



By email: netzeroreview@beis.gov.uk

Uniper UK Limited
Compton House
2300 The Crescent
Birmingham Business Park
Birmingham B37 7YE
www.uniper.energy

Uniper UK

Registered in
England and Wales
Company No 2796628

Registered Office:
Compton House
2300 The Crescent
Birmingham Business Park
Birmingham B37 7YE

Response to: Net Zero Review: Call for Evidence

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Uniper is a leading international energy company, has around 11,500 employees, and operates in more than 40 countries. The company plans for its power generation business in Europe to be carbon-neutral by 2035. Uniper's roughly 33GW of installed generation capacity make it one of the world's largest electricity producers. The company's core activities include power generation in Europe and Russia as well as global energy trading and a broad gas portfolio, which makes Uniper one of Europe's leading gas companies. In addition, Uniper is a reliable partner for communities, municipal utilities, and industrial enterprises for planning and implementing innovative, lower-carbon solutions on their decarbonization journey. Uniper is a hydrogen pioneer, is active worldwide along the entire hydrogen value chain, and is conducting projects to make hydrogen a mainstay of the energy supply.

The company is based in Düsseldorf and is one of Germany's largest energy supply companies. Uniper is also Europe's third-largest producer of zero-carbon energy.

In the UK, Uniper operates a flexible generation portfolio of seven power stations capable of powering around six million homes, and a fast-cycle gas storage facility.

Consultation Response

Overarching questions

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

Many low carbon technologies are potentially key drivers of economic growth. According to the CCSA, CCUS hubs in the UK will support heavy industry as the UK transitions to a net zero economy and will help to retain the approximately 1.5 million jobs (direct and indirect) in steel, cement, refining, chemicals, ceramics and glass. In addition, UK CCUS exports could support 48,000 direct high-skilled jobs and £4.3 billion in GVA per year by 2050.



Hydrogen UK suggests that low carbon hydrogen could deliver 75,000 jobs and £18bn GVA by 2035, and notes that the global market is predicted to be worth \$2.5tn by 2050.

A robust and investible domestic energy sector is a huge driver of value in the UK: according to Energy UK, the energy industry invests £13bn annually, delivers £31bn in gross value added on top of the £95bn in economic activity through its supply chain and interaction with other sectors, and supports 738,000 jobs in every corner of the country. Predictable and timely decarbonisation of the energy sector will see continued investment and growth in this area.

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

The key obstacles to decarbonisation are market and policy uncertainty, which inhibit investment decisions – particularly for assets with high capital costs and long life spans. The pace of infrastructure development and reinforcement also represents a barrier. Carbon transport and storage, and electricity network reinforcement are critical to deliver many of the decarbonisation solutions: electric vehicles; heat pumps; and hydrogen and CCUS to decarbonise industry, power and heating.

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?

There are many opportunities to do this, from designing long term, investible policy, to supporting investment in low carbon technologies and services, to driving demand through regulatory frameworks. There are also opportunities to deliver incremental improvements to electricity and gas markets, to drive change without dampening investment. These include measures such as such as improving the incentive for generators to participate in the wholesale market after they have taken a CM agreement, enabling secondary trading in the CM, and reinforcing the electricity network and strengthening network locational signals. Continued system stability and deliverable changes are critical, which needs an evolutionary rather than a revolutionary approach: a clear strategy to transition existing assets to low carbon generation will deliver cost effective emissions savings whilst maintaining security of supply, as will investing in new low carbon dispatchable generation, such as CCUS power and hydrogen generation, and supporting infrastructure.

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

There are many things that government could do to support decarbonisation, including:

- Accelerating programmes to bring forward immature technologies more quickly, e.g. power CCUS, hydrogen transport and storage infrastructure and power, and innovative electricity storage solutions such as pumped hydro;
- Supporting innovative solutions such as shipped CO₂, alongside pipeline transportation, to storage locations; and
- Undertaking information campaigns to promote measures such as hydrogen central heating, and awareness of benefits of CO₂ storage



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

In all emerging low-carbon industries, early investment at scale will often be more economically efficient than lower levels of support over a longer timeframe.

Reducing free Emissions Trading System allowances for specific industry sectors in a well-signalled and managed way could incentivise demand for low carbon hydrogen, driving a more rapid development of the hydrogen market, which would, in the long term, reduce the total amount of public support needed.

Relaxing planning rules to permit more development of onshore renewable generation could drive more rapid decarbonisation of the electricity system.

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

By delivering incremental improvements to the energy market that support accelerated investment in and deployment of low carbon assets without prematurely dampening economic signals for existing assets. These should include improvements to the capacity market to tighten up incentives to participate in the wholesale market and penalties for not delivering, network reinforcement and sharper locational network signals

In addition to this, government must:

- Focus on bringing online low carbon flexible plant (such as hydrogen fuelled power and CCUS power). Once these technologies reach maturity economic signals will close unabated plant in the most efficient way;
- Invest in flexibility technologies, such as hydrogen storage and transport infrastructure and innovative electricity storage solutions;
- Ensure the delivery of CCUS infrastructure, including innovative CO2 transport solutions such as shipping, which can decarbonise existing assets in both power and industry; and
- Increase margin in the transition period by increasing the overall volume bought through the CM to buffer winter margins.

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

The transition presents export opportunities for both products and services. Low carbon hydrogen can be exported and, if we are early movers, UK expertise in hydrogen development and gas systems will be in international demand. The UK has significant CO2 storage potential; CO2 can be captured by EU emitters and, once the London Protocol has been amended, transported to UK stores.



Questions for businesses

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

Uniper is a leading international energy company, and our aim is for our power generation business in Europe to be carbon-neutral by 2035. Uniper's strategy is to secure a reliable energy supply while simultaneously propelling the transition to a carbon-neutral future.

Uniper is a hydrogen pioneer, active worldwide along the entire hydrogen value chain, and is conducting projects to make hydrogen a mainstay of the energy supply. We are interested in hydrogen production, and are developing both CCUS enabled and electrolytic projects, with our most developed projects, at Killingholme in the Humber, associated with the East Coast Cluster.

In the UK we operate a flexible generation portfolio of seven power stations capable of powering around six million homes, and a fast-cycle gas storage facility. We are considering ways to decarbonise our existing assets, including CCUS abatement, fuel switching to hydrogen, and hydrogen storage.

We are also developing proposals for renewable generation assets across the UK.

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

The current lack of market and policy certainty is making the investment landscape unfavourable. The Net Zero by 2050 commitment is a helpful anchor for the direction of travel in the UK: we now need to see concrete policy and appropriate support mechanisms to develop low carbon markets, particularly for hydrogen and CCUS, and bring key low carbon technologies to maturity. Uniper currently operates in over 40 countries; in order to invest in the UK, rather than elsewhere, our Board needs to be assured that the UK market can deliver ROI.

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

The hydrogen market is currently a clear nascent opportunity. There is growing international interest in tradeable low carbon hydrogen and in low carbon hydrogen certification. There are clear opportunities for hydrogen producers and international transporters, as well as opportunities to export technology solutions and expertise if the UK is an early developer of hydrogen transport and storage infrastructure.

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

There are challenges to investment in the UK, particularly due to the slow pace of policy implementation coupled with unclear and changing timelines for funding support processes. Currently the landscape in the UK is unpredictable – in part, but not completely, due to the recent halt of the Energy Security Bill. The rapid introduction of the Energy Price Bill, which on the face of it, is welcome urgent action in bringing forward short-term measures to alleviate the impact of the cost of living crisis, creates a precarious investment environment. The Cost-Plus Revenue Price Limit for generators is anything but targeted and time-limited, introducing a perpetual intervention risk for



investors in any form of power generation. Equally, the sweeping powers granted to the Secretary of State introduce further significant uncertainty.

There have been unhelpful delays to the timetable for CCUS cluster sequencing, and progress toward the development of the UK low carbon hydrogen standard and broader hydrogen regulation. Similarly, there's been a lack of pace in assessing and, where appropriate, delivering on the wide range of proposals to improve the functioning of and decarbonise the electricity system, which have been set out in documents such as the Smart Systems and Flexibility Plan, the ESO's Market Roadmap, Ofgem's GB energy system review and the Energy Network Association's Open Networks project.

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

None yet: without viable low carbon dispatchable alternatives, gas power is still necessary and in demand. It should be noted that we are not a consumer-facing organisation.

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

Decarbonisation / net zero has introduced more uncertainty and risk into our operations, as we have invested to move from baseload to flexible operation with lower load factors. Long term forecasting and planning is more complex, and maintenance assessments and planning the type and timing of investment is more elaborate.

Key activities / investments:

- We have invested to make all of our thermal plant much more flexible to support the integration of intermittent renewables;
- We have brought forward plans to close our coal fired power station, in line with government policy, several years before the end of its technical capability;
- We have adapted our operations and trading strategy, as well as ensuring technical reliability, as the system requirements and market framework has changed; and
- We have repurposed redundant steam generators at Killingholme and are building two new synchronous compensation units at Grain, to deliver grid stability services under innovative contracts awarded by National Grid.

The slow and halting pace of development / implementation of policy and the funding pipeline is making new investments in decarbonising our assets and investing in hydrogen production uncertain. This is making it difficult for us to retain and attract skilled employees.

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

There is much more that could be done. We need to see more investment in hydrogen production and swifter development of hydrogen demand-side policy. The current vision seems to be for a very small-scale initial market – government should be more ambitious and increase its tolerance for investing at risk: it will be more cost effective in the long term to support the industry to scale up rapidly. We also need much faster



development of hydrogen transport and storage business models than is currently envisaged: in order to have hydrogen infrastructure in place to support decarbonisation of the power sector by 2035, we need to be seeing implementation of the business models in 2023. Government should also bring forward the decision on blending: it is not the most efficient use of low carbon hydrogen but it would significantly de-risk hydrogen production whilst hydrogen storage and transport infrastructure is being developed.

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?

Absolutely. We intend to play a significant role in clean power and the hydrogen economy. We are currently developing plans and projects to deliver both blue and green hydrogen production, CCUS power, hydrogen power, and renewable power.

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

There are a range of barriers to entry in clean power, particularly outside the renewables sector. Policy uncertainty and lack of pace mean that the technologies and infrastructure needed for clean power are undeveloped. Coupled with a lack of demand side policy, they mean the market is failing to give the necessary signals for investment.

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

BEIS estimates suggest that UK CCUS exports could support 48,000 direct high-skilled jobs per year by 2050. Hydrogen UK suggests that the UK low carbon hydrogen industry could deliver 75,000 jobs by 2035. According to Energy UK, the energy industry supports 738,000 jobs across the UK, and that predictable and timely decarbonisation of the energy sector will see continued investment and growth in this area.