

X O L T A

Energy Storage systems by Lithium Balance

Intelligent brug af batterier



Who we are..



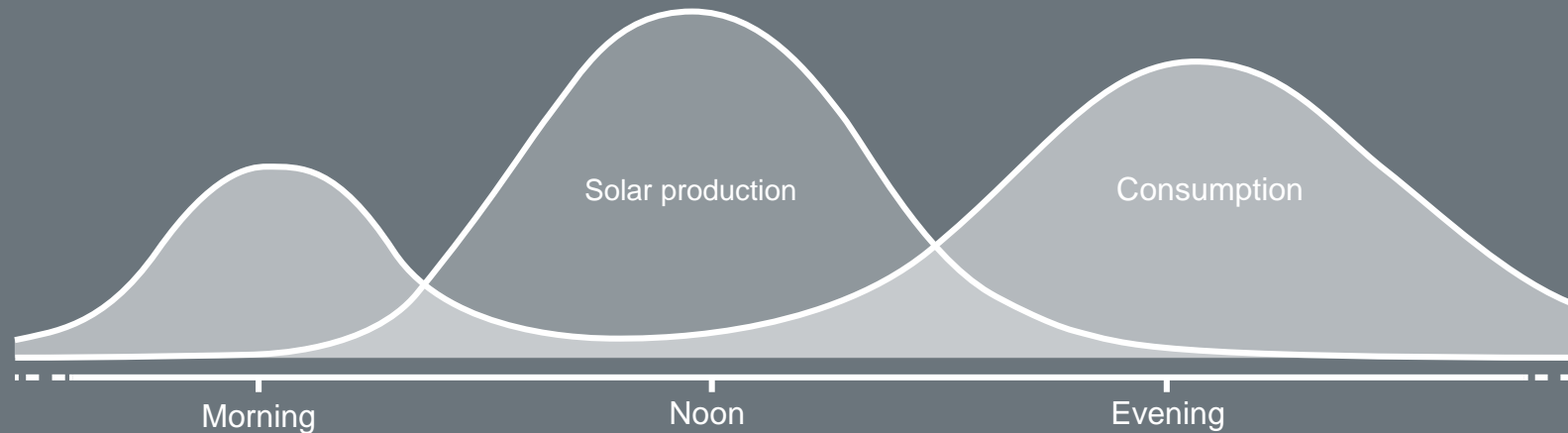
LITHIUM BALANCE

- Battery Management Systems for Industrial, Automotive, Energy Storage
- Established 2006
- 800+ customer projects to date
- 40 people
- Shareholders: Ørsted, Sensata, Zenlead, management

XOLTA

- Battery Energy Storage Systems
- Brand under Lithium Balance A/S
- 2015-19: research and development
- 2018-19: field pilots
- 2019-20: commercial launch

What's the problem?

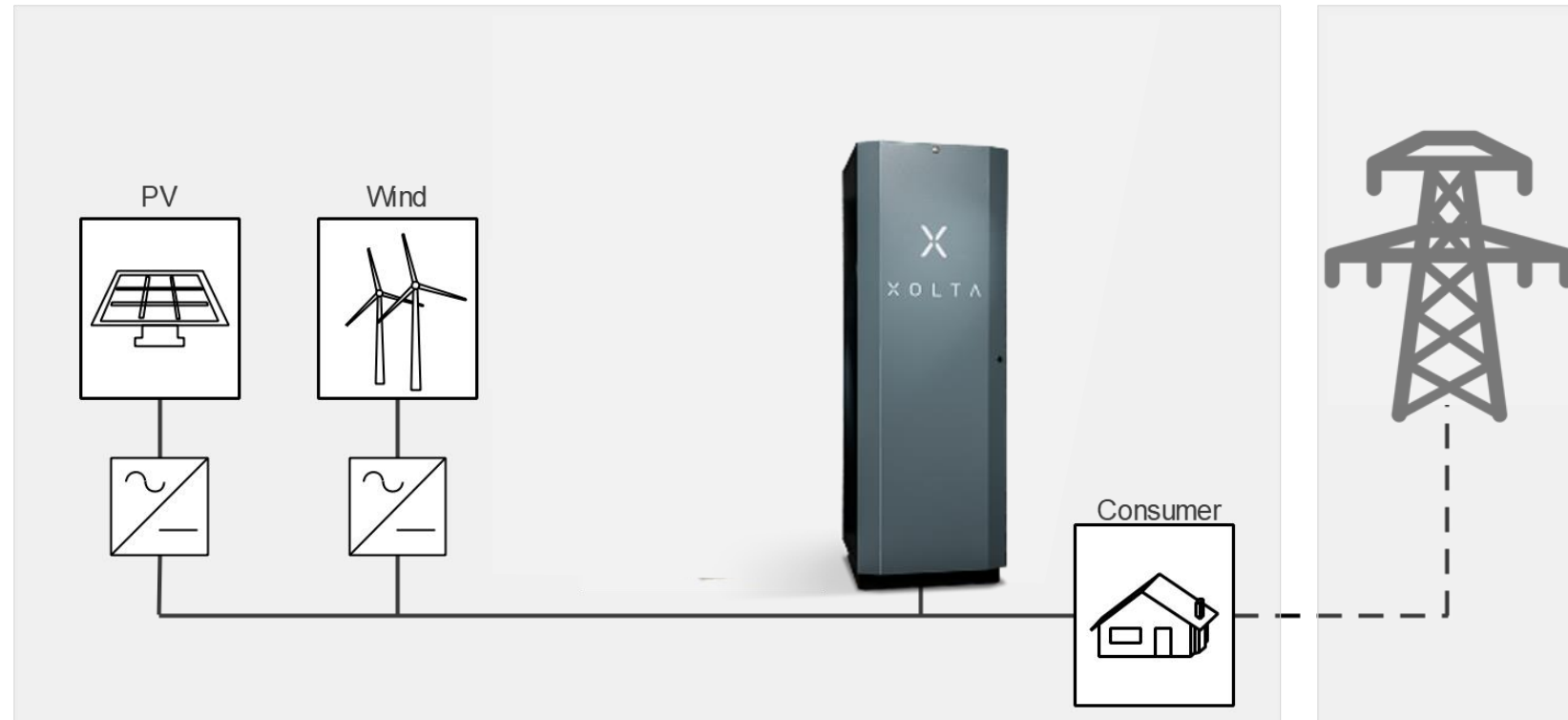


Major issues caused by misalignment of renewable energy generation and time of consumption:

- Excessive production (PV & Wind)
- Excessive simultaneous consumption (EV, heatpumps, ..)
- Grid frequency problems
- Lost revenue
- Grid network capacity (Voltage problems)
- Lack of Inertia
- Balancing
- ...

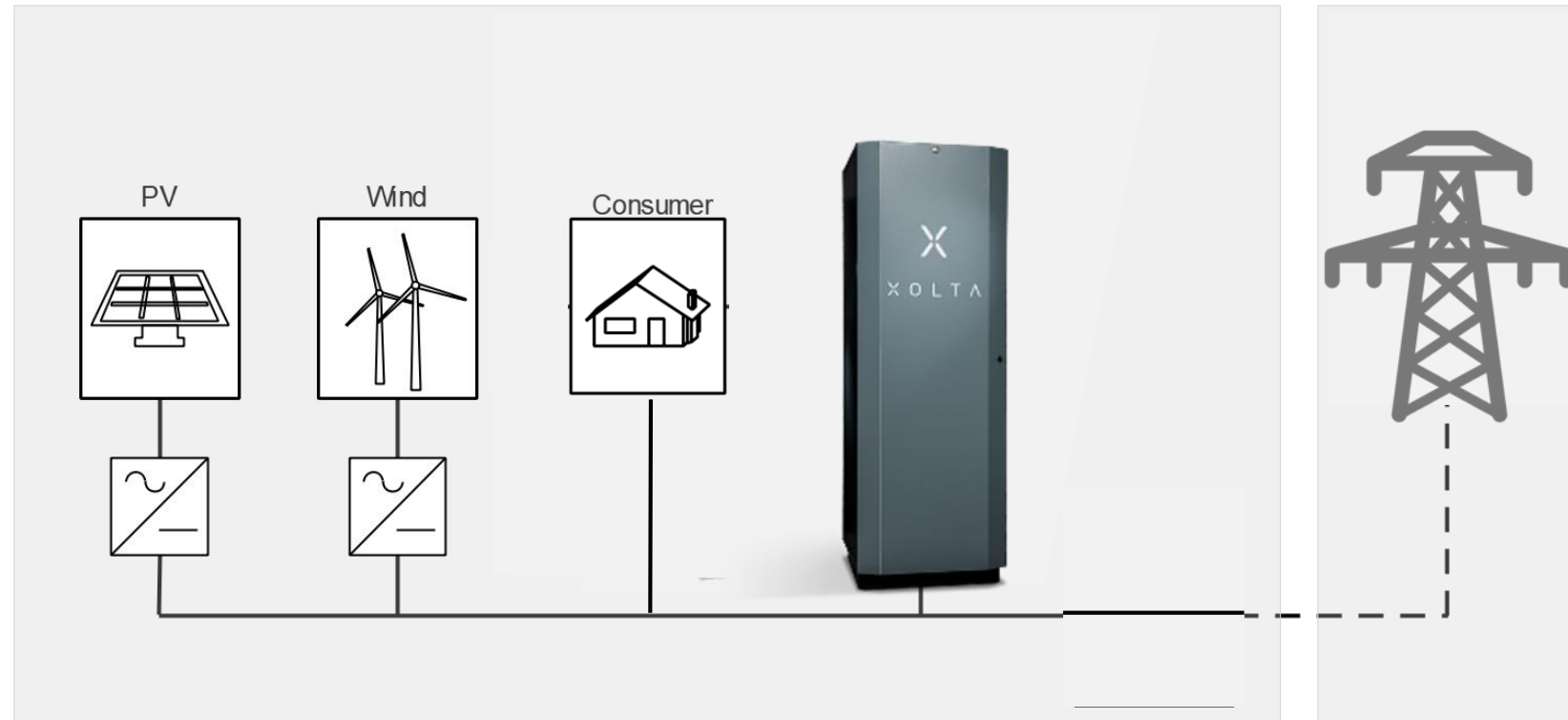
By adding grid connected smart Batteries could help

- Above grid problems
- Lower electricity costs
- Increased flexibility for electricity consumers
- Increased renewables penetration

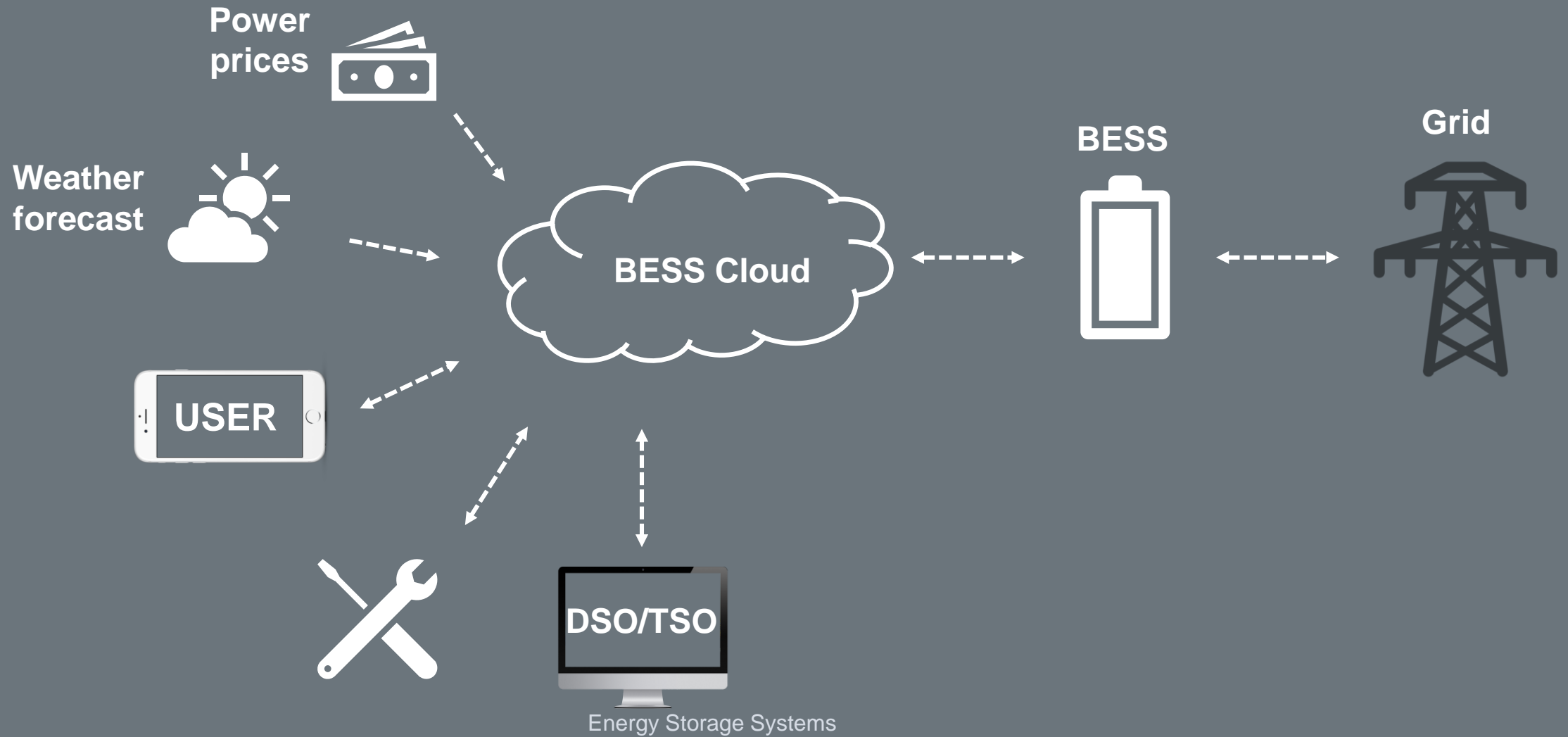


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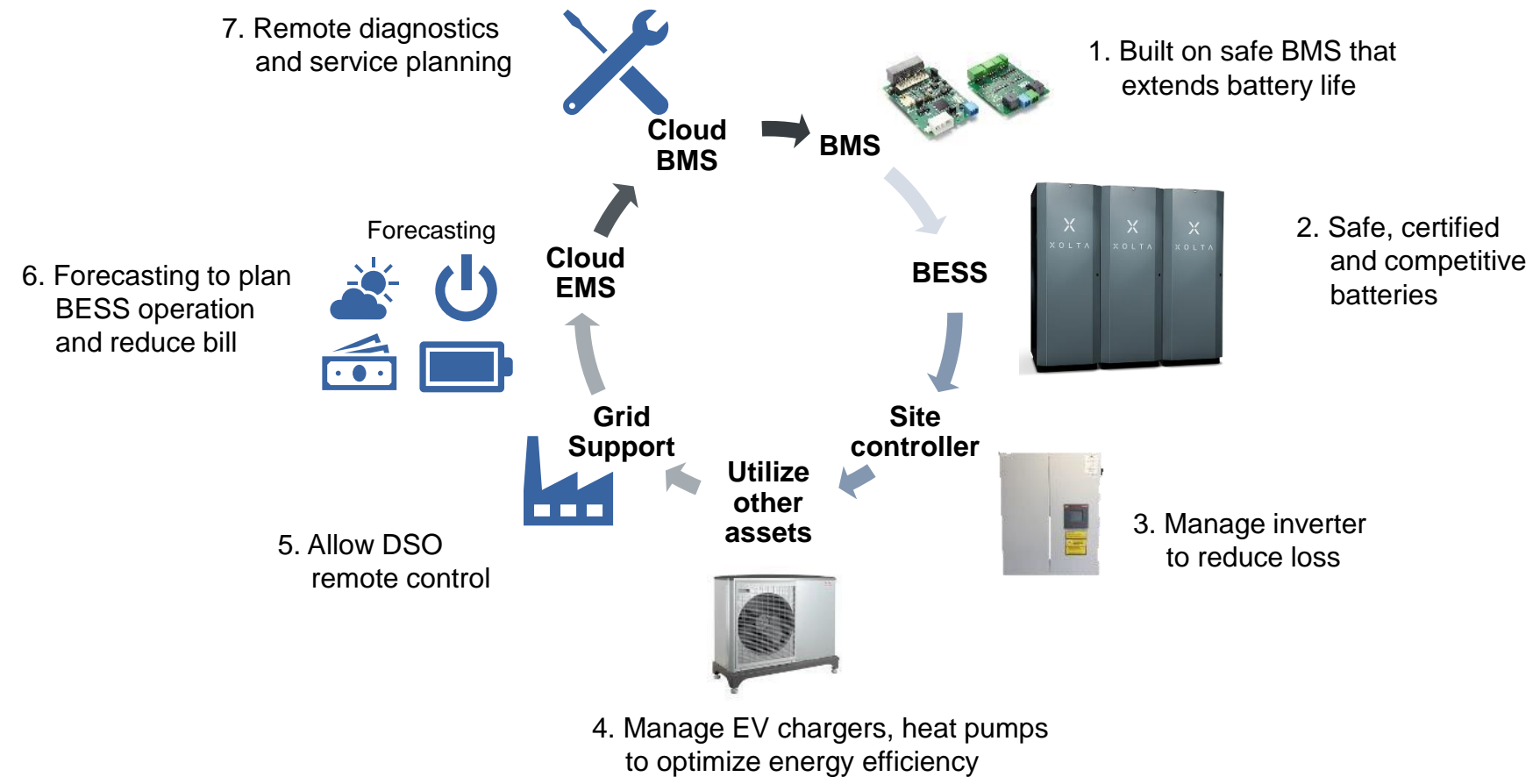
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BESS Cloud System



System approach to optimize overall performance



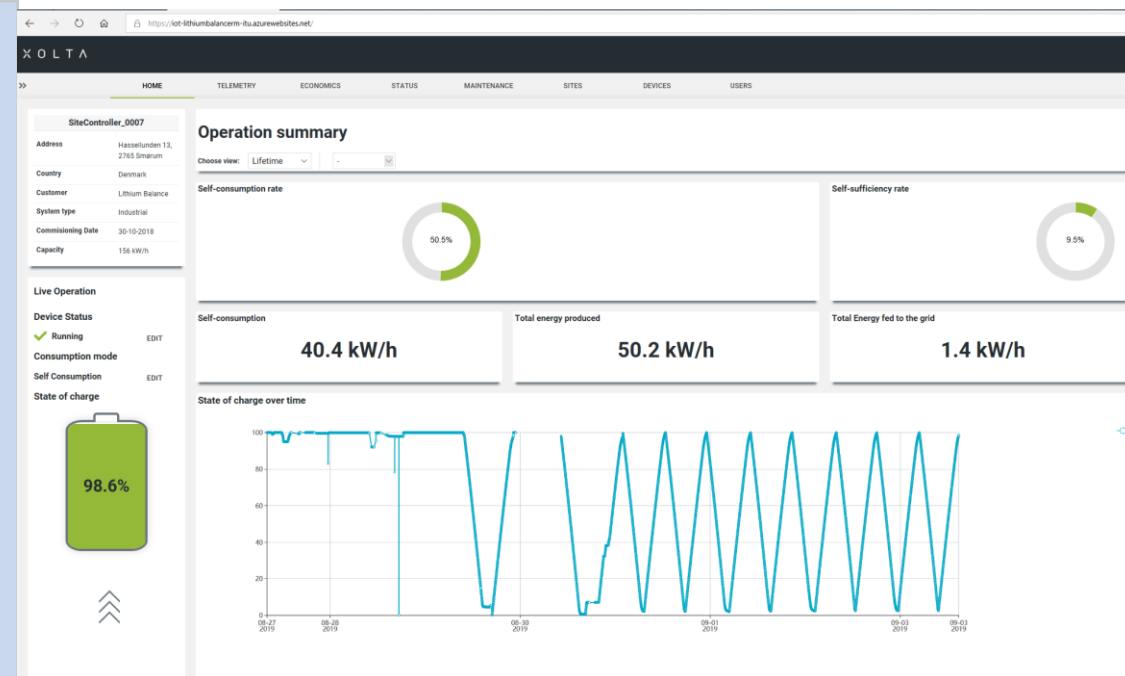
Smart cloud controller

Features accessible from the cloud

- Web and Mobile access
- Current operation status
- Monitoring of local production (PV)
- Control of local consumers (heat pumps, EV's, ..)

- Mode of operation
 - Self consumption (time shift or forecasting)
 - Grid support (Frequency regulation, voltage support and peak shaving)

- Role dependent access rights including selected views
- Service access for early warning and preventive maintenance



ROI maximized by using advanced algorithms in the cloud considering consumption patterns as well as energy and weather forecast data.

Segments served

Grid Support

- 79kWh per rack
- Modular to 2,5MWh/string
- Max Power 1,6 MW
- Low/medium voltage grid services incl. peak shaving, frequency, voltage regulation



Smart Buildings

- 79kWh rack, modular
- Behind the meter
- PV time shifting
- Peak shaving
- Low voltage (400Vac)
- Smart Cloud controller for forecasting/optimisation



Residential

- 5 & 10 kWh systems
- Behind the meter
- PV time shifting
- Smart Cloud controller for forecasting/optimisation
- Customer mobile App
- Commercial release 2020



BAT-79

Designed for safety and lifetime

- 79kWh per rack
- 30-80kW inverter per rack
- Indoor and outdoor version
- Dimensions 2 x 0,8 x 0,8 m
- Weight 800kg
- Contains 8 battery packs of 10kWh
- 6 AESC Gen4 battery modules per pack, Extended temperature range, sits in 500,000 Nissan Cars with no series battery incidents
- Functional safe battery management system (BMS) monitoring and controlling each cell, temperature and current
- System diagnostics, error handling and message warning system (SMS, mail..)



References

Grid support

Madeira (Portugal)

- 79 kWh, Grid support in transformer station, May 2019

Bolzano (Italy), Alperia parking facility

- 79 kWh, Peak shaving in EV charging infrastructure, May 2019

Bornholm (Denmark)

- 1 MWh, voltage and frequency regulation, March 2020

Madrid (Spain), subway

- 240kWh, Collecting train brake power, peak shaving, 2020



Bolzano



Madeira



References

Smart Buildings

Samsø (Denmark), Ballen harbour

- 240 kWh, PV time shift (60kWp), April 2019

Orkney, (UK):

- 7 x 10 kWh residential, PV time shift, August 2019

Aarhus (Denmark), Ringgården, Apartment building

- 158 kWh, PV time shift, Peak shaving, August 2019

Skive, (Denmark), Cultural centre building

- 79 kWh, PV time shifting, August 2020

Madeira (Portugal)

- 5 x 10 kWh residential, PV time shift, September 2019



Samsø

XOLTA – Energy Storage Systems

Energy storage enables the transition to renewable energy by intelligently shifting time of use, stabilizing the grid and increasing power quality.



Thank you for your attention



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