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CCS IN THE MEDITERRANEAN

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THE GLOBAL CCS INSTITUTE

Accelerating the deployment of CCS for a net-zero emissions future.

WHO WE ARE

International CCS think tank with offices around the world.

Over 150 members across governments, global corporations, private companies, research bodies and NGOs, all committed to a net-zero future.

WHAT WE DO

Fact-based influential advocacy, catalytic thought leadership, authoritative knowledge sharing.





GLOBAL STATUS OF CCS



CAPTURE CAPACITY (Mtpa)



196 CCS

FACILITIES

WORLDWIDE

GLOBAL CCS INSTITUTE

THE CONTINUED RISE OF CCS NETWORKS

- Networks continue to emerge as the preferred ulletdeployment method.
- Multiple industrial point sources of CO₂ connected • to a CO₂ transport and storage network.
- Access to large geological storage resources with ulletthe capacity to store CO₂ from industrial sources for decades.
- Economies of scale deliver lower unit-costs for CO₂ storage.
- Synergies between multiple CO₂ sources and the storage operator reduce cross chain risks and support commercial viability.









CCS DEVELOPMENTS IN EUROPE

- More than 70 commercial facilities in various stages of development across Europe – <u>almost doubling</u> from 2021.
- The EU through the Innovation Fund to invest in 11 CCS and CCU projects, supplemented by individual member state policies.
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- Denmark allocated around €5 bn for CCS projects
- Dutch Government allocated €2bn SDE++subsidy to capture facilities in the Port of Rotterdam network.





6 commercial projects operating or in construction.

60+ + projects in development (not including announcements).



CCS READINESS AND REQUIREMENT INDICES

- First created by the Global CCS Institute in 2015
- CCS readiness indicator ranks over 50 countries for their attractiveness for investment and deployment
- Index is composed of 3 main categories
 - Endowment of storage resources and state of knowledge about those resources,
 - Each country's policy environment
 - Each country's legal and regulatory framework of relevance to CCS
- CCS requirement indicator is relative index based on a country's share of fossil fuel production and consumption
 - Big consumer or exporters of fossil fuels rank high in this indicator (e.g. US and China)



CCS READINESS INDEX FOR THE MED



Region	Country	Year	Regulatory Score	Storage Score	Policy Score	Readiness Index Sco •	ore
EUROPE 0	Croatia	2021	70	5	3	20	47
EUROPE F	France	2021	53	5	9	31	47
EUROPE I	Italy	2021	64	5	1	25	46
EUROPE S	Spain	2021	48	5	9	27	44
EUROPE	Greece	2021	64	3	9	22	41
EUROPE S	Sweden	2021	58	3	5	32	41
EUROPE F	Portugal	2021	52	4	.0	28	40
AFRICA	Algeria	2021	37	6	3	1	33
AFRICA I	Egypt	2021	31	1	1	2	14

Source: Global CCS Institute, https://co2re.co/ccsreadiness



Norway, UK, Netherlands and Denmark have the highest readiness scores in Europe



POTENTIAL CCUS HUBS IN THE MEDITERRANEAN





RAVENNA HUB (ADRIATIC BLUE)

- Led by Eni, this hub aims to become the reference hub for Italy and the Mediterranean.
- Storage will be in offshore depleted gas reservoirs in the Adriatic Sea.
- Phase 1 to commence in 2023, testing technologies in a full capture, transport and storage chain handling up to 100,000 tonnes per year.
- Phase 2, scheduled to start in 2027, will allow storage of 4 million tonnes of carbon dioxide per year, about half of it from three power stations and a hydrogen plant owned by Eni, and the rest from other emitters.

Location northeast Italy

Potential impact by 2030 10 MtCO2/year

Hub developer/T&S Eni

Initial CO, sources power, hydrogen

Potential CO₂ sources steel, glass

Transport pipeline

Storage site

depleted gas reservoirs off the coast of Ravenna

Status

investment decision expected in 2022

In operation 2026

Source: OGCI, https://ccushub.ogci.com/focus_hubs/ravenna/



ENERGEAN IN EAST MED

Prinos Carbon Storage

The first CO2 storage in the East Med. designed to service Greek industry & regional emitters

Key Investment Highlights Prinos CO2 Storage Key Highlight The East Med's Only CCS Project Under Evaluation Signed Preliminary results from subsurface study indicate that the Prinos complex may store up 100 MM Tones non-binding MoUs to 100 MM tones of CO2 Preliminary CO2 Capacity with Greek industry **Pre-FEED Underway** • In February 2022, Halliburton was awarded a service contract to assess the carbon storage potential of the Prinos basin. A parallel pre-feed study is run to assess requirements and costs for onshore facilities Synergies with Existing 6 MM Tones **Qualified For Funding** offshore infrastructure Potential Annual Sequestration · From the European Commission's Recovery and Resilience Fund subject to operational readiness by Q4 2025 Identified & In Discussions With Third Party CO2 suppliers • Includes CO2 emissions from Greek industry to be transported to Prinos in liquid form and also potentially by pipeline Only CCS in





Energean identified 20 fields with CCS opportunities across its 6 countries of operations around the Mediterranean.



CCS ACCELERATION NEEDED

- According to IEA SDS (2021), by 2050 7.6 GtCO₂ captured per year, including 2.4 Gt removal from BECCS and DACCS.
- CCUS across diverse sectors and increasingly important to industry.
- Stronger policy to incentivise rapid CCS investment is required.

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		2020	2025	2030	





THANK YOU

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