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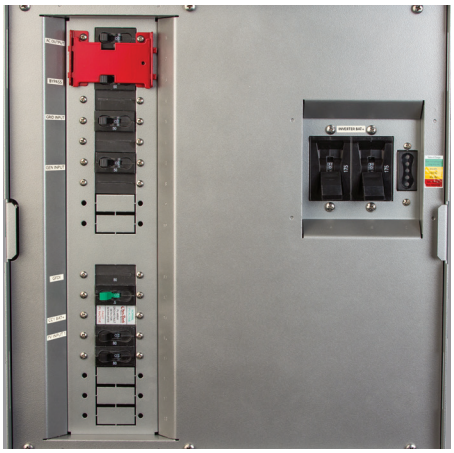
Haliburton Solar and Wind

GRIDZERO CASE STUDY

SYSTEM SPECIFICATIONS	
Location	Residence/factory in Haliburton, Ontario
System Power	10kW PV system
Components	• Radian Series GS8048A inverter/charger • (3) FLEXmax 80 charge controllers • MATE3 system display and controller



OVERVIEW

The picturesque town of Haliburton in Central Ontario is home to just 6,500 year-round residents. The area is also attractive to retirees, who move to Haliburton and renovate its many quaint older cottages. Since many retirees are on fixed incomes, this has driven a lot of interest in energy cost mitigation, as electricity in Ontario can cost $4,000 to $8,000 per year. As a result, renewable energy is becoming very popular, particularly for those who can take advantage of net metering to keep utility costs down even further.

Ontario has an evolving and often confusing energy policy; residents have seen rates fluctuate from 19 cents to as high as 30 cents per kilowatt hour. With its old grid infrastructure, Ontario's regulatory agencies control feed-in tariffs (FITs) closely, often denying applications for micro-generator accounts citing concerns about over-saturation of solar generation on their circuit. Other than going completely off-the-grid, an impractical choice for most, residents are left with few choices for using renewable energy.

George and Elaine Schmid are an example of the challenges facing electricity users in such an energy environment. They operate their business, the Haliburton Soap Factory, out of their home. But, fluctuating electricity costs were putting a strain on their business and personal finances. Eager to lead a more sustainable lifestyle and reduce their energy costs, the Schmids wanted to take advantage of net metering. So when their application was denied by the local utility, they contacted Brian Nash of Haliburton Solar and Wind to discuss their options. Brian had just returned from OutBack Power's Arlington headquarters, where he learned about the company's newest Radian Series inverter/charger featuring GridZero technology. He knew immediately that GridZero technology could solve the Schmids' problem and meet their energy goals.

CHALLENGE

- Design a solar electricity solution that could provide long-term savings and achieve payback in spite of the FIT contract denial by the utility
- Reduce annual utility electricity costs substantially
- Create enough renewable electricity to support a more sustainable lifestyle through self-consumption

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SOLUTION

In order to address the Schmids' primary goals to decrease their overall electricity use and high utility costs, and support grid independence, Brian designed a 10kW PV system around OutBack Power's Radian inverter with GridZero technology. GridZero functionality is a key element in OutBack Power's grid/hybrid approach which combines off-grid independence with grid-tied economics in a single system incorporating local energy storage. The Radian's GridZero mode allows a home or business to use the renewable energy for self-consumption and draw on the grid only when needed, such as when demand spikes or there is insufficient solar radiation available—effectively "zeroing-out the grid" when conditions permit.

With this technology, economic savings can be realized through offset utility costs from self-consumption during the day and using stored renewably generated electricity at night, instead of being driven solely by selling-back to the utility. GridZero also provides the advantage of back-up power in the event of an outage. With a GridZero-equipped grid/hybrid system, users gain the benefit of both grid independence and energy resiliency. The site gets a daily average of 3.8 sun hours with 97% solar access. This setup produces 38kWh, which is usually sufficient for the Schmids' soap factory equipment, as well as their shop. The Schmids have achieved a drastic reduction in their hydro-electric utility costs—from $7,600 per year to about $3,500 annually, nearly 50%.

The GridZero system has exceeded everyone's expectations not only because it has met the Schmids' needs, but also because it supports more conscious energy conservation. With OutBack Power's on-board monitoring features, the Schmids have become more interactive and proactive about their daily energy use and behaviors, even going so far as to monitor the weather and plan high-consumption activities for sunny days. The Schmids couldn't be happier with their GridZero solar energy system and are considering adding a wind turbine for even greater renewable production and utility cost savings. Brian Nash is equally excited about the success of this system. "The GridZero system is just so cool," he says. "I go back there once a week just to look at it."

OUTCOME

- The GridZero system produces 14kW and reduces grid electricity consumption by 45%, saving more than $4,000 per year in hydro utility costs
- The user-friendly system allows the homeowners to balance their own electricity use
- Energy balancing capabilities support conservation and energy resilience despite dynamic grid utility policies and prices

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