Creating Opportunity
with Innovation
and Energy.

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Group

Southern North Sea
The Future...

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Stating the Obvious…

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The Southern North Sea (SNS) has provided Developers, Operators, the Supply Chain and us as individuals with ENERGY and EMPLOYMENT for over 60 years…

I'm jumping to the conclusion that everybody in the room wants this to continue…!!!

An Uncertain Future…

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However, future development in the Southern North Sea faces an uncertain future…

- Although there is a current upturn in SNS gas production and potential exploration activity this is unlikely to last beyond this decade…
- Beyond this decade there are no offshore wind new developments planned post the completion of:
  - Scottish Power Renewables EA Hub
  - Vattenfall's Boreas and Vanguard
  - RWE & SSE's North Falls and Five Estuaries
  - Equinor's Sheringham Shoal and Dudgeon Extensions
- The East of England is dogged with Grid connection issues, and this together with heightened opposition to additional onshore infrastructure (sub-stations, pylons and cable routes) make it a very unattractive place to invest…
- The SNS seabed is overcrowded with new and aging infrastructure, pipelines and cables…
- As a result of all this development and infrastructure, the SNS, as a marine environment has deteriorated significantly …

An Uncertain Future…

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In the face of increasing numbers of global opportunities for developers in offshore wind, together with the local challenges they face in the East of England it is highly unlikely that they will look to the SNS for future new developments…

Its also highly unlikely that the Crown Estate will license more developments in the SNS until some of the seabed habitat has been restored…

It is a real dilemma as marine habitat restoration does not stack up on a stand-alone commercial basis and we cannot easily solve the issues of grid connections and local environmental opposition and make the basin attractive again…

Or perhaps we can…!!!

Lethargy…

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If we do nothing, then by the mid 2030's the offshore energy economy in the East of England will be purely Operations and Maintenance with little capital expenditure…

Let's do nothing and hope something magical happens…!

Opportunity...

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Imagine if we could stimulate a new round of investment that...

- Created significant habitat restoration in the SNS
- Utilised the already licensed seabed in and around existing offshore wind farms
- Increased the generating capacity of the existing offshore windfarms
- Negated the need for any new cables either offshore or onshore
- Negated the need for any new grid connections as a result
- Caused the SNS to become a breeding ground for innovative marine generation devices
- Stimulated advanced thinking and early works on Wind to Hydrogen or Power to X

Imagine if we…

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Imagine if we created a compelling business case to install marine generating devices next to every single turbine in the SNS and that each placement had a mandatory 500 Mtr seabed habitat restoration requirement…

Each would be charged from excess generation from the wind turbines and then release their power through the existing route when the wind is not blowing…

To achieve this, we need three things:

- Some innovative marine technologies capable of delivering the above ✓ **we have this…**
- The marine habitat restoration capability to go along side these new installations ✓ **we have this…**
- A compelling business case for developers to invest enabled by a release of some of CFD Technology Groups (pots 1 & 2) ✓ **we could build this…**

Basic Facts...

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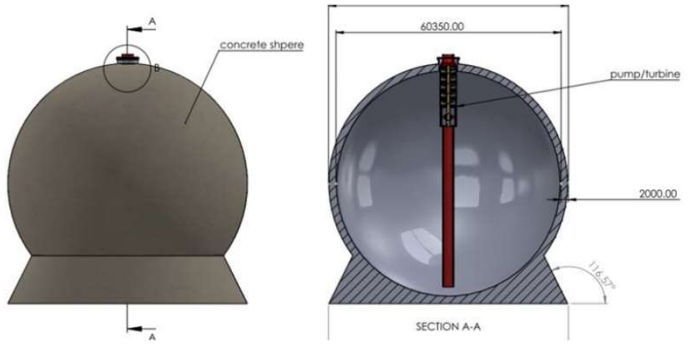
The SNS Is the perfect environment for habitat restoration, with large areas in already protected windfarms that could support sea grass, seaweed farming and aquaculture generally...

- These areas within the boundaries of the wind farms are already licensed and using them for alternative use would not be subject to the whole consent process
- There are numerous marine generating device designs that if implemented would significantly enhance the current generating capacity of the existing offshore windfarms
- The existing cable infrastructure already has spare capacity to carry huge amounts of electricity when the wind farms are not producing
- If we use the capacity in the existing cable infrastructure, we do not need any new grid connections

Monopile Mounted OWC Device



Underwater Pumped Hydro Energy Storage

Opportunity...

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We could...

- Carry out significant seabed habitat restoration and create an environmental success story in the SNS...
- Utilise existing wasted area of seabed that is already licensed and only needs a change of use...
- Increase the amount of renewable energy supplied into the UK grid by up to 10GW...
- Avoid the building of further onshore sub-stations, pylons and long cable corridors cutting through the country-side...
- Re-establish the SNS at the heart of the offshore energy production landscape and create an innovation breeding ground...
- Create further opportunities for the local supply chain and well paid long term jobs for our regional workforce...

Creating **Opportunity** with **Innovation** and **Energy**

So, What...

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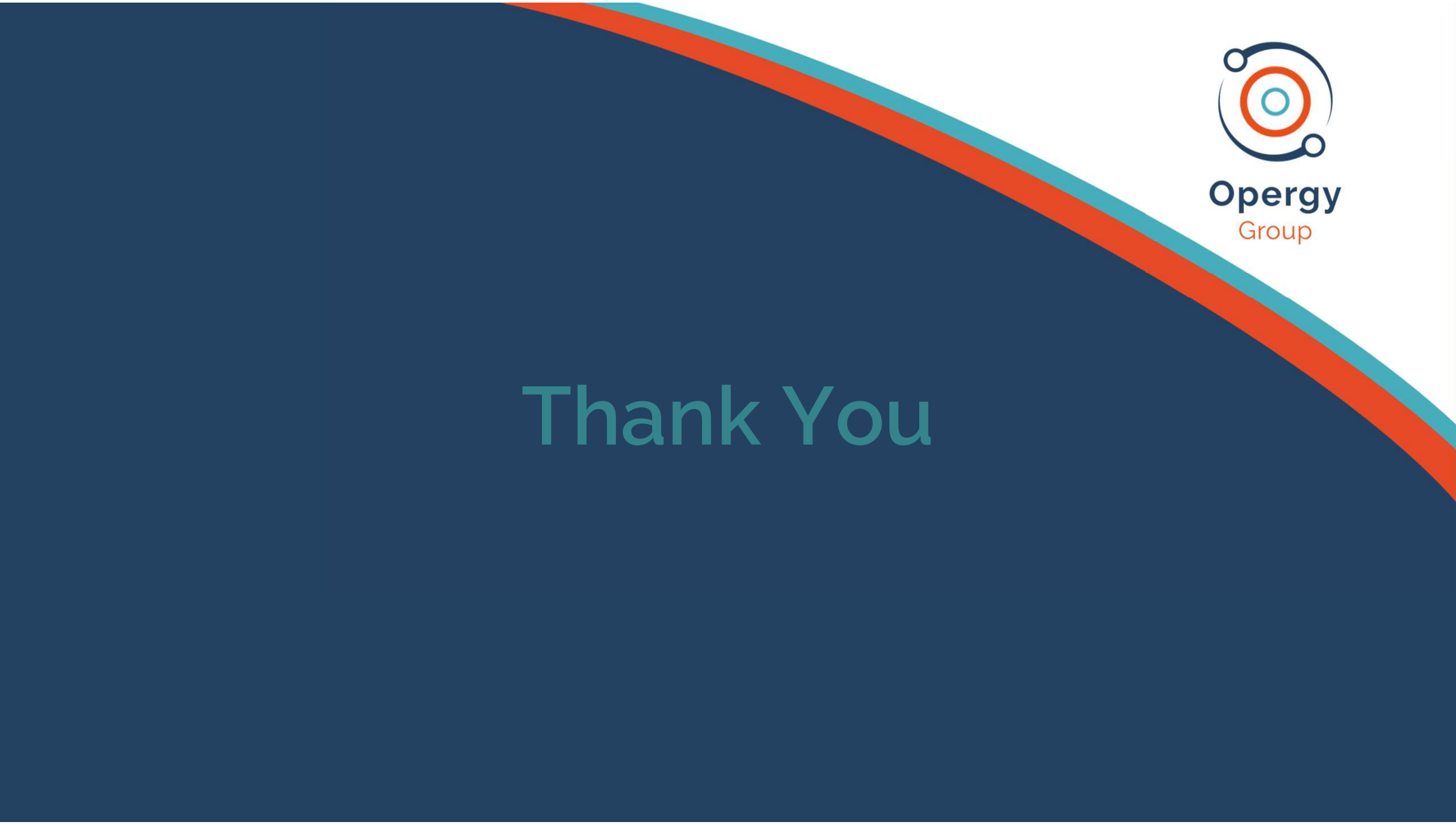
We need to create momentum and a vested interest for developers to keep developing whilst creating a mechanism that enables the ideas previously mentioned, so we need:

- A better understanding of the possibilities for the CfD pot's
- Knowledge of the innovative marine technologies or hybrid generation solutions available to support
- How any mandatory seabed habitat restoration would work
- A special focus on the SNS and funding to carry out a Front-End Study to validate our beliefs
- A first draft proposal has been submitted to Crown Estate (2nd draft going in soon) to carry out a front-end study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Thank You