



ASIA CLEAN ENERGY FORUM 2023

Modernization of the National Power Grid for Automatic Dispatch and Grid Stability



National Dispatching Center

GANBAT ENKHBAYAR





Mongolian power system challenges:



•Increasing electricity demand



•Aging power infrastructure



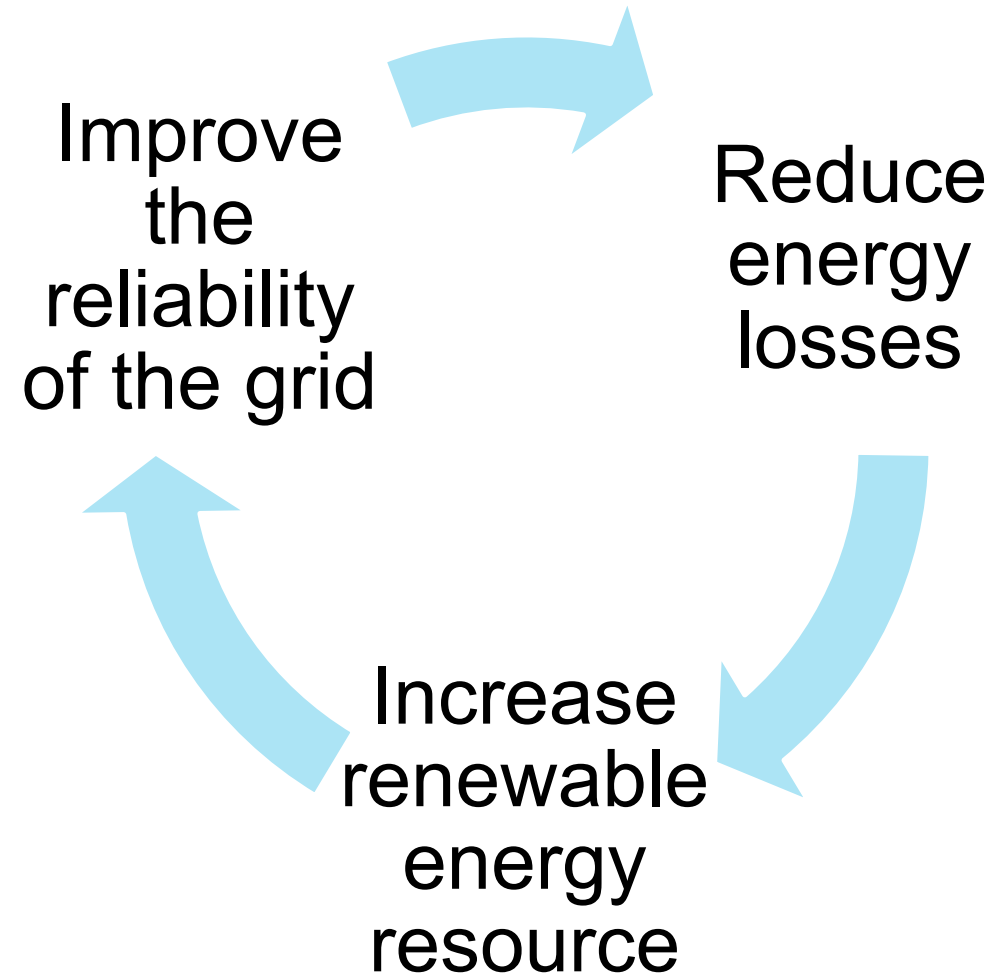
•Highly dependent from the Russian power system



•Lack of investment in renewable energy sector

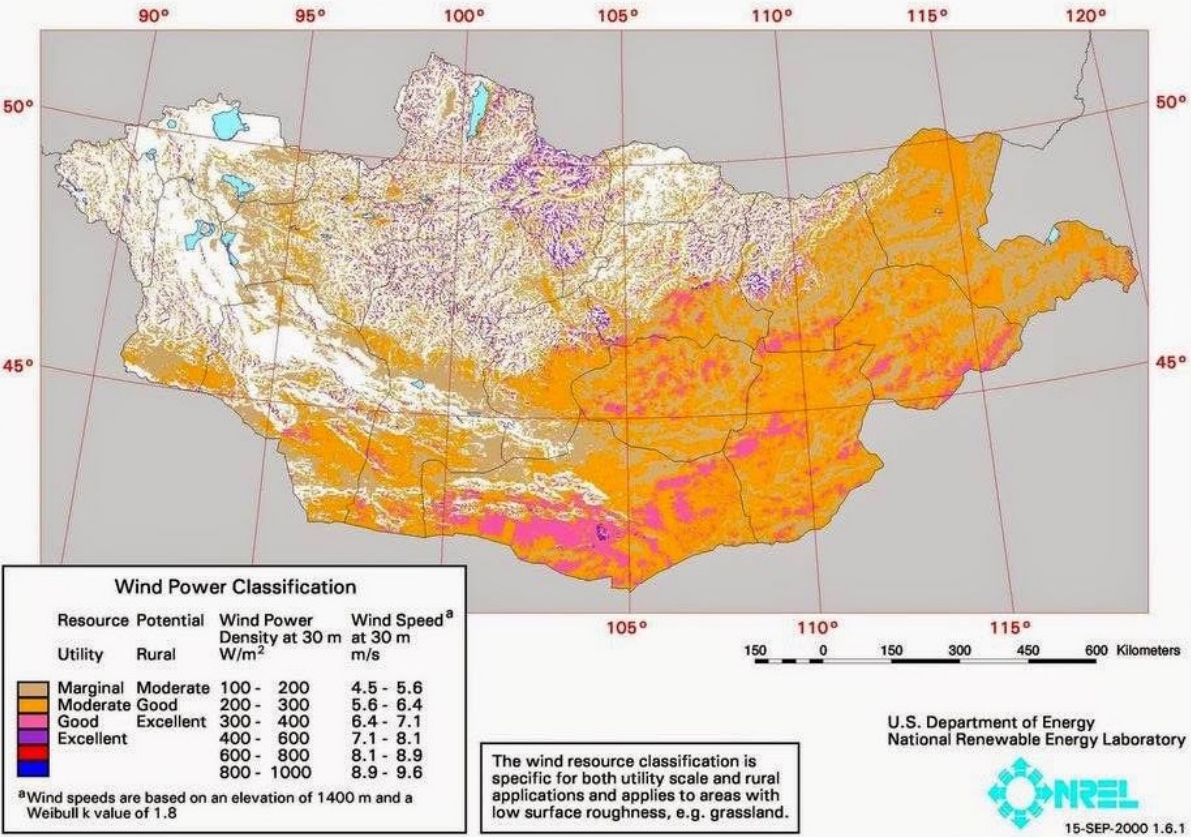
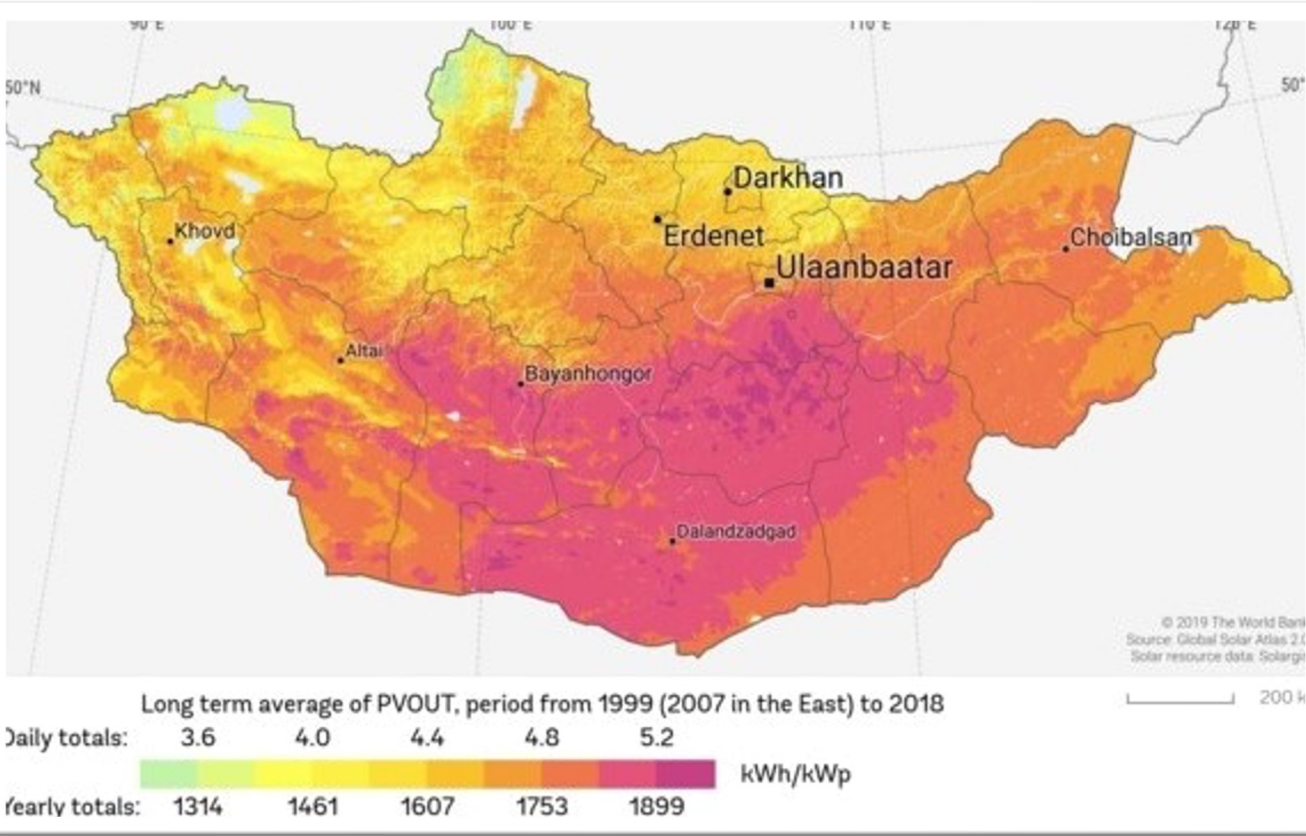
Modernization of the National Power Grid for Automatic Dispatch and Grid Stability

**Mongolia is developing
SMART GRID in order to:**



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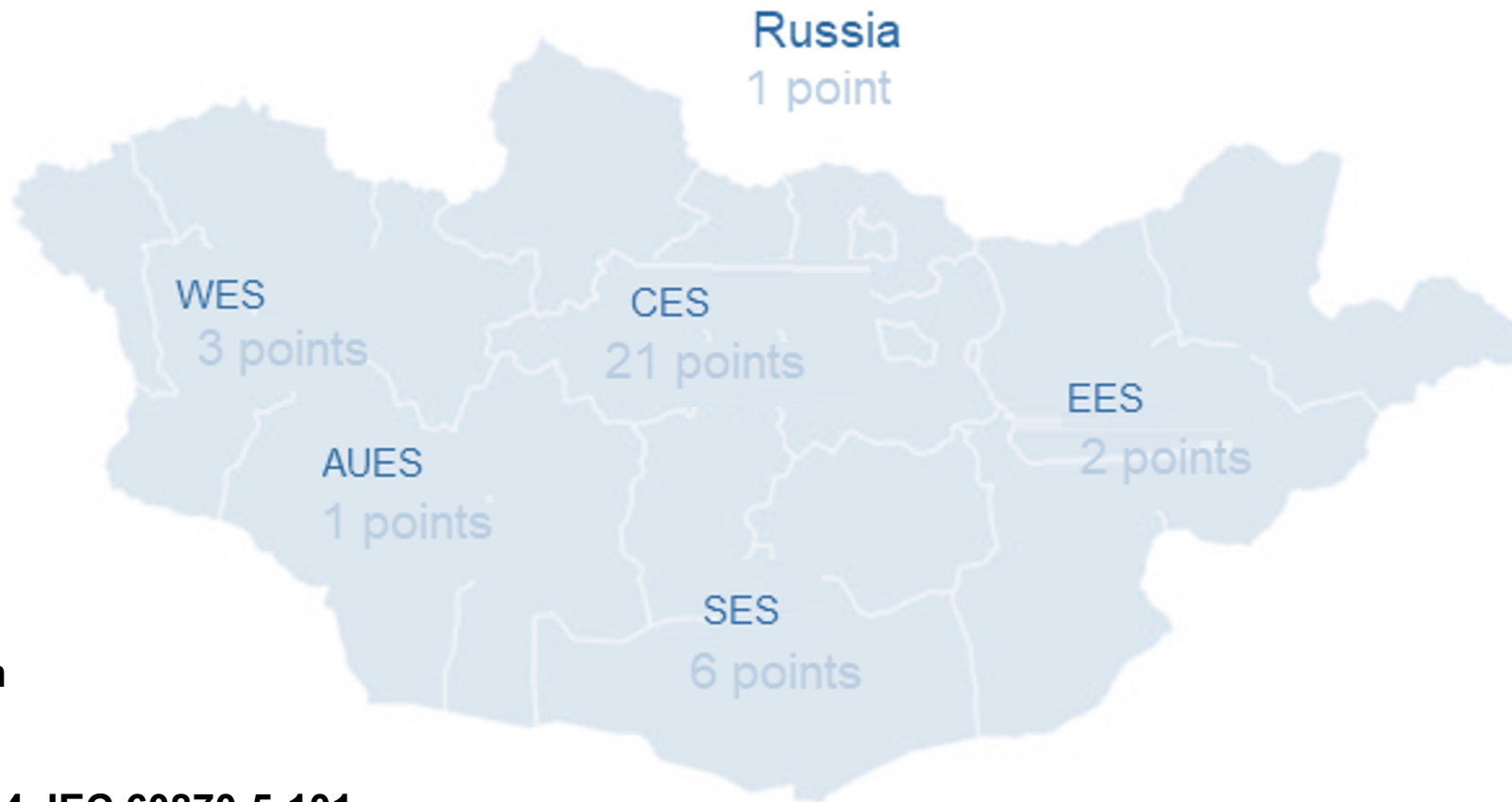
Opportunities: Vast potential for renewable energy



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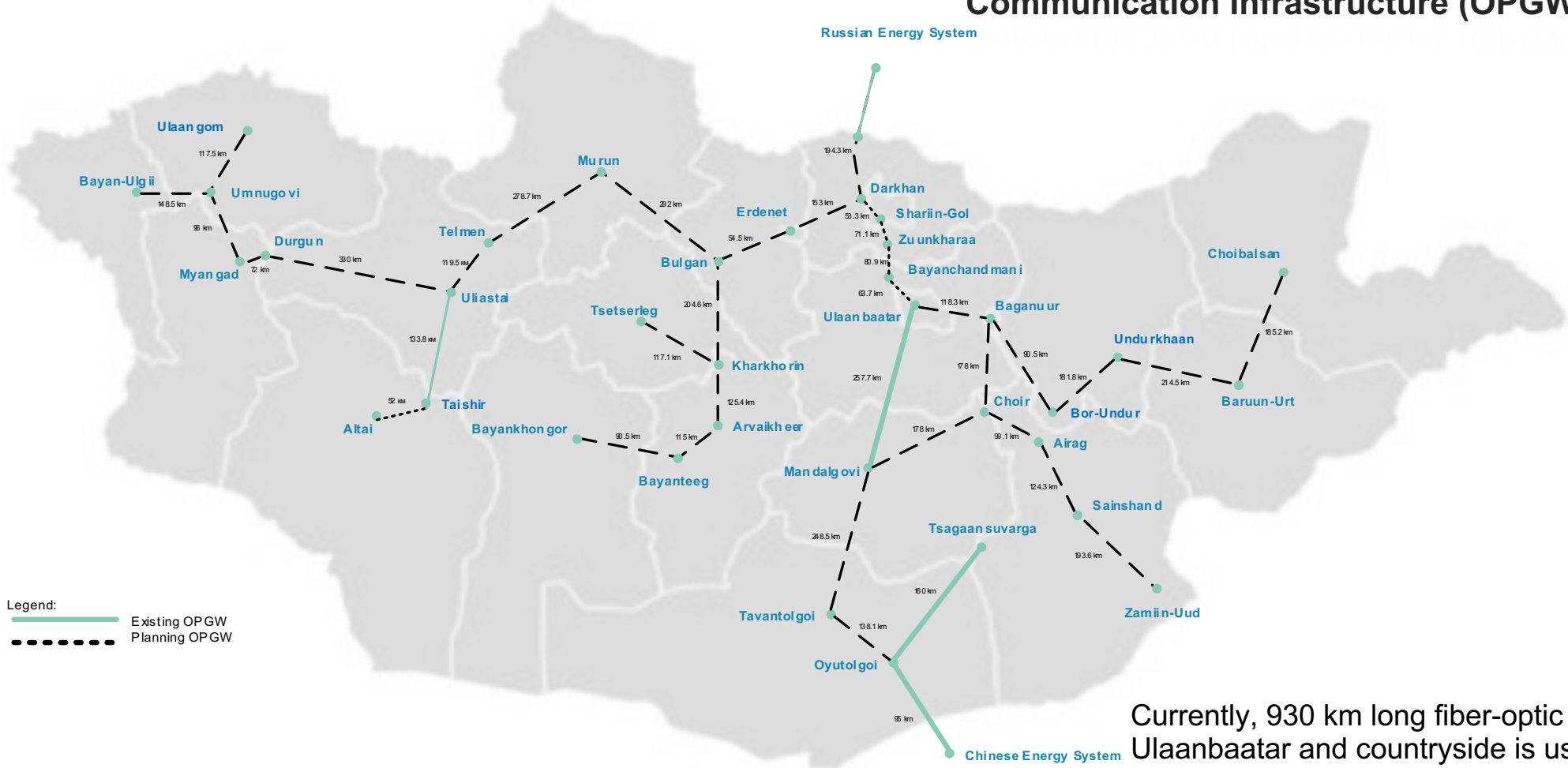
SCADA system overview

- Main applications: - **Monitor the energy system real-time operation**
 - **Power system planning**
 - **Data analysis**
- Connection points: **38 major points**
- Commissioned year: **2006**
- Software: **SINAUT Spectrum v4.4**
- Product developer: **Siemens**
- Servers: **Redundant 2 servers**
- User interfaces: **6 UI**
- Data collection:
 - 1. Optical Ground Wire**
 - 2. Power Line Communication**
 - 3. Leased VPN (Mobicom)**
- Communication protocol: **IEC 60870-5-104, IEC 60870-5-101**



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Communication Infrastructure (OPGW - Nationwide)

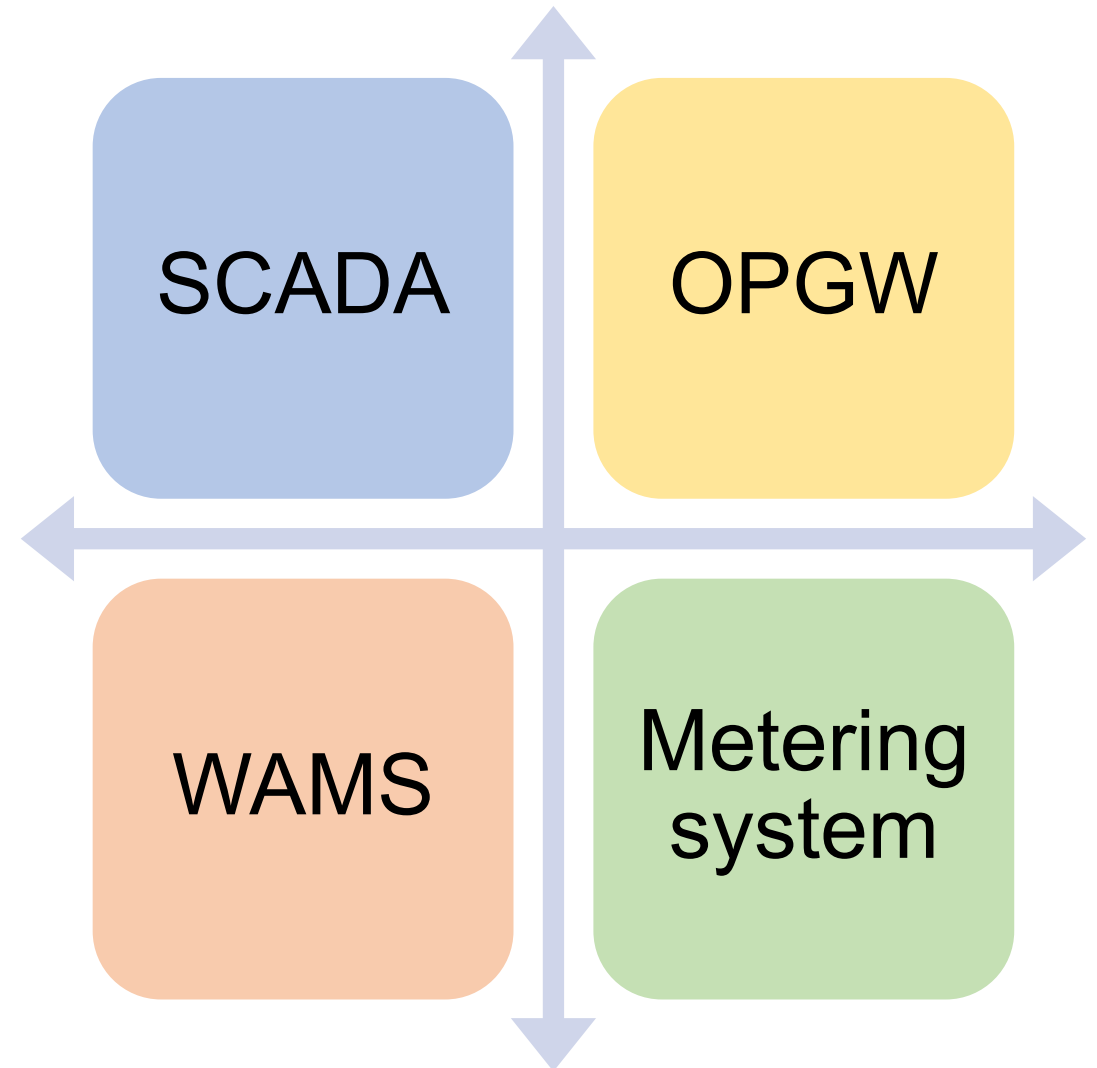


Legend:
 — Existing OPGW
 - - - Planning OPGW

Currently, 930 km long fiber-optic cable covering the Ulaanbaatar and countryside is used in the OPGW network.

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The Mongolian Smart Grid is a project to modernize the country's electricity grid.



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Smart Grid will bring the following benefits:



Improved reliability and security of the grid



Improved transparency of billing



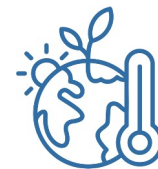
Reduced energy cost



Increased opportunities for renewable energy integration

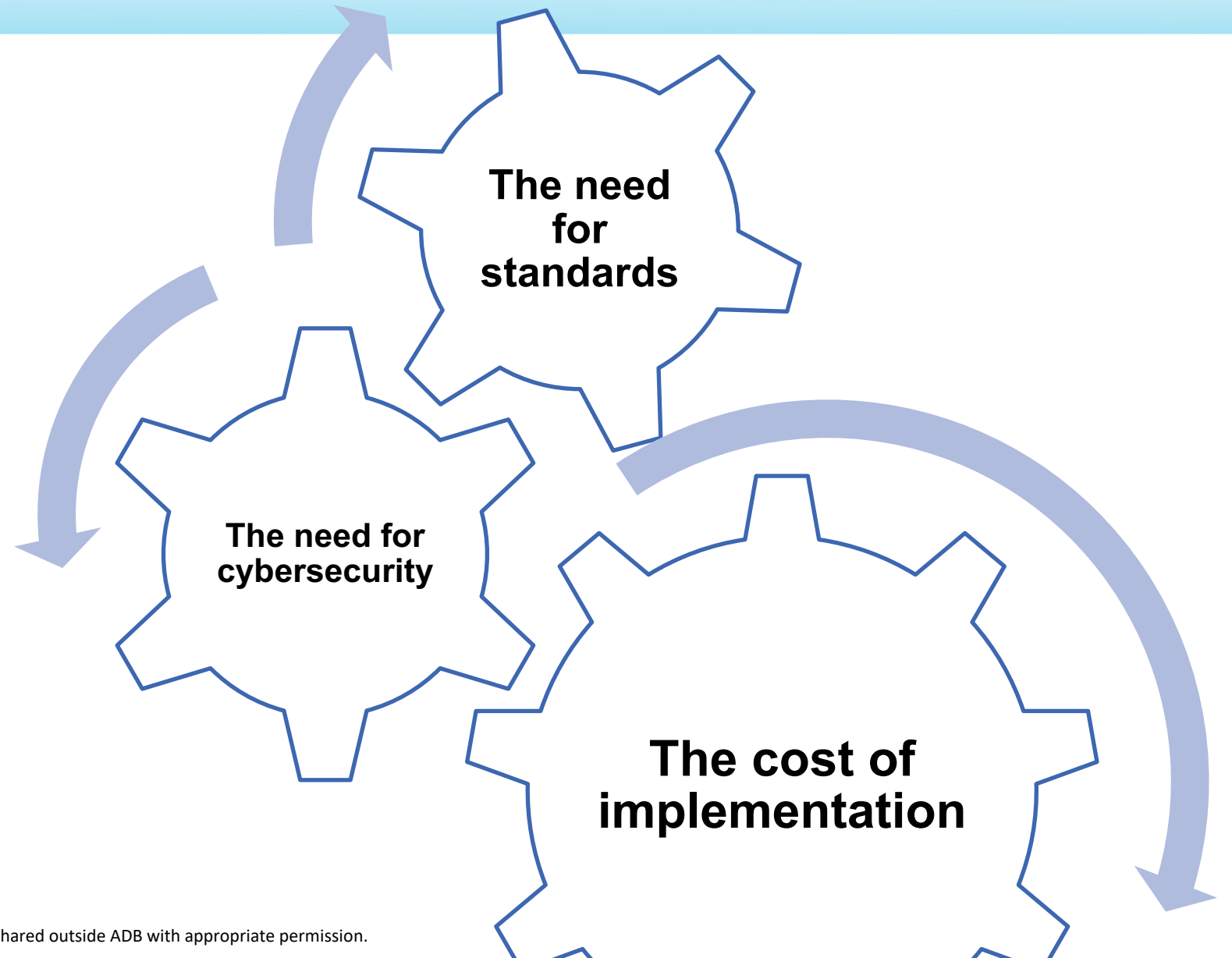


Increased efficiency of the grid



Improved resilience to climate change

The challenges of smart grid



Conclusion

The Mongolian Smart Grid is a major project that will have a significant impact on the country's electricity grid. The project will improve the reliability, security, efficiency, and transparency of the grid, and will make it more resilient to climate change. The project will also create new opportunities for renewable energy.

The Mongolian Smart Grid is a vital investment in the future of the country's energy sector. The project will help to ensure that Mongolia has a reliable, secure, and affordable supply of electricity for years to come.

Thank you
for your
attention!

