



Written on 28 May 2019



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News

Innovation and Industry

Climate, environment and circular economy

CO2 capture, utilization and storage



*Dunkirk, May 27, 2019*

A consortium of 11 European stakeholders including ArcelorMittal, Axens, IFP Energies nouvelles (IFPEN) and Total, is launching a project today to demonstrate an innovative process for capturing CO<sub>2</sub> from industrial activities—the DMX™ project. It is part of a more comprehensive study dedicated to the development of the future European Dunkirk North Sea Capture and Storage Cluster.

The “3D” project (for **DMX™ Demonstration in Dunkirk**) is part of Horizon 2020, the European Union’s research and innovation program. The project has a 19.3-million-euro budget over 4 years, including 14.8 million euros in European Union subsidies. Coordinated by IFPEN, the “3D” project brings together other 10 partners from research and industry from 6 European countries: ArcelorMittal, Axens, Total, ACP, Brevik Engineering, CMI, DTU, Gassco, RWTH and Uetikon.

## The objective is threefold:

- **Demonstrate the effectiveness of the DMX™ process on a pilot industrial scale.**

The pilot, designed by Axens, will be built starting in 2020 at the ArcelorMittal steelworks site in Dunkirk and will be able to capture 0.5 metric tons of CO<sub>2</sub> an hour from steelmaking gases by 2021.

The DMX™ process, a patented process stemming from IFPEN's Research and to be marketed by Axens, uses a solvent that reduces the energy consumption for capture by nearly 35% compared to the reference process. Additionally, using the heat produced on site will cut capture costs in half, to less than 30 euros per metric ton of CO<sub>2</sub>.

- **Prepare the implementation of a first industrial unit** at the ArcelorMittal site in Dunkirk, which could be operational starting in 2025. It should be able to capture more than 125 metric tons of CO<sub>2</sub> an hour, i.e. more than one million metric tons of CO<sub>2</sub> a year.

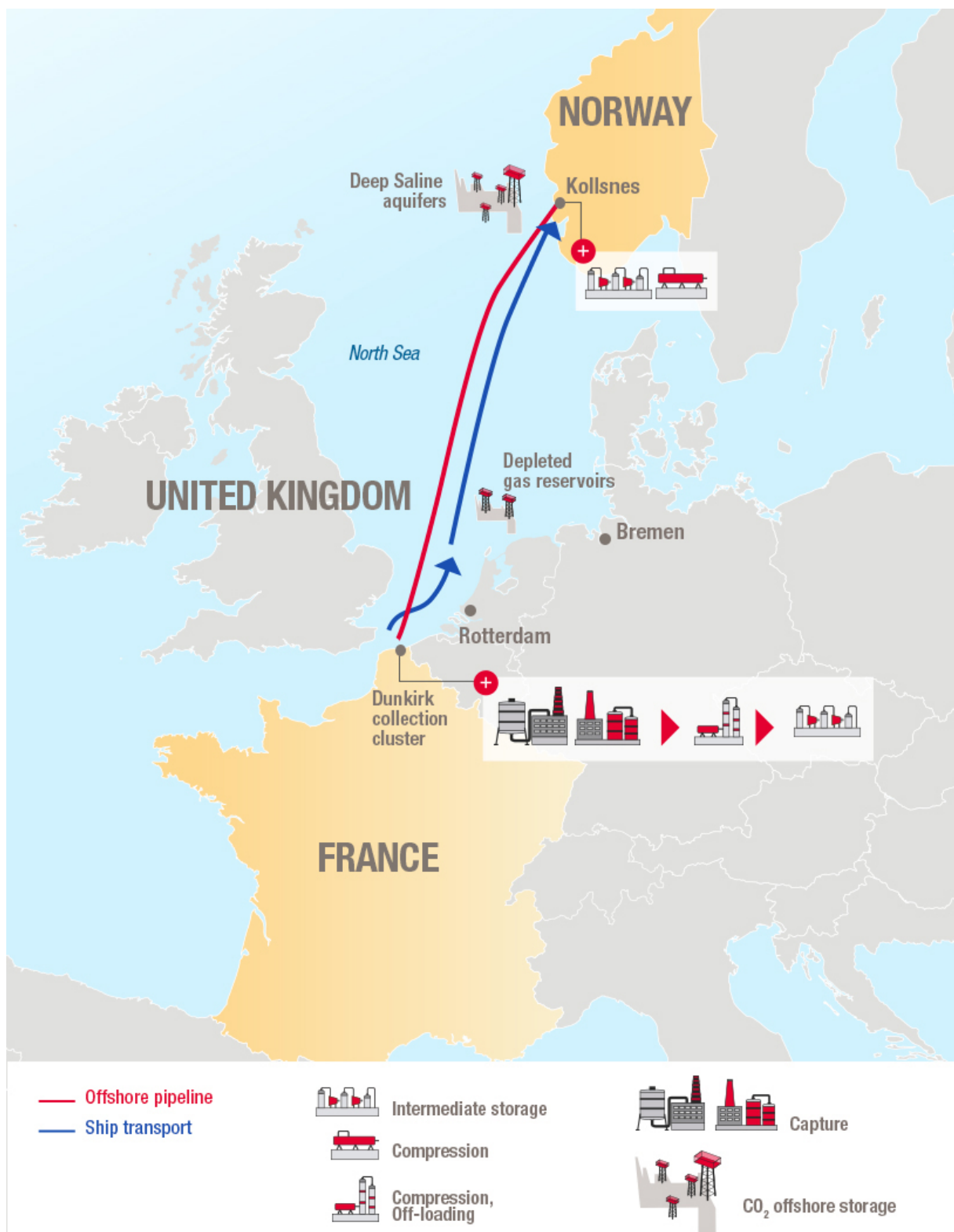
- **Design the future European Dunkirk North Sea Cluster, which should be able to capture, pack, transport and store 10 million metric tons of CO<sub>2</sub> a year and should be operational by the year 2035.** This cluster will be backed up by the packing and transport infrastructures for storing CO<sub>2</sub> in the North Sea developed by other projects such as the Northern Lights project<sup>(1)</sup> that Total is already involved in.

The “3D” project's ambition is to validate replicable technical solutions and to achieve industrial deployment of Capture & Storage technology around the world. It should play a major role in enabling industries with high energy consumption and CO<sub>2</sub> emissions, such as the steel industry, to reduce their emissions. This project is an essential lever for meeting the targets of the Paris Agreement on global warming.

*(1) Research project for the capture, storage and reuse of CO<sub>2</sub> in Norway*

### **CO<sub>2</sub> capture and the Carbon Capture & Storage (CCS) process**

Capture consists in extracting the CO<sub>2</sub> produced by large polluting industrial units, then putting it under pressure before injecting it into a geological storage area. In post-combustion capture, the CO<sub>2</sub> is separated from other gases by absorption in a chemical solvent. Currently, the challenge facing research is to significantly increase the energy performances in this stage, the costliest part of the CSC process, to make this process more competitive.



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Launch of the innovative European “3D” project for the capture and storage of CO<sub>2</sub> on an industrial scale

28 May 2019

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