

Solar from "the coastal margins" to the remote interior

A diverse solar innovator standardizes on Morningstar for its smaller system requirements



Our customers thrive on and love data—and Morningstar provides it!

James McPhail

Heads Hakai Energy's Network and Telemetry Division

Summary

With projects covering Western Canada from Vancouver to the Arctic Circle, a diverse solar innovator standardizes on Morningstar for its smaller system requirements.

Projects overview: a portfolio of data-driven "smart, reliable" remote off-grid smaller solar electric systems for a wide range of applications, including communications, navigational safety, mining and environmental monitoring.

System components include: Morningstar TriStar™ MPPT, ProStar™ MPPT, and SunKeeper™ charge controllers; various other components depending on the system and its application.

Situation

Ecologically, economically, and geographically, Vancouver Island, BC is unique. It straddles the Pacific Northwest from just north of Seattle and Puget Sound to Alaska. Its climate is best described as a "temperate rainforest." And, in terms of size, this Canadian island is four times bigger than Puerto Rico and contains twice the population of Iceland. "The Island," as it's known to locals, hosts the seat for the provincial government of British Columbia, which is in Victoria.

While B.C.'s vast network of coastal mountains and valleys provides hydroelectricity for over 80% of the region's demand, this topology complicates air quality management since inversions trap pollutants more easily. Therefore, other renewables, including wind, biomass and solar, now comprise a greater percentage of the remaining energy needs. That's turned the province into an incubator for alternative energy research, technologies and companies engaged in construction projects of every size and type. One of those leaders is Hakai Energy Solutions—the largest solar energy company owned and operated in B.C., based in Cumberland on Vancouver Island in the traditional Territory of the K'omoks First Nation.

Established in 2011 to meet the emerging demand for renewable energy solutions, Hakai Energy Solutions has designed and installed systems across Western Canada, and as far north as the Arctic Circle.

The groups' projects range from small solar data collection and sensing systems for science research, data communications and other applications to large scale commercial and municipal installations, even getting involved with mining and other industrial operations.



Morningstar ProStar MPPT 40M charge controller and MSC PC MeterBus Adapter

Solution

Hakai Energy has assisted entire communities transitioning away from diesel generator dependence through multi-kiloWatt solar photovoltaics, incorporating storage into complex microgrid systems. They've provided complete solar energy solutions for primary and secondary school complexes, university campuses, firehalls, and large-scale mission-critical municipal facilities. In another category of the power generating spectrum, Hakai Energy excels in small-scale containerized generation systems for remote applications, along with off-grid power systems for lodges and cabins, and even solar-powered buoys for scientific marine research.

To say Hakai Energy has "tried and tested" every conceivable solar and energy storage component type and brand imaginable is an understatement. The manufacturer that Hakai Energy has settled on for all its unique, lower-powered off-grid applications is Morningstar.

James McPhail heads Hakai Energy's Network and Telemetry Division and explains, "Over the past decade, we've been increasing our involvement with off-grid and hybrid energy-type installations. With the smaller systems, we started with other brands of charge controllers which were OK, but ultimately ended up standardizing on Morningstar and now wouldn't even bother using anything else. For small-scale remote systems, Morningstar is our go-to brand."

The TriStar MPPT, Morningstar ProStar MPPT and SunKeeper SK-6 controllers are standard equipment in Hakai Energy's smaller off-grid projects. In solar-powered marine and other harsh environmental uses, McPhail cites the SK-6's uniquely tough, resistant build and dependability in these applications, while in communications and other applications, the ProStar MPPT well-suits his client's needs. "Our customers thrive on and love data—and Morningstar provides it!" The company finds ProStars particularly useful in environmental monitoring systems for that reason. As a system integrator, Hakai has found Morningstar product's industry standard communication protocols are well supported with other remote monitoring system equipment such as those supplied by Ethertek Circuits and FlexSCADA systems.

The technical care, careful design work and quality installation methods that McPhail and the Hakai Energy team practice consistently stem from the company's mission: "deliver advanced power systems of the highest standard by combining deep trade experience with extensive renewable energy expertise." To achieve that, the company upholds a strong sense of vertical self-sufficiency, with a full-time team of electricians, installers, and system designers along with personnel in administration, finance, technical support and other key roles. The company provides turn-key power systems and energy solutions for regular monitoring and maintenance. Every project is undertaken with practices and policies in place to minimize harmful environmental impact—something employees take home and live themselves as part of the Hakai Energy Solutions culture.


The company partners with the non-profit Tula Foundation, which originated from an installation project that group did, involving a remote field station for long-term ecological research. Explains James McPhail, "Our founders had completed the largest AC-coupled hybrid renewable energy system in North America during that initial phase and are still involved with the Foundation—who keeps our company busy with projects supporting their various science programs."

Continues McPhail, "We're long-term in every facet of the business. Along with our solar and electrical industry certifications, we adhere to the Builder's Code Pledge, are active members of WorkSafeBC, COR certified through the BC Construction Safety Alliance, and are a certified Living Wage Employer. That investment in people is part of how we've cultivated and built a long-term team capable of achieving and maintaining the highest standards.

We see similar values in place at Morningstar through the quality and longevity of its products—it's a natural, good fit for us."



Small remote Hakai Energy solar powering installation, including a Morningstar ProStar MPPT 40M charge controller and MSC PC MeterBus Adapter



Hakai Energy designed and built a solar powered research buoy power system, deployed by the Calvert Island Ecological Observatory, with a Morningstar ProStar MPPT 40M on-board.