

Competitive Bidding schemes for hydrogen under the Innovation Fund - survey

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1. Introduction

The Innovation Fund (IF) is one of the world's largest funding programmes for the demonstration of innovative low-carbon technologies. The Fund aims to demonstrate and commercialise innovative industrial solutions to decarbonise Europe and support its transition to climate neutrality. Financing of the IF is provided by revenues from auctioning emission allowances from the EU Emission Trading System (ETS) and remaining funds from the predecessor programme (NER300). Until now, the IF has used a selection procedure based on award criteria defined in its legal basis and call-specific scoring and ranking mechanisms.

The proposal of the ETS Directive put forward as part of the [Fit-for-55 package in 2021](#) foresees the introduction of **competitive bidding mechanisms** (i.e. auctions) to award funding. The objectives of the competitive bidding mechanism are four-fold:

1. Cost efficient way of distributing financial support.
2. De-risking projects and leveraging private capital into them.
3. Price discovery and market formation.
4. Reducing administrative burden.

Auctions have been a major success story in the power sector in many Member States, bringing down the funding needs for renewable power. Based on the REPowerEU Plan, **the first pilot auctions under the Innovation Fund will target renewable hydrogen production and transition to hydrogen-based production processes in new industrial sectors**. The future auctions will bring hydrogen a step further in the direction of full roll-out by the private sector in the EU. Such auctions under the umbrella of the Innovation Fund are currently considered as a main implementation option for the domestic side of the "Hydrogen Bank". As renewable hydrogen can be used as an energy carrier and/or a feedstock in many sectors and appliances across the energy system, the cross-sectoral perspective sought under the Innovation Fund is still ensured. In the industrial uptake case, both renewable and low-carbon hydrogen could be targeted.

The support for hydrogen supply or demand would be determined through the auctions and paid out as "operational support" during the project's economic lifetime (in contrast to IF grants that are paid based on pre-agreed milestones, which could be at the investment stage) and thus reduce future OPEX or revenue

risks of successful bidders. The bidders are free to decide how much of the funding gap costs to include in their bid (up to 100%).

2. About this public consultation

This survey offers industry stakeholders in the hydrogen value chain (electrolyser and/or component manufacturers, hydrogen producers and off-takers) as well as financiers, public authorities, academia and other relevant stakeholders an opportunity to express their views on the possible design of the competitive bidding schemes outlined above. This survey follows the [Stakeholder Workshop organized on 21st of November 2022](#).

Your feedback will contribute to the forthcoming development of the economic design of the pilot auctions under the Innovation Fund.

In Section A the questionnaire gathers information about the respondent. Section B refers to the general questions on the auctions' design option choices for the hydrogen sector while Section C and D refer to specific auction designs for hydrogen supply and demand, respectively. Section E offers room for general final remarks and arguments for the choice of responses. Each section should take around 5-10 minutes to complete. You can also attach papers/documents to support your views in Section E.

Previously, in preparation for the Stakeholder Workshop on 21st of November, an input paper was prepared which provides more context and information about the options discussed below. You can find the input paper below.

The input paper:

[2022_11_21_Input_paper_for_workshop_lowdef.docx](#)

You can choose to fill in the questionnaire in one of the following capacities:

- As a **producer or project developer of hydrogen production**,
- As a current or future **hydrogen off-taker**, including in industry, transport and other sectors,
- As a current or future **integrated hydrogen project**,
- **As manufacturer of** equipment/components for hydrogen production (i.e. electrolysers), or
- **As a different stakeholder** (public authority, academia, financier, consumer organisation, non-governmental organisation, trade union, other) with a perspective on the whole hydrogen market.

Please note that some questions are directed only to hydrogen producers or offtakers.

If you have any questions about this consultation, please email them to CLIMA-IF-EXPERTGROUP@ec.europa.eu indicating 'Competitive Bidding - survey' in the subject line.

This survey will close on 22/01/2023 (midnight).

Thank you for your interest and time,

The Innovation Fund Team

SECTION A. Information about the Respondent

The Commission has the option to publish anonymized and aggregated results of this survey. No personal or commercially sensitive data is requested and all information will be kept strictly confidential. Survey replies will have no impact on possible future bids in the auction or applications for grants under the Innovation Fund.

No survey replies will be identified during the application process of projects and only aggregated results will be used.

I agree with the personal data protection provisions

[Privacy Statement Survey on Competitive Bidding.pdf](#)

* First Name

This information will not be published

Caterina

* Surname

This information will not be published

De Matteis

* Email

This information will not be published

cdm@iogp.org

* Organisation name

330 character(s) maximum

IOGP EUrope

* Country of origin of your organisation

Please add your country of origin, or that of your organisation.

This list does not represent the official position of the European institutions with regard to the legal status or policy of the entities mentioned. It is a harmonisation of often divergent lists and practices.

Belgium

* I am giving my contribution as:

As a different stakeholder

You can specify your answer further:

SECTION B: General Questions

For the competitive bidding scheme, the Commission is considering both supply-side as well as demand-side options. As a short summary, an explanation of key auctions configurations considered is provided below:

In a **supply side Contract for Difference**, the hydrogen **producer** can bid. If the producer wins the auction, they would get the strike price minus the reference price, calculated in EUR/kg of hydrogen produced. As a result, the strike price can take away some risk from the producer, as the granted pay-out is adjusted to fluctuations in the reference price. The strike price can also provide an additional subsidy as a top-up to the market price.

An alternative to using a reference price would be to have a **fixed premium** awarded in the supply side auction. In this scenario, the producer of hydrogen would receive a set price in EUR/kg of hydrogen produced, which would remain constant throughout the support period.

As opposed to an auction for the producers of hydrogen, using a **Carbon Contract for Difference for the off-takers/users of hydrogen** is also being investigated albeit for the later period following the pilot auctions. In this bidding scheme, off-takers can bid based on a price in EUR/kg CO₂ abated thanks to the hydrogen input in a given process. The reference price would be the EU ETS allowances price in this scheme.

More information about possible auction configurations on both supply and demand side can be found in the input paper published under SECTION A.

- * **1) Which function(s) should the support awarded through pilot auctions fulfil under the Innovation Fund? It should:**
- Hedge against price volatility in the reference price.
 - Hedge against inputs/outputs price risks.
 - Cover the funding gap.
 - Difficult to assess at this stage.
- * **2) Should hydrogen transport infrastructure costs be part of the bidding price under IF pilot auctions?**
- Yes, and it is up to the bidder to include or not the funding gap related to hydrogen transport infrastructure in the bidding price.
 - No, because there will be no level playing field between projects that have no infrastructure costs and those that have them.
 - No, because there are other support mechanisms for supporting hydrogen infrastructure.
 - Difficult to assess at this stage.
- * **3) Knowing that the support to be awarded via auctions under the Innovation Fund could close the entire funding gap, which forms of public support could be allowed for cumulation?**

- No other forms of public support should be allowed for cumulation with support to be awarded via IF auctions.
- Support under GBER.
- Direct project specific State aid (e.g. IPCEI type).
- Attractive loans by national promotional banks or the EIB.
- National targets/green procurement/lead markets or other that lead to a green premium for offtake agreements.
- Other, please specify below.

Please specify your answer:

Where multiple funding schemes are accessible for hydrogen production projects, a level playing field between the competing production projects needs to be maintained.

*** 4) Which general **auction configuration** would you find most attractive for IF pilot auctions (in 2023-25)?**

More information on the different auction designs can be found in the input paper, which can be downloaded in SECTION A. More detailed questions will be asked further below.

- Supply-side auction using CfD
- Supply side fixed premium
- Supply-side auction using CCfD
- Supply-side auction for electricity using CfD
- Demand-side auction using CfD
- Demand-side fixed premium
- Demand-side auction using CCfD
- Joint supply and demand-side auction
- Double-sided auction (for both the supplier and offtaker)
- Difficult to assess at this stage

*** 5) What should the **minimum length of the provided subsidy time** be to foster bankability and financial viability?**

Only values between 0 and 20 are allowed
calculated from the Entry into operation, i.e. beginning of the production

Years

SECTION C: Questions on a competitive bidding scheme for the production of hydrogen

Following the questions on the overall design issues, this section will focus on the supply-side design options. Below you will find a short summary of the supply-side auction:

In a **supply side Contract for Difference**, the hydrogen producer can bid. If the producer wins the auction, they would get the strike price minus the reference price, calculated in EUR/kg of hydrogen produced. As a result, the strike price can take away some risk from the producer, as the granted pay-out is adjusted to fluctuations in the reference price. The strike price can also provide an additional subsidy as a top-up to the market price.

An alternative to using a reference price would be to have a **fixed premium** for the supply side auction. In this scenario, the producer of hydrogen would receive a set price per in EUR/kg of hydrogen produced, which would remain constant throughout the support period.

*** 6) Auctioned goods: What type of hydrogen should be supported through the supply-side IF pilot auction?**

- Renewable hydrogen, in line with REDII revision and currently proposed Delegated Acts
- Biogenic hydrogen (from biomass)
- Hydrogen from existing hydropower
- Low-carbon hydrogen, including "blue" hydrogen (i.e. with CCS)
- Low-carbon but excluding "blue" hydrogen
- Other, please specify below
- Difficult to assess at this stage

Please specify your answer:

Framework design must ensure level playing field between hydrogen sources. CCFD auctions must be hydrogen-colour agnostic.

*** 7) What size of minimum hydrogen capacity to be built should be required to participate in the supply-side auction?**

- 1 MW
- 5 MW
- 10 MW
- 20 MW
- Minimum threshold should be expressed in output (tonnes), please specify the output below
- Difficult to assess at this stage

*** 8) When supporting hydrogen production, which sectors of hydrogen consumptions should be targeted?**

- All industrial sectors covered by ETS
- Refineries Power to Gas, Power to Liquid production
- Steel sector
- Chemicals sector (including ammonia)
- Transport: heavy duty vehicles
- Transport: light duty vehicles
- Transport: maritime
- Transport: aviation
- Other, please specify below.
- Difficult to assess at this stage

Which sectors should be targeted?

With regard to hydrogen we take the view that the market should decide where it is used. This ensures best that H2 is used first where the need for it is highest.
The Innovation Fund provides an opportunity to support industrial competitiveness in Europe and to protect from carbon leakage.

* 9) Which **prequalification conditions** would have to be met to participate in the auction?

- Legal personality
- Relevant previous experience
- Financial health
- Size of turnover
- Bidding deposit
- Having a Power Purchase Agreement with a renewable electricity producer
- Having a Memorandum of Understanding/Lol for an offtake agreement
- Key elements of financial model
- The needed environmental and building permits
- Grid connection
- Declaration that the applicant produces the hydrogen
- Other, please specify below
- Difficult to assess at this stage

Which prequalification conditions would you like to add?

Other requirements such as power purchase agreement, grid connection and permit can be considered as part of the application process and as award criteria. We would request the Europe Commission to consider in the definition of grid connection not only power grid, but also pipelines for connection to natural gas /hydrogen grid.

* 10) If a **supply-side auction using CfD** is chosen to be awarded under an IF pilot auction (in 2023-25), which **reference price** would be best suited to hedge price risks?

- Natural gas price (TTF, market price)
- Grey hydrogen price (OTC index, market price)
- Synthetic grey hydrogen price, based on SMR costs and TTF price
- Project specific offtake prices CO2 price (with a bid on EUR/CO2_abated, rather than kg of hydrogen produced)
- Electricity price
- Other, please specify below
- Difficult to assess at this stage

Please specify your answer:

All the first four options (Natural gas price (TTF, market price); Grey hydrogen price (OTC index, market price); Synthetic grey hydrogen price based on SMR costs and TTF price; Project specific offtake prices CO2 price (with a bid on EUR/CO2 abated, rather than kg of hydrogen produced)are relevant and we believe that the Commission should only choose reference prices when the auction type will be defined.

* 11) For the auction on the production of hydrogen, would the usage of the **fixed premium be preferable to the usage of a reference-price-based CfD?**

You can assume that the reference price would be the one you choose in question 10.

- Fixed premium is preferable
- Contract for Difference is preferable
- Difficult to assess at this stage

* **12)** A Fixed Premium or Contract for Difference can also include an **indexation of the strike price**. What is your view on the indexation of the strike price in this supply-side CfD format?

- It is not necessary
- Indexing could be useful, in particular to..., please specify below
- Difficult to assess at this stage

Please specify your answer:

Indexation must be possible in particular to reflect inflation, natural gas or electricity prices.

* **13)** Should there be a limit to the amount of **hydrogen output of a single bidder** to be awarded in the supply-side auction?

- No
- Yes, please specify the maximum level of output below
- Difficult to assess at this stage

SECTION D: Questions on a competitive bidding scheme on the demand side (focus on Carbon Contracts for Difference)

As opposed to an auction for the producers of hydrogen, using a Carbon Contract for Difference for the **off-takers/users of hydrogen** is also being investigated albeit for the later period following the pilot auctions. In this bidding scheme, off-takers can bid based on a price in EUR/t CO₂ abated thanks to the hydrogen input in a given process. The reference price would be the EU ETS allowances price.

* **14)** For which sectors do you foresee a Carbon Contract for Difference scheme to be effective in supporting energy-intensive entities to deploy low-carbon technologies?

You can assume that free allowances will be given out for low-carbon technologies as well.

- All sectors covered by the ETS
- Refining sector
- Chemicals
- Metals
- Cement
- Glass and ceramics
- Paper
- Other, please specify below
- None
- Difficult to assess at this stage

* **15)** Could the CCfD scheme for a sector target only hydrogen consumption or should it be open to other decarbonisation solutions?

- Only hydrogen consumption
- All decarbonisation options
- Difficult to assess at this stage

*

16) Which types of hydrogen should be within the scope of the demand side Carbon Contract for Difference scheme?

- Renewable hydrogen, in line with the Delegated Acts in RED II
- Biogenic hydrogen (from biomass)
- Hydropower hydrogen
- Low-carbon hydrogen, including “blue” hydrogen (i.e. with CCS)
- Low-carbon but not “blue” hydrogen
- Other, please specify below
- Difficult to assess at this stage

* 17) What would be the **preferred way to measure the abated emission** on which the payment is based?

- Comparing the hydrogen to the ETS Benchmark of the sectors
- Calculation of abated emissions on project-level, using a pre-defined methodology e.g. from Innovation Fund
- Coming up with an average abatement per kg hydrogen per sector through an external research party
- Difficult to assess at this stage

SECTION E: General final remarks

* 18) Would you like to include a position paper/other documents or provide further arguments to support your statements or argue your choices of responses?

- Yes
- No

This is an optional text box to submit your arguments.

Market based support schemes can facilitate the the scale-up of hydrogen production in Europe to achieve climate neutrality targets. These supporting schemes are an important contribution to the energy transition in Europe and they can contribute to keep European industrial competitiveness while avoiding and carbon leakage.

When designing new funding support mechanisms it is important these are kept technology open. Framework design must ensure level playing field between hydrogen sources. CDfD auctions must be hydrogen-colour agnostic.

Supply and demand side should be both part of this scheme to improve the available to make hydrogen value chain economically viable.

For more information on the role of hydrogen in achieving climate neutrality targets please consult the Hydrogen For Europe study at the following website: <https://www.hydrogen4eu.com/>

The study (developed by Deloitte, Sintef and IFP Energies Nouvelles) assess which mix of hydrogen technologies can best contribute to the EU’s current and future energy landscape – and what support is needed to enable it.

Please upload your file(s)

If you run into issues with uploading, feel free to send us an email at: CLIMA-IF-EXPERTGROUP@ec.europa.eu

19) Do you have any concrete projects in mind to bid for the auction? Can you provide a basic description of this project? What risks the project coming to fruition?

This question is optional

You can upload supporting files here

Background Documents

[Input paper on design options](#)

Contact

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