

## Kazakhstan High-Temperature Solar Energy System

Is Kazakhstan a good place to install solar power plants?

At least 50% of the territory of Kazakhstan is suitable for installing solar power plants(Antonov,2014). However,up until recently, solar resources of the country were not being used for power generation. Kazakhstan is developing solar energy technologies, namely production of photovoltaic modules using local silicon.

Is solar energy a viable energy source in Kazakhstan?

In 2019, another solar power plant in Kazakhstan, Saran, with a capacity of 100 MW started its operation in the Karaganda region (Satubaldina, 2020). According to the International Energy Agency (IEA), within the period of 40 years, solar energy has a potential to meet about 20-25% of the energy demand of the country.

Why is grid integration a problem in the Kazakh power system?

Although the share of wind and solar energy in the Kazakh power system is still relatively low, grid integration issues are already be-coming a concern. This is because the output of old coal-fired power plants, unlike that of hydro-power or gas-fired power plants, cannot be flexibly regulated.

What is the energy transition in Kazakhstan?

To date, the energy transition in Kazakhstan has almost exclusively focused on electricity generation, consisting mainly of the deployment of new solar and wind facilities. By contrast, there is almost no heat production from renewable energy sources, aside from traditional biomass such as fire-wood. The biogas sector remains very underdeveloped.

Should Kazakhstan invest in solar and wind energy?

Kazakhstan intends for renewable energy to constitute 30 percent of electricity generation by 2030 and 50 percent by 2050. Below I will make the case that there is significant opportunity for BRI investment to build up solar and wind energy.

What are Kazakhstan's Energy goals?

In 2013,Kazakhstan introduced renewa-ble energy targets: by 2020,3% of electricity was to be generated from solar,wind,small hydro-power,and biogas- a target that was met on time. By 2030,the goal is to reach 15%. There is also an interim target of 6% by 2025,which Kazakhstan is on track to achieve.



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