



LEAD BATTERIES: ENERGY STORAGE CASE STUDY



Narada

Frequency Regulation For The German Power Grid

NARADA, Leipzig, Germany

Narada, one of China's leading battery energy storage system suppliers has partnered with energy storage operator, Upside Group, in a large project for frequency regulation for the German power grid. The installation is located at Langenreichenbach, near Leipzig.

The battery capacity is 25 MWh and the system is specified to provide 15 MW for one hour for primary control reserve in

“This frequency regulation energy storage PCR project is a symbol of transformation. This grid scale large BESS is Narada's first investment and operation model project in the overseas market. Narada will take this opportunity to accelerate the promotion and application of the energy storage business in Europe and the global market”

Chen Bo, CEO, Narada

frequency regulation. The network operator is Mitnetz who supply electricity to over 2 million customers.

Technical Specification

The battery is comprised of 10,584 units 1200 Ah lead-carbon valve-regulated cells housed in 18 containers and delivers power through nine inverters supplied by SMA Solar Technology, each capable of delivering 1.8 MVA.

The system is managed by two controllers also provided by SMA so that the battery discharge and recharge are precisely controlled to match the grid requirements for maximum efficiency.

All the battery cells are individually monitored to ensure any deviation in performance is detected and corrected before there is a problem.



The battery is operated at partial state-of-charge so that it can accept and deliver charge at all times. The lead-carbon technology used was developed in partnership with ALABC. These REX Carbon cells have a projected calendar life of 15 years and an extended cycle life in shallow cycle service.

They have been extensively deployed in China for peak shaving, off-grid wind power installations, and in telecommunications hybrid solutions and energy storage model datacenters.

Narada and Upside have a number of similar plants in the pipeline for 2019 and beyond.

The batteries are installed in containers with all the racking and electrical connections pre-installed prior to shipping.

Each container has 588 units 2 V cells which are installed on site. Construction time, from breaking ground to connection to the grid, took three to four months.

Technical Summary

POI	20 kV
PCR Power	15 MW
Plant Power	16.4 MW
Storage Tech	Lead Carbon
Storage Cap.	25 MWh
Plant Design Life	20 years
Architecture	1 + 1 MVSG 4 + 5 MVPS 8 + 10 Storage

About the Company

Narada was established in Hangzhou, China in 1994 and has evolved into one of the world's leading battery suppliers. The company majors in valve-regulated lead batteries and lithium batteries for various applications.

The renewable energy storage section is a major market for the company and Narada has an increasing presence in international markets.