

Sheet2

Year n	actual Build cost	discounted Build cost	actual O&M cost	discounted O&M cost	discounted cumulative cost
\$0.00	\$1,020.00	\$1,020.00	\$37.50	\$37.50	\$1,057.50
\$1.00	0	\$0.00	\$37.50	\$35.71	\$1,093.21
\$2.00	0	\$0.00	\$37.50	\$34.01	\$1,127.23
\$3.00	0	\$0.00	\$37.50	\$32.39	\$1,159.62
\$4.00	0	\$0.00	\$37.50	\$30.85	\$1,190.47
\$5.00	0	\$0.00	\$37.50	\$29.38	\$1,219.86
\$6.00	0	\$0.00	\$37.50	\$27.98	\$1,247.84
\$7.00	0	\$0.00	\$37.50	\$26.65	\$1,274.49
\$8.00	0	\$0.00	\$37.50	\$25.38	\$1,299.87
\$9.00	0	\$0.00	\$37.50	\$24.17	\$1,324.04
\$10.00	0	\$0.00	\$37.50	\$23.02	\$1,347.07
\$11.00	0	\$0.00	\$37.50	\$21.93	\$1,368.99
\$12.00	0	\$0.00	\$37.50	\$20.88	\$1,389.87
\$13.00	0	\$0.00	\$37.50	\$19.89	\$1,409.76
\$14.00	0	\$0.00	\$37.50	\$18.94	\$1,428.70
\$15.00	235	\$113.04	\$37.50	\$18.04	\$1,559.78
\$16.00	0	\$0.00	\$37.50	\$17.18	\$1,576.96
\$17.00	0	\$0.00	\$37.50	\$16.36	\$1,593.32
\$18.00	0	\$0.00	\$37.50	\$15.58	\$1,608.90
\$19.00	0	\$0.00	\$37.50	\$14.84	\$1,623.74
\$20.00	0	\$0.00	\$37.50	\$14.13	\$1,637.87
\$21.00	0	\$0.00	\$37.50	\$13.46	\$1,651.33
\$22.00	0	\$0.00	\$37.50	\$12.82	\$1,664.15
\$23.00	0	\$0.00	\$37.50	\$12.21	\$1,676.36
\$24.00	0	\$0.00	\$37.50	\$11.63	\$1,687.99
\$25.00	0	\$0.00	\$37.50	\$11.07	\$1,699.06
\$26.00	0	\$0.00	\$37.50	\$10.55	\$1,709.61
\$27.00	0	\$0.00	\$37.50	\$10.04	\$1,719.65
\$28.00	0	\$0.00	\$37.50	\$9.57	\$1,729.22
\$29.00	0	\$0.00	\$37.50	\$9.11	\$1,738.33
\$30.00	480	\$111.06	\$37.50	\$8.68	\$1,858.07
\$31.00	0	\$0.00	\$37.50	\$8.26	\$1,866.33
\$32.00	0	\$0.00	\$37.50	\$7.87	\$1,874.20
\$33.00	0	\$0.00	\$37.50	\$7.50	\$1,881.70
\$34.00	0	\$0.00	\$37.50	\$7.14	\$1,888.83
\$35.00	0	\$0.00	\$37.50	\$6.80	\$1,895.63
\$36.00	0	\$0.00	\$37.50	\$6.47	\$1,902.11
\$37.00	0	\$0.00	\$37.50	\$6.17	\$1,908.27
\$38.00	0	\$0.00	\$37.50	\$5.87	\$1,914.15
\$39.00	0	\$0.00	\$37.50	\$5.59	\$1,919.74
\$40.00	0	\$0.00	\$37.50	\$5.33	\$1,925.07
\$41.00	0	\$0.00	\$37.50	\$5.07	\$1,930.14
\$42.00	0	\$0.00	\$37.50	\$4.83	\$1,934.97
\$43.00	0	\$0.00	\$37.50	\$4.60	\$1,939.57
\$44.00	0	\$0.00	\$37.50	\$4.38	\$1,943.95
\$45.00	235	\$26.15	\$37.50	\$4.17	\$1,974.28
\$46.00	0	\$0.00	\$37.50	\$3.97	\$1,978.26
\$47.00	0	\$0.00	\$37.50	\$3.79	\$1,982.04
\$48.00	0	\$0.00	\$37.50	\$3.61	\$1,985.65

Sheet2

\$49.00	0	\$0.00	\$37.50	\$3.43	\$1,989.08
\$50.00	0	\$0.00	\$37.50	\$3.27	\$1,992.35
Decommission = 1%	\$1,970.00	\$171.79			\$2,164.14

All values are in units of \$ /kW

Energy source is Onshore wind

Assumed discount rate is 5% /yr


Levelized cost of Power = \$2,164.14 \$ /kW

Capacity Factor = 37.9%

Levelized Cost of Energy – LCOE =  $\$2164.14 \div 166.002 = \$13.04 /MWh$

	<b>Actual Build cost</b>	<b>Discounted Build cost</b>	<b>Actual O&amp;M cost</b>	<b>Discounted O&amp;M cost</b>	<b>Cumulative cost</b>	<b>Yearly energy</b>
<b>Year n</b>	<b>\$750 /kW</b>					<b>average</b>
	\$750	\$750.00	\$19.50	\$19.50	\$769.50	1.822
1	0	\$0.00	\$19.50	\$17.73	\$787.23	1.822
2	0	\$0.00	\$19.50	\$16.12	\$803.34	1.822
3	0	\$0.00	\$19.50	\$14.65	\$817.99	1.822
4	0	\$0.00	\$19.50	\$13.32	\$831.31	1.822
5	0	\$0.00	\$19.50	\$12.11	\$843.42	1.822
6	0	\$0.00	\$19.50	\$11.01	\$854.43	1.822
7	0	\$0.00	\$19.50	\$10.01	\$864.43	1.822
8	0	\$0.00	\$19.50	\$9.10	\$873.53	1.822
9	0	\$0.00	\$19.50	\$8.27	\$881.80	1.822
10	0	\$0.00	\$19.50	\$7.52	\$889.32	1.822
11	0	\$0.00	\$19.50	\$6.83	\$896.15	1.822
12	\$37.50	\$11.95	\$19.50	\$6.21	\$914.32	1.822
13	0	\$0.00	\$19.50	\$5.65	\$919.96	1.822
14	0	\$0.00	\$19.50	\$5.13	\$925.10	1.822
15	0	\$0.00	\$19.50	\$4.67	\$929.77	1.822
16	0	\$0.00	\$19.50	\$4.24	\$934.01	1.822
17	0	\$0.00	\$19.50	\$3.86	\$937.87	1.822
18	0	\$0.00	\$19.50	\$3.51	\$941.38	1.822
19	0	\$0.00	\$19.50	\$3.19	\$944.56	1.822
20	0	\$0.00	\$19.50	\$2.90	\$947.46	1.822
21	0	\$0.00	\$19.50	\$2.64	\$950.10	1.822
22	0	\$0.00	\$19.50	\$2.40	\$952.49	1.822
23	0	\$0.00	\$19.50	\$2.18	\$954.67	1.822
24	\$37.50	\$3.81	\$19.50	\$1.98	\$960.46	1.822
25	0	\$0.00	\$19.50	\$1.80	\$962.26	1.822
26	0	\$0.00	\$19.50	\$1.64	\$963.89	1.822
27	0	\$0.00	\$19.50	\$1.49	\$965.38	1.822
28	0	\$0.00	\$19.50	\$1.35	\$966.73	1.822
29	0	\$0.00	\$19.50	\$1.23	\$967.96	1.822
30	0	\$0.00	\$19.50	\$1.12	\$969.08	1.822
31	0	\$0.00	\$19.50	\$1.02	\$970.10	1.822
32	0	\$0.00	\$19.50	\$0.92	\$971.02	1.822
33	0	\$0.00	\$19.50	\$0.84	\$971.86	1.822
34	0	\$0.00	\$19.50	\$0.76	\$972.62	1.822
35	0	\$0.00	\$19.50	\$0.69	\$973.32	1.822
36	\$37.50	\$1.21	\$19.50	\$0.63	\$975.16	1.822
37	0	\$0.00	\$19.50	\$0.57	\$975.73	1.822
38	0	\$0.00	\$19.50	\$0.52	\$976.26	1.822
39	0	\$0.00	\$19.50	\$0.47	\$976.73	1.822
40	0	\$0.00	\$19.50	\$0.43	\$977.16	1.822
41	0	\$0.00	\$19.50	\$0.39	\$977.55	1.822
42	0	\$0.00	\$19.50	\$0.36	\$977.91	1.822
43	0	\$0.00	\$19.50	\$0.32	\$978.23	1.822
44	0	\$0.00	\$19.50	\$0.29	\$978.53	1.822
45	0	\$0.00	\$19.50	\$0.27	\$978.79	1.822
46	\$0.00	\$0.00	\$19.50	\$0.24	\$979.04	1.822

Sheet1

47	0	\$0.00	\$19.50	\$0.22	\$979.26	1.822
48	\$712.50	\$7.34	\$19.50	\$0.20	\$986.80	1.822
49	0	\$0.00	\$19.50	\$0.18	\$986.99	1.822
50	0	\$0.00	\$19.50	\$0.17	\$987.15	1.822
51	0	\$0.00	\$19.50	\$0.15	\$987.30	1.822
52	0	\$0.00	\$19.50	\$0.14	\$987.44	1.822
53	0	\$0.00	\$19.50	\$0.12	\$987.56	1.822
54	0	\$0.00	\$19.50	\$0.11	\$987.68	1.822
55	0	\$0.00	\$19.50	\$0.10	\$987.78	1.822
56	0	\$0.00	\$19.50	\$0.09	\$987.88	1.822
57	0	\$0.00	\$19.50	\$0.09	\$987.96	1.822
58	0	\$0.00	\$19.50	\$0.08	\$988.04	1.822
59	0	\$0.00	\$19.50	\$0.07	\$988.11	1.822
60	0	0	\$19.50	\$0.06	\$988.17	1.822
Total BLDG cost	\$1,575.00	Replacements performed		Actual lifetime energy (MWh)		111.15
Decom = 0.75%	\$11.81					
		Levelized Cost of Power (\$/kW)		\$999.99		Include decom
		<b>All the above values are in units of \$/kW</b>				
		Levelized Cost of Energy – LCOE (\$/MWh)			<b>\$50.04</b>	

Sheet1

Source is Utility Solar w/ CF = 20.8%	0.208	1.822	average yearly energy (MWh)
Assumed discount rate is 10% /year			
Levelized Cost of Power in \$ /kW units	\$999.99	from Column F above, after year 60	
Conversion factor from Power to Actual Energy	0.009147055	for CF = 0.208	Conversion = 1 ÷ (CF x 8760 h /yr x 60)
<b>Levelized Cost of Energy</b>	<b>\$50.04 /MWh</b>	<b>LCOE</b>	

Discounted yearly energy	Remarks
in MWh	<b>Utility PV Solar @ 10%</b>
1.822	Construction
1.656	completed
1.506	In 1 year
1.369	
1.245	Total CAPEX = \$750 /kW
1.131	
1.029	Columns A through F
0.935	are nominal dollars
0.850	per kilowatt
0.773	of peak generating
0.702	capacity
0.639	
0.581	Replace DC inverter 5%
0.528	
0.480	
0.436	
0.397	
0.360	
0.328	
0.298	
0.271	
0.246	
0.224	
0.203	
0.185	Replace DC inverter 5%
0.168	
0.153	
0.139	
0.126	
0.115	
0.104	
0.095	
0.086	
0.078	
0.071	
0.065	
0.059	Replace DC inverter 5%
0.054	
0.049	
0.044	
0.040	
0.037	
0.033	
0.030	
0.027	
0.025	
0.023	

0.021	
0.019	Replace hardware = 95%
0.017	Panel module and BOS hardware plus labor.
0.016	71% + 24% = 95%
0.014	
0.013	
0.012	
0.011	
0.010	
0.009	
0.008	
0.007	
0.007	
0.006	
19.98	Discounted lifetime energy (MWh)

mission from column B

Equals Levelized cost of power

