Platform Decarbonisation: Digital tools & Electrification

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Baringa

Certified B Corporation

Baringa is a certified B Corp™ with high standards of social and environmental performance, transparency and accountability.

Electrification of North Sea oil and gas platforms

Context and background

Context

- NSTD aim to reduce emissions from production of oil and gas by a minimum of 50% by 2030. (CCC recommend a 60% reduction.)
- These targets feed into the 6th Carbon Budget.
- 79% of offshore upstream emissions are from hydrocarbons for power.
- The NSTA October consultation clarifies this policy direction.

The issue

- Energy policy, regulatory, and network planning framework: enablers, hurdles, and areas for policy development.
- Commercial viability: non-energy (network and policy) costs impact the power price; infrastructure costs are significant.

Baringa's experience

- We have worked with government and the regulator to consider the regulatory and policy framework.
- We have worked with private sector clients to consider options for electrification from commercial, regulatory, and decarbonisation perspectives.

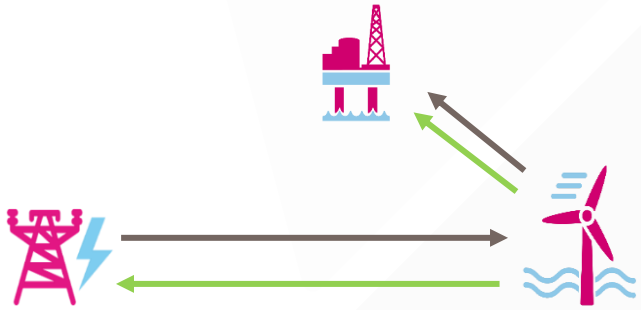
Options for electrification of offshore platforms

Focus is on three configurations that capture a wide range of issues

1) Platform to onshore grid connection only

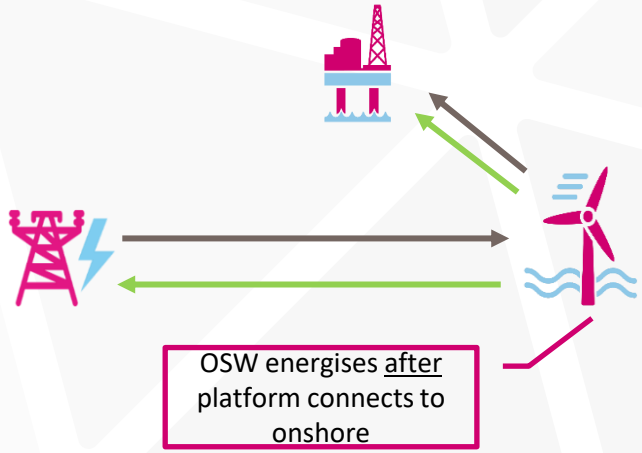
- The simplest configuration
- One-way connection: onshore to the platform
- No offshore wind involvement

2) OSW connects to onshore; then Platform connects to OSW and to onshore (eg: TOG)



- Starts with a ‘standard; offshore wind OFTO model
- Platform connects on or after OSW energising
- Platforms draw green power from offshore wind as primary option

3) Platform connects to onshore; then OSW energises, connecting to platform and onshore



- Platform connects first using an oversized cable
- Offshore wind energises at a later date
- ‘Anticipatory Investment’ could improve commercials

Perspectives on electrification configurations

While it is heavily project-dependent, the broad commercial, regulatory, and decarbonisation implications of different configurations are apparent

Configuration	Commercials	Regulatory	Decarbonisation
Platform to onshore grid connection only			
OSW connects to onshore; then Platform connects to OSW and to onshore			
Platform connects first to onshore; then OSW energises, connecting to platform and onshore			

Supply licence exemption may be needed.
CfD interaction with OSW-Platform PPA

In 2022, 48% of grid electricity was from zero carbon sources: PPAs can improve performance

Anticipatory Investment regime could reduce commercial risks

Extraction and processing of oil & gas is responsible for a significant proportion of global emissions, so decarbonisation can make a big impact.

- Minimising methane leaks and venting
- Eliminating all non-emergency flaring
- Electrification of production facilities
- Equipping facilities with carbon capture utilisation and storage (CCUS)
- Expanding the use of green hydrogen in refineries

According to the WEF, digital solutions can reduce global emissions by up to 20%.

Digital technologies play a significant role in decarbonisation over differing planning horizons.

Near-term

Moving from estimates to actual data

- Actionable insights from real-time emissions measurements

Meet stakeholder reporting expectations

- Emissions accounting methodology, data and technology foundations

Methane sensing and data collection

- Satellite, drone and fixed methane sensing, comms and data collection

Medium-term

Lower emissions without lower production

- Digital twins to optimise efficiency and effectiveness of asset operations

Asset modification insight

- Data-driven marginal cost emission abatement curves

Cross-company insight & collaboration

- Information sharing up and down the supply chain

Long-term

Portfolio decision making

- Data-driven scenario planning to optimise shareholder value

Case Study: leading independent upstream & midstream operator

Emissions management framework in the client's operational planning cycle

Over a 3-month pilot period, this resulted in a **20% emissions reduction** and increase in gas throughput due to lower flaring and combustion.

This was delivered with **zero CAPEX**. ETS cost reduction and increased sales gas volumes amounted to **£20mm annual bottom-line increase**.

Re-framed the value proposition of decarbonisation, engaging staff and shifting behaviours to align performance with client's **net zero commitment**.

CCUS will be a critical technology for the decarbonisation of industry

Digital technologies will be key across the complex value chain.

Complex integrated value chain, multiple 3rd parties

Different asset classes/crosses internal boundaries

Re-use of existing pre-digital infrastructure

Low cost, efficient operations

Platforms for 3rd party collaboration

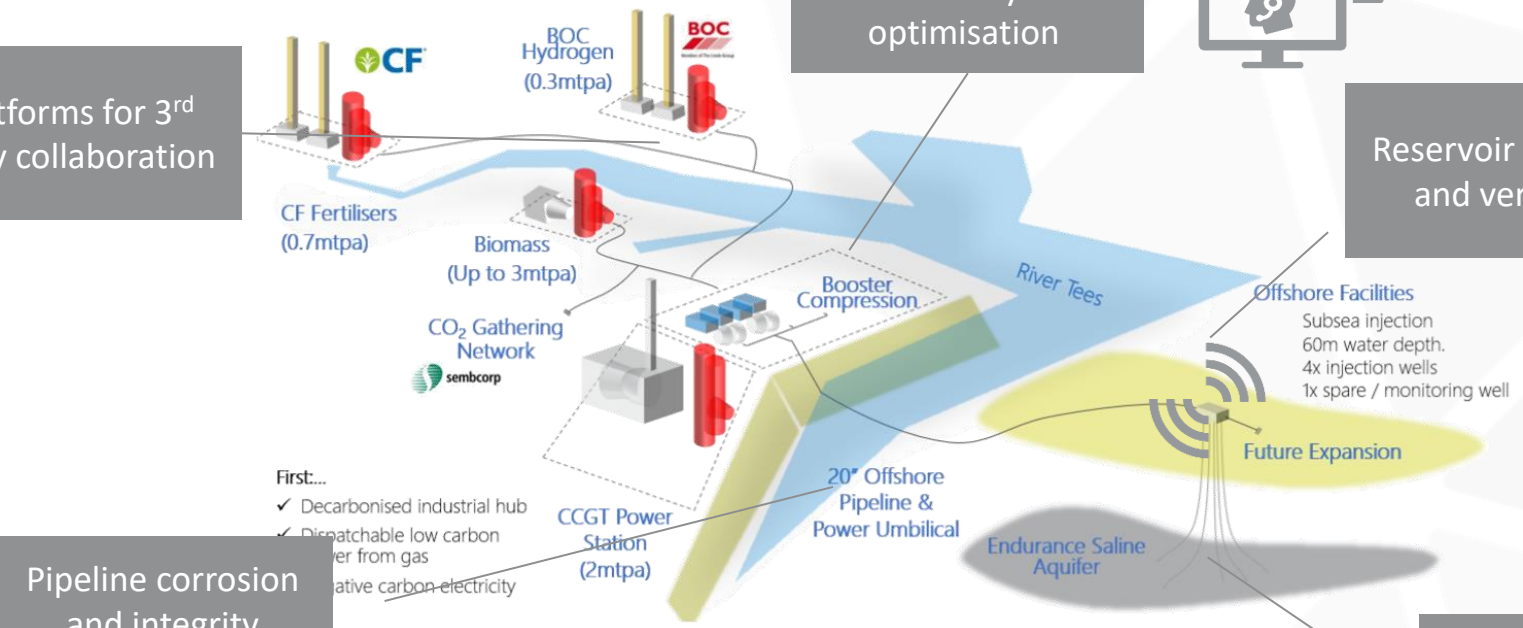
Digital twin Co2 Facility optimisation

Reservoir monitoring and verification

Pipeline corrosion and integrity management

Subsurface digital twin

Digitisation of historical data



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Introduction to Baringa

Baringa was created to provide a radically different experience for clients and consultants. What we do may sound familiar, but the journey with us is entirely different.

This is how we stand out from the crowd

- ✓ **Unashamedly geeky, rather than generalists:** we are leading experts in our chosen disciplines.
- ✓ **We are street-smart, not just book-smart:** 1/3 of our hires come direct from industry.
- ✓ **When we leave, our capabilities stay:** knowledge transfer starts on Day One.
- ✓ **Leaders who put in the work:** our most senior consultants work on delivery all the way through, they don't just turn up at the kick-off and farewell drinks.
- ✓ **Flexible, not dogmatic**: we hand-pick the right people for each project. Our flexibility and structure means we bring the best of Baringa every time.
- ✓ **Bespoke, innovative solutions**: we tailor what we do to our clients' needs and don't follow textbooks or generic methodologies.
- ✓ **Partnership and collaboration**: we work shoulder to shoulder with our clients, and build working relationships that can last for decades.
- ✓ **No 'us', no 'them'**: just one team pulling in the same direction.
- ✓ **Double digit growth and Great Place to Work:** we've structured every part of our business to make sure our vision of a people-first culture never wavers.

Forbes 2022 WORLD'S BEST MANAGEMENT CONSULTING FIRMS

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Great Place To Work. Certified NOV 2021-NOV 2022 UK

Best Workplaces Large Organisations Great Place To Work. UK 2022

Best Workplaces For Wellbeing Large Organisations Great Place To Work. UK 2022

Best Workplaces for Women Large Organisations Great Place To Work. UK 2022

BUSINESS IN THE COMMUNITY The Prince's Responsible Business Network Race at Work Charter signatory

THE UK'S 100 BEST LARGE COMPANIES TO WORK FOR 2021

Our model

1 Partner : 10 employees

20+ business practices
We are experts in our chosen fields and have deep sector and subject matter knowledge and capabilities

Global hubs
1,700+ employees and 130+ partners in our hubs in Europe, the US, Asia and Australia

For our consultants

Great Place To Work
Voted top 10 *'Great Places to Work'* for 14 years running. This creates a highly motivated, engaged and passionate consulting team

Employee engagement
Our employee Net Promoter Score is the highest in the consulting industry, and it's in the top 5% of all businesses worldwide!

Talent magnet
As a result, we attract, develop and retain the most talented consultants.

For our clients

Reputation built on results
Our results speak for themselves: over 80% of our work is referral, recommendation or repeat business.

Client engagement
Our client Net Promoter Score is in the top 5% across industry.

Unique experience
Our clients tell us that they enjoy the distinctive experience of partnering with Baringa.

Baringa

Deep specialism| Selected credentials

EU energy major	**CfD modelling for a portfolio of projects** under development for a buy-side DD
Global oil and gas major	Assessment of **options for electrification of offshore platforms**, including regulatory models
Global oil and gas major	**Measuring net carbon footprint** (scope 1-3), and incorporating emissions into business strategy

Department for Energy Security & Net Zero	Policy development for the **Offshore Transmission Network Review**
ESO ofgem	**Electricity connections reform**: development of policy, regulation, and processes
Department for Energy Security & Net Zero	Advice and analysis on **CfD non-price factors**

Major producer and retailer of electricity and heat	**Auction bidding strategy** and financial model for 3.6 GW offshore wind development in the UK
A seabed leasing authority	**Develop offshore wind leasing strategy**, detailed tender design, and deliver the bidding process
Large Energy User	Delivery of Corporate **PPA procurement**: strategy, commercial structuring, and execution

Global oil and gas major	We are helping to stand up a world first 200MW green hydrogen facility in Rotterdam
Global tech giant	Techno-economic feasibility: data centres supported by **offshore wind and onsite electrolysers**
Global oil and gas major	Expert advice on submission to **Government** for a **hydrogen project** as part of a submission for a **CCUS cluster**

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