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Response to: Price based competitive allocation for low carbon hydrogen production

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Düsseldorf-based Uniper is an international energy company with activities in more than 40 countries. The company and its roughly 7,000 employees make an important contribution to supply security in Europe, particularly in its core markets of Germany, the United Kingdom, Sweden, and the Netherlands.

Uniper's operations encompass power generation in Europe, global energy trading, and a broad gas portfolio. Uniper procures gas—including liquefied natural gas (LNG)—and other energy sources on global markets. The company owns and operates gas storage facilities with a total capacity of more than 7 billion cubic meters.

Uniper intends to be completely carbon-neutral by 2040. Uniper aims for its installed power generating capacity to be more than 80% zero-carbon by 2030. To achieve this, the company is transforming its power plants and facilities and investing in flexible, dispatchable power generating units. Uniper is already one of Europe's largest operators of hydropower plants and is helping further expand solar and wind power, which are essential for a more sustainable and secure future. The company is progressively expanding its gas portfolio to include green gases like hydrogen and biomethane and aims to convert to these gases over the long term.

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.

In the UK, Uniper owns and operates a flexible generation portfolio of seven power stations and a fast-cycle gas storage facility.

Consultation Response

We have set out below our answers to the consultation questions. Our views in summary:

- Introducing price-based competition too early will not help achieve deployment at scale.
- Government should continue to prioritise deliverability of projects throughout the 2020s.
- We do not expect our offtakers to be geographically flexible.

Our views in full:

1. What should be the strategic objectives of future hydrogen allocation rounds beyond HAR2? Do you agree with the descriptions of the primary objectives and broader outcomes as set out in Chapter 2?

We agree with the strategic objectives set out in the consultation document.

Moving to price-based allocation too early will not help with deployment at scale. In the absence of transport and storage infrastructure, robust demand, and the learnings we will get from seeing projects deliver and operate over a few years, price-based allocation could result in undeliverable project bids. Projects will not be able to offer firm prices in the early days of hydrogen market development.

2. To what extent, and how, should a hydrogen allocation mechanism be designed to support the primary objectives and broader outcomes as set out in Chapter 2?

A hydrogen allocation mechanism should be designed to support deployment at scale as its primary focus, by supporting deliverable projects. The objective of cost reduction and the delivery of the broader outcomes set out in Chapter 2 will naturally flow from deployment at scale, and should not be the focus of allocation rounds in the 2020s.

Government should not over-prioritise electricity system benefits at this stage of hydrogen market development. In the absence of hydrogen transport and storage infrastructure, it is important to site hydrogen production near to hydrogen demand.

3. How would introducing a price-based competition in 2025 for electrolytic projects, and potentially other non-CCUS low carbon hydrogen projects, impact projects investment decisions?

Price-based competition could decrease investment appetite if investors feel they cannot adequately price in project risk. Price-based competition will become more appropriate as the hydrogen market matures and the investment risk is better understood. Once market risks are better understood, price-based competition can deliver increased certainty for investors and reduce administrative complexity, which can help facilitate investment decisions.

If price-based competition is to deliver more certainly for investors, the criteria for project selection must be transparent and unambiguous so that investors can feel comfortable with the selection process.

Any price-based competition would need to move rapidly from competition launch to project award: in order to compete on a firm price basis, projects will need firm prices from their suppliers, which will be time-limited.

4. Under what arrangements will electrolytic projects purchase electricity? How would introducing a price-based competition in 2025 impact this, and are these arrangements likely to change over time?

Electrolytic projects are likely to purchase electricity in a variety of ways, depending on their location, offtaker and operating model. We are currently considering direct-wire arrangements from CfD and RO subsidised generators and other generators, and also grid-facilitated PPA.

5. Which current and future electricity markets do electrolytic projects seek to participate in? How could changes to electricity markets or signals impact this?

In addition to the hydrogen market, key markets electrolysers may seek to participate in are the Capacity Market, where we could offer demand side response, and the Balancing Market. The incentives for this may be diluted if nodal or zonal locational marginal pricing is introduced through REMA.

6. How could electrolytic projects look to configure themselves and operate to deliver 'harnessing electricity system benefits' as set out in Chapter 2? Do you think these configurations/operating models could be feasible and commercially viable, and if not, why?

We anticipate that locating electrolysers to harness electricity system benefits will be a commercially viable proposition provided there is adequate local demand, or demand that can be serviced through hydrogen transport and/or storage infrastructure, or the hydrogen can be blended into the gas grid. It may also be commercially viable to export low carbon hydrogen generated from electricity that would otherwise have been constrained off, if this were eligible for UK support.

There will be other determining factors for the location of electrolytic hydrogen projects, including sufficient suitable land and availability of water.

7. Do you have evidence on potential demand for low carbon hydrogen production in locations in the UK that are optimal from an electricity system benefits perspective? Please refer to the map in Chapter 2 ('Figure 1').

No.

8. How would introducing a price-based competition in 2025 for electrolytic projects, and potentially other non-CCUS low carbon hydrogen projects, impact economic benefits and supply chain development?

The key driver of hydrogen supply chain development in the UK will be predictable demand. Introducing price-based allocation for hydrogen production too early may not support this, as it may result in undeliverable project bids. Regular allocation rounds,

funding for deliverable projects, and transport and storage infrastructure will deliver deployment at scale and support UK supply chain development.

9. How should economic benefits and supply chain development be measured and how could this be incorporated into price-based competitive allocation?

It is not clear that economic benefits or supply chain development should be incorporated into price-based competitive allocation: price-based competitive allocation works best when it is clear what the support mechanism is purchasing, which in this case would be low carbon hydrogen. Whilst it will be of interest to government to collect data on, e.g., jobs and the UK vs other supply chains, adding this into the scoring or criteria of a price-based competition will reduce transparency and increase complexity, which will reduce investor confidence.

10. How would introducing price-based competition affect developers' decisions on where and how to invest in supply chains?

Price-based competition incentivises developers to secure their supplies at least cost. This may conflict with any drivers to secure supplies from the UK and invest in domestic markets – and growing domestic markets may also conflict with deploying electrolytic hydrogen at scale / at speed.

Supporting deliverable projects and ensuring predictable and regular allocation rounds are the most effective ways to grow UK supply chains. As the UK hydrogen supply chain grows, it might be appropriate to introduce supply chain plans as a requirement of hydrogen production bids, as has been done for the renewable CfD.

11. In a price-based competition, how could pots be designed to best support the 'security of supply of hydrogen'?

It is not clear funding pots would support security of supply of hydrogen. Security of hydrogen supply will develop from deployment at scale, classifying risk-taking intermediaries as permitted offtakers, and hydrogen transport and storage infrastructure.

12. What market conditions need to be in place for introducing price-based competitive allocation? Do you think these market conditions will be in place by 2025?

To support price-based competition we will need, at a minimum, a clear and concrete route to hydrogen transport and storage infrastructure, with understanding of where early infrastructure will be, and to have been able to learn from the deployment and operation of early projects. It is not likely that these conditions will be in place by 2025.

It would also be of benefit if risk-taking intermediaries are classified as permitted offtakers: this would enable significant simplification of projects. This could be put into place for HAR2.

13. When considering market conditions and the primary objectives/broader outcomes as set out in Chapter 2, what would be the impacts and likely outcomes of introducing a price-based competition in 2025?

It is likely that the outcome would be a larger number of projects that will not be able to deliver at the price that they bid. This would impact investor confidence.

14. If market conditions are not in place by 2025 for price-based competitive allocation, how should further allocation rounds beyond HAR2 be designed?

Further rounds beyond HAR2 should learn from earlier rounds to simplify the selection criteria and process, and minimise non-transparent portfolio factors to focus on deliverability and cost. The frequency of subsequent rounds needs to be predictable and reliable to give investors confidence in the UK market. If Risk Taking Intermediaries are not added to the list of Qualified Offtakers for HAR2, they should be for all subsequent rounds: Risk Taking Intermediaries such as fuel aggregators can play a significant role in finding and building demand for low carbon hydrogen.

15. Do you have views on how the design considerations as set out in Chapter 4 should evolve beyond HAR2? Are there any missing?

Where non-cost factors are part of the evaluation of projects, they should be clear and quantified to increase transparency and reduce process complexity. Non-transparent 'portfolio factors', which can appear subjective from outside the evaluation process, discourage investment by adding risk.

Funding pots for different technologies can help ensure funding supports a range of technologies, but can also slow market growth by supporting a smaller number of more expensive projects. We would recommend that the early funding rounds after HAR2 focus on deliverability and overall market growth, rather than technology mix, and less mature technologies are encouraged to market once supply has established at adequate scale and reliability to support more rapid growth of demand.

There may also be a role for funding pots for different sizes of project: in a liquid market both small and large projects may play critical roles in supplying different sectors, and in balancing the electricity and potential future hydrogen systems.

16. In a price-based competition, how would you design and value non-price factors to support any of the above objectives and broader outcomes as set out in Chapter 2, noting the above non-price factor design principles in Chapter 4?

See our answer to question 15.

17. Are there other more appropriate approaches for supporting these objectives and broader outcomes than through implementing non-price factors?

Funding pots are the most obvious alternative. They would be more transparent than non-price factors in a price-based competition, but could also slow market growth. Government should avoid multiple non-price factors and funding pots in the early funding rounds after HAR2, focussing instead on project deliverability and overall market growth.

18. From the mid-20s, what types of companies do electrolytic projects, and potentially other non-CCUS projects, expect to have as potential end users? Do you expect them to be geographically fixed, or flexible?

We expect to have a range of potential end users, particularly in the industrial and transport sectors.

Many transport end users will be very small and the majority will be fixed in a single or regional geographic location. We will look to enter JVs with partners that would otherwise be Risk Taking Intermediaries to act as fuel aggregators. Allowing Risk Taking Intermediaries would simplify our project structure and reduce project costs.

In industry, we are considering both short, direct pipeline and non-pipeline transport. We do not expect industrial offtakers in the mid-late 20s to be geographically flexible to locate near us

19. For selecting an allocation body to administer price-based competitive allocation, do you agree that these are the right factors to be included in the Secretary of State's decision?

Yes.

20. If a price competitive process adopted the concept of 'Delivery Years', similar to the CfD regime, how should we approach designing Delivery Years for non-CCUS low carbon hydrogen projects? Please set out, with evidence, if certain types of projects might require longer lead-in times?

Delivery Years should be clearly linked to allocation rounds, with good visibility of future allocation rounds. This will increase predictability for developers.

If a project does not achieve its delivery year, starting the support contract term in the agreed delivery year could be helpful in discouraging unrealistic or undeliverable projects. This will only be appropriate in a maturing market in which there are regular allocation rounds and projects are competing solely on a price basis.

21. For HAR1, there was a minimum size eligibility threshold for projects of 5MW. Do you think this threshold should increase for allocation rounds launching from the mid-20s, and if so, to what value? Should the same threshold apply to all non-CCUS enabled production technologies?

We are content with the 5MW eligibility threshold in a competition that ensures projects can compete on a comparable basis. In a purely price-based competition, separate pots may be needed for different sizes of projects, as smaller projects may be unable to benefit from the economies of scale of larger projects.