

JinKo ESS's vision for Industry and Utility-Scale Battery Storage

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EU ESS Market

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JinKo ESS Solution

JinKo Performance: Global Leader

150GW

Delivered

No.1

2016-2019
Module Shipments

22

World Records

55GW

N-type Module
Capacity

15%

Market Share

European Utility-Scale Storage Market



EU 8X

Market rises



2030

Target



Global 5x

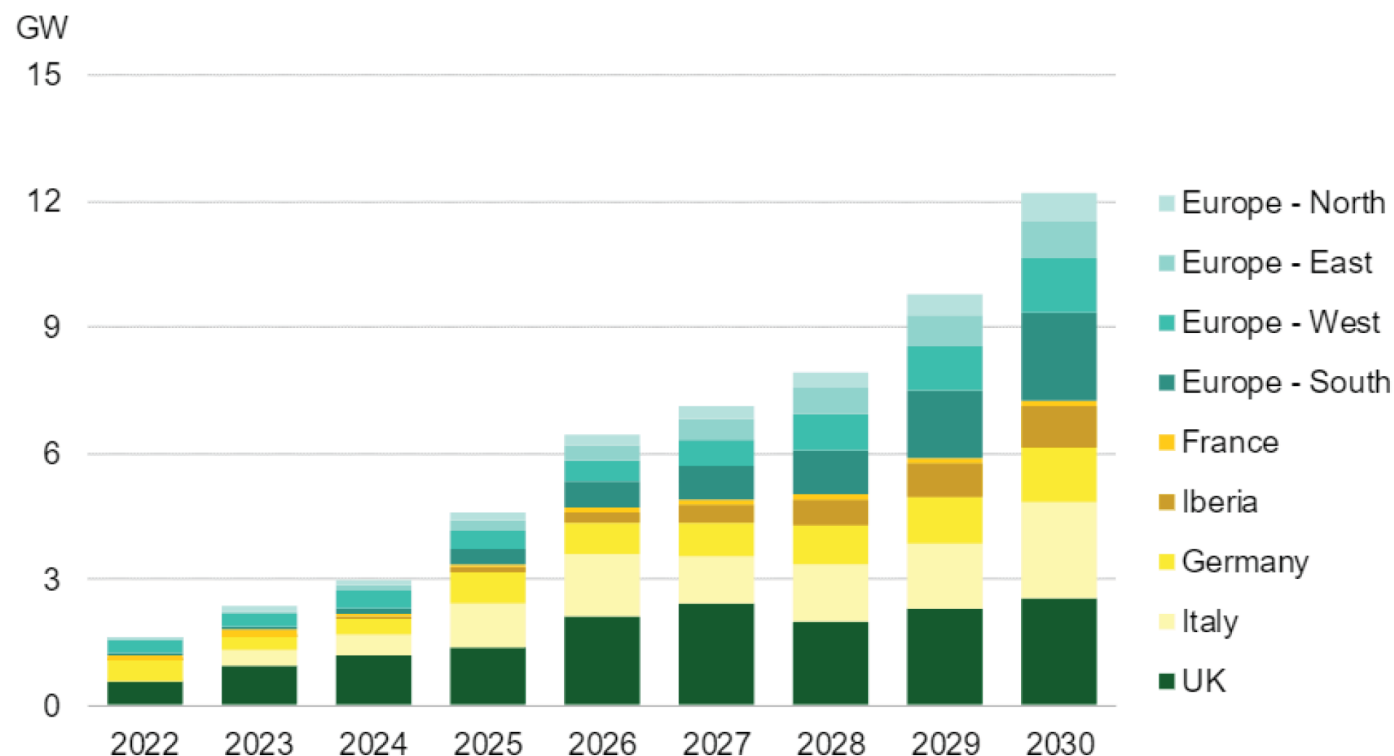
Market rises



Leading
Markets

UK-IT-DE-ESP-FR

Annual utility-scale storage additions in Europe



Source: BloombergNEF. Note: Countries in Europe - North, Europe - East, Europe - West and Europe - South are specified in [Appendix A](#)

UK leads in GW terms due to grid



UK

17GW/40 GWh
In 2030



10GW

Contracted by
National Grid by
2027

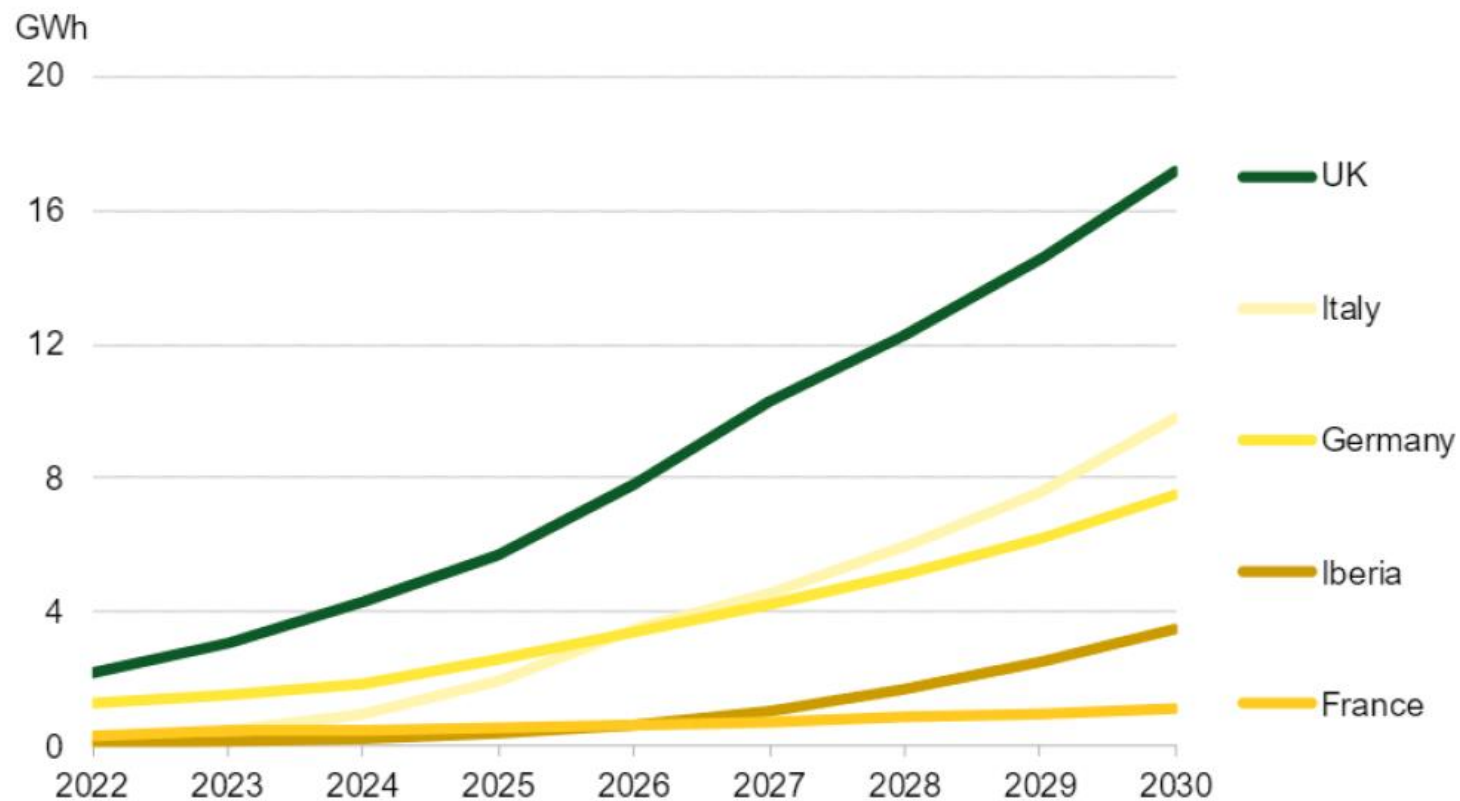


Supply
Grid
Services



Reactive
Power
Services

Cumulative utility-scale storage capacity in Europe



Source: BloombergNEF

Market Opportunities

Power price arbitrage



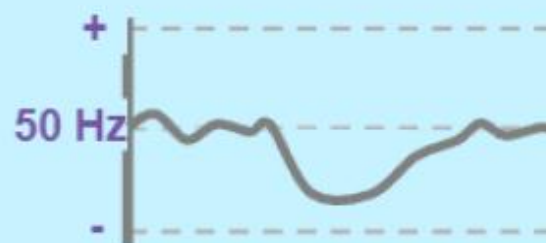
Daily
dispatch



Intra-hourly
adjustments

Grid services

Frequency response and reserves
Voltage control and reactive power
Constraint management
Black-start and restoration



System stability

Capacity markets

Renewable plus
storage tenders
Storage tenders

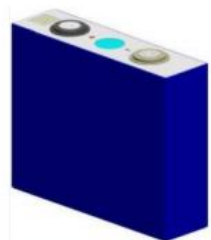


Long-term
security of supply

Storage Systems as the Solution

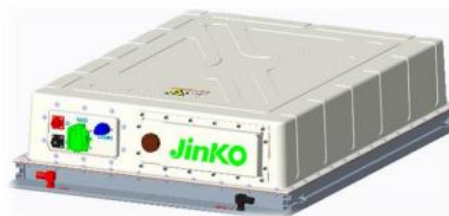
- ✓ Becomes a key tool for the **harmonization** of the prices and avoiding the duck curve
- ✓ Assure the renewable generation avoiding energy discharges
- ✓ **Increase the solid capacity of the electric system**, assuring the supply without any dependence of fossil fuels
- ✓ **Provides system inertia, increasing the reliability of the system** and letting the maximum renewable production
- ✓ Storage will provide an **optimum use of the system**, decreasing the congestion and avoiding the investment of new lines.
- ✓ Provides Flexibility

JinKo ESS Strategy



Module Level

Thermal Material
CCS Protection Board



Rack Level

Rack Protection Strategy
Temperature and smoke detect



CELL

MODULE

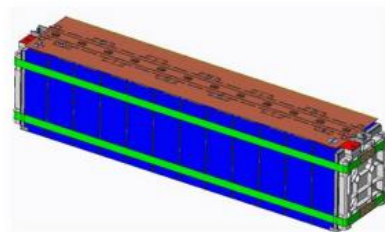
PACK

RACK

SYSTEM

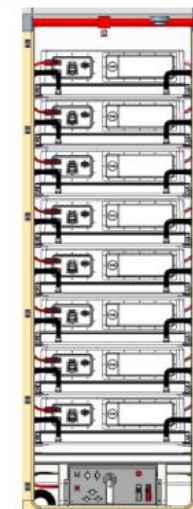
Cell Level

Outlier Cells Prediction
Pre-alarming Abnormal Cells



Pack Level

Insulated Heating Coat
Explosion Protective Valve
Fire Suppression Agent(optional)



System Level

Gas Fire Suppression
Water Fire Protection
Combustible Gas Release,
Explosion Protection

*100 MWh project as an example

JinKo ESS BESS Products



Residential ESS



C&I



Utility

JinKo ESS SunGiga



215kWh Outdoor Liquid Cooling ESS (Battery + PCS)

- Compatible with 1000V systems for more flexible application scenarios;
- Supports parallel connection of multiple machines, flexible application and easy expansion;
- Pack unique cold plate runner design, system multi-mode precision control, lower temperature difference $\leq 2^{\circ}\text{C}$;
- Various operation models such as peak shaving and demand management are available, and the cloud platform management is compatible.

SAFETY is the top principle, from design and engineering point of view

- Intelligent monitoring.
- Provides warnings to prevent thermal runaway.

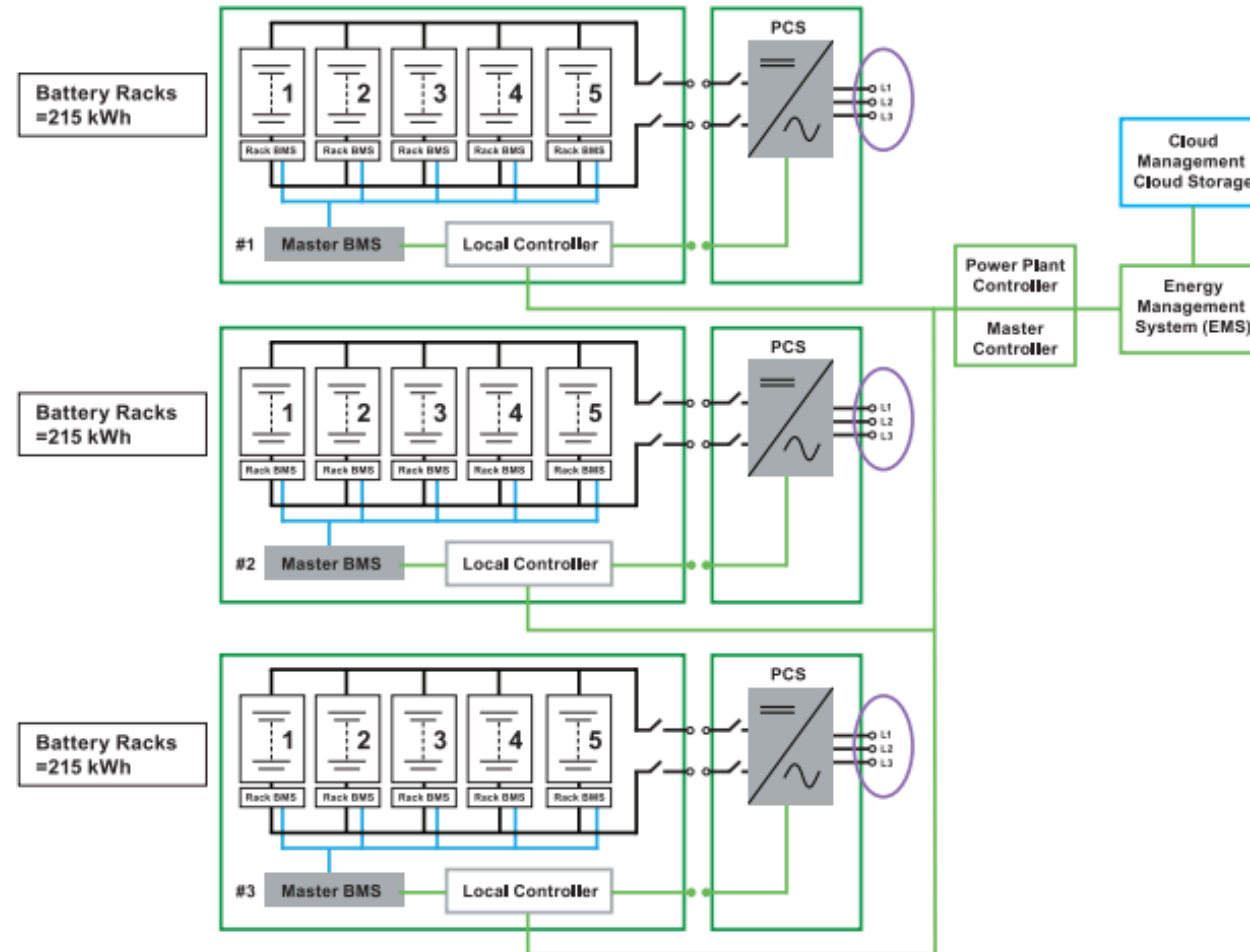
- Remote monitoring
- Intelligent O&M
- Demand response
- Load forecasting
- Income measurement



ESS Cabinet: capacity 215kWh, liquid cooling unit, 5 battery modules

JinKo ESS SunGiga

Example 3 SunGiga all in one providing 645kWh capacity



SunGiga Applications



JinKo ESS SunTera



306Ah and 314Ah Cells
3.76MWh and 5MWh in 2024

Certifications

GB36276
IEC62619, IEC60730,
IEC63056, IEC62477, IEC61000
UL1973 UL9540 UL9540A
UN38.3 UN3536

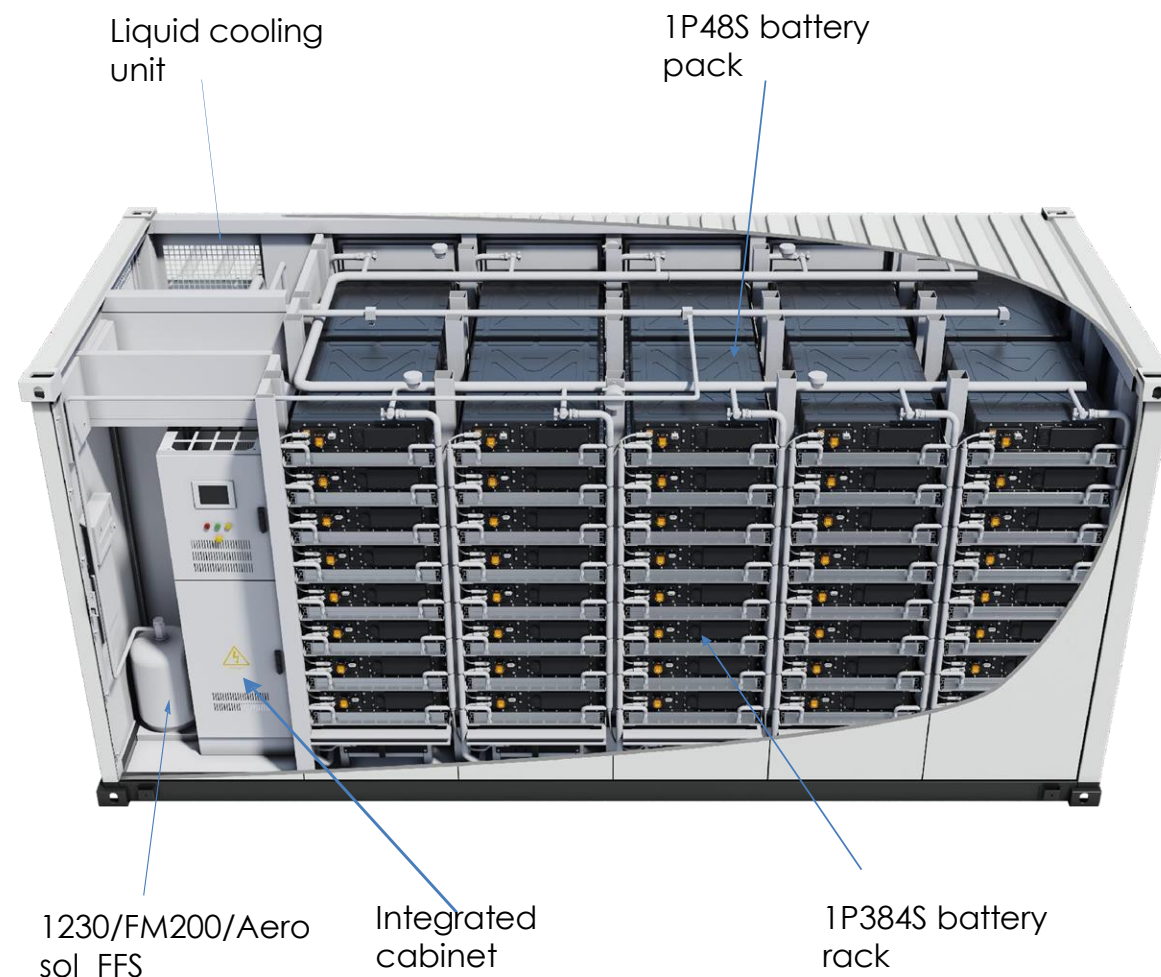
Standardized design

CCS Classification society certifications
Shipping without removing racks
Fast installation and commissioning

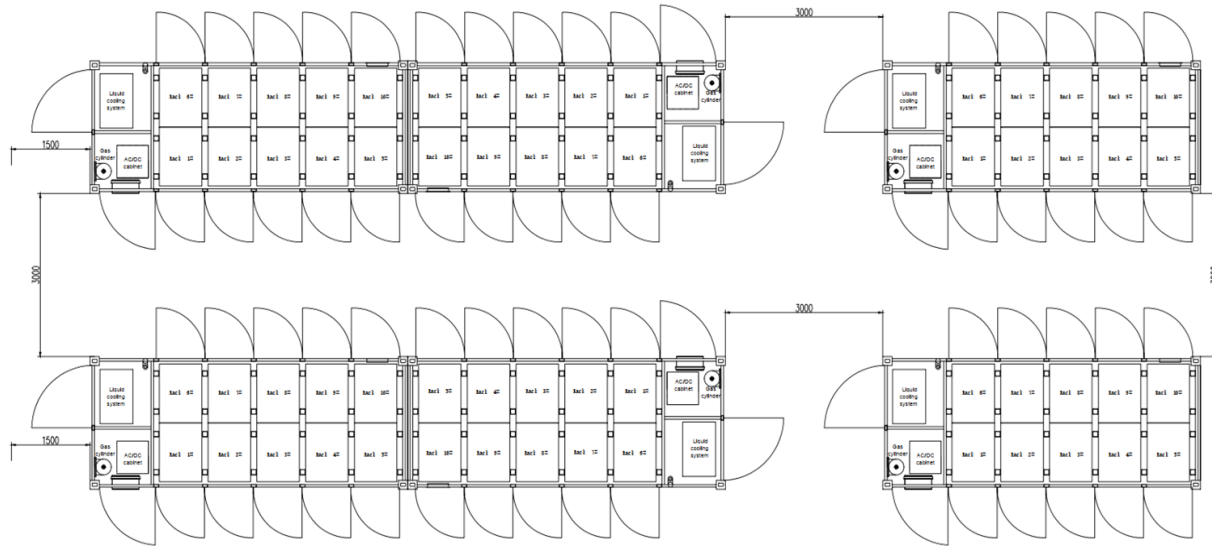
JinKo ESS SunTera



Items	Parameters
Type of battery	Lithium Iron Phosphate(LFP)
Cell parameters	3.2V/280Ah
Max. charge/discharge power	0.5P
Configuration of system	1P384S×10
Rated capacity	3.44 MWh
Rated voltage	1228.8V
Cooling method	Liquid Cooling
Environmental temperature	-20~50℃
Environmental humidity	≤95%RH, Non condensation
Altitude	≤2000m / <4000m (optional, derating)
Noise level	< 80dB(A)@1m
IP Grade	IP54
Storage temperature	-20~45℃
Fire protection	Gas Sensors+Deflagration Venting+ FM200/Novec 1230/Aerosol + Water Dry Pipe
Corrosion-proof grade	C3 (EN ISO 12944)/C4 (optional)/C5(optional)
Dimensions (L×W×H)	6058×2438×2896mm
Weight	≈35000 kg
Design life	20 years



Supporting Side by Side Layout



The Fire Suppression System

Flammable gas detection Auto start the fire suppression, reducing losses



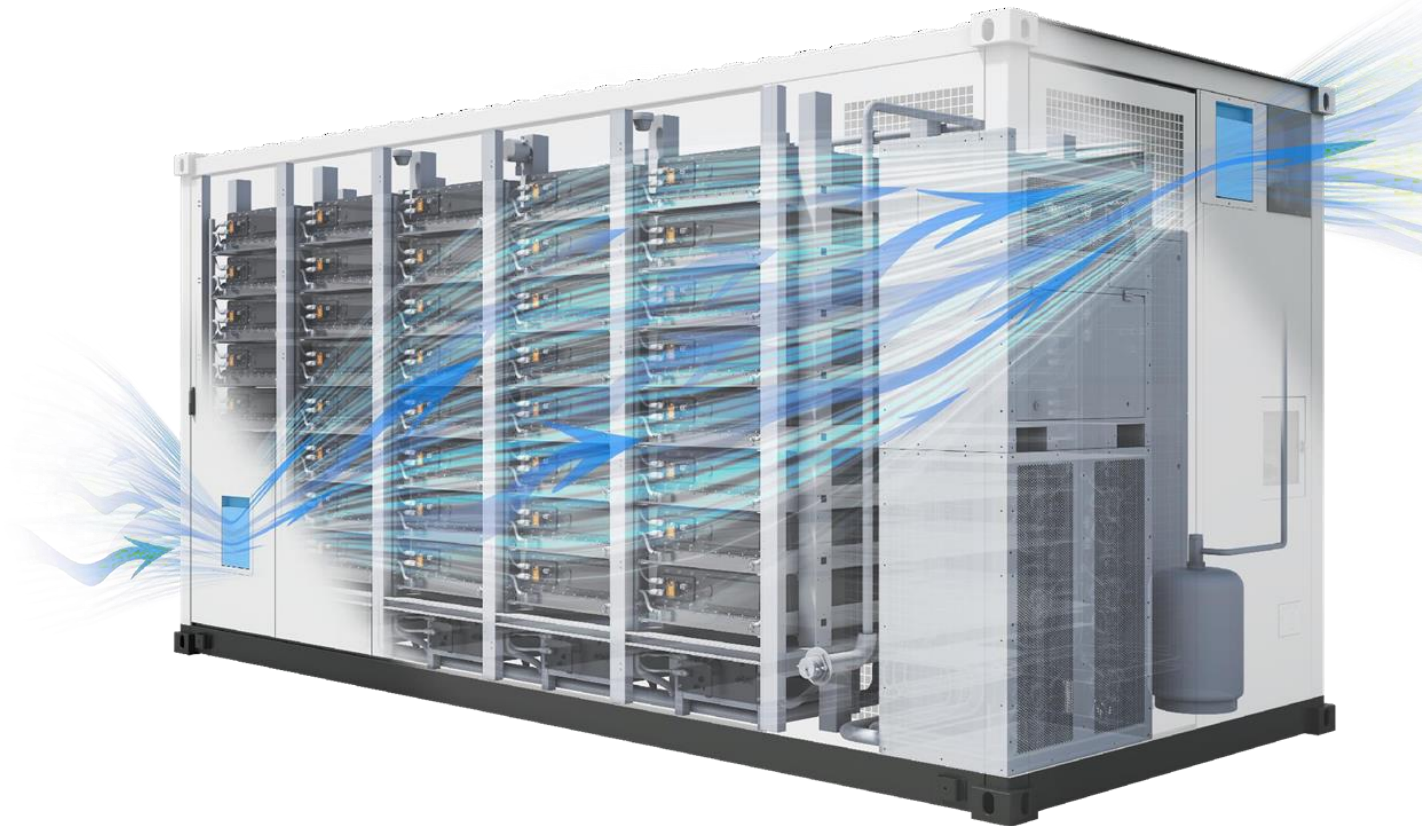
Compliance with NFPA855/69/68/15

Standard for the insulation of stationary ESS
World's first international safety standard for ESS put forward by the National Fire Protection Association

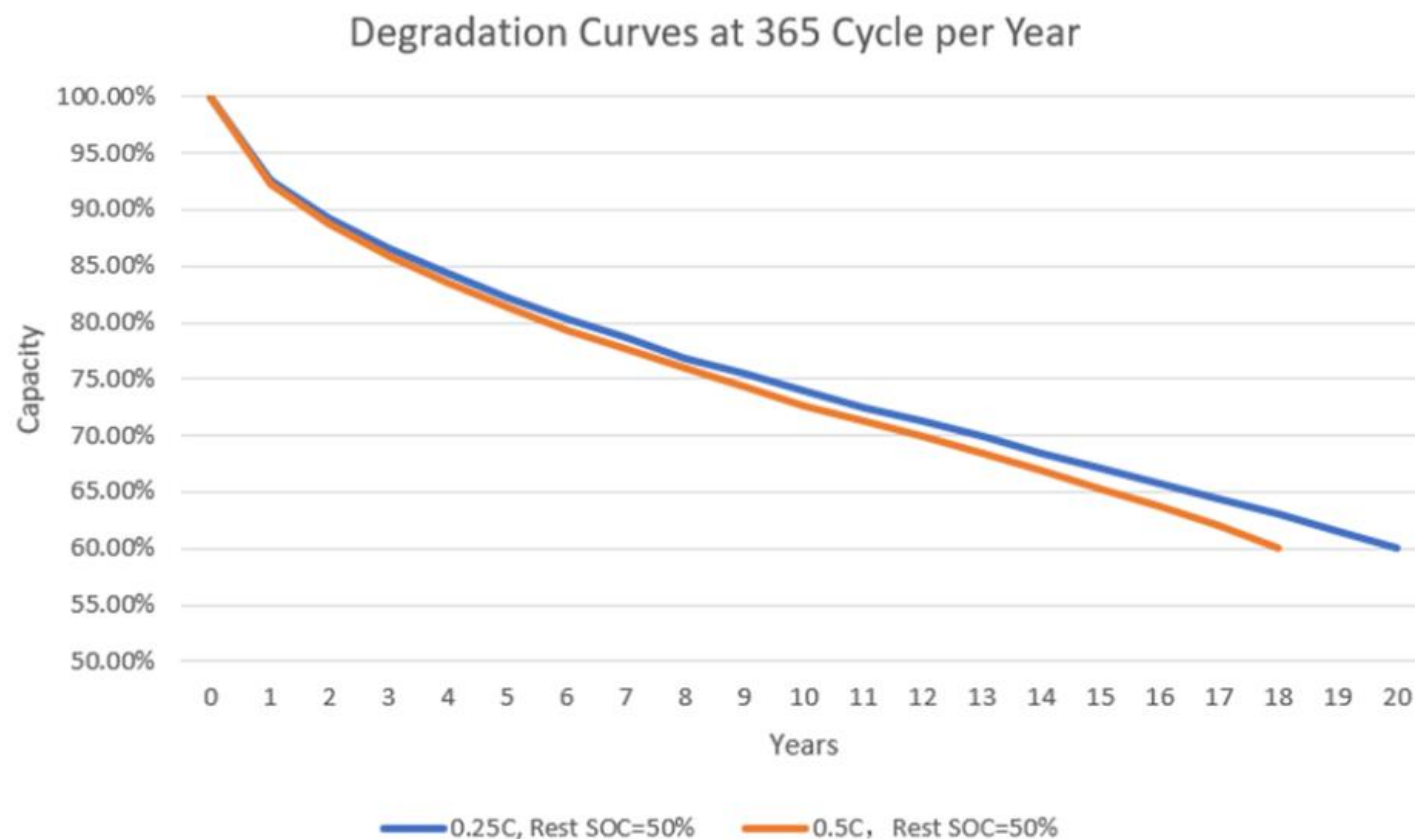
Standard requirement	PowerEvo
Smoke detector	✓
Thermal detector	✓
Flammable gas detector	✓
Deflagration System	✓
Fire Suppression System	✓

Deflagration Venting

- Deflagration venting equipped to avoid explosions
- Fire extinguisher system guarantees rapid suppression to thermal runaway
- Plus water FSS (Fire Suppression System) ensures final safety



Indicative Degradation Curves

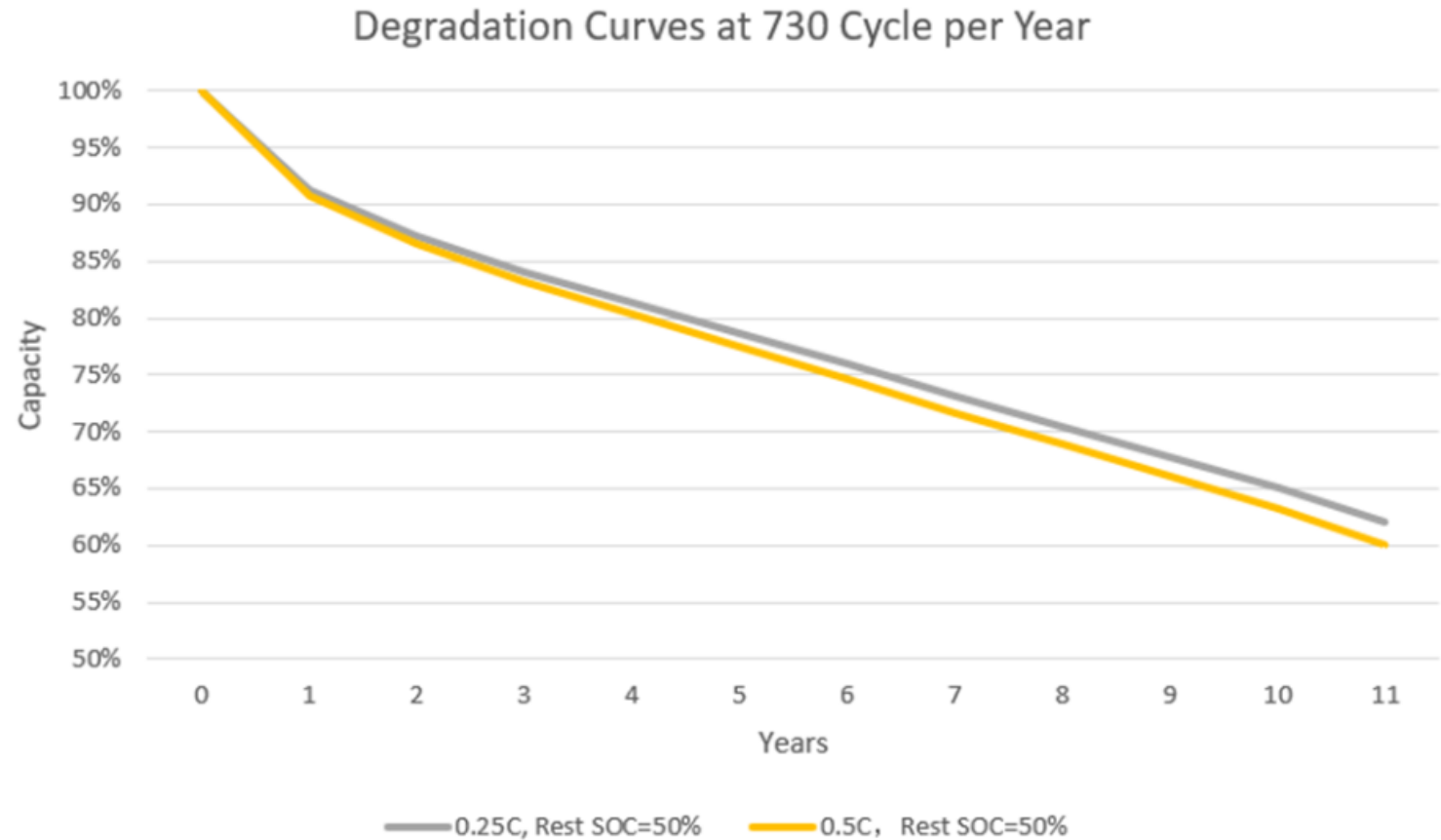


365 Cycles per year		
Charge/Discharge C-Rate	0.5C	0.25C
DOD	94.5%	94.5%
Year		
0	100.0%	100.0%
1	93.1%	93.7%
2	90.5%	91.1%
3	87.9%	88.5%
4	85.2%	85.8%
5	83.4%	84.0%
6	81.5%	82.1%
7	79.7%	80.3%
8	78.0%	78.6%
9	76.2%	76.8%
10	74.4%	75.0%
11	73.1%	73.7%
12	71.7%	72.3%
13	70.3%	70.9%
14	-	69.5%
15	-	68.1%

NOTE: only for reference

Indicative Degradation Curves

730 Cycles per year		
Charge/Discharge C-Rate	0.5C	0.25C
DOD	94.5%	94.5%
Year		
0	100.0%	100.00%
1	91.8%	92.60%
2	88.6%	89.40%
3	85.5%	86.30%
4	82.3%	83.10%
5	80.1%	80.90%
6	77.9%	78.70%
7	75.9%	76.70%
8	73.8%	74.60%
9	71.8%	72.60%
10	-	70.50%



NOTE: only for reference

Haining, China

20MWh – 10MW

202208 COD

Peak Shaving / Peak Valley Arbitrage / On Grid



Israel

514MWh

202207 COD

Peak Shaving / Renewable Smooth / On Grid

ESS
JinkO

Solar
JinkO
Building Your Trust in Solar

Haining, China
639Wh – 300KW
202209 COD

Peak Shaving / Peak Valley Arbitrage / On Grid

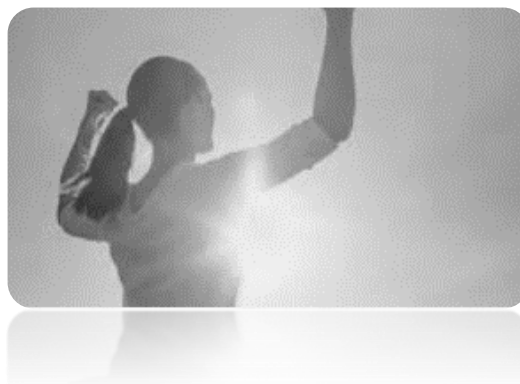
Djibouti
1.1MWh – 1MW
202209 Installation
DG Replacement
Hybrid with 1200KWp PV/3 DGs
Off Grid



Building a sustainable business as successful as PV is.

Building your trust in our storage solutions.

Offering services at high level in engineering and service support.



THANK YOU!