

Mongolia 80 MW/200 MWh Grid Side Energy Storage Project

Markedly Enhanced Grid Stability

Background

Mongolia's first large scale grid side energy storage station - the Songino 80 MW/200 MWh energy storage project, constructed by Zhongtian Technology Group, with core equipment provided by NR Electric, was commissioned in 2023. Since commissioning, the project has significantly strengthened the grid and greatly improved system stability. On 4th August 2026, the inter tie transmission line between Mongolia and Russia tripped, resulting in substantial power loss and a sharp frequency drop of 0.3 Hz, exposing the power system to frequency instability risks. The BESS delivered fast primary frequency regulation response, effectively arresting the frequency decay, preventing further accident escalation.

Project Overview

This BESS project is situated adjacent to the existing 220 kV Songino substation on the outskirts of Ulaanbaatar, it is designed for the harsh local climate, with an ambient operating range of -45 °C up to +45 °C, heavy snowfall and seismic requirements. The BESS is connected to Mongolia's Central Energy System (CES) via two 110 kV overhead transmission lines, each is capable of carrying the full rated BESS power to avoid total capacity loss upon single equipment failure.

Main Functions of the BESS

- Frequency and voltage regulation for the Central Energy System
- Black start capability for system restoration after grid blackout
- Peak shaving
- Renewable energy integration and power fluctuation smoothing
- Enhancing overall grid stability and energy security of Mongolia



Fig 1 Bird view of Songino project

NR's Contributions

NR Electric leveraged its deep technical expertise and high-quality product services to provide key equipment for this project, including PCS skids, coordination controllers(PMS), and the energy storage management systems(EMS). Deployment of these technologies has significantly improved the control accuracy and response speed of the storage system, providing excellent peak shaving, frequency stabilization services to the grid. This is also Mongolia's first energy storage facility equipped with power plant black start capability, greatly improving the grid's disaster resistance capacity and emergency support capability.

Thanks to sound project execution and excellent performance, the project received the Annual Best Project Award 2023 from the Ministry of Energy of Mongolia.



Fig 2 Annual Best Project Award

The Assessment of Performance

On 4th August 2026, the BESS provided fast primary frequency regulation effectively arresting the frequency decay when the inter tie transmission line tripped.

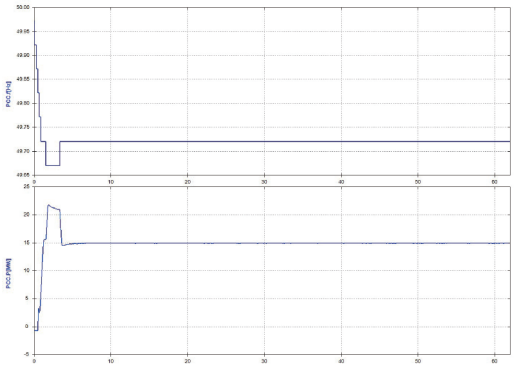

Fig 3 Fast primary frequency regulation

In August 2025, the project successfully completed its black start test, marking a major leap forward for Mongolia in power system modernization and energy security assurance capability.



Fig 4 Black start test

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