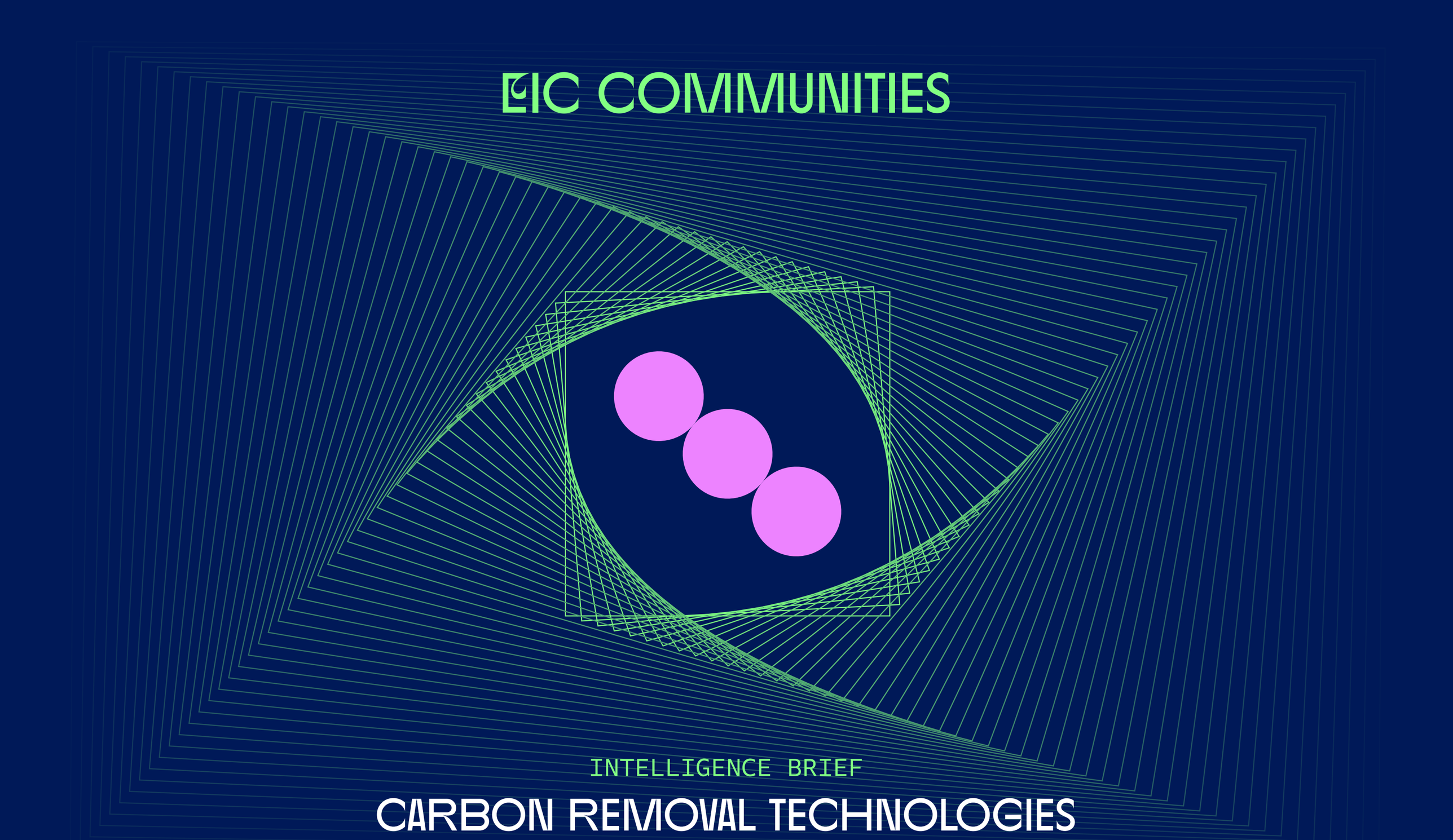
EIC COMMUNITIES



INTELLIGENCE BRIEF

CARBON REMOVAL TECHNOLOGIES

ACCELERATING CARBON REMOVAL TECHNOLOGIES FOR EUROPE'S NET-ZERO FUTURE

Carbon Removal Technologies (CRTs) play a critical role in achieving Europe’s 2050 climate neutrality targets. Yet the path to deployment remains fragmented: competing standards, a lack of transparent benchmarking, and unclear policy frameworks slow innovation and investment.

Through the EIC Communities initiative, stakeholders from research, industry, and start-ups convened to identify these barriers and co-develop practical recommendations for advancing CRTs under the European Green Deal.

This policy brief summarises the main outcomes of the EIC Communities Cleantech Community of Practice, providing evidence-based insights and policy directions to strengthen Europe’s carbon removal ecosystem.

EVIDENCE AND METHODOLOGY

The brief draws on the outcomes of three co-creation workshops organised between April and June 2025 within the Cleantech Community of Practice.

The sessions gathered 11 unique participants from 10 organisations across 8 European countries (Cyprus, Germany, Hungary, Italy, Kosovo, Portugal, Spain, and the United Kingdom). The group included representatives of five EIC-funded projects (three Pathfinder, one Transition, one Accelerator) and additional stakeholders from academia, start-ups, and research institutions.

The process combined desk research, interactive Miro-based collaboration, and foresight tools such as Cross-Impact Balance Analysis and Backcasting. These methods enabled participants to identify interdependencies between technologies and policy actions, co-designing short-, medium-, and long-term recommendations for the future of Carbon Removal Technologies in Europe.

KEYPOINTS



Carbon Removal Technologies are indispensable to Europe’s net-zero ambitions but require stronger policy coherence and market frameworks.



The absence of centralised testing facilities and harmonised benchmarking protocols limits fair comparison between technologies.



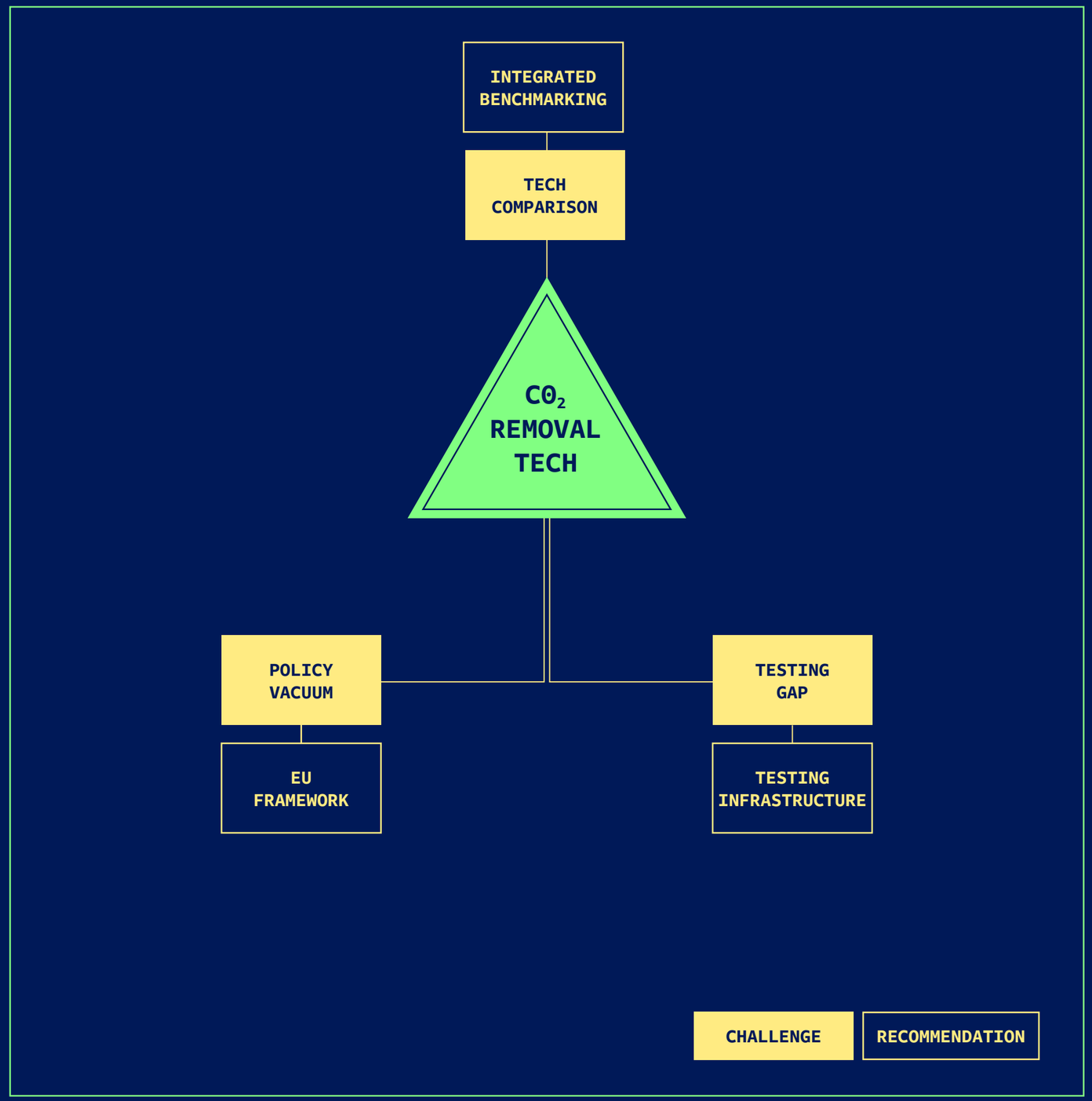
Certification mechanisms like the EU Carbon Removals and Carbon Farming Certification are important, but without the corresponding policy framework to drive the markets for these innovative products may be ineffective.



The sector needs an EU-level policy framework providing clear definitions, mandates, and obligations to attract public and private investment.

THE CHALLENGES

Scaling carbon removal in Europe is slowed by inconsistent benchmarking, limited testing facilities, and the absence of a coherent policy framework. Overcoming these gaps is key to compare solutions fairly, validate technologies under real conditions, and create the regulatory stability needed for long-term investment.



WHAT TO SOLVE

DIFFICULTIES IN COMPARING TECHNOLOGIES

CHALLENGE	RECOMMENDATION
Absence of fair and transparent benchmarking across different use cases, inconsistencies between laboratory assessments (LCA/TEA) and real-world performance, and the difficulty of capturing broader benefits of carbon capture technologies - such as environmental repair or resource recovery - which emerge only over time and hinder comparison with established industrial processes.	Create benchmarking mechanisms by developing unified protocols that allow for a proper comparison of results and data of different solutions.

NO CENTRALISED TESTING FACILITIES FOR CARBON REMOVAL TECHNOLOGIES

CHALLENGE	RECOMMENDATION
Lack of centralised facilities for testing or piloting carbon removal technologies using real flue gas - particularly for CCU.	European-level facilities dedicated to the experimental testing and validation of carbon removal technologies using real flue gas. Such infrastructure would enable robust and comparable assessments of carbon capture solutions - particularly CCU - beyond the performance metrics typically reported in scientific publications.

LACK OF A POLICY FRAMEWORK

CHALLENGE	RECOMMENDATION
Inexistence of an agnostic policy framework covering Carbon Removal Technologies.	Initiate procedures for the development of a Policy Framework, including clarification of definitions and legislation surrounding green molecules.

EIC COMMUNITIES

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or European Innovation Council and SMEs Executive Agency (EISMEA). Neither the European Union nor the granting authority can be held responsible for them.