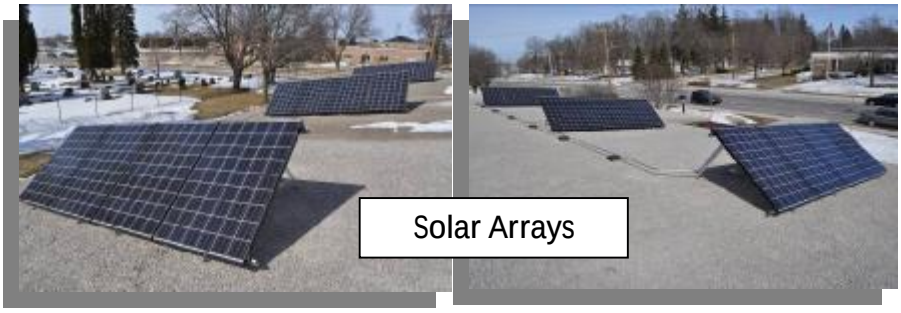
New Holstein Library Solar Electric (PV) System

In early spring of 2011, a 24 panel 4.92 kW solar electric system was installed on the roof of the New Holstein Public Library. A solar site assessment was performed to analyze the solar potential for the site. This site assessment examined electrical usage, roof space and shading to determine the best approach for solar. After a competitive bidding process, H&H Solar Energy Services was selected as the installation contractor. System cost was $39,200. Focus on Energy approved a Cash Back Reward of over $10,000 and WPPI provided a grant of $20,474. New Holstein Utilities covered the remainder of the cost.

The installation consists of six arrays (three on either side of the roof peak), each made up of four Kyocera KD 205 (watt) modules. An engineering study determined the layout and attachment method for the panels. Because the roof peak runs north/south, it was necessary to tilt the panels at a thirty five degree angle facing south. This was accomplished by installing two inch aluminum angle legs to the back of each row. All penetrations into the roof deck were flashed and sealed. Rigid conduit delivers DC electricity from the panels to an inverter located in the mechanical room. An SMA Sunny Boy 5000 (watt) inverter converts the DC current from the solar panels to usable AC electricity. In the event of a power loss, the inverter is UL listed to instantaneously shut down, preventing any voltage from back-feeding onto the grid. As the heart of the solar electric system, the inverter also sends production data than can be logged and monitored.

Six thousand kilowatt hours per year will be produced on average by the system, the equivalent of about two thirds the annual usage for a typical household. If the panels are completely covered with snow, they will not produce electricity. Besides an occasional visual inspection and (optional) snow removal, the system is maintenance free. Kyocera solar panels carry a manufacturer's warranty to deliver 80% of their rated output for twenty five years. The Sunny Boy inverter has a ten year warranty. System design life is 30+ years. Power produced will be used in the building. In the rare case where production exceeds demand, electricity will flow back onto the utility grid, earning a credit at whatever rate the Library is paying.



Solar Arrays

Inverter

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