

CO₂ storage projects in Europe

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Overview of announced CO₂ storage projects in Europe

BULGARIA

1. ANRAV (IF)

CROATIA

1. Sisak Biorefinery*
2. **CO₂ EOR Project Croatia***
3. Geothermal CCS Croatia (PCI)

CZECH REPUBLIC

1. CCS Moravia

DENMARK

1. **Greensand* (FID)**
2. Bifrost* (PCI)
3. Kalundborg CCS
4. Norne (PCI)
5. Ruby
6. Greenstore*

GREECE

1. Prinos CO₂ Storage Project (PCI)

HUNGARY

1. MOL-Hungary CCS Project*
2. Danube Removals (IF)

ICELAND

1. **Orca**
2. **Silverstone (IF)**
3. Coda Terminal (IF)
4. **Mammoth**

ITALY

1. **Ravenna CCS (includes Callisto)* (PCI)**

THE NETHERLANDS

1. **Porthos* (PCI) (FID)**
2. Aramis* (PCI)
3. KOMPAS

NORWAY

1. **Sleipner***
2. **Longship (includes Northern Lights)* (PMI)**
3. **Snøhvit***
4. Smeaheia*
5. Trudvang*
6. Luna*
7. Havstjerne* (IF)
8. Poseidon (NO)*
9. Kinno*
10. Atlas*
11. Kaupang*

SLOVAKIA

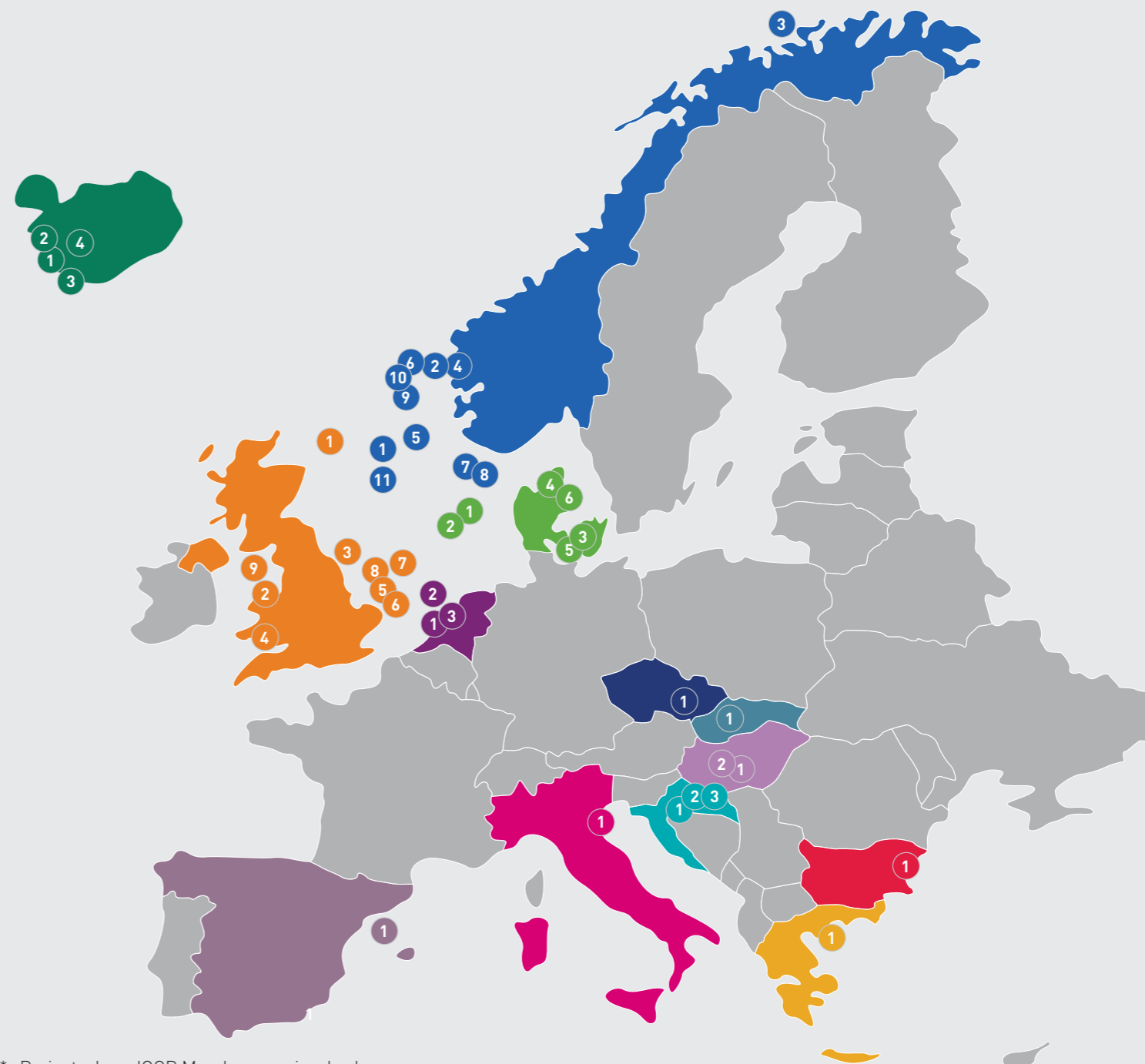
1. CarbonNet Slovakia

SPAIN

1. TarraCO₂* (IF)

UK

1. Acorn*
2. **HyNet* (FID)**
3. **Net Zero Teesside* (FID)**
4. South Wales Industrial Cluster
5. Bacton Thames Net Zero*
6. Poseidon (UK)*
7. Viking CCS*
8. Orion*
9. Morecambe Net Zero Cluster



* Project where IOGP Members are involved
Projects listed in bold are in **operation** or in **FID**
(FID) – Final Investment Decision
(PCI) – Project of Common Interest
(PMI) – Project of Mutual Interest
(IF) – Project supported by the EU Innovation Fund

LOCATION	NO. ON MAP	PROJECT NAME	ELEMENTS OF CCS VALUE CHAIN COVERED	TYPE OF CAPTURE PROJECT	DESCRIPTION	PARTICIPANTS	STATUS OF THE PROJECT	PLANNED START OF OPERATIONS DATE	CO ₂ STORAGE INJECTION CAPACITY AT START DATE (MTPA)	CO ₂ STORAGE INJECTION CAPACITY AFTER EXPANSION (MTPA)	TYPE OF CO ₂ STORAGE
Czech Republic	1	CCS Moravia	Capture Transport Storage	Hard to abate industry (cement plant)	The CCS Moravia project intends to Capture CO ₂ from the Heidelberg Materials' cement plant near Brno city. The captured CO ₂ will be transferred via a new pipeline to be stored in saline aquifers located in South Moravia. CO ₂ storage is scheduled for 2034. The project is on a subsidy from the EU's Duty Program.	MND, Heidelberg Materials	Announced	2034	no data	no data	Onshore – Saline Aquifers, South Moravia
Denmark	1	Greensand	Capture Transport Storage	Hard to abate industry (Chemicals)	After successfully operating in its demonstration phase in March 2023, becoming the first operational full value chain CCS project in Europe, the Greensand project entered FID in 2025. Initially CO ₂ was captured at the INEOS Oxide site (chemical industry) in Antwerp, Belgium, shipped cross border and stored permanently at the Danish North Sea. More specifically, 7 batches have been injected in total, equally to around 4.100 tons of CO ₂ . For the 1st commercial phase, 'Greensand Future', the project aspires to become operational in early 2026 with a storage capacity of 0,4 Mtpa. Finally, another expansion of the project is foreseen for up to 8 Mtpa storage capacity by 2030.	INEOS Energy, Harbour Energy, Nordsøfonden	FID	2026	0.4	8	Offshore - Depleted Oil & Gas Field (Nini West), Danish North Sea
	2	Bifrost	Transport Storage	Not applicable	The Bifrost project aims to transport and permantly store CO ₂ in the depleted Harald gas fields by repurposing the existing offshore platform, located 250 km off the west coast of Denmark. The evaluation and appraisal study of the project (2022-2024) provides two options for the transportation of CO ₂ which are both under consideration: via shipping or via a repurposed offshore pipeline. According to the work program, the 1st injection is expected by 2030 with a capacity of 3 Mtpa but expansion of the project is foreseen leading to the maximum capacity of 16 Mtpa.	TotalEnergies (45%) CarbonVault (35%) Nordsøfonden (20%)	Announced	2030	3	16	Offshore - Depleted Oil & Gas Field (Harald West), Danish North Sea
		Project of Common Interest						Expansion date: 2032			
	3	Kalundborg CCS	Storage	Not applicable	On June 2024, the Danish authorities awarded an exploration permit for CO ₂ storage to the consortium of Equinor (60%), Ørsted (20%) and Nordsøfonden (20%). The Kalundborg CCS project is located onshore, in the North West Zealand very close to the Ørsted's established shipping and storage terminal, Ørsted Kalundborg CO ₂ hub. According to estimations, the project could have the potential to store up to 12 MtCO ₂ /year when fully expanded. First injection is planned by 2030.	Equinor (60%) Ørsted (20%) Nordsøfonden (20%)	Announced	2030	no data	12	Onshore – Saline Aquifers

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Denmark	4	Norne	Transport Storage	Not applicable	Project Norne is a cross-border CO ₂ transportation and storage project that aims to build dedicated onshore pipelines and a maritime network (LCO ₂ ship receiving facilities at Port of Aalborg and Port of Kalundborg) in order to receive CO ₂ from Denmark and other countries for permanent storage into two separate onshore storage facilities (Gassum structure via Project Fyrkat and Havnsø structure via Project Trelleborg).	Fidelis New Energy, Ross Energy	Announced	2027	2.3	15	Onshore – Saline Aquifers (Gassum & Havnsø Structures)
		Expansion date: 2035									
	5	Ruby	Storage	Not applicable	Ruby project aims to establish an onshore CO ₂ storage site on the south coast of Lolland island near Rødby town. Liquefied CO ₂ will be shipped from several countries to a floating intermediate storage of CO ₂ , before it is injected and permanently stored onshore at Rødby Formation.	CarbonCuts (80%) Nordsøfonden (20%)	Announced	2030	1	5-10	Onshore – Saline Aquifer (Rødby Formation)
6	Greenstore	Storage	Not applicable	On June 2024, the Danish authorities awarded an exploration permit for CO ₂ storage to the consortium of Harbour Energy, INEOS Energy and the North Sea Fund. The Greenstore CCS project is located onshore, in the Gassum area (Jutland). According to estimations, the project could have the potential to store up to 5 MtCO ₂ /year when fully expanded. First injection is planned by 2029.	Harbour Energy (40%) INEOS Energy (40%) Nordsøfonden (20%)	Announced	2029	no data	5	Onshore – Saline Aquifers	
Greece	1	Prinos CO₂ Storage Project	Storage	Not applicable	Prinos CO ₂ Storage project will make use of the existing onshore and offshore facilities that have been producing oil & gas since 1981 from the Prinos complex. CO ₂ will be received via a pipeline or via ships, stored temporarily at the onshore facilities (Sigma) and then transported via a new 20km offshore pipeline to the offshore platform (Beta) for injection and permanent storage. Phase 1 of the project will be completed on 2027 with a storage capacity of 1 Mtpa whereas Phase 2 of the project will be completed on 2029 with a storage capacity of 3 Mtpa.	Enearth (subsidiary of Energean)	Announced	2027	1	3	Offshore – Semi Depleted Prinos Oil Field, North Aegean Sea
		Expansion date: 2029									

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Hungary	1	MOL-Hungary CCS Project	Transport Storage	Not applicable	The project aims to implement: 1) transport of captured CO ₂ to an existing MOL gas production site via a new onshore dedicated CO ₂ pipeline; 2) suspension of 24 hydrocarbon production wells and the drilling of up to 8 new CO ₂ injection wells, together with 8 new injector lines, associated well sites and CO ₂ distribution system; 3) permanent geological storage of 0.7 MTCO ₂ / year.	MOL Group	Announced	No data	0.7	No expansion planned	Onshore - Depleted Oil Gas Field
	2	Danube Removals Project supported by EU Innovation Fund	Capture Transport Storage	Fuel Production (Biogas)	The Danube Removals Project intends to capture, transport and store 500.000 tons of CO ₂ annually. This will happen at the lowest possible cost as the storage site is onshore (saline aquifer), the CO ₂ will be transported via an onshore pipeline for a short distance of 10-15km and the CO ₂ will be captured from the fermentation process (grain biorefinery) which has the world's absolute lowest costs of capture. The capex of the project is estimated at €80m and the annual opex at €14m. The CO ₂ storage exploration license was granted on June 2024. Since the CO ₂ will be captured from biomass-based feedstock, the project aims to generate carbon removal certificates and offset credits for the voluntary carbon market.	Danube CCS Ventures	Announced	no data	0.5	No expansion planned	Onshore - Saline Aquifer
Iceland	1	Orca	Capture Transport Storage	Direct Air Capture	Climeworks' Orca plant is the world's first and largest Direct Air Capture and mineral storage plant. Orca plant was built in 15 months, has been in operation till Sept 2021 and has the capacity of capturing and storing 4.000 tons of CO ₂ per year. More specifically, the CO ₂ which is captured from the atmospheric air is mixed with water and injected into nearby basaltic rock-formations to be permanently turned into stone.	Climeworks, Carbfix	In operation	In operation	0.004	no data	Onshore - Basalt rock formations
	2	Silverstone Project supported by EU Innovation Fund	Capture Transport Storage	Power Production (Geothermal Energy)	Located at the Hellisheiði geothermal power plant in Iceland, the Silverstone project applies Carbfix technology to capture and permanently store CO ₂ by mineralising it in basaltic rock formations. With a capture capacity of 34,000 tonnes of CO ₂ per year, Silverstone builds on earlier pilot facilities (12,000 tCO ₂ /year) and will remove a total of around 150,000 tonnes of CO ₂ during its operational lifetime. The project, developed by Carbfix and ON Power and co-funded by the EU Innovation Fund, is expected to deliver about 10% of Iceland's planned emission reductions under its 2030 Climate Plan.	Carbfix, ON Power	In operation	In operation	0.012	0.034	Onshore - Basalt rock formations

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	3	Coda Terminal	Transport Storage	Not applicable	Coda Terminal is Iceland's first large-scale, cross-border CO ₂ transport and mineral storage hub at Straumsvík. It is now slated to enter operation in 2029, with the initial phase ramping up to approximately 0.7 MtCO ₂ per year before ultimately achieving a full capacity of 3 MtCO ₂ annually by 2032. Captured CO ₂ from Northern European industrial sources will be shipped to Iceland, unloaded into onshore tanks, then dissolved in water and injected via a network of wells into the basaltic bedrock, where it mineralises into stable carbonate rock within two years using Carbfix technology. Over its first decade of operation, the terminal is expected to avoid approximately 21 MtCO ₂ equivalent emissions, which equates to over half of Iceland's annual emissions and around 2.5% of the EU-wide emissions reductions needed by 2030.	Carbfix, Dan-Unity CO ₂ A/S	Announced	2029	0.7	3	Onshore - Basalt rock formations
		Expansion date: 2032									
	4	Mammoth	Capture Transport Storage	Direct Air Capture	Mammoth is a Direct Air Capture project which entered in operation in May 2024. The project has a CO ₂ capture capacity of 36.000 tons per year. The CO ₂ captured is mixed with water to be injected underground for mineral storage in basaltic rocks.	Climeworks, Carbfix	In operation	2024	0.036	no data	Onshore - Basalt rock formations
Italy	1	Ravenna CCS (includes Callisto)	Capture Transport Storage	Cluster (multiple industrial sources)	The project involves the establishment of a CCUS hub in Ravenna with the perspective to capture CO ₂ from multiple industries in Italy and abroad and store it in the depleted gas fields of the Adriatic Sea. Phase 1 of the project was launched in September 2024. Since then, CO ₂ emissions (25,000 t per year) have been captured at Eni's natural gas treatment plant in Casalborgorsetti, transported via repurposed gas pipelines and stored offshore at the depleted gas field Porto Corsini Mare Ovest. Phase 2 of the project is now scheduled for 2030 with a capacity of 4 Mtpa. The project also retains significant expansion potential, with storage capacity expected to increase progressively to 12 Mtpa by 2034 and to 16 Mtpa by 2038.	Eni CCS Holdings, Snam	In operation	In operation	0.025 *Eligible under NZIA	4	Offshore – Depleted Gas field (Porto Corsini Mare Ovest), Adriatic Sea (off the coast of Ravenna)
Expansion date: 2030											

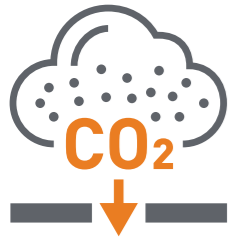
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The Netherlands	1	Porthos	Transport Storage	Not applicable	Porthos stands for Port of Rotterdam CO ₂ Transport Hub and Offshore Storage. The project intends to provide transport and storage infrastructure to energy intensive industries in the Port of Rotterdam and possibly at a later stage to industries in the Antwerp and North Rhine Westphalia areas. The project will link the CO ₂ Capture facilities and the existing OCAP pipeline with a new onshore pipeline which will drive the aggregated CO ₂ in a CO ₂ hub in the Port of Rotterdam and subsequently via an offshore pipeline in a depleted gas field 20 km off the coast for permanent storage. FID was taken in Oct 2023.	EBN, Gasunie, Port of Rotterdam Authority	FID	2027	2.5	no data	Offshore - Depleted Gas Fields (P18-2, P18-4 and P18-6), Dutch North Sea
		Project of Common Interest									
	2	Aramis	Transport Storage	Not applicable	Aramis project aspires to enable multiple energy intensive industries to store their captured CO ₂ emissions under the Dutch North Sea. For this purpose, a CO ₂ collection hub and an offshore pipeline with a 22 Mt/year transport capacity will be built to connect the port of Rotterdam with the depleted gas fields located 200 km off the coast. Industries will be able to connect with the CO ₂ collection hub either by onshore pipelines either by ships. The FEED phase was finalized on Nov 2024.	TotalEnergies, Shell, EBN, Gasunie	Announced	2030	5	22	Offshore - Depleted Gas Field (L7) and potential Aquifers, Dutch North Sea
		Project of Common Interest						Expansion date: 2035			
	3	KOMPAS	Storage	Not applicable	Kompas is a storage project developed by ONE-Dyas and EBN to permanently store captured CO ₂ emissions from hard-to-abate industries in the depleted Q16-FA gas field in the Dutch sector of the North Sea, approximately 10 km north of the Maasvlakte. Captured CO ₂ will be transported by ship to an offshore unloading station and injected through the Q16-B platform into the depleted reservoir beneath the seabed. The project is expected to provide a total storage capacity of around 15 Mt of CO ₂ .	ONE-Dyas & EBN	Announced	2030	1	no data	Depleted Q16-FA gas field
Norway	1	Sleipner	Capture Transport Storage	Upsteam Oil & Gas (Gas Processing)	Sleipner CCS project has been operational since 1996 and it is known as the world's first offshore CCS implementation. The produced natural gas at Sleipner area contains around 9% of CO ₂ and therefore the production is driven to a processing and CO ₂ removal platform (Sleipner T) where 2.800 tonnes of CO ₂ are separated and injected daily in the Utsira saline formation, 800m below the seabed. By the end of 2020 more than 19 Mt of CO ₂ have been injected and permanently stored. The project is the result of a tax on CO ₂ emissions which was introduced in Norway in 1991.	Equinor, ExxonMobil, Total	In operation	In operation since 1996	1	no data	Offshore - Saline Aquifer (Utsira Formation), Norwegian North Sea

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Norway	2	Longship (includes Northern Lights 1)	Capture Transport Storage	Cluster (multiple industrial sources)	Longship CCS project includes the capture of 0.4 Mtpa of CO ₂ from a cement plant in Brevik and 0.4 Mtpa of CO ₂ from a waste incineration plant in Oslo along with the liquefaction and the temporary storage of the captured CO ₂ at the premises of the industries. The Northern Lights project is part of the Longship CCS project and involves the shipping of the liquefied CO ₂ and its permanent storage at the Aurora saline aquifer below the Norwegian North Sea. Phase 1 of Northern Lights project has been operational since Sept 2024, being able to transport & store 1,5 Mtpa of CO ₂ . Northern Lights has the vision to expand and receive additional volumes of CO ₂ from several industries in Europe.	Equinor (33,3%), Shell (33,3%), Total Energies (33,3%)	In operation	In operation (since 2024)	1.5	Expansion through Northern Lights 2 project	Offshore - Saline Aquifer (Aurora), Norwegian North Sea
		Project of Mutual Interest									CO ₂ License: EL 001
		Northern Lights 2	Transport Storage	Not applicable	The Northern Lights project is part of the Longship CCS project and involves only the transport and storage part. Northern Lights 1 has been in operation since Sept 2024 with a transport and storage capacity of 1.5 Mtpa. Northern Lights 2 intends to have a transport and storage capacity of 3.5 Mtpa by 2028, dependent on market demand.	Equinor (33,3%), Shell (33,3%), Total Energies (33,3%)	FID	2028	3.5	no data	Offshore - Saline Aquifer (Aurora), Norwegian North Sea
											CO ₂ License: EL 001
	3	Snøhvit	Capture Transport Storage	Fuel Production (Oil & Gas)	Snøhvit is an offshore gas field in Northern Norway, that supplies gas to the Melkøya LNG production facility. Since the produced natural gas contains 5-6% CO ₂ , it is separated and the CO ₂ is piped back to the Snøhvit field. There the CO ₂ is injected for permanent storage into the Tubaen saline formation at 2600m depth, beneath the gas production layers. The CCS project is the result of a tax on CO ₂ emissions which was introduced in Norway in 1991.	Equinor	In operation	In operation since 2008	0.7	no data	Offshore - Saline Aquifer (Tubaen), Barents Sea
4	Smeaheia	Transport Storage	Not applicable	The Smeaheia CCS project aims to transport and store 5 Mtpa of CO ₂ by the early 2030s. Two transport concepts are being considered to connect North West Europe with the storage site: A pipeline solution (CO ₂ Highway Europe) and a shipping solution coupled with an onshore receiving terminal on the west coast of Norway (Smeaheia Norwegian Hub). The project could expand and store up to 20 Mtpa by 2035.	Equinor	Announced	Early 2030s	5	20	Offshore - Saline Aquifer (Sognefjord), Norwegian North Sea	
							Expansion date: 2035				CO ₂ License: EXL 002
5	Trudvang	Transport Storage	Not applicable	The Trudvang project aims to receive liquified CO ₂ via shipping to an onshore terminal in the south-west of Norway and transport it via a purpose-built pipeline to the Norwegian North Sea (about 200 kilometres from the coast) for injection and permanent storage. Technical feasibility of the project has been completed on Aug 2024.	Storegga (30%), Var Energi (40%), INPEX (30%)	Announced	2029	9	no data	Offshore - Saline Aquifer (Utsira), Norwegian North Sea	
											CO ₂ License: EXL 007

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Norway	6	Luna	Storage	Not applicable	Luna CCS project is located in the Norwegian North Sea, 120 km offshore Bergen. The project aims to store up to 5 MtCO ₂ /year by 2030. Technical feasibility of the project has been completed on Aug 2024.	Habour Energy (60%), TotalEnergies (40%)	Announced	2030	5	no data	Offshore - Saline Aquifer (Statfjord), Norwegian North Sea CO ₂ License: EXL 004
	7	Havstjerne	Storage	Not applicable	Havstjerne is an offshore open access CO ₂ storage project that aims to permanently store liquefied CO ₂ that will be shipped from several CO ₂ hubs across Europe. For this purpose, the STARFISH project (Sequestration Technology And Reservoir: Floating Injection and Storage in Havstjerne) has been awarded a grant from the EU's Innovation Fund. The STARFISH project will feature a specially designed injection unit capable of directly receiving large volumes of liquefied CO ₂ from purpose-built LCO ₂ carriers. Technical feasibility of the project has been completed on Aug 2024.	Habour Energy (60%) Stella Maris CCS (40%)	Announced	2030	3	7	Offshore - Saline Aquifer (Sandnes), Norwegian North Sea CO ₂ License: EXL 006
											Expansion date: 2033
	8	Poseidon (NO)	Storage	Not applicable	Poseidon CCS license is found in the Norwegian North Sea, about 100 km off the Norwegian coast. In Mar 2023, Aker BP and OMV were awarded the Poseidon license and in Oct 2023 the acquisition of the 3D seismic data has been completed. According to the work program, FID is expected before May 2025. The Poseidon CCS project could potentially provide a storage injection capacity of more than 5 Mtpa of CO ₂ that will be captured mainly from industrial emitters in North-West Europe.	Aker BP (50%), OMV (50%)	Announced	2030	5 Mtpa	No data	Offshore - Norwegian North Sea CO ₂ License: EXL 005
	9	Kinno	Storage	Not applicable	On June 2024, the Norwegian Ministry of Energy awarded an exploration permit for CO ₂ storage to Equinor. The Kinno CCS project is located in the Norwegian North Sea, 130 km west of the coast from Haugesund, it is estimated that has the potential to store up to 5 MtCO ₂ /year. According to the work program of the exploration permit, Equinor should make a FID in 4 years (Jun 2028). The Kinno project will be one of the storage sites to be connected with the planed 1000km long pipeline CO ₂ Highway Europe in order to receive CO ₂ from European industrial emitters.	Equinor	Announced	no data	no data	5	Offshore - Norwegian North Sea CO ₂ License: EXL 010
	10	Atlas	Storage	Not applicable	On June 2024, the Norwegian Ministry of Energy awarded an exploration permit for CO ₂ storage to the consortium of Aker BP, PGNiG Upstream, Norway AS. The Atlas CCS project is located in the Norwegian North Sea, 130 km west of the coast from Haugesund, very close to the Yggdrasil field. According to the work program of the exploration permit, the consortium should make a FID in 4 years (Jun 2028).	Aker BP (80%) Orlen Upstream Norway (20%)	Announced	2030	6	no data	Offshore - Norwegian North Sea CO ₂ License: EXL 011

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Norway	11	Kaupang	Storage	Not Applicable	Kaupang is a CO ₂ storage project in the Norwegian North Sea. Current activities include acquiring high-quality seismic data over the storage complex and overlying formations. The project is also carrying out geological and geophysical studies and developing 3D geological and reservoir models.	Harbour Energy (60%) Equinor (40%)	Announced	No Data	No Data	No Data	Licence EXL012
Slovakia	1	CarbonNet Slovakia	Transport Storage	Not applicable	Engas aims to convert an Underground Gas Storage site operating the last 25 years at the Golianovo field located 70 km North East of Bratislava into the 1st onshore CO ₂ Storage site in Slovakia. Over time the UGS site lost its strategic attractiveness and now the existing infrastructure will be repurposed for CO ₂ storage. Engas plans the 1st injection by 2027 with a capacity of 350.000 t/year.	Engas	Announced	2027	0.3	0.5	Onshore – Depleted Gas Field (Golianovo field)
								Expansion date: 2033			
Spain	1	TarraCO₂	Storage	Hard to abate (petrochemical; cement; other)	The TarraCO ₂ project, led by Repsol, is Spain's first commercial-scale carbon capture and storage (CCS) initiative. It is designed to capture CO ₂ emissions from industrial facilities - primarily in the chemical and cement sectors of the Tarragona region - and transport them via pipeline for storage located 45 km offshore in the Mediterranean Sea. The project aims to store up to 2 million tonnes of CO ₂ per year, with a total capacity of 54 million tonnes, contributing to a significant reduction in regional industrial emissions. It is intended to serve as a foundation for a future CO ₂ storage hub, potentially expanding to include other emitters and carbon removal technologies. The initiative has received €205 million in EU Innovation Fund support and is planned to be operational by 2030.	Repsol	Announced	2030	2 Mtpa	N/A	Offshore
		Project supported by EU Innovation Fund									
UK	1	Acorn	Capture Transport Storage	Fuel Production (Hydrogen)	Acorn is a joint venture of companies which is considered to be the backbone of the Scottish Cluster. Acorn is working on three linked projects: Acorn Carbon Capture project that aims at the construction of a carbon capture plant for the decarbonisation of two St. Fergus Gas Terminals. Acorn Hydrogen project that aims at the construction of a Blue Hydrogen facility adjacent to the two St. Fergus Gas Terminals. Acorn Transport & Storage project that aims at the transportation of the captured CO ₂ for permanent storage under the North Sea using repurposed pipelines and ships.	Storegga, Shell, Harbour Energy and NSMP	Announced	2032	5	N/A	Offshore – Depleted Gas Field (Goldeneye Field), British North Sea

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UK	6	Poseidon [UK]	Transport Storage	Not applicable	The Poseidon project involves the transportation of CO ₂ (received from several industrial sources) from the Bacton terminal to the depleted Leman gas field via an offshore pipeline for permanent storage. The project will start operating in 2029 with 1.5 Mtpa injection capacity whereas it is foreseen to increase the injection capacity at 10 Mtpa by 2034. On Feb 2025, UK's first-ever CO ₂ injection test took place. FID target is for 2028.	Perenco, Carbon Catalyst, Harbour Energy	Announced	2029	1.5	10	Offshore - Depleted Gas Field (Leman gas field) & Saline Aquifers, British North Sea
								Expansion date: 2034			CO ₂ License: CS009
	7	Viking CCS	Capture Transport Storage	Cluster (multiple industrial sources)	The Viking CCS Cluster involves: 1) CO ₂ capture from several industries in the Humber, Lincolnshire and Nottinghamshire regions, 2) CO ₂ transportation from the Theddlethorpe Gas Terminal via an existing offshore pipeline, 3) CO ₂ storage at the depleted Viking gas fields (North Sea). The Cluster is targeting to store 10 Mtpa by 2030, rising to 15 Mtpa by 2035.	Harbour Energy, bp, Phillips 66 Limited, VPI, Associated British Ports (ABP), West Burton Energy, RWE	Announced	2030	4	10	Offshore - Depleted Gas Field (Viking field), British North Sea
									Expansion date: 2035		
	8	Orion	Transport Storage	Not applicable	The Orion project involves the transportation of CO ₂ (received from several industrial sources) from the Dimlington terminal to the depleted Amethyst gas field and to the West Sole field via offshore pipelines for permanent storage. The project will start operating in 2031 with 1 Mtpa injection capacity whereas it is foreseen to increase the injection capacity at 6 Mtpa at latter stages (2035). FID is expected in 2029.	Perenco, Carbon Catalyst	Announced	2031	1	6	Offshore - Depleted Gas Field (Amethyst field and West Sole field), British North Sea
								Expansion date: 2035			CO ₂ Licenses: CS017 & CS018
	9	Morecambe Net Zero Cluster	Transport Storage	Not applicable	On May 2023, the North Sea Transition Authority awarded an exploration permit for CO ₂ storage to Spirit Energy related to the depleted North & South Morecambe gas fields, in operation since 1974 and located in the East Irish Sea off northwest England. The project aims to accept CO ₂ at first by a repurposed pipeline and on a later basis by ship and rail. FID is expected by 2028 whereas first injection by 2030.	Spirit Energy	Announced	2030	no data	no data	Offshore - Depleted Gas Fields (North & South Morecambe gas fields)



Carbon Capture, and Storage

CCS is a set of technologies that enable the Capture, Transport and Storage of CO₂.

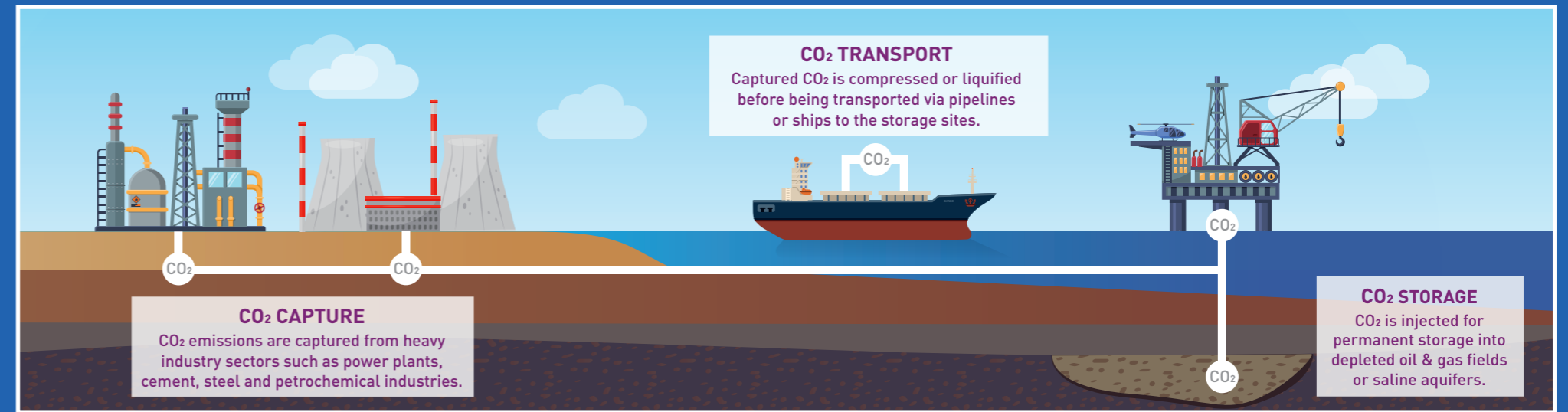
CCS is a proven and safe technology. CO₂ has been captured, transported and stored in Europe successfully since 1996 (Sleipner project, Norway).

It is a key technology for Europe to meet climate neutrality.

More CCS resources at iogpeurope.org

How it works

The 3 segments of the CCS value chain



CCS be deployed at scale, often repurposing existing infrastructures

Where can CCS make a difference?



Decarbonisation of hard-to-abate industries

In the EU, steel, cement, chemical and refining sectors emit 37% of total CO₂ industrial emissions. CCS is one of the only technological options to enable emission reductions in hard-to-abate industries.



Energy transition

CCS can be applied to gas-fired power plants which provide flexibility to an electricity grid with a higher share of intermittent renewables.



Low carbon hydrogen production

Hydrogen production based on natural gas decarbonized with CCS is the most cost-effective. It can supply industrial sectors and decarbonize sectors which cannot be electrified such as aviation and maritime transport.



Negative emissions

Large scale negative emissions can be achieved when BioEnergy production is combined with CCS (BECCS) or when Direct Air Capture is combined with CCS (DACCS).