

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	\$0.00	\$19.50	\$18.40	\$787.90	1.822
2	0	\$0.00	\$19.50	\$17.35	\$805.25	1.822
3	0	\$0.00	\$19.50	\$16.37	\$821.62	1.822
4	0	\$0.00	\$19.50	\$15.45	\$837.07	1.822
5	0	\$0.00	\$19.50	\$14.57	\$851.64	1.822
6	0	\$0.00	\$19.50	\$13.75	\$865.39	1.822
7	0	\$0.00	\$19.50	\$12.97	\$878.36	1.822
8	0	\$0.00	\$19.50	\$12.23	\$890.59	1.822
9	0	\$0.00	\$19.50	\$11.54	\$902.13	1.822
10	0	\$0.00	\$19.50	\$10.89	\$913.02	1.822
11	0	\$0.00	\$19.50	\$10.27	\$923.29	1.822
12	\$37.50	\$18.64	\$19.50	\$9.69	\$951.62	1.822
13	0	\$0.00	\$19.50	\$9.14	\$960.76	1.822
14	0	\$0.00	\$19.50	\$8.62	\$969.39	1.822
15	0	\$0.00	\$19.50	\$8.14	\$977.53	1.822
16	0	\$0.00	\$19.50	\$7.68	\$985.20	1.822
17	0	\$0.00	\$19.50	\$7.24	\$992.44	1.822
18	0	\$0.00	\$19.50	\$6.83	\$999.27	1.822
19	0	\$0.00	\$19.50	\$6.45	\$1,005.72	1.822
20	0	\$0.00	\$19.50	\$6.08	\$1,011.80	1.822
21	0	\$0.00	\$19.50	\$5.74	\$1,017.54	1.822
22	0	\$0.00	\$19.50	\$5.41	\$1,022.95	1.822
23	0	\$0.00	\$19.50	\$5.11	\$1,028.05	1.822
24	\$37.50	\$9.26	\$19.50	\$4.82	\$1,042.13	1.822
25	0	\$0.00	\$19.50	\$4.54	\$1,046.67	1.822
26	0	\$0.00	\$19.50	\$4.29	\$1,050.96	1.822
27	0	\$0.00	\$19.50	\$4.04	\$1,055.00	1.822
28	0	\$0.00	\$19.50	\$3.81	\$1,058.82	1.822
29	0	\$0.00	\$19.50	\$3.60	\$1,062.42	1.822
30	0	\$0.00	\$19.50	\$3.40	\$1,065.81	1.822
31	0	\$0.00	\$19.50	\$3.20	\$1,069.02	1.822
32	0	\$0.00	\$19.50	\$3.02	\$1,072.04	1.822
33	0	\$0.00	\$19.50	\$2.85	\$1,074.89	1.822
34	0	\$0.00	\$19.50	\$2.69	\$1,077.58	1.822
35	0	\$0.00	\$19.50	\$2.54	\$1,080.11	1.822
36	\$37.50	\$4.60	\$19.50	\$2.39	\$1,087.11	1.822
37	0	\$0.00	\$19.50	\$2.26	\$1,089.37	1.822
38	0	\$0.00	\$19.50	\$2.13	\$1,091.50	1.822
39	0	\$0.00	\$19.50	\$2.01	\$1,093.51	1.822
40	0	\$0.00	\$19.50	\$1.90	\$1,095.40	1.822
41	0	\$0.00	\$19.50	\$1.79	\$1,097.19	1.822
42	0	\$0.00	\$19.50	\$1.69	\$1,098.88	1.822
43	0	\$0.00	\$19.50	\$1.59	\$1,100.47	1.822
44	0	\$0.00	\$19.50	\$1.50	\$1,101.97	1.822
45	0	\$0.00	\$19.50	\$1.42	\$1,103.39	1.822
46	\$0.00	\$0.00	\$19.50	\$1.34	\$1,104.73	1.822

Sheet1

47	0	\$0.00	\$19.50	\$1.26	\$1,105.99	1.822
48	\$712.50	\$43.46	\$19.50	\$1.19	\$1,150.64	1.822
49	0	\$0.00	\$19.50	\$1.12	\$1,151.76	1.822
50	0	\$0.00	\$19.50	\$1.06	\$1,152.82	1.822
51	0	\$0.00	\$19.50	\$1.00	\$1,153.82	1.822
52	0	\$0.00	\$19.50	\$0.94	\$1,154.76	1.822
53	0	\$0.00	\$19.50	\$0.89	\$1,155.65	1.822
54	0	\$0.00	\$19.50	\$0.84	\$1,156.49	1.822
55	0	\$0.00	\$19.50	\$0.79	\$1,157.28	1.822
56	0	\$0.00	\$19.50	\$0.75	\$1,158.02	1.822
57	0	\$0.00	\$19.50	\$0.70	\$1,158.73	1.822
58	0	\$0.00	\$19.50	\$0.66	\$1,159.39	1.822
59	0	\$0.00	\$19.50	\$0.63	\$1,160.02	1.822
60	0	\$0.00	\$19.50	\$0.59	\$1,160.61	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)		\$1,172.42		Include decom
		All the above values are in units of \$/kW				
		Levelized Cost of Energy – LCOE (\$/MWh)		\$37.49		

Sheet1

Source is Utility Solar w/ CF = 20.8%	0.208	1.822	average yearly energy (MWh)
Assumed discount rate is 6% /year			
Levelized Cost of Power in \$ /kW units	\$1,172.42	from Column F above, after year 60	
Conversion factor from Power to Actual Energy	0.009147055	for CF = 0.208	Conversion = $1 \div (CF \times 8760 \text{ h /yr} \times 60)$
Levelized Cost of Energy	\$37.49 /MWh	LCOE	

Discounted yearly energy	Remarks
in MWh	Utility PV Solar @6%
1.822	Construction
1.719	completed
1.622	In 1 year
1.530	
1.443	Total CAPEX = \$750 /kW
1.362	
1.284	Columns A through F
1.212	are nominal dollars
1.143	per kilowatt
1.078	of peak generating
1.017	capacity
0.960	
0.906	Replace DC inverter 5%
0.854	
0.806	
0.760	
0.717	
0.677	
0.638	
0.602	
0.568	
0.536	
0.506	
0.477	
0.450	Replace DC inverter 5%
0.425	
0.401	
0.378	
0.356	
0.336	
0.317	
0.299	
0.282	
0.266	
0.251	
0.237	
0.224	Replace DC inverter 5%
0.211	
0.199	
0.188	
0.177	
0.167	
0.158	
0.149	
0.140	
0.132	
0.125	

0.118	
0.111	Replace hardware = 95%
0.105	Panel module and BOS hardware plus labor.
0.099	71% + 24% = 95%
0.093	
0.088	
0.083	
0.078	
0.074	
0.070	
0.066	
0.062	
0.059	
0.055	
31.27	Discounted lifetime energy (MWh)

mission from column B

Equals Levelized cost of power

