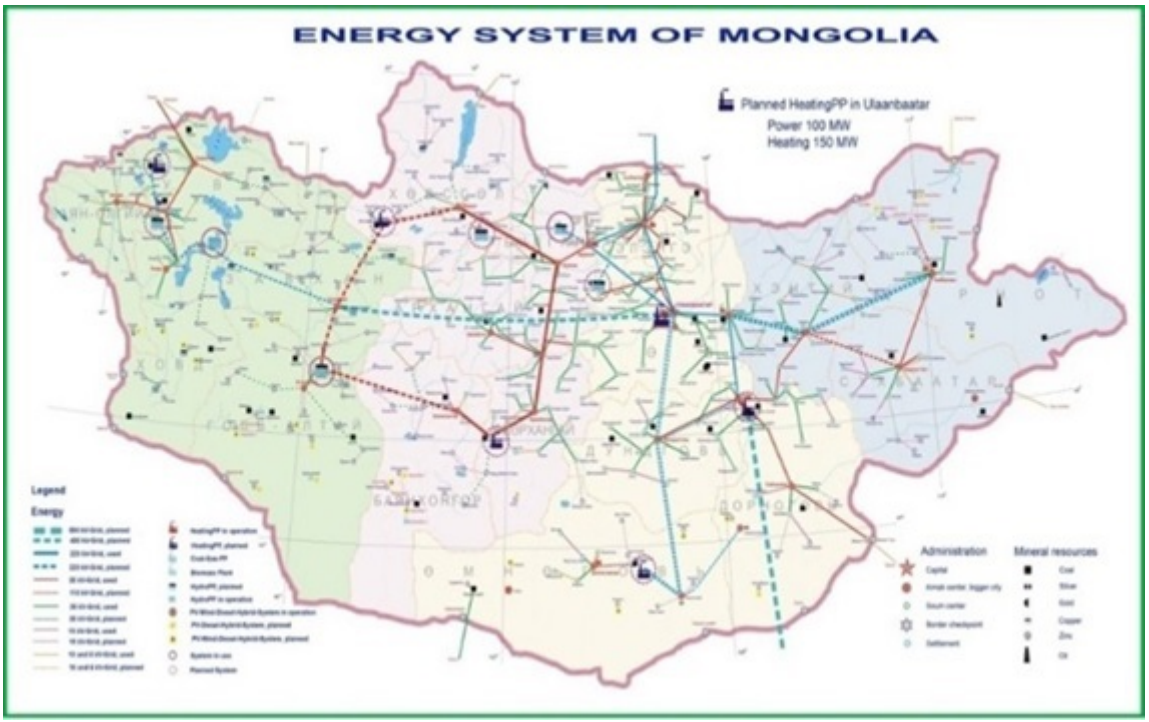
MONGOLIA’S PERSPECTIVE ON ONGOING AND FUTURE REGIONAL ENERGY INTERCONNECTIONS



Recommended Citation

TOVUUDORJ PUREVJAV, "MONGOLIA’S PERSPECTIVE ON ONGOING AND FUTURE REGIONAL ENERGY INTERCONNECTIONS", NAPSNet Special Reports, September 11, 2020, https://nautilus.org/napsnet/napsnet-special-reports/mongolias-perspectiv-on-ongoing-and-future-regional-energy-interconnections/

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SEPTEMBER 11, 2020

I. INTRODUCTION

In this Special Report, Tovuudorj summarizes the status of Mongolia's energy resources and electricity and heat production sectors, then describes existing energy policies in Mongolia with a particular emphasis on policies related to international energy infrastructure interconnections between Mongolia and the other nations of Northeast Asia. Mongolia's goals with regard to energy exports are also discussed, along with potential next steps for the country and its neighbors to help establish Mongolia as an energy exporter, including both renewable and fossil energy forms.

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A summary of this report follows. A downloadable PDF file (1.3 MB) of the full report is here.

This report was produced for the Regional Energy Security Project funded by the John D. and Catherine T. MacArthur Foundation and presented at China Foreign Affairs University, April 8–10, 2019

Banner image: Integrated Energy System of Mongolia. Source: Energy Regulatory Authority of Mongolia.

II. NAPSNET SPECIAL REPORT BY TOVUUDORJ PUREVJAV

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Summary

Although Mongolia has abundant conventional and renewable energy resources, coal still serves as primary energy resource for energy production. Mongolia's energy demand continues to increase by 5–6 percent annually, and electricity consumption per capita also increases to rise.

In order to supply the high energy demand arising in connection with rapid development in the mining and construction industries during recent years, expansions of existing thermal power plants are being completed as a top priority in addition to construction of new coal-fired power stations.

The first and foremost possibility in Mongolia becoming a major "energy-exporter" country is to open an energy trade channel by building high-voltage power-conducting grid to connect it with the countries of the north-eastern Asian region, and particularly with the PRC (China).

To implement a regional energy project that is executed through international participation, benefits for each stakeholder should be fair and planning and management practices transparent, thus it would be more efficient to establish an intermediate organization ensuring equal involvement of all stakeholders. The more a project primarily serves the interests and reflects the influence of one

country, the harder it would be for the project in question to be implemented. It is critical that all the stakeholders should negotiate and unite at the Government level to assure for unified interests and purpose in international grid interconnections. Regional Interest in International Energy Commerce in Northeast Asia

5. Mongolia's Energy Export Goals

At the Mongolian Government level, a target was set clearly to become an "Energy Exporter" by expressing its support for regional energy collaboration. Mongolia gas many advantages as a source of energy production, including vast reserves of conventional and renewable resources, a large territory with low population densities, politically-friendly relationships with neighboring nations, and a favorable investment environment. In addition, within the scope of aims to reducing greenhouse gas emissions to mitigate global warming and climate change, Mongolia needs to collaborate with neighbors by developing detailed plans that meet the requirements of energy consumers based on advanced of renewable energy and clean energy technologies on one hand, and meeting the requirements of international development bank and financing organizations on the other.

Selling electricity to the Northeastern Asian countries using its own vast reserve of energy would bring positive effects to Mongolia's society and economy. From this point of view, Mongolian government has been conducting corresponding joint research studies together with international organizations by fully supporting energy exporting endeavors at all levels and by developing state policy and directions consistent with an energy export focus. As regional energy sales do not solely depend on Mongolia, it is crucial to collaborate and thoroughly coordinate with other countries in order to achieve successful outcomes.

In terms of the particular economic capacity of stakeholder countries, the People's Republic of China and Japan are ranked 2nd and 3rd internationally in terms their economic capacity and in terms of national influence and international collaboration, China and the Russian Federation are permanent members of the UN Security Council, while Japan and the Republic of Korea are the members of Organization for Economic Development (OECD).

As the different countries have different perspectives and targets, it is necessary to emphasize the goals for countries to take part in power trading and to understand what benefits each of the countries would expect by defining the interests of each country. Doing so is required to in order to develop attractive and realizable plans based on the interests of the countries of the region.

Mongolia has the following advantages as an energy supplier:

- Its solar and wind reserves are vast—this is the most important factor
- Availability of land and territory
- Technically convenient (soil and surrounding environment)
- Peaceful state relationships with other nations, offering security of energy supply for importer countries
- An able workforce and attractive tax environment

The most effective strategy for Mongolia would to emphasize its potential contribution in minimizing greenhouse gas emissions, which is a common target of the participating countries and draws on the advantages above.

Within the scope of this strategy, Mongolia needs to permanently arrange special meetings to start proactive negotiations towards development of electricity and natural gas transit pipeline infrastructure within the scope of initiatives to create economic corridors with neighboring countries such as the Russian Federation and the People's Republic of China. These corridors would allow Russia to export energy resources to China via Mongolian territory, but would also allow Mongolia to export energy resources to third countries such as Japan and the Koreas via Russian and/or Chinese territory.

In terms of developing realizable project in the near term, it is possible to establish electricity an interconnection agreement and initiate a corresponding project by constructing the Shivee-Ovoo power plant with 5280 MW capacity and building a 660 kV Ultra high-voltage direct current overhead power line based on the latest advanced technology in order to compensate for the intermittency of high capacity solar and wind energy stations.

With the establishment of an electric energy integrated system based on renewable energy, the stakeholder countries will be provided with the following advantages.

- They would be able to efficiently and cost-effectively reduce greenhouse gas emissions as part of their obligations bound by Paris agreement.
- They would be able purchase clean energy at a lower tariff than the average tariffs for electricity in their nations.
- Their system consistency will be improved with the integration various types of sources (solar, wind and hydro).
- The stakeholder countries will be able to make their own regulations (providing their own power dispatch)
- Power plant operators in all countries would be able to increase economic efficiency at power station by interconnecting and operating energy sources (hydro power plant and energy storage, for example) with the grid
- Due to the capacity provided by the interconnections, and the capacity available in the interconnected countries, grid operators in each country would be able to reduce the level of capacity additions required to meet reserve margins on their systems.

Depending on the geographical location and different time zones of the stakeholder countries, as well as the different climates in the region, the peak load of electricity consumption occurs at different times and in different seasons. For instance, the peak load on the South Korean and Mongolian grids occur during the winter season, while that of Japan increases during the summer season.

6. Requirements for Regional Energy Projects, and Next Steps for Mongolia

To implement regional energy projects that are executed through international participation, the benefits for each stakeholder should be fairly distributed and transparent. In order to assure such outcomes, it would be more efficient to establish a designated organization ensuring equal involvement of all stakeholders based on principles of fairness and transparency, or to build new coordination functions within currently operational UN and/or other representative organizations. The larger the interests and influence of one country are in a project, the harder it will be for the project in question to be implemented in a way that meets the requirements of all stakeholders. Although each country has its own policy set, strategy, and economic attributes, it is critical that all the stakeholders should negotiate and unite at the government level in order to provide unified

interests and purposes.

Measures to be taken by the Mongolian side to prepare for regional energy projects include:

- Establishing joint organizations working towards an Asian Super Grid with the stakeholder countries taking part in the initiative at the governmental level, and intensify collaboration at all levels to provide regular consultation and venues for negotiation;
- Develop a sophisticated and favorable business environment to attract investors into the project. For instance, ensure a healthy bid selection process and to work to make obtaining special licenses clearer and simpler, as well as to maintain and provide the required information for transparent collaboration;
- Jointly develop legal regulations with the importer country by anticipating complications that could occur when trading electricity cross-border (for example, technical regulations, power purchase agreements dedicated to independent electricity producers, and environmental standards);
- Create a unified single tax system taking account of international guarantees and double-taxation issues during negotiation. Resolving tax issues will be required to allow project implementing organizations to estimate their investment risk with respect to financing and to create an Asian Super Grid development fund that will support the projects to be implemented initially;
- Ensure the connection of power sources to be built within the scope of the project with the project transmission lines as a priority, and support and operate the connection of private sector transmission lines with the national and international grids;
- Study the availability of land required for project implementation, develop a process of obtaining land use approval, and set up a process to address and fairly minimize any dispute which may arise with respect to land uses;
- Develop integrated data systems for assessing of renewable energy resources that could provide bankable resource data to project developers;
- Prepare and implement educational systems to develop the human resources required for actual implementation of the Mongolian elements of the Asian Super Grid.

III. NAUTILUS INVITES YOUR RESPONSE

The Nautilus Asia Peace and Security Network invites your responses to this report. Please send responses to: nautilus@nautilus.org. Responses will be considered for redistribution to the network only if they include the author's name, affiliation, and explicit consent.

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