

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	\$1290 /kW					average
	\$1,290	\$1,290	\$16.50	\$16.50	\$1,306.50	1.726
1	0	0	\$16.50	\$15.57	\$1,322.07	1.726
2	0	0	\$16.50	\$14.68	\$1,336.75	1.726
3	0	0	\$16.50	\$13.85	\$1,350.60	1.726
4	0	0	\$16.50	\$13.07	\$1,363.67	1.726
5	0	0	\$16.50	\$12.33	\$1,376.00	1.726
6	0	0	\$16.50	\$11.63	\$1,387.64	1.726
7	0	0	\$16.50	\$10.97	\$1,398.61	1.726
8	0	0	\$16.50	\$10.35	\$1,408.96	1.726
9	0	0	\$16.50	\$9.77	\$1,418.73	1.726
10	0	0	\$16.50	\$9.21	\$1,427.94	1.726
11	0	0	\$16.50	\$8.69	\$1,436.63	1.726
12	\$77.40	\$38.47	\$16.50	\$8.20	\$1,483.30	1.726
13	0	0	\$16.50	\$7.74	\$1,491.03	1.726
14	0	0	\$16.50	\$7.30	\$1,498.33	1.726
15	0	0	\$16.50	\$6.88	\$1,505.22	1.726
16	0	0	\$16.50	\$6.50	\$1,511.71	1.726
17	0	0	\$16.50	\$6.13	\$1,517.84	1.726
18	0	0	\$16.50	\$5.78	\$1,523.62	1.726
19	0	0	\$16.50	\$5.45	\$1,529.07	1.726
20	0	0	\$16.50	\$5.14	\$1,534.22	1.726
21	0	0	\$16.50	\$4.85	\$1,539.07	1.726
22	0	0	\$16.50	\$4.58	\$1,543.65	1.726
23	0	0	\$16.50	\$4.32	\$1,547.97	1.726
24	\$77.40	\$19.12	\$16.50	\$4.08	\$1,571.16	1.726
25	0	0	\$16.50	\$3.84	\$1,575.01	1.726
26	0	0	\$16.50	\$3.63	\$1,578.63	1.726
27	0	0	\$16.50	\$3.42	\$1,582.06	1.726
28	0	0	\$16.50	\$3.23	\$1,585.28	1.726
29	0	0	\$16.50	\$3.05	\$1,588.33	1.726
30	0	0	\$16.50	\$2.87	\$1,591.20	1.726
31	0	0	\$16.50	\$2.71	\$1,593.91	1.726
32	0	0	\$16.50	\$2.56	\$1,596.47	1.726
33	0	0	\$16.50	\$2.41	\$1,598.88	1.726
34	0	0	\$16.50	\$2.28	\$1,601.16	1.726
35	0	0	\$16.50	\$2.15	\$1,603.30	1.726
36	\$77.40	\$9.50	\$16.50	\$2.03	\$1,614.83	1.726
37	0	0	\$16.50	\$1.91	\$1,616.74	1.726
38	0	0	\$16.50	\$1.80	\$1,618.54	1.726
39	0	0	\$16.50	\$1.70	\$1,620.24	1.726
40	0	0	\$16.50	\$1.60	\$1,621.85	1.726
41	0	0	\$16.50	\$1.51	\$1,623.36	1.726
42	0	0	\$16.50	\$1.43	\$1,624.79	1.726
43	0	0	\$16.50	\$1.35	\$1,626.13	1.726
44	0	0	\$16.50	\$1.27	\$1,627.40	1.726
45	0	0	\$16.50	\$1.20	\$1,628.60	1.726
46	\$1,212.60	\$83.11	\$16.50	\$1.13	\$1,712.84	1.726

Sheet1

47	0	0	\$16.50	\$1.07	\$1,713.91	1.726
48	0	0	\$16.50	\$1.01	\$1,714.92	1.726
49	0	0	\$16.50	\$0.95	\$1,715.87	1.726
50	0	0	\$16.50	\$0.90	\$1,716.76	1.726
51	0	0	\$16.50	\$0.85	\$1,717.61	1.726
52	0	0	\$16.50	\$0.80	\$1,718.40	1.726
53	0	0	\$16.50	\$0.75	\$1,719.16	1.726
54	0	0	\$16.50	\$0.71	\$1,719.87	1.726
55	0	0	\$16.50	\$0.67	\$1,720.53	1.726
56	0	0	\$16.50	\$0.63	\$1,721.17	1.726
57	0	0	\$16.50	\$0.60	\$1,721.76	1.726
58	0	0	\$16.50	\$0.56	\$1,722.32	1.726
59	0	0	\$16.50	\$0.53	\$1,722.85	1.726
60	0	0	\$16.50	\$0.50	\$1,723.35	1.726
Total BLDG cost	\$2,734.80	Replacements performed			Actual lifetime energy (MWh)	105.27
Decom = 0.75%	\$20.51					
			Levelized Cost of Power (\$/kW)		\$1,743.87	Include decom
			All the above values are in units of \$/kW			
			Levelized Cost of Energy – LCOE (\$/MWh)		\$58.88	

Sheet1

Source is Commercial Roof Solar w/ CF = 19.7%	0.197	1.726	average yearly energy (MWh)
Assumed discount rate is 6% /year			
Levelized Cost of Power in \$ /kW units	\$1,743.87	from Column F above, after year 60	
Conversion factor from Power to Actual Energy	0.009657805	for CF = 0.197	Conversion = 1 ÷ (CF x 8760 h /yr x 60)
Levelized Cost of Energy	\$58.88 /MWh	LCOE	

Discounted yearly energy	Remarks
in MWh	Commercial Roof Solar @6%
1.726	Construction
1.628	completed
1.536	In 1 year
1.449	
1.367	Total CAPEX = \$1290 /kW
1.290	
1.217	Columns A through F
1.148	are nominal dollars
1.083	per kilowatt
1.021	of peak generating
0.964	capacity
0.909	
0.858	Replace DC inverter 6%
0.809	
0.763	
0.720	
0.679	
0.641	
0.605	
0.570	
0.538	
0.508	
0.479	
0.452	
0.426	Replace DC inverter 6%
0.402	
0.379	
0.358	
0.338	
0.318	
0.300	
0.283	
0.267	
0.252	
0.238	
0.225	
0.212	Replace DC inverter 6%
0.200	
0.189	
0.178	
0.168	
0.158	
0.149	
0.141	
0.133	
0.125	
0.118	Replace hardware = 94%

0.112	Panel module and BOS hardware plus labor.
0.105	62% + 32% = 94%
0.099	
0.094	
0.088	
0.083	
0.079	
0.074	
0.070	
0.066	
0.062	
0.059	
0.055	
0.052	
29.62	Discounted lifetime energy (MWh)

mission from column B

Equals Levelized cost of power

