

## **Energy Committee Meeting Minutes for Friday, June 26, 8 a.m.**

### **Virtual Meeting**

**Minutes taken by Nancy Hirshberg**

**APPROVED July 30, 2020**

### **Agenda**

1. Opening Round
2. Accept Minutes, April 24, 2020
3. Reports from Committees:
  - a. Municipal Solar
  - b. Transportation/Charging systems
  - c. System Benefits Charge
4. Other Business
5. Next Meeting
6. Closing Round
7. Adjourn

- Present on the call:
  - o Linda Murray, Doug Smithwood, Susan Fuller, Dick Byrd, Nancy Hirshberg, Barry Muccio
- Opening Round: People gave brief personal updates.
- Accept Minutes, April 24, 2020
  - o Edits made
  - o Moved: Dick
  - o 2<sup>nd</sup> by Linda
  - o Vote YES: Susan, Linda, Doug, Nancy, Dick
- Reports from Committees:
  - o Municipal Solar
    - Doug reported on his analysis of the WWTP (see below)
    - WWTP is a primary demand rate customer and has multiple rate structures.
  - o Barry Muccio:
    - If we were to do a 1 MW it should be linked to the MED directly and funded directly by the MED.
    - We started our process for contracting for electricity beyond 2021. Part of the discussions included allowing capabilities and capacity to link in alternative sources of power for municipal scale sites. A lot of unknowns still. Don't want to back ourselves into a corner so we don't have the option to do solar. Will know more later in the process later in the summer.
    - The price of electricity is at historical lows so we could see a rate reduction in the next contract.
    - Two scenarios for the bid process:
      - We buy blocks of energy. Can get cheaper but we assume the risk of the spot market. With this method it gives us flexibility supplementing the peaks.

- Load following (how we have always done it)
- The current contract goes through 2021. This new one would be 2022 onward. It will be 3-5 yrs. RFP will likely go out within the month. Will get indicative pricing and narrow it down to three or so vendors. Then in Oct, will likely lock in on final pricing and contract.
- \$2-\$5 million for a 1 MW solar. If the town develops it we don't get the tax incentives which means higher costs for the build. Economically much more advantage to have it done through PPA with a solar developer who can take the tax advantages and sell it back to us at a greatly reduced price-up to 50%.
- Next Steps:
  - We need a strategy to site a 1 MW solar.... Lines (3 phase), 7 acres or so ideally that doesn't need tree cutting and major upgrades.
  - Start by looking at the town GIS – Susan, Doug, with Matt Sullivan will look at where the lines are and overlay it with municipal property. Barry: Filter Bed Road would be our best bet with 2 substations and the 390 line there too. The most bang for the buck is near a substation. The water treatment plant is not near a substation.
  - Barry: Needs to benefit the town of Wolfeboro and its MED customers.
  - Linda will keep the board and town manager abreast.
  - We are at the early stages looking at land to see if we have a potential project. Later in the process we will explore the financing and ownership structure.
- Transportation/Charging systems:
  - Dick attended a webinar on Clean Energy NH on charging stations. Not much new learning from it.
  - EV Charging is a national company that can do the installation, 24/7 tech support, manage the cards, etc. They did not go into cost.
  - Linda got an e mail from someone who was going to visit who asked about our charging capability. These charging stations would be for the tourists, not locals who will charge at home.
  - Nancy recommends the subcommittee move forward with planning in case potential funds are available in 2021.
  - CIP needs must be done by Aug 1. For all costs over \$100k.
  - Petition warrant articles are due Dec 1<sup>st</sup>.
  - Agreed that the transportation sub-committee would work on the plan. No timeframe defined.
- System Benefits Charge
  - Nancy asked, what are our goals?
    - Discussion: Preference from the committee members present is for funds to go toward low income energy efficiency and/or subsidizing their electric rates. Could give them LED lights, window insulation. Nancy, Doug, Dick, Linda, and Susan would like to see funds invested in better efficiency through upgrades to lower electric use or perhaps subsidizing electric rates for low income people. By reducing energy use

through efficiency we will be lowering carbon emissions as well as lowering their cost of electricity.

- Barry:
    - Hate to see it be mandatory. Rather see us keep the rate low.
    - Fund for people in need
    - We don't need to use it for Improvements to the system to decrease MED costs because we have the funds for it.
  - Susan: Emissions reductions benefit all of us.
  - Linda and Susan are most comfortable with us doing this as a warrant article and having the community talk about it and vote on it.
  - Administration costs and requirements need to be considered.
  - Doug: We want to ensure that any assistance that we give to low income does not adversely affect their other government assistance. One possibility for doing this is to give low income ratepayers a reduced electric rate vs. giving them monetary assistance. Suggestion that we use and improve the model of Tri County Cap for providing electric assistance and energy efficiency programs for low income families.
- Other Business: None
  - Next Meeting: Thursday, July 30<sup>th</sup> 8 a.m. Virtual
  - Adjourn

## **Report from Doug Smithwood on Opportunity at the WWTP**

### **Preliminary Evaluation of the Potential Use of the Waterwater Treatment Plant on Filter Bed Road for a 200 KW Solar Array**

By Douglas Smithwood

Overview: In my opinion, in order to have a possibility of getting a PPA for 7.0-9.0 cents per kWh we would need:

- a solar PV array site that could accommodate a minimum of a 200 kWh solar array to get a 9.0 cent per kWh PPA and a 400 kW array to get a 7.0 cents per kWh PPA,
- a solar PV site with ideal orientation and no shading,
- a solar PV site that needs no site improvements to be preformed by the PV developer, and
- a solar PV site that needs no line improvements to accommodate the electricity produced by the array.

Conclusion of Filter Bed Water Treatment Plant Site for a Solar PV System: This site can accommodate a solar array of approximately 150 kW using two sites (see below). The orientation of the larger site is not ideally oriented (120 MN) which will reduce its output by about 10% compared to a similar array oriented at 180 MN. It is my opinion that it is most likely that we would get a PPA for this site toward the 9 cent per kWh range and not 7 cent per kWh.

Discussion of Filter Bed Water Treatment Plant Site for a Solar PV System:

The site has two open, sloped, grass areas on the southern (180 MN) and southeaster (120 MN) side of the facility (Photo One).

*1Photo One*



The southern site in the left of picture can accommodate an array of about 65 kW (photo two) depending in part if the wetted area of the bottom of the slope can be used. This site has a fairly ideal orientation (180 MN) but is limited in size. The site on the right can accommodate an array of about 93 kW but has a fairly poor orientation of 120 MN.

2Photo Two

**System Capacity: 66.0 kWdc (440 m<sup>2</sup>)**



The second site has a southeast orientation (120 MN) and can accommodate about a 93 kW array (Photo Three).

3Photo Three

**System Capacity: 93.3 kWdc (622 m<sup>2</sup>)**



Tha annual production of the 66 kW southern site would be about 87,576 kWhs annually (Table One) and the 93 kW array would have a annual production of 110,764 kWhs (Table Two).

Table One: Production from 66 kW Southern Oriented Solar Array

PV System Specifications (Commercial)	
DC System Size	66 kW
Module Type	Standard
Array Type	Fixed (open rack)
Array Tilt	35°
Array Azimuth	180°
System Losses	14.08%
Inverter Efficiency	96%
DC to AC Size Ratio	1.2

Month	Solar Radiation ( kWh / m <sup>2</sup> / day )	AC Energy ( kWh )
January	3.66	6,182
February	4.71	7,187
March	5.20	8,199
April	5.58	8,364
May	5.47	8,387
June	5.52	7,976
July	5.84	8,547
August	5.87	8,618
September	5.43	7,850
October	3.88	6,057
November	3.29	5,227
December	2.93	4,982
<b>Annual</b>	<b>4.78</b>	<b>87,576</b>



Table Two: : Production from 93.3 kW Southeastern Oriented Solar Array

PV System Specifications (Commercial)		
DC System Size	93.3 kW	
Module Type	Standard	
Array Type	Fixed (open rack)	
Array Tilt	35°	
Array Azimuth	120°	
System Losses	14.08%	
Inverter Efficiency	96%	
DC to AC Size Ratio	1.2	

  

Month	Solar Radiation ( kWh / m <sup>2</sup> / day )	AC Energy ( kWh )
January	2.72	6,496
February	3.76	8,193
March	4.36	9,845
April	5.25	11,236
May	5.37	11,703
June	5.62	11,540
July	5.84	12,153
August	5.64	11,799
September	4.72	9,743
October	3.28	7,294
November	2.51	5,657
December	2.13	5,105
<b>Annual</b>	<b>4.27</b>	<b>110,764</b>



