



GREEN ENERGY TRANSITION : KAZAKHSTAN CASE STUDY

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Baku, September 15, 2022

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LOW-CARBON DEVELOPMENT PATHWAY

GREEN TRANSITION LEGISLATION

- 2013 - Green Economy Concept;
- 2014 – Concept for the Development of the Fuel and Energy Complex;
- 2016 – Paris Agreement;
- 2020 - Environmental Code;
- 2021 - Doctrine of Carbon Neutral Development.

KEY GOALS

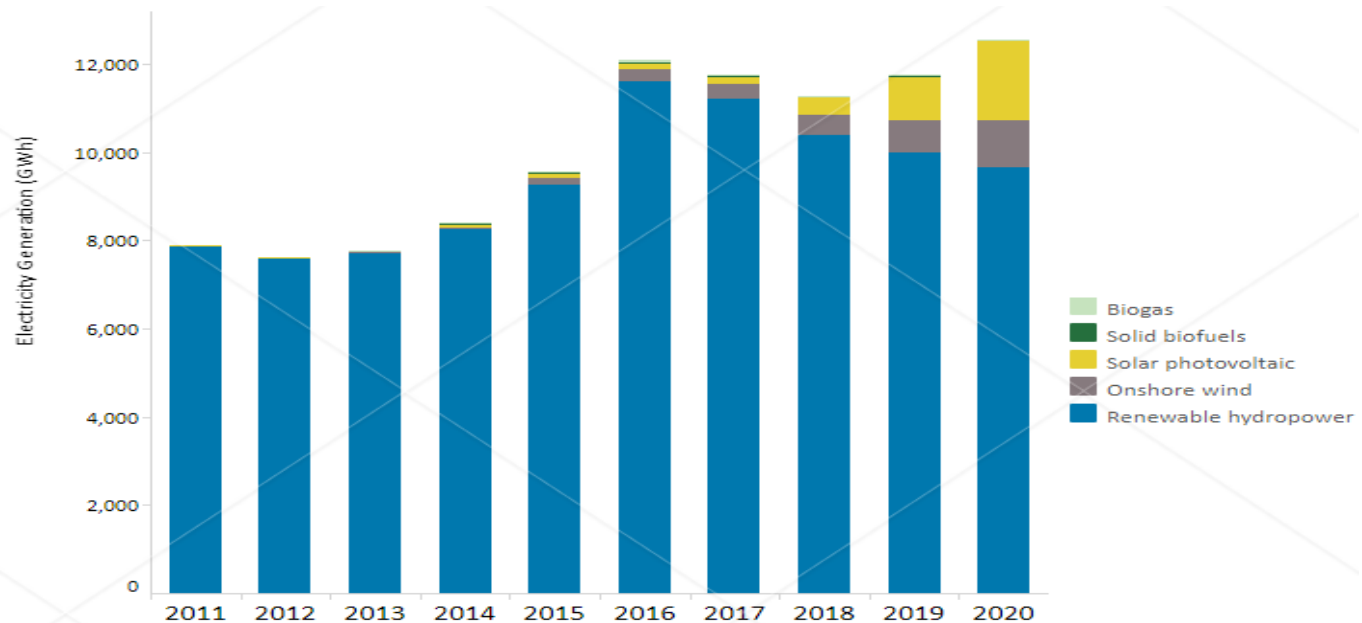
- 15% of renewable energy by 2030
- 50% of renewable energy by 2050
- 70% of renewable energy by 2060
- reduce greenhouse gas emissions by 15% by 2030
- reduce greenhouse gas emissions by 100% by 2060

RES POTENTIAL IN KAZAKHSTAN

RES	Total resource potential in Kazakhstan
Solar	2.5 billion kWh per year
Wind	920 billion kWh per year
Hydro	62 billion kWh per year

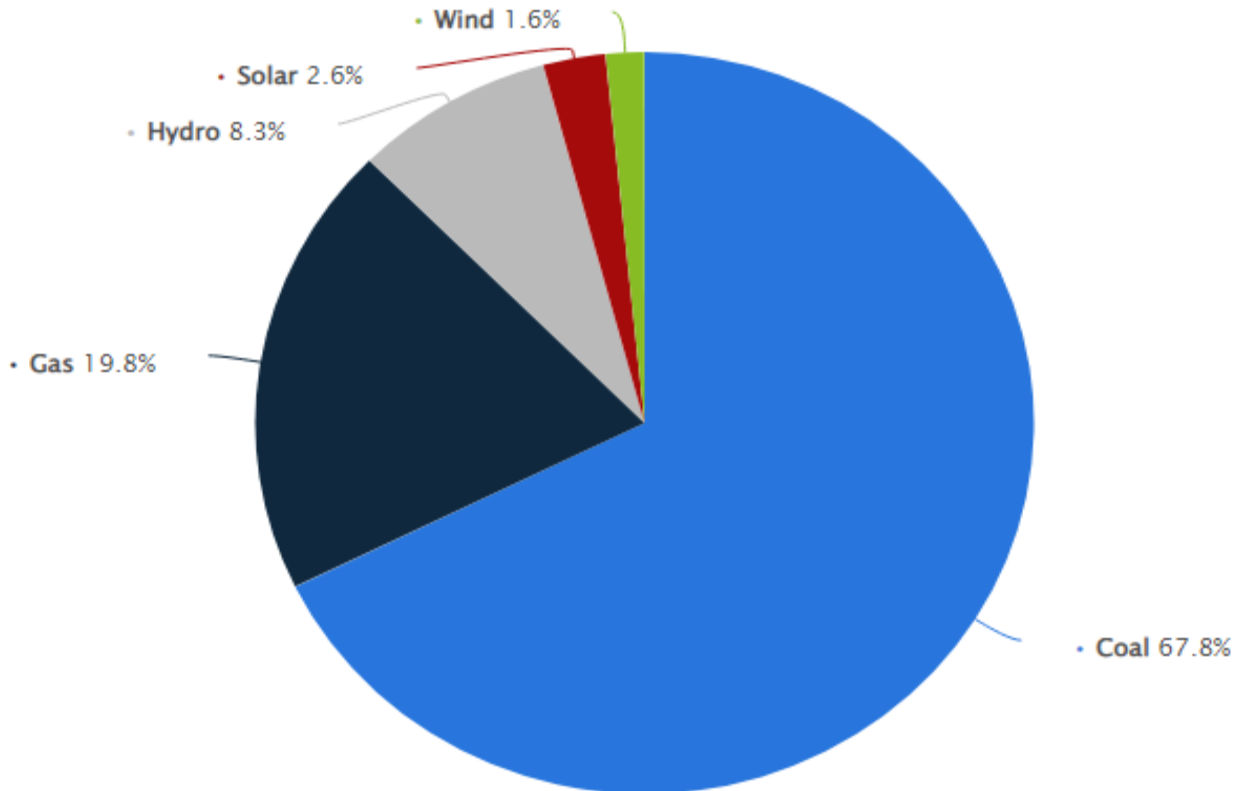
Based on the results of 2021, there are 134 renewable energy stations in Kazakhstan: 40 wind power stations, 49 solar power stations, 40 small hydropower stations, 5 bio-power stations. By the end of 2022, it is planned to put into operation 10 facilities with a total capacity of 290,6 MW. Kazakhstan plans to launch 40 renewable energy projects by 2025.

GREEN POWER GENERATION IN KAZAKHSTAN 2011-2020, BY SOURCE



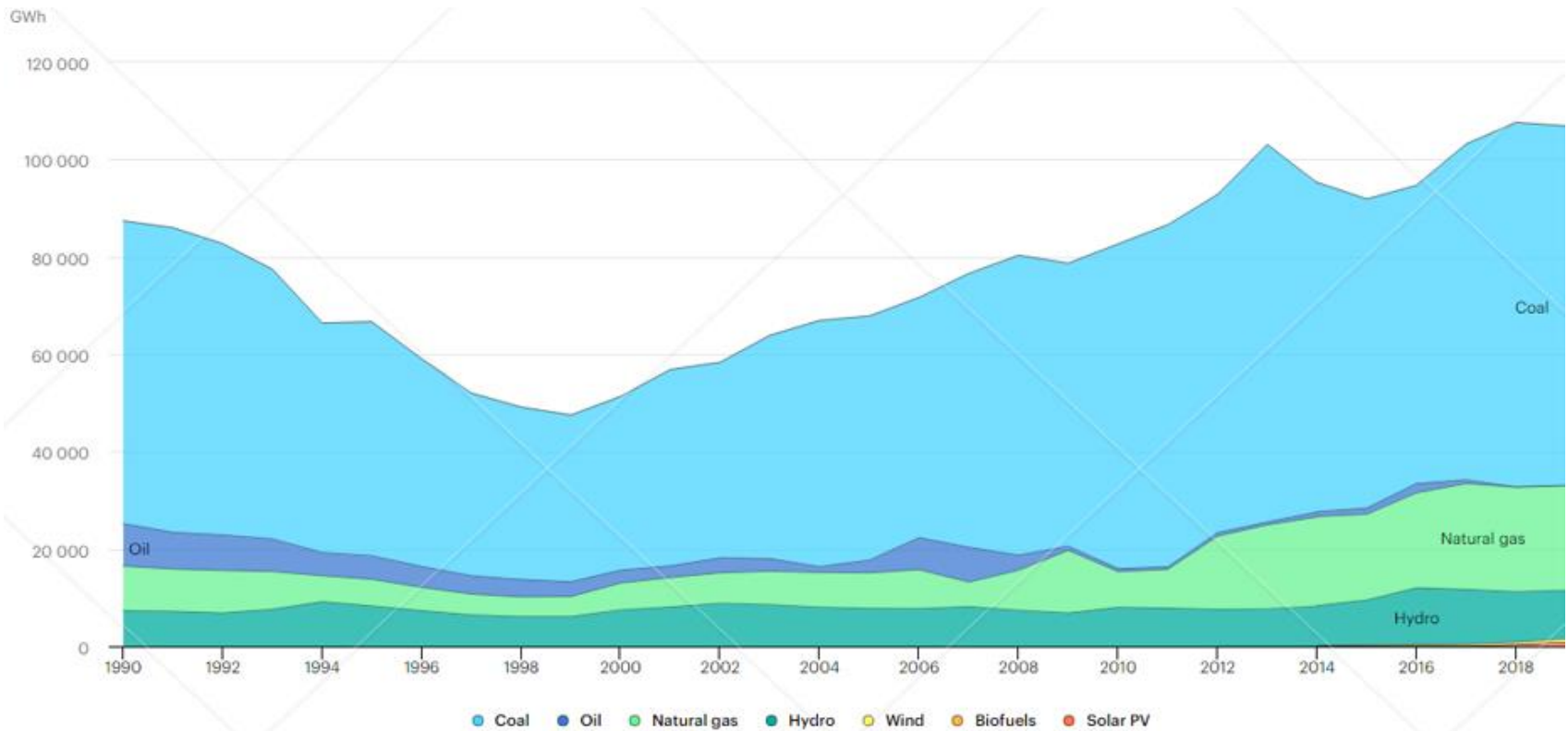
The total installed capacities of existing renewable energy stations in the country are 2,010 MW. According to the results of 2021, the generation of electric energy by renewable energy facilities amounted to about 4,2 billion kWh. These capacities currently generate around **3.5%-4%** of the electricity in the country.

DISTRIBUTION OF ELECTRICITY GENERATION IN KAZAKHSTAN IN 2021



In 2021, 114.3 billion kWh of electricity was generated at the country's power plants. Coal is by far the largest source of electricity production in Kazakhstan. In 2021, approximately **67.8%** of total electricity generation was coal-based. Gas ranked second with about **20%**, bringing Kazakhstan's fossil fuel share to nearly **90%**.

DISTRIBUTION OF ELECTRICITY GENERATION IN KAZAKHSTAN IN 1990-2019



ENERGY GENERATION FACILITIES IN KAZAKHSTAN



Since September 2021 Kazakhstan has a **deficit of electricity power generation**, because of highly increased consumption by industry and digital mining sector. There is the urgent need to address problems in the electricity power industry that hinder the potential growth of the renewable energy sector. In this regard, by **2035 it is required to ensure the commissioning of new generating capacities, including RES.**

THANK YOU!