

BUILDING MOMENTUM
FOR THE LONG-TERM CCS DEPLOYMENT
IN THE CEE REGION

Summary of CCS4CEE project

Latvia

Implemented by:



Co-financed by:



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ze środków Programu Rozwoju
Organizacji Obywatelskich
na lata 2018 – 2030

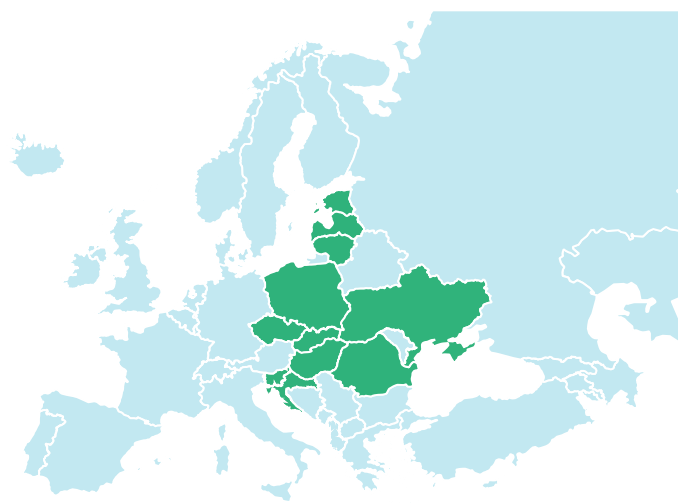


CCS4CEE project

PROJECT CONTEXT | Recent advances in several key areas (e.g., renewable energy sources, energy storage, electric vehicles) enable significant greenhouse gas (GHG) emission cuts but are not sufficient to reach deep decarbonisation consistent with Paris Agreement, as recognised by International Energy Agency in its technology assessments and various modelling studies by both European Union institutions and independent researchers. Carbon capture and storage (hereinafter – CCS)¹ deployment may reduce industrial emissions, provide low-carbon industrial heat and improve the security of the electricity supply by complementing short-term energy storage. However, its large-scale implementation requires a long-term policy framework. At the moment, the topic of CCS is not present in the mainstream debate on climate policy in the Central and Eastern European (hereinafter – CEE) countries. This may lead to uneven progress in CCS deployment across Europe, resulting in increased catching-up costs as well as missed opportunities for national development and regional cooperation. This project is designed to counteract this scenario.

PROJECT GOAL | The project aims to renew the discussion on the long-term deployment of CCS in the CEE region, leading to new policies and joint projects. It is expected that building evidence-based consensus among key stakeholders will pave the way to implement concrete policies and ventures. This will be achieved through combining analytical work, in the form of a series of national and regional publications and events, with outreach, communication and capacity-building activities focused on the importance of timely CCS deployment and associated international cooperation.

SCOPE AND PHASES | The project covers Poland, Czech Republic, Slovakia, Hungary, Slovenia, Croatia, Romania, Lithuania, Latvia, Estonia and Ukraine.



¹ CCS refers to “the capture of CO₂ from industrial installations, its transport to a storage site and its injection into a suitable underground geological formation for the purposes of permanent storage”, as defined by the European Commission. On the other hand, in carbon capture and utilization (hereinafter – CCU), the captured CO₂ is transported to a facility in which it is utilized. CCU exhibits fundamental differences stemming from the fate of the captured and transported CO₂ – in CCU, it is embodied into products, whereas in CCS it is permanently stored in underground geological formations. The main focus of the CCS4CEE project is CCS.

The project is implemented by four stakeholders from the CEE region in cooperation with the expert partner from Norway:



WiseEuropa

WiseEuropa is an independent think-tank institute located in Warsaw. It is the lead partner of the project and coordinator of the work in Poland, Croatia and Slovenia.



Institute for
European
Integration

Institute for European Integration is a non-profit, non-partisan, and independent think tank focusing on European integration and cohesion. It coordinates the work in the Czech Republic and Slovakia.

CIVITTA

CIVITTA is a leading management consultancy from CEE. It coordinates the work in Lithuania, Latvia, Estonia and Ukraine.

EPG
ENERGY POLICY GROUP

Energy Policy Groups is a non-profit, non-partisan independent think-tank located in Bucharest. It coordinates the work in Romania and Hungary.

BELLONA
E U R O P A

The Bellona Foundation (expertise partner) is an independent non-profit organization that aims to provide expertise regarding the climate change issue by identifying and implementing sustainable environmental solutions.

The three phases are implemented in the project:

1. Determination of the starting point: assessment of the current state and potential of technological options, as well as European policy landscape and national contexts (Work Package 3, 2021);
2. Development of national roadmaps as well as regional cooperation roadmap for CCS deployment in the CEE region (Work Package 4, 2022);
3. Supporting implementation of the roadmaps through networking and capacity-building events (Work Package 5, 2023).

The project targets national and local policymakers, the business sector, research institutions and civil society. This will support the emergence of a socially accepted mix of appropriate policies, R&D and deployment activities. The project will ultimately benefit the CEE societies by supporting the timely implementation of CCS technologies which will ensure a smooth low-carbon transition.

PROJECT FUNDING | The project is funded by EEA and Norway Grants Fund for Regional Cooperation (project number RF-COOPERATION-0015).

ADDITIONAL INFORMATION ON THE PROJECT | Additional information about the project, including national and regional reports and deliverables, can be accessed on the project website: ccs4cee.eu

Opportunities and barriers for CCS deployment

CCS4CEE PROJECT COUNTRIES

Across project countries, several commonalities relevant to CCS have been identified:

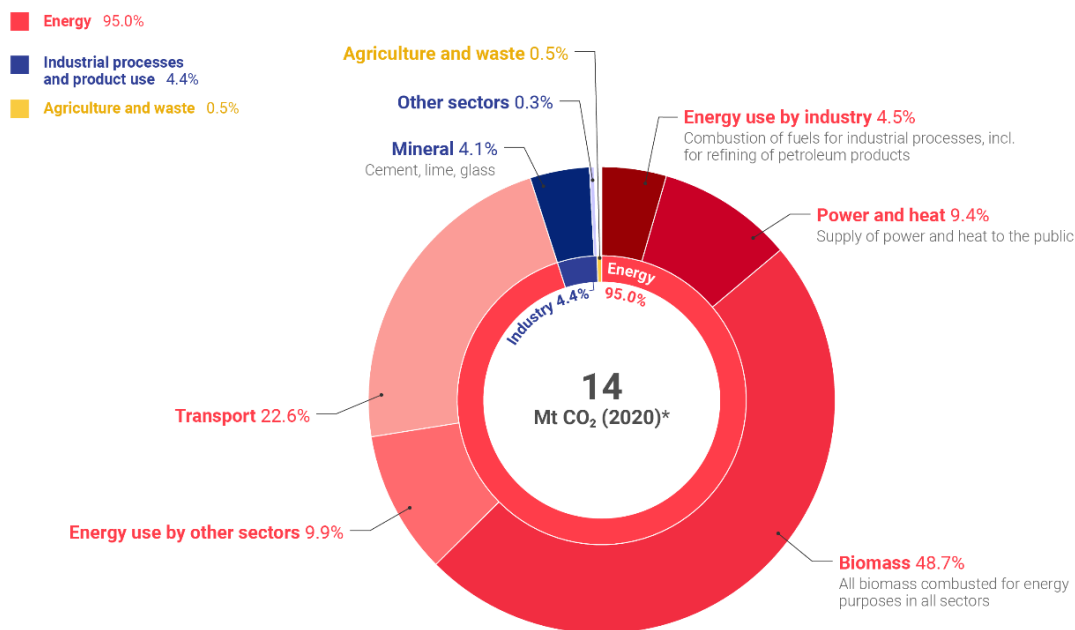
- Many project countries rely on manufacturing sectors, while their energy production depends heavily on fossil fuels. This condition, coupled with sometimes distant or uncertain deadlines for emissions reduction targets, means that CCS for the energy sector cannot be ruled out in the CEE region.
- Various transportation methods may be available to move CO₂ from emitters to storage sites in project countries or within the region. However, CO₂ transportation infrastructure is mostly absent.
- Amongst the project countries, Ukraine has the highest estimated potential for geological storage of CO₂, followed by Romania and Poland. However, more research is needed to refine knowledge on storage potential, which often relies on theoretical estimates.
- Most project countries have a history of research (and occasionally testing) of CCS. Future projects would be supported by existing know-how and experience, including international cooperation.
- The regulatory environments of project countries are relatively underdeveloped, and many fail to provide certainty for CCS, particularly regarding storage and transportation.
- Funding support is available at the EU level, and frameworks such as Projects of Common Interest may lend themselves to large-scale regional CCS projects.
- Many stakeholders in project countries are cautious about deploying CCS due to its high costs, lack of clear government support and financing, and challenging administrative procedures. Many also tend to favour CCU over CCS due to perceived lower complexity and risks.
- An overall lack of public and institutional knowledge of CCS is an important feature evident in project countries.

LATVIA

Findings from the Latvian national report regarding the main opportunities and barriers to the deployment of CCS:

- Latvia's total amount of CO₂ emissions have declined by nearly 60% since 1990; however, in recent years, no significant changes can be observed in this regard. Most of Latvia's emissions come from the energy sector (FIGURE 1).

CO₂ EMISSIONS IN LATVIA BY SECTORS



* Total emissions exclude LULUCF but include, for informational purposes, CO₂ emissions from all biomass combusted for energy production, which could partly be abated with CCS (Bioenergy with carbon capture and storage – BECCS)

Data source: European Environment Agency (2020), infographics by Fakta o klimatu

FIGURE 1. CO₂ EMISSIONS IN LATVIA BY SECTORS

- To assess the potential for CCS, it is useful to highlight **the main point sources of CO₂**, as such emitters are the most suitable and studied regarding the capture of emitted CO₂. Two major industrial carbon-intensive sectors can be distinguished here – **energy production and cement production**. The largest CO₂ emitter in the energy sector is a combined heat and power plant, TEC-2, owned by Latvenergo (675,3 kT of CO₂-eq in 2021). In cement production, all emissions are generated by Schwenk Latvija (752,1 kT of CO₂-eq in 2021). Those two largest companies produce more than half of Latvia's CO₂ emissions at the company installation level (FIGURE 2).

THE BIGGEST EMITTERS IN LATVIA

EU ETS covered emissions of greenhouse gases in 2021

INSTALLATIONS WITH EMISSIONS (Mt CO₂eq)

- above 250 000 tonnes of CO₂eq

Sectors:

■ Heat and power

■ Cement and lime

- 40 000–250 000 tonnes of CO₂eq

Sectors:

Heat and power

HOW TO READ MINI CHARTS

250 000 t CO₂eq = ■

1 000 000 t CO₂eq = ■■■■



2.1

Mt CO₂eq

of total emissions
covered by EU ETS

Data source: EU ETS (2021), infographics by Fakta o klimatu

FIGURE 2. THE BIGGEST EMITTERS IN LATVIA

- **National policy planning documents** (such as Latvia's strategy to achieve climate neutrality by 2050 and National Climate and Energy Plan 2021-2030) **do not envisage CCS solutions in Latvia until 2030**, considering the high costs and the unassessed environmental impact. CCU also has a minor role, but overall, the potential is regarded as higher than for CCS solutions.
- Currently, the main obstacle affecting CCS development in the regulatory framework is the **prohibition on the storage of CO₂**. Although Latvia amended existing legislation to implement Directive 2009/31/EC on the geological storage of carbon dioxide, there is still a prohibition on the storage of CO₂ in onshore and offshore geological structures (Law "On Pollution").
- Generally, the stakeholders are **relatively well informed about CCS possibilities** and know the basic principles. However, most of the stakeholders for whom the introduction of such technologies could be relevant have a reserved position concerning this technology. This is mainly due to the economic aspects regarding the implementation of CCS technologies, as well as other limiting aspects. The exception is Schwenk Latvija (in a certain sense, also Latvenergo), which is very well-informed about this topic and in favour of developing such technologies and frameworks at the national level.
- **Practically implemented projects in the field of CCS in Latvia have not been identified**, but there are studies in this field on different issues. There are some pilot projects in the Schwenk Group's cement plants in this field, and there is the possibility of transferring successful examples. Further research and pilot projects are needed to develop CCS technologies and to get more data on the geology formations and the potential for CCS.

- **The transport infrastructure is non-existent**, and significant investments are required for that. Therefore, the infrastructure and logistics plan should be developed. Further research is also necessary to understand the detailed technical specifications.
- **Geological conditions potentially allow the storage of CO₂ underground in Latvia**. There are several potential onshore and offshore structures for that. Storage of CO₂ underground, however, has been prohibited in Latvia since 2012.
- During several stakeholder interviews and a workshop, **the option of CCU was emphasized more than CCS**, which was identified as a more optimal option for the CO₂ emission volumes produced in Latvia and would comply more with the circular economy principles.
- Based on currently available information, **no definite public image has been formed** in connection with CCS technologies, as this sector has not been developed in Latvia so far.
- **The position of stakeholders** can be grouped into two categories:
 - **Pace-setters** – some stakeholders see the potential of CCS in the near future. For example, Schwenk Latvija is interested in introducing and developing CCS technologies within the next ten years to achieve the company and EU goals. At the same time, Riga Technical University and the University of Latvia have several CCS and CCU research projects/studies conducted and ongoing.
 - **Fence-sitters** – the majority of stakeholders in Latvia. The principal reasons for this position are lack of economic justification, safety concerns of CCS, and the untapped potential of alternative technologies and methods that support decarbonization processes. Also, certain position for or against the CCS has not yet been taken by some stakeholders.

Since the publication of the Latvian national report, there have been several developments in the field of CCS:

- In Latvia, a new law is being developed in the field of climate (Climate Law), which will also replace the current Law “On Pollution”. In the current draft, after the recommendations of industry representatives, it is planned to abolish the current prohibition on the storage of CO₂. It is also intended that the basic principles for this field will be determined there, and further development of the regulatory framework will be delegated. This law is still being developed and is subject to changes.
- Schwenk Latvia has implemented a CO₂ capture technology pilot project at its cement plant.
- Interaction between stakeholders is ongoing in various formats, exploring opportunities for cooperation on potential future projects and possible developments in the field. As an example, the cooperation between Latvian and Lithuanian stakeholders in the CCS Baltic Consortium project can be mentioned, which in 2022 was included among the candidates for the status of Projects of Common Interest. This project envisages the development of the first cross-border CO₂ infrastructure in Latvia and Lithuania, which will be accessible to entities operating in the region. It will allow the transport of captured CO₂ to existing and planned offshore storage sites (for example, the North Sea or the Baltic Sea).

A detailed assessment of the current state, past experiences and potential for CCS/CCU deployment in Latvia and other project countries is available on the project website: ccs4cee.eu

Policy roadmap for the scaled-up deployment of CCS in Latvia

Based on the assessment of past experiences and CCS potential, a national policy roadmap was prepared to outline how the future development of CCS technologies could proceed and under which enabling conditions. The roadmap provides an overview of various policy actions along the innovation cycle, from research and development to potential commercialization of these technologies in order to reach climate targets set by the EU and national strategies. While the roadmap aims to describe an enabling environment to deploy CCS projects, it also focuses on ways to develop transferable knowledge and skills by national stakeholders (governments, research organizations, academia, private sector) in one or more stages along the carbon capture, transport, storage and utilization chain, and create linkages to gain knowledge and experience from more experienced stakeholders across the globe.

Based on the developed roadmap, the next and immediate steps are highlighted for the further advancement of CCS in Latvia.

One of the main emphases for the advancement of this sector should be **changes and further development of the regulatory framework**. The first steps in this regard for the development of CCS (as well as for the next stage of this project) would be the **nomination of a responsible person from the ministry** and the **creation of the stakeholder working group or platform** on this issue (which also contributes to the promotion of cooperation and knowledge/experience dissemination in general), as well as the **adoption of the Climate Law in a version which abolishes the current prohibition on CO₂ storage**. However, the accomplishment and time frame of those activities depends on the interaction of several factors.

Stakeholders can also implement a number of continuous activities in the near future, such as **monitoring available funding** for further activities, **implementing different studies and pilot projects**, **analysing the existing experience** of implemented and functioning projects / operating models, **promoting cooperation and further communication** between the most significant stakeholders, **supporting regional cooperation**, etc.

A detailed CCS national roadmap for Latvia and other project countries is available on the project website: ccs4cee.eu

