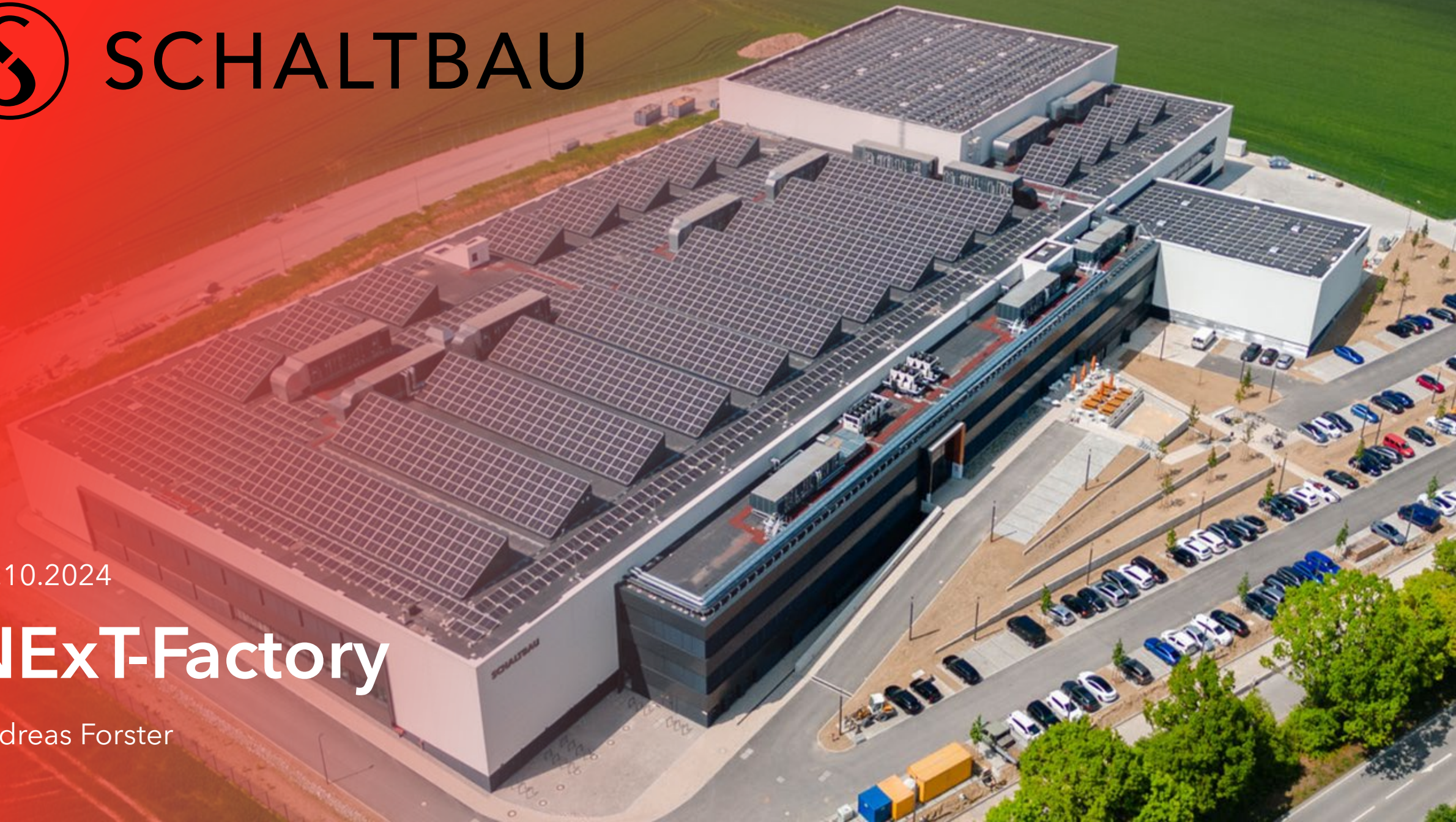




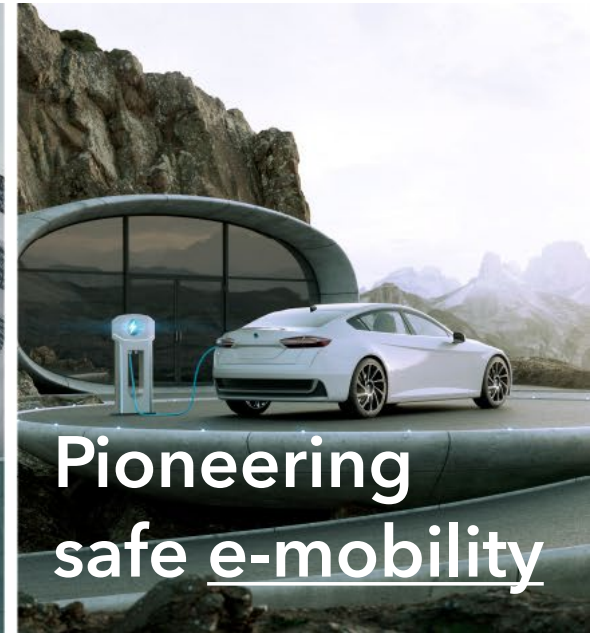
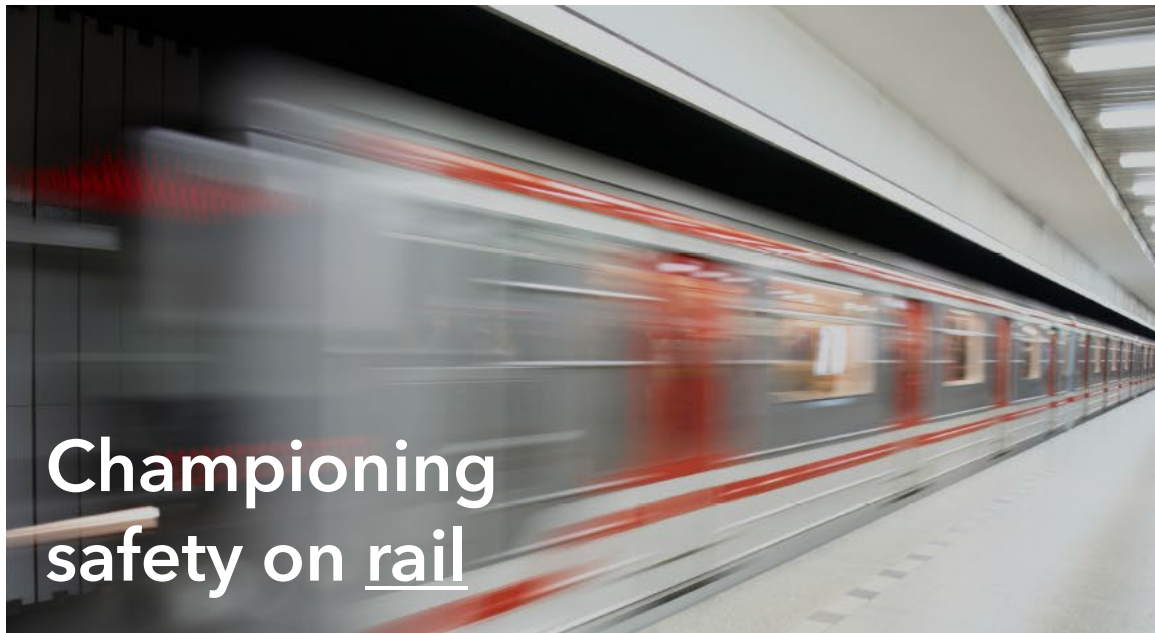
24.10.2024

NExT-Factory

Andreas Forster



Schaltbau is a global industry leader specializing in DC power and providing products and solutions that enable electrification



Our portfolio of contactors, connectors, switches, and further electrics that sets the benchmark for safety and efficiency

Contactors

Our contactors play a crucial role in rail, energy, and e-mobility as they seamlessly control power distribution, enable smooth acceleration, deceleration, and support an efficient energy utilization.



Connectors

Our connectors are designed to ensure reliable transmission of energy and signals – coping with high voltages, harsh environments and the rough conditions of rail, energy, and e-mobility applications.



Snap action switches

Snap action switches quickly change from one state to another. This distinctive characteristic makes them ideal for safety applications in rail, energy, and e-mobility.



Electrics for rolling stock

From footrest over display until fully equipped driver desks: In rail we also have a broad portfolio of electric devices ensuring both ergonomics and safety.



To reach CO2 neutrality new requirements to energy supply arise

- **Growing energy requirements**
 - High degree of automation and digitalization
 - Continuous resilient energy supply
- **Integration of renewable energies**
 - Local production and consumed energy
 - Reduction of energy sources
- **Increasing efficiency through direct current grids**
 - Direct utilisation of renewable energies
 - Reduced conversion losses
 - Simplified integration of storage systems
- **Efficient energy management**
 - Optimised use and distribution of renewable energies
 - Maximisation of local grid stability



NExT Factory

Energy in figures

2.500.000

kWh

Energy consumption p.a.



1.570.000

kWh

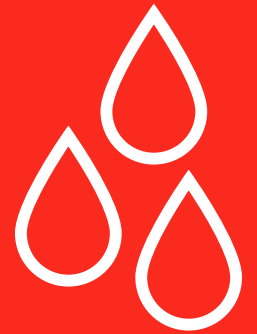
PV energy generated
p.a.



1.400.000

Litres of water

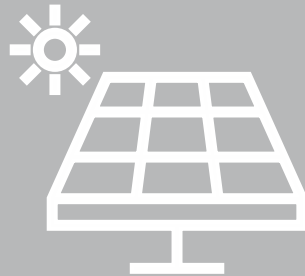
Thermal
Storage medium



3.247

Piece

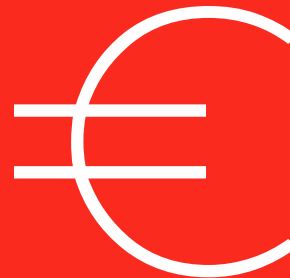
PV modules
Roof occupancy



35

Per cent

And more...
Savings compared to
fossil heat
production

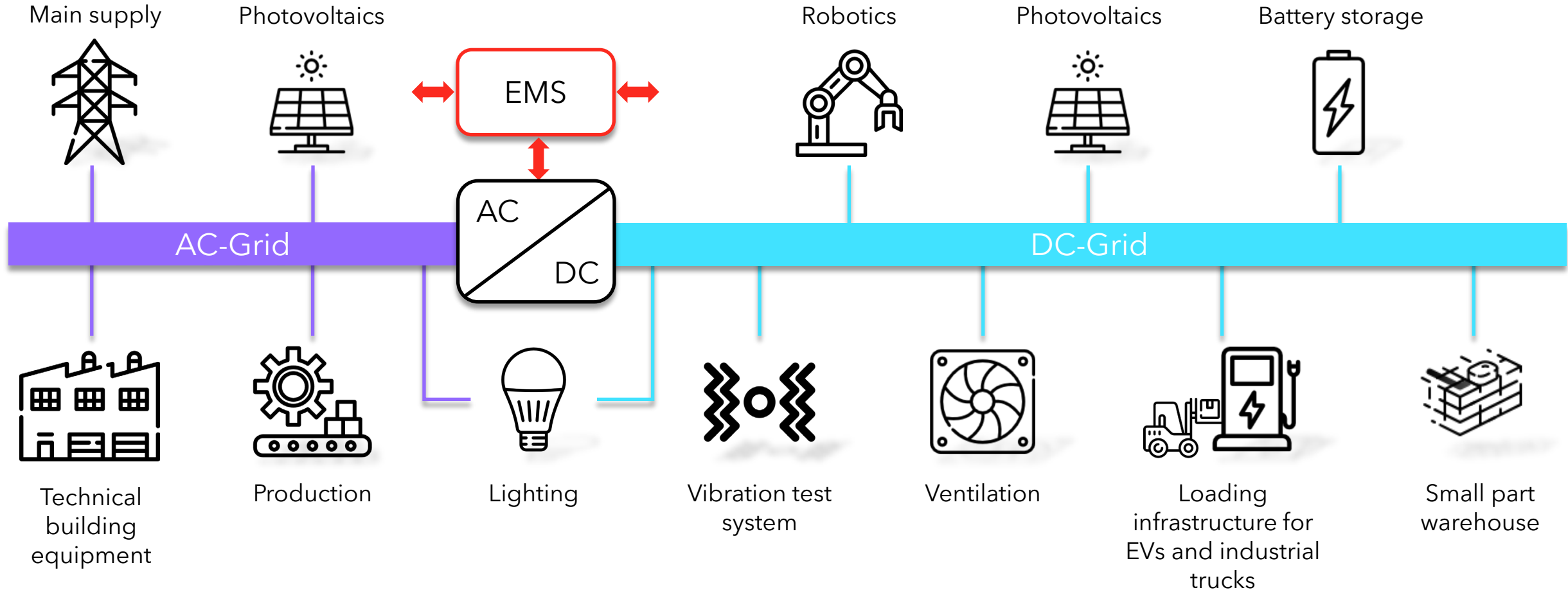


1.

Direct current network
Worldwide in
productive environment

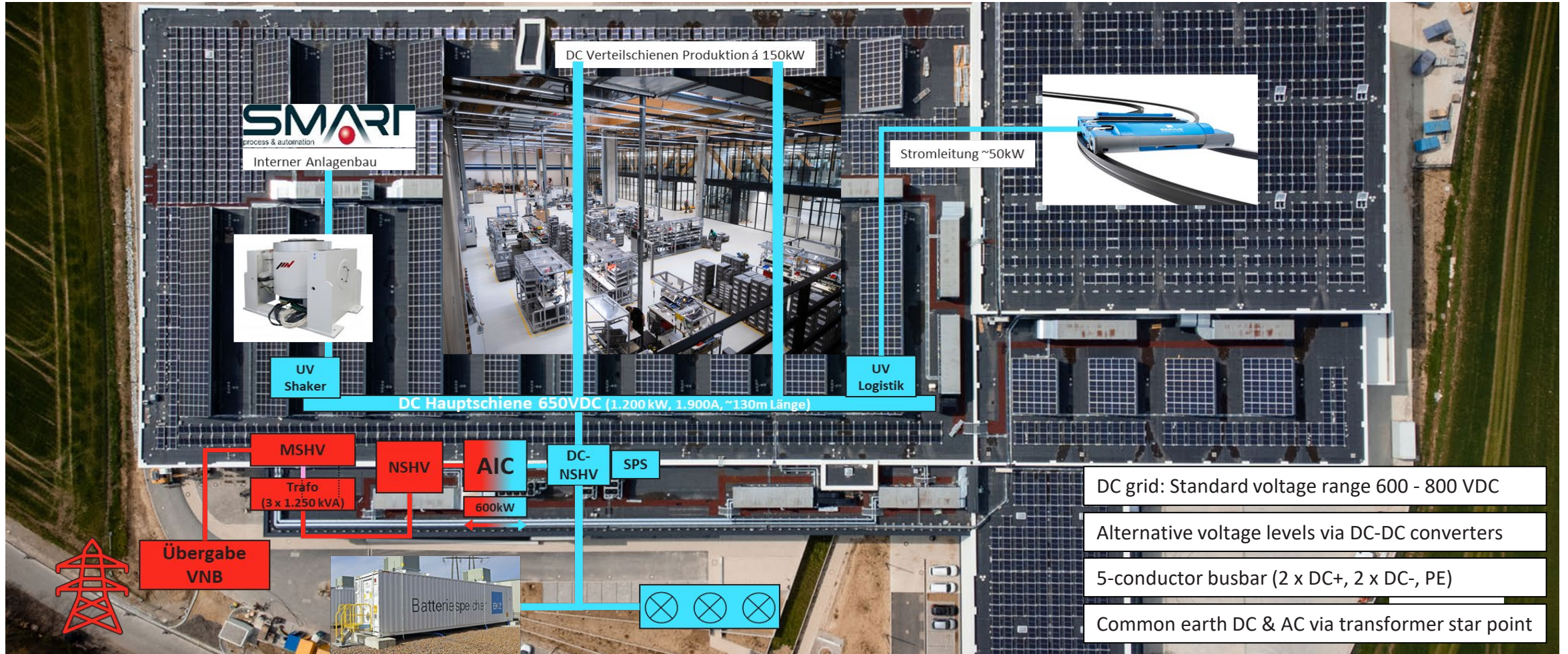


NExT Factory | DC microgrid in a productive environment



Construction & energy infrastructure

Two worlds united...



NExT Energy management system

+15%

Energy efficiency

Through continuous monitoring of energy consumption and data analysis, optimisation potential is identified in order to reduce energy consumption and use resources more efficiently.

-30%

Peak load

By analysing load profiles, energy consumption patterns are identified and suitable measures such as load shifting or load control are implemented to reduce peak loads

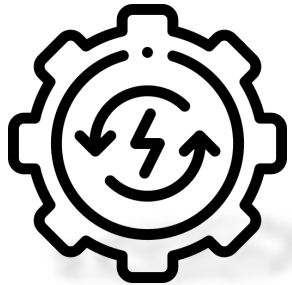
-35%

Energy costs

Strategic measures to reduce energy expenditure will be implemented by optimising self-consumption, increasing energy efficiency and reducing peak loads

NExT energy management system

Properties



Generation, storage, consumers

Control of energy
sources, storage
systems and consumers



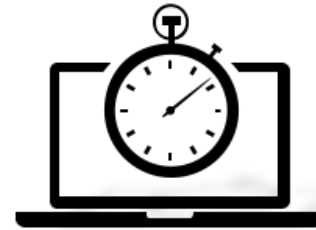
Technical building equipment

Control of the entire
technical building
equipment



AC/DC

Support for AC and DC
networks



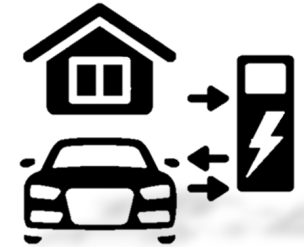
Real-time data

Monitoring the DC grid
quality using real-time
data acquisition



Digital Twin

Selection of optimum
operating points
through simulation
(Digital Twin)



V2G

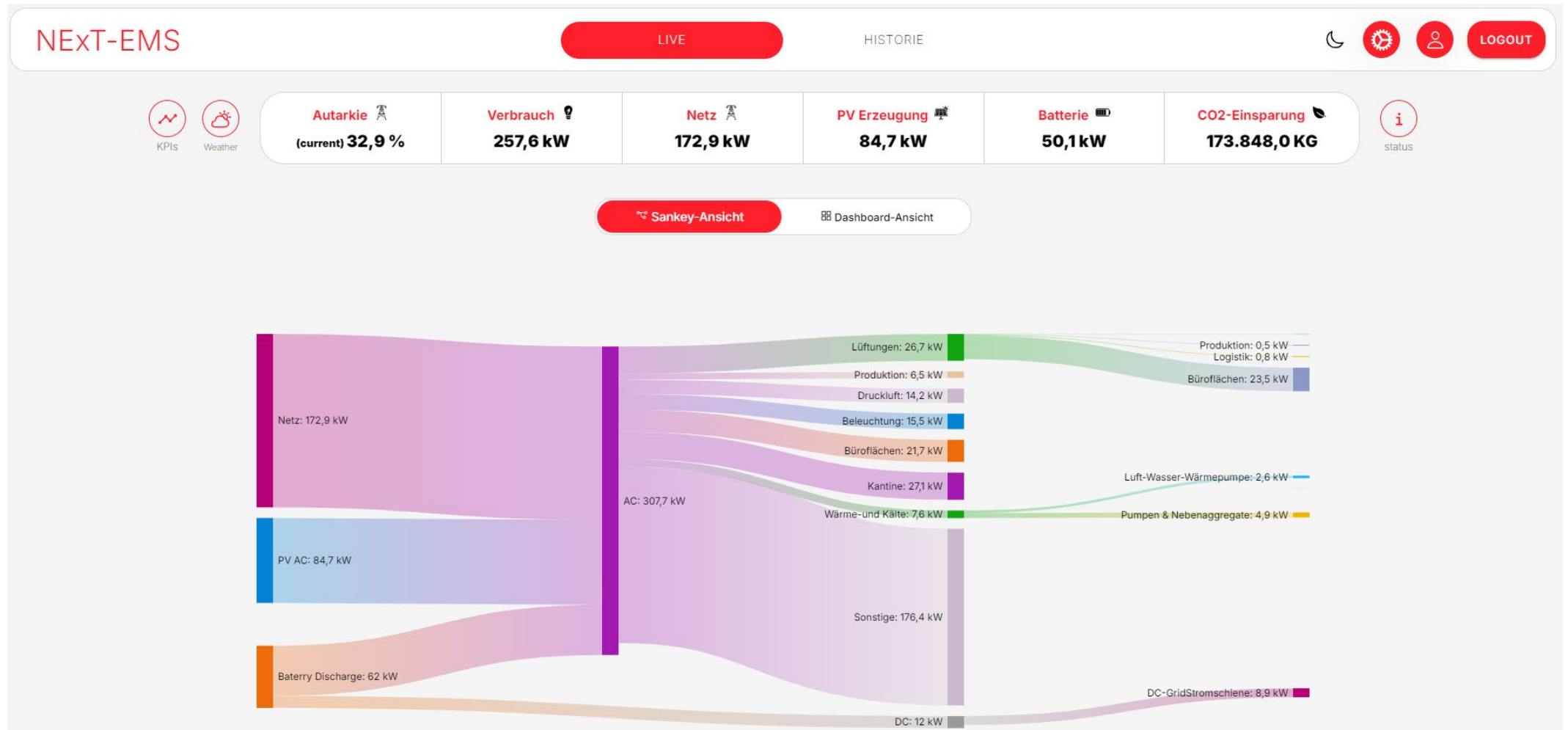
Implementation of
industrial trucks in the
DC grid (V2G)



Control by means of machine learning methods

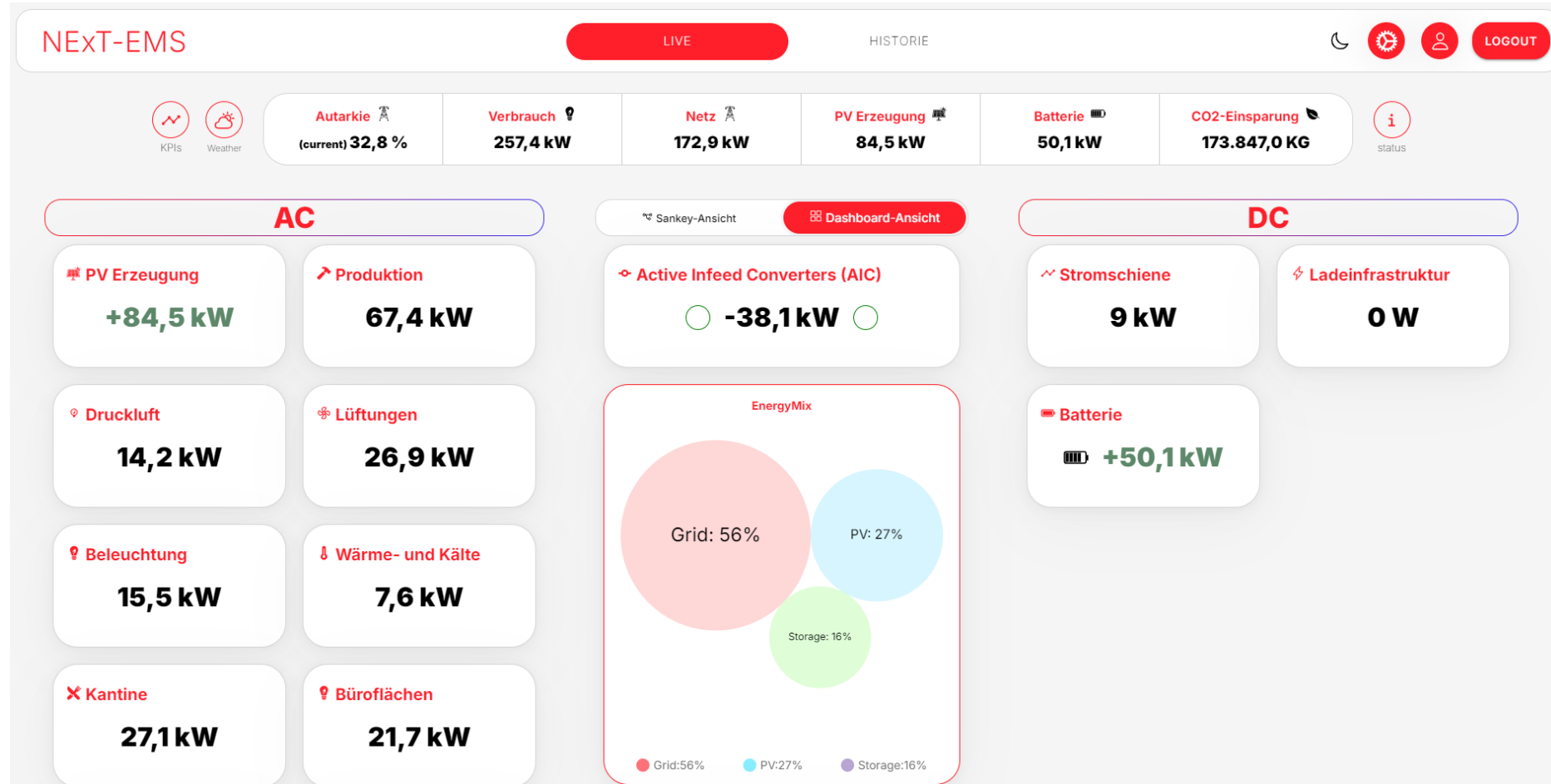
NExT-Energiemanagementsystem (NExT-EMS)

User-Interface (UI)



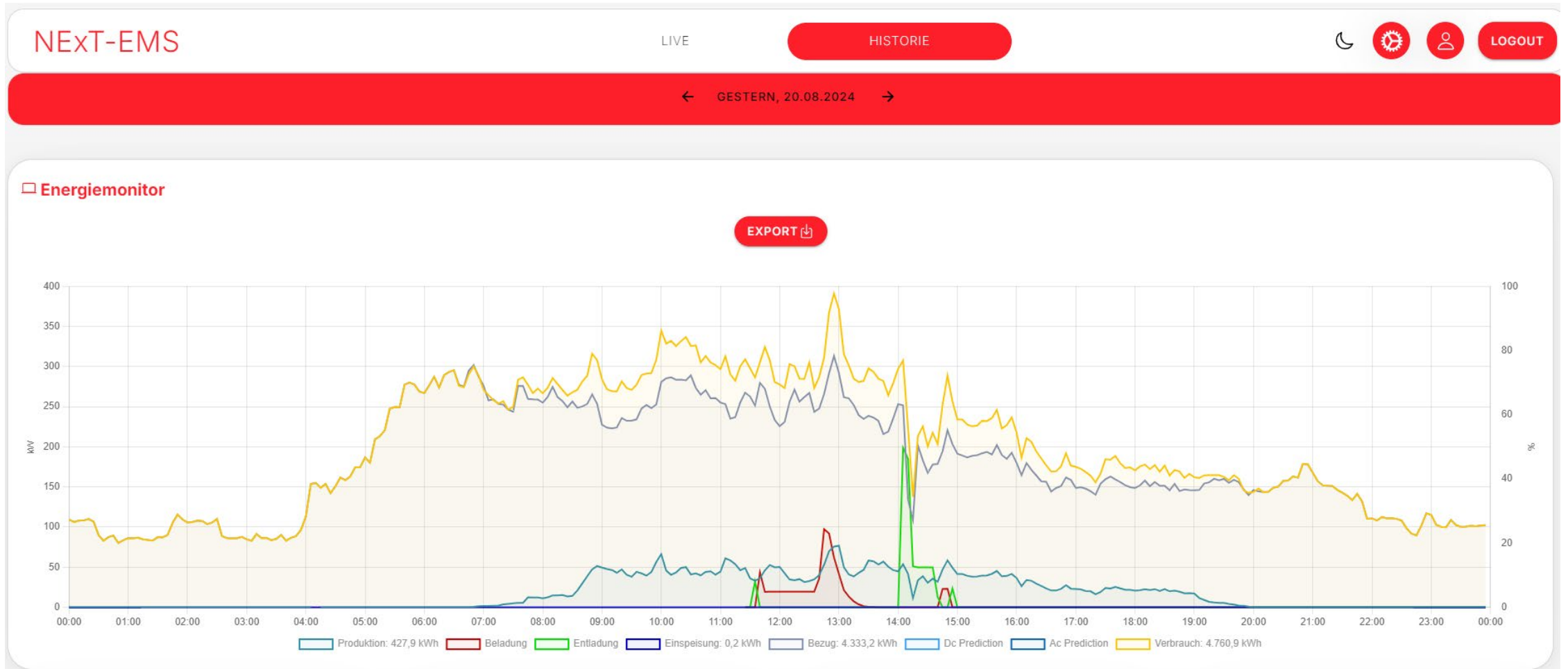
NExT-Energiemanagementsystem (NExT-EMS)

User-Interface (UI)



NExT-Energiemanagementsystem (NExT-EMS)

User-Interface (UI)



Advantage of a DC energy supply: Up to 85% energy savings compared to conventional connection



NExT Factory

DC application example logistics

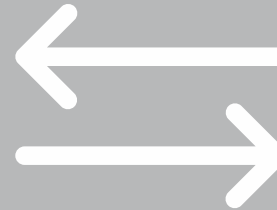
43.000

Storage spaces



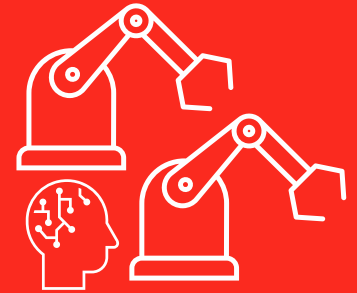
5.000

Transports
Every day



90

Swarm robots
In the final stage



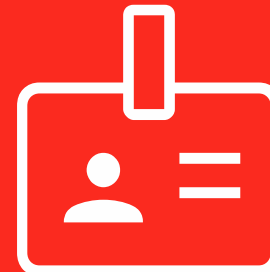
22

kW
Peak load during operation



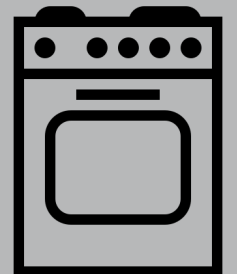
12

kW
powerdemand
during operation



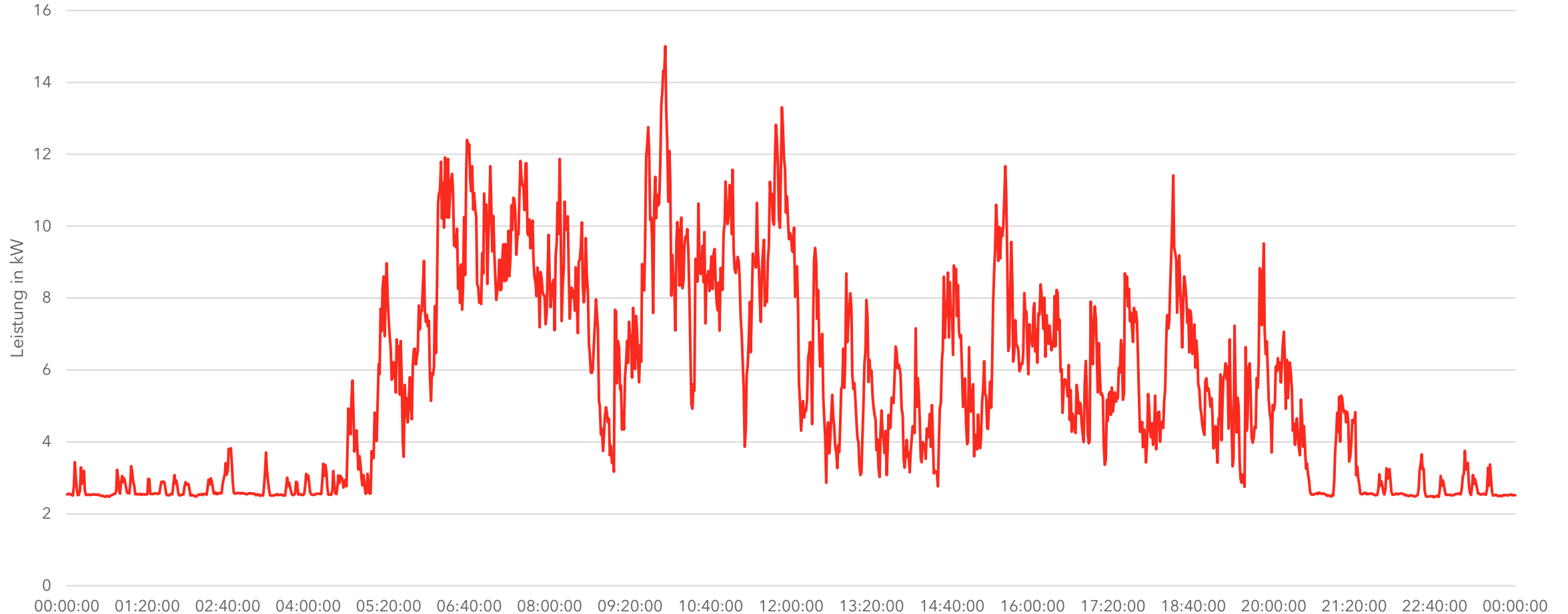
4

kW
Connected load has a
Oven for domestic use



DC application example logistics

Reduction in power supply from 135kW (AC) to 22kW (DC)



Conclusion & outlook



The NExT Factory is one of the first DC factories in operation. We want to show that direct **current is highly efficient, economical and technically feasible** in the right applications (e.g. dynamic loads, logistics centers, robotics, energy transition, etc.) !

Our in-house Schaltbau contactors (e.g. type C294, C320) ensure the **safe and reliable operation** of our DC grid.

As NExT Step, we face up to the technological limits mentioned above and expand existing **protection technology with intelligence and measurement technology - bundled in one unit!**



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