

## Burke High School Solar Project

### Project Description

The solar system was installed on the back, south-facing side of the school garden's toolshed. The system is the Grape Solar 100-Watt Basic Off-Grid Solar Panel Kit ordered from Home Depot. It serves a practical as well as an educational purpose, providing a power source for garden tools and electronic devices.



### Solar System Details

The Grape Solar Kit includes a 100-watt polycrystalline solar panel, a 165-watt charge controller with USB outputs and DC load control, Grape Solar Zip pity feet, cables and manual. The kit is easy to install and virtually maintenance free. As with all systems, the solar panel will need occasional cleaning. Additional details are available [here](#).



Grape Solar Kit

## Battery & Inverter

The kit does not include a battery or inverter. A minimum of one 12-volt deep cycle battery is necessary using the Grape Solar Kit. The battery selected for this project was the 12-volt Ultra Power Duracell Battery, which was also purchased online. See product details [here](#).



An unbranded, generic inverter was used for this project, which was also purchased online. Click [here](#) for details.



## System Operation & Maintenance

Once the battery is fully charged, it will provide around 30 amp-hours of power. For a single laptop computer, that is about 4 hours of AC power. For an electric weed trimmer at 5 amps, that would provide about 5 hours of electric AC power.

There is one outlet with the inverter used. Inverters with up to 3 AC outlets are available. The project can be upgraded to a better inverter at any time, and expanded with up to 3 batteries, providing 3 times the electric power output in amp-hours, but not voltage. The current system will recharge in about one day, depending on available sunlight.

**Approximate cost of the Grape Solar Kit, battery and inverter: \$300**

## **Project Development Team**

- Lee Stover, Burke High School Science Teacher: AP, Honors, and regular Environmental Science. She leads the green-team initiative at Burke High School, and with her Environmental Science students, has conducted air-quality testing throughout the building. She encourages teachers and students to become involved in the garden project and invites staff to watch their own environmental impact at home and at school.
- Burke High School students enrolled in Lee Stover's Environmental Science classes and Green Team members.
- David Holtzclaw, solar energy and energy-efficiency expert, owner of Transduction Technologies, a Nebraskans for Solar expert speaker and Nebraska Solar Schools volunteer.
- Helen and Ken Deffenbacher, Nebraska Solar Schools volunteers and Nebraskans for Solar board members

**Funding for this project was provided by a contribution to Nebraska Solar Schools from Mr. Robert Hess, who has installed a PV system on his own home as a do-it-yourself project.**