

# CONSULTATION RESPONSE

April 2025

ACER public consultation  
on inter-temporal cost  
allocation mechanisms  
(ICA) for financing  
hydrogen infrastructure



# Public consultation on inter-temporal cost allocation mechanisms (ICA) for financing hydrogen infrastructure

Fields marked with \* are mandatory.

## Introduction

---

### Why are we consulting?

The hydrogen and gas market Regulation enables member states to allow hydrogen network operators to recover the costs of the network over longer periods of time than usual (Article 5(3)). This approach, known as the intertemporal cost allocation mechanism, is intended to address the challenges of early-stage hydrogen network development. ACER has been tasked with providing a recommendation on the methodologies for this mechanism by 5 August 2025, with updates issued every two years if necessary.

To ensure its recommendation is informative and effective, ACER is seeking input from stakeholders on key elements of the intertemporal cost allocation mechanisms. The public consultation will run from **10 to 31 March 2025**. ACER will evaluate the feedback received and use it to inform its recommendation.

In case of additional questions on the public consultation please contact ACER at [PC\\_ICA@acer.europa.eu](mailto:PC_ICA@acer.europa.eu).

### Why are intertemporal cost allocations useful?

In natural gas and electricity transmission networks, most investments are made by transmission system operators (TSOs) who have to offer the available capacity to all users. They then recover the costs to build and operate the network via network tariffs paid by network users. Regulatory authorities approve these tariffs, or the methodologies TSOs use to calculate them. Tariffs are normally adjusted regularly (often annually) to account for changes in network utilisation and operational costs. Network users thus guarantee that TSOs will recover their investment and operating costs over time. This approach has been successful due to the relatively predictable demand for electricity and gas in the short to medium term.

Hydrogen pipeline transmission networks are considered more efficient compared to alternative options such as truck transport for long distances, hence they make sense for the development of an integrated European hydrogen market. [The EU hydrogen strategy](#) and the national hydrogen strategies of several member states foresee the development of hydrogen transmission networks connecting hydrogen supply (including import terminals) and demand centres. The supply cost of renewable and low-carbon hydrogen will also vary depending on local conditions, availability of cheap resources (renewable energy or natural

gas respectively) and proximity to infrastructure (import terminals, hydrogen storage, CO<sub>2</sub> sequestration facilities). This further enhances the need for hydrogen networks.

Currently however, sustainable hydrogen is not competitive, leading to significant uncertainty regarding the future level and growth rate of demand. During the early stages of the sector development, demand for hydrogen will be relatively low compared to the capacity of the network resulting in disproportionately high initial network tariffs if traditional calculation methodologies are applied (1). This could further discourage users from transitioning to hydrogen.

The intertemporal cost allocation mechanisms are introduced to lower network tariffs during early stages, levelling them over an extended period. This ensures that the tariffs are affordable in the early stages and that the network costs are fairly distributed between current and future users. Notably, the hydrogen and gas market Regulation foresees the application of intertemporal cost allocation mechanisms only for hydrogen pipeline networks (i.e. other necessary hydrogen infrastructure, such as storage and terminals, is not included in the definition of hydrogen networks).

### **How does an intertemporal cost allocation mechanism work?**

The only existing intertemporal cost allocation mechanism to date is the [German WANDA scheme](#). The Danish regulatory authority (DUR), in collaboration with the hydrogen network operator Energinet, is also working on a similar mechanism that introduces a startup revenue cap. As hydrogen network development progresses, more member states may adopt intertemporal cost allocation mechanisms.

The primary goal of an intertemporal cost allocation mechanism is to mitigate high network tariffs during the ramp-up phase of the hydrogen market and to distribute the network costs in a fair way between the early adopters of hydrogen and future users. The mechanism works by shifting the recovery of a portion of the network annuities from the early years of operation to later periods. This is necessary since the revenues collected through the moderate tariffs set by the mechanism during the early years of low demand are not enough to cover the full costs. The deficits incurred during the initial ramp-up phase are typically placed in a separate regulatory account. This account is balanced over time as hydrogen demand increases and sufficient revenue is generated.

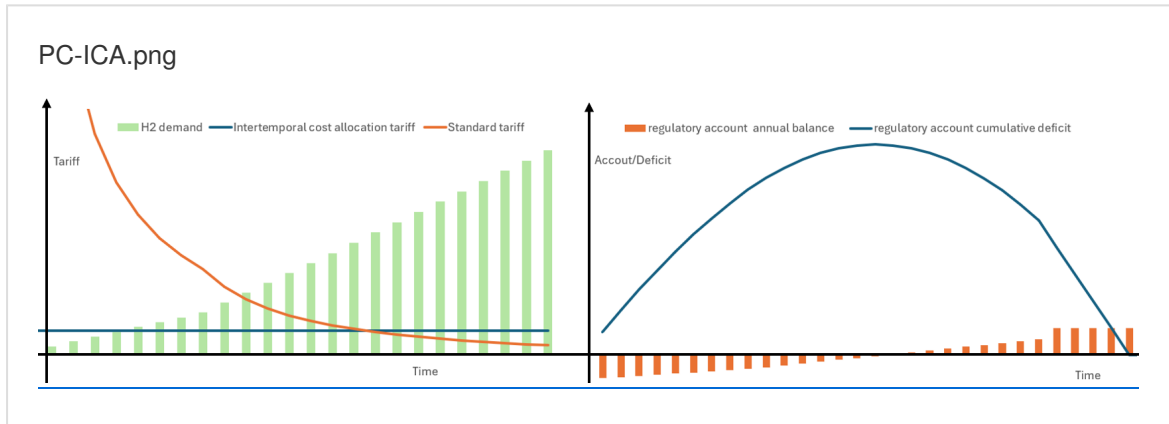
The intertemporal cost allocation mechanism may facilitate the development of the hydrogen market by keeping the network tariffs at affordable level during the early stages. However, this approach introduces significant risks for hydrogen network operators, as they are not able to recover their full costs during the initial years. This initial cost recovery gap can be financed by debt which is repaid with tariff over-recoveries in the future. Due to the high risks involved for hydrogen network operators, the intertemporal cost allocation mechanisms may also be complemented by additional support measures, such as state guarantees (2).

Notes:

(1) As a conceptual rule of thumb, the network tariffs can be considered as the division of the total network costs (e.g. in euros) divided by the utilisation of the network (e.g. in kWh/h/year).

(2) In the German scheme for example the liquidity is provided by the German development bank, KfW, via an "amortization account". While the intertemporal cost allocation mechanism foresees the recovery of the provided liquidity by 2055 solely via the network tariffs, the German Federal State provides additional guarantees in case this is not possible, up to a maximum share of 74%.

Figure 1: Illustrative example of an intertemporal cost allocation mechanism depicting on the right the difference between the standard tariff and a lower fixed tariff for the entire duration of the mechanism and on the left the annual balance and the cumulative deficit of the regulatory account.



## Introductory questions

---

**\* Name and Surname of the contact person**

Luisa Keßler

**\* Email address**

luisa@bellona.org

**\* Name of organisation / company**

Bellona

Type of organisation

- Governments,
- NRAs,
- Gas TSOs,
- HNOs,
- HDNOs,
- Gas DSOs,
- financial institutions (banks, funds etc),
- H2 producers,
- H2 users,
- H2 traders,
- industry associations consumer associations,
- academia,
- individual person,
- other (please specify)

**\* Please specify "other"**

Non-governmental organisation

**\* Country**

- EU-27
- Other

**\* Please specify the country**

- AT - Austria
- BE - Belgium
- BG - Bulgaria
- HR - Croatia
- CY - Cyprus
- CZ - Czechia

- DK - Denmark
- EE - Estonia
- EU - European Union, for associations covering all EU
- FI - Finland
- FR - France
- DE - Germany
- EL - Greece
- HU - Hungary
- IE - Ireland
- IT - Italy
- LV - Latvia
- LT - Lithuania
- LU - Luxembourg
- MT - Malta
- NL - Netherlands
- PL - Poland
- PT - Portugal
- RO - Romania
- SK - Slovak Republic
- SI - Slovenia
- ES - Spain
- SE - Sweden

## Data protection

ACER will process personal data of the respondents in accordance with [Regulation \(EU\) 2018/1725](#), taking into account that this processing is necessary for performing ACER's consultation tasks. More information on data protection is available on [ACER's website](#) and in [ACER's data protection notice](#).

ACER will not publish personal data.

## Consent to the processing of personal data

Your personal data may be processed by the Agency.

Please refer to [privacy statement](#) to learn about such processing and your rights.

## Confidentiality

Following this consultation, ACER will make public:

- the number of responses received;
- company names, unless they should be considered as confidential;
- all non-confidential responses; and
- ACER's evaluation of responses. In the evaluation, ACER may link responses to specific respondents or groups of respondents.

You may request that the name of your company or any information provided in your response is treated as confidential. To this aim, you need to explicitly indicate whether your response contains confidential information. **You will be asked this question at the end of the survey.**

I have read the information on data protection and confidentiality provided in this section.

## A. Risks underpinning the development of hydrogen networks

---

Infrastructure planning and development relies largely on demand forecasts over a long period of time. Long term commitments by network users can mitigate severe demand uncertainties and thus significantly improve projects bankability. In the case of hydrogen however, various risks discourage potential hydrogen users from agreeing to supply contracts with an adequately long duration to secure financing of hydrogen networks. Some commonly identified risks of the hydrogen sector are listed below:

- **Price risk**, driven by uncertainties over the competitiveness of green and low-carbon hydrogen as a feedstock or energy carrier. It is related to the cost of alternatives (e.g. cost of fossil fuels and CO<sub>2</sub> emission allowances), the cost of technology (electrolysers, storage, carbon capture and sequestration, renewable electricity) and to some extent also to regulatory provisions (e.g. renewable hydrogen sustainability rules).
- **Technology risk**, both in terms of the cost reduction potentials of production technologies (through innovation and up-scale) and in terms of alternatives for end-use technologies (e.g. direct electrification technologies for iron production could eliminate the need for hydrogen in the sector).
- **Lack of infrastructure**, including pipeline network, terminals and storage facilities, that restricts the deployment of hydrogen and prevents the development of efficient trade.
- **Regulatory risk**, related to the uncertainty and lack of clarity over the market rules (e.g. regarding network tariffs) or the current lack of harmonised approaches across the EU (and the anticipation of harmonisation rules in the future). Over-regulation and over-harmonisation may also constitute a barrier to the market development in these early stages.
- **Policy risk**, related to changes in the European and national policies, global hydrogen market dynamics and potential de-prioritisation of the hydrogen economy.

**1. In your view, what are the main risks faced the following parties:**

- **hydrogen end- users?**
- **hydrogen suppliers?**
- **hydrogen network operators?**
- **other hydrogen infrastructure developers (storage, terminals)?**

**Please elaborate.**

*1800 character(s) maximum*

- Taxpayer and system risks: Specific support to hydrogen infrastructure, including inter-temporal cost allocation mechanisms, has the potential to facilitate the first steps toward necessary hydrogen infrastructure, it also has a high risk of overinvestment in grid infrastructure that will ultimately be borne by taxpayers or consumers.
- Main risks faced by hydrogen end-users: uncertainty about quantity and price of eventually deliverable hydrogen amongst other things caused by a rather slow market ramp-up and lacking infrastructure development, leading to decreased investment security and the risk of making investments into hydrogen-powered processes that may not pay off in time. Furthermore, those industries that really need hydrogen to decarbonize their processes might suffer from competition by from sectors who might have a higher willingness to pay but could also electrify their processes.
- Main risks faced by hydrogen suppliers: low willingness to pay green premium and not being able to sell their hydrogen produced due to lacking infrastructure and visible demand.
- Main risks faced by hydrogen network operators: low network utilization caused by low hydrogen availability and/or demand, leading to stranded assets and hampering investment security
- Main risks faced by hydrogen infrastructure developers: low infrastructure utilization caused by low hydrogen availability and/or demand, leading to stranded assets and hampering investment security.

**2. What are the main reasons preventing hydrogen end-users from signing long term hydrogen off-take agreements? Please elaborate.**

*1800 character(s) maximum*

- A still incomplete regulatory framework both at the EU-level and in terms of national transposition of EU regulation might cause hesitancy amongst potential off-takers to sign long-term offtake agreements.
- Lack of certainty around infrastructure. Given that the infrastructure is still developing, potential off-takers might be concerned about the future reliability of and their connectivity to infrastructure. Furthermore, uncertainty around grid tariffs themselves might unsettle off-takers.
- Currently relatively high prices/lack of price stability compared to fossil fuels and the expectation that those prices would decrease over the period of long-term off-take agreements, making long-term off-take agreements at initially high prices unattractive. Industries that really need hydrogen to decarbonize their processes might suffer from competition by from sectors who might have a higher willingness to pay but could also electrify their processes. Furthermore, off-takers might fear that they might not be supplied with sufficient quantities of hydrogen after all, given the general market uncertainty around the industries scale-up.

**3. What are the main reasons preventing hydrogen suppliers from signing long term capacity booking contracts (e.g. ship-or-pay contracts)? Please elaborate.**

- A still incomplete and in parts potentially unstable regulatory framework. For instance, discussions around a potential early revision of the delegated acts defining production credentials for RFNBO, in particular additionality, are likely to be interpreted as regulatory uncertainty and too risky of an environment for hydrogen suppliers to enter long term capacity booking contracts and renewable electricity PPAs.
- Also the unwillingness on the off-taker side (see previous question) might inhibit negotiations on long term capacity booking contracts from maturing.

## B. Scope of intertemporal cost allocation mechanisms

---

Current market uncertainties prevent the development of hydrogen networks purely on market basis and hydrogen network is developed on a regulated basis. While the development of infrastructure is considered as an enabler of the EU hydrogen market, developing infrastructure in such uncertain framework, and with limited long-term commitments by network users, creates a risk for building a network that is later not fully utilised. Intertemporal cost allocation mechanisms could be enablers of network development however, they deal primarily with the demand ramp-up asymmetries and do not eliminate this risk. Developing infrastructure with a gradual ("incremental") approach (based on specific and more certain demand needs, possibly backed by binding commitments) might reduce the risk of future underutilisation. However, such an incremental approach could increase network development costs (untapped economies of scale) and prevent optimal market development.

### 4. What strategy is preferable for the development of hydrogen transmission networks?

- Gradual approach based on largely verified demand needs (e.g. binding off-take commitments).
- Core network developed at an early stage to allow for market development.
- Other (please elaborate)

#### 4.1. Please elaborate if other.

Hydrogen infrastructure should be established to connect major industrial demand centers with key supply hubs. Infrastructure has to be planned based on realistic hydrogen demand that respects the prioritisation of hydrogen to no-regret uses as well as additionality and consider the necessary additional renewable energy capacity deployment, rather than on wishful thinking of potential off-takers.

### 5. What criteria should be used to identify the infrastructure to be financed by inter-temporal cost-allocation mechanisms? Please elaborate.

- **Robust Demand Assumptions and Risk Assessment:** Infrastructure investment should be based on scientifically grounded, conservative demand projections, ensuring that public funds are allocated only to projects that are essential for decarbonising the economy, including by prioritising hydrogen for non-electrifiable industrial uses. Governments should hedge against risk only for infrastructure that is demonstrably necessary for industrial decarbonisation and not speculative.
- **Timeliness and feasibility:** Hydrogen infrastructure should be properly dimensioned; large enough to meet the needs of key demand centers but small enough to be developed within a reasonable timeframe. Where possible due to layout overlaps between planned hydrogen pipes and existing gas pipelines, repurposing should be considered to accelerate deployment and reduce costs.
- **Cost-recovery potential/cost effectiveness:** Investments should be assessed based on their likelihood of achieving financial sustainability without long-term public support. The mechanism should evaluate whether future users can contribute to cost recovery through user charges, taxation, or other financing mechanisms. To minimize financial risk to governments and taxpayers, infrastructure should be kept to the necessary minimum. Larger infrastructure projects carry a higher risk of underutilization, making cost recovery through network use less certain and increasing the burden on public finances.

**6. What measures, besides binding open seasons, can enhance the accuracy of hydrogen demand projections over time and consequently optimize the planning of hydrogen networks?**

- **Systemic and Integrated Approach to Energy Infrastructure Development:** Hydrogen network planning should not occur in isolation but as part of a cohesive energy system strategy. Aligning hydrogen infrastructure with electricity grids, CO2 networks, and industrial decarbonisation efforts ensures efficiency, prevents overinvestment, and maximizes synergies between different energy carriers, for example by facilitating the consideration of the impact of industrial electrification on energy carrier demand.
- **Scientific Demand Modeling and Scenario Analysis:** Demand projections should be based on rigorous modeling and scenario analysis, incorporating adaptive mechanisms that allow adjustments based on real-world developments, such as the public support that may be granted to different projects under the upcoming Clean Industrial State Aid Framework (CISAF). Currently we see a lack of systemically sensible demand planning for the hydrogen economy in general, exemplified not least by the latest European Court of Auditors report on the issue.
- **Cross-Border Coordination and Stakeholder Engagement:** Given the interconnected nature of future hydrogen markets, strong cooperation across borders is crucial. Coordinating infrastructure planning at the European level helps ensure compatibility, avoid redundancy, and enable efficient hydrogen trade. At the same time, continuous dialogue with stakeholders along the hydrogen value chain is essential to ensure that demand assessments reflect real market needs and investment intentions.

**7. Should an inter-temporal cost allocation mechanism be used for transmission networks, distribution networks or both? Please explain.**

**C. Intertemporal cost allocation network tariffs**

---

By shifting network cost recovery to the future, intertemporal cost allocation mechanisms aim to ensure that hydrogen networks can eventually be funded by network tariffs paid by network users. These network tariffs shall reflect the network financing needs and the willingness to pay of the users. To provide appropriate signals and incentives to network users and enable booking commitments, intertemporal cost allocation mechanisms should be designed to provide clarity and certainty on the cost for transporting hydrogen over their whole implementation period. At the same time, regular re-evaluations and re-calculations could help minimising the risk of revenue shortfalls due to a mismatch between initial assumptions and real developments, although potentially affecting the long-term certainty.

Intertemporal cost allocation mechanisms rely on investment and operating costs based on forecasts but uncertainties in demand and limited experience with developing hydrogen network might lead to significant differences between actual and projected costs. To facilitate network investments, operators can be safeguarded against such risk of cost overruns. However, this would possibly require a revision the network tariff levels which may have a negative impact on tariff certainty and stability.

**8. What tariff levels can be considered affordable and competitive in the early stage of the hydrogen market development and what methodology can be used to calculate these levels?**

We strongly encourage ACER to conduct a comprehensive review of existing research in addition to analysing the responses provided in this consultation, given major discrepancies in research: A study by Fraunhofer estimates hydrogen network tariffs in Germany to range between €20 and €30/(kWh/h)/a, depending on the assumed market ramp-up scenario. Based on this study, the German Bundesnetzagentur set the tariff at €25/(kWh/h)/a to support early market development. In contrast, an analysis by EWI projects a significantly higher long-term tariff of 1.8 cents/kWh by 2045 (inflation-adjusted), reflecting a fully developed hydrogen infrastructure with stable demand. It is important to acknowledge that the current German tariff is deliberately set at a lower level to ease the financial burden on off-takers during the initial market ramp-up phase. This contrast in estimates highlights the complexity of determining appropriate tariff structures over time.

**9. What design elements of the intertemporal cost allocation mechanisms can facilitate recovering the full investment costs in view of the sector’s uncertainties and the potential absence of long-term commitments?**

**10. How should the risk of potential cost overruns for infrastructure developed under intertemporal cost allocation mechanisms be dealt with and who should bear this risk (e.g. hydrogen network operators, users of the hydrogen network, state/governments)?**

**D. Cross border elements**

---

The hydrogen and decarbonised gas market package defines that as of 2033 the European hydrogen markets shall be organised according to the entry-exit model, largely similar to European gas markets. The package also envisages the development of market rules, including rules for harmonised hydrogen transmission network tariffs. In the absence of harmonised rules, the conditions established in the

intertemporal cost allocation mechanisms will impact hydrogen transported across EU member states (i.e. cross-border trade and market integration).

**11. What are the relevant cross-border impacts to consider when designing intertemporal cost allocation mechanisms?**

**15. Should intertemporal cost allocation mechanisms be harmonised across the EU? If yes which elements of the intertemporal cost allocation mechanisms should be harmonised (e.g. assessment of needs, tariff structures, duration)? Please elaborate.**

**13. Are locational signals (tariffs differentiated depending on the location in the network) relevant for the development of the hydrogen market?**

While the intertemporal cost allocation mechanisms are mostly national in scope, they may have cross-border effects as they influence cross-border trade and the EU market integration. Moreover, intertemporal cost allocation mechanisms may be designed to accommodate cross-border network infrastructure.

**14. What negative impacts on cross-border trade and market integration can result from the application of national intertemporal cost allocation mechanisms?**

**15. What type of coordination at EU level is necessary to enable cross-border trade and market integration when using intertemporal cost allocation mechanisms?**

**16. What are the key elements that should be considered when using intertemporal cost allocation mechanisms for cross-border infrastructure projects?**

## E. Final questions

---

**17. Which of the following elements of an intertemporal cost allocation mechanism are most important (select in order of importance, from high to low):**

*Use drag&drop or the up/down buttons to change the order or accept the initial order.*

⋮ Simplicity and understandability

⋮ Transparency and reproducibility

Stability and predictability

Flexibility and adaptability (scalable tariffs to ensure cost recovery)

Maintaining locational price signals (ensure cheaper supply routes are used first)

Other (please identify)

17.1. Please elaborate if other.

**18. Please provide any other view relevant to the topic of the consultation.**

*1800 character(s) maximum*

## Question on confidentiality

---

**\* ACER evaluates and may publish the received input. Do you consent that the submitted input is published?**

- Yes, ACER may publish the submitted replies.
- Yes, ACER may publish the submitted replies **anonymously**.
- No, ACER may not publish the submitted replies.

**\* Does your submission contain confidential information?**

- Yes
- No

## Useful links

[EU Hydrogen Strategy \(https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52020DC0301\)](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52020DC0301)

[German Wanda Scheme \(https://www.bundesnetzagentur.de/EN/RulingChambers/GBK/Level1/WANDA/start.htm#:text=The%20WANDA%20determination%20creates%20rules,investments%20in%20the%20core%20network\)](https://www.bundesnetzagentur.de/EN/RulingChambers/GBK/Level1/WANDA/start.htm#:text=The%20WANDA%20determination%20creates%20rules,investments%20in%20the%20core%20network)

## Contact

[Contact Form](#)



---

## CONTACT

### Luisa Keßler

Policy Advisor  
Sustainable Hydrogen Economy  
Bellona Deutschland

#### Phone

Mobile: +49 152 03059785

#### Online

Email: [luisa@bellona.org](mailto:luisa@bellona.org)  
Website: [de.bellona.org](http://de.bellona.org)

---

### Guillermo Ramo

Senior Policy Manager  
Energy Systems  
Bellona Europa

#### Phone

Mobile: +32 456 38 47 00

#### Online

Email: [guillermo@bellona.org](mailto:guillermo@bellona.org)  
Website: [eu.bellona.org](http://eu.bellona.org)

---

Bellona Europa is an independent, non-profit organisation that meets environmental and climate challenges head-on. We are result-oriented and have a comprehensive and cross-sectoral approach to assess the economics, climate impacts and technical feasibility of necessary climate solutions. To do this, we work with civil society, academia, governments and polluting industries.