

Case Study: Town of Lexington

The Town of Lexington has been exploring green alternatives for many years. The Town currently has a strict “Visible Recycling Ban,” which prohibits recyclables from entering the normal waste stream. The Town also has a “2020 Sustainable Lexington” initiative that lays out ways for Lexington to become more sustainable and energy efficient in the future.

Emergent became involved in Lexington’s sustainability mission as the Town was contemplating the installation of various solar power projects by private companies at town-owned facilities. The project will span three public buildings. The Town received an initial proposal and price quote from a well-respected solar power installer. Emergent was brought on to analyze the proposal and see if the project made financial and logistical sense for the Town.

Two ownership models were analyzed, both a town-owned system and a third-party owned system that would employ a Power Purchase Agreement. Emergent analyzed deficiencies in the proposal as well as over-night changes to the Massachusetts Solar Rebate Program, which made the numbers provided in the original proposal obsolete.

In the end, the reduction in rebates and overall risk of the project made the town-owned project appear to not be financially feasible. However, the third-party owned system (ownership flipped to the community after 20 years) did appear to be a viable option. Emergent is currently in talks with the Town of Lexington to determine whether a full Request for Proposal (RFP) process to select a solar power developer to create a third-party owned solar power system is the appropriate next step.

Table 5: Town Cash Flow, PPA Model, 4% Electricity Escalation

Year	kWh Produced	Price Paid	Avoided Cost	Annual Cash Flow	Cumulative Cash Flow
1	438,196	\$0.103	\$0.121	\$8,002	\$8,002
2	433,814	\$0.107	\$0.121	\$6,358	\$14,360
3	429,476	\$0.110	\$0.121	\$4,692	\$19,053
4	425,181	\$0.114	\$0.121	\$3,003	\$22,056
5	420,929	\$0.118	\$0.142	\$9,961	\$32,017
6	416,720	\$0.122	\$0.148	\$10,502	\$42,519
7	412,553	\$0.127	\$0.153	\$11,065	\$53,584
8	408,427	\$0.131	\$0.160	\$11,651	\$65,236
9	404,343	\$0.136	\$0.166	\$12,261	\$77,497
10	400,300	\$0.140	\$0.173	\$12,896	\$90,393
11	396,297	\$0.145	\$0.179	\$13,555	\$103,948
12	392,334	\$0.150	\$0.187	\$14,242	\$118,190
13	388,410	\$0.156	\$0.194	\$14,955	\$133,145
14	384,526	\$0.161	\$0.202	\$15,697	\$148,842
15	380,681	\$0.167	\$0.210	\$16,468	\$165,311
16	376,874	\$0.173	\$0.218	\$17,270	\$182,581
17	373,105	\$0.179	\$0.227	\$18,103	\$200,684
18	369,374	\$0.185	\$0.236	\$18,969	\$219,653
19	365,681	\$0.191	\$0.246	\$19,868	\$239,522
20	362,024	\$0.198	\$0.255	\$20,803	\$260,324
21	358,404	\$0.000	\$0.266	(\$410,539)	(\$150,215)
22	354,820	\$0.000	\$0.276	\$98,046	(\$52,169)
23	351,271	\$0.000	\$0.287	\$100,949	\$48,780
24	347,759	\$0.000	\$0.299	\$103,937	\$152,717
25	344,281	\$0.000	\$0.311	\$107,013	\$259,730
26	340,838	\$0.000	\$0.323	\$110,181	\$369,910
27	337,430	\$0.000	\$0.336	\$113,442	\$483,353
28	334,056	\$0.000	\$0.350	\$116,800	\$600,153
29	330,715	\$0.000	\$0.364	\$120,257	\$720,410
30	327,408	\$0.000	\$0.378	\$123,817	\$844,227

Figure 1: Example Cash Flow Analysis