



KAZAKH INVEST

NATIONAL COMPANY

Investment Opportunities at the Heart of Eurasia

PROSPECTS FOR THE DEVELOPMENT OF COAL CHEMISTRY
IN KAZAKHSTAN

May 2024





Murat Nurtleu

Deputy Prime Minister -
Minister of Foreign Affairs
of the Republic of Kazakhstan

DEAR COLLEAGUES!

The Head of State has set an ambitious task to double the national economy by 2029. As part of this task, we aim to attract at least \$150 billion in foreign investment.

The guideline in our work is the accelerated development of the manufacturing industry, considering Kazakhstan's competitive advantages. Soon, high-grade production clusters should appear in Kazakhstan.

We are introducing new approaches to targeting investors. One promising area where Kazakhstan has all the prerequisites to become a world leader is coal chemistry. With deep coal processing, it is possible to obtain products that cost 25-30 times more expensive than raw materials. With an extensive resource base and an advantageous geographical location, we must realize the potential of this industry.

We aim to attract an investor with experience in coal processing to transfer modern technologies to localize production in Kazakhstan.

We hope that our investment proposal will contribute to achieving our goals!

WHY IT IS NECESSARY TO DEVELOP COAL CHEMISTRY IN KAZAKHSTAN?



Large coal reserves are designed for 300 years



The possibility of obtaining more than 400 products from coal



Recycled coal costs 25-30 times more expensive



Only 3% of coal is processed in Kazakhstan



Due to the processing of coal, it is possible to obtain the same products as due to the processing of oil and gas



The price of coal is lower and stable than that of gas and oil



According to preliminary calculations, the unused potential is \$25 bln



Government support

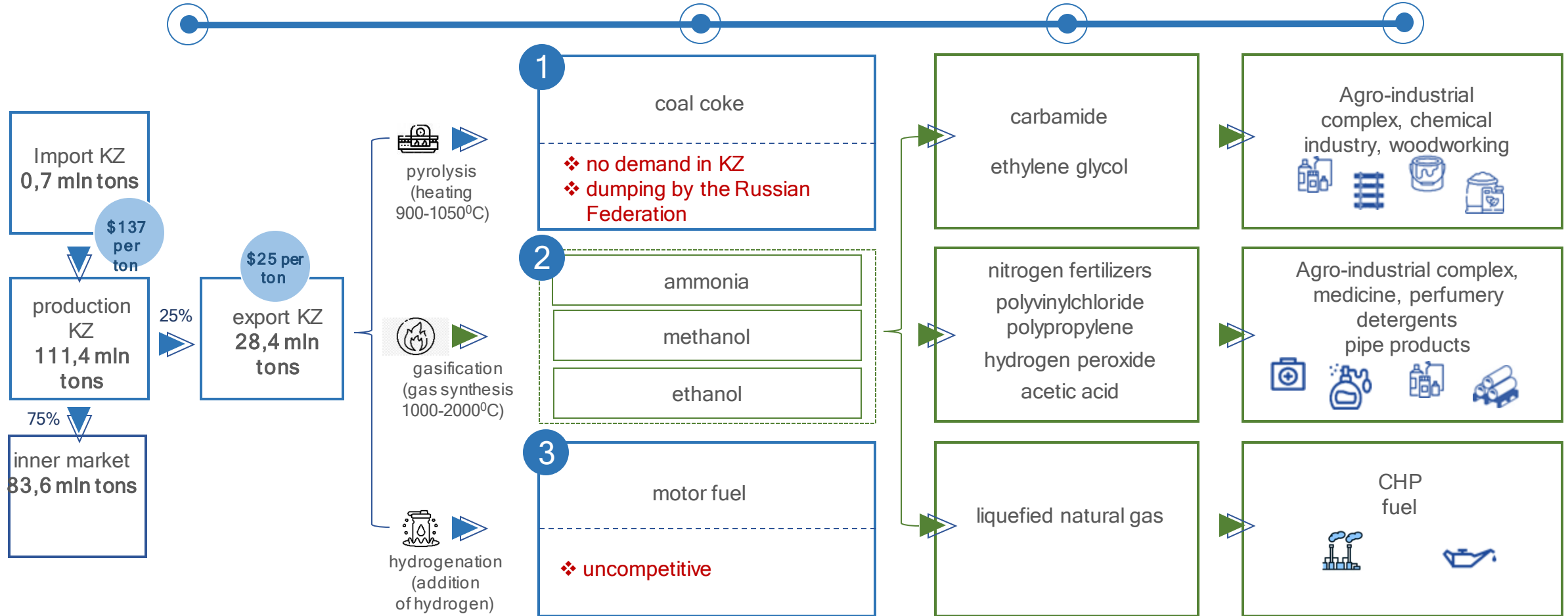
THE POTENTIAL OF COAL CHEMISTRY

RAW MATERIALS (coal)

STAGE I

STAGE II

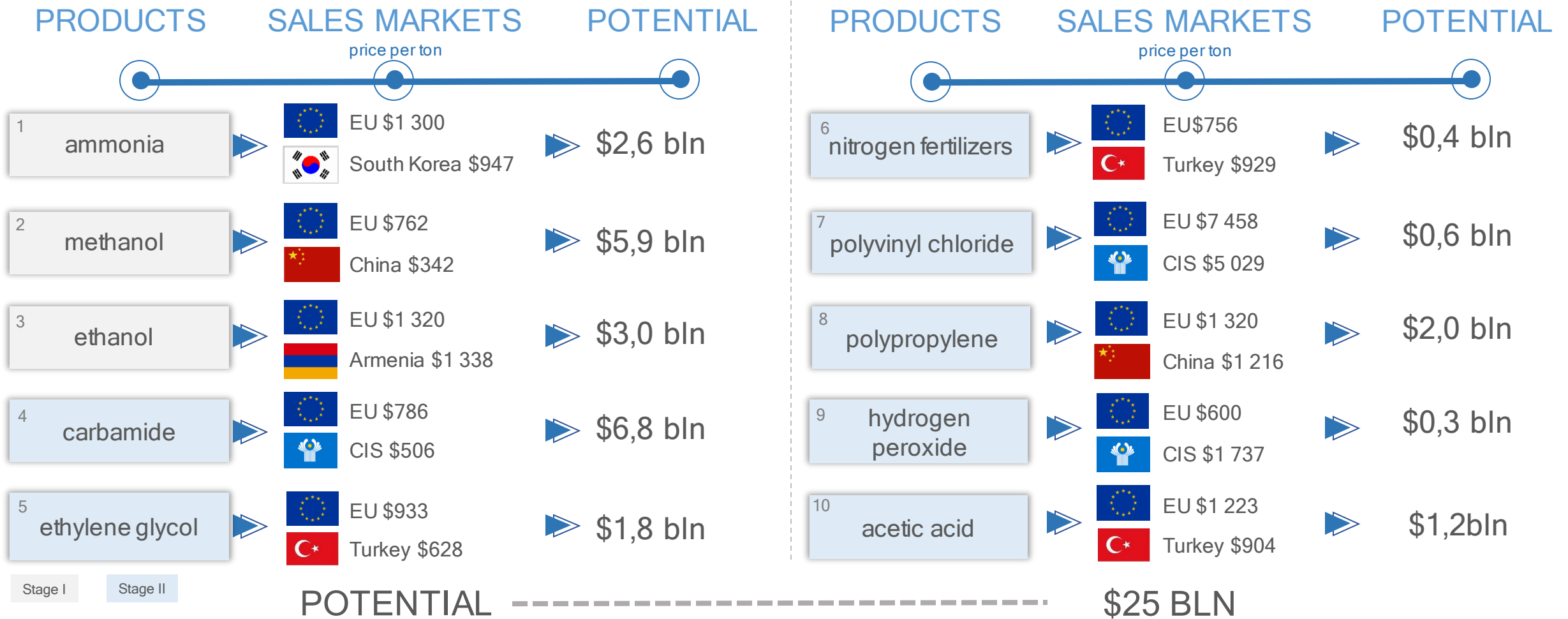
APPLICATION



OF THE THREE METHODS OF COAL PROCESSING, GAS SYNTHESIS IS THE MOST PROMISING DIRECTION IN OBTAINING GOODS OF DEEPER PROCESSING - THE POTENTIAL IS \$ 25 BILLION.

- ❖ ammonia is used in the production of fertilizers, grain processing, cosmetics, cleaning products, etc. ethylene glycol is used for the production of brake fluids, antifreeze, etc.
- ❖ methanol is used in the production of dry alcohol, pharmaceuticals, dyes, plastics, etc.
- ❖ ethanol is used in the chemical industry, disinfectants, medicines, etc.

PROCESSED GOODS: POTENTIAL

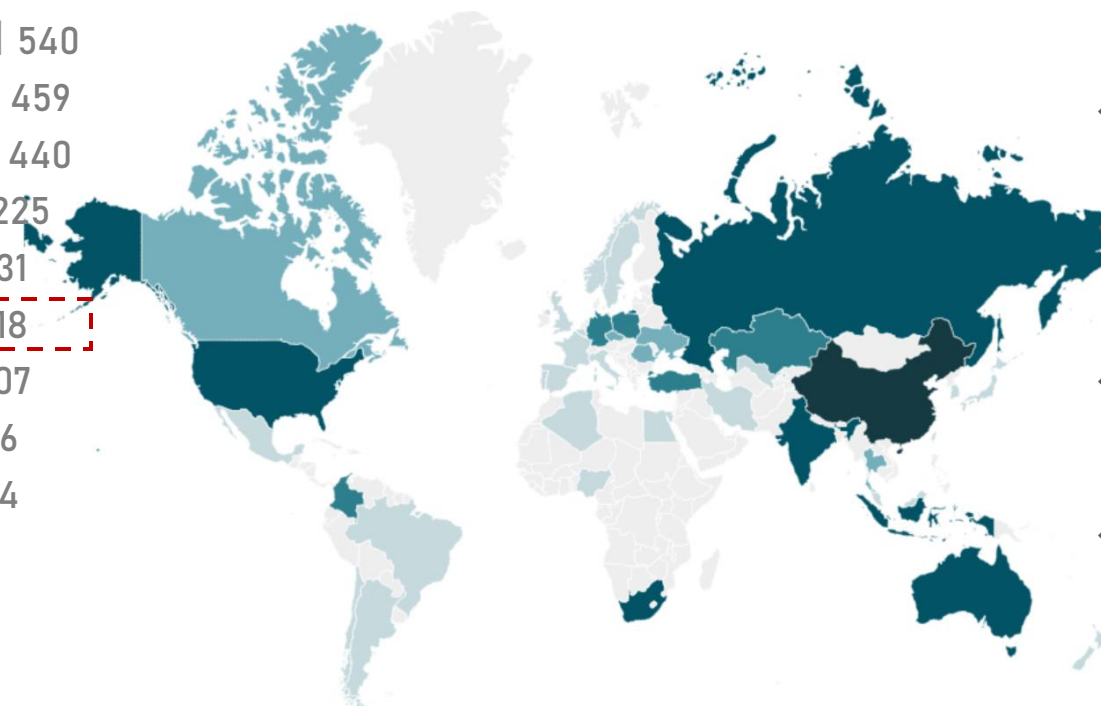
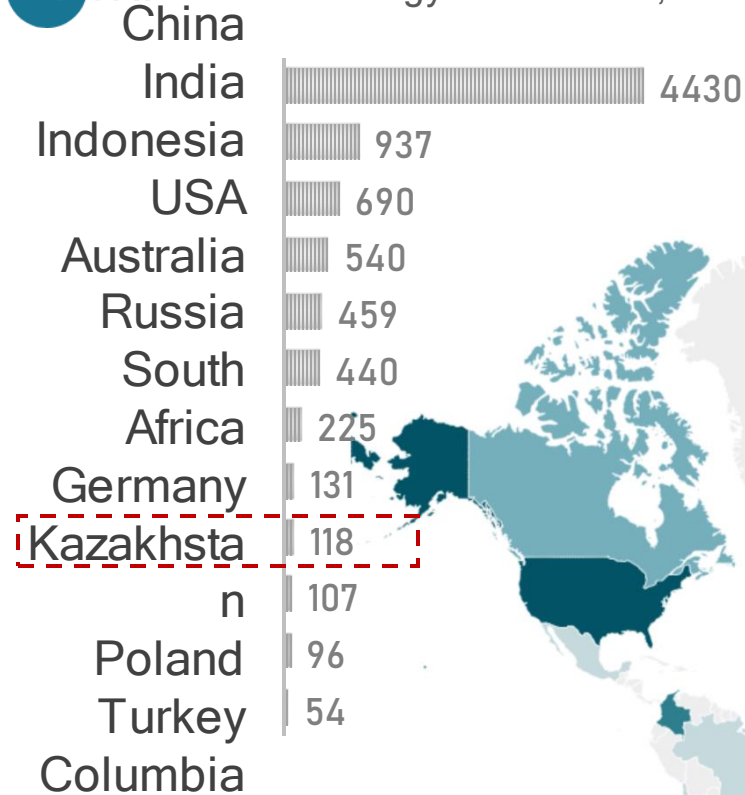


TAKING INTO ACCOUNT GLOBAL TRENDS AND THE AVAILABILITY OF RAW MATERIALS, KAZAKHSTAN NEEDS TO DEVELOP NEW COAL PROCESSING PROCESSES, WHICH WILL ALLOW US TO PRODUCE PRODUCTS WITH A HIGH CONVERSION RATE

Potential calculations: sales markets with a negative trade balance and positive import dynamics for the periods 2018-2022/2021-2022 are taken.

GLOBAL MARKET

Enerdata Global Energy Trends 2023, mln tons

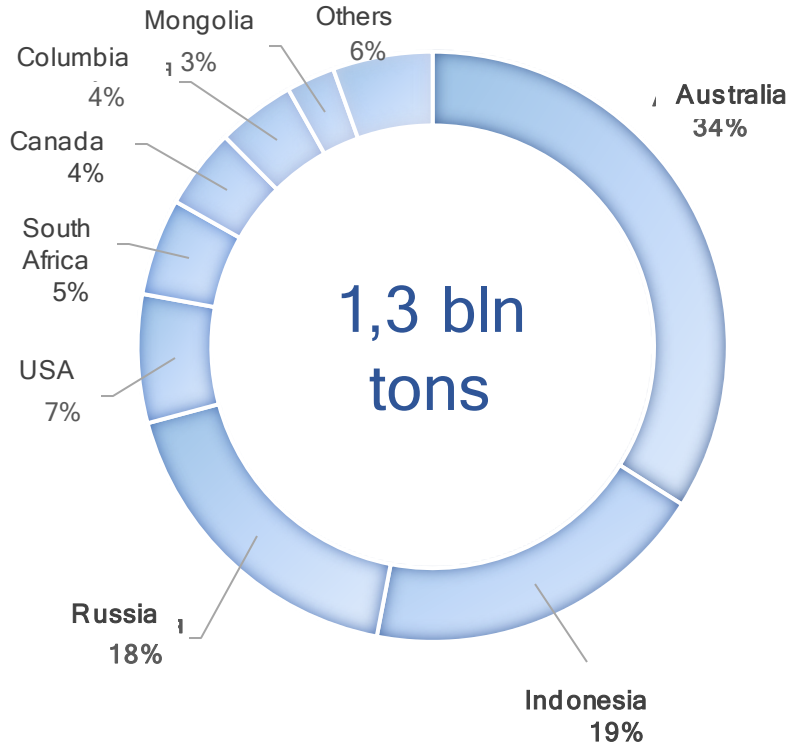


- ❖ In 2023, global coal production increased by 8.2% as coal prices remained at high levels due to supply disruptions due to the war in Ukraine.
- ❖ Asian coal mining countries, which account for more than 70% of global coal production, increased production by 11% in 2023, including China by 10%, India by 14% and Indonesia by 12%.
- ❖ Coal production in Australia, which was affected by heavy rains and floods, increased slightly (0.8%).
- ❖ Due to high gas prices, in 2023, coal production in Europe increased by 4.8%: in Turkey by 11%, in Germany by 3.5% and in the Czech Republic by 12%.
- ❖ The volume of production in the CIS countries remained at the same level (0.3%, including 0.4% in Russia), as Russian exports suffered from Western sanctions.
- ❖ China remained the world's largest producer of coal and brown coal in 2023, providing more than half of the supply (51% in 2023), and its share is growing (4 percentage points from 2019); followed by India (11%) and Indonesia (8%).

KAZAKHSTAN IS ONE OF THE TOP 10 WORLD COAL MINING COUNTRIES

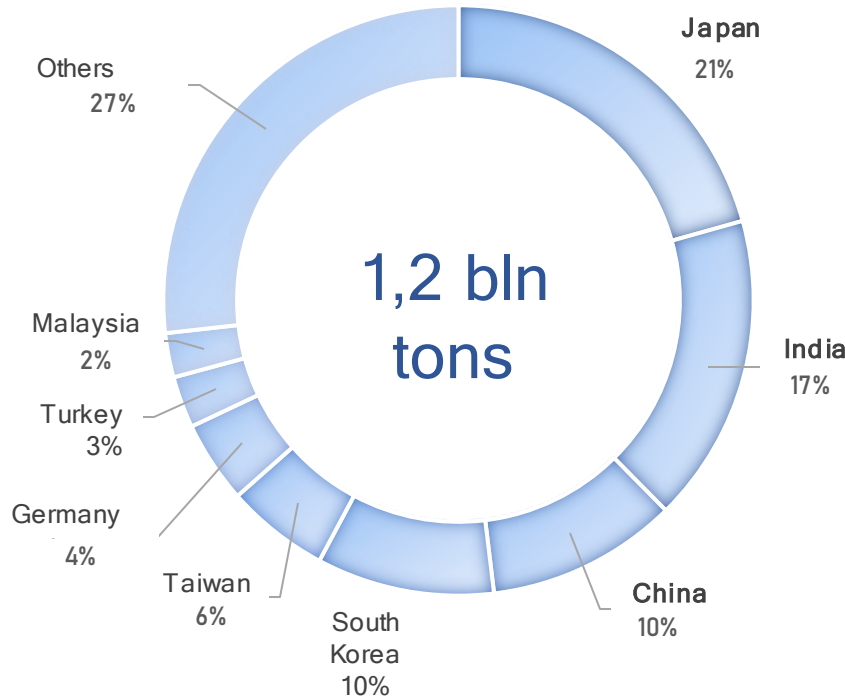
GLOBAL COAL EXPORTS AND IMPORTS

COAL EXPORTS 2022



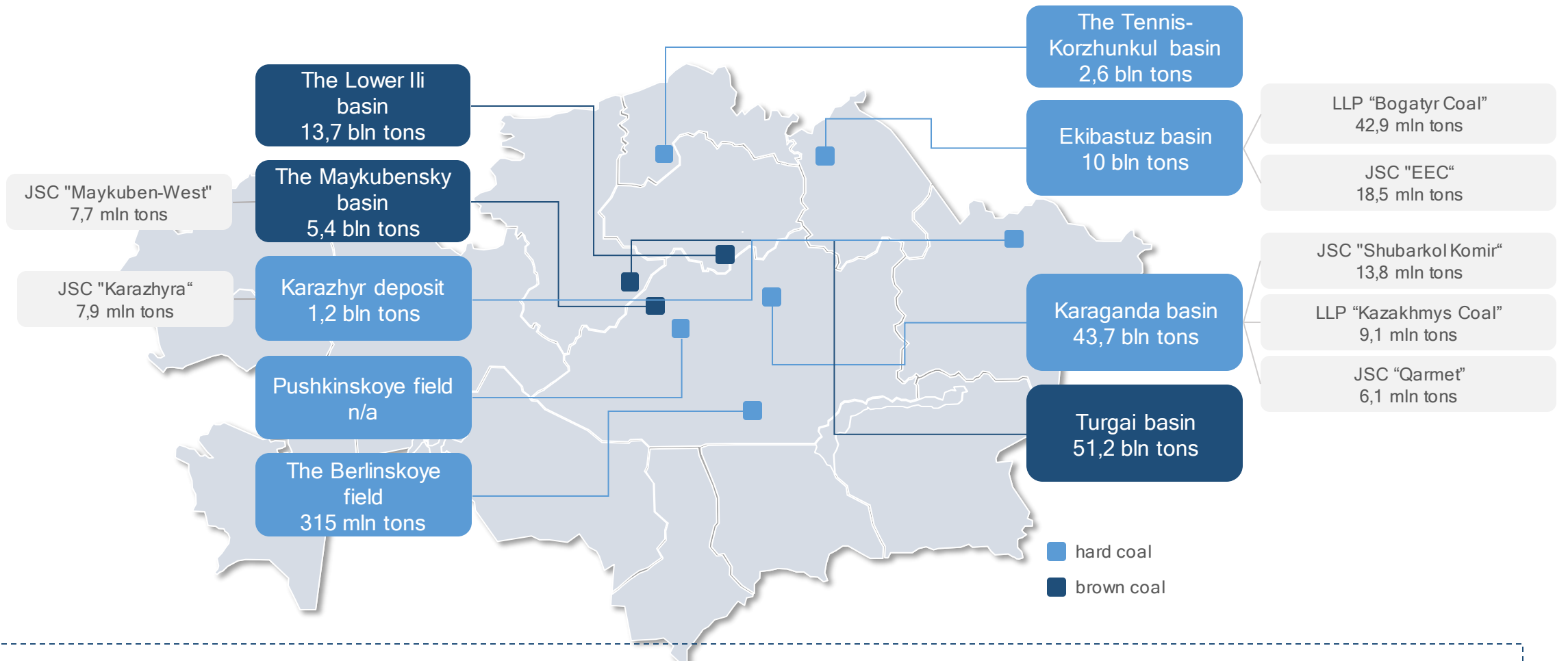
- More than one third of the world's coal exports are carried out by **Australia** in the amount of **338 million tons**.
- **Kazakhstan** is ranked **13th** among 100 exporting countries.

COAL IMPORTS 2022



- Japan is the leader among the coal importing countries with a volume of **183 million tons**.
- The average import cost in the world for 1 ton of coal is **\$459**. Kazakhstan imports coal for **\$137 per ton**.

THE LARGEST COAL DEPOSITS and THE MAIN INDUSTRY PLAYERS IN KAZAKHSTAN



- ❖ In terms of coal reserves, Kazakhstan is in 8th place, with a volume of 34 billion tons and which will last for 300 years even with active use.
- ❖ More than 90% of Kazakhstan's coal reserves are located in the northern and central parts of the country.
- ❖ The largest coal basins are located in the Karaganda and Pavlodar regions.

INTERNATIONAL SUCCESSFUL CASES

EASTMAN CHEMICAL COMPANY (Tennessee, USA)



They have the only large-scale equipment in the world that uses coal as a raw material for the production of acetic acid and acetic anhydride. The annual production volume is 510 thousand tons per year.

SHENHUA (XUAR China)



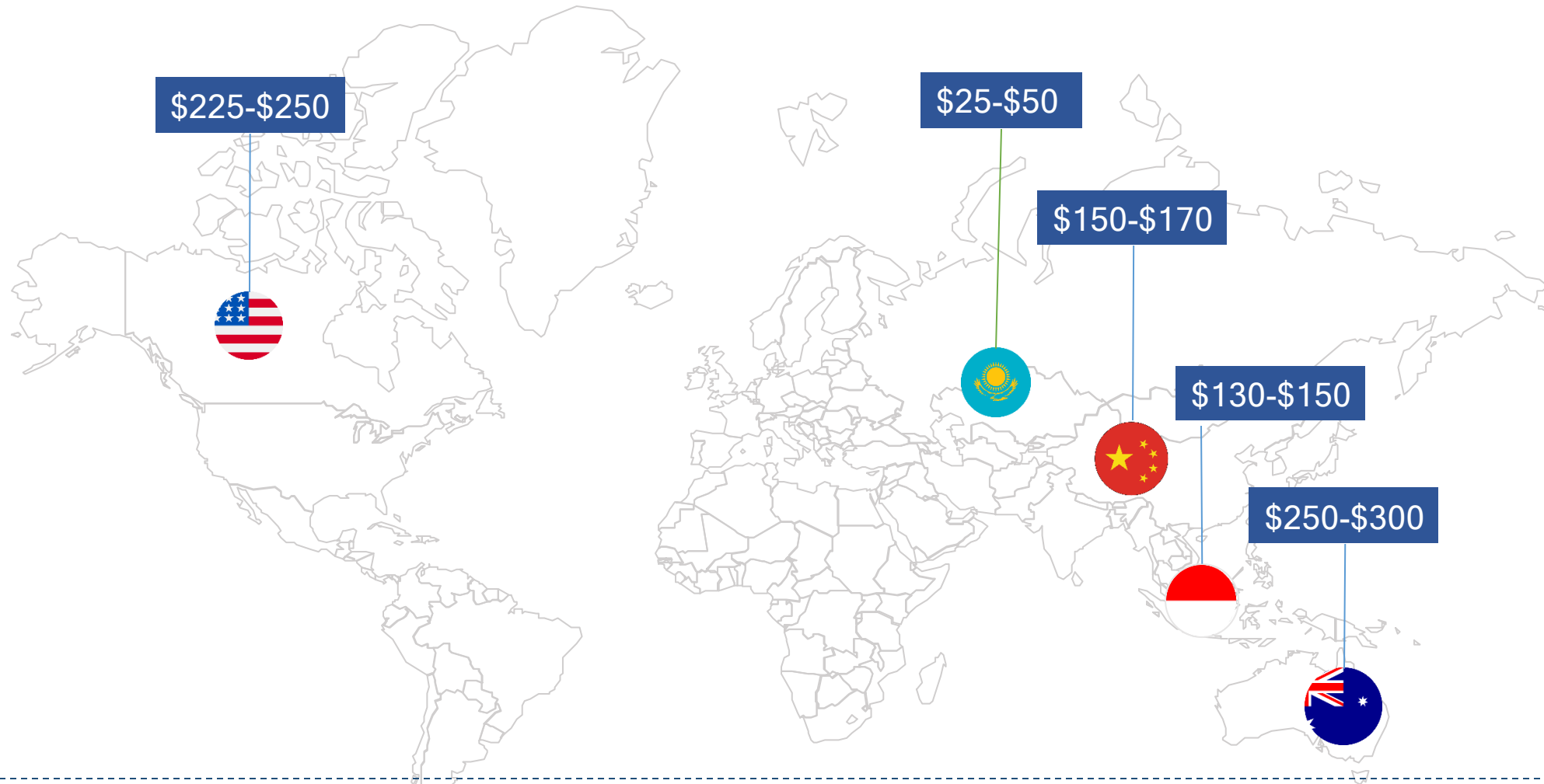
The Shenhua plant produces 3.5 million tons of liquid hydrocarbons from coal per year, and also produces 450 thousand tons of polypropylene and 270 thousand tons of polyvinyl chloride.

SASOL (SOUTH AFRICA)



Over 50 years of development, SASOL has been producing fuels and chemical raw materials in the amount of 7 million tons per year, occupying 40% of the domestic oil market in South Africa.

GLOBAL COAL PRICES



KAZAKHSTAN HAS A COMPETITIVE ADVANTAGE
COMPARED TO THE LEADING COUNTRIES IN THE INDUSTRY

TARGET LIST OF COAL PROCESSING COMPANIES

Adaro Energy



Headquarters:
Indonesia, Tabalong



- ❖ Coal mining
- ❖ Power generation
- ❖ Development of liquefied natural gas and renewable energy sources

Meijin Energy Group Co., Ltd



Headquarters:
China, Taiyuan



- ❖ Coal mining
- ❖ Power generation
- ❖ Related energy operations
- ❖ Chemical production
- ❖ Metallurgical production

Shaanxi Coal and Chemical Industry Group Co., Ltd



Headquarters:
China, Xi'an



- ❖ Coal mining
- ❖ Power generation
- ❖ Chemical industry
- ❖ Research and development

China Shenhua Energy Company



Headquarters:
China, Beijing



- ❖ Coal mining
- ❖ Production of coal products
- ❖ Energy industry
- ❖ Chemical industry
- ❖ Research and development

Cape Coal Pty Ltd



Headquarters:
Australia, Brisbane



- ❖ Coal mining and processing
- ❖ Coal production and processing
- ❖ Research and development

Peabody Energy



Headquarters:
USA, St. Louis



- ❖ Coal mining
- ❖ Coal enrichment and processing
- ❖ Energy and power generation
- ❖ Research and development

East China Engineering Science and Technology



Headquarters:
China, Anhui



- ❖ Chemical industry
- ❖ Renewed clean energy
- ❖ Environmentally friendly technologies

Yanchang Petroleum International



Headquarters:
China, Hong Kong



- ❖ Petrochemicals
- ❖ Oil refining
- ❖ Research and development

CGCOC Consulting (Hunan) Co.

Headquarters:
China, Hunan Province



- ❖ Coal chemistry
- ❖ Chemical industry



KAZAKH INVEST


NATIONAL COMPANY


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