



EURASIAN  
PATENT  
OFFICE

# Green and hydrogen energy: patenting

**Grigory Ivliev**

President of the Eurasian Patent Office



# EURASIAN PATENT ORGANIZATION (EAPO)



## International intergovernmental organization

It is established in **1994** under the Eurasian Patent Convention (EAPC) aimed at creating a regional system of legal protection for inventions through a single Eurasian patent



**Eurasian Patent Office is an executive body that administers the Eurasian patent system**

Regional patents for  
**- inventions**  
**- Industrial designs**



Users from more than

# 130

states

# EAPO MEMBER STATES



Republic of Azerbaijan



Republic of Armenia



Republic of Belarus



Republic of Kazakhstan



Kyrgyz Republic



Russian Federation



Republic of Tajikistan



Turkmenistan

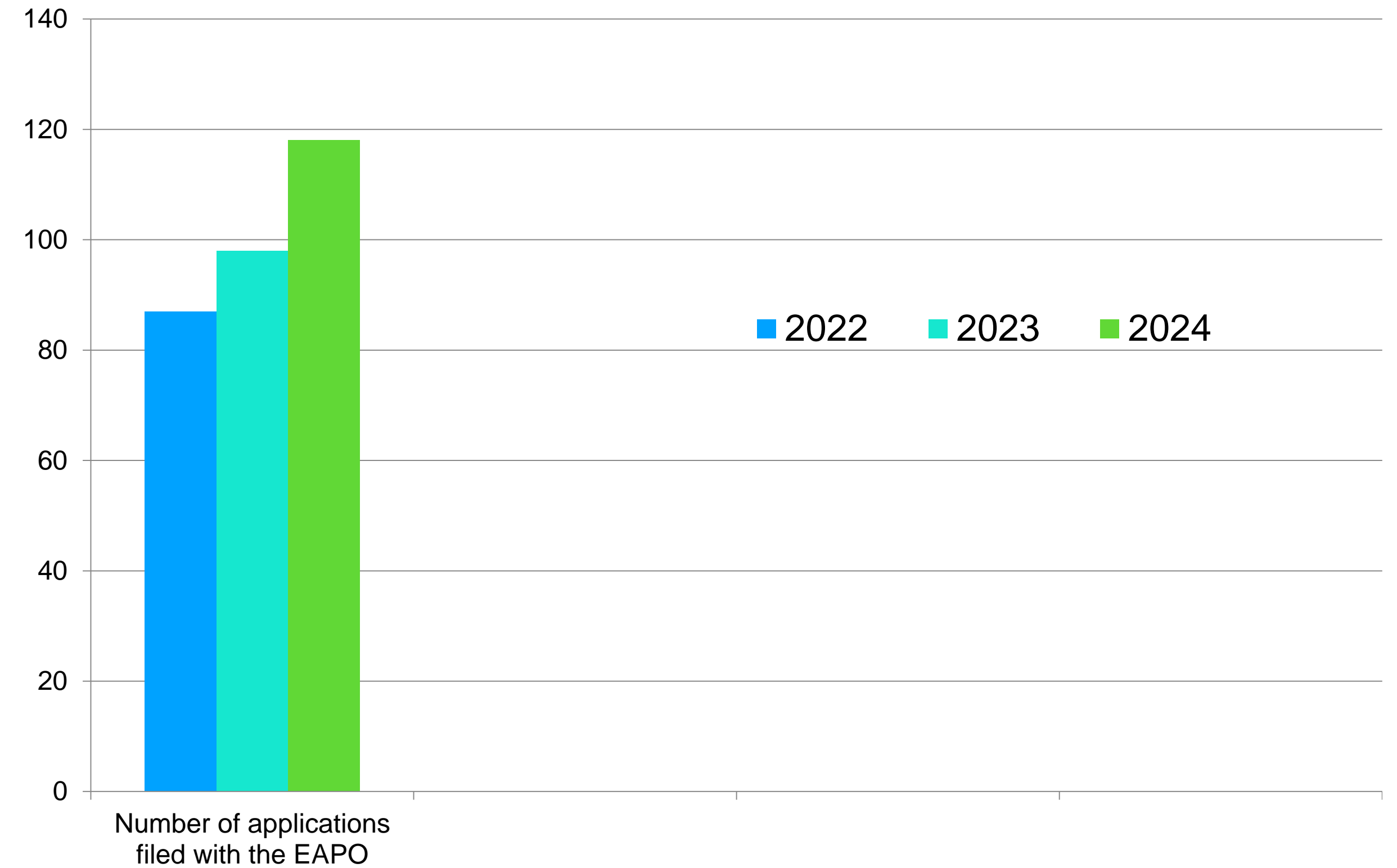
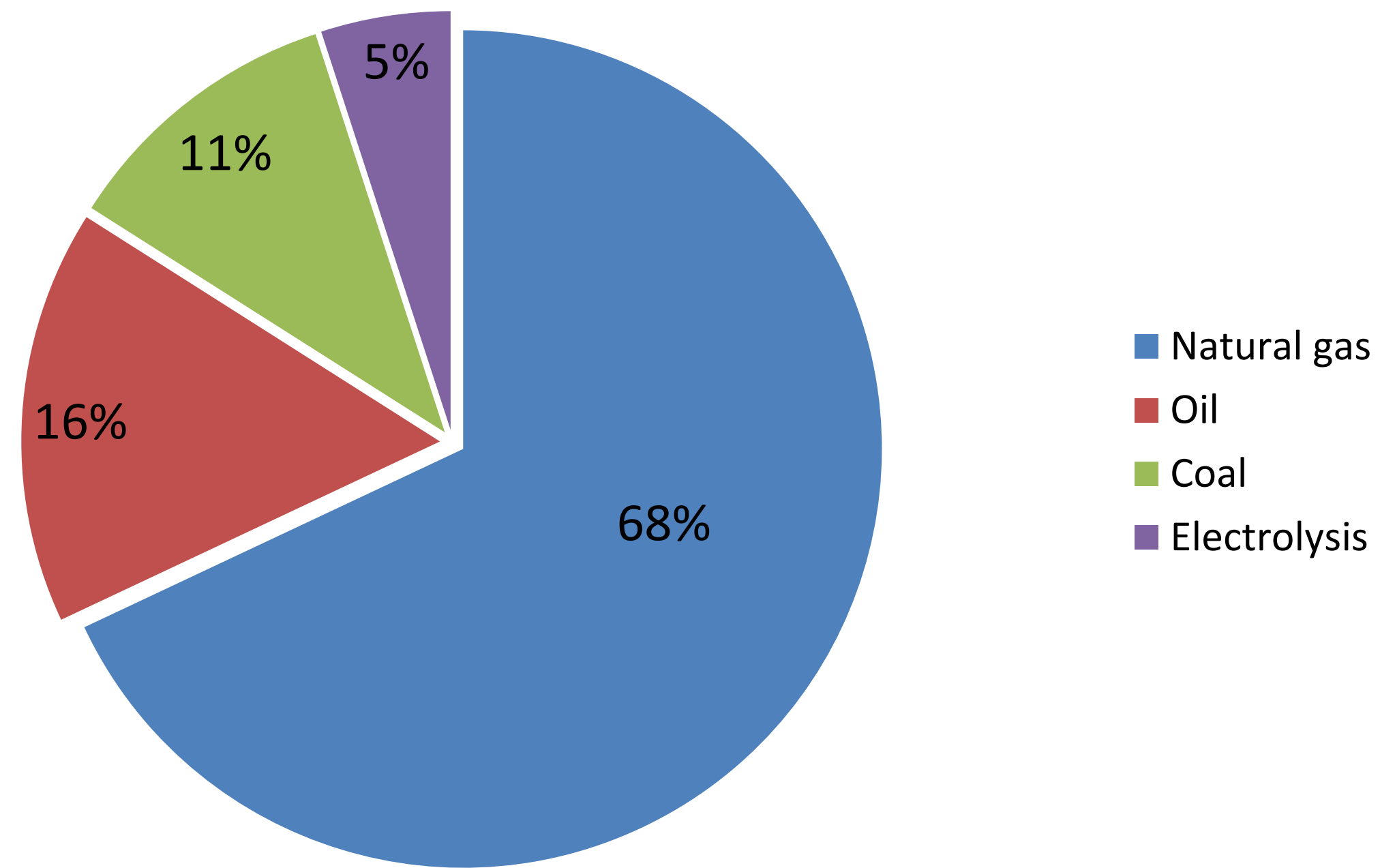
# BENEFITS FOR APPLICANTS



# ANALYSIS OF PATENT APPLICATIONS FILED WITH THE EURASIAN PATENT OFFICE IN THE FIELD OF HYDROGEN ENERGY



Raw materials for hydrogen production in the Eurasian region



# EXAMPLES OF PATENT APPLICATIONS STEAM REFORMING

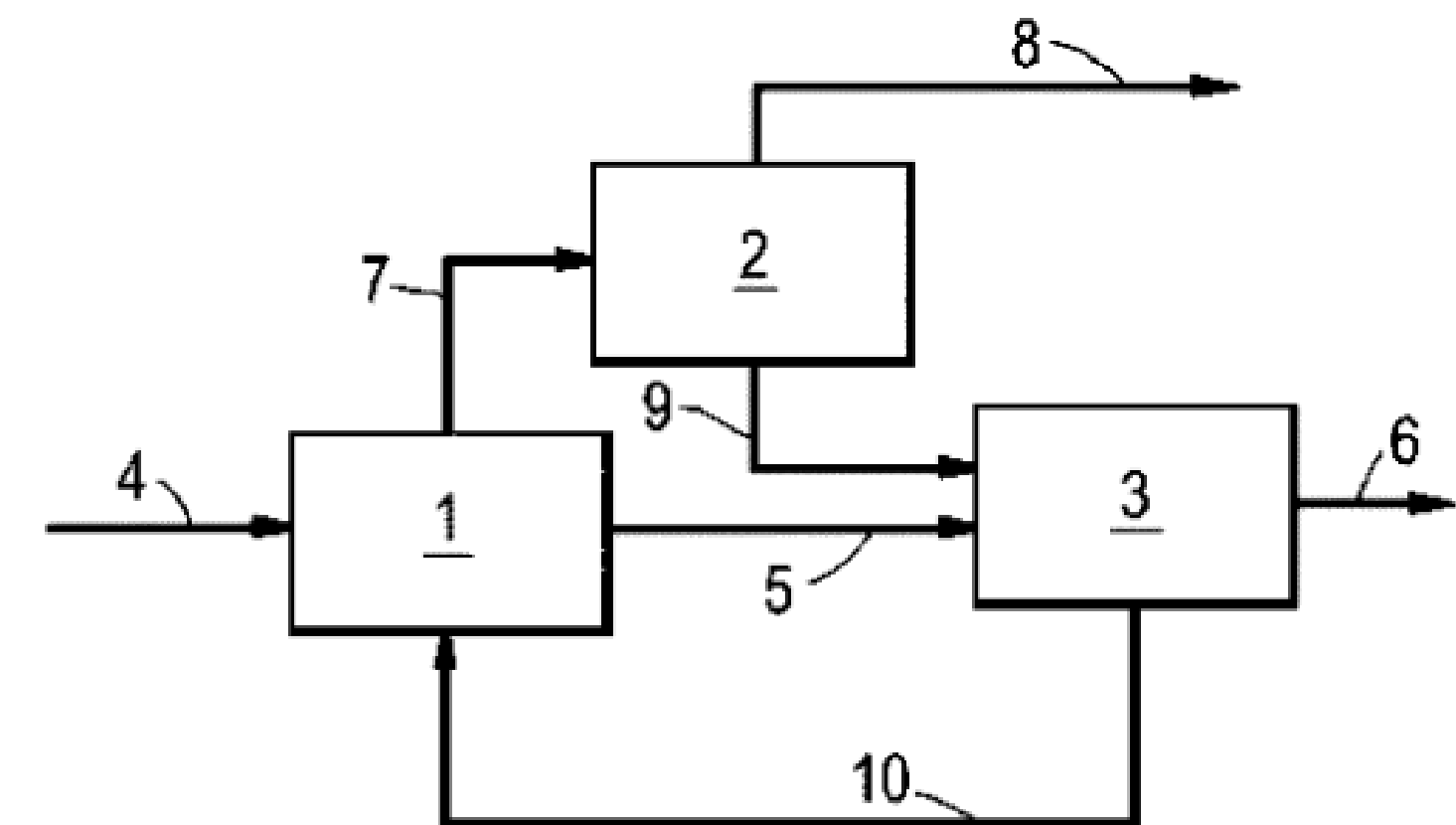
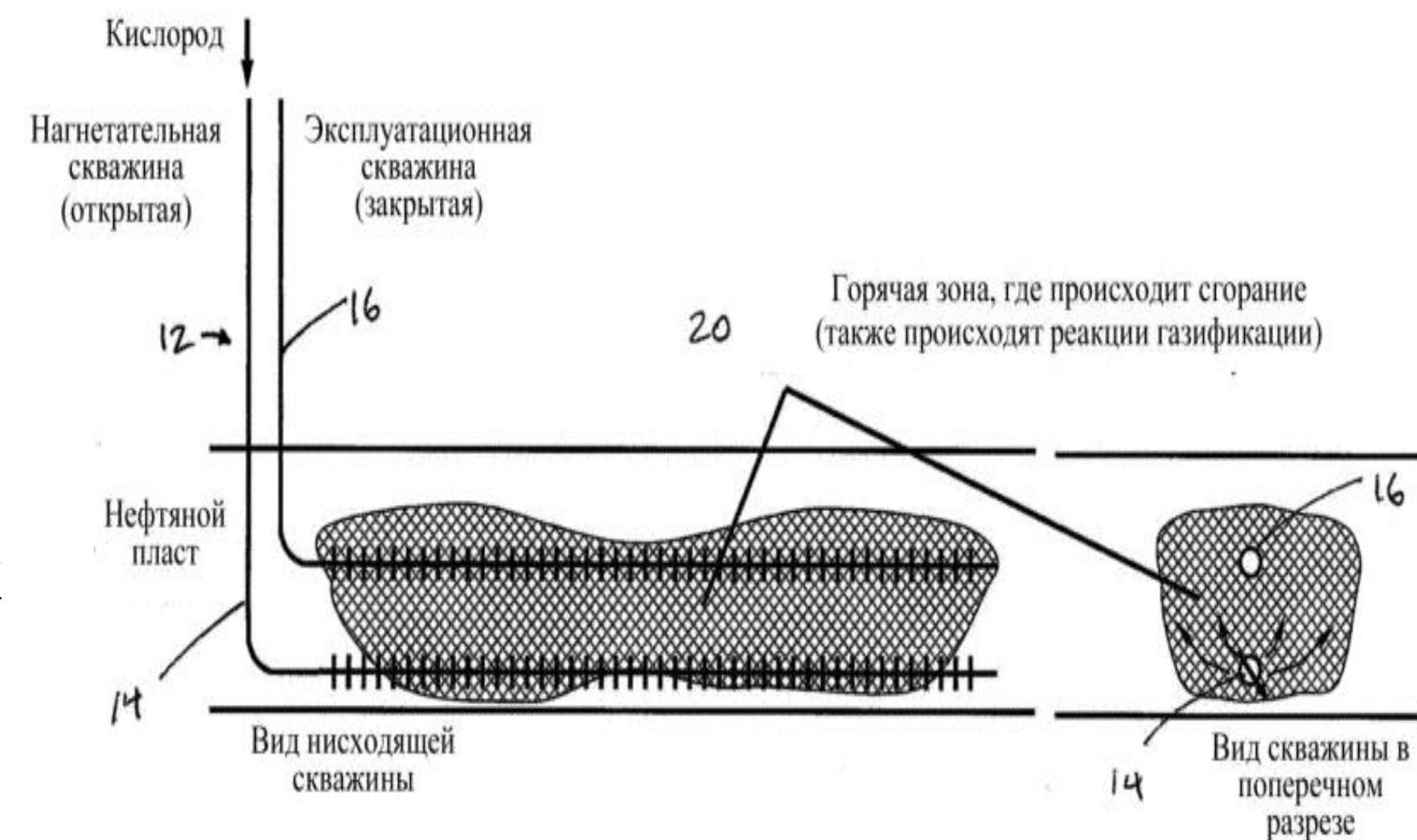
## PATENT EA 040627 (B1) PROTON TECHNOLOGIES COMPANY - VIRGIN ISLANDS (VG)

The invention is aimed at utilizing coke (solid carbon) produced as a by-product. Pyrolysis of hydrocarbons is carried out by using electromagnetic microwave heating directly in natural gas or oil and gas fields. Microwave exposure in the field wells enables the decarbonization of hydrocarbon fuel in the reservoir itself and hydrogen production. In this case, the producer well contains a membrane permeable only to hydrogen. It reduces the risk of emergence of other components in the extracted products.

## EURASIAN PATENT APPLICATION EA 202192227 (A1) FILED BY SHELL INTERNATIONAL COMPANY - NETHERLANDS (NL)

The inventors propose to apply a fermentation technology using microorganisms capable of growing on CO-containing gases after the first stage of steam reforming, which produces carbon monoxide and hydrogen.

The invention enables the conversion of carbon monoxide (CO) into useful fermentation products, such as ethanol (alcohol), and thereby provides a reduction in carbon dioxide emissions (since CO is converted into CO<sub>2</sub> in the second stage of steam reforming).



# CONCLUSIONS ON HYDROGEN ENERGY

- Analysis of applications in the field of hydrogen energy filed with the Eurasian Patent Office revealed a regional tendency associated with a country's hydrocarbon potential.
- Most countries in the Eurasian region are rich in hydrocarbon resources, so the number of Eurasian patent applications for technologies for hydrogen production from methane has increased.  
+ Active patenting of hydrogen storage technologies in different aggregate states
- Inventors are exploring ways to make the technologies for producing blue and turquoise hydrogen cheaper and more environmentally friendly.

Patenting of these technologies reached its highest point in 2014. The number of patent applications filed with the Eurasian Patent Office for such solutions decreased by half by 2024 compared to 2014.

This negative trend is most likely due to:

- decrease in government funding for the development of green energy solutions in a number of countries,
- lack of manufacturing facilities in the Eurasian region to produce equipment aimed at renewable electricity consumption,
- lack of developed infrastructure for accumulating and storing such energy in the Eurasian region,
- focus of countries in the Eurasian region, rich in hydrocarbon reserves, on traditional and then on hydrogen energy.

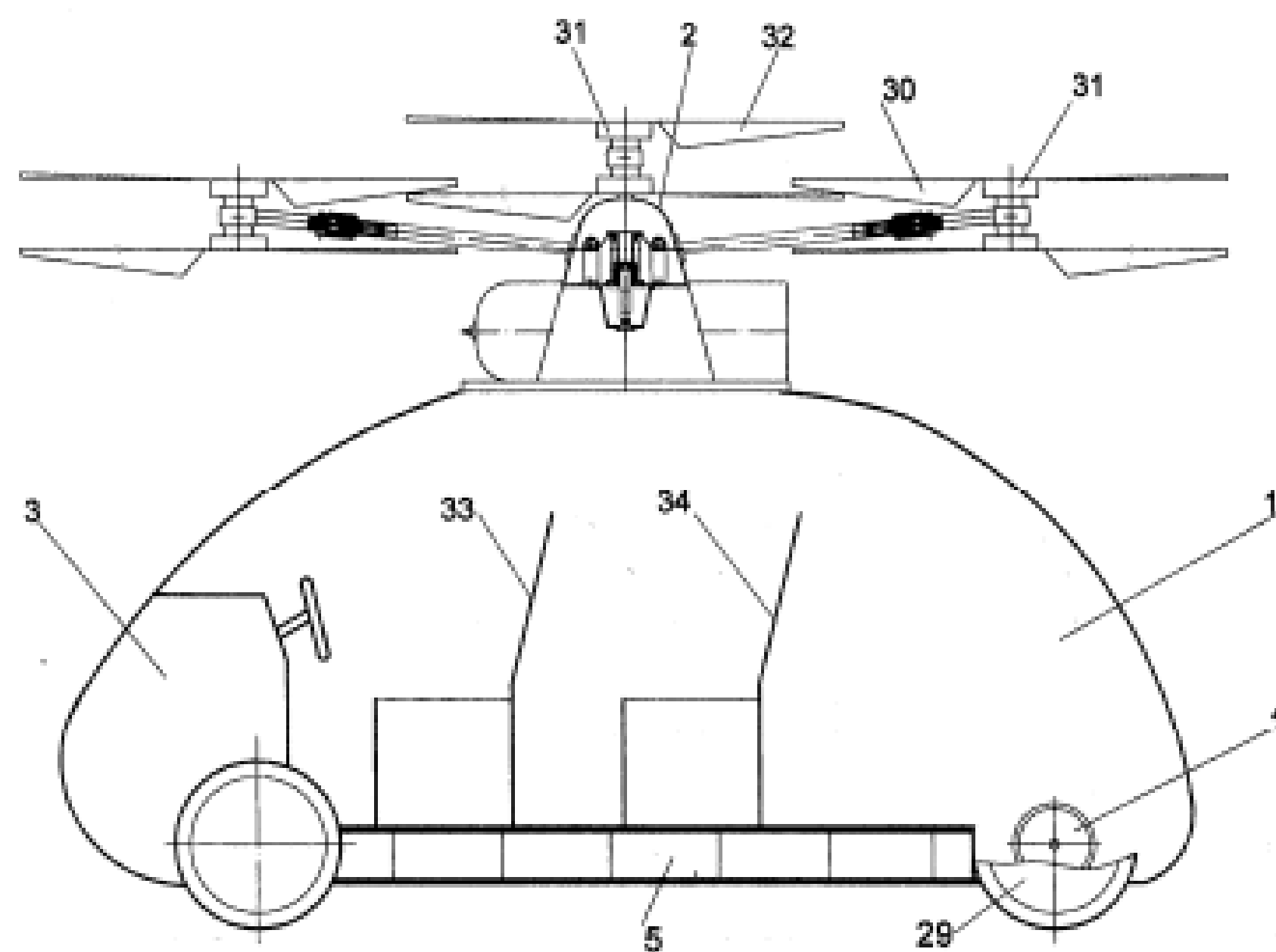


# EXAMPLES OF PATENT APPLICATIONS

## «GREEN ENERGY»

### **PATENT EA 046311 (B1) PATENT OWNER - KONSTANTINOV I.P. - REPUBLIC OF BELARUS (BY)**

The invention is an aereoelectric vehicle for movement on the ground and in the air. Its special design ensures economical energy consumption and the possibility of recharging the device during its operation. The author proposes to install a hollow dome and a wind generator on the roof of the aereoelectric car. This generator is made in the form of two air-power turbines that allows for charging the battery during the flight.



- Green energy is actively developing in Eurasian countries where climatic and geographical conditions allow the widespread use of renewable energy sources, such as Turkmenistan and Azerbaijan.
- In comparison to applicants from other regions, Chinese applicants currently file applications in the field of green energy in more jurisdictions. This indicates that such patentable inventions represent a great potential for them to be commercialized globally.
- The active participation of Chinese applicants in the near future may encourage applicants from other countries, including those from the Eurasian region, to improve and patent such solutions.

**Thank you for  
your attention!**