Solar for Schools Grant Opportunity
Alternative Energy for the Hydroponic Farm

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Methacton
SCHOOL DISTRICT

Solar for School Recommendation

Methacton School District will apply for a PA Solar for Schools Grant through the PA Department of Community and Economic Development. The grant will seek funding to offset approximately 30% of the installation expenses for a small solar array either on the roof of the hydroponic farm shipping container or on the ground adjacent to the container. The ongoing use of the solar array will offset a small portion of the approximately 255 kWH/day required to operate the farm during the school year. The solar array will be integrated into the school's curriculum and will serve as a visible learning tool for students, teachers, and visitors.

Information About the Solar for Schools Grant Program

(The Program) is established pursuant to the act of July 17, 2024 (P.L.813, No. 68) known as the Solar for Schools Act. This program seeks to reduce the cost of implementing solar energy systems into schools across the Commonwealth. In order to accomplish this goal, the Department of Community and Economic Development (“DCED” or “Department”) has established a grant program that school districts can use to fund solar energy projects.

Information About the Solar for School Grant Program

- The Pennsylvania Department of Community and Economic Development (DCED) will award $25 million to statewide schools during this fiscal year (Solar for Schools Act).

- Schools are eligible to receive a grant of 30-50% of the solar project costs depending on the Market Value/Personal Income Aid Ration determined by PDE.

- Further cost reduction of the project is available by taking advantage of a federal tax credit that reimburses up to 70% of eligible solar project costs

Placing Solar Panels on the Hydroponic Farm

Methacton SCHOOL DISTRICT

Methacton High School is proud to be the first high school in Pennsylvania to operate its own student-run hydroponic farm. The vertical hydroponic farm is custom-built and contains state-of-the-art technology that receives electricity and fresh water into the shipping container frame. As part of the district's focus on S.T.E.M, high school students in all grades can choose to take the hydroponic farming course. It is designed to cover how plants can be grown hydroponically, how the scientific method is not a linear process and how hydroponic farming has benefits to society. The course also has a lab component in addition to hands-on experience. A strong emphasis is also placed on business, marketing, computer science and mathematics.

Curricular Enhancements and Advantages

- MHS Environmental Science Class Curriculum includes renewable energy.
- With the addition of a solar array to the freight farm, students will be able to:
  - Complete a site visit of the farm complemented with images of solar array
  - Discuss how solar panels collect the suns energy and convert it to electricity
  - Interpret the amount of solar energy collected by the array
  - Relate energy collected to local weather
  - Discuss and calculate how the number of solar panels needed was determined
  - Evaluate the carbon footprint of the farm before and after the solar panels were installed
  - See where most of the energy in the farm is used and discuss how to make it more efficient
  - Provide school visits/webinars on how sustainable farming is achievable with a zero footprint using the hydroponic farm as an example

Grant Funding and District Financial Commitment

- Site Assessment is needed: Generation 180
- An evaluation of a school facility performed by a qualified provider to ascertain whether a school facility is capable of supporting a solar energy project and estimates of the amounts by which an eligible applicant's energy or operating costs will be reduced by a solar energy project. This assessment should include the following at a minimum:
  - Orientation of Proposed Solar System Location
  - Solar Shading Study
  - 25-year Cash Flow Analysis
  - Cost Estimate
  - Maintenance and Operation Plan

Grant Funding and District Financial Commitment

Hydroponic Farm Power Needs

- Electricity: 255 kWH/day
- Solar panels required: 116 panels @ 63.8kW max output à output greater than 50kW, must follow utility rules for power generation
- Inverter required: 100kW string inverter or similar
- 200A breaker @ 480V at main panel/switchboard for tie-in and solar disconnect at service entrance (exterior of building)
- Utility in/out meters (modify existing CTs/PTs)
- Estimated install cost: $127,600

Grant Funding and District Financial Commitment

- Amount of time to pay off the cost of the solar panels
  - MV/PI AR is .1690 (falls into .5>MV/PI AR for the grant) = The lesser of $300,000 or 30% of project cost
- Cost of total installation $128,000 (or $64K) x .30 off from grant = $90,000 (or $45k) (full solar complement)
- Return on Investment: $90,000/$3,600/yearly energy cost of the farm= 12 to 25 years to pay off depending on the size of the solar array

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