



Stowarzyszenie  
CCUS Poland

# Poland's Energy Policy Developments for Coal, CCUS and Decarbonization Pathways

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Find out more:

[www.ccuspoland.org](http://www.ccuspoland.org)

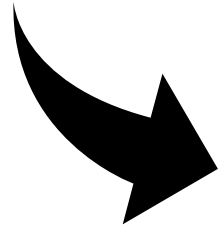
<https://www.linkedin.com/company/ccus-poland>

# Introduction

## CCUS Poland Association



Strategic R&D project: „**Strategy development for CO<sub>2</sub> capture, transport, utilization and storage in Poland, and pilot implementation of Polish CCUS Cluster (CCUS.pl)**”  
AGH University of Krakow, WiseEurope Institute & Ministry of Economic Development and Technology  
04.2021 – 12.2024



**CCUS Poland Association**  
– an industrial association  
supporting the emerging CCUS  
market in Poland  
10.2024 – ...

41%

share of total industrial CO<sub>2</sub> emissions (Scope 1) in Poland reported by the supporting members of the CCUS Poland Association (approximately 23 million tonnes per year)

# Agenda

## Poland's Energy Policy Developments



1  
Future of the coal  
sector in Poland, ...

2  
... Polish  
decarbonization  
pathways...

... based on PEP2040 and  
updated NECP (project).

3  
Can CCUS extend the use  
of coal in Poland?

# Coal Sector

in Polish Energy Policy 2040:

- **Coal's declining role** but for near-term security is very important.
- Investing in **clean coal technologies** and at the same time in mining closure.
- **Just Transition** for coal regions and **Social Contract** for the Mining Industry.



# Coal Sector

in updated National Energy and Climate Plan:

- Confirms the **progressive reduction of coal** in Poland's energy mix, in line with **EU climate policy**.
- Emphasizes **closure schedules for mines** aligned with the Social Contract.
- Targeted **Just Transition** measures for **selected regions**.



## Main restructuring

Poland links the **coal phase-out** with a **comprehensive restructuring program** for mines and companies.

in the  
2030s



## Closure of coal units

Hard coal and lignite generation will be **rapidly reduced** in WAM (with additional measures) scenario.

till  
2040



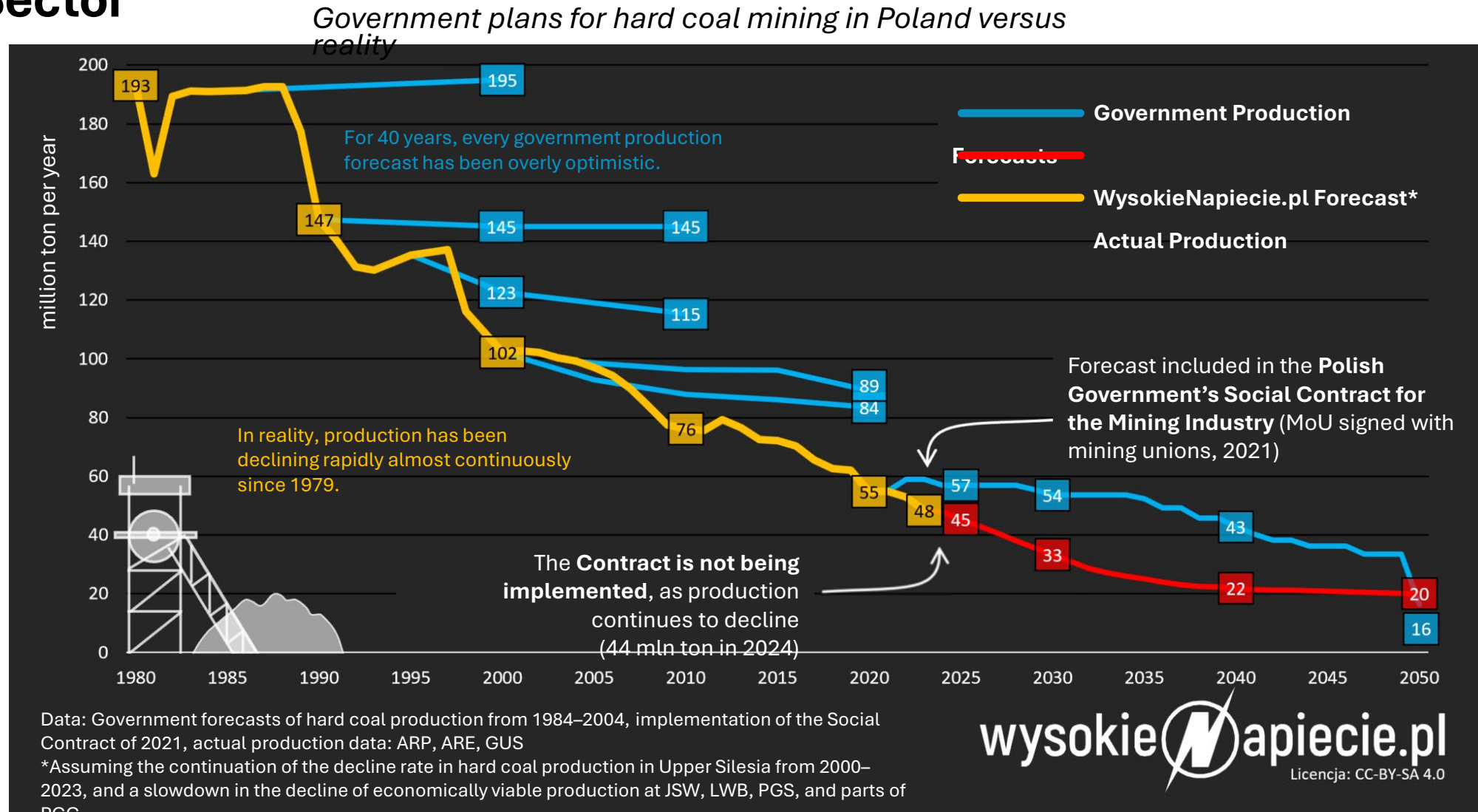
## Energy security

Poland will use **gas as a bridge fuel**, **expand renewables**, and strengthen grid capacity to maintain high energy security.

from  
2030s



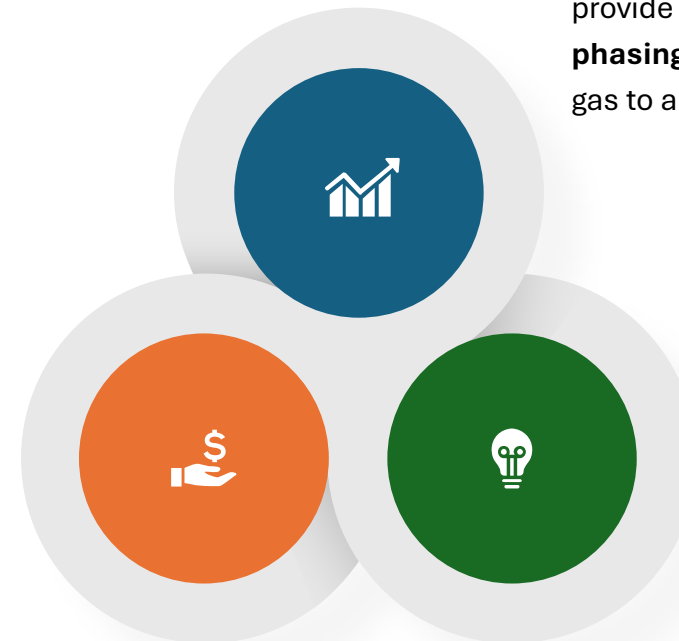
# Coal Sector



# Decarbonization pathways

in Polish Energy Policy 2040:

- **Massive investment in clean energy** (total for 2021–2040 could reach ~400 billion EUR).
- PEP2040 envisions a **rapid build-out of renewable** generation.
- **Nuclear power program** is a pillar of Poland's 2040 energy strategy.



## We will...

...expand renewables and nuclear power to provide the majority of electricity by 2040, while **phasing out unabated coal** and limiting natural gas to a transitional role.

## We will...

... mobilize **massive public and private investments**, modernize the grid, and implement social measures so the transition is both secure and just.

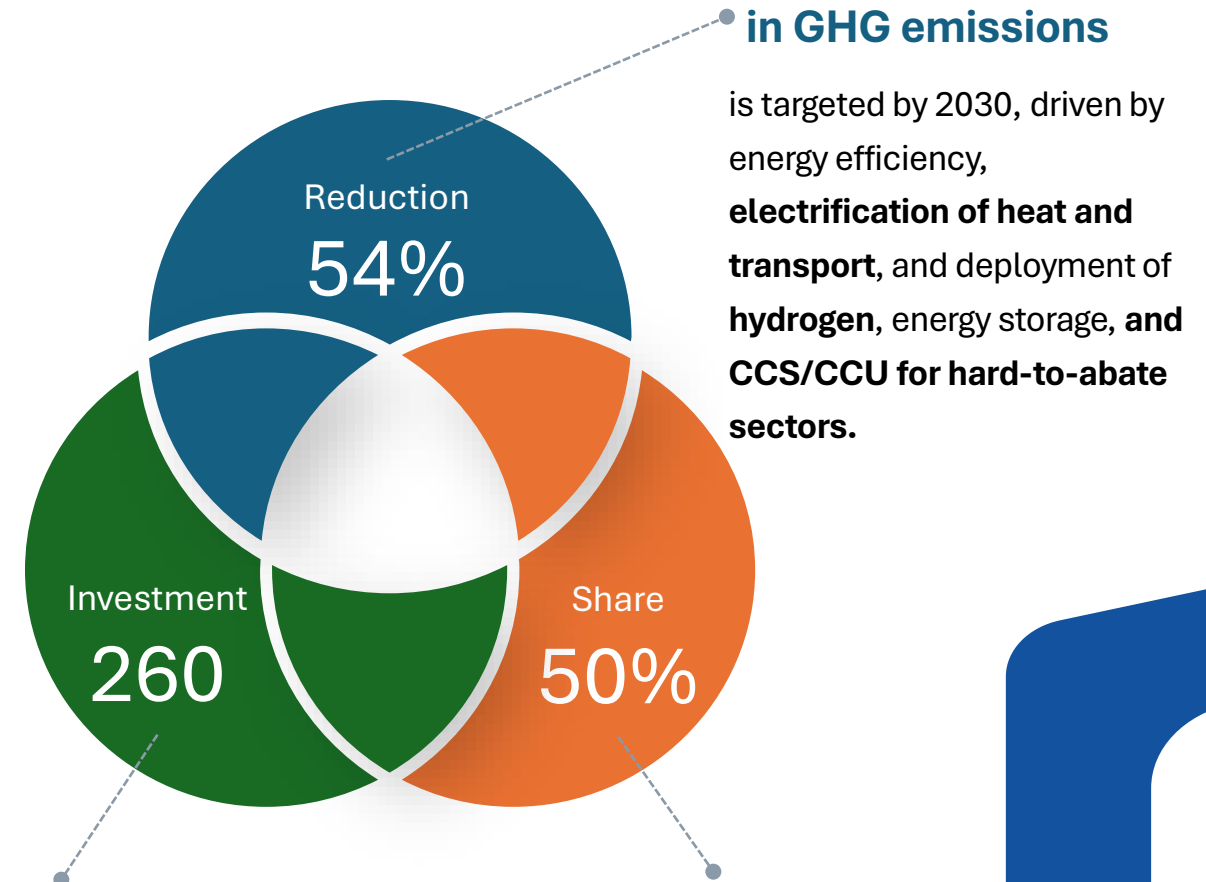
## We will...

... improve energy efficiency, electrify heating and transport, and support innovation in hydrogen, energy storage, and **CCS/CCU to decarbonize hard-to-abate sectors**.

# Decarbonization pathways

in updated National Energy and Climate Plan:

- Poland's updated policy **aligns with EU climate goals**.
- The role of **nuclear** is present but **constrained**.
- A **massive rollout of wind and solar**, the role of nuclear is present but constrained.
- A suite of **institutional and policy tools** will manage the change.



**billion EUR by 2030**

will modernize the grid, **expand clean technologies**, and deliver social safeguards, making the energy transition both economically competitive and socially inclusive.

**of RES in electricity**

rising to around 80% by 2040, with **massive build-out of wind and solar** supported by a first nuclear unit.



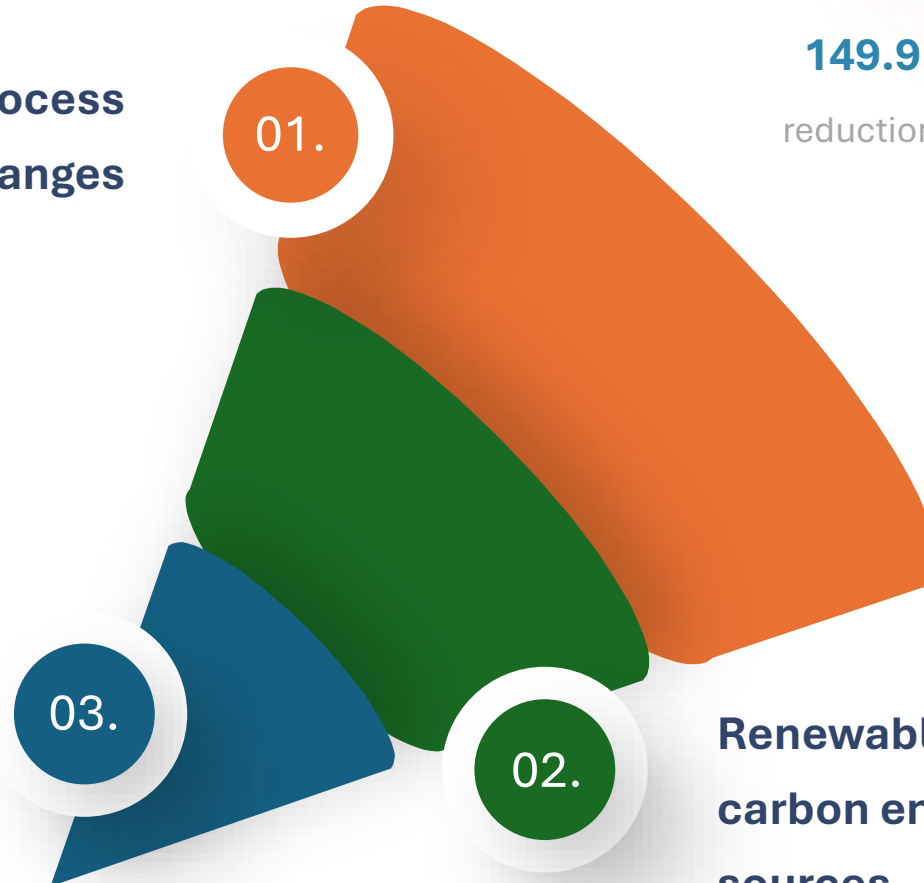
# Decarbonization pathways

GHG emission in Poland and how we will reduce them?  
*Thus, in summary...*

Energy efficiency, process  
and organisational changes

... both PEP2040 and the updated NECP envision  
the **future of coal as a rapidly diminishing,**  
transitional fuel that will be phased out **in favor of**  
**renewables, nuclear, and emerging low-carbon**  
**technologies**, with just transition measures  
ensuring social and regional stability.

Carbon capture, transport,  
utilization and storage  
(incl. CDRs)



Renewable and low-  
carbon energy  
sources

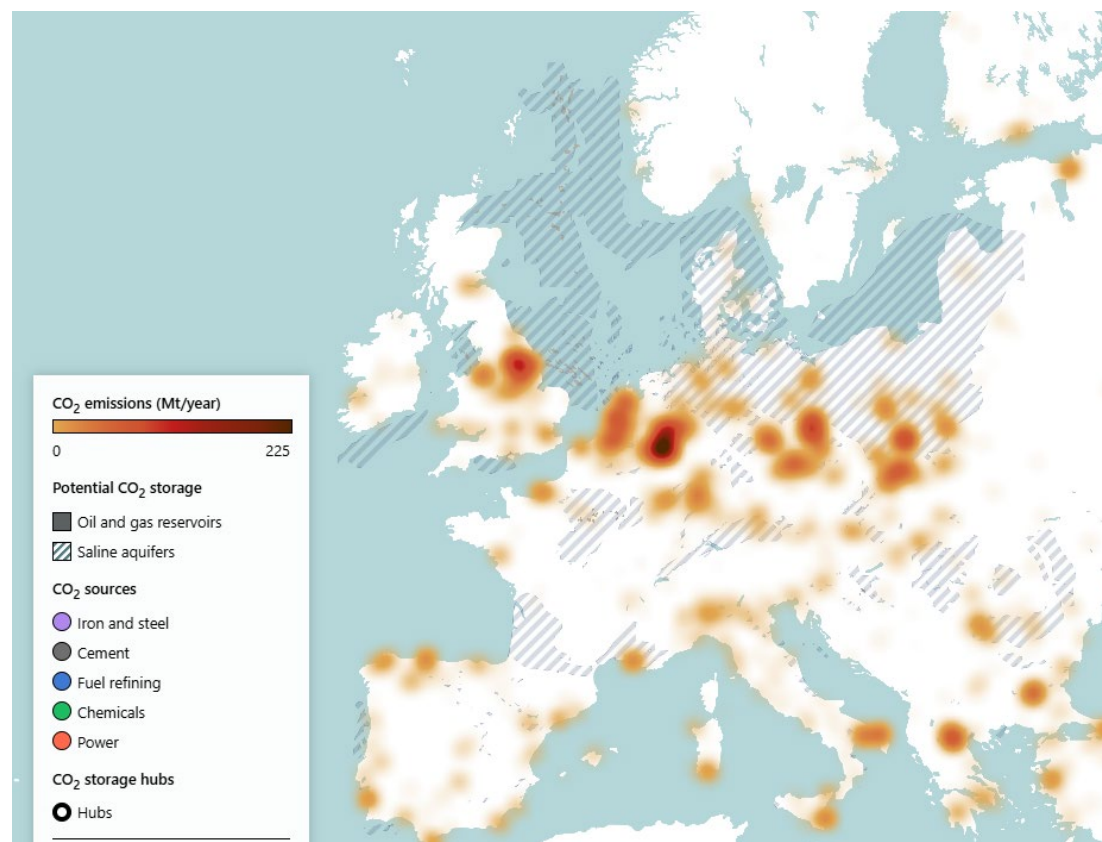


149.9 Mton CO<sub>2</sub> in EU-ETS

reduction by 2.6% compared to 2023

# CCUS potential

Map of CO<sub>2</sub> sources and potential geological storage in Europe.

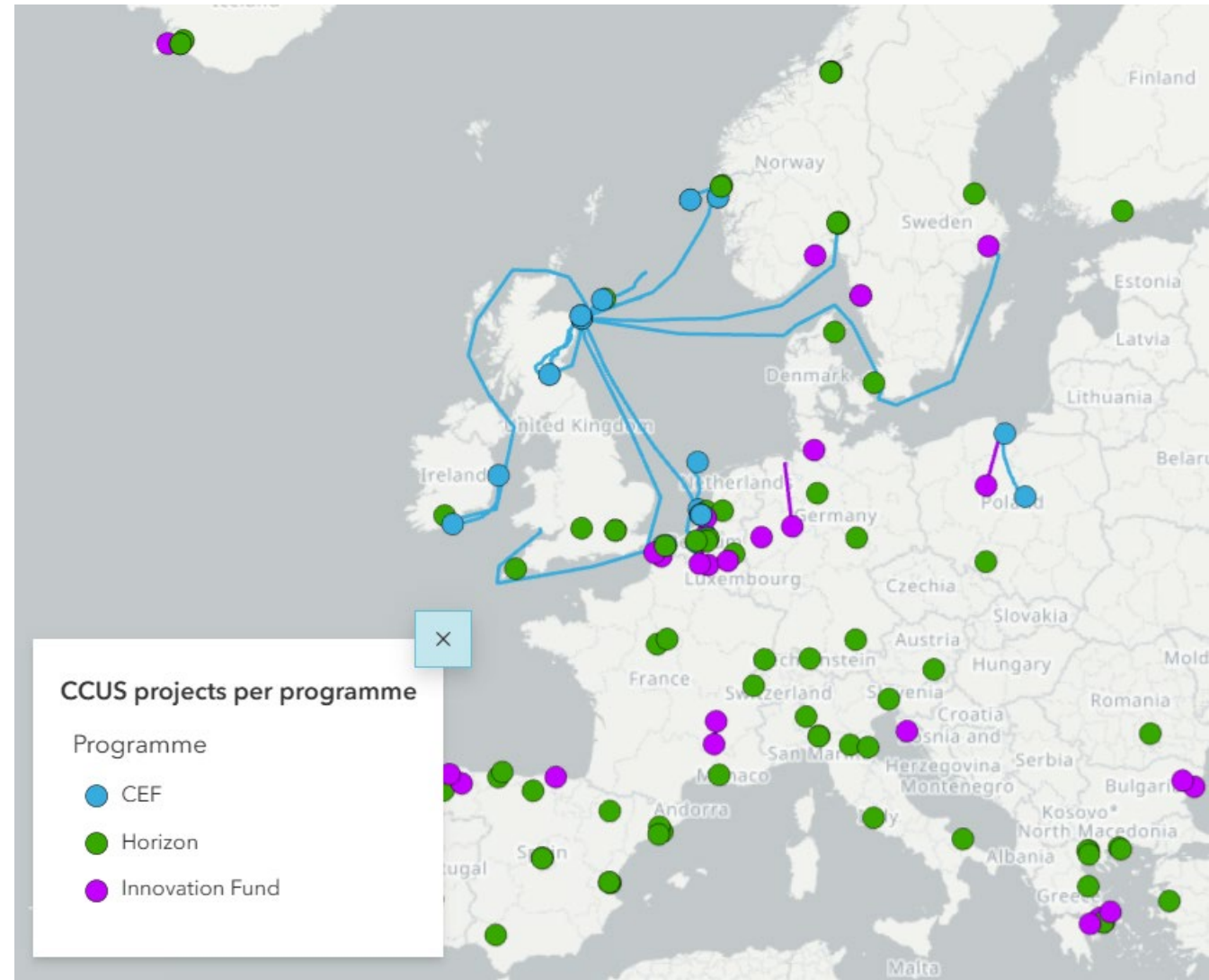


- **68%** of emissions produced by power plants and factories in Europe are found within **100 km** of possible storage sites.
- Poland is in a notably advantageous position, as we possess considerable onshore capacity for CO<sub>2</sub> storage within central Poland, as well as option for off-shore storage in Baltic sea:
  - Depleted oil and gas fields
    - up to 1 Gt of CO<sub>2</sub>
  - Saline formations
    - up to 15 Gt of CO<sub>2</sub>

# CCUS projects in Poland

EU funding for industrial carbon management  
– backbone for CCS infrastructure in Poland

- It is evident that the **current emphasis is on CO<sub>2</sub> export** through the sea terminal in Gdańsk.
- However, we are **actively exploring options for CO<sub>2</sub> storage both onshore and offshore** in Poland.
- This initiative would involve the development of **CO<sub>2</sub> transport pipelines system** and **clustering of emission points**.

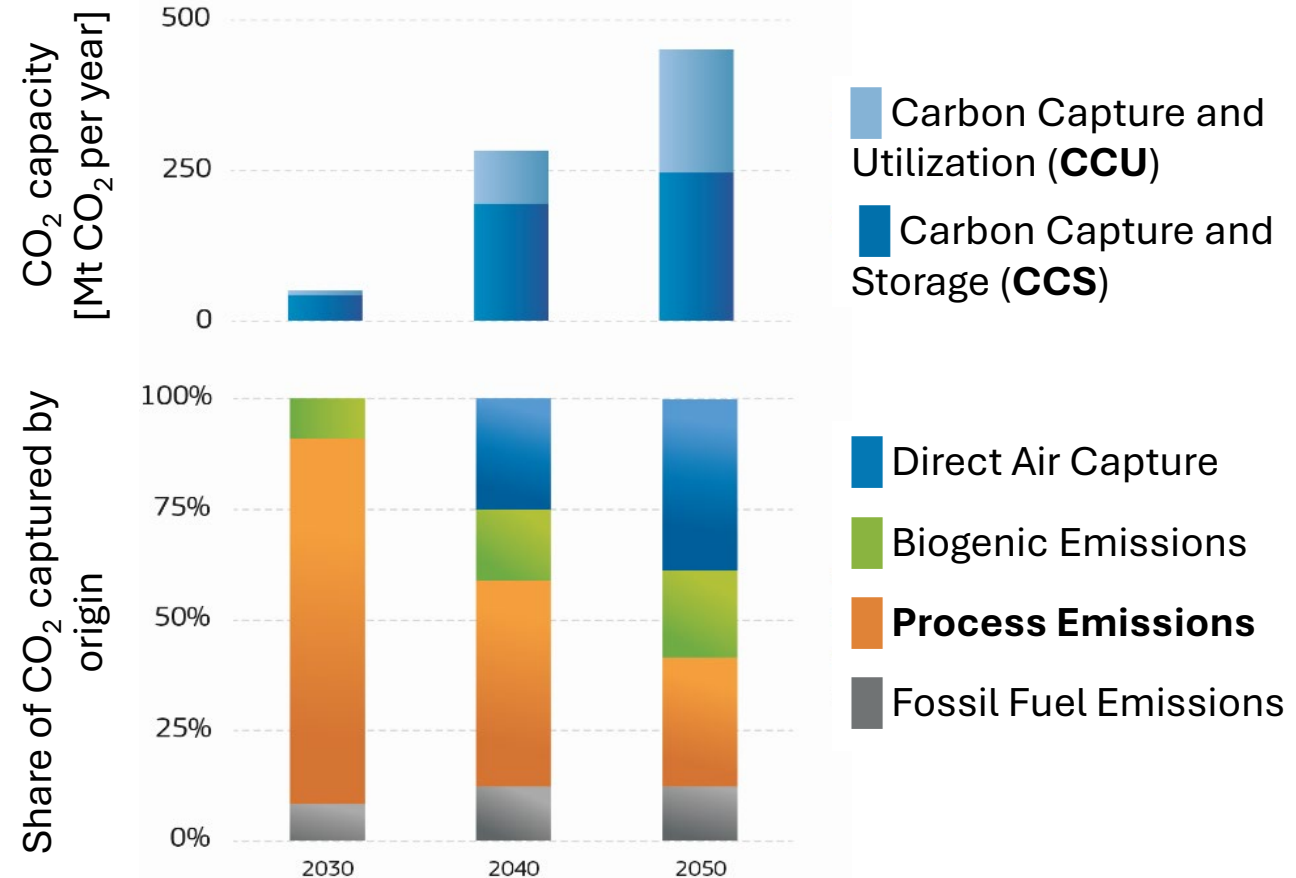


# CCUS sector projections

European Union (ICM & NZIA)

- European Commission issued a landmark decision assigning CO<sub>2</sub> storage obligations to 44 oil and gas producers across the EU under the **Net-Zero Industry Act (NZIA)**
- Announced operational CO<sub>2</sub> injection capacity contribution obligation by 2030 for ORLEN S.A. Group (Poland) is

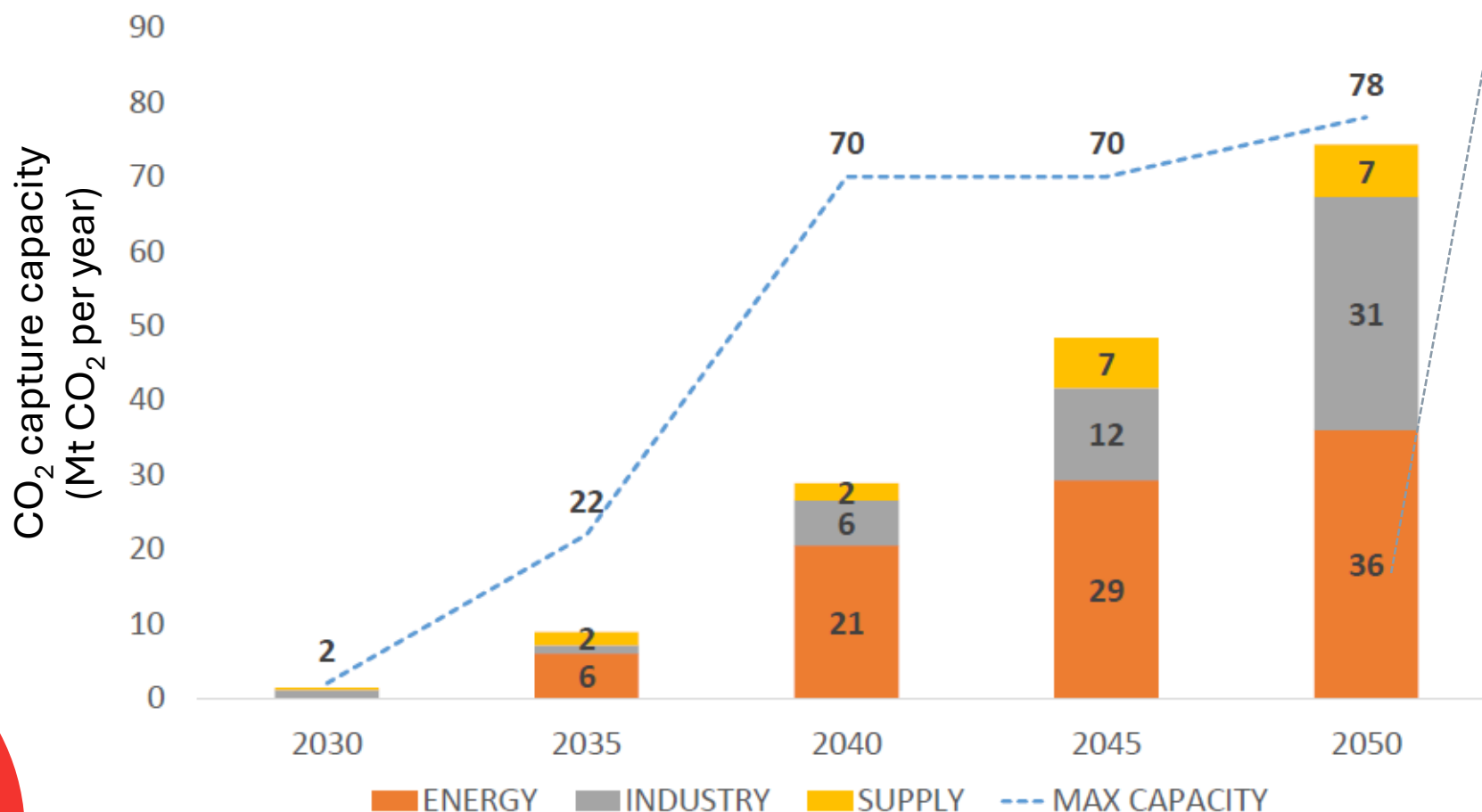
**4.26 Mt CO<sub>2</sub> per year**



COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS Towards an ambitious Industrial Carbon Management for the EU (COM/2024/62 final)

# CCUS sector projections

Poland ([CCUS.pl](https://ccus.pl)) – CCS scenario for Poland ("higher tier")

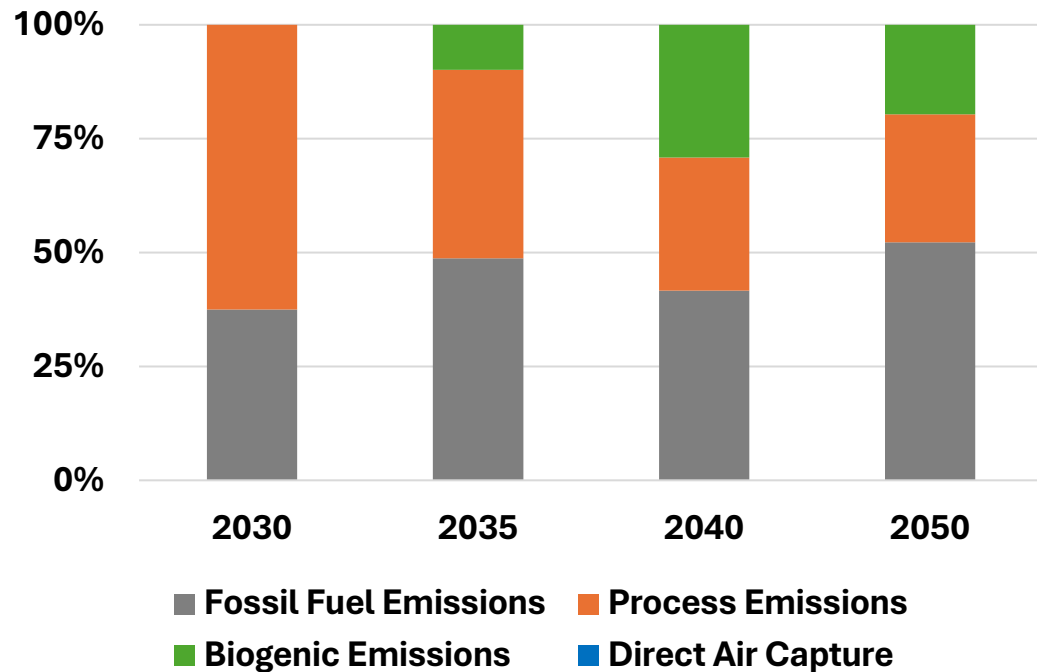


36 Mt CO<sub>2</sub> per year...

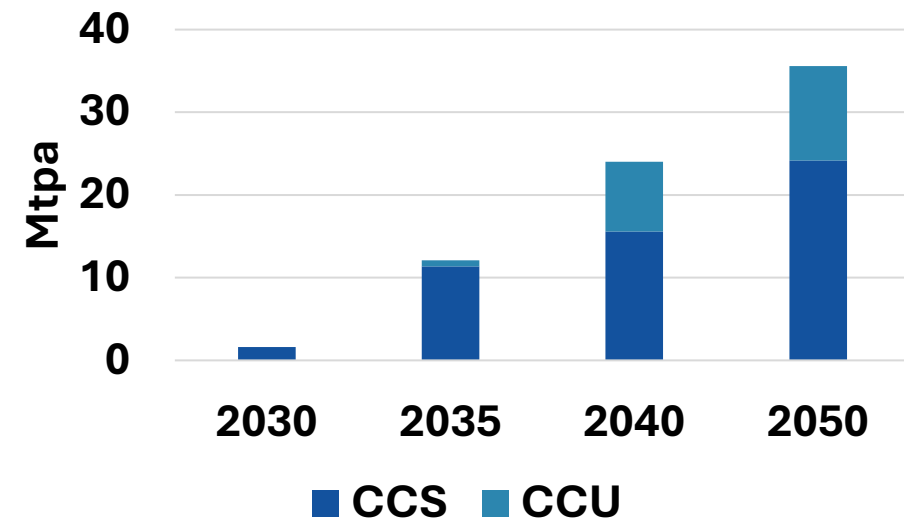
... could come from wide CCS deployment in power sector (including coal-fired power plants), but for now we rather focus on **potential in gas-fired units** (e.g. from power market point of view) and **BECCS for carbon dioxide removal**.

# CCUS sector projections

Poland ([CCUS.pl](#)) – strategic document  
on CCUS in Poland („**more realistic**“)



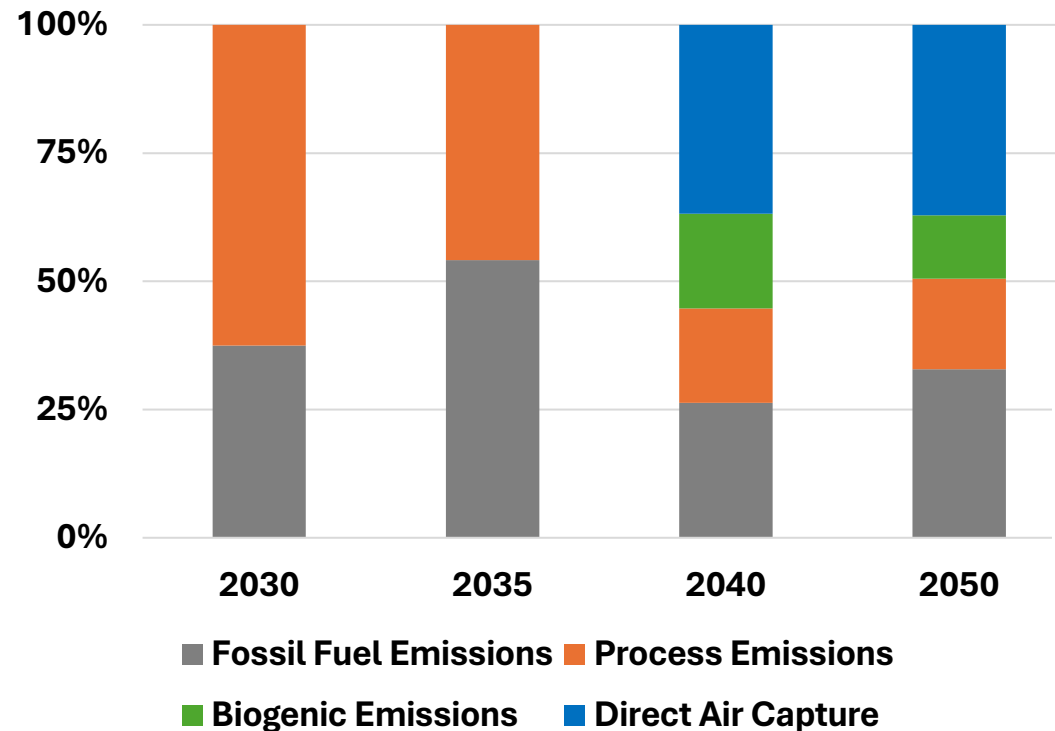
- **Excluding:**
  - wide deployment of CCUS in fossil fuel power generation sector
  - direct air capture technologies
- **Summary** (total of 35.6 Mtpa):
  - CCS in 2050: 24.2 Mtpa
  - CCU in 2050: 11.4 Mtpa





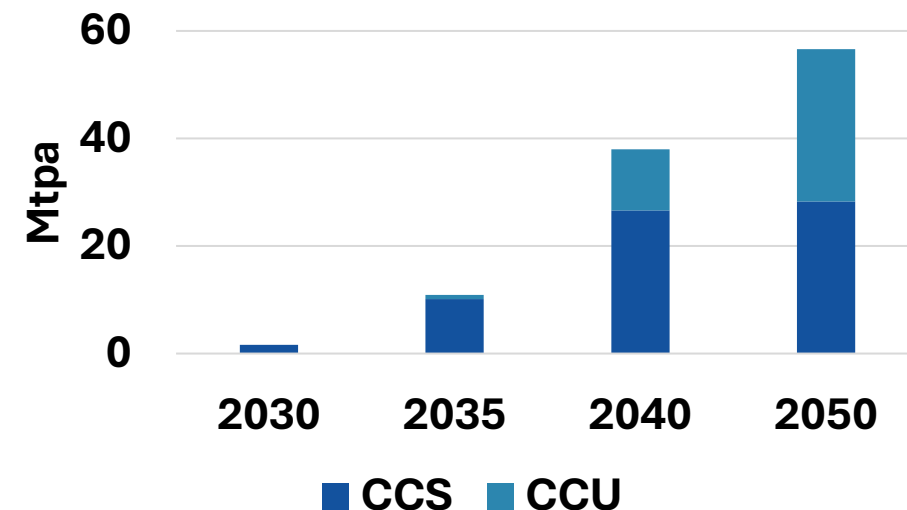
# CCUS sector projections

Poland ([CCUS.pl](#)) – strategic document  
on CCUS in Poland („more realistic”)



- **Adapted:**
  - equal contribution of direct air capture as in ICM – additional  
**21 Mtpa of DAC in CCUS sector by 2050**

- **Summary** (total of 56.6 Mtpa):
  - CCS in 2050: 28.3 Mtpa
  - CCU in 2050: 28.3 Mtpa



# CCUS sector projections

All hands on deck!

Cel / Goal	Global (IEA)	EU (ICM Act)	Poland (CCUS.pl)
CO <sub>2</sub> capture capacity by 2050	5 635 Mtpa	480 Mtpa	35 - 56 Mtpa
Average size of single CO <sub>2</sub> capture project	1.2 Mtpa		
Number of CO <sub>2</sub> capture installations required	4 696	400	29 – 46
Current state of commercial CCUS projects	51	2 – 3	0
Yearly average number of new project in operation by 2050	~180	~15	1 - 2



# CCUS policies and regulatory framework

Timeline and potential next steps

## CCUS strategy

to be adopted  
in early 2026

## Pilot CO<sub>2</sub> storage

are expected in  
2027 - 2029

## Letter on Intend (March 2025)

to move forward with CCUS in Poland –  
establishment of new Ministerial Working Groups

## Geological and Mining Law

September 2023, Amendment

Allowing full scale commercial onshore  
and offshore CO<sub>2</sub> storage activities

**2022 / 2023**

ECO2CEE and  
Go4ECOPlanet

## Full CCS value chain

2028 - 2032, Poland

Demonstration of safe and  
reliable full CCS value chain

## CCfD

first CCfD granted  
in 2027 - 2028

## Legal framework

2025 - 2026, Ministries

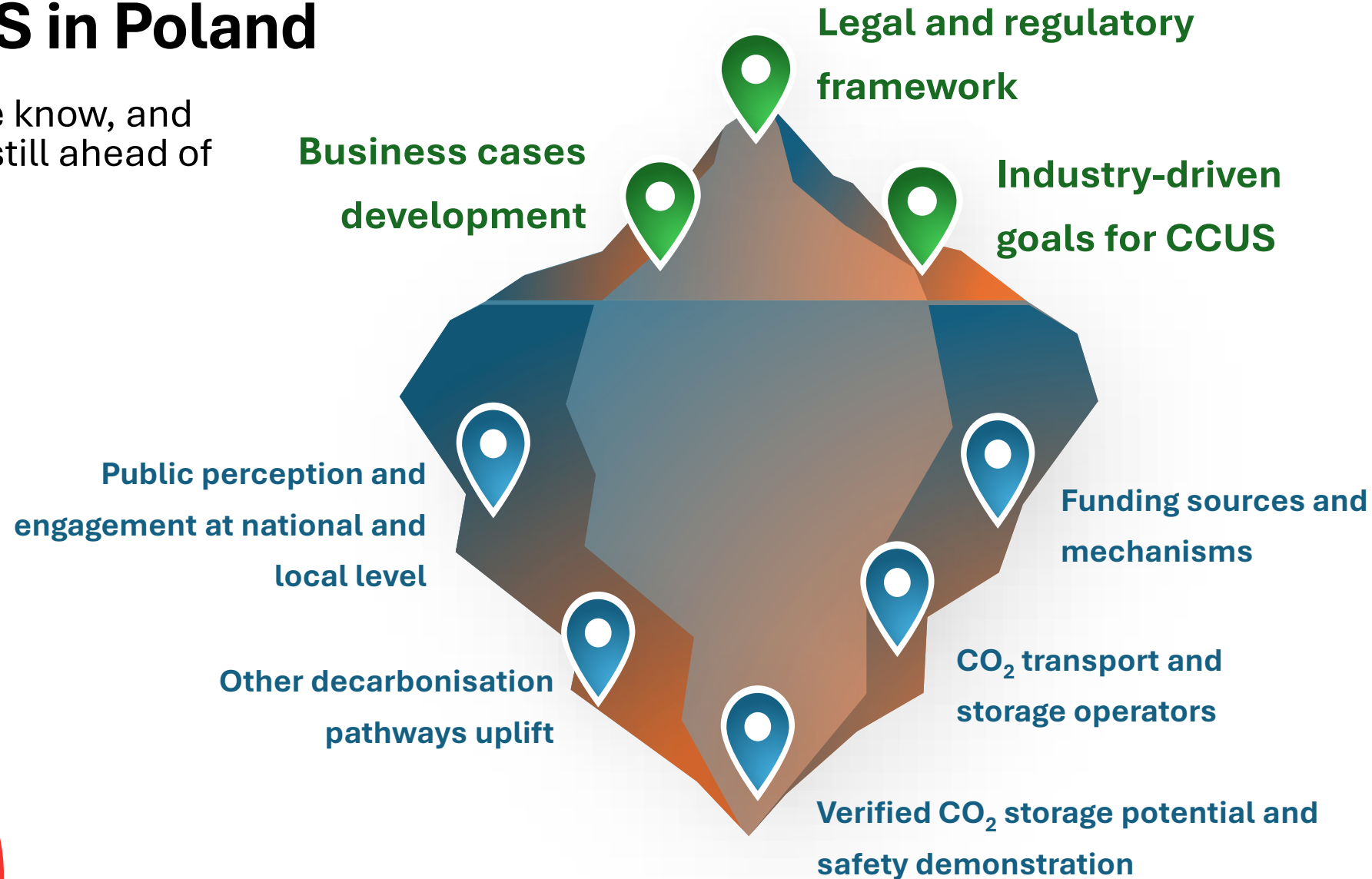
Introduction of new or amended  
regulations on:

- CO<sub>2</sub> storage sites
- CO<sub>2</sub> T&S market
- funding models and allocation
- operators and governing bodies



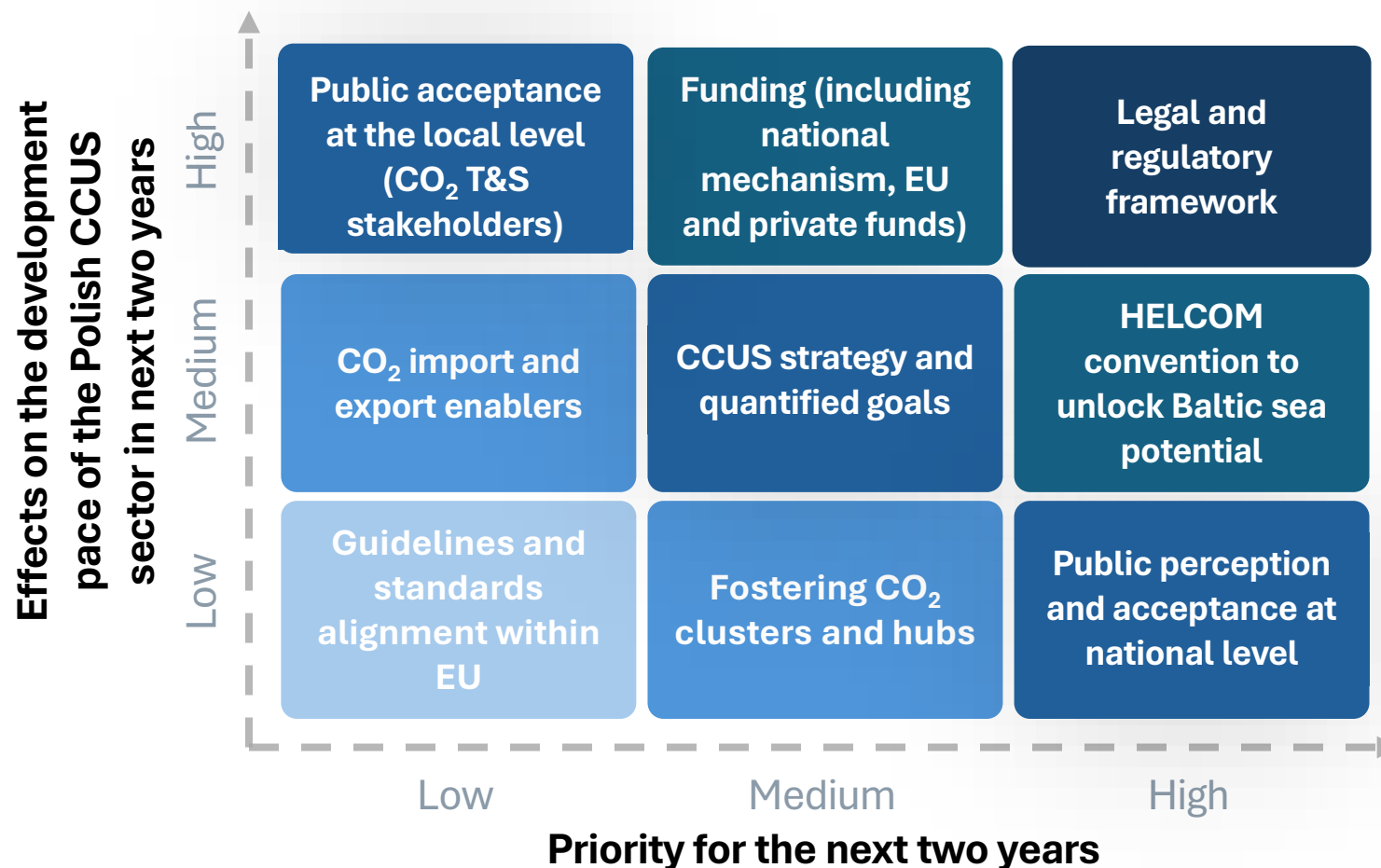
# CCUS in Poland

What we know, and  
what is still ahead of  
us?



## As a summary...

... „homework” for Polish CCUS sector for the next 2 years.



# Thank you for your attention.

contact us: [biuro@ccuspoland.org](mailto:biuro@ccuspoland.org)