

**Carbon Capture, Utilisation and Storage:
Opportunities, challenges and pathways to Net Zero**

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**The Italian National Node of ECCSEL ERIC: Coordination,
Development and Research Facilities**

Cinzia De Vittor^{1*}, Michela Vellico¹, Valentina Volpi¹

1 - National Institute of Oceanography and Applied Geophysics - OGS, Trieste, Italy

* Corresponding author: cdevittor@ogs.it

Abstract

The Italian National Node of ECCSEL ERIC, the European Carbon Capture, Utilisation and Storage, (CCUS) Research Infrastructure, brings together research institutions and facilities with complementary expertise and capabilities. OGS, the National Institute of Oceanography and Applied Geophysics, has been nominated as the Italian Representing Entity in ECCSEL ERIC by the Italian Ministry of University and Research (MUR) and coordinates the National Node, fostering cooperation among its members and integrating their facilities into the European Research Infrastructure. Italian participation in ECCSEL initially involved OGS and Sotacarbo. Over the time, the National Node has progressively expanded, including additional facility owners and research facilities. This implementation has been supported by OGS's continuous scientific, organisational and coordination work, carried out in collaboration with the participating institutions. The resulting structure brings together complementary expertise and facilities from different components of the national research system, contributing to the broader European research framework for CCUS, geothermal energy exploitation, and subsurface energy storage. The coordination of the National Node includes facilitating interaction among participating institutions, supporting the inclusion and implementation of new facilities, promoting access to research capabilities, and aligning national activities with ECCSEL procedures and standards. It also involves maintaining dialogue among national facility owners, the Italian Ministry, and the European infrastructure, while identifying opportunities for the further development and use of the facilities. The recognition of ECCSEL as a high-priority infrastructure in the Italian National Research Infrastructure Roadmap (PNIR) has provided a key basis for strengthening the National Node, enabling OGS to access funding for its implementation and enhancement. In particular, the PON projects IPANEMA and IPANEMA HR, and the PNRR project ECCSELLENT, have supported facility development, interaction among participating organisations, the progressive enlargement of the national infrastructure, and the consolidation of Italian participation in ECCSEL ERIC.

The experience of the Italian National Node demonstrates the importance of long-term institutional commitment, coordination among organisations with complementary expertise, and sustainable investments in research facilities. These elements are essential to ensure that national capabilities remain accessible, interconnected, and able to contribute effectively to European research and innovation in CCUS, carbon dioxide removal, low-carbon energy storage, and geothermal technologies.

Keywords: *ECCSEL ERIC, CCUS, Italian National Node, Research Facilities*

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