ENERGY TRANSITION – NET ZERO THROUGH INTEGRATION IN THE UK

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Both the UK Government and many independent oil and gas companies have made challenging net zero emission targets for 2050. There is a lot of focus on how these can be met and we have seen oil and gas companies looking to invest in and transition toward cleaner fuels. We have provided below an overview of a recent industry report which sets out commitments focussed on enabling this change, demonstrating positive momentum for the energy transition.

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We welcome the recognition by the UK Government that co-ordinating infrastructure will play an important role in decarbonisation, and in particular in meeting the UK's 2050 net zero targets. As set out in the August 2020 *UKCS Energy Integration Final Report* (the "Report"), published jointly by the Oil & Gas Authority, the Department for Business, Energy & Industrial Strategy, The Crown Estate and Ofgem (the Report), it is anticipated that the integration of offshore energy systems, including oil and gas, renewables, hydrogen and carbon capture and storage (CCS), could contribute a possible 30% of the UK's total carbon reduction requirements needed to meet the 2050 net zero target.

Offshore oil and gas infrastructure currently contributes around 10% of the UK's energy sector CO2 emissions – the equivalent to the domestic electricity consumption of Wales! Electrification with power from onshore or offshore renewables will be critical to enable these cuts. Equinor has demonstrated this in the development of the Johan Sverdrup field on the Norwegian continental shelf, which achieved first oil in 2019. The field is powered from shore, resulting in CO2 emissions of less than 1kg per barrel compared to a global average of 18kg per barrel. The Report demonstrates that the costs are lower for greenfield than brownfield electrification, but for both types of projects, sourcing power from offshore windfarms improves the economic case to breakeven or above. This offshore power demand could also contribute significantly to the growth of future offshore windfarms around oil and gas infrastructure.

CCS is critical to achieving net zero, removing over 130 MtCO2 from the UK's emissions. This was recognised in March 2020 when the Budget was presented – it announced the CCS Infrastructure Fund, formed to establish CCS in at least two UK sites, one by the mid-2020s, a second by 2030. According to the Report, the UK continental shelf (UKCS) has enough CO2 storage capacity to fully support the UK's needs, as well as oil and gas infrastructure which can be repurposed. With funding available, and infrastructure in place, this is a huge opportunity for the UK oil and gas industry, which is well positioned to redeploy its skills, capabilities and existing infrastructure to accelerate CCS deployment.

The Report focussed on the potential for UKCS technologies to develop an efficient hydrogen supply for the UK. Blue hydrogen (from methane reforming) can convert the UK natural gas supply to low-carbon fuel and accelerate the growth of CCS. Co-located with CCS, this has the potential to eliminate emissions while leveraging operational and logistical efficiencies. Green hydrogen (electrolysis using renewable electricity) will be critical to support the expansion of offshore wind power in the 2030s and beyond, addressing intermittency and long-distance transmission losses.

Combining these technologies into energy hubs, linked to existing and future onshore net zero clusters, can accelerate deployment and improve project economics. Economies of scale and shared infrastructure can benefit all of these technologies, but regulation will need to adapt swiftly to enable such deployment.

The Report makes a number of recommendations to take advantage of the UKCS as a critical enabler for net zero:

- Accelerating and enabling early energy integration projects;
- Leveraging oil and gas assets and capabilities, essential for CCS, in order to preserve existing infrastructure value;
- Anticipatory steps to co-ordinate regulatory processes for the deployment of UKCS energy integration technologies; and
- Harnessing the digital power and data to enhance visibility of cross-industry opportunities, accelerating planning and regulatory activities.

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The Report sets out a number of actions for its authors to implement:

- Accelerate progress on pioneering projects to ensure cross-industry opportunities and timely regulatory engagement;
- Enhance regulatory co-ordination and anticipate and address regulatory barriers and/or enablers for CCS, hydrogen and offshore electrification; and
- Improve data availability, quality and access through co-ordinated efforts across government and relevant industries.

While many of these actions will be for the UK Government and regulatory bodies, there are opportunities to be grasped by industry stakeholders. The Report's economic findings set out key areas for oil and gas operators to focus on:

- electrification from onshore or offshore sources;
- supporting wind power expansion by sharing infrastructure;

- reuse of O&G infrastructure for CCS;
- blue hydrogen, in combination with CCS; and
- green hydrogen to balance intermittency of many renewable technologies and enable renewables' growth. These will be critical for companies seeking to meet 2050 net zero targets.

To discuss further any of these changes and the opportunities they present, get in touch with our industry-leading energy team.

KEY CONTACTS

CHRIS KILBURN
PARTNER • LONDON

T: +44 20 7814 8193

ckilburn@wfw.com

MARIANNE ANTON
COUNSEL • LONDON

T: +44 20 3314 6330

manton@wfw.com