

Dissolved CO₂ Pilot



When the human dimension gets involved in bedrock engineering studies...for example the “Dissolved CO₂ Pilot” project

“Pierre-Olivier Garcia, you are a geographer, post-doctoral researcher at the Passages laboratory. Could you please present the ‘Dissolved CO₂ Pilot’ project?”

"It's an industrial research programme aiming to develop the concept of Dissolved CO₂, whose technical and economic feasibility was validated during a previous project co-financed by the French National Research Agency (NRA). This new approach could enable us to move towards industries and regions that contribute to reducing climate change by storing CO₂. The programme started last June and will finish at the end of 2017. It is financed by the Géodénergies scientific research group, which brings together the BRGM (Office of Geological and Mining Research), university researchers and industrialists. For the Pau project team and the social science aspect at the Passages research unit, the scientific director is Xavier Arnaud de Sartre. The objective of 'Dissolved CO₂ Pilot' is to prepare the ground to carry out a future industrial pilot demonstration project. For the moment, we are still looking for an industrialist who is ready to commit himself and invest in this technology."

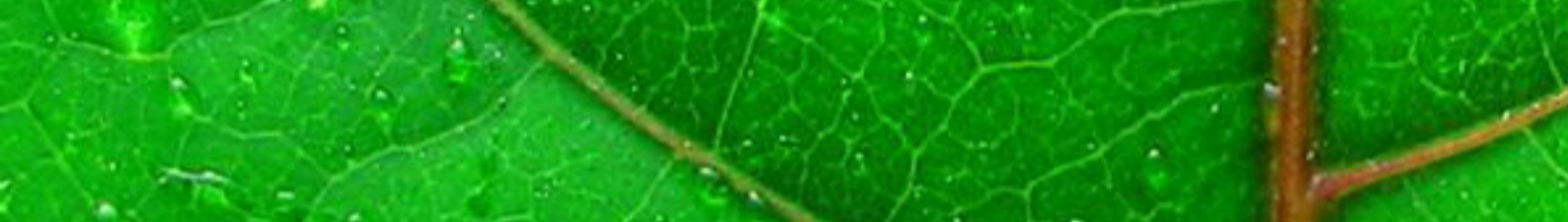
“What is dissolved CO₂ technology?”

"It consists of taking the CO₂ emitted by an industrial site and injecting and storing it locally underground with simultaneous recovery of geothermal energy. This energy can be directly used in the factory or fed into a district heating network."

"On the one hand, hot water is taken from a deep saline aquifer in order to produce energy. After this operation, the cooled water is then reinjected with a proportion of CO₂ that would 'normally' have been emitted into the atmosphere. It's a little technical, but in this case the injection of the CO₂ is carried out by dissolving it in water and not in a gaseous form, unlike the classical approach to CO₂ storage. In particular this should enable a significant reduction in the risks of gaseous CO₂ leaking towards the surface."

"Dissolved CO₂' is a storage option aimed at small industrial emitters (fewer than 150,000 t CO₂/year). Its creators envisage it being implemented in a decentralised fashion throughout the country. It's not only the big companies that can contribute to climate change."

“It seems to be a very technical subject. What is the role of social sciences in this project?”



"Historically, underground engineering projects were the domain of industrialists, scientists and public policies. But today, questions and challenges are inevitable. Whether intentionally or otherwise, the general public gets involved in a quasi-structural fashion in this type of project. And that's a good thing!"

"Our role is to collect and analyse what all the parties say. From this material, the fruit of long and painstaking field work with all those involved – public, private, associations, inhabitants, experts of all sorts, technicians and elected members – we seek to understand where the sticking points are but also the points where opinions converge."

“Could you tell us more about these sticking points and convergences?”

"We generally focus our attention on themes that are heavily interlocked, both with each other but also depending on the spatial level of the analysis. Between the local and the global, the articulations are complex and may have unpredictable, negative impacts."

"Among others I could mention questions of knowledge production and the definition of expertise, but also popularisation and sharing of this knowledge with non-scientific elected members, technicians and citizens. These elements form the basis of dialogue. Questions relating to health and environmental risks are also at the heart of our work. On this point a lot of thinking remains to be done about how to include the concept of uncertainty into decision-making (particularly the evaluation and prediction of risk). We also pay a lot of attention to anything that touches on different visions of territory, present and future."

"These elements should contribute – when the systems exist – to the implementation of solid governance, well-embedded in localities' social and economic fabric."

“Yes, but ‘Dissolved CO₂ Pilot’ is still a project without an industrial site. What can you do in that case?”

"It's true that, while we are waiting for an agreement with an industrialist, we don't have a concrete case to analyse, so no reaction from society...so for the moment we are basing our study and the analysis of particular cases on areas where underground industrial waste storage poses a problem. Obviously, there are numerous cases, but we have chosen three fields where the question has arisen – from different angles – of how underground engineering projects fit into a given region: the experimental storage of CO₂ at the Chapelle-de-Rousse site near Jurançon, the protests about the Bure nuclear waste storage project and the mobilisation against a deep geothermal project near Strasbourg."

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