

Opportunities for EU - GCC Cooperation on Clean Energy Projects

John Gale

General Manager

IEA Greenhouse Gas R&D Programme

EU-GCC Clean Energy Network

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IEA Greenhouse Gas R&D Programme



- A collaborative international research programme founded in 1991
- Aim: To provide information on the role that technology can play in reducing greenhouse gas emissions from use of fossil fuels.
- Focus is on Carbon Dioxide Capture and Storage (CCS)
- Producing information that is:
 - Objective, trustworthy, independent
 - Policy relevant but NOT policy prescriptive
 - Reviewed by external Expert Reviewers
- Activities: Studies and reports (>250); International Research Networks: **Risk, Monitoring, Modelling, Wells, Oxy, Capture, Social Research, Solid Looping**; GHGT conferences; IJGGC; facilitating R&D and demonstrations eg Weyburn; Summer School; peer reviews.



ALSTOM



EPRI

CIAB



ExxonMobil



Schlumberger

DOOSAN Doosan Babcock



ieaghg



SCOTTISHPOWER

EnBW



REPSOL YPF

e-on

VATTENFALL



INSTITUTO DE INVESTIGACIONES ELECTRICAS



Partner Organisations:



Energy Use Issues In GCC



- Increasing demand for electricity and water
- Investment in new electrical generation and desalination plants
- Increased GHG emissions
- Oil and gas conservation for economic or logistical reasons
- Air conditioning can lead to extreme peak loads
- Grid interconnection allows trading



Energy Use In GCC



- Gas and oil firing for power generation
 - Options:
 - Fuel switching – oil to gas/coal or nuclear
 - Increased efficiency – power plant stock new
 - » Decoupling of water and power production
 - CCS – CO₂/EOR and deep emission cuts
 - Integration of renewable energy – CSP
- Industry
 - Petrochemical/Refining industry
 - Increased energy efficiency?
 - CCS for CO₂-EOR
 - Aluminium smelting
- Other energy carriers for distributed generation?

Options for Co-operation



- R&D,D Co-operation
 - CO2 capture for CO2-EOR initially
 - Establish GCC test facility or train on existing EU facility
 - CO2 storage capacity mapping and regional assessment
 - Link to EU activities: CO2GeoNet
 - CO2 Test injection
 - Coordinate with other EU pilots like MUSTANG etc.,
 - Other energy carriers (H2) & use in fuel cells
 - Integration of renewable energy into thermal power plants
 - Clustering/Integration of power and industry facilities to maximise heat integration options
 - Experience from ROAD etc.,
- International collaboration
 - IEA Implementing Agreements
 - IEAGHG on GHG mitigation