\$3,800,000.00	-\$3,800,000.00	-\$3,800,000	
2	2012	\$ 0.1324	3,092,499		\$ 409,354.09	\$92,775	\$0	-\$73,684	\$0.00	\$428,445.33	-\$3,371,554.67	\$381,315	
3	2013	\$ 0.1357	3,092,499		\$ 419,587.94	\$92,775	\$0	-\$75,526	\$0.00	\$436,837.08	-\$2,934,717.59	\$366,777	
4	2014	\$ 0.1391	3,092,499		\$ 430,077.64	\$92,775	\$0	-\$77,414	\$0.00	\$445,438.64	-\$2,489,278.95	\$352,829	
5	2015	\$ 0.1425	3,092,499		\$ 440,829.58	\$92,775	\$0	-\$79,349	\$0.00	\$454,255.23	-\$2,035,023.72	\$339,446	
6	2016	\$ 0.1461	3,092,499		\$ 451,850.32	\$92,775	\$0	-\$81,333	\$0.00	\$463,292.24	-\$1,571,731.49	\$326,603	
7	2017	\$ 0.1498	3,092,499		\$ 463,146.58	\$92,775	\$0	-\$83,366	\$0.00	\$472,555.17	-\$1,099,176.32	\$314,276	
8	2018	\$ 0.1535	3,092,499		\$ 474,725.25	\$92,775	\$0	-\$85,451	\$0.00	\$482,049.67	-\$617,126.65	\$302,444	
9	2019	\$ 0.1573	3,092,499		\$ 486,593.38	\$92,775	\$0	-\$87,587	\$0.00	\$491,781.54	-\$125,345.11	\$291,085	
10	2020	\$ 0.1613	3,092,499		\$ 498,758.21	\$92,775	\$0	-\$89,776	\$0.00	\$501,756.70	\$376,411.60	\$280,178	
11	2021	\$ 0.1653	3,092,499		\$ 511,227.17	\$92,775	\$0	-\$92,021	\$0.00	\$511,981.25	\$888,392.85	\$269,705	
12	2022	\$ 0.1694	3,092,499		\$ 524,007.85	\$92,775	\$0	-\$94,321	\$0.00	\$522,461.40	\$1,410,854.25	\$259,647	
13	2023	\$ 0.1737	3,092,499		\$ 537,108.04	\$92,775	\$0	-\$96,679	\$0.00	\$533,203.57	\$1,944,057.82	\$249,987	
14	2024	\$ 0.1780	3,092,499		\$ 550,535.74	\$92,775	\$0	-\$99,096	\$0.00	\$544,214.28	\$2,488,272.10	\$240,707	
15	2025	\$ 0.1825	3,092,499		\$ 564,299.14	\$92,775	\$0	-\$101,574	\$0.00	\$555,500.26	\$3,043,772.36	\$231,791	
16	2026	\$ 0.1870	3,092,499		\$ 578,406.62	\$92,775	\$0	-\$104,113	\$0.00	\$567,068.40	\$3,610,840.75	\$223,224	
17	2027	\$ 0.1917	3,092,499		\$ 592,866.78	\$92,775	\$0	-\$106,716	\$0.00	\$578,925.73	\$4,189,766.49	\$214,992	
18	2028	\$ 0.1965	3,092,499		\$ 607,688.45	\$92,775	\$0	-\$109,384	\$0.00	\$591,079.50	\$4,780,845.99	\$207,081	
19	2029	\$ 0.2014	3,092,499		\$ 622,880.66	\$92,775	\$0	-\$112,119	\$0.00	\$603,537.11	\$5,384,383.10	\$199,477	
20	2030	\$ 0.2065	3,092,499		\$ 638,452.68	\$92,775	\$0	-\$114,921	\$0.00	\$616,306.17	\$6,000,689.27	\$192,167	
21	2031	\$ 0.2116	3,092,499		\$ 654,414.00	\$92,775	\$0	-\$117,795	0	\$629,394.45	\$6,630,083.71	\$185,140	
22	2032	\$ 0.2169	3,092,499		\$ 670,774.35	\$92,775	\$0	-\$120,739	0	\$642,809.93	\$7,272,893.65	\$178,383	
23	2033	\$ 0.2223	3,092,499		\$ 687,543.70	\$92,775	\$0	-\$123,758	0	\$656,560.81	\$7,929,454.45	\$171,886	
24	2034	\$ 0.2279	3,092,499		\$ 704,732.30	\$92,775	\$0	-\$126,852	0	\$670,655.45	\$8,600,109.91	\$165,638	
25	2035	\$ 0.2336	3,092,499		\$ 722,350.60	\$92,775	\$0	-\$130,023	0	\$685,102.47	\$9,285,212.37	\$159,628	
26	2036	\$ 0.2394	3,092,499		\$ 740,409.37	\$92,775	\$0	-\$133,274	0	\$699,910.65	\$9,985,123.03	\$153,847	
27	2037	\$ 0.2454	3,092,499		\$ 758,919.60	\$92,775	\$0	-\$136,606	0	\$715,089.05	\$10,700,212.07	\$148,287	
28	2038	\$ 0.2515	3,092,499		\$ 777,892.59	\$92,775	\$0	-\$140,021	0	\$730,646.90	\$11,430,858.97	\$142,937	
29	2039	\$ 0.2578	3,092,499		\$ 797,339.91	\$92,775	\$0	-\$143,521	0	\$746,593.70	\$12,177,452.67	\$137,789	
30	2040	\$ 0.2643	3,092,499		\$ 817,273.41	\$92,775	\$0	-\$147,109	0	\$762,939.16	\$12,940,391.83	\$132,835	

## Financial Calculations

IRR  
 5 Years -25%  
 10 Years 2%  
 15 Years 9%  
 20 Years 11%

NPV

-\$2,359,633  
 -\$845,047  
 \$406,789  
 \$1,443,731

Years to Postive Return 9



# PPA Financial Pro-Forma @ P90 (PPA)

## Project Information:

Name Swamscott Middle School  
Client Town of Swamscott  
Location Swamscott MA  
MAI Job # 5247  
Prepared By DEG

## Key Assumptions:

WTG Manufacturer:  
WTG Faceplate (kW)  
WTG Hub Height (m)  
Blade Diameter (m)  
WTG Prod. (kWh/Year)  
WTG Capacity Factor

GE Energy  
1500  
80  
77  
3,092,499

Total Project Cost  
Down Payment (%)  
Down Payment  
Loan Amount  
O+M Cost (%Energy Prod.)  
Fed Tax Rate (%)

\$0.00  
100  
\$0  
\$0  
18  
0

Current Value of offset Electricity  
Value of Renewable Energy Certificate, \$/kWh  
Net Present Value Based on Discount Rate of:  
Annual Inflation on Utility Rates:  
Interest Rate on 20-yr Loan:  
Annual Inflation Rate on Operation and Maint.

\$0.01  
0  
6.00%  
0.00%  
4.50%  
2.50%

					Project Revenues			Project Costs		Project Cash Flows		
Project Year	Fiscal Year	Average Rates (\$/kWh)	Annual Energy Production	Capital Payment	Annual Revenue from Production	REC Revenue	Depreciation	Total O+M Cost per Year	Annual Loan Principal and Interest	Cash Flow	Cumulative Cash Flow	Net Present Value for Current Year
1	2011		0	\$0	\$ -	\$0	\$0		\$0.00	\$0.00	\$0.00	\$0
2	2012	\$ 0.0130	3,092,499		\$ 40,202.49	\$0	\$0	-\$7,236	\$0.00	\$32,966.04	\$32,966.04	\$29,340
3	2013	\$ 0.0130	3,092,499		\$ 40,202.49	\$0	\$0	-\$7,417	\$0.00	\$32,785.13	\$65,751.17	\$27,527
4	2014	\$ 0.0130	3,092,499		\$ 40,202.49	\$0	\$0	-\$7,603	\$0.00	\$32,599.69	\$98,350.86	\$25,822
5	2015	\$ 0.0130	3,092,499		\$ 40,202.49	\$0	\$0	-\$7,793	\$0.00	\$32,409.62	\$130,760.49	\$24,218
6	2016	\$ 0.0130	3,092,499		\$ 40,202.49	\$0	\$0	-\$7,988	\$0.00	\$32,214.80	\$162,975.29	\$22,710
7	2017	\$ 0.0130	3,092,499		\$ 40,202.49	\$0		-\$8,187	\$0.00	\$32,015.11	\$194,990.40	\$21,292
8	2018	\$ 0.0130	3,092,499		\$ 40,202.49	\$0		-\$8,392	\$0.00	\$31,810.43	\$226,800.83	\$19,958
9	2019	\$ 0.0130	3,092,499		\$ 40,202.49	\$0		-\$8,602	\$0.00	\$31,600.62	\$258,401.45	\$18,704
10	2020	\$ 0.0130	3,092,499		\$ 40,202.49	\$0		-\$8,817	\$0.00	\$31,385.58	\$289,787.03	\$17,526
11	2021	\$ 0.0130	3,092,499		\$ 40,202.49	\$0		-\$9,037	\$0.00	\$31,165.16	\$320,952.18	\$16,417
12	2022	\$ 0.0130	3,092,499		\$ 40,202.49	\$0		-\$9,263	\$0.00	\$30,939.22	\$351,891.41	\$15,376
13	2023	\$ 0.0130	3,092,499		\$ 40,202.49	\$0		-\$9,495	\$0.00	\$30,707.64	\$382,599.05	\$14,397
14	2024	\$ 0.0130	3,092,499		\$ 40,202.49	\$0		-\$9,732	\$0.00	\$30,470.27	\$413,069.32	\$13,477
15	2025	\$ 0.0130	3,092,499		\$ 40,202.49	\$0		-\$9,976	\$0.00	\$30,226.96	\$443,296.28	\$12,613
16	2026	\$ 0.0130	3,092,499		\$ 40,202.49	\$0		-\$10,225	\$0.00	\$29,977.58	\$473,273.86	\$11,801
17	2027	\$ 0.0130	3,092,499		\$ 40,202.49	\$0		-\$10,481	\$0.00	\$29,721.95	\$502,995.81	\$11,038
18	2028	\$ 0.0130	3,092,499		\$ 40,202.49	\$0		-\$10,743	\$0.00	\$29,459.94	\$532,455.75	\$10,321
19	2029	\$ 0.0130	3,092,499		\$ 40,202.49	\$0		-\$11,011	\$0.00	\$29,191.38	\$561,647.13	\$9,648
20	2030	\$ 0.0130	3,092,499		\$ 40,202.49	\$0		-\$11,286	\$0.00	\$28,916.10	\$590,563.22	\$9,016
21	2031	\$ 0.0130	3,092,499		\$ 40,202.49	\$0		-\$11,569	0	\$28,633.94	\$619,197.16	\$8,423
22	2032	\$ 0.0130	3,092,499		\$ 40,202.49	\$0		-\$11,858	0	\$28,344.72	\$647,541.89	\$7,866
23	2033	\$ 0.0130	3,092,499		\$ 40,202.49	\$0		-\$12,154	0	\$28,048.28	\$675,590.17	\$7,343
24	2034	\$ 0.0130	3,092,499		\$ 40,202.49	\$0		-\$12,458	0	\$27,744.43	\$703,334.59	\$6,852
25	2035	\$ 0.0130	3,092,499		\$ 40,202.49	\$0		-\$12,770	0	\$27,432.97	\$730,767.57	\$6,392
26	2036	\$ 0.0130	3,092,499		\$ 40,202.49	\$0		-\$13,089	0	\$27,113.74	\$757,881.30	\$5,960
27	2037	\$ 0.0130	3,092,499		\$ 40,202.49	\$0		-\$13,416	0	\$26,786.52	\$784,667.82	\$5,555
28	2038	\$ 0.0130	3,092,499		\$ 40,202.49	\$0		-\$13,751	0	\$26,451.12	\$811,118.94	\$5,175
29	2039	\$ 0.0130	3,092,499		\$ 40,202.49	\$0		-\$14,095	0	\$26,107.33	\$837,226.27	\$4,818
30	2040	\$ 0.0130	3,092,499		\$ 40,202.49	\$0		-\$14,448	0	\$25,754.96	\$862,981.23	\$4,484

## Financial Calculations

IRR NPV Years to Postive Return 0  
5 Years #NUM! \$106,907  
10 Years #DIV/0! \$207,097  
15 Years #DIV/0! \$279,377  
20 Years #DIV/0! \$331,201

# Financial Pro-Forma @ P90 (w/out MassCEC Grant)

## Project Information:

Name Swampscott Middle School  
Client Town of Swampscott  
Location Swampscott  
MA  
MAI Job # 5247  
Prepared By DEG

## Key Assumptions:

WTG Manufacturer:  
WTG Faceplate (kW)  
WTG Hub Height (m)  
Blade Diameter (m)  
WTG Prod. (kWh/Year)  
WTG Capacity Factor

Elecon  
600  
60  
48  
901,449  
0.17

Total Project Cost  
Down Payment (%)  
Down Payment  
Loan Amount  
O+M Cost (%Energy Prod.)  
Fed Tax Rate (%)

\$2,200,000.00  
0  
\$0  
-\$2,200,000  
18  
0

Current Value of offset Electricity  
Value of Renewable Energy Certificate, \$/kWh  
Net Present Value Based on Discount Rate of:  
Annual Inflation on Utility Rates:  
Interest Rate on 20-yr Loan:  
Annual Inflation Rate on Operation and Maint.

\$0.13  
0.03  
6.00%  
2.50%  
5.00%  
2.50%

					Project Revenues			Project Costs		Project Cash Flows		
Project Year	Fiscal Year	Average Rates (\$/kWh)	Annual Energy Production	Capital Payment	Annual Revenue from Production	REC Revenue	Depreciation	Total O+M Cost per Year	Annual Loan Principal and Interest	Cash Flow	Cumulative Cash Flow	Net Present Value for Current Year
1	2011		0	\$0	\$ -	\$0	\$0		-\$174,228.32	-\$174,228.32	-\$174,228.32	-\$174,228
2	2012	\$ 0.1324	901,449		\$ 119,324.80	\$27,043	\$0	-\$21,478	-\$174,228.32	-\$49,338.51	-\$223,566.82	-\$43,911
3	2013	\$ 0.1357	901,449		\$ 122,307.92	\$27,043	\$0	-\$22,015	-\$174,228.32	-\$46,892.35	-\$270,459.17	-\$39,372
4	2014	\$ 0.1391	901,449		\$ 125,365.62	\$27,043	\$0	-\$22,566	-\$174,228.32	-\$44,385.03	-\$314,844.20	-\$35,157
5	2015	\$ 0.1425	901,449		\$ 128,499.76	\$27,043	\$0	-\$23,130	-\$174,228.32	-\$41,815.04	-\$356,659.24	-\$31,247
6	2016	\$ 0.1461	901,449		\$ 131,712.26	\$27,043	\$0	-\$23,708	-\$174,228.32	-\$39,180.79	-\$395,840.04	-\$27,621
7	2017	\$ 0.1498	901,449		\$ 135,005.06	\$27,043		-\$24,301	-\$174,228.32	-\$36,480.69	-\$432,320.73	-\$24,262
8	2018	\$ 0.1535	901,449		\$ 138,380.19	\$27,043		-\$24,908	-\$174,228.32	-\$33,713.09	-\$466,033.82	-\$21,152
9	2019	\$ 0.1573	901,449		\$ 141,839.69	\$27,043		-\$25,531	-\$174,228.32	-\$30,876.30	-\$496,910.12	-\$18,276
10	2020	\$ 0.1613	901,449		\$ 145,385.69	\$27,043		-\$26,169	-\$174,228.32	-\$27,968.58	-\$524,878.70	-\$15,618
11	2021	\$ 0.1653	901,449		\$ 149,020.33	\$27,043		-\$26,824	-\$174,228.32	-\$24,988.18	-\$549,866.87	-\$13,163
12	2022	\$ 0.1694	901,449		\$ 152,745.84	\$27,043		-\$27,494	-\$174,228.32	-\$21,933.26	-\$571,800.13	-\$10,900
13	2023	\$ 0.1737	901,449		\$ 156,564.48	\$27,043		-\$28,182	-\$174,228.32	-\$18,801.97	-\$590,602.10	-\$8,815
14	2024	\$ 0.1780	901,449		\$ 160,478.60	\$27,043		-\$28,886	-\$174,228.32	-\$15,592.40	-\$606,194.50	-\$6,897
15	2025	\$ 0.1825	901,449		\$ 164,490.56	\$27,043		-\$29,608	-\$174,228.32	-\$12,302.59	-\$618,497.08	-\$5,133
16	2026	\$ 0.1870	901,449		\$ 168,602.82	\$27,043		-\$30,349	-\$174,228.32	-\$8,930.53	-\$627,427.61	-\$3,515
17	2027	\$ 0.1917	901,449		\$ 172,817.90	\$27,043		-\$31,107	-\$174,228.32	-\$5,474.17	-\$632,901.78	-\$2,033
18	2028	\$ 0.1965	901,449		\$ 177,138.34	\$27,043		-\$31,885	-\$174,228.32	-\$1,931.40	-\$634,833.19	-\$677
19	2029	\$ 0.2014	901,449		\$ 181,566.80	\$27,043		-\$32,682	-\$174,228.32	\$1,699.93	-\$633,133.25	\$562
20	2030	\$ 0.2065	901,449		\$ 186,105.97	\$27,043		-\$33,499	-\$174,228.32	\$5,422.05	-\$627,711.20	\$1,691
21	2031	\$ 0.2116	901,449		\$ 190,758.62	\$27,043		-\$34,337	0	\$183,465.54	-\$444,245.66	\$53,967
22	2032	\$ 0.2169	901,449		\$ 195,527.59	\$27,043		-\$35,195	0	\$187,376.09	-\$256,869.57	\$51,998
23	2033	\$ 0.2223	901,449		\$ 200,415.78	\$27,043		-\$36,075	0	\$191,384.41	-\$65,485.17	\$50,104
24	2034	\$ 0.2279	901,449		\$ 205,426.17	\$27,043		-\$36,977	0	\$195,492.93	\$130,007.76	\$48,283
25	2035	\$ 0.2336	901,449		\$ 210,561.82	\$27,043		-\$37,901	0	\$199,704.17	\$329,711.93	\$46,531
26	2036	\$ 0.2394	901,449		\$ 215,825.87	\$27,043		-\$38,849	0	\$204,020.68	\$533,732.61	\$44,846
27	2037	\$ 0.2454	901,449		\$ 221,221.52	\$27,043		-\$39,820	0	\$208,445.11	\$742,177.72	\$43,225
28	2038	\$ 0.2515	901,449		\$ 226,752.05	\$27,043		-\$40,815	0	\$212,980.15	\$955,157.88	\$41,665
29	2039	\$ 0.2578	901,449		\$ 232,420.86	\$27,043		-\$41,836	0	\$217,628.57	\$1,172,786.45	\$40,165
30	2040	\$ 0.2643	901,449		\$ 238,231.38	\$27,043		-\$42,882	0	\$222,393.20	\$1,395,179.65	\$38,721

## Financial Calculations

	IRR	NPV	Years to Postive Return	24
5 Years		-\$323,915		
10 Years	#DIV/0!	-\$430,843		
15 Years	#DIV/0!	-\$475,751		
20 Years	#DIV/0!	-\$479,724		

# Financial Pro-Forma @ P90 (w/ MassCEC Grant)

## Project Information:

Name Swampscott Middle School  
Client Town of Swampscott  
Location Swampscott  
MA  
MAI Job # 5247  
Prepared By DEG

## Key Assumptions:

WTG Manufacturer:  
WTG Faceplate (kW)  
WTG Hub Height (m)  
Blade Diameter (m)  
WTG Prod. (kWh/Year)  
WTG Capacity Factor

Elecon  
600  
60  
48  
901,449  
0.17

Total Project Cost  
Down Payment (%)  
Down Payment  
Loan Amount  
O+M Cost (%Energy Prod.)  
Fed Tax Rate (%)

\$2,200,000.00  
0  
\$320,500  
-\$1,879,500  
18  
0

Current Value of offset Electricity  
Value of Renewable Energy Certificate, \$/kWh  
Net Present Value Based on Discount Rate of:  
Annual Inflation on Utility Rates:  
Interest Rate on 20-yr Loan:  
Annual Inflation Rate on Operation and Maint.

\$0.13  
0.03  
6.00%  
2.50%  
5.00%  
2.50%

					Project Revenues			Project Costs		Project Cash Flows		
Project Year	Fiscal Year	Average Rates (\$/kWh)	Annual Energy Production	Capital Payment	Annual Revenue from Production	REC Revenue	Depreciation	Total O+M Cost per Year	Annual Loan Principal and Interest	Cash Flow	Cumulative Cash Flow	Net Present Value for Current Year
1	2011		0	\$320,500	\$ -	\$0	\$0		-\$148,846.42	\$171,653.58	\$171,653.58	\$171,654
2	2012	\$ 0.1324	901,449		\$ 119,324.80	\$27,043	\$0	-\$21,478	-\$148,846.42	-\$23,956.61	\$147,696.97	-\$21,321
3	2013	\$ 0.1357	901,449		\$ 122,307.92	\$27,043	\$0	-\$22,015	-\$148,846.42	-\$21,510.45	\$126,186.52	-\$18,061
4	2014	\$ 0.1391	901,449		\$ 125,365.62	\$27,043	\$0	-\$22,566	-\$148,846.42	-\$19,003.14	\$107,183.39	-\$15,052
5	2015	\$ 0.1425	901,449		\$ 128,499.76	\$27,043	\$0	-\$23,130	-\$148,846.42	-\$16,433.14	\$90,750.25	-\$12,280
6	2016	\$ 0.1461	901,449		\$ 131,712.26	\$27,043	\$0	-\$23,708	-\$148,846.42	-\$13,798.90	\$76,951.35	-\$9,728
7	2017	\$ 0.1498	901,449		\$ 135,005.06	\$27,043		-\$24,301	-\$148,846.42	-\$11,098.80	\$65,852.55	-\$7,381
8	2018	\$ 0.1535	901,449		\$ 138,380.19	\$27,043		-\$24,908	-\$148,846.42	-\$8,331.19	\$57,521.36	-\$5,227
9	2019	\$ 0.1573	901,449		\$ 141,839.69	\$27,043		-\$25,531	-\$148,846.42	-\$5,494.40	\$52,026.96	-\$3,252
10	2020	\$ 0.1613	901,449		\$ 145,385.69	\$27,043		-\$26,169	-\$148,846.42	-\$2,586.68	\$49,440.28	-\$1,444
11	2021	\$ 0.1653	901,449		\$ 149,020.33	\$27,043		-\$26,824	-\$148,846.42	\$393.72	\$49,834.00	\$207
12	2022	\$ 0.1694	901,449		\$ 152,745.84	\$27,043		-\$27,494	-\$148,846.42	\$3,448.64	\$53,282.64	\$1,714
13	2023	\$ 0.1737	901,449		\$ 156,564.48	\$27,043		-\$28,182	-\$148,846.42	\$6,579.93	\$59,862.57	\$3,085
14	2024	\$ 0.1780	901,449		\$ 160,478.60	\$27,043		-\$28,886	-\$148,846.42	\$9,789.50	\$69,652.07	\$4,330
15	2025	\$ 0.1825	901,449		\$ 164,490.56	\$27,043		-\$29,608	-\$148,846.42	\$13,079.31	\$82,731.38	\$5,458
16	2026	\$ 0.1870	901,449		\$ 168,602.82	\$27,043		-\$30,349	-\$148,846.42	\$16,451.37	\$99,182.75	\$6,476
17	2027	\$ 0.1917	901,449		\$ 172,817.90	\$27,043		-\$31,107	-\$148,846.42	\$19,907.73	\$119,090.48	\$7,393
18	2028	\$ 0.1965	901,449		\$ 177,138.34	\$27,043		-\$31,885	-\$148,846.42	\$23,450.49	\$142,540.97	\$8,216
19	2029	\$ 0.2014	901,449		\$ 181,566.80	\$27,043		-\$32,682	-\$148,846.42	\$27,081.83	\$169,622.80	\$8,951
20	2030	\$ 0.2065	901,449		\$ 186,105.97	\$27,043		-\$33,499	-\$148,846.42	\$30,803.95	\$200,426.75	\$9,605
21	2031	\$ 0.2116	901,449		\$ 190,758.62	\$27,043		-\$34,337	0	\$183,465.54	\$383,892.29	\$53,967
22	2032	\$ 0.2169	901,449		\$ 195,527.59	\$27,043		-\$35,195	0	\$187,376.09	\$571,268.38	\$51,998
23	2033	\$ 0.2223	901,449		\$ 200,415.78	\$27,043		-\$36,075	0	\$191,384.41	\$762,652.79	\$50,104
24	2034	\$ 0.2279	901,449		\$ 205,426.17	\$27,043		-\$36,977	0	\$195,492.93	\$958,145.72	\$48,283
25	2035	\$ 0.2336	901,449		\$ 210,561.82	\$27,043		-\$37,901	0	\$199,704.17	\$1,157,849.88	\$46,531
26	2036	\$ 0.2394	901,449		\$ 215,825.87	\$27,043		-\$38,849	0	\$204,020.68	\$1,361,870.56	\$44,846
27	2037	\$ 0.2454	901,449		\$ 221,221.52	\$27,043		-\$39,820	0	\$208,445.11	\$1,570,315.68	\$43,225
28	2038	\$ 0.2515	901,449		\$ 226,752.05	\$27,043		-\$40,815	0	\$212,980.15	\$1,783,295.83	\$41,665
29	2039	\$ 0.2578	901,449		\$ 232,420.86	\$27,043		-\$41,836	0	\$217,628.57	\$2,000,924.40	\$40,165
30	2040	\$ 0.2643	901,449		\$ 238,231.38	\$27,043		-\$42,882	0	\$222,393.20	\$2,223,317.60	\$38,721

## Financial Calculations

IRR NPV  
5 Years \$104,940  
10 Years \$77,907  
15 Years \$92,701  
20 Years \$133,341

Years to Postive Return

21

# Financial Pro-Forma @ P90 (w/out MassCEC Grant)

## Project Information:

Name Swampscott Middle School  
Client Town of Swampscott  
Location Swampscott  
MA  
MAI Job # 5247  
Prepared By DEG

## Key Assumptions:

WTG Manufacturer:  
WTG Faceplate (kW)  
WTG Hub Height (m)  
Blade Diameter (m)  
WTG Prod. (kWh/Year)  
WTG Capacity Factor

Unison  
750  
60  
54  
1,075,497  
0.16

Total Project Cost  
Down Payment (%)  
Down Payment  
Loan Amount  
O+M Cost (%Energy Prod.)  
Fed Tax Rate (%)

\$2,800,000.00  
0  
\$0  
-\$2,800,000  
18  
0

Current Value of offset Electricity  
Value of Renewable Energy Certificate, \$/kWh  
Net Present Value Based on Discount Rate of:  
Annual Inflation on Utility Rates:  
Interest Rate on 20-yr Loan:  
Annual Inflation Rate on Operation and Maint.

\$0.13  
0.03  
6.00%  
2.50%  
5.00%  
2.50%

					Project Revenues			Project Costs		Project Cash Flows		
Project Year	Fiscal Year	Average Rates (\$/kWh)	Annual Energy Production	Capital Payment	Annual Revenue from Production	REC Revenue	Depreciation	Total O+M Cost per Year	Annual Loan Principal and Interest	Cash Flow	Cumulative Cash Flow	Net Present Value for Current Year
1	2011		0	\$0	\$ -	\$0	\$0		-\$221,745.13	-\$221,745.13	-\$221,745.13	-\$221,745
2	2012	\$ 0.1324	1,075,497		\$ 142,363.54	\$32,265	\$0	-\$25,625	-\$221,745.13	-\$72,742.12	-\$294,487.25	-\$64,740
3	2013	\$ 0.1357	1,075,497		\$ 145,922.63	\$32,265	\$0	-\$26,266	-\$221,745.13	-\$69,823.66	-\$364,310.91	-\$58,625
4	2014	\$ 0.1391	1,075,497		\$ 149,570.69	\$32,265	\$0	-\$26,923	-\$221,745.13	-\$66,832.25	-\$431,143.16	-\$52,937
5	2015	\$ 0.1425	1,075,497		\$ 153,309.96	\$32,265	\$0	-\$27,596	-\$221,745.13	-\$63,766.05	-\$494,909.21	-\$47,650
6	2016	\$ 0.1461	1,075,497		\$ 157,142.71	\$32,265	\$0	-\$28,286	-\$221,745.13	-\$60,623.20	-\$555,532.41	-\$42,737
7	2017	\$ 0.1498	1,075,497		\$ 161,071.28	\$32,265		-\$28,993	-\$221,745.13	-\$57,401.77	-\$612,934.18	-\$38,175
8	2018	\$ 0.1535	1,075,497		\$ 165,098.06	\$32,265		-\$29,718	-\$221,745.13	-\$54,099.81	-\$667,033.99	-\$33,943
9	2019	\$ 0.1573	1,075,497		\$ 169,225.51	\$32,265		-\$30,461	-\$221,745.13	-\$50,715.30	-\$717,749.29	-\$30,018
10	2020	\$ 0.1613	1,075,497		\$ 173,456.15	\$32,265		-\$31,222	-\$221,745.13	-\$47,246.18	-\$764,995.47	-\$26,382
11	2021	\$ 0.1653	1,075,497		\$ 177,792.55	\$32,265		-\$32,003	-\$221,745.13	-\$43,690.33	-\$808,685.80	-\$23,016
12	2022	\$ 0.1694	1,075,497		\$ 182,237.36	\$32,265		-\$32,803	-\$221,745.13	-\$40,045.58	-\$848,731.38	-\$19,901
13	2023	\$ 0.1737	1,075,497		\$ 186,793.30	\$32,265		-\$33,623	-\$221,745.13	-\$36,309.71	-\$885,041.09	-\$17,023
14	2024	\$ 0.1780	1,075,497		\$ 191,463.13	\$32,265		-\$34,463	-\$221,745.13	-\$32,480.45	-\$917,521.54	-\$14,366
15	2025	\$ 0.1825	1,075,497		\$ 196,249.71	\$32,265		-\$35,325	-\$221,745.13	-\$28,555.46	-\$946,077.00	-\$11,915
16	2026	\$ 0.1870	1,075,497		\$ 201,155.95	\$32,265		-\$36,208	-\$221,745.13	-\$24,532.34	-\$970,609.34	-\$9,657
17	2027	\$ 0.1917	1,075,497		\$ 206,184.85	\$32,265		-\$37,113	-\$221,745.13	-\$20,408.64	-\$991,017.98	-\$7,579
18	2028	\$ 0.1965	1,075,497		\$ 211,339.47	\$32,265		-\$38,041	-\$221,745.13	-\$16,181.85	-\$1,007,199.83	-\$5,669
19	2029	\$ 0.2014	1,075,497		\$ 216,622.96	\$32,265		-\$38,992	-\$221,745.13	-\$11,849.39	-\$1,019,049.22	-\$3,916
20	2030	\$ 0.2065	1,075,497		\$ 222,038.53	\$32,265		-\$39,967	-\$221,745.13	-\$7,408.62	-\$1,026,457.84	-\$2,310
21	2031	\$ 0.2116	1,075,497		\$ 227,589.50	\$32,265		-\$40,966	0	\$218,888.30	-\$807,569.55	\$64,387
22	2032	\$ 0.2169	1,075,497		\$ 233,279.23	\$32,265		-\$41,990	0	\$223,553.88	-\$584,015.66	\$62,037
23	2033	\$ 0.2223	1,075,497		\$ 239,111.21	\$32,265		-\$43,040	0	\$228,336.11	-\$355,679.56	\$59,778
24	2034	\$ 0.2279	1,075,497		\$ 245,088.99	\$32,265		-\$44,116	0	\$233,237.89	-\$122,441.67	\$57,605
25	2035	\$ 0.2336	1,075,497		\$ 251,216.22	\$32,265		-\$45,219	0	\$238,262.21	\$115,820.54	\$55,515
26	2036	\$ 0.2394	1,075,497		\$ 257,496.63	\$32,265		-\$46,349	0	\$243,412.14	\$359,232.68	\$53,504
27	2037	\$ 0.2454	1,075,497		\$ 263,934.04	\$32,265		-\$47,508	0	\$248,690.82	\$607,923.50	\$51,571
28	2038	\$ 0.2515	1,075,497		\$ 270,532.39	\$32,265		-\$48,696	0	\$254,101.47	\$862,024.98	\$49,710
29	2039	\$ 0.2578	1,075,497		\$ 277,295.70	\$32,265		-\$49,913	0	\$259,647.39	\$1,121,672.36	\$47,920
30	2040	\$ 0.2643	1,075,497		\$ 284,228.09	\$32,265		-\$51,161	0	\$265,331.95	\$1,387,004.31	\$46,197

## Financial Calculations

	IRR	NPV	Years to Postive Return	25
5 Years		-\$445,698		
10 Years	#NUM!	-\$616,953		
15 Years	#DIV/0!	-\$703,175		
20 Years	#DIV/0!	-\$732,307		

# Financial Pro-Forma @ P90 (w/ MassCEC Grant)

## Project Information:

Name Swampscott Middle School  
Client Town of Swampscott  
Location Swampscott  
MA  
MAI Job # 5247  
Prepared By DEG

## Key Assumptions:

WTG Manufacturer:  
WTG Faceplate (kW)  
WTG Hub Height (m)  
Blade Diameter (m)  
WTG Prod. (kWh/Year)  
WTG Capacity Factor

Unison  
750  
60  
54  
1,075,497  
0.16

Total Project Cost  
Down Payment (%)  
Down Payment  
Loan Amount  
O+M Cost (%Energy Prod.)  
Fed Tax Rate (%)

\$2,800,000.00  
0  
\$339,855  
-\$2,460,145  
18  
0

Current Value of offset Electricity  
Value of Renewable Energy Certificate, \$/kWh  
Net Present Value Based on Discount Rate of:  
Annual Inflation on Utility Rates:  
Interest Rate on 20-yr Loan:  
Annual Inflation Rate on Operation and Maint.

\$0.13  
0.03  
6.00%  
2.50%  
5.00%  
2.50%

					Project Revenues			Project Costs		Project Cash Flows		
Project Year	Fiscal Year	Average Rates (\$/kWh)	Annual Energy Production	Capital Payment	Annual Revenue from Production	REC Revenue	Depreciation	Total O+M Cost per Year	Annual Loan Principal and Interest	Cash Flow	Cumulative Cash Flow	Net Present Value for Current Year
1	2011		0	\$339,855	\$ -	\$0	\$0		-\$194,830.42	\$145,024.58	\$145,024.58	\$145,025
2	2012	\$ 0.1324	1,075,497		\$ 142,363.54	\$32,265	\$0	-\$25,625	-\$194,830.42	-\$45,827.41	\$99,197.18	-\$40,786
3	2013	\$ 0.1357	1,075,497		\$ 145,922.63	\$32,265	\$0	-\$26,266	-\$194,830.42	-\$42,908.95	\$56,288.22	-\$36,027
4	2014	\$ 0.1391	1,075,497		\$ 149,570.69	\$32,265	\$0	-\$26,923	-\$194,830.42	-\$39,917.54	\$16,370.68	-\$31,618
5	2015	\$ 0.1425	1,075,497		\$ 153,309.96	\$32,265	\$0	-\$27,596	-\$194,830.42	-\$36,851.34	-\$20,480.66	-\$27,537
6	2016	\$ 0.1461	1,075,497		\$ 157,142.71	\$32,265	\$0	-\$28,286	-\$194,830.42	-\$33,708.49	-\$54,189.15	-\$23,763
7	2017	\$ 0.1498	1,075,497		\$ 161,071.28	\$32,265		-\$28,993	-\$194,830.42	-\$30,487.06	-\$84,676.21	-\$20,276
8	2018	\$ 0.1535	1,075,497		\$ 165,098.06	\$32,265		-\$29,718	-\$194,830.42	-\$27,185.10	-\$111,861.31	-\$17,056
9	2019	\$ 0.1573	1,075,497		\$ 169,225.51	\$32,265		-\$30,461	-\$194,830.42	-\$23,800.59	-\$135,661.90	-\$14,088
10	2020	\$ 0.1613	1,075,497		\$ 173,456.15	\$32,265		-\$31,222	-\$194,830.42	-\$20,331.47	-\$155,993.36	-\$11,353
11	2021	\$ 0.1653	1,075,497		\$ 177,792.55	\$32,265		-\$32,003	-\$194,830.42	-\$16,775.62	-\$172,768.98	-\$8,837
12	2022	\$ 0.1694	1,075,497		\$ 182,237.36	\$32,265		-\$32,803	-\$194,830.42	-\$13,130.87	-\$185,899.85	-\$6,526
13	2023	\$ 0.1737	1,075,497		\$ 186,793.30	\$32,265		-\$33,623	-\$194,830.42	-\$9,395.00	-\$195,294.85	-\$4,405
14	2024	\$ 0.1780	1,075,497		\$ 191,463.13	\$32,265		-\$34,463	-\$194,830.42	-\$5,565.74	-\$200,860.59	-\$2,462
15	2025	\$ 0.1825	1,075,497		\$ 196,249.71	\$32,265		-\$35,325	-\$194,830.42	-\$1,640.75	-\$202,501.34	-\$685
16	2026	\$ 0.1870	1,075,497		\$ 201,155.95	\$32,265		-\$36,208	-\$194,830.42	\$2,382.37	-\$200,118.96	\$938
17	2027	\$ 0.1917	1,075,497		\$ 206,184.85	\$32,265		-\$37,113	-\$194,830.42	\$6,506.07	-\$193,612.89	\$2,416
18	2028	\$ 0.1965	1,075,497		\$ 211,339.47	\$32,265		-\$38,041	-\$194,830.42	\$10,732.86	-\$182,880.03	\$3,760
19	2029	\$ 0.2014	1,075,497		\$ 216,622.96	\$32,265		-\$38,992	-\$194,830.42	\$15,065.32	-\$167,814.71	\$4,979
20	2030	\$ 0.2065	1,075,497		\$ 222,038.53	\$32,265		-\$39,967	-\$194,830.42	\$19,506.09	-\$148,308.62	\$6,082
21	2031	\$ 0.2116	1,075,497		\$ 227,589.50	\$32,265		-\$40,966	0	\$218,888.30	\$70,579.67	\$64,387
22	2032	\$ 0.2169	1,075,497		\$ 233,279.23	\$32,265		-\$41,990	0	\$223,553.88	\$294,133.55	\$62,037
23	2033	\$ 0.2223	1,075,497		\$ 239,111.21	\$32,265		-\$43,040	0	\$228,336.11	\$522,469.66	\$59,778
24	2034	\$ 0.2279	1,075,497		\$ 245,088.99	\$32,265		-\$44,116	0	\$233,237.89	\$755,707.55	\$57,605
25	2035	\$ 0.2336	1,075,497		\$ 251,216.22	\$32,265		-\$45,219	0	\$238,262.21	\$993,969.76	\$55,515
26	2036	\$ 0.2394	1,075,497		\$ 257,496.63	\$32,265		-\$46,349	0	\$243,412.14	\$1,237,381.90	\$53,504
27	2037	\$ 0.2454	1,075,497		\$ 263,934.04	\$32,265		-\$47,508	0	\$248,690.82	\$1,486,072.72	\$51,571
28	2038	\$ 0.2515	1,075,497		\$ 270,532.39	\$32,265		-\$48,696	0	\$254,101.47	\$1,740,174.19	\$49,710
29	2039	\$ 0.2578	1,075,497		\$ 277,295.70	\$32,265		-\$49,913	0	\$259,647.39	\$1,999,821.58	\$47,920
30	2040	\$ 0.2643	1,075,497		\$ 284,228.09	\$32,265		-\$51,161	0	\$265,331.95	\$2,265,153.53	\$46,197

## Financial Calculations

	IRR	NPV	Years to Postive Return	23
5 Years		\$9,055		
10 Years	21%	-\$77,480		
15 Years	22%	-\$100,394		
20 Years	22%	-\$82,219		

# Financial Pro-Forma @ P90 (w/out MassCEC Grant)

## Project Information:

Name Swampscott Middle School  
Client Town of Swampscott  
Location Swampscott  
MA  
MAI Job # 5247  
Prepared By DEG

## Key Assumptions:

WTG Manufacturer:  
WTG Faceplate (kW)  
WTG Hub Height (m)  
Blade Diameter (m)  
WTG Prod. (kWh/Year)  
WTG Capacity Factor

EWT  
900  
75  
54  
1,442,394  
0.18

Total Project Cost  
Down Payment (%)  
Down Payment  
Loan Amount  
O+M Cost (%Energy Prod.)  
Fed Tax Rate (%)

\$3,000,000.00  
0  
\$0  
-\$3,000,000  
18  
0

Current Value of offset Electricity  
Value of Renewable Energy Certificate, \$/kWh  
Net Present Value Based on Discount Rate of:  
Annual Inflation on Utility Rates:  
Interest Rate on 20-yr Loan:  
Annual Inflation Rate on Operation and Maint.

\$0.13  
0.03  
6.00%  
2.50%  
5.00%  
2.50%

					Project Revenues			Project Costs		Project Cash Flows		
Project Year	Fiscal Year	Average Rates (\$/kWh)	Annual Energy Production	Capital Payment	Annual Revenue from Production	REC Revenue	Depreciation	Total O+M Cost per Year	Annual Loan Principal and Interest	Cash Flow	Cumulative Cash Flow	Net Present Value for Current Year
1	2011		0	\$0	\$ -	\$0	\$0		-\$237,584.07	-\$237,584.07	-\$237,584.07	-\$237,584
2	2012	\$ 0.1324	1,442,394		\$ 190,929.69	\$43,272	\$0	-\$34,367	-\$237,584.07	-\$37,749.90	-\$275,333.96	-\$33,597
3	2013	\$ 0.1357	1,442,394		\$ 195,702.94	\$43,272	\$0	-\$35,227	-\$237,584.07	-\$33,835.84	-\$309,169.80	-\$28,409
4	2014	\$ 0.1391	1,442,394		\$ 200,595.51	\$43,272	\$0	-\$36,107	-\$237,584.07	-\$29,823.93	-\$338,993.73	-\$23,623
5	2015	\$ 0.1425	1,442,394		\$ 205,610.40	\$43,272	\$0	-\$37,010	-\$237,584.07	-\$25,711.72	-\$364,705.45	-\$19,213
6	2016	\$ 0.1461	1,442,394		\$ 210,750.66	\$43,272	\$0	-\$37,935	-\$237,584.07	-\$21,496.71	-\$386,202.16	-\$15,154
7	2017	\$ 0.1498	1,442,394		\$ 216,019.42	\$43,272		-\$38,883	-\$237,584.07	-\$17,176.32	-\$403,378.48	-\$11,423
8	2018	\$ 0.1535	1,442,394		\$ 221,419.91	\$43,272		-\$39,856	-\$237,584.07	-\$12,747.92	-\$416,126.40	-\$7,998
9	2019	\$ 0.1573	1,442,394		\$ 226,955.41	\$43,272		-\$40,852	-\$237,584.07	-\$8,208.81	-\$424,335.21	-\$4,859
10	2020	\$ 0.1613	1,442,394		\$ 232,629.29	\$43,272		-\$41,873	-\$237,584.07	-\$3,556.23	-\$427,891.44	-\$1,986
11	2021	\$ 0.1653	1,442,394		\$ 238,445.02	\$43,272		-\$42,920	-\$237,584.07	\$1,212.67	-\$426,678.76	\$639
12	2022	\$ 0.1694	1,442,394		\$ 244,406.15	\$43,272		-\$43,993	-\$237,584.07	\$6,100.80	-\$420,577.97	\$3,032
13	2023	\$ 0.1737	1,442,394		\$ 250,516.30	\$43,272		-\$45,093	-\$237,584.07	\$11,111.12	-\$409,466.84	\$5,209
14	2024	\$ 0.1780	1,442,394		\$ 256,779.21	\$43,272		-\$46,220	-\$237,584.07	\$16,246.71	-\$393,220.13	\$7,186
15	2025	\$ 0.1825	1,442,394		\$ 263,198.69	\$43,272		-\$47,376	-\$237,584.07	\$21,510.68	-\$371,709.45	\$8,976
16	2026	\$ 0.1870	1,442,394		\$ 269,778.66	\$43,272		-\$48,560	-\$237,584.07	\$26,906.25	-\$344,803.20	\$10,592
17	2027	\$ 0.1917	1,442,394		\$ 276,523.13	\$43,272		-\$49,774	-\$237,584.07	\$32,436.72	-\$312,366.48	\$12,046
18	2028	\$ 0.1965	1,442,394		\$ 283,436.20	\$43,272		-\$51,019	-\$237,584.07	\$38,105.44	-\$274,261.04	\$13,350
19	2029	\$ 0.2014	1,442,394		\$ 290,522.11	\$43,272		-\$52,294	-\$237,584.07	\$43,915.88	-\$230,345.16	\$14,515
20	2030	\$ 0.2065	1,442,394		\$ 297,785.16	\$43,272		-\$53,601	-\$237,584.07	\$49,871.59	-\$180,473.57	\$15,550
21	2031	\$ 0.2116	1,442,394		\$ 305,229.79	\$43,272		-\$54,941	0	\$293,560.25	\$113,086.68	\$86,352
22	2032	\$ 0.2169	1,442,394		\$ 312,860.54	\$43,272		-\$56,315	0	\$299,817.46	\$412,904.13	\$83,201
23	2033	\$ 0.2223	1,442,394		\$ 320,682.05	\$43,272		-\$57,723	0	\$306,231.10	\$719,135.23	\$80,170
24	2034	\$ 0.2279	1,442,394		\$ 328,699.10	\$43,272		-\$59,166	0	\$312,805.08	\$1,031,940.32	\$77,256
25	2035	\$ 0.2336	1,442,394		\$ 336,916.58	\$43,272		-\$60,645	0	\$319,543.41	\$1,351,483.73	\$74,453
26	2036	\$ 0.2394	1,442,394		\$ 345,339.49	\$43,272		-\$62,161	0	\$326,450.20	\$1,677,933.93	\$71,757
27	2037	\$ 0.2454	1,442,394		\$ 353,972.98	\$43,272		-\$63,715	0	\$333,529.66	\$2,011,463.59	\$69,163
28	2038	\$ 0.2515	1,442,394		\$ 362,822.30	\$43,272		-\$65,308	0	\$340,786.11	\$2,352,249.70	\$66,668
29	2039	\$ 0.2578	1,442,394		\$ 371,892.86	\$43,272		-\$66,941	0	\$348,223.97	\$2,700,473.67	\$64,267
30	2040	\$ 0.2643	1,442,394		\$ 381,190.18	\$43,272		-\$68,614	0	\$355,847.77	\$3,056,321.44	\$61,957

## Financial Calculations

IRR  
NPV  
5 Years  
10 Years  
15 Years  
20 Years

Years to Postive Return 21

-\$342,427  
-\$383,848  
-\$358,806  
-\$292,754

# Financial Pro-Forma @ P90 (w/ MassCEC Grant)

## Project Information:

Name Swampscott Middle School  
Client Town of Swampscott  
Location Swampscott  
MA  
MAI Job # 5247  
Prepared By DEG

## Key Assumptions:

WTG Manufacturer:  
WTG Faceplate (kW)  
WTG Hub Height (m)  
Blade Diameter (m)  
WTG Prod. (kWh/Year)  
WTG Capacity Factor

EWT  
900  
75  
54  
1,442,394  
0.18

Total Project Cost  
Down Payment (%)  
Down Payment  
Loan Amount  
O+M Cost (%Energy Prod.)  
Fed Tax Rate (%)

\$3,000,000.00  
0  
\$339,885  
-\$2,660,115  
18  
0

Current Value of offset Electricity  
Value of Renewable Energy Certificate, \$/kWh  
Net Present Value Based on Discount Rate of:  
Annual Inflation on Utility Rates:  
Interest Rate on 20-yr Loan:  
Annual Inflation Rate on Operation and Maint.

\$0.13  
0.03  
6.00%  
2.50%  
5.00%  
2.50%

					Project Revenues			Project Costs		Project Cash Flows		
Project Year	Fiscal Year	Average Rates (\$/kWh)	Annual Energy Production	Capital Payment	Annual Revenue from Production	REC Revenue	Depreciation	Total O+M Cost per Year	Annual Loan Principal and Interest	Cash Flow	Cumulative Cash Flow	Net Present Value for Current Year
1	2011		0	\$339,885	\$ -	\$0	\$0		-\$210,666.98	\$129,218.02	\$129,218.02	\$129,218
2	2012	\$ 0.1324	1,442,394		\$ 190,929.69	\$43,272	\$0	-\$34,367	-\$210,666.98	-\$10,832.81	\$118,385.21	-\$9,641
3	2013	\$ 0.1357	1,442,394		\$ 195,702.94	\$43,272	\$0	-\$35,227	-\$210,666.98	-\$6,918.75	\$111,466.46	-\$5,809
4	2014	\$ 0.1391	1,442,394		\$ 200,595.51	\$43,272	\$0	-\$36,107	-\$210,666.98	-\$2,906.84	\$108,559.62	-\$2,302
5	2015	\$ 0.1425	1,442,394		\$ 205,610.40	\$43,272	\$0	-\$37,010	-\$210,666.98	\$1,205.37	\$109,764.98	\$901
6	2016	\$ 0.1461	1,442,394		\$ 210,750.66	\$43,272	\$0	-\$37,935	-\$210,666.98	\$5,420.38	\$115,185.36	\$3,821
7	2017	\$ 0.1498	1,442,394		\$ 216,019.42	\$43,272		-\$38,883	-\$210,666.98	\$9,740.77	\$124,926.13	\$6,478
8	2018	\$ 0.1535	1,442,394		\$ 221,419.91	\$43,272		-\$39,856	-\$210,666.98	\$14,169.17	\$139,095.30	\$8,890
9	2019	\$ 0.1573	1,442,394		\$ 226,955.41	\$43,272		-\$40,852	-\$210,666.98	\$18,708.27	\$157,803.57	\$11,073
10	2020	\$ 0.1613	1,442,394		\$ 232,629.29	\$43,272		-\$41,873	-\$210,666.98	\$23,360.86	\$181,164.43	\$13,045
11	2021	\$ 0.1653	1,442,394		\$ 238,445.02	\$43,272		-\$42,920	-\$210,666.98	\$28,129.76	\$209,294.19	\$14,818
12	2022	\$ 0.1694	1,442,394		\$ 244,406.15	\$43,272		-\$43,993	-\$210,666.98	\$33,017.88	\$242,312.08	\$16,409
13	2023	\$ 0.1737	1,442,394		\$ 250,516.30	\$43,272		-\$45,093	-\$210,666.98	\$38,028.21	\$280,340.29	\$17,829
14	2024	\$ 0.1780	1,442,394		\$ 256,779.21	\$43,272		-\$46,220	-\$210,666.98	\$43,163.79	\$323,504.08	\$19,091
15	2025	\$ 0.1825	1,442,394		\$ 263,198.69	\$43,272		-\$47,376	-\$210,666.98	\$48,427.77	\$371,931.85	\$20,207
16	2026	\$ 0.1870	1,442,394		\$ 269,778.66	\$43,272		-\$48,560	-\$210,666.98	\$53,823.34	\$425,755.19	\$21,187
17	2027	\$ 0.1917	1,442,394		\$ 276,523.13	\$43,272		-\$49,774	-\$210,666.98	\$59,353.80	\$485,108.99	\$22,042
18	2028	\$ 0.1965	1,442,394		\$ 283,436.20	\$43,272		-\$51,019	-\$210,666.98	\$65,022.53	\$550,131.52	\$22,780
19	2029	\$ 0.2014	1,442,394		\$ 290,522.11	\$43,272		-\$52,294	-\$210,666.98	\$70,832.97	\$620,964.49	\$23,411
20	2030	\$ 0.2065	1,442,394		\$ 297,785.16	\$43,272		-\$53,601	-\$210,666.98	\$76,788.67	\$697,753.16	\$23,943
21	2031	\$ 0.2116	1,442,394		\$ 305,229.79	\$43,272		-\$54,941	0	\$293,560.25	\$991,313.41	\$86,352
22	2032	\$ 0.2169	1,442,394		\$ 312,860.54	\$43,272		-\$56,315	0	\$299,817.46	\$1,291,130.87	\$83,201
23	2033	\$ 0.2223	1,442,394		\$ 320,682.05	\$43,272		-\$57,723	0	\$306,231.10	\$1,597,361.97	\$80,170
24	2034	\$ 0.2279	1,442,394		\$ 328,699.10	\$43,272		-\$59,166	0	\$312,805.08	\$1,910,167.05	\$77,256
25	2035	\$ 0.2336	1,442,394		\$ 336,916.58	\$43,272		-\$60,645	0	\$319,543.41	\$2,229,710.46	\$74,453
26	2036	\$ 0.2394	1,442,394		\$ 345,339.49	\$43,272		-\$62,161	0	\$326,450.20	\$2,556,160.67	\$71,757
27	2037	\$ 0.2454	1,442,394		\$ 353,972.98	\$43,272		-\$63,715	0	\$333,529.66	\$2,889,690.33	\$69,163
28	2038	\$ 0.2515	1,442,394		\$ 362,822.30	\$43,272		-\$65,308	0	\$340,786.11	\$3,230,476.44	\$66,668
29	2039	\$ 0.2578	1,442,394		\$ 371,892.86	\$43,272		-\$66,941	0	\$348,223.97	\$3,578,700.41	\$64,267
30	2040	\$ 0.2643	1,442,394		\$ 381,190.18	\$43,272		-\$68,614	0	\$355,847.77	\$3,934,548.17	\$61,957

## Financial Calculations

IRR  
NPV  
5 Years \$112,366  
10 Years \$155,673  
15 Years \$244,028  
20 Years \$357,392

Years to Postive Return

19



# Financial Pro-Forma @ P90 (w/out MassCEC Grant)

## Project Information:

Name Swampscott Middle School  
Client Town of Swampscott  
Location Swampscott MA  
MAI Job # 5247  
Prepared By DEG

## Key Assumptions:

WTG Manufacturer: GE Energy  
WTG Faceplate (kW) 1500  
WTG Hub Height (m) 80  
Blade Diameter (m) 77  
WTG Prod. (kWh/Year) 3,092,499  
WTG Capacity Factor 0.24

Total Project Cost \$4,200,000.00  
Down Payment (%) 0  
Down Payment \$0  
Loan Amount -\$4,200,000  
O+M Cost (%Energy Prod.) 18  
Fed Tax Rate (%) 0

Current Value of offset Electricity \$0.13  
Value of Renewable Energy Certificate, \$/kWh 0.03  
Net Present Value Based on Discount Rate of: 6.00%  
Annual Inflation on Utility Rates: 2.50%  
Interest Rate on 20-yr Loan: 5.00%  
Annual Inflation Rate on Operation and Maint. 2.50%

Project Revenues								Project Costs		Project Cash Flows		
Project Year	Fiscal Year	Average Rates (\$/kWh)	Annual Energy Production	Capital Payment	Annual Revenue from Production	REC Revenue	Depreciation	Total O+M Cost per Year	Annual Loan Principal and Interest	Cash Flow	Cumulative Cash Flow	Net Present Value for Current Year
1	2011		0	\$0	\$ -	\$0	\$0		-\$332,617.69	-\$332,617.69	-\$332,617.69	-\$332,618
2	2012	\$ 0.1324	3,092,499		\$ 409,354.09	\$92,775	\$0	-\$73,684	-\$332,617.69	\$95,827.63	-\$236,790.06	\$85,286
3	2013	\$ 0.1357	3,092,499		\$ 419,587.94	\$92,775	\$0	-\$75,526	-\$332,617.69	\$104,219.39	-\$132,570.67	\$87,505
4	2014	\$ 0.1391	3,092,499		\$ 430,077.64	\$92,775	\$0	-\$77,414	-\$332,617.69	\$112,820.95	-\$19,749.72	\$89,365
5	2015	\$ 0.1425	3,092,499		\$ 440,829.58	\$92,775	\$0	-\$79,349	-\$332,617.69	\$121,637.54	\$101,887.82	\$90,895
6	2016	\$ 0.1461	3,092,499		\$ 451,850.32	\$92,775	\$0	-\$81,333	-\$332,617.69	\$130,674.54	\$232,562.36	\$92,120
7	2017	\$ 0.1498	3,092,499		\$ 463,146.58	\$92,775		-\$83,366	-\$332,617.69	\$139,937.47	\$372,499.83	\$93,066
8	2018	\$ 0.1535	3,092,499		\$ 474,725.25	\$92,775		-\$85,451	-\$332,617.69	\$149,431.98	\$521,931.81	\$93,755
9	2019	\$ 0.1573	3,092,499		\$ 486,593.38	\$92,775		-\$87,587	-\$332,617.69	\$159,163.85	\$681,095.66	\$94,209
10	2020	\$ 0.1613	3,092,499		\$ 498,758.21	\$92,775		-\$89,776	-\$332,617.69	\$169,139.01	\$850,234.67	\$94,446
11	2021	\$ 0.1653	3,092,499		\$ 511,227.17	\$92,775		-\$92,021	-\$332,617.69	\$179,363.56	\$1,029,598.23	\$94,486
12	2022	\$ 0.1694	3,092,499		\$ 524,007.85	\$92,775		-\$94,321	-\$332,617.69	\$189,843.71	\$1,219,441.94	\$94,347
13	2023	\$ 0.1737	3,092,499		\$ 537,108.04	\$92,775		-\$96,679	-\$332,617.69	\$200,585.87	\$1,420,027.81	\$94,042
14	2024	\$ 0.1780	3,092,499		\$ 550,535.74	\$92,775		-\$99,096	-\$332,617.69	\$211,596.59	\$1,631,624.40	\$93,589
15	2025	\$ 0.1825	3,092,499		\$ 564,299.14	\$92,775		-\$101,574	-\$332,617.69	\$222,882.57	\$1,854,506.97	\$93,001
16	2026	\$ 0.1870	3,092,499		\$ 578,406.62	\$92,775		-\$104,113	-\$332,617.69	\$234,450.70	\$2,088,957.67	\$92,291
17	2027	\$ 0.1917	3,092,499		\$ 592,866.78	\$92,775		-\$106,716	-\$332,617.69	\$246,308.04	\$2,335,265.71	\$91,470
18	2028	\$ 0.1965	3,092,499		\$ 607,688.45	\$92,775		-\$109,384	-\$332,617.69	\$258,461.81	\$2,593,727.52	\$90,550
19	2029	\$ 0.2014	3,092,499		\$ 622,880.66	\$92,775		-\$112,119	-\$332,617.69	\$270,919.42	\$2,864,646.94	\$89,542
20	2030	\$ 0.2065	3,092,499		\$ 638,452.68	\$92,775		-\$114,921	-\$332,617.69	\$283,688.47	\$3,148,335.42	\$88,455
21	2031	\$ 0.2116	3,092,499		\$ 654,414.00	\$92,775		-\$117,795	0	\$629,394.45	\$3,777,729.86	\$185,140
22	2032	\$ 0.2169	3,092,499		\$ 670,774.35	\$92,775		-\$120,739	0	\$642,809.93	\$4,420,539.80	\$178,383
23	2033	\$ 0.2223	3,092,499		\$ 687,543.70	\$92,775		-\$123,758	0	\$656,560.81	\$5,077,100.60	\$171,886
24	2034	\$ 0.2279	3,092,499		\$ 704,732.30	\$92,775		-\$126,852	0	\$670,655.45	\$5,747,756.06	\$165,638
25	2035	\$ 0.2336	3,092,499		\$ 722,350.60	\$92,775		-\$130,023	0	\$685,102.47	\$6,432,858.52	\$159,628
26	2036	\$ 0.2394	3,092,499		\$ 740,409.37	\$92,775		-\$133,274	0	\$699,910.65	\$7,132,769.18	\$153,847
27	2037	\$ 0.2454	3,092,499		\$ 758,919.60	\$92,775		-\$136,606	0	\$715,089.05	\$7,847,858.22	\$148,287
28	2038	\$ 0.2515	3,092,499		\$ 777,892.59	\$92,775		-\$140,021	0	\$730,646.90	\$8,578,505.12	\$142,937
29	2039	\$ 0.2578	3,092,499		\$ 797,339.91	\$92,775		-\$143,521	0	\$746,593.70	\$9,325,098.81	\$137,789
30	2040	\$ 0.2643	3,092,499		\$ 817,273.41	\$92,775		-\$147,109	0	\$762,939.16	\$10,088,037.98	\$132,835

## Financial Calculations

	IRR	NPV	Years to Postive Return	15
5 Years	11%	\$20,433		
10 Years	32%	\$488,030		
15 Years	35%	\$957,496		
20 Years	36%	\$1,409,805		



# Financial Pro-Forma @ P90 (w/ MassCEC Grant)

## Project Information:

Name Swampscott Middle School  
 Client Town of Swampscott  
 Location Swampscott MA  
 MAI Job # 5247  
 Prepared By DEG

## Key Assumptions:

WTG Manufacturer: GE Energy  
 WTG Faceplate (kW) 1500  
 WTG Hub Height (m) 80  
 Blade Diameter (m) 77  
 WTG Prod. (kWh/Year) 3,092,499  
 WTG Capacity Factor 0.24

Total Project Cost \$4,200,000.00  
 Down Payment (%) 0  
 Down Payment \$400,000  
 Loan Amount -\$3,800,000  
 O+M Cost (%Energy Prod.) 18  
 Fed Tax Rate (%) 0

Current Value of offset Electricity \$0.13  
 Value of Renewable Energy Certificate, \$/kWh 0.03  
 Net Present Value Based on Discount Rate of: 6.00%  
 Annual Inflation on Utility Rates: 2.50%  
 Interest Rate on 20-yr Loan: 5.00%  
 Annual Inflation Rate on Operation and Maint. 2.50%

				Project Revenues				Project Costs		Project Cash Flows			
Project Year	Fiscal Year	Average Rates (\$/kWh)	Annual Energy Production	Capital Payment	Annual Revenue from Production	REC Revenue	Depreciation	Total O+M Cost per Year	Annual Loan Principal and Interest	Cash Flow	Cumulative Cash Flow	Net Present Value for Current Year	
1	2011		0	\$400,000	\$ -	\$0	\$0		-\$300,939.82	\$99,060.18	\$99,060.18	\$99,060	
2	2012	\$ 0.1324	3,092,499		\$ 409,354.09	\$92,775	\$0	-\$73,684	-\$300,939.82	\$127,505.51	\$226,565.69	\$113,479	
3	2013	\$ 0.1357	3,092,499		\$ 419,587.94	\$92,775	\$0	-\$75,526	-\$300,939.82	\$135,897.27	\$362,462.96	\$114,102	
4	2014	\$ 0.1391	3,092,499		\$ 430,077.64	\$92,775	\$0	-\$77,414	-\$300,939.82	\$144,498.82	\$506,961.78	\$114,457	
5	2015	\$ 0.1425	3,092,499		\$ 440,829.58	\$92,775	\$0	-\$79,349	-\$300,939.82	\$153,315.41	\$660,277.19	\$114,566	
6	2016	\$ 0.1461	3,092,499		\$ 451,850.32	\$92,775	\$0	-\$81,333	-\$300,939.82	\$162,352.42	\$822,629.61	\$114,452	
7	2017	\$ 0.1498	3,092,499		\$ 463,146.58	\$92,775		-\$83,366	-\$300,939.82	\$171,615.35	\$994,244.96	\$114,134	
8	2018	\$ 0.1535	3,092,499		\$ 474,725.25	\$92,775		-\$85,451	-\$300,939.82	\$181,109.86	\$1,175,354.82	\$113,631	
9	2019	\$ 0.1573	3,092,499		\$ 486,593.38	\$92,775		-\$87,587	-\$300,939.82	\$190,841.72	\$1,366,196.54	\$112,959	
10	2020	\$ 0.1613	3,092,499		\$ 498,758.21	\$92,775		-\$89,776	-\$300,939.82	\$200,816.89	\$1,567,013.43	\$112,135	
11	2021	\$ 0.1653	3,092,499		\$ 511,227.17	\$92,775		-\$92,021	-\$300,939.82	\$211,041.43	\$1,778,054.86	\$111,174	
12	2022	\$ 0.1694	3,092,499		\$ 524,007.85	\$92,775		-\$94,321	-\$300,939.82	\$221,521.59	\$1,999,576.45	\$110,089	
13	2023	\$ 0.1737	3,092,499		\$ 537,108.04	\$92,775		-\$96,679	-\$300,939.82	\$232,263.75	\$2,231,840.19	\$108,894	
14	2024	\$ 0.1780	3,092,499		\$ 550,535.74	\$92,775		-\$99,096	-\$300,939.82	\$243,274.46	\$2,475,114.66	\$107,601	
15	2025	\$ 0.1825	3,092,499		\$ 564,299.14	\$92,775		-\$101,574	-\$300,939.82	\$254,560.45	\$2,729,675.10	\$106,219	
16	2026	\$ 0.1870	3,092,499		\$ 578,406.62	\$92,775		-\$104,113	-\$300,939.82	\$266,128.58	\$2,995,803.68	\$104,761	
17	2027	\$ 0.1917	3,092,499		\$ 592,866.78	\$92,775		-\$106,716	-\$300,939.82	\$277,985.91	\$3,273,789.60	\$103,234	
18	2028	\$ 0.1965	3,092,499		\$ 607,688.45	\$92,775		-\$109,384	-\$300,939.82	\$290,139.68	\$3,563,929.28	\$101,649	
19	2029	\$ 0.2014	3,092,499		\$ 622,880.66	\$92,775		-\$112,119	-\$300,939.82	\$302,597.30	\$3,866,526.57	\$100,012	
20	2030	\$ 0.2065	3,092,499		\$ 638,452.68	\$92,775		-\$114,921	-\$300,939.82	\$315,366.35	\$4,181,892.92	\$98,333	
21	2031	\$ 0.2116	3,092,499		\$ 654,414.00	\$92,775		-\$117,795	0	\$629,394.45	\$4,811,287.37	\$185,140	
22	2032	\$ 0.2169	3,092,499		\$ 670,774.35	\$92,775		-\$120,739	0	\$642,809.93	\$5,454,097.31	\$178,383	
23	2033	\$ 0.2223	3,092,499		\$ 687,543.70	\$92,775		-\$123,758	0	\$656,560.81	\$6,110,658.11	\$171,886	
24	2034	\$ 0.2279	3,092,499		\$ 704,732.30	\$92,775		-\$126,852	0	\$670,655.45	\$6,781,313.57	\$165,638	
25	2035	\$ 0.2336	3,092,499		\$ 722,350.60	\$92,775		-\$130,023	0	\$685,102.47	\$7,466,416.03	\$159,628	
26	2036	\$ 0.2394	3,092,499		\$ 740,409.37	\$92,775		-\$133,274	0	\$699,910.65	\$8,166,326.69	\$153,847	
27	2037	\$ 0.2454	3,092,499		\$ 758,919.60	\$92,775		-\$136,606	0	\$715,089.05	\$8,881,415.73	\$148,287	
28	2038	\$ 0.2515	3,092,499		\$ 777,892.59	\$92,775		-\$140,021	0	\$730,646.90	\$9,612,062.63	\$142,937	
29	2039	\$ 0.2578	3,092,499		\$ 797,339.91	\$92,775		-\$143,521	0	\$746,593.70	\$10,358,656.32	\$137,789	
30	2040	\$ 0.2643	3,092,499		\$ 817,273.41	\$92,775		-\$147,109	0	\$762,939.16	\$11,121,595.49	\$132,835	

## Financial Calculations

IRR NPV  
 5 Years #NUM! \$555,664  
 10 Years #NUM! \$1,122,975  
 15 Years #DIV/0! \$1,666,952  
 20 Years #DIV/0! \$2,174,941

Years to Postive Return

14