

DIANNE AND DAVE JUDD RESIDENCE

SOLAR PV

We undertook this project to reduce our carbon foot print and because it makes good economic sense. Working with Next Energy Solution and Cheq Bay Renewables made the decision and installation process easy.

We chose the SolarEdge StorEdge inverter because of its monitoring capability down to individual modules, ability to support battery backup and smart load management. Longer term, when a lithium battery and a critical loads panel are added, we will be able to continue generating electricity if the power grid fails. If net metering is weakened we will be able minimize use of grid power. We also have significant extra inverter capacity so that we can add additional panels, such as to support electric vehicles.

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System overview

- Wooden fixed ground-mounted PV installation
- Installed by Next Energy Solution as Electrician Ready installation
- Electrical work by Marissa Fish of Lakewind Electric
- Grid-tied to Xcel Energy with net metering

Technical specs

- 5.4 kW DC consists of 20, 270-watt solar modules manufactured by Peimar
- Modules Model SG270P made in Italy with 30-year performance warranty
- 20 **Power optimizers**
- Built-in web monitoring
- Inverted from DC to AC using SolarEdge **StorEdge** SE7600A inverter
- Estimated generation is 6,800 kWh per year

Incentives

- 30% Federal Residential Tax Credit for renewable energy
- Focus on Energy Prescription Grant paid for 12% of the system

Costs & Benefits

- Cost of Electrician Ready installed system: \$15,650
- Total cost of system including electrical: \$16,750
- Out of pocket cost after incentives: \$9,800
- Estimated payback: 10.2 years
- 20-year annualized Internal Rate of Return: 8.3%
- 20-year tax equivalent yield at 21% tax bracket: 10.5%

What are power optimizers?

Power optimizers, like microinverters, monitor individual panel performance and maximize energy production. Power optimizers “condition” the DC energy and the inverter finishes the conversion to AC energy. Microinverters, on the other hand, convert the DC energy to AC at the solar module. If a single module is shaded, both power optimizers and microinverters limit the effect to that single module while a whole series of modules would be affected in a more traditional wiring arrangement.

What is a battery-ready inverter?

The StorEdge inverter is a “smart” inverter that is ready to provide many management features like backup power, export control, time-of-use shifting, demand response and is compatible with a Tesla Powerwall or LG Chem battery. The battery can be added at a later date, when prices come down for example, and the inverter functions fine without the battery in the meantime.