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The Renewable Energy Law Review: Kazakhstan 2022

As at June 2022, Kazakhstan has 136 renewable energy plants with a capacity of up to 2,065MW, made up of 40 wind power plants, 51 solar power stations, 40 hydroelectric power stations and five biofuel power plants. The potential for foreign investment in the Kazakh power sector is huge. For instance, to cover the needs of the local economy and the population alone, the commissioning of at least 17.5GW of new power generation will be required by 2035. According to the Ministry of Energy, the proposed structure for the new energy capacity required by 2035 will be as follows:

- more than 5.1GW of gas generation;
- more than 2.1GW from hydroelectric power plants;
- 1.4GW of coal generation;
- more than 6.5GW from renewable energy sources; and
- more than 2.4GW of nuclear generation.

Moreover, waste-to-energy projects under Kazakh laws are de facto equated to renewable energy projects. Generally, approximately 4 to 5 million tons of solid household waste are generated annually in Kazakhstan. Of this, 18.3 per cent is for recycling, whereas the rest – over 80 per cent of waste – is currently buried in landfills. The Kazakh government plans, therefore, to commission 100.8MW of waste-to-energy plants in six major cities of Kazakhstan (Aktobe, Almaty, Ust-Kamenogorsk, Nur-Sultan, Karaganda and Shymkent) no later than July 2026.

The goals, forms and directions of support for the use of renewable energy sources as well as the regulation of mechanisms for supporting energy waste utilisation and the use of secondary energy resources[2] are defined in Law of 4 July 2009 No. 165-IV on Support for the Use of Renewable Energy Sources (the Law on RES).

Under Kazakh law, 'renewable energy sources' are defined as continuously renewable energy sources that derive from naturally occurring processes, including the following types:

- solar radiation energy;
- wind energy;
- hydrodynamic water energy;
- geothermal energy from the heat of soil, groundwater, rivers and reservoirs; and
- anthropogenic sources of primary energy resources such as consumption waste, biomass, biogas and other fuels from consumer waste used for the production of electrical or thermal energy.

In accordance with the Environmental Code of the Republic of Kazakhstan dated 2 January 2021 No. 400-VI (the Environmental Code), the term 'energy waste utilisation' (or waste-to-energy) is defined as a process of thermal treatment of waste aimed at reducing its volume and generating energy, including using it as a secondary energy resource, with the exception of obtaining biogas and other fuels from organic waste. Processing of any municipal solid waste is, generally, allowed. However, Kazakh law provides an exhaustive list of waste that cannot be subject to energy waste utilisation (e.g., liquid waste, lithium, lead-acid batteries and waste containing persistent organic pollutants).

There have been – and, in at least the near future, there are expected to be – two major obstacles in the further development of renewable energy projects in Kazakhstan:

- a deteriorating electricity transmission and distribution infrastructure, which complicates the integration of various renewable energy sources in Kazakhstan's electricity system; and
- a lack of a sufficient number of generating units with a manoeuvrable generation mode[3] – unlike, for instance, Uzbekistan, Kazakhstan has a shortage of flexible (peak) production capacity in the national electricity system, while the deployment of renewable energy sources requires flexible power plants to compensate for the absence of wind or lower solar irradiance.

To address these problems, the government has developed a number of measures, including stimulation of the construction of gas power plants.

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