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Response to: Air Quality: draft Clean Air Strategy 2018
14th August 2018

Uniper

Uniper is an international energy company with around 12,000 employees and operations in 40 countries. In the UK, Uniper operates a flexible and diverse generation portfolio, sufficient to power around six million homes. With our seven-strong fleet of power stations and our flexible, fast-cycle gas storage facility, we support the energy transition and make a tangible contribution to Britain's energy supply security.

Uniper also offers a broad range of commercial activities through its Engineering Services division, while the well-established Uniper Engineering Academy delivers high-quality technical training and government-accredited apprenticeship programmes for the utility, manufacturing and heavy industry sectors, at its purpose-built facilities near Nottingham.

We are pleased to offer our views in the consultation process. We have addressed questions on Chapters 4 and 8 of the consultation. In summary:

- It is right to review whether stricter standards and controls are needed for the diverse and dispersed range of small and medium scale electricity generation installations that are located close to communities, which have the potential to have a greater impact on air quality at ground level.

- Many, smaller and dispersed installations present challenges in monitoring and enforcement compared to few large installations. These challenges need to be addressed to ensure the effectiveness of the Medium Combustion Plant Directive (MCPD), Environment Agency (EA) guidelines, and planning permit limits.

- In the energy sector, different technologies and sizes of installation participate in the same national markets (energy, flexibility and capacity). Each must be captured by equivalent emissions requirements to facilitate competitive markets.

- In setting a roadmap to 2030 for the energy sector, small and medium combustion plants should be considered at the same time as large combustion plants to ensure improved air quality as we transition to a more decentralised system.

- Finally, measures to incentivise and facilitate the take up of green hydrogen for heating, transport and storage should be considered.

Chapter 4: Securing Clean Growth and driving innovation

Q7. What do you think of the package of actions put forward in the clean growth and innovation chapter?

We support the approach of aligned roadmaps to ensure air quality is considered alongside decarbonisation.

The proposed review of the role of biomass and eligibility for support mechanisms fits that approach.

Biomass can be seen as a transition fuel in that it contributes to meeting EU renewables targets. However, as well as contributing to particulate matter pollution, burning biomass is a significant source of NO_X emissions.

For larger installations abatement technology should be used in line with IED and BAT. In the production of electricity, this fuel source and technology route has higher NO_X emissions than new and existing gas fired Open Cycle Gas Turbines (OCGT) and Closed Cycle Gas Turbine (CCGT) technology, as shown in chart below (figure 1); biomass plant, converted from coal, has over three times the NO_X intensity of CCGT plant,

Small scale biomass plant and conversions should be subject to equivalent emissions requirements commensurate with the impact on air quality at ground level.

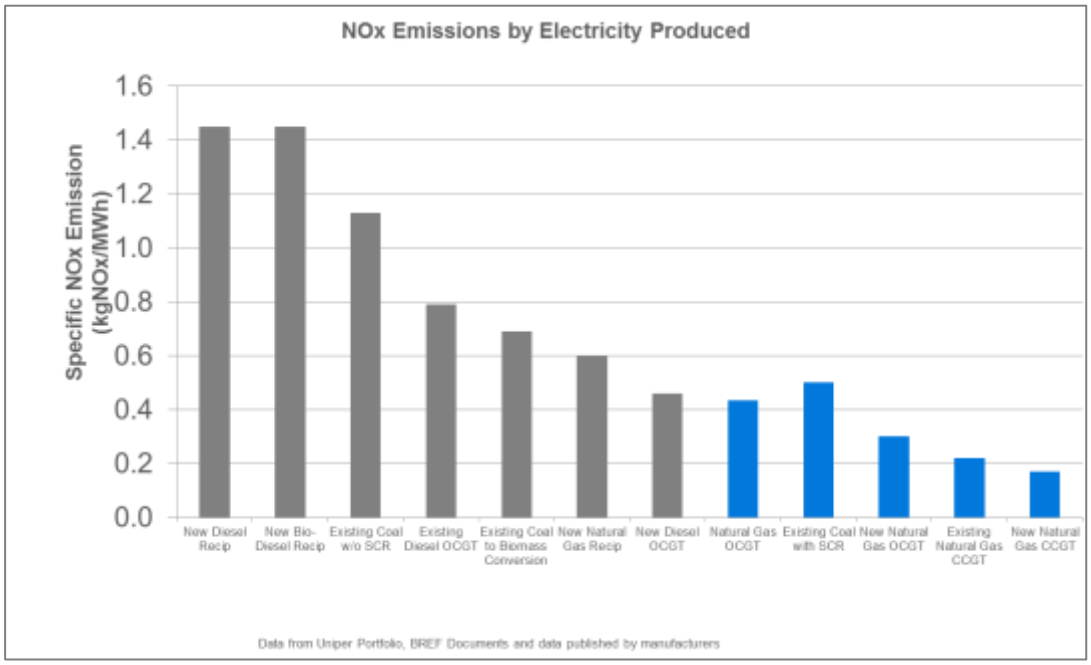

Figure 1: The NO_X intensity of different technologies and fuel type

Q8. In what areas of the air quality industry is there potential for UK leadership?

With the growth of renewable electricity, particularly from offshore wind, the production of green Hydrogen through the conversion of excess renewable electricity to Hydrogen gas by electrolysis for use in heating, transport and storage provides a possible area for

UK leadership. National Grid paid approximately £100m[1] in 2017-18 to wind farms to reduce their output when their power was not needed. This excess could instead be used in the production of Hydrogen by electrolysis. Research for the Committee on Climate Change suggests that Hydrogen production by electrolyser could be lower cost by 2030[2] compared to the alternative process of Steam Methane Reformation, which will need Carbon Capture and Storage to capture the CO_2 produced through this method.

Q9. In your view, what are the barriers to the take-up of existing technologies which can help tackle air pollution? How can these barriers be overcome?

A pathway for conversion to Hydrogen for use in heating and transport is needed to achieve decarbonisation targets, as well as realising improvements to air quality that Hydrogen as a fuel source brings. We would highlight Carbon Connect's 'Producing Low Carbon Gas' report[3], which provides a good overview of the subject and related policy questions. Research for the National Infrastructure Commission[4] on relative decarbonisation of heat pathway costs also highlights the cost advantages of repurposing existing gas network infrastructure for low carbon gas use.

To grow the industry and to develop successful business cases for Hydrogen production there needs to be an enabling market framework that incentivises Hydrogen/low carbon gas use to grow demand in heat and transport, as well as rewarding Hydrogen/low carbon gas production. Particularly to overcome the cost differential to natural gas during the early years of deployment. A part of this could be a Green Hydrogen Guarantee of Origin certificate scheme. The EU wide CertifyHy[5] project provides an example of what such scheme might look like.

In the shorter-term, through the work of the Institute of Gas Engineers and Managers (IGEM) and the HyDeploy project, revise the Gas Safety (Management) Regulations 1996 to enable higher Hydrogen content in natural gas, once it is proven that it is safe and possible to do so.

Q10. In your view, are the priorities identified for innovation funding the right ones?

As part of BEIS' Energy Innovation portfolio £46m has been allocated to support a suite of programmes on Hydrogen. Understanding the potential role of power to gas forms part of this. Further support could be reallocated for power to gas conversion demonstration projects, for onward use in heating and transport, and in to research and development to drive down the cost of electrolysers.

[1] https://www.nationalgrid.com/uk/electricity/market-operations-and-data/system-balancing-reports
[2] https://www.theccc.org.uk/publication/e4tech-for-ccc-scenarios-for-deployment-of-hydrogen-in-contributing-to-meeting-carbon-budgets/ (capital cost estimates summarised in table 6 of the Sustainable Gas Institute's White Paper: https://www.sustainablegasinstitute.org/a-greener-gas-grid/)
[3] https://www.policyconnect.org.uk/cc/research/producing-low-carbon-gas-future-gas-series-part-2
[4] See table 1-1 https://www.nic.org.uk/publications/cost-analysis-of-future-heat-infrastructure/
[5] http://www.certifhy.eu/

Chapter 8: Action to reduce emissions from industry

Q19. What do you think of the package of actions put forward in the industry chapter?

We support the objective to continually improve air quality, and the principle that new build should meet at least the same standards as existing. The draft strategy's recognition of the importance of policy stability to facilitate investment decisions and recognition of the strength and success of the existing BAT regulatory framework is welcome. Large combustion plant through the BAT Reference documents has already made significant improvements to its emissions and is working toward implementing the updated BAT Conclusions for Large Combustion Plant by 2021. We agree that building on this best practice approach over time is the right way forward.

We also agree with the action to consider the case for tighter emissions standards on small and medium combustion plants and generators. The growth of this category and its location typically being closer to communities, with its commensurate impact on air quality at ground level, should necessitate a review and assessment.

We recognise the challenges of monitoring and enforcement for a large number of dispersed facilities. However, inconsistent application and / or regulation of environmental standards skews the market in the favour of those who do not meet the costs to comply and therefore facilitates the growth of more polluting technologies / operators.

As the transport sector seeks to decarbonise, insufficient regulation or oversights create a risk that ground level pollution comes from the distributed generators powering electric vehicles. Consistent treatment of all technologies is essential to ensure that the energy transition, where there is already significant growth in small-scale distributed generation, leads to improved air quality as well as reduced CO_2 emissions.

In setting a roadmap to 2030 for the energy sector, small and medium combustion plants should be considered at the same time as large combustion plants to ensure improved air quality as we transition to a more decentralised system.

Q20. We have committed to applying Best Available Techniques to drive continuous improvement in reducing emissions from industrial sites. What other actions would be effective in promoting industrial emission reductions?

We welcome the recognition of the importance of a stable policy framework in facilitating long term investment decisions and the commitment to applying BAT to drive continuous improvement. We agree that building on this best practice approach over time is the right way forward as this has proven itself to be an effective mechanism for driving emission reductions for our sector.

We would be happy to participate in the proposed workshops and provide our views on a longer-term framework, as well as drawing on our experience and expertise in exploring the potential for other measures and approaches.

Q22. What further action, if any, should Government take to tackle emissions from medium combustion plants and generators?

The growth of smaller plant with relatively high NO_X intensity means that reducing their

contribution to emissions will become increasingly important. The NO_X intensity of a gas reciprocating engine is over two and a half times that of an existing CCGT, and diesel and bio-diesel fuelled reciprocating engines have a NO_X intensity of around six and a half times that of a CCGT (figure 1). We agree with the actions to review tighter emissions standards on medium combustion plants and generators, as well as closing the gap between this category and the standards required of installations in the 500kW-1MW range.

It is essential to ensure that current planned measures are monitored and enforced to ensure the effectiveness of the Medium Combustion Plant Directive (MCPD), Environment Agency (EA) guidelines, and planning permit limits.

Government committed in its response to the consultation on reducing emissions from Medium Combustion Plants and Generators in June 2017, that stack height will continue to be enforced by Local Authorities when considering planning applications. Whilst this is welcome we believe additional measures are needed to ensure air quality impacts are minimised, including: assessment of air quality impacts and mitigating actions through the planning process for all technologies and sizes; and monitoring and enforcement of permitted constraints such as limited running hours.

Similarly, there needs to be a review of the small, below 20MW, generator exemption from the EU ETS. Provision for hospitals and other critical services is sensible but the exemption should not be available for all installations of this size, particularly where they are made available in the electricity market.

Q24. Do you agree or disagree with the proposal to exempt generators used for research and development from emission controls?

We would expect research institutions to be exemplary and therefore using the latest equipment and techniques. Unabated generators should only be used as a baseline for comparison of the effectiveness of new techniques/equipment. Drafting proposals on this category must avoid creating any future loopholes for commercial operation.