

# **GREEN HYDROGEN and other resources**



ABUNDANT NATURAL RESERVES - SOLAR INSOLATION, WIND AND WATER RESOURCES



POSSIBILITY OF SUPER-LARGE-SCALE PROJECTS IMPLEMENTATION



NEW EXPORT PRODUCT TAKING INTO ACCOUNT GROWING DEMAND FOR GREEN ENERGY AND GREEN HYDROGEN



RELEVANCE OF PROJECT IMPLEMENTATION WHICH IS IN LINE WITH GLOBAL DECARBONIZATION GOALS

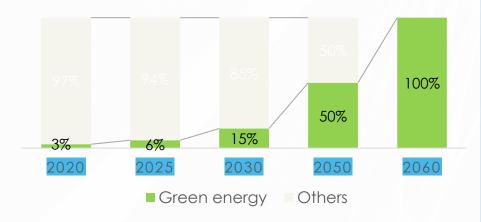


**CREATION OF A NEW INDUSTRY - TRANSFORMATION AND CREATION OF NEW SECTORS** 

## RENEWABLE ENERGY SECTOR

#### Transition to a green economy

# Renewable and Alternative Energy in Energy Balance



#### **Renewable Energy Auctions:**

- PPA with the Government
- Annual indexation of auction prices
- Priority dispatch on transmission electricity
- Transfer fee exemption

#### **Renewable Energy Facilities**





3.24 billion kWh generated in 2021

#33 in the Green Future Index 2021

#### **Marginal Feed-in-Tariffs**









#### **Renewable Energy Potential**



Wind power 920 billion kWh / year



Hydropower
62 billion kWh / year



**Geothermal waters** 4.3 billion kWh / year



**Solar energy**2.5 billion kWh / year

## MINING AND METALLURGY



**\$3 trillion** - gross value of proven reserves



#6 in the world for estimated mineral resources



Member of the Committee for Mineral Reserves International Standards





#23 best mining jurisdiction in the world



New Code on Subsoil and Subsoil Use: First Come – First Served Principle without a competitive process

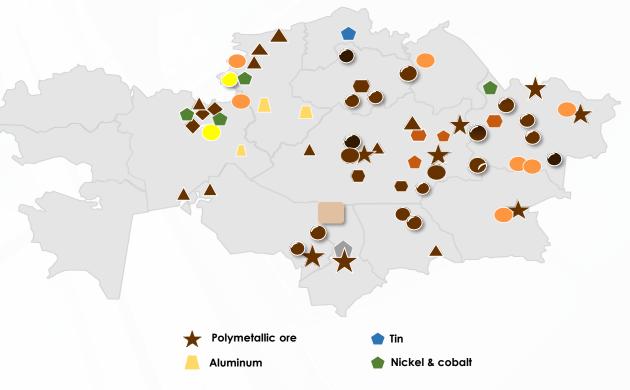






#### **KAZAKHSTAN'S GLOBAL RANKS**

	Chrome	Uranium	Manganese	Lead	Zinc	Gold	Iron ore	Copper
Reserves	1	2	8	8	6	14	11	10
Production	2	1	14	12	8	9	15	10





#### Code of the Republic of Kazakhstan «On Subsoil and Subsoil Use» (Mining Code)

# INTERACTIVE MAP OF SUBSOIL USE Source: Geology committee of Kazakhstan

# **Conceptual innovations:**

- Principle of «first come first served» (the best World practice)

  More than 460 thousand sq. km area is open for exploration
- Open access to geological information

  «National Data Bank of Mineral Resources» is to be launched in mid 2022.
- Reduction of administrative barriers and licensing procedures
- Transition to the International Valuation Standards CRIRSCO
- Providing a guarantee of stability for existing subsoil use contracts
- State Subsoil Fund Management Program
- Ensuring functioning of junior companies and the possibility of raising capital

On the basis of the Astana International Financial Center (AIFC), a segment was created for junior companies on the AIFC stock exchange, where each company can effectively attract financing for exploration, while with minimum requirements for registration, listing and tax incentives



# Prospects for the development of the MMI are related to the following:



Exploration of new prospective areas, which have not been explored before, or explored to limited extent. Kazakhstan adoption of new legislation, Mining Code, that opens up new opportunities for exploration



Development of deposits for which exploration and mining licenses are already distributed – Kazakh Invest has a pipeline of niche projects of private subsoil users to offer potential foreign investors.



Application of new efficient methods of ore processing and metal producing to the previously explored deposits in order to increase their productivity.



Development of further conversion of metal processing



### **Energy metals in Kazakhstan**



#### Lithium fields

- Full research to establish exact lithium reserves has not yet been performed in Kazakhstan.
- Significant lithium reserves are concentrated in tailings from rare-metal fields in East Kazakhstan.
- Rock lithium containing deposits and brine deposits are also available but require additional research.
- Currently few Kazakhstani private companies are carrying out exploration works in the major rock deposits in East Kazakhstan.



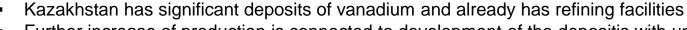
Cobalt

#### **Nickel and Cobalt deposits**

- Kazakhstan has significant deposits of nickel (up to 10% of the World reserves). Deposits are located in Aktobe, Kostanai and East-Kazakhstan regions.
- Some of the nickel deposits contain cobalt in the ratio favorable for feasible extraction.
- Content of nickel ranges between 0,7% and 1,2%. New technologies must be applied for feasible processing.



#### Vanadium deposits

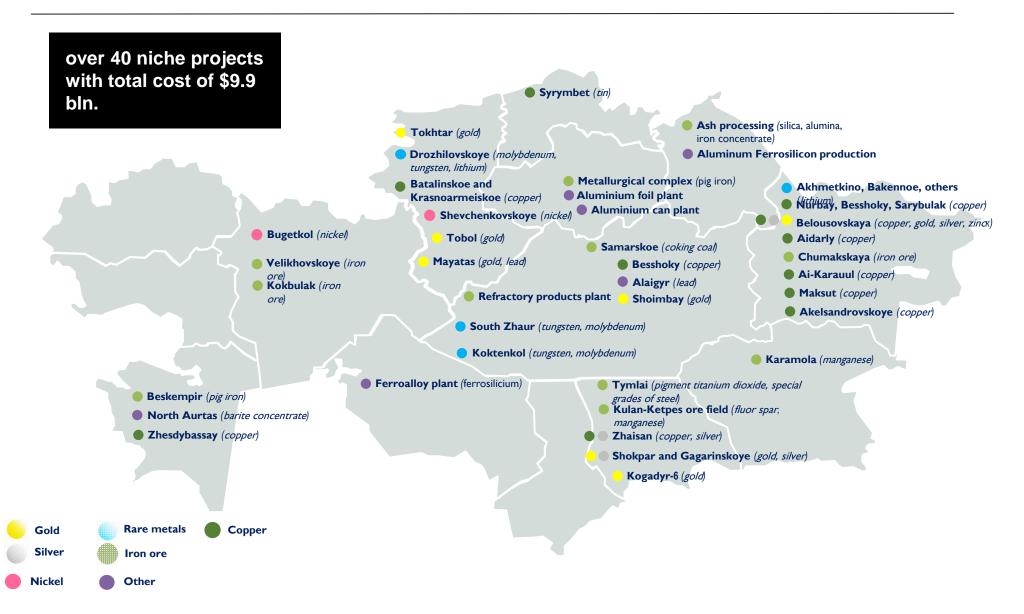




 Further increase of production is connected to development of the depositis with unconventional ore composition

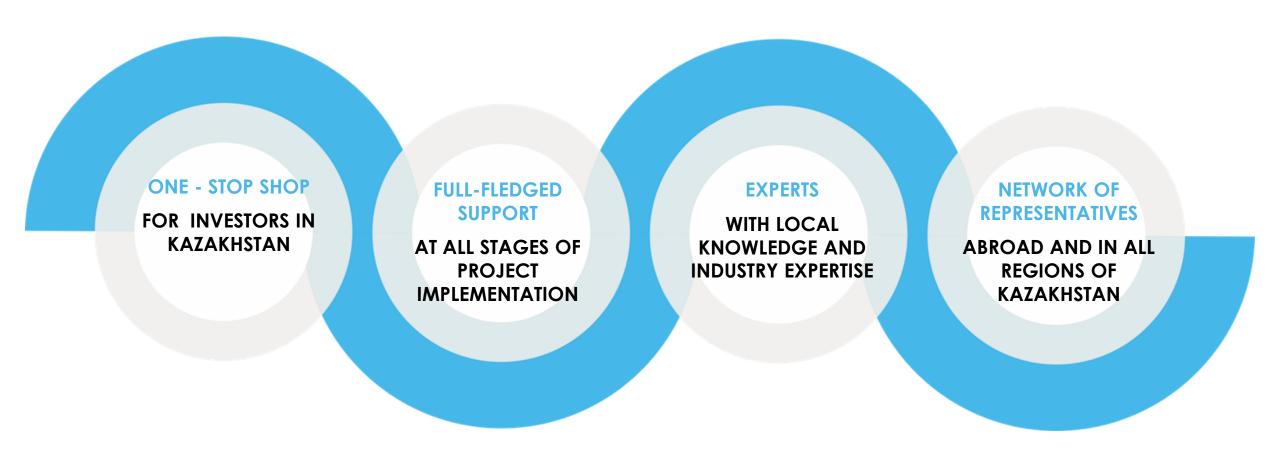


#### **Investment proposals**



# SUPPORT BY KAZAKH INVEST

## **ULTIMATE INVESTMENT GUIDE TO KAZAKHSTAN**







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