



# CCS power stations at the interface of CO<sub>2</sub> transport and electricity transmission networks: How to deal with the dual set of requirements?



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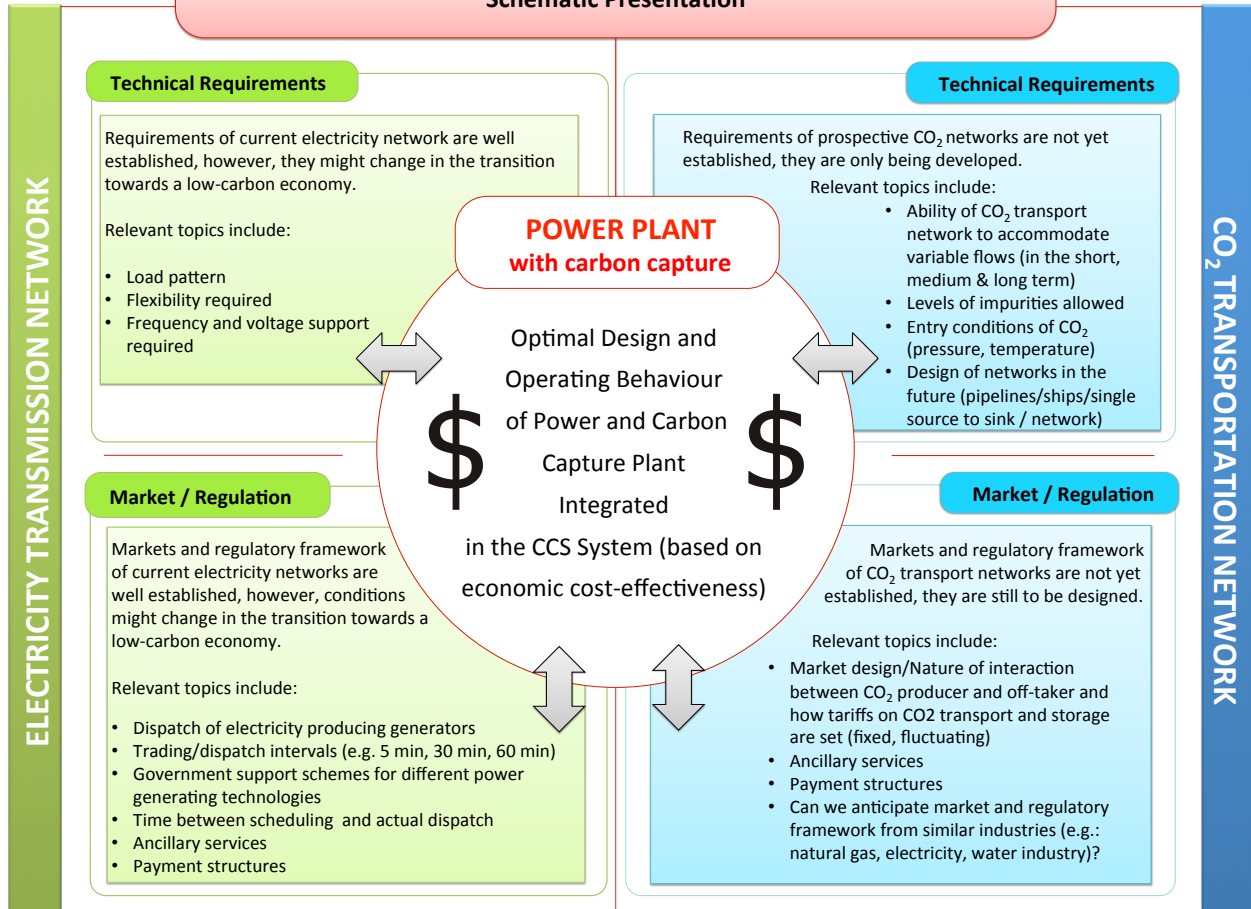
## Aims & Objectives

- This research project aims at contributing to an identified gap in the literature by examining and **optimizing a fossil fuel power plant with CO<sub>2</sub> capture capability for operation at the interface of future electricity transmission and CO<sub>2</sub> transport networks**.
- The optimisation will be performed **in terms of design and operating behaviour** and it will be **based on the economic viability** of the plant.
- By taking a wider approach towards the carbon capture and storage system and the electricity market, the project further aims to **analyse potential scope for optimisation**, as well as bottlenecks, **of the integrated system**.
- In this way the project intends to **identify options for cost reduction through an optimized CCS power plant in an efficiently integrated overall system**.

## Methodology

- Establish a set of technical requirements (hard and soft) for the interface of the power plant and the CO<sub>2</sub> transport network.
- Establish illustrative operating profiles of natural gas fired power plants with CCS in future energy networks.
- Develop configurations of natural gas-fired power and CO<sub>2</sub> capture plants that deal efficiently with the requirements and constraints of both networks.
- Establish market framework and payment structures for both networks in future energy scenarios.
- Perform technical simulations of the different plant configurations with given boundary conditions and constraints using software such as gPROMS and gCCS.
- Perform techno-economic simulation of the plants in different future energy market scenarios.
- Communicate results and give recommendations regarding the scope for further optimisation of the plant within the CCS system, and the integration of the system as whole.

## Schematic Presentation



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