cellcube

BUILDING ENERGY STORAGE INFRASTRUCTURE

PROFIT FROM THE
NEW GENERATION
OF FLOW BATTERIES

15 YEARS OF EXPERIENCE INCLUDED

IMPROVED FEATURES

- more than 8 cycles/day
- 150-200% power overrating
- up to 94% efficiency
- > 25 years lifetime &
  > 15,000 cycles warranted
- highest safety standards:
  non-flammable
  non-explosive
- closed-loop recycling

CELLCUBE - AS FLEXIBLE AS THE REALITY

CO-LOCATION LARGE SCALE RENEWABLES

Power Supply from renewable generation offers the lowest levelized cost of energy in the energy industry. For a sustainable and reliable future of energy supply the increased demand with less carbon impact must be achieved. To overcome the volatility and less unpredictability of renewable power generation, energy storage is the key technology to be added to the energy infrastructure.

A long duration CellCube Solution with its capability to not only cover power requirements but deliver signaficantly long duration energy storage for up to 24 hours, is therefor the perfect solution to be co-located to **large scale renewables via a ppa-model** or optimisation phase of solar or wind farms.

RESERVE & CAPACITY MARKETS

When **baseload power supply** reaches its economical limits, the reserve and capacity markets are the regulated or merchant mechanisms to trade peak demands or provide anciliary services to ensure a reliable, stable grid and energy supply as demanded.

The long duration energy storage infrastructure of CellCube is the perfect sustainable and green solution which fits both to the new renewable generation technology but also the operational heavy use requirements for batteries from the established markets and key players of the industry. Green **Peaker Plants, Heavy Duty Cycling** or G**rid Contraint Management** are the perfect use cases for CellCube's non-degrading storage systems.

KEY FUNCTIONS

- energy shifting
- peak shaving / demand supply
- frequency regulation
- firming & voltage regulation
- power quality / reactive power
- offgrid / microgrid mode
- backup & blackstart

C & I / MICROGRIDS

The entire energy supply situation for commercial and industrial companies has changed in the last decade. With the benefits of local distributed renewable generation and the introduction of many more price and benefit schemes, the financial, commercial and technical aspects of energy management has changed. More importantly is that it will continue to change and as such has become a risk or sometimes even a business critical risk for **C&I** companies who require highest flexibility of any energy storage technology chosen.

CellCube's long duration storage with its overrating capabilities and product life of more than 20 years offers a perfect fit to such situations, **integrating renewables**, **managing a microgrid** or **power peaks** as well as being even able to **backup increasing EV charging** or replace current **UPS** lead acid batteries.

TECHNICAL SPECIFICATION	CellCube FB 500-2000	CellCube FB 250-1000	CellCube FB 250-2000
Power and energy			
rated charge / discharge power[1]	500 / 500 kW	250 / 250 kW	
max. charge / discharge power	1,000 / 750 kW	500 / 375 kW	
usable capacity	2,400 kWh	1,200 kWh	2,400 kWh
capacity @ 0.25C	2,000 kWh	1,000 kWh	2,000 kWh
efficiency charge / discharge	up to 94% / up to 88%		
typ. number of cycles	> 20,000 @ 100% discharge		
Connections			
DC voltage range	567 ... 907 V		
nominal AC voltage	400 V / 480 V, 3-phase 50 Hz / 60 Hz		
Discharge time at % of rated power[2]			
150%	2.5 hours @ 750 kW	2.5 hours @ 375 kW	5 hours @ 375 kW
100%	4 hours @ 500 kW	4 hours @ 250 kW	8 hours @ 250 kW
Mechanical data			
enclosure type	40' ISO HC-containers		
footprint (w/o stairs) L x W	12.2 m x 7.4 m	12.2 m x 4.9 m	12.2 m x 7.4 m
area density	27 kWh/m²	20 kWh/m²	27 kWh/m²
protection rating	IP 54 / NEMA 3		
ambient temperature, standard configuration (storage and operation)	constant ambient temperature from -15 °C to +45 °C (+5 °F to 113 °F)		

[1] all data measured at an electrolye temperature of 30 °C (86 °F)
[2] approximate discharge time (starting from CL=100%), at continuous stated power. Actual times may vary depending on operating conditions. Remaining energy capacity delivered at derated power.

Standards and Grid Codes: IEEE 1547, UL 1741, UL 1973, UL 9540, NFPA 70, CA Rule 21 & CSA CS22.2 (pending), AS 4777, BDEW, C10/C11, CEI 0-16, G59, CE

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