

New Energy Technologies

Hydrogen and CCUS application in Southern Eastern Europe

The case of Pilot Strategy project



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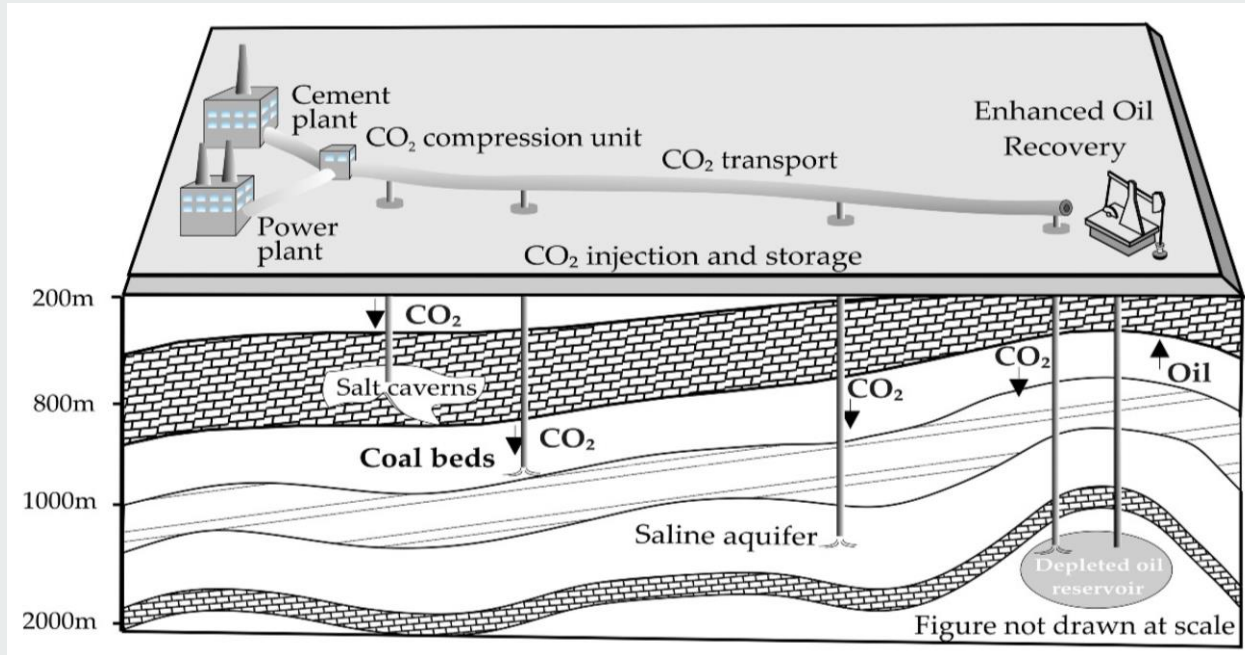


Current developments



Investigation of geological formations suitable for CO₂ and H₂ storage in SEE Europe to support development of Energy Transition's technologies.

CO₂ capture and storage process



Koukouzas, N. et al (2021).
<https://doi.org/10.3390/en14113321>.

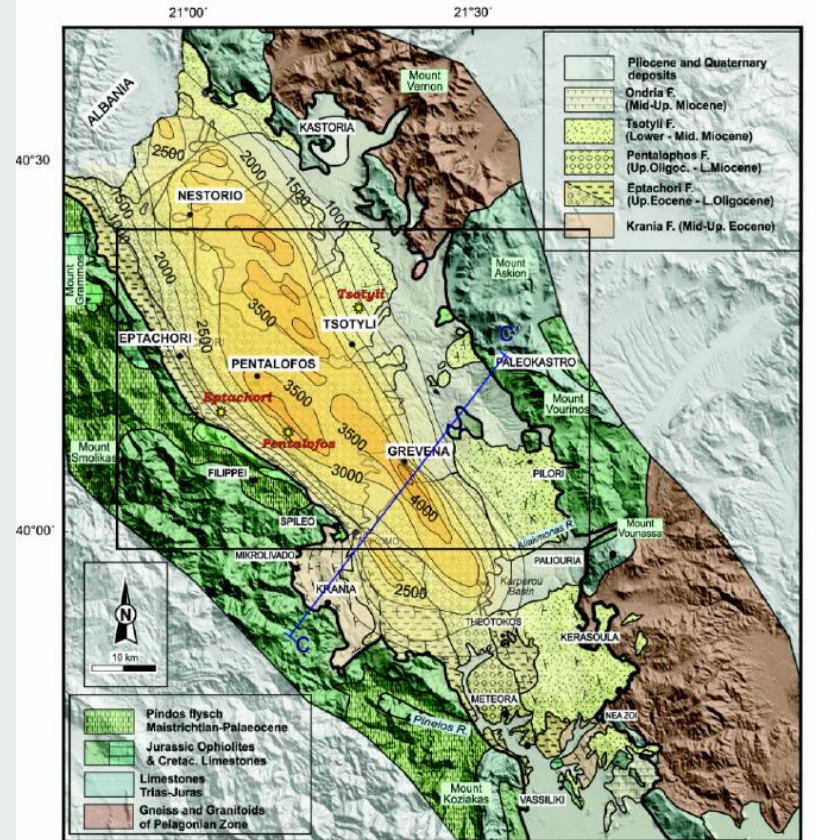
Energy storage solutions

H2 storage

Investigation of porous formations (reservoirs) such as depleted gas or oil fields and aquifers in West Macedonia (Hystories project)

CO2 storage

Investigation of geological CO2 storage sites in industrial regions of Southern and Eastern Europe to support development of carbon capture and storage (CCS) in west Macedonia (Pilot Strategy project)

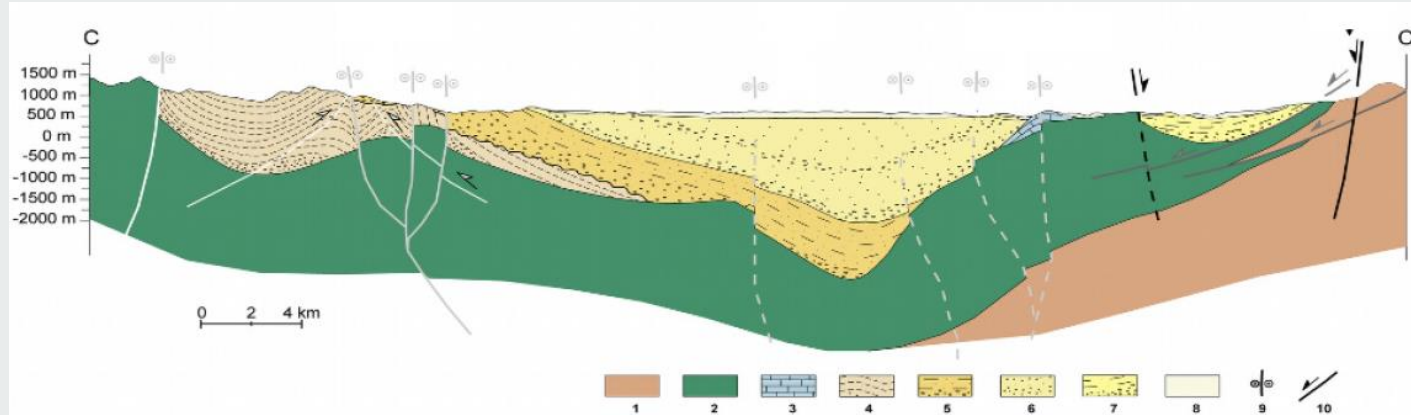


Reservoir characteristics

In West Macedonia formations that contain suitable beds for H₂ and CO₂ storage are:

	Eptahori	Pentalofos
Type	Beds of Saline Aquifers	Beds of Saline Aquifers
Reservoir	Sandstones/Conglomerates	Sandstones/Conglomerates
Age	Chattian-Rupelian	Paleogene
Reservoir depth	1200m	> 800m
Reservoir thickness	1000m	2500m
Seal thickness	600m (Tsotyli Fm)	1000m (Tsotyli Fm)
Reservoir capacity	1 Gt	0,85 Gt

Reservoir formations (Cross section in Mesohellenic Trough)



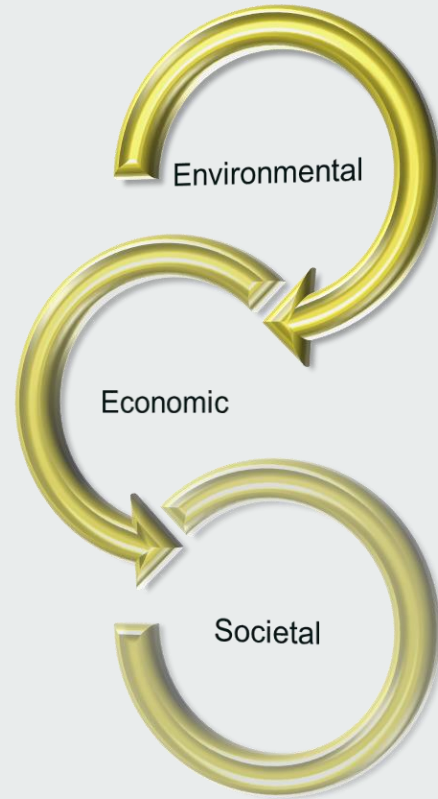
Tyrolou, P., et al., (2023).
<https://doi.org/10.12688/openreseurope.15847.1>

1. Pelagonian Nappe
 2. Ophiolites
 3. Jurassic Limestones
 4. Krania
 5. Eptahori Fm
 6. Pentalofos Fm
 7. Tsotyli Fm
 8. Quaternary Deps
 9. Strike-slip
 10. Dip-slip faults
- Reservoir formations
- Seal formations

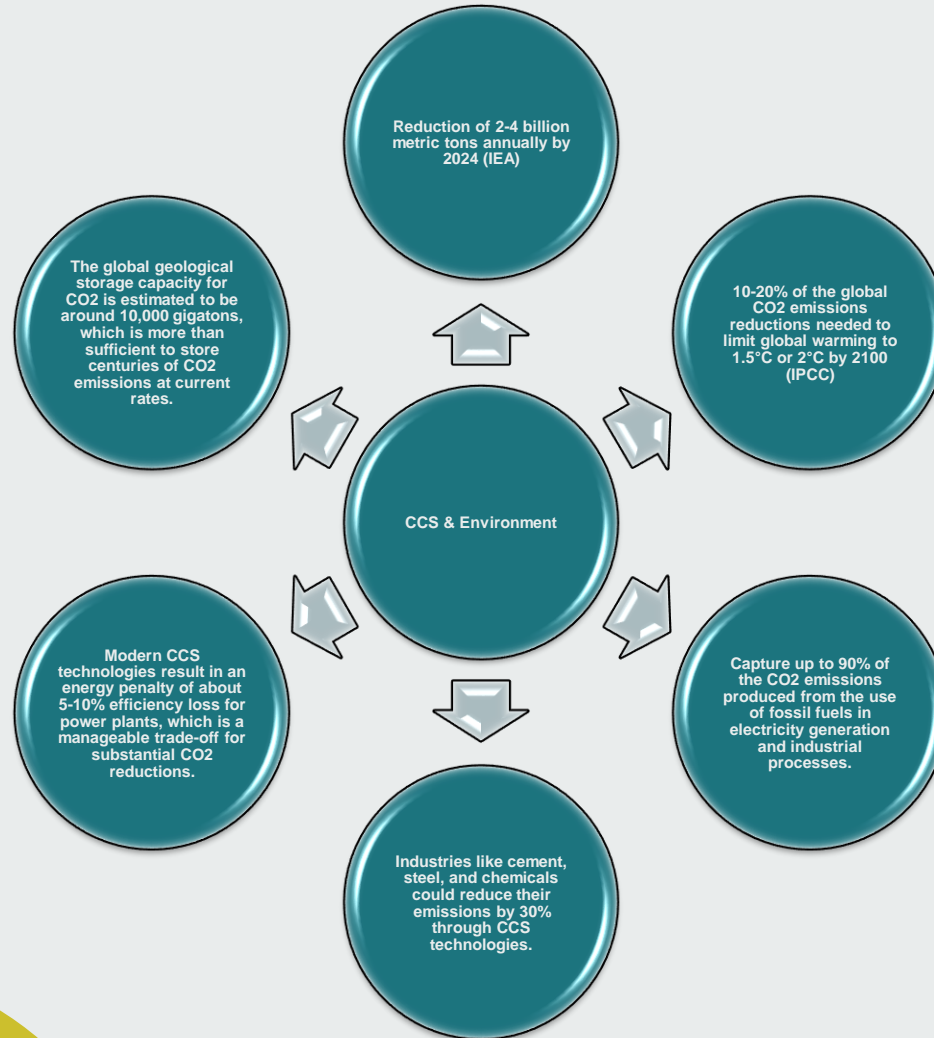
Pilot Strategy Project

- ❖ Pentalofos and Eptahori formations are suitable for CO2 storage as well
- ❖ They are formations suitable for further investigation within the scope of Pilot Strategy

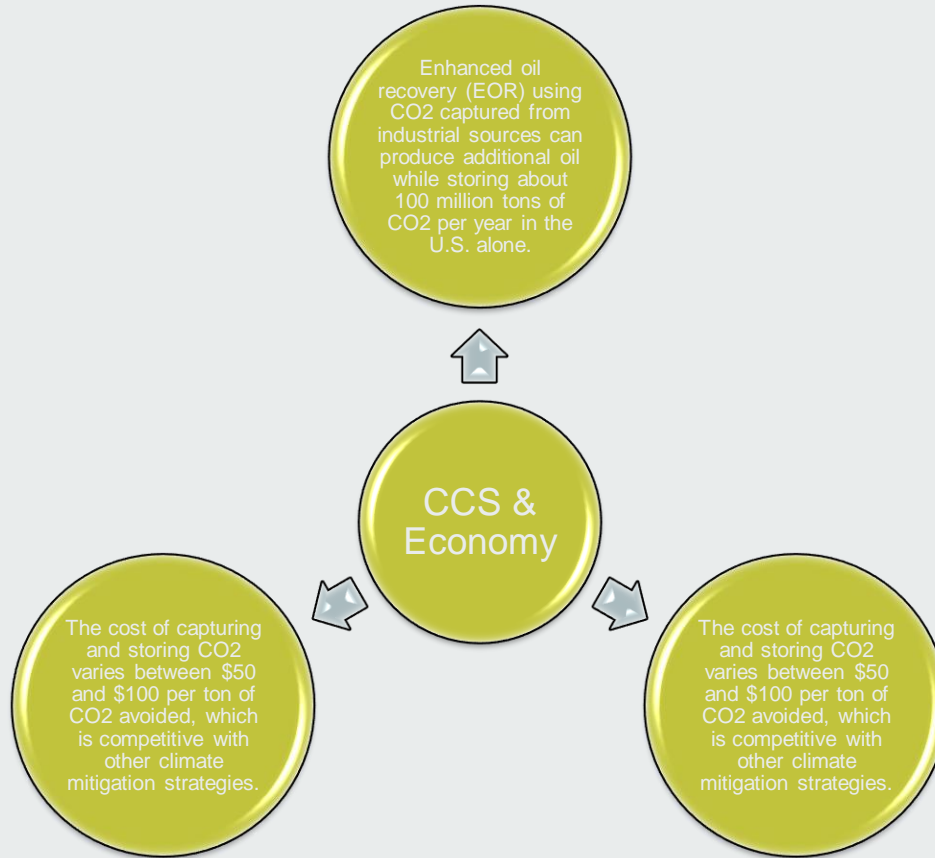
CO2 Storage Benefits & Market Size: An In-Depth Overview



CO2 storage offers:



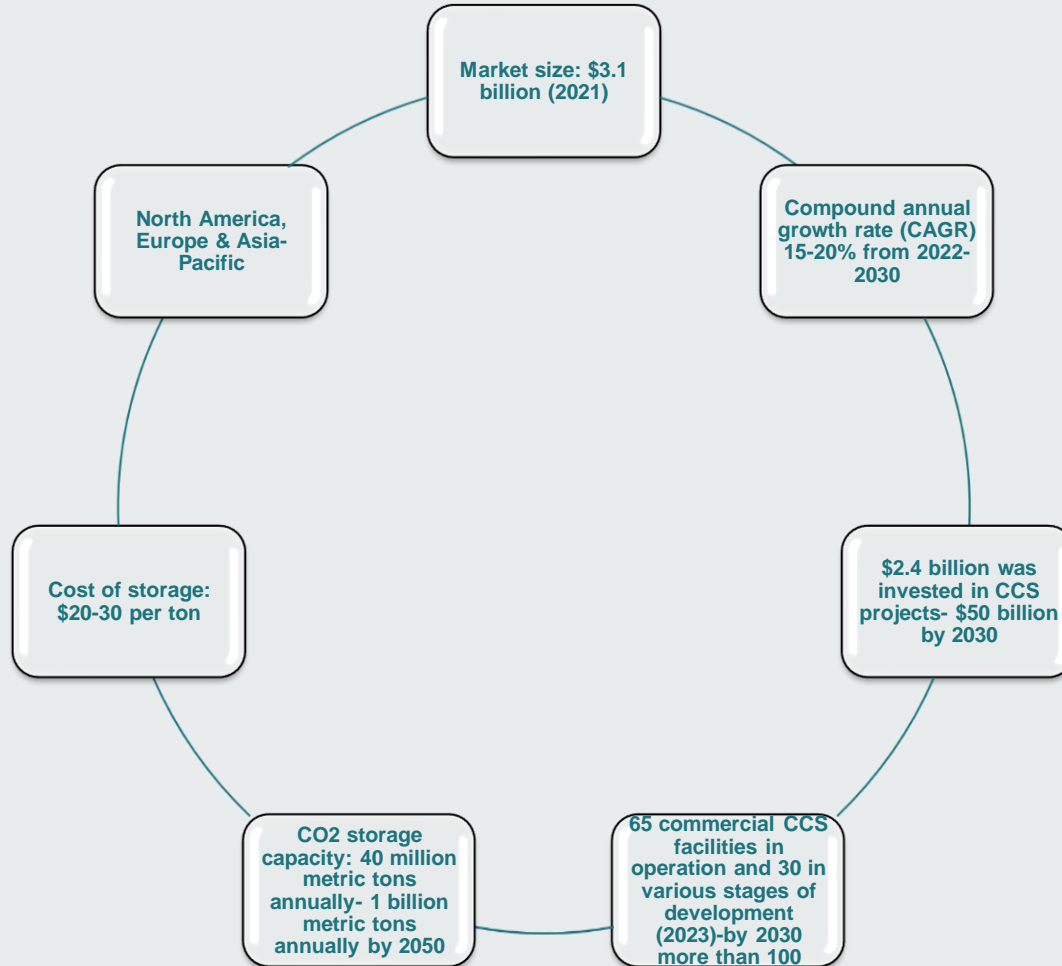
CO2 storage offers:



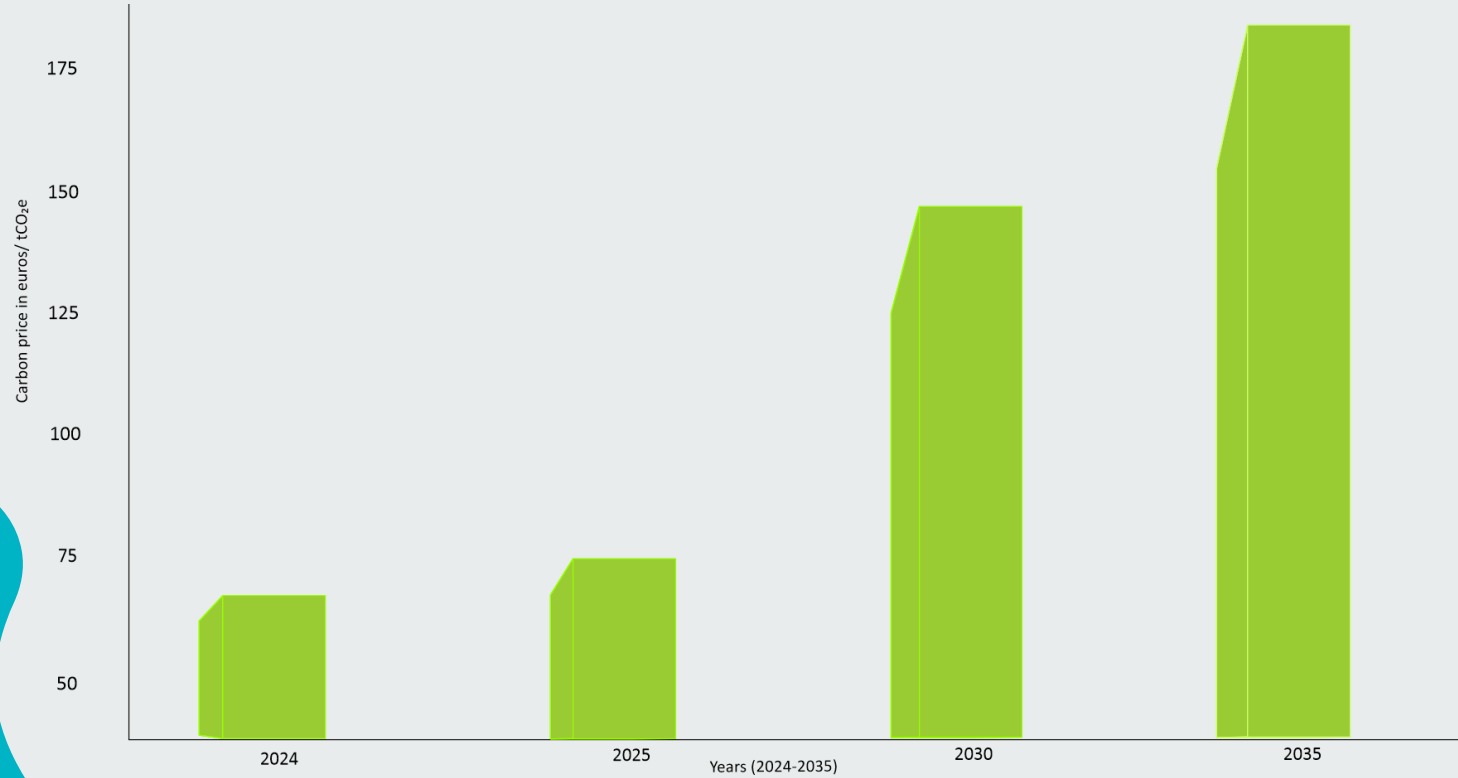
CO2 storage offers:



Market Size



EU Emissions Trading System-Forecast until 2035



The Future of CO2 Storage: Key Developments

- ❖ Large-scale CCS projects are expected to become operational, significantly increasing global CO2 storage capacity. Examples include the Northern Lights project in Norway and the CarbonSAFE initiative in the United States.
- ❖ The EU will allocate substantial funds from the Horizon Europe program towards DAC research and pilot projects to advance the technology.
- ❖ Development of transnational CO2 transport and storage networks, particularly in the North Sea region, to facilitate cross-border CO2 storage projects.
- ❖ Strengthening the role of CCS within the EU Emissions Trading System (ETS), providing financial incentives for industries to adopt CCS technologies and trade emissions reductions.



The Future of CO2 Storage: Regulatory Frameworks

- ❖ Improved regulatory frameworks will be established to ensure safe and efficient CO2 transport and storage infrastructure, including pipelines and underground reservoirs.
- ❖ The EU is likely to strengthen its CCS Directive to streamline permitting processes and provide more robust financial support for CCS projects through the Innovation Fund.
- ❖ Policies under the European Green Deal will likely include specific targets and funding for DAC technologies, integrating them into the broader climate strategy.
- ❖ Amendments to the CCS Directive to establish clearer guidelines and support mechanisms for cross-border CO2 transportation and storage, ensuring compatibility and safety standards across EU member states.
- ❖ Integration of CCS into the EU's Just Transition Mechanism, ensuring that regions dependent on fossil fuels receive support for developing CCS projects as part of their transition to a low-carbon economy.





Thank you for listening

