

REQUEST FOR EXPRESSION OF INTEREST

Power System Planning for Mongolia Transmission Grid

Publication date: 24th Aug 2022

Submission date: 1st Sep 2022

Country: Mongolia

Duration: 8 Months

Description of procurement:

The supply of power and heat in Mongolia is heavily reliant on fossil fuel-based sources. In recent years, RE has been getting more attention as a key solution to decarbonizing the grid and commitment to Nationally Determined Contribution (NDC) targets. Although the Government of Mongolia (GoM) considers that expansion of the coal-based power generation is indispensable for meeting the increasing demand for heating, RE scale-up is considered a key milestone for Mongolia's transition away from heavy coal use. As of today, the Mongolian grid is not able to absorb much more variable RE than what is presently connected or already under construction. This is mainly due to the absence of mechanisms to balance the intermittency of wind and solar power and the substantial share of coal-fired generation that must run to co-generate heat for district heating networks. Besides, in the absence of solid transmission system including 220kV backbones and some smart grid solutions including digitalization of the network may prevent Mongolia from reducing its reliance on coal.

The World (WB) is currently implementing the second Energy Sector Project for Mongolia (ESP2) which comprises distribution system upgrade, installation of Advanced Metering Infrastructures (AMIs), and installation of 10MW PV into Mongolia Power system. In parallel, the WB is looking for future opportunity to continue its support to the power sector including transmission system upgrade. The important outcomes of this study aim to identify, scope, and justify such potential investments to be supported by the WB.

The objective of this assignment is to conduct power system analyses and prepare the country's long-term transmission network development plan to sustain growth in electricity demand and realize clean energy transition. The assignment is also aimed to analyze potential issues on the power system due to increasing renewable integration and then identify measures to address those issues, including prioritized investments on transmission system.

Scope of Work:

The development of the long-term transmission network development plan will encompass results and findings of multiple and interconnected type of analyses that will be carried out by the Consultant including:

- Review of previous documents on power system of Mongolia and make assumption for demand and generation expansion by 2040, which aims to form basis for long-term

transmission system modelling and planning, in consideration of VRE integration and grid decarbonization in future.

- Transmission network analyses that aim to define transmission system configuration and long-term transmission network expansion plan towards 2040 and provide justification to candidate investment projects in urgent need by 2030, which be necessary to maintain security and quality of electricity supply and reliability of the transmission networks in Mongolia.
- Interconnection Assessment which aims to identify transmission investments and connection plan for specific renewable energy and/or storage projects integration to the transmission network.
- Dispatch and balancing analyses to assess technical and economic impacts, and mitigation measures, of renewable energy integration on the operation of Mongolia power system, with particular focus on the flexibility, balancing, reserve, and control. The study will identify requirements on the function and technical characteristics on power storage facility including pumped-storage hydro.

Eligibility Criteria:

The firm has relevant experience in consulting services for the power sector in the Asia region. The relevant experiences in Mongolia will be recommended.

For more information, please email to info@tenderingprojects.es