



TOWN OF NEW LONDON, NEW HAMPSHIRE

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To: Kim Hallquist, Town Administrator

From: Jamie Hess, Energy Committee Chair

Subject: Attaining Our 2030 & 2050 Renewable Energy Goals

Date: November 7, 2024

Introduction

This memo summarizes our efforts to achieve the Town Meeting-approved municipal goals of 100% renewable electricity by 2030, and 100% renewable heating and transportation fuel by 2050. It also includes a back-of-the-envelope financial analysis of the proposed buyout of our investor-owned municipal solar arrays – a move which would not move us any closer to our 100% renewable goal, but which could be a very sound investment.

Solar Buyout

Beginning in January 2026, the Town will have the option to buy the two investor-owned solar arrays at fair market value. At this time we estimate a fair market value around \$300,000; we are awaiting a more concrete number. Once we have completed the purchase, our contractual monthly payments to the investors will cease, resulting in an annual savings to the Town of approximately \$30,000. In addition to the avoided cost of monthly payments, the Town as the owner of the arrays will be able to sell Renewable Energy Certificates (RECs) on the open market for approximately \$6,000 per year. Thus the gross benefit is \$36,000 per year, which represents a 12% annual rate of return on our \$300,000 investment. If we choose to apply the \$135,000 currently in the Energy Conservation Capital Reserve Fund to the purchase, then an appropriation of \$165,000 in FY2026 will give us the \$300,000 we need.

Operations & Maintenance

The Town, as the owner of the arrays, will be responsible for their maintenance. Periodic maintenance is limited to a once-a-year mowing or brush-hogging around the ground-mounted panels, and no maintenance whatsoever on the roof-mounted panels. The panels themselves have no moving parts and they are covered by a 25-year manufacturer's warranty. The only components subject to failure are the inverters, of which we have two at the Sewer Department and five at the Highway Garage. The warranties on these items are 10 to 12 years, and the current price for all seven inverters combined is \$23,138 delivered. We might need to budget an additional sum for labor to swap out the inverters. An annual contribution of \$5,000 to the Energy Conservation Capital Reserve Fund for six years would be more than sufficient to cover

the cost of replacement. After that six-year period has passed, the annual contribution would drop to zero until the inverters actually begin to fail, at which time a \$2,500 annual contribution would be sufficient to replenish the reserve.

Life Beyond Warranty

The numbers above, including the estimate of fair market value, are based on an expected solar array life of 25 years. This time period coincides with the warranty on the solar panels. However, given that solar panels have no moving parts, there is reason to believe that the arrays could continue producing power for another 25, 50 or even 100 years. Once we have recouped our investment, after the first 10 years of ownership, then an annual maintenance cost of \$2,500 in today's dollars will yield a return of approximately \$30,000 per year in electricity cost savings throughout our lifetimes and beyond.

Meeting Our 100% Renewable Energy Goals

As stated above, the proposed solar buyout will not move us closer to our renewable energy goals; it's simply a sound financial investment. To attain our goals we need to make some choices from among the options presented below.

Electricity

To move from 40% renewable electricity - which we have now - to 100% renewable by 2030, we need to choose one or more of the following five options labeled (a) through (e).

(a) Construct enough new municipal solar arrays to produce another 330 kilowatts of DC power. At an estimated installed cost of \$2.66 per DC watt, the cost of these arrays would total \$877,800 in today's dollars. Site preparation costs and utility power line extension costs would likely be on top of that sum, bringing the grand total close to \$1 million.

(b) Purchase so-called 'Clean 100' electricity from New London Community Power. Clean 100 currently costs 12 cents per kilowatt-hour, which is 40% more expensive than the standard Community Power rate of 8.6 cents per kilowatt-hour.

(c) Maintain the status quo until 2026, when the Community Power Coalition plans to begin offering Group Net Metering options whereby the Town can enter into a contract to purchase power directly from a large solar array located within the State of New Hampshire. The cost of this power is not yet known, but it is likely to be around 9 cents per kilowatt-hour, or only 5% above current pricing for Community Power.

(d) Proceed with plans to construct a solar array at the Stump Dump, with or without funding from the NHDOE Municipal Solar Grant Program. This 50-kilowatt array is estimated to cost \$133,000, plus \$18,000 for a utility line extension, for a total cost of \$151,000. Furthermore, construct a 25-kilowatt rooftop array at the Fire Station, at a cost of about \$75,000. These two arrays together would contribute about 15% of our electricity supply, bringing us to 55% renewable. To attain our goal of 100%, we can choose Option (b) or (c) above.

(e) If we proceed with plans to reconfigure the Transfer Station and/or construct a new Police Station, those plans should include rooftop solar and possibly a ground-mounted array as well. These projects could contribute additional renewable power to reduce the need for Options (b) and (c).

Lastly, an option now available to the Town is to contract with Community Power for electricity at a 12-month fixed rate. This rate will be available on either a calendar year or fiscal year basis. The Town may find it desirable to choose the 12-month fixed rate in order to eliminate budget variances caused by the basic Community Power rate changing every six months.

Heating & Transportation

Though the year 2050 sounds far off in the future, it is definitely not too soon to start working toward our goal of 100% renewable heating and transportation fuel. Items which have a 25-year useful life, such as heating systems, should be replaced with renewable-fueled systems beginning in 2025, in order to meet our 2050 goal without having to needlessly replace them again. Here are some actions we can take now with funds from our Energy Conservation Capital Reserve Fund, should we choose not to proceed with the Solar Buyout.

1. Purchase an electric commercial lawnmower for mowing the Town Green and other Town property. Its battery can be charged with surplus power from the Highway Garage's solar roof. Proctor Academy in Andover uses a commercial mower from MeanGreenProducts.com, which produces zero-turn mowers with up to an eight-hour run time on a single battery charge.
2. Purchase a light-duty electric pickup truck for the Department of Public Works. Models such as the Ford F-150 Lightning have recently come way down in price, so an electric truck may now be an affordable option. As with the mower, an electric truck can be charged with surplus solar from the Highway Garage, so the fuel savings will be substantial. Maintenance costs and related downtime will also be much lower, thanks to the simplified power train, the lack of a cooling system, no need for oil changes, and reduced wear and tear on brake pads and rotors due to regenerative braking. The F-150 Lightning can also be used as a portable generator to provide electricity to a building during a power outage.
3. My recollection is that Tracy Library has two heating systems and one of them is in need of replacement (or will be in the near future). We should investigate what it would take to replace one or both of the Library's aging heating systems with electrically-operated heat pumps, either air-source (mini-splits) or ground-source (geothermal).

Personally, I'm looking forward to taking the next steps toward meeting our 2030 and 2050 goals. I'm also eager to explore the potential of fundraising. It's possible that some New London residents might be interested in making a donation toward a fossil fuel-free future.

Respectfully submitted,
Jamie Hess