

MINISTRY OF ENERGY OF THE REPUBLIC OF KAZAKHSTAN

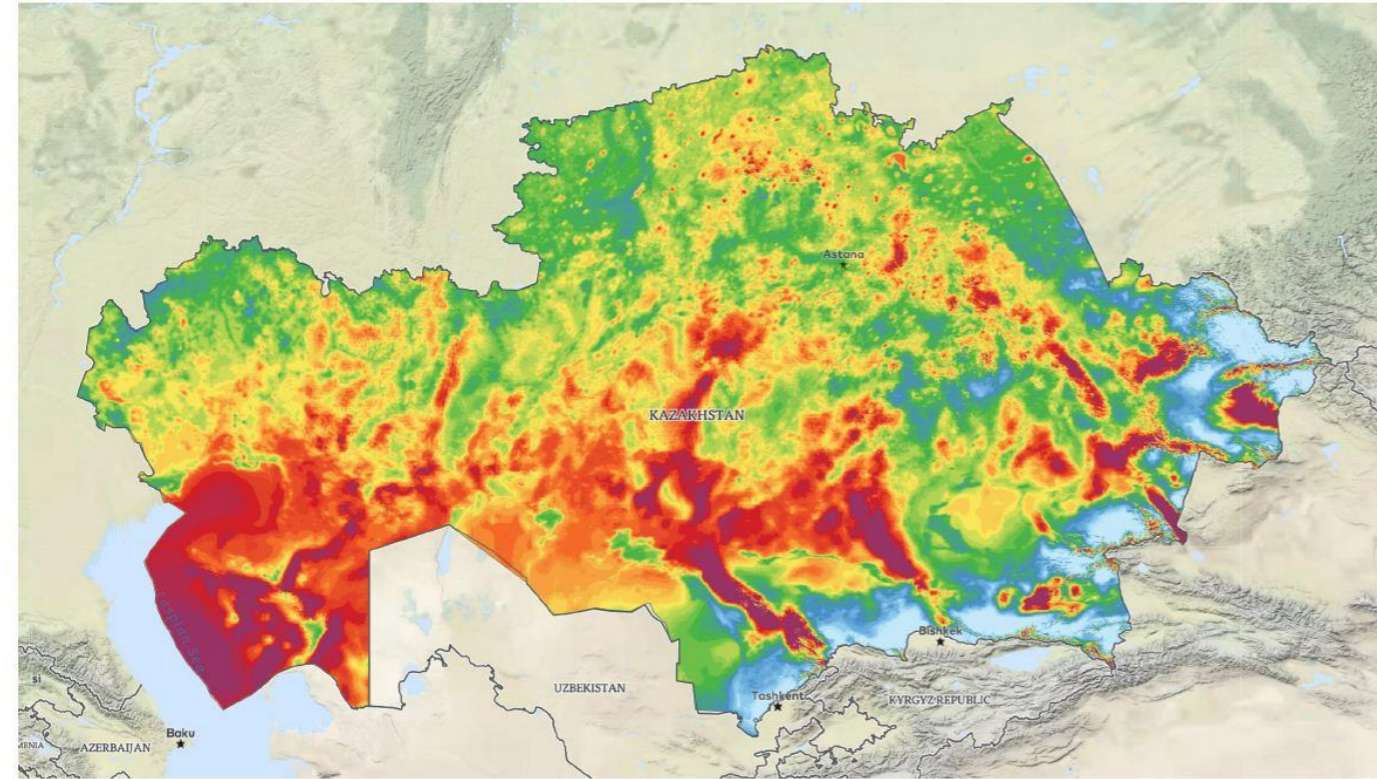


**PROSPECTS FOR THE DEVELOPMENT OF THE RENEWABLE ENERGY SECTOR IN
THE REPUBLIC OF KAZAKHSTAN**

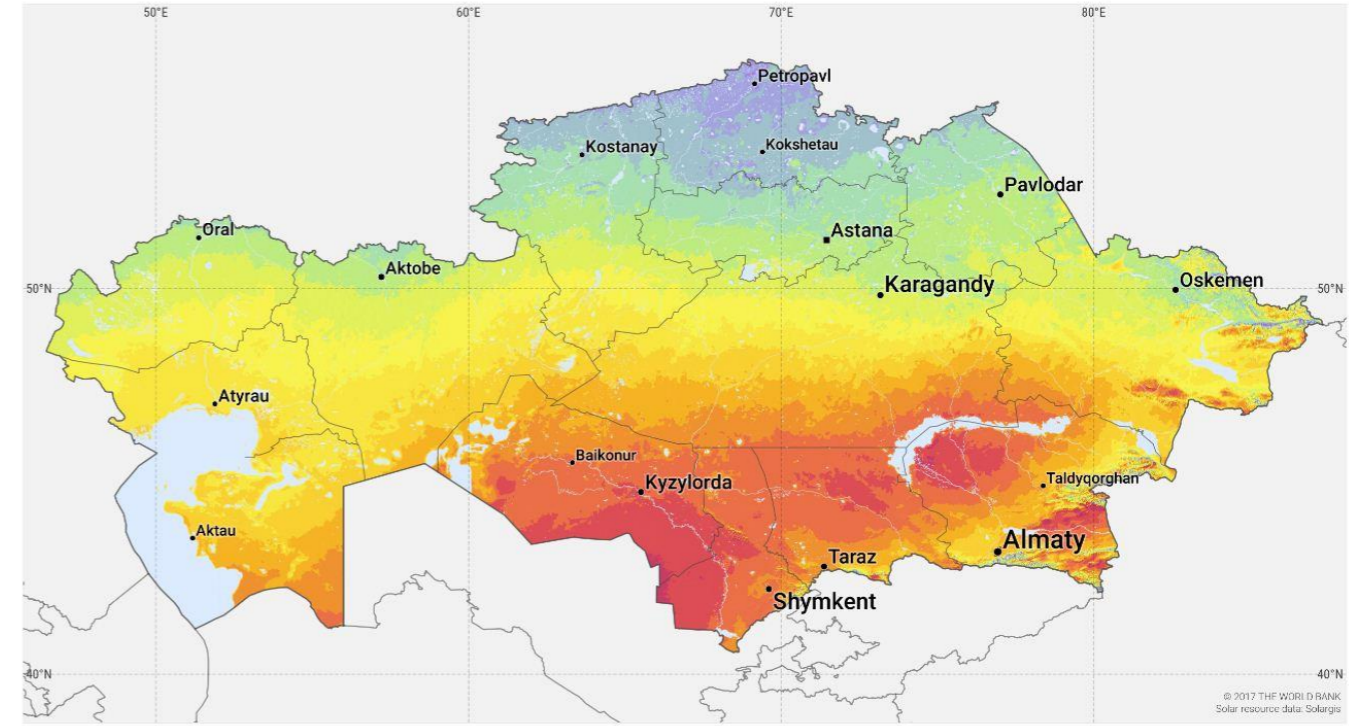
Potential of renewable energy sources in Kazakhstan



GLOBAL WIND ATLAS
MEAN WIND POWER DENSITY MAP
KAZAKHSTAN



SOLAR RESOURCE MAP
PHOTOVOLTAIC POWER POTENTIAL
KAZAKHSTAN



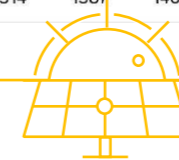
Wind energy

920
GWh/ year



Water energy

62
GWh/ year



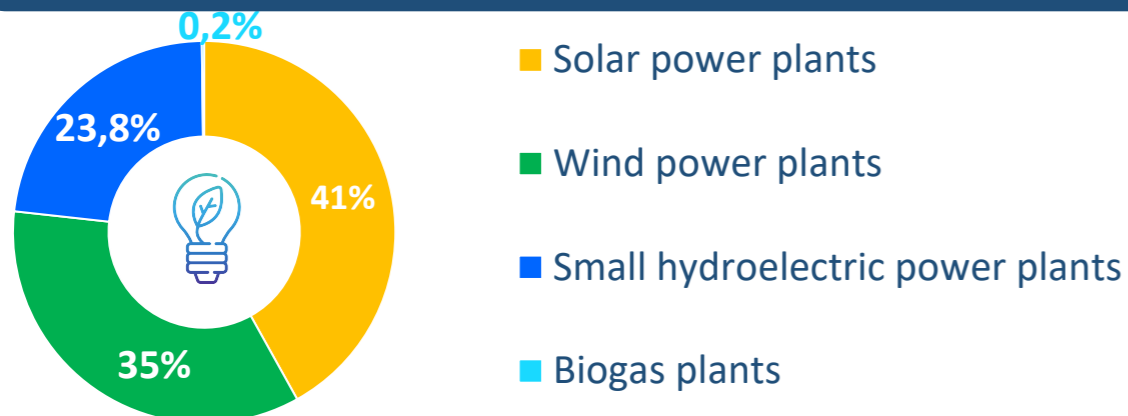
Solar energy

2,5
GWh/ year

RES target indicators



Renewable energy generation in the Republic of Kazakhstan for 2020., %



3% Share of RES in the energy balance of the Republic of Kazakhstan

2025

6%

The share of renewable energy sources in the total volume of electricity generation

2030

15%

The share of renewable energy sources in the total volume of electricity generation

Renewable energy generation by the end of 2020



3,2 billion kWh
Generated green energy in 12 months

2050

50%

Share of RES and **alternative energy sources** in total electricity generation



2060



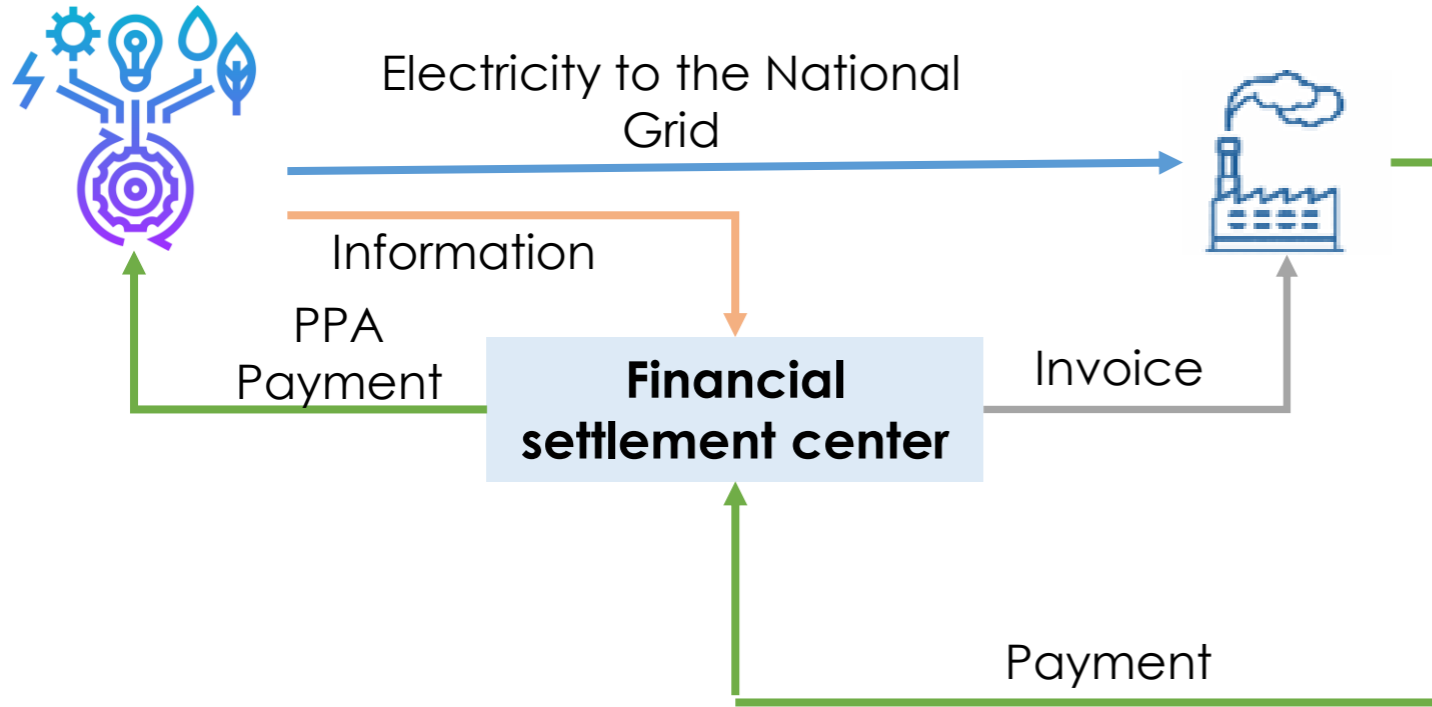
Carbon neutrality

Announced December 12, 2020



To achieve the target indicator of 2030, **at least 7 GW** of new renewable energy capacity with an investment volume of **3 trillion tenge** will be introduced within **10 years**. In this regard, it will be necessary to improve the mechanism for supporting RES.

Renewable Energy Support Scheme in Kazakhstan



- The purchase agreement is 20 years
- Annual indexation of tariffs
- Exemption from transfer fees
- Exemption from customs duties

\$3.3 billion until 2035

Obligations of the Financial settlement center under Contracts

Wind – **1 439 MW**

Solar – **1 155 MW**

Hydro - **298 MW**

Bio - **16 MW**

139 Contracts with a total capacity of 2,908 MW

Current status of renewable energy development in Kazakhstan



At the moment there are 126 RES in the Republic with a total capacity of 1975 MW

For 9 months of 2021, the production of EE RES – 3.23 billion. kWh or 3.5%

Solar
1032,6 MW
48 facilities

Hydro
280 MW
40 facilities

Wind
654 MW
33 facilities

Bio
8 MW
5 facilities

Solar
1379,4 million Kwh

Hydro
671,8 million Kwh

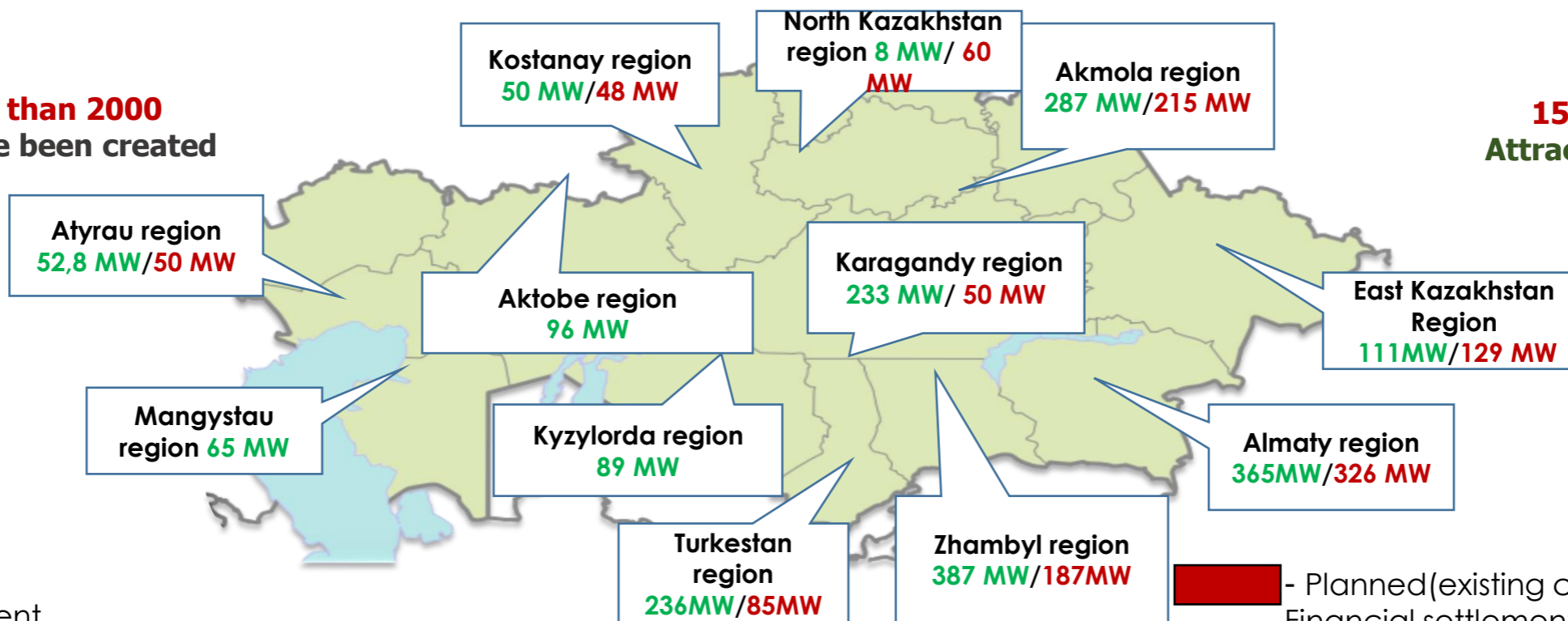
Wind
1183,2 million Kwh

Bio
2,6 million Kwh

RES Project Placement Map

For 7 years more than 2000 Permanent jobs have been created

150 billion tenge Attracted investments



- current

- Planned (existing contracts with the Financial settlement center and construction)

Cooperation with Goldbeck Solar GmbH and Solarnet Investment GmbH in the field of renewable energy



"Akadyr 1" near the Shetsky district of the Karaganda region with a capacity of 50 MW" - Kazsolar 50 LLP

Commissioning date: 2019 y.

With a total capacity of 176 MW

"Construction of a 100 MW solar power plant in Saran, Karaganda region" - SPP Saran LLP

Commissioning date: 2019 y.

"Akadyr 2" near the Shetsky district of the Karaganda region with a capacity of 26 MW" - Kazsolar 50 LLP

Commissioning date:
2020 y.



Cooperation with Svevind Energy GmbH for the production of "green" hydrogen in the Mangystau region



1

At the moment, a "Project Action Plan" has been developed, as well as a "Project Roadmap" signed in July and August of this year.



2

Currently, a priority issue for the Project for the production of "green hydrogen" in the territory of the Mangystau region is being resolved, with a view to reserving a significant part of the land plots for the placement of wind farms \ SPP.



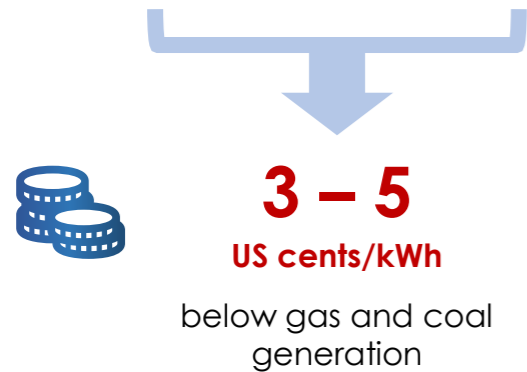
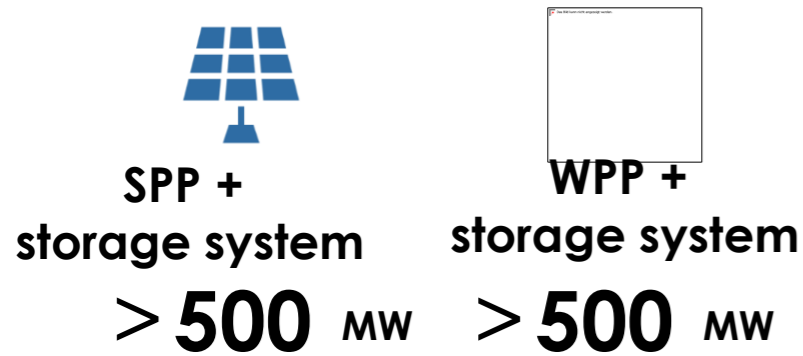
3

Earlier, the company sent two requests to the Mayor of the Mangystau region with a request to review the list of land plots determined by the company with the possibility of reserving those for the placement of wind farms and SPP.

Development of the renewable energy sector and large hydroelectric power plants



Conducting auctions for large renewable energy projects



Conducting a project auction for large HPP projects

1 Project auction through the RES mechanism

2 Competitive selection through the mechanism of maneuverable capacities

General conditions :

Tariff in US cents /kWh

PPA - **30 years**

Date - **2022 y.**

And capacity **up to 100 MW and above**

Implementation mechanism:

Pre. tariff 4,65 – 6,98 cents \$ (25 – 30 tenge/kWh)

Exploitation period 40-55 years

Preparation of documentation • Project auction - **ADB**
• Tender - **LLP «FSC»**

Necessary

- land
- connection point
- EIA and Feasibility study

Necessary

- reservation of platforms
- connection point
- Formulation of EIA and Feasibility study



Commissioning of capacities by 2025

RES
1 900 MW

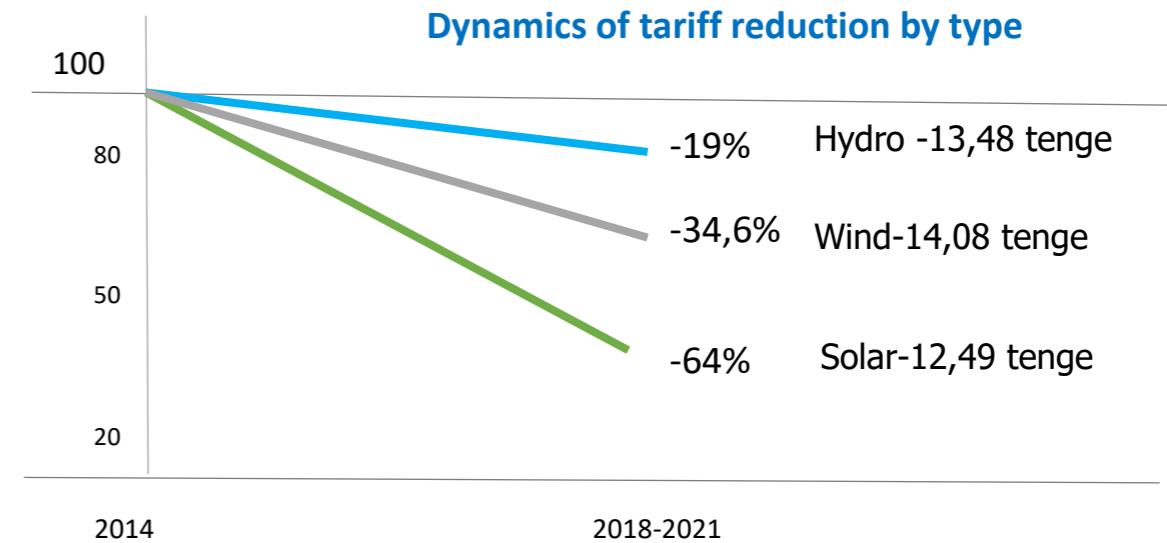
Large HPP
500 MW



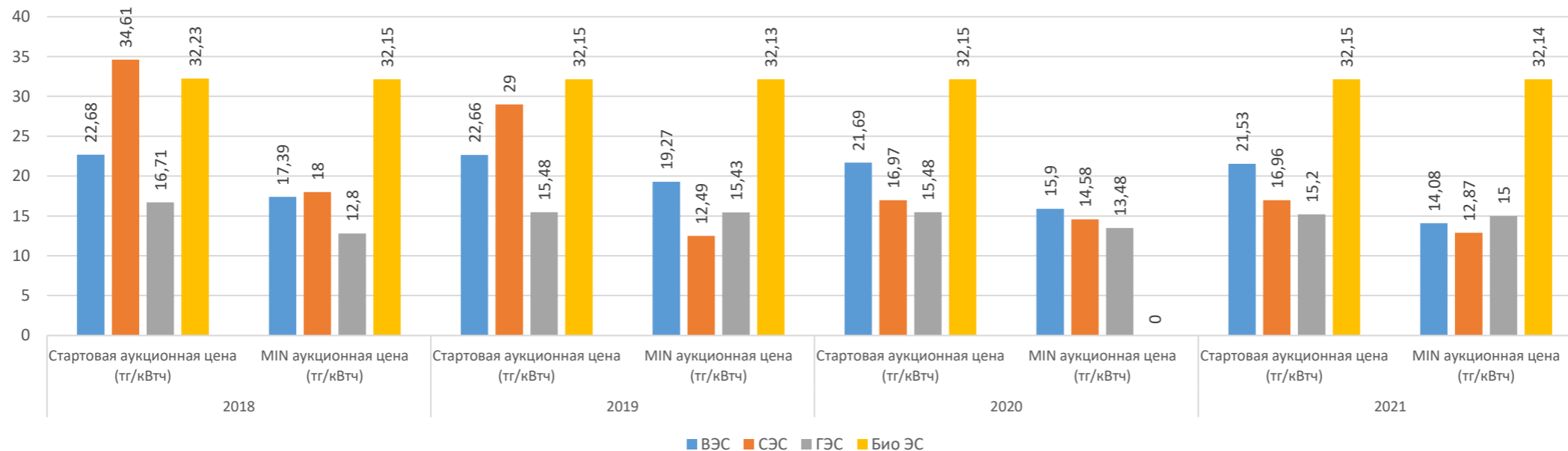
Auctions

Auction results (2018-2021)

- Auctioned **1705 MW**
- 196 companies from 12 countries took part
- 58 companies have signed a contract with the FSC for 15 years (**1 218 MBТ**)



Dynamics of auction prices 2018



Thanks for the attention!

Ministry of Energy of the Republic of Kazakhstan,
December 2021