



Off-Grid
clean. efficient. reliable.

Undisrupted power supply for office containers on construction sites.

The challenge

Construction sites, mines and gravel pits depend on a reliable power supply. As any outage poses an imminent risk to both man and machine, an interruption-free power supply is of paramount importance for safe operation. In many cases, however, the establishment of a grid connection is either economically or technically not feasible. Therefore, solar battery systems or conventional diesel generators are often used to provide power. However, both methods show decisive disadvantages in operation.

Previous solution

Due to changes in weather conditions, security of supply can hardly be guaranteed with a full solar battery solution – even with an oversized system. The space required for solar-only systems is also considerable. For this reason, most operators rely on diesel or gasoline generators as backups. These do not only cause noise and emissions, but are also inefficient and expensive to operate, especially when energy demands are low. Regular maintenance and refueling – up to twice a day – put an additional burden on operators.

Power consumption

Sample calculation to determine the daily energy consumption of an office container in a gravel pit.

	Power [W]	Runtime [h/day]
Work station with PC and monitors	200	10
Dot-matrix printer	5	10
Laser printer	20	10
Switch	180	24
Truck scale (2x)	200	2
Interior lighting	36	24
Camera	50	24
Other (Microwave radio equipment, ...)	100	24
Consumption per day (kWh)		11.4

replacing
diesel generators.
with SIQENS
fuel cells.

The SIQENS solution

The SIQENS Ecoport 800 is based on our patented fuel cell technology. As a fully automatic battery charger it can be easily integrated into off-grid energy systems. Supply gaps from photovoltaic and wind are reliably covered and batteries can be considerably reduced in size.

The hydrogen that is needed for energy generation is obtained from liquid methanol: an energy carrier that is globally available at low cost – regardless of the expansion of the hydrogen infrastructure. You and your customers benefit from a clean, efficient, and reliable system – while making a significant contribution to the reduction of global carbon emissions. In short: a sustainable and economical solution that meets the challenges of the 21st century.

SIQENS

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clean.

Minimizes carbon emissions and eliminates toxic fumes



efficient.

Direct conversion of fuel into electrical energy



reliable.

Energy supply throughout the entire year

SIQENS Ecoport 800 to supply power to an office container in a gravel pit

Daily energy consumption of 11.4 kWh

Components	
PV system	8 kWp
Li-NMC battery	12 kWh
Fuel cell	SIQENS Ecoport 800
Methanol supply	4 x SIQENS QE Charge 100 l (168 kWh)
Energy generation [per year]	
PV system	8,436 kWh
Fuel cell	695 kWh
SIQENS Ecoport 800 [per year]	
Methanol consumption	424 l

Comparison with a conventional diesel-battery hybrid system:

>88%

Lower fuel consumption reduces operating cost

>93%

reduced carbon emissions while eliminating noise, particulates, and NO_x

The SIQENS Ecoport 800 supplies batteries silently and automatically with power without releasing toxic and odorous exhaust gases such as particulates or nitrogen oxides. Switch-on conditions can be configured individually allowing other sources of energy such as solar panels to be given priority.



Installation in a gravel pit in Southern Germany. In the energy system, a combination of fuel cell, PV, and battery reliably supplies energy for an office container – offering an environmentally friendly off-grid power supply.

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