
GLOBAL CCS INSTITUTE
GLOBAL STATUS OF CCS 2026
SUSTAINING GLOBAL PROGRESS

Contents

About us 01

About the report 02

From the CEO 03

1.0 Global snapshot 05

2.0 Regional spotlight 13

- Americas 14
- Europe 21
- Middle East and Africa 30
- APAC and India 34
- China 41
- Japan 45

3.0 Facilities list 51

- In operation 52
- In construction 56

4.0 References 58

Key terms and acronyms 64

About us

The Global CCS Institute (the Institute) is an international think tank with a mission to accelerate the global adoption of safe and sustainable Carbon Management, including Carbon Capture and Storage (CCS) and Carbon Dioxide Removal (CDR).



Carbon TerraVault I (CTV-1), USA, image courtesy of California Resources Corporation

Headquartered in Melbourne, Australia, and with a presence in key regions, the Institute delivers independent analysis and knowledge sharing to support policy development and the effective implementation of CCS worldwide. We collaborate with governments, industry, and civil society to scale CCS through insights, advocacy, and collaboration.

The Institute was established in 2009 in response to the growing recognition within the international climate policy community that CCS would be essential to achieving deep emissions reductions. As momentum around CCS increased, so did the need for a dedicated organisation to provide expert technical, policy and regulatory guidance, bolstered by global and local CCS experience, and cross-sectoral coordination across the entire value chain and various stakeholders. The Institute was created to fulfil that role: an independent, international think tank with a singular focus – to advance the deployment of CCS as a vital component of global climate mitigation.

The Institute is an official observer to the United Nations Framework Convention on Climate Change (UNFCCC) and serves as the secretariat of the Carbon Management Challenge (CMC) – reflecting our formal role in supporting international collaboration and championing the critical role that CCS plays in reaching net-zero. Our global reach and active engagement in international climate and energy policy unite and support our diverse membership to advance CCS.

The Institute's membership includes governments – both national and sub-national levels, industry, research institutions, and civil society organisations across the entire CCS value chain committed to advancing climate action through carbon management.

The Institute's work is structured around four principal pillars:

Knowledge and insight

We produce independent, evidence-based analysis to share understanding of the critical role that CCS plays and help inform policy, regulation, and strategy across the CCS value chain. This includes global status reporting, policy briefs, market intelligence, and technical assessments – designed to equip decision-makers with credible, up-to-date information. Our team consists of in-house technical experts and on-the-ground regional leaders helping to drive the global CCS agenda.

Advocacy

We engage directly with governments and international climate forums – such as the COP and the Clean Energy Ministerial (CEM) – to support development of effective policy and regulatory frameworks for CCS. Through formal submissions, strategic and local dialogue, combined with institutional partnerships, we support the integration of CCS into national and international climate strategies and advocate for CCS as a critical lever in reaching net-zero.

Capacity building and consulting

We provide training, workshops, and strategic consulting to strengthen institutional, technical, and human capacity. Our support enables stakeholders to navigate CCS planning, regulation, and readiness within their specific policy and market contexts, supplemented by our broad experiences and perspectives around the globe.

Collaboration and convening

We bring together diverse stakeholders across the entire CCS value chain, multiple sectors, and regions to foster alignment, accelerate knowledge exchange, and address shared barriers to deployment. Through global forums, regional roundtables, and targeted dialogues, the Institute facilitates strategic cooperation in support of advancing CCS deployment to help reduce emissions.



The Brevik CCS facility in Brevik, Norway. Image courtesy carbon capture technology provider SLB Capturi

About the report

This report captures the key developments shaping CCS progress worldwide. Drawing on data collected through the Institute's facility database (CO_2RE), it provides a detailed overview into the trends, projects, and developments advancing the technology globally.

Carbon capture and storage remains an essential tool in addressing the ongoing climate challenge. The Status Report showcases critical insights to inform decision making and support the scale-up of CCS as a needed solution for achieving climate objectives.

A key feature in this report is the regional snapshots, primarily designed to provide a detailed view of how CCS is evolving in different parts of the world. In the 2026 report, the Institute highlights the growing momentum for CCS across established and emerging markets, with countries such as Greece and Italy advancing carbon management related frameworks, while India unveiled plans to invest USD 2.2 billion towards scaling up CCS in the country.

The report's global overview section illustrates that CCS projects continued to rise over the last 12 months, while also highlighting where momentum is beginning to ease. These respective regional sections unpack policy frameworks, emerging technologies, and the impacts of geopolitics on CCS - a notable dynamic in 2026. Whilst shifting global conditions have influenced priorities in select regions, the report finds that CCS development continues to move forward steadily, reflecting a broader pattern of sustaining global progress.

How to navigate this report

These symbols on the right panel of the document can be used to navigate the pages and Sections. There are three buttons with icons.

Legend

Home
Use the home button to return back to the contents list. (Use the contents list titles to navigate to the desired page or section)

Right arrow
Click to next page

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This button is used throughout the document. Click it to open and read more in-depth information.

Read more: click here

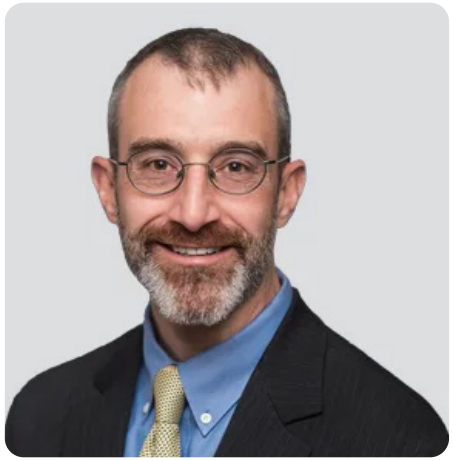
More information

See the full list of key terms & acronyms

Click here

From the CEO

Global status of CCS: sustaining global progress



Jarad Daniels, CEO

> “Thanks to successful private sector leadership and public-private collaboration, scalable business models and tools are emerging in jurisdictions where durable government climate policies have enabled bankable projects.”

Ongoing geopolitical conflicts have increased global volatility and made energy security a key priority, overshadowing near-term climate action in many countries. Energy demand in emerging economies continues to grow, demand for cement, steel, and fertlisers remain strong, and new power-intensive industries are emerging. Global carbon emissions continue to rise despite climate policies like the EU’s Carbon Border Adjustment Mechanism taking effect, market mechanisms developing in countries like China and India, and record growth in renewable energy.

These global realities reaffirm the need to rapidly deploy carbon management technologies to help balance energy security, economic growth, and climate change mitigation. The good news is that over one hundred CCS projects are now in operation, and we expect to surpass 100 million tonnes per annum (Mtpa) of capacity when projects now under construction enter service. Yet we are still far from the gigatonnes per annum of both point-source CCS and Carbon Dioxide Removals (CDR) required to help reach net-zero emissions. Ultimately, it’s the cumulative amount of carbon put back into the ground and permanently stored that matters.

CCS technology is proven, and projects have now been operating for several decades. Various commercially available carbon capture technologies are operating across a broad set of critical industry applications. Thousands of kilometres of CO_2 pipeline are safely and securely moving tens of millions of tonnes per annum. CO_2 transport options are expanding, with a growing number of CO_2 transport ships being used in regions where shipping has become a key part of the capture-transport-storage value chain. And despite ongoing challenges, over 400 million tonnes of CO_2 have been permanently stored underground since the Sleipner CCS project started in 1996.

Proven technologies are available for commercial CCS deployment, but projects need an investable business case to deploy. Policy and financing remain the key constraints limiting broader deployment of carbon management. CCS uses capital-intensive critical infrastructure that requires market-enabling policy, coordinated planning, and dependable revenue streams.

Thanks to successful private sector leadership and public-private collaboration, scalable business models and tools are emerging in jurisdictions where durable government climate policies have enabled bankable projects. Private capital is available and markets continue to develop. Insurance, standardised contracts, and dedicated finance structures are working in some jurisdictions and must propagate to others. Appropriately including carbon management in sustainable finance taxonomies and harmonising standards across the value chain would also help speed and broaden deployment.

In countries where policies and projects already exist, a managed transition toward market models with sufficient revenue certainty to unlock private capital is needed to scale commercial deployment. In many developing economies, government leadership on enabling policies is required and public-private international collaboration can help share lessons learned to accelerate progress.

From the CEO (cont.)

Different regions will continue to adopt different models. Tax credits have been instrumental to progressing carbon management projects in North America, while in Europe the combination of carbon markets and carbon contracts for difference schemes are enabling new project finance. In other regions, leadership from State Owned Enterprise is driving CCS deployments. From a systems perspective, strategic build-out of shared common infrastructure can help lower per-tonne costs, de-risk future investments, and speed deployment across a wide range of critical industries. Global adoption of market mechanisms such as Article 6 of the Paris Agreement would also enable more rapid and broader deployment.

Even amidst the turmoil of this past year, carbon management continues to advance as more governments and industries realise its necessary role and value to help decarbonise the world's economies and products. Demand for decarbonised electricity for data centres is driving interest in CCS for gas-fired power plants. India committed approximately USD 2.2 billion (₹20,000 crore) over five years to support CCUS in power, steel, cement, refineries and chemical production. China's 15th Five-Year Plan (2026–2030) further reinforced the strategic importance of CCUS within the country's broader climate and industrial transition agenda. Planned and operating projects continue to broaden across industries and regions around the world.

More work is still required for CCS to reach its full deployment potential and many policy and regulatory gaps, uncertain financing frameworks, insufficient markets, and public awareness barriers remain. As countries move from climate ambition to implementation, carbon management should be explicitly integrated into NDCs, sectoral plans, finance discussions, and wider multilateral processes to help projects move from concept to operation. While the global number of operating projects and cumulative amount of experience and expertise continue to grow, we still have a long way to go.

To help address these remaining barriers, the Institute continues to champion carbon management through our global advocacy at COP and Climate Weeks, and through collaboration with industry groups such as the Global Cement and Concrete Association and country-specific organisations such as CCS Brasil. Our regional forums and global webinars continue to inform an ever-broadening set of leaders interested in deploying carbon management to help meet their carbon targets, reaching thousands of attendees and participants this past year. Our public thought leadership products inform technical, policy, regulatory, and investment discussions. We continue to support our nearly 200 members and broader community as a trusted advisor and resource for global carbon management data, knowledge, and expertise.

Moving forward, we will continue to provide global insights and analysis on carbon management technology and policy, sharing progress around the world and advocating for the critical role that CCS plays. The Institute remains committed to addressing the most pressing issues, sharing knowledge and insights, convening and leading meaningful discussions, and developing partnerships to accelerate deployment toward our collective goal: gigatonnes of carbon management alongside everything else we need to do to reach net-zero.

Mitigating climate change requires all of us to step up, work together, and remain focused. Sustaining global progress on CCS is a key part of the work we must do. Per aspera ad astra!



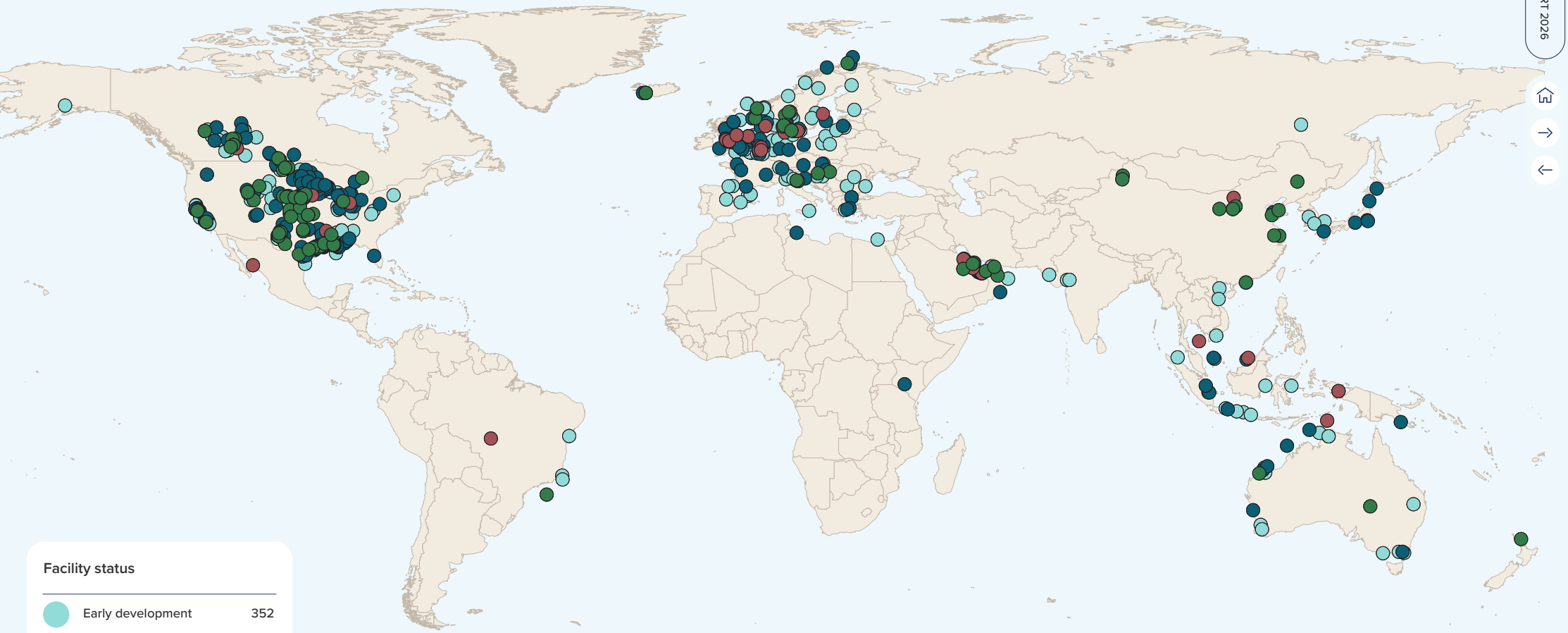
Carbon Capture plant at a lime kiln in Austria. Image courtesy of Messer



Global snapshot

1.0

CCS advances globally in 2026 as projects mature and infrastructure expands



Facility status	
Early development	352
Advanced development	308
In construction	59
In operation	113

This map shows only facilities with publicly available location data and may also contain overlapping facilities. Refer to the legend for totals.

Sustaining global progress

CCS continues to scale up globally, even though several nations respond to a challenging geopolitical landscape by prioritising broader energy policy objectives in preference to additional climate action. Over the past year, the number of commercial projects entering operation has risen, across varied geographies and industries. These advances have also been accompanied by the announcement of significant policy, legal, and regulatory initiatives by governments across many jurisdictions.

Project pipeline and storage networks continue to expand

The 2026 report demonstrates that project numbers are increasing and the type of projects is diversifying. As of 31 July, 113 commercial CCS projects are now in operation with a combined capture capacity of 68 million tonnes per annum (Mtpa). An additional 56 Mtpa of capture capacity is currently under construction, indicating operating capacity will soon increase by 82% and surpass 100 Mtpa as these projects come online. The London Register of Subsurface CO_2 Storage shows that over 400 million tonnes of CO_2 have been captured and permanently stored through CCS since 1996, confirming CCS as a safe and secure carbon management solution (Gao, X. et al, 2026).

Many of these projects are first-of-a-kind at commercial scale, including in sectors such as cement production and natural gas-fired power generation, further demonstrating the broad applicability of CCS to help decarbonise essential industries around the world. These new projects build on the decades of operational experience gained from existing CCS projects that have been steadily capturing CO_2 emissions, in some cases for decades.

The transport and storage infrastructure necessary to support this widespread deployment is also expanding. Globally, the conversion of existing pipeline infrastructure can and will enable the decarbonisation of adjacent sources, while CO_2 shipping continues to expand to service coastal emissions sources that may lack alternative transport options.

Policy and commercial developments enable CCS scale-up

As in previous years, the development of supportive policy, law and regulation remains a critical driver for the scale-up of CCS projects globally. In several instances, the emergence of new policy drivers and business models are stimulating and supporting market demand.

In North America, CCS deployment continues to be driven largely by federal tax incentives, such as the United States 45Q credit, combined with various support mechanisms at subnational levels. However, permitting delays and policy uncertainty including federal funding in the United States are hampering progress for many of the over 266 projects currently under development.

In Latin America, Brazil leads the way for CCS with its large offshore project and exploration of onshore CCS opportunities for the deployment of carbon-negative bioenergy with carbon capture and storage (BECCS) projects that could generate emission credits as a key project revenue stream.

In Europe, a variety of funding mechanisms are being successfully deployed to support projects, with 15 projects operating and 21 more under construction. At the EU Member State level, several national governments are complementing EU efforts by introducing new policy initiatives, funding support, and legislation. Cross-border collaboration within the region has also expanded, with new bilateral cooperation agreements, both within Europe, and with countries beyond the region.

In the Middle East, progress continues on building CCS hubs and infrastructure even amidst the ongoing conflicts. Policy and regulatory momentum has remained across the region, with the introduction of new climate laws, dedicated policy commitments, and formal recognition of CCS in decarbonisation pathways.

Across South and East Asia, governments continue to take important steps to support deployment, with notable funding commitments, policy initiatives and legal intervention. Across the broader Asia Pacific region, CCS is gaining recognition in national climate strategies and planning efforts. Dedicated CCS legal frameworks are emerging, including for cross-border CO_2 transport and storage, but cross-border agreements have yet to be signed and the business case for CCS remains challenging, especially for emerging economies in the region.

In China, government support drives deployment of large CCUS demonstration projects across power and heavy industry, including offshore applications. The release of China's 15th Five-Year Plan (2026–2030) further reinforced the strategic importance of CCUS within the country's broader climate and industrial transition agenda. The proven ability of China to build and operate megaton-scale projects underscores its potential to help lead global CCUS deployment.

In May 2026, Japan's CCS Business Act fully entered into effect, helping to promote long-term investment predictability for CCS in the country. Japan's Ministry of Economy, Trade and Industry (METI) is supporting nine projects, including five domestic hub projects and four overseas initiatives for CO_2 transport and storage, as the CCS community and activity in Japan continue to grow.

This year, India committed approximately USD 2.2 billion (₹20,000 crore) over five years to support CCUS in power, steel, cement, refineries and chemical production, alongside an R&D Roadmap aimed at moving technologies toward commercial readiness and supporting enabling skills, standards, and shared infrastructure.

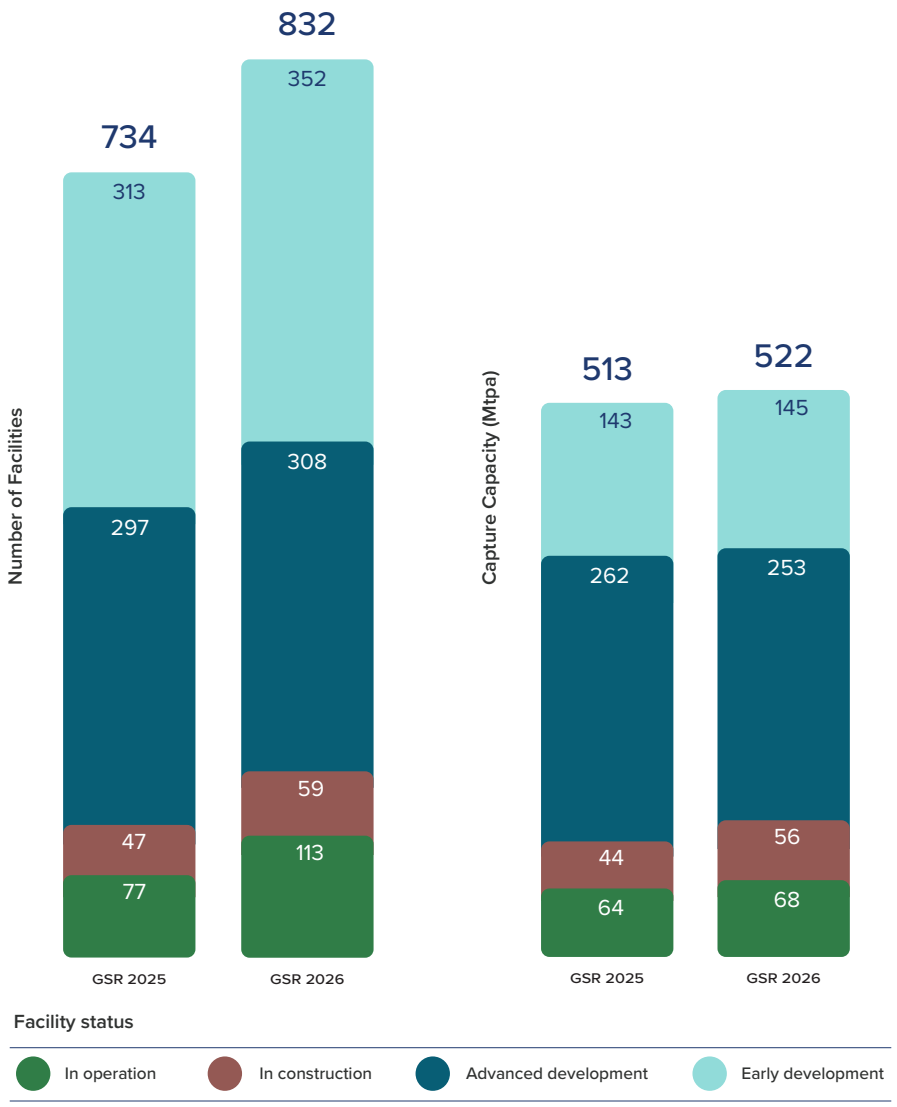
Global collaboration supports CCS deployment

Despite the challenges of the current environment, governments and industries globally continue to push ahead with CCS. Activity is particularly evident in the close collaboration undertaken across a variety of intergovernmental fora, industry groups, and national organisations. As in previous years, collaborative activities support key advocacy initiatives, facilitate knowledge-sharing, and address the topics that remain critical on the pathway to deployment.



Milestone of over 100 operational projects achieved in 2026

Commercial CCS facilities by number and total capture capacity



113
Projects operating globally

832
Projects: Total number rises by 13% year on year

522 Mtpa
Total CO_2 capture capacity of all projects in 2026

>400 Mt
CO_2 captured and permanently stored since 1996

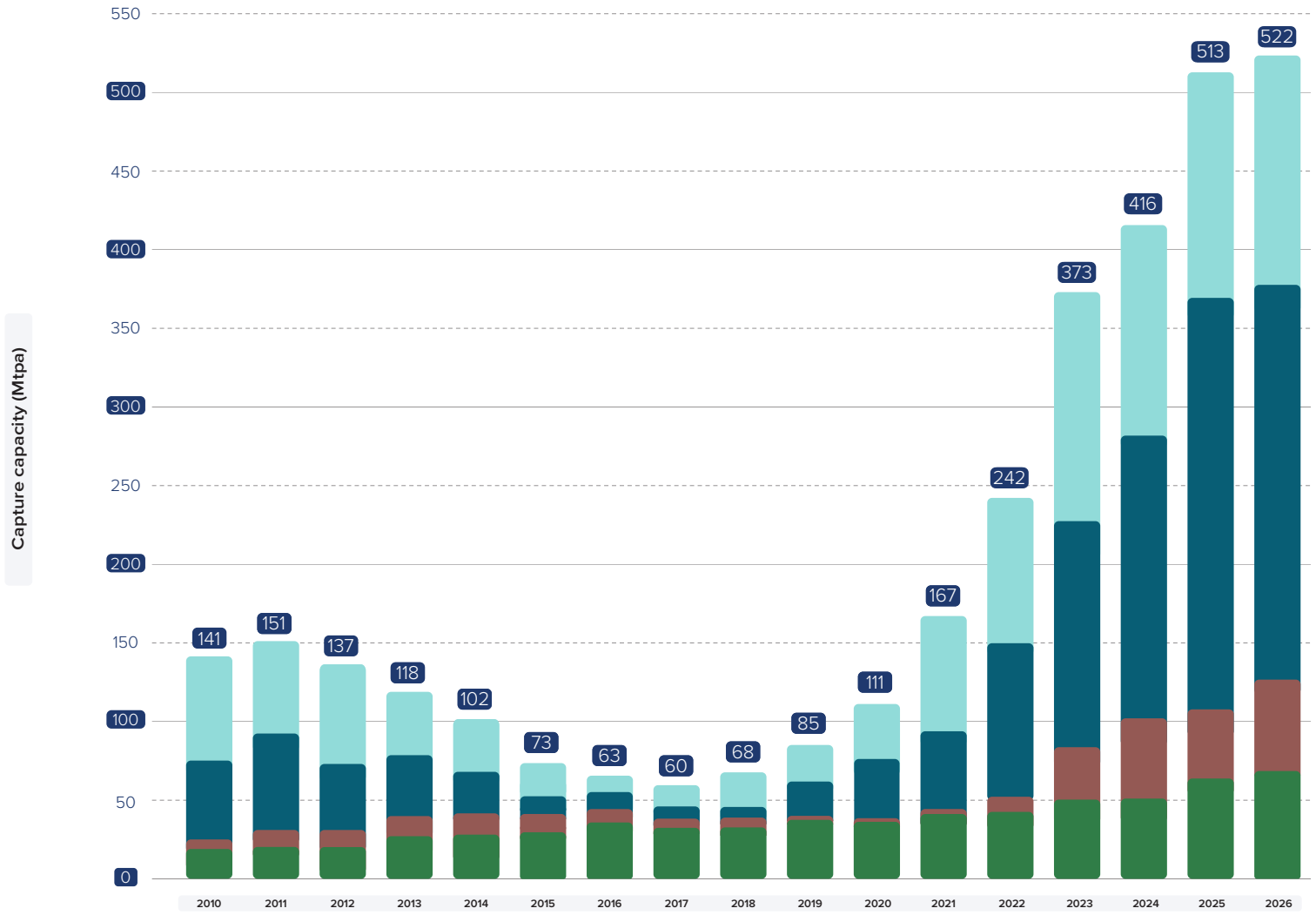
266
CO_2 transport and storage projects: 32% of total projects

7
Operational DACCS projects and 26 projects in development

Global capture capacity pipeline maintains growth

CO_2 capture capacity of commercial CCS facility pipeline since 2010

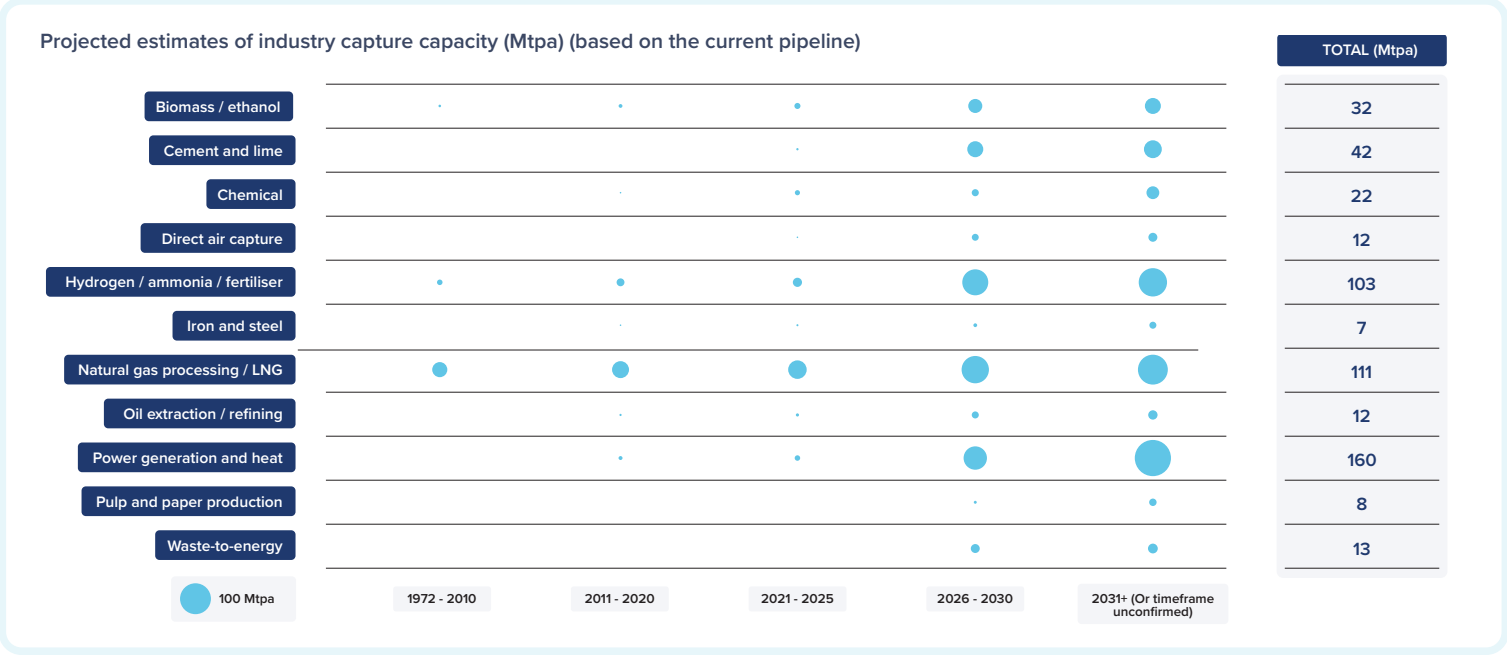
The global CCS project pipeline continues to expand in 2026, demonstrating sustained progress across all stages of development. However, aggregate capture capacity has grown more modestly over the past year. This reflects a shift in the composition of the pipeline: new projects are, on average, smaller in scale, at around 0.5 Mtpa, and many are CO_2 transport and storage developments with no associated capture capacity. Together, these trends help explain the divergence between project count and capture capacity growth, and indicate that CCS deployment is increasingly being underpinned by the build-out of transport and storage networks that will support larger-scale capture in future years.



Capture capacity sustains growth across all industries and regions, strong commitment for power generation

In 2026, operating CCS capacity continues to expand across a broad group of industries. Natural gas processing / LNG remains the largest operating capacity at 42 Mtpa. However, when considering the entire development pipeline, power generation and heat now emerge as the largest total by CO_2 capture capacity, reflecting a strengthening commitment to the application of CCS in natural gas power generation.

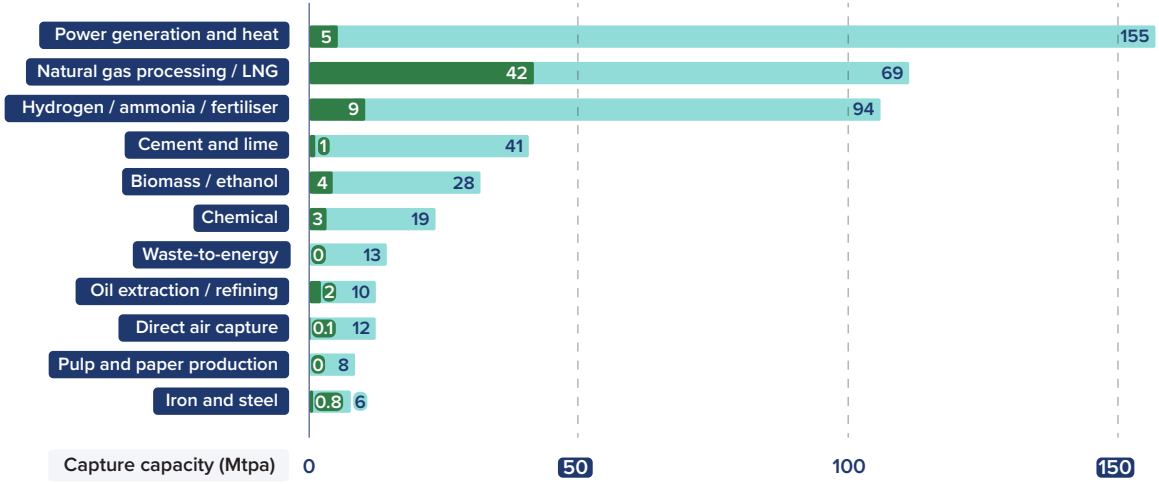
Taking a regional perspective, the Americas, and primarily the United States, is the leading region for total CO_2 capture capacity now and into the future. This year's report estimates the current operating capacity in the Americas to be 48 Mtpa, expanding to 282 Mtpa out to 2030 and beyond. Europe's development pipeline also continues to grow, where the full potential could reach up to 141 Mtpa if all projects proceed as intended.

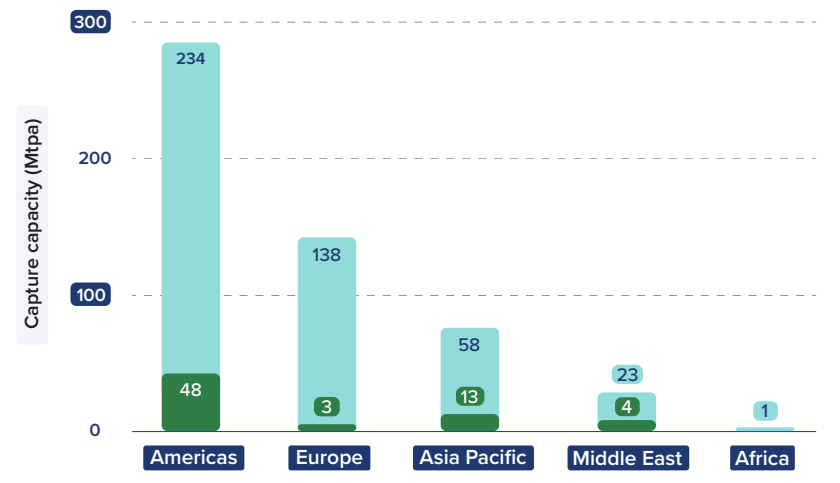


Facility status

Operation

Development





0.6 Mtpa of operational capacity is uncatagorised.

Data shows operating facilities and facilities in development from 2026 onwards. Facilities in the development phase include all non-operating facilities, including those without a confirmed timeline.

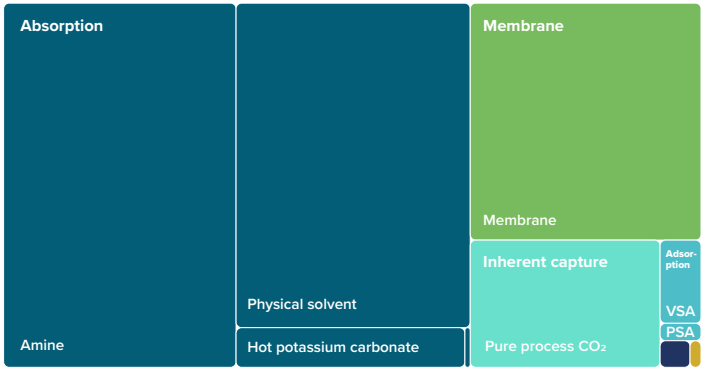
Capture project pipeline will diversify beyond absorption technology, though commercially mature amines continue to lead as the preferred capture system.

Commercial carbon capture technology is currently dominated by amine-based chemical solvent systems, reflecting decades of development since their first use for natural gas treating in the 1920s and their expansion into applications including hydrogen production, LNG processing, and post-combustion capture. The *GCCSI's 2026 Technology Compendium* shows that amine systems remain the most mature technology, with many reporting normal commercial service, while also highlighting rapid innovation across membranes, adsorbents, cryogenic systems, and hybrid approaches. These emerging technologies are expanding the range of viable options, particularly for low-CO_2 concentration, low-pressure applications such as natural gas-fired power generation.

Amine solvents currently offer the strongest performance at low CO_2 concentrations, as demonstrated by commercial projects in Canada, Italy, and the United Kingdom, but ongoing demonstrations of alternative technologies are steadily improving performance, reliability, and cost, broadening the technology portfolio available to help industries achieve deep emissions reductions. Diversified industrial applications require an equally diversified technological response considering industry-specific site conditions and constraints, and there remains a strong need for coordinated information and lessons sharing to deploy the most cost-effective systems.

A large opportunity for technology developers today sits within the nearly 200 Mtpa of "Not Specified" developments. While some are a result of developers progressing their projects within confidential arrangements, many are still at the technology selection stage and yet to confirm a solution. This presents the opportunity for the deployment of the best available technology today, making use of the learnings from recent deployment activity.

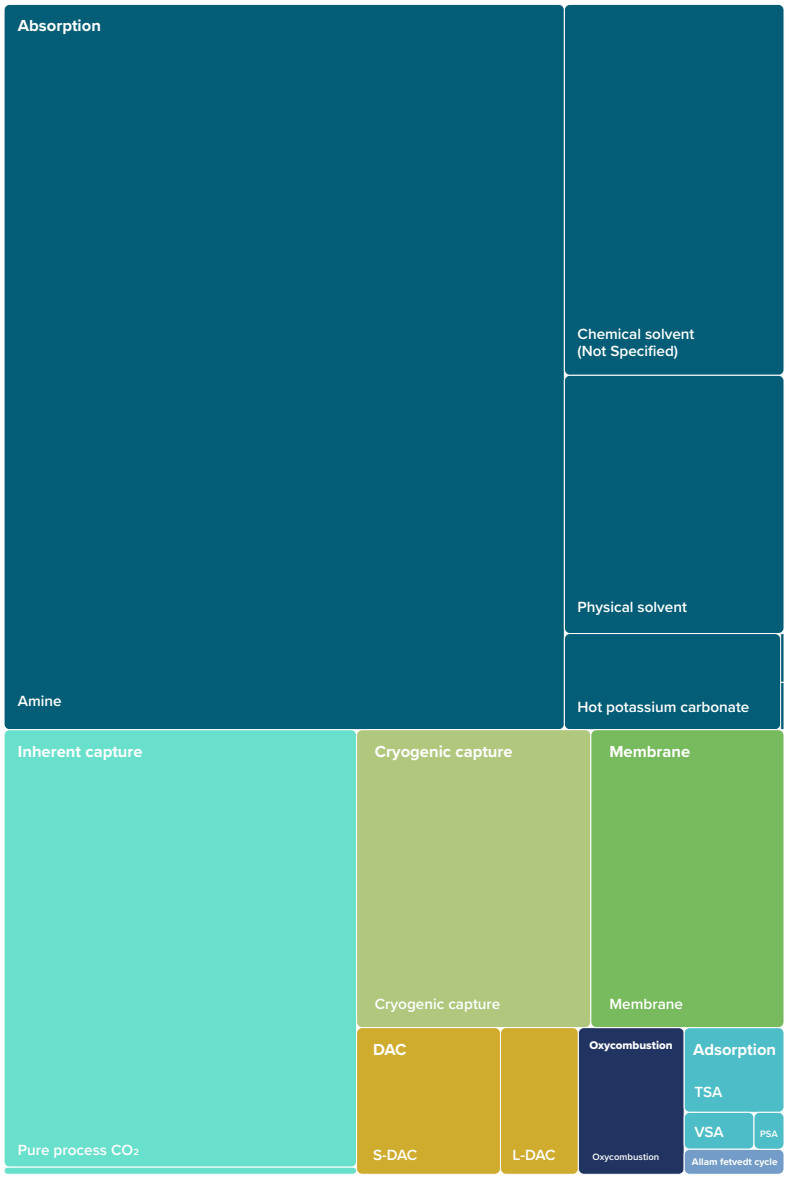
Total capacity by capture technology: today



Today: 68 Mtpa

Including total capture technology not specified: 0.6 Mtpa

Total capacity by capture technology: full pipeline



Full pipeline: 328 Mtpa

Including total capture technology not specified: 194 Mtpa

Type of technology

Absorption	Capture using a solvent either with a reaction (chemical solvent) or dissolution (physical solvent).
Membrane	Capture using a semipermeable barrier that only allows CO_2 through the barrier.
Inherent capture	Capture from a source that is already near-pure from the process itself.
Adsorption	Capture on the surface of a solid material, released via a temperature or pressure swing.
Cryogenic capture	Capture at low temperatures making use of differences in boiling/sublimation points.
DAC	S-DAC: Adsorption-based DAC using solid sorbents. L-DAC: Absorption-based DAC using liquid solvents.
Oxycombustion	Capture from the flue of a combustor using pure oxygen instead of air.
Allam fetvedt cycle	Capture from a combustor using CO_2 as the primary working fluid for energy extraction.

Policy, legal and regulatory development – A year in review

National policy

Policies, national plans, NDCs, markets and incentives

In the past year, several countries announced or implemented policies and national plans, supporting CCS deployment. Among these are seven countries that have included CCS in their updated NDCs, four countries including CCS within their national strategies/plans, and carbon markets in five countries that now include CCS.



Enabling legal and regulatory frameworks

Laws, regulations, standards, permits and sub-national frameworks

The development of legal and regulatory frameworks for CCS continues across the globe, including at the sub-national level. Several CCS-related laws, regulations and standards were passed or enforced over the past year. New permits/licenses were also awarded to CCS projects in Denmark, Greece, Malaysia, Netherlands, and the United States. At the sub-national level, Western Australia passed CCS legislation, and in the United States, Texas and Arizona were granted Class VI primacy.



Direct funding

Funding released to CCS projects and cross-border infrastructure

In Europe, significant funding has been released to CCS projects, with the latest funding round of the EU Innovation Fund releasing support to eleven CCS projects, and CINEA signing grant agreements with ten cross-border CO_2 transport and storage projects. The Netherlands, Denmark, and Flanders have each awarded approximately €2 billion to domestic CCS projects, while France awarded €1.6 billion to seven decarbonisation projects, four of which include CCUS.



Collaboration

Cross-region, bilateral and cross-border coordination

The past year has seen the conclusion of several CCS cooperation agreements and collaboration announcements. Examples of cooperation across regions include the Canada-Saudi Arabia agreement and the Sweden-Indonesia announcement. In the US, Colorado and Wyoming have agreed to coordinate permitting for CO_2 storage projects that may cross their borders.



Regional spotlight

2.0

Americas

CCS builds quietly across the Americas

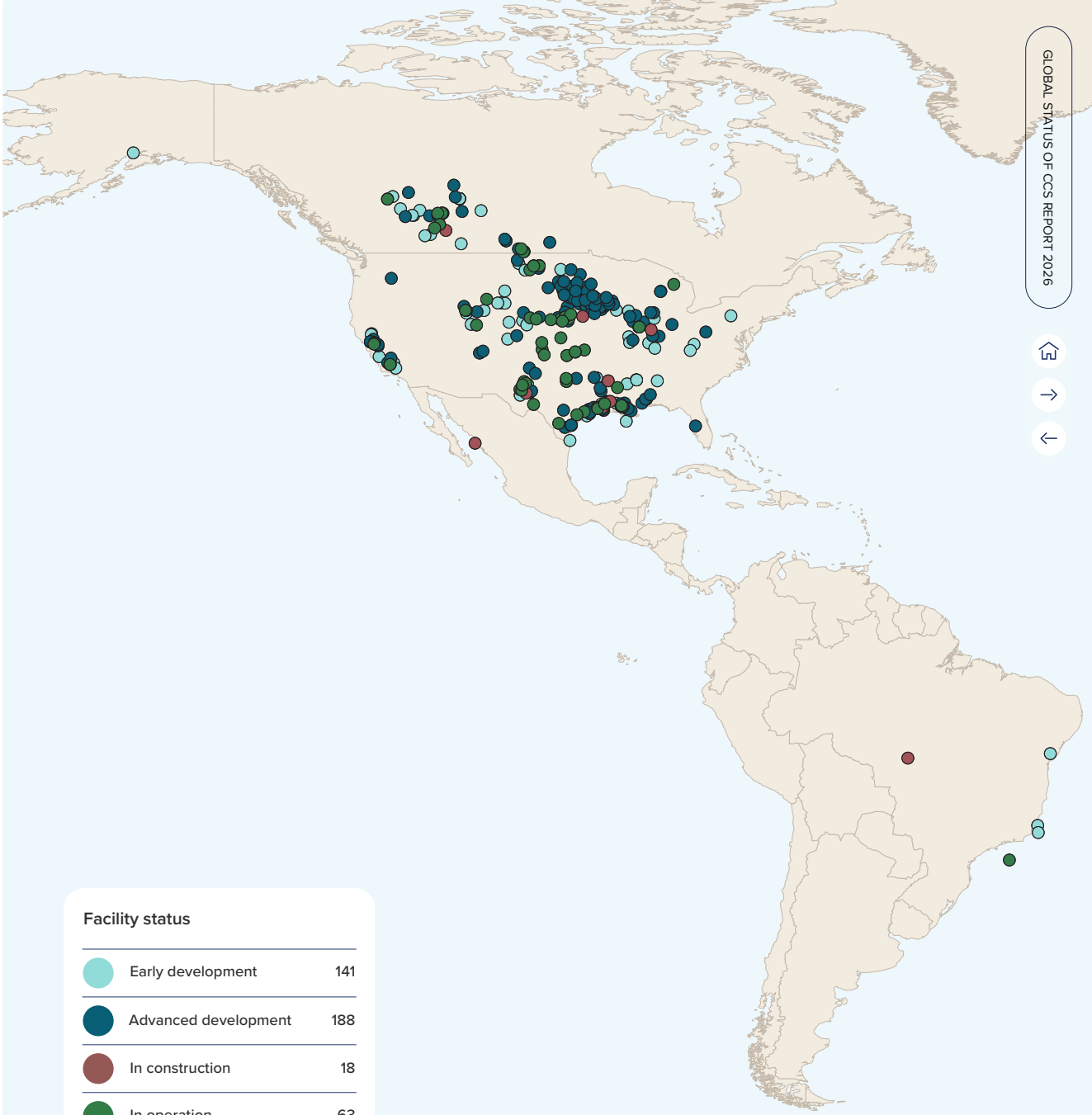
CCS momentum in the Americas is being sustained by viable business cases, enabling infrastructure and positive regional policy development. Canada is strengthening its position through coordinated federal-provincial policy, the United States continues commercial development and infrastructure expansion driven by private investments, and Brazil is expanding opportunities for industrial decarbonisation. The Americas have 63 projects currently operational.

Focus – CCS project developers are increasingly focused on optimising key enablers: prioritising locations where regional and federal policies align to create a supportive ecosystem, selecting cost-effective technologies, and maximising existing infrastructure.

Opportunity – AI-driven electricity demand is creating a significant opportunity for natural gas with CCS to provide reliable, lower-carbon power.

Expansion – Early deployments were driven by lower-cost, high-concentration emissions sources; expanding CCS for broader adoption will require stronger policies, innovative financing, and targeted market incentives to overcome economic barriers.

Scalability – Investments in capacity and infrastructure today enable a more attainable and affordable future. Shared infrastructure and collaboration across governments and industries will drive greater levels of deployment.



This map shows only facilities with publicly available location data and may also contain overlapping facilities. Refer to the legend for totals.



CF Industries Donaldsonville Complex's compression and dehydration unit. Image courtesy of CF Industries



Nucor's DRI facility in Convent, Louisiana. The image is from a public press release from ExxonMobil

Projects continue to advance, reflecting commercial commitment to carbon management. A combination of high-concentration CO_2 sources, advances in next-generation technologies, and proximity to transport and storage (T&S) infrastructure - paired with growing market demand for low-carbon products such as ammonia, power, and sustainable aviation fuel (SAF) - is enabling multiple projects to move forward without direct federal funding. The continued development of T&S infrastructure is critical to help lower the entry barrier and allow for more industrial sectors to adopt CCS. Some projects that have progressed over the last 12 months include:

- CF Industries first low-carbon ammonia shipment (CF Corporate Communications, 2025)
- ExxonMobil's New Generation Gathering (NG3) project (ExxonMobil. Corporate, 2026a)
- Google and Low Carbon Infrastructure (LCI) Broadwing Project PPA agreement NG+CCS (Terrell, 2025)
- Tallgrass Energy launching its Trailblazer CO_2 pipeline (Bush, 2025)
- California Resources Corporation Carbon TerraVault CTV-1 first injection (California Resources Corporation, 2026)
- Nucor direct reduced iron (DRI) facility in collaboration with ExxonMobil (ExxonMobil. Corporate, 2026b)

Data centres are driving the rapid growth of electricity demand, including for natural gas (NG) power generation, nuclear and renewables. By 2030, industry projections for U.S. data centres indicate additional power demand could reach 130 TWh to 220 TWh or more of new annual NG fired generation (East Daley Analytics, 2026; IEA, 2025). [1]

[1] It is worth noting that given emerging headwinds facing AI data centre development, these projections may be lower than expected – independent of CCS integration as it relates to NG. Power availability, equipment supply, and public opposition are expected to delay or cancel a substantial portion of U.S. data centre capacity planned for 2026 (The AI Consulting Network, 2026).

Left unabated, this expansion would release between 50 to 80 Mtpa of CO_2 emissions (roughly equivalent to adding 10 to 17 million cars annually). However, if CCS were deployed across the entire new NG generation fleet, they would cumulatively emit only about 5 Mtpa. Google's agreement to purchase power from LCI's 400 MW Broadwing Energy project demonstrates growing recognition of NG+CCS potential and role as a reliable, lower-carbon power solution for AI data centres (Patel, 2025).

Canada

Canada's consistent CCS policy support makes it one of the most attractive jurisdictions to deploy and invest in CCS. During the past year, Canada extended its 50% CCUS Investment Tax Credit (ITC) eligibility window to 2035 and included EOR (Department of Finance Canada, 2026) for the first time. It also announced a call for FEED studies worth CAD 50 million (Natural Resources Canada, 2025) and CAD 16.9 million (Natural Resources Canada, 2026) in funding for five CCUS R&D / demonstration projects.

Federal and provincial governments strengthened cooperation through initiatives such as the groundbreaking Canada–Alberta Memorandum of Understanding (Prime Minister of Canada, 2025) and the related Implementation Agreement signed in May. At the centre of the Agreement is the Pathways CCS Project which would become the largest CCS project in the world capturing 16 Mtpa. Other provisions, including Alberta's carbon pricing for Technology Innovation and Emissions Reduction (TIER) credits, carbon contracts for differences (CCfDs), pipelines, project approvals, and indigenous participation, are listed in the table to the right (Government of Alberta, 2025).

In Alberta, more than a dozen previously announced sequestration hubs are in active development, including the Alberta Carbon Grid (TC Energy, 2026; Pembina, 2026) and the Atlas Carbon Storage Hub (Shell, 2024; ATCO Canadian Utilities, 2024). Tenure proposals for northwest Alberta hubs will continue to be accepted through mid-2026, continuing to expand the geographic footprint of Alberta's CCS network (Government of Alberta, 2026). Additionally, the proposed Pathways CCS Project mentioned above has reaffirmed support from the Canadian government including an initial buildout of 6 Mtpa by 2035 (One Canadian Economy, 2026).

CCS provisions in the groundbreaking MoU signed between the governments of Canada and Alberta

Policy area	Alberta commitments	Federal commitments
Carbon pricing	Maintain and strengthen TIER, including a post-2030 price floor and updated industrial benchmarks.	Align the federal benchmark with Alberta's TIER framework and provide long-term carbon price certainty.
Carbon Contracts for Difference (CCfDs)	Co-develop a provincial CCfD programme to de-risk low-carbon investments.	Co-develop and co-fund federal CCfDs for eligible projects.
CCUS deployment	Advance the Pathways CCS Project enabling CO_2 transport and storage infrastructure including an initial 6 Mtpa by 2035 and future expansions amounting to 16 Mtpa of emissions reductions.	Implement the July 2, 2026 trilateral MoU with Alberta and the Oil Sands Alliance (formerly Pathways Alliance), support the project through definitive agreements, maintain the CCUS ITC through 2035, and pursue EOR eligibility.
Major project approvals	Lead provincial permitting and coordinate reviews for major energy projects.	Streamline federal reviews through an assessment cooperation agreement and coordinated approvals.
Pipeline infrastructure	Advance the proposed West Coast oil export pipeline through the federal Major Projects Office and continue with provincial approvals.	Accept the proposal into the federal Major Projects Office process, designate the project as being in the national interest and coordinate federal permitting.
Indigenous participation	Support Indigenous consultation and economic participation in major projects.	Fulfill federal consultation obligations and support Indigenous partnerships.

In Eastern Canada, the April 2026 Geological Carbon Storage Atlas (Canadian Discovery Ltd., 2026) mapped viable hub-scale storage sites in Quebec and the Atlantic provinces for the first time, opening a new development frontier that currently lacks existing infrastructure, but contains large areas with suitable geology.

Canada is moving toward integrated carbon management systems that combine capture facilities, regional pipeline networks, and centralised storage hubs. Future development is expected to focus on large-scale industrial clusters, oil sands decarbonisation, low-carbon hydrogen production, and open-access storage infrastructure capable of serving multiple emitters across regional economies.

United States

CCS has remained resilient in the United States, underpinned by the 45Q tax credit. The industry has weathered a mix of opportunities and policy challenges over the last 12 months, including federal efforts to pause or cancel previously authorised CCS and other clean energy funding. This decision was later partially reversed in April 2026 when the U.S. Department of Energy announced it would "retain or modify" 59 CCS projects representing USD 718 million of the original USD 2.7 billion in awards. Additionally, proposed rescissions to federal Greenhouse Gas Reporting Program requirements have raised questions regarding long-term implementation of 45Q and other tax credit verification mechanisms.

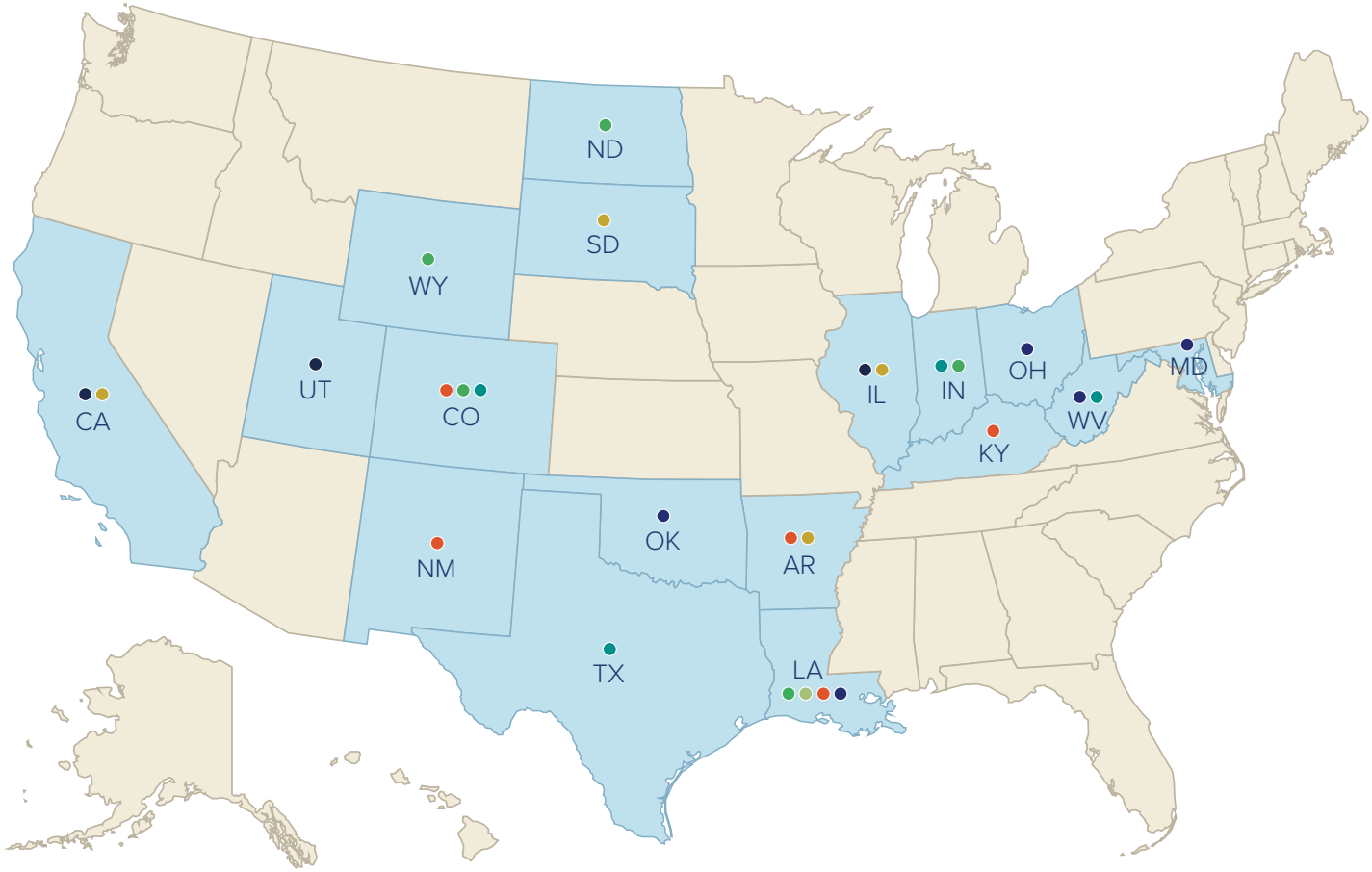
Despite uncertainty at the federal level, 33 CCS-related state laws were enacted across 17 states between January 2025 and July 2026. The laws, which are highlighted in the accompanying map, address issues including regulatory frameworks, pore space access, long-term stewardship funds, pipeline regulation, landowner compensation, environmental safeguards, and primacy.

Key

- Regulatory governance
- Financial incentives
- Class VI primacy & permitting
- Long-term stewardship & liability
- CO_2 transportation
- Appropriations
- State has enacted new CCS legislation 2025-2026
- No new enacted CCS legislation 2025-2026

New state CCS legislation enacted 2025-2026

States with enacted CCS legislation, coloured by bill category.



Source: State government legislative bill trackers, 2025-2026 sessions

The expansion of state primacy is the most notable development in U.S. CCS permitting, offering an opportunity to accelerate Class VI permit applications.[2] Six states have now obtained primacy, and nine other states and tribal lands have primacy applications under review.

With more than three-quarters of all Class VI projects currently in regulatory review, a substantial pipeline of available carbon storage capacity could move into development over the next several years (U.S. Environmental Protection Agency, 2026). Newly announced Class VI permit applications have consolidated around two primary development corridors, the Gulf Coast and the Midwest, as demonstrated by the table below.

[2] It is worth noting that some states with primacy have accelerated permitting timelines; however, others are experiencing challenges, such as public opposition and staffing shortages, resulting in delays.

Anticipated state policy and regulatory changes in 2026 will continue to shape CO_2 pipeline development, including potential lifting of the California moratorium (California 2025-2026 Regular Session, 2025) on intrastate pipelines and the Illinois moratorium (Pablo & Flores, 2024) on new pipeline construction – both awaiting completion of federal action on pipeline safety legislation. Other regulatory issues may impact transportation routes and storage locations, such as the subsurface property rights court rulings in North Dakota (Orledge, 2026). Once resolved, developers are poised to move quickly, where active community engagement and timely permitting will help catalyse project delivery.

Inter-state cooperation is also progressing, as evidenced by a recent MoU signed between Colorado and Wyoming to coordinate permitting for CO_2 storage projects that may cross state borders (George, 2026). The overall trend in U.S. state policy development points toward growing state-level regulatory maturity and readiness for commercial-scale CCS deployment.

Class VI permits by regulatory authority

Policy area	Percentage
Louisiana Dept of Conservation and Energy	26%
EPA Region 5 (Midwest)	26%
Texas Railroad Commission	14%
EPA Region 9 (Pacific SW)	11%
North Dakota Dept of Mineral Resources	7%
EPA Region 7 (Central)	4%
EPA Region 6 (South Central)	4%
Wyoming Dept of Environmental Quality	4%
EPA Region 4 (Southeast)	2%
EPA Region 8 (Mountain)	2%

Mexico

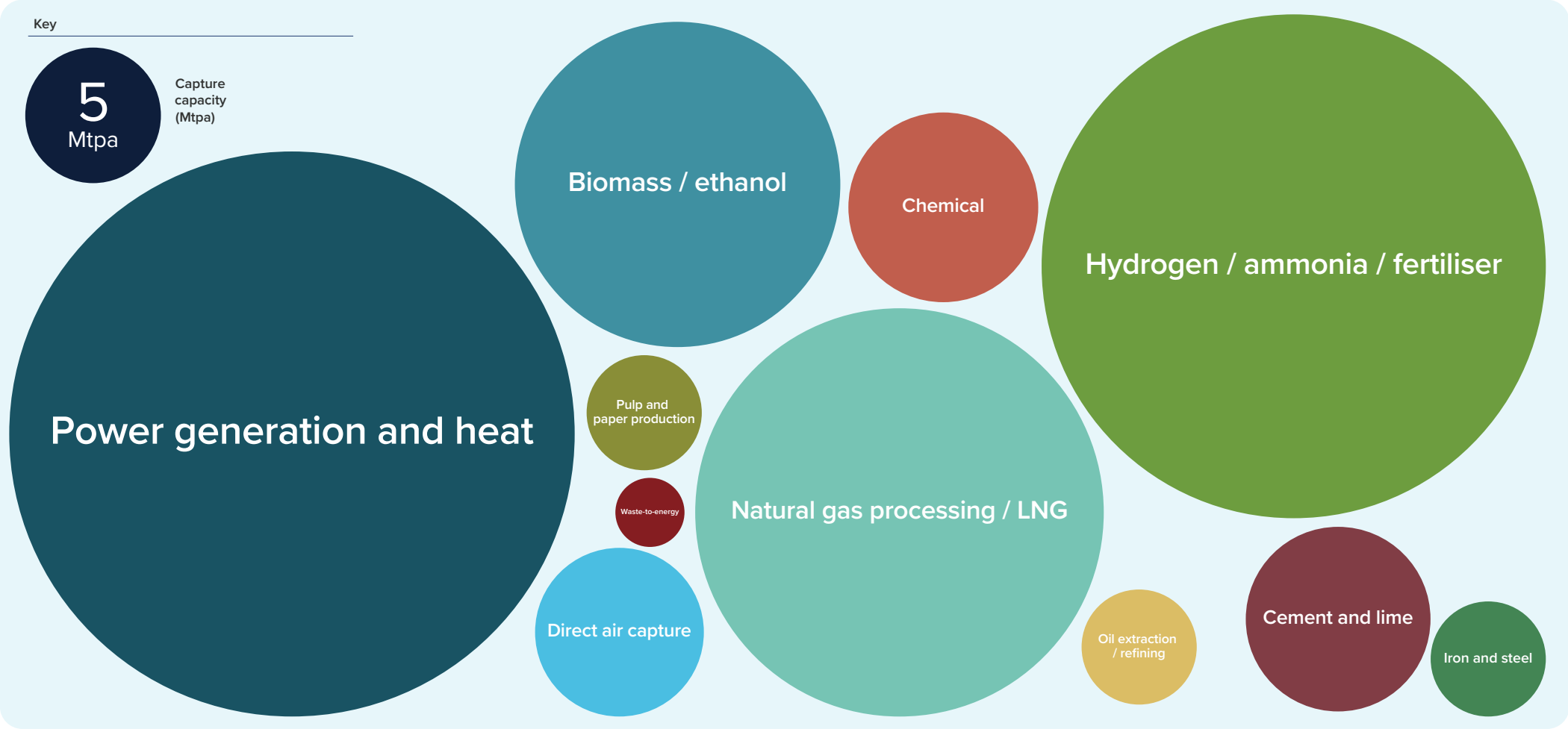
In Mexico, there is ongoing collaboration among industry, civil society, and government – including with the Ministry of Finance – on support for CCS and efforts to integrate CCS into national laws. While deployment remains at an earlier stage than in the U.S. or Canada, these developments demonstrate growing recognition of CCS as an important component of regional decarbonisation strategies and suggest increasing opportunities for project development in the region in the years ahead.

Brazil

Brazil is strengthening the policy foundations for future CCS deployment through a BRL $900 million (USD 176 million) R&D fund for CCS, approved by the government in December, with projects from Petrobras, TotalEnergies, and Petronas advancing. Formal CCS regulation is pending and will likely include recognition of CCS as a carbon sink and a two-phase authorisation process for exploration and injection.

Brazil continues to lead the CCS growth market in Latin America, leveraging decades of offshore CO_2 reinjection experience, substantial geological storage resources, and a large industrial and biofuels sector to expand carbon management opportunities beyond oil and gas into industrial decarbonisation and carbon removal applications. While offshore developments currently dominate the market, momentum is building in onshore industrial regions. For example, the Lucas do Rio Verde corn ethanol plant in Mato Grosso has secured USD 71 million to deploy CCS (George, 2025). This is one of many additional opportunities under evaluation in refining, petrochemicals, steel, cement, ethanol and other biofuels, and low-carbon hydrogen production (ArcelorMittal Corporate, 2024).

Americas projects and capture capacity (Mtpa) in the pipeline by industry



Industry	Mtpa	Projects
Power generation and heat	93	46
Hydrogen / ammonia / fertiliser	73	51
Natural gas processing / LNG	47	34
Biomass / ethanol	31	93

Industry	Mtpa	Projects
Cement and lime	10	11
Chemical	10	10
Direct air capture	8	17
Oil extraction / refining	4	12

Industry	Mtpa	Projects
Pulp and paper production	4	4
Iron and steel	4	2
Waste-to-energy	0.43	3

Case study: bridging the CCS deployment gap

Policy and market signals needed to close the gap

Operational CCS projects in the Americas have a combined capture capacity exceeding 48 Mtpa, yet deployment remains centred around a handful of sectors with high-concentration CO_2 streams and access to existing transport and storage infrastructure. Inflation and rising capital costs have weakened project economics, reducing the effectiveness of existing policies, such as tax and investment credits. According to studies conducted by the Institute and the EFI Foundation, about a third of these sectors tend to be commercially viable with current 45Q incentives, highlighting the need for additional policy and financing mechanisms (Barlow et al., 2025; Moniz et al., 2025).

Based on the Institute's CO_2RE database, operational projects in the Americas include more than 30 Mtpa of capture capacity from natural gas processing projects; approximately 9.4 Mtpa from hydrogen, ammonia, and fertiliser projects; and over 4.0 Mtpa from ethanol and biomass projects. Comparatively, across all sectors and development stages, the Americas have an estimated maximum of over 280 Mtpa of publicly identified capture capacity. The sectors above represent only about 53% of that total, reinforcing the need for additional mechanisms to unlock the remaining 132 Mtpa of publicly identified capture potential from natural gas power, cement, chemical, DAC and others.

Financing industrial decarbonisation

Bridging the gap to commercial-scale CCS in the industrial sector will require creating investment frameworks that enable deployment in hard-to-abate industries. While early incentives helped establish CCS in the Americas, international projects such as Norway's Heidelberg Materials Brevik cement project (Heidelberg Materials, 2026) and the UK's Net Zero Teesside (NZT Power, 2026) project demonstrate how industry-specific capture solutions, shared infrastructure, and long-term revenue certainty, such as through CCfD programmes, can accelerate deployment. For states and provinces, the next phase of CCS deployment is not only a decarbonisation opportunity, but also an economic development strategy for the emerging low-carbon economy.





California Resources Corporation's first commercial CCS project, located at Elk Hills Oil Field. Capture facility and metering site (top) and Carbon TerraVault I (CTV-1) storage well (bottom). Image courtesy of California Resources Corporation.

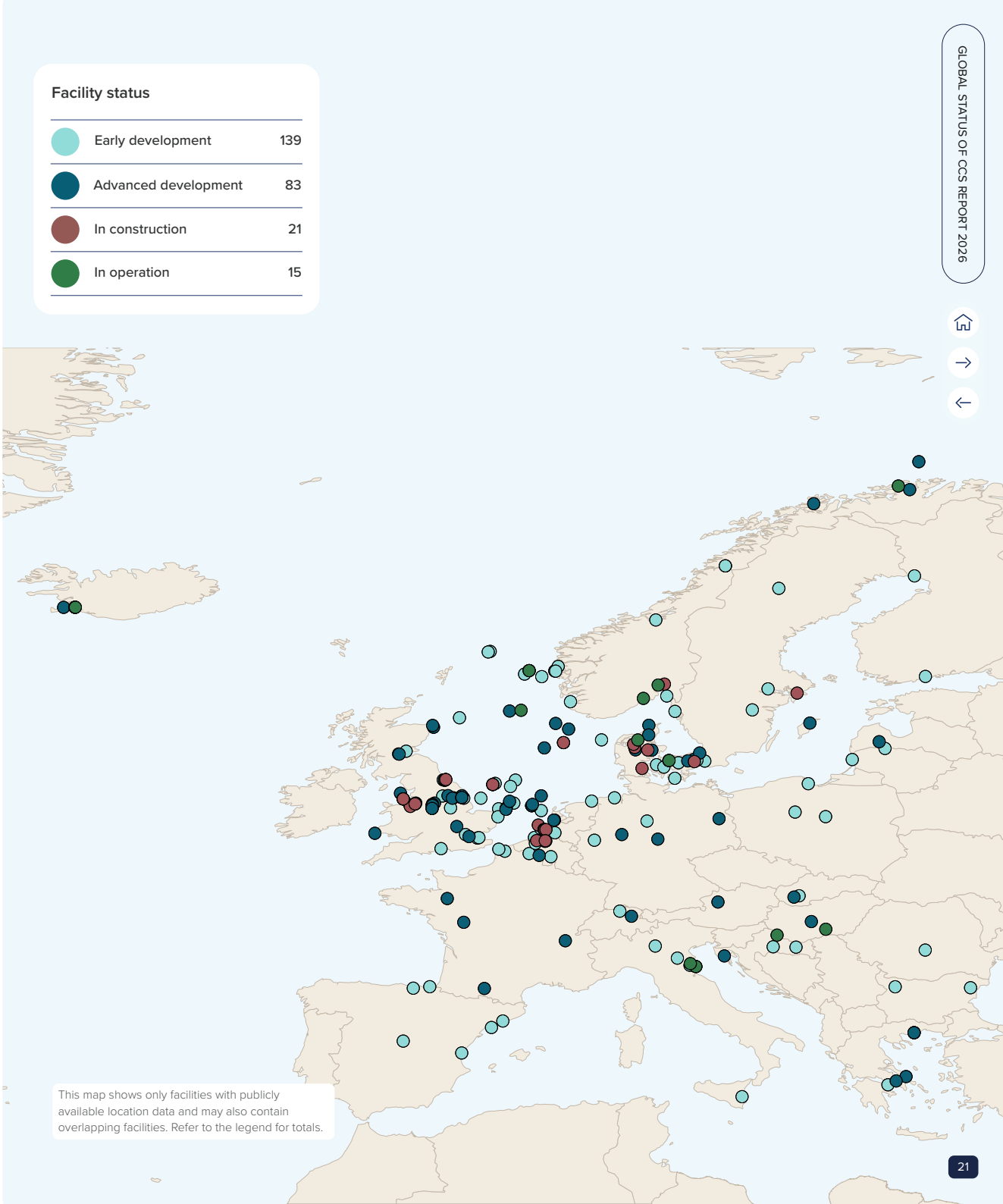
Europe

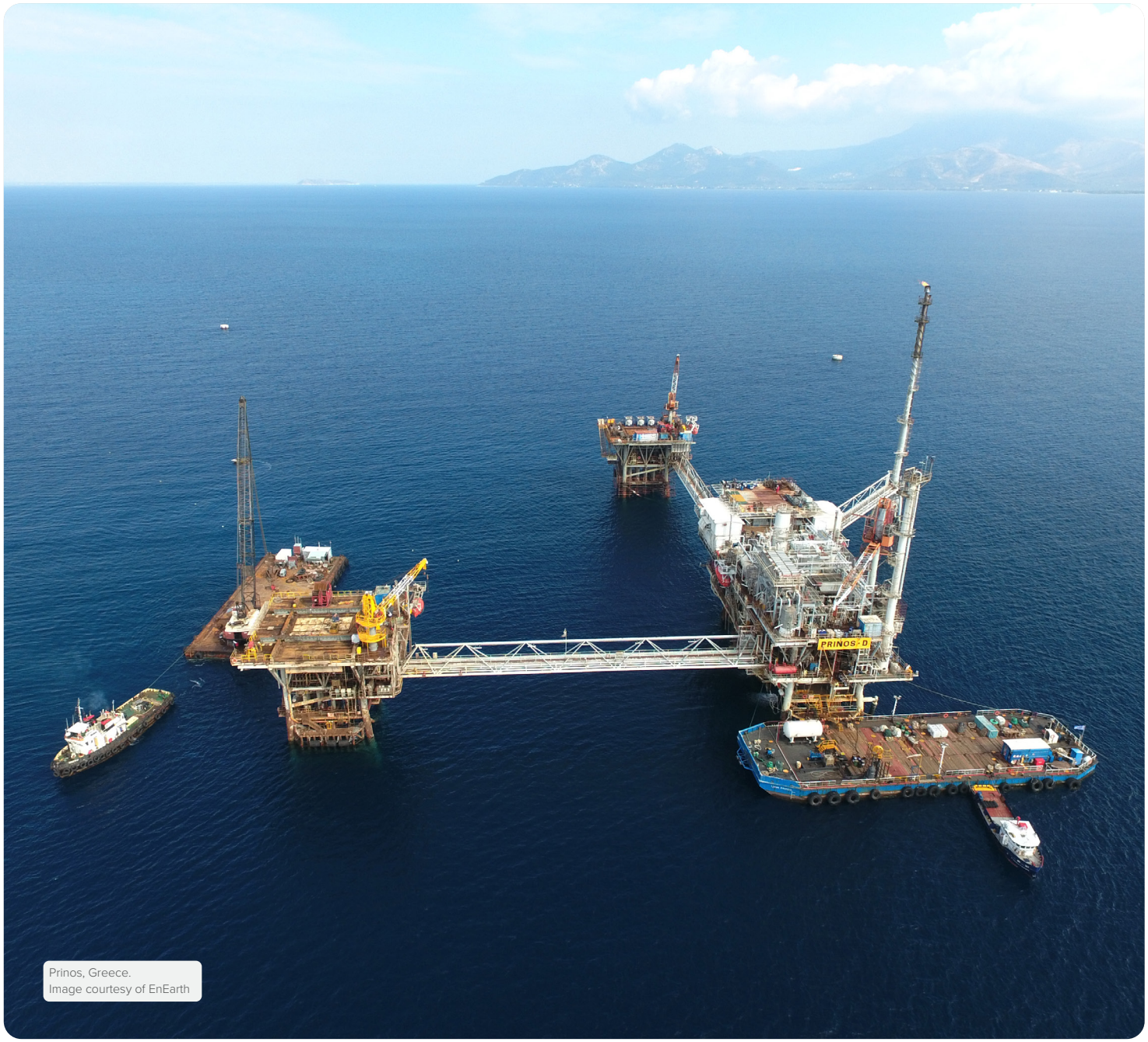
Advancing stronger cooperation and connectivity

Europe maintains strong policy, legal and regulatory momentum on CCS despite broader challenges affecting climate policy. Commitments to industrial decarbonisation, the energy transition and climate leadership continue to underpin progress, in part to meet the EU's new 2040 climate target (European Commission, 2026b). Europe's CCS framework has matured over the past year, albeit with greater caution, as energy security and affordability considerations increasingly shape decision making. Greater attention is also being given to developing low-carbon product markets e.g. as part of the EU's Clean Industrial Deal.

Notwithstanding these challenges, Europe's CCS direction is clear with a discernible shift, from EU-wide policy to national-level delivery, albeit not yet widespread. CCS deployment continues, with 15 projects operating and 21 more under construction across Europe. Several European nations are advancing storage permitting, while EU efforts to coordinate CO_2 transport infrastructure and CO_2 markets are improving the prospects for cross-border storage optionality. Nationally, Germany passed major reforms to its Carbon Dioxide Storage Act, Latvia lifted its CO_2 storage ban, Poland announced 18 prospective onshore CO_2 storage areas and Serbia began developing its CCS legal framework. Carbon removals certification now also adds to the suite of supportive EU policies.

However, implementation remains uneven across EU Member States in part due to industrial competitiveness concerns and resistance to elements of the EU's Net Zero Industry Act (NZIA). The first NZIA progress report projects that annual injection capacity could reach 33 Mtpa by 2030, falling short of the 50 Mtpa target (European Commission, 2026a), but positive progress nevertheless.





Prinos, Greece.
Image courtesy of EnEarth

Cooperation

CCS is becoming increasingly coordinated within Europe. For example, the UK-Belgium bilateral arrangement to facilitate the transport of CO_2 between the two countries, and the Finland-Norway MoU to facilitate cross-border transport of Finland's CO_2 for permanent storage in Norway. Furthermore, intra-EU cooperation is expanding with the formalisation of 17 projects of Common and Mutual Interest.

Commercialisation

Europe continues to lead on the commercialisation of climate-driven CCS by moving from concept to implementation. Examples include open access CO_2 T&S becoming operational (e.g. Northern Lights) and Denmark's Greensand storage project entering commercial operation, adding to the already commercially operational Sleipner and Snøhvit projects in Norway.

Capacity

Europe's permitted CO_2 storage resource is expanding, as illustrated by Greece's Prinos project and Denmark's Greensand project, to anchor new, regionally strategic CO_2 transport and storage networks.

Connectivity

The EU is forging inter-Member State connectivity with its policy initiative to create a functioning cross-border CO_2 market to link emitters to CO_2 T&S. Similarly, access to non-pipeline transport (NPT) in the UK to improve connectivity is under consideration, and discussions continue on linking the emissions trading systems of the UK and EU.

Connectivity

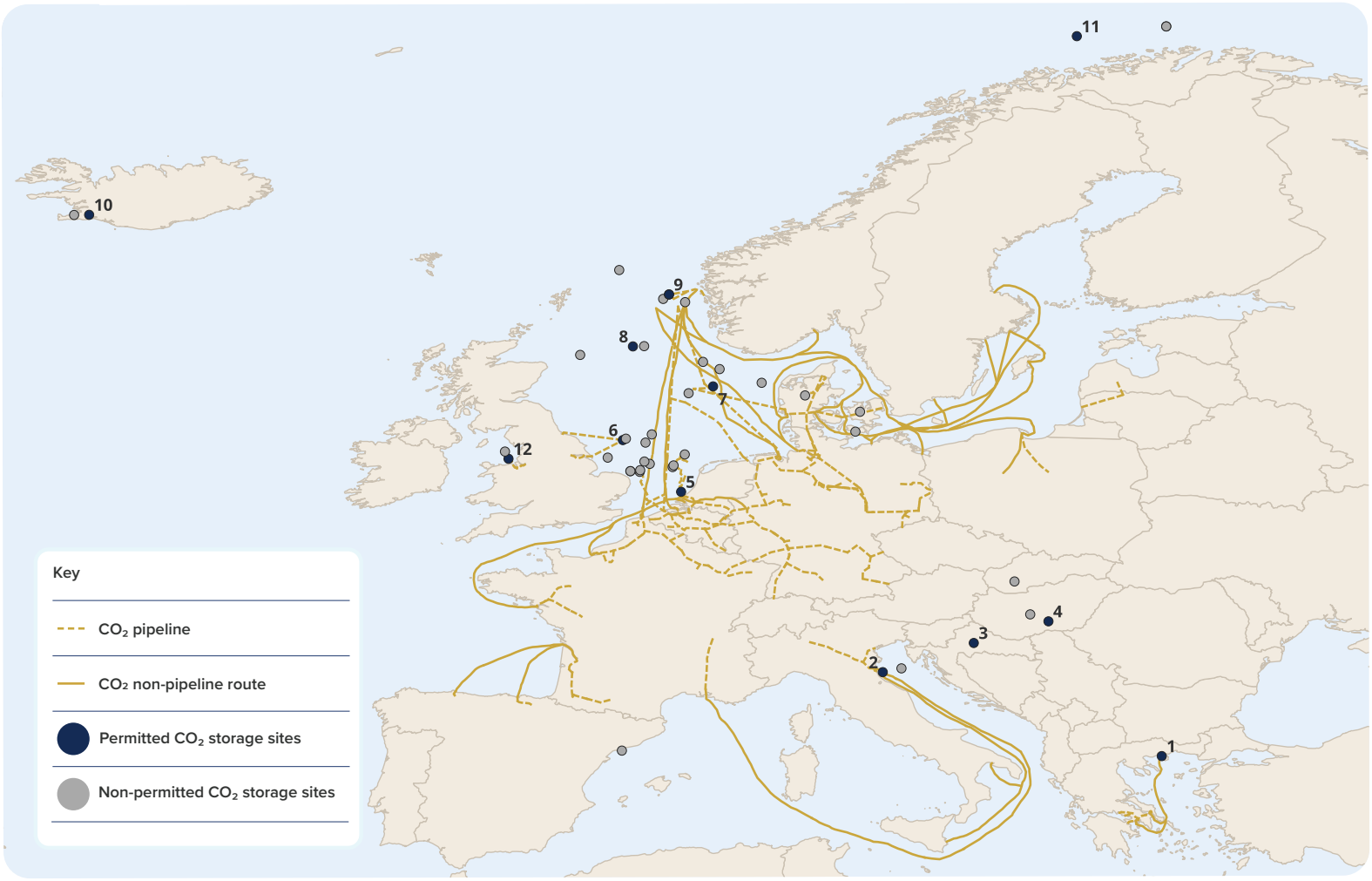
Europe's cluster-centric development continues to progress, with connectivity becoming increasingly important for large-scale CCS deployment. Clusters are expanding in scale and technical complexity by integrating increasingly diverse industrial capture sources. This expansion is driving the need for greater connectivity, to improve T&S optionality for emitters while strengthening system resilience.

Since the last status report, Europe has made significant progress towards a more connected CCS market. Continued investment through the Connecting Europe Facility (CEF) and multiple bilateral cross-border agreements are facilitating the development of pipeline and non-pipeline networks, improving connections to CO_2 storage across the region.

The map below illustrates how connectivity is expanding beyond the initial North Sea focus, across Southern Europe, including through the ~9,000 km of CO_2 pipelines currently planned as part of Projects of Common and Mutual Interest (PCI/PMI).

Operational and permitted CO_2 storage sites

Storage site	Readiness
1. Prinos (Greece)	Permitted
2. Ravenna CCS Phase 1 (Italy)	Operational
3. CO_2 EOR Project (Croatia)	Operational
4. Szank Field CO_2-EOR (Hungary)	Operational
5. Porthos (Netherlands)	Permitted
6. East Coast Cluster (UK)	Permitted
7. Greensand (Denmark)	Permitted
8. Sleipner (Norway)	Operational
9. Northern Lights (Norway)	Operational
10. Hellisheidi (Iceland)	Operational
11. Snøhvit (Norway)	Operational
12. HyNet (UK)	Permitted



Source: This map uses the Institute's CO_2RE database for storage site locations and definitions. Transport network information uses the European Commission PCI/PMI Transparency Platform and published information from UK Track 1 clusters.



Beccs Stockholm, Sweden.
Image courtesy of Stockholm Exergi

Over the past year, cross-border cooperation has advanced. In September 2025, Finland signed two MoUs with Norway and Denmark respectively, to enable the transport and subsequent storage of CO_2 (Finnish Government, 2025). Also in September 2025, Switzerland signed two agreements with Denmark, the first enables permanent storage of Swiss CO_2 in Denmark and the second focuses on cooperation in negative emission technologies (Federal Office for the Environment, 2025). These were followed by similar bilateral agreements between Belgium and Norway in March 2026 (Norwegian Government, 2026), and Belgium and the UK in June 2026 (DESNZ, 2026). By helping establish the legal framework needed for cross-border CO_2 transport, these agreements are unlocking new CO_2 transport routes and improving access to storage resources across Europe.

Alongside these agreements, the CEF has continued to fund Europe's CO_2 transport network expansion to further improve connectivity. In October 2025, the European Climate, Infrastructure and Environment Executive Agency (CINEA) awarded €240 million to 10 CO_2 T&S projects to support the development of new cross-border infrastructure (CINEA, 2025). This funding includes €120 million towards the Prinos project (Greece), €12 million for the Norne CO_2 facility (Denmark), as well as funding Baltic CCS network studies (Latvia and Lithuania).

Recent developments have advanced both CO_2 pipeline and NPT infrastructure across Europe. In June 2026, Dutch and German infrastructure partners signed an MoU to develop an interoperable cross-border pipeline network, as part of the Delta Rhine Corridor project (Gasunie, 2026). At the same time, NPT is advancing to connect emitters and facilitate cross-border CO_2 transport. For example, Yara's Sluiskil plant in the Netherlands initiating operation to transport 0.8 Mtpa via ship to Northern Lights' receiving terminal in Øygarden, Norway.

To address strategic EU transboundary needs, the European Commission consulted on a legislative framework for CO_2 transportation infrastructure and CO_2 markets in October 2025, which includes proposals to develop common CO_2 quality specification to improve interoperability between networks (European Commission, 2025).

Project commercialisation

Early signs of commercialisation are emerging within the European CCS sector. Evidence of this shift is reflected in the development of Northern Lights Phase 2, and by growing private sector investment. Together, these developments suggest that the industry is beginning to move beyond reliance on public funding.

A major milestone was reached in August 2025 when Northern Lights stored its first CO_2 in the Aurora reservoir (Equinor, 2025), delivering commercial T&S services to industrial customers. The current Phase 2 construction, including contracts for four new CO_2 transport vessels signed in early 2026, demonstrates growing market confidence in commercial CCS (Northern Lights, 2026).

This commercialisation trend is characterised by two landmark financing decisions. In December 2025, the Port of Rotterdam raised €50 million through the world's first CCS bond for the Porthos project (Dai-ichi Life Group, 2025). This was followed in May 2026 by Eni CCUS Holding securing £500 million from 13 private international lenders to support the development of its CCS portfolio (Eni, 2026). These developments indicate that private capital is beginning to play a larger role in CCS deployment across Europe. Under the right conditions, a transition away from public capital reliance is possible and importantly an expansive array of funding support is available to European operators.



Northern Lights, Norway, image courtesy of Northern Lights

Capture project funding mechanisms

For CO_2 capture projects, commercialisation is emerging alongside an expanding suite of policy support mechanisms in Europe. Developers are increasingly combining multiple public support and market-based mechanisms to strengthen project economics. While these mechanisms can help close funding gaps, they are not always perfectly complementary, requiring developers to piece together support from several mechanisms to achieve a positive FID.

Public funding mechanisms typically form the backbone of capture project financing. Upfront capital grants, notably from the EU Innovation Fund and national State Aid, help support project development. For example, in March 2026 the Kairos@C project was awarded €260 million from the Flemish Government (European Commission, 2026c). In addition, mechanisms designed to bridge the cost gap between conventional and low-carbon production, such as CCfDs, can also improve bankability by providing a predictable cash flow (Global CCS Institute, 2025). Predictable refinement of emissions trading systems (ETS), together with the phased implementation of Carbon Border Adjustment Mechanisms (CBAMs), could help to reinforce carbon price signals, but at present are not providing a consistently reliable signal and the impact of the latest EU ETS revision remains unclear (European Commission, 2026d).

In parallel, CO_2 capture project developers are increasingly utilising market-based mechanisms (where available) to enhance financial resilience. These include the sale of carbon removal credits through voluntary carbon markets. In the EU, the Carbon Removals and Carbon Farming Certification Framework (CRCF) is expected to provide a harmonised certification framework, supporting high-integrity carbon removal markets (Carbon Removals and Carbon Farming, 2024). In addition, lead market measures under the EU's Industrial Accelerator Act (IAA) are expected to stimulate demand for low-carbon products through public procurement (Industrial Accelerator Act, 2026), potentially increasing demand for low-carbon products and enabling low-carbon product price premiums.

However, combining multiple funding mechanisms adds complexity. Challenges around aligning emissions accounting methodologies, avoiding double counting and double penalty in carbon markets, and ensuring compliance with EU State Aid requirements mean that building an investable business case remains project-specific.

A range of approaches are illustrated by projects that have taken FID in Europe, including:

- **Air Liquide Rotterdam:** EU Innovation Fund grant combined with a CCfD under the SDE++ scheme (Air Liquide, n.d.).
- **Ørsted Asnæs and Avedøre:** 20-year subsidy contracts from the Danish Energy Agency alongside revenues from voluntary carbon markets (Microsoft) (Ørsted, n.d.).
- **Stockholm Exergi:** Integration of EU Innovation Fund support, Swedish Energy Agency's reverse auction for Bio-CCS, and voluntary market revenues (Stockholm Exergi, n.d.).

Mechanisms to enhance finance of CO_2 capture projects in Europe



Complementary support mechanisms

- Regulated cost control (e.g. Regulated Asset Base Models)
- Government guarantees
- Blended finance
- Public-private partnerships
- Insurance
- State Aid

Comparison between CCfD style schemes across Europe

Since the publication of the last Global Status Report, several European countries have advanced or refined their CCfD mechanisms.

Notably, there is growing diversity in scheme design, particularly in approaches to risk allocation, government payback provisions, and underperformance penalties. The table below highlights the distinctive features of each CCfD mechanism and recent updates.

Read more: click here

For more information on how CCfD schemes work.

Example scheme	Distinctive features	Updates since GSR 2025
Industrial Carbon Capture Business Model (Department for Energy Security and Net Zero, n.d.) United Kingdom	• Selected industrial clusters only. • Strike price is OPEX only (with opex re-opener). • Reference price is fixed (first 10 years), then UK-ETS (from 10-15 years) with repayments required. • Continuous CAPEX and OPEX payments in the event of T&S outage plus compensation for sunk costs.	No significant update.
SDE++ (Netherlands Enterprise Agency, n.d.) Netherlands	• Maximum strike price per technology. • No repayment needed if EU-ETS is higher than strike price. • No payments will be made with zero CO_2 delivery, but delivery shortfalls can be offset by up to 25% in following year.	€1.999 billion awarded to 4 CCS projects under the 2025 SDE++ round.
CCS Fund (Danish Energy Agency, n.d.-a) Denmark	• Hybrid ETS-linked price, which adjusts upward if EU-ETS prices rise but does not lower if they fall. • 50% penalty of the Actual Subsidy Rate for each tonne of CO_2 not delivered.	2025 round closed, with €2.2 billion awarded to Aalborg Portland (cement).
CO_2 Differenzverträge (Bundesministerium für Wirtschaft und Energie, n.d.) Germany	• Maximum strike price and a dynamic component for energy price changes. • Deviations of emission reduction are permitted if there is delayed provision of infrastructure/force majeure.	CCS now included and the latest round closed on 7th September 2026.
Grands Projets Industriels de Décarbonation (ADEME, n.d.) France	• Strike price is a fixed linear price trajectory. • Early termination requires full subsidy repayment. Over delivery in previous years can compensate for the shortfalls.	4 CCS projects awarded funding following the first round and the second round closed on 7th September 2026.

Case study: Denmark's CCS fund

An important development is the award to Aalborg Portland's ACCSION CCS project. The timeline summarises the journey from initial ambition to final contract award.

June 2024
CCS Fund competitive bidding process opened, looking to contract capture capacity of 2.3 Mtpa.

May 2025
10 companies pre-qualified from a pool of 16 applicants.

August 2025
Deadline for submitting initial bids.

Late 2025
8 out of 10 pre-qualified bidders withdrew ahead of submitting final bids.

April 2026
Two final bids confirmed: Aalborg Portland's ACCSION CCS project (cement) and Vestforbrænding and Copenhagen Infrastructure Partners' Gaia Carbon Capture project (waste-to-energy).

May 2026
Contract awarded to Aalborg Portland to capture 1.25 Mtpa from 2030. Vestforbrænding and Copenhagen Infrastructure Partners decline a reduced offer for the Gaia Carbon Capture project.

Whilst the award to Aalborg Portland's ACCSION CCS project is an important step for cement decarbonisation in Denmark, the award fell short of the original 2.3 Mtpa cross sector ambition from the Danish Government. Reasons for bidders withdrawing from the final stages of the process include:

- **Timelines:** Capture facilities had to be commissioned by 1st December 2029 and at full operation from 2030 (Danish Energy Agency, 2024b).
- **Risk allocation:** Penalties for missing delivery milestones placed the bulk of commercial risk on the capture side, with no equivalent backstop if transport and storage infrastructure was delayed (KPMG, 2026a).
- **Storage availability:** When final bids were due (January 2026), Denmark had just one licensed storage facility (Greensand Future, licensed December 2025 for 0.4 Mtpa). Other potential Danish storage sites are still in exploration stage, with no guaranteed capacity by 2030 (Danish Energy Agency, n.d.).

Although the funding round did not meet the full ambition, it is still meaningful nonetheless. Progress can now be made to deliver material emission reductions at the country's only cement plant which should also help establish onshore CO_2 storage as a strategic resource.



Aalborg Portland, Denmark. Image courtesy of Aalborg Portland A/S

Subregional spotlight: Mediterranean

The Mediterranean region continues to strengthen its position in the European CCS landscape, with improved accessibility of CO_2 storage resource and increased funding available for CCS projects.

Greece

Greece is emerging as a sub-regional pioneer. Since our last status report, two major milestones have been achieved:

- In December 2025, Greece adopted Law 5261/2025 which establishes the CCUS regulatory framework (Ministry of Environment and Energy, 2025).
- Hydrocarbons and Energy Resources Management Company (HEREMA), authorising an initial injection capacity of up to 1 Mtpa for the Prinos project (Herema, 2026).

Despite this progress, current plans indicate that Prinos could provide between 1 and 3 Mtpa of injection capacity, which is unlikely to accommodate the full volume of CO_2 expected from domestic capture projects. This highlights the need for access to regional CO_2 storage.

Italy

Italy's CO_2 storage resource could be strategically important for countries such as Greece. For example, Ravenna CCS Phase 2 could provide up to 16 Mtpa injection capacity beyond 2030 making Italy an important storage option for emitters across the Mediterranean (Eni, n.d.).

Following publication of the CCUS MASE Study from the CCS Committee in August 2025, the Italian Government has been progressing CCS legislation (Ministero dell'Ambiente e della Sicurezza Energetica: Dipartimento Energia, 2025). In February 2026, Decree Law n.21 introduced a requirement for Italy's energy regulator (ARERA) to establish an interim framework governing access to CO_2 transport networks and storage sites, as well as rules for the accounting of captured and transferred CO_2, in advance of a comprehensive CCS regulatory regime (DECRETO-LEGGE 20 Febbraio 2026, n. 21, 2026).

Croatia

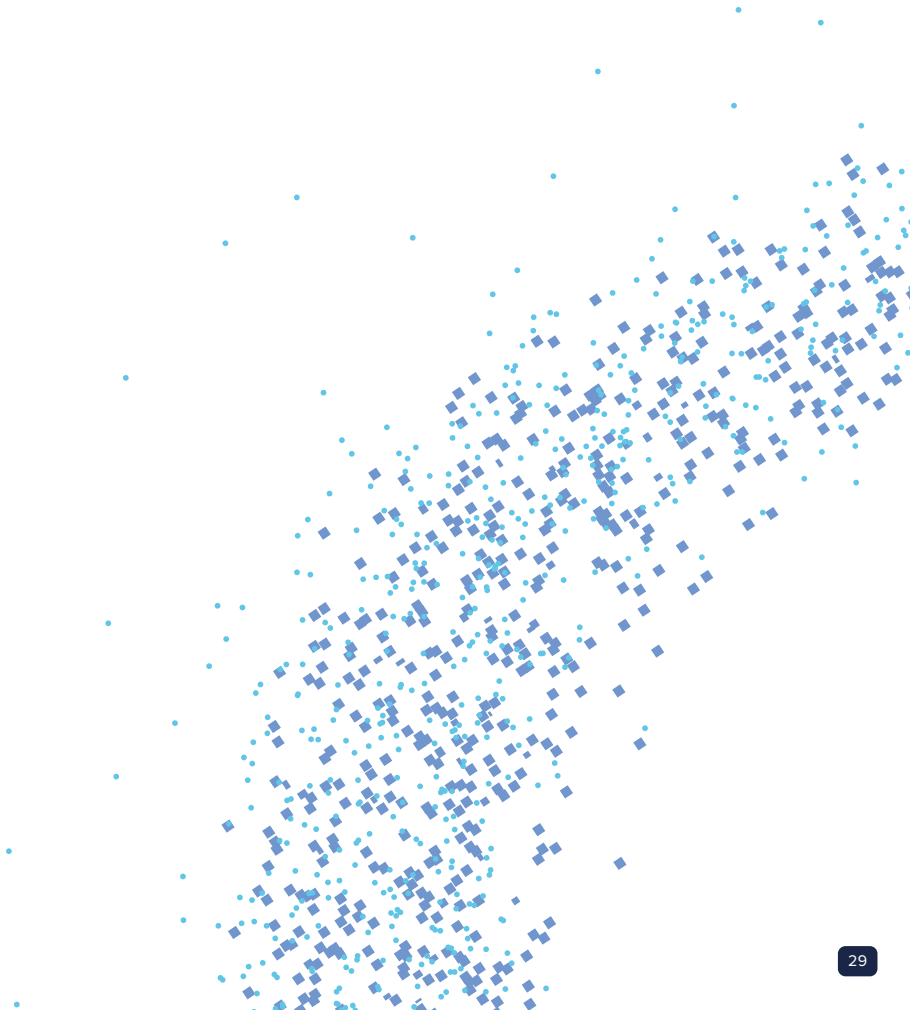
Croatia is advancing its CO_2 storage resource knowledge. As part of the National Recovery and Resilience Plan 2021-2026, the government allocated €2.67 million to assess national CO_2 storage opportunities. The resulting storage atlas identifies >1 Gt of CO_2 storage resource, highlighting the country's potential long-term role in regional storage provision (Croatian Hydrocarbon Agency, n.d.).

France

In the last year, under the first round of France's Grands Projets Industriels de Décarbonation (GPID) programme, seven industrial projects were selected. Four successful projects were CCS projects and one, Vicat's VAIA project in the Rhone valley, anticipates CO_2 storage in the Mediterranean (VICAT, 2026). In June 2026, the French government opened applications for the second round of the GPID and a successor to the "DECARB IND" call, which could further support CCS project development around the Mediterranean region (French Government, 2026).

Spain

Spain has recently committed to supporting CCS through targeted funding programmes. The Ministry of Industry and Tourism has awarded €119 million to Votorantim Cimentos to construct a CO_2 capture plant in Bierzo, Spain (Ministerio De Industria Y Turismo, 2026). The Ministry also awarded €200 million to CEMEX for their SOMZERO carbon capture project in Alcanar.



Middle East and Africa

CCS progress remains resilient amid regional uncertainty

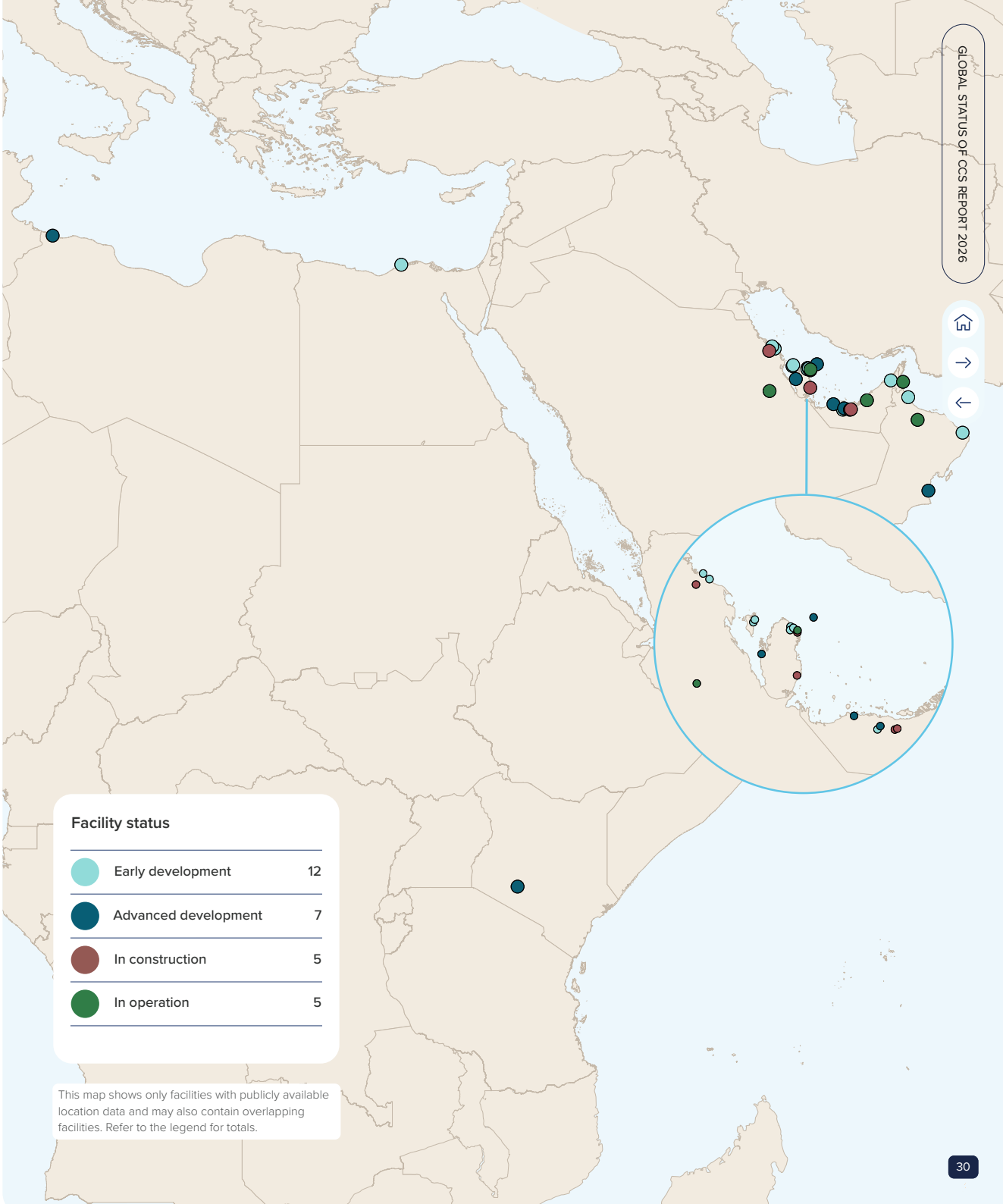
Over the past 12 months, the Middle East and Africa (MEA) region has maintained strong momentum on CCS through a combination of large-scale Gulf-led project execution, advancing policy and regulatory frameworks, emerging African carbon management initiatives, and the expansion of carbon market and carbon removal ecosystems. However, the conflict in the region is increasing pressure on energy security, affordability and public resources, potentially delaying some CCS and net-zero investments. The next 12 months will be critical in determining whether these pressures slow decarbonisation plans or reinforce the case for resilient, lower-carbon energy systems.

Focus – In the Middle East, governments and industry remain focused on developing large-scale CCS hubs, integrated CO_2 transport and storage infrastructure, and carbon management value chains linked to LNG, hydrogen, ammonia, power generation, and heavy industry. Across Africa, efforts are more targeted, concentrating on industrial decarbonisation opportunities, carbon market development, early-stage CCS piloting, and emerging DAC initiatives that align with national development priorities and international climate cooperation.

Drivers – CCS deployment across MEA is being driven by net-zero commitments, industrial competitiveness requirements, evolving climate policy frameworks, and growing international demand for low-carbon products. Dedicated carbon-management policies and international cooperation may improve investment conditions and expand opportunities for technology transfer and carbon-finance collaboration, although implementation and market uncertainty remain.

Progress – The region continued to progress over the past year, led by major project advancement in Saudi Arabia, Qatar, the UAE, and Oman, alongside the introduction of landmark policy and regulatory frameworks. Africa also continued to build momentum through industrial CCS initiatives, carbon market reforms, DAC pilots, and enhanced international cooperation.

Challenges – Despite continued progress, deployment remains concentrated in a small number of Gulf countries and in projects with a near-term business case for CO_2 utilisation. While these projects can support longer-term CCS development, they do not always prioritise permanent storage. Across the region, regulatory frameworks, transport and storage business models, financing mechanisms and storage validation processes remain under development. In Africa, most projects are still at pilot or feasibility stages, constrained by infrastructure, investment readiness, institutional capacity and carbon-market maturity.





Ras Al Khaimah Power Plant decarbonisation, UAE, image courtesy of Gulf Cryo.

Policy, projects and partnerships expand carbon management momentum

The Gulf Cooperation Council (GCC) countries continued to drive regional progress through integrated CCS infrastructure linked to LNG, ammonia, carbon removals and industrial decarbonisation, alongside new CCUS policies and updated emissions-reduction targets. Across Africa, progress was more targeted, centred on sector-specific decarbonisation, carbon-market development, and early-stage CCS and DAC initiatives. Together, these trends reflect two distinct pathways: integrated, large-scale carbon management in the Gulf, and targeted industrial decarbonisation and carbon market development across Africa.

Policy and regulatory progress

Policy and regulatory momentum accelerated significantly across the region during the reporting period. The UAE's Federal Decree-Law No. 11 of 2024, the first dedicated climate law in MEA, entered into force. Abu Dhabi also launched its General Policy on Carbon Capture (SCFEA, 2025). Meanwhile, the UAE is moving towards mandatory use of sustainable aviation fuel (Dii, 2025). Saudi Arabia and Qatar strengthened their climate commitments through their updated Nationally Determined Contributions (NDCs), explicitly identifying CCS as a key mechanism for achieving long-term emissions reduction targets (Argus, 2026a; Caroline Varin, 2025). Carbon market development also accelerated across the region. Saudi Arabia expanded its voluntary carbon market ecosystem through the integration of GCC-certified carbon credits (Vasil Velev, 2026).

In Africa, Nigeria launched a CCUS Technology and Innovation Platform (Charles Opurum, 2026). Kenya activated its national carbon registry (Violet George, 2026), and Mozambique revised its petroleum legislation to explicitly include CCS activities (Profile, 2025), and Nigeria and Egypt advanced national carbon market frameworks (Sustainable Stories Africa, 2026; Rana Alkady, 2026). Morocco published a cement decarbonisation roadmap identifying CCUS as a key technology for achieving net-zero emissions by 2050 (Association Professionnelle des Cimentiers, 2026) and strengthened its position through an Article 6.2 cooperation agreement with Norway, highlighting the growing role of international carbon markets and cross-border cooperation (Argus, 2026b).

Read more: click here

Abu Dhabi general policy on carbon capture

In 2025, Abu Dhabi launched its General Policy on Carbon Capture, providing a strategic framework to accelerate the deployment of carbon capture, utilisation and storage across the Emirate. The policy establishes a coordinated framework for shared CCUS hubs and network infrastructure, with a Transport System Operator designated by the Supreme Council for Financial and Economic Affairs (SCFEA) and at least 51% government ownership. It provides for regulated transport and storage tariffs, multiple storage and utilisation business models, and defined arrangements for storage access, monitoring, liability and eventual government stewardship. It represents one of the most comprehensive carbon management policy frameworks introduced in the region and signals Abu Dhabi's ambition to become a leading global hub for carbon management and low-carbon industrial development.

Project development

GCC countries continue to lead project development in the MEA region, where countries advanced both large-scale CCS facilities and enabling infrastructure. Qatar progressed the 4.3 Mtpa Ras Laffan CCS facility as part of its expanding LNG-linked carbon management programme, with the engineering and construction contract awarded to Samsung C&T group and Worley (Samsung C&T Global PR Manager, 2025; Pratap John, 2025).

Saudi Arabia continued advancing the Jubail CCS Hub, targeting 9 Mtpa of capture capacity by 2028 (Aramco, 2026), while also expanding DAC activities through partnerships involving Climeworks, Siemens Energy, KAPSARC, the Royal Commission for Jubail and Yanbu and the Ministry of Energy (Climeworks 2026; 2025).

In the UAE, ADNOC achieved a major milestone with the West Aquifer storage site receiving ISO 27914 site certification by DNV, the first of its kind certified storage site in the MEA region, strengthening confidence in regional storage resources (JPT, 2026).

Oman has mapped an investment programme across its energy system through 2032 and allocated about USD 150M for CCS projects (Nora Watts, 2025). In addition, Oman is advancing one of the region's most ambitious carbon management infrastructure initiatives through OQGN's proposed national CO_2 transport network, expected to exceed 800 km and connect industrial emitters, storage resources and future low-carbon fuel projects across Northern, Central and Southern ecosystems. The Northern Hub has progressed to advanced feasibility studies, with a final investment decision anticipated by the end of 2026 (Conrad Prabhu, 2025a). Oman further strengthened its carbon management portfolio by progressing the Sohar Industrial CCS Cluster, targeting 1-2 Mtpa of CO_2 capture and storage by 2032 (Conrad Prabhu, 2026), alongside commissioning the Sirona Project Moringa DAC facility with total capacity of 300 tpa (Conrad Prabhu, 2025b).

Kuwait further advanced its long-term CCUS strategy, centred on a phased pathway targeting 26 Mtpa of capture capacity by 2050 and the development of a large-scale West Kuwait CCS Hub (Sajeev Peter, 2025).

Across Africa, deployment activity remained concentrated in targeted industrial and energy-sector opportunities. Egypt advanced the MOPCO CCUS project in Damietta with thyssenKrupp Uhde (Sarah Samir, 2026), while Nigeria progressed upstream decarbonisation initiatives linked to emissions reduction in the oil and gas sector (Sakinat Abubaker, 2026). Kenya continued development of Octavia Carbon's Hummingbird DAC project and secured an offtake agreement via Carbon Direct (Sasha Ranevska, 2026), and Angola commissioned the world's first post-combustion CO_2 capture system on an operating Floating Production, Storage and Offloading (FPSO) (Ecofin Agency, 2026). South Africa advanced geological storage assessment activities through its pilot injection well programme (Council of Geoscience, 2025), while Morocco published a cement sector decarbonisation roadmap with a 23% emissions reduction target for 2030 that identifies CCUS as essential for achieving climate neutrality by 2050. (Ismail Saraoui, 2026).

In addition, the region recorded growing momentum in engineered carbon removals, industrial decarbonisation and carbon mineralisation. Notable developments included Gulf Cryo's high-purity CO_2 capture project at RAK Ceramics in the UAE (RAK Ceramics, 2025), and the Holcim-44.01 carbon mineralisation pilot in Fujairah (Ibrahim Ssentongo, 2026).

Angola's Agogo FPSO opens a new frontier for offshore CCS

Angola commissioned an offshore post-combustion CO_2 capture system on Yinson Production's Agogo operational Floating Production Storage and Offloading (FPSO) vessel in 2026. Operated by Azule Energy as part of the Agogo Integrated West Hub, the system captures CO_2 from onboard exhaust gases using CESAR1, an amine-based solvent. The FPSO has an oil-production capacity of 120,000 barrels per day and serves the Agogo and Ndungu field developments.

The project is presented as the first deployment of post-combustion CO_2 capture on an operating offshore FPSO. It has been adapted for offshore space, weight and operational constraints and is now being monitored under real operating conditions. The capture system is part of a broader lower-emissions FPSO configuration, including combined-cycle power generation and fully electric topside and marine systems.

The Agogo system is primarily a demonstration project, designed to test the integration and performance of post-combustion CO_2 capture under offshore FPSO conditions. While the wider FPSO design is expected to reduce operational emissions by up to 27%, more information is to be published on the capture rate, annual CO_2 volumes captured or the final destination of the captured CO_2.

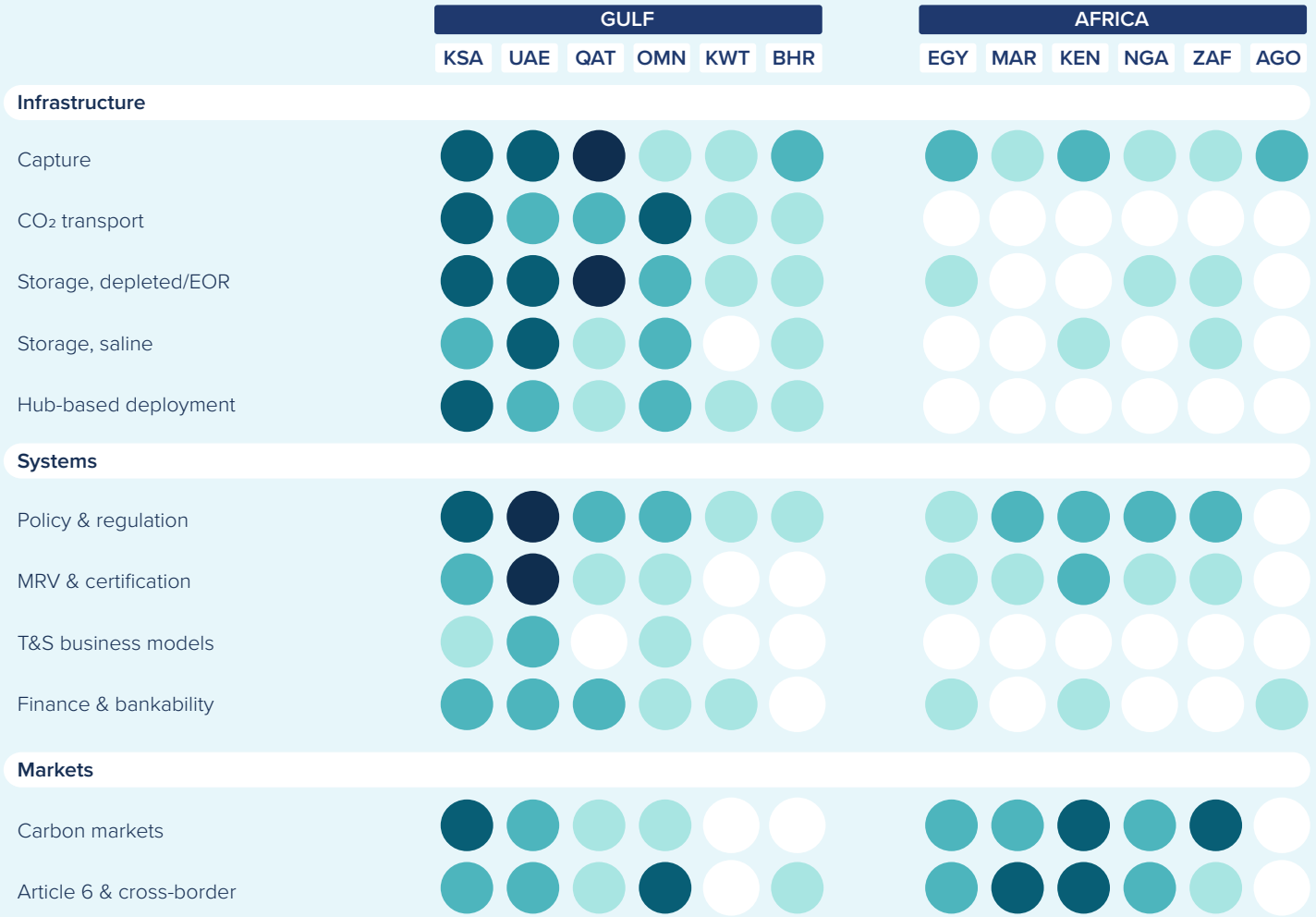
The project supports Angola's wider approach of reducing emissions from oil and gas operations while maintaining hydrocarbon production. Its main significance is the operational evidence it can generate for offshore capture applications, particularly for FPSOs where full electrification, grid connection and conventional onshore decarbonisation options are constrained.

Outlook and challenges

Over the next decade, growth in MEA carbon management is expected to concentrate in industries where CCS either protects existing export revenues or enables new low-carbon products. The strongest demand is likely to come from LNG and gas processing, hydrogen and ammonia, refining and petrochemicals, cement, fertilisers, gas-fired power, and engineered carbon removals. DNV is projecting Middle East and North Africa (MENA) capture capacity could reach approximately 250 $MtCO_2$ per year by 2060 across the different sectors (DNV, 2026).

While the GCC is expected to remain the primary deployment engine, driven by integrated carbon management strategies and state-led investment (the figure to the right), growth across Africa is likely to remain more targeted, focusing on industrial sectors and technologies aligned with domestic priorities, resource advantages, international carbon market opportunities and Multilateral Development Banks (MDBs) support. International cooperation is expected to play an increasingly important role in regional deployment. Initiatives such as the Omani OQGN–Gasunie partnership to explore a future hydrogen supply chain to Northwest Europe and advance collaboration on CCUS technologies and innovation and Morocco's Article 6.2 agreement with Norway illustrate a broader shift towards cross-border carbon management value chains.

Realising this growth will depend on the pace at which enabling systems mature. While capture technologies are increasingly proven, future deployment will require commercially viable transport and storage business models, legal and regulatory certainty, long-term liability frameworks, robust MRV systems and continued investment in storage appraisal. Outside the Gulf, strengthening institutional capacity and access to finance will be critical to translating early-stage projects into commercial deployment.



KSA Saudi Arabia, UAE United Arab Emirates, QAT Qatar, OMN Oman, KWT Kuwait, BHR Bahrain, EGY Egypt, MAR Morocco, KEN Kenya, NGA Nigeria, ZAF South Africa, AGO Angola.

Qatar's CCS-LNG model continues to scale

Qatar is positioning itself to become a leader in integrated CCS deployment through the expansion of its LNG-linked carbon management strategy. At the centre of this effort is the Ras Laffan CCS project, where Samsung C&T has been awarded the EPC contract for a new 4.3 Mtpa capture facility, while Worley is undertaking detailed engineering.

QatarEnergy has already stored approximately 7.5 million tonnes of CO_2 since 2019, providing one of the largest operational CCS programmes in the region. The country's updated NDC further reinforces the role of CCS, targeting 11 Mtpa of capture capacity by 2035 as part of its broader emissions reduction strategy.

Asia-Pacific and India

Policy builds the foundation for future investment

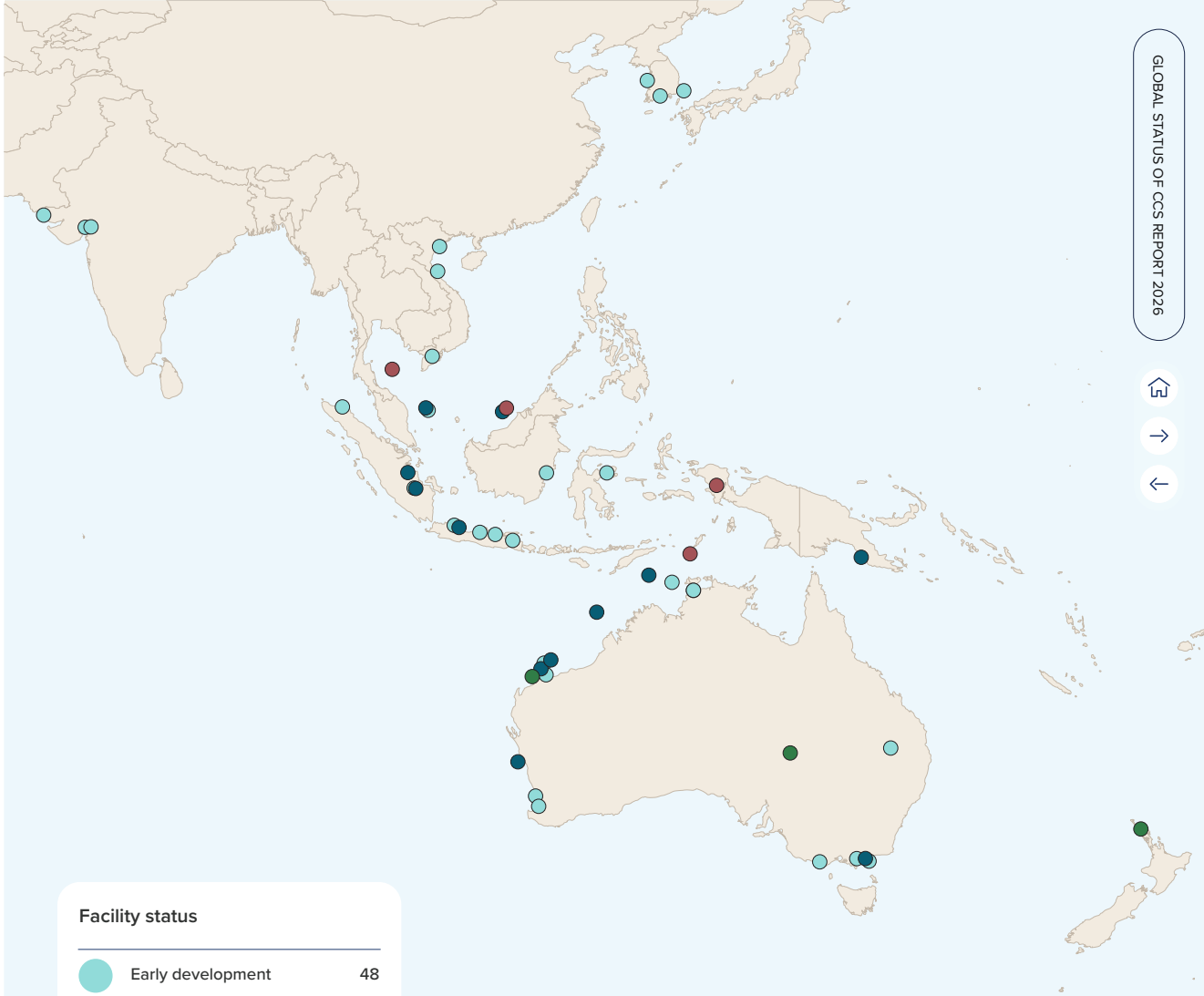
Governments across the region continue to recognise the critical role of CCS in achieving climate targets. Australia, Indonesia, Malaysia and Singapore have continued to develop relevant policies and/or regulations. Nations that are less developed are closing the gap. India announced material funding to support CCS and Thailand confirmed the Department of Climate Change and Environment as the lead for CCS policy and has commenced the development of CCS regulations. Nations with the least developed policy such as Vietnam, Cambodia and Brunei-Darussalam are considering CCS as part of their climate strategies. However, only PTTEP's Arthit project in Thailand achieved a final investment decision since the 2025 Global Status of CCS Report, demonstrating that with few exceptions, current policy settings are still insufficient to drive investment.

Progress – India announced ~USD2.2B in support for CCS to be available over the following 5 years and several governments advanced administrative arrangements, policies or regulations. Australia launched the second phase of a fund to support CCS technology development making AUD62 million in grants available.

Drivers – Eight nations now reference CCS in their national strategies or Nationally Determined Contributions as new or evolving emission trading schemes or carbon taxes set an expectation of future growth in carbon pricing. Recognition of abatement delivered through CCS is being formalised in statutory government programmes that create an incentive or obligation to reduce emissions.

Collaboration – Negotiations between nations are advancing slowly towards agreements enabling cross-border CO_2 transport and storage. Several MoUs between governments to cooperate on CCS and between private sector companies for joint studies have been executed.

Challenges – The business case for investment by private sector companies remains difficult with only one new CCS project reaching FID in the region since GSR2025. Policy settings will need to be strengthened to bring forward the next wave of CCS projects.



Facility status	
Early development	48
Advanced development	14
In construction	4
In operation	3

This map shows only facilities with publicly available location data and may also contain overlapping facilities. Refer to the legend for totals. China and Japan are excluded from this map and project counts and are presented separately.

Increased recognition

Australia, India, Indonesia, Singapore and Thailand now reference CCS in their NDCs or climate strategies, while Malaysia's updated NDC identifies CCUS as critical to long-term decarbonisation. Cambodia and Thailand mention CCS/CCU for the first time, and Brunei Darussalam is assessing CCS as part of its broader energy transition planning.

See case study on India

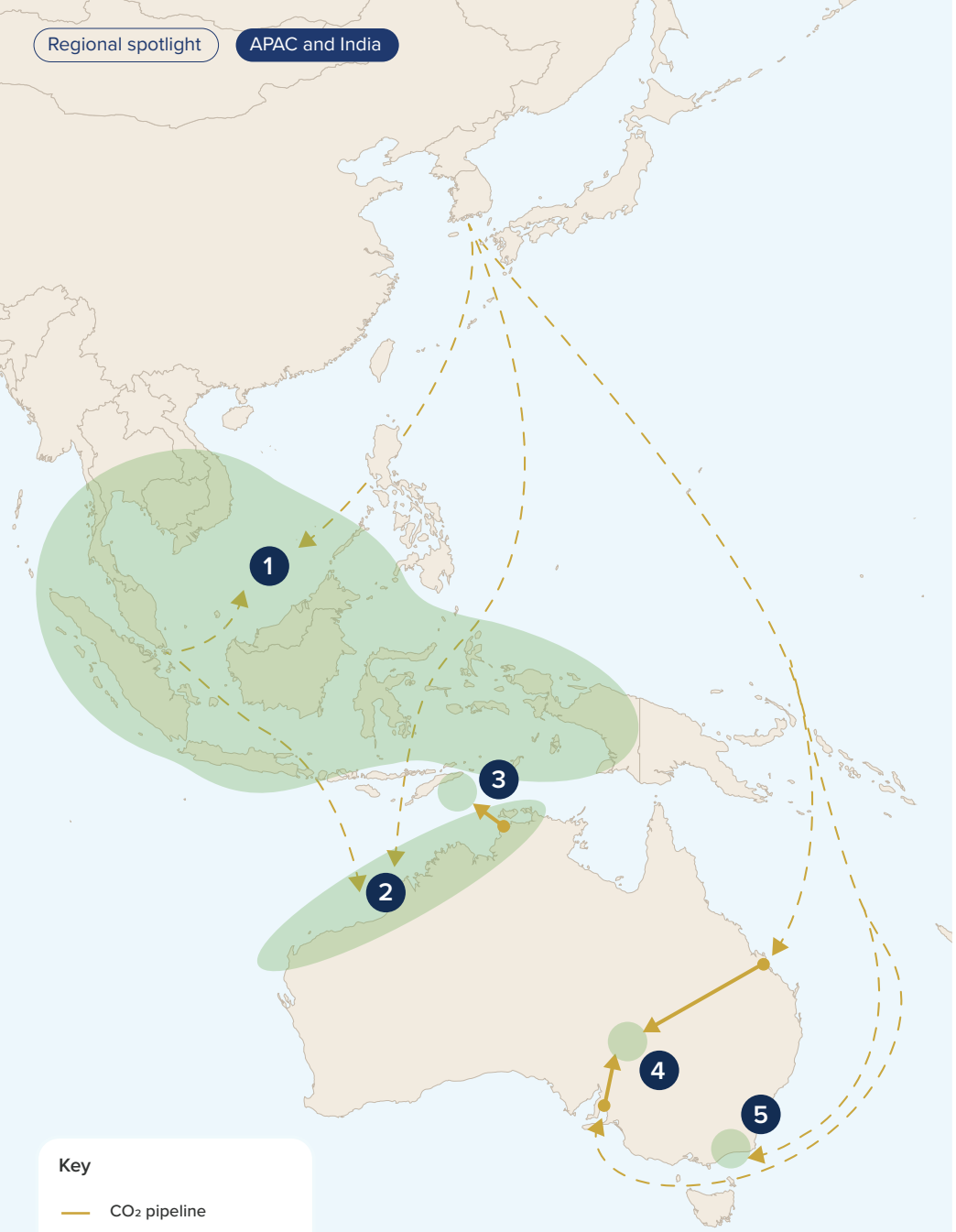
Dedicated CCS regulation

CCS-specific regimes in some jurisdictions (e.g. Australia) utilise existing petroleum licensing regimes and environmental legislation. Several Asia-Pacific (APAC) states are moving from generic petroleum or environmental provisions towards CCS-specific regimes, treating CCS as a distinct climate mitigation activity, not just an adjunct to oil and gas production. Western Australian state legislation establishing a comprehensive regulatory regime for transport and storage of CO_2 came into force in May 2026. Malaysia enacted the Carbon Capture, Utilization and Storage Act 2025 and detailed Offshore Permit and Licensing Regulations establishing licensing, monitoring and post-closure stewardship requirements and an injection levy to fund long-term site management. Thailand commenced the development of CCS legislation in 2026 and New Zealand proposed an "Enabling CCUS" regime and permitting system run by its Environmental Protection Agency. Indonesia promulgated Presidential Regulation No. 110 of 2025 on Carbon Economic Value Instruments and National GHG Emissions Control completing its CCS regulatory regime.

Several Governments have also determined CCS institutional and administrative arrangements. (Smith et al., 2026)

- Malaysia created the MyCCUS Agency which issued the first offshore assessment permit to PETRONAS in late 2025.
- Thailand designated the Department of Climate Change and Environment as the central coordinating authority for CCS policy and legal development.
- South Korea delegated responsibility for CCS to the Ministry of Climate, Energy and Environment.
- Singapore established the CCS Programme Office to coordinate domestic CCS deployment and bilateral negotiations with potential storage partners.





Developing carbon pricing

In Australia, Santos received the largest ever issue of Australian Carbon Credit Units from the regulator (1,194,662 over the 12 months to 29 June 2026) for abatement delivered by Moomba CCS (Moomba Carbon Capture & Storage Project, 2026). New Zealand proposed to integrate CCS into its Emissions Trading Scheme (ETS) and Indonesia is building an "Economic Value of Carbon" framework and carbon market. Vietnam launched a pilot ETS in 2025 and released a decree in January 2026 to establish the legal foundation for the domestic carbon market. This follows from India adding CCS to its Carbon Credit Trading Scheme in 2024. More broadly, rising carbon taxes/ETSs in Singapore, South Korea, Thailand and Malaysia (planned) expand the broader carbon pricing landscape in the region (Smith et al., 2026).

Government funding

India committed approximately USD 2.2 billion (₹20,000 crore) over five years to support CCUS in power, steel, cement, refineries and chemical production (Hidayat, 2026). Australia launched round two of the Carbon Capture Technologies programme, offering grants up to AUD 10 million for pilot and demonstration projects that capture, utilise or remove CO_2. (Grant Opportunity Guidelines Carbon Capture Technologies programme-Round 2, 2025)

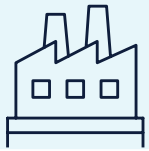
Potential transnational CO_2 transport under consideration

CO_2 could be exported from Japan, South Korea and Singapore for storage in storage areas located in Malaysia, Indonesia, Thailand or Australia. CO_2 from gas facilities at Darwin, Australia could be exported via an existing pipeline owned by Santos for storage in Timor-Leste.

How would it work?

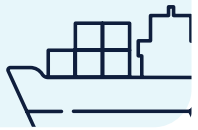
1 CO_2 capture

CO_2 is captured at industrial facilities



2 CO_2 transport

CO_2 is transported by ship or pipeline to a geological storage hub



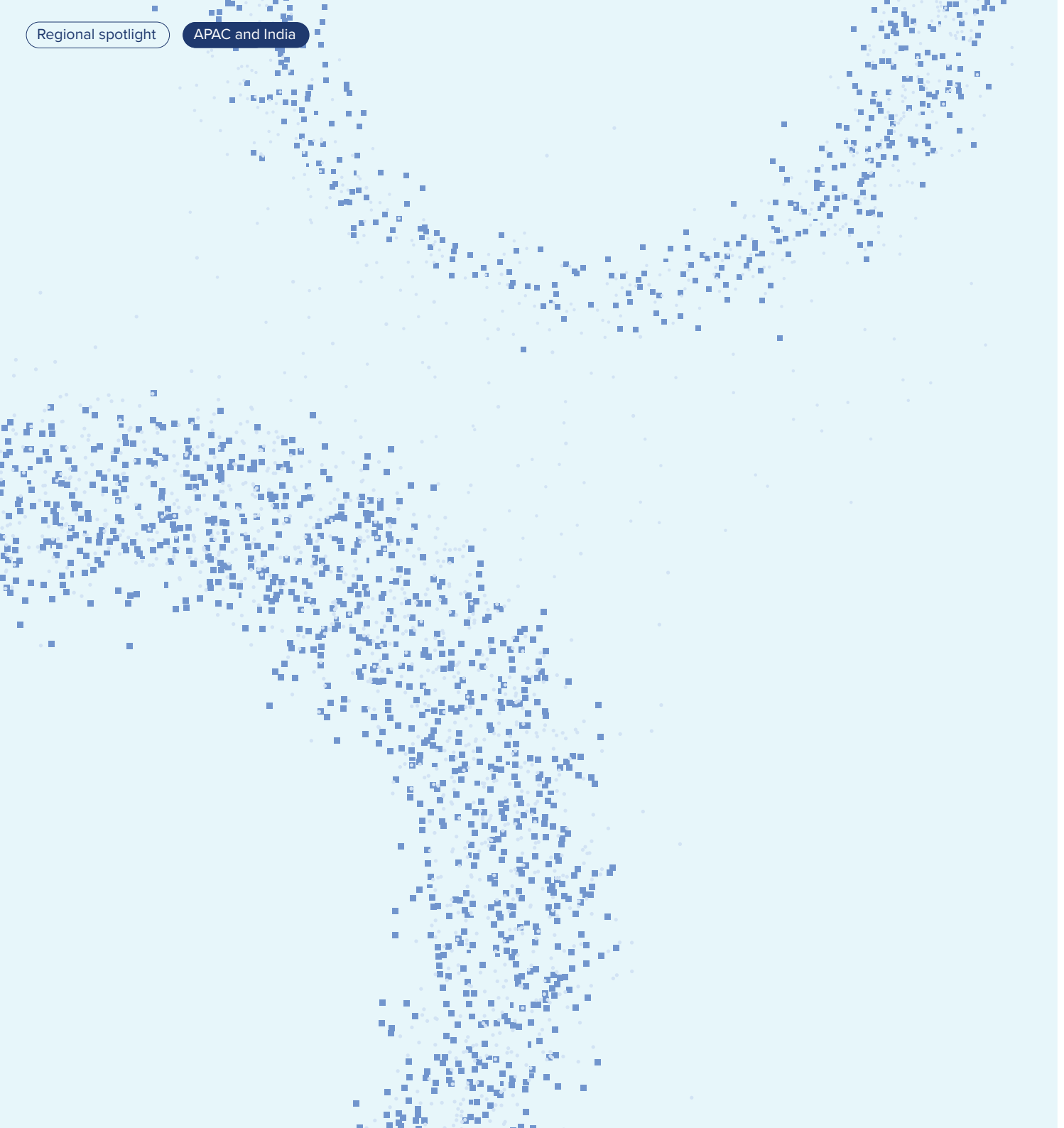
3 Geological storage

CO_2 is injected deep underground into suitable geological formations for permanent storage



Key storage options

1. Southeast Asia: Malaysia, Indonesia, Thailand
2. Northwest Australia
3. Bayu Undan, Timor Sea
4. Moomba, South Australia
5. Gippsland Basin, Victoria



Cross-border CCS value chains

The focus on cross-border CCS is prominent in APAC, driven by geography and geology: Singapore, Japan, and South Korea plan to export CO_2 for storage in Australia, Indonesia or Malaysia. Several MoUs to negotiate government-to-government agreements that are essential to allow cross-border transport have been signed; however, no binding agreements are yet in place. Australia, Indonesia, Malaysia and Japan have enacted legislation that explicitly allows CO_2 import/export for storage. (Smith et al., 2026).
The groundwork is being laid, but the next phase must address the hard legal questions (e.g., liability transfer, long-term stewardship, crediting rules) and commercial risk allocation.

Projects

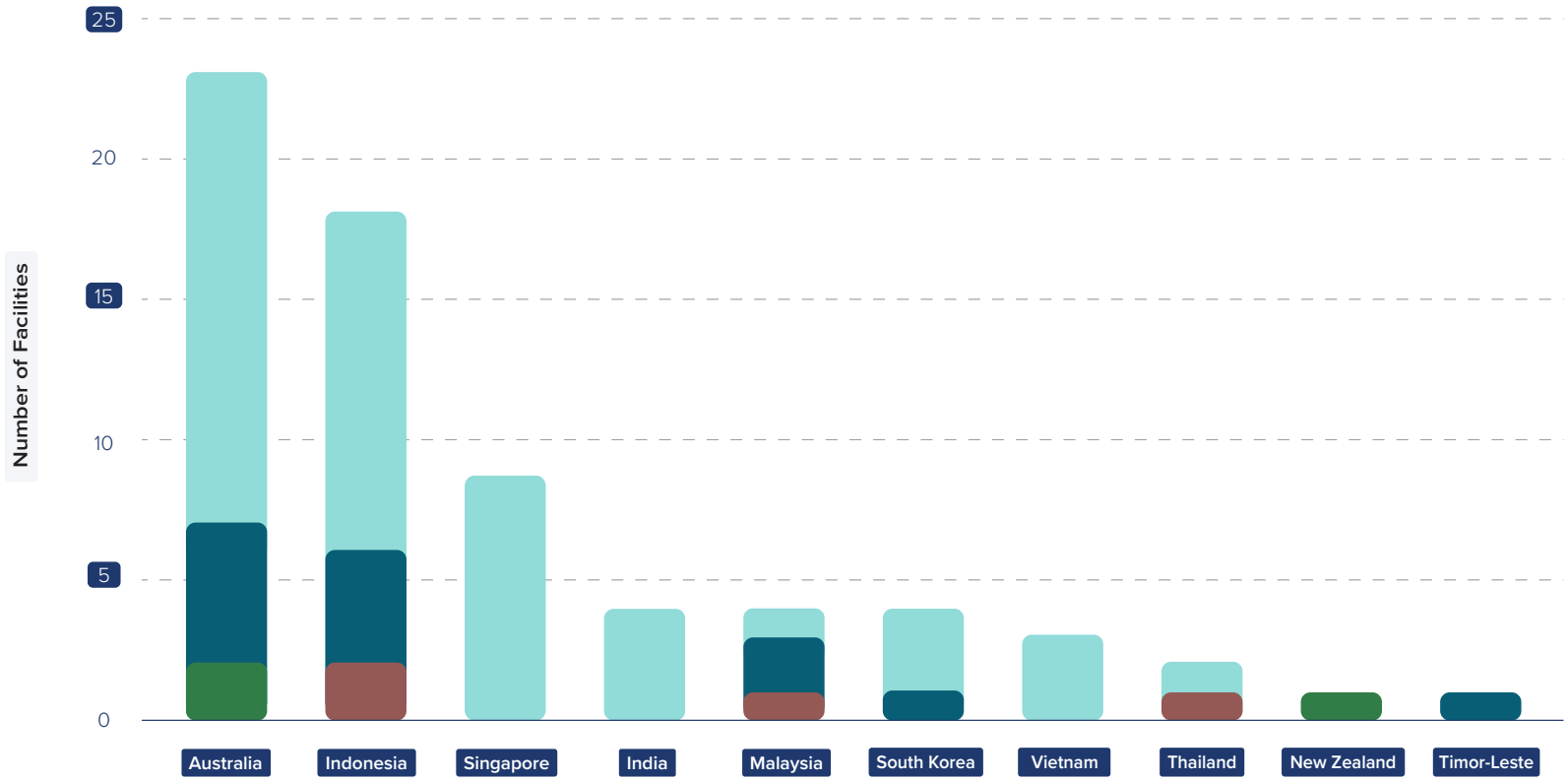
The oil and gas industry is leading CCS project development in the region through the convergence of three critical enablers:

- Availability of a stream of high concentration CO_2 which is separated from hydrocarbons as part of normal operations.
- Expertise in the management and reinjection of fluids into the subsurface.
- Large balance sheets and experience in developing capital-intensive projects.

PTTEP's Arthit CCS project in Thailand reached FID in September 2025. With Petronas' Kasawari CCS in Malaysia and bp's Tangguh CCS and Inpex's Abadi project in Indonesia, four CCS facilities are now under construction in the region. All four are expected to commence operations by 2030 with a total combined CO_2 capture and storage capacity exceeding 10 Mtpa. This represents more than a doubling of the number of operating CCS facilities and a potential 350% increase in the rate of CO_2 storage in Southeast Asia, Australia and New Zealand. In addition, there are currently three facilities operating; Chevron's Gorgon CCS and Santos' Moomba CCS in Australia along with Ngawha Geothermal's facility in New Zealand, which are collectively storing around 3 Mtpa of CO_2.

The total number of CCS facilities in development that have not yet reached FID in the region increased from 49 reported in the 2025 GSR to 62 this year. Whilst the uptick in government policy support is encouraging new projects into the project-pipeline, policy settings remain insufficient to incentivise many of them to make an investment decision. Nonetheless, pre-FID project development activity continues with several feasibility or FEED studies announced during the last year. Some examples include:

- JERA and Marubeni are evaluating CCS potential at the Cirebon No. 2 Unit, a coal fired generator owned by Indonesian state-owned power utility PLN. (Oki, 2025).
- GE Vernova and YTL PowerSeraya announced a feasibility study of carbon capture technology for a 600-megawatt hydrogen-ready combined-cycle gas turbine (CCGT) power plant planned on Jurong Island. (GE Vernova and YTL PowerSeraya Kick off Post-Combustion Carbon Capture Feasibility Study in Singapore, 2025).
- Air Liquide and Aster Chemicals & Energy signed an MoU to develop an Auto Thermal Reformer in Singapore with integrated carbon capture, targeting up to 99% CO_2 capture to supply low-carbon hydrogen to industry and power. (Air Liquide and Aster Sign MoU to Collaborate on Low-Carbon Hydrogen Production in Singapore, 2025).
- Hibiscus Petroleum awarded a contract to Reservoir Link to appraise potential CO_2 storage resources in the PM3 Commercial Arrangement Area, a Malaysia-Vietnam joint development area. (Baker, 2026).
- The shipping companies NYK Line and Knutsen NYK Carbon Carriers signed an MoU with PETRONAS to jointly study the feasibility of commercial liquefied CO_2 transportation and storage in Southeast Asia. (NYK and KNCC to Study CCS Value Chain with PETRONAS CCS Solutions, 2025).



Facility status

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Conclusion

CCS is being woven into national policies, backed by projects and pilots, and supported by legislation, institutions and market mechanisms. Nations with less developed CCS policy and regulatory regimes are moving rapidly to close gaps, especially India and Thailand whilst those with the least developed policy such as Vietnam, Cambodia and Brunei-Darussalam are now considering CCS. The next phase will hinge on deepening this framework through stronger policy that can support the “next wave” of private investment and cross-border CCS value chains the region will need to meet its climate goals.

Case study: India

India has rapidly growing energy demand and derives more than 75% of its total energy supply from fossil fuels. Energy related CO_2 emissions in India more than tripled between 2000 and 2023 reaching over 2700 Mtpa CO_2 and now account for almost 8% of global emissions (Energy System of India, n.d.). The Government of India has recognised the necessity of CCUS in its most recent Nationally Determined Contribution and is supporting broad application of CCUS across its power, cement, steel and chemical industries.

CCUS is critical to reducing emissions and over the past three years, the Government of India has moved from largely conceptual discussions about CCUS to integrating CCUS into its approach to achieving net-zero emissions by 2070.

India's CCUS programme is being taken forward in "mission mode" with the Ministry of Power as the central coordinator across Ministries. (Gupta, 2025) This mirrors India's approach in other strategic areas (e.g. renewables, hydrogen) where mission-mode programmes have been effective in focusing funding and regulatory attention and establishes a single point of accountability within government.

Under the "mission mode" approach, the Indian government has initiated the core elements of a national deployment pathway: recognising abatement from CCUS in mandatory emission reduction programmes, developing R&D strategies, setting a clear policy direction and integrating CCUS into industry strategies, and activating investment by providing material financial support. This has sent a clear message to industry, building confidence to develop India's first storage and injection pilot projects. Taken together, the steps form a coherent, if still early-stage strategy to deploy CCUS at the scale necessary to support achievement of India's 2070 Net-Zero target.

India's CCUS policy roadmap: 2023-2026

Building the foundation, enabling integration, and accelerating large-scale deployment

Recognition	Integration	Activation
Establishing policy foundation and market mechanisms	Integrating CCUS into national missions and R&D ecosystems	Mobilising investment and enabling large-scale deployment

2023 - 2024

Recognition of CCUS in carbon trading and emissions intensity obligations

- CCUS was officially approved as one of ten eligible sectors able to create offsets recognised by India's Carbon Credit Trading Scheme (CCTS) in late 2023.
- From 2024 detailed procedures and compliance mechanisms enable the development of a specific methodology to create carbon credits using CCUS (not yet developed).
- Obligated entities can deduct captured and stored CO_2 from their reported emissions to meet Greenhouse Gas Emission Intensity targets.

Outcome

CCUS recognised and enabled within market mechanisms.

Q3 2025

Integration of CCUS into coal gasification mission and industrial hubs

- In September 2025 the Indian Government announced that CCUS will be integrated into India's industrial hubs & Coal Gasification Mission.
- The Coal Gasification Mission has a target of gasifying 100 Mt of coal by 2030 to produce chemicals, methanol, hydrogen and syngas.

Key enabler

CCUS is integrated into key industrial policies.

Q4 2025

Publication of national CCUS R&D roadmap

- In December 2025 the Department of Science and Technology publishes the National CCUS R&D Roadmap.
- Focus on near-term deployment towards India's 2070 net-zero target.
- Covers capture, transport, utilisation and storage technologies across industrial sectors.
- Strengthens institutional capacity to develop regulations, local standards and next generation technologies.

Goal

Technology leadership and deployment at scale.

H1 2026

USD 2.2 billion funding for CCUS deployment (Union Budget 2026)

- In February the 2026 Indian government allocated ₹20,000 crore (USD 2.2 billion) to support CCUS over the next five years.
- Funding will support CCUS across five key sectors: power, steel, cement, refineries and chemicals.
- Enables large-scale CCUS.
- In May 2026 the Government of India approved a ₹37,500 crore (USD 3.9 billion) financial incentive scheme to support the Coal Gasification Mission into which CCUS is being integrated.

Impact

Large-scale deployment and private sector participation.



India's first dedicated stratigraphic test well for CO_2 storage initiated by NTPC and IIT Bombay. Photo courtesy of Prof Vikram Vishal, Indian Institute of Technology Bombay.

New CCUS pilot projects

Consistent with the establishment of CCUS as a core element of India's climate and industrial priorities, two of India's largest state-owned enterprises have developed CCUS pilot projects.

The Oil and Natural Gas Corporation (ONGC), India's largest government-owned oil and gas producer, has initiated its first CCS pilot project in Gujarat. The pilot involves injecting around 100 tonnes of CO_2 per day into two depleted onshore wells at the Gandhar field. CO_2 used in the pilot will be captured from nearby industrial facilities in the Dahej industrial region, as well as from ONGC's own Hazira processing plant (George, 2026).

NTPC Limited (formerly known as National Thermal Power Corporation), India's largest power company, has successfully completed drilling India's first CO_2 injection test well in partnership with the Indian Institute of Technology Bombay. Drilling on a second well commenced in December 2025. The wells will be used to support feasibility studies, risk assessments, CO_2 plume modelling and a commercial development plan for large-scale CO_2 storage. (IIT Bombay, NTPC Drill India's First CO_2 Storage Test Well; Second Well Underway, 2025).

These pilot projects are critical to advancing CCUS in India. In addition to providing critical subsurface data, they demonstrate government-backed collaboration between a major state-owned generator (NTPC) and a leading technical institute (IIT Bombay), establish India's first dedicated CO_2 storage test site, a precondition for scaling CCUS in power and industry, build institutional and operational capability and experience in ONGC, NTPC and regulators for permitting, monitoring and reservoir management and demonstrate full chain CCUS on Indian soil. Finally, they are aligned with the National CCUS R&D Roadmap that calls for real-world CCUS demonstrations.

China

Scaling China's CCUS demonstration

China's CCUS sector continued to scale up in 2026, supported by expanding demonstrations across coal power, hard-to-abate industries, and offshore applications. The release of China's 15th Five-Year Plan (2026–2030) reinforced the strategic importance of low-carbon technologies, including CCUS, within the country's broader climate, energy security, and industrial transition agenda.

Notably, China's CCUS application landscape is expanding from land to sea. Alongside continued growth in onshore industrial projects, Chinese companies are advancing offshore carbon injection and storage activities and expanding their capabilities in marine CCUS technologies and infrastructure. At the same time, an increasing number of project developers are exploring CO_2 utilisation pathways to improve project economics and support the long-term viability of CCUS investments.

Together, these developments suggest that China's CCUS sector is evolving from isolated demonstrations towards a more integrated ecosystem spanning industrial decarbonisation, offshore applications, transport infrastructure, and emerging commercial value chains.

- **Foundation** – The 15th Five-Year Plan framework, together with the first quantified CCUS objective in the oil and gas sector plan, provides a clearer policy foundation for China's CCUS development through 2030.
- **Expansion** – China continues to progress CCUS demonstrations across multiple sectors. Alongside the growth of industrial-scale projects, developers are increasingly exploring CO_2 utilisation pathways to improve project economics and commercial viability.
- **Advancement** – China's offshore CCUS activities accelerated in 2026, extending the country's CCUS landscape beyond onshore demonstrations towards marine and offshore applications.
- **Outlook** – Continued policy support, infrastructure development, and industrial participation may further accelerate China's transition from CCUS demonstration towards larger-scale deployment.



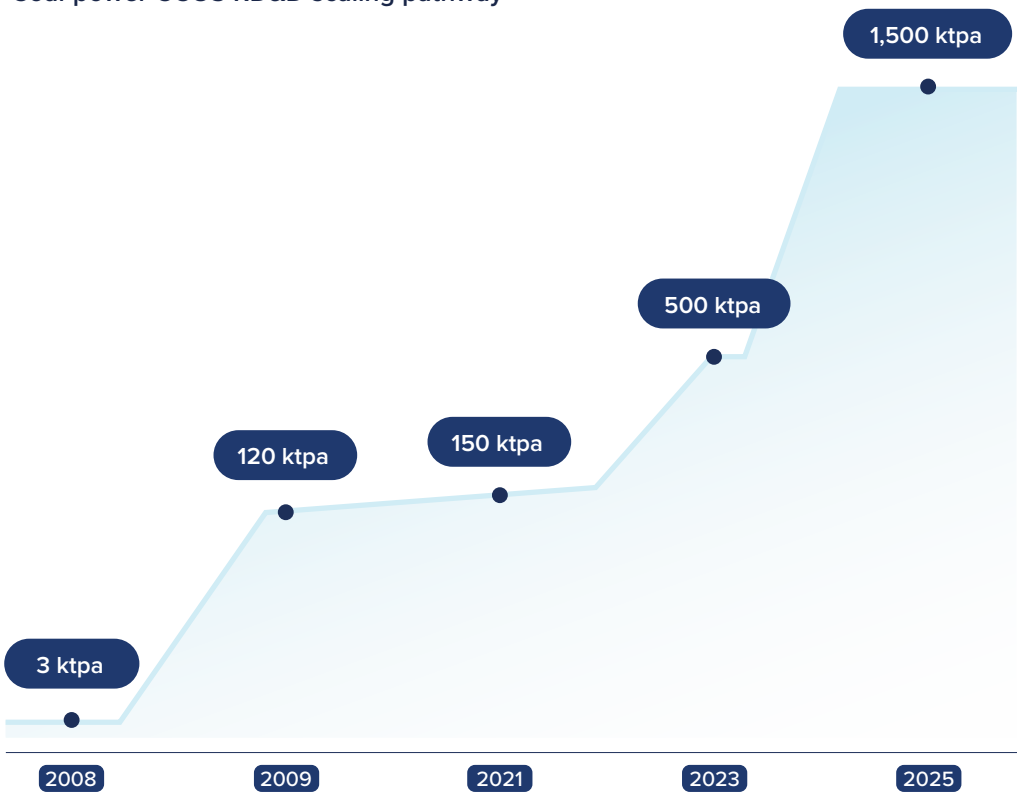
Huaneng Longdong Energy Base CCS Facility. Image courtesy of Huaneng Clean Energy Research Institute

Project development

Coal power

China's coal power sector continued to underpin the country's large-scale CCUS demonstrations in 2026. Following the commissioning of Huaneng's 1.5 Mtpa coal power CCS facility in September 2025, additional large-scale projects advanced across several provinces. The figure below shows the key milestones in China's coal-power CCUS RD&D scaling pathway.

Coal-power CCUS RD&D scaling pathway



Note: ktpa = thousand tonnes per annum; the year indicated the year this project commenced operation

CNPC Xinjiang is progressing with its 1 Mtpa coal-fired power CCUS project in Karamay, now halfway through construction (ChinaNews, 2026). This is part of Phase 1 of a larger 2 Mtpa CCUS initiative located next to a 2 × 660 MW ultra-supercritical coal power plant. The captured CO_2 will be utilised by CNPC Xinjiang for EOR. Phase 1 construction is scheduled for completion at the end of 2026.

In addition, two new industry-scale coal power CCUS projects are progressing: SINOPEC's 1 Mtpa project at the Shengli Oil Field in Shandong and China Resources' 500 Ktpa project in Tangshan, Hebei (AI8, 2026). In June, SINOPEC issued the second public notice on the environmental impact assessment for the Shengli 1 Mtpa coal power CCUS project, with construction expected to begin in October 2026 and end in October 2028 (Gas Community, 2026a).

Most of China's large-scale coal power CCUS demonstrations to date have adopted amine-based solvent capture technologies. However, the project pipeline is beginning to show signs of technological diversification. In July, China National Energy Zhoushan registered a 100 ktpa adsorption-based coal power CCUS demonstration project with the local government in Zhejiang. The project is scheduled to begin construction in June 2027 and become operational in December 2028 (Gas Community, 2026b).

Together, these projects indicate that coal power remains the leading near-term pathway for large-scale CCUS deployment in China and may serve as an important platform for driving cost reductions, building operational experience, and enabling future commercial deployment.

Hard-to-abate industries

China's CCUS deployment in hard-to-abate sectors is increasingly concentrated in the coal-to-chemicals, petrochemicals, and other emissions-intensive industries, where alternative decarbonisation options remain limited. Many newly announced projects combine carbon capture with utilisation or EOR, reflecting growing efforts to improve project economics and commercial viability.

In Shaanxi Province, Yanchang Petroleum commenced construction of a 1 Mtpa integrated CCUS project to capture CO_2 from a coal-to-chemicals facility. Construction of the capture facility began in December 2025 and is expected to be completed by the end of 2026 (HSW, 2026). In Xinjiang, Dunhua submitted an environmental impact assessment in January for a 2.8 Mtpa CCUS project to capture CO_2 from a coal-to-chemicals plant and transport it for EOR (XJHBCY, 2026). In April, Xinjiang Zhundong Government released an environmental impact assessment of Zhunneng Company's 900 ktpa CCUS project linked to a coal-to-natural gas facility, also for EOR (Meihuagong, 2026).

Oil and gas sector

The emerging theme from China's oil and gas sector in 2026 is the development of CO_2 pipelines. On June 12, Yanchang Petroleum began construction of a 145 km CO_2 pipeline with an annual transport capacity of 2.80 Mtpa (HSW, 2026). The pipeline is part of an integrated project that captures CO_2 from a coal-to-chemical plant and uses it for EOR. It is expected to be completed in 2027.

CNPC Jilin is also on track to complete construction of a 282 km carbon transport pipeline in Northeastern China, with an annual capacity of 3.3 Mt. This is the first phase of a two-phase, 400 km pipeline project, with the first phase planned to be operational in 2026 (CNPC, 2026).

Offshore development

Offshore applications became a notable development in China's CCUS landscape in 2026. CNOOC began construction of a CCUS project at the Dongfang 1-1 gas field off Hainan Province in April 2026 (George, 2026). The project will use offshore carbon injection technology to enhance natural gas production and store more than 1 million tonnes of carbon dioxide annually.

Meanwhile, Chinese shipbuilders and engineering companies continued to expand their capabilities in CO_2 transport vessels and in floating production, storage and offloading infrastructure equipped with carbon capture technologies (Skopljak, 2026). By January 2026, Dalian Shipbuilding Offshore delivered the first four vessels for the Northern Lights Project and received a new order earlier this year (Norlights, 2026).

Chinese companies, including CSSC Power and Shanghai Qiyao Technology Group, also accelerated efforts to develop onboard carbon capture technologies for ships. Lastly, Chinese stakeholders actively participated in discussions at the International Maritime Organisation on regulatory frameworks for maritime carbon capture systems (Bunker, 2026), while domestic companies continued to test onboard capture technologies and CO_2 handling systems.

Policy development

China's 15th Five-Year Plan (2026–2030) sets out the country's climate and industrial strategies, which could shape CCUS development over the next five years. Although CCUS is not a primary focus of China's short-term energy transition, its inclusion in the Plan, together with stricter carbon regulations and continued emphasis on energy security, underscores its growing strategic importance in sectors where deep decarbonisation is difficult or costly. The Plan also signals a shift from targeting carbon intensity alone to imposing more stringent overall emissions limits, likely increasing long-term demand for carbon management in heavy industries and fossil fuel systems (Huld, 2026). These policy signals suggest China's CCUS sector is moving from isolated pilot projects towards more coordinated, system-wide deployment.

A more concrete policy signal emerged from the 15th Five-Year Plan for the Oil and Gas Sector (2026–2030), which became the first Chinese policy document to include a quantified CCUS objective. The Plan sets a new target of 10 million tonnes of annual CO_2 injection from CCS and CCUS projects by 2030. This target provides a clearer sectoral signal for CCUS deployment, particularly in the oil and gas industry, where CO_2-EOR, offshore injection, and geological storage are becoming important near-term pathways for scaling carbon management activities.

In addition, China's State Administration for Market Regulation approved 12 national standards for CCUS on January 8, 2026 (SESEC, 2026). These standards, effective July 1, 2026, cover the entire CCUS value chain and foundational areas, promoting technological innovation and industrial application. Five of the standards are identical to ISO International Standards. These developments signal the beginning of a transition from project-by-project implementation to a more structured regulatory and technical framework that can support broader commercial deployment in the future. Despite this, much work remains to establish a more comprehensive legal and regulatory framework for CCUS development in China.

Looking ahead, the key development may be the growing integration across the entire CCUS value chain. In sectors such as power generation, heavy industry, oil and gas, and offshore operations, Chinese developers are increasingly integrating carbon capture, transport infrastructure, and utilisation options into coordinated systems. This trend reflects growing efforts to improve project economics, strengthen infrastructure development, and support the transition from demonstration projects towards broader commercial deployment.



CNPC DAC Pilot Facility. Image is courtesy of CNPC Research Institute for Safety and Environment

Case study: CNPC Jilin CCUS project

Scaling CCUS-EOR from pilot testing to full-chain demonstration

The CNPC Jilin CCUS project is one of China's most established and longest-running CCUS-EOR initiatives. It illustrates the country's gradual transition from early field trials to integrated, million-tonne-scale deployment in carbon management. Built on more than two decades of research, pilot testing, and field application, the project has become an important benchmark for scaling CO_2-EOR and geological storage in low-permeability reservoirs.

A major turning point came in 2005, when a CO_2-rich natural gas reservoir was identified in the Changling area (ChinaNews, 2025). The nearby Daqingzi Oilfield offered favourable conditions for CO_2 miscible flooding, supported by well-matched source-sink conditions and suitable reservoir characteristics. Over subsequent years, CNPC expanded research, conducted pilot tests, and advanced engineering applications, laying the foundation for wider deployment of CCUS-EOR.

By the end of 2025, five integrated CO_2-EOR and geological storage demonstration zones had been deployed. In addition to CO_2 from natural gas production, this project now injects CO_2 from other industrial sources, with an annual injection capacity of 800 ktpa (ChinaNews, 2025). Cumulatively, around 4.1 million tonnes of CO_2 had been injected, of which 3.61 million tonnes were permanently stored (XinhuaNet, 2026). Produced gas is recycled and reinjected, creating a closed-loop operating system that eliminates direct CO_2 emissions.

To support further scale-up, CNPC is developing a two-phase CO_2 pipeline network with a planned total length of around 400 km. The first phase, already under construction, spans 282 km and is designed to transport 3.3 million tonnes of CO_2 annually (CNPC, 2026). Scheduled to become operational in 2026, the pipeline will connect industrial CO_2 sources, such as chemical and power generation facilities, with oilfield injection and storage sites, forming a key backbone for carbon transport, utilisation, and storage in Jilin Province. As China continues to scale CCUS deployment, the CNPC Jilin project provides a practical example of how early pilots can evolve into larger, more coordinated industrial systems.



CNPC Jilin Oilfield CCUS Project. Image is courtesy of of CNPC Research Institute of Petroleum Exploration and Development

Japan

CCS is getting closer to commercial reality

Clear policy, a new law, and business-led momentum are shifting Japan's CCS projects and sector toward execution. With the CCS Business Act in place, government-backed projects progressing, and bilateral agreements under discussion, Japan is establishing a solid foundation for the commercial deployment of CCS. However, a number of challenges remain such as long-term access to storage, cost competitiveness, and public acceptance.

Focus – The Japanese government has reaffirmed CCS as a central pillar of its 2050 net-zero strategy, with nine Advanced CCS Projects progressing at pace.

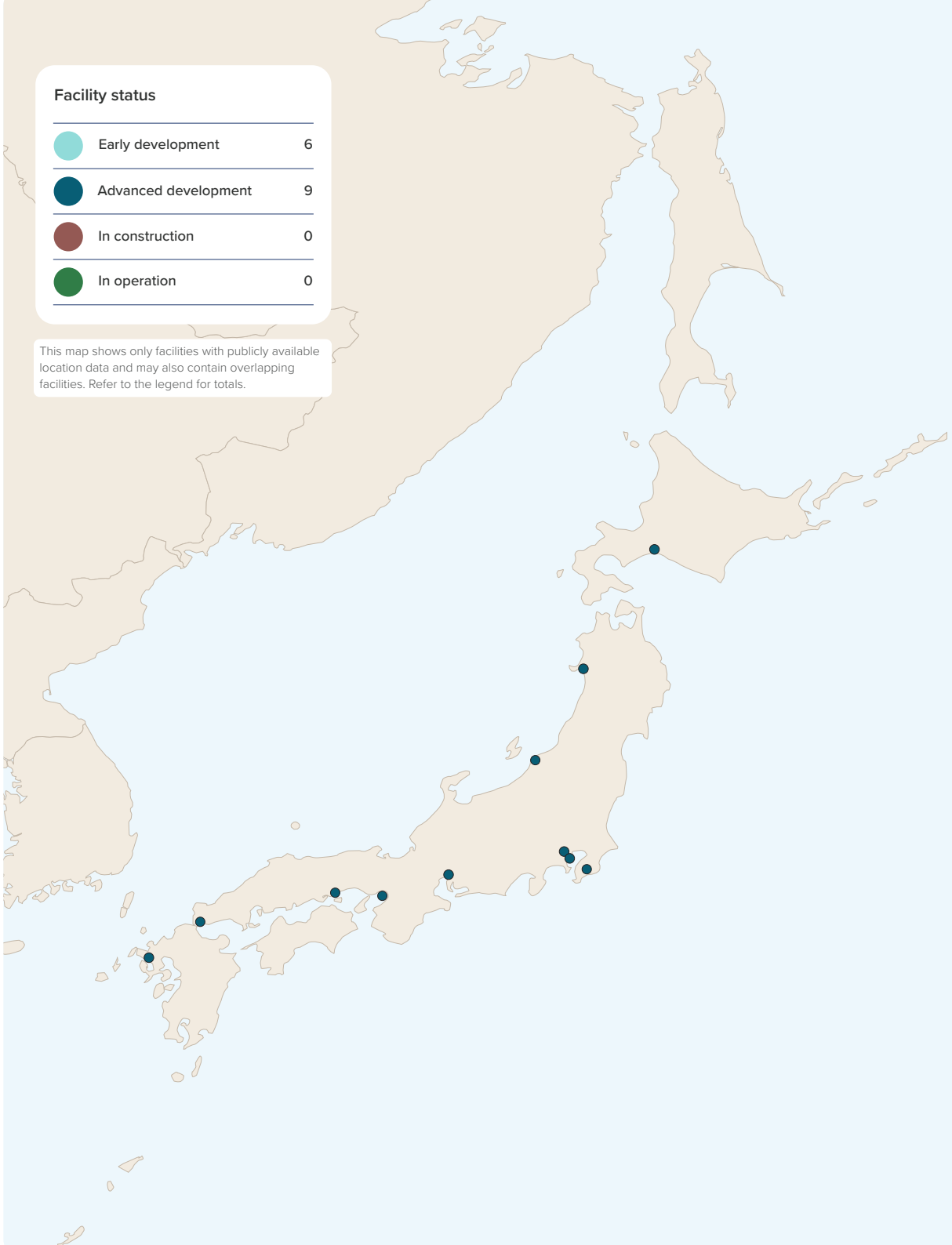
Drivers – The CCS Business Act, enacted in May 2024 and fully made into effect in May 2026, establishes a legal framework for licensing site exploration, and storage, and a notification system for pipeline operations, boosting investor confidence and providing regulatory clarity.

With the introduction of a cap-and-trade emissions system into the carbon credit market in Japan (GX-ETS) in April 2026, an increasing number of companies are now seriously considering domestic CCS deployment.

Progress – With demand for liquefied CO_2 (LCO_2) carriers that transport CO_2 from emitters in Japan to storage sites (in Japan and overseas) expected to grow, the Japanese government has progressed:

- R&D and the demonstration of CO_2 ship transportation, through the New Energy and Industrial Technology Development Organization (NEDO).
- Standardising specifications for LCO_2 ship transport through leadership from the Japan Organization for Metals and Energy Security (JOGMEC).

Challenge – Japan's potential limited storage options heighten its reliance on international partnerships, and building public acceptance remains a priority.



Policy, legal, and regulatory

In May 2026, Japan's CCS Business Act fully entered into effect, helping to promote long-term investment predictability for CCS in the country.

The Japanese government recognises CCS as an essential technology for decarbonising industries where emissions reductions are difficult, such as thermal power generation, steel, chemicals, and cement, to achieve carbon neutrality by 2050.

In the 7th Strategic Energy Plan (February 2025), CCS is positioned as a foundational technology contributing to the simultaneous achievement of energy security, economic growth, and decarbonisation.

CCS projects with CO_2 pipeline transportation

The Japanese government is examining a Cost for Difference policy to support domestic CCS projects with CO_2 pipeline transportation.

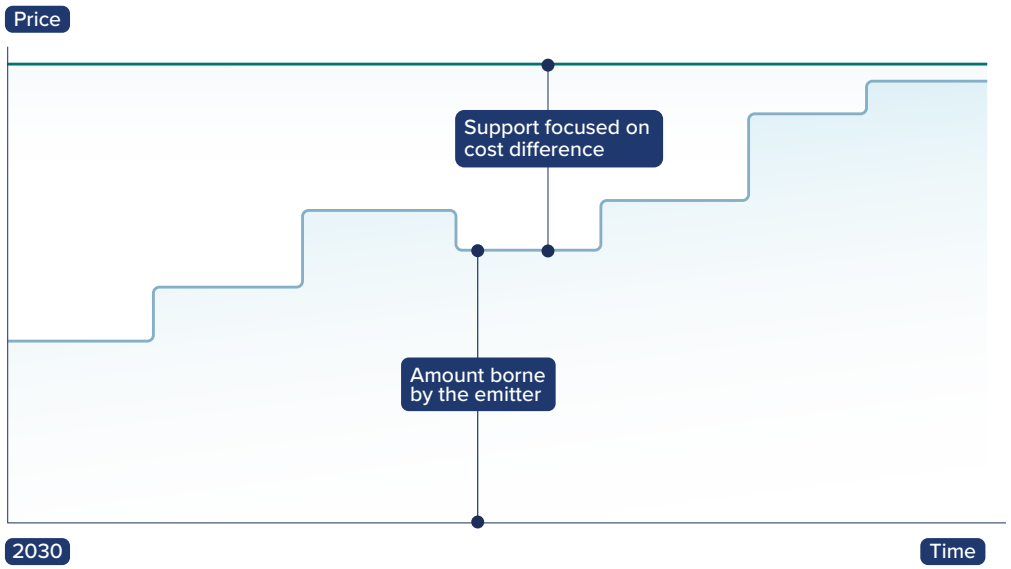
The core concept is to compensate for the difference between the Strike Price and Reference Price, where the Strike Price is the cost (CapEx + OpEx) per ton for CO_2 capture, transport, and storage and the Reference Price is the GX-ETS carbon market price.

The goal of this support scheme is to offset the cost difference over 15 years. (Please see figure to the right).

Additionally, it is envisioned that, after the support period (15 years) ends, project operators will be required to continue operations for 10 years.

Furthermore, up to 75 percent of construction costs may be covered through advanced support, thereby alleviating the burden of initial investment.

Outline of the support scheme for the CCS projects with CO_2 pipeline transportation



Source: Ministry of Economy, Trade and Industry-"CCS Business (pipeline project) Support Scheme: Outline of the Interim Summary"

CCS projects with CO_2 ship transportation

For CCS projects requiring CO_2 ship transportation, the high cost of liquefaction and marine transport is a key challenge to economic feasibility. Therefore, the Japanese government is promoting demonstration of LCO_2 transport technologies and the standardisation of ship specifications. In May 2025, JOGMEC issued "Guidelines for Standardisation of the LCO_2 Shipping Value Chain."

Additionally, JOGMEC conducted a public offering focused on the "Design Work for Separation, Capture, Liquefaction, Temporary Storage, and Shipping Facilities for Ship-Based Advanced CCS Projects." Following an evaluation process, six consortia representing clusters of emissions were selected as prospective contractors in June 2026. JOGMEC is further seeking cost reduction by aggregating CO_2 from adjacent emitters, on an area-wide basis, and enabling shared use of facilities, aiming for commercialisation of CCS projects with ship transportation. (See the figure in page 47).

For cross-border CCS operations involving CO_2 shipping:

- Japan accepted the amendment to the London Protocol in 2026, enabling overseas transport and storage of CO_2
- Japan signed a Memorandum of Cooperation (MoC) with Malaysia to develop frameworks for cross-border CCS

However, specific support schemes for shipping projects are still under consideration and are expected to be designed in conjunction with the LCO_2 ship standardisation and aggregating CO_2 from adjacent emitters.

(JOGMEC, 2026a; JOGMEC, 2026b)

With the introduction of a cap-and-trade emissions system into the carbon credit market, GX-ETS in April 2026, it is expected that CO_2 emissions reductions achieved through CCS will be recognised as a carbon credit under the GX-ETS. If realised, it is anticipated that an increasing number of companies will consider domestic CCS deployment.

Read more

Past demonstration projects and “Advanced CCS Projects”

Japan is one of a small number of countries that has been advancing CCS demonstrations at an early stage.
Key examples include:

- Nagaoka CCS Demonstration (fundamental research: geological storage)
- Tomakomai CCS Demonstration (practical research: full value chain).

In addition, Japan has advanced research on improving and reducing the cost of the full value chain as well as the demonstration of liquefied CO_2 ship transport. Japan has also established safe monitoring technologies suited to its unique geological conditions.

As a result, Japan has reached a stage where commercialisation of the entire CCS value chain is feasible.

In June 2024, the Japanese government, through JOGMEC, selected nine “Advanced CCS Projects” and has been intensively supporting them, aiming to establish business models combining various emission sources, transport methods (pipeline or ship), and storage locations (domestic and overseas). (Please see figure to the right).

The target is to achieve an annual CCS volume of 6 to 12 million tonnes by the early 2030s.

Project	Participants
1 Ube Cluster	Mitsubishi UBE Cement UBE Material Industries. Ltd
2 Mizushima Cluster	Sumitomo Corporation Asahi Kasei ENEOS Mitsubishi Gas Chemical JFE Mitsubishi Chemical Group
3 Matsuura Cluster	J-Power Kyushu Electric Power Company
4 Kanda Cluster	Mitsubishi UBE Cement ASO Cement
5 Sakai-Senboku Cluster	Kansai Electric Power COSMO
6 Kawasaki Cluster	Mitsubishi Corporation Taiheiyo Cement Resonac East Japan Railway Company Sumitomo Forestry Nippon Shokubai

6 clusters (within advanced CCS projects)

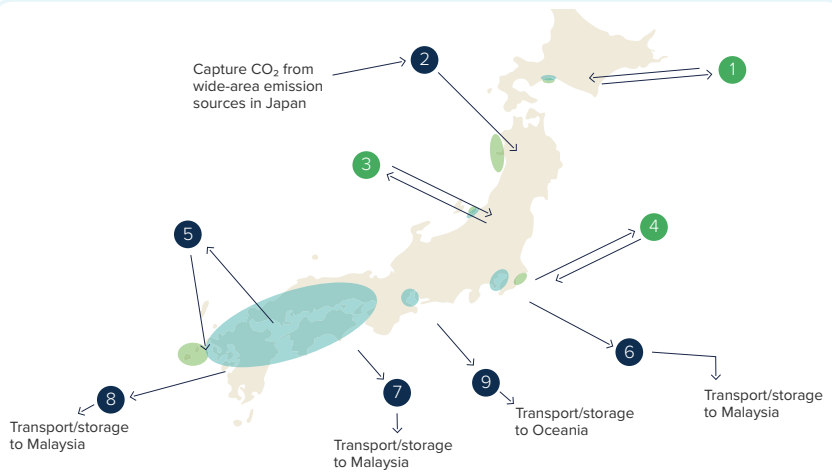
6 clusters (within advanced CCS projects) selected by JOGMEC (from JOGMEC HP)



9 selected Japanese advanced CCS projects

Project	Participants	Location
1 Tomakomai Area CCS	Japex Idemitsu Hepco	Hokkaido
2 Tohoku Region West Coast CCS	Itochu Nippon Steel Taiheiyo Cement Inpex Mitsubishi Heavy Industries Taisei	Tohoku
3 Higashi-Niigata Area CCS	Japex Mitsubishi Gas Chemical Hokuetsu Tohoku Electric Power Co. Inc.	Niigata
4 Metropolitan Area CCS	Inpex Nippon Steel Kanto Natural Gas Development	Tokyo Bay Area and Chiba
5 Offshore Western Kyushu CCS	ENEOS ENEOS Xplora J-Power	Offshore Kyushu
6 Northern Offshore of Peninsula Malaysia CCS	Mitsubishi Corporation ENEOS ENEOS Xplora Nippon Shokubai JFE Cosmo Petronas	Tokyo Bay Area, for transport/storage to Malaysia
7 Offshore Sarawak CCS	Japex JGC “K” Line Petronas JFE Mitsubishi Gas Chemical EnerGia Mitsubishi Chemical Group Nippon Gas Line	Western Japan, for transport/storage to Malaysia
8 Southern Offshore of Peninsula Malaysia CCS	Mitsui & Co Kansai Electric Power Cosmo EnerGia J Power Kyushu Electric Power Co. Inc. Crasus Chemical Mitsubishi UBE Cement	Western Japan, for transport/storage to Malaysia
9 Oceania CCS	Mitsubishi Corporation Nippon Steel ExxonMobil Mitsubishi Chemical Group Mitsubishi Corporation Clean Energy	Chubu, for transport/storage to Oceania

Figure: 9 advanced CCS projects (from JOGMEC HP)



Conclusion

In Japan, CCS has fully transitioned from the technological demonstration phase to the institutional and commercialisation phase. Legal frameworks, support mechanisms, and international arrangements are now being developed in an integrated manner.

An ongoing, important development is consideration of a new support scheme to bridge the cost gap for CCS projects involving CO_2 pipeline transportation.

Regarding CCS projects involving ship transportation, additional support measures aimed at reducing costs are also being considered.

Case study: Japan's advanced CCS projects

Among the 9 "Advanced CCS Projects" initiated by the Japanese government, the Tomakomai Area (or TomakCO_2mai) CCS project and Metropolitan Area CCS are the most advanced.

TomakCO_2mai CCS project

Overall project concept

In February 2025, sub-seabed formations off Tomakomai City, Hokkaido, were designated by the Ministry of Economy, Trade and Industry (METI) as a specified area for CO_2 storage. Subsequently, in September 2025, Japan Petroleum Exploration Co., Ltd. (JAPEX) was granted a permit to conduct exploratory drilling.

The TomakCO_2mai CCS project aims to integrate the capture, transport, and storage of CO_2 in the Tomakomai region. Three companies—JAPEX, Idemitsu Kosan Co., Ltd., and Hokkaido Electric Power Co., Inc.—are the project proponents. By leveraging their respective technical expertise, the project aims to establish a CCS model that will drive the region's transition to carbon neutrality.

A major strength of this project is Tomakomai's proven track record of successfully conducting Japan's first large-scale CCS demonstration test (injecting approximately 300,000 tonnes of CO_2) and established community support for promoting CCS.

Project overview

The roles and responsibilities of each consortium member within this project are as follows.

- CO_2 separation and capture:
  CO_2 is captured from the exhaust gas of the refinery and the thermal power station operated by Idemitsu Kosan and Hokkaido Electric Power, respectively. CO_2 capture is planned to start in 2030 with estimated volumes of around 1.5 to 2 Mtpa.
- CO_2 transport:
  JAPEX will be responsible for building and operating the pipeline to transport the captured CO_2 for storage.
- CO_2 storage:
  JAPEX also leads the injection and storage of the captured CO_2, targeting deep saline aquifer of ~ 1,500 metres below the ocean floor off the coast of Tomakomai. The CO_2 will be continuously monitored by JAPEX to ensure integrity of the storage.

TomakCO_2mai CCS aims to commence CO_2 storage on a scale of 1.5 to 2 million tonnes per year by the end of March 2031. This target date is contingent on reaching Final Investment Decision by March 2027.

Achievements to date

Each phase of the project has achieved the following outcomes to date.

Separation and capture

- Both Idemitsu Kosan (Hokkaido Refinery) and Hokkaido Electric Power (Tomato-Atsuma Power Station) carried out front-end engineering design (FEED) for CO_2 separation and capture facilities.
- Details of the utility supply methods, the scope of modifications to existing facilities, and installation layouts are finalised.

Transport

- Basic design of the pipeline and injection facilities were carried out by JAPEX.
- The CO_2 properties have been carefully evaluated to ensure safe transport and injection.

Storage and test drilling preparation

- JAPEX conducted design work for the injection facilities, wells, and monitoring systems.
- Progress was made on soil surveys at potential test drilling sites, well design studies, and the evaluation of the long lead items.

Proposed schedule

For the FY2026 (Commencing April 2026): Continue to progress design work, exploratory drilling preparations, and enter Final Investment Decision.

FY2027–2029: Construct facilities including pipeline, and drill injection wells.

FY2030: Commence CO_2 injection.

Challenges and response strategies

The project proponents identified a number of challenges and mitigation actions along with appropriate steps are being taken to address them. These include:

- Fostering and increasing local acceptance of the project and value of CCS: Continuous information sharing and explanatory activities with local authorities and the community.
- Extended construction period and rising costs: Bringing forward design work.
- Securing utilities: Examining options for securing industrial water and electricity in collaboration with local authorities.

Project outlook

Once storage commences, the project proponents aim to gradually increase the volume of captured CO_2 and the storage rates. By collaborating with carbon neutral projects both within and outside the Tomakomai region, the project proponents aim to establish a CCS and carbon neutrality hub that will serve as a national model for the future.

(JAPEX, 2025)

Read more

Case study: INPEX's Kashiwazaki Hydrogen Park

Blue hydrogen and ammonia production and usage demonstration project.

INPEX's "Blue hydrogen and ammonia production and usage demonstration project" (Kashiwazaki Hydrogen Park) is the first domestic project that will cover the entire spectrum from manufacture to use of hydrogen and ammonia, which do not emit CO_2 during combustion. Construction of the surface plant began in 2023, and commissioning using domestically produced natural gas began in June 2025. The production of blue hydrogen began in July 2026.

Natural gas is being used as a feedstock sourced from the INPEX-operated Minami-Nagaoka Gas Field in Niigata Prefecture and CO_2 generated during hydrogen and ammonia production will be injected into a natural gas storage reservoir in the Hirai District of the Higashi Kashiwazaki Gas Field, where production has already ended. The hydrogen produced is planned to be marketed and utilised as low-carbon ("blue") hydrogen. In addition, the produced hydrogen from this demonstration project is also planned for power generation and will supply electricity to consumers in Niigata Prefecture. INPEX also plans to produce "blue" ammonia from blue hydrogen for supply to consumers in Niigata Prefecture.

Blue hydrogen and ammonia production and usage demonstration project, image courtesy of INPEX.

This domestic blue hydrogen and ammonia project is of great importance as it will demonstrate both energy security and decarbonisation with CCS playing an indispensable role in this project.
(INPEX, 2026b)

Facilities list

3.0

In operation

Facility name	Country	Operational year	Industry	Capture capacity (Mtpa CO_2)	Storage type
Occidental Terrell (USA)	United States of America	1972	Natural gas processing / LNG	0.5	Enhanced oil recovery
Kinder Morgan Permian Pipeline Delivery System (USA)	United States of America	1972	CO_2 transport / storage	N/A (transport / storage only)	Enhanced oil recovery
Enid Fertilizer (USA)	United States of America	1982	Hydrogen / ammonia / fertiliser	0.68	Enhanced oil recovery
Occidental Denver Unit (USA)	United States of America	1983	CO_2 transport / storage	N/A (transport / storage only)	Enhanced oil recovery
ExxonMobil Shute Creek Gas (USA)	United States of America	1986	Natural gas processing / LNG	7	Enhanced oil recovery
Scout Energy Management Rangely (USA)	United States of America	1986	CO_2 transport / storage	N/A (transport / storage only)	Enhanced oil recovery
MOL Szank Field CO_2-EOR Site (HUN)	Hungary	1992	Natural gas processing / LNG	0.2	Enhanced oil recovery
Equinor Sleipner (NOR)	Norway	1996	Natural gas processing / LNG	1	Deep saline formation
Dakota Gasification Company Great Plains Synfuels Plant (USA)	United States of America	2000	Hydrogen / ammonia / fertiliser	3	Enhanced oil recovery
Whitecap Resources Weyburn - Midale (CAN)	Canada	2000	CO_2 transport / storage	N/A (transport / storage only)	Enhanced oil recovery
Core Energy South Chester plant (USA)	United States of America	2003	Natural gas processing / LNG	0.35	Enhanced oil recovery
Occidental Hobbs Field (USA)	United States of America	2003	CO_2 transport / storage	N/A (transport / storage only)	Enhanced oil recovery
ExxonMobil LaBarge (USA)	United States of America	2005	CO_2 transport / storage	N/A (transport / storage only)	Deep saline formation
Equinor Snohvit (NOR)	Norway	2008	Natural gas processing / LNG	0.7	Deep saline formation
Petrobras Santos Basin Pre-Salt Oil Field (BRA)	Brazil	2008	Natural gas processing / LNG	14.2	Enhanced oil recovery
CapturePoint Arkalon CO_2 Compression Facility (USA)	United States of America	2009	Biomass / ethanol	0.5	Enhanced oil recovery
ExxonMobil Delhi EOR (USA)	United States of America	2009	CO_2 transport / storage	N/A (transport / storage only)	Enhanced oil recovery
CapturePoint Booker Field Area (USA)	United States of America	2009	CO_2 transport / storage	N/A (transport / storage only)	Enhanced oil recovery
Longfellow Energy Century Plant (USA)	United States of America	2010	Natural gas processing / LNG	5	Enhanced oil recovery
ExxonMobil Gulf Coast Pipeline Network (USA)	United States of America	2011	CO_2 transport / storage	N/A (transport / storage only)	Enhanced oil recovery
Yanchang Petroleum Integrated Demonstration (CHN)	China	2012	Chemical	0.3	Enhanced oil recovery
Conestoga Energy Bonanza BioEnergy (USA)	United States of America	2012	Biomass / ethanol	0.16	Enhanced oil recovery
CVR Energy (Coffeyville Resources Nitrogen Fertilizers) Coffeyville Gasification Plant (USA)	United States of America	2013	Hydrogen / ammonia / fertiliser	0.9	Enhanced oil recovery
Air Products Valero Port Arthur Refinery (USA)	United States of America	2013	Hydrogen / ammonia / fertiliser	0.9	Enhanced oil recovery
Contango Oil & Gas Lost Cabin Gas Plant (USA)	United States of America	2013	Natural gas processing / LNG	0.9	Enhanced oil recovery
Nutrien Geismar (USA)	United States of America	2013	Hydrogen / ammonia / fertiliser	0.3	Enhanced oil recovery
CapturePoint Oklahoma Carbon Hub (USA)	United States of America	2013	CO_2 transport / storage	N/A (transport / storage only)	Enhanced oil recovery
SaskPower Boundary Dam (CAN)	Canada	2014	Coal power generation and heat	1	Enhanced oil recovery

In operation

Facility name	Country	Operational year	Industry	Capture capacity (Mtpa CO_2)	Storage type
INA/MOL CO_2 EOR Croatia (HRV)	Croatia	2014	Natural gas processing / LNG	0.56	Enhanced oil recovery
CarbFix Hellisheidi Storage (ISL)	Iceland	2014	CO_2 transport / storage	N/A (transport / storage only)	Mineral carbonation
PTRC Aquistore (CAN)	Canada	2014	CO_2 transport / storage	N/A (transport / storage only)	Deep saline formation
Shell Quest (CAN)	Canada	2015	Hydrogen / ammonia / fertiliser	1.3	Deep saline formation
CNPC Jilin Oil Field (CHN)	China	2015	Natural gas processing / LNG	0.6	Enhanced oil recovery
Saudi Aramco Uthmaniyah (SAU)	Saudi Arabia	2015	Natural gas processing / LNG	0.8	Enhanced oil recovery
Xinjiang Dunhua Oil Technology Karamay (CHN)	China	2015	Chemical	0.1	Enhanced oil recovery
ADNOC Al-Reyadah (ARE)	United Arab Emirates	2016	Iron and steel	0.8	Enhanced oil recovery
ADM Illinois Industrial (USA)	United States of America	2017	Biomass / ethanol	1	Deep saline formation
ENEOS Xplora Petra Nova Carbon Capture (USA)	United States of America	2017	Coal power generation and heat	1.4	Enhanced oil recovery
Targa Resources Corp Campo Viejo Gas Processing Plant (USA)	United States of America	2018	Natural gas processing / LNG	0.19	Deep saline formation
Chevron Gorgon (AUS)	Australia	2019	Natural gas processing / LNG	4	Deep saline formation
QatarEnergy Ras Laffan CCS (QAT)	Qatar	2019	Natural gas processing / LNG	2	Deep saline formation
Targa Resources Corp 30-30 Gas Plant (USA)	United States of America	2019	Natural gas processing / LNG	0.01	Deep saline formation
North West Redwater (NWR) Partnership Sturgeon Refinery (CAN)	Canada	2020	Oil extraction / refining	1.6	Enhanced oil recovery
Nutrien Redwater (CAN)	Canada	2020	Hydrogen / ammonia / fertiliser	0.3	Enhanced oil recovery
Wolf Carbon Solutions Alberta Carbon Trunk Line (CAN)	Canada	2020	CO_2 transport / storage	N/A (transport / storage only)	Enhanced oil recovery
Enhance Energy Clive Oil Field (CAN)	Canada	2020	CO_2 transport / storage	N/A (transport / storage only)	Enhanced oil recovery
China National Energy Guohua Jinjie 1 (CHN)	China	2021	Coal power generation and heat	0.15	Not specified
Climeworks Orca (ISL)	Iceland	2021	Direct air capture	0.004	Mineral carbonation
Sinopec Nanjing Chemical (CHN)	China	2021	Chemical	0.2	Enhanced oil recovery
Yanchang Petroleum Yan'an CO_2-EOR (CHN)	China	2021	Chemical	0.1	Enhanced oil recovery
Enterprise Products Dark Horse Storage (USA)	United States of America	2021	CO_2 transport / storage	N/A (transport / storage only)	Deep saline formation
Sinopec Qilu-Shengli (CHN)	China	2022	Chemical	1	Enhanced oil recovery
Gevo Net Zero North (USA)	United States of America	2022	Biomass / ethanol	0.18	Deep saline formation
Targa Red Hills Natural Gas Processing Complex (USA)	United States of America	2022	Natural gas processing / LNG	0.5	Deep saline formation
Entropy Glacier Gas Plant (Phases 1A, 1B) (CAN)	Canada	2022	Natural gas power generation and heat	0.054	Deep saline formation
Yanchang Petroleum Yulin CO_2-EOR (CHN)	China	2022	Chemical	0.3	Enhanced oil recovery
Harvestone Low Carbon Partners Blue Flint Ethanol (USA)	United States of America	2023	Biomass / ethanol	0.2	Deep saline formation

In operation

Facility name	Country	Operational year	Industry	Capture capacity (Mtpa CO_2)	Storage type
China National Energy Taizhou (CHN)	China	2023	Coal power generation and heat	0.5	Enhanced oil recovery
CNOOC Enping Storage Demonstration (CHN)	China	2023	Natural gas processing / LNG	0.3	Deep saline formation
Sinopec Jinling Petrochemical (Nanjing Refinery) (CHN)	China	2023	Oil extraction / refining	0.3	Enhanced oil recovery
Guanghui Energy Methanol Plant Phase 1 (CHN)	China	2023	Chemical	0.1	Enhanced oil recovery
BKV Barnett Zero (USA)	United States of America	2023	Natural gas processing / LNG	0.21	Deep saline formation
China National Energy Xinjiang Chemicals Phase 1 (CHN)	China	2023	Chemical	0.3	Enhanced oil recovery
Huaneng Yangpu Gas-fired Carbon Capture (CHN)	China	2023	Natural gas power generation and heat	0.002	Not specified
Ngawha Geothermal Reinjection (NZL)	New Zealand	2023	Geothermal power generation and heat	0.1	Deep saline formation
Jinjiang Chemical Kuitun CCUS (CHN)	China	2023	Chemical	0.1	Not specified
Heirloom Tracy DAC (USA)	United States of America	2023	Direct air capture	0.001	Mineral carbonation
EOG SPG Holdings SPG CO_2 Bowie Facility (USA)	United States of America	2023	Natural gas processing / LNG	0.18	Deep saline formation
Santos Moomba (AUS)	Australia	2024	Natural gas processing / LNG	1.7	Depleted oil and gas field
Equinor Northern Lights Storage (NOR)	Norway	2024	CO_2 transport / storage	N/A (transport / storage only)	Deep saline formation
Climeworks Mammoth (ISL)	Iceland	2024	Direct air capture	0.036	Mineral carbonation
ENI Ravenna Phase 1 (ITA)	Italy	2024	CO_2 transport / storage	N/A (transport / storage only)	Depleted oil and gas field
China National Energy Ningxia Phase 1 (CHN)	China	2024	Chemical	0.5	Enhanced oil recovery
Beijing Shenwu Group Xinjiang Jinlong Shenwu (CHN)	China	2024	Coal power generation and heat	0.2	Enhanced oil recovery
Heimdal Bantam DAC (USA)	United States of America	2024	Direct air capture	0.01	Enhanced oil recovery
China United Cement Qingzhou Oxy-Fuel Combustion Carbon Capture (CHN)	China	2024	Cement and lime	0.2	Not specified
ENI Casalborsetti Natural Gas Plant (ITA)	Italy	2024	Natural gas power generation and heat	0.02	Depleted oil and gas field
Beijing BBGM Group Cement Plant (CHN)	China	2024	Cement and lime	0.1	Not specified
Dakota Gasification Company Great Plains CO_2 Sequestration (USA)	United States of America	2024	CO_2 transport / storage	N/A (transport / storage only)	Deep saline formation
CNOOC Shenzhen Huizhou 32-5 Platform (CHN)	China	2024	Natural gas processing / LNG	0.006	Deep saline formation
Heidelberg Materials Brevik CCS (NOR)	Norway	2025	Cement and lime	0.4	Deep saline formation
Green Plains Wood River Biorefinery (USA)	United States of America	2025	Biomass / ethanol	0.35	Deep saline formation
Green Plains York Biorefinery (USA)	United States of America	2025	Biomass / ethanol	0.14	Deep saline formation
Green Plains Central City Biorefinery (USA)	United States of America	2025	Biomass / ethanol	0.33	Deep saline formation
China Huaneng Group Longdong Energy Base (CHN)	China	2025	Coal power generation and heat	1.5	Deep saline formation

In operation

Facility name	Country	Operational year	Industry	Capture capacity (Mtpa CO_2)	Storage type
Bison Low Carbon Ventures Meadowbrook Storage Hub (CAN)	Canada	2025	CO_2 transport / storage	N/A (transport / storage only)	Deep saline formation
Tallgrass Energy Eastern Wyoming Sequestration Hub (USA)	United States of America	2025	CO_2 transport / storage	N/A (transport / storage only)	Deep saline formation
44.01 Project Hajar (OMN)	Oman	2025	Direct air capture	0.025	Mineral carbonation
CF Industries Donaldsonville (USA)	United States of America	2025	Hydrogen / ammonia / fertiliser	2	Enhanced oil recovery
ON Power Silverstone Geothermal Plant (ISL)	Iceland	2025	Geothermal power generation and heat	0.034	Mineral carbonation
ADM Columbus (USA)	United States of America	2025	Biomass / ethanol	1	Deep saline formation
Tallgrass Energy Trailblazer Pipeline (USA)	United States of America	2025	CO_2 transport / storage	N/A (transport / storage only)	Deep saline formation
CNOOC Bozhong 26-6 (CHN)	China	2025	Oil extraction / refining	Not specified	Enhanced oil recovery
CNPC Huabei Oil Field (CHN)	China	2025	Chemical	0.2	Enhanced oil recovery
CNOOC Enping CCUS Project (CHN)	China	2025	Natural gas processing / LNG	0.1	Enhanced oil recovery
Deep Sky Alpha (CAN)	Canada	2025	Direct air capture	0.003	Deep saline formation
CNPC Liaohe CO_2-EOR (CHN)	China	2025	Chemical	0.1	Enhanced oil recovery
Vitol Wheatland Ethanol Plant (USA)	United States of America	2025	Biomass / ethanol	0.14	Deep saline formation
CNPC Southwest Oil & Gas Field Wolonghe EGR (CHN)	China	2025	Natural gas processing / LNG	0.0265	Enhanced gas recovery
California Resources Corporation Carbon TerraVault I (USA)	United States of America	2026	CO_2 transport / storage	N/A (transport / storage only)	Depleted oil and gas field
Purefield Carbon Capture Russell (USA)	United States of America	2026	Biomass / ethanol	0.15	Deep saline formation
BKV Cotton Cove (USA)	United States of America	2026	Natural gas processing / LNG	0.032	Deep saline formation
Entropy Glacier Gas Plant Phase 2 (CAN)	Canada	2026	Natural gas power generation and heat	0.16	Deep saline formation
Momentum Midstream New Generation Gas Gathering (NG3) (USA)	United States of America	2026	Natural gas processing / LNG	1.2	Enhanced oil recovery
BKV Eagle Ford (USA)	United States of America	2026	CO_2 transport / storage	N/A (transport / storage only)	Deep saline formation
Sirona Project Moringa (OMN)	Oman	2026	Direct air capture	0.0018	Mineral carbonation
BioCirc Vesthimmerland Biogas Plant (DNK)	Denmark	2026	Biomass / ethanol	0.0276	Depleted oil and gas field
Bigadan Kalundborg Bioenergi (DNK)	Denmark	2026	Biomass / ethanol	0.027	Depleted oil and gas field
Chief Ethanol Lexington (USA)	United States of America	2026	Biomass / ethanol	0.07281	Deep saline formation
Chief Ethanol Hastings (USA)	United States of America	2026	Biomass / ethanol	0.108813	Deep saline formation
SINOPEC Huadong Oilfield Service Corporation Korla (CHN)	China	2026	Chemical	0.05	Enhanced oil recovery
Inherit Carbon Solutions Carbon Removal (NOR)	Norway	2026	Biomass / ethanol	0.006	Deep saline formation
Energy Transfer LP Eagle Ford (USA)	United States of America	2026	Natural gas processing / LNG	Not specified	Deep saline formation

In construction

Facility name	Country	Operational year	Industry	Capture capacity (Mtpa CO_2)	Storage type
1PointFive STRATOS (USA)	United States of America	2026	Direct air capture	0.5	Deep saline formation
ADNOC Habshan (ARE)	United Arab Emirates	2026	Natural gas processing / LNG	1.5	Deep saline formation
ADNOC Hail & Ghasha Concession Fields (ARE)	United Arab Emirates	2028	Natural gas processing / LNG	1.5	Not specified
Air Liquide Rotterdam Plant (NLD)	Netherlands	2027	Hydrogen / ammonia / fertiliser	0.5	Depleted oil and gas field
Air Products Canada Net Zero Hydrogen Energy Complex (CAN)	Canada	2028	Hydrogen / ammonia / fertiliser	3	Not specified
Air Products Rotterdam Plant (NLD)	Netherlands	2027	Hydrogen / ammonia / fertiliser	Not specified	Depleted oil and gas field
Baotou Steel Phase 1 (CHN)	China	2026	Iron and steel	0.5	Mineral carbonation
BioCirc Favrskov Biogas Plant (DNK)	Denmark	2027	Biomass / ethanol	0.0276	Depleted oil and gas field
BioCirc Grønhøj Biogas Plant (DNK)	Denmark	2027	Biomass / ethanol	0.0276	Depleted oil and gas field
BioCirc Haderslev Biogas Plant (DNK)	Denmark	2027	Biomass / ethanol	0.0276	Depleted oil and gas field
BioCirc Vinkel Biogas Plant (DNK)	Denmark	2027	Biomass / ethanol	0.0276	Depleted oil and gas field
Bison North Drumheller Hub (CAN)	Canada	2026	CO_2 transport / storage	N/A (transport / storage only)	Deep saline formation
BKV East Texas (USA)	United States of America	2027	CO_2 transport / storage	N/A (transport / storage only)	Deep saline formation
bp Northern Endurance Storage Site (GBR)	United Kingdom	2028	CO_2 transport / storage	N/A (transport / storage only)	Deep saline formation
bp Tangguh LNG (IDN)	Indonesia	2028	Natural gas processing / LNG	3	Enhanced gas recovery
bp Teesside Pipeline (GBR)	United Kingdom	2028	CO_2 transport / storage	N/A (transport / storage only)	Deep saline formation
CapturePoint Solutions Central Louisiana Regional Carbon Storage (CENLA) Hub (USA)	United States of America	2027	CO_2 transport / storage	N/A (transport / storage only)	Deep saline formation
CF Industries Blue Point (USA)	United States of America	2029	Hydrogen / ammonia / fertiliser	2.3	Deep saline formation
China National Energy Xinjiang Chemicals Phase 2 (CHN)	China	2026	Chemical	0.5	Enhanced oil recovery
China Resource Power Tangshan 500 Ktpa CCUS (CHN)	China	2028	Coal power generation and heat	0.5	Not specified
China Resources Cement Hainan Changjiang Cement (CHN)	China	2026	Cement and lime	0.06	Not specified
CNOOC Dongfang 1-1 (CHN)	China	2028	Natural gas processing / LNG	1	Enhanced oil recovery
CNOOC Funing Gas Power Plant 10 Ktpa (CHN)	China	2026	Natural gas power generation and heat	0.01	Not specified
CNPC Jilin Pipeline (CHN)	China	2026	CO_2 transport / storage	N/A (transport / storage only)	Enhanced oil recovery
CNPC Xinjiang Coal Power Plant Integrated 2 Mtpa Phase 1 (CHN)	China	2026	Coal power generation and heat	1	Enhanced oil recovery
Commonwealth LNG Cameron Parish (USA)	United States of America	2027	Natural gas processing / LNG	Not specified	Not specified
DeCarbon Tech Yanchi 10 Ktpa DAC (CHN)	China	2027	Direct air capture	0.01	Mineral carbonation
Encyclis Protos Energy Recovery Facility (GBR)	United Kingdom	2029	Waste-to-energy	0.38	Depleted oil and gas field
ENI Hynet North West CO_2 Transport and Storage (GBR)	United Kingdom	2028	CO_2 transport / storage	N/A (transport / storage only)	Depleted oil and gas field
Fluxys Belgium c-grid Antwerp Pipeline (BEL)	Belgium	2029	CO_2 transport / storage	N/A (transport / storage only)	Depleted oil and gas field
FS Agrisolutions do Rio Verde BECCS (BRA)	Brazil	2027	Biomass / ethanol	0.42	Not specified
Hafslund Celsio Oslo CCS (NOR)	Norway	2029	Waste-to-energy	0.4	Deep saline formation

In construction

Facility name	Country	Operational year	Industry	Capture capacity (Mtpa CO_2)	Storage type
Heidelberg Materials Padeswood Cement (GBR)	United Kingdom	2029	Cement and lime	0.8	Depleted oil and gas field
INEOS Project Greensand Storage (DNK)	Denmark	2026	CO_2 transport / storage	N/A (transport / storage only)	Depleted oil and gas field
INPEX Abadi (IDN)	Indonesia	2030	Natural gas processing / LNG	2.8	Not specified
Lapis Energy Project Blue (USA)	United States of America	2026	Hydrogen / ammonia / fertiliser	0.45	Deep saline formation
Linde Beaumont Hydrogen Plant (USA)	United States of America	2027	Hydrogen / ammonia / fertiliser	2.2	Enhanced oil recovery
Linde Dow Fort Saskatchewan Ethylene (CAN)	Canada	2029	Hydrogen / ammonia / fertiliser	2	Not specified
Net Zero Teesside Power Plant (GBR)	United Kingdom	2028	Natural gas power generation and heat	2	Deep saline formation
NuCor Steel DRI (USA)	United States of America	2026	Iron and steel	0.8	Not specified
Ørsted Asnæs Power Station (DNK)	Denmark	2026	Bioenergy power generation and heat	0.28	Deep saline formation
Ørsted Avedøre Power Station (DNK)	Denmark	2026	Bioenergy power generation and heat	0.15	Deep saline formation
Petronas Kasawari (MYS)	Malaysia	2027	Natural gas processing / LNG	3.7	Depleted oil and gas field
PORTHOS CO_2 Transport and Storage (NLD)	Netherlands	2027	CO_2 transport / storage	N/A (transport / storage only)	Depleted oil and gas field
PTTEP Arthit (THA)	Thailand	2027	Natural gas processing / LNG	1	Depleted oil and gas field
QatarEnergy 7 Blue Ammonia (QAT)	Qatar	2027	Hydrogen / ammonia / fertiliser	1.5	Not specified
QatarEnergy LNG (QAT)	Qatar	2030	Natural gas processing / LNG	4.3	Depleted oil and gas field
Saudi Aramco Jubail Hub (SAU)	Saudi Arabia	2028	Natural gas processing / LNG	9	Deep saline formation
Shell Atlas Carbon Storage Hub (CAN)	Canada	2028	CO_2 transport / storage	N/A (transport / storage only)	Deep saline formation
Shell Pernis Refinery Rotterdam (NLD)	Netherlands	2026	Oil extraction / refining	1.15	Depleted oil and gas field
Shell Polaris (Scotford Complex) (CAN)	Canada	2028	Hydrogen / ammonia / fertiliser	0.65	Deep saline formation
Southwest Iowa Renewable Energy (SIRE) (USA)	United States of America	2027	Biomass / ethanol	0.14991	Deep saline formation
Stockholm Exergi Beccs Stockholm Plant (SWE)	Sweden	2028	Bioenergy power generation and heat	0.8	Deep saline formation
Strategic Biofuels Louisiana Green Fuels (USA)	United States of America	2029	Bioenergy power generation and heat	1.36	Deep saline formation
Transition Industries Pacífico Mexinol (MEX)	Mexico	2029	Chemical	Not specified	Not specified
Wabash Valley Resources West Terre Haute Fertilizer Plant (USA)	United States of America	2029	Hydrogen / ammonia / fertiliser	0.8	Deep saline formation
Yanchang Petroleum Low-Permeability Mtpa-Scale CO_2-EOR (CHN)	China	2026	Chemical	0.9	Enhanced oil recovery
Yulin Chemical Company of Shaanxi Coal Yulin Chemical (CHN)	China	Not Specified	Chemical	1	Enhanced oil recovery
Yara Sluiskil Plant (NLD)	Netherlands	2026	Hydrogen / ammonia / fertiliser	0.8	Deep saline formation

Major amendments received after the cut-off date of 31 July 2026

Facility name	Country	Amendment
Yara Sluiskil Plant (NLD)	Netherlands	Status: In operation
INEOS Project Greensand Storage (DNK)	Denmark	Status: In operation
NuCor Steel DRI (USA)	United States of America	Status: In operation
Regional Werke AG Baden CO2 Energie (CHE)	Switzerland	Status: In operation
Enhance Energy Origins Carbon Storage Hub (CAN)	Canada	Status: In construction

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Key terms and acronyms

Acronyms in this report

ACCU Australian Carbon Credit Unit
BECCS Bioenergy with carbon capture and storage
CAPEX Capital expenditure
CBAM Carbon Border Adjustment Mechanism
CCfD Carbon contract for difference
CCS Carbon capture and storage
CCTS Carbon Credit Trading Scheme (India)
CCUS Carbon capture, utilisation and storage
CDR Carbon dioxide removal
CEF Connecting Europe Facility
CINEA European Climate, Infrastructure and Environment Executive Agency
CO_2 Carbon dioxide
CO_2RE The Institute's CCS facilities database
COP Conference of the Parties
CRCF Carbon Removals and Carbon Farming Certification Framework
DAC Direct air capture
EOR Enhanced oil recovery
EPC Engineering, procurement and construction
EGR Enhanced gas recovery
ETS Emissions trading system
EU European Union
FEED Front-end engineering design
FID Final investment decision
FPSO Floating production, storage and offloading
GCC Gulf Cooperation Council
GHG Greenhouse gas
Gt Gigatonne
GX-ETS Green Transformation Emissions Trading System (Japan)
IAA Industrial Accelerator Act
JCM Joint Crediting Mechanism
JOGMEC Japan Organization for Metals and Energy Security
ktpa Thousand tonnes per annum
LCO_2 Liquefied carbon dioxide
L-DAC Liquid-solvent DAC
LNG Liquefied natural gas
MEA Middle East and Africa
METI Ministry of Economy, Trade and Industry (Japan)
MMV Monitoring, measurement and verification
MoC Memorandum of cooperation
MoU Memorandum of understanding
MRV Measurement, reporting and verification
Mt Million tonnes
Mtpa Million tonnes per annum
NDC Nationally Determined Contribution
NG Natural gas
NGCC Natural gas combined cycle
NPT Non-pipeline transport
NZIA Net Zero Industry Act
OPEX Operating expenditure
PCI/PMI Projects of Common Interest / Projects of Mutual Interest
PSA Pressure swing adsorption
R&D Research and development
SAF Sustainable aviation fuel
S-DAC Solid-sorbent DAC
T&S Transport and storage
TIER Technology Innovation and Emissions Reduction (Alberta)
tpa Tonnes per annum
TSA Temperature swing adsorption
VSA Vacuum swing adsorption
UNFCCC United Nations Framework Convention on Climate Change

Key terms in this report

CCS/CCUS The process of capturing CO_2 formed during fossil fuel-fired power generation and industrial processes and storing it so that it is not emitted into the atmosphere. CCS or carbon capture and storage includes utilisation when CO_2 storage is permanent and verified. CCUS is the preferred term in some regions.

Utilisation/conversion Includes the conversion of captured carbon oxides, primarily CO_2, into economically valuable products such as chemicals, fuels, building materials, plastics, and bioproducts. It also includes use of CO_2 as a working fluid for enhanced hydrocarbon recovery (EOR or EGR). Conversion is used when referring to carbon uptake, catalytic conversion, and mineralisation. Utilisation is used when referring to enhanced hydrocarbon recovery with monitoring and verification for long-term storage.

Geologic storage Refers to CO_2 storage in dedicated reservoirs and enhanced hydrocarbon recovery projects that include monitoring, verification, and reporting of the amount of CO_2 stored.

Carbon management Includes both natural and technological solutions for removing ambient CO_2 from the air or capturing CO_2 emissions from industrial processes, with the goal of preventing/mitigating their contribution to climate change. These solutions encompass CDR technologies (such as direct air capture and reforestation), and carbon capture technologies (which capture CO_2 emissions from higher concentration sources like fossil fuel-fired power plants and refineries).

CDR includes activities that remove CO_2 from the atmosphere and durably store it in geological, terrestrial, or ocean reservoirs, or in products. CDR includes enhancement of biological or geochemical sinks and DAC/DACCS but excludes natural CO_2 uptake not directly caused by human intervention.

DAC/DACCS A process that removes CO_2 from ambient air. When paired with CO_2 storage strategies, it is referred to as DACCS.

Project terms

Facility One company (or JV) owning a full value chain is one facility regardless of the distance between capture and storage. One company owning CO_2 transport and storage infrastructure is one facility. Two separate power stations with CCS owned by one company would be two facilities.

Cluster A geographic concentration of interconnected businesses, suppliers, and associated institutions, typically due to proximity to raw materials, transport options such as ports, or to labour supply and markets.

Hub Central collection or distribution point for CO_2. One hub would service the collection of CO_2 from a capture cluster, or the distribution of CO_2 to a storage cluster.

Network A connection between two facilities via the use of a transport facility, regardless of ownership.

- Capture network: CO_2 captured and collected from multiple facilities with different owners.
- Transport/storage networks: CO_2 collected from multiple facilities, transported through one or more types of transport (pipeline, truck, ship) and stored in one or more storage sites.

Anchor project A large emitter that provides a significant proportion of the CO_2 in a cluster of CO_2 capture projects. Typically bears the fixed costs of the initial infrastructure.

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Any questions

Get in touch with the institute at info@globalccsinstitute.com or through our website at globalccsinstitute.com/contact

Head office

Level 23, Tower 5, 727 Collins Street, Melbourne
VIC 3008, Australia
+61 (0)3 8620 7300

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