

INNOVATION



# hNEA

hybrid emergency power system

intelligent. reduced CO<sub>2</sub> emissions. quiet.

# Hybrid emergency power system hNEA

With the innovative new development of the hNEA, Jost AG Energietechnik is making a key contribution to reducing CO<sub>2</sub> emissions and thus to handling our resources responsibly.

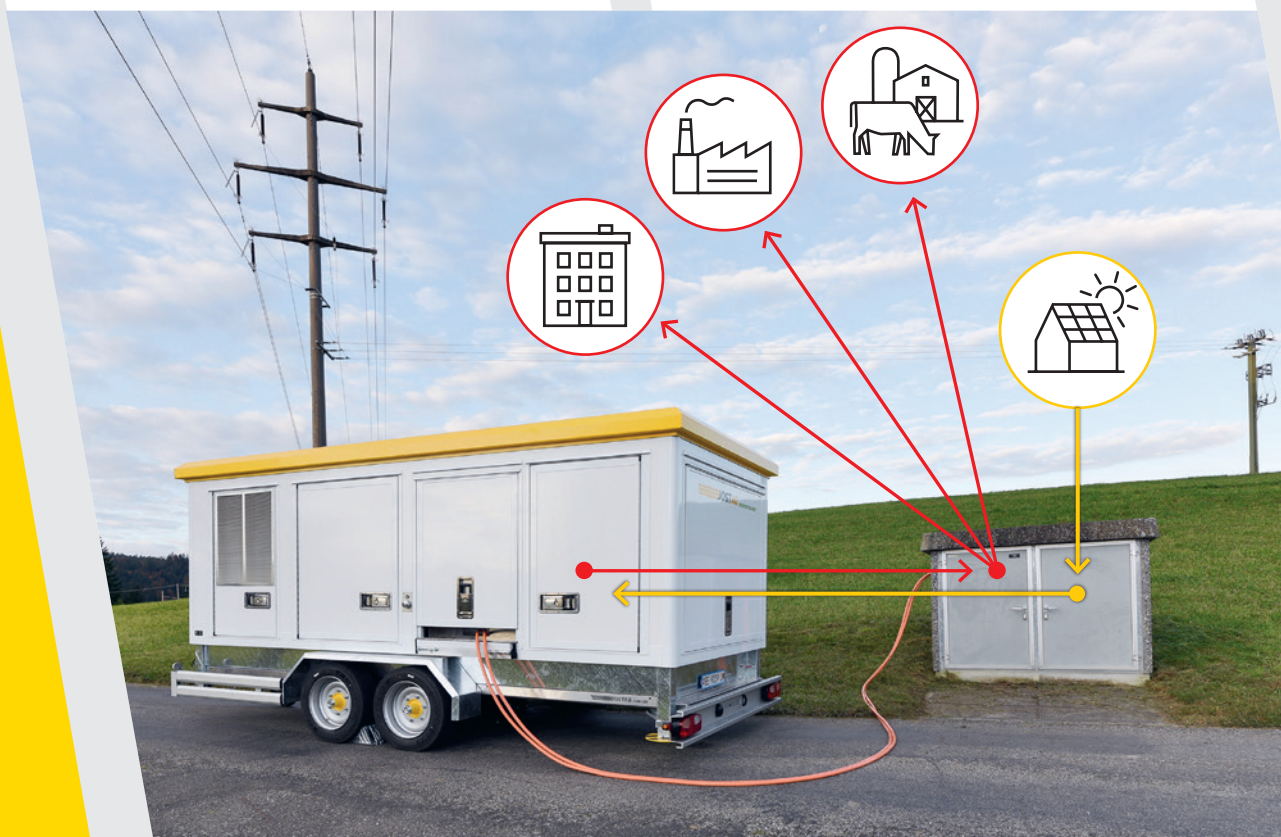
## Reinventing the emergency power system

Emergency power systems are indispensable when it comes to maintenance work on the power grid or the power supply of construction sites, hospitals, data centres and much more. While conventional systems often run under partial load, diesel engines are constantly in operation, causing continuous noise, consuming a lot of diesel and producing CO<sub>2</sub> emissions.

Jost AG Energietechnik partnered with BKW Energie AG and others to develop an entirely new kind of hybrid emergency power system.

## How the hNEA works

The hNEA consists of a diesel engine with generator, a battery storage system, two inverters and a transformer. The electricity generated by the diesel engine and generator is stored in the battery. When the battery is full, the diesel engine is switched off and the battery power is fed into the grid. The diesel engine only starts up again when the battery charge level falls below a defined value. However, the battery can also be recharged using surplus energy from the connected energy generation plants, enabling this energy to be used in a way that makes sense both economically and environmentally. The hNEA is ideal for use in rural areas with short peak load phases or for use on construction sites.



« With the development of the hNEA, Jost AG has succeeded in making our dream of an efficient, eco-friendly and profitable solution for reliably providing our customers with electrical energy a reality. »



Adrian Bachmann, Head of Emmental Region

## Advantages for you \*

### 80% diesel savings

- Thanks to the buffer battery, a much smaller engine is needed.
- The engine runs exclusively in the optimal torque range and needs about one hour for one battery charging cycle, resulting in much fewer operating hours.
- If the electricity produced by decentralised inputs exceeds consumption in the hNEA island grid, the battery is charged.
- If required, the battery can be precharged with green electricity in the factory yard.

### Significant CO<sub>2</sub> reduction

- 80% less CO<sub>2</sub>, i.e. a reduction of 75.5 t CO<sub>2</sub> per year and per hNEA.
- Additional income can be generated using CO<sub>2</sub> certificates.

### Electricity feed-in from photovoltaic and other energy generation plants

- Higher customer satisfaction as the hNEA allows for the continuous, uninterrupted operation of decentralised energy generation plants.
- The electricity produced is fed into the hNEA and can be used in a profitable and economically viable way.

### Vast savings of other operating costs

- 60% fewer operating hours and the use of a smaller engine vastly reduce maintenance costs.
- For short-term operations, the diesel engine no longer needs to be used, with the battery being charged using green electricity in the factory yard instead.
- The quiet and continuous operation of the hNEA replaces the previous, labour-intensive switching processes of the diesel engine and the grids.

### Massive reduction in noise pollution

- With 60% fewer operating hours, there is a massive reduction in noise pollution.
- The use of a smaller and quieter engine additionally reduces noise pollution.
- The hNEA is also equipped with an effective noise protection system.
- Thanks to the battery, the grid can be fed during the night without using the engine.

### High economic efficiency

- Payback of additional investment (energy buffering system/battery) after 4.5 years.
- Payback of entire hNEA after approx. 7 years.
- Significant net profit after 10 years (after payback of system plus interest!).

\* The calculations are based on a real-life example with 1200 operating hours per year. The economic efficiency calculation is only based on the savings. Profits from the sale of produced energy have not been taken into account.



Battery storage

Control unit

Diesel engine



## Successful development partnership with BKW Energie AG

A new development usually starts with a vision – in this case, a carbon-neutral energy industry. Partners are then needed to help develop new solutions to make the vision a reality.

BKW Energie AG was looking for a new solution for its emergency power systems with as few CO<sub>2</sub> emissions as possible. JOST AG Energietechnik rose to the challenge and worked closely with BKW, the Berne University of Applied Sciences and other partners to develop an innovative, hybrid emergency power system with over 80% fewer CO<sub>2</sub> emissions and the ability to supply BKW customers quietly and reliably with electrical energy.

*« With Jost AG Energietechnik, we have found a company that is actively supporting us on our journey to becoming a carbon-free energy industry. I am truly impressed by the technological expertise and passion shown for our joint project. »*

Daniel Brand, Head of Grid BKW Energie AG

### **JOST AG**

Obermattweg 25, CH-3550 Langnau i.E.

Tel. +41 (0)34 409 55 55

info@jostag.ch, www.jostag.ch

Development cooperation with

**INDRIVETEC**  
Innovative Drive Technologies AG

 **SUNCAR**