Sugar Hill Solar Array

The goal of this project is to reduce the town's electricity cost and keep energy production local and green. The array will save the town money by reducing the amount we pay for electricity. The 94-panel system will produce the same amount of electricity that the town uses in its buildings and streetlights and the credit from the electricity generated will cover 50-60% of the electricity cost.

The project will cost approximately $83,000 to install. The town can use funds already in the Solar Capital Reserve Fund combined with financing with an interest rate of below 2% from a local bank. If voters approve the project, the panels will be installed by the end of 2021 or the spring of 2022. The project is expected to take 10 to 15 days to install. Locating the project behind the Highway Garage will minimize the visibility.

Warrant Article 15: To see if the town will vote to raise and appropriate the sum of eighty-three thousand dollars ($83,000) for the installation of a solar array at the Sugar Hill Highway Garage, and to authorize the issuance of not more than $83,000 of bonds or notes in accordance with the provisions of the Municipal Finance Act (RSA 33) and to authorize the municipal officials to issue and negotiate such bonds or notes and to determine the rate of interest thereon; And further raise and appropriate Seventeen Thousand Dollars ($17,000) for the first year's payment. Recommendations required (⅗ ballot vote).

Design and Construction

Q. What is the size of the system?
A. The solar array is 40 kilowatts (kW). This will generate 48,000 kilowatt hours of electricity per year, which is enough to offset nearly 100% of the municipal electricity use.

Q. Are the panels strong enough to withstand wind and snow?
A. The racking system can withstand winds up to 150 miles per hour. The solar panels can withstand snow loads up to 60 pounds per square foot. This is more than sufficient to withstand the snow and wind in Sugar Hill.

Q. When will the project be completed?
A. If voters approve the project, and if Select Board approves the financing for the project, the project will be installed by the end of 2021 or early 2022. The project is expected to take 10 to 15 days to install.

Q. What type of maintenance and insurance is required and how much will it cost?
A. The town will be responsible for clearing brush and mowing below the solar panels. Insurance is expected not to exceed $500 per year.
Q. Where will it be located?
A. The solar array will be located in the semi-cleared land area just north of the Highway Garage. It will be mounted on the ground.

Q. Why is it behind the Highway Garage?

A. Multiple locations were evaluated, including behind the Town Hall. The Highway Garage site is adequately graded, provides easy connection to the meter at the Highway Garage, and will not be highly visible.

Financial Considerations

Q. How much will this cost to install?
A. The project will cost approximately $83,000

Q. How much will this save the town?
A. The solar array will save approximately $4,000 in the first year and is projected to save over $135,000 over the next 30 years.

Q. How will this be paid for?
A. The Town can use the funds in the Solar Capital Reserve Fund combined with financing with an interest rate below 2%. The project will be financed through a local bank, subject to approval from the Select Board.

Q. Who will own the system?
A. The Town will own the solar array.

Q. Are there any additional or ongoing costs?
A. The town will clear the saplings and remove large rocks. The town will also dig a trench that will run between the solar array and the electrical meter on the highway garage. Average maintenance costs over the life of the system are expected to average less than $500 per year.

Q. How will these arrays save money?
A. In 2019, Sugar Hill spent $10,400.00 for electricity at all municipal buildings, and $2,924.00 for streetlights following conversion to LEDs. The solar array will be hooked up to the Highway Garage behind the Highway Garage electric meter. This means that when the panels are producing electricity it will go first to offset electricity use at the Highway Garage. All excess power produced above the Highway Garage's current needs will go onto the Eversource power grid and the Town will receive a credit for the excess energy. The Eversource credit is 100% of the energy supply rate, 100% of the transmission rate, and 25% of the distribution rate multiplied by the amount of electricity exported to the grid in that month. Based on actual charges in recent years, savings are expected to be on the order of 8 to 12 cents per kWh.

Q. How will the other buildings and streetlights benefit?
A. Eversource will distribute the solar net metering credits to all of the Town's electrical accounts as the Town dictates.

Q. Why is Sugar Hill considering solar now?
A. Low interest rates present a unique opportunity to invest in solar and achieve positive savings in year one. If Sugar Hill does not install solar the town will pay roughly $355,000 to Eversource over the next 25 years assuming a 1.5% increase in the electricity rate each

year. Solar is an investment that will save money rather than pay Eversource for the next 20 years.

Q. Are there grants available for this project?
A. There is currently a small grant available through the Public Utilities Commission. This grant is available until funding runs out. If the project is approved at Town Meeting, the Town will work with the solar developer to apply for the grant.

Q. Who is installing, operating and maintaining the solar array?
A. The Select Board obtained 3 quotes and has selected 603 Solar based on cost, experience and reputation. The production of the system is monitored by the manufacturer, installer, and the Town for the life of the system. 603 Solar will monitor the equipment and take care of any issues that may arise. 5-year warranties exist on everything, so no cost for any servicing will be required in that period. Warranties cover the cost of replacing, but not installing new panels (at roughly $150 per panel) which rarely happens. Solar panels do not include any moving parts and maintenance is minimal. The area beneath the solar panels will need to be mowed by the town twice per year.

Environmental Benefits

Q. What about carbon dioxide (CO_2) emissions: How much is produced when solar panels are manufactured, and how much will be saved?
A. Making a solar panel does take energy, which creates CO_2. Studies have been completed that calculate that it will take a solar panel 3 years of producing CO_2-free electricity to make up the CO_2 produced during manufacturing. In the first year of production, the Sugar Hill solar array will generate enough clean electricity to offset 33 tons of carbon dioxide (CO_2). This is equal to the CO_2 emissions from 3,300 gallons of gasoline.

Over the next 30 years this project will generate 1.3 million kilowatt hours of clean electricity, which will offset nearly 1,000 tons of CO_2. This is equivalent to the CO_2 emissions from 103,000 gallons of gasoline. The Sugar Hill solar array could generate enough clean electricity to offset 2.2 million miles driven by passenger vehicles.