

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>\$1930 /kW</b>					<b>average</b>
	\$1,930	\$1,930.00	\$27.50	\$27.50	\$1,957.50	1.726
1	0	0	\$27.50	\$26.96	\$1,984.46	1.726
2	0	0	\$27.50	\$26.43	\$2,010.89	1.726
3	0	0	\$27.50	\$25.91	\$2,036.81	1.726
4	0	0	\$27.50	\$25.41	\$2,062.21	1.726
5	0	0	\$27.50	\$24.91	\$2,087.12	1.726
6	0	0	\$27.50	\$24.42	\$2,111.54	1.726
7	0	0	\$27.50	\$23.94	\$2,135.48	1.726
8	0	0	\$27.50	\$23.47	\$2,158.95	1.726
9	0	0	\$27.50	\$23.01	\$2,181.96	1.726
10	0	0	\$27.50	\$22.56	\$2,204.52	1.726
11	0	0	\$27.50	\$22.12	\$2,226.64	1.726
12	\$154.40	\$121.74	\$27.50	\$21.68	\$2,370.07	1.726
13	0	0	\$27.50	\$21.26	\$2,391.32	1.726
14	0	0	\$27.50	\$20.84	\$2,412.17	1.726
15	0	0	\$27.50	\$20.43	\$2,432.60	1.726
16	0	0	\$27.50	\$20.03	\$2,452.63	1.726
17	0	0	\$27.50	\$19.64	\$2,472.27	1.726
18	0	0	\$27.50	\$19.25	\$2,491.52	1.726
19	0	0	\$27.50	\$18.88	\$2,510.40	1.726
20	0	\$0	\$27.50	\$18.51	\$2,528.91	1.726
21	0	0	\$27.50	\$18.14	\$2,547.05	1.726
22	0	0	\$27.50	\$17.79	\$2,564.84	1.726
23	0	0	\$27.50	\$17.44	\$2,582.28	1.726
24	\$154.40	\$95.99	\$27.50	\$17.10	\$2,695.37	1.726
25	0	0	\$27.50	\$16.76	\$2,712.13	1.726
26	0	0	\$27.50	\$16.43	\$2,728.57	1.726
27	0	0	\$27.50	\$16.11	\$2,744.68	1.726
28	0	0	\$27.50	\$15.80	\$2,760.47	1.726
29	0	0	\$27.50	\$15.49	\$2,775.96	1.726
30	0	0	\$27.50	\$15.18	\$2,791.14	1.726
31	0	0	\$27.50	\$14.88	\$2,806.02	1.726
32	0	0	\$27.50	\$14.59	\$2,820.62	1.726
33	0	0	\$27.50	\$14.31	\$2,834.92	1.726
34	0	0	\$27.50	\$14.03	\$2,848.95	1.726
35	0	0	\$27.50	\$13.75	\$2,862.70	1.726
36	\$154.40	\$75.69	\$27.50	\$13.48	\$2,951.87	1.726
37	0	0	\$27.50	\$13.22	\$2,965.09	1.726
38	0	0	\$27.50	\$12.96	\$2,978.05	1.726
39	0	0	\$27.50	\$12.70	\$2,990.75	1.726
40	0	0	\$27.50	\$12.45	\$3,003.20	1.726
41	0	0	\$27.50	\$12.21	\$3,015.41	1.726
42	0	0	\$27.50	\$11.97	\$3,027.38	1.726
43	0	0	\$27.50	\$11.74	\$3,039.12	1.726
44	0	0	\$27.50	\$11.51	\$3,050.63	1.726
45	0	0	\$27.50	\$11.28	\$3,061.91	1.726
46	\$1,775.60	\$714.06	\$27.50	\$11.06	\$3,787.03	1.726

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47	0	0	\$27.50	\$10.84	\$3,797.87	1.726
48	0	0	\$27.50	\$10.63	\$3,808.50	1.726
49	0	0	\$27.50	\$10.42	\$3,818.92	1.726
50	0	\$0	\$27.50	\$10.22	\$3,829.14	1.726
51	0	0	\$27.50	\$10.02	\$3,839.16	1.726
52	0	0	\$27.50	\$9.82	\$3,848.98	1.726
53	0	0	\$27.50	\$9.63	\$3,858.61	1.726
54	0	\$0	\$27.50	\$9.44	\$3,868.04	1.726
55	0	0	\$27.50	\$9.25	\$3,877.30	1.726
56	0	0	\$27.50	\$9.07	\$3,886.37	1.726
57	0	0	\$27.50	\$8.89	\$3,895.27	1.726
58	0	0	\$27.50	\$8.72	\$3,903.99	1.726
59	0	0	\$27.50	\$8.55	\$3,912.53	1.726
60	0	0	\$27.50	\$8.38	\$3,920.92	1.726
Total BLDG cost	\$4,168.80	Replacements performed	Actual lifetime energy (MWh)		105.27	
Decom = 0.75%	\$31.27					
		Levelized Cost of Power (\$/kW)			\$3,952.18	Include decom
		<b>All the above values are in units of \$ /kW</b>				
		Levelized Cost of Energy – LCOE (\$/MWh)			<b>\$64.04</b>	

Sheet1

Source is Residential Roof Solar w/ CF = 19.7%	0.197	1.726	average yearly energy (MWh)
Assumed discount rate is 2% /year			
Levelized Cost of Power in \$ /kW units	\$3,952.18	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)
<b>Levelized Cost of Energy</b>	<b>\$64.04 /MWh</b>	<b>LCOE</b>	

Discounted yearly energy	Remarks
in MWh	<b>Residential Roof Solar @2%</b>
1.726	Construction
1.692	completed
1.659	In 1 year
1.626	
1.594	Total CAPEX = \$1930 /kW
1.563	
1.532	Columns A through F
1.502	are nominal dollars
1.473	per kilowatt
1.444	of peak generating
1.416	capacity
1.388	
1.361	Replace DC inverter 8%
1.334	
1.308	
1.282	
1.257	
1.232	
1.208	
1.185	
1.161	
1.139	
1.116	
1.094	
1.073	Replace DC inverter 8%
1.052	
1.031	
1.011	
0.991	
0.972	
0.953	
0.934	
0.916	
0.898	
0.880	
0.863	
0.846	Replace DC inverter 8%
0.829	
0.813	
0.797	
0.782	
0.766	
0.751	
0.736	
0.722	
0.708	
0.694	Replace hardware = 92%

0.680	Panel module and BOS hardware plus labor.
0.667	59% + 33% = 92%
0.654	
0.641	
0.629	
0.616	
0.604	
0.592	
0.581	
0.569	
0.558	
0.547	
0.536	
0.526	
61.71	Discounted lifetime energy (MWh)

mission from column B

Equals Levelized cost of power

