

## **ENTSOG Summary of Proposals for Addressing Hydrogen Regulation in the Revision of the 3rd Energy Gas Package**

### **Introduction**

ENTSOG believes that the Gas Directive and Regulation should be amended to achieve the following objectives: ramp-up of a liquid hydrogen market, maximize synergies between gas and hydrogen (in particular, repurposing or retrofitting gas infrastructure opportunities), contribute to the EU decarbonisation goals while keeping an integrated gas market and encourage investment in renewable and low carbon gases.

The following is a short overview of ENTSOG's key proposals.

### **Application of the Internal Energy Market (IEM) rules and principles to the future hydrogen market**

The IEM, and notably the rules in relation to natural gas, have served EU citizens and industry well by establishing a liquid, competitive and secure gas market across the EU. Its provisions should serve as the foundations for the emerging hydrogen network and market. Applying similar principles from the Gas Directive, such as those concerning unbundling (i.e. specifically allowing for the application of all current unbundling models, namely: ownership unbundling, ITO and ISO and ensuring a level playing field across Member States) and non-discriminatory regulated Third Party Access, clearly makes sense because the future hydrogen network is anticipated to share the same basic attributes as the gas network, i.e. a natural monopoly, used by multiple types of producers and consumers, with the purpose of transporting a commodity, and thereby facilitating its trade within country and cross-border in the most efficient manner.

There should be a consistent application of regulatory principles to all types of network providers and for all types of hydrogen network (backbone/valleys/clusters) from the outset. This is necessary to provide a level playing field between network developers, protect consumer interests and avoid the establishment of divergent practices which will be difficult to harmonise in the future. Time limited exemptions from these requirements could be applied in respect of existing 'direct lines' for hydrogen only.

The revised gas regulation should not seek to cover all the required technical details for hydrogen and these should, instead, be dealt with in Network Codes (as for the regulation, the detailed rules that apply to hydrogen should be tailored to each stage of development of the hydrogen market).

Finally, Incorporating the rules for hydrogen in the gas legislation would be the most efficient way of ensuring regulatory alignment between these two closely related energy vectors. Furthermore, including the relevant regulatory arrangements for the hydrogen market and hydrogen infrastructure within the gas legislation will support the system integration between gas and hydrogen – in particular, regarding the repurposing of gas infrastructure (to transport hydrogen only) and the retrofitting of gas infrastructure (to transport hydrogen blended with natural gas), where network development and cost allocation issues will be easier to handle within one regulation. Such an approach would also help to avoid, from the outset, some of the regulatory barriers and restrictions on operational arrangements that have thus far limited the ability to ensure effective system integration between electricity and gas.

### **Role of gas TSOs**

The EU gas/hydrogen legislation should explicitly recognise that gas transmission system operators can be certified as owners and operators of hydrogen networks.

Authorising gas TSOs to carry out activities related to the development, integration and operation of hydrogen infrastructure, including the core hydrogen network, would facilitate an efficient way forward due to the experience of TSOs in planning, financing, constructing, operating and maintaining gas infrastructure. Furthermore, since parts of the existing gas grids (owned and operated by the gas TSOs) will be retrofitted and repurposed to transport hydrogen, this would also be more easily facilitated by allowing TSOs to own and operate both gas and hydrogen networks. It should also result in a more efficient operation of the future hydrogen network and enable existing, well-proven arrangements concerning safety and security of supply cooperation to be more easily mirrored to the hydrogen market. It should also result in efficient planning processes by allowing TSOs to identify the investment gaps in an integrated way with other gas and electricity networks and in strong consultation with the market participants and under regulatory oversight (process ensuring the necessary checks and balances).

As highlighted above, it is proposed that TSOs will have similar obligations for gas and hydrogen transmission systems to ensure open and non-discriminatory TPA.

In addition to the historic roles undertaken by gas TSOs, new roles and services inherently linked to gas grid management (such as gas quality management and conversion services) will need to be established to complement and support the development and operation of

increasingly integrated gas and hydrogen pipeline systems. In this regard, we believe gas TSOs can use their technical expertise to play a key role in contributing to hydrogen development across the EU.

The infrastructure operators should facilitate the development and operation of the technical and commercial framework (e.g. via network codes) and ensure transparent, fair and non-discriminatory access to the infrastructure.

### **Financing the development of the hydrogen networks**

To ensure the cost-effective and timely development of the hydrogen network, it will need to be designed and constructed to meet the longer-term forecast of hydrogen demand in terms of sizing/dimensioning, location and timing. As such, this clearly has significant consequences for the financing and development of the hydrogen network since, in the earlier stages of the market development, the specific network charges will either be prohibitively high or the transportation revenues derived from initial levels of hydrogen demand will not be sufficient to finance the required infrastructure.

It is therefore essential that arrangements should be established to address this issue and thereby better ensure the recovery of investment cost in the hydrogen network. One solution would be to partly (or potentially fully) mutualise the hydrogen network costs with the gas network costs. The mutualisation of costs between the hydrogen and gas grids would contribute to a more affordable energy transition by spreading the costs across a larger number of consumers. A mutualisation of costs between hydrogen and gas networks could be appropriate since the underlying climate protection targets of the energy transition represent a higher ambition to the good of all citizens. The additional financial burden for today's gas consumers during the ramp-up of the hydrogen market will ultimately be offset when the number of gas consumers decreases, and the remaining costs of the gas system are partially covered by the then developed hydrogen system.

The mutualisation of costs between gas and hydrogen networks can be complemented by more general funding mechanisms, such as those included in the EU Recovery Plan and TEN-E legislation.

### **Treatment of hydrogen and decarbonised gas supplies connected at DSO level**

In the future, gas supplies connected at the DSO level could become more material in the overall supply/demand picture. The development of local markets (e.g. DSO level markets) may create local production monopolies, prevent the development of efficient market arrangements and give rise to security of supply issues. Instead, providing access for DSO

connected supplies to the TSO level and integrating them into the entry/exit zones (which already happens in some member states) would allow end-users to benefit from competition between producers via a deep and liquid market. Furthermore, an entry exit zone is better able to cope with peak demand and/or supply disruption than local markets.

However, there should not be an obligation to introduce a firm right to reverse flow at any cost. It is important to first properly evaluate the need for such arrangements, and this process should include the identification of other possible solutions with the involvement of all relevant parties including TSOs and DSOs.

### **Tariff arrangements**

With an integrated gas and hydrogen network, applying the current structure of cross-border gas transmission tariff systems, with possible adaptations, would be the most workable and easiest solution. Applying tariff arrangements for hydrogen and gas based on the 'quo vadis' approach i.e. setting intra EU cross border tariffs to zero, could result in huge redistribution effects between Member States following from the necessary inter-TSO compensation agreement and considerable changes in the end-user tariffs are likely to be required if such an approach is implemented. Furthermore, there would be significant complexity in terms of agreeing any ITC mechanism and it is difficult to see how this could be achieved when the hydrogen network can be expected to develop rapidly (though unpredictably) over the coming years – which would necessitate constant revision of the ITC mechanism.

Instead, rather than imposing new tariff arrangements based on the 'quo vadis' approach (with inherently uncertain benefits for consumers), ENTSOG favors market-based solutions such as cross-border merger of market places.

### **Recognition of cost for repurposing gas pipelines**

The majority of the future hydrogen network will be comprised of repurposed gas pipelines. As such, a repurposing clause and a link with TEN-E should be established to say that repurposing costs should be recognised by the NRAs and that the switch from natural gas to hydrogen should be planned in a transparent way. Similarly, as highlighted in the point below ('treatment of hydrogen injected into the gas network – blending & de-blending'), costs of retrofitting the network to accommodate hydrogen/gas blends should also be appropriately recognised by the NRAs.

### **Treatment of hydrogen injected into the gas network – blending & de-blending**

Blending of hydrogen into natural gas and biomethane will be one of the ways to realise the decarbonisation of the gas infrastructure and together with de-blending one way of transporting hydrogen – contributing to the overall decarbonisation of the EU economy. In cases where hydrogen production does not in itself economically fully justify dedicated hydrogen infrastructure (e.g. in the initial stages of market development), blending & de-blending of hydrogen may be an attractive solution, at least for a transitional period. The role of blending & de-blending will vary between regions and may be more suitable for some consumption sectors and less for others and hydrogen acceptance levels for blending should be agreed amongst the adjacent Member States.

TSOs pipelines and operational system can be retrofitted to accommodate hydrogen blended and de-blended from in the natural gas flows. The costs involved in such adaptations need assessment and should be able to be fully recovered by the TSOs.

When blending hydrogen in and de-blended from the gas network, some specific issues may arise which would need dedicated provisions. For example, cross border flows will need to be ensured to further enhance the competitiveness of the gas market and TSOs will need to provide services to maintain adjacent gas systems' interoperability.

Consequently, strengthening information provision, cooperation, and more dynamic ways of gas quality data sharing between all relevant parties will be crucial. In some cases, it could be necessary to assess if further measures need to be implemented in accordance with consumers' needs and gas quality requirements. In this case, TSOs support that a cost-benefit analysis is carried out in a transparent manner so that costs for the different actors across the whole gas value chain are minimized. If as a result additional investment in measurement equipment, IT systems for gas quality forecasting and tracking, or gas treatment facilities are found to be necessary, the recovery of additional costs incurred by the TSOs should be guaranteed.

### **Cyber security**

The Network and Information Security (NIS) Directive has been recently amended. Its practical implementation is ongoing. It is supported by a close cooperation between TSOs and their respective member states. Before the amended NIS Directive has been successfully implemented and subsequently been subject to a review, ENTSOG sees no need for additional EU-level legislation (e.g., a dedicated Network Code) for the cyber security of the gas sector. However, there are cyber security measures that are already required today. Therefore, ENTSOG calls for the harmonisation of common security specifications for business processes like data exchange, the remote operation of equipment, etc. A designated European body like

ENISA should be governing these specifications and monitor its implementation in the whole energy sector. Cyber security should be recognised as a TSO task and therefore TSOs should be able to recover any costs incurred related to the implementation and operation of cyber security measures.

### **Sandbox**

Whilst not specifically addressed in the Consultation, ENTSOG considers that a regulatory sandbox framework approach at EU level would promote innovation, scaling up, system adaptation and optimisation for technologies at an early stage of development. This can play an important role in encouraging R&D activities and innovative projects.

Such an approach can provide a boost to test and roll-out the required new technologies, prove their benefits in practice, and evaluate their contributions to the energy decarbonisation pathways. It would allow R&D activities and innovative projects to be handled under more flexible terms regarding general rules such as state aid, funding access criteria, cost socialisation via regulated assets and based on specific regulatory oversight. It is important to make sure that Member States introduce and apply the regulatory sandboxes in a harmonized way consistent with the functioning of the internal EU gas market.

Therefore, we believe the revised gas legislation should allow for the implementation of such arrangements and also provide for gas TSOs, amongst others, to participate.