Abstract

This presentation examines carbon capture, utilization and storage (CCUS) as a critical yet still under-deployed pathway for industrial decarbonization. Although CCUS can capture over 90% of point-source CO_2 emissions and is essential for hard-to-abate sectors, historical deployment was limited by weak carbon prices, falling renewable costs, and insufficient investment incentives. By 2025, global CCS capacity is expanding, but operational facilities remain geographically concentrated and large-scale European deployment is constrained less by policy gaps than by execution risk, infrastructure fragmentation, and uncertain capture, transport and storage integration. To address this bankability barrier, Snam proposes an open-access, technology-agnostic CCUS Sandbox bridging laboratory validation and commercial deployment. The platform enables full-chain testing under real operating conditions, including capture technologies, CO_2 conditioning, dense-phase compression, storage simulation, monitoring, and utilization pathways. By generating robust empirical data, the Sandbox reduces technical uncertainty, supports permitting and due diligence, and transforms CCUS from a high-risk innovation pathway into a bankable industrial infrastructure model.

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