



energy Barometer 2020

Transition towards net zero

Esin Serin, Energy Analyst, Energy Institute Knowledge Service (EIKS), takes a closer look at an energy industry in transition towards net zero through the eyes of EI members, with a particular focus on the oil and gas sector.

Each year, the Energy Institute (EI) produces the *Energy Barometer*, a flagship report on the state of the UK energy industry, drawn from the insights and opinions of EI members. This year, the *Barometer* focuses on the UK's net zero ambitions – looking at emissions reduction progress to date, and looking ahead to the immediate policy actions needed today to achieve the targets by 2050.

The *Barometer* highlights that the UK is currently not on track to meet its 2050 target of net zero greenhouse gas (GHG) emissions, according to EI members. Almost 90% of respondents to the 2020 *Energy Barometer* survey across sectors believe the UK will fall short of net zero given current emissions reduction policies. The UK Committee on Climate Change (CCC) reported last year on the government's own projections which show that its policies are insufficient to meet even the fourth or fifth carbon budgets.

Energy professionals' minds are increasingly occupied with the changes needed to deliver a net zero energy system – 'low-carbon energy' and 'sustainability and climate change' have risen up the agenda over the six years of the *Energy Barometer*, and were cited among the top challenges facing the energy industry this year.

A transforming industry

Achieving net zero requires transformational changes across the

economy, but currently, only 15% of EI members believe that the energy industry is doing enough to move towards net zero. However, government policy is seen as even more problematic. About 10% of EI respondents believe 'inadequate steps by energy businesses' will be the greatest barrier to the UK achieving net zero; the vast majority cite a lack of clear energy policy, or insufficient behaviour change by energy consumers.

Although the UK net zero target was signed into law less than a year before the survey, 35% of EI members' own organisations have already incorporated it in their business strategy by publicly committing to a net zero target. Of these, around one third are already implementing an action plan.

The vast majority of EI members are clear that significant changes are underway for the UK energy industry. They predict that the changes up until 2050 will be gradual rather than disruptive, and will affect all aspects of the operating environment, including profitability, supply of skilled workers, the supply chain and players in the market (ie incumbents versus new entrants).

Oil and gas in a net zero world

A significant transformation of the oil and gas sector is required in order to reach net zero. Oil and gas companies as a whole currently spend less than 1% of their capital expenditure in low carbon businesses, falling well short of what will be needed to put the world on a more sustainable path, according to a 2020 report by the International Energy Agency.

As 2050 approaches, EI members expect oil and gas companies to place increasing emphasis on selling low carbon liquids and gases, as well as

providing other low carbon energy technologies and services. It is expected that these companies will significantly scale back their provision of traditional oil and gas products by the middle of the century. The future of the sector, even in a transforming energy system, is secure, with only 2% believing these companies will no longer play a role in 2050.

Carbon capture, use and storage (CCUS) – the deployment of which has been a missed opportunity over the past decade for lowering GHG emissions, according to EI members – will rise in importance for oil and gas companies. Despite being singled out by the CCC as 'a necessity, not an option' for reaching net zero emissions, CCUS is currently viewed by EI members as a very high-risk area for investment, due to UK government policy uncertainty.

As a first step to ensure the commercial deployment of CCUS during the 2030s, EI members believe the UK government should fund pilot and demonstration projects in both industrial clusters and power stations. A significant number of respondents also support mandating the use of CCUS on large emissions sources.

Decarbonising transport

Oil currently meets 97% of the UK's transport energy demand (BEIS, 2019), meaning the changes required to decarbonise transport will inherently impact the oil and gas sector. For the first time in six years of *Energy Barometer* surveys, decarbonising transport is placed in the top 10 challenges facing the energy industry. This is not surprising as this is the first *Barometer* survey since the UK raised its ambition to net zero by 2050 and plans to bring forward the ban on the sale of new petrol and diesel vehicles to 2035 were

Energy Efficiency: The Road to Net Zero 16–17 September 2020, online



Discover the latest approaches and strategies in energy efficiency that can help the UK reach net zero greenhouse gas emissions by 2050.

Speakers include:

- **Ben Golding**, Director, Energy Efficiency and Local, Department for Business, Energy & Industrial Strategy (BEIS)
- **Alex Pitman**, Carbon and Energy Performance Manager, Co-op Power
- **Chris Buckland**, Technical Director, Lightsource BP
- **Anna Carolina Tortora**, Head of Innovation Strategy, National Grid
- **Richard Whitmore**, Senior Lead Specialist, Energy Storage, Offshore, Ørsted UK
- **Keith Bushell**, UK Environmental Affairs stakeholder manager, Airbus OL
- **Dr Tom Knowland**, Head of Sustainable Energy and Climate Change, Leeds City Council

More information at energy-inst.org/energy-efficiency

26th Reservoir Microbiology Forum 11–12 November 2020, online event



Gain the latest research and guidance on reservoir microbiology in oil fields

Topics covered:

- General Subsurface Microbiology
- Microbiologically Influenced Corrosion (fundamentals, mitigation strategies, modelling, and prediction)
- Souring (fundamentals, mitigation strategies, modelling, and prediction)
- Microbial Control (fundamentals, mitigation strategies, modelling, and prediction)
- Microbial and Chemical Monitoring
- Produced Water Treatment
- Microbial Enhanced Oil Recovery and Microbial Upgrading
- Reservoir, Fluid and Biofilm Modelling
- Microbiology of Subsurface H₂ and CO₂ Storage
- Microbiology of Hydraulic Fracturing
- Innovative Technologies and Biotechnologies

For more information and to book your place: energy-inst.org/rmf

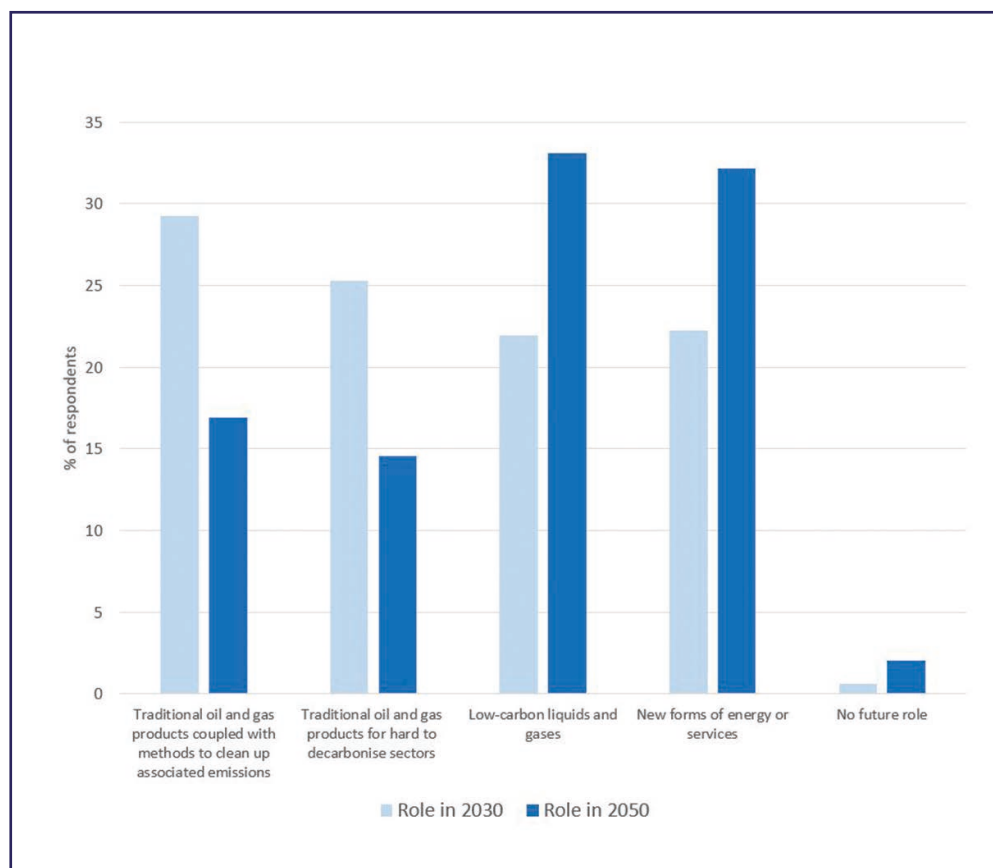


Figure 1: EI members were asked: *As the UK moves towards net zero, what are the primary roles you foresee for today's oil and gas companies in 2030? 2050?*

Source: Energy Barometer 2020



'There's an appeal from UK energy professionals to turn the discontinuity caused by the pandemic into the moment we get real about the climate threat, the shape of our future economy and our responsibility to the world.'

Steve Holliday
FREng FEI,
President, Energy
Institute

announced. EI members believe one of the best ways of reducing emissions cost-effectively is to decarbonise transport.

The *Energy Barometer* considers two areas of the transport sector where viable alternatives to fossil fuels are yet to arrive – aviation and road freight. Members were asked to recommend first steps in these sectors that the UK government should take over the next decade to move towards net zero GHG emissions. Respondents believe the first step in aviation should be to increase funding for research and development into low carbon biofuels and synthetic fuels. Of near equal urgency is encouraging greater use of other modes of transport (for both people and goods) by lowering costs. In road freight, EI members recommend shifting freight demand from road to rail, as well as incentivising the development of hydrogen powered heavy goods vehicles (HGVs), both of which would require corresponding infrastructure upgrades.

Impacts of COVID-19

While energy companies need to rapidly deliver solutions for net zero emissions by 2050, they also need to cope with the ongoing

economic uncertainty caused by the COVID-19 pandemic. Oil and gas companies in particular have been affected by low and volatile oil prices brought on by a drop in demand.

In previous *Barometer* surveys, EI members consistently predicted that the price of Brent crude oil would rise by about \$10 by year's end, from February and March when the survey is conducted. For the first time in 2020, respondents expect oil prices to fall by that amount, citing geopolitical factors and instability, actions and policies of oil producing nations, and demand levels in developed countries as the main drivers of oil price. There was also specific mention of the COVID-19 pandemic in a significant number of write-in responses.

EI members were asked to indicate the timescales upon which they expect the impacts of COVID-19 on the UK energy industry to remain. Very few EI members expect demand for oil and gas, passenger journeys (road, rail and flights), industrial activity or overall UK energy demand to rebound beyond pre-pandemic levels. Over half foresee demand remaining subdued for an extended period, even after

government restrictions related to the pandemic have been lifted.

A green recovery

Energy professionals are split on whether COVID-19 will hasten the transition to net zero (38%) or hinder it (33%). Some respondents worry that the impacts of the pandemic on the economy mean that there will be less investment available for new low carbon energy projects. Conversely, others believe that a recovery package aligned with net zero could offer an important opportunity to accelerate the transition.

EI members overwhelmingly support the CCC's recommendations for a resilient recovery from COVID-19. Over 80% of members agree that the government should make support for emissions-intensive sectors contingent on them taking real, lasting action on climate change, and that the changed social norms during the pandemic should be used to create long-term benefits for public health and the environment.

Of equal importance is making sure that the costs of the recovery and acting on climate change do not burden those who are 'least able' to pay. In order to ensure that the transition to net zero does not leave vulnerable consumers worse off, EI members believe that the government needs to make low carbon energy initiatives affordable, for instance via subsidies.

A net zero workforce

The energy industry workforce is central for the UK's transition to net zero, as well as for economic recovery from COVID-19.

Decarbonisation of sectors such as heating require the development of a whole new supply chain, with concomitant specialist skills and expertise.

EI members believe the most effective route to building a future net zero workforce is to start early through STEM education at primary and secondary schools, followed by increasing energy-related vocational training. Additionally, three in four EI members agree that the lost or threatened jobs of today due to COVID-19 should be replaced by those created by the new, resilient, low-carbon economy. ●

The 2020 *Energy Barometer* survey was conducted in March 2020, followed by a supplementary survey in May covering the impacts of COVID-19 on the UK energy industry.

Visit www.energyinst.org/barometer to explore the results of the 2020 *Energy Barometer* in detail or to access the archive of past reports.