

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 = $\$2164.14 \div 166.002 = \$13.04 /MWh$

	Actual Build cost	Discounted Build cost	Actual O&M cost	Discounted O&M cost	Cumulative cost	Yearly energy
Year n	\$750 /kW					average
	\$750	\$750.00	\$19.50	\$19.50	\$769.50	1.822
1	0	0	\$19.50	\$19.12	\$788.62	1.822
2	0	0	\$19.50	\$18.74	\$807.36	1.822
3	0	0	\$19.50	\$18.38	\$825.74	1.822
4	0	0	\$19.50	\$18.01	\$843.75	1.822
5	0	0	\$19.50	\$17.66	\$861.41	1.822
6	0	0	\$19.50	\$17.32	\$878.73	1.822
7	0	0	\$19.50	\$16.98	\$895.70	1.822
8	0	0	\$19.50	\$16.64	\$912.35	1.822
9	0	0	\$19.50	\$16.32	\$928.66	1.822
10	0	0	\$19.50	\$16.00	\$944.66	1.822
11	0	0	\$19.50	\$15.68	\$960.34	1.822
12	\$37.50	\$29.57	\$19.50	\$15.38	\$1,005.29	1.822
13	0	0	\$19.50	\$15.07	\$1,020.36	1.822
14	0	0	\$19.50	\$14.78	\$1,035.14	1.822
15	0	0	\$19.50	\$14.49	\$1,049.63	1.822
16	0	0	\$19.50	\$14.20	\$1,063.83	1.822
17	0	0	\$19.50	\$13.93	\$1,077.76	1.822
18	0	0	\$19.50	\$13.65	\$1,091.41	1.822
19	0	0	\$19.50	\$13.39	\$1,104.80	1.822
20	0	\$0	\$19.50	\$13.12	\$1,117.92	1.822
21	0	0	\$19.50	\$12.87	\$1,130.79	1.822
22	0	0	\$19.50	\$12.61	\$1,143.40	1.822
23	0	0	\$19.50	\$12.37	\$1,155.77	1.822
24	\$37.50	\$23.31	\$19.50	\$12.12	\$1,191.20	1.822
25	0	0	\$19.50	\$11.89	\$1,203.09	1.822
26	0	0	\$19.50	\$11.65	\$1,214.74	1.822
27	0	0	\$19.50	\$11.42	\$1,226.17	1.822
28	0	0	\$19.50	\$11.20	\$1,237.37	1.822
29	0	0	\$19.50	\$10.98	\$1,248.35	1.822
30	0	0	\$19.50	\$10.77	\$1,259.11	1.822
31	0	0	\$19.50	\$10.55	\$1,269.67	1.822
32	0	0	\$19.50	\$10.35	\$1,280.02	1.822
33	0	0	\$19.50	\$10.14	\$1,290.16	1.822
34	0	0	\$19.50	\$9.95	\$1,300.11	1.822
35	0	0	\$19.50	\$9.75	\$1,309.86	1.822
36	\$37.50	\$18.38	\$19.50	\$9.56	\$1,337.80	1.822
37	0	0	\$19.50	\$9.37	\$1,347.17	1.822
38	0	0	\$19.50	\$9.19	\$1,356.36	1.822
39	0	0	\$19.50	\$9.01	\$1,365.37	1.822
40	0	0	\$19.50	\$8.83	\$1,374.20	1.822
41	0	0	\$19.50	\$8.66	\$1,382.86	1.822
42	0	0	\$19.50	\$8.49	\$1,391.34	1.822
43	0	0	\$19.50	\$8.32	\$1,399.67	1.822
44	0	0	\$19.50	\$8.16	\$1,407.83	1.822
45	0	0	\$19.50	\$8.00	\$1,415.82	1.822
46	\$0.00	\$0.00	\$19.50	\$7.84	\$1,423.67	1.822

Sheet1

47	0	0	\$19.50	\$7.69	\$1,431.35	1.822	
48	\$712.50	\$275.41	\$19.50	\$7.54	\$1,714.30	1.822	
49	0	0	\$19.50	\$7.39	\$1,721.69	1.822	
50	0	\$0	\$19.50	\$7.24	\$1,728.93	1.822	
51	0	0	\$19.50	\$7.10	\$1,736.04	1.822	
52	0	0	\$19.50	\$6.96	\$1,743.00	1.822	
53	0	0	\$19.50	\$6.83	\$1,749.83	1.822	
54	0	\$0	\$19.50	\$6.69	\$1,756.52	1.822	
55	0	0	\$19.50	\$6.56	\$1,763.08	1.822	
56	0	0	\$19.50	\$6.43	\$1,769.52	1.822	
57	0	0	\$19.50	\$6.31	\$1,775.82	1.822	
58	0	0	\$19.50	\$6.18	\$1,782.01	1.822	
59	0	0	\$19.50	\$6.06	\$1,788.07	1.822	
60	0	0	\$19.50	\$5.94	\$1,794.01	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)			\$1,805.82	Include decom	
		All the above values are in units of \$ /kW					
		Levelized Cost of Energy – LCOE (\$/MWh)			\$27.71		

Sheet1

Source is Utility Solar w/ CF = 20.8%	0.208	1.822	average yearly energy (MWh)
Assumed discount rate is 2% /year			
Levelized Cost of Power in \$ /kW units	\$1,805.82	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)
Levelized Cost of Energy	\$27.71 /MWh	LCOE	

Discounted yearly energy	Remarks
in MWh	Utility PV Solar @2%
1.822	Construction
1.786	completed
1.751	In 1 year
1.717	
1.683	Total CAPEX = \$750 /kW
1.650	
1.618	Columns A through F
1.586	are nominal dollars
1.555	per kilowatt
1.525	of peak generating
1.495	capacity
1.465	
1.437	Replace DC inverter 5%
1.409	
1.381	
1.354	
1.327	
1.301	
1.276	
1.251	
1.226	
1.202	
1.179	
1.155	
1.133	Replace DC inverter 5%
1.111	
1.089	
1.067	
1.047	
1.026	
1.006	
0.986	
0.967	
0.948	
0.929	
0.911	
0.893	Replace DC inverter 5%
0.876	
0.859	
0.842	
0.825	
0.809	
0.793	
0.778	
0.762	
0.747	
0.733	

0.718	
0.704	Replace hardware = 95%
0.690	Panel module and BOS hardware plus labor.
0.677	71% + 24% = 95%
0.664	
0.651	
0.638	
0.625	
0.613	
0.601	
0.589	
0.578	
0.566	
0.555	
65.16	Discounted lifetime energy (MWh)

mission from column B

Equals Levelized cost of power

