Carbon Capture from Stationary Industrial Sources – PF - 82

About the Course

This course provides an overview of the emerging field of CO2 capture from stationary industrial sources - primarily combustion operations. CO2 capture is part of the CCUS chain - CO2 Capture, Utilization and Storage - wherein CO2 is prevented from entering the atmosphere by removing it from flue gas or other vent streams, transported to an appropriate location, and injected deep underground into secure geologic formations.

You Will Learn

- An overview of stationary sources of CO2 emissions, including sector-specific characteristics
- Brief review of drivers and restrainers to deployment of CCUS, including technical readiness and cost
- The general technical approaches to CO2 Capture - Post-Combustion, Pre-Combustion, and Oxyfiring
- Review of Post-Combustion Technologies, Studies and Demonstrations, including strengths and weaknesses
- Review of Pre-Combustion Capture Technologies, Studies and Demonstrations, including strengths and weaknesses
- Review of Capture using Oxyfiring and CO2 purification, including strengths and weaknesses
- Special topic: CO2 Capture from Natural Gas Combined Cycle (NGCC) and co-generation
- Operating CCS projects linked to natural gas processing and power generation

Course Content

- Characteristics of Power Sector and O&G emissions in the context of CCS
- Review of drivers and restrainers to deployment of CCS
- The general technical approaches to CO2 Capture - Post-Combustion, Pre-Combustion, and Oxyfiring
- Review of Post-Combustion Technologies, Studies and Demonstrations
    - Solvents - proven and emerging
    - Alternative technologies - Adsorption and Membranes
    - Studies and industrial demonstrations
- Review of Pre-Combustion Capture Technologies, Studies and Demonstrations
    - Reforming for industrial fuel production - importance of scale & experience with H2 as fuel

    - CO2 capture from Steam Methane Reformers (SMR) - what's old and what's new
    - Operating industrial Pre-Combustion projects
    - Advanced technologies
- Review of Capture using Oxyfiring
    - Background - it's not about white-hot combustion
    - Specific applications and concept testing/demonstrations
    - Novel approaches - Chemical Looping Combustion
- Special topic: NGCC and co-generation
    - Review of all three approaches to capture applied to NGCC
- Operating CCS projects linked to natural gas processing and power generation
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Product Details

Categories:
Energy Transition

Disciplines:
Carbon Capture, Storage, and Sequestration Process Facilities Net Zero & Renewables

Levels:
Basic

Product Type:
Course

Formats Available:
In-Classroom Virtual