On 8 March 2021 we published the Offshore energy infrastructure landscaping report, to provide input on how we can better understand and coordinate our national interests in offshore energy. The report found that whilst there are multiple stakeholders across various energy sectors in the UK actively engaged in energy integration projects, there are gaps in coordination between different stakeholder groups. Furthermore, the report identified key barriers to energy integration in the UK that must be addressed to enable the energy sector to support the national target of net zero carbon emissions by 2050.

The Renewables Consulting Group, who supported us in the authorship of the Offshore energy infrastructure landscaping report, has tracked notable new updates and coordinated activity pertinent to integrated offshore energy development in the UK and neighbouring waters since the final publishing of the report. This update provides a breakdown of key government activity relating to integrated energy development since March, an appraisal of newly identified groups progressing stakeholder coordination and major news updates on integrated energy projects in the UK and Northern Europe.

1 UK GOVERNMENT STAKEHOLDER REPORTS AND POLICY UPDATES

1.1 STEWARDSHIP EXPECTATION 11 – NET ZERO

Published: 15/03/2021

Publisher: The Oil and Gas Authority

Topic: Industry ambition / guidance paper, recognising the need to encourage energy integration.

In March the Oil and Gas Authority (OGA) published its eleventh stewardship expectation, encouraging the UK oil and gas industry to reduce carbon emissions towards net zero, a key aspect of which is the progression of energy integration projects such as platform electrification, CCUS and hydrogen generation supported by renewables. The OGA stewardship expectations were established in collaboration with oil and gas industry stakeholders to provide clarity on best practice and targets for the industry in the UK.

More information: https://www.ogauthority.co.uk/news-publications/publications/2021/stewardship-expectation-11-net-zero/

1.2 North Sea Transition Deal

Published: 24/03/2021

Publisher: Department for Business, Energy and Industrial Strategy (BEIS)

Topic: Government policy paper directing commitments for the UK oil and gas sector to support the transition to net zero.

On 24 March BEIS published the North Sea Transition Deal policy paper. The Deal introduces a number of commitments for the oil and gas sector and relevant government stakeholders to support the UK's transition to net zero, building on the findings of the energy white paper published in December. A key government commitment was the creation and curation of a senior ffshore Implementation Group to address regulatory and legislative barriers to oil and gas electrification and energy integration. Offshore platform electrification was noted as a key step in unlocking the potential to integrate offshore wind with other energy assets on the UK continental shelf.

More information: https://www.gov.uk/government/publications/north-sea-transition-deal/north-sea-transition-deal-accessible-webpage

1.3 UK Offshore Energy Strategic Environmental Assessment 4 Scoping for Environmental Report

Published: 29/03/2021

Publisher: Department for Business, Energy and Industrial Strategy (BEIS)

Topic: Consultation paper to inform plans for future energy project leasing and licencing in the UK.

In late March BEIS published the UK Offshore Energy Strategic Environmental Assessment (SEA) 4 Scoping for Environmental report. The assessment will inform a draft plan to coordinate future leasing and licencing for offshore energy projects and assets, including offshore wind, wave and tidal devices, oil and gas, hydrocarbon and carbon dioxide gas storage, and offshore hydrogen production. The report provides a comprehensive overview of the leasing and licencing process for each technology, at an international, national and local level. Consideration of the different leasing and licencing processes will inform the UK Offshore Energy SEA 4 plan to support integration to reach net zero. BEIS are currently considering feedback from a consultation on the scoping report to inform the draft plan.

More Information: https://www.gov.uk/guidance/offshore-energy-strategic-environmental-assessment-sea-an-overview-of-the-sea-process

2 RECOGNISED RELEVANT ORGANISATIONS

As part of our Offshore energy landscaping report, 16 relevant projects, working groups and initiatives were identified as key touch-points for companies and organisations involved in energy integration. At least 23 further stakeholders, organisations and relevant groups were also recognised as key actors in coordinating offshore energy integration in the UK and northern Europe. Since the publishing of the report, additional parties have been identified as relevant groups or platforms involved in energy integration in the UK.

2.1 THE RENEWABLES GRID INITIATIVE (RGI)

Coordination group comprised of European TSOs and NGOs.

RGI is a recently identified group pursuing collaboration between NGOs and TSOs across Europe to engage in an 'energy transition eco-system of actors'. The group facilitates coordination between interests of reducing carbon emissions through sustainable grid development and environmental concerns associated with new infrastructure projects. The RGI additionally has established an offshore energy specific working group, the Offshore Coalition for Energy and Nature (OCEaN), with the expressed purpose of improving offshore wind planning in European Seas. OCEaN operates three working groups covering data planning for offshore wind development; marine spatial planning; impacts of infrastructure on marine ecosystems and stakeholder engagement. The RGI has been highly active thus far in 2021, welcoming new members including National Grid Ventures to the OCEaN group, as well as joining the REN21 network of renewable energy stakeholders. In November 2020 the RGI signed a Memorandum of Understanding alongside multiple European TSOs, leading offshore wind developers, environmental NGOs and industry stakeholders to promote coordinated offshore energy development.

More information: https://renewables-grid.eu/

2.2 SEABED USER AND DEVELOPMENT GROUP (SUDG)

The Seabed User and Development Group is a cross-sector forum representing interests of key industry groups in UK marine industries. As well as providing a platform for discussion for energy industry stakeholders, the SUDG recognises interests of other subsea users such as telecoms and marine aggregates. The group includes representatives from:

- The British Ports Association
- The British Marine Aggregate Producers Association
- Carbon Capture and Storage Association (CCSA)
- Oil and Gas UK
- Renewable Energy Association
- Renewable UK

- Subsea Cables UK (SCUK)
- UK Major Ports Group (UKMPG)
- The Crown Estate

More information: http://www.sudg.org.uk/

2.3 The Carbon Trust Integrator

The Integrator programme is a joint industry group led by the Carbon Trust to optimise levelized cost of energy (LCoE) in offshore wind, through network integration. The programme will assess the potential for offshore wind to provide cost reduction for integrated grids beyond power generation, through technology innovations enabling network voltage and frequency control, more efficient generation in tandem with storage technology and offshore electrolysis to produce green fuels such as hydrogen. The programme will also examine current and potential integration of different marine energy assets and infrastructure. Members of the Integrator programme include offshore wind developers with strong market presence in the UK, such as EnBW, Equinor, RWE, ScottishPower Renewables, Total and Vattenfall.

The Carbon Trust Integrator Programme was noted in the supplementary reading list for our Offshore energy landscaping report, having been announced after the submission of the final draft, but prior to the publishing of the report. It has been included in this update as it would have been considered a key touch-point for energy integration had the group been established prior to the initial authorship of the report.

More Information: https://www.carbontrust.com/our-projects/the-integrator

3 MAJOR ENERGY INTEGRATION PROJECT UPDATES

In the UK and Europe more projects continue to be announced integrating offshore energy networks, particularly offshore wind and clean fuel production. The ongoing development of multi-technology projects will expose barriers to network integration in the UK and Europe, as well as identify practices project developers favour in establishing integrated networks.

3.1 AQUAVENTUS AND AQUADUCTUS

Offshore wind developers Shell and RWE, alongside Dutch and German gas transmission system operators Gasunie and Gascade have signed a declaration of intent to collaborate on an integrated hydrogen and offshore wind project in the North Sea. The project plans to install 10GW of offshore wind from the Heligoland sea area off the German coast, stretching out to the Dogger Bank in the North Sea. The AquaVentus partners plan to develop the wind farms to directly produce hydrogen offshore, which would then be delivered through a pipeline referred to AquaDuctus. As the offshore wind farms would be built with the sole purpose of hydrogen production, there would be no offshore transmission network, besides the hydrogen pipeline. The AquaVentus partners have noted that the extension of the project out to the Dogger Bank allows for connection opportunities to prospective hydrogen hubs in the UK, Denmark and the Netherlands.

More information: https://www.aquaventus.org/presse/flagship-project-for-green-hydrogen/

3.2 SEAH2LAND

Sea2Hland is a combined offshore wind and hydrogen project supporting energy demand in the Netherlands and Belgium. The project is led by leading offshore wind developer Orsted, who are evaluating offshore wind to hydrogen technology through the Gigastack project in the UK. The SeaH2Land project will comprise of a new 2GW offshore wind farm supplying power to an onshore hydrogen production plant. Clean hydrogen would then be distributed to industrial clusters in the Netherlands and northern Belgium as part of a gas transmission network similar to the Zero Carbon Humber project in the UK.

More information: https://seah2land.nl/en

3.3 DANISH ENERGY ISLANDS

In March 2021 the Danish government approved plans for the first artificial energy island in the North Sea, initially supporting 3GW of offshore wind capacity before later expanding to 10GW. The island will serve as an interconnection hub for the attached offshore wind farms, with the potential to produce clean fuel and store surplus energy in battery systems. As a shared offshore wind connection and transmission point, the

island will also have the potential to host interconnection systems to other North Sea markets. The integrated energy project has been planned centrally by the Danish Energy Agency, with the Danish State holding a majority 50.1% stake in the project upon completion after entering into a partnership with private sector companies to manage late-stage engineering, procurement, construction and operations. The partner will be selected through a market dialogue and procurement, similar to the tenders issued for other offshore wind farms in Denmark in 2020 and 2021.

More information: https://ens.dk/en/our-responsibilities/wind-power/energy-islands/denmarks-energy-islands

3.4 Cerulean Winds Offshore Wind Project

On 01 June 2021 Cerulean Winds submitted an unsolicited seabed lease request for a large scale floating offshore wind project in the North Sea, integrated with existing oil and gas infrastructure. The project would feature 200 turbines delivering power to both offshore oil and gas assets and onshore hydrogen generation facilities. Cerulean Winds has additionally stated that the project would not require a subsidy or contract for difference (CfD), and has requested that the UK and Scottish Governments expedite the planning process to allow for the project to reach financial close by 2022. The project would be developed outside of the ScotWind offshore wind lease auction that is currently underway to allocate up to 10GW of offshore wind expected to enter construction from 2028.

Cerulean Winds has leveraged the commitments set out in the North Sea Transition Deal to support their argument for an expedited planning process, stating that “not moving quickly on basin wide decarbonisation would wholly undermine the objectives set out in the recent North Sea Transition Deal.”. Whilst the developer does acknowledge that a “joined-up approach is required to enable rapid decarbonisation of oil and gas assets”, creating an exceptional case for the Cerulean Winds project would not necessarily be conducive to supporting a coordinated planning approach argued for in our Offshore energy landscaping report. In order to maximise the benefits of a coordinated approach to future offshore energy project development, relevant authorities must holistically consider the combined impacts of existing sites, projects already under development (such as those that will be leased in the ScotWind auction) and prospective future projects on the offshore and offshore environments and other marine stakeholders. As noted in our Offshore energy landscaping report, formulating a coordinated approach to energy integration projects in the UKCS would require cooperation from industry actors and stakeholders across multiple sectors. Creating an extraordinary case for the Cerulean Winds project, despite the potential benefits of decarbonisation for oil and gas platforms, may frustrate efforts to unify other stakeholders behind a revised approach to leasing, licencing and planning in UK waters and along coasts.

More information: https://ceruleanwinds.com/

3.5 HIP Atlantic Energy Project

The HIP Atlantic Energy Project is a proposed 10GW offshore wind cluster off the coast of Iceland that would deliver power to the United Kingdom. The project would feature both fixed and floating offshore wind farms, transmitting electricity through long-distance HVDC cables.

The wind farms comprising the project would be up to 1GW in capacity each, with a separate transmission system for each wind farm connecting to the UK. Project developers Hecate Independent Power have already submitted four grid connection applications with the National Grid totalling 4GW in capacity. Whilst the generation assets would be located outside of UK waters, Hecate Independent Power has stated it is working with BEIS and National Grid ESO to ensure the HIP Atlantic Project would be eligible for a CfD.

More Information: https://renews.biz/69738/anglo-us-jv-unveils-10gw-north-atlantic-offshore-plans/

3.6 Zero Carbon Humber, Net Zero Teesside and Northern Endurance partnership

The Zero Carbon Humber and Net Zero Teesside projects, carbon emissions and hydrogen transmission system projects in the Humber and Tees regions respectively, announced in March that they had successfully secured government funding to progress development. The Northern Endurance Partnership, a joint project between Zero Carbon Humber and Net Zero Teesside to provide the offshore carbon capture and storage infrastructure for both projects, also secured government funding as part of a separate bid. Bids were submitted as part of the Phase 2 allocation of the Industrial Decarbonisation Challenge, part of the UK Research and Innovation's Industrial Strategy Challenge Fund (ISCF). The three separate successful bids from Zero Carbon Humber, Net Zero Teesside and the Northern Endurance Partnership amount to £229 million in public and private funding.

Both projects were noted as key touch-points for coordination in our Offshore energy landscaping report.

More information: https://www.netzeroteesside.co.uk/news/funding-secured-to-accelerate-development-of-uks-first-decarbonised-industrial-clusters-on-the-east-coast-of-england/