
Towards a BECCS Pilot in France? The Long Road of the CO₂-DISSOLVED Project

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Abstract

BECCS (BioEnergy with Carbon Capture and Storage) aims to integrate CO₂ capture technology into facilities producing bioenergy (e.g., biofuels, electricity, heat, hydrogen). It raises hopes for a Carbon Dioxide Removal (CDR) technology capable of removing CO₂ from the atmosphere. BECCS is highly controversial, with concerns about the bioenergy aspect (risks of deforestation, soil depletion, and biodiversity loss), the capture process (which is very water and energy intensive), and storage (with fears of leakage). In addition, BECCS is very expensive.

To date, only a few industrial-scale BECCS pilots have been implemented worldwide. Using the Actor-Network Theory (ANT), this article seeks to understand how BECCS proponents attempt to adapt their technology and persuade other actors of the validity of their solution, with the goal of building one or more industrial-scale pilots.

To this end, a case study will be carried out on the "CO₂-DISSOLVED" research project, led by the BRGM (French Geological and Mining Research Bureau) from 2007 to the present. This project has three main objectives: i) to assess the techno-economic feasibility of CO₂ storage in a specific type of geological formation known as "saline aquifers"; ii) to investigate a variant of CCS with heat recovery through geothermal energy; iii) to develop an industrial-scale pilot project.

This article will therefore demonstrate how the general controversies on BECCS interfered with the project. It will also show how the project has brought to light new controversies that BECCS must address to develop, regarding the competition between decarbonation technologies at the plant scale. It will also show the translations it had to integrate, demonstrating resilience. However, it has not yet fully succeeded – for now? – in moving into the enrolment and mobilisation phases.

Keywords: BECCS, Actor, Network Theory, controversy, Innovation

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