

Tavan Tolgoi Power Plant Oyu Tolgoi power supply: 600 MW of subcritical coal technology in the Gobi desert

Mongolia's plans to build a 600 megawatt (MW) coal power plant at Tavan Tolgoi in the South Gobi Desert appear at odds with international commitments on climate change and with local realities.

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The 600 MW Tavan Tolgoi power plant has been under discussion at the government level for many years now, and while it is considered critical for the projected power needs at three major mines in the South Gobi region, including Oyu Tolgoi, a recent Bankwatch field visit shows a complete lack of opportunities for participation by local communities in discussions about the project, as well the absence of an assessment of the alternatives for the water-scarce region.

With economic growth and commodity prices taking a downturn in recent years and with a budget deficit of 20 per cent of GDP¹, Mongolia's projections of rapidly increasing electricity demand and urbanization seem unlikely, especially as these forecasts are based on GDP in 2010. At the same time, Mongolia faces severe pressures on pasture land, water and air quality, with underground water resources expected to last for only another 13 years if all mining projects are implemented². Air pollution constitutes another major concern as both the capital Ulaanbaatar and other major settlements such as Tsogttsetsii in the south, experience above normal levels of particle pollution, a direct threat to human health. PM10 levels³ are exceeding 200 µg/m³ per year⁴ in the capital while the EU limit is 40 µg/m³ and the World Health Organization recommends to not exceed 20 µg/m³.

The government plans seven new coal power plants⁵ of total capacity up to 12 GW, out of which nearly 10 GW at Shivee-Ovoo power plant are planned for export to China, and has received tacit support from the World Bank and other public financial institutions via an exemption from their no-coal investment policies. This means that renewable energy projects are struggling to find financial support in a country with an estimated wind power capacity of 300 GW and solar power capacity of 11 GW⁶. Furthermore, the potential for investments into energy efficiency is not fully explored. Currently, Mongolia experiences losses of approximately 12% at transmission and distribution, making around 800MW of electricity available from the total amount produced.

¹ Mongolia budget deficit much bigger than thought, new finance minister says, Reuters <https://www.reuters.com/article/mongolia-economy-deficit-idUSL3N1B52C1>

² Groundwater assessment of the Southern Gobi Region, World Bank, 2010

³ Particle pollution, also called particulate matter or PM, is a mixture of solids and liquid droplets floating in the air

⁴ Characteristics of PM10 and PM2.5 in the Ambient Air of Ulaanbaatar, Mongolia, International Journal for Environmental Studies and Development, <http://www.ijesd.org/vol7/889-E2015.pdf>

⁵ Mongolian Energy Policy, <https://drive.google.com/file/d/0B0UbrBcvRkXQXpoS1NWS2o1cjQ/view?usp=sharing>

⁶ Mongolian power sector, <http://www.reegle.info/policy-and-regulatory-overviews>

Even so, currently there are a few projects ongoing to tackle energy inefficiency in the country, one of them being the rehabilitation of CHP4 in Ulaanbaatar with the support of the JICA, the Japanese development agency. Besides CHP 4, there are a number of power plants in Mongolia that require rehabilitation including the other 2 power plants in Ulaanbaatar as well as regional ones such as the one in Dalanzadgadand. But these small steps are far from making a significant contribution to the Paris Agreement goal of limiting global warming below 1.5 degrees, an agreement to which Mongolia committed.

The Mongolian Nationally Determined Contributions (NDC)⁷ submitted to the UNFCCC includes a number of measures on energy production with the aim of increasing efficiency of existing facilities and infrastructure. However, there are no concrete targets for tacking the country off the path of coal dependency and the current scenario expects an increase in CO₂ levels of 21.9 Mt CO₂-eq in 2010 to 51 in 2050, 81.5 per cent coming from the energy sector.

Mining companies in the driving seat

The projected power demands for phase two of the Oyu Tolgoi mine, which includes the development of an underground mine, is central to the push for the Tavan Tolgoi power plant. The 2012 and 2016 Environmental and Social Impact Assessments for the Oyu Tolgoi mine assessed that power needs are expected to rise from 145 MW at start of underground mining operations to 246 MW when the mine is fully operational.⁸

While Oyu Tolgoi LLC is responsible for assessing power alternatives and options, including the options for building a coal power plant at its site or purchasing electricity from a future power plant at Tavan Tolgoi, the latter option is already moving forward with permitting process.

No information is publicly available about the assessments being prepared by Oyu Tolgoi LLC for its power supply options. However, during an August 2016 meeting in Ulaanbaatar, a company

⁷ http://www4.unfccc.int/Submissions/INDC/Published%20Documents/Mongolia/1/150924_INDCs%20of%20Mongolia.pdf

⁸ Oyu Tolgoi ESIA, 2016, http://ot.mn/media/ot/content/reports/Environment/emp/Amendment_DEIA_on_OT-mining_and_processing-2016_eng.pdf

representative expressed the full support of Oyu Tolgoi LLC to the Mongolian government for the development of a power plant at Tavan Tolgoi, as per their Investment Agreement. The decision seems to be rooted in political and economic interests, rather than an actual assessment of the feasible options.

Oyu Tolgoi LLC has based its assessment for the Tavan Tolgoi option on an outdated power alternative analysis conducted in 2011 during the development of the environmental and social impact assessment for the mine. Company representatives argue that based on this analysis, the coal power supply option was assessed as the most reliable option, due to the nature of the underground mining activities.

But this alternatives analysis misses the mark, as it concerns mainly the first phase of mine development and does not refer to any comprehensive assessment of power supply sources over the next decades, when the underground mine would be fully operational. Moreover, a number of other renewable energy projects have come online in the Gobi since the analysis was conducted, including a 50 MW wind farm close to Tsogttsetsii, which received financing from the EBRD. Even though Rio Tinto has instructed Oyu Tolgoi LLC to consider integrating renewable energy into its planned power supply, the company has yet to release projections and plans for the phase two electricity mix.

The latest 2016 ESIA published by Oyu Tolgoi online does not bring any new analysis of power needs or alternatives for phase 2.

A feasibility study was conducted and approved in 2013 for a 300 MW power plant at Tavan Tolgoi and according to the Mongolian Ministry of Environment, environmental and social impact assessments have been conducted and approved in 2015 but for an increased capacity of 450 MW. Even so, according to the Tavan Tolgoi project unit, the power plant needs to be designed in a flexible manner to allow for an increase in capacity of up to 600 MW to meet the potentially increasing demand at Oyu Tolgoi⁹. The project also includes the development of a 150 kilometre distribution line from Tavan Tolgoi to the Oyu Tolgoi mine site.

⁹ Tavan Tolgoi project unit, project description http://tpp.mn/1/single_news/2/eng

Neither the Ministry of Environment, nor the Tavan Tolgoi project unit within the Ministry of Energy have so far released an environmental impact assessment for the power plant, and according to information from a local authority representative in Tsogttsetsii, no comprehensive project documents were submitted to the soum for consultation. Also, a survey conducted locally by Bankwatch in August 2016 shows that even though people have heard about the project (mostly from media reports), no public consultation took place and no documentation was submitted for consultation in the town for both the power plant and the transmission line to Oyu Tolgoi mine.¹⁰

The myths of coal

Investors in the Tavan Tolgoi power plant project include Japan's Marubeni and the private Mongolian company MCS, owner of Energy Resources, who will be responsible for providing brown coal to the plant in the future. The Mongolian government has said that this is the first international private partnership of its kind in the country and while the government has no ownership over the project or direct financial contribution, it fully supports the projects as being strategic to creating more jobs and raising tax revenues.

However, the Mongolian government has failed to account for the environmental and health costs that the project will have. The region where the project is planned has suffered from the degradation of pasture land also due to coal mining activities, contributing to the resettlement and forced migration of local communities. At the same time, Tsogttsetsii is already affected by pollution from the burning of coal and its proximity to the coal mines, and with the future Tavan Tolgoi plant planned just five kilometres from the city, the health of the population is likely to suffer more.

For these reasons, it appears that the Mongolian government has not taken into account the real costs of such a project on its citizens. This brings to the fore another issue: the technology chosen for and efficiency of the future power plant. With four small units of 150 MW and a dry cooling system¹¹, the efficiency of the plant will be below OECD standards for finance from export credit agencies, locking in a

dated technology.

At the same time, renewable energy projects are increasing across the country, with several already appearing in the South Gobi. Even with the immense potential for renewables in the country and the advanced technology available at the moment, the Mongolian government considers renewable energy, namely solar and wind energy, as being unreliable for meeting the country's base load needs. The 20 per cent renewables target seems like a box-ticking exercise, as most will be met with hydropower projects and a few solar and wind projects. Renewables lack financial support, since the government does not issue guarantees for such investments, and solar and wind energy are affected by high fixed tariffs, at 16 dollar cents per kWh for wind and 18 for solar energy¹².

Given Mongolia's present economic woes and the unlikelihood that it will contribute significantly with new finance for the energy sector, international financial institutions and private investors have the ability to leverage such projects.

The power cooperation agreement signed in 2014 between the IFC and EBRD-financed Oyu Tolgoi LLC and the Mongolian government for the purchase of power domestically, as well as the memorandum for power purchase between Mongolia and the Tavan Tolgoi power project, act as guarantees for investors into the power plant. The 220 KW transmission line that is planned and, according to the Ministry of Environment, also approved, will provide electricity from the Tavan Tolgoi plant solely for the Oyu Tolgoi mine. Thus, Oyu Tolgoi LLC and its international public financiers, IFC and EBRD, need to ensure that not only are all international requirements on environmental due diligence, public participation and transparency respected during project development, but also that it conducts power demand and alternatives assessments that are up-to-date and reflect the local realities in the Gobi region.

Recommendations

- International Financial Institutions, including the IFC and the EBRD, need to require that Oyu Tolgoi LLC conducts a proper assessment of power supply needs and supply sources for Phase 2 of

¹⁰ Bankwatch fact-finding mission report available upon request

¹¹ Technical details confirmed by chief engineer of Erdenes Tavan Tolgoi power plant during Bankwatch fact-finding mission in August 2016

¹² Bankwatch fact-finding mission report available upon request

underground mine operations, including clear targets for integrating renewable energy.

- International financial institutions supporting Phase 2 at Oyu Tolgoi, including the IFC and EBRD, need to monitor the development of the Tavan Tolgoi power project and the transmission line to Oyu Tolgoi and request the Ministry of Environment and the Tavan Tolgoi project unit that all documentation is made available to the public including the general EIA and detailed EIAs for the Tavan Tolgoi power plant and the 220 kw

transmission line, as well as other studies conducted so far;

- International financial institutions should ensure that no further decisions are taken on OT power supply and no agreement for power purchase is signed before the public is adequately consulted about the impacts of both power production, from either coal or renewable sources, and the transmission infrastructure to the OT mine on the local community and their access to water resources.