CEER consultation on Regulatory Challenges for a Sustainable Gas Sector

A Eurelectric response paper

May 2019

Eurelectric represents the interests of the electricity industry in Europe. Our work covers all major issues affecting our sector. Our members represent the electricity industry in over 30 European countries.

We cover the entire industry from electricity generation and markets to distribution networks and customer issues. We also have affiliates active on several other continents and business associates from a wide variety of sectors with a direct interest in the electricity industry.

We stand for

The vision of the European power sector is to enable and sustain:
- A vibrant competitive European economy, reliably powered by clean, carbon-neutral energy
- A smart, energy efficient and truly sustainable society for all citizens of Europe

We are committed to lead a cost-effective energy transition by:

investing in clean power generation and transition-enabling solutions, to reduce emissions and actively pursue efforts to become carbon-neutral well before mid-century, taking into account different starting points and commercial availability of key transition technologies;

transforming the energy system to make it more responsive, resilient and efficient. This includes increased use of renewable energy, digitalisation, demand side response and reinforcement of grids so they can function as platforms and enablers for customers, cities and communities;

accelerating the energy transition in other economic sectors by offering competitive electricity as a transformation tool for transport, heating and industry;

embedding sustainability in all parts of our value chain and take measures to support the transformation of existing assets towards a zero carbon society;

innovating to discover the cutting-edge business models and develop the breakthrough technologies that are indispensable to allow

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Market & Investment Committee
Electrification & Sustainability Committee
Distribution & Market Facilitation Committee

Contact:
Charlotte RENAUD, Manager Markets & Customers – crenaud@eurelectric.org
Ronan HAAS, Advisor Gas to Power and Financial Regulation – rhaas@eurelectric.org

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KEY MESSAGES

- The electricity system will play a central role and will be the main driver towards a decarbonised economy. Eurelectric's members are committed to delivering a carbon-neutral and renewable based power supply in Europe well before 2050. This commitment, together with the electrification of other sectors of the economy, will make a major contribution to help Europe meet its climate targets.

- In addition, Europe should strive to maintain leadership in key emerging energy carriers such as sustainable hydrogen and renewable power-to-gas which will be needed to decarbonize especially specific segments of industrial activity and heavy-duty transport. Significant benefits and synergies can be found through this coupling of the gas and electricity sectors.

- With a view to ensure a cost-effective transition for European citizens and businesses, future gas consumption and the related gas infrastructure must be analysed in a consistent and future-proof manner. Clarity is therefore urgently needed on the nature, the need and potential for future commercial availability/ maturity of sustainable hydrogen and renewable power-to-gas.

- A robust regulatory framework requires to develop a consistent and clear taxonomy of sustainable gases and other gases, including power-to-gas fuels that reflects their different lifecycle emissions.

- Cost-effective and future-proof approach to infrastructure requirements and investments should be ensured to avoid investment in assets that do not contribute to a cost-effective and energy efficient decarbonisation path. ACER and NRAs should play a key role in ensuring that the ENTSOs' TYNDP scenarios reflect the new reality and include long term projections for the overall energy and gas demand that are compliant with the Paris agreement, in line with the most recent analysis and take into account the maturity of promising technologies such as power-to-gas.

- Eurelectric does not support the introduction of targets for renewable gas penetration. Until power-to-gas reaches maturity, renewable gases should be used primarily when no electric alternative to fossil fuel exists for some industrial processes and shipping. To

facilitate the development and use of renewable gases in those cases, the implementation of a trading system for renewable guarantee of origin can be a pivotal instrument.

- Power-to-gas technologies - once mature and commercially available - are without any doubt contestable activities which cannot be carried out by regulated entities. However, in a first phase and in order to develop the technology and make it commercially available, public funding for financially supporting R&D for green hydrogen or synthetic methane generation should be envisaged to enable business cases for investors.

- Eurelectric does not in general support the implementation of technology specific electricity and gas grid tariff reductions or exemptions to support the development of power to gas production units, or to compensate for services they may supply to the grids. But tariff structures should be tailored so that each grid user pays a price covering the aggregated costs it induces on the grid including consumption patterns that bring down cost in the overall system

- As far as hydrogen is concerned:
    - The need to establish large scale/greenfield hydrogen pipelines should be carefully assessed to ensure economic efficiency.
    - A mandatory common high European threshold for the blending of hydrogen in gas networks is not recommendable until sufficient safety, technical and economic feasibility studies have been carried out.
    - Should a dedicated regulation of hydrogen networks be needed, it should be developed only when such a network starts to develop and has reached a certain scale, in terms of feed-in points, customers and volume.

Q1. Which activities do you consider relevant for potential TSO/DSO involvement that should be considered in the assessment?

We consider this questions as being relevant in particular when it comes to TSO/DSO involvement in power-to-gas technologies, including electrolysis.

From a power-to-gas side, Eurelectric notices that the question of regulation of such activities, which may be considered as contestable activities, is sensitive. **Whatever the outcome on this question, ensuring a market-based deployment and operation of those assets would contribute to an efficient use of power-to-gas units.** Eurelectric also emphasizes that competitiveness of those technologies will depend on both the availability of electricity at zero-marginal cost and on high load factors to amortize Power-to-Gas plants investments costs.

It is clear that in the short to medium term, the market will not deliver large scale power-to-gas technologies because they are not mature yet. That is why we would propose a **two-step approach**:

- **In a first phase - in order to develop the technology and make it commercially available - public funding** (either European or national) **for financially supporting the scale up of green hydrogen and R&D for synthetic methane generation should be envisaged**, in order to enable business cases for investors. Those investors will be primarily technology providers, and other commercial entities. It should be assessed whether such support mechanism should be based exclusively on investment grants/aids to facilitate development or should include mechanisms to cover operational costs for the duration of the trial.

- **In a second phase – once the technology is mature/commercially available, we are of the opinion that there is no reason why power-to-gas plants should be developed, owned or operated by regulated entities; neither by TSOs nor by DSOs.** Alike gas-fired power plants, power-to-gas plants are facilities consisting in converting an energy carrier to another one. As power generation is considered - without any controversy - as a contestable activity which cannot be carried out by regulated entities, we believe the same should apply for gas production from power-to-gas plants.

  The assessment of potential future exceptions for TSO/DSO involvement in power-to-gas activities, such as the ones considered in the CEP for storage and EV charging, should be done carefully and in accordance with the principles of liberalized and competitive energy markets. It is premature to assess whether the same logic can apply to power-to-gas activities. When it comes to the assessment of a potential TSO/DSO involvement in power-to-gas activities or other grey areas, Eurelectric broadly supports the conceptual tool developed by CEER in its conclusions papers "The future role of the DSO" as well as "New Services and DSO Involvement".

Q2. To what extent should a common European threshold for the blending of hydrogen in gas networks be mandatory and which timing should be taken into account? Please explain your reasoning.

Regarding blending of hydrogen in gas networks, Europe will eventually need a common European threshold instead of 28 different norms and regulations. In a more interconnected energy system, a coherent approach toward hydrogen blending is necessary especially because hydrogen might become the key gas regarding sector coupling and increasing synergies between electricity and gas sectors.

However, before a European wide threshold can be applied, technical, safety and economic aspects have to be clarified.

Blending concentrations across Europe heavily depend on the characteristics of the existing network, natural gas composition and end use applications. It is therefore necessary to understand what is the technically safe level that may vary between specific parts of the transport (generally steel) and distribution system (often polyethylene) in various countries. It will also depend on the availability of carbon neutral hydrogen across Europe.

Defining a common European threshold without a better understanding of these technical and safety aspects would be premature.

Eurelectric therefore is of the opinion that **a high European threshold does not seem recommendable until sufficient safety, technical and economic feasibility studies have been carried out, also taking into account cost-effectiveness and optimised management of existing infrastructures**. These should encompass both costs of H2 generation and costs of gas networks adaptation. **Until then a low, indicative threshold**, taking into account all relevant technical and legal conditions and restrictions while being accepted by stakeholders **could be a first step to give some directions for this developing market**. That is also because increasing the infeed of hydrogen will require extensive cooperation among Member States to prevent barriers to the cross-border tradability of gas.

Last but not least, it needs to be acknowledged that blending hydrogen and natural gas in existing or upgraded gas infrastructure can only be an intermediary step, with carbon-neutral gas needing to be deployed in order to meet the Paris climate goals.

Q3. Under which circumstances or conditions should hydrogen networks be regulated, and should this regulation be in the same way as gas networks or are there alternatives? Please explain your reasoning.

It is unclear at this stage how hydrogen will be optimally and safely used. There are several options, which could also be combined, among them:

- Local use in industrial processes, transport and other applications.
- Injection into the gas network until the technical limit of the network.
- Production of synthetic natural gas through methanization.
- Export of hydrogen to other areas through large scale/greenfield hydrogen pipelines.

The three top possibilities in the list can be locally carried out and do not require the development of a large scale hydrogen network.. Therefore, **Eurelectric believes that the establishment of an extensive parallel new infrastructure should be carefully assessed to ensure economic efficiency.** In order to minimize the cost of switching to low carbon and renewable hydrogen, Eurelectric considers that: electrolysers should be built either on industrial sites, next to the natural gas grid or next to the renewable energy source.

When it comes to the question on the need to regulate or not dedicated hydrogen networks, we believe this may be premature at this stage. Indeed, developments of dedicated hydrogen networks will be probably very gradual and start at local level (i.e. in a decentralized manner connecting industrial sites). **Should a dedicated regulation of hydrogen networks be needed, it should be developed only when such a network starts to develop and has reached a certain scale, in terms of feed-in points, customers and volume. In addition, it should only happen when a physical hydrogen wholesale market would be needed** to enable exchanges of large volumes of H2 across Europe.

It would also have to be carefully assessed whether the regulatory framework for gas networks would suffice if hydrogen is used as an energy carrier in the public energy supply for households, industry, commercial consumers and power plants, as defined in the 3rd Energy Package. Such approach would ensure that the same criteria and principles should apply to both hydrogen and gas infrastructures, including third party access, non-discrimination to hydrogen producers and end-users. This would allow for other gases a similar regulation and ensure a level playing field. It would also set clear rules and provide the appropriate protection for a new emerging natural monopoly. But, again, this is something that should only be contemplated when the perspectives for such large scale deployment of hydrogen transportation and distribution are clear.

Q4. Is 'cost efficiency' a legitimate reason for pro-active market intervention which may be contrary to a general "technology neutral" approach? Please explain your reasoning.

In our view, if you have the right incentives defined through Energy and Climate policies and markets are well designed, this should favor the most cost-efficient solution to the energy transition. A combination of well-designed markets indeed ensures non-discriminatory market participation by all competing technologies and gives the right economic signals, taking into account the positive or negative externalities.

The only reason to depart from this and opt for an intervention would be the existence of a market failure affecting the delivery of an efficient outcome. The basis for an intervention should not be the identification of "inefficient outcomes" (i.e. big risk of mistakes, arbitrariness), but the identification of a market failure – i.e. it is about acting on causes rather than on consequences, and a "cost efficiency" issue is clearly a consequence (indeed quite arbitrary as it can hardly be evidenced).

In any case, a market failure can only happen when a market is conceivable, and that is not yet the case for power-to-hydrogen or large scale power-to-gas. These are technologies that are still relatively far away from economic and technical maturity. They can potentially be used in a variety of ways, but we still do not know which of those ways will be successful, if any. If they are not being deployed now, it is not because of a market failure, but because of this lack of maturity. Therefore, all the efforts should first be orientated to address this lack of maturity through public funding (either European or national) for financially supporting the scale up of green hydrogen and through R&D for synthetic methane generation. Only when they are commercially available, the identification of possible market failures can start.

Once we are in that situation and a market failure is identified, any intervention should counteract the negative effect of the market failure rather than directly determining what the effect on the outcome is (i.e., the "cost efficiency" issue) **and selecting the corresponding "winners / losers".** Preserving the technology neutrality / level playing field is becoming even more important as technology evolution is (a) giving new options to consumers, and (b) increasingly coupling energy sectors. Thus, it is key to enable an effective competition even between energy carriers in order to make sure consumers' decisions are not distorted by biased economic signals.

In this sense, key elements are (a) taxes (driven by polluter pays principle; non-ETS sectors should be subject to a CO_2 cost comparable to that of ETS sectors), and (b) levies and fees, energy policy related charges, etc. driven also by harmonised principles, including a fair allocation / sharing of the decarbonisation financial effort (so far mostly born by electricity consumers).

Last but not least, it is important to ensure that the "cost efficiency" criterion does not only apply to short-term effects but also consider the long-term development of new technologies. In particular, high upfront investment costs are often necessary and should not prevent the development of long-term cost-efficient solutions.

Q5. Which role do you see for power-to-gas infrastructures?

Power-to-gas can potentially play two complementary roles: by complementing and facilitating electrification.

Eurelectric Decarbonisation Pathways study finds that 60% of direct electrification is required to achieve a 95% decarbonisation of the European economy. Power-to-gas and other non-emitting fuels have a role to play as electricity alone cannot deliver full decarbonisation.

The coupling of electricity and gas sectors/systems/markets through Power-to-gas is a potential key link in the transition to a deeply decarbonized economy, where needed **to complement direct electrification** in "harder to abate" sectors:

- **The study finds that Power-to-X fuels would represent around 17% of total final energy consumption in 2050 in the most ambitious scenario**, hydrogen alone would be around 6% of total final energy consumption in 2050
- **The study finds that industry would be the main consumer of hydrogen in industrial processes in 2050** with between 500 and 1,400 TJ, and around 3,100 TJ of other clean fuels that require electricity to be produced.
- A significant amount of additional electricity will then be needed to produce this hydrogen, power-to-gas and other fuels. **We assess that ca. 410-800 TWh of electricity will be needed to produce clean fuels required to decarbonize industrial applications, depending on scenario.**

Additionally, **power-to-gas could also support the electricity system**. In a high-renewable future, system balancing and the required firmness and flexibility to ensure security of supply will be provided by competing sources. Traditional sources include conventional firm generation capacity such as hydro and nuclear power, as well as a much larger role played by demand side response, as well as storage. In this context, **the flexible production and storage of electric fuels such as hydrogen and power-to-gas or power-to-liquid can potentially be a key contributor to the provision of carbon neutral firm/flexible capacity**.

Q6. In your opinion, do the electricity and gas tariff systems create possible distortions to the efficient deployment and use of power-to gas technologies? If yes, how and in what circumstances?

Distortions may exist if grid tariffs are not efficient or if there is some unlevelled playing field due to sector or technology-specific measures or provisions, for instance on networks tariffs (either for injection or withdrawal) or levies.

- In particular, in some countries, power-to-gas facilities are classified as "end consumers" in the electricity sector and are therefore charged with all associated taxes and levies.
- **To fix these distortions, a review of network tariffs and additional taxes/levies should be undertaken.** It is important to distinguish between (a) use-of-network tariffs (UoNT), (b) additional levies / charges and taxes.

    - **Use of Network Tariffs (UoNT)**:
        - **The risk of double charging affecting power-to gas <u>when using exclusively the electricity network</u> is similar to that affecting any other electricity storage.** Hence, it is necessary to design UoNTs that ensure power-to-gas is charged (a) for the variable costs corresponding to both their uptake and injection (two charges), and (b) for the fixed costs corresponding to their access to the grid (a single charge). Ideally, this should not be obtained by introducing a specific network tariff for power-to-gas

facilities, but **by developing general design criteria to all grid tariffs that ensure efficient economic signals both to injections and offtake from the grid.**

- In the same way, when power-to-gas facilities use both the electricity and gas networks they should also receive efficient economic signals, that reflect the costs they cause for both networks -
- **In any case, UoNTs should be always sufficient to cover the total regulated network costs.** A significant effort in terms of UoNTs design should be undertaken and the best practice report on tariff methodologies to be elaborated by ACER (article 16 new Electricity Regulation) could be a step in the right direction.

- Additional levies / charges and taxes: these create significant distortions. There is a need for coordination between energy carriers in order to ensure a level playing field. More specifically:
  - **Levies and charges of the energy system**, including the decarbonisation financial effort (e.g. cost of RES support schemes) **should be fairly allocated / shared among all energy consumers** (so far they are almost exclusively borne by electricity consumers).
  - **Taxes should be driven by the "polluter pays" principle**: non-ETS sectors should be subject to a CO_2 cost comparable to that of ETS sectors.

  However, while taxes and levies persist and are not coordinated across energy vectors, **it could be argued that storage and conversion of one form of energy into another should be exempted in particular from end consumer taxes and levies. However, this should be carefully designed and monitored, since it could lead to further distortions.**

To conclude, Eurelectric does not in general support the implementation of technology specific electricity and gas grid tariff reductions or exemptions to support the development of power to gas production units, or to compensate for services they may supply to the grids. In any case, a level playing field must be ensured:

- Tariff structures should be tailored so that each grid user pays a price covering the costs it induces on the grid;
- Flexibility services supplied through power to gas technologies should be enabled and valued on the specific markets the services are targeting (demand response, capacity markets, reserve);
- Public support may be needed to prepare the deployment of power to gas technologies, to support future very high shares of RES in the electricity mix. It will be up to policy makers to decide whether Member States should subsidize renewable gas technologies. From a regulatory point of view, if such instruments are implemented, Eurelectric considers this public support should be direct (direct subvention for instance) to ensure visibility and avoid distortion for other grid users, while being adapted to the maturity of relevant technologies.

Q7. Do you see other possible issues regarding power-to-gas technologies that require consideration from a regulatory point of view?

First of all, a regulatory framework requires a consistent and clear taxonomy of the subject matter to be robust. Therefore, to avoid future legal issues, **we must establish clear definitions of sustainable gases and other gases** (including hydrogen and power-to-gas fuels) based on their CO_2 emission along the entire value chain. Such taxonomy must be consistent with the "renewable energy" definition in the new Renewable Energy Directive:

'*energy from renewable sources' or 'renewable energy' means energy from renewable non-fossil sources, namely wind, solar (solar thermal and solar photovoltaic) and geothermal energy, ambient energy, tide, wave and other ocean energy, hydropower, biomass, landfill gas, sewage treatment plant gas, and biogas;*

This means that gas produced from power-to-gas could not be considered as additional "renewable" contributing to the EU RES targets for 2030 even when using renewable power as input. In this sense, the potential contribution of power-to-gas to the achievement of the EU's decarbonisation objective should be assessed exclusively as the energy conversion & storage technology of RES energy already injected into the grid:

- It is necessary to unbundle the value of renewable power generation from the value of conversion & storage.
- The value of conversion & storage must be additional / differential to that corresponding to the renewable power used as input.

Given the uncertainties on the evolution of gas demand in the long run and the ongoing discussions on sector coupling technologies, new investment decisions on gas infrastructure should be carefully assessed. **A stronger oversight by ACER and NRAs will be necessary and the increasing importance of links between gas and electricity infrastructure shall be reflected in a new requirement for joint grid planning activities, at both European and national levels.**

Power-to-gas will be subject to both electricity and gas regulation and network codes with different requirements. This could possibly lead to issues concerning differences between physical characteristics of the power and gas systems and respective applicable legislation.

Q8. What is required to facilitate efficient cross-border trading of renewable gas GOs?

Although it should be clearly highlighted that the main purpose of GOs is about "disclosure" and not "support", the introduction of GOs for renewable gas could be perceived as a tool to support the implementation of targets or quotas. Eurelectric does not support the introduction of objectives or quotas for renewable gas penetration. Until power-to-gas reaches maturity, renewable gases should be used primarily when no electric alternative to fossil fuel exists. It is indeed the case for some industrial processes, shipping, etc.

To facilitate the development and use of renewable gases in those cases, the implementation of a trading system for renewable guarantee of origin can be a pivotal instrument. Cross-border trading already takes place but impacted by variations in value due to standards and fungibility, and requirement for equivalent physical gas flows. Obviously, if power-to-gas is mature and competitive, the need for a cross-border trading of renewable gas GOs would have to be further assessed.

Should we go for such approach, we agree that a standardized system is required in which the GOs can be traded independently from the commodity (Book&Claim) as it is the case with guarantees of origin for electricity. A potential obligation to physically transport the gas in order to be able to trade guarantees of origin throughout Europe would prevent the establishment of a liquid market for such GOs.

A European-wide system enables transparent and trustworthy trading across borders. This includes standardisation of certificates, definitions and interoperability of procedures for national registries:

- **GOs for renewable gas present more challenges than GOs for electricity, given the diverse nature of renewable gases** (due to the different feedstocks used, the different

qualities, etc). Given that renewable gases may not be equally 'green', they may not all qualify for the same number of certificates.

- To address these challenges, we believe the key elements would include a **standardised European definition of 'renewable gas'**, the **creation of a tradeable certificate which is recognised and valued across national borders** and a **system which allocates the appropriate number/value of such certificates to the different sources of renewable gas** (e.g. bio-methane, bio-SNG, P2G, hydrogen).
- **Certificates should be clearly defined to which type of renewable gas they apply.** Certification could extend beyond renewable gases also to low-carbon hydrogen. Differences in type or quality should be clearly labelled on the certificate. This would allow the market to set different prices depending on quality. In this case, the GO system for low-carbon gases should be clearly separated from the GO system for renewable gases. Otherwise, mixing-up all of these gases into the same GO system would lead to some confusion or complexity in the management of the GO scheme.

Q9. Which lessons from the EU-wide system for renewable electricity, if any, should be considered when setting up an EU-wide GO system for renewable gas?

Guarantees of Origin in the power sector have developed in the last decade, despite no harmonization and with different requirements, diverse markets and very different traded products from a European country to another one. **One of the key success factors for such development is to enable cross-border trade of GOs for renewable gas, despite diversity of those traded products.**

In order to establish liquid markets, it is essential that the commodity can be traded regardless of its origin. Therefore, a **GO system for gas, similar to that for electricity, should be structured in such a way that a GO can be traded independently of the commodity**. It requires clear definitions and consumer communication/expectation management on international trade vs. actual local benefit.

In general, the current renewable electricity GO system appears to be a well-designed and suited tool, as it constitutes a guarantee of reliability, while also enabling "green offers" to develop for consumers having a willingness to pay a premium for it. It should be recognized that **the purpose of GOs is "disclosure" and not "support". To avoid confusion, it should therefore be preferable to clearly distinguish support mechanisms and GOs** and make sure that "windfall profits" do not arise when RES production benefits from both a support scheme and the sale of corresponding GOs.

Q10. In your view what should be ACERs and NRAs' responsibility in the development and approval of the TYNDPs, their underlying scenarios and the CBA methodologies?

Eurelectric would like to remind the **important role of TYNDPs and CBAs methodologies** which should forecast the dynamics in power and gas markets in the coming decades.

The growing interdependencies between gas and electricity in Europe will require a more integrated infrastructure planning, a co-ordinated risk preparedness and system operation across sector. In this context, sector integration, sector coupling and the cost efficient use of existing infrastructure should be seen as key principles.

A coordinated electricity-gas approach would support the good management and development of the infrastructure networks in a cost-effective way, based on efficient investment plans. **The ongoing coordination between ENTSO-E and ENTSOG, underlined by the article 11(8) of the Regulation (EU) No 347/2013, is an opportunity for reaching such a goal.** Therefore, the delivery of the TYNDP 2020

and their underlying scenarios must be encouraged, based on a common framework of the European Cost Benefit Analysis of grid Development Projects. As mention in the Regulation, prior to submitting their respective methodologies, both ENTSOs shall conduct an extensive consultation process involving all relevant stakeholders, national regulatory authorities and other national authorities. Regulators as well as the European Commission have played an important and active role in this process and its assessment so far.

Going forward, as far as ACER's and NRA's responsibilities are concerned, Eurelectric believes that:

- **ACER and NRAs should play a key role in ensuring that the ENTSOs' TYNDP scenarios reflect the new reality and include long term projects for gas demand that are compliant with the Paris agreement, in line with the most recent analysis and take into account the maturity of promising technologies such as power-to-gas**. Such hypothesis and scenarios should take into account technology costs and competitive alternatives for clean energy carriers, demand side flexibility potential, energy efficiency and conversion losses, the impact of the overall gas volumes on bio resources and on the electricity system, foreseen imports and their implications, as well as infrastructure requirements for different types of gases and blends. **Concretely, for the upcoming TYNDP 2020 and the future ones, it is essential that both ACER and NRAs play a major role, in particular for the approval of CBA methodologies and PCI assessment.** Whether it refers to gas or power PCIs, public authorities must ensure that CBAs and PCIs are unbiased and assessed, individually, through the appropriate scenario (ex: yearly volume, daily peak, 2-week cold snap, low RES availability, etc…) at the appropriate geographical scope and via the relevant cross-commodity or coupling approach. Following those key principles should ensure a cost-effective and future-proof approach to infrastructure requirements and investments to avoid future stranded assets.

- While the coordination at European level between the ENTSOs on the TYNDPs and the level of the involvement of NRAs and ACER is already described in detail in Regulations (347/2013 and 715/2009), **it would be beneficial if NRAs could ensure an enhanced coordination at national level when grid development plans for gas and electricity are being elaborated**. Alike at European level, national grid development plans for gas and electricity should reflect the new reality and include long term projects for gas demand that are compliant with the Paris agreement, in line with the most recent analysis and duly take into account the maturity of technologies such as power-to-gas.

Q11. How should the whole process be designed to maximize the efficiency of decision taking about new infrastructures? In particular, would you support the addition of cross-references between the infrastructure regulation 347/2013 and the CAM NC (2017/459)?

As highlighted in our response to the previous questions, **assessments for the need for new infrastructures should be carried out in a coordinated and hybrid manner between electricity and gas TSOs**, in order to assess if (subject to the technology becoming mature and commercially available) or how power-to-gas interactions are able to provide an appropriate answer able to meet the demand (whether it refers to flexibility, security of energy supply or to congestion lifting). **Such coordinated approaches for grid planning networks management and identification of investment needs are of utmost importance, to avoid costly grids reinforcement and to ensure a cost-effective and optimised management of existing infrastructures.**

Furthermore, Eurelectric believes that **before making financial investment decision, any gas PCI project (as for any power PCI project) should be subject to a sound, comprehensive, fair and**

unbiased cost-benefit analysis; this should be considered as a prerequisite to prevent any further risk of stranded assets.

A robust scheme at European level would be necessary:

- Projects selection, CBA when the project is at a sufficiently advanced stage, and proposal for sharing costs and congestion revenues;
- The decision by each regulator approving the costs that would be covered by tariff. Comparison by the European Commission of all the projects according to the ratio "amount of subsidy requested to balance the budget vs expected benefits of the projects". The lowest ratios should be prioritized in granting subsidies and any derogation should be duly justified.

It should be possible to integrate the projects in the PCI list but only to benefit from the administrative facilities from the beginning to allow to start the permitting process. The financing decisions should intervene later in the process only when all the information is available for a sufficiently robust CBA.

Finally, Eurelectric considers that the current gas network code on Capacity Allocation mechanism (CAM NC) is a good basis to assess market willingness to pay for a given PCI project. Some provisions of the CAM NC set that a market test should be carried out prior any decision for approval of a PCI and this does not limit the ability of authorities to make a decision to still build the infrastructure for any valid reason. Therefore, market tests as set by the CAM NC should be the driving factor.

Q12. Do you see a risk for stranded assets in your country? If it becomes of relevance, what could be the appropriate regulatory tools to reduce this risk?

On the one hand, it is now broadly acknowledged that the role of natural gas will be declining substantially on the path to a carbon neutral economy, as highlighted in the European Commission's Long Term Strategy[1] . Decarbonisation of the energy system and the expected decrease of natural gas consumption to meet long-term climate goals may therefore lead to the question of decommissioning parts of the current gas infrastructure.

On the other hand, the potential of developing hydrogen, biomethane and other renewable gases in the future can contribute to future use of the gas infrastructure, thus reducing the volume of stranded assets. Indeed, existing gas infrastructure could be used for the transport and distribution of hydrogen, biomethane or renewable gases, after technical feasibility & safety considerations have been addressed. If power-to-gas technologies mature and become commercially available, the risk of stranded assets could be significantly diminished.

What is crucial is to ensure that gas regulation schemes do not incentivize building more infrastructure if not necessary, as many of them do now. The continued use of the existing gas infrastructure should also not be seen an objective in itself. Gas regulation schemes should prevent unnecessary re-investments in gas infrastructure where possible and promote timely investments in alternative solutions which lead to CO2 reduction. To do so, gas regulation schemes should be subject to a continuous monitoring of the maturity and competitiveness of hydrogen, biomethane and power to gas technologies and be based on gas demand forecasts that are compliant with the Paris agreement and in line with the most recent analysis.

[1] 3% to 4% of total final energy consumption in full decarbonisation scenarios

Q13. In your opinion, should decisions on decommissioning be assessed with methodologies similar to those used for investing in new cross-border infrastructures? Do you see the need of an EU framework for decommissioning infrastructure with a cross-border impact?

As mentioned by CEER, Eurelectric supports that any potential decommissioning of gas assets should be subject beforehand to a robust cross-border assessment with the adjacent Member States which may be impacted (in terms of security of supply, market functioning), based on CBA. Together will transparent forward plans under TYNDP, the role of NRAs will be key and their close cooperation is necessary to solve such issues.

Some sort of market test should indeed be used. For instance, if capacity bookings are below a certain threshold during a duration of x years, a mechanism could be used to ask market participants for interest in the future of the asset in question. Moreover, it should be checked whether there is alternative infrastructure that could be used for the same purpose, or whether the infrastructure could be reused for other purposes (e.g. alternative products that could be shipped through, like hydrogen to help building the backbone for a hydrogen infrastructure or for the transport of CO_2 to support CCS), thus avoiding the need for (full) decommissioning.

Finally, Eurelectric considers that **approaches suggesting the acceleration of depreciation periods for stranded assets for tariff calculation**, which are potentially subject to decommissioning on the short or mid-term, **should be carefully assessed,** including cross-border impacts. Those kind of measures would heavily penalize existing gas end-users, gas-fired power plants included; yet, those ones make the gas system running, thus it would be quite unfair for them to bear the financial burden resulting from oversized investments made in the past.

Such kind of measures would be very detrimental to gas-fired power plants, as any significant increase of the transport costs may slide those plants out of the merit order on the electricity market. Hence, it would potentially lead, not only to a further decrease of gas consumption - and thus hinder sector coupling -, but also induce a potential spill-over effect on further need of decommissioning of additional gas infrastructures. Therefore, the remaining costs of a decommissioned gas asset should be dealt with through a European fund that could address these extreme scenarios.

Section D: Adapting the Gas market Design

Q14. What are the critical points that should be addressed regarding the gas market design?

Before defining new changes, we would support the full implementation of the Gas Target Model and the gas network codes. This should take priority before any new changes are being proposed. We are pleased to this that the evaluation of NC implementation forms part of the ongoing work carried out by the European Commission in preparation for a potential Gas Package.

As stated in the scope of the *Quo Vadis* study carried out by the EC in 2017, Eurelectric considers that the following points should be considered in a future review of the gas market design:

- **The question of cross-borders tariffs at interconnection points - and their potential evolution in the coming years - is of upmost importance.** Gas TSOs should aim at achieving the most efficient dispatch, notably for cross-border capacities, to capture maximum social welfare for both electricity and gas. To achieve this purpose, **gas TSOs' costs recovery should be set in a transparent way**. In particular, it should identify which investments and assets are being considered in the definition of interconnection tariffs and could be decoupled from specific border charges to enable an optimized use of interconnection capacities. **Low cross-border tariffs would**

strengthen the connection between gas markets and foster their liquidity and maturity across Europe. As for electricity, it would facilitate the trade and transport of gas from supply sources to end-users and prevent distortive effects for gas-fired generators, which are critical to deliver firmness and flexibility to the electricity system, particularly during the transition. As mentioned in our answer question 13, any significant increase of gas transport tariffs at interconnection points would be very detrimental to gas-fired power plants, as it may slide them out of the merit order on the electricity market.

- **Regarding gas markets integration, Eurelectric believes the market design should evolve focusing on achieving an optimal use of gas assets and transport capacities**. The underlying objective of such an evolution is to have a better functioning market with increased access for a range of market players to different trading zones or hubs: cost-efficiency should prevail and gas market design should evolve to ensure such cost-efficiency. **Convergence of gas hubs must be encouraged, however, Eurelectric considers that market models suggesting merging of markets zones or implementing a unique market zone across Europe may have some major drawbacks**. Merging zones may require significant investments in infrastructures to make the merged zone relevant and viable in any circumstances, potentially leading to stranded assets. Therefore, evolving towards a unique European gas market area may lead to potential inefficiencies in handling large structural congestion. **From a cost-benefit perspective, such mergers could be of limited interest and would potentially raise some major operational issues for networks management for TSOs**. From a gas end-user point of view, the key issue is to have an easy access to the gas hub/market place and delivery periods (ex: day-ahead, week-ahead, month-ahead, etc.), wherever it is located, at the most affordable price possible.

- Last but not least, as already mentioned, **growing interdependency between gas and electricity in Europe, consistency in the evolution of gas and electricity market design (*e.g.* tariff and capacity allocation regimes) should be addressed.** In the past, we observed a certain level of disconnection between the electricity and the gas regulatory frameworks. Therefore, coordination between electricity and gas infrastructure investments and a consistent evolution of both market designs must be ensured. In a broader view, electricity and gas market designs should ensure synergies with other sectors and opportunities for a whole system approach.

Q15. Considering the possible development of renewable gases, in your opinion, do you see a need to update the gas market design?

The principal goal should be that "new" decarbonised and renewable gases can be supplied and traded on a level playing field with natural gas as part of the gas market. Possible barriers for entry (e.g. in the form of undue technical requirements) should be eliminated

Public funding - either European or national – for financially supporting R&D for green hydrogen or synthetic methane generation should be envisaged, in order to enable business cases for investors in the development of water electrolysis plants, as soon as there are fuelled from green electricity. Those investors will be primarily technology providers and mainly consortia involving market parties and network operators. It should be considered whether such R&D support mechanism should not only be an investment grant/aid to facilitate development, but should also cover operational costs for the duration of the trial. Obviously, power-to-gas plants should be allowed to participate in ancillary services markets.

Q16. In your opinion, do you see an issue with the current transmission tariff regime for the efficient integration of the EU gas markets, in particular considering a scenario where long-term contracts expire and gas consumption may decrease?

First of all, Eurelectric believes that **priority should go to the full implementation of the network codes, including the TAR network code on harmonised transmission tariff structures for gas.** The TAR NC will be realized in the forthcoming year and includes increased transparency requirements for TSOs to explain their methodology behind the calculation of tariffs. Not all TSOs are doing it fully and this should be addressed as a matter of priority.

Grid tariffs should not be used to support or incentivize renewable gases, since they should be focused on recovering grid costs and providing efficient economic signals.

Before new rules may be developed, a sound analysis of the possible impact on the gas sector would be needed. Changes that may result in a less liquid and more fragmented European market should be avoided and it needs to be assessed if and where specific actions are appropriate and needed. It should be self-evident that infrastructure is paid by all its users. Otherwise, there would be an imminent risk of cross-subsidisation.

Eurelectric agrees with CEER analysis set out in chapter 6.2 of its consultation. The diagnostic made by CEER, which was also raised into the FROG study performed in 2018, remains valid and is fully relevant. **In particular, there is a risk that termination of long-term contracts of gas transport capacities at some interconnections points, combined with the decrease and more volatile gas demand in the coming years, would lead to significant changes in the use of European infrastructures and in price formation on certain hubs.**

The bottom-up approach, as proposed by CEER, seems interesting and may deserve further investigation**.** Risks of fragmentation of gas markets may be not be uniform in Europe because the termination of gas contracts may happen at different moments. The same criteria should apply but at different moments depending on when the problem arises in the country.

However, we also note that under the current regime, tariffs can increase as a result of decreasing gas consumption. This could be addressed by first of all employing smart climate policy aimed at optimal, timely and cost-effective CO_2 reduction strategies. Such strategies can promote the development of new, decarbonised and renewable gases and thereby enable that (parts of) current assets remain used. Optimal and cost-effective strategies for CO_2 reduction also help to reduce the consumption of natural gas in a timely fashion. Secondly, a redesign of the tariff regime seems necessary at a certain point. Otherwise, tariffs may go up substantially when natural gas use decreases, which may lead to more customers switching away from gas and prompting new tariff increases, etc.

Although a revision of the tariff regime appears necessary in the near future, it is difficult to set an appropriate timing of such a revision. This will strongly depend on future CO_2 reduction policies, the development of both natural gas and decarbonised gases demand and of alternative solutions.

Moreover, the study currently performed in the European Commission on the capacity/commodity releases programmes may provide further elements to address this issue.

Q17. If yes, how could the current tariff system, with particular regards to cost allocation methodologies, be amended?

Eurelectric takes note of the CEER example on LNG terminals, which are described as assets providing benefits like security of supply, market integration, increasing competition or decarbonisation which may justify keeping them working even if they are underutilised.

Therefore, amending the cost allocation methodologies in order to integrate those kind of benefits may be justified, providing it is based on a clear and transparent methodology and prevent any risk of discrimination.

Section E: Other question

Q18. Are there other regulatory challenges for a sustainable gas sector not addressed in this document?

Externalities, both positive and negative, should be a key criterion in the decision-making process to invest in a new project or decommission an existing asset during the energy transition. Due to some subjective criteria, such externalities remain complex and debated, but must be quantified. Therefore, it would be at the best interest that a broad discussion at European level should be carried out to set the basis for a CBA methodology.

Eurelectric pursues in all its activities the application of the following sustainable development values:

Economic Development

- Growth, added-value, efficiency

Environmental Leadership

- Commitment, innovation, pro-activeness

Social Responsibility

- Transparency, ethics, accountability

Union of the Electricity Industry - Eurelectric aisbl
Boulevard de l'Impératrice, 66 – bte 2 - 1000 Brussels, Belgium
Tel: + 32 2 515 10 00 - VAT: BE 0462 679 112 • www.eurelectric.org
EU Transparency Register number: 4271427696-87