

VIGOS

THE OUTDOOR POWER STORAGE



VIGOS – The Outdoor Power Storage

The first all-weather battery

Vigos is a weather-resistant outdoor storage system. The storage system is designed for outdoor installation and can handle rain, snow, heat and frost. **Vigos offers versatile and intelligent support for your energy applications.** Thus you can add storage capacity to your grid connection, without the necessity or expense of a bigger power line. Peak shaving (also referred to as capping) is simple and easy on your wallet. Thanks to the latest technology and high intelligence of the Vigos system, you can continue to use your PV power generation even in the event of grid failure. Thanks to black start capability, PV generation automatically starts when the sun comes up in the morning – each and every day – even if provision from the energy supplier fails for several days. If you want to live completely off-grid, with Vigos and with a CHP system or an emergency power generator you can completely disconnect from the grid. Thanks to the high cycle stability and high performance of the system, you can run several full cycles a day, this ensures high cost-efficiency.

The electric charging infrastructure of different manufacturers is integrated as a standard function in the dynamic load management. Major charging point management projects are implemented in specific form. Are you running a business model that involves several generators, power storage systems and consumers? Vigos offers the platform that gives you an overview anytime and anywhere.

Vigos is the ideal power storage system for agricultural applications with a high power requirement, commercial enterprises, council housing, restaurants and hotels. Its unique features make it a reliable power storage system for critical public infrastructure, such as telecommunications and IT or water and sewerage companies. If there is a blackout, you continue to generate and distribute your power with no problems. This also applies for charging stations, petrol/diesel stations and commercial buildings.

With the Vigos outdoor power storage you have a high-quality power storage system, with which you can shape the energy transition cost-effectively and with confidence for the future!



ADVANTAGES

- ✓ Protection class IP45
- ✓ Ready-to-connect complete system with Carbocap Technology
- ✓ Grid-parallel operation, emergency power, island operation and black start capability
- ✓ High charging and discharging capacity
- ✓ Up to 20,000 cycles
- ✓ Temperature range from -30 °C to +50 °C (direct sunlight exposure possible with an optional climate system)
- ✓ 10-year warranty
- ✓ Non-flammable*
- ✓ Non-explosive*
- ✓ Sustainable

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At a glance

- ✓ All-weather storage system
- ✓ 20,000 cycles
- ✓ Grid-parallel operation, island operation and black start capability
- ✓ High power

The storage system for indoor and outdoor applications with intelligent sector coupling:

- ✓ Peak shaving (capping)
- ✓ Dynamic load management
- ✓ Integration & pooling of storage systems, generators & charging stations

Carbocap Technology

A strong technology

The term, Carbocap Technology, describes the CO₂ reduction by the storage system. The advantages cited above make the technology particularly sustainable due to its long service life. CO₂ emission (informally carbon) is capped, hence the name Carbocap Technology.

FEATURES

- ✓ Safe:
 - non-combustible*
 - non-flammable*
- ✓ Sustainable
- ✓ Wide temperature range (-30 °C to +50° C)
- ✓ High C-rate
- ✓ Cycle stability – multiple cycles a day are also possible
- ✓ 20,000 cycles

*) In accordance with UL-1973

Safety

In a Carbocap storage system the lithium ions cannot react with the electrode, even in the event of mechanical damage – this means that thermal runaway is not possible. Carbocap is a safe technology, which is neither combustible nor flammable.

Storage technologies compared

	Carbocap Technology	Lithium-ion battery	Salt water battery	Lead-acid battery
System service life	●	●	●	◐
Maintenance-free	●	●	●	◐
Partial charge state	●	●	●	○
Temperature range	●	◐	◐	○
Safety	●	◐	●	◐
Sustainability	◐	◐	●	○
Recyclability	○	○	●	◐
Energy density	●	●	◐	◐
Capacity	●	●	◐	◐
Through-life costs	●	◐	◐	○

Legend: ● Very good ◐ Medium ○ Low

System sizes

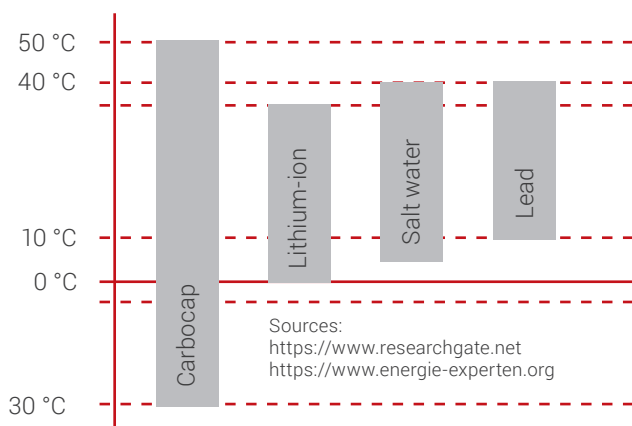
A lot of power in a little space

VIGOS battery cabinets	Capacity kWh	Max. power kW
1	18	24
1	24	24
2	36	48
2	42	48
2	48	48
3	66	48
3	72	48
4	84	48
4	96	48

Design with battery module L, R or on both sides possible. DC coupling of photovoltaic systems up to ~ 45 kWp possible.

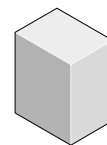


Wide temperature range

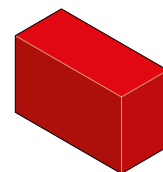


Dimensions

Battery module:
width x depth x height
800 x 860 x 1600 mm



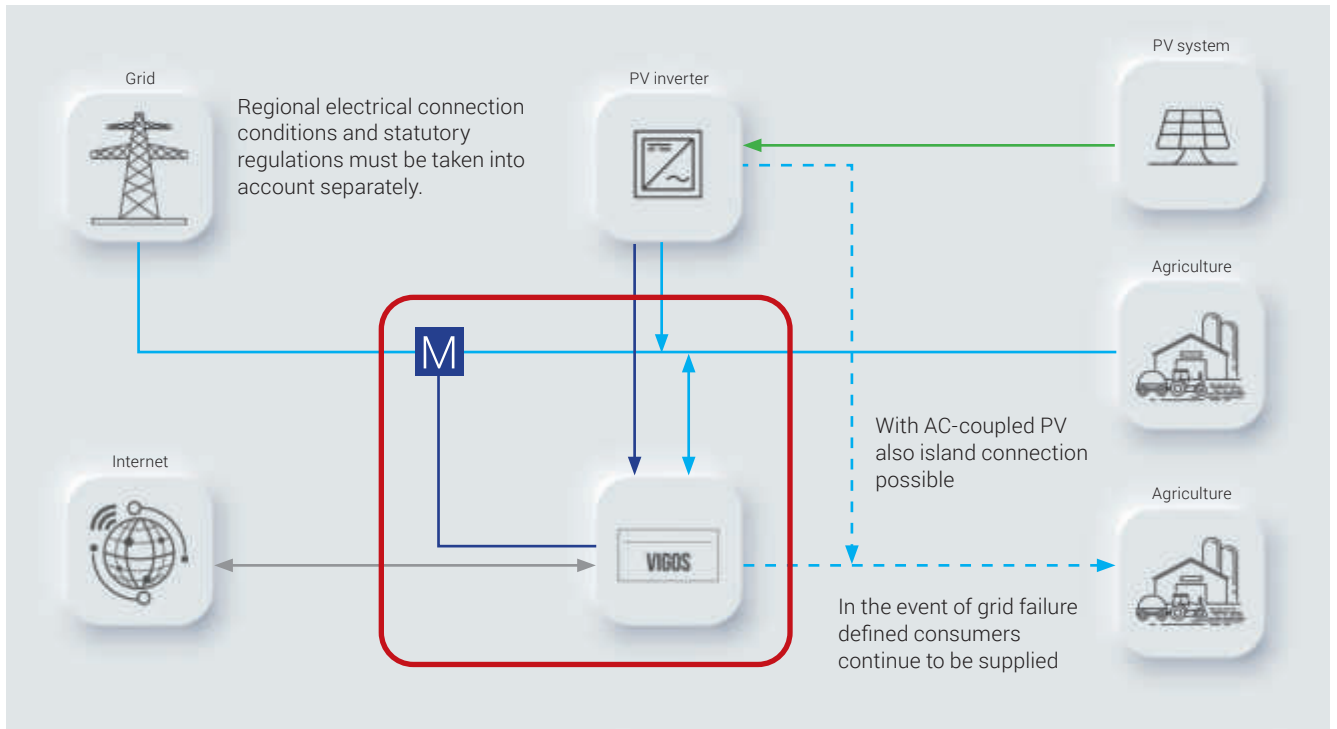
Power cabinet:
width x depth x height
1660 x 860 x 1600 mm



Schematic diagrams

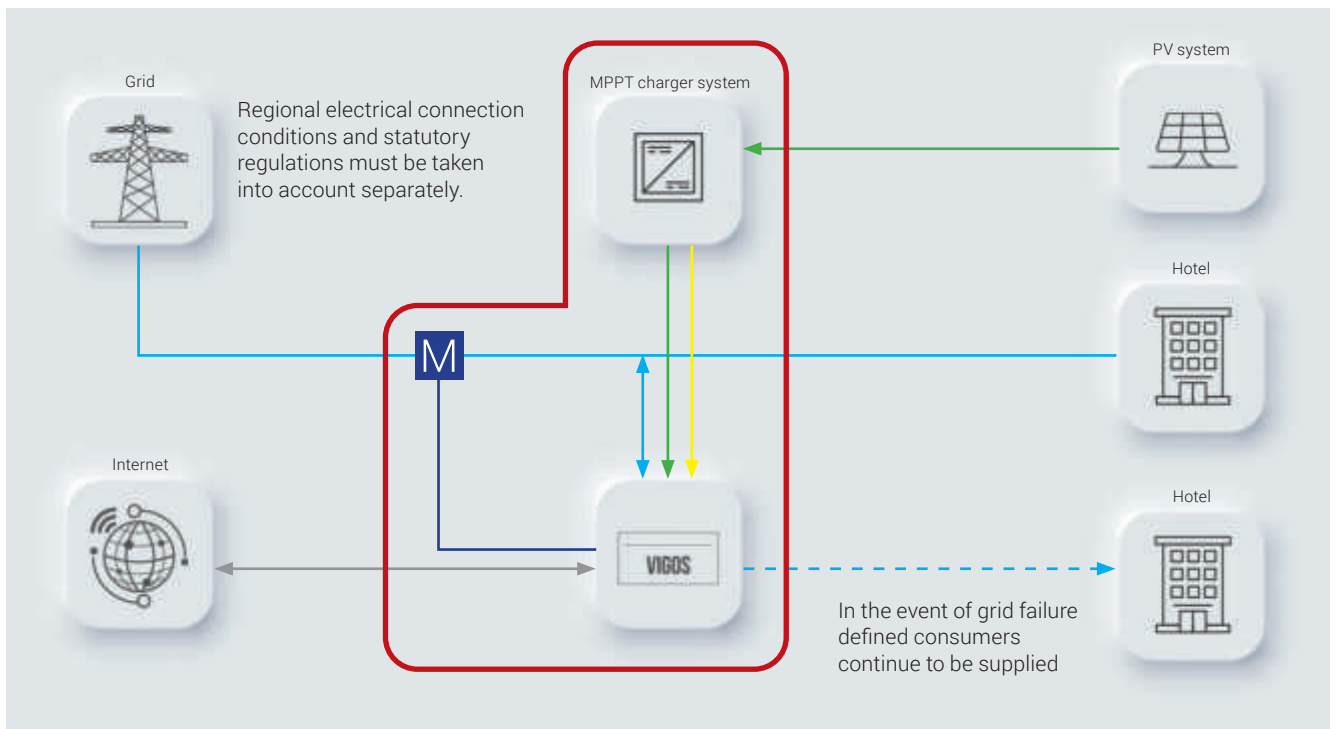
System circuit diagrams

Connection options: AC-coupled self-consumption optimisation



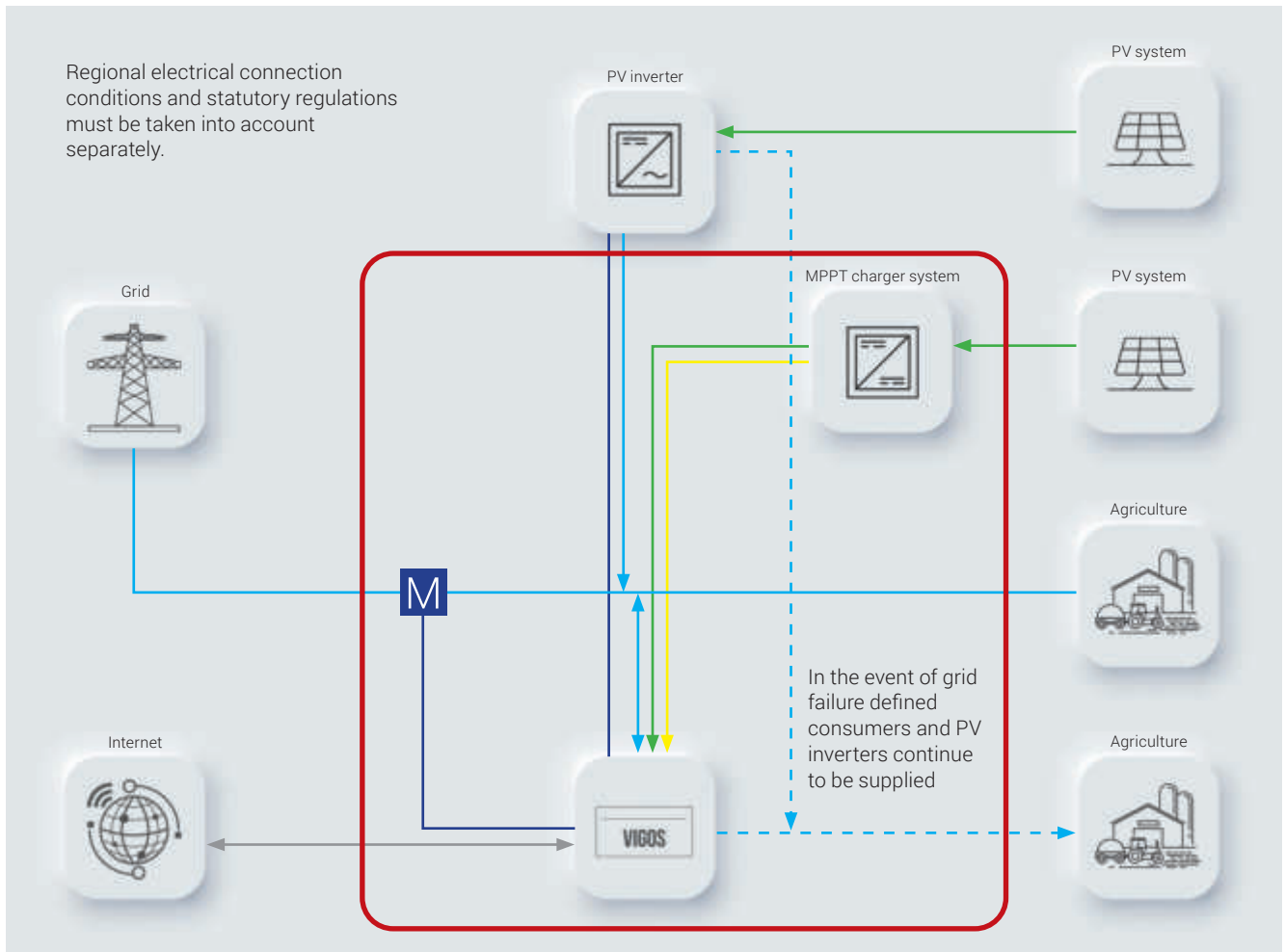
— AC — DC — RS485 **M** Measurement — www — VIGOS scope of delivery

Connection options: DC-coupled self-consumption optimisation



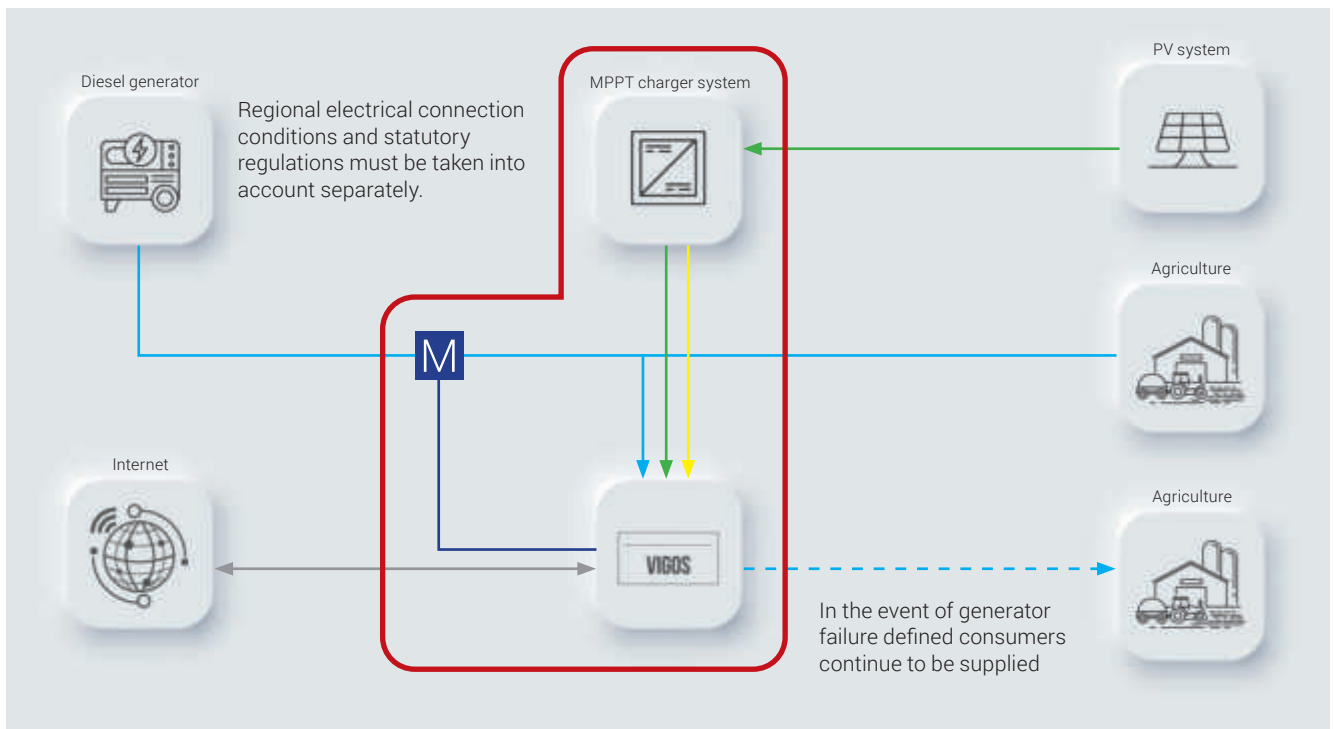
— AC — DC — USB — RS485 **M** Measurement — www — VIGOS scope of delivery

Connection options: AC + DC coupled self-consumption optimisation



— AC — DC — USB — RS485 **M** Measurement — www — VIGOS scope of delivery

Connection options: DC-coupled island function with generator



— AC — DC — USB — RS485 **M** Measurement — www — VIGOS scope of delivery



A small footprint for a lot of applications

The storage system is designed and manufactured for indoor and outdoor use. It is weather-resistant and can handle heat, cold or rain.

With its high C-rate it is ideally suited for shaving (capping) peak loads. The storage system offers enough power when capacity is limited.

Even multiple e-vehicles can be charged simultaneously with dynamic charging point management. Thus your renewable energies have more to offer.

Self-consumption optimisation

Even with smaller PV systems or wind turbines you can achieve high profitability, because they can use several cycles a day. Variable consumers for sector coupling, such as heating elements for hot water generation or heat pumps, are activated if self-generated excess power is available. E-charging stations can also be easily integrated into the energy concept.



Peak shaving

Peak shaving extends and optimises your grid connected load. So-called peak loads occur if you consume more power in your operation at certain times than usual within the daily profile. It is difficult for the grid operator to assess when peak loads occur. For this reason the entire energy capacity must be kept available. This is expensive. As an entrepreneur you will pay a provision tariff for the required grid connected load. The more power you need, the higher your connection fees.

Typical examples of businesses with peak loads are:

Hotels: when the kitchen starts operation and the spa area is still open

Agriculture: when milking and feeding equipment is operated

Manufacturing companies: when the machines are run-up at start of shift

Use your storage system to cover provision requirements precisely for such situations.

You can choose a smaller grid connection and cover short-term peak loads via the storage system.

In remote areas the connection capacity of grid providers is often limited. Higher connected loads cannot be implemented, or can only be implemented with grid expansion of the entire area and the corresponding costs. Here as well, a Vigos storage system is the solution for increasing energy consumption.

E-charging stations

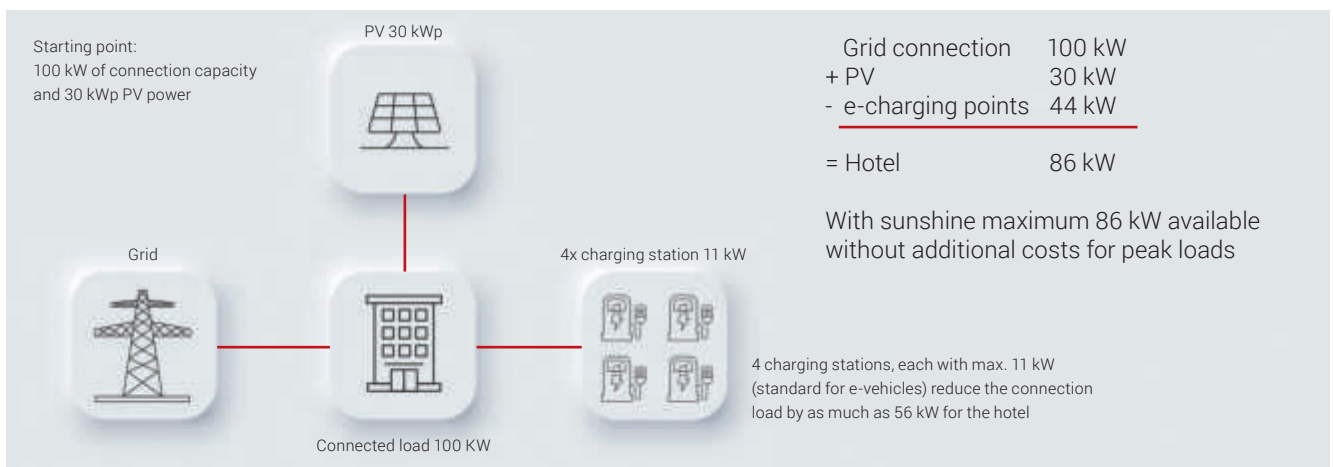
With dynamic load management/charging management

Load management controls and regulates e-charging stations. The maximum available power can be used. Measurements enable rapid distribution of the available energies. Multiple and also dynamic control points can be simultaneously controlled. Thus a greater number of charging points can be integrated into the load management. Load management is manufacturer-independent. Monitor the entire charging infrastructure and its energy flows. Charging processes can also be prioritised, e.g. with a chip card the system knows which e-vehicle must be charged and when.

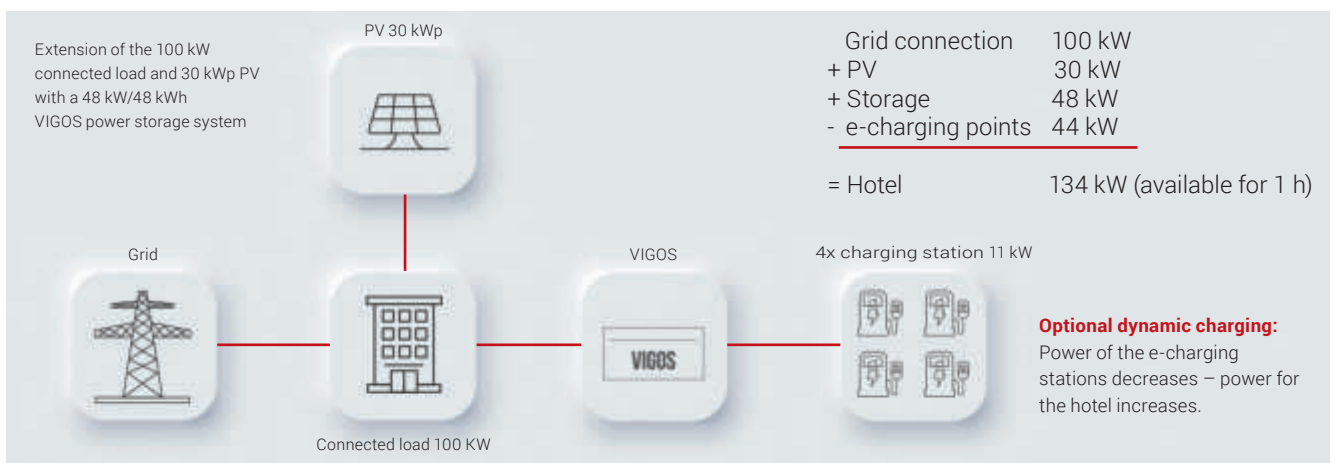
Advantages:

- ✓ Simultaneous charging of multiple electric vehicles is controlled "dynamically and continuously".
- ✓ With dynamic charging point management the capacity of the individual charging systems in the connected electric vehicles is continuously and variably regulated/reduced until the maximum available reference power on the grid connection point has been reached.
- ✓ Additional peak loads on the customer connection are prevented and energy costs (according to the power price) are avoided for the customer
- ✓ Intelligent integration of distributed power generation from PV, wind and CHP within the charging infrastructure, offloads the power grid and saves costs (price differential between feed-in tariff and consumption tariff)

Comparison: e-charging station **without** dynamic load management from Vigos



E-charging station **with** dynamic load management by Vigos



Off-grid

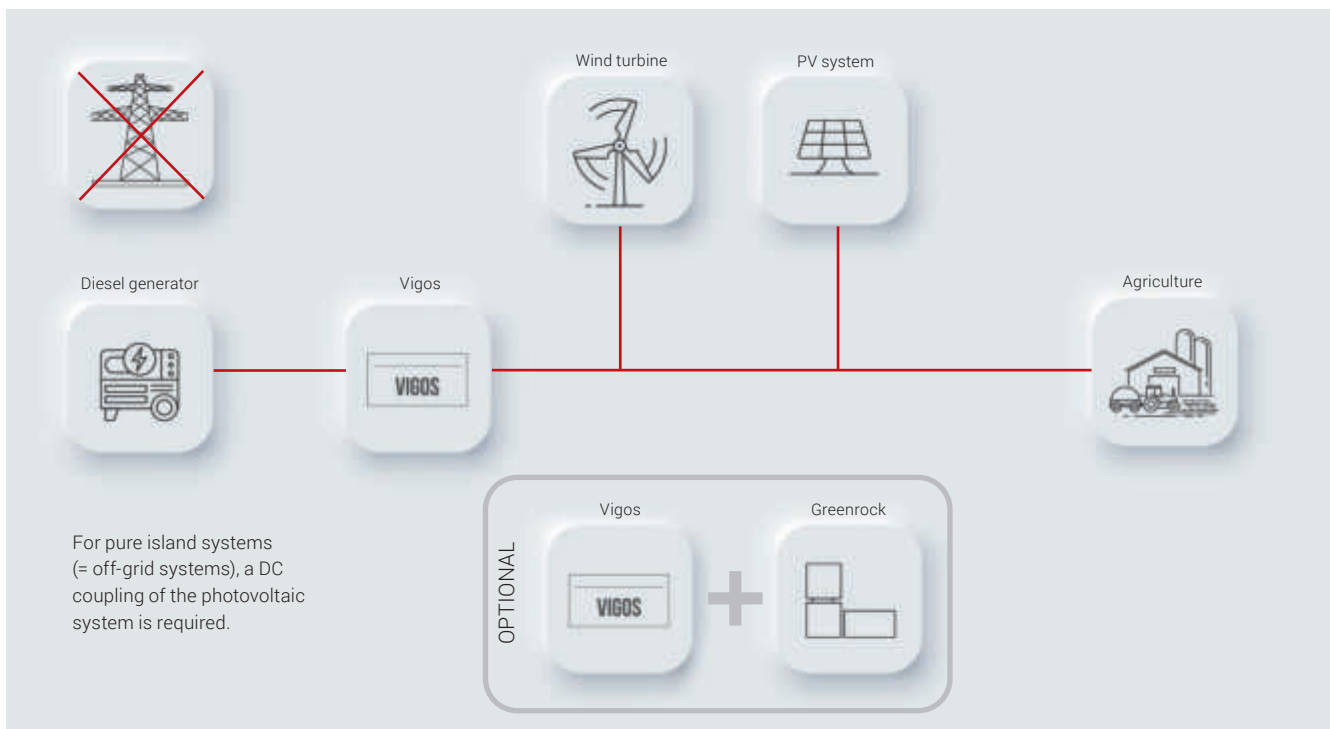
Away from existing infrastructure

Without grid connection: away from existing infrastructure and grid connection possibilities, an off-grid storage system offers extensive options.

The powerful Vigos system can also be supplemented with a GREENROCK saltwater battery system. This means that your portfolio is covered for long-term loads, continuous loads and peak loads. With its high thermal load capacity, high cycle stability and power, Vigos offers the ideal conditions for off-grid applications.

Integration of different energy sources:

- ✓ Photovoltaic
- ✓ Wind turbine
- ✓ CHP
- ✓ Diesel generator



Reactive power

Active power kW

Apparent power kVA

For start-up of machines and equipment, in addition to active power, the reactive power must also be reserved. Like the effect of a beautiful head of foam on a beer, in the field of electrical engineering it is also necessary to consider apparent power for a functional interaction.



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Contact:

Stamp / business card

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