


ENERGY COUNTRY REPORT

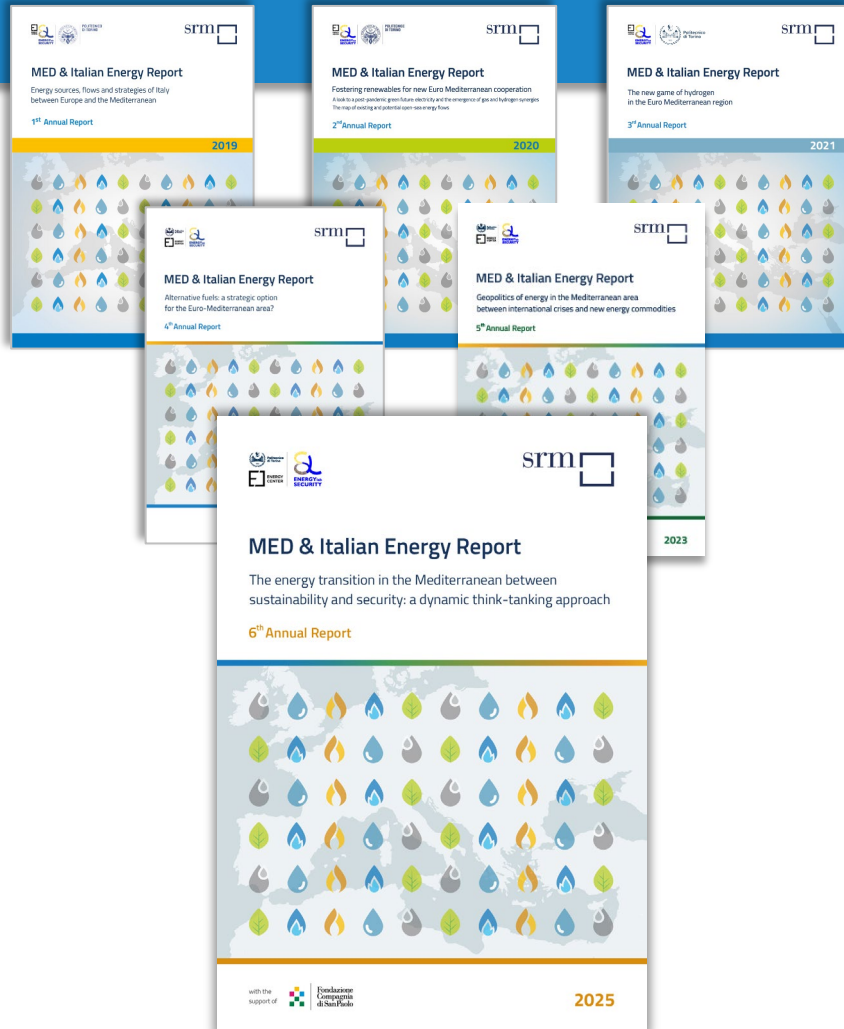
Energy in transition:
an outlook for **Croatia**



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2019 – 2024: six years of collaboration on the ENEMED Project

Science-based Think-Tank



These Reports are the **output of a cooperation devoted to building a strong analysis on energy transition in the Euro-Mediterranean region.**

Implementing an instrument aimed at following the evolution of the energy system in the Mediterranean region with an holistic, integrated and forward-looking approach.

A focus on the **Croatian energy landscape and key trends**



This Paper has been carried out thanks to the cooperation between PBZ Privredna banka Zagreb and SRM (Research Center for Economic Studies related to Intesa Sanpaolo Group) in collaboration with EST@energycenter Lab - Polytechnic of Turin, **and aims to support** the Country's strategic view in green energy transition and its impact on competitiveness and growth.

This Outlook provides a comprehensive overview of the Croatian energy landscape, highlighting the main trends, statistics, policy initiatives and the major investments in the sector.

Outline

1 Why is the **Mediterranean cooperation in energy** essential to dealing with **security, decarbonisation** and the **green transition**?

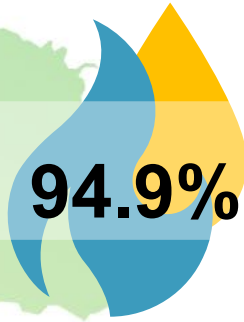
2 The Croatian **energy scenario**

3 The new role of **ports** as strategic **energy hubs**



Europe has historically been dependent on fossil energy imports from the Southern Mediterranean...

Fossil fuels still play a crucial role in the Mediterranean



Considering all countries facing the Mediterranean, the majority of proven **reserves of fossil sources** are located in the Southern shore of the Mediterranean (North Africa).

The countries of the **European side** have always been **dependent on the Southern shore** to fulfil a considerable portion of their oil and gas supplies.

Relevant net exporters of fossil fuels on Southern shore: **Algeria** (natural gas) and **Libya** (both crude oil and gas).

Total imports of European Countries of the Mediterranean from the Southern Shore of the Mediterranean are:

Crude Oil
18%

Natural gas (through pipeline and LNG)
27%

The Southern shore currently also supplies **the whole EU** (not only Northern shore countries) with fossil commodities.

EU countries' dependence on Mediterranean Energy Supplies:

8.1% of their
crude oil

8.7% of their
petroleum products

2.7% of their
natural gas

Source: Eurostat, Alphatanker

...now is the time to move from a fossil-based to a green energy cooperation across the Mediterranean

Low installed capacity but great potential

Installed electrical capacity in the Southern shore

Fossil-based capacity
90.2%

Renewable capacity
9.8%

In the countries of the Southern shore, the promising solar and wind potentials are in contrast with the very little share of renewable capacity.

RES installed power capacity in the Mediterranean basin

Installed
309 GW

Target for 2030
696 GW

Only 3.6% of renewable installed capacity in the Mediterranean is in the Southern shore.

Source: US Eia, IRENA

Ambitious targets and necessary investments: yet North African countries are starting to invest in solar and wind plants and green hydrogen

To meet EU goals and enhance energy security, Europe needs a new energy cooperation with North Africa based on renewables and hydrogen

It is unlikely that Europe will achieve decarbonization goals solely with increased internal RES capacity. The EU will also need RES imports from North Africa and **Euro-Mediterranean cooperation is the only option.**

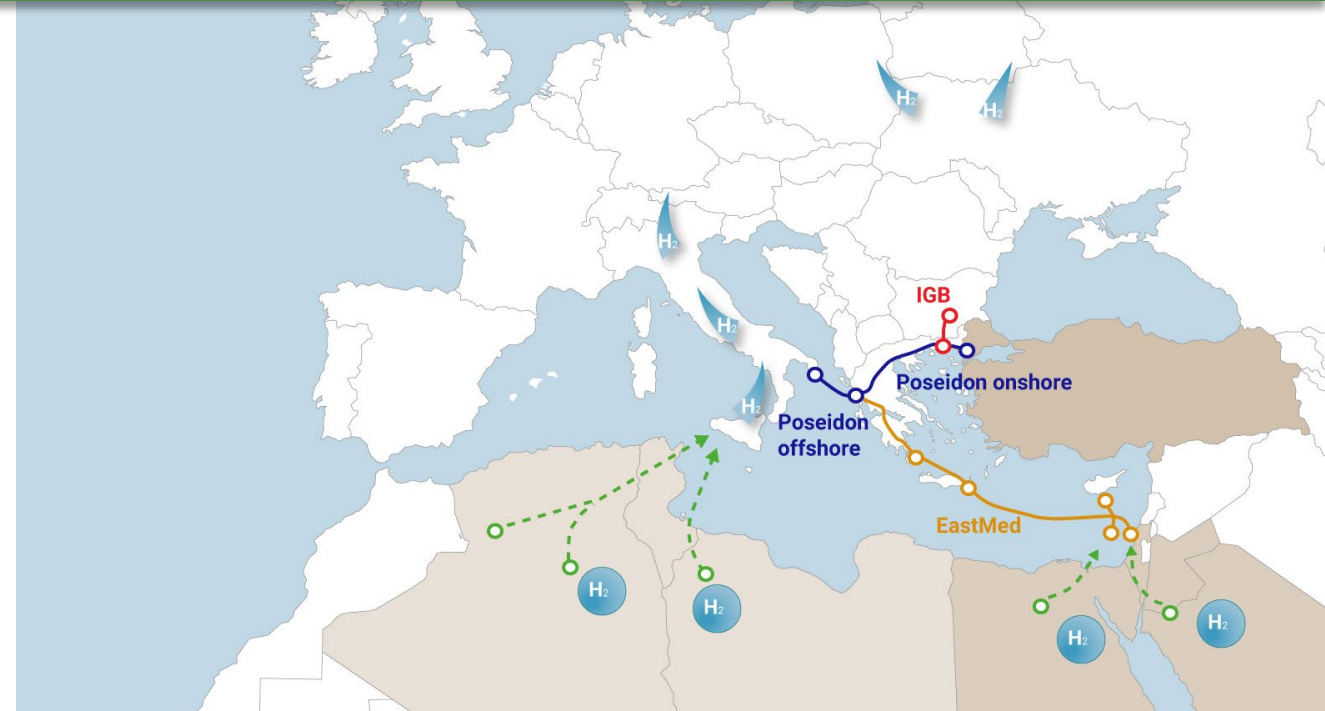


Exploitation of the significant renewable potential in North Africa, especially for solar and wind energy.

Integration among different commodities: electricity from RES, hydrogen, geothermal and solar heat, alternative fuels.

Creation of a Trade of RES-based energy commodities across the Mediterranean through:

- **Electricity Highways:** these grids can represent the backbone of the “green” energy dialogue between the Mediterranean shores, to transport RES electricity energy across the Mediterranean;
- **Existing gas pipelines** to transport green hydrogen and synthetic gas from South to North;
- **Maritime routes** to ship biofuels and liquid synthetic fuels to EU ports.



The network interconnections are an essential part of Europe-North Africa relations.

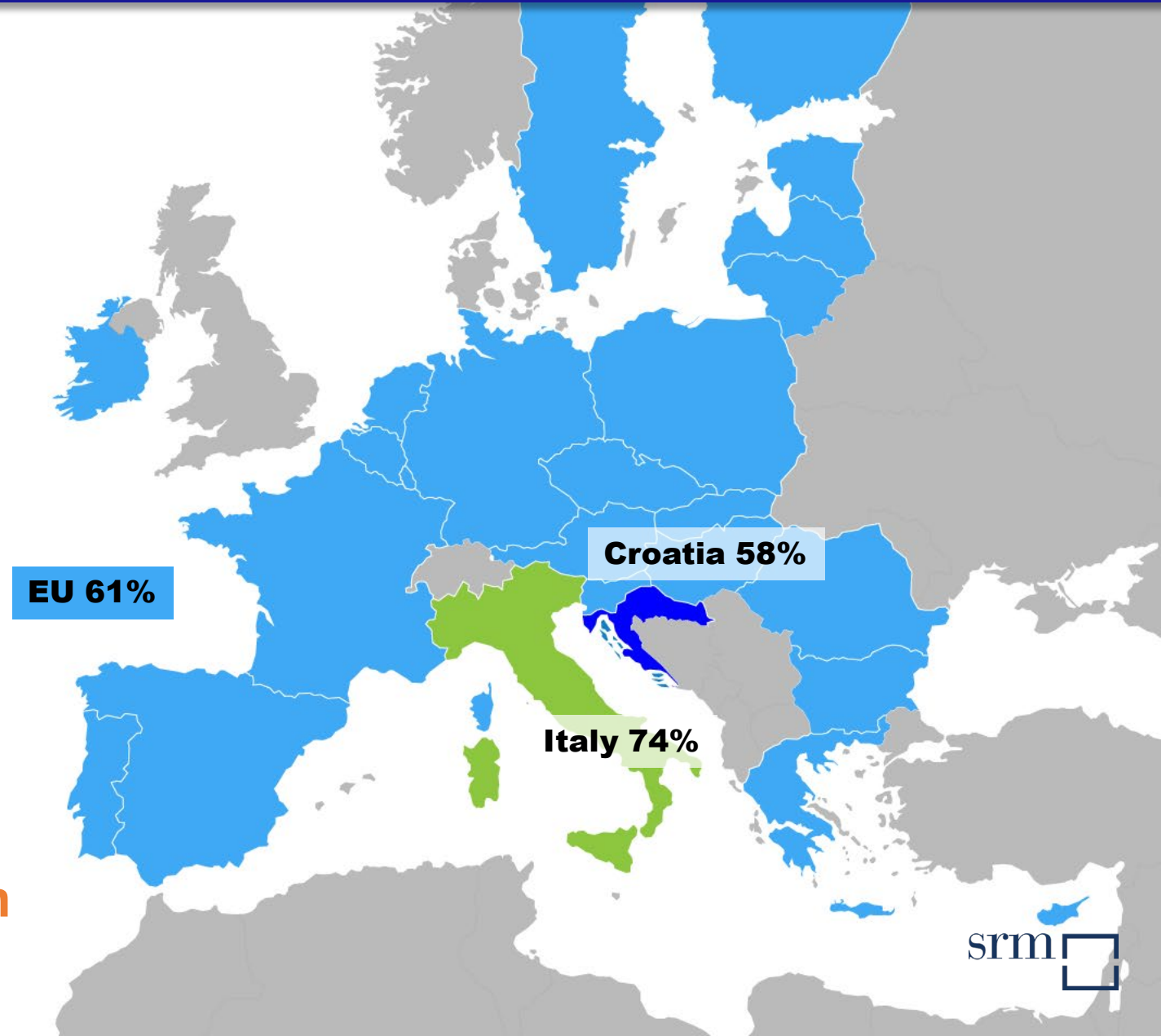
These are strategic infrastructures to achieve EU targets and to secure energy supply for all European Countries, especially the ones more dependent on energy imports like Italy and Croatia.

High energy dependence is a threat to security

Croatia shows an energy dependence of 58%, a value that has remained approximately constant over time, and is not far from the European average (61%).

Among the major European countries, Italy shows the highest level of energy dependence, with 74%.

These figures are the key reason why our countries need to strengthen Renewables production



Croatia more dependent on fossil Energy import

If we consider coal, oil and gas we see that Croatia has a level of dependence on imports higher than the total national and EU average.

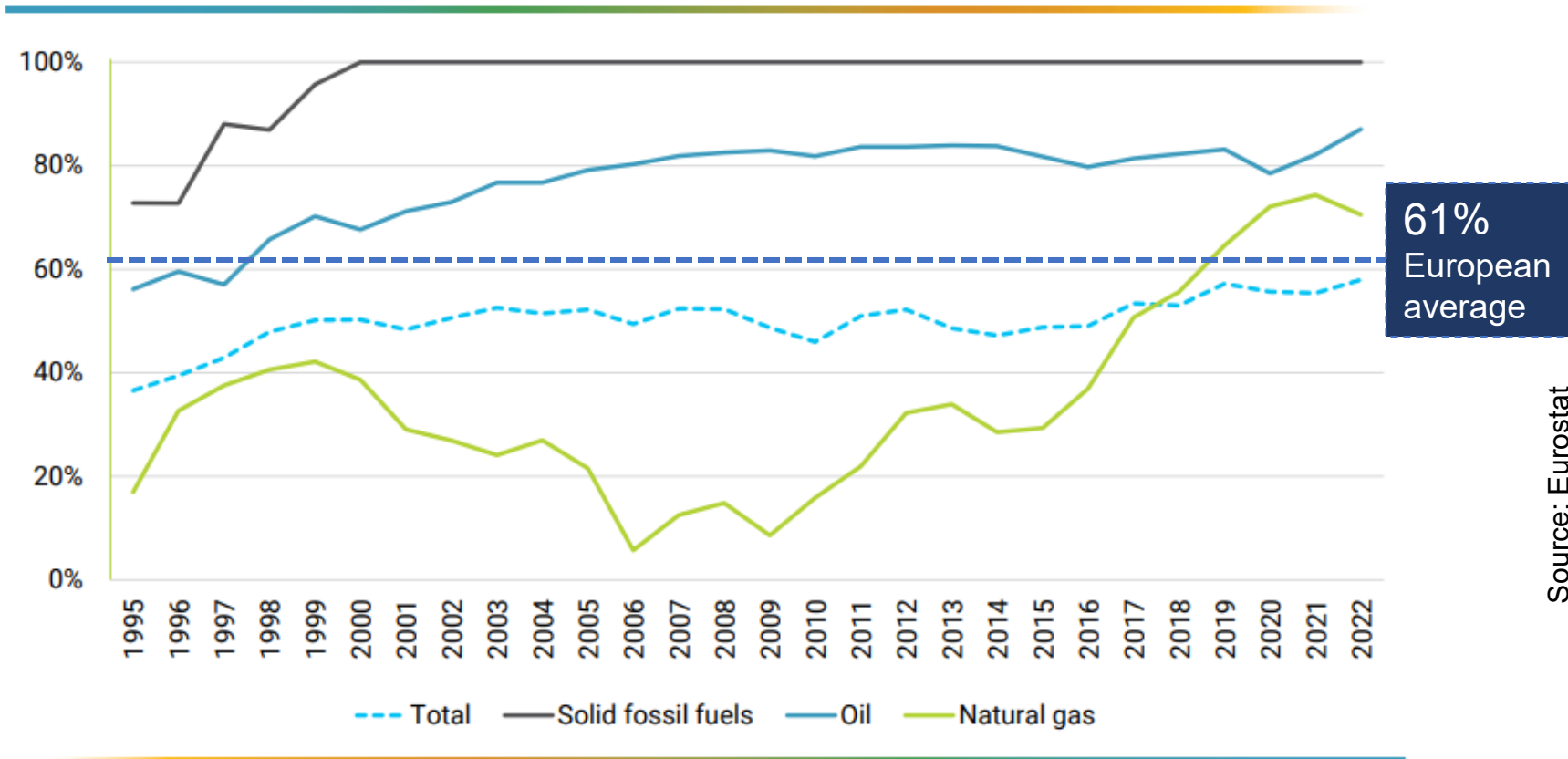
The **greatest dependence is on solid fossil fuels**, with 100% in almost all years analysed.

Despite increased Croatian natural gas production, internal consumption has significantly grown, as for all EU Countries gas is a buffer in the green transition.

As a consequence, the peak of **71% dependence** on gas imports has been reached.

Finally, the average level of 58% overall dependence on imports is due to an increased contribution of the Croatian RES production.

Energy dependence per main fossil commodities and total



Source: Eurostat

Croatia's Energy mix in primary supply

Croatia's TPES showed a **predominance of fossil sources, amounting to 67% of the total**, including solid fossil fuels, natural gas, oil and petroleum products.

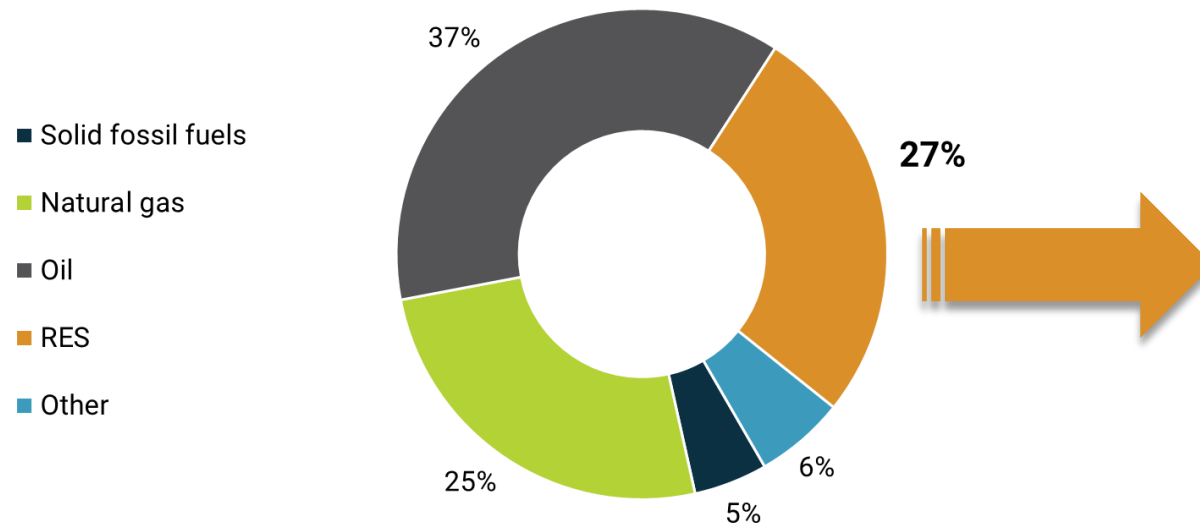
The share of **oil and petroleum products** is around 37% of the country's TPES, a rising value over the years.

Renewables account for 27% of the national TPES, and are also **on the rise**.

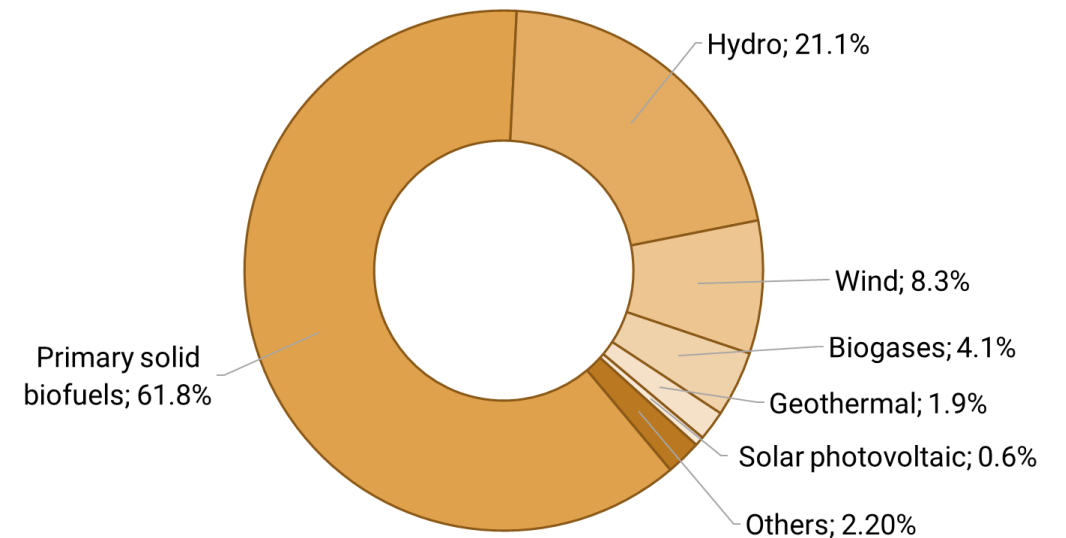
Of this share, **62% are biofuels, followed by 21% hydropower**.

The remaining renewables accounted for minimal percentages.

Total Primary Energy Supply



RES in TPES



Source: Eurostat; 2022 last data available

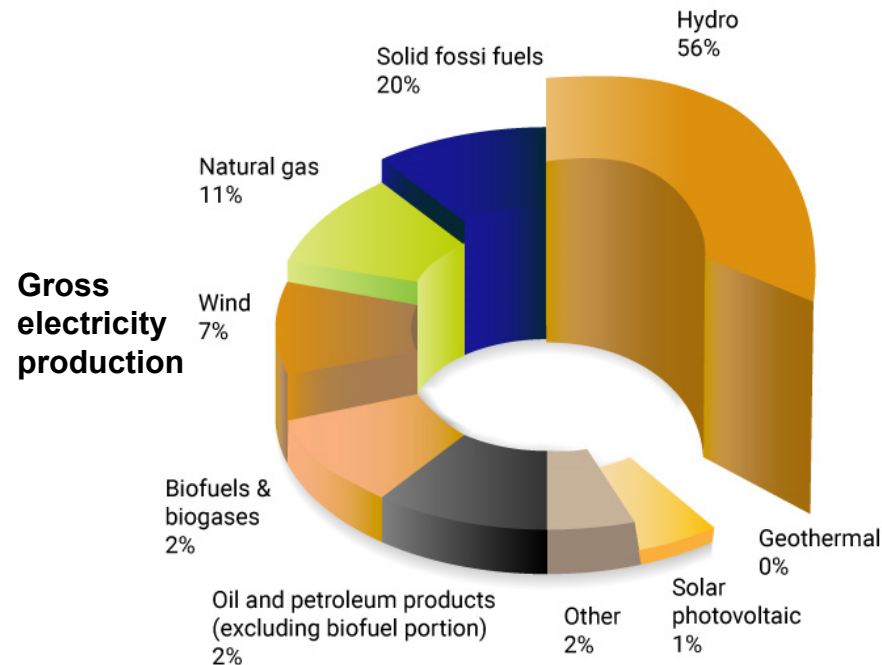
Croatia's Electricity mix

63% of electricity production comes from **renewable** sources, specifically **38%** from **hydropower** and **15%** from **wind** power.

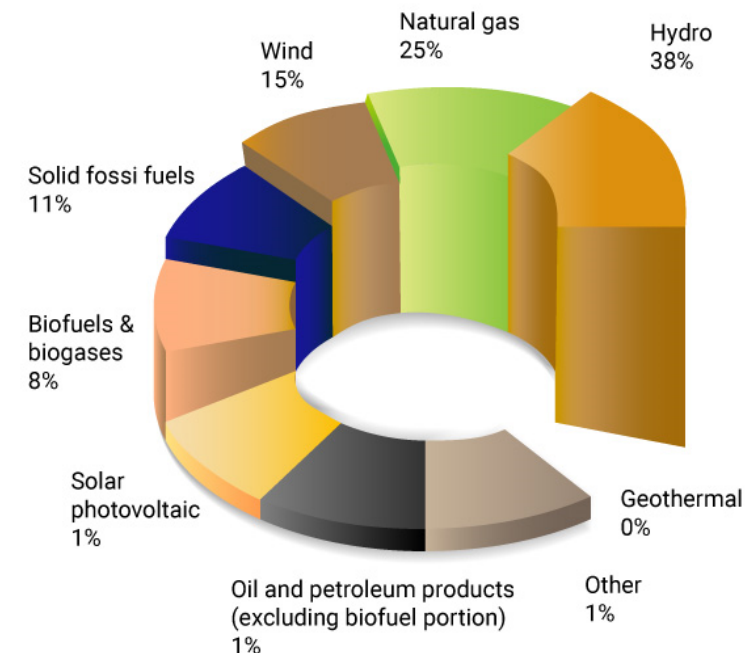
Despite the lower weight on the total, the value of Renewables increased by 20% compared to 2015.

The share of primary sources showed a **reduction in the use of solid fossil fuels (from 20% to 11%)** and an **increase in the use of natural gas (from 11% to 25%)**.

2015



LATEST DATA



Thanks to a rich program of investments:
This transition will require an estimated total investment of 115 billion € including 36.5 b€ in the period 2024-2030 and 78.5 b€ in the period 2031-2050.

Source: Eurostat; 2022 last data available

Croatia is a key energy gateway between Eastern Europe and the Adriatic Sea

Thanks to its position at the crossroads of Central and Eastern Europe, Croatia might become a **key energy transit hub for neighbouring countries**, particularly Hungary, Slovenia, Serbia, and Bosnia, playing a crucial role for reducing energy dependence.

7 challenges for CROATIA

Diversifying energy sources and **reducing energy imports and dependence**

2

Upgrading and expanding the grid, pipelines, and other infrastructure with significant investment

1

Despite the geographical features, **building an integrated energy infrastructure**

3

To integrate renewable energy production into the grid network

4

Developing energy transit infrastructure will require **investment from both public and private sources**

5

Regional cooperation with neighbouring countries is essential in this process

6

Balancing energy security and climate goals through **specific policies** and targeted investments

7

Italy and Croatia are the main coastal countries in the Adriatic and can jointly play a crucial role to secure this strategic corridor

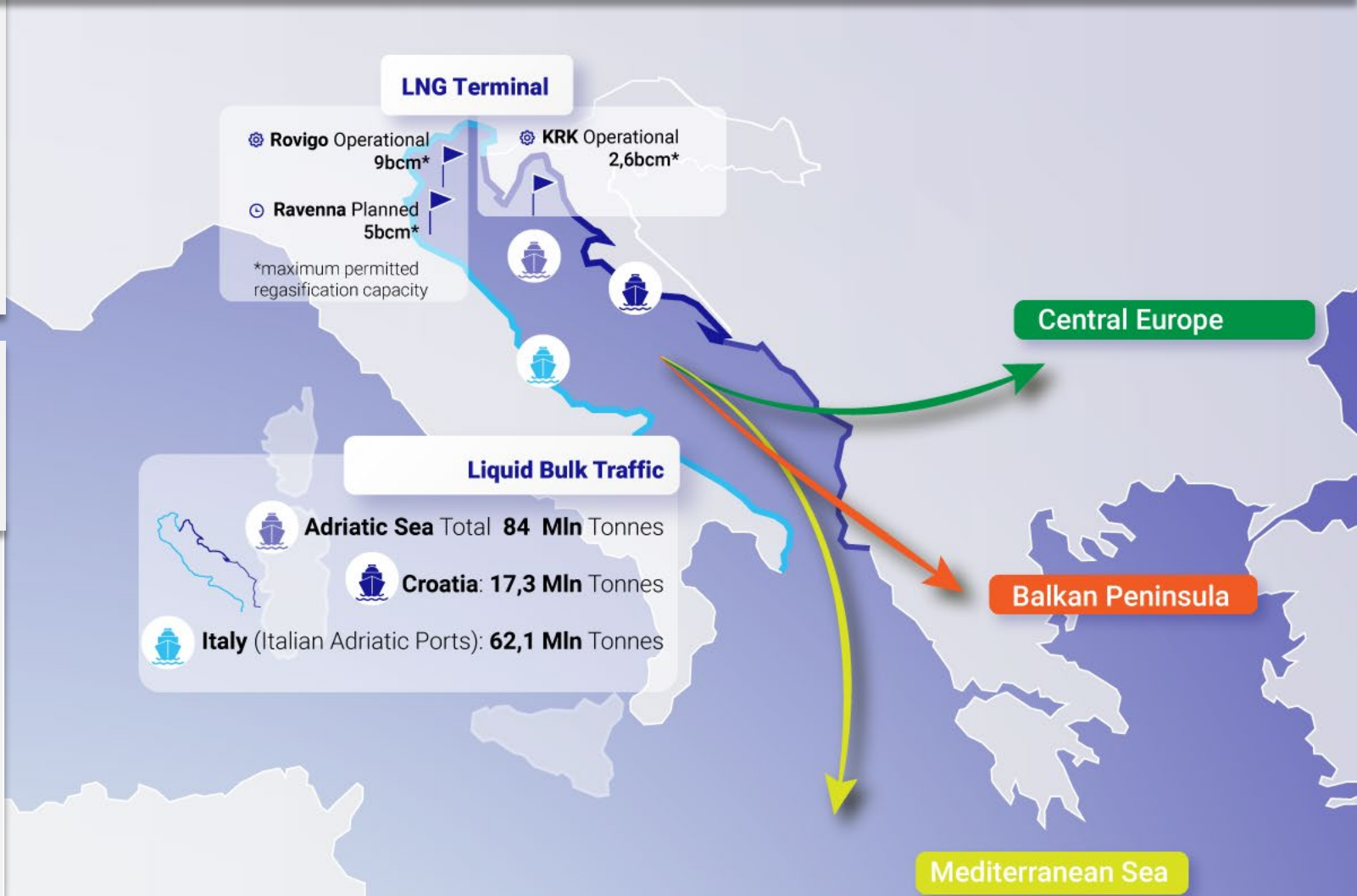
The Adriatic Sea is a geopolitical crossroads and a strategic energy corridor.

It is thanks to the Adriatic sea that the Balkans and Central European Countries can benefit from Mediterranean flows.

The Adriatic Sea includes 6 countries: Albania, Bosnia and Herzegovina, Montenegro, Slovenia, **Croatia, Italy** and these two Countries have the longest coastline.

The Adriatic Sea is crossed by:

- **Liquid Bulk shipping traffic;**
- **the EastMed Pipeline (Poseidon)** – in construction to connect the East Med area with Italy and Europe;
- **TAP (Trans Adriatic Pipeline)** – from Azerbaijan to Italy, crossing the Adriatic Sea.



Source: SRM on various

Ports are becoming Energy Hubs: increasing their strategic role for countries like Italy and Croatia



Source: SRM on MASE

Ports are:

- **crucial infrastructure for regulating the functioning of the energy market:** they take on the role of primary locations for production, storage and trade of oil&gas;
- **entrance points of oil & gas pipelines;**
- **energy gateways:** refineries are access points to hydrocarbon transportation infrastructure and are usually located near ports; **Oil and Chemical need to be converted into biofuel and biochemical;**
- **close to energy-intensive industries where hydrogen can be use;**
- **energy communities:** they facilitate the energy transition process of shipping and logistics;
- **alternative fuels bunkering points to boost green shipping.**

Example of strategies towards sustainability: a Cross-Border Renewable Energy project

An **offshore wind farm** of 300 MW. 2,200 square kilometres of area in the Adriatic Sea between the cities of Pula (Croatia) and Ravenna (Italy).

INVITATION



POLITECNICO
DI TORINO



✓ 28th January, 2025
14.30 - 16.30

📍 Brussels & Online
European Parliament

🤝 Room
Spinelli 3H1



SAVE THE DATE

Presentation of the

MED & Italian Energy Report 2025

The annual 'MED & Italian Energy' Report has reached its new edition thanks to the continuing collaboration between SRM and the Department of Energy of the Polytechnic of Turin, and especially with the ESL-Energy Security Lab. In line with previous issues, the ENEMED 2025 Report continues the assessment and comprehension of the current energy context and of future prospects for the Mediterranean area.

Participants include representatives from European and Italian institutions, trade associations, as well as representatives from the energy industry and energy infrastructure.

In cooperation with
**Matching Energies
Foundation**

Event organised in collaboration with
**European Regulatory
and Public Affairs**

INTESA  **SANPAOLO**