SUPERGEN Bioenergy Hub

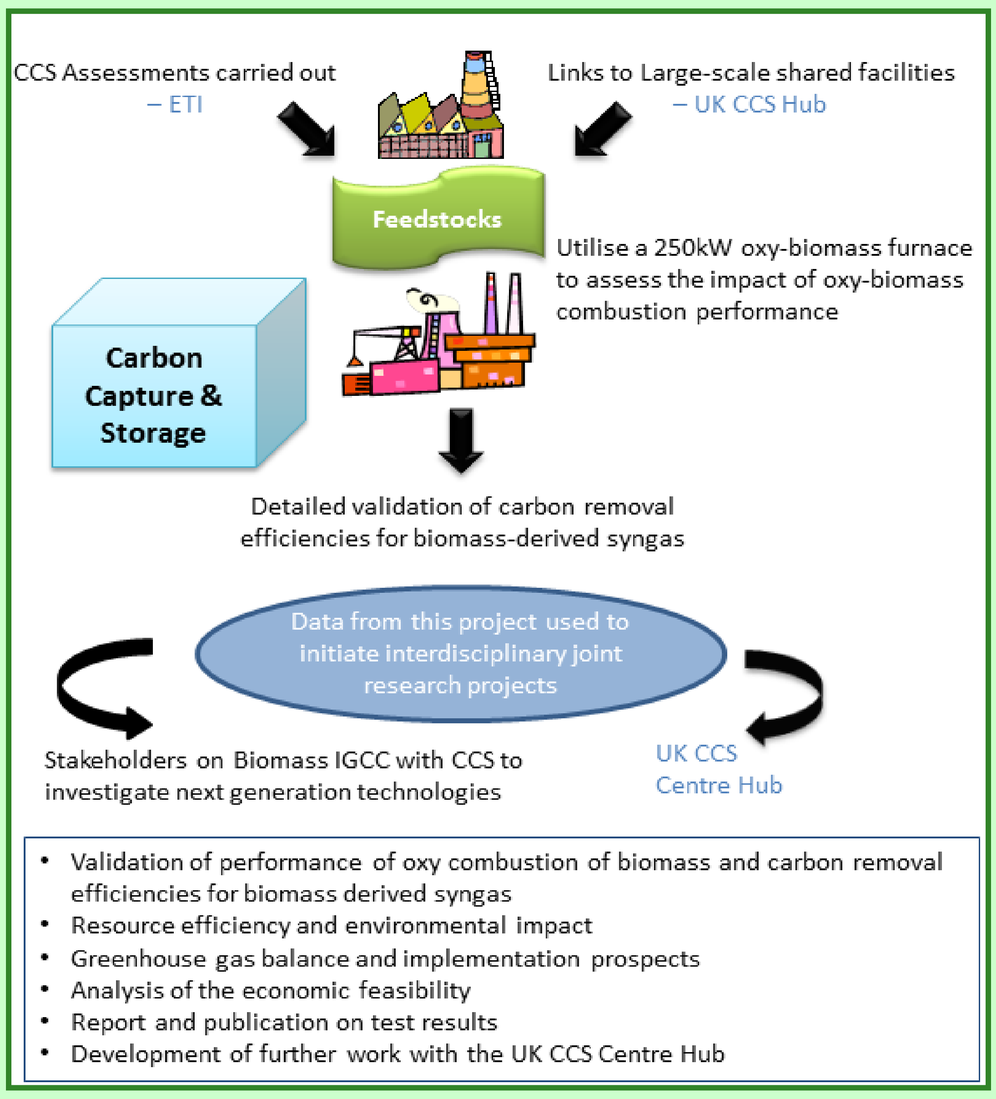
1.8 Carbon Capture and Storage Enabling Technologies

Objectives

Validation of performance of oxy-combustion of biomass and carbon removal efficiencies for biomass derived substitute natural gas.

Background

Biomass carbon capture and storage (bio-CCS) is a very attractive long term technology option, since it can effectively deliver electricity with negative greenhouse gas emission. However, there is little understanding of how biomass feedstocks will behave with key CCS technology options. The hub will build upon assessments being carried out by ETI and will be linked to the UK CCS Hub to carry out practical trials and evaluate wider potential.



Method

The hub will utilise a 250kW oxy-biomass furnace at Leeds to assess the impact of the feedstock on oxy-biomass combustion performance and use the data to validate CFD codes.

Work at Leeds will focus on providing detailed validation of carbon removal efficiencies for biomass-derived substitute natural gas. This will allow more realistic analysis of the economic feasibility, resource efficiency and environmental impact, greenhouse gas balance and implementation prospects of bio-CCS.

It is envisaged that data obtained during this project in the hub will be used to initiate interdisciplinary joint research projects with the UK CCS Hub and stakeholders on Biomass IGCC with CCS to investigate next generation technologies.

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