

Consultation on the organisation of the hydrogen market

Market organisation concerns the set of rules and laws that describe which parties (public and private) may operate or enter a market under which conditions (rules, regulation), as well as which rights and obligations final customers have. Looking at the hydrogen market that must develop in the coming years, it is therefore questionable which parties may be active in the field of production/electrolysis, transport, (underground) storage and construction and management of import/export terminals, under what conditions these parties may do this and how it can be ensured that sufficient users have access under reasonable conditions to these services. Through this consultation, the Cabinet, like the [House of Representatives](#), wants to hear from existing and future stakeholders in the hydrogen market what image and expectations they have of the organization for the hydrogen market.

In the letters to Parliament of [30 June](#) and [10 December](#) 2021, the previous cabinet already discussed the market organisation for the development of a national transport network for hydrogen and the public interests that are central to this (sustainability, security of supply, affordability, safety and rough suitability). These letters give reasons for wanting to develop this transmission network as one integral national network, but also why, according to the government, Gasunie is the most suitable party for this. The government has asked Gasunie to take preparatory steps and enter into discussions with potential users. In addition, the government is working on a roll-out plan for the phased development of this transmission network and financial instruments to enable the realization of the transport network. All this should lead to a successful development of the national transport network, a prerequisite for the development of the entire hydrogen chain. The question of which party will develop this national transmission network is therefore a given and not a topic within this consultation. However, you will be asked under what conditions this transmission network **MUST** then be developed.

European energy law has had a major influence on the organisation of the Dutch gas and electricity market for several decades. On 15 December 2021, the European Commission made proposals for the first time for the organisation of the (future) European internal market for hydrogen. In the run-up to the publication of these proposals, the Netherlands, together with five other EU member states and Switzerland, published a [joint position paper](#) in September 2021 on their shared vision on the development of a European framework for the internal market for hydrogen. The Commission's proposals are included in a revision and recast of the EU [Gas Directive](#) and [Gasverordening](#) as part of the [Hydrogen and Gas Decarbonisation Package](#) (hereinafter: 'Decarbonisation Package'). The cabinet sent a [first appreciation](#) of this to the House of Representatives on 11 February. Although negotiations will still take place between Member States in the Council and between the Council, the European Parliament and the European Commission, it is expected that the Commission's proposals will largely guide the final European rules. That is why this consultation, where relevant, reflects on the Commission's proposals.

Consultatiereacties

We would like to ask you to be as complete and concrete as possible in your answer and to explain your answers. The more concrete your answers, the more you actually contribute to further thinking and decision-making. We also ask you to include as much as possible the considerations and dilemmas that have been mentioned in the question in your answers. In addition, you can reflect on how you believe certain choices do or do not contribute to the public interests that the government stands for in energy policy and therefore also in the planning of the hydrogen market: sustainability, security of supply, affordability, safety and spatial suitability.

To answer the questions, you must draw up a document. The consultation responses will be published on the website of internetconsultatie.nl, unless it is indicated that this is not desired.

Respondent information

In your response document, can you briefly state: 1) what your existing role is in the energy sector, and 2) what role you foresee for your organisation in the hydrogen sector?

1. Production/electrolysis

Electrolysis is expected to become the dominant technology for the production of renewable hydrogen. As described in the letter to parliament of 10 December 2021 on the market organisation for hydrogen and in the [answers to parliamentary questions](#) on 8 February 2022, the cabinet sees electrolysis in principle as an activity reserved for private parties. Competitive pressure between companies should contribute to cost reduction and innovation, and thus to reducing the need for subsidies. An [earlier consultation](#) on the development of a (temporary) upscaling instrument for electrolysis has sufficiently shown interest by private companies in developing electrolysis installations. The letter to parliament of 10 December also reflects on the possible 'system role' that electrolysis can play in the future, for example by linking the electricity grid to the hydrogen grid so that energy can be transported more efficiently, both from a cost and spatial perspective. Electrolysis can also play an important role in large-scale energy storage and thus security of supply in the future. In addition, the question arises whether network companies can play a role in this. The government therefore does not rule out the possibility that in the future it may be desirable that there will still be room for network companies or network operators to develop electrolysis installations, in particular in the event that private market parties do not otherwise invest despite the availability of sufficient subsidy instruments or incentives.

1.1 Are there circumstances in which you consider it desirable that network companies or network operators have a role in the development of electrolysis installations in the future? If so, under what conditions? See also: ACM, '[Guideline network companies and alternative energy carriers](#)'.

EFET believes that network operators have an active role in the rollout of large-scale electrolysers and that is to provide information on the most desirable locations for such installations from a network perspective. This means that investors are well informed about any local congestions, be it in gas/hydrogen/electricity network, that can be alleviated through the operations of an electrolyser whereas the network operator does not go beyond its statutory responsibilities. Network operators should not own electrolysers and if for any reason they are to be temporarily allowed to invest in such installations (e.g. as pilot projects), these should be done under strict regulatory oversight and with sunset clauses envisaged. It is also important for the network operators to hold separate books for hydrogen and gas infrastructure to prevent cross-subsidization and adequately reflect the separate asset bases.

1.2 Do you consider it desirable that the government and/or network operators actively steer the location of electrolysis installations? Think, for example, of designating or identifying plots/locations by means of spatial instruments or in network development tiles. In which situations do you think steering is more or less desirable?

We believe that optimality of a location for an electrolyser is subject to a whole set of parameters that network operators may simply not have access to. It is therefore important for the network operators to provide information on the most favourable locations from system operation perspective, so that they can assess the value of different locations adequately. These information should, however, not be in any way used to restrict the investor's freedom of choice in terms of the location of its electrolyser. Certain locations could instead be entitled to additional incentives if the operations of an electrolyser in such area would support alleviating congestion and would hence constitute a cheaper alternative to network investment.

2. Development and management of hydrogen transport networks

The [HyWay27 report](#) describes the conditions under which a national transport network for hydrogen can be developed using existing gas pipelines. In the letter to parliament of [30 June 2021](#), the previous cabinet announced that it would take further steps for the actual development of this transport network, including drawing up a roll-out plan and the relevant framework. In the letter to parliament of [10 December 2021](#) (p. 4-7), various reasons were subsequently mentioned

why the government considers it desirable that this transmission network be developed by Gasunie as one integral network. The intention is to designate Gasunie as a network operator and thus entrust it with the legal task of developing and managing this transmission network. This designation is now foreseen around 2025 when the European proposals within the Decarbonisation package have to be transposed into Dutch legislation.

In anticipation of this designation, the government already wants to give Gasunie conditions under which it must develop the transmission network and relate to parties that want access to this network. The letter to parliament of 10 December 2021 states: "These conditions must safeguard the public interest by ensuring a reasonable, objective and non-discriminatory access regime and reasonable tariff conditions that prevent monopoly profits and thus provide a clear framework for both ongoing and future discussions between Gasunie and potential users of the transmission network and resulting from this. transport agreements".

2.1 Rules on third-party access should ensure that (potential) users of energy infrastructure have effective access to this infrastructure on the basis of transparent and non-discriminatory conditions. This also includes the frameworks within which reasonable rates must be established. The European Commission proposes that member states have the choice between introducing a negotiated or regulated one until 2031

system of third-party access to hydrogen networks (Article 31 of the Gas Directive). In the case of regulated third-party access, the supervisory authority determines the methods on the basis of which the tariffs must be established and approves the tariff proposals of network operators. A direct introduction of such regulated access system currently seems to be less suitable for hydrogen transport per pipeline because the network in development and there is a certain oversizing and start-up and overflow risk. This makes it difficult to determine volumes, efficient costs and efficiency incentives to arrive at a regulated tariff. In addition, benchmark comparisons between grid operators such as gas and electricity will not be possible at the same time. The development of regulated access systems, including method and tariff decisions, also takes a lot of time. In the case of negotiated third-party access, negotiations take place between the network operator and a potential user of the network.

These negotiations should take place in good faith on the basis of indicative conditions and tariffs from the network operator. If the government or regulator does not establish additional rules for this, one speaks of 'pure negotiated access'. Until July 2004, the Netherlands had a system of 'hybrid negotiated access' to gas transport networks in which the regulator, at the time the DTe, adopted guidelines on the basis of which the network operators had to set their indicative conditions and tariffs. These guidelines related, among other things, to the type of service, type of transport contracts and (cost) basis on which the tariffs had to be established, see for example ['Explanation of the Gas Transport Guidelines 2003'](#). Which system of third-party access (regulated, pure or hybrid negotiated access) do you think is most desirable in the short and medium term for the national transmission network being developed by Gasunie ?

While by default we believe that regulated third-party access should apply to hydrogen networks, a limited time (31/12/2025) transition period with negotiated third-party access regime in place may be needed to underwrite early investment that would otherwise not take place. This would prevent a delay, due to the time required to draft an agreeable methodology by ACM, for which ideally an assignment is provided soon. Most likely, in the early stages a relatively high level type of actual cost based methodology is most suited, to be complemented by international benchmarking at a later stage. A period of negotiated access can also be used to gain experience and gather initial data points.

The experience from our Members has proven it is vital to have a considerable degree of stringently applicable guidance from MinEZK or ACM in place, to aid these 'negotiations' with a monopolist.

Such guidance should at least address (both for connections as well as for the transport service):

1. Transparency requirements in negotiations over costs, investment considerations and over existing contracts and ongoing negotiations, in line with competition law.
2. Minimum/ maximum contract duration period
3. Indication of what is considered a reasonable tariff reference (i.e. total allowed income or actual/projected cost based)
4. Allocation of allowed income over tariff parameters and users/producers
5. Scope of public grid vs private infrastructure:
 - i. For end users, H2 producers and renewable power producers, local exempted grids and exempted network elements/storages/interconnectors
 - ii. Potentially different scope on land and at sea
 - iii. Cost of the actual connections and sizing considerations
 - iv. Cost of connecting network elements to main TSO grid
6. Description of actual transport service
 - i. Availability, reasons for unavailability, notification period etc.
 - ii. Pressure
 - iii. Quality
 - iv. Accountability
7. Cost basis and ex post corrections of:
 - i. Repurposable natural gas network elements:
 1. Timing and allowed transfer value of gas network elements
 2. At what residual value do existing (partly empty and depreciated) assets enter into H2 RAB
 3. One-off cost of repurposing/ cleaning/ scrubbing/ washing
 4. Cost of oversizing (commodity-based vs capacity-based)
 5. Remaining depreciation period
 - ii. Newly developed assets
 1. Requirement on market-based procurement of pipeline and connection construction services by TSO
 2. Depreciation period and application of progressive depreciation to enable oversizing, expediting energy transition
 - iii. Operational expenses
 1. Daily operations
 2. Continued cleaning expenses of repurposes pipeline
 3. Maintenance expenses
 4. Quality and pressure maintenance (balancing)
 - iv. Investment cost
 1. Capital procurement
 2. Timing
 3. interest

2.2 If you have opted for a system of (hybrid) negotiated access for question 2.1, what should the guidelines/conditions from the government and/or supervisory authority relate to in any case?

Please refer to our answer to question 2.1.

2.3 In the letter to parliament of 10 December 2021 (p. 4), several reasons were mentioned why, according to the cabinet, it is necessary that the national transport network for hydrogen is developed as one integral national network and will function, both technically, operationally and functionally. The same is already the case with the national transmission networks for electricity and gas. Its managers, TenneT and GTS, have an exclusive statutory task. This ensures, among other things, that socialization of the costs can take place, without other parties commercially developing the most profitable pipes or cables, so-called 'cherry picking'. In the case of electricity and gas, in addition to these regulated networks, we also have direct lines and closed distribution systems where the owner can be relieved of the obligation to appoint a network operator. In both cases, it involves the exchange of energy between a limited group of people involved in an often commercial or industrial context. With regard to possible exemptions for commercial private hydrogen networks, the Netherlands has previously argued in the [joint position paper of the Pentalateral Energy Forum](#) for strict exemptions from regulation for new commercial private networks, while a more flexible transitional regime may apply to existing networks. In its proposals, the European Commission opts for exceptions for both existing hydrogen networks and geographically defined hydrogen pipelines. In the latter case, it concerns hydrogen pipelines that transport hydrogen from one entry point to a limited number of exit points within a geographically defined industrial or commercial area (Article 48 of the Gas Directive). The operator of such a pipeline does not have to comply with the requirements for vertical unbundling (Article 62 i.c.m. Article 54 of the Gas Directive. NA. The reference to Article 56 in Article 62, first paragraph, is incorrect and must be Article 54) but is not exempt from conditions relating to third-party access and the establishment of tariffs. How do you view any legal scope for the development and management of commercial hydrogen gas works by private market parties with exceptions of regulation in addition to a regulated national public transmission network? What conditions should this apply? How can unwanted 'cherry picking' be prevented compared to a public national hydrogen network?

In our response to this question we assume point-to-point network elements as well as closed distribution networks (with only few 3rd parties) remain exempted from the unbundling requirements on grid operators and remain exempted from 3rd party access regulation. In the remainder of this response we'll provide our views on infrastructure that can be considered 'networks'.

EFET favours a case-by-case approach to the treatment of existing private hydrogen networks depending on whether they exist purely as downstream networks, have very specific requirements on the chemical composition of gases transported, and whether they would be in a position to prevent market expansion. This can be achieved through an exemption regime. Furthermore, we believe that existing gas TSOs and DSOs should be allowed to operate and invest in hydrogen networks, provided that it does not preclude infrastructure investment by private parties where they meet strict exemption criteria.

For future private hydrogen networks, while we believe that regulated third-party access should apply to them by default, certain transitional arrangements (like exemptions and negotiated 3rd party access) may prove to be necessary to

underwrite early investment in hydrogen infrastructure.

3. Netwerkontwikkeling

Electricity and gas network operators should periodically draw up an investment plan in which all necessary expansion and replacement investments are described and substantiated. ACM then assesses whether a network operator could reasonably have arrived at the draft investment plan. The network operator is then legally obliged to carry out the investments. For hydrogen network operators, the European Commission proposes a more sensitive regime in which the supervisory authority has a more contemplative and advisory role instead of a formal reviewing role (Article 52 of the Gas Directive). Consent by the supervisory authority is therefore not a formal requirement for the hydrogen network operator to make investments. In its consideration, the regulator must look at the 'energy-economic necessity' of intended investments in the hydrogen network as well as at the extent that this is in line with the joint energy scenario's that the national and regional grid operators for electricity and gas must develop.

3.1 On the basis of the European Commission's proposals, national and regional electricity and gas network operators must develop joint scenarios on the basis of which their own investment plans are based (Article 51 of the Gas Directive). How do YOU view such joint scenario development? How should these scenarios come about?

EFET believes that individual TSO development planning should both adhere to the principles of the EU Ten Year Network Development Plans as well as seek coordination with National Energy and Climate plans and joint infrastructural planning directly or through reports to the National Regulatory Authority.

3.2 As mentioned, the national transport network for hydrogen is being built in a future-proof manner with a view to volume development and is therefore slightly oversized. Strict efficiency testing of investments therefore seems inappropriate during the early roll-out of the grid. Instead, the European Commission proposes that regulators look at the 'energy-economic necessity' of the intended investments by a hydrogen grid operator in the light of 'realistic and forward-looking demand projections and needs from the perspective of the electricity system' (see recital 42 and Article 52 of the Gas Directive). The joint scenarios by the electricity and gas grid operators (see question 3.1) and the integrated national energy and climate plan (INEK) must also be taken into account. In your opinion, are these criteria sufficient (clear) guarantees for a substantiated development of a national transmission network? What other criteria and/or developments do you consider important?

By default, hydrogen network development should follow supply and demand in the market as this should prevent establishing oversized and superfluous network elements. For that reason, TSO should be required to not only report their development plans along with their market development assumptions to the NRA, but should be obliged to acquire its approval for these plans. This will not only prevent unnecessary investments, but also provide the H₂TSO the necessary reassurance that it will subsequently be allowed to seek recoupment of those investment. In this sense, the stronger scrutiny by the NRA will allow for an expedited roll out of the H₂ grid and will also prevent it from becoming unnecessarily expensive.

The NRA should at least take actual supply and demand into consideration, but can also rely on general assumptions on the future manifestation of supply and demand and electricity grid congestion-related matters. The NRA is ideally provided a framework for their scrutiny to allow the NRA to make a strict assessment on basis of efficiency considerations.

3.3 Is it desirable that grid operators for electricity, gas and/or hydrogen make

recommendations about the need and location for large-scale energy storage and electrolysis installations when drawing up their plans? What type of information should be made available?

Disclosure of any information that might be relevant for investors in electrolyzers and energy storage facilities should be seen as a responsibility of the network operator. If the joint scenario of the hydrogen/gas/electricity operators can enable identification of locations favourable from the perspective of operating these networks and enabling their mutual reinforcement, then this information should be made public.

4. Underground storage of hydrogen

Storage of sustainably generated energy in the form of hydrogen [is expected to](#) play an important role in security of supply in an energy system with a high proportion of electricity generated from wind and sun. Locations for underground storage of hydrogen will (initially) be more limited than with natural gas because the storage of hydrogen must mainly take place in underground salt caverns and the techno-economic feasibility of storage in gas fields is still uncertain. This may create less competition in the (underground) storage of hydrogen than is the case with natural gas.

4.1 What are your expectations about the development of the market for the (underground) storage of hydrogen and the degree of competition in this market?

We see a need for developing different types of hydrogen storage facilities at different locations in relation to the grid, as storage will be of key importance for future network operations, especially since significant share of hydrogen production is expected to be volatile, since weather dependent. At the moment it is unclear how much capacity is required and what the required characteristics in terms of quality and injection/withdrawal speed of those facilities should be. This requires further research.

Flexibility that is needed by the TSO to continuously balance the grid, such as one offered via linepack, seem least open for competition. For all other types of storages, there is no apparent reason why there can't be competition among providers of storage capacity. Normally this activity would gradually develop in the market, but for hydrogen a fair degree of uncertainties about the quality, the market (supply and demand) and the regulation might prevent this service to come into existence. Further research is needed to explore whether additional support, or assigning of storage allotments are needed to allow for a market for storage capacity to arise. These commercial storage capacity providers may be allowed to offer 3rd party access on negotiated basis, in order to ensure they can realise a sufficiently high return to warrant their investments.

Network companies can be allowed to compete by offering long term (several years) capacity contracts, as long as access conditions to network company-related storages are regulated to ensure a level playing field is maintained in the storage capacity market. Network companies should only be allowed to offer long term capacity, in order not to distort hydrogen trading and sales. In case the H2 TSO is required to maintain a certain hydrogen reserve in storage for security of supply reasons or to maintain a seasonal grid balance, the storage capacity and hydrogen should be procured in a market-oriented fashion.

4.2 The management of underground storage facilities for natural gas is an activity that is open to all market parties, including network companies. Do you also consider this desirable for the underground storage of hydrogen? Is the possible role of underground storage of hydrogen in future security of supply important here? Can you also include your answer to question 4.1?

Please refer to our answer to question 4.1.

4.3 *Due to the (initially) limited number of hydrogen storage locations within the EU, the European Commission is proposing a system of regulated third-party access at underground storage installations (Article 33 of the Gas Directive). Member States do not have the choice to opt for a negotiated access system, as in the case of natural gas storage facilities. What type of third-party access do you consider desirable? Can you also address the existence of sufficient investment incentives if there is regulated versus negotiated access? Can you also include your answer to question 4.1?*

We believe that the scope of hydrogen storage regulation should be the same as it currently is for natural gas. This should also include the option of choosing negotiated third party access, particularly if strict regulation was to discourage investment in such facilities.

4.4 *Do you think it is desirable for the government to actively steer hydrogen storage locations? Think, for example, of designating or identifying lots/locations by means of spatial instruments, in network development plans and/or by organising tenders.*

We believe that the choice of most optimal locations should be left to the investors. NL Government and the H2 TSO can help creating a favourable investment environment by shortening permitting processes or ensuring that relevant sites are assigned for storage purposes.

5. Terminals for the import of hydrogen

Hydrogen is expected to become a global market, just like LNG. In the letter to parliament of 10 December 2021, the previous cabinet already discussed the preparations for the import of hydrogen in detail. The global transport of hydrogen can take place in the form of liquid hydrogen, but also in the form of derivatives such as ammonia (see also the definition of 'hydrogen terminal' in Article 2(8) of the Gas Directive, which is also applicable to terminals for the import of liquid ammonia).

5.1 *What are your expectations about the development of hydrogen import terminals and the degree of competition in this market?*

Different studies point to the fact that the EU will not have the capacity satisfy the demand for energy on its own in the foreseeable future. This implies that import H2 import terminals will have a role to play in terms of bringing in additional renewable/decarbonised/low-carbon energy carriers to cover the gap.

At this stage, early signals about the ammonia cracking technology and the high purity nature of imported green hydrogen indicate that the provision of hydrogen import and export capacity can be developed in a contestable market, safeguarded by sufficient competition. As soon as more certainty over the demand for hydrogen and feasible means of its transport arises, those import terminals and cracking facilities become investable.

Since import/export terminal capacity provision can quite likely be considered a contestable market activity, there is no reason why the H₂TSO should be involved in such investment. Provided the risk involved in developing the import/ export capacity, full or partial 3rd party access exemption for 20 to 30 years, seems the most natural means to ensure investors can anticipate a satisfactory level of return. Preferential access this potentially creates is not likely to result in strong competitive advantages, once an integrated EU backbone system establishes a sufficient degree of competition for the commodity alongside competition for the import capacity.

5.2 *The management of LNG terminals is an activity that is open to all market parties, including network companies. Do you also consider this desirable for the management of terminals for the import of hydrogen and derivatives?*

EFET believes that non-discriminatory and transparent access to terminals is of greater importance to the overall market development than the legal status of its manager or owner.

As per other infrastructural assets, we believe there may be well-founded reasons for providing exemptions to regulated third-party access and have negotiated 3rd party access and preferential access in place instead. This may help underpinning investment in import capacities that would reinforce energy security of supply and at the same time recognize the technological risk of the activity.

5.3 It is expected that there will be more competition between import facilities than in the underground storage and transport of hydrogen. That is why the European Commission has opted for a system of negotiated access at hydrogen terminals. Do you think this is desirable?

Yes, negotiated 3rd party access will likely be required, with a degree of preferential access. See the response to 5.1 and 5.2.

6. Waterstofkwaliteit

6.1 Do you see yourself as a future user of the national hydrogen transmission network? If so, can you indicate: 1) are you an importer or a customer?; 2) for customers, what type of application is involved?; and 3) what quality of hydrogen do you want to introduce or purchase and can you explain this?

Not a question for EFET

6.2 In your opinion, which party should be responsible for determining the hydrogen quality in the national hydrogen transmission network (manager, central government or, by means of a European harmonized standard, the European Commission?)

For the sake of completeness, besides the allowed/required purity level of the hydrogen in the grid, other elements of 'quality' concern both the quality of the connection as well as the quality of the transport service. This mainly relates to, but is not limited to, the pressure (and thereby the maintenance of the pressure balance) as well as the availability of the transport service and allowed reasons for unavailability. EFET Members are of the opinion that these are all matters with respect to which standards should be set, to be used in the connection and transport contracts, following an extensive consultation with the market.

We further note that 'hydrogen purity' cannot be characterized by a single parameter. Beyond the concentration level of H₂ in the gas blend, specific impurities need to be addressed as well. Whereas the natural gas grid, salt caverns and depleted gas field storages contain inherent specific concentrations of specific contaminants, while specific end uses require the content of these specific contaminants to be contained. We eagerly anticipate the results of the research by TNO as mentioned above and recommend that these considerations are taken into account in the further discussion on the 'grid purity standard'.

The remainder of the reply to this question will focus on hydrogen purity.

Determining the hydrogen quality/purity standard firstly affects parties' ability to decarbonize by means of hydrogen of different origin, since a lower (95-98%) standard is perhaps sufficient for some, while other end users require 99.5% or even 99.97% purity level. Secondly, fuel suppliers are affected in their ability to produce clean fuels, in turn also affecting the ability of the transport sector to decarbonize. Thirdly, gas producers are affected when a higher standard is required, since their product would require upgrading before it can enter the public grid. Fourth, the gas TSO and the H₂ TSO are affected over their cost of and cleaning (scrubbing) of the natural gas network elements.

When full or partial socialization of upgrading expenses is considered, similarly to natural gas quality conversion, total upgrading cost, as well as hydrogen transport cost should be minimized. The conflicting interest over the quality standard level and the risk of unnecessarily high total purification cost require governmental decisions, both on the quality standard as well as on the cost socialisation. Such decision making should ideally follow an extensive consultation period with all the potential stakeholders.

Furthermore, EFET believes that a common quality standard for hydrogen at EU level would benefit market integration and would aid hydrogen production to help decarbonize industry in the most efficient manner. Yet, we recognize that agreeing on such standard might prove to be challenging to develop. We therefore support the idea of having the standards set at Member State level with EU-level cross-border coordination rules in place that do not restrict the flow of hydrogen between different zones. As technologies mature and the related infrastructure develops, the concept of developing a common EU quality standard may be studied further.

6.3 It may be that certain customers require a higher hydrogen quality than certain feeders can guarantee. In order to be able to accommodate the input of various streams of hydrogen into the national transport network, purification steps can be taken. The techno-economic aspects and feasibility of this are still being investigated by EZK. In your opinion, is it desirable that the costs of such treatment among the users of the national transmission network should be socialised if this leads to better access to the infrastructure?

Broad access to infrastructure is important for establishing volumes of hydrogen that are suitable for trading at a wholesale level, as is also indicated in our answer to question 6.2. Given the quality standard that is to be adopted in the end, we see a considerable role for the H2 TSO to maintain the right hydrogen purity level, by procuring and managing the relevant services. The related cost of that service should be allowed to be socialized. Outside of that TSO quality maintenance service, when private parties want to bring their produced or procured hydrogen up to the specification they require, those costs should be borne by those parties.

7. Hydrogen admixture in existing gas network

7.1 The European Commission proposes that member states accept 5% hydrogen in the gas network at border points between member states (Article 20 of the Gasverordering). The Netherlands would then have to accept natural gas from other countries in which a maximum of 5% hydrogen is mixed in. It is therefore not a domestic blending obligation. According to an underlying [report by the European Commission's Joint Research Centre](#), a harmonised hydrogen percentage at border points can significantly contribute to the upscaling of electrolysis capacity in the EU and thus prevent small percentages of hydrogen admixture in natural gas from creating barriers to the cross-border transport of natural gas. However, a 5% hydrogen content in natural gas at border points can have an impact on Dutch gas users who are located near such a border point. Do you consider it desirable that EU member states must accept 5% hydrogen in (earth) gas flows at border points. What advantages and disadvantages do you foresee?

We support having a certain minimal admixture of hydrogen defined at EU level to ensure that the integrity of the EU's internal gas market is retained. It is our understanding that the 5% admixture defined should not compromise the security or quality of supply to any meaningful extent neither at the transmission nor at the distribution level.

8. Market organisation at sea

8.1 In the spring of 2022, the Cabinet will send an external study to the House of Representatives with policy options for the combined development of offshore wind and onshore and offshore hydrogen production, including market regulation aspects. This report is a follow-up to an [earlier study](#) into tender models for the combination of offshore wind energy and electrolysis by Guidehouse. Although the follow-up study on

policy options has not yet been completed at the time of this consultation, we would like to ask you to indicate your points of attention for the future ranking at sea. This may involve the management of hydrogen infrastructure at sea or ownership and management of centralized electrolysis to which multiple wind farms can be connected.

For onshore or near-shore electrolysis linked to offshore wind the tender models in the Guidehouse study provide the relevant framework for further discussions around combined tendering to support the roll out of the relevant infrastructure.

For electrolysis further from the shore, like on (hybrid) energy islands, in the end, that offshore infrastructure should be affordably accessible, readily and timely available, similarly as the onshore infrastructure.

A future design to enable the roll out of such infrastructure should take into account that the existing private infrastructure may not be fit for repurposing. The entirely new h2 gas infrastructure can either be constructed as point to point or an actual meshed grid, potentially connecting end users in different Member States. Given the wide number of potential options, , it is not possible at this point to decisively respond to this question and the subject requires further studies.