



LCE-25-2016

### **FReSMe**

Full Title: From Residual Steel gases to Methanol

Aim:

To demonstrate feasibility of valorising CO<sub>2</sub> and H<sub>2</sub> capture from blast furnace gases (BFG) from the steel industry by turning into a versatile chemical platform and renewable fuel such as Methanol (MeOH)

Concept:

The FReSMe project will produce methanol fuel that will be demonstrated in ship transportation. This green fuel will be produced from CO<sub>2</sub>, recovered from an industrial Blast Furnace Gases (BFG), and H<sub>2</sub> from both recovered BFG itself, as well as produced by electrolysis. The two different sources of H<sub>2</sub> will enable (a) maximum use of the current residual energy content of BFG, while at the same time (b) demonstrating a forward technology path where low carbon or renewable H<sub>2</sub> become more ubiquitous. The project will make use of the existing equipment from two previous European project, one for the efficient separation of H<sub>2</sub> and CO<sub>2</sub> from BFG, and one for the production of methanol from a CO<sub>2</sub>-H<sub>2</sub> syngas stream. Production of methanol from CO<sub>2</sub> offers the unique combination of scale, efficiency and economic value necessary to achieve large scale carbon reduction targets. The pilot plant will run for a total of three months divided over three different runs with a nominal production rate of up to 50 kg/hr from an input of 800 m<sup>3</sup>/hr BFG. This size is commensurate with operation at TRL6, where all the essential steps in the process must be joined together in an industrial environment.

Start date:

01/11/2016

End date:

31/10/2020