Technology Centre Mongstad

Technology Manager Olav Falk-Pedersen

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TCM is the world’s largest facility for testing and improving CO2 capture.

Knowledge gained will prepare the ground for CO2 capture initiatives to combat climate change.
Ambitions

• Test, verify and demonstrate CO2 capture technology owned and marketed by vendors
• Reduce cost, technical, environmental and financial risks
• Encourage the development of market for CO2 capture technology
• Aim at international deployment
International Co-operation

GASSNOVA 75.12%

Statoil 20%

2.44%

2.44%

Other potential partners to be invited

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TCMs organization

- Company Meeting
- Technology Committee (Partners reps.)
  - Managing Director
    - Technology Manager
    - Operations Manager
  - TCM Project Manager
    - Statoil
How does CO₂ capture work?

- Cooled flue gas enters absorption tower.
- Water wash
- Flue gas conditioning / Cooling
- Flue gas without CO₂
- Solvent without CO₂
- Solvent with CO₂
- CO₂ is stripped off the solvent by adding heat.
- Recycling of solvent to absorption tower.
- The hot solvent without CO₂ heats up the cool solvent with CO₂ in a heat exchanger.

- Gas power plant / Refinery

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Two flue gas sources

Combined Heat & Power plant (CHP)

Max 5% of total flow
From one stack

Pre-treatment

Capture processes
(amine or chilled ammonia)

28 – 56 000 Sm³/hr
3.5 – 9 mole% CO₂
14.4 % O₂
5 ppmv NOₓ
≈ 0 ppmv SOₓ

Cracker (RFCC)

Max 11% of total flow

Pre-treatment

Capture processes
(amine or chilled ammonia)

22 – 50 000 Sm³/hr
12.9 mole% CO₂
4.2 % O₂
183 ppmv NOₓ
≈ 30 ppmv SOₓ

22 – 25 000 tonnes CO₂/yr

Recycle

74 – 82 000 tonnes CO₂/yr

Relevant for a number of industrial processes including gas and coal fired power plants.
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Test Strategy – Overall Concept

Combined Heat & Power plant (CHP)*

Cracker (RFCC)

Amine

Mobile Test Unit

Chilled Ammonia

Total capacity 100 ktonnes CO₂ per year

* CHP design capacity of 280MW electricity and 360MW heat.
Mongstad Refinery

EVM Power plant

TCM

Project office rig

Aerial photo 29.11.2010

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Key figures for TCM

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<th>Total TCM</th>
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<tr>
<td>Structural steel</td>
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<tr>
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<td>tons</td>
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Prefabrication

PAU assembly at Aker Stord

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Fabrication of equipment

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Piperacks installed

– catching our future
Seawater intake

— catching our future
Mechanical installations

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TCM organisation build up

- Company Meeting (4+4)
- Technology Committee (4+4 Partners reps.)
- Managing Director (73)
- Financial Manager (2)
- QR/HMS Manager (3)
- Communication Manager (1)
- Admin. Co-ordinator (1)
- Technology Manager (8)
- Operations Manager (57)

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Knowledge sharing

- Co-operate with research organisations and other CCS projects
- Participate in CCS conferences and give papers
- Keep outside world updated on status through website
- Good communication with media and NGO’s
- Subject to vendor confidentiality agreements
Our Objectives

- Improve and verify CO2 capture technology for large scale
- Become a globally recognized centre of competence on CO2 capture