The presentation is covering the Flagship CCS and Hydrogen activities of Equinor.

Five Projects are covered. First Northern Lights, an innovative post-combustion CCS project, two pre-combustion or hydrogen projects covering the power and heat sectors, then one project in the Humber region in the UK which will enable negative emissions through capture of CO2 from biomass and finally one project demonstrating how hydrogen from decarbonised natural gas can be supplied to heavy industry and other end user sectors in a test region in the Ruhr district of NRW.

Northern Lights is about capturing CO2 from two industrial sites, liquefy it and transport it on ships for temporary storage at an onshore terminal and then injection for permanent storage in an offshore formation 2-3000 meters below the seabed.

The project is innovative as for the first time CO2 will be transported over large distances. This will be a great opportunity for industries wanting to capture CO2 and have access to a port – now they will have a solution for storing it permanently.

Final investment decision expected next year and operational start-up by end 2023.

H21 North of England is a design of how to convert the heating sector from using natural gas to 100% hydrogen.

The area is North of England, about 1/7 of UK, and the H21 concept is an alternative to full electrification of the Heat sector.

The purpose is to re-use the existing low-pressure pipeline system and to build massive hydrogen production facilities upstream, including permanent storage of CO2 as well as seasonal storage of hydrogen.

A policy needs to be developed before a decision to build can be taken, at the earliest by 2023, with the concept being rolled out from 2028-2035.

The Magnum project is about converting an existing gas powerplant to burn 100% hydrogen, produced from natural gas with CCS.

The project includes hydrogen storage to enable the reformer to run baseload and the powerplant to respond with flexibility.

The concept is to only deliver power when the wind does not blow, i.e. fully complimentary to renewable solutions like offshore wind.

Zero Carbon Humber is the latest initiative Equinor has launched. The scope is to study capture of CO2 from a power plant burning organic wood pellets, enabling negative emissions when this CO2 is permanently stored, so called BECCS.

This project will also include a hydrogen demonstrator which aim at de-risking the larger H21 concept, with local Humber industry as off-takers of the hydrogen.
• **H2morrow** is a joint project between Equinor and Open Grid Europe to screen opportunities and document the feasibility of distributing and delivering large amounts of H2 with use of existing natural gas infrastructure within the Ruhr area, which is the defined phase 1 pilot region within NRW

• The concept is to convert L-gas transmission pipelines to run with 100% H2 which will be produced in a 1 GWh autothermal reformer producing 8.6 TWh of H2 p.a.

• The concept includes a full CO2 value chain from CO2 capture in the autothermal reformer, purification and liquefaction of CO2 as well as temporary storage, barge transport on the Rhein to Rotterdam. Here the Northern Lights project takes over by reloading the CO2 into large gas carriers for the transportation to the receiving terminal at Kollsnes where the CO2 will be piped offshore for sequestration into a designated saline aquifer for permanent subsea storage