NET ZERO REVIEW: CALL FOR EVIDENCE

Offshore Energies UK is the leading trade body for the UK's integrating offshore energies industry. Our membership includes over 400 organisations with an interest in offshore oil, gas, carbon capture and storage, hydrogen, and wind. From operators to the supply chain and across the lifecycle from production to decommissioning, they are safely providing cleaner fuel, power, and products to the UK. Working together with our members, we are a driving force supporting the UK in ensuring security of energy supply while helping to meet its net zero ambitions. We work on behalf of the sector and our members to inform understanding with facts, evidence, and data, engage on a range of key issues and support the broader value of this industry in a changing energy landscape.

OEUK represents companies across a large range of upstream technologies. Our members therefore take a whole-system view of the challenges of net zero from that perspective and are already adjusting their business strategies with this objective in mind. If managed carefully, decarbonisation is consistent with ongoing economic growth and advances across a range of technologies should allow this to be delivered without a major impact on living standards.

Significant additional investment is needed as net zero requires a replacement of much existing energy infrastructure with new assets. In some cases, these technologies are more capital intensive even though the whole life costs are likely to be equivalent or cheaper than existing alternatives. The transition must also maintain reliable supplies of energy during this period, including some ongoing investment in the oil and gas sector. Overall we expect over £200bn investment in the offshore energy sector over the rest of the decade as discussed in our recent economic report.[1]

OEUK would encourage government to maintain a diverse range of technology options. Many energy needs are customer-specific and it is not possible yet to pre-determine the most suitable combinations that will emerge as technologies develop and improve. Hydrogen and carbon capture will clearly have a large supporting role to play alongside increasing penetration of renewable electricity sources. These will increasingly become complementary parts of the energy system.

Finally, as well as continuing to maintain secure energy sources during the transition, the skills and expertise of our members, developed as part of existing oil and gas activities, are now proving themselves crucial to offshore energy development. A key challenge is ensuring that network infrastructure is developed quickly enough to take advantage of this unique resource.

OUEK Sustainability and Policy Team
October 2022

[1] Economic Report 2022 (oeuk.org.uk)

Responses to individual questions

Overarching questions

1. **How does net zero enable us to meet our economic growth target of 2.5% a year?**

The Energy Transition across the UK presents an unprecedented opportunity to generate new business opportunities and growth, while strengthening the UK's position as a global leader in frontier technologies.

With the costs of alternative technologies falling, the ultimate net cost to the economy of the transition has reduced. The shift to net zero is essentially about replacing existing energy infrastructure with new assets as the old capital stock is decommissioned. Although the upfront costs in terms of investment are significant, benefits will be realised later on in the form of a lower cost energy system.

The offshore energy sector is undergoing profound changes and will have changed significantly by 2050. As a pathway for the North Sea to become a net zero emissions basin by 2050, the UK government published the North Sea Transition Deal (NSTD) in March 2021 together with Offshore Energies UK (OEUK), setting out ambitions for the decarbonisation of the UK's Oil and Gas sector, supporting emerging energies such as CCUS and hydrogen while protecting jobs and investment.

Through the NSTD, we believe that the new activities could unlock £14-16bn by 2030 of new investment in new energies at scale. The Deal would also support the creation of 40,000 direct and indirect supply chain jobs in decarbonising UKCS production, and the CCUS and Hydrogen sectors. On top of this, offshore investment in other areas separate to the NSTD such as ongoing oil and gas development and offshore wind and wider networks will mean total investment offshore of £200bn by 2030. The Deal remains critical to the success of the wider net zero agenda.

By moving at pace the UK, should be able to benefit and capitalise on first mover advantage with new technologies, particularly in areas such as CCUS, hydrogen and offshore floating wind. Unlocking new and innovative business models requires consecutive actions from all stakeholders and policy makers. As such many of the core components of the deal should be viewed as a critical path to success.

2. **What challenges and obstacles have you identified to decarbonisation?**

There will be a considerable period where parallel energy systems will need to co – co-exist and evolve to maintain reliable supplies to end users and support affordability. Failing to invest in oil and gas during the transition will make decarbonisation of the economy more difficult and lead to adverse costs as it leaves the UK vulnerable to energy imports. The oil and gas sector itself is worth around 1.3% of UK GDP per annum and makes a large fiscal contribution.

The offshore energy sector also provides necessary inputs for the industrial activity that will be needed to invest in alternative resources such as steel, cement and polymers.

The negative economic consequences of a premature and abrupt winding down of oil and gas activity will threaten the net zero objective as well as increasing overall global emissions. OEUK Commissioned NERA to assess this aspect as part of our consultation response to the Climate Compatibility Checkpoint and this is attached to our submission.

Recent developments have been negative with respect to the investment climate. Covid-19 significantly disrupted the oil and gas market with unexpected supply and demand fluctuations during 2020 and 2021. This, combined with the ongoing war in Ukraine has created an urgent need for energy security in the UK. Government has arguably underpinned this instability by applying ad hoc and unpredictable taxes across the whole energy sector. This is a hinderance to reinvestment in both reliable oil and gas supplies and greener technologies.

Another key barrier is network investment. Rapid development of offshore electricity networks is required to achieve the targets for offshore wind. Similarly, as part of the North Sea Transition Deal, the sector has committed to a 50% reduction in emissions from oil and gas production. Progress so far has been rapid as shown in our Emissions report (also attached). Emissions have been reduced by over 20% compared to the 2018 baseline. However continued reductions require major investments such as electrification where there are numerous barriers.

For Hydrogen to reach its potential, network investment is also needed to repurpose gas networks and strengthen distribution and storage. Project Union is particularly important to this objective since it will create a national hydrogen network. Regulations to allow blending of gas in distribution networks and develop hydrogen demand is also necessary to scale up the sector.

In general, network investment also needs to be promoted more aggressively. This will increase resilience and optionality for consumers and avoid situations where bottlenecks in supply or transmission capacity lead to higher prices. Ofgem's role is increasingly important in terms of unlocking the numerous issues through anticipatory investment even where there is some residual uncertainty. Its role in the development of these future networks will be critical enablers of progress so a proactive approach is required.

3. **What opportunities are there for new/amended measures to stimulate or facilitate the transition to net zero in a way that is pro-growth and/or pro-business?**

As part of the NSTD, industry is assessing the capability and capacity of the UK supply chain to deliver on Carbon Capture and Storage (CCUS), Hydrogen and other new energies. This insight has identified bottlenecks in resources, materials and skilled workers as the industry grows.

The NSTD also has a voluntary target of 50% local content for all supplied work – if this is achieved it would hugely stimulate and facilitate the transition to net zero. By supporting businesses with less costs to deliver, innovative and technologically focused companies would be able to thrive.

A key role for government is to coordinate investment in the areas where they are needed the most. This could include developing, for example, free ports and infrastructure to stimulate local investment. Industry is also working on a skills passport to enable employees to transfer between different sectors more easily.

4. **What more could government do to support businesses, consumers and other actors to decarbonise?**

Legislation is needed so that businesses have time to prepare and invest in their futures. This is arguably more important than government funding, indeed industry expects most of the finance to come from the private sector. The UK Energy Bill was a positive step forward in progressing with nascent technologies Hydrogen and CCUS in particular. It is essential that these elements of the Bill are put back on track to deliver. Without this, these new and essential sectors of the industry may lose impetus. Net zero cannot be achieved without these technologies playing their role in the energy system. Ideally a non-partisan policy approach is needed around the requirement for Net Zero so that environmental intervention sits away from political differences.

Government should also look to create a checklist, or best practice examples to support businesses transition their strategies. These checklists, guidelines would lead to case studies of how to deliver the transition, demonstrating the UK's global leadership in driving change. Clear visibility of the build out of new technologies will allow the UK supply chain to invest in order to meet their full potential.

Equally it is important to note decisions taken today and in the next decade will likely dictate the UK's ability to meet its net zero requirements and where appropriate provide global leadership and transferability of knowledge and skills to other countries. Government must recognise that while it balances short term issues such as the current energy price increases, longer term strategies should not be undermined. Therefore, consistency and stability is required, especially in the fiscal regime, to attract the much needed investment into these technologies.

With respect to consumers, government should be careful about expecting too much in terms of behavioural change. Some of the examples presented in various net zero scenario projections amount to reductions in economic activity and/or living standards. Although it will be necessary in some cases to incentivise different outcomes through economic signals, an approach based on harnessing new technology and minimising the extent of other interventions is likely to be more successful and consistent with objectives for economic growth.

However, consumers will need to become more active and market structures will require reform to achieve this. Ideally, the signals provided by wholesale and retail prices should be as consistent as possible. This is particularly relevant to the possible introduction of either time-based or locational pricing models.

5. **Where and in what areas of policy focus could net zero be achieved in a more economically efficient manner?**

There is considerable uncertainty in terms of the development of the energy system. This includes global markets, technology development and consumer attitudes. It is doubtful whether it is possible to design policy such that it can demonstrate that a particular course of action is optimal in terms of economic efficiency. There will need to be some learning by doing both for companies and governments/regulators.

Policy should focus on retaining optionality and to promote secure and competitive outcomes across the energy system as a whole. A range of technologies will be needed, often with bespoke solutions for individual groups of consumers. Government should avoid making premature judgements in this respect and, to a large degree, rely on market actors to make sensible choices between different low carbon technologies.

Hydrogen and CCUS, for example, will have a strong role as a solution for industrial and heavy freight and should also be retained as an option for domestic use. However, the exact extent of the Hydrogen economy will be something that emerges over time.

6. **How should we balance our priorities to maintaining energy security with our commitments to delivering net zero by 2050?**

A resilient energy system is needed with a variety of different technologies and delivery options. Net zero should look to make use of existing infrastructure, such as gas networks, storage and offshore assets and replicate effective energy delivery systems for gases and liquids, including storage possibilities. Dependence on external supplies of energy will always be necessary to some extent, but this should not be the basis of policy going forward. We are sympathetic to the concept of the UK becoming a net energy exporter.

Production of UK's own gas and oil also lead to less emissions than imported resources which also reduces our overall carbon footprint as a country in the pursuit of a net zero future.

In the medium term, the role of natural gas should not be overlooked, even though the quantities of gas being used will fall as electrification increases. Similarly, the existing gas system provides a low-cost route for energy transmission where we expect hydrogen and biomethane to be important parts of the net zero future, displacing unabated natural gas over time. Ongoing investment in gas production and networks is certainly in the interests of many UK energy consumers, both business and households, both in terms of cost of delivery and system resilience.

Gas storage is also an area where policy needs to reflect the new situation and the shift to net zero. With the closure of most coal-fired generation a relatively cheap method of primary energy storage has been removed. In addition, the UK is arguably now less able to make full use of gas storage in continental Europe, even before the Russian invasion of Ukraine. Finally, investment in storage will also be needed at an early stage of developing the Hydrogen market

and this is unlikely to come from spontaneous merchant projects. This all points towards a more active government and/or regulatory role in the development of storage, including possible consideration of projects developed by network companies.

7. What export opportunities does the transition to net zero present for the UK economy or UK businesses?

The shift to net zero generates significant export opportunities for businesses that are providing the technology solutions and for good (and services) that are manufactured with a lower carbon foot print than out copmpetitors.The impact the UK economy more broadly as a result of net zero exports will depend on the pace of change and progress to a net zero economy in the first place. We need to make a conscious choice to become experts in these technologies before we have the credibility to export en-masse.

Carbon Capture and Storage is an entirely new industry where the UK should be in a strong position to export services based on a successful development, building on previous capabilities. Decarbonising the industrial sector is recognised as one of the hardest challenges to hit our net zero targets. The UK is currently deploying government support and funding with collaborative partnerships (including competition) to decarbonise some of the largest carbon emitting clusters in the UK. This cluster model approach is replicable across the worlds largest industrial, chemical and energy clusters.

The UK is also leading the world in floating offshore wind, as well as introducing Hydrogen. Both Scotwind and the Celtic Sea round will offer an opportunity to ramp UK floating wind deployment while simultaneously ramping up the green hydrogen businesses offering.

Finally, the NSTD is ground breaking and the first of its kind, so UK businesses being the front-runners presents an excellent opportunity to tell this story across the globe. The UK has the potential to be the world leader in energy transition which can be shared across other industries, countries and companies.

Questions for businesses (includes views from OEUK member companies)

8. **What growth benefits/opportunities have you had, or do you envisage having, from the net zero transition?**

   OEUK Members see opportunities at several of their operating sites through carbon capture, deployment of low carbon hydrogen (green and blue) and using hydrogen as either fuel switch or feedstock. Core projects in this area build further interest from synergistic investments looking to offtake hydrogen or benefit from cleaner energy supply. As one example, one site has an investment pipeline more than £1.5 billion across 5 separate capital projects.

   Decarbonisation of Oil and Gas facilities to reduce their overall environmental footprint (Heat to Power, Routine flare gas reduction, etc). Offshore renewables (Engineering design and consultancy), CCUS and more specifically "Direct" CCUS (Engineering and Design) have all been identified as opportunities for industry.

9. **What barriers do you face in decarbonising your business and its operations?**

   The offshore energy supply chain is particularly fragile given that as an industry we were just coming out of a previous downturn and are struggling to meet emerging demand. For individual companies, cost is the biggest barrier for decarbonisation. Companies in the supply chain continue to be tested in terms of margins.

   There is a forecasted bottleneck in resources – both materials and people, between now and 2030 to deliver the ambitions as set out in the NSTD and more widely in the energy economy. The current skills gap has been identified as a barrier to progressing the work needed to build the offshore floating wind farms, re-purpose the pipelines for hydrogen or CCUS or build the infrastructure we need for carbon capture and storage.

   The UK is leading the way with bold ambitions for Offshore floating wind. It must be recognised the scale of the challenge this presents and mobilising the supply chain to support in this effort will be needed in the form of clear timelines for commitment. Speeding up offshore planning and recuing the time will be key to progressing the next stages.

   The current energy crisis and inflationary pressures are extremely challenging. All the projects referred to above are very energy intensive and operating costs have spiralled. At the same time inflationary costs for materials and construction labour have risen dramatically and funding to reach FID is more difficult for each project.

10. **Looking at the international market in your sector, what green opportunities seem to be nascent or growing?**

    The offshore oil and gas was one of the first industrial sectors to support ambitions of net zero with the publication of Roadmap 2035 – a blueprint to net zero and subsequently reinforced with the North Sea Transition Deal. In doing so the North Sea Transition Deal should be

considered a blueprint globally. OEUK has already supported discussions with other oil and gas basins leading the way in demonstrating how to reduce emissions while supporting the local economy.

To further extend this point emerging markets such as CCUS, hydrogen and floating wind should be considered as a opportunity to capitalise on first mover advantage which can be exported globally.

Companies are choosing to export their capabilities internationally through two lenses – energy producers/distributors and energy consumers. This allows them to take their business models which were born in oil and gas but through a greener lens and open up the markets internationally. These new opportunities can influence:

- Fugitive emissions reduction
- Energy efficiency, storage and self-generation ,
- Sustainable logistics
- Electrification and alternative fuels.

The focus on green opportunities for some member companies are localised – CCUS development, Scotwind and INTOG provide the opportunities for businesses to grow. Without net zero driving the change in the energy industry, some companies would not have a business to grow.

There are significant opportunities relating to green fuels and green products from waste. An example – one OEUK member company are expanding into the Netherlands for the operation of a synthetic methanol facility and this project will roll out to further sites across Europe and include inward investment into the UK for two further facilities. Whilst Europe is their focus they may also develop their business into the US through shareholder portfolio opportunities that are focused on decarbonisation and especially so with circular economy type projects taking waste and converting back to valuable resources and products. Specifically, re-use/recovery of polymers and plastics.

11. What challenges has the net zero transition presented to your business?

The net zero transition has proved very positive for business. There are a number of challenges around how to operate a business that is tethered to oil and gas costs and contracting models within green enterprise.

The existing skills, capability and experience is quite readily transferrable. A challenge has been convincing others that existing infrastructure can be repurposed for new cleaner energy production and low carbon manufacturing. This message is however gaining traction across the whole energy sector and new green projects are seeing how they can integrate alongside existing hydrocarbon assets and infrastructure to deliver the energy transition and benefit from shared synergies and lower costs.

There are a number of uncertainties in how these new, greener sectors will be supported by Government. This is both in terms of fiscal regime, incentives and investments in the sector. Uncertainty in these strategic areas means there is uncertainty in planning opportunities, so businesses cannot rely on upcoming work or upskill their offering into a greener process without the promise of work. Companies are not committing to UK based work due to these instabilities, and inconsistencies in the tax regimes. There is also hesitation to invest in new technologies which are unproven due to a lack of appetite for risks without a stable way forward.

12. What impacts have changing consumer choices/demand had on your business?

Hiring new (particularly young or graduate) resources, there is an expectation that companies are operating in markets other than just Oil and Gas, to futureproof their careers. More locally aggressive competition and the risk in private equity / venture capital backed business in the O&G supply chain means a challenging operating environment and less opportunity for collaboration / innovation / progression.

As the industry progresses its commitments under the North Sea Transition Deal, industry recognises the key role of the supply chain in decarbonising the production of oil and gas. Our membership consists of technologies and engineering capabilities which will support in this regard. Innovative business models and the requirement on the supply chain to track emissions often features in decion making to award tenders.

There is also a demand to tell a good story to attract investors – companies need to be able to prove their transition and their Environmental, Social and Governmental (ESG) commitments. Companies are less impacted by consumer but more so by investor sentiment. Projects looking to invest at UK locations are very clear that they wish to see clear roadmaps and opportunities for clean energy and clean products/feedstocks. If we cannot offer this, they will invest elsewhere.

From a slightly different perspective but possibly related, we are very conscious of consumer choice when it comes to attracting and retaining the highly skilled employees that we need in our business. We believe setting a strategy of growth aligned to energy transition will make us an attractive employer in the marketplace.

13. What impacts have decarbonisation/net zero measures had on your business?

There are strategic and moral reasons to be part of the transition. Net zero is the right thing to do, and by aligning with the NSTD our member companies are aligned with the countries Net Zero commitments.

The UK offshore energy industry is committed to being a reliable and responsible energy partner. The changing context does not change the facts, and we continue to accelerate both the decarbonisation of our sector and the solutions required to decarbonise the UK economy.

The Climate Change Committee's (CCC) Balanced Pathway estimates that the UK will consume about 8bn boe of oil and gas during this period – meaning that the UK would likely remain reliant on international net imports for about half of its needs during this period, even in a full investment case scenario. If new opportunities are discovered through exploration this gap could narrow, and control the level of imported emissions.

14. What more could be done to support your business and/or sector to decarbonise?

The energy crisis reinforces the need to think long term and manage the UK's energy transition responsibly. The delivery of coordinated action in the medium and long term will decide the success of our collective efforts to meet the government's target of net zero carbon emissions by 2050.

We need to:

- Commit to a planned transition, as the production of oil and gas from UKCS continues to decline, investment decisions for projects which will start producing in the middle of the decade, need to be taken now. This requires commitment from governments to a planned transition which recognises the underpinning role of oil and gas in the energy transition.
- Unlock £16bn investment in cleaner energy through the North Sea Transition Deal which commits government and industry to work together to support cleaner energies and the drive to net zero. Key to this is the development of business models that can bring forward transformational industry investment, thereby making the most of the resources we can develop today, in support of our needs tomorrow.
- Turbo-charge the offshore wind revolution – the electrification of oil and gas platforms goes hand in hand with the expansion of offshore wind and returns more UK gas directly to consumers instead of using it to power offshore operations. We ask UK Government to direct regulators to accelerate the rapid expansion of offshore electricity networks.
- Deliver new energy legislation which updates regulatory frameworks so that CCUS and hydrogen can achieve their full potential, and to accelerate renewables capacity development.
- Set an ambitious outcome for hydrogen as an option in commercial or residential settings, and for freight and public transport, to accelerate investment and develop a UK capability.
- Support the UK's world class supply chain by backing our plan for clean and secure offshore energy, recognising that delivering the North Sea Transition Deal requires a healthy and competitive supply chain anchored in the UK.

15. Do you foresee a role for your business within an expanded UK supply of heat pumps, energy efficiency, electric vehicles, hydrogen economy or clean power?

The UK is well equipped to utilise our expertise in the nacent hydrogen economy, which has the potential to act as a carrier fuel. Our members are well equipped to recognise current engineering capabilities.

Member example – 'We are unlikely to be at the supply end of heat pumps but very likely involved in larger commercial scale deployment of heat pumps and other renewables with

regard to decarbonising large building and facilities we operate for ourselves and for our clients.

We are already involved in a major blue hydrogen project and are in the early stages for green hydrogen deployment at our sites and supporting other project sin different locations across the UK.

We have recently launched a new energy business, focused on delivering clean power and other low carbon energy solutions so expect this to be a hugely important space for our business.'

16. For clean power industry: what barriers to entry have you found in deploying new plant and technologies?

There is a lack of momentum delaying the deployment of new plant and technologies. Through the North Sea Transition Deal, the offshore energy industry stands ready to plug hydrogen and wind as well as oil and gas into our energy mix in the coming decades. Our commitments already set out the private investment from our sector and the support from government required. There are steps the UK can take now to send clear signals to energy producers, as demand for oil and gas continues to decline. Delivering the new energy legislation and frameworks needed for new technologies will accelerate development.

17. How many green jobs do you estimate will be created in your sector by 2030?

The NSTD is expected to unlock up to 40,000 jobs through new energies and new industries.

Questions for academia and innovators

29. How can we ensure that we seize the benefits from future innovation and technologies?

It is essential that there is a constant supply of talented individuals which could progress via the UK higher educational system with the appropriate skills sets to tackle the various technical and societal challenges associated with the delivery of the energy transition.
It is essential to promote careers in geoscience, engineering and allied disciplines in an area where there are significant headwinds. Continued support for successful academic research and training programs is essential to enable staff and students to undertake fundamental research that critically evaluates energy transition solutions.

The UK therefore has the opportunity to be a world leader in further education attracting the best talents from across the world. It is therefore equally important that as we progress the transition at speed that out academic institutions keep pace and are seen to be leading the way in new technologies and are at the heart of research and development which can be applied to home grown businesses and exported globally. The deal is committed to supporting the next generation of academic expertise in the energy transition.

Ends OEUK - 28 October 2022