

BESS and EV charging: a good fit!

How battery storage supports the integration of EV charging infrastructure

Evelyn Maier, Product Manager Device

Integrated energy for home and business

Energy Services

Virtual Power Plant

Hardware



smart energy management



electricity tariffs

NEW

sonnenPro
service agreement



sonnenHome



sonnenBatterie



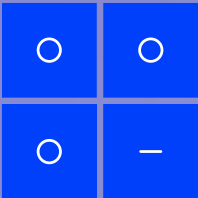
sonnenProtect



sonnenCharger

NEW

sonnenPro
C&I battery system



sonnenHome
Customer



sonnenPro
Customers

sonnenVPP

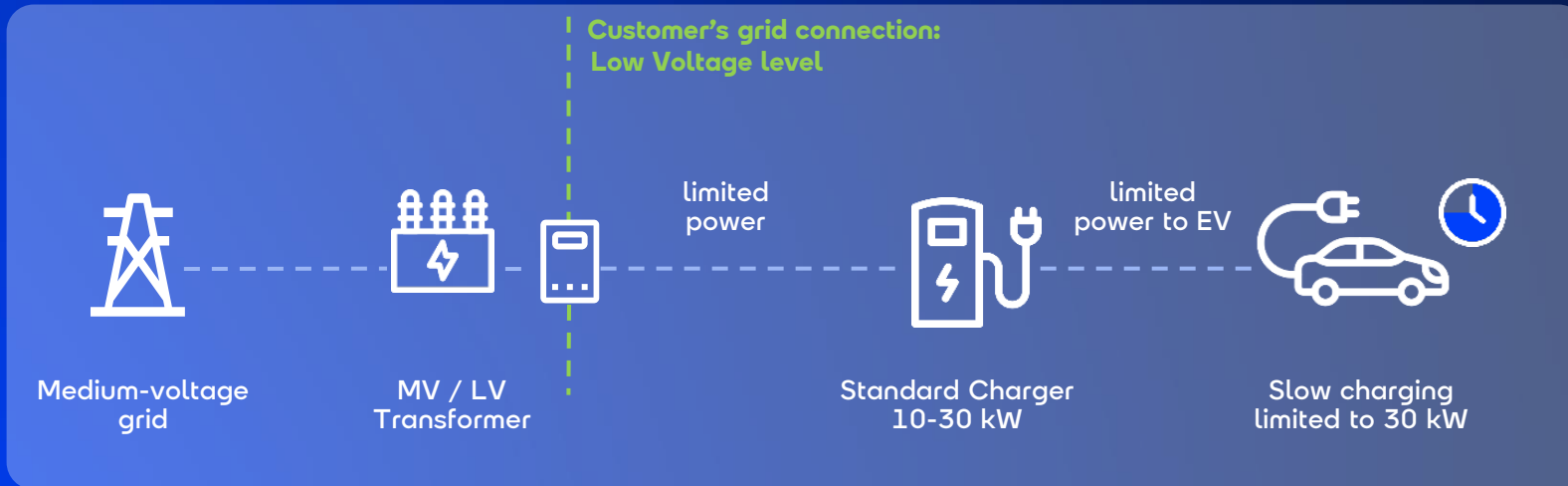


Expansion

C&I integration
+ new optimization
features

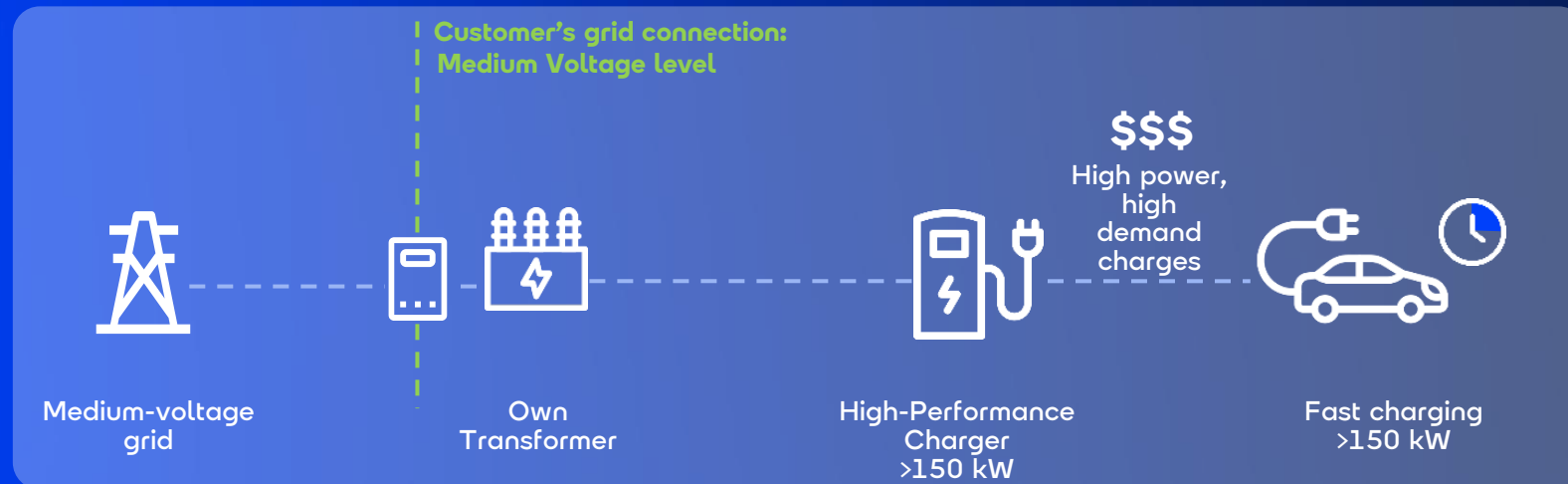
Grid stabilisation,
Software licensing

Expanding EV charging infrastructure is usually facing two main challenges:



Limited grid capacity

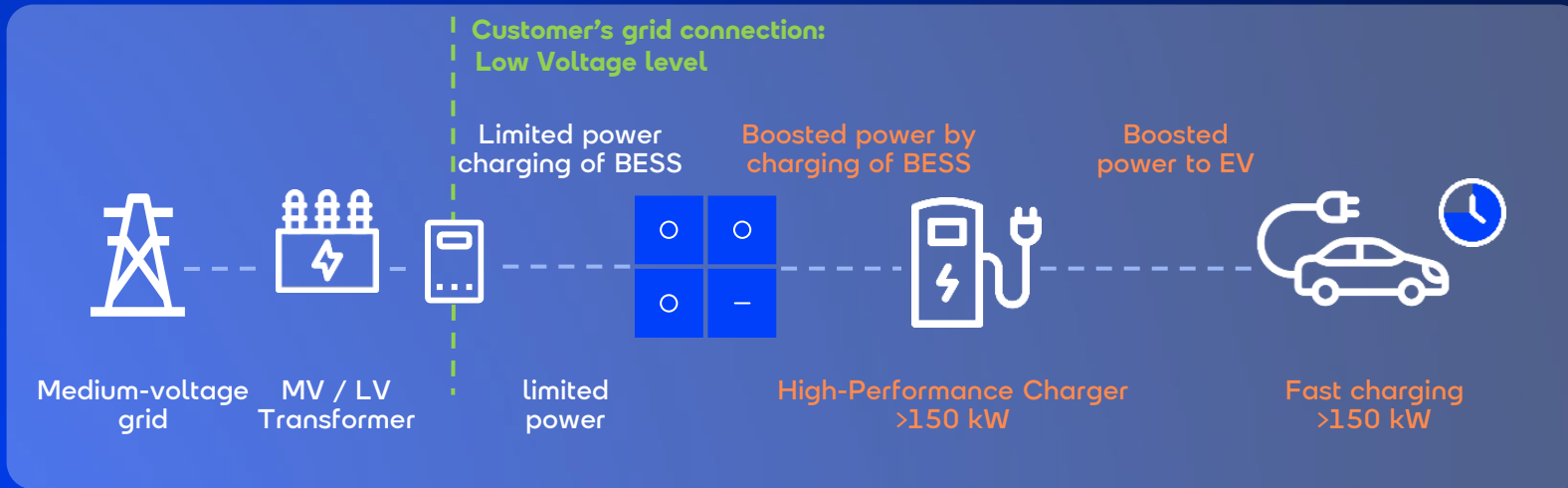
At many locations EV charging infrastructure cannot be installed / expanded without grid expansion which comes along with long implementation time, high costs (for transformer etc.) and high efforts on paperwork.



High demand charges

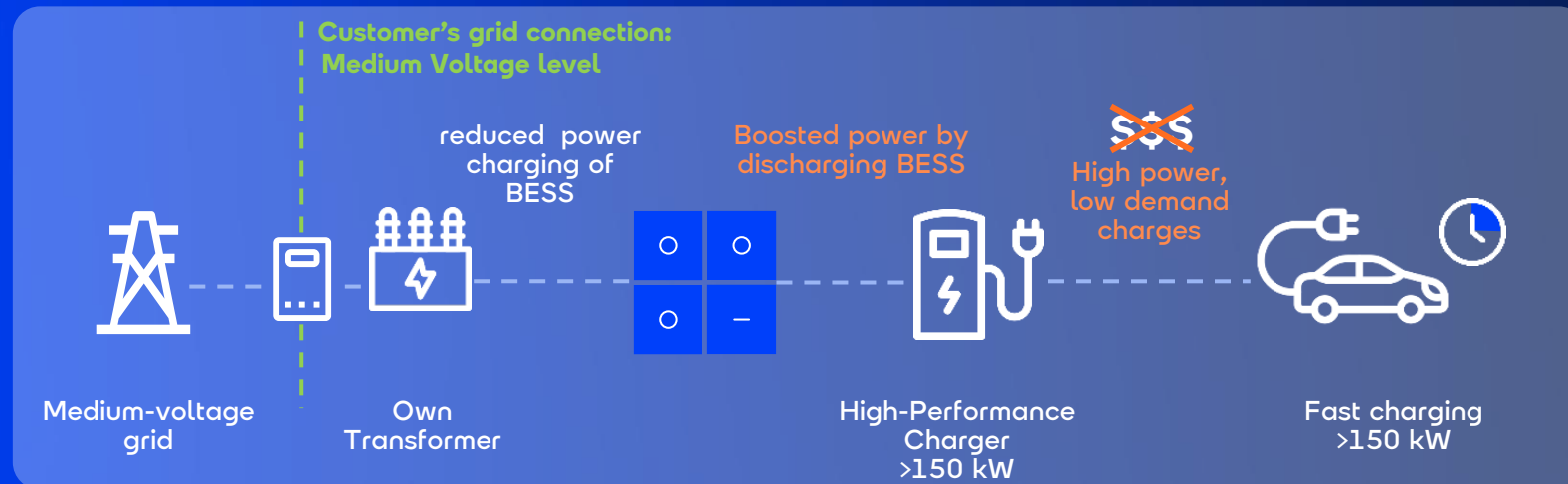
EV charging infrastructure can lead to significant consumption peaks (especially fast chargers or fleet charging) resulting in expensive demand charges.

Our solution: BESS as buffer between EV chargers and grid connection point



Overcome limited grid capacity

BESS enables fast charging where there is no sufficient power from the grid. Peak shaving (on instantaneous values) and active steering of the charging power (via OCPP) ensures that the grid limitation is maintained.



Mitigate high demand charges

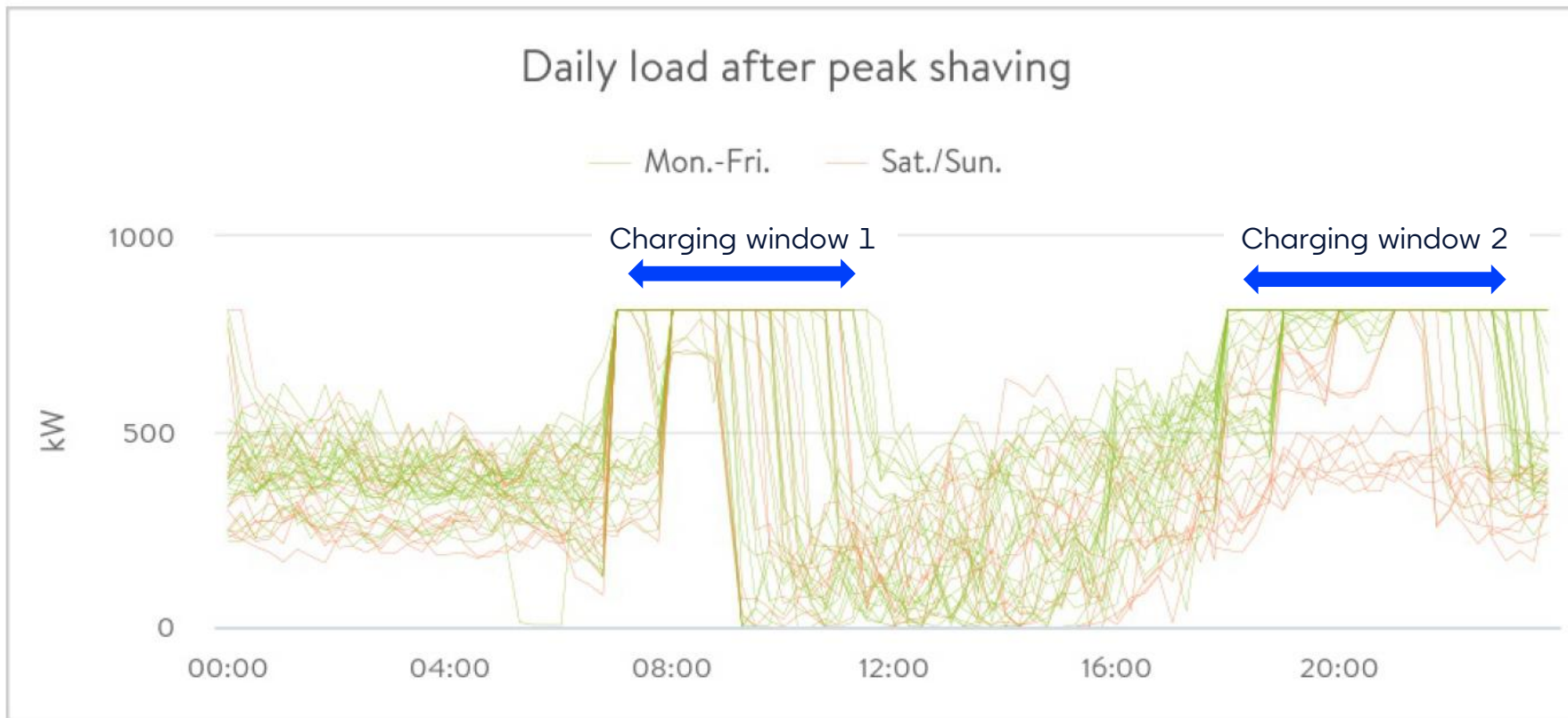
BESS enables fast charging without causing high demand charges. Consumption peaks at grid connection point are reduced by BESS peak shaving with 15 min billing interval optimization.

Project example: Logistics center with e-truck charging

Consumption	4 GWh/a
Peak load	1.400 kW
Demand charge	215 €/kW
PV system	850 kWp
Grid limitation	1.000 kVA
sonnenPro FlexStack	736 kW/990 kWh
Reduced peak load	800 kW
Yearly savings	120.000 €/a
Payback time	~5 years



Project example: Logistics center with e-truck charging



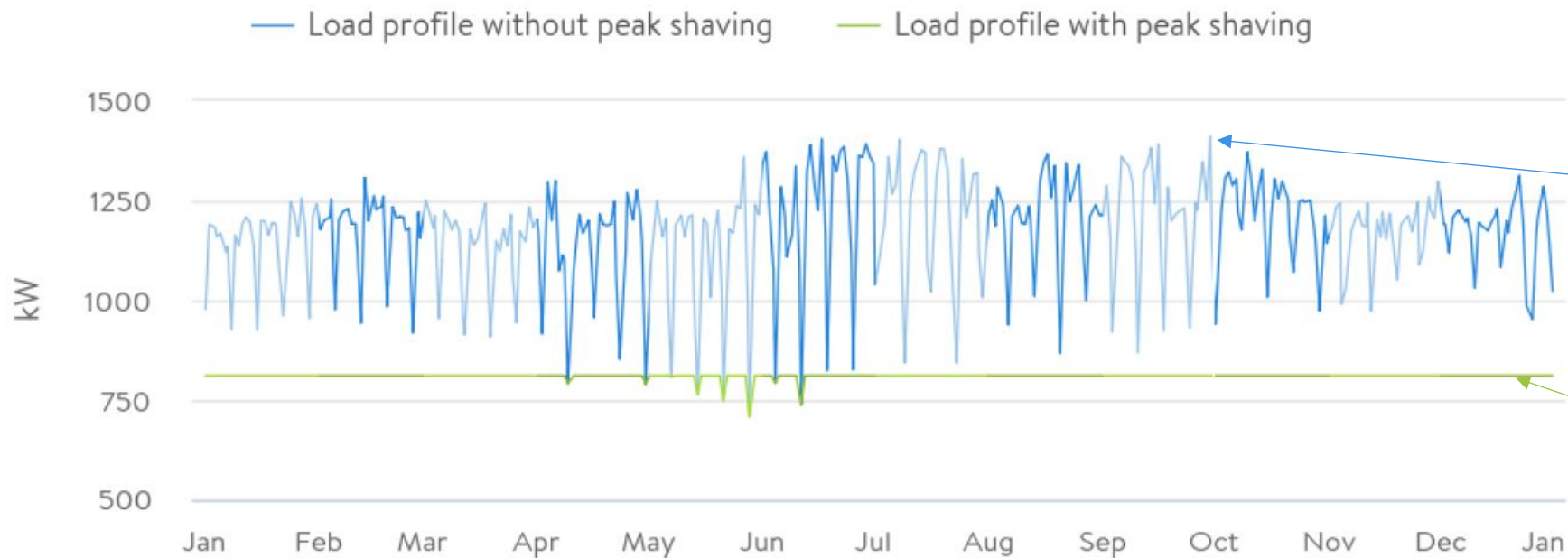
E-truck charging schedule:

2 tours per day per truck, therefore 2 charging windows (1x morning, 1x evening)

Average charging time: 1 – 2 hours

Project example: Logistics center with e-truck charging

Annual profile



1400 kW peak
without BESS

800 kW threshold
for peak shaving

BESS enabling additional savings with multiple use cases.

Price optimization with dynamic tariff

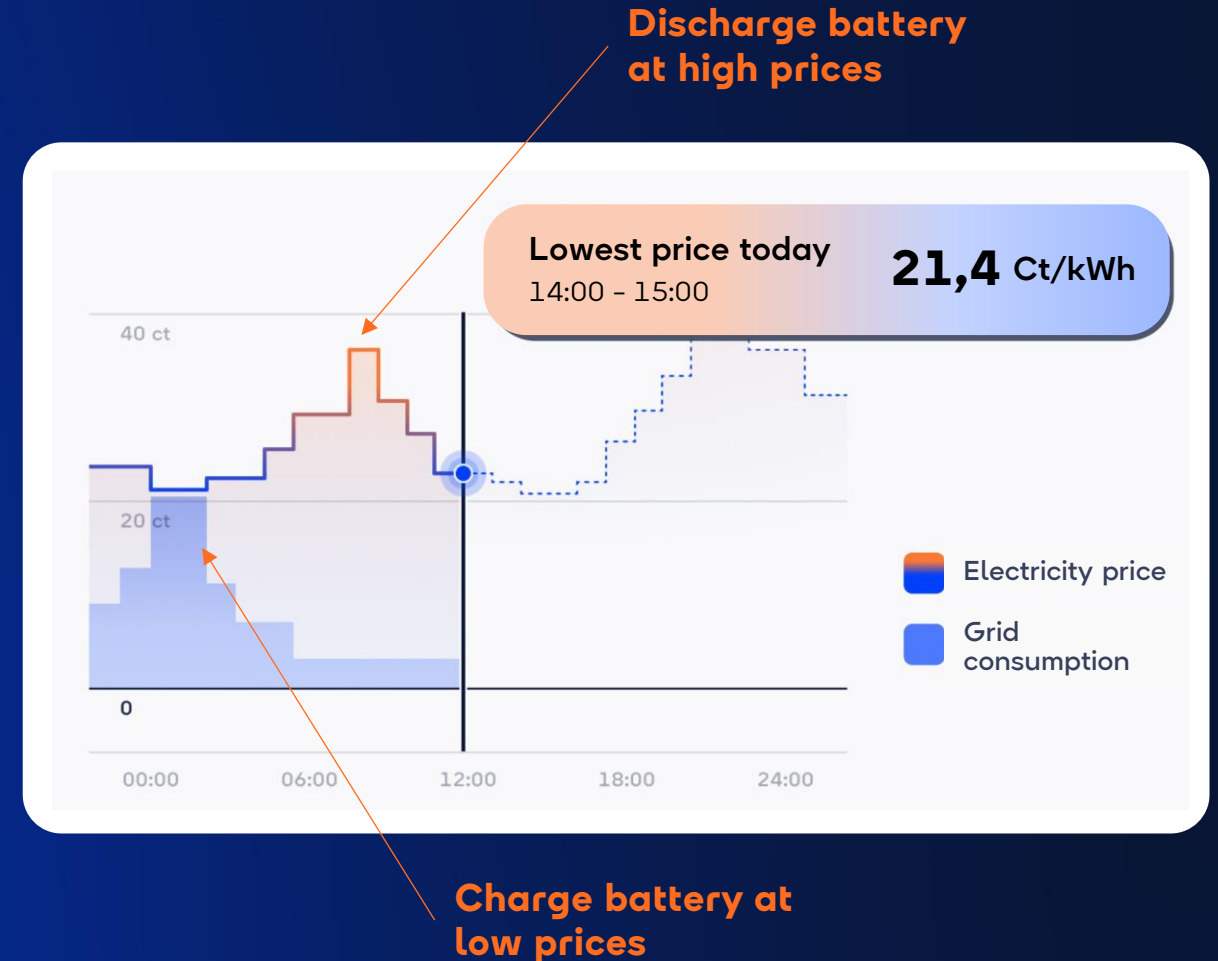
Charging the battery from grid when prices are low and discharging for own consumption when prices are high

Dynamic grid fees

Available with 3 tariff levels for low voltage level customers in Germany since 01.04.2025. Same logic as for price optimization with dynamic tariff: charge when prices are low, discharge when prices are high

PV self consumption optimization

Storing excess PV energy and using it when needed, thereby reducing dependency on public grid and lowering overall electricity costs.





Shell's first megawatt charger at the Energy Transition Campus Amsterdam (ETCA).

BESS and EV charging: a good fit! | 07.05.2025

Energy
•
is yours.

sonnen.de

Evelyn Maier

Mail: evelyn.maier@sonnen.de

