

1. Why is the Town of Chester looking into solar energy?

The Solar Working Group was appointed to determine if solar energy is a viable source of revenue and/or savings for the town's municipal buildings and positively affect the tax rate.

2. How much of the town's power will be off-set by the recommended proposal?

Approximately 55% of the town's **energy** usage could be off-set by the array. Approximately 35% of the town's **electricity bill** will be off-set. Please see the PPA Rate Schedule & Savings Projection at the bottom of this document.

3. Why is the energy off-set percentage different from the expected electricity bill savings? The array is estimated to generate the equivalent of 55% of the town's combined municipal and school usage. However, because the town will engage in a zero cost to the town model, a portion of the revenue and savings will flow to ReVision and the capital investors who will invest approximately \$1 million to design, permit, construct & connect the array.

4. How is this proposal different from the one proposed to the Town last year?

This year's proposal was created through a lengthy, thorough and fully transparent process taking into account the feedback and questions raised by the voters. Based on the foundation of the previous proposal we took that information and looked at all sites with an eye towards the most savings and revenue with least disruptions or workload on the town.

5. What happens if energy prices decline or rise?

For the PPA scenarios (1a and 1b) at 50 Town Dump Road, ReVision has proposed a long-term PPA rate. While energy prices do fluctuate, based on long-term trends and using conservative projections (2% annual increase in PPA rate vs. 2.5% annual increase in default utility energy rate) this PPA rate would save the town significant energy costs over time. The revenue portion of the agreement (payment in lieu of taxes and lease payments to Chester) are contractually obligated. See also FAQs below.

6. Will the Town of Chester become a utility or face additional oversight?

No. In return for the use of town land and power generation, Chester will receive cash payments and savings.

7. What are the revenue & savings estimates?

The estimated revenue & savings from the project is \$2.48 million over 35 years. Please see the below graphs for the expected annual and cumulative estimates.

8. Could the town lose money?

Revenue and savings projections over the life of the project predict cumulative revenue & savings amount of \$2.48M. Low estimate is \$1.5M and high estimate is \$3M. However, energy prices fluctuate. It is entirely possible that the town might pay a higher amount in any given 6 month period of time. It is also possible the town may save more than expected as well. Towns with PPA rates of ~\$0.10 per kilowatt hour enjoyed much higher than predicted savings over the last few years while energy rates were at historical highs. Those same towns are paying slightly more during this historic low with Eversource's current rate of \$0.0825. The analysis shows expected revenue and savings over the long run.

9. How were the revenues and savings estimates calculated?

The estimates are based on adding the contractually obligated revenue (payment in lieu of taxes and lease payments) and savings based on historical and forecasted electricity rates published by the [US Energy Information Association](#) and a 2023 study commissioned by Governor Sununu.

10. Why now?

There are several reasons: First, construction incentives and rebates exist now for installers and owners making solar projects attractive. These incentives may, or may not, exist in the future. Second, while solar panel efficiency has steadily increased, the expected incremental improvements do not off-set waiting 3-5 years. By year 5 cumulative revenue and savings of \$162,000 is expected. Third, Chester's proposed array of roughly 371 kilowatts qualifies for array incentives under 2 megawatts. There is current legislation being considered to expand incentives for 2 to 5 megawatt arrays which could result in significant construction delays for non-contracted medium sized installations. Fourth, a PPA agreement allows for electricity budgeting for decades to come. The town will know its exact rate decades into the future.

11. Will construction of the solar array impact the transfer station, salt shed or other DPW operations on the site?

No. During the site visit DPW and Solar Bidders raised no concerns.

12. Who will pay for the decommissioning of the solar array?

The owner of the array is contractually responsible for decommissioning. Should the array owner not meet its contractual obligation to decommission the site and the Town is forced to take action, nearly all the materials are recyclable and removal cost would be minimal. While the decommissioning is the contractual responsibility of the array owner, the cost is estimated at \$15k.

13. Who will pay for the upkeep and maintenance of the solar array?

ReVision's Finance partners will contract with ReVision for all aspects of operation and maintenance of the solar array and property. The Town of Chester will not be responsible for these aspects.

14. The Town voted against a solar proposal last year, why is it up for vote again?

The town voted last year against a small specific array behind the town hall. The SWG began its research with an open mind regarding whether a solar installation is a good revenue & savings opportunity for the town. Through this process we looked at every town owned property and captured all questions and objections raised to the previous proposal. We believe the current proposal not only resolves all questions and concerns that were raised, but provides a compelling case to utilize town owned land to generate revenue and savings.

15. Where do the solar panels come from?

The racking is made in the USA and the solar panel components are currently made in South Korea and assembled in Georgia, USA.

16. Why are sites that require tree cutting being considered over cleared sites?

It was identified early on that avoiding tree removal was a priority. The SWG looked at every town-owned parcel and prioritized developed (cleared) sites for constructing a solar array in order to avoid tree removal. After an analysis by the SWG, two developed sites were identified as being potentially appropriate for a solar installation and were included in the RFP. However, the responses all showed that the developed sites (Town Hall and Chester Academy) would not provide sufficient generation to meet the project goals.

17. Are we offsetting the CO2 reduction benefits of solar by cutting trees?

No. While it is true that cutting trees releases carbon into the atmosphere, this release will be quickly offset by solar production and associated carbon mitigation. SWG believes that diversifying the sources of energy production to include renewable sources such as solar will have a long term benefit and increase climate resiliency. As a comparison, coal power results in 1.8 pounds of carbon per megawatt; solar is 0.1 pounds per megawatt.

Here is an article that discusses the pro's and con's of solar installation:

[Solar Panels Reduce CO2 Emissions More Per Acre Than Trees — and Much More Than Corn Ethanol \(columbia.edu\)](https://columbia.edu/solar-panels-reduce-co2-emissions-more-per-acre-than-trees-and-much-more-than-corn-ethanol)

The SWG makes the following recommendations for any proposed site designs in order to protect the natural resources on site and provide mitigation for tree removal:

- Limit clearing to the smallest area necessary for the installation and proper function for the array.
- Compliance with existing wetland setback requirements to the highest extent practicable.
- Planting pollinator friendly native plant species in and around the panels. Using a native herb/shrub layer that would not shade the panels would require minimal maintenance such as mowing 1-2 times per year to limit the proliferation of tall woody species.
- Minimize stumping and other soil disturbance to the extent practicable.
- Planting trees on town owned properties to offset the proposed tree removal.

18. How many acres of town owned land will be affected?

Chester owns 97 properties and over 1700 acres; impact of the array and installation will be ~3 acres or ~0.2% of the Town's land.

19. How long is the lease contract and is there an option to own?

The proposed PPA contract is for 25 years with an option to buy starting at year 6 if the town chose to do so by vote in order to increase savings amount. Contract will include a termination clause with a maximum of 120 day notice. Options exist for capital funded projects that the SWG would like to explore in the future should they potentially bring additional revenue and savings.

20. Is there any liability to the Town?

No. The array owner fully insures the system for both property and liability risks.

21. What happens if the array owner goes out of business?

This is highly unlikely. However, if they were to go out of business, the purchasing company would assume responsibility for ongoing operation and decommissioning. Note: ReVision is local, employee owned, well funded, stable and highly reviewed.=

22. How will the Solar Panels degrade over time?

Solar panels have proven to degrade at 0.5% per year. Panels 25 years old will perform at 88.6% and function for 40 years. Panels carry a 25 year warranty. Replacement of damaged panels is the responsibility of the array owner.

23. Has ReVision installed solar arrays in nearby Towns?

Yes. ReVision has constructed 3,000 arrays in the last three years across New England including arrays for municipalities of Hooksett, Nashua, Brentwood, Bow & Exeter. ReVision is currently developing the state's largest solar array in Kingston and completed more than 100 PPA sites for municipalities. ReVision has been ranked the top solar installer in NE the last five years.

24. What is PILOT?

Payment In Lieu Of Taxes. This is a cash payment to the town by the array owner instead of tax revenue (because the town retains ownership of the land itself).

25. Are there any concerns regarding impact of the solar panels on the landscape or animals?

Solar panels will be mounted on permeable landscapes (no run-off concerns) and do not emit heat or any hazardous materials. A pollinator mix will be planted in disturbed areas and large gauge fencing will be used to keep out large animals while allowing small animals to pass.

26. What does PPA mean?

Power Purchase Agreement. A PPA is a long-term energy supply agreement, in this case between the solar array owner and the town. Under the proposed PPA, the array is built at no upfront cost to the Town. The Town agrees to purchase power from the array for a price that is projected to be lower than utility rates, thereby providing the town significant energy cost savings. The Town would have the option to purchase the system at a discount beginning in Year 6, offering even larger savings opportunities.

27. Why do a PPA?

A PPA is a way to hedge against rising utility prices while contributing to sustainability goals. With this offsite PPA, we project the Town will save money on energy costs over time while adding more clean energy to the grid.

28. The proposed solar array is near the burn pile. Will they be damaged or can they catch on fire?

A generous setback has been established around the burn pile that exceeds required (60') setbacks. Solar panels, components and their steel structures are non-flammable.

29. Given the SWG began meeting in May, 2023, how thorough is the analysis?

The nine SWG members have spent a collective 300+ hours thus far through the four completed phases noted above.

30. How is decommissioning handled?

The array owner (NOT Chester) is contractually obligated to decommission the site. Most materials are recyclable (glass and steel). Should the owner default on the responsibility, total decommission is estimated at \$15k.

31. If the town approves the warrant article, how long before the array is live?

Approximately 18 to 30 months.

32. What might the array look like?

See the below mock-up from ReVision Energy. Note final array placement will not be known until final engineering designs are complete.



33. What does the revenue and savings schedule look like?

PPA Rate Schedule & Savings Projection - Town of Chester										
Project Design										
System Size in kW (DC)		371.7								
System Size in kW (AC)		300.0								
Annual kWh Generation (Year 1)		473,555								
Annual Generation Derate		0.5%								
										Term PPA
Year	Generation (kWh)	Utility \$/kWh (Value of Solar)	Avoided Utility Cost/Revenue	PPA Rate per kWh	PPA Annual Expense	Annual Energy Savings	PILOT	Lease Payment	Annual Revenue	Cumulative Revenue
1	473,555	\$0.1651	\$78,184	\$0.1095	\$51,854	\$26,330	\$743	\$3,717	\$30,790	\$30,790
2	471,187	\$0.1692	\$79,738	\$0.1117	\$52,627	\$27,111	\$743	\$3,791	\$31,646	\$62,436
3	468,831	\$0.1735	\$81,323	\$0.1139	\$53,411	\$27,912	\$743	\$3,867	\$32,522	\$94,958
4	466,487	\$0.1778	\$82,939	\$0.1162	\$54,207	\$28,732	\$743	\$3,945	\$33,420	\$128,378
5	464,155	\$0.1822	\$84,587	\$0.1185	\$55,015	\$29,573	\$743	\$4,023	\$34,340	\$162,717
6	461,834	\$0.1868	\$86,269	\$0.1209	\$55,834	\$30,434	\$743	\$4,104	\$35,282	\$197,999
7	459,525	\$0.1915	\$87,983	\$0.1233	\$56,666	\$31,317	\$743	\$4,186	\$36,246	\$234,245
8	457,227	\$0.1963	\$89,732	\$0.1258	\$57,511	\$32,221	\$743	\$4,270	\$37,234	\$271,479
9	454,941	\$0.2012	\$91,515	\$0.1283	\$58,367	\$33,148	\$743	\$4,355	\$38,246	\$309,725
10	452,666	\$0.2062	\$93,334	\$0.1309	\$59,237	\$34,097	\$743	\$4,442	\$39,282	\$349,008
11	450,403	\$0.2113	\$95,189	\$0.1335	\$60,120	\$35,069	\$743	\$4,531	\$40,344	\$389,352
12	448,151	\$0.2166	\$97,081	\$0.1361	\$61,016	\$36,065	\$743	\$4,622	\$41,430	\$430,782
13	445,910	\$0.2220	\$99,010	\$0.1389	\$61,925	\$37,086	\$743	\$4,714	\$42,543	\$473,325
14	443,681	\$0.2276	\$100,978	\$0.1416	\$62,847	\$38,131	\$743	\$4,808	\$43,683	\$517,008
15	441,462	\$0.2333	\$102,985	\$0.1445	\$63,784	\$39,201	\$743	\$4,905	\$44,849	\$561,857
16	439,255	\$0.2391	\$105,032	\$0.1474	\$64,734	\$40,298	\$743	\$5,003	\$46,044	\$607,901
17	437,059	\$0.2451	\$107,120	\$0.1503	\$65,699	\$41,421	\$743	\$5,103	\$47,267	\$655,168
18	434,873	\$0.2512	\$109,249	\$0.1533	\$66,678	\$42,571	\$743	\$5,205	\$48,519	\$703,687
19	432,699	\$0.2575	\$111,420	\$0.1564	\$67,671	\$43,749	\$743	\$5,309	\$49,801	\$753,488
20	430,536	\$0.2639	\$113,634	\$0.1595	\$68,679	\$44,955	\$743	\$5,415	\$51,113	\$804,602
21	428,383	\$0.2705	\$115,893	\$0.1627	\$69,703	\$46,190	\$743	\$5,523	\$52,457	\$857,058
22	426,241	\$0.2773	\$118,196	\$0.1660	\$70,741	\$47,455	\$743	\$5,634	\$53,832	\$910,890
23	424,110	\$0.2842	\$120,545	\$0.1693	\$71,795	\$48,750	\$743	\$5,746	\$55,240	\$966,130
24	421,989	\$0.2913	\$122,941	\$0.1727	\$72,865	\$50,076	\$743	\$5,861	\$56,681	\$1,022,811
25	419,879	\$0.2986	\$125,385	\$0.1761	\$73,951	\$51,434	\$743	\$5,979	\$58,156	\$1,080,967
26	417,780	\$0.3061	\$127,877	NA	\$0	\$127,877	\$0	\$0	\$127,877	\$1,208,843
27	415,691	\$0.3137	\$130,418	NA	\$0	\$130,418	\$0	\$0	\$130,418	\$1,339,262
28	413,613	\$0.3216	\$133,010	NA	\$0	\$133,010	\$0	\$0	\$133,010	\$1,472,272
29	411,544	\$0.3296	\$135,654	NA	\$0	\$135,654	\$0	\$0	\$135,654	\$1,607,926
30	409,487	\$0.3379	\$138,350	NA	\$0	\$138,350	\$0	\$0	\$138,350	\$1,746,276
31	407,439	\$0.3463	\$141,100	NA	\$0	\$141,100	\$0	\$0	\$141,100	\$1,887,375
32	405,402	\$0.3550	\$143,904	NA	\$0	\$143,904	\$0	\$0	\$143,904	\$2,031,279
33	403,358	\$0.3638	\$146,764	NA	\$0	\$146,764	\$0	\$0	\$146,764	\$2,178,043
34	401,318	\$0.3729	\$149,681	NA	\$0	\$149,681	\$0	\$0	\$149,681	\$2,327,724
35	399,351	\$0.3823	\$152,656	NA	\$0	\$152,656	\$0	\$0	\$152,656	\$2,480,380
TOTAL 35 YRS						\$2,342,739	\$18,585	\$119,057		\$2,480,380

Key conditions and assumptions:

- * Starting PPA rate \$0.1095/kWh, with 2% annual escalator
- * Year 1 Utility \$/kWh (default utility energy supply rate) calculated using 18-mo average at time proposal was submitted
- * 2.5%/yr increase in default utility supply rate, based on 2020-20250 projection from US Energy Information Administration
- * Starting Lease Rate \$10/kW nameplate capacity, with 2% annual escalator
- * Annual PILOT rate of \$2,000/MW nameplate capacity
- * System remains investor-owned and under PPA for a 25-year term, after which ownership is assumed to transfer to the Town in year 26 for a nominal price
- * Does not include potential utility upgrade costs, which cannot be known until completion of a System Impact Study (completed during the Option period if approved at Town Meeting)
- * Does not include operating & maintenance costs for years 26 onward, when we are assuming Town ownership. At that time, the Town may choose to negotiate an O&M agreement with Re/Vision or another provider, or may even choose to handle O&M on its own

Chester Solar Estimated Annual and Cumulative Revenue & Savings

