

BOLTON ENERGY COMMITTEE  
SPECIAL MEETING  
7:00 PM, Tuesday, July 31, 2018  
Notch Municipal Center  
Minutes

Members Present: Chairman Richard Dziadul, Vice-Chairman William Hebert, Rodney Fournier, John Stewart, Andrew Macomber, and Jim Adams (who arrived 7:12 p.m.)

1. Call to Order: Chairman Richard Dziadul called the meeting to order at 7:05 p.m.
2. Public Comment: None entered.
3. Nomination and Election of Chairman, Vice-Chairman and Secretary

Rodney Fournier MOVED to nominate R. Dziadul as Energy Committee Chair, term ending 6/30/2019 when elections for FY 2019-2020 will occur. J. Stewart SECONDED. MOTION CARRIED 5:0:0.

Someone MOVED to nominate and elect Andrew Macomber as Energy Committee Vice- Chair, term ending 6/30/2019 when elections for FY 2019-2020 will occur. Someone SECONDED. MOTION CARRIED 5:0:0.

R. Fournier MOVED to nominate and elect John Stewart as Energy Committee Secretary, term ending 6/30/2019 when elections for FY 2019-2020 will occur. W. Hebert SECONDED. MOTION CARRIED 5:0:0.

4. Discussion of the May 16 meeting, although the minutes cannot be approved because this was not on the published agenda:  
R. Dziadul noted that the possible solar array in the field behind the town hall and serving the town hall, trooper house, and the library, could not be considered at this time because the area is a wetland, so will need to first talk to the wetlands committee. This left three projects being considered:
  - a) Solar parking shelters for the fire station: 18 kW system will meet 105% of their (2016) needs
  - b) Roof mounted solar panel on the high school: 100 kW system will meet only 14% of their needs
  - c) Ground mounted, tracking panels for the Center school: 100 kW system will meet 41% of their needs.

R. Fournier mentioned that the Planning and Zoning Committee recently approved a new (\$480,000) town garage for maintenance vehicles and other storage. R. Dziadul noted that the old garage used 4000 kWh of electricity. Solar panels should be considered on all new structure. To make the roof strong enough only required rafters one size larger.

5. **Three Solar Power Projects:** R. Dziadul noted that at a previous (sub?) committee meeting it was concluded that there had to be at least a \$.05 advantage in the cost of solar compared to EverSource rate, which is now \$.094/ kWh. The Green Bank had offered a power purchase agreement (PPA) at \$.07 / kWh, but he had gotten a verbal offer of \$.03 / kWh from Capital for Change. This provided a nice \$.064 advantage, so we should keep moving on these projects. He noted that the high school could use a much larger system, but those over 100 kW require special procedures and we had missed the required deadlines this year, but next year will be the last chance to get a larger system approved and we should start the process now.

Before going to the Board of Selectmen (BOS) we should tabulate the energy benchmarks for 2017. We have the bills, but the info needs to be put into Excel spreadsheets. There was some discussion about the spreadsheet entries for the 2016 energy use data, including:

- a) Governments get "Rate 30" electrical service fees, which has a \$45/month connection fee. (The High school is Rate 37 with higher fees). The "Draw" fee is \$0.094 / kWh. The "Demand" rate is a varying rate that

depends on maximum draw. These charges are listed separately. High school had a 347 kW demand and the center school had a 160 kW demand.

- b) The demand loads were not considered in estimating the solar energy needs in these three projects because the demand costs are hard to estimate, so the proposed solar panel production is a conservative estimate.

R. Dziadul handed out spreadsheets showing the savings with the three projects over a 30 year period. One was in absolute dollars and the other in inflation adjusted dollars. Some discussion points included:

- a) There is a savings of about \$20,000 in the first year (and later years)
- b) The 2%/year increase in the PPA rates is to allow for inflation in the costs of the maintenance services
- c) If the system breaks, there are no charges to Bolton
- d) see the attached spreadsheets

J. Adams MOVED to bring the proposal for three solar installations to the BOS. R. Dziadul SECONDED the motion. MOTION CARRIED 6:0:0.

**Sell Sheet for Capital for Change:** R. Dziadul noted that Capital for Change (C4C) had never funded a town government project and had asked for a "Sell sheet," which is a cash flow analysis for them. After this was accepted by C4C, we would get a Memorandum of Understanding (MOU) from them which would need BOS approval. Then C4C would have to pay for an engineer's drawings and post a bond (~\$1,500). The Town of Bolton would have to file for the ZRECs because we would not have chosen an installer in time. Next Bolton would put the projects out for bids from installers, probably in the winter. Then the systems would be built in April 2019 and online by June.

Sell Sheet discussion noted:

- a) R. Dziadul had checked with the Green Bank to get a good estimate for the projected costs of the different types of systems noted on the sell sheet.
- b) The ZRECs earned by the system last 15 years and essentially pay C4C for most of their costs.
- c) The PPA cost of \$.03/ kWh was mostly to cover the costs to C4C of paying others to maintain the system.
- d) Depending on the specifics of the PPA, it might be possible for the town to buy the solar panels as early as the 6<sup>th</sup> year. The Green Bank was developing a "blue book" for fair prices of systems at different ages. The town would need to do maintenance then, but the costs would probably be less than the \$.03 / kWh we would be paying anyway. This might be worth consideration as panels typically have a 25 year warranty and the inverters have 15 years. R. Dziadul said he would inquire about this option with C4C.
- e) R. Fournier mentioned that a 30 year contract was a long-term commitment for the town to make and the BOS might resist that length of a commitment. In particular, school buildings might be used for other purposes, if there is regionalization of the state's school systems. R. Dziadul noted that the ZRECs were paid out for 15 years, so C4C might be willing to consider a 16 year contract. R. Fournier MOVED to modify Sell Sheet for C4C to a 16 year contract. J. Stewart SECONDED. MOTION CARRIED 6:0:0.

There was some discussion about whether the committee should first present the solar proposal to the Facilities and Safety Committee or the BOS. J. Stewart MOVED that we first approach the BOS. R. Dziadul SECONDED. MOTION CARRIED 6:0:0.

- 6. Electric car charging port: R. Dziadul mentioned that Stafford's building inspector used an electric car and that charging ports at various places in the state, e.g., at the Highland Park Market, give free electricity. The ports and the electricity are paid through Renewable Energy Investment Fund funds and by private donors that want to support renewable energy use. The committee decided to table this effort for now.
- 7. Adjournment: R. Dziadul MOVED to adjourn the meeting at 8:30 p.m. Someone SECONDED. MOTION CARRIED 6:0:0.

Respectfully submitted by John Stewart, Secretary of Bolton Energy Committee

Please see minutes of subsequent meetings for approval of these minutes and any corrections hereto.

# Solar Energy System Return Financial Calculator Absolute Dollars

## Assumptions

Yearly Production	313334
Supplier Services	\$0.09422
Quoted PPA Rate	\$0.03

## Values

Year	kWh Production	kWh Draw (Supplier Services)	Cost without Solar Photovoltaics	PPA Rate Under Discussion	PPA (Power Purchase) Charges	Savings to Bolton
1	313334	\$0.0942	\$29,522.33	\$0.03	\$9,400.02	\$20,122.31
2	310514	\$0.0970	\$30,134.33	\$0.031	\$9,501.73	\$20,632.60
3	308340	\$0.1000	\$30,821.09	\$0.031	\$9,623.92	\$21,197.17
4	306182	\$0.1030	\$31,523.50	\$0.032	\$9,747.68	\$21,775.82
5	304039	\$0.1060	\$32,241.92	\$0.032	\$9,873.04	\$22,368.88
6	301910	\$0.1092	\$32,976.72	\$0.033	\$10,000.01	\$22,976.71
7	299797	\$0.1125	\$33,728.25	\$0.034	\$10,128.61	\$23,599.65
8	297699	\$0.1159	\$34,496.92	\$0.034	\$10,258.86	\$24,238.06
9	295615	\$0.1194	\$35,283.11	\$0.035	\$10,390.79	\$24,892.32
10	293545	\$0.1229	\$36,087.21	\$0.036	\$10,524.42	\$25,562.79
11	291491	\$0.1266	\$36,909.64	\$0.037	\$10,659.76	\$26,249.88
12	289450	\$0.1304	\$37,750.81	\$0.037	\$10,796.84	\$26,953.96
13	287424	\$0.1343	\$38,611.15	\$0.038	\$10,935.69	\$27,675.46
14	285412	\$0.1384	\$39,491.10	\$0.039	\$11,076.32	\$28,414.77
15	283414	\$0.1425	\$40,391.10	\$0.040	\$11,218.77	\$29,172.33
16	281430	\$0.1468	\$41,311.61	\$0.040	\$11,363.04	\$29,948.57
17	279460	\$0.1512	\$42,253.10	\$0.041	\$11,509.17	\$30,743.93
18	277504	\$0.1557	\$43,216.05	\$0.042	\$11,657.18	\$31,558.88
19	275561	\$0.1604	\$44,200.94	\$0.043	\$11,807.09	\$32,393.86
20	273632	\$0.1652	\$45,208.28	\$0.044	\$11,958.93	\$33,249.36
21	271717	\$0.1702	\$46,238.58	\$0.045	\$12,112.72	\$34,125.86
22	269815	\$0.1753	\$47,292.36	\$0.045	\$12,268.49	\$35,023.87
23	267926	\$0.1805	\$48,370.15	\$0.046	\$12,426.26	\$35,943.89
24	266051	\$0.1860	\$49,472.51	\$0.047	\$12,586.06	\$36,886.44
25	264188	\$0.1915	\$50,599.98	\$0.048	\$12,747.92	\$37,852.07
26	262339	\$0.1973	\$51,753.16	\$0.049	\$12,911.86	\$38,841.30
27	260503	\$0.2032	\$52,932.61	\$0.050	\$13,077.90	\$39,854.71
28	258679	\$0.2093	\$54,138.95	\$0.051	\$13,246.08	\$40,892.86
29	256869	\$0.2156	\$55,372.77	\$0.052	\$13,416.43	\$41,956.34
30	255070	\$0.2220	\$56,634.72	\$0.053	\$13,588.96	\$43,045.75
<b>Totals</b>	<b>8488912</b>		<b>\$1,248,965</b>		<b>\$340,814.53</b>	<b>\$ 908,150.41</b>

Lbs of CO2 Saved 9,337,803

## Totals

This financial return estimator is for the combined revenue stream from the 3 projects under discussion. The Firehouse, the Center School and the High School. 6/28/18 This calculation is in actual non-inflation dollars



# Solar Energy System Return Financial Calculator Inflation Adjusted

**Assumptions**  
 Yearly Production 313334  
 Supplier Services \$0.09422  
 Quoted PPA Rate \$0.03

Year	kWh Production	kWh Draw (Supplier Services)	Cost without Solar Photovoltaics	PPA Rate Under Discussion	PPA (Power Purchase) Charges	Savings to Bolton
1	313334	\$0.0942	\$29,522.33	\$0.03	\$9,400.02	\$20,122.31
2	310514	\$0.0951	\$29,531.64	\$0.030	\$9,311.69	\$20,219.95
3	308340	\$0.0960	\$29,600.57	\$0.030	\$9,242.81	\$20,357.76
4	306182	\$0.0969	\$29,669.67	\$0.030	\$9,174.44	\$20,495.22
5	304039	\$0.0978	\$29,738.92	\$0.030	\$9,106.58	\$20,632.35
6	301910	\$0.0987	\$29,808.34	\$0.030	\$9,039.21	\$20,769.12
7	299797	\$0.0997	\$29,877.92	\$0.030	\$8,972.35	\$20,905.57
8	297699	\$0.1006	\$29,947.66	\$0.030	\$8,905.98	\$21,041.68
9	295615	\$0.1015	\$30,017.56	\$0.030	\$8,840.10	\$21,177.46
10	293545	\$0.1025	\$30,087.63	\$0.030	\$8,774.71	\$21,312.92
11	291491	\$0.1035	\$30,157.86	\$0.030	\$8,709.80	\$21,448.06
12	289450	\$0.1044	\$30,228.25	\$0.030	\$8,645.37	\$21,582.88
13	287424	\$0.1054	\$30,298.81	\$0.030	\$8,581.42	\$21,717.39
14	285412	\$0.1064	\$30,369.54	\$0.030	\$8,517.94	\$21,851.60
15	283414	\$0.1074	\$30,440.43	\$0.030	\$8,454.93	\$21,985.49
16	281430	\$0.1084	\$30,511.48	\$0.030	\$8,392.39	\$22,119.09
17	279460	\$0.1094	\$30,582.70	\$0.030	\$8,330.31	\$22,252.39
18	277504	\$0.1105	\$30,654.09	\$0.030	\$8,268.69	\$22,385.40
19	275561	\$0.1115	\$30,725.64	\$0.030	\$8,207.52	\$22,518.11
20	273632	\$0.1126	\$30,797.36	\$0.030	\$8,146.81	\$22,650.55
21	271717	\$0.1136	\$30,869.24	\$0.030	\$8,086.55	\$22,782.70
22	269815	\$0.1147	\$30,941.30	\$0.030	\$8,026.73	\$22,914.57
23	267926	\$0.1158	\$31,013.52	\$0.030	\$7,967.35	\$23,046.17
24	266051	\$0.1168	\$31,085.91	\$0.030	\$7,908.42	\$23,177.50
25	264188	\$0.1179	\$31,158.48	\$0.030	\$7,849.92	\$23,308.56
26	262339	\$0.1190	\$31,231.21	\$0.030	\$7,791.85	\$23,439.36
27	260503	\$0.1202	\$31,304.11	\$0.030	\$7,734.21	\$23,569.89
28	258679	\$0.1213	\$31,377.18	\$0.030	\$7,677.00	\$23,700.18
29	256869	\$0.1224	\$31,450.42	\$0.030	\$7,620.21	\$23,830.20
30	255070	\$0.1236	\$31,523.83	\$0.030	\$7,563.84	\$23,959.98
	<b>8488912</b>		<b>\$914,524</b>		<b>\$253,249.16</b>	<b>\$ 661,274.42</b>

Lbs of CO2 Saved 9,337,803

## Totals

This financial return estimator is for the combined revenue stream from the 3 projects under discussion. The Firehouse, the Center School and the High School. 6/28/18