



Case Study

Title: The Microgrid Concept
 Client: Orcadian Energy
 Project: Pilot field
 Region: North Sea
 Sector: Energy Transition
 (Electrification)

Background

Crandall Energy is proud to be a part of the Orcadian Consortium who have worked together to create the Microgrid concept which provides a new approach to electrification.

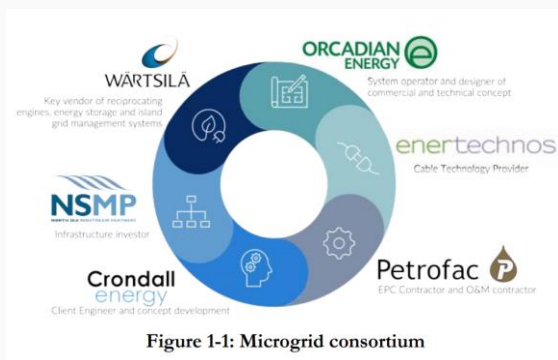


Figure 1-1: Microgrid consortium

The Problem

Electrification of offshore oil and gas is not easy – it is neither trivial nor cheap to replace the power from onboard generators – but the imperative to do so is plain for all to see. In response to climate concerns those of us in the oil and gas industry will continue to advocate for cleaner methods of extraction and production.

The impetus for change came from the North Sea Transition deal agreed between the industry and the government in March 2021, and one year later, the realities and complexities of delivering on that task have been laid bare.

What We Did

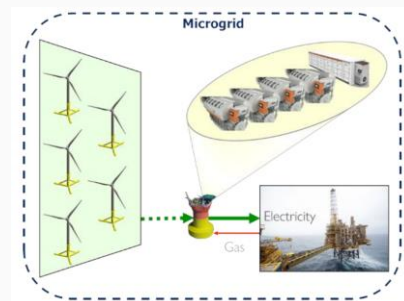
Through collaboration and challenge, operators from across the North Sea are finding economical and sustainable solutions for power from shore options.

The Orcadian consortium, one of three winners of the North Sea Transition Authority’s Electrification Competition in September, has completed a study that provides a new approach.

We have designed and described a viable, reliable, off-grid option for powering North Sea platforms. Our approach is founded on power from floating wind turbines, supported by highly efficient and responsive gas-powered reciprocating generators with enough battery power to maintain a reliable supply.

We believe our design can be more effective and cost substantially less than cable from shore. It will deliver an earlier and deeper cut to emissions, and by reducing future costs it can enable mature fields to keep producing longer.

All of this enhances the UK’s energy security and will ensure that emissions from North Sea oil and gas production remain world leading.



Our Value

The Orcadian Consortium Approach will support:

- Emissions reductions – approaching an 80% reduction for offshore facilities.
- Lower costs – saving almost \$2 billion and more than 25% cheaper than a power from the UK grid option, when capital and ten years of operating costs are included, for a subset of platforms.
- A practical way for operators to meet their North Sea Transition Deal commitments in terms of both the emission reduction targets and timeframe.
- Quick delivery, and in phases, which allows a staged deployment with a steadily improving reduction in emissions.
- Opportunities for re-use or redeployment – provides legacy infrastructure for the grid and/or other users.