CASE STUDY

1 | Challenge : **100% green battery charging with photovoltaics**

A logistics service provider turned to its long-time battery supplier HOPPECKE to jointly find a solution for using its own electricity for its forklift batteries. The aim was to achieve more sustainable energy consumption.

The market volume of global green logistics was approximately USD 1.04 billion in 2021 and is expected to grow to USD 1.5 billion by 2028. Green logistics describes procedures and processes that keep the CO_2 footprint of companies as low as possible. This includes, for example, sustainable packaging and transport methods. But it is precisely in the electrification of forklifts that significant savings can still be made to promote the sustainability of logistics processes.

The customer's goal was exactly that: sustainable energy consumption by means of self-generated electricity from existing photovoltaic systems. Previously only sold to the grid, it was now to be consumed by the company itself - primarily for charging the forklift batteries. All components used had to be state of the art in order to minimise the total electricity consumption. This also included the modern trak | charger HF premium chargers. Another challenge: the forklift trucks are used by the service provider for transport and loading all day long, so they cannot be left standing for long to be charged.

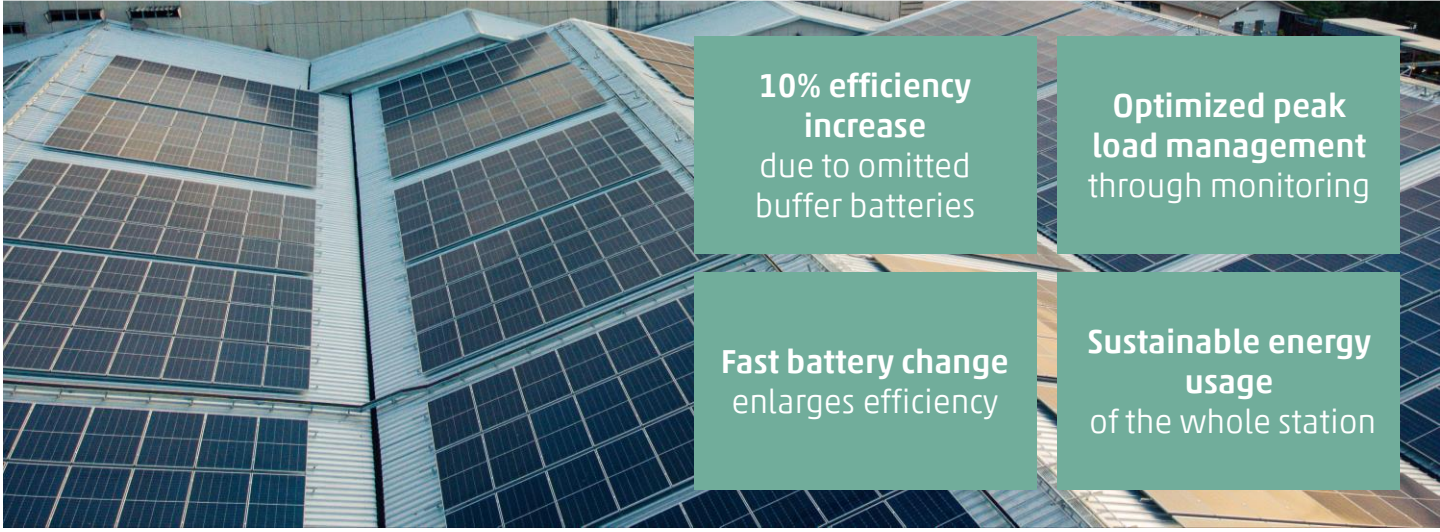
Since HOPPECKE has also been paying attention to environmentally friendly production and sustainable as well as recyclable products for many years, cooperation was ideal for both sides.

Reduction of CO_2 footprint wanted

Self-consumption of the self-generated photovoltaic electricity

Brand-new technology reduces energy consumption

Permanent use of the forklift fleet



2 | Solution : **Own power with alternating batteries**

With the planned PV yield of around 650,000 kWh/a, additional exchangeable batteries were installed as storage for all 16 of the customer's e-stackers with altogether 600 kWh. The entire system was controlled via monitoring.

After analysing the circumstances, HOPPECKE developed an optimal solution for the customer. The PV planning and yield figures had provided a clear framework within which all the forklifts in the fleet were to be charged with PV electricity. As the charging process must be as fast as possible in order not to unnecessarily prolong the downtime of the forklifts, HOPPECKE installed a charging and changing station equipped with trak | charger HF premium chargers, in which the exchange batteries are charged with the sunlight of the whole day. The rather simple battery change is carried out by moving the batteries out sideways with an electric ant.

Monitoring of the entire system is handled by the intelligent battery controller trak | collect and the control system trak | monitor 4.0.
The controller sends real-time data about the battery's state of charge to the monitoring system via Bluetooth. This provides a constant online overview of the current status of all components without having to station service personnel on site. This greatly simplifies the monitoring and control of all technologies used. Through the early detection of malfunctions or damage, these can be remedied in time and operations can continue largely without disruptions.

The electricity storage solution used in the logistics centre has the advantage that the electricity can be used directly for the drive batteries without intermediate storage. This eliminated the need for otherwise common buffer batteries, which led to an increase in efficiency of 10%. The monitoring also resulted in a minimal power requirement for charging as well as a significantly reduced water consumption. The customer's requirements were fully met and a highly efficient system with its own power supply was put into operation.

Key Benefits

- No downtimes due to exchangeable batteries
- Space-saving installation of the chargers on the hall wall
- Charging of all forklifts with own PV power possible
- Minimal power and water consumption due to monitoring
- No intermediate storage of electricity and thus no buffer batteries necessary

3 | Products :

- **Batteries:** **trak** | uplift air
- **Chargers:** **trak** | charger HF premium
- **Monitoring:** **trak** | collect, **trak** | monitor 4.0

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