



## LEAD BATTERIES: ENERGY STORAGE CASE STUDY



Rolls Battery Engineering / Surrette Battery Company

### Off-grid residential solar systems

#### British Columbia, Canada

For more than 10 years, a First Nation community in British Columbia have achieved their energy needs through a renewable system supported by advanced lead batteries for energy storage.

With no power grid connection, 200 Xeni Gewt'in First Nation members spread across the Nemiah Valley in Canada have combined solar arrays with Surrette's advanced lead batteries for clean, reliable power.

*"Rolls batteries provide energy storage solutions in small to large-scale renewable applications around the world. Many of these battery banks, like those installed in the initial Nemiah Valley hybrid system projects, have been in operation for more than a decade which is a testament to the long-term efficiency, reliability and cost savings of well-designed off-grid systems."*

Jeff Myles, Marketing Manager, Surrette Battery Company

#### Technical Specification

Since 2006, four residential off-grid PV hybrid systems have been in continuous operation, providing more than 13,000 kWh of energy since installation.

The hybrid systems consist of a 2 kW solar PV array combined with 48V 4000Ah flooded lead batteries provided by Surrette Battery Company, a Canadian battery manufacturer.

The systems were specifically commissioned and designed to meet a predicted 240/120V AC residential load requirement of 5 kWh a day.

The hybrid system also features a 5.5 kW propane genset for supplemental energy in low-sun winter season, however due to the large PV size, the genset is rarely used.

The successful energy storage system has reliably provided clean energy for more than 11 years, averaging 3.3 kWh per day.



### 2008 installation

Due to the success of the original systems, three additional PV hybrid systems were commissioned by the community in 2008, designed to be locally reproducible by community members.

Featuring 1kW of PV combined with 400Ah of flooded lead batteries, these additional energy storage systems have been operating continuously since installation.

### New system design in 2017

Building on the success of the decade-old energy storage systems, seven new hybrid systems were commissioned for delivery to the Gewt'in community in 2017.

These larger systems feature a 6 kW PV array, 1000Ah of flooded lead batteries and a genset, and were installed in a robust 10' shipping container.

Whilst providing a secure and protected enclosure and voltage-controlled exhaust fan for the energy storage system, the new design also incorporated a remotely accessible monitoring system with a web-based interface, allowing performance assessment of the system.

### Sustainable technology

Surrette's flooded batteries have provided a reliable, cost-effective and sustainable energy storage system, combined with an enhanced ability to withstand extreme weather conditions experienced by the region.

Fully recycled at end-of-life, advanced lead batteries offer an economical and sustainable advantage for communities utilizing renewable energy storage systems.

### About the Company

Rolls Battery Engineering is a long-established Canadian manufacturer of industrial lead batteries and is the brand name of Surrette Battery Company. They supply flooded and valve-regulated lead batteries for many applications and specialize in renewable energy storage.