When the oil and gas production has ceased – the wells have to be abandoned and the facilities removed. How can the abandonment be done cost effective while protecting the environment?

Programme Vision:

Cost effective abandonment for short and long-term environmental protection.
How can well barrier materials and installation methods be improved to ensure long-term integrity?

Can cement as barrier material be optimized?
Can shale be activated as a barrier material?
How can scale removal prior to abandonment work be avoided?

This is just a couple of the questions we ask within the new abandonment research programme.
How can abandoned wells be monitored? Can an overview of the natural HC seepage be established? Is it beneficial for the marine environment to leave part of structures in place?

After well abandonment there is a potential risk that a well might leak after a period of time.

How can the abandoned wells be monitored for leaks and how do we get an overview of the natural HC seepage?

The offshore structures are home for a lot of marine life. Is removing the structures the best solution for the marine environment?
When it has been decided to abandon a field within in a limited number of years, what can be done to optimize the maintenance and the production.

When the decision to decommission has been taken is there possibilities for optimization of the facility maintenance?

Is there any way that a larger part of the remaining oil and gas can be produced knowing that after a limited time period the reservoir will not be used for production anymore?
## Abandonment Programme Scope

### Well Abandonment
- **Well Barrier Materials**
  - Cement as barrier material
  - Shale as barrier material
  - New barrier materials
  - Barrier installation without scale removal
- **Well Barrier Placement Optimization**
- **Well Barrier verification**
- **Well Barrier Repair**
- **Reservoir plugging material**
- **Well age risk modeling**
  - (When is the optimal abandonment time)
- **Rigless Abandonment**
- **Flow potential in shallow permeable zones**

### Environmental Impact
- **Surveillance Methods for Abandoned Wells**
- **Natural seepage from seabed vs gas release from abandoned well**
- **Artificial Reefs**
  - (Leaving part of structures in place after decommissioning)
- **Comparative Environmental Assessment of Abandonment Methods**

### Late Life Production
- **Maintenance Optimization during Late Life Production**
- **Reservoir Optimization during Late Life Production**
- **Feasibility Studies only**
- **Model**
  - Project Risk and Management
Project selection criteria

• Proposals directed at solving a scope challenge (Scope can be seen on the previous slide)
• Novelty within industry and research
• Proposal has potential for leading to either:
  • Reduced Environmental Impact
  • Reduced Abandonment Cost
  • Reducing Abandonment risk and uncertainty
• Proposals focused on the DUC section of North Sea
• Cross-Disciplinary Research