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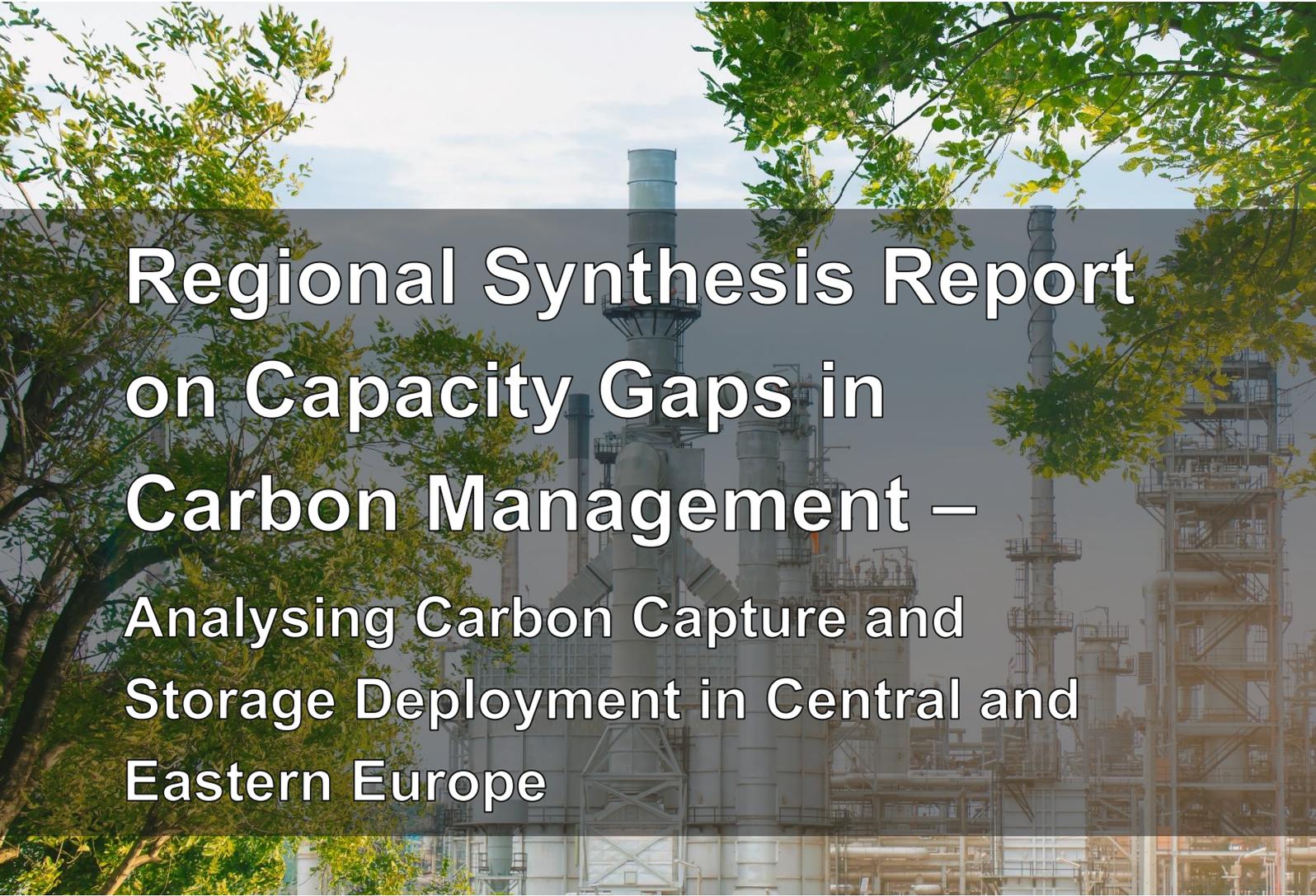


Federal Ministry
for the Environment, Climate Action,
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Regional Synthesis Report on Capacity Gaps in Carbon Management – Analysing Carbon Capture and Storage Deployment in Central and Eastern Europe

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List of abbreviations

ANRMPSG	National Regulatory Authority in Mining, Petroleum and Geological Storage of Carbon Dioxide
ANRE	National Electricity Regulation Authority
CCS	Carbon Capture and Storage
CCU	Carbon Capture and Utilisation
CDR	Carbon Dioxide Removal
CEE	Central and Eastern Europe
CEF	Connecting Europe Facility
CO ₂	Carbon Dioxide
DAC	Direct Air Capture
EO	Emergency Ordinance
EU	European Union
ETS	Emissions Trading Scheme
GML	Geological and Mining Law
LULUCF	Land-Use, Land-Use Change and Forestry
ICMS	Industrial Carbon Management Strategy
MRV	Monitoring, Reporting and Verification
NCBiR	National Centre for Research and Development in Poland



NECPs	National Energy and Climate Plans
NETs	Negative Emissions Technologies
NZIA	Net-Zero Industry Act
PCI	Project of Common Interest



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Executive Summary

The European Union's objective of achieving climate neutrality by 2050 requires the rapid decarbonisation of sectors where emissions cannot be eliminated through electrification or energy efficiency alone. In Central and Eastern Europe (CEE), this challenge is particularly pronounced due to the concentration of hard-to-abate industries, the continued role of fossil fuels in energy systems, and the legacy of carbon-intensive industrial infrastructure. Carbon management technologies, particularly Carbon Capture and Storage (CCS), are therefore increasingly recognised as a necessary complement to conventional mitigation measures in the region.

This Regional Synthesis Report assesses carbon management readiness in Latvia, Poland, Romania, and Bulgaria by exploring the political, regulatory, institutional, market, technical and social conditions that shape the feasibility of CCS deployment. Rather than evaluating individual projects, the analysis focuses on systemic capacity factors that influence whether CCS can move from early-stage concepts to operational deployment. While carbon management also includes other negative emissions technologies (NETs), the synthesis places an emphasis on CCS as it is the most policy operationalised option in this region and plays a central role in EU policy frameworks such as the Industrial Carbon Management Strategy and the Net-Zero Industry Act (NZIA).

Across the four countries, CCS is widely acknowledged as strategically relevant for long-term decarbonisation, especially in cement, lime, chemicals, refining and power-related industrial activities. However, readiness levels vary substantially. Poland and Romania exhibit comparatively advanced technical and geological knowledge bases and host large industrial emission clusters, while Latvia and Bulgaria remain at an earlier stage, with more limited institutional structures and fewer active project initiatives. In all countries, CCS development is characterised by an early-stage landscape in which many foundational elements, such as operational permitting systems, clearly assigned governance responsibilities, bankable business models and integrated transport and storage planning, are still emerging.

Several cross-cutting capacity gaps are evident at the regional level. Governance and role clarity remain underdeveloped, with fragmented institutional responsibilities and limited coordination across ministries and agencies. Legislative frameworks are often incomplete or lack implementing provisions necessary for project execution, particularly with regard to storage licensing, long-term liability and transport regulation.

Market and financial conditions are not yet sufficient to support large-scale investment, as current carbon price signals and national support mechanisms do not adequately de-risk first-mover projects. Technical and knowledge-related gaps persist, especially in relation to storage site characterisation, integrated value-chain planning and the availability of skilled personnel. Social dimensions represent an additional constraint, as public awareness of CCS remains low and structured public engagement activities are limited across the region.

At the same time, the analysis identifies important enabling conditions that could accelerate capacity creation. EU-level policy initiatives, funding instruments and Projects of Common Interest (PCI) play a central role in mitigating national constraints, particularly for CO₂ transport infrastructure and cross-border solutions. Pilot and demonstration projects are emerging as critical learning vehicles, not only for technical validation but also for institutional coordination and public communication. Regional interdependencies are especially relevant for countries with limited domestic storage options, underscoring the importance of coordinated planning and cooperation across borders.

Overall, the synthesis highlights that CCS deployment in Central and Eastern Europe is less constrained by the absence of emission sources or long-term need than by the pace at which enabling conditions are being put in place. Addressing capacity gaps in a coordinated manner, through clear governance structures, targeted financial support, investment in geological knowledge, and proactive public engagement, will be essential to ensure that the region can participate effectively in the emerging European carbon management landscape.

1. Introduction

1.1.1. Background and Policy Context

The European Union has set a legally binding objective to achieve climate neutrality by 2050, anchored in the European Climate Law and operationalised through the European Green Deal and the “Fit for 55” package (Regulation (EU) 2021/1119, 2021; European Commission, 2019). Reaching this target requires deep decarbonisation across all sectors of the economy, including those where emissions are particularly difficult to eliminate through conventional measures such as electrification or energy efficiency. These so-called hard-to-abate sectors, most notably cement, lime, steel, chemicals, generate a large share of Europe’s residual industrial emissions and will continue to do so even under ambitious mitigation scenarios.

In response to this challenge, the European Commission introduced the Industrial Carbon Management Strategy in 2024, defining a strategic role for Carbon Management technologies, including CCS, Carbon Capture and Utilisation (CCU), and Carbon Dioxide Removal (CDR), as complementary tools to renewables, efficiency, and electrification. This strategic orientation is reinforced by the NZIA, which sets a target to develop at least 50 million tonnes of annual CO₂ storage capacity by 2030, signalling that CCS will be a core element of Europe’s long-term decarbonisation pathway. However, the success of this strategy depends not only on technological readiness, but also on the existence of enabling political, legal, market, institutional, financial, and social conditions within diverse national contexts (Kulovesi, et al., 2024).

CEE countries play a critical role in this transformation. Countries such as Latvia, Poland, Romania, and Bulgaria host significant shares of Europe’s hard-to-abate industries, including cement and chemicals. At the same time, the region is characterised by strong dependencies on legacy fossil-fuel infrastructure, particularly coal in Poland and Bulgaria, and oil and gas assets in Romania and Poland. These structural conditions make industrial decarbonisation especially challenging but also underline the importance of CCS as a potential transition option. Ensuring that CEE countries are not left behind in the rollout of carbon management, infrastructure is therefore a matter of both climate ambition and regional justice within the EU.

Despite growing policy attention, CCS deployment across the region remains at an early stage. While legislative steps, pilot initiatives, and geological assessments are emerging, many of the foundational conditions required for large-scale deployment

such as clear governance structures, operational permitting systems, public acceptance, financial support mechanisms, and coordinated transport and storage planning are still under development. Identifying and understanding these capacity gaps is essential for informing both national policy choices and EU-level support measures.

1.1.2. Objective and Scope

This Regional Synthesis Report brings together four national assessments of carbon management readiness in Latvia, Poland, Romania, and Bulgaria (Bellona Europa, 2025; Giers, 2025; Energy Policy Group, 2025; Center for the Study of Democracy (CSD), 2025). The objective is to provide a comparative and integrative perspective on the development of political, regulatory, institutional, market, technical and social capacities relevant to carbon management. While carbon encompasses a broader set of approaches to managing CO₂ emissions and removals, including utilisation and NETs, the assessment focuses on CCS as the most mature and policy operationalised option in the four countries. Rather than evaluating individual projects or sites, the synthesis focuses on systemic conditions that shape the feasibility and pace of CCS deployment across the region.

2. Methodological Concept

This synthesis report applies a qualitative, comparative policy and capacity assessment to evaluate carbon management with a focus on CCS readiness across four CEE Member States: Poland, Romania, Latvia, and Bulgaria. The methodological approach is designed to identify structural capacity gaps, enabling conditions, and cross-cutting constraints affecting the deployment of CCS, rather than to assess individual projects or technologies in detail.

The analysis builds on a multi-dimensional analytical framework. It captures the key political, legislative, social, market-related, and resource-based factors shaping national CCS readiness aiming at a structured comparison across countries while allowing for contextual differentiation.

This synthesis is based on four country-level reports prepared within the GreenHorizon project that combine information derived from national policy documents (e.g. National Energy and Climate Plans (NECPs) and long-term strategies), legislative and regulatory texts, project documentation, publicly available studies, and expert-based reports. The synthesis does not introduce new primary data collection but integrates and compares existing evidence in a consistent analytical structure.

Political Landscape

The political landscape dimension assesses the extent to which CCS approaches are recognised and supported within national climate and energy policy frameworks. This includes the presence of explicit political commitments, strategic references to CCS in national decarbonisation pathways, and the degree to which CCS is positioned as a relevant mitigation option.

This dimension captures political prioritisation rather than implementation outcomes, recognising that early-stage policy positioning strongly influences subsequent regulatory and market developments.

Legislative Framework

The legislative dimension examines the existence, completeness, and operational maturity of regulatory frameworks governing CCS. The assessment focuses on the transposition and implementation of EU-level requirements, particularly the CCS

Directive, and on national rules relevant for permitting, environmental assessment, transport regulation, and long-term liability.

Rather than evaluating legal quality in isolation, this dimension assesses whether regulatory frameworks are sufficiently developed and operational to support project development.

Role Clarity and Public Perception

This combined social dimension addresses public awareness, perception, and acceptance of CCS, recognising societal legitimacy as a critical enabling condition for deployment. The analysis focuses on the general level of public understanding, prevailing attitudes toward CCS technologies, and the presence of structured public participation or engagement activities. It also examines the clarity of roles and responsibilities among public authorities with regard to oversight of CCS activities.

Given the early stage of CCS development in the region, this dimension emphasises baseline conditions and emerging challenges.

Market Conditions and Financial Support

The market dimension evaluates the economic and financial conditions shaping CCS deployment, with a focus on early market formation rather than commercial maturity. The analysis considers both demand-side and supply-side factors, as well as the availability of financial support mechanisms.

Resources

This combined dimension assesses the availability of financial, human, knowledge, and technical resources required to plan, regulate, and implement CCS. It captures both institutional capacity within public authorities and technical capacity within research institutions and industry.

This dimension highlights how resource constraints interact with regulatory and market gaps, shaping the overall pace and feasibility of CCS deployment.

3. Regional Context: CCS in Central and Eastern Europe

3.1. EU Legislative Foundation and Strategy for Industrial Decarbonisation

The European Union's approach to industrial decarbonisation is anchored in the European Green Deal and the legally binding objective of climate neutrality by 2050, as established under the European Climate Law. This legal framework translates long-term climate ambition into enforceable obligations and provides the basis for a sequenced emissions reduction pathway defined by intermediate targets for 2030 and 2040 (European Commission, 2019).

Under the "Fit for 55" package, the EU has committed to a net reduction of at least 55% in greenhouse gas emissions by 2030 compared to 1990 levels. This phase of the transition is primarily focused on large-scale deployment of renewable energy, improvements in energy efficiency, and the gradual phase-out of coal. Looking beyond 2030, the European Commission has proposed an intermediate target of a 90% net emission reduction by 2040 (European Commission, 2019). This period represents a critical bridge decade in which decarbonisation efforts must extend decisively into industrial sectors where emissions are difficult to eliminate through electrification or fuel switching alone. By 2050, the objective is to reach a net-zero economy, implying that remaining "hard-to-abate" emissions, particularly from heavy industry and agriculture, must be fully balanced through carbon removals (European Commission, 2024).

Within this policy trajectory, the Industrial Carbon Management Strategy (ICMS), defines the EU's strategic approach to managing carbon that cannot be abated at source. The timing of the ICMS was closely aligned with the update cycle of NECPs in 2024, providing Member States with a policy blueprint for integrating carbon capture, transport and storage, as well as related market and regulatory arrangements, into national climate frameworks.

The ICMS is structured around three complementary technological pillars (European Commission, 2024). CCS focuses on the capture of CO₂ from industrial processes or directly from the atmosphere and its permanent sequestration in deep geological formations. Under the NZIA, the EU has set a binding target to develop at least 50 million tonnes of annual CO₂ storage capacity by 2030 (Anon., 2024), establishing a

concrete benchmark for storage deployment. CCU treats captured CO₂ as a feedstock for products such as synthetic fuels, chemicals and construction materials, with relevance for sectors such as aviation and maritime transport where liquid fuels remain essential. CDR encompasses both nature-based solutions and industrial removal technologies, including Direct Air Carbon Capture and Storage, which are expected to play an increasing role in offsetting residual emissions (Rackley, 2023). By 2050, the EU anticipates that up to 400 million tonnes of CO₂ may need to be removed annually to achieve climate neutrality (European Commission, 2019).

A central enabling condition for the implementation of this strategy is the development of a European CO₂ transport network. The absence of a unified system for moving CO₂ from industrial clusters to storage sites is widely recognised as a key structural constraint. Addressing this challenge requires large-scale investment in pipelines, shipping terminals and rail infrastructure, as well as coordinated cross-border planning. The European Commission estimates that up to €19 billion in investment will be required by 2030 for CO₂ transport infrastructure alone (Tumara, et al., 2024). Consequently, cross-border cooperation and the integration of a European CO₂ market are identified as essential elements of the EU's industrial decarbonisation pathway for the coming decade.

3.2. Regional Industry and Emissions Profile in Central and Eastern Europe

Industrial emissions in the CEE region are concentrated in a limited number of energy-intensive industrial sectors and geographically distinct production hubs. Across the region, industry emissions largely stem from the mineral and chemicals sectors. While overall emissions have declined over the past decade, the relative importance of industrial emissions remains high (Executive Environmental Agency at the Ministry of Environment and Water, 2025; National Center for Emissions Management, 2025; Ministry of Environment, Waters and Forests, 2025; Ministry for Climate and Energy, 2025)

Industrial activity in the region is dominated by a small number of hard-to-abate sectors. Cement and lime production represent a structurally significant source of emissions due to the prevalence of process-related CO₂ that cannot be eliminated through fuel switching or efficiency improvements alone. Steelmaking, chemicals and fertiliser production further contribute to industrial emissions, often clustered in legacy

industrial regions. These sectors account for a substantial share of national emissions in Poland, Romania and Bulgaria, while in Latvia industrial emissions are concentrated in a small number of large installations rather than spread across multiple sectors.

Moreover, there is a close link to long-standing dependencies on fossil fuels and inherited infrastructure configurations. In countries such as Romania and Poland existing oil and gas assets, including pipeline networks and depleted hydrocarbon fields, continue to shape the industrial landscape, although they are increasingly viewed in the context of potential CO₂ transport and storage. By contrast, a continued reliance on coal in the region reinforces high emissions intensity in both power generation and industrial heat supply, underscoring the structural challenges associated with decarbonising these systems.

As a result, spatial concentration is an additional defining feature of the regional emissions landscape. Major CO₂ point sources are typically located in established industrial hubs, such as Upper Silesia and Bełchatów in Poland, the Ploiești-Brazi and Galați industrial area in Romania, the Maritsa Iztok and Devnya complexes in Bulgaria, and the Riga and Brocēni areas in Latvia. While this clustering creates challenges due to distance from potential CO₂ storage sites, it also offers opportunities for industrial decarbonisation, as emissions are generated by a limited number of large facilities.



Figure 1: Potential CO₂ Storage Basins and Major Emitters in CEE Countries.

3.2.1. Poland

Poland has the largest industrial emissions profile among the four countries assessed, reflecting the scale of its heavy industry and its energy system structure. Total greenhouse gas (GHG) emissions amount to approximately 315,46 Mt CO_{2-eq} per year (excluding LULUCF) in 2022, with CO₂ emissions dominated by energy (ca. 93%) and industrial activities (ca. 6%) (National Center for Emissions Management, 2025). Within industrial processes, mineral products, primarily cement and lime production, represent the largest share, accounting for roughly 66 % of industrial process CO₂ emissions, driven by calcination-related emissions that are independent of fuel choice. The remaining industrial process emissions originate mainly from the chemical industry (ca. 22%), including ammonia and fertiliser production, as well as metal production (ca. 10%). In absolute terms, industries such as cement, steel, chemicals and oil refining together emit approximately 18 Mt CO_{2-eq} per year, representing the vast majority of industrial emissions in Poland.

These emissions are geographically concentrated in long-established industrial clusters (Carr, et al., 2024). Upper Silesia forms the core industrial region, hosting steelworks and chemical plants with a dense emissions footprint. The Bełchatów region constitutes a major emissions hotspot due to the presence of large coal-fired power generation supplying electricity and heat to industrial facilities. In central Poland, the Płock refinery and petrochemical complex represents one of the single largest industrial CO₂ sources in the country, while cement production is clustered in regions such as Kujawy or Opole area, where multiple large installations generate significant process emissions. As a result, a relatively small number of installations account for a disproportionate share of Poland's industrial CO₂ output.

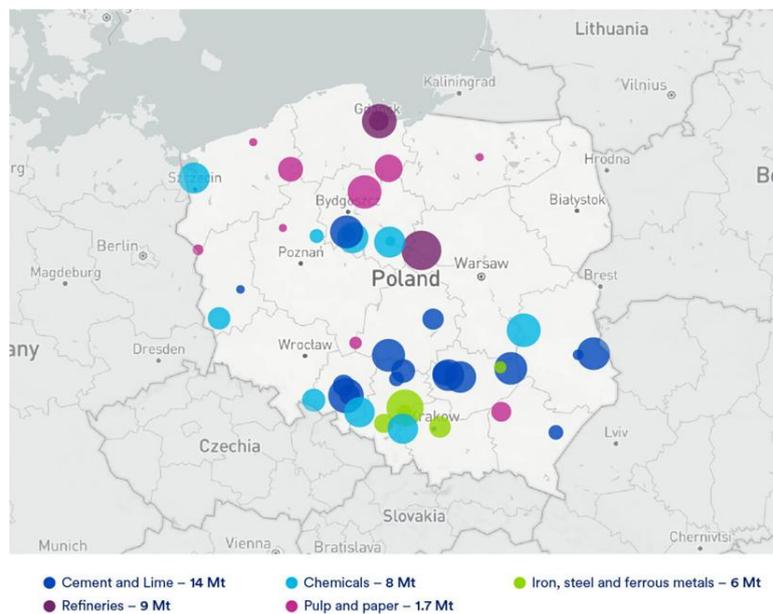


Figure 2: GHG Emissions Hotspots in Poland (Carr, et al., 2024).

Industry plays a central role in the Polish economy, both in terms of value added and employment, particularly in regions where heavy industry remains a key economic anchor. The concentration of emissions in sectors that are economically significant and technically difficult to decarbonise through conventional measures underscores the structural relevance of industrial carbon management in the Polish context. At the same time, decades of coal mining and oil and gas exploration have generated geological data and subsurface expertise, which has the potential to inform national assessments of storage potential and shape the technical baseline for considering CCS within Poland's industrial landscape.

3.2.2. Latvia

Latvia has a comparatively small industrial emissions profile relative to the other countries assessed, reflecting both the size of its economy and the limited scale of heavy industry. Total GHG emissions amounted to approximately 9,98 Mt CO₂-eq per year (excluding LULUCF) in 2023, with emissions dominated by the energy sector (ca. 64,1%) and a much smaller contribution from industrial processes (ca. 8,7 %) (Ministry for Climate and Energy, 2025). Industrial process emissions in Latvia are highly concentrated in a single sector. Mineral products, primarily cement production, account for large amounts of industrial emissions, driven almost entirely by calcination-related emissions that cannot be mitigated through fuel substitution.

The geographical distribution of industrial emissions in Latvia is correspondingly concentrated. Schwenk Latvia's Brocēni cement plant represents the single most significant industrial CO₂ point source. Energy-related industrial emissions are primarily located in the Riga metropolitan area, where gas-fired combined heat and power plants and district heating systems supply electricity and heat to industrial facilities. Unlike Poland, Latvia does not exhibit multiple, spatially dense industrial clusters; instead, emissions are generated by a small number of large installations with limited regional dispersion.

Industry plays a more modest role in Latvia's economy compared with larger industrialised Member States, yet sectors such as cement production and energy supply remain strategically important for domestic construction, infrastructure development and energy security. The concentration of industrial CO₂ emissions in a very limited number of facilities results in a structurally different decarbonisation challenge than in countries with diversified heavy industry. While Latvia has limited legacy fossil fuel infrastructure compared with Poland or Romania, geological assessments have identified onshore saline aquifers with theoretical storage potential. This combination of a small number of dominant emitters, limited industrial diversification and emerging geological knowledge defines the structural context for considering industrial carbon management, including CCS, in Latvia.



Figure 3: Primary Industrial CO₂ Emitters in Latvia in 2021 (EU ETS Data). (Bellona Europa, 2025).

3.2.3. Romania

Romania's total GHG emissions (excluding LULUCF) have significantly declined over past decades due to structural economic transition and decarbonisation policies, including within industrial sectors. In 2022, total national GHG emissions amounted to approximately 109 Mt CO₂-eq per year, 9,19% of which can be attributed to the Industrial Processes and Product Use Sector (Ministry of Environment, Waters and Forests, 2025). Within the industrial processes sector, emissions from mineral products especially cement (3,39% of total GHG emissions), represent the principal industrial sources, although these have also decreased over time in line with broader emissions trends.

The energy sector remains the dominant source of CO₂ emissions, while industrial processes contribute a comparatively smaller share relative to energy and agriculture. Historically, the industrial processes sector has accounted for around 10–12 % of total national emissions, underscoring its secondary but structurally important role in Romania's overall emissions profile.

Romania possesses one of the largest theoretical geological CO₂ storage capacities in Southeast Europe, providing a strong technical foundation for the development of carbon management solutions. CCS is explicitly recognised as a strategic

decarbonisation option in the updated NECP, particularly for cement production and the oil and gas sector. Planned measures include the development of onshore storage sites, industrial CCS hubs, feasibility studies, and the mobilisation of EU funding instruments to support early CCUS deployment. Major domestic energy companies, such as OMV Petrom, Romgaz, and Black Sea Oil & Gas, are expected to play a central role, with Romania projected to contribute over 20 % of the EU's total CO₂ storage target under the NZIA (European Commission, 2025).

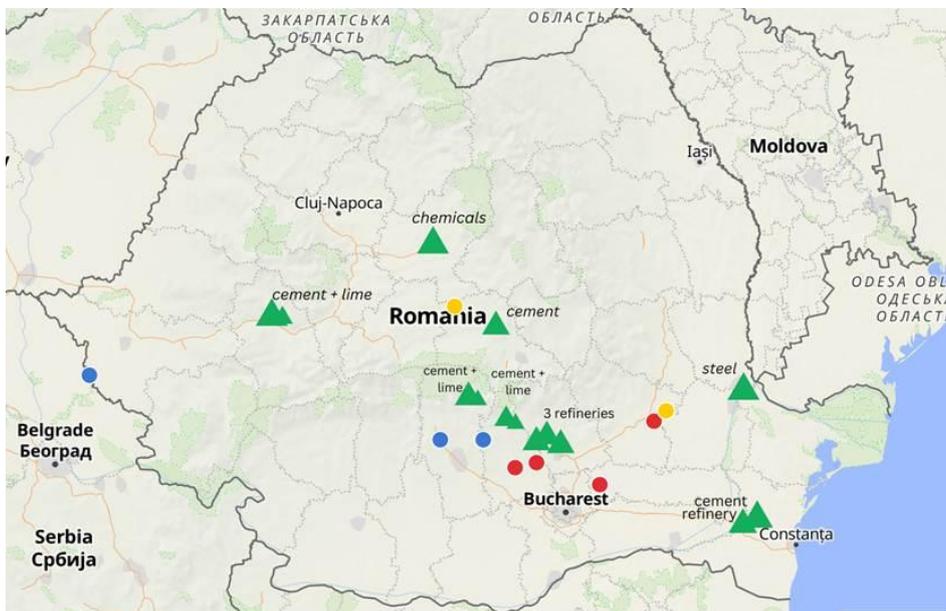


Figure 3: Hard-to-abate Industrial CO₂ Emitters and Storage Sites in Romania (EPG, 2025).

Energy-intensive industries are therefore identified in national climate planning as both high-emission and economically significant, with particular focus on chemicals and non-metallic minerals as priority sectors for deep decarbonisation. At present, carbon management technologies such as CCS remain at the planning and policy stage, with no large-scale deployment yet reflected. To support implementation, the NECP indicates that a budget of approximately €750 million will be reserved by 2027 for the deployment of CCUS technologies, mostly using EU financing instruments (Bellona Europa, 2025; Energy Ministry, 2025). In addition, planning documents refer to the envisaged co-financing of a limited number of CCS projects within this timeframe.

3.2.4. Bulgaria

Total GHG emissions (without LULUCF) in Bulgaria amounted to ca. 45 Mt CO_{2-eq} in 2023. Industrial processes accounted for roughly 8.5 % of these emissions, down

significantly compared with past base years. Bulgaria's industrial processes emissions were reported at ~4.5 Mt CO₂-eq in 2021 (Executive Environmental Agency at the Ministry of Environment and Water, 2025). The largest contributors within industrial processes are mineral products, similar to other CEE economies where cement makes up a major share of industrial CO₂ in this category. The chemical and petrochemical industries constitute another major source of industrial emissions due to their extensive use of natural gas as a feedstock for many products. As a result, these sectors combine high energy-related emissions with structurally embedded process emissions, making them particularly challenging to decarbonise.

Overall, Bulgaria's total GHG emissions have decreased significantly over recent decades, driven by fuel switching, structural economic transformation, and declining emissions from the energy sector. Despite this progress, the Bulgarian economy remains highly carbon-intensive per unit of value added, stressing the continued relevance of targeted decarbonisation measures for energy and emissions intensive industrial activities.

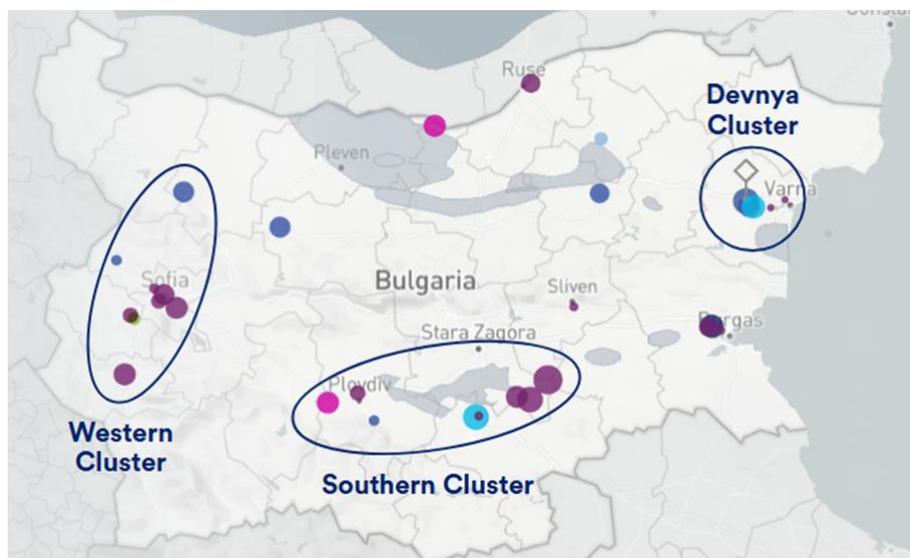


Figure 3: Primary Industrial CO₂ Emitters in Bulgaria (Center for the Study of Democracy (CSD), 2025).

A deep transformation of the sector will require a combination of material efficiency, improved circularity, and the introduction of low-carbon technologies and fuels. However, the current energy and climate strategic framework does not meaningfully address industrial emissions, resulting in a lack of adequate and concrete policy measures (European Bank for Reconstruction and Development, 2025). This gap is particularly consequential given that several of Bulgaria's most economically significant



industries—including chemicals, petroleum products, and non-metallic minerals—are also among the most carbon-intensive, posing a material risk to the country’s long-term decarbonisation objectives.

4. Comparative Assessment of National CCS Readiness

4.1. Assessment Overview

The comparative evaluation of CCS readiness across Poland, Romania, Latvia, and Bulgaria provides an initial basis for assessing the enabling conditions for CCS deployment within the region. The results indicate that while all four Member States recognise the strategic relevance of CCS for achieving long-term climate objectives, their levels of preparedness vary considerably across the assessed dimensions. Overall, the findings suggest a landscape characterised by early-stage development, with several foundational elements either only partially in place or still requiring substantial strengthening as visualized in Annex 1. However, capacity gaps do not occur in isolation but tend to reinforce one another, shaping both constraints and opportunities for CCS capacity building.

Across the political landscape, Romania, and Latvia demonstrate an emerging acknowledgement of the role of CCS in national climate planning by including CCS as an option for emissions reduction in their NECPs and LTS. However, Poland and Bulgaria keep their strategical engagement limited. Poland's political commitment remains at a preparatory stage and is not yet reflected in comprehensive national strategies or long-term implementation plans. Bulgaria shows limited political engagement with CCS to date, underscoring the need for enhanced strategic positioning. These patterns indicate that political signals supporting CCS remain insufficiently articulated across the region, with implications for investor certainty and long-term planning.

The legislative framework dimension reveals similarly uneven progress. Romania, and Latvia have adopted national legislation in line with EU requirements. While regulatory gaps persist, these countries are creating a legislative landscape targeting CCS deployment. Poland also adopted relevant EU legislation, yet transposition and implementation remain incomplete. Bulgaria has not yet undertaken substantive regulatory development in this area. This results in regulatory environments that are either only partially functional or, in some cases, absent, with practical consequences for permitting, project development, and cross-border cooperation.

In terms of market conditions and financial support, all four countries remain at an early stage of CCS market formation. CCS development in these countries relies on EU level

funding, as none have established dedicated national funding instruments for CCS deployment. At current EU ETS prices this leads to weak business cases for CCS across all four countries.

The dimension of public participation also presents consistent challenges across all countries. Public understanding of CCS is generally low, and dedicated outreach or engagement activities remain limited or absent. While Poland exhibits comparatively more public understanding of CCS, all four countries would benefit from structured public engagement strategies to enhance societal acceptance and reduce perceived risks associated with CCS technologies.

Assessments under role clarity illustrate significant divergence. Poland demonstrates comparatively clear institutional responsibilities, providing a more coherent basis for policy coordination. Romania presents a partially defined institutional landscape, while Latvia and Bulgaria face substantive gaps due to unclear mandates and fragmented stakeholder interactions. These institutional uncertainties constitute a barrier to effective governance and coordinated implementation.

Regarding financial, human, and knowledge resources, all countries face constraints, albeit to varying degrees. Poland exhibits comparatively strong knowledge-based capacity. Romania and Latvia demonstrate intermediate readiness across these indicators. Human-resource limitations are especially evident across Latvia and Bulgaria and may impede the scale-up of CCS activities.

The technical resources dimension shows the widest variability. Poland and Latvia demonstrate emerging strengths in technology availability and preparatory steps toward storage readiness. Romania shows moderate readiness, particularly concerning geological potential. Together, these resource constraints form a central element of the region's CCS readiness profile and a leverage point for capacity building.

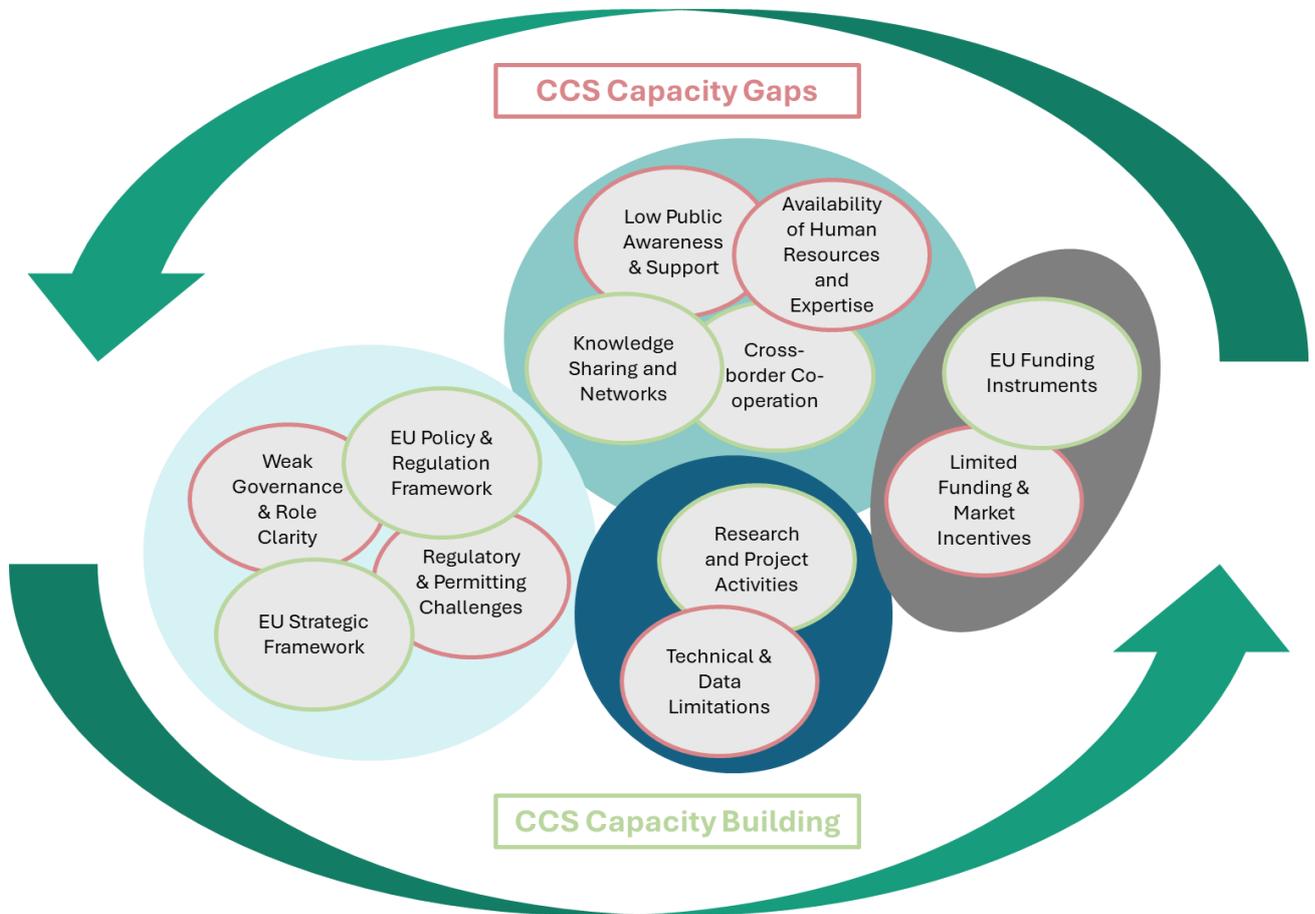


Figure 4: Connection of CCS Capacity Gaps and Capacity Building Opportunities.

4.2. Cross-Cutting Capacity Gaps

The comparative assessment reveals that several capacity gaps are shared across Poland, Romania, Latvia, and Bulgaria, cutting across individual policy domains and national contexts (Figure 5). These gaps do not arise from a single missing element, but from the interaction of governance arrangements, regulatory maturity, resource availability, and coordination along the CCS value chain.

Rather than reflecting country-specific shortcomings alone, these cross-cutting gaps point to structural challenges common to early-stage CCS development in the region. They affect the ability to translate political recognition of CCS into coherent strategies, operational permitting systems, and investable project pathways.

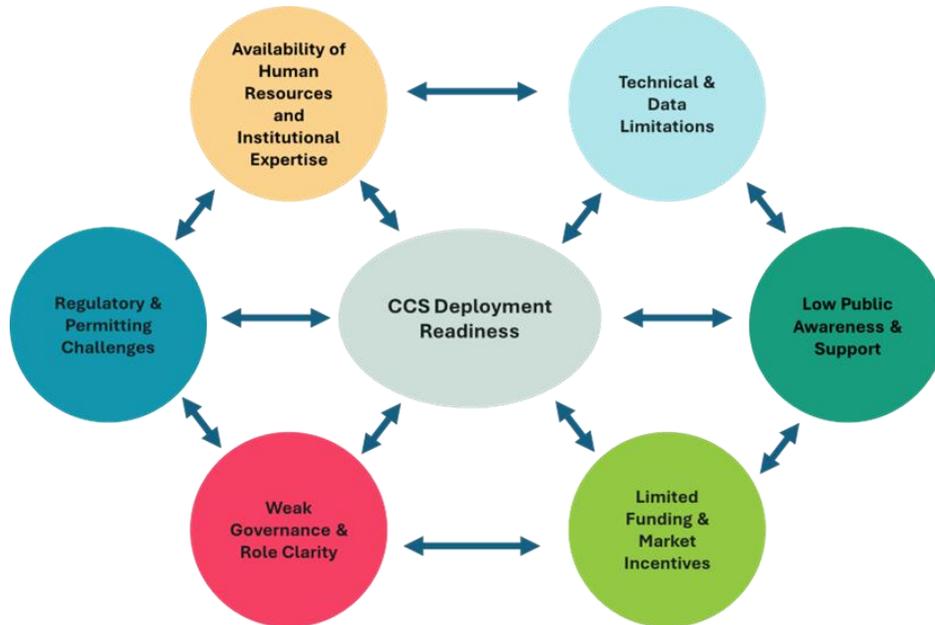


Figure 5: Regional Cross-Cutting Capacity Gaps in CCS.

4.2.1. Governance

While CCS has gained political attention, the governance arrangements required (Figure 6) to support deployment are still maturing. Responsibilities for policy strategy are divided across multiple institutions, cross-institutional roles are not yet fully aligned, permitting processes have not been operationalised, long-term stewardship rules are only partially in place and coordination across the capture-transport-storage value chain still requires strengthening.

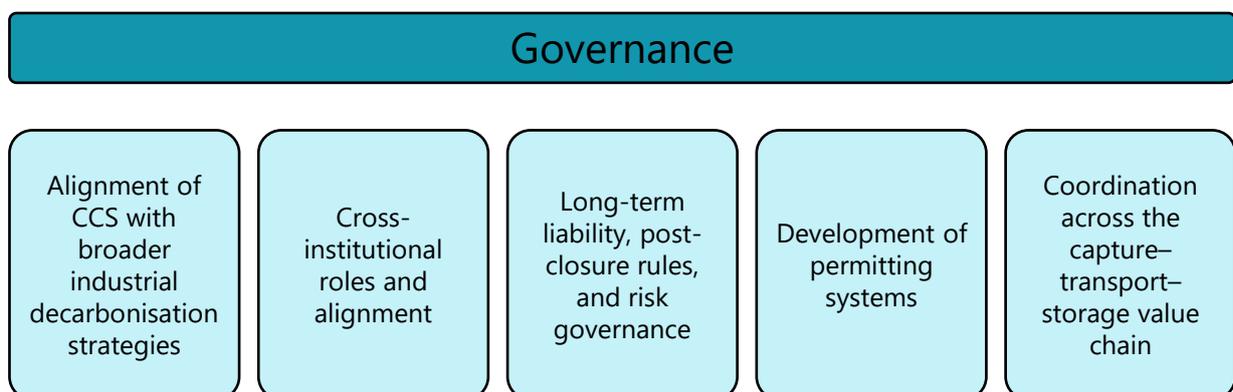


Figure 6: Schematic Overview of Governance Aspects for CCS.

4.2.1.1. Alignment of CCS with Broader Industrial Decarbonisation Strategies

Although CCS-related legislation, geological assessment and early project concepts are advancing in all four countries, these developments are not yet closely connected to broader industrial decarbonization and climate strategies. National strategies typically acknowledge the role of CCS in general terms, but concrete pathways, sectoral priorities and implementation mechanisms are still largely absent. For instance, Poland's NECP update references CCS as a future possibility but does not specify expected capture volumes or storage needs, and Romania's strategic documents mention CCS without outlining how it fits into sector-specific transition pathways.

A key factor behind this gap is that industrial policy, climate strategies and CCS planning are often led by different ministries or agencies, and these processes seldom intersect. In practice, future emissions trajectories from energy-intensive industries are not yet linked to assessments of storage capacity or to the emerging discussions on CO₂ transport regulation. Latvia's ongoing preparation of CCS legislation, for instance, has developed separately from industrial transition planning, while Bulgaria's early-stage work on CCS has not yet been integrated into its national industrial or climate strategies. As a result, projections of capture demand and the likely requirements for transport and storage infrastructure remain disconnected from national strategic planning.

Another consequence of this limited integration is that updates to NECPs, long-term climate strategies and sectoral transition plans do not yet provide detailed guidance on how CCS fits into national mitigation portfolios. The absence of coordinated modelling or scenario analysis means that countries have not identified how CCS interacts with alternative mitigation measures, such as electrification, energy efficiency, hydrogen use or circular business models, or where CCS is most critical.

Overall, the strategic role of CCS remains under-specified within national decarbonisation pathways.

4.2.1.2. Cross-Institutional Roles and Alignment

Across the four countries, the institutional landscape for CCS is shaped by a combination of ministries, regulators, and technical agencies with responsibilities at different points of the value chain. While several recent legislative steps have clarified

certain mandates, particularly for geological storage and, in some cases, CO₂ transport, arrangements for overall coordination, strategic direction and the integration of responsibilities are still taking shape. This results in governance frameworks that are functional in parts but still developing in terms of coherence and long-term planning capacity.

Legislative reforms have provided greater clarity in some areas. For example, Romania has designated the National Regulatory Authority for Mining, Petroleum and Geological Storage of Carbon Dioxide (ANRMPSG) as storage regulator and assigned emerging responsibilities for CO₂ transport to the National Regulatory Authority for Energy (ANRE), its national energy regulator. Moreover, Poland has defined roles for geological assessment and key permitting functions. In Latvia, ongoing legislative work is expected to further specify responsibilities for future storage oversight, while in Bulgaria, the Ministry of Environment and Water and the Ministry of Energy are the responsible bodies for CCS and CSS infrastructure planning. These steps indicate progress in establishing the basic institutional building blocks necessary for CCS governance.

At the same time, the broader coordination structures connecting these roles are still evolving. Responsibilities for different parts of the value chain such as storage regulation, environmental oversight, infrastructure planning, industrial policy and funding de-sign, are distributed across multiple institutions in each country. This distribution reflects national administrative systems but can also lead to areas where mandates intersect or responsibilities are not yet fully aligned with emerging requirements. In several cases, cross-ministerial coordination mechanisms exist, such as interministerial committees in Romania or working groups in Poland. However, their mandates, re-sources and strategic functions are not sufficient to the task.

These evolving arrangements mean that institutions are still in the process of defining how they will cooperate on issues that span multiple portfolios, such as long-term infrastructure planning, integration with industrial decarbonisation strategies, and future responsibilities for monitoring and oversight.

4.2.1.3. Development Status of Permitting Systems

Across all four countries, permitting systems relevant for CCS are advancing but remain in early stages of operationalisation. Legislative updates have established core mandates for geological storage and, in some cases, CO₂ transport, yet practical

procedures and secondary regulations are still being developed. As a result, no country has yet processed a complete CCS permitting sequence, and several steps in the administrative chain remain untested.

Romania and Poland are the furthest along in defining the legal basis for storage permitting. Romania has updated its framework to mandate the ANRMPSG as the storage authority and to assign emerging transport regulation to the National Energy Regulatory Authority, while environmental permitting continues under existing structures. Poland's revisions to the Geological and Mining Law similarly clarified storage provisions and assigned a central role to the Polish Geological Institute, while consolidating multiple concession requirements into a single geological works plan. Both countries therefore have a clearer legal foundation but still lack the supporting regulations and practical experience needed to operationalise procedures end-to-end.

Latvia and Bulgaria remain at an earlier stage. In Latvia, environmental permitting by the State Environmental Service and geological assessments by the Latvian Environment, Geology and Meteorology Centre provide elements of a future framework, but CCS-specific procedures such as storage licensing, transport permitting and integration into the energy system, await forthcoming Cabinet regulations. In Bulgaria, the Ministry of Environment and Water and Ministry of Energy hold core responsibilities relevant to future CCS projects, but a dedicated legislative framework has not yet been established, and institutional roles for CO₂ storage are still to be assigned.

Taken together, these developments indicate that permitting systems across the region are advancing but remain in the process of being completed and tested. As legislative updates continue and first-mover projects progress, the operational requirements for capture, transport and storage permitting are expected to become more clearly defined.

4.2.1.4. Long-Term Liability, Post-Closure Rules, and Risk Governance

The arrangements governing long-term liability and post-closure responsibilities for CO₂ storage are still taking shape across all four countries. While legislative efforts in recent years have laid the groundwork for geological storage, the frameworks that determine who holds responsibility once a site stops operating, how long monitoring must continue, what financial guarantees are required, and when liability may transfer

to the state, remain incomplete. This creates uncertainty for future storage operators and limits the predictability of long-term risk allocation.

Poland and Romania provide the clearest initial structures, each outlining the broad principles of post-closure stewardship within their respective storage legislation. However, both are still developing the detailed implementing rules that would make these provisions operational. Issues such as the evidentiary thresholds for demonstrating site stability, the duration of post-closure monitoring, and the form and size of financial security instruments have not yet been fully codified. Without these elements, long-term governance remains more conceptual than actionable.

In Latvia and Bulgaria, the challenge lies earlier in the process. Neither country has yet introduced CCS-specific rules on post-closure or long-term liability, and these aspects will need to be created as part of forthcoming legislative packages. As a result, the institutional responsibilities for long-term monitoring, the mechanisms for transferring liability, and the procedures for managing residual risks have not yet been defined.

Long-term liability is a shared gap across the region. Even where basic legal principles exist, the detailed regulations required to provide clarity for developers and regulators are still evolving.

4.2.1.5. Coordination Across the Capture–Transport–Storage Value Chain

Efforts to develop the different components of the CCS value chain are progressing in each country, but they are not yet connected through coordinated planning or decision-making. Institutions responsible for geological assessment, pipeline regulation, industrial emissions and environmental oversight operate largely within their sectoral mandates, and structured mechanisms to align these workstreams are still limited.

In practice, this means that potential capture projects are not yet systematically linked to transport options or to emerging storage pathways. Storage-related legislation in Poland and Romania has advanced more quickly than e.g. the processes for planning CO₂ transport, leaving important interfaces undefined. Latvia and Bulgaria, meanwhile, are still establishing the legal and institutional foundations for CCS, and coordination with industrial or energy-sector planning has not yet formed part of this work.

The absence of an integrated approach results in several practical gaps: timelines for developing storage capacity are not aligned with industrial project cycles; responsibilities for planning CO₂ transport infrastructure remain dispersed; and there

has not yet been mapped how capture volumes could match transport routes or storage availability. Without a coordinated process for linking these elements, early projects face uncertainty about how they will progress from capture to transport and ultimately to storage.

Overall, the value chain is being assembled in parts, but the connective governance that would allow these components to operate as a coherent system has not yet been established. Developing joint planning frameworks, shared infrastructure assessments and coordinated permitting sequences will be essential for turning emerging CCS concepts into workable deployment pathways.

4.2.2. Resource Availability

Despite legislative progress and increasing stakeholder engagement, the capacity to plan, regulate and implement CCS remains limited across the region. Gaps in relevant resources (Figure 7: Schematic Overview of Resource Types Relevant for CCS) such as funding, specialised expertise and technical data continue to shape what countries can realistically advance in the near term.

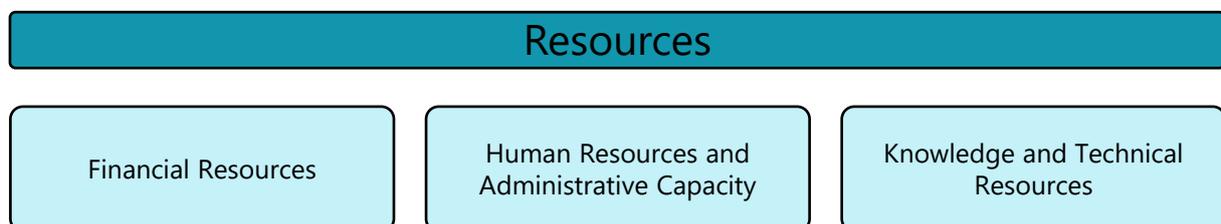


Figure 7: Schematic Overview of Resource Types Relevant for CCS.

4.2.2.1. Financial Resources

The financing environment for CCS remains underdeveloped across all four countries, and this significantly constrains the ability of both public authorities and industry to advance early projects. No country has yet established a dedicated national funding instrument for CCS, and existing domestic support schemes tend to focus on broader innovation, R&D or industrial modernisation, e.g. support schemes of the National Centre for Research and Development in Poland (NCBiR), rather than on de-risking large-scale capture, transport or storage deployment. As a result, project developers rely heavily on EU-level mechanisms such as the Innovation Fund, the Connecting Europe Facility or the Modernisation Fund, while national co-financing remains limited.

Weak carbon price signals further constrain the financial viability of early CCS projects. Although the EU ETS sets a rising cost for industrial emissions, current price levels and uncertainty over long-term trajectories do not yet provide the economic basis for robust business models in any of the four countries. Without complementary support mechanisms, long-term price guarantees or dedicated transport and storage cost frameworks, industries face difficulty turning ETS obligations into investment-grade CCS business cases.

These funding gaps affect industries that are otherwise positioned for early action. In Romania, for example, operators in the cement and lime sector are exploring CCS options, yet the absence of national incentives means that project development depends almost entirely on external funding opportunities. In Latvia, interest from the cement and power sectors is similarly constrained by the lack of domestic support and, as in other countries, an uncertain business case for CCS. In Bulgaria the economic feasibility of CCS remains weak due to comparatively low incentives for industrial decarbonisation and lack of national funding capacity. In each context, activities such as scoping studies, site assessments and pre-FEED work proceed slowly because costs must be borne by individual companies without predictable national support.

These financial constraints also affect the availability of expertise and data. Limited national funding reduces the capacity of public institutions to commission geological studies or invest in specialist training, which in turn slows progress in building the technical and human resources needed for early project development.

4.2.2.2. Human Resources and Administrative Capacity

Human resource availability for CCS-related carbon management remains limited across the four countries, though several emerging strengths are visible. In Romania, universities and research institutes contribute to a relatively strong knowledge base through projects such as CO₂-HyBrid and RamonCO, yet national assessments note that skilled personnel remain insufficient for large-scale deployment. Poland also benefits from active research institutions, including the Central Mining Institute, the Institute for Fuels and Energy Technology, and AGH University, which provide technical expertise and operate pilot capture installations, but the overall pool of specialised CCS professionals is still small. In Latvia, expertise is concentrated among a few industry actors and academic institutions, with ministries and local authorities identified as needing targeted capacity-building. Bulgaria shows more limited institutional experience with CCS; while the ANRAV project is expected to strengthen

technical understanding, broader human capacity in public institutions remains at an early stage.

Overall, expertise exists but is unevenly distributed and not yet sufficient to support the full regulatory and technical requirements of CCS deployment.

4.2.2.3. Knowledge and Technical Resources

Knowledge resources and technical data relevant to CCS are still being assembled, particularly in relation to geological storage. Although national geological institutes maintain baseline datasets, these are not yet sufficient for detailed CCS planning. In several cases, existing geological information derives from older hydrocarbon or mineral investigations and must be updated to meet the requirements of modern storage assessment. At the same time, past oil and gas exploration and production activities provide an important, albeit uneven, foundation of subsurface knowledge and technical experience that could be relevant for future CO₂ storage development. For example, Romania and Bulgaria draw on legacy data from hydrocarbon extraction yet both highlight the need for additional geological studies to characterise storage formations more precisely under CCS-specific criteria, while Latvia notes that no dedicated storage-specific investigations have yet been carried out.

Data linking major industrial emitters to potential storage sites is also incomplete. Poland's Polish Geological Institute, building partly on experience from hydrocarbon exploration, has begun consolidating information on subsurface conditions and prospective storage complexes. However, further characterisation is still underway, and integrated datasets combining geological information with capture sources and transport considerations are not yet compiled. Similar gaps are noted in Romania, where national assessments point to the absence of comprehensive mapping that connects industrial CO₂ sources with feasible storage options. Latvia and Bulgaria identify the same challenge, with both countries indicating that substantial analytical work will be needed to evaluate storage potential before value-chain planning can proceed.

Across these contexts, relevant information often remains dispersed across institutions or at varying levels of maturity. National reports emphasise the need for coordinated data platforms, updated geological assessments and more systematic integration of technical information. These data gaps affect both institutional capacity and investment decisions, since incomplete geological information increases uncertainty for early

project developers and places additional analytical demands on ministries and geological institutes. As a result, technical, human, and financial constraints tend to reinforce one another, shaping the pace at which countries can progress from preliminary assessments to project development.

4.2.3. Public Awareness and Acceptance

Public awareness and understanding of CCS remain limited across the four countries, and the available evidence indicates that CCS is not yet a familiar topic for the wider public. The national assessments consistently note that knowledge of CCS is largely confined to expert communities, industrial actors and some local stakeholders linked to early project concepts. Broader societal familiarity with capture, transport or storage technologies is still very low. In Poland for example, societal awareness of CCS is surveyed to be approximately 30% in 2024.

As a result of low awareness, public attitudes towards CCS are not yet well formed. In most countries, limited awareness means that opinions tend to be general rather than technology-specific. In contrast, in Poland a notable divergence between the acceptance of carbon capture generally and underground storage of captured carbon emerges, with the latter accompanied by a stronger opposition. In Romania, the limited public knowledge and general public curiosity result in a formative stage of public perception. In both countries, trust in government and industry actors by the public is limited, when it comes to this topic.

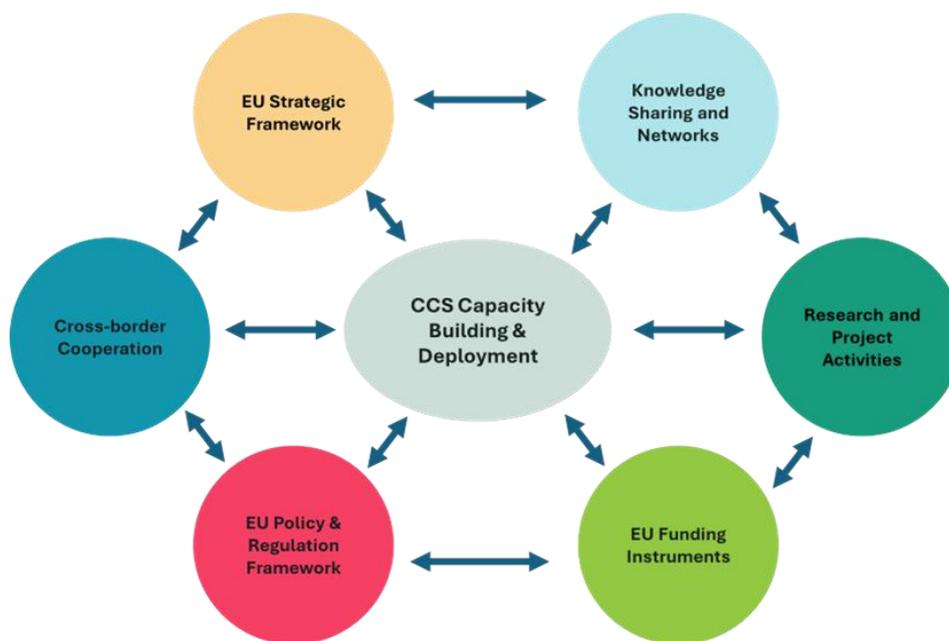
As knowledge on public awareness and public acceptance in Poland, Romania, Bulgaria and Latvia is still limited, a separate, more detailed public-perception study is conducted within the GreenHorizon project. This study will assess awareness, attitudes and concerns in a more systematic manner. The results of that study will provide a clearer basis for understanding public acceptance dynamics and for identifying tailored engagement needs in each country.

4.3. Enablers for Capacity Creation

In parallel to the shared capacity gaps identified across the region, the assessment also highlights a set of enabling factors that can support the gradual development of carbon management and CCS capacity in Poland, Romania, Latvia, and Bulgaria. These enablers do not yet compensate for the structural gaps outlined above, but they provide important entry points for capacity building and early deployment. Many of

these enabling conditions originate beyond the national level and operate across countries, sectors and institutions.

EU policy frameworks, funding instruments, research activities and cross-border cooperation play a particularly important role in shaping the enabling environment at this early stage of CCS development. Together, they help reduce initial risks, strengthen technical knowledge and sustain momentum where domestic frameworks and markets remain underdeveloped.



4.3.1. EU Funding and Policy

EU-level policy frameworks and financial instruments provide a central enabling environment for CCS development across all four countries. While national funding mechanisms for commercial CCS deployment in Poland, Romania, Latvia and Bulgaria still need to be developed, EU programmes offer valuable financing and structures across the CCS project chain.

The Innovation Fund is the most relevant source of dedicated support for capture projects, with projects in several countries already benefiting from its opportunities. Bulgaria's ANRAV project or Poland's GO4ECOPLANET project are clear examples, providing a basis for early operational learning on CO₂ handling and value-chain integration. Romania and Latvia also identify the Innovation Fund as a key route for financing industrial decarbonisation projects, particularly in hard-to-abate sectors such as cement and lime. Horizon Europe additionally supports collaborative research activities, allowing universities and technical institutes across the region to connect

with European networks and strengthen their contribution to CCS knowledge development.

Infrastructure-related EU mechanisms also play an enabling role. The Connecting Europe Facility (CEF) supports the development of cross-border CO₂ transport concepts and can fund studies or preparatory work for future infrastructure corridors. The inclusion of CO₂ networks in Projects of Common Interest (PCI) frameworks such as ECO2CEE in Poland, further strengthens the strategic relevance of CCS transport connections in the region.

EU-level industrial policy also provides an important foundation. The NZIA identifies CCS as a strategic technology, helping establish long-term policy direction and signalling to industries that CCS will form part of Europe's decarbonisation pathway. The Act's requirement for oil and gas producers to make CO₂-injection capacity available has the potential to create additional momentum for developing storage infrastructure. In the region, this obligation is particularly relevant for companies with oil and gas production activities in Romania and Poland, where it has the potential to help accelerate the creation of initial storage capacity and strengthen the overall investment case for CCS.

In several countries, including Romania and Bulgaria, the Just Transition Mechanism also offers additional opportunities to support industrial regions undergoing structural change, complementing existing funding streams.

Table 1: CCS Projects Supported by EU Funding Instruments (European Commission, 2026; European Commission, 2024; European Commission, 2026).

Project	Country	Project Type	Funding Scheme
ANRAV-CCUS	Bulgaria	Capture	EU Innovation Fund
ECO2CEE	Poland	Transport	CEF
Go4ECOPLANET	Poland	Capture	EU Innovation Fund
Górażdże CCS Pilot Plant	Poland	Capture	Horizon2020
CCS Baltic Consortium	Latvia	Transport	CEF
CARBON HUB CPT01	Romania	Full Chain (Capture, Transport, Storage)	EU Innovation Fund
HuCCSar	Poland	Transport, Storage	EU Innovation Fund

4.3.2. Research and Project activities

Throughout the region, a combination of industrial initiatives, research activity and early pilot or demonstration efforts is contributing to the gradual development of

technical knowledge for CCS (Figure 8). Many of these activities are closely connected to EU funding instruments (Table 1).

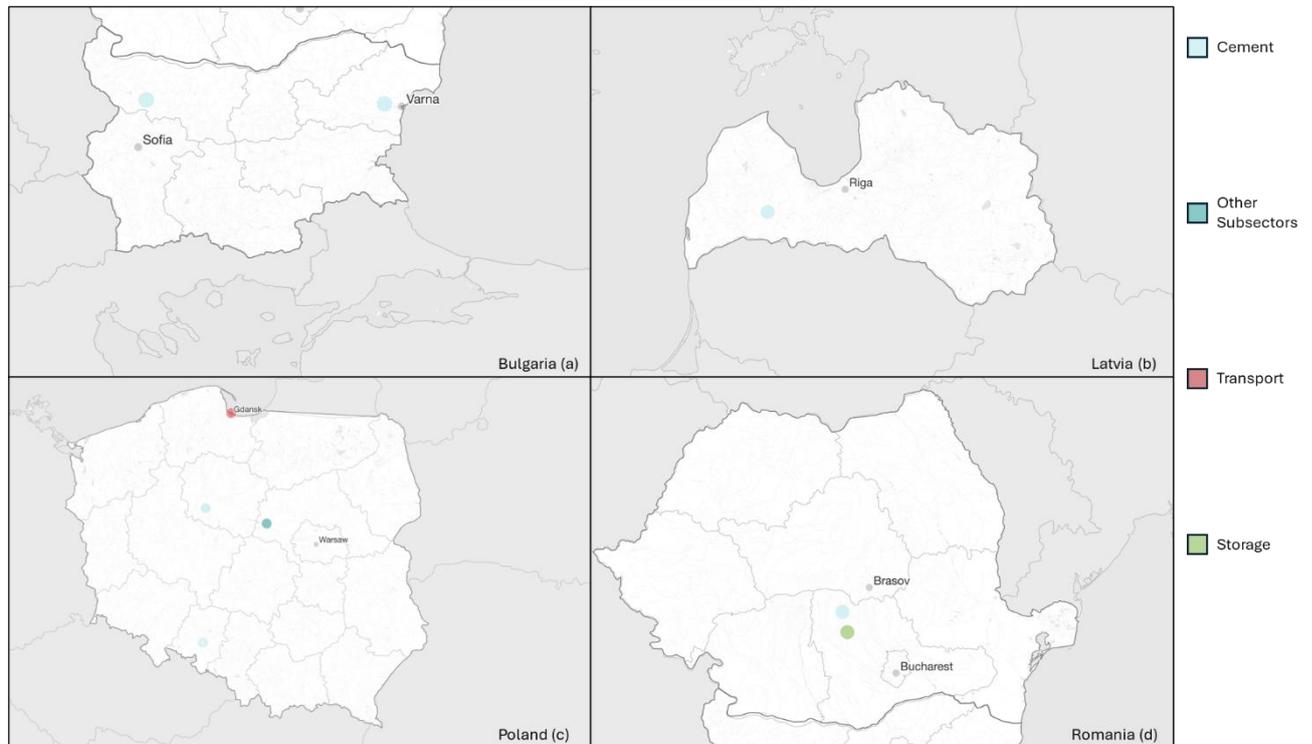


Figure 8: Current CCS Project Activities in Bulgaria (a), Latvia (b), Poland (c) and Romania (d).

Industrial actors, partially driven by EU and national policy implementation, provide an important source of momentum. In Poland, companies in hard-to-abate sectors, including cement and lime producers, are advancing feasibility work and participating in the ECO2CEE Project of Common Interest, which benefits from EU support through the Connecting Europe Facility. As an important milestone, the first full scale capture project in Kujawy cement plant is under way, expected to be fully operational by 2030. Engagement from energy and fuels companies, such as ORLEN, further supports early assessment of capture and transport options. In Romania, industrial interest is reinforced by applied research projects including CO₂-HyBrid and RamonCO, which contribute to monitoring, capture optimisation and storage-related methodologies. In Latvia, Schwenk Latvia's CO₂ capture test project provides operational insights for the cement sector, helping inform future feasibility considerations.

Research institutions form another important pillar of this technical momentum. In Poland, organisations such as the Central Mining Institute, the Institute for Fuels and Energy Technology and AGH University contribute expertise in capture processes, system integration and storage-related training, much of it developed through involvement in EU-supported research projects and networks. Romania's research base, including GeoEcoMar and the Geological Institute of Romania, similarly engages in European research cooperation that support monitoring and geological assessment. Academic and analytical capacity in Latvia, which is led by Riga Technical University's

Institute of Energy Systems and Environment, and in Bulgaria, through the Bulgarian Academy of Sciences and the University of Mining and Geology, also connects into European research activities, strengthening national capabilities despite the early stage of CCS development.

Pilot, demonstration and applied research projects further reinforce this technical foundation. In Bulgaria, the ANRAV project, co-funded by the EU Innovation Fund, is expected to provide valuable operational learning on CO₂ handling and preparation for future transport and storage-related activities once operational.

4.3.3. Cross-Border Cooperation

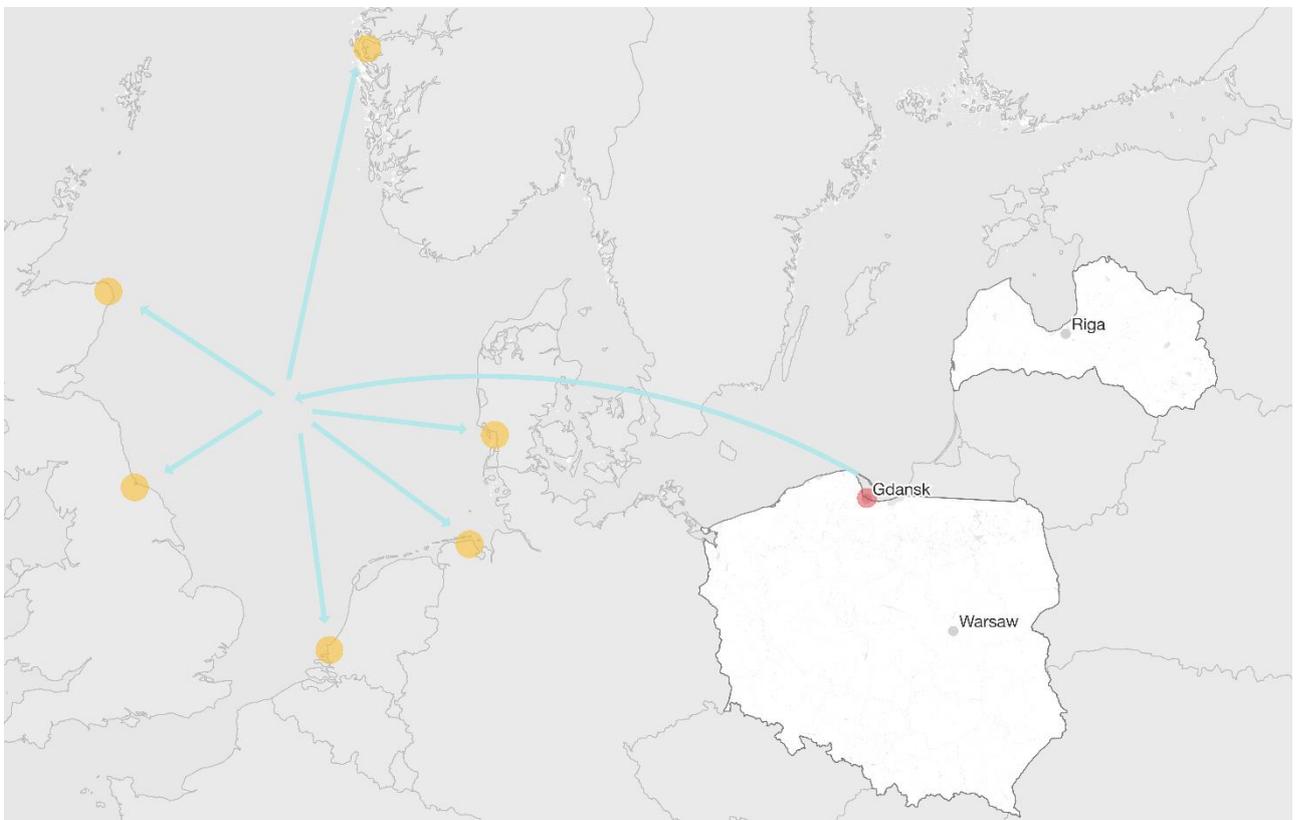


Figure 9: Potential Cross-border CO₂ Storage Cooperation Pathways Between Poland and the North Sea Basin.

Cross-border cooperation, as shown in Figure 9, represents an important enabling factor for future CCS deployment in the region. As all four countries are at early stages of domestic storage planning, regional and European networks create a practical pathway for early development. The country assessments indicate that cross-border CO₂ transport options and regional storage cooperation are likely to become essential

elements of project design, particularly for emitters without suitable domestic storage or where geological characterisation is still underway.

Poland and Latvia illustrate this dynamic most clearly. Both countries expect that the first generation of CCS projects may require access to storage in the North Sea, and early planning is already linked to European transport corridors supported through EU mechanisms. Poland's involvement in the ECO2CEE, which explores CO₂ transport from the Baltic to the Danish North Sea, demonstrates how cross-border infrastructure planning can support long-term transport solutions, while Latvia recognises that regional transport connections can be valuable for any future CCS value chain. In Romania and Bulgaria, cooperation possibilities relate both to Black Sea geological formations, where further assessment is planned, and to potential regional transport links with neighbouring countries. These opportunities are reinforced by the fact that some industrial emitters in Romania and Bulgaria are located near borders, making cross-boundary transport solutions relevant for future planning.

EU-level frameworks further strengthen these cross-border prospects. Instruments such as the CEF and the PCI framework provide a structured basis for developing multi-country transport infrastructure, feasibility studies and preparatory work. The reports indicate that such mechanisms help maintain momentum even where national CCS frameworks are still being established, by signalling long-term opportunities for integration into wider European CO₂ networks. However, significant technical and regulatory work remains.

5. Analytical deep dive

5.1. Legislative and regulatory framework along the CCS Value Chain

A functioning CCS system requires a coherent regulatory framework across the entire capture–transport–storage value chain. While all four countries have taken steps to establish the legal foundations for CCS, the degree of readiness varies for different segments of the value chain and remains incomplete in areas that are essential for moving from early assessments to full chain and storage project development.

A complete CCS regulatory framework covers several core functions (Figure 10). These functions are interdependent and must be coherent:

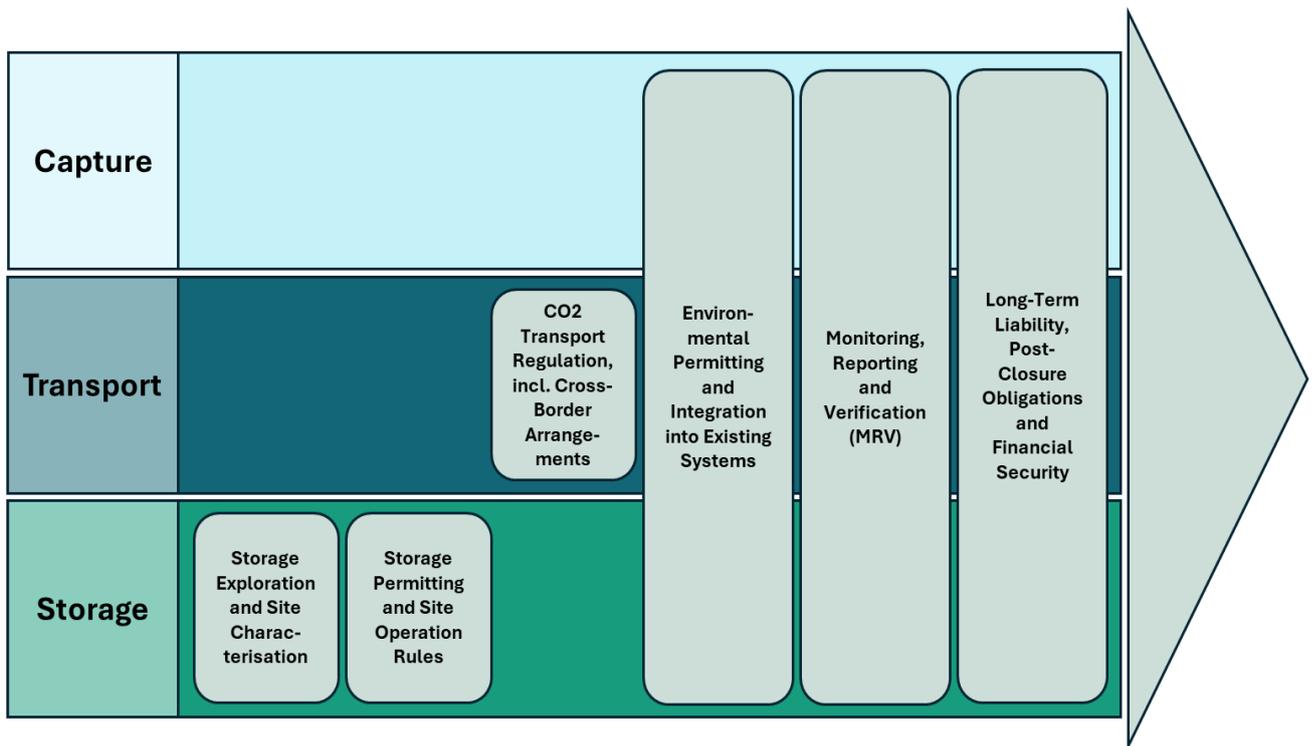


Figure 10: Schematic Overview of Core Regulatory Functions for CCS.

While general industrial regulation covers capture, the remaining elements and particularly carbon storage, require dedicated rules that reflect the specificities of CCS. The country assessments show that each country has begun to address these

functions, but the level of operational detail varies significantly, and many components remain under development.

5.1.1. Storage Exploration and Site Characterisation

All four countries recognise the need for dedicated rules governing geological exploration for CO₂ storage. Poland represents the most advanced stage, with the 2023 amendments to the Geological and Mining Law (GML). The GML is Poland's central CCS regulation, transposing the EU CCS Directive provisions into Polish Law. It introduces clear legal definition of underground storage and storage-specific provisions, including exclusivity for entities that identify and assess a potential storage complex. Additionally, the Regulation of the Minister of the Environment on Underground CO₂ Storage Areas (2014) specifies the location of potential CO₂ Storage complexes in Poland. This regulation is set to be replaced in 2026 to allow for onshore storage, as the current version only allows offshore CO₂ storage.

Romania established Emergency Ordinance (EO) No. 64/2011 formalized by Law 114/2013 as CCS regulation. The regulation establishes a legal basis for CCS in Romania by defining exploration, storage licensing, operator obligations, and overlap rules with hydrocarbon operation. It also transposes the EU CCS Directive into national law. Moreover, Romania has clarified the mandate of the ANRMPSG for issuing exploration and storage-related permits through Government Emergency Ordinance (EO) 139/2024.

Bulgaria has not yet implemented a national law transposing the EU CCS Directive but is preparing a dedicated CCS legislative package. Latvia has adopted an amendment to the Law on Subterranean Depth in 2025 which establishes the legal basis for CO₂ storage, including exploration activities. It also transposes the EU CCS Directive into Latvian national law. However, exploration procedures require additional regulations.

Despite these developments, storage characterisation frameworks remain incomplete. None of the countries has yet conducted full site characterisation under the new rules, and implementing guidance for geological investigations is still at an early stage.

5.1.2. Storage Permitting and Operational Rules

Storage permitting provisions exist in legislation in Poland and Romania, although neither country has yet tested a full permitting sequence. Poland's consolidated

geological works plan, as part of the GML, streamlines the process previously requiring several concessions, but secondary regulations will be needed to clarify procedural steps. In Romania, the ANRMPSG is designated as the competent authority, and further implementing rules are expected to support detailed permitting procedures.

Bulgaria has not yet established storage permitting processes. The country is working to create the legal basis for such permitting, but the absence of storage-specific regulations means that no operator currently has a pathway to apply for a storage license. In Latvia, the Law on Subterranean Depth (2025) provides a core legal framework for storage permit applications, operator obligations and storage site operation. However, the actual permitting process still needs to be defined.

5.1.3. CO₂ Transport and Cross-Border Regulation

Transport regulation is a critical element for all four countries, particularly those expecting to depend on cross-border transport to reach storage locations. Regulatory frameworks for CO₂ pipelines and cross-border CO₂ flows are still developing. Romania has initiated work to assign responsibilities for transport regulation to the national energy regulator (ANRE) with the EO 139/2024 which also introduces legal definitions for CO₂ transport infrastructure, and Poland is preparing amendments to energy legislation to define CO₂ transport rules. Bulgaria currently lacks dedicated CO₂ transport regulation. In Latvia, Cabinet Regulation No. 780 (2011) covers technical requirements for CO₂ transport as well as access to CO₂ transport infrastructure.

No country has yet established procedures for cross-border CO₂ transport, whether by pipeline or ship. This gap is particularly relevant for Poland and Latvia, where early CCS deployment scenarios assume access to North Sea storage, and for Romania and Bulgaria in relation to future Black Sea storage options.

5.1.4. Environmental Permitting and Integration into Existing Procedures

Environmental permitting frameworks are well established in all countries, but integration of CCS-specific requirements is still ongoing. Latvia has included CCS in the amendment to the law on pollution in 2025, but environmental permitting is still not tailored to CCS projects. In other countries, competent environmental authorities, such as the National Agency for Environment and Protected Areas in Romania and the environmental inspectorates in Poland, are adjusting their procedures to accommodate CCS, but secondary rules and guidance documents are still largely absent. As a result,

CCS projects would currently have to navigate general environmental permitting without dedicated CCS criteria, which may create uncertainty for early developers.

5.1.5. Monitoring, Reporting and Verification (MRV)

High-level MRV requirements follow EU rules across the region, but detailed monitoring provisions and reporting systems tailored to geological storage are still under development. None of the countries has yet defined specific monitoring methodologies or post-injection protocols beyond the general requirements of the CCS Directive (European Commission, 2009). Detailed MRV frameworks are expected to emerge only once storage legislation is fully operational, and first-mover-projects begin the permitting process.

5.1.6. Long-Term Liability and Post-Closure Obligations

Long-term liability frameworks remain one of the least developed components. Although EU-aligned high-level principles exist, detailed rules governing liability transfer, financial security, post-closure monitoring and stewardship responsibilities after site closure are still incomplete in all four countries. Poland and Romania have partially defined these principles in legislation but still require implementing rules. This is also the case for Latvia. Bulgaria has not yet defined the legal basis for long-term liability, as storage legislation remains under preparation.

5.1.7. Status Overview of Key Regulatory Components

Taken together, the analysis illustrates that the four countries are progressing toward the establishment of CCS regulatory frameworks, but at different levels of functional maturity across the value chain. While the legal foundations for storage and the alignment with EU requirements are developing, operational provisions, particularly those related to transport, cross-border arrangements, liability and detailed permitting procedures, remain in earlier stages of definition.

Table 2: Status Overview of Key Regulatory Components.

Country	Poland	Romania	Bulgaria	Latvia
Storage Exploration and Site Characterisation	Amendment to Geological and Mining Law (2023), Regulation of the Minister of the Environment on Underground CO ₂ Storage Areas (2014), planned Amendment of storage regulation in 2026	Emergency Ordinance 64/2011, Law 114/2013 and Emergency Ordinance (EO) 139/2024	No defined framework currently	Amendment to Law on Subterranean Depth (2025)
Storage Permitting and Operational Rules	Amendment to Geological and Mining Law (2023)	Emergency Ordinance 64/2011, Law 114/2013 and Emergency Ordinance (EO) 139/2024	No defined framework currently	Amendment to Law on Subterranean Depth (2025)
CO₂ Transport and Cross-Border Regulation	Planned legislative framework through the amendment of the Energy law, not yet adopted	Emergency Ordinance 64/2011, Law 114/2013 and Emergency Ordinance (EO) 139/2024	No defined framework currently	Cabinet Regulation No. 780 (2011)
Environmental Permitting and Integration into Existing Procedures	All Environmental Laws apply, no specific CCS related regulation	Compliance with existing environmental laws, Environmental Impact Assessment partially includes CCS	Compliance with existing environmental laws	Amendment to the Law on Pollution (2025), Compliance with existing environmental laws
Monitoring, Reporting and Verification (MRV)	No defined framework currently	No defined framework currently	No defined framework currently	No defined framework currently

<p>Long-Term Liability and Post-Closure Obligations</p>	<p>No specific regulation on liability and post-closure activities</p>	<p>Emergency Ordinance 64/2011, Law 114/2013 provide general liability provision but no closure and post-closure steps currently defined</p>	<p>No defined framework currently</p>	<p>Amendment to Law on Subterranean Depth (2025) covers broad legal definition, specific obligation are yet to be defined</p>
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The comparative overview in Table 2 summarises the status of key regulatory components in each country, highlighting where the main regulatory elements are in place, where implementing rules are still being prepared, and where substantial work remains to be completed. This provides a concise reference point for understanding the relative readiness of each national framework and the areas most likely to influence early project development.

5.2. Market and Financial Conditions

Across all four countries, the conditions for developing a functioning CCS market remain at an early stage. While sectoral interest has increased and several pilot or feasibility initiatives have emerged, including Poland’s small capture pilots operated by the Central Mining Institute and the Institute for Fuels and Energy Technology or Romania’s research-oriented CO₂-HyBrid and RamonCO projects, the economic environment for large-scale deployment is not yet in place. Market formation is constrained by the high cost of capture, transport and storage, limited visibility on future infrastructure availability, and continued reliance on EU-level financial instruments. Domestic funding sources remain scarce, and no national incentive schemes tailored specifically to CCS have been established. As a result, CCS activity is shaped primarily by exploratory initiatives rather than by investable market conditions.

5.2.1. Sectoral Demand and Early Market Signals

Across the region, the industrial sectors showing the most consistent interest in CCS are those with limited alternative decarbonisation options, primarily cement and lime, with some early engagement from chemicals and, to a smaller extent, energy-intensive manufacturing. In Poland, several industrial actors have initiated feasibility studies or

engaged in pilot-scale activities, reflecting both sectoral interest and initial technical preparedness. Romania shows similar patterns, with the cement and lime industry emerging as the most active potential first mover. Latvia's market signals are more modest, but the CO₂ capture pilot operated by Schwenk Latvia represents a concrete step toward practical experience in the cement sector. In Bulgaria, interest is largely theoretical at this stage, constrained by a weak economic case and the absence of a domestic legal and financial framework.

Despite these signs of emerging engagement, none of the four countries exhibits the characteristics of a functioning CCS market. The project pipelines remain limited to feasibility assessments, pilots or research initiatives, and no commercial-scale projects have reached investment stage. Sectoral demand exists but has not yet translated into predictable deployment pathways or bankable investment propositions.

5.2.2. Financing landscape: EU-level support and domestic gaps

EU-level instruments currently form the backbone of financial support for CCS-related activities in all four countries. The Innovation Fund plays a central role, with several research and demonstration projects in Poland and Romania benefitting from its support, and Bulgaria's ANRAV project representing the country's earliest applied CCS-related initiative. The Modernisation Fund and CEF have also been identified as potential funding channels

Poland: Early Research Pilots Supporting Technical Learning

Poland hosts the most developed set of early CCS-related activities in the region, driven largely by research institutions. The Central Mining Institute and the Institute for Fuels and Energy Technology operate small CO₂ capture pilot installations that test capture processes under industrially relevant conditions and contribute to the national knowledge base. These activities complement sectoral interest among cement, lime and chemical producers, many of whom have conducted feasibility assessments. While these initiatives remain pre-commercial, they provide valuable technical experience and support Poland's early-stage market development.

Romania: CO₂-HyBrid and RamonCO as Foundations for Applied CCS Research

Romania's progress in CCS is supported by research projects that enhance technical preparedness and strengthen industrial engagement. The CO₂-HyBrid project focuses on optimising hybrid capture technologies, while the RamonCO project advances monitoring and risk-management methodologies for geological storage. These initiatives, though not yet linked to commercial-scale development, provide important applied research capacities and help the cement and lime sector evaluate potential CCS pathways. Together, they form the backbone of Romania's early-stage project landscape.

for transport or industrial decarbonisation projects, although applications remain at early stages.

Domestically, funding options are far more limited. None of the four countries has established a CCS-specific national funding mechanism. Existing support remains confined to broader innovation, research or industrial modernisation programmes that may indirectly support CCS-related activities but do not provide dedicated resources or long-term revenue stabilisation. No country has introduced national contracts-for-difference, risk guarantees or similar instruments tailored to CCS deployment. As a result, early project development relies heavily on EU-level funding, which is competitive, time-limited and not designed to replace national policy instruments needed for long-term market creation.

5.2.3. Economic feasibility and Barriers to private investment

The economic conditions for CCS deployment remain challenging in all four countries, and this significantly affects private investment. High capital and operating costs for capture, transport and storage continue to outweigh potential revenues, and current ETS price levels, while relevant as a long-term signal, do not yet provide sufficient certainty for industrial operators to commit to large-scale investments. Volatility in allowance prices reinforces these concerns and makes long-term planning difficult.

Bulgaria: ANRAV Project as the Country's Entry Point into CCS Activity

Bulgaria currently has no domestic CO₂ storage assessments or capture pilots, but the ANRAV project, supported through the EU Innovation Fund, represents an important initial step toward CCS-related activity. The project is expected to generate practical insights into CO₂ handling and early transport considerations once operational. While Bulgaria still lacks an enabling legal framework and national support instruments, ANRAV provides the first tangible foundation for developing technical knowledge and connecting with future regional CO₂ transport and storage solutions.

Latvia: Schwenk Latvia's CO₂ Capture Pilot as a First Practical Demonstration

Latvia's most concrete CCS-related activity to date is the CO₂ capture pilot operated by Schwenk Latvia at its cement facility. The pilot installation provides practical experience with capture technologies in an industrial environment and supports feasibility analysis for future decarbonisation options. Although Latvia has not yet assessed domestic geological storage potential and remains dependent on future transport and storage solutions, the Schwenk pilot demonstrates early industrial initiative and contributes to building national technical capacity.

Uncertainty regarding the availability, timing and cost of CO₂ transport and storage infrastructure further limits the bankability of early projects. In Poland and Romania, storage potential exists but requires more comprehensive characterisation and operational permitting frameworks before investors can reliably assess project risks. In Latvia and Bulgaria, domestic storage potential has not yet been characterised, and no site-specific assessments or permitting frameworks are in place. This creates uncertainty about the availability and timing of storage solutions and increases dependence on future cross-border transport options. In all four countries, operators face unclear pathways for accessing transport capacity, pricing structures, and cross-border connections.

Regulatory gaps also contribute to heightened risk perceptions. Permitting systems are not yet operational, long-term liability provisions are either incomplete or still being developed, and environmental permitting has not fully integrated CCS-specific requirements. These factors create uncertainty around operational obligations, closure procedures and potential future liabilities, all of which influence investment decisions.

Finally, the absence of national financial support mechanisms or risk-sharing instruments limits the ability of industries to move beyond feasibility analysis. None of the four countries has established CCS-specific funding schemes, revenue stabilisation tools or public guarantees. As a result, early development depends heavily on EU-level instruments that are competitive, project-specific and not designed to substitute for long-term domestic incentives.

Taken together, these conditions restrict private-sector willingness to advance beyond pilot and study phases. While interest exists, particularly in sectors with limited alternatives such as cement and lime, the financial and regulatory environment is not yet conducive to large-scale private investment.

5.3. Resource and Knowledge Infrastructure

The development of CCS depends not only on regulatory readiness and financial conditions but also on the availability of skilled personnel, technical knowledge, reliable data and physical assets that can support early deployment. Across the four countries, these elements remain uneven. Research institutions and universities play an important role in generating expertise, yet public-sector administrative capacity is still developing, and detailed geological knowledge remains incomplete. At the same time, physical CCS infrastructure is largely absent, with activity limited to pilot-scale capture

installations and research-oriented demonstrations. These interconnected factors shape the region's ability to plan integrated CCS value chains and to advance beyond conceptual project stages.

5.3.1. Human Capital and Technical Expertise

The availability of human capital and technical expertise relevant to CCS varies across the four countries, but in all cases the strongest knowledge base is concentrated in research institutions and universities. These organisations play an important role in developing early technical understanding and supporting feasibility assessments. In Poland, institutions such as the Central Mining Institute and the Institute for Fuels and Energy Technology contribute to technical learning through capture pilot installations and applied research. Romania benefits from expertise within GeoEcoMar, the Geological Institute and university research groups working on monitoring technologies and storage assessment. Latvia's research capacity is concentrated in institutions such as the Riga Technical University's Institute of Energy Systems and Environment, while Bulgaria relies primarily on academic institutions, including the Bulgarian Academy of Sciences and the University of Mining and Geology.

Across all four countries, specialised CCS skills, particularly in storage geology, monitoring, CO₂ transport engineering and integrated project development, are still emerging. Much of the technical expertise has been developed through participation in EU-funded research and pilot initiatives, and further national learning will depend on the continuation of such projects and the progression of early domestic activities. While public authorities have begun to take on new responsibilities related to CCS, the reports indicate that experience with CCS-specific processes remains limited, and practical knowledge will need to expand as permitting systems, storage assessment and infrastructure planning evolve.

5.3.2. Data, Storage Assessment and Technical Knowledge

Data and geological knowledge relevant to CCS are at different stages of development in the four countries, but in all cases further work is required to enable informed planning of capture, transport and storage value chains. Poland and Romania have made the most progress, with national geological institutions responsible for gathering and evaluating subsurface information and participating in EU-funded research initiatives. In Poland, the Polish Geological Institute serves as the central body for compiling geological data and administering information on potential storage

complexes, though detailed site characterisation is still in progress. Romania's geological institutions contribute to storage assessment through ongoing research projects, yet the country has not completed the full characterisation and permitting sequence for any prospective storage site.



Figure 11: Overview of Potential CO₂ Storage Sites.

In Latvia and Bulgaria, storage knowledge remains at a much earlier stage. Neither country has undertaken dedicated geological assessments for CO₂ storage, and no prospective sites have been characterised or licensed. Latvia's recent legislative

updates establish the basis for future storage assessment, but practical work has not yet started. Bulgaria likewise lacks storage-related studies, reflecting the absence of a CCS legislative framework and the need for future geological investigation to determine suitability and capacity.

Data on emitters, potential storage sites and technical parameters of the transport network are not yet integrated into coordinated planning systems. Existing datasets are fragmented across institutions, and no national emitter-storage mapping or modelling tools have been developed. This limits the ability of governments and industry to evaluate least-cost pathways, sequence project development or assess the scale of future infrastructure needs. As early pilot and research activities advance, improved data generation on potential CO₂ storage sites (Figure 11: Overview of Potential CO₂ Storage Sites.) and coordination will become essential for reducing uncertainties and supporting investment decisions.

5.3.3. Physical CCS-related Infrastructure and Pilot Assets

Physical infrastructure for CCS across the four countries is still at a formative stage, with no operational CO₂ transport networks or licensed storage facilities in place. However, several countries have begun planning or exploring components of future CO₂ transport routes, and some early institutional and technical structures are emerging that will shape long-term infrastructure development.

CO₂ transport infrastructure remains largely conceptual but is most advanced in Poland. Poland's strategic planning documents and stakeholder consultations emphasise the need for CO₂ pipeline corridors connecting industrial clusters to prospective storage areas, and early scoping work has been linked to broader regional initiatives. The Polish study highlights strong interest in positioning Poland within emerging cross-border transport corridors, including potential connections to offshore storage in the North Sea via neighbouring countries. These concepts are not yet at project stage but signal increasing alignment with European CO₂ network development. Romania has not identified specific CO₂ corridor routes but expects future transport solutions to link industrial regions to domestic storage formations once characterisation advances. Latvia and Bulgaria, both without assessed storage potential to date, depend heavily on future cross-border transport arrangements, which remain undefined.

Infrastructure for CO₂ storage is not yet developed in any of the four countries. Poland and Romania have geological formations with potential, and both have institutions tasked with assembling relevant subsurface data, but neither has completed the detailed characterisation or permitting steps required to designate operational storage sites. Latvia and Bulgaria have not undertaken storage-specific geological assessments, meaning no storage infrastructure development can yet begin. Across all countries, there are no injection wells, surface facilities, monitoring stations or compression hubs dedicated to CO₂ storage.

Industrial infrastructure relevant to CO₂ capture varies but does not constitute CCS infrastructure. Major emitters, particularly in the cement, lime and chemical sectors, possess point sources that could be integrated into future CCS value chains, but these facilities are not yet connected to transport solutions. Latvia's Schwenk capture pilot is the only installation currently operating at facility level, while Poland's research-driven capture rigs provide technical insights rather than deployable assets.

Port and shipping infrastructure, which could support cross-border transport, is not yet prepared for CO₂ handling. Plans for investments or adaptation plans for ports in Poland, Romania, Latvia or Bulgaria to accommodate liquefied CO₂ loading, temporary storage or shipping operations are currently lacking. This limits near-term options for export of CO₂ to offshore storage providers.

Taken together, while the region has begun conceptual planning for CO₂ transport, especially in Poland, and possesses industrial facilities that could form part of future capture clusters, the physical infrastructure base remains limited to research installations and pilot-scale equipment. Substantial investment in pipeline networks, port adaptations, compression facilities and storage site development will be required before integrated CCS value chains can take shape.

5.4. Geographical Implications

The geographical configuration of emissions, industrial activity and potential storage resources plays a central role in shaping the feasibility and sequencing of CCS deployment across the four countries. These spatial patterns have implications on project development. Geography influences the cost and technical complexity of transporting CO₂, determines whether domestic value chains are realistic, and affects the extent to which individual countries depend on cross-border infrastructure. These factors interact with the economic, regulatory and resource constraints identified

earlier, ultimately shaping the types of CCS pathways that are viable in the near and medium term.

The spatial relationship between major emission sources and prospective storage formations varies across the four countries and strongly influences the sequencing of potential CCS deployment.

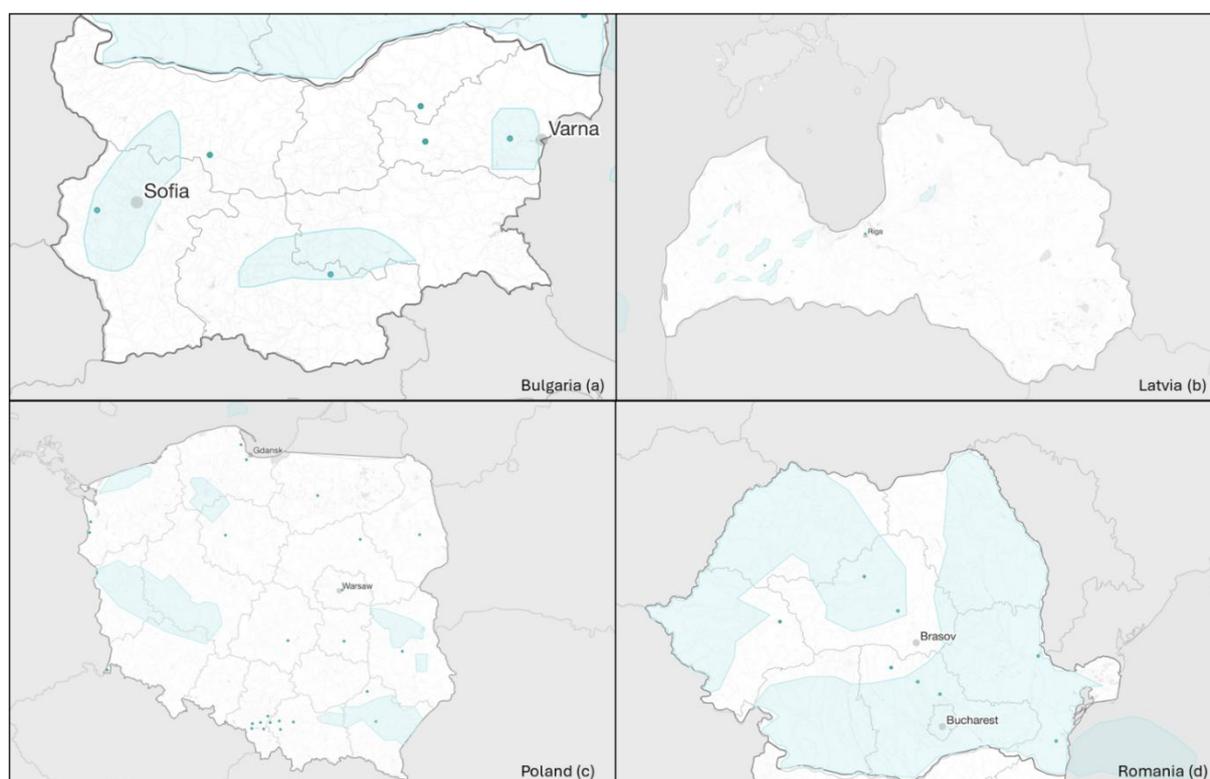


Figure 12: Potential Geological Storage Sites (Areas) and Major Emitters (Dots) in Bulgaria (a), Latvia (b), Poland (c) and Romania (d).

In Poland, several high-emitting industrial regions, such as Kujawy, Silesia and the Opole region, are located within or near geological formations identified as having storage potential. This includes the Subcarpathian region, West Pomerania and Kujawy itself, where saline aquifers and depleted hydrocarbon fields offer significant theoretical capacities. This geographical alignment means that once detailed site characterisation proceeds, Poland could develop early capture–storage pairings within national borders, particularly in cement, lime and chemical clusters. At the same time, geographical considerations also point to the potential development of transport corridors linking inland industrial regions to storage sites and to external markets. National discussions include options such as CO₂ import–export terminals in Gdańsk

under the ECO2CEE PCI project, as well as longer-term prospects for integration into wider European CO₂ transport networks, indicating that Poland's deployment pathway may combine domestic pipelines with cross-border links as infrastructure matures.

Romania shows a similar pattern of proximity between industrial areas and promising storage regions. Industrial clusters in Argeş, Dâmboviţa, Prahova, Constanţa and Mureş counties lie relatively close to basins with theoretical storage capacities, including offshore formations near Constanţa and inland hydrocarbon-bearing structures in Prahova. Romania's sizeable theoretical storage capacity supports the possibility of integrated value chains, subject to the completion of site-level assessment work. Romania's coastal position and the presence of ports such as Constanţa, Midia and Mangalia also provide flexibility for future transport solutions, allowing for a combination of onshore pipelines and maritime CO₂ transport should offshore storage options be prioritised.

Latvia, by contrast, has a small and highly concentrated emitter base, primarily Schwenk Latvia in Brocēni and Latvenergo TEC-2 near Riga, and limited assessed storage potential to date. While earlier mapping exercises identified 17 possible structures and highlighted Dobeles as the most promising, no site has yet been characterised or permitted. The spatial relationship between emitters and the Dobeles formation suggests that a domestic corridor could theoretically be developed, but deployment is contingent on future geological verification rather than spatial opportunity alone. In parallel, Latvia's location along the Baltic Sea shapes alternative pathway options, including maritime transport to external storage sites. Ongoing work under the Baltic CCS Consortium, which explores shipping-based transport routes toward North Sea storage via ports such as Klaipėda, indicates that cross-border solutions may play a central role in Latvia's CCS pathway.

Bulgaria presents a similar early-stage picture. Major emitters, including industrial facilities in Zlatna Panega, Devnya and Pernik, are not yet linked to characterised storage options, even though geological potential exists in the Moesian Platform and offshore areas in the Black Sea. Until national assessments advance and storage formations are confirmed, deployment sequencing will depend on external storage sources or future regional cooperation. Initiatives such as the ANRAV project, which integrates onshore and offshore transport components, illustrate how Bulgaria might eventually connect industrial sites to offshore storage through coordinated

infrastructure development, potentially in cooperation with neighbouring countries such as Romania and Greece.

Across all four countries, geography therefore acts as a structuring condition that shapes strategic choices regarding sequencing, infrastructure development and regional cooperation.

6. Conclusions

Across Central and Eastern Europe, CCS is positioned less as an immediately deployable solution and more as a capacity-building challenge that will unfold over time. While political recognition of its strategic relevance is broadly present in Poland, Romania, Latvia and Bulgaria, institutional readiness, regulatory maturity and technical preparedness lag behind this ambition. The central insight is therefore not a lack of intent, but a misalignment between long-term decarbonisation objectives and the short-to medium-term conditions required to initiate CCS projects.

National CCS trajectories in the region are inherently interdependent. Differences in storage maturity, industrial structure and geographical conditions mean that progress in one country, particularly through the development of storage sites and transport corridors or hubs, can directly shape feasible options in neighbouring Member States. This is especially relevant at early stages of deployment. For countries with limited domestic storage or small emitter base, reliance on cross-border solutions is not a transitional anomaly but a structural feature of viable CCS pathways, reinforcing the importance of regional coordination and alignment.

Within this context, current pilot projects and EU-supported initiatives play a disproportionate role. First-of-a-kind projects, feasibility studies and Projects of Common Interest (PCIs) supported through instruments such as the Innovation Fund and the Connecting Europe Facility function not only as technical demonstrations, but as catalysts for institutional learning, regulatory testing and confidence-building among public authorities and investors. Their value lies as much in reducing uncertainty and building administrative capacity as in the volumes of CO₂ they ultimately capture or store.

The analysis further suggests that progress will depend on the parallel advancement of governance clarity, technical data and social legitimacy. Fragmented approaches that prioritise strategy development without addressing public awareness and acceptance risk delaying implementation, particularly in contexts where CCS remains unfamiliar or contested. Public perception, stakeholder engagement and trust in institutions therefore emerge as enabling conditions that are as critical as regulatory frameworks or funding availability, especially for onshore storage and transport infrastructure.

Overall, CCS development in Central and Eastern Europe is a process of gradual convergence rather than rapid rollout. Progress is likely to be driven by the cumulative effects of pilot projects, EU-level support mechanisms and regional cooperation, combined with sustained efforts to strengthen governance and societal acceptance. Whether CCS evolves into a viable component of regional carbon management strategies will depend on how effectively these elements are integrated in the coming years, rather than on the speed of individual project announcements.

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8. Annex 1

Table 3: Overview of Capacity Gap Assessment in CEE.

	Objective	Poland	Romania	Latvia	Bulgaria
Political Landscape	Ambitions and commitments towards climate targets and the role of CCS	●	●	●	●
	Evaluation of CM/CCS for national climate strategy/ CM/CCS strategy	●	●	●	●
Legislative Framework	Status of implementation of legislation and regulation governing CM and CCS	●	●	●	●
Market Conditions/ financial support	Support instruments for CM/CCS	●	●	●	●
	Market development for CM/CCS	●	●	●	●
	Barriers to market entry for companies developing CM/CCS projects	●	●	●	●
Public Participation	Existing public understanding of CCS	●	●	●	●
	Current public attitudes towards CCS initiatives	●	●	●	●
	Activities towards public participation	●	●	●	●

Role clarity	Clear roles and responsibilities				
	Conflicts in stakeholder interaction				
Financial, Human and Knowledge Resources	Availability of financial resources for CM/CCS projects				
	Availability of human resource capacity for CM/CCS				
	Availability and use of Knowledge resources for CM/CCS implementation				
	Barriers to resource availability				
Technical Resources	Available CCS technologies				
	Availability of infrastructure for CCS				
	Availability of storage facilities				
	Data collection and management systems				



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