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Position Paper

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

Version: final

The German Association of Energy and Water Industries (BDEW), Berlin, represents over 2,000 companies. The range of members stretches from local and communal through regional and up to national and international businesses. It represents around 90 percent of the electricity production, over 60 percent of local and district heating supply, 90 percent of natural gas, over 90 percent of energy grid as well as 80 percent of drinking water extraction as well as around a third of wastewater disposal in Germany.

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Contents

A Risks underpinning the development of hydrogen networks

1 In your view, what are the main risks faced by the following parties? Please elaborate. (1800 characters max.)

Overall

- Uncertainty regarding the development of the network infrastructure, network fees and the availability and costs of hydrogen
- Significant financial risks for all stages of the value chain due to difficult-to-predict market developments

Hydrogen end-users

- Uncertainty about economic areas of application in connection with high investment costs
- Risk of lock-in effect when committing to hydrogen
- For users without alternative decarbonisation options: Commitment to location can lead to loss of competitiveness

Hydrogen suppliers

- Complex certification requirements, uncertainty e.g. with regard to certification
- Uncertainty regarding the calculation of methane intensity and future changes to regulations
- Uncertainty regarding the development of consumption

Hydrogen network operators

- Demand risks
- Lack of an adequate return on the risks
- Dimensioning of the networks in line with demand
- Delay in creation and uncertainty regarding the stability of the regulatory environment
- Long lead times for the cancellation of network connections leads to delays in line conversions

Other Hydrogen infrastructure developers (storage, terminals)

- Similar to infrastructure operators
- Regulatory risks
- Risks in planning and public acceptance
- Storage: uncertainty regarding the timing of the switch to H2

2 What are the main reasons preventing hydrogen end-users from signing long term hydrogen off-take agreements? (1800 characters max.)

- The uncertainty surrounding hydrogen remains high, particularly due to unclear and changing political and market conditions.
- High production costs, missing technologies for certain hydrogen applications and uncertain development of prices and production capacities make long-term investments for the switch to hydrogen difficult.
- Uncertain certification requirements that are linked with yet-to-be-developed rules create uncertainty around which hydrogen types will be eligible, making it risky for end-users to lock into long-term agreements.
- Hydrogen remains significantly more expensive than fossil fuels, and price developments are unpredictable. There is a considerable gap between supply-side costs and demand-side willingness to pay (Funding gap). Existing funding instruments mainly target large industries like steel, leaving SMEs insufficiently supported despite their interest in hydrogen for decarbonization.
- Lack of continued financial support through e.g. CCFDs.
- Regulatory uncertainty adds further complexity, as current frameworks prioritize specific hydrogen types (e.g., RFNBO) while others remain marginalized.
- The mismatch between hydrogen network operators' investment cycles and end-users' planning horizons further complicates infrastructure development. End-users must register demand 5–10 years in advance, which is nearly impossible given current economic conditions.
- Due to currently high costs and predicted future price declines, the economically rational strategy is to observe market trends and wait for market stabilization. Thus, attractive contracts for end consumers need to be accompanied by certain guarantees,

which may make the contract economically unviable or entail significant risks for the supplier (frontrunner problem).

3 Main reasons preventing hydrogen suppliers from signing long term capacity booking contracts (e.g. ship-or-pay contracts)?

- Committing to long term capacity booking contracts would require suppliers to secure long term hydrogen supply contracts. The main reason this does not take place is that right now there is not much demand willing to commit to long-term supply contracts at the expected price levels.
- The unclear regulatory environment regarding renewable hydrogen and low-carbon hydrogen poses a high risk for suppliers. It’s unclear whether their hydrogen will still be eligible under future regulations, making it challenging to make binding infrastructure commitments like ship-or-pay contracts.
- There is limited availability of financial instruments, such as CCFDs, public guarantees, capacity booking subsidies, or risk-sharing models. Without such de-risking tools, suppliers bear full commercial risk if their production volumes are not matched by transport demand, making long-term bookings unattractive.
- Long-term contracts are more likely to be concluded with large industrial customers that have the necessary long-term demand and financial capabilities (incl. access to funding) to underpin cost-intensive investments into H2 production.
- Safeguarding economic viability of H2 projects – reducing competitive distortion with GHG quotas: Advanced H2 generation projects for refineries will become uneconomical due to price depression on the GHG quota market. Regulatory gaps to prevent abuse when considering non-European biodiesel imports towards the GHG quota are partly responsible for this.
- A major challenge is the realization of necessary transport infrastructure, leading to a "chicken-and-egg" problem: suppliers need guarantees for demand to invest, while buyers require infrastructure certainty before committing and face no pressure to commit at present.
- Similarly, energy aggregators (especially for natural gas), the so-called “midstreamers”, are already showing great interest in entering the hydrogen market but cannot assume the price and volume risks without additional hedging. To reduce investment risks, a combination of Contracts for Difference (CfD) and guarantees could help mitigate price

and volume risks, encouraging private investment. This market-oriented hedging would have the advantages of security of supply, risk mitigation, market access and development, efficiency, and structure.

B Scope of intertemporal cost allocation mechanisms

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

Option 2 is the preferable strategy: A core network with regular review of the necessity of individual sub-projects depending on further market developments is to be favoured. A regular review would appear to make sense in order to proactively counteract the inherent risks of the core network and the resulting losses for the network operator and the state (in the case of a pro rata state guarantee). At the same time, the core network is the best way to counter the chicken-and-egg problem.

A core network to be developed for each member state should not only take into account the transport network infrastructure, but also the distribution network infrastructure, as the majority of industrial and commercial customers are generally connected to this. A core network also creates security for market participants with regard to the availability of hydrogen transport capacity in large parts of the member state in line with demand.

Once a core network has been established, it is more likely that further network sections will be added gradually, based on verified demand forecasts (ongoing network development planning).

5 What criteria should be used to identify the infrastructure to be financed by intertemporal cost allocation mechanisms?

The criteria for identifying relevant parts of the network infrastructure to be financed intertemporally should be selected in such a way that an optimal structure of the overall system required for hydrogen utilisation is achieved. All network components (hydrogen transmission networks and distribution network infrastructure) should be able to participate in an ITCA mechanism. This is the only way to avoid discrimination or unequal treatment between the core network and other network components.

The infrastructure elements primarily serve in a (prospective) European hydrogen network

- the decarbonisation of the main industrial sectors, processes and customers and similar/other areas of application that rely on hydrogen and green gases
- the feed-in of hydrogen produced by onshore electrolysis plants
- the feed-in of hydrogen produced by offshore electrolysers or by methane pyrolysis

- the storage of hydrogen and
- CHP power plant sites to generate electricity for the entire energy system.

The future demand situation should be an important criterion for determining which infrastructure should be financed through ITCA mechanisms. Possible processes for recording future demand are answered under question 6.

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?

Hydrogen demand forecasts can be optimised using the following measures:

- Investment measures by future (large) customers to utilise hydrogen
- Where early binding H2 capacity bookings are not yet possible: An appropriate advance payment of reservation fees that can be offset against the fees for later utilisation
- Continuous demand coordination in the cascade of transmission and distribution network operators with (potential) industrial customers. The enquiries should contain information on the degree of realisation of the reported demand
- Timely coordination of power plant planning with network planning
- An integrated view and planning are necessary to rule out the possibility of customers requesting a connection to several networks for safety's sake or without realistic utilisation planning and the networks being expanded excessively and inefficiently as a result.
- Regular updating of heating plans and inclusion of the results of local authority heating plans in network development planning in order to identify requirements
- Continuous monitoring of planned projects and projects currently being implemented in order to be able to adapt network planning and network expansion at short notice
- Criteria in accordance with Section 28q (4) of the German Energy Act (Energiewirtschaftsgesetz – EnWG) (IPCEI, large-scale industry, etc.)

In this way, it is possible to successively record demand and continuously develop and expand the hydrogen network based on the respective demand situation.

7 Should an intertemporal cost allocation mechanism be used for transmission networks, distribution networks or both?

To the extent that there is demand for hydrogen and suppliers can meet this demand, Member States should be able to enable the basic mechanism for both transmission and distribution networks, given the challenge of an initially small number of customers for network operators at all network levels. In Germany, around 500 companies obtain their gas directly from the transmission gas pipelines. However, around 1.4 million commercial and industrial customers are connected to the gas distribution network. In order to take regional differences into account, it is important that network operators have the freedom to choose whether they want to make use of the intertemporal cost deferral. Network areas with a rapid market ramp-up will presumably be able to cover their costs earlier and therefore may not require a cost shift into the future. In contrast to the German hydrogen core network, a future intertemporal cost allocation mechanism should therefore also work specifically for the respective network operator and not across all network operators. The core element of such a mechanism is that the temporal decoupling of costs and revenues is safeguarded by government measures (see answer to question 9).

The ITCA is only one method of ensuring the initial financial viability of hydrogen infrastructure development. Other approaches should also remain open to Member States, such as those provided for in Article 5 of the EU Gas Regulation. The respective advantages and disadvantages of the different instruments should be thoroughly analysed by the Member States and applied according to local circumstances.

Member States should also be able to use the basic mechanism for other parts of the hydrogen infrastructure, such as storage facilities.

C Intertemporal cost allocation network tariffs

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

In the early stages of hydrogen market development, tariff levels should be designed to balance affordability and competitiveness while ensuring cost recovery for infrastructure investments. This will also encourage the entry of potential new customers into the hydrogen market. Additionally, uniform tariffs should be preferred.

The appropriate tariff level will depend on factors such as location, market price levels (incl. available funding), transport/hydrogen demand development, commitment levels from users and the total duration of the cost allocation mechanism.

To support market uptake, investment costs for infrastructure should be recovered over extended periods, ensuring that peaks in annual network fees are avoided. This is particularly crucial as end users will not only face energy supply costs (trading + network) but also significant investment requirements for converting their facilities from natural gas to hydrogen.

Rather than focusing solely on tariff calculation, the methodology should prioritize bridging the gap between real costs and marketable tariffs. This can be achieved through:

- Risk-sharing mechanisms or guaranteed returns by governments/regulators to mitigate investor risks.
- Incentive structures to encourage early investment and off-take.
- Justified higher returns on equity (RoE) to attract investment.
- Long-term financing models with attractive initial tariffs to incentivize market entry.

A well-balanced tariff approach will be essential in facilitating the ramp-up of hydrogen infrastructure and ensuring a competitive and sustainable hydrogen market.

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?

A well-structured cost allocation mechanism could include guarantees by Member States and/or municipalities to mitigate the investment risks, following the example of the ITCA of the German hydrogen network. It could also involve limited financial transfers to kick-start investments into the hydrogen network.

Revenues from the emission trading scheme could be used to cover the costs of a hydrogen network. Revenue gaps could also be covered by public loans (e.g. KfW) with low interest rates and long amortization periods, minimizing risks for investors. Government guarantees could be put into place to further mitigate investment risks. Creating low risks, predictability and stability in the market should be at the center of the chosen strategy.

Cost coverage from the mechanism should be limited to viable projects underpinned by sufficient bookings or reasonable commitments. This would ensure that the balance of risks and profits for the entire period is maintained. The initial tariff should only be adjusted if necessary to ensure the repayment of the cost coverage to provide as much certainty as possible for market participants.

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)?

Firstly, it is crucial to set up a planning process that is as solid as possible at the beginning of the infrastructure development process based on the measures described in question 6, taking into account actual requirements (in an iterative interplay of bottom-up and top-down approaches) and to revise this regularly based on actual developments. This can reduce the risk of a mismatch between developed infrastructure and utilisation from the outset.

In addition, the state should ensure a stable energy policy framework in order to create an environment that provides planning security for investors. Sharp changes in the orientation of energy policy, such as sudden adjustments if climate targets are not met, can lead to consumers being unsettled and the ramp-up and utilisation of hydrogen not taking place to the extent anticipated.

The aforementioned measures can only be influenced by the Member States, which suggests that they should also assume a high share of the risk of failure. It should also be borne in mind that if there is a high level of uncertainty about future (transport) costs for consumers, transport customers or network operators, the hydrogen ramp-up and network expansion will not take place or will only take place slowly. Users or network operators should therefore only be expected to bear increased transport costs to a limited extent.

It should also be noted that in Germany, for example, some distribution network operators are (proportionately) in municipal hands. The liability of a distribution network operator for the failure of the hydrogen ramp-up in other network areas seems hardly conceivable, especially if the distribution network landscape is characterised by a large number of players. There should therefore be no solidarity of risks among the distribution network operators. This consideration therefore also speaks in favour of at least proportionate allocation of the default risk to a central government agency.

D Cross border elements

11 What are the relevant cross-border impacts to consider when designing inter-temporal cost allocation mechanisms?

With regard to intertemporal cost allocation, the extent to which the amortisation account model developed for Germany could be transferred internationally or applied at European level should be examined for cross-border projects and, in particular, for strategically important hydrogen import routes (hydrogen corridors).

12 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)?

The future hydrogen system will probably not be organised nationally, but across borders or Europe-wide. Various import corridors will develop, which will require co-operation between countries. It will be important to create a market that is as large and liquid as possible.

Harmonisation of the intertemporal cost allocation mechanisms between the different countries is not absolutely necessary for this. It will be difficult to realise anyway due to the likely different starting times for the ramp-up of the hydrogen infrastructure. However, it should be ensured that different timing of the H2 infrastructure ramp-up or different forms of ITCA mechanisms do not stand in the way of a large, liquid H2 market and the realisation of cross-border infrastructure projects. In order to achieve this, a comparable level of transparency requirements should be established in all countries.

Even if a synchronisation of the H2 infrastructure ramp-up in all countries does not appear feasible, an agreement on fundamental elements of ITCA mechanisms could be advantageous, at least for the level of the H2 transmission networks, for example on the time component of the cost allocation mechanism. Particularly long or particularly short observation periods in one country would lead to particularly low or particularly high tariffs there. Structurally different tariff levels could have a negative impact on the development of the overall system, especially if significant transit countries are affected.

However, even if the basic elements are harmonised, it should still be possible to adapt the characteristics of these elements in the individual countries to national requirements. This applies in particular if the ramp-up of the infrastructure and H2 market development in different countries takes place at different times.

The respective national estimates should also play a leading role in the demand forecasts, as they always depend on energy policy decisions. Assuming that energy policy decisions will continue to be made by the individual member states, the development of H2 demand in the individual countries can vary greatly. It is important to take the individual requirements into account appropriately in joint projects. The demand determined in a Member State should be taken into account in the same amount in the transport requirements of transit countries. In this way, infrastructures can be created efficiently and bad investments can be reduced.

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

In principle, the charge for supra-regional transport within a member state or market area should be designed to be independent of the transport route.

Settlement policies for the regional or local promotion of purchase, production or import centres of individual industries should not be implemented via the H2 network charges, but through other measures.

Differences in the costs for network customers can arise from network area to network area in the form of participation in the costs for connection to the transport infrastructure.

In the interests of optimising the functioning of the cross-sectoral energy system, consideration could also be given to providing signals in the electricity grid for the construction of electrolysers at locations that are favourable from a grid perspective, for example through corresponding incentives in electricity grid charges or construction cost subsidies or through direct state support for the construction of electrolysers.

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

National ITCA mechanisms would have an impact on cross-border trade and market integration if they affected the decisions of network users. Theoretically, it is conceivable that network users could decide against certain import or trade routes in favour of other routes if the conditions for using the H2 infrastructure in the countries through which these routes pass differ greatly. This would be conceivable if the network fees were to vary significantly. Such different levels could arise, for example, if some countries apply an ITCA mechanism while others do not, or if the time frames of the ITCA mechanisms differ greatly.

However, especially at the beginning of pipeline-based H2 utilisation in Europe, it is not to be expected that the H2 network fees will have an influence on the choice of import or trade routes. For the supply of many regions, the number of possible import routes will be limited anyway (at least initially). It can therefore not be assumed that national ITCA mechanisms will have a (negative) impact on cross-border trade or market integration. Therefore, as already mentioned in question 12, harmonisation of the ITCA mechanisms between the different countries is not necessary.

However, in order to realise a large, liquid H2 market, a comparable level of transparency requirements should be established in all countries.

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

In principle, the Member States should not be restricted in their sovereignty with regard to their decisions on the path to a climate-neutral economy. However, cooperation and regular dialogue on the development of H2 infrastructure and on the design of the mechanisms for its financing is expedient.

The ITCA mechanisms should remain limited to supporting the development of H2 infrastructure. The H2 market, on the other hand, should be allowed to develop freely and regulatory intervention should be limited to what is necessary.

As the H2 market is still in its early stages, it is still too early to judge when and where sufficient liquidity will arise to justify harmonising market rules.

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

In the case of central, joint financing of a cross-border infrastructure, the allocation of costs can be based, for example, on the identity of use (see also answer to question 11). In addition, separate (national) financing of the sections is possible. However, risk shifting between neighbouring H2 transmission system operators must be avoided.

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):

1. Other: de-risking of investments e.g. by state guarantees
2. Simplicity and understandability
3. Transparency and reproducibility
4. Stability and predictability
5. Flexibility and adaptability (scalable tariffs to ensure cost recovery)
6. Maintaining locational price signals (ensure cheaper supply routes are used first)

18 Please provide any other view relevant to the topic of the consultation (1800 characters max.)

The introduction of a broad mix of instruments is the right way forward. It should also be possible to establish an intertemporal cost allocation mechanism for the development of new hydrogen infrastructures at distribution network level.

At the same time, the regulatory framework for the conversion of existing gas distribution network infrastructures should be optimized. In addition, further measures should be developed to take regional characteristics into account and optimize network expansion.

In addition to the intertemporal distribution of costs for the development of hydrogen infrastructure, the individual Member States should also make use of the option to examine financial transfers in accordance with Article 5 (4) of the EU Regulation (see also question 7).