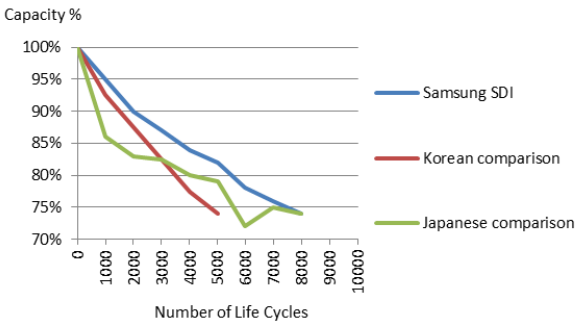
Sungrow-Samsung SDI

Commercial Energy Storage

The Sungrow-Samsung SDI Energy Storage System combines bi-directional inverters from the world's leading inverter supplier, Sungrow, with lithium ion batteries from Samsung, one of the top three lithium battery suppliers in the world. The two companies joined forces to develop commercial storage solutions in 2016.

The inverters and batteries are integrated together in a containerised solution with intelligent software to provide all of the functionality required to access the cost savings and revenue streams available in the commercial energy storage market.

Life Cycle Data



The Samsung SDI is a long life durable battery with 80% retained capacity after 5500 cycles, exceeding the performance of close competitor batteries for which the 80% detained capacity threshold is breached before 4,500 cycles.

Energy Management System

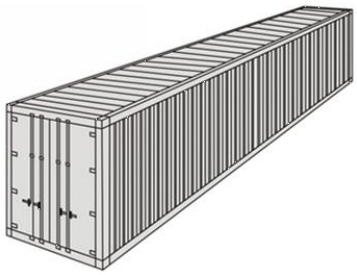
- Monitoring software to support the various applications available from the system.
- Cloud-based, open platform to facilitate research.
- Simulation toolboxes for a range of renewable technologies.
- Supports various communication protocols.

Enhanced Safety

- The battery has many in built safety features at the cell level. These include a safety layer to maintain electrical separation in the event of damage, a positive polarity aluminium exterior to prevent surface corrosion, an overcharge safety device preventing current flow if activated, vents to emit any gas if the inside pressure goes abnormally high, and fuses to cut the current path if abnormally high current flows.
- Further monitoring and protection is in place for the container itself (see overleaf).

Containerised Solution

The system is housed in a container including ventilation system, FFS extinguishing system with smoke and temperature sensors and alarms, climate control with air conditioning and heating, humidity monitoring, remote access, lighting and access control. The system is bespoke and can be designed to meet the project requirements.



10ft Container
50-250kW output, up to 250kWh storage.

20ft Container
250-500kW output, up to 500kWh storage.

40ft Container
Up to 1000kW output, 1000kWh storage.

Functionality

On Site Savings / Benefits

- Peak shaving (minimise TRIADs, DUoS, CM Levy), control of maximum demand.
- Uninterrupted power supply (UPS) to replace diesel.
- On-site storage of microgeneration (e.g. solar, wind).
- Transmission / distribution support.
- Electric vehicle charging – gearing up of on site power.

Potential Income Streams

- Firm Frequency Regulation income.
- Capacity Market participation.
- Demand Response participation.
- Peak price export income.

Specification

Electrical

System size:	Bespoke (scalable from 50KW/50kWh to 50MW/50MWh).
Nominal Voltage:	400V
Frequency:	50Hz, 60Hz
Continuous power Duration:	Designed typically to 1 – 2 hours.
Efficiency:	Varies with C- rating, circa 93%.
Warranty:	6 years, extension to 13 years available.

Regulatory

Li-ion batteries	- UN38, VDE, CE, UL and JET.
Inverters	- TUV (CE), G59/3, UL/CSA.

EMS and protection cabinet to EU standards.

System References

Talchin PV & Energy Storage Plant, Tibet.

6MW / 10MWh UK Power Networks substation, Leighton Buzzard.

Pilots in the UK for two supermarket chains.

University pilots.