



Interview with Jean-Pierre Deflandre by Houda Gharbi (Evolen Magazine)

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The carbon issue goes beyond the oil and para-oil world!

Jean-Pierre Deflandre, professor at IFP School and chairman of the [Evolen](#) CCUS Committee, discusses the issue of carbon and tells us more about the [CarMa Chair](#), which is looking at these issues from a technological, scientific and societal perspective.

The plenary session proposed by the CCUS committee at the Evolen Annual Conference in 2020 focused on the theme of negative CO₂ emissions. "This plenary session marks an important turning point in our committee's focus on the issue of managing carbon dioxide, the main gas responsible for the greenhouse effect and global warming. Until then, we had focused on the issues of carbon dioxide capture and storage, and even its use in our industrial sector, gradually expanding to include other industrial players who also emit large amounts of carbon dioxide (steel and cement industries)," says Jean-Pierre Deflandre. By taking into account the issue of negative CO₂ emissions, the CCUS committee is joining all the sectors concerned by this subject.

"We are thus in total interaction with the carbon of living organisms, which represents phenomenal natural storage capacities that must be preserved, but which is also an important source of energy, a source of inspiration for research and hope for a more resilient future in the face of global warming," explains Jean-Pierre Deflandre before continuing, "Thus, the subject of bioenergy coupled with CCS is a very good example, as was illustrated during the plenary session with the intervention of Mr. [Jean-François Soussana](#) (Agronomist, Vice President International Affairs of INRAE) who, positioning himself in the context of the IPCC report of August 2019, showed us the challenges to be met in relation to the large-scale deployment of this technology from one region to another and which, depending on the way it is implemented, can have a more or less significant impact on biodiversity and food security. This goes far beyond purely economic and technological issues.

The CarMa Chair: a scientific chair on the carbon issue

The [CarMa Chair](#) is a teaching and research chair at IFP School supported by [TotalEnergies](#) in association with [Fondation Tuck](#). The chair is focused on the theme of negative carbon technologies and has three missions: training in and through research for young researchers; education of our students and those of partner schools; and international dissemination of its results, which are made public.

"The Chair's research activities cover a broad spectrum of technologies that address natural carbon sinks, propose solutions combining natural sinks and technologies or purely technological solutions such as bioenergy coupled with CCS (BECCS), or carbon dioxide capture directly from the air (DACCS). The aim is to work on these different approaches with



a view to large-scale deployment by 2050 of the solutions that will be selected," explains Jean-Pierre Deflandre.

Since the end of 2019, the chair has opened [2 thesis subjects and 2 post-doctoral](#) fellowships. To this will be added a new thesis topic and 2 other post-doctorates in 2021. The current topics deal with the economic aspect of BECCS deployment and the societal aspect of BECCS deployment. They are also establishing the state of the art on negative emission technologies and their potential in terms of environmental balance of negative emission technologies through a critical review of their life cycle analysis. This initial research work is being carried out in collaboration with laboratories associated with CentraleSupélec, the University of Pau and the Pays de l'Adour in conjunction with the CNRS, and the Economics and Environmental Evaluation Department of [IFP Energies nouvelles](#). other collaborations are in the pipeline.

The carbon issue, a question that goes beyond the oil and gas sector

In the debate on the carbon issue, the negative impact and responsibility of the oil and gas sector is often highlighted. Today, agriculture is also increasingly criticized. Nevertheless, climate change and its impact, whatever it may be, transcend borders and established rules. "The challenge is to better understand the life cycle of carbon and the environmental consequences in order to provide innovative and effective solutions. A "Nutri-Score" equivalent from the point of view of environmental impact would probably help everyone to better evaluate the consequences of their actions. Add to this relevant dissuasive policies and things will evolve over one or two generations. We must act quickly because the timing is tight," emphasizes Jean-Pierre Deflandre.

"From there, the challenge for the CCUS committee is to contribute, on its own scale, by providing more visibility, but also by facilitating the sharing of information and the cross-fertilization of ideas to provide useful insights in the medium and long term, but also in the short term. This work relies on and requires the contribution of all the players in the Evolen ecosystem. And for the CarMa Chair, the issues at stake are the technological choices that will be favored, as well as the societal aspects and impacts associated with them," concludes Jean-Pierre Deflandre.