DWC ENERGY GROUP
SMART ENERGY STORAGE SOLUTIONS

TECHNICAL SOLUTION BRIEF

BATTERY PEAK SHAVING

Commercial and industrial demand control with intelligently managed battery storage.

01

MEASURE

Interval load data reveals peak power, duration and frequency.

02

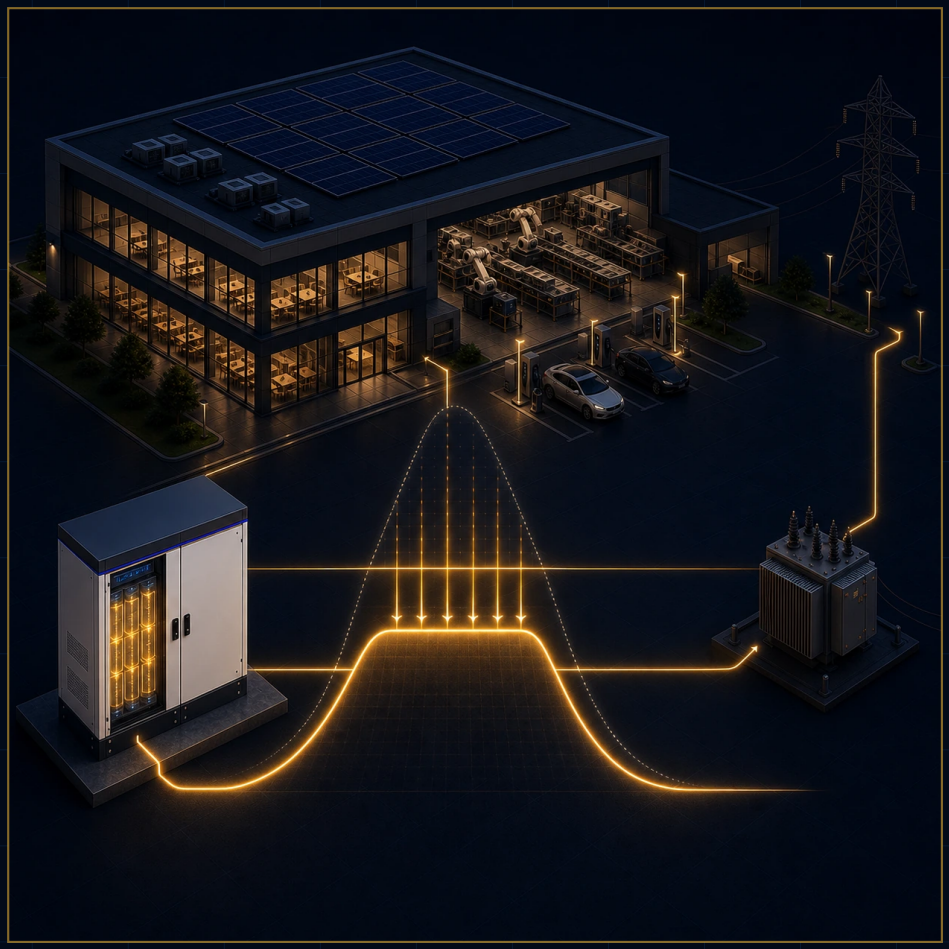
CONTROL

The EMS keeps grid demand below a project-defined limit.

03

COMBINE

Peak shaving can share battery flexibility with PV and backup reserve.



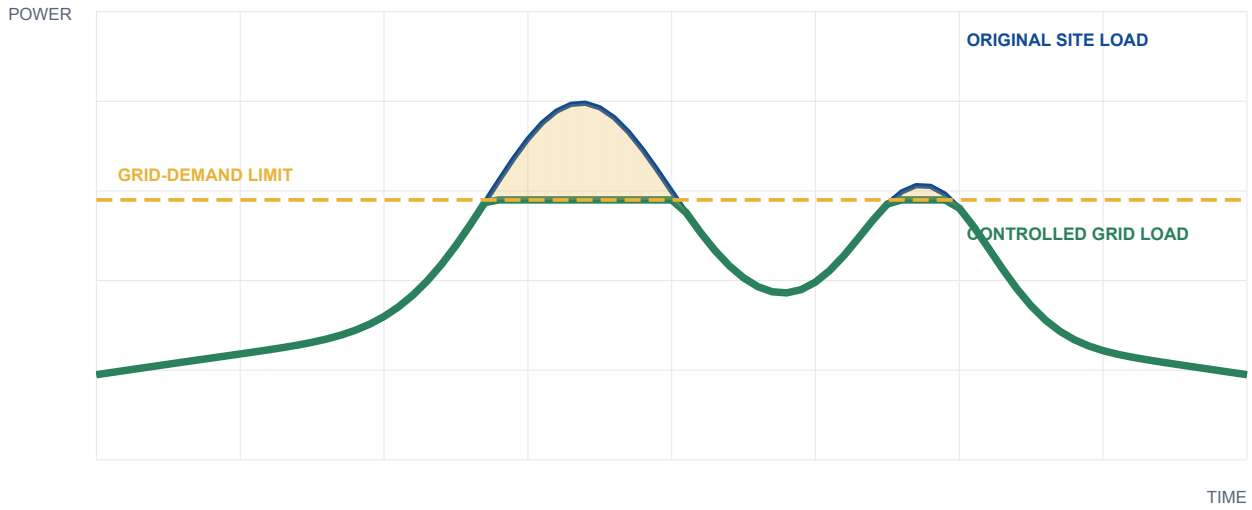
POWERED BY COMEXIO

PEAK SHAVING

Control the peak. Keep the connection.

Battery power is dispatched only when the site approaches the agreed grid-demand target.

DEMAND PROFILE AT THE GRID CONNECTION



01

Measure

A smart meter records import and export at the point of common coupling.

02

Compare

The EMS compares live site demand with the configured grid limit.

03

Dispatch

The battery discharges the difference and recharges after the peak.

KEY DISTINCTION

Power sets the height. Energy sets the duration.

A short, high peak may require substantial inverter power but comparatively little battery energy. A lower peak that persists for hours can require much more usable capacity. The load profile determines the correct balance.

POWER: kW / kVA

ENERGY: kWh

REACTION: REAL TIME

ENGINEERING

Dimension power and energy separately.

The calculation begins with measured interval data, not a nominal battery size.

01 / POWER

P battery

max(P site - P limit)

Required discharge power above the target.

02 / ENERGY

E AC

sum(max(0, P site - P limit)) x dt

Energy delivered during all clipped intervals.

03 / CAPACITY

E battery

E AC / efficiency / usable share

Installed capacity including losses and reserve.

WHY INTERVAL DURATION MATTERS

Same power. Very different energy requirement.

PEAK SHAPE	POWER ABOVE LIMIT	DURATION	AC ENERGY
Short equipment start / charging burst	**60 kW**	**15 min**	**15 kWh**
Sustained production or cooling peak	**60 kW**	**120 min**	**120 kWh**

MINIMUM PROJECT DATA

Evidence before equipment.

- Interval load data: 15-minute minimum; faster data for short peaks
- Grid-connection limit and demand-tariff structure
- Peak duration, frequency, seasonality and coincidence
- Existing PV generation, generators and controllable loads
- Future loads such as EV charging, HVAC or production expansion
- Required backup reserve and operating priorities

DESIGN CHECKS

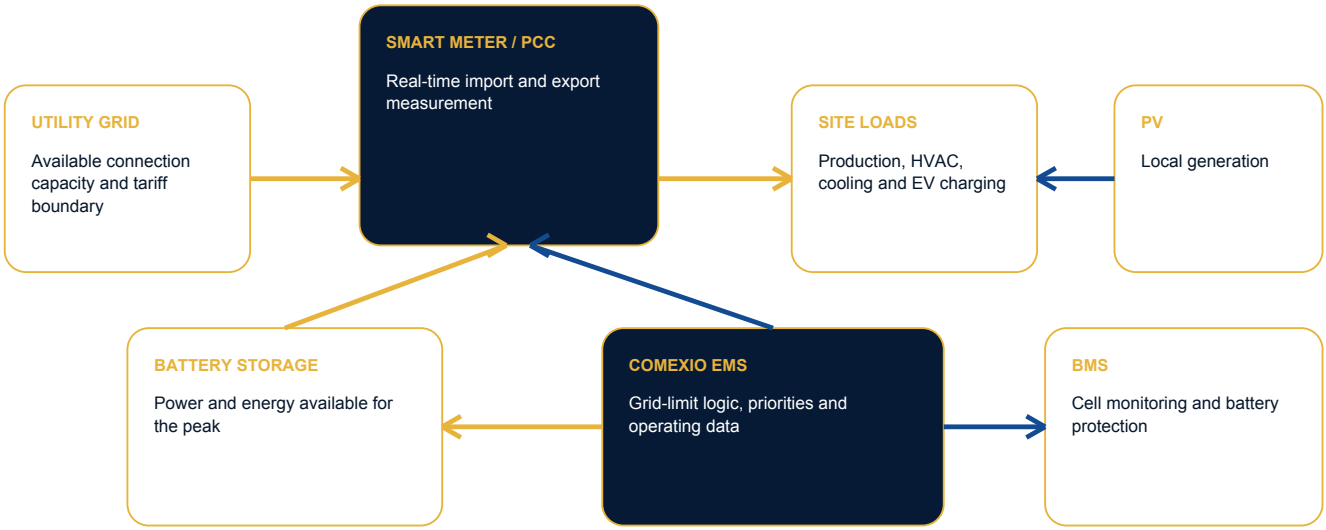
POWER	Continuous and short-duration inverter capability
ENERGY	Usable capacity after efficiency, reserve and ageing
RECHARGE	Time and available power to recover before the next peak
CONNECTION	Protection, current limits and point of common coupling
CONTROL	Priority rules for peak shaving, PV and backup reserve

CLOSED-LOOP CONTROL

Control starts at the grid connection.

The EMS measures the point of common coupling and coordinates battery dispatch with site demand.

REFERENCE ARCHITECTURE



The exact topology, protection concept and interfaces are engineered for each project.

CONTROL SEQUENCE

Five decisions, repeated continuously.

01
Measure
Read site import at the PCC.

02
Forecast
Account for peak trend, PV and available SOC.

03
Dispatch
Discharge only the power above the limit.

04
Protect
Maintain reserve, power and thermal boundaries.

05
Recover
Recharge when the site and tariff allow it.

CONTROL AND DATA SOVEREIGNTY

Made in Germany. Local control by design.

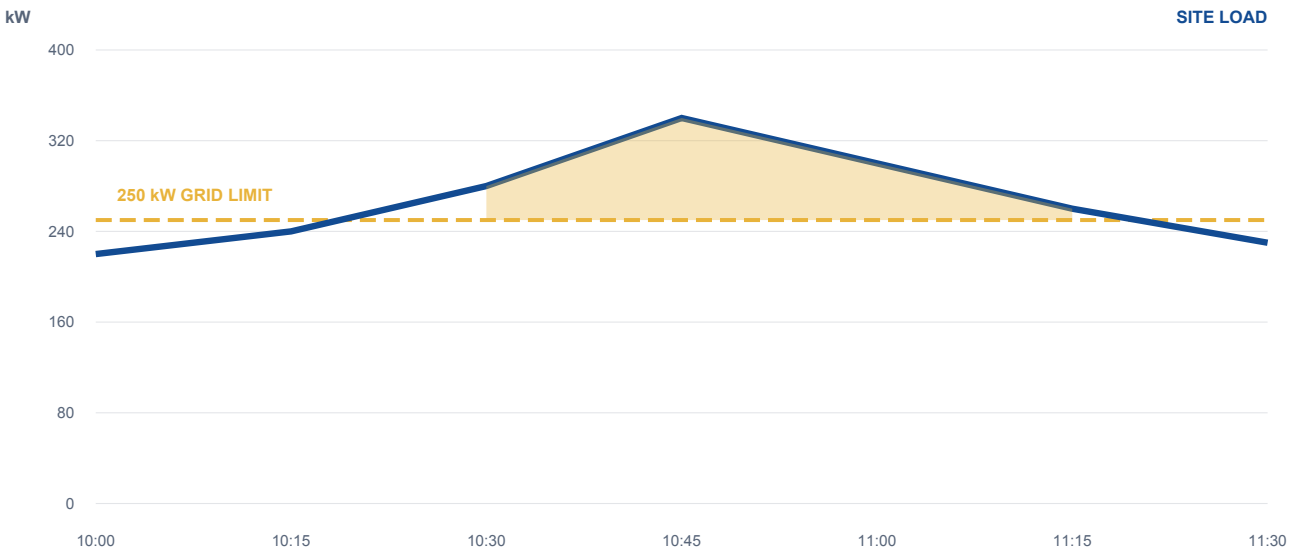
COMEXIO develops the battery-management system (BMS) and energy-management system (EMS). Core operating data and control functions remain local to the BESS; a permanent cloud connection is not required. Password-protected remote access can be configured for service and operational review.

WORKED EXAMPLE

From load profile to battery requirement.

An illustrative 15-minute event shows why the energy above the limit matters.

ILLUSTRATIVE COMMERCIAL DEMAND EVENT



340 kW

SITE PEAK

Measured maximum during the event

90 kW

BATTERY POWER

Maximum difference above the limit

45 kWh

AC ENERGY

Sum of excess power x 0.25 h

~48 kWh

BATTERY ENERGY

Illustrative value at 94% discharge efficiency

PRIORITY HIERARCHY

01 Protect the grid limit

02 Preserve the defined backup reserve

03 Use remaining flexibility for PV or tariff optimisation

INTERPRETATION

Do not size from the peak alone.

This event needs 90 kW of discharge power, but only about 48 kWh of battery energy before project reserve and ageing allowances. Repeated events, limited recharge windows or sustained peaks can increase the required capacity significantly.

ILLUSTRATIVE EXAMPLE - NOT A PROJECT GUARANTEE

DWC ENERGY GROUP

Engineered around the real load profile.

ENERSTO platforms combine inverter power, modular LFP capacity and COMEXIO control.

REFERENCE PLATFORM DATA

PARAMETER	ENERSTO 112	ENERSTO 224
Configurable capacity	**64 - 112 kWh**	**112 - 224 kWh**
Nominal inverter power	**18 kW**	**45 kVA**
Peak inverter power	**33 kW**	**81 kW**
Battery charging power	**approx. 15 kW**	**approx. 30 kW**
Battery technology	**LFP, 8000+ cycles**	**LFP, 8000+ cycles**

Reference values from the DWC ENERGY GROUP ENERSTO 112-224 data sheet. Final selection, usable energy and parallel-system requirements are project-specific.

SUITABLE APPLICATIONS

MANUFACTURING | COMMERCIAL BUILDINGS | COLD STORAGE | LOGISTICS | EV CHARGING SITES

POWERED BY COMEXIO

EMS and BMS from one platform.

Made in Germany, with locally executed control, modular automation interfaces and password-protected remote access. Peak shaving can be coordinated with solar self-consumption, tariff optimisation and backup reserve.

PROJECT PATHWAY

01	**LOAD DATA**	Analyse interval profiles and target limits.
02	**SIMULATION**	Validate power, energy and recharge windows.
03	**INTEGRATION**	Engineer protection, metering and controls.
04	**COMMISSIONING**	Test limits, reserves and operating priorities.

START A PEAK SHAVING STUDY

Turn measured demand into a bankable storage concept.

DWC ENERGY GROUP combines load-profile analysis, product engineering and project delivery for commercial and industrial sites worldwide.

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