MADISON ENERGY ADVISORY COMMITTEE

The Madison Energy Advisory Committee (MEAC) continued their efforts to determine how to improve town building energy efficiency and reduce town energy related expenses in 2018.

LED Lighting - The LED lighting retrofit upgrades through the Smart Start program were completed by EMC in the spring for the town hall, library, highway and maintenance garages, and the fire station. Preliminary results show a reduction in electrical usage of from 10 – 30 % for the same period of time as a year ago. The Smart Start program provided several rebates and. Eversource provided interest free funding paid monthly by the town through the Eversource bill. There are more opportunities, including upgrades to the town hall lower level meeting room and the library lower level Chick room, when funding becomes available. Eversource will be willing to work with us.

Town Hall Weatherization - The town hall weatherization project (improving air sealing and insulation to reduce heating costs) had to be placed on hold despite the approval of funding in 2018 because the funds were needed for the historical society roof repair.

Solar Power for the Town Buildings - The biggest project for the committee started with the investigation into the installation of Photovoltaic (PV) Solar panels to supply electricity to the school and town municipal buildings in the spring of 2018. The committee gathered the total electrical usage and expenses for the school and town buildings, and consulted with representatives of several companies and renewable energy associations. Power Purchase Agreements (PPA) appeared to be a plausible way to take advantage of installed solar energy to supply electricity for town buildings without having to provide upfront capital program funding for the entire project through tax payer dollars.

A PPA is a contractual arrangement where a 3rd party investor pays for the installation of a PV solar array, owns and operates it, and charges the electricity generated back to the town at a reduced rate from the utility. The reduced rate is made possible to the 3rd party investor as they can take advantage of the existing Federal Tax Credit of 30% (through 2019) which is not available to municipalities, asset depreciation, and other rebates and grant incentives. It was discovered that many schools and towns in New Hampshire were able to convert to PV Solar to supply their electricity through this form of 3rd party investment and contracting.

The MEAC approached the Board of Selectmen to ask if up to 2 acres of property behind the town hall could be made available for the possible installation of a PV solar array. The deeds were examined and there appeared to be no restriction. The committee commenced to draft a Request for Qualification (RFQ) to seek out companies interested in designing a plan for Madison town buildings and the school through a PPA contractual arrangement. The town of Madison and the Madison Elementary School have no capital funds set aside to fund the installation of PV Solar panels, and yet the town and school combined spend upwards of $320,000.00 annually for electrical service. The Board of Selectmen agreed that 2 acres of property behind the ball fields could be a potential site for a large ground mounted PV solar array.

After 6 months of study, review of the RFP proposals, assessments of the financial benefits or detriments to the school or town, current contracts at the school with a third party electricity supplier, and the various restrictions posed by that contract, it was decided to eliminate the plans for solar electricity for the school and focus only on the town buildings if the results would be financially beneficial.

ReVision Energy provided a second design proposal that would supply the town buildings only. The schedule of power payments and the production of the array in this new plan showed a positive cash flow (about $3,000 positive annually). The size of the array is approximately 100 AC kW which provides for the optimal net metering allowed by the Public Utilities Commission. Any overproduction of energy on the sunniest days creates credits used against building needs during times of under-production (cloudy days or nights). Eversource calculates the net every month.

Madison Energy Advisory Committee (Continued)

In January 2019, the committee drafted the following recommendation to the Board of Selectmen, and provided documentation of their analysis in support of the recommendation:

> *The Madison Energy Advisory Committee (MEAC) is recommending the Board of Selectmen engage ReVision Energy LLC to install an approximate 100 AC kilowatt ground mounted Photovoltaic Solar array to deliver electricity to cover the annual needs of the town municipal buildings. Further, to fund this project, the MEAC recommends that the Board of Selectmen enter into a long term Power Purchase Agreement (PPA) with a 3rd party investor, yet to be identified by ReVision Energy, who will pay for installation, and own and operate the PV solar array. The terms of the PPA will describe exactly the rate at which the 3rd party investor will bill the town for the electricity generated by the installed solar array at a discounted rate anticipated to be set below the public utility and electric supplier, Eversource. The proposed array is expected to produce more electricity than the town buildings require, and therefore the town is expected to receive an annual dollarized reimbursement from Eversource for the amount of the overproduction.*
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> *ReVision Energy LLC is an award winning B Corp certified, employee owned company, in New England. Their extensive portfolio of working with schools and municipalities to provide PV solar power is admirable. The array they are proposing for the town of Madison will provide 130 DC kilowatts of electricity annually, and over the course of a 25 year PPA, save the town approximately $139,000 on its operational electric expenses. Average savings are $3,000+/year. Opportunities to purchase the PV Solar array in the future when the cost for the system will be greatly reduced can improve the annual savings over this same 25 year period of time. But a purchase is not necessary. And no capital funding for the installation of the PV Solar array is required to enter into the contract. The benefit to the town is that the town will know exactly how much they will be billed for electricity each and every year for budgeting purposes.*

A warrant article to enter into a lease agreement for town land/space to place the ground mounted solar array, owned by a 3rd party investor, will be presented to the town in March. If the town approves, the Board of Selectmen are free to decide to proceed with the solar installation project and to purchase power from the owner of the array on behalf of the town.

In addition, ReVision Energy will include a 32-40" display monitor to be placed in the school which will show the live PV solar array production and history, and the positive benefits of introducing this renewable energy source on the environment. This is a great educational benefit and fosters curiosity into the potential of alternative energy sources. The committee is confident that this town project will provide an example for future solar project's which can apply to the school when the time is right.

The committee members spent many hours on this research and analysis. More details of the analysis can be found in the committee minutes and documents drafted for the Board of Selectmen.

Our town is poised to join many in New Hampshire and New England who are realizing the positive benefits of using alternative energy sources to reduce their costs, reduce reliance on fossil fuels and protect the environment. If you would be interested in joining the energy advisory committee for future projects, please contact Linda Shackford at town hall.

Noreen Downs and Russ Dowd (Co-Chairs), on behalf of the MEAC
Members: Sloane Jerrell, Bob King (Selectmen representative), Russ Lanoie, and Adam Leiser.