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Response to: Hydrogen economic regulatory framework: developing an effective market framework for 100% hydrogen pipeline networks

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About Uniper

Düsseldorf-based Uniper is a European energy company with global reach and operations in more than 40 countries. With around 7,500 employees, the company plays a central role in ensuring a secure energy supply in Europe – particularly in its core markets of Germany, the United Kingdom, Sweden, and the Netherlands. With 14 gigawatts of flexible power generation capacity, Uniper is the backbone of reliable electricity production. As a leading gas trader and one of Northwestern Europe's most important LNG importers, Uniper strengthens supply security with a broad procurement portfolio. Through investments in renewable energy, hydrogen, and other low-carbon energy carriers, Uniper is also driving the transformation of the energy system.

In its home market, Germany, Uniper supplies around 1,000 municipalities and industrial companies with energy and services. In addition, Uniper is Germany's largest operator of gas storage facilities and hydropower plants.

About Uniper in the UK

In the UK, Uniper owns and operates a flexible generation portfolio of power stations, a fast-cycle gas storage facility and two high pressure gas pipelines, from Theddlethorpe to Killingholme and from Blyborough to Cottam. We also have significant long-term regasification capacity at the Grain LNG terminal in Kent, to convert LNG back to natural gas.

Summary:

- We support the government's proposals for an economic regulatory framework for hydrogen, which reflects the work carried out by the Hydrogen Delivery Council (HDC) Market Frameworks group to develop and test credible options. It is important that government continues to keep industry engaged, particularly to help support the development of a hydrogen network code.
- Development of a well-functioning hydrogen market requires further work, including government reviewing the current position on Risk Taking Intermediaries (RTIs), amending the Low Carbon Hydrogen Agreement (LCHA), and developing future hydrogen business support models that fully align with this proposed market framework. This includes the hydrogen to power and hydrogen storage business models.
- Hydrogen storage will be a key enabler for market development and growth; without it, the opportunities for network parties to balance will be severely limited.

Q1. Do you agree with the identified core activities that hydrogen networks will need to undertake to balance their systems? Please explain your answer and provide any supporting evidence, including any additional core activities hydrogen networks may need to undertake to balance their systems.

Yes. Ensuring their network is balanced, safe and secure should be the primary focus for any network and will require market rules to be developed to establish clear boundaries between roles and responsibilities of the various network users.

The existence of storage within any hydrogen network will be a key enabler for market development and growth. Without it, the opportunities for network parties to balance will be severely limited, likely resulting in regular interventions by the network operator, to maintain pipeline safety and integrity. This will not encourage market growth. We also note that multi-user hydrogen storage model will not work whilst the current RTI restriction is in place.

We agree that "*regular data on gas flows and pressure will need to be shared between responsible entities delivering gas into the network*" but note that network users will also need to see data on network operation and status. When looking back to the history of gas market liberalisation in some countries, trading development was held back by information asymmetry between network operators and their users. This resulted in Shippers being unaware of their overall balancing position (and applicable charges) or notified of their position days after the balancing period had closed. This made trading difficult and unpredictable. To help avoid this, Users will need timely and transparent information on both their own and the network's balancing status, to act efficiently within the balancing period.

Q2. Do you agree with our assessment that primary and residual balancing licence structures should be maintained for 100% hydrogen pipeline networks? Please explain your answer and provide any supporting evidence.

Yes. This is a well-established and proven arrangement that is familiar to gas networks and their users. This will, however, require new and detailed balancing rules to be defined, including the balancing period, imbalance charges / incentives, and clearly describing when residual balancing kicks in.

Q3. Do you think there will be any costs, savings or other economic and business impacts associated with retaining these licence structures? Please explain your answer and provide any supporting evidence.

The existing licences and associated conditions were designed for the gas market. The licences are extensive and enforced by Ofgem. If hydrogen industry parties are expected to obtain one of the existing gas licences to satisfy Gas Act requirements, then compliance could be challenging, given that many of the licence conditions relate to a market in which they are not operating. Government may wish to consider introducing new 'Hydrogen Shipper' and 'Hydrogen Transporter' licences - or alternatively, undertake a review of the existing licence conditions and produce a definitive list of which conditions do / do not apply in a hydrogen network. Leaving individual parties to determine it for themselves, without any guidance, would be a significant regulatory burden and risk.

If new hydrogen-specific licences were to be developed, then all parties intending to be part of a network would need to obtain a new licence, regardless of whether they already hold a Gas Shipper or Gas Transporter licence. Whilst the costs of obtaining a licence are relatively modest, the administration burden for the applicant can be significant. Equally, Ofgem would need to be geared up to deal with additional licence applications in a timely manner.

Q4. Do you agree that producers are likely best placed to hold primary balancing responsibilities for hydrogen networks? Please explain your answer and provide any supporting evidence.

Shippers are best placed to hold primary balancing responsibilities as they will be the licenced party and therefore, we assume, the party bound by network code.

Assigning primary balancing responsibility to Shippers, rather than producers, clarifies roles for all network parties and is likely to be more compatible with future market arrangements, where the Shipper role is expected to be more prominent (subject to a relaxation of the restriction on RTIs). We understand, however, that in the early days of network operation, the Shipper entity is just a legal vehicle used by producers for arranging transportation of hydrogen with networks, and so in effect, it is the producer company that will be responsible for primary balancing.

It is important to recognise, however, that producer Shippers will have very limited tools at their disposal to manage imbalances and certainly far fewer options than Gas Shippers have in the current gas market. Their ability (or not) to respond to market signals also needs to be considered when developing code rules in this area.

There are also several issues that need to be addressed by changes to business models, alongside development of the network code. It is important to note that not all of these can be overcome by network code development alone.

- Where it exists, the main tool for balancing the network will be hydrogen storage. To facilitate this, the LCHA needs amending, or Producers will not be paid if the hydrogen goes into storage.

- If Producers are expected to be able to increase supplies to balance the network, is the cost of this additional supply flexibility to be included within the strike price under the LCHA?

- Who would be the offtaker for the balancing volumes and at what price?
- If the Producer has a problem whilst providing these extra volumes and subsequently must reduce production, what are the consequences under the producers existing supply arrangements?
- If Producers are expected to be able to reduce supplies to balance the network, how will the reduction be accounted for under the LCHA?
- How will the producer be compensated for less than optimum running of its electrolysers?
- How will the offtaker that is interrupted be compensated?

Q5. Do you agree that other parties, for example hydrogen offtakers, should not be excluded from applying for a licence? Please explain your answer and provide any supporting evidence.

Yes. It is important that generators have the option to obtain their own Shipper licence rather than relying on producers. This will help enable them to manage their own risks.

It is also important to recognise that the ability of offtakers to respond to balancing signals is similarly limited without further changes. For example, they can turn up and down, but they can't sell their volumes elsewhere due to RTI restrictions.

Q6. Do you think there will be any costs, savings or other economic and business impacts from producers or offtakers holding primary balancing responsibilities? Please explain your answer and provide any supporting evidence.

It provides a clear legal framework for assigning more detailed roles and responsibilities, but without defining imbalance charges / incentives it is impossible to quantify the costs to users. However, we consider this model would deliver a lower overall cost and greater efficiencies than all balancing being undertaken by the network. This is because the network would be driven primarily by its own needs, rather than those of its users, resulting in command and control operation which would not support market development.

Q7. Do you agree that responsibility for the system operation of hydrogen pipeline networks will need to be allocated to an entity through licence? Please explain your answer and provide any supporting evidence.

Yes, it provides clarity about who has overall responsibility, but in practice we would expect that this only applies to Transporters funded under the Hydrogen Transport Business Model (HTBM).

Q8. In your view, what are the key activities that a hydrogen pipeline System Operator will need to undertake? Please explain your answer and provide any supporting evidence.

The list of key activities outlined in the consultation are broadly the right areas to focus on. Considerable work will be needed to develop these into a set of code rules.

Q9. Do you agree with the assessment that hydrogen pipeline network owners are best placed to hold responsibility for system operation, under their hydrogen transporter licence? Please explain your answer and provide any supporting evidence.

In practice, we expect licenced Transporters to only exist in HTBM networks. Private point-to-point networks should be allowed to own and operate their pipelines without needing to obtain a licence, provided they meet the current licence exemption criteria, as set out under the Gas Act.

Q10. Do you agree with the assessment that persons supplying hydrogen through pipes to premises should be exempted from supplier licence requirements, but that this arrangement should be kept under review as hydrogen networks develop? Please explain your answer and provide any supporting evidence, including in support of any alternative options, such as a new exemption threshold.

Yes, we agree. The existing Gas Supply licence, if applied to 100% hydrogen networks, would present significant regulatory burdens and would inhibit market growth.

We agree that at a suitable point in time, supply of hydrogen may become a licenced activity, particularly as more smaller customers connect to a network. It would be helpful, however, for Ofgem / DESNZ to define in advance a threshold or indicator for when supply competition has developed in such a way that a licence is deemed necessary.

Q11. Do you expect there to be any costs, savings or other economic and business impacts from the proposed exemption? Please explain your answer and provide any supporting evidence.

We foresee significant avoided costs for parties from ensuring compliance with a licence which was not designed for the market in which operate. The existing Gas Supply licence is hundreds of pages long and rigorously enforced by Ofgem, with regular penalties issued for non-compliance. It is, however, designed for the highly developed gas supply market and many licence conditions and obligations would not be relevant in a nascent hydrogen network.

Q12. Do you consider that any other activities in 100% hydrogen pipeline networks should be regulated under licence, for example the activities of production and/or storage? Please explain your answer and provide any supporting evidence.

In our view, it is only necessary to licence those parties that have critical roles in the operation of a network. This is reflected in the Gas Act, where only Shippers and Transporters are licenced parties; producers and storage operators are not.

As Producers within a HTBM network are expected to operate with a Shipper licence, we do not see a case for also requiring them to hold a new type of Producer licence.

The key roles and responsibilities of a Producer would be defined in the network code, and we assume one condition of having a (hydrogen?) Shipper licence will be to accede to the hydrogen Network Code.

The proposed model envisages storage acting as a key "enabler" for a hydrogen market, by allowing Shippers and Transporters to meet their balancing obligations, but storage operators would not be allocated a specific balancing role or responsibility. We are not clear, therefore, what a new storage licence would add, unless storage were to be assigned a significantly different role under the future market framework.

Further thought needs to be given to how storage is allocated amongst multiple network users and then, to what extent a storage operator is able to accept or reject requests for storage capacity. Given the competition issues this could raise, we would expect Ofgem to have a role in designing efficient storage access rules, as is the case in the natural gas market. As an existing storage operator in the gas network and a prospective hydrogen storage operator, we note that it is technically impossible to design a single storage facility that can cater for every possible customer need, simultaneously. For example, the storage curve for a power generator could conflict with the storage curve needed by a network operator to support linepack. As a result, storage operators will need flexibility to design and sell their own products. Requiring storage operators to offer certain products, some of which may not reflect the optimal physical parameters, will result in sub-optimal use and potential constraints within the store.

Q13. Do you agree that a network code will be required for early 100% hydrogen pipeline networks, including those that are funded through the HTBM? Please explain your answer and provide any supporting evidence.

Yes, we fully support the development of a single hydrogen network code. This will bring consistency across networks and make it easier to combine them in future, if needed.

Q14. Do you agree that a new hydrogen network code should be developed? Please explain your answer and provide any supporting evidence.

Yes, a new bespoke network code is required. The existing gas Uniform Network Code (UNC) is not appropriate, as it contains extensive rules, many of which would not apply in an early hydrogen network. However, we strongly support the use of the UNC (particularly the Section headings) as the basis for a future hydrogen network code.

Q15. Do you agree with the description of the role of UK Government during code development and subsequent modification? Please explain your answer and provide any supporting evidence.

Yes, government should take a leading role, as it will be crucial to tie any network code implications back into existing and future business support models.

Governance of the code development process, including the proposed focus areas or design decisions will need to be set out in advance and consulted upon. At this stage, it is unclear how government intends to deal with disagreements between stakeholders when formulating the detailed code rules. We would have strong concerns, for example, if the Transporter was given the final say in the case of an impasse, when developing the code.

As we have seen since inception of the UNC (and other industry codes), it is not uncommon for a network owner / operator to disagree with its users. This suggests a strong role for Ofgem and DESNZ in facilitation and will likely require informed, ongoing decision making during the code development process.

Q16. Which types of stakeholders do you think should be involved in the development of the code? Please explain your answer and provide any supporting evidence

Whilst it is important to involve the key stakeholders, a large group may be at odds with the aim of rapid development of a detailed industry code.

Ownership and ongoing management of the code will also be important to establish. For example, will the code be owned by the Transporter(s)? Or will it be owned by all parties and jointly funded?

Q17. Who should be a party to the code? Please explain your answer and provide any supporting evidence.

As with UNC, it should be Shippers and Transporters. These parties are the primary decision makers under the market framework.

Q18. Do you agree that the hydrogen network code should be developed using a minimum viable product approach? Please explain your answer and provide any supporting evidence.

A minimum viable product is not clearly defined in the context of a hydrogen code, but we interpret it as the essential rules needed for a well-functioning market. While simplicity is important, we believe code signatories prefer clarity over brevity, to prevent or minimise future revisions.

Q19. What is the minimum level of progress in code development that is required at the different stages of project development to enable investment decisions? Please explain your answer and provide any supporting evidence.

Investors will naturally want to see progress being made and a clear timeframe established for delivery of a code. Running code development as a project clarifies whether progress is on schedule.

Q20. Which issues should be prioritised during initial code development? Please explain your answer and provide any supporting evidence

At this point, determining which specific topic or issue should receive priority is challenging due to the interconnected nature of many subjects. A possible strategy would be to begin with the UNC and systematically eliminate elements that are not relevant to a hydrogen market. This could provide a more focused understanding of the main topics and inform how they might be effectively prioritised.