

Hybrid Solar-Battery-Generator Power System

CAPABILITY SHEET · SOLAR FIRST · BATTERY NEXT · GENERATOR LAST · ENGINEERED TO ORDER

THE ONE IDEA

PRINCIPLE	A generator that idles is the most expensive way to make electricity, so the battery does the quiet work and the generator runs late, at a good load, and then stops.
WHY IT MATTERS	At the light load a remote site really draws, a generator burns more fuel for every unit it makes and can foul as unburnt fuel passes to the exhaust.

THE SYSTEM

SOURCES	A solar array on a wind-resistant mounting, a battery bank with battery management and thermal management, and a generator set that is existing or supplied, with automatic start and stop.
ENERGY MANAGER	Applies one rule: solar first, battery next, generator last and only at a good load. It protects the battery from deep discharge, cold charging and overload.
SIZING	Sized for the worst conditions of the site, not the average: cold reduces battery capacity, lithium iron phosphate cells must not be charged below freezing without warming, generators lose output with altitude and heat, and a long overcast spell is when the generator earns its place.
ENCLOSURE & PROTECTION	A weatherproof, dust-proof and transportable enclosure, distribution and protection, earthing and lightning protection, monitoring and remote alarms.

CONFIGURATIONS

RETROFIT UNIT	A battery and an energy manager added to a generator the site already runs, so that it works only at a good load and stops.
HYBRID SYSTEM	The solar array, battery, generator and energy manager engineered as one system in a weatherproof enclosure.
NETWORK OF SITES	Several hybrid sites with remote monitoring, so that alarms, fuel and battery state can be seen from one place.

STANDARDS & SCOPE

STANDARDS	IEC 62548 for photovoltaic arrays, IEC 62109-1 for the safety of inverters and ISO 8528 for generating sets are the public references this class is designed against. Solar modules, battery cells, inverters and the generator are proven catalogue items chosen with the customer.
SCOPE BOUNDARY	This is the solar, battery and generator hybrid, where the generator is kept but used sparingly. It is not a fuel-cell system, not a frequency converter or shore power supply, and not a battery charger for a berthed vessel.
STATUS	Neometrix engineers hybrid solar-battery-generator power systems to order, and no delivered hybrid solar-battery-generator power system is claimed.

DEFENCE PROGRAMMES DESK

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Descriptions define the equipment class Neometrix engineers to order and are not a quotation. Load, site, generator and autonomy are established against the customer's own requirements in a sizing study at design review. ISO 9001 / ISO 14001. © Neometrix Defence Limited.