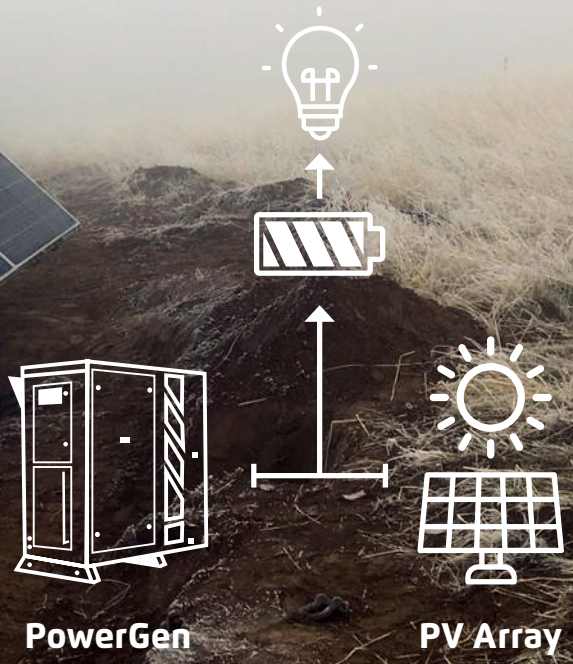
Qnergy
Reliable Remote Power

PowerGen Solar Hybrid

Qnergy's solar hybrid system leverages the PowerGen Stirling engine to supplement photovoltaic power creating the most reliable off-grid power system.



BENEFITS

- Hybrid design blends the advantages of solar energy with those of Stirling power
- 24/7, year-round off-grid power
- Smaller PV panel footprint
- Smaller battery bank with longer life (no deep cycling)
- Reduced engine fuel consumption
- Decreased operating costs (less maintenance and downtime)

POWERGEN STIRLING ADVANTAGE

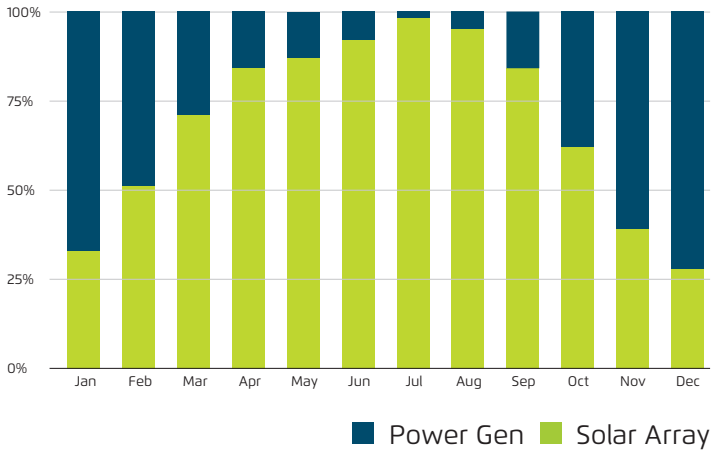
- Maintenance free 80,000h engine life (no oil changes, no field rebuilds)
- Efficient, low-emission combustion (100x lower than EPA CO and NOx limits)
- Wide operating temperature range (-40˚C to 40˚C)
- 5.65kW load-following engine (no load banks or wet-stacking issues)
- SmartView web-based monitoring system

Cold Weather Advantage

Under normal conditions the PV array supplies power through the system's battery bank. The PowerGen engine sits in standby, monitoring the battery health. In extended durations of poor solar availability, the PowerGen intelligent control system will start the engine and charge the batteries. In cold northern climates, the waste heat of the PowerGen system is harvested to maximize system performance:

- Heat Propane tanks to keep fuel flowing in frigid temperatures
- De-ice communications towers
- Increase battery efficiency and prevent freezing

HYBRID POWER PRODUCTION



PACIFIC NORTHWEST CASE STUDY

A pipeline operator was tasked with installing a cathodic protection station in a remote area. Although high voltage utility lines were available nearby, the cost to extend and transform the power for this small station was prohibitive. Due to the challenging weather conditions in this region, an off-grid solar system itself would be costly due to the size of the PV array and large battery bank needed to provide reliable power in the cold, dark winter months.

Pairing a more reasonably sized off-grid solar system with the PowerGen 5650 increased the reliability and value of the system. The generator eliminates deep discharge cycles on the battery, preventing accelerated aging. Using fewer batteries that last longer not only saves capital but reduces the environmental waste associated with disposal. With the intelligent control system, the engine only runs when required, optimizing fuel consumption. This system adapts to changing weather conditions ensuring efficient power production, while the maintenance-free engine drives operational savings.

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