

ENERGY TRANSITION

THE ROLE OF THE CROATIAN HYDROCARBON AGENCY



Croatian Hydrocarbon Agency

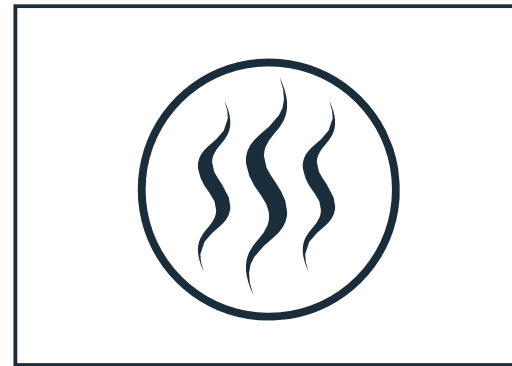
HYDROCARBONS

01



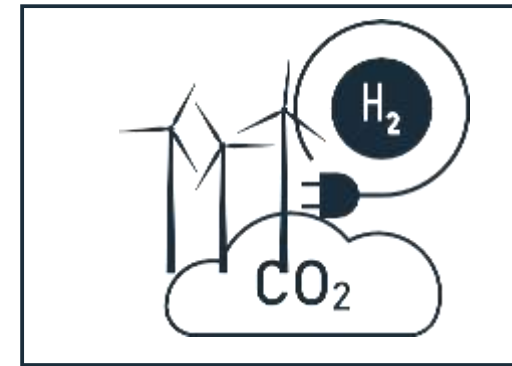
GEOTHERMAL

02



NEW ENERGY

03



2014.

Established by the Government of the Republic of Croatia as an operational and systematic support to the Ministry of Economy and Sustainable Development.

2018. - ongoing

Energy transition

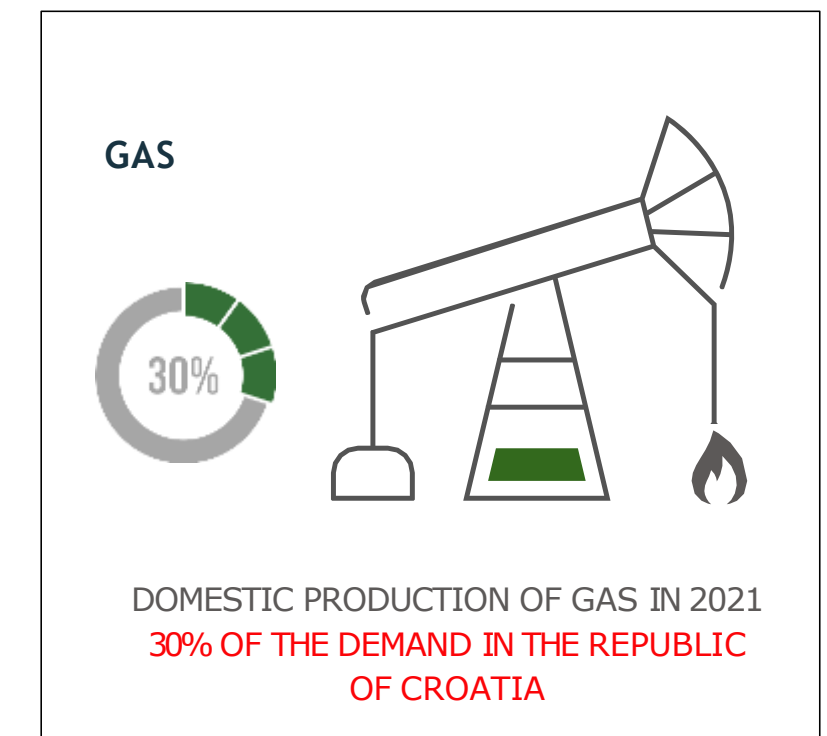
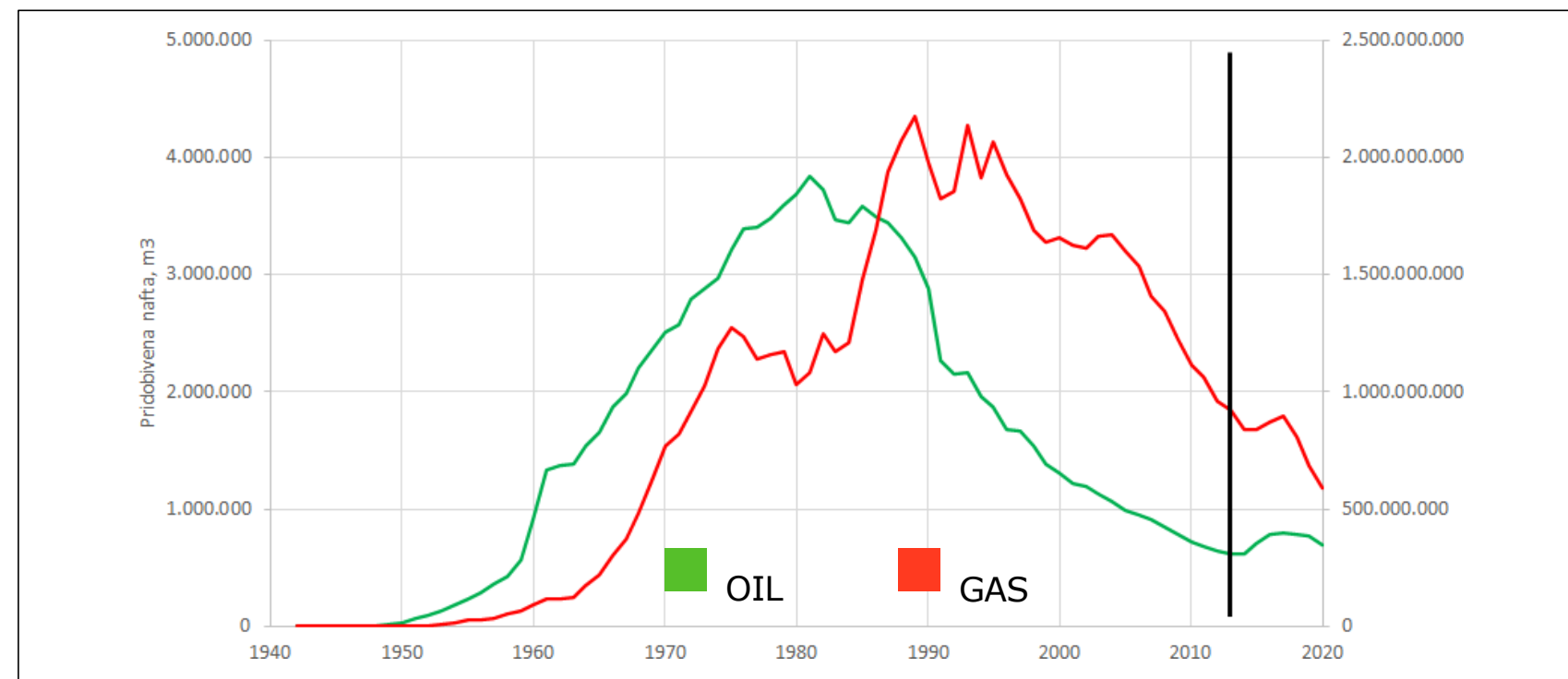
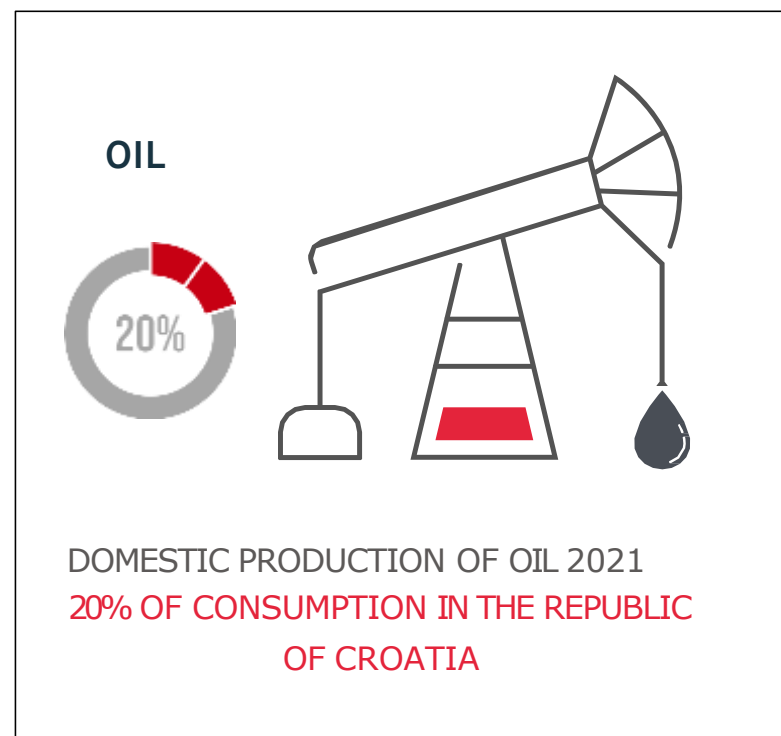


HYDROCARBONS

E&P in Croatia

CROATIA 2022

Until relatively recently, Croatia could cover **70%** of its gas needs from domestic sources, mostly from fields located in the northern Adriatic.



The average daily **OIL** production in 2021 was about **1,800 m³/d**

Average daily **GAS** production in 2021 was about **2.1 million m³/d.**

Oil produced in 2021 is **5% lower than in 2020.**

The volumes of gas produced in 2021 are **12% lower** than the volumes produced in 2020.

OIL IMPORT IN CROATIA:

- 🛢️ Crude oil - Azerbaijan 80,63%; Nigeria 9,70%; Libija 5,05%; Kazahstan 4,61%
- 🛢️ Fuel oil - Greece, Italy

E&P in Croatia

new exploration

 **54 PRODUCTION FIELDS**

43 OIL&GAS FIELDS

11 GAS FIELDS

 **7 EXPLORATION BLOCKS**

 **NEW CONTRACTS**

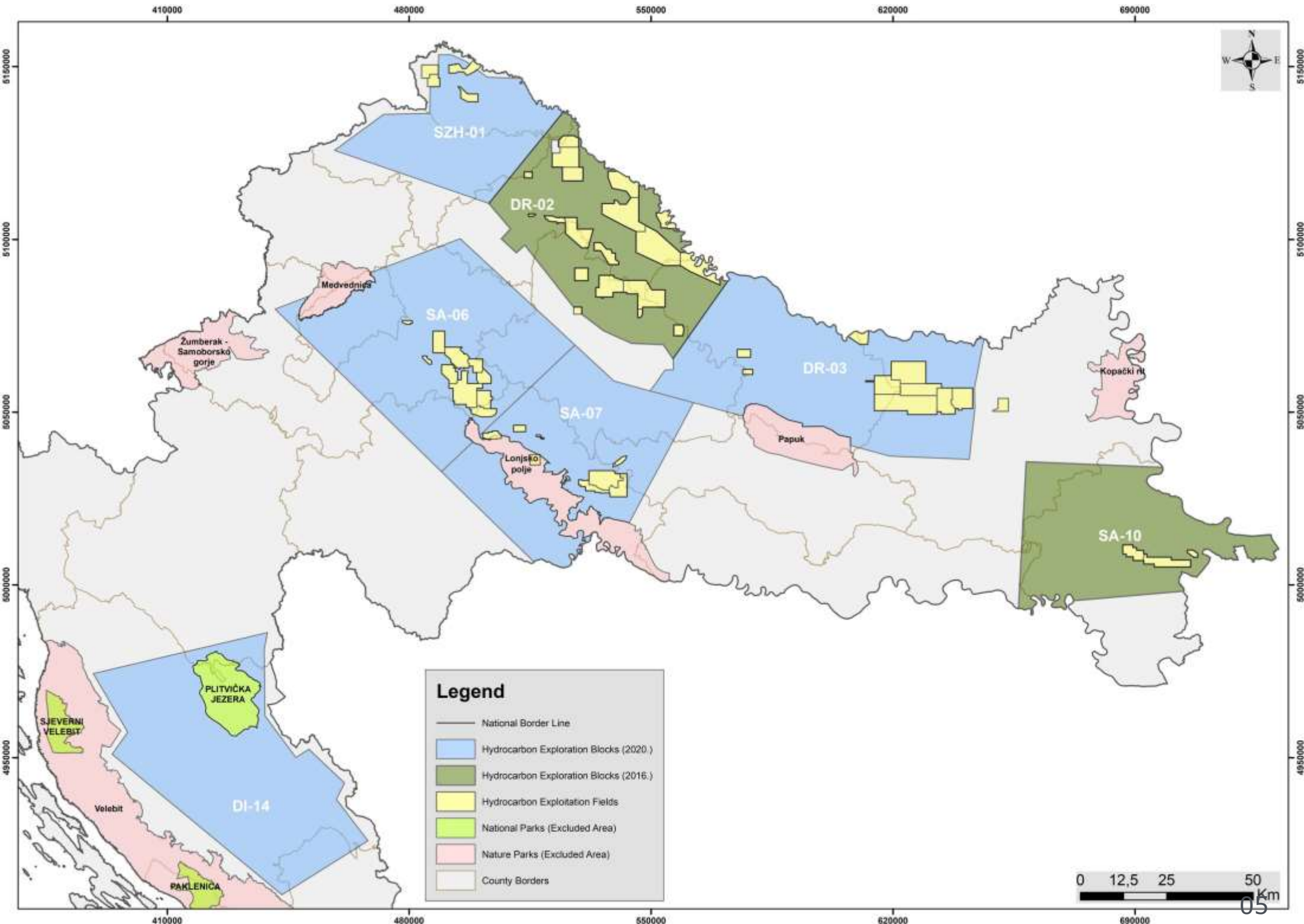
2016 - 5 CONTRACTS SIGNED

3 GAS DISCOVERIES

1 OIL DISCOVERY

2020- 5 CONTRACTS SIGNED

UNDERGOING EXPLORATION

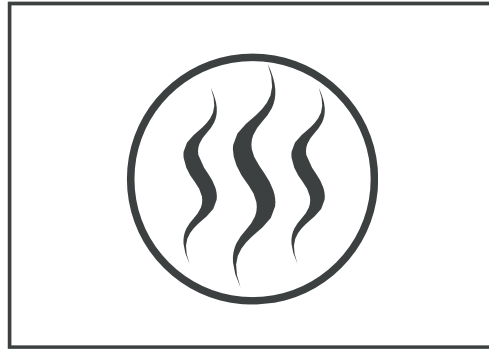


Energy transition of CHA

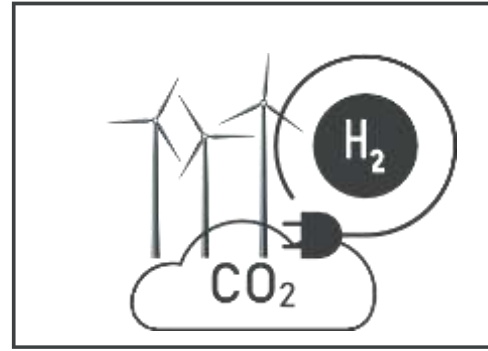
HYDROCARBONS



GEO THERMAL



NEW ENERGY



DECLINE OF OIL&GAS RESERVES

Despite the new contracts, there is a clear decline trend in oil&gas reserves.

THE CONTEXT OF THE GREEN TRANSITION

Drawing on our extensive knowledge and using data from the oil industry, we have laid the foundations for the development of a new approach to energy.

REAL TRANSITION

Our geothermal projects are an example of a **real transition** that takes into account **all the components** of a sustainable and profitable transition to clean, renewable energy sources.



GEOHERMAL ENERGY

Rich knowledge, great potential, **real green transition**

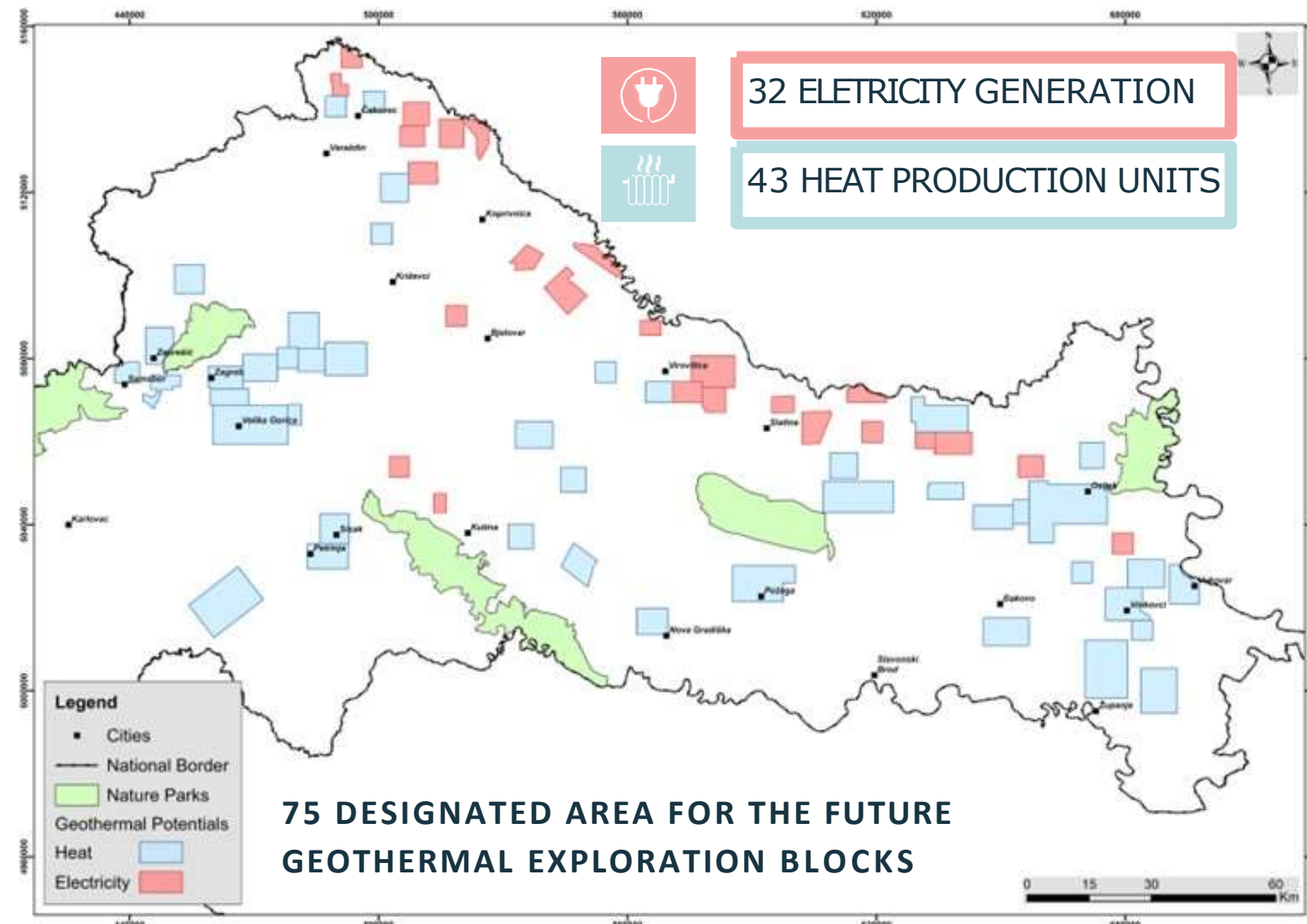
- Croatia has taken an extraordinary step forward in promoting its geothermal potential, which has been recognized by many organizations and companies worldwide.
- Drawing on our extensive knowledge and using data from the oil industry, we have laid the foundations for the development of a new energy concept and further development.
- Our geothermal projects are an example of a real transition. These projects are **being developed thanks to the oil industry.**

By using the existing knowledge and data, the Croatian Hydrocarbon Agency channels the fossil industry's data in favour of renewable sources, adding value to these projects and opening the door to new forms of energy.

Rich knowledge, great potential, unique approach

We have implemented a unique approach aimed at promoting geothermal potential by opening the main repository of the geological database collected for the purposes of oil and gas industry.

Thanks to our data , gothermal potential has been proven in approximately 200 wells originally drilled for oil and gas production.



- Centralized and modern reference database
- Assessment of **hydrocarbon resources, geothermal water for energy purposes and geological structures for the storage of natural gas and the permanent disposal of carbon dioxide.**

The Agency can offer **concrete initial data** on potentially **productive** geothermal locations, and even **existing wells** for which we have information on water temperatures and reservoir permeability.

Geothermal potential of Croatia

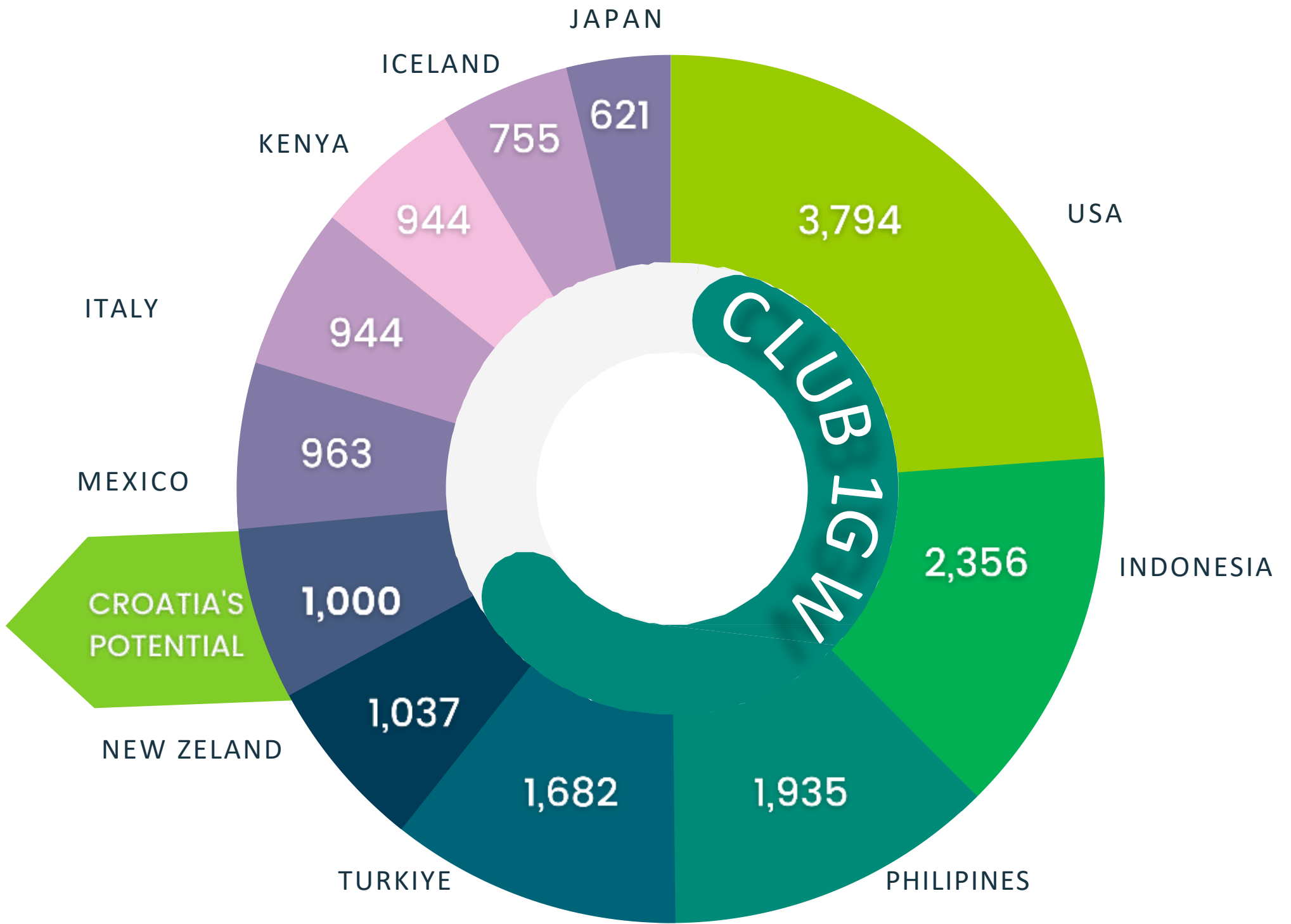
INSTALLED MW

CLUB1GW

Potential confirmed on existing wells
 The Republic of Croatia has proven geothermal potential - its geothermal gradient is 60% HIGHER THAN THE EUROPEAN AVERAGE

CCA 520MWE - 4.000GWH/YEARLY
 CCA 575 MWT - 3.000 GWH/YEARLY

12.250GWH - TOTAL annual production of ELECTRICITY in CROATA(2019)



Activation of geothermal trough **NRRP**

GEOHERMAL DISTRICT HEATING - PROJECT PREPARED AND TO BE EXECUTED BY **CHA**

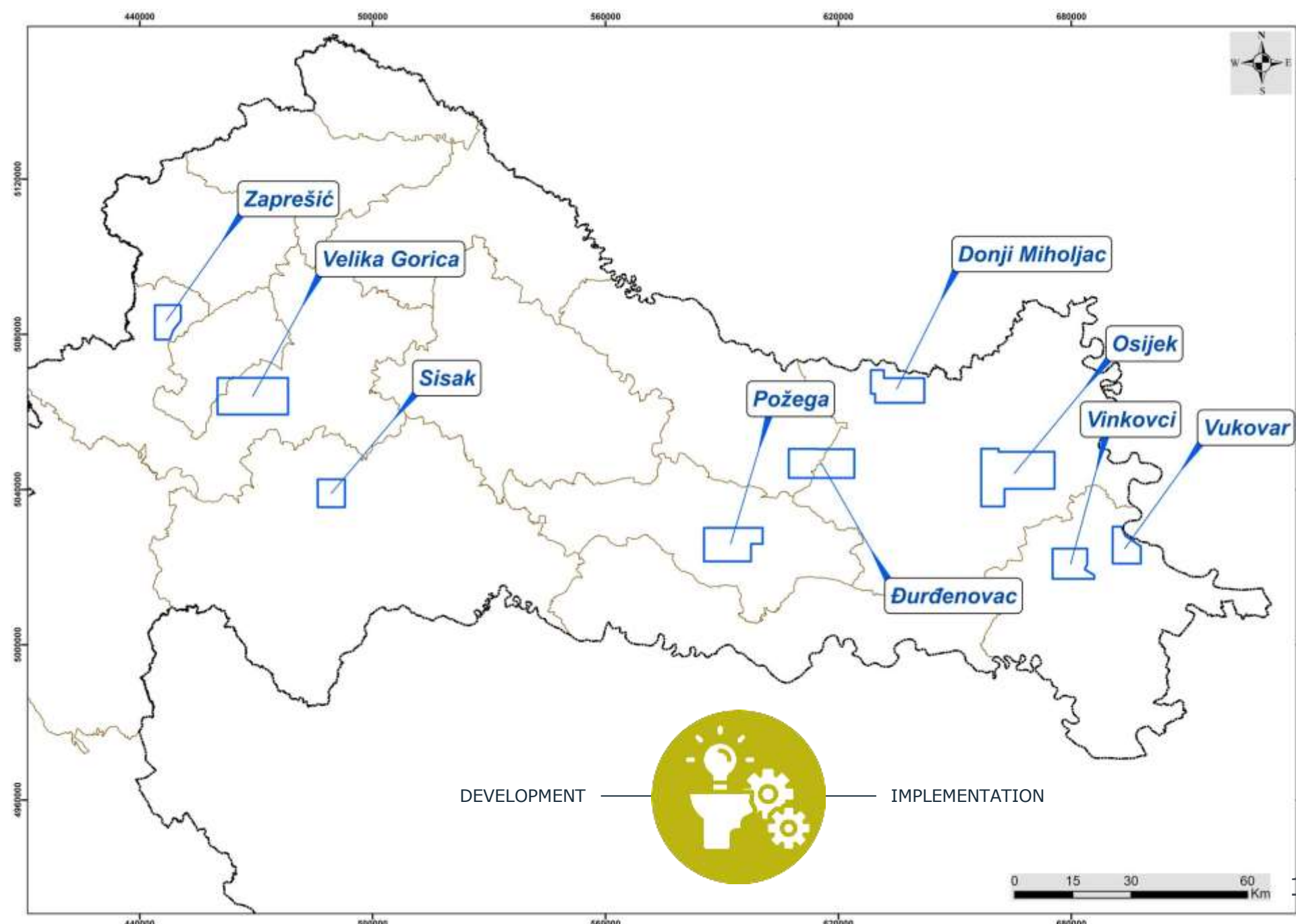
In order to activate the significant geothermal potential, but also to reduce the risk of future geothermal energy projects, the Croatian Hydrocarbons Agency has initiated operational involvement in development of geothermal projects and market.

- Six areas of interest under the **National Recovery and Resilience Facility**
- All areas are suitable for the use of geothermal waters for the heating purposes and sites are recognized due to geological potential and the vicinity of the towns with existing central heating network.

ADDED VALUE OF PROJECTS FINANCED BY NRRP

By developing projects financed by the EU, Croatia significantly reduces the risk for future investments.

- **STRATEGIC ENVIRONMENTAL IMPACT ASSESSMENT STUDY**
- DRILLING OF GEOTHERMAL WELLS
- SPATIAL PLAN STATUS
- **GEOLOGICAL-GEOPHYSICAL STUDY FOR AREA OF INTEREST**
- NEW DATA
- **GEOTHERMAL POTENTIAL STUDY**



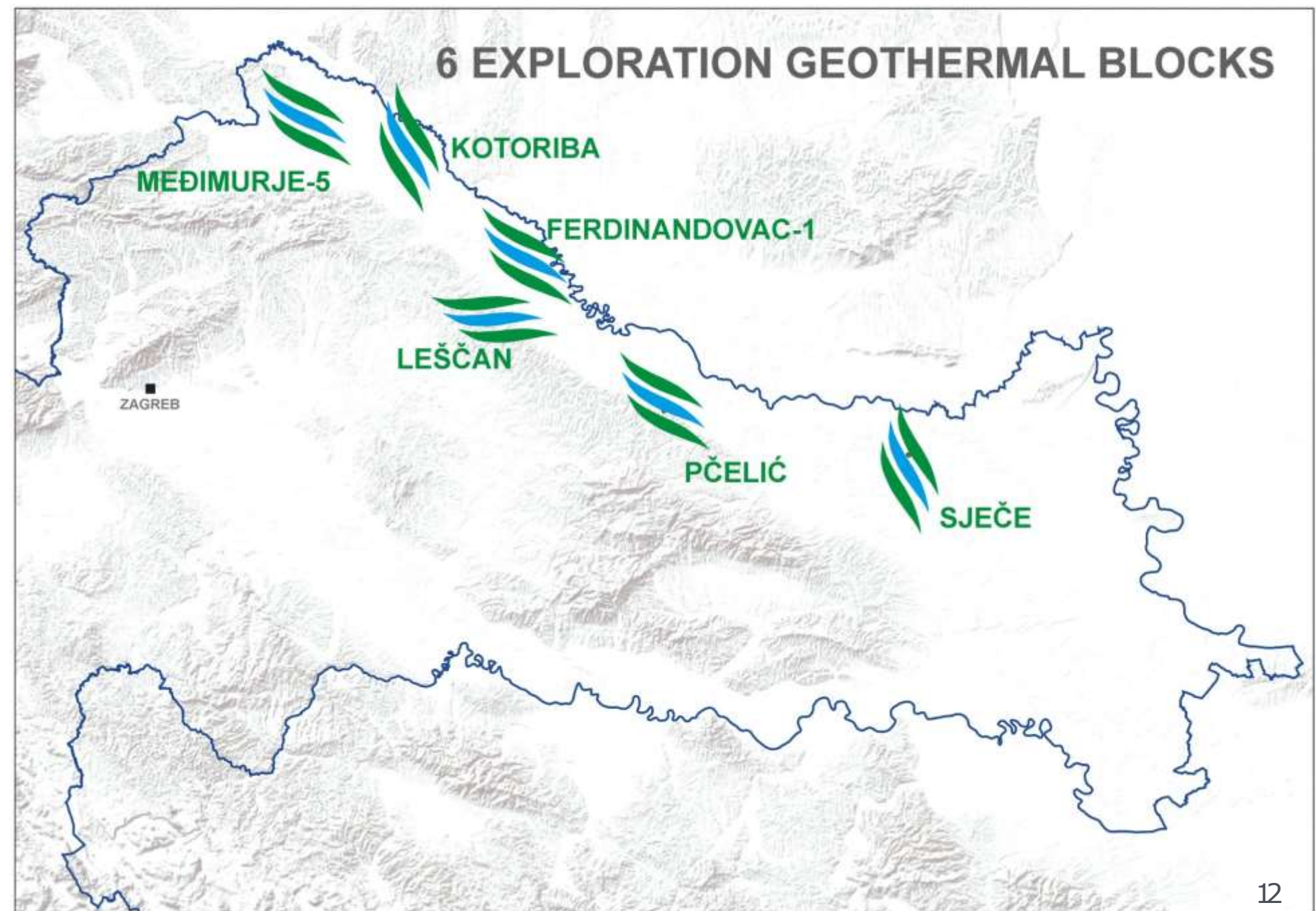
New projects - new opportunities

SIX EXPLORATION BLOCKS TENDERED IN NEW BIDDING ROUND IN CROATIA

- **28 December 2022** - tenders for the exploration of geothermal waters for energy purposes in six exploration blocks.
- Exploration areas in four Croatian counties with a total area of over **200 km²**.
- **Unique process** - investors compete for an exploration permit, followed by a production permit if all conditions from the exploration phase (which lasts **5 years**) are met.



POTENTIAL IDENTIFIED IN PREVIOUS WELLS DRILLED FOR THE PURPOSE OF OIL AND GAS EXPLORATION AND PRODUCTION - **SIGNIFICANTLY REDUCES THE RISK AND COST FOR FUTURE INVESTORS.**



New projects - new opportunities

Croatian Hydrocarbon Agency is looking for a strong partner, and potential investors will receive licensing terms that are advantageous, transparent and simple, based on **worldwide best practice.**

The investment-friendly legislation, existing infrastructure, geopolitical stability, proven geothermal potential and long-standing tradition in the industry undoubtedly make Croatia a desirable **business partner.**



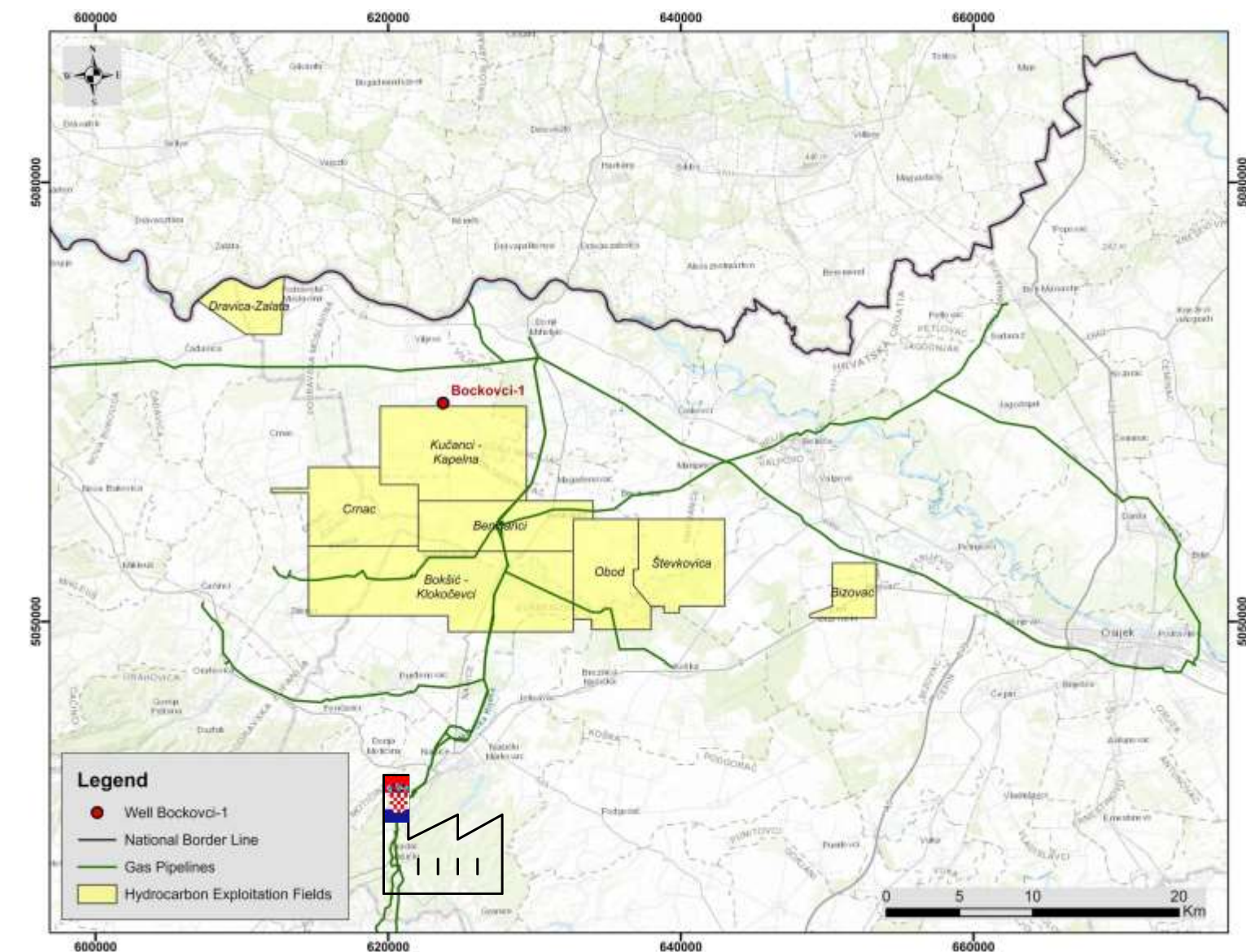
NEW TECHNOLOGIES

CCS pilot project 'BOCKOVCI'

Location: Eastern part of Croatia

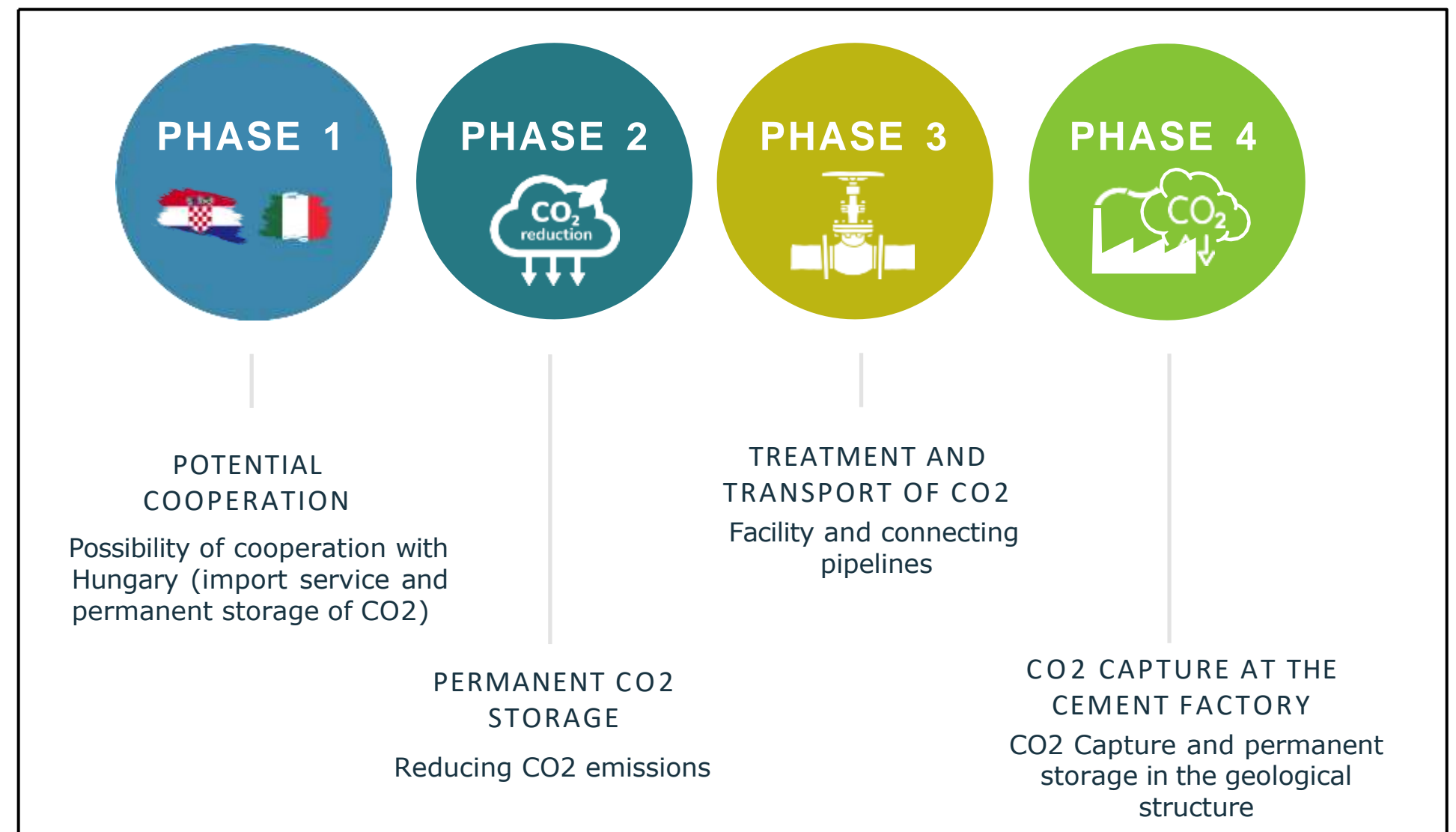
Cement Nexe plants in Našice (annual emissions of 850 kt CO₂)

A Study by the Croatian Hydrocarbon Agency shows the ranges of the possible volume of CO₂ stored in the geological formation.



BENEFITS

- Greening of the cement industry
- Strengthening the CO₂ market on a regional and cross-border scale
- Immediate reduction of CO₂ emissions at the national and European Union levels
- Exchange of technical experience, knowledge and raw materials in terms of
- application of new technology



Hydrogen in Croatia



2020.

EU Hydrogen Strategy

The Hydrogen Strategy identifies hydrogen as a key vector for decarbonising transport, industry, electricity and thermal energy in Europe and achieving zero emissions by 2050.

2022.

Croatian Hydrogen Strategy

The Croatian Hydrogen Strategy to 2050 emphasises the benefits of developing the potential of the hydrogen economy and is in line with the objectives of the European Hydrogen Strategy and the National Development Strategy of the Republic of Croatia to 2030.








2022./2023.

Preparation of a Study on the plan for the development and implementation of the Croatian Strategy for Hydrogen until 2050.

Study of the development and implementation plan of the **Croatian Hydrogen Strategy until 2050**

HYDROGEN

Croatian Hydrocarbon Agency initiated the procedure for the preparation of the study that will:

-  ANALYZE the potential of the renewable energy sources for hydrogen production, infrastructure and stakeholders;
-  CREATE a portfolio of the hydrogen projects as well as a model for efficient implementation of the projects;
-  IDENTIFY financing models;
-  PROPOSE modification of the existing regulatory framework;
-  PROMOTE identified hydrogen projects.

For a hydrogen-based economy, cross-sector cooperation and dialogue of all stakeholders is necessary in order to ensure adequate regulatory conditions based on best practices.

THANK YOU!