# Innovation Fund Expert Group

**Hybrid meeting**
**The event will start at 10:00 CET**

*27 June 2024*

*Disclaimer: this meeting is being recorded.*

*Please indicate your Member State or organisation followed by your name/surname on Webex.*

# Innovation Fund Expert Group
# Welcome

Stefanie Hiesinger, DG CLIMA, Head of Unit - C.2 - Low Carbon Solutions (II): Research & Low Carbon Technology Deployment

*27 June 2024*

# Event Agenda

10:15 – 10:35 | 1 | Presentation of the IF23 Auction on RFNBO Hydrogen - Results

10:35 – 11:00 | 2 | IF24 Auction on RFNBO Hydrogen Draft Terms & Conditions and Auctions-As-A-Service

Coffee Break

11:15 – 11:45 | 3 | Outcome of the Stakeholder Consultation and 2024 Call for Grants, including batteries instrument

11:45 – 12:30 | 4 | Simplification of the application process (including the GHG methodology)

12:30 – 12:45 | 5 | Planning and next steps

Lunch Break

European Commission

# Procedural aspects

- All presentations, agenda, minutes, answers to written consultations, will be made public in the Registry of Expert Groups.
- Request for **written consultation by 11 July 2024**, especially on the following:
  - ❑ IF24Batteries Call: additional award criteria, GHG methodology scope;
  - ❑ Simplification of the IF process.

clima-innovation-fund@ec.europa.eu


Stakeholder feedback is requested by 28 June 2024.

# Innovation Fund Expert Group
# Welcome

Alexandre PAQUOT, DG CLIMA, Director C – Innovation for a Low Carbon, Resilient Economy

*27 June 2024*

# INNOVATION FUND

*Funded by the EU Emissions Trading System*

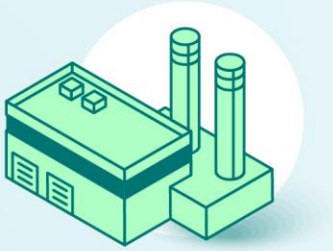
*Deploying innovative net-zero technologies for climate neutrality*

€40 billion* available between 2020-2030

grants awarded through regular calls and auctions


avoid GHG emissions, boost competitiveness

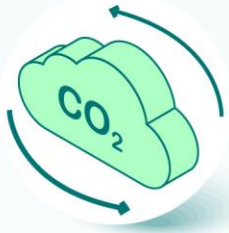
***supporting innovation in:***



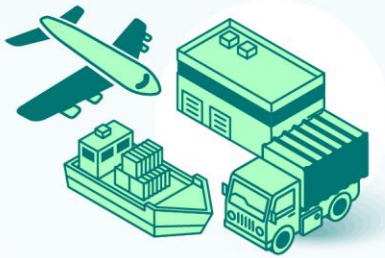
Energy-intensive industries

Renewable energy

Energy storage




Carbon capture, use and storage

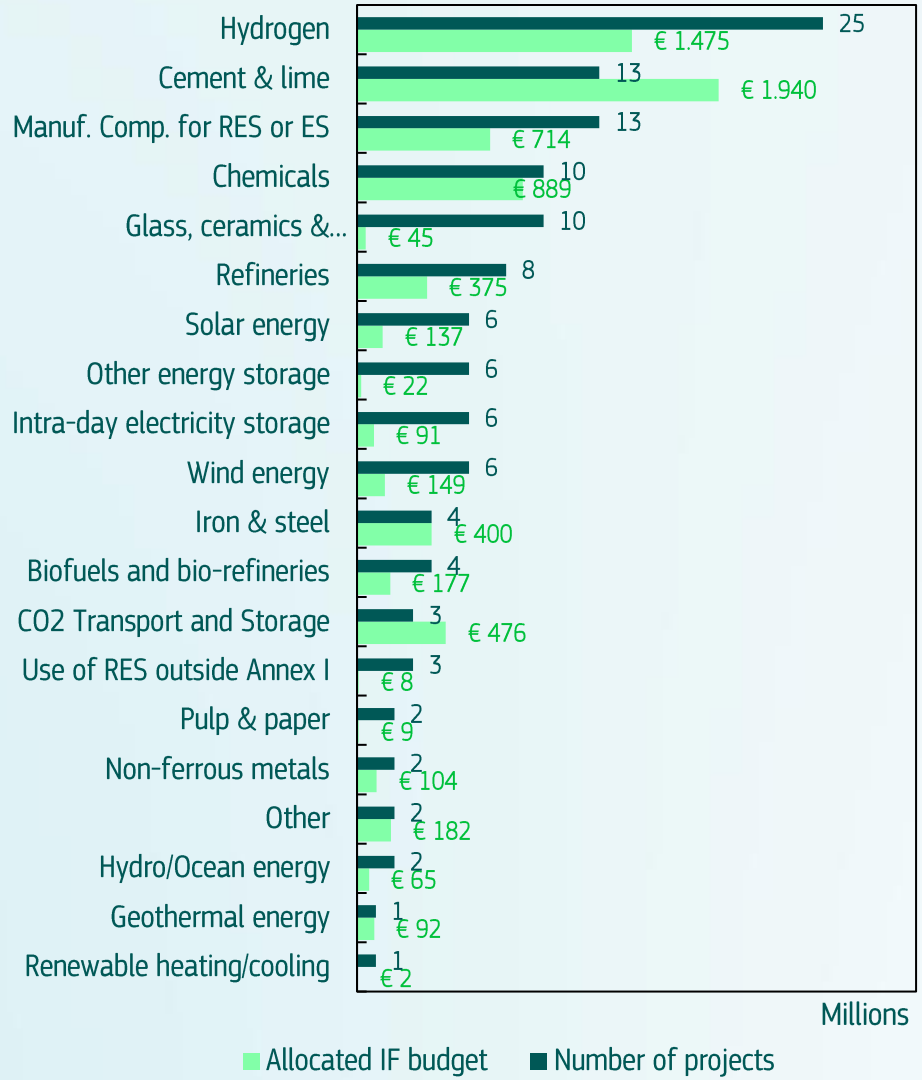


Net-zero mobility and buildings

*based on a carbon price of €75/tonne

# IF Portfolio: ongoing + selected projects*

**Distribution of projects and allocated EU budget per sector**




**24 Countries***

**~457 Mt $CO_2$ eq to be avoided***

**€ 7.35 Billion EU granted + under GAP***

**Projects: 118 ongoing + 9* under GAP**

**Data includes ongoing projects + selected proposals currently under grant agreement preparation (GAP) : 2 from SSC-2022 and 7 from IF23-AUC-RFNBO-H2*

European Commission

*Last update: 20 - June -2024*

# The Innovation Fund can support urgent policy priorities, but holds a long-term line of bottom-up support across sectors




- **European Hydrogen Bank:** domestic auctions for renewable hydrogen under the Innovation Fund.
- **Net-Zero Industry Act**: clean tech manufacturing topic (€700 million in 2022, €1.4 billion in 2023).
- **Wind package:** clean tech manufacturing topic and project development assistance.
- **Strategic Technologies for Europe Platform (STEP):** STEP Seal for Innovation Fund projects.
- **Industrial Carbon Management (ICM) Strategy:** support for CCUS deployments since 2020.

# NEW: EUR 3 billion over 3 years for battery manufacturing in Europe

Following announcement from EVP Šefčovič, the Commission is preparing how to operationalise the support.

Stakeholder events were organised on 25 April and 11 June to understand better the needs of the sector and what type of support from IF would be most appropriate. As a result:

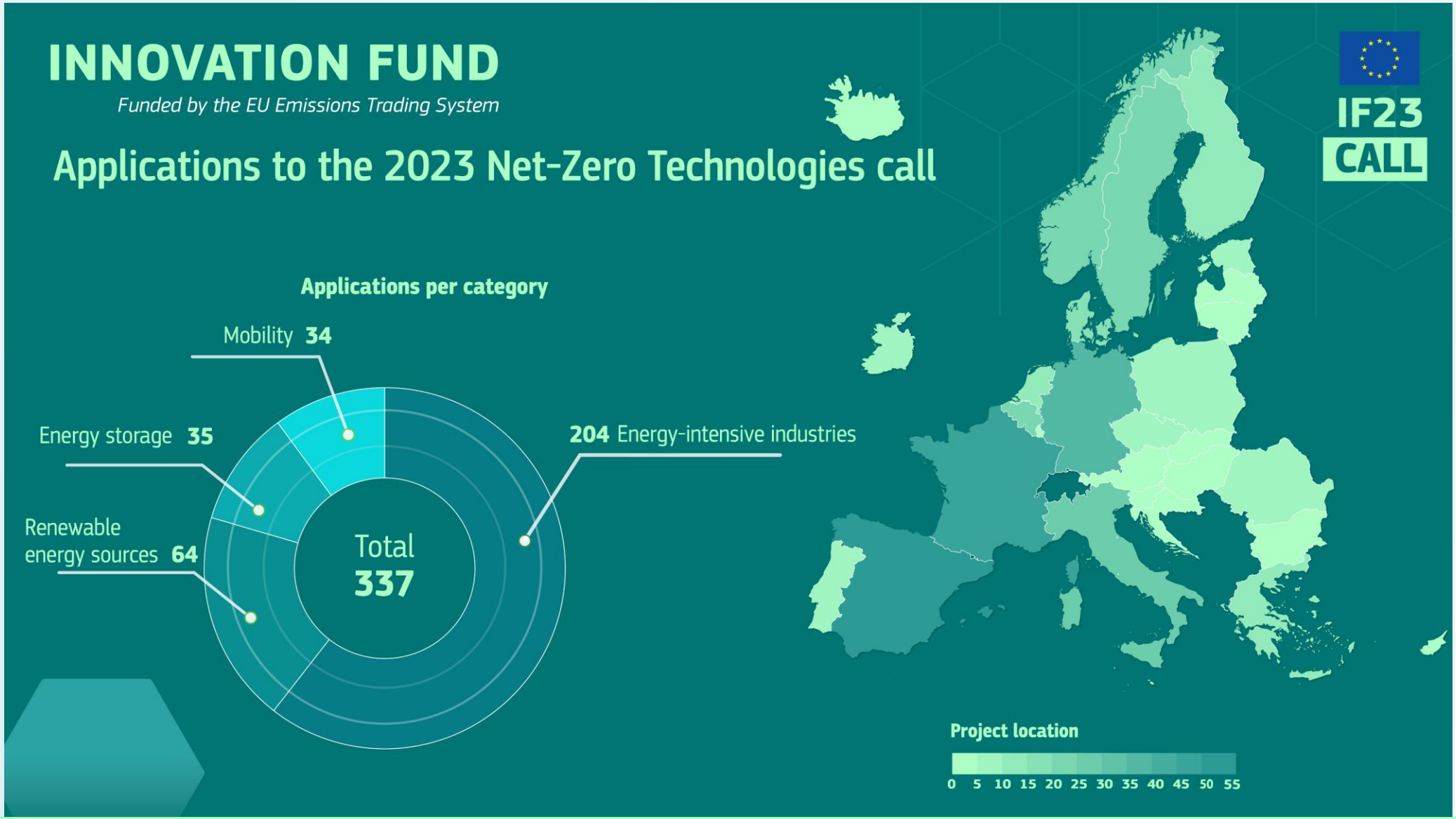
1. A **EUR 1 bn dedicated call for proposals for "regular" grants** will be launched for EV batteries cells manufacturing at the end of the year. (Other parts of the value chain will remain eligible under the general IF24 call).
    - Focus on speed, possibility of early disbursement and simplicity
    - Additional requirements on resilience and sustainability
2. **EUR 200 M Venture debt with European Investment Bank** through the InvestEU.

# INNOVATION FUND

*Funded by the EU Emissions Trading System*

## Applications to the 2023 Net-Zero Technologies call

IF23 CALL




Total funding requested: EUR 24.6 billion, 6x higher than the available budget (EUR 4 billion)
Overall, potential to reduce 1.4 billion tonnes $CO_2$ equivalent

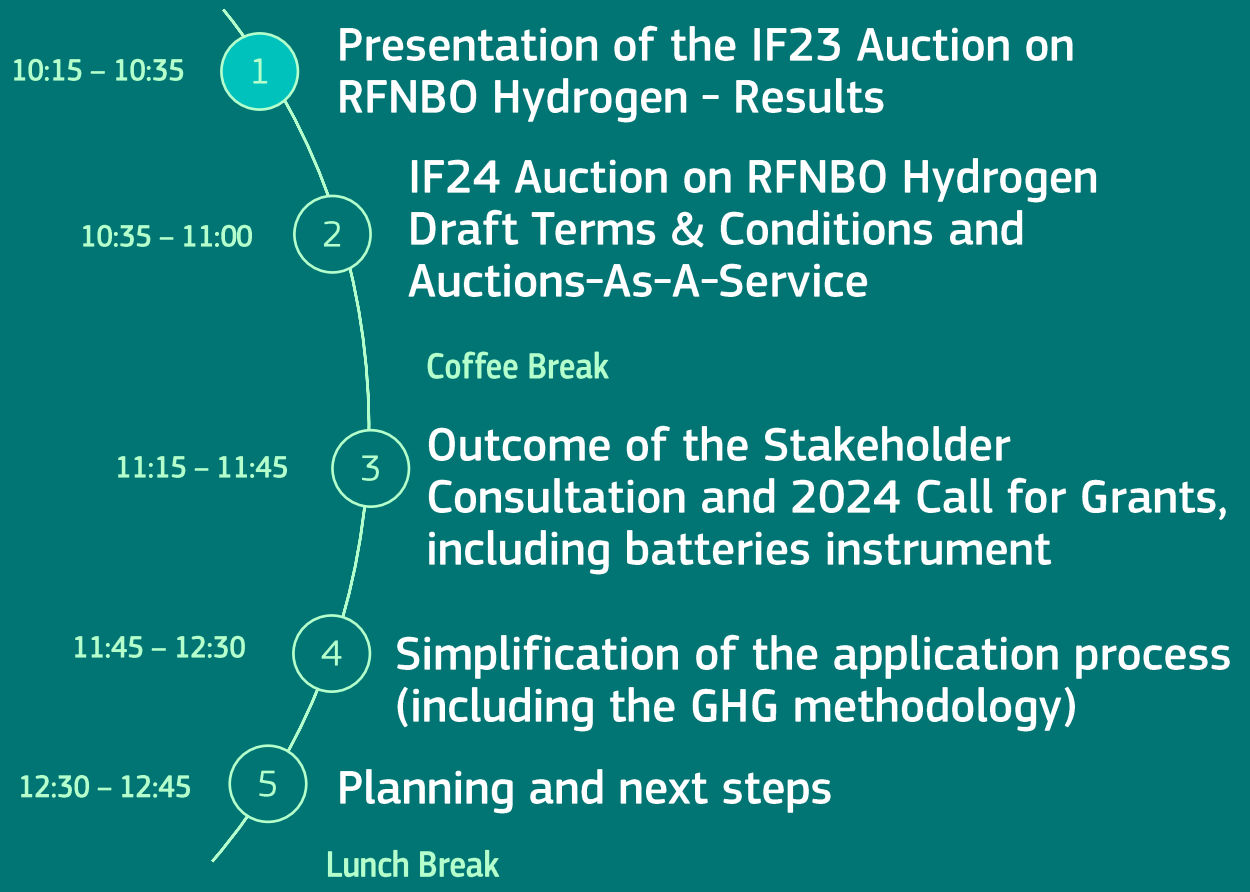
European Commission

# NEW features

- STEP SEAL to all projects meeting the minimum thresholds above and below the budget line
- Auction-as-a-Service
- Grants-as-a-Service

# Presentation of the IF23 Auction on RFNBO Hydrogen - Results

Johanna SCHIELE, DG CLIMA - Policy officer, Low Carbon Solutions (II): Research & Low Carbon Technology Deployment

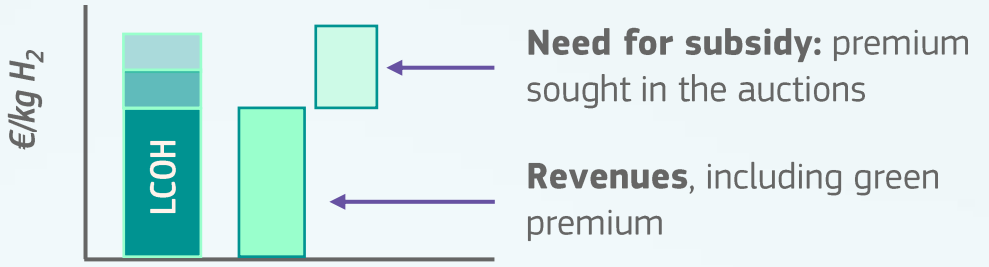



European Commission

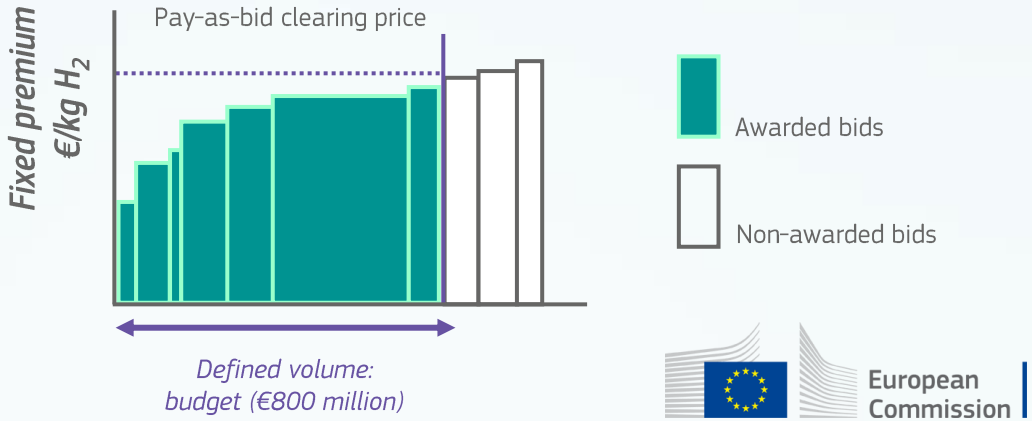
# Overview of the pilot IF23 Auction

- Budget: **EUR 800 M**
- Auctioned good: **RFNBO hydrogen**
- Support in form of a **fixed premium** in €/kg of renewable hydrogen **produced** over **10 years**
- Bids **ranked on price** – budget allocated to projects with the lowest specific support requirements.
- **Pay-as-bid** (no indexation to inflation)
- **Output based support,** upon verified and certified production of RFNBO volumes (no payments before entry into operation)
- **Semi-annual** payments

Fixed-premium auction




Bids ranked on price only

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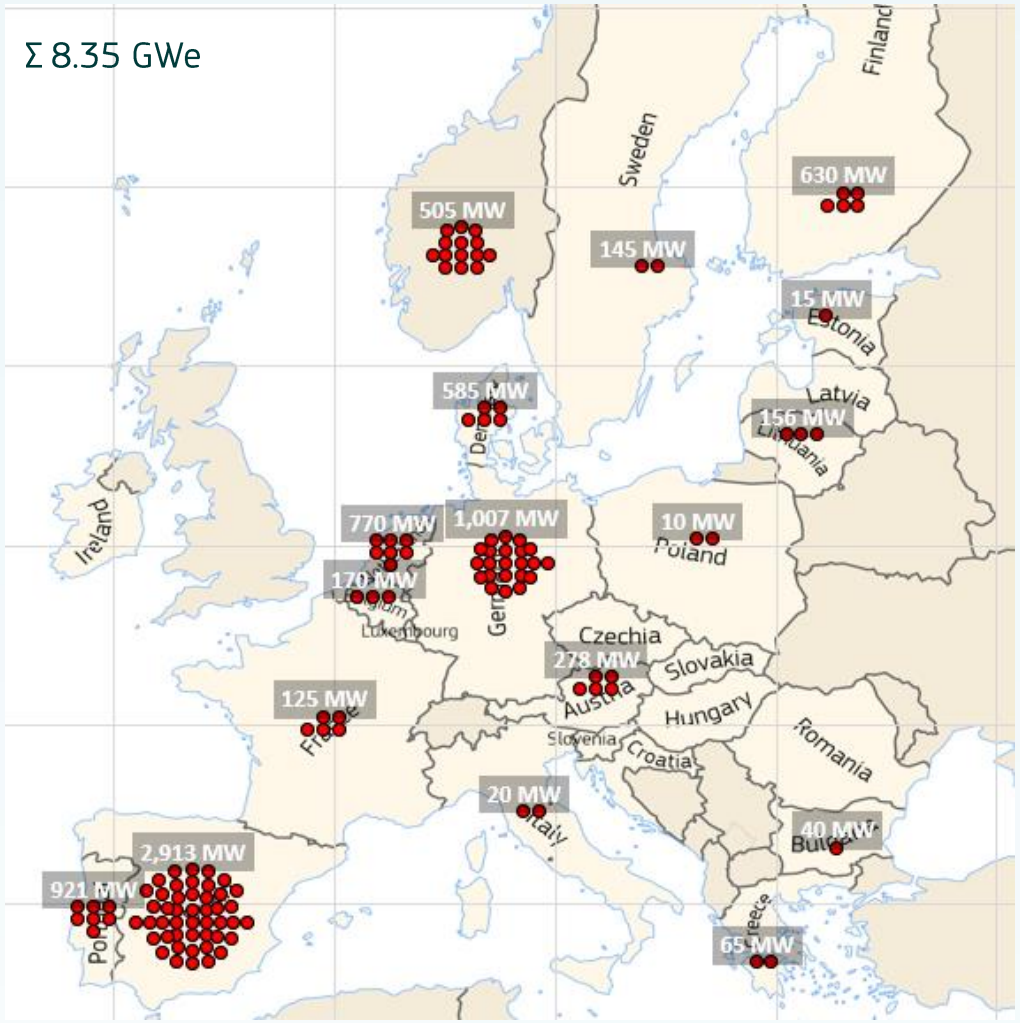
# The first pilot auction was a success, with a high level of participation and competition

- 132* bids from 17 different EEA countries
- 13 projects failing admissibility and eligibility criteria
- Seven selected** bids within the EU 800 million Innovation Fund auction budget…
- …consuming a budget of EUR 720 million if signed
- Clearing price at EUR 0.48 / kg of H2




* Graphs and analyses on all following charts refer to data from 130 bids, excluding a bid submitted above the ceiling price of 4.5EUR, and a bid with significant data gaps and incomplete application documents.

** Selected bidders will start the grant agreement process with CINEA and sign upon completion.

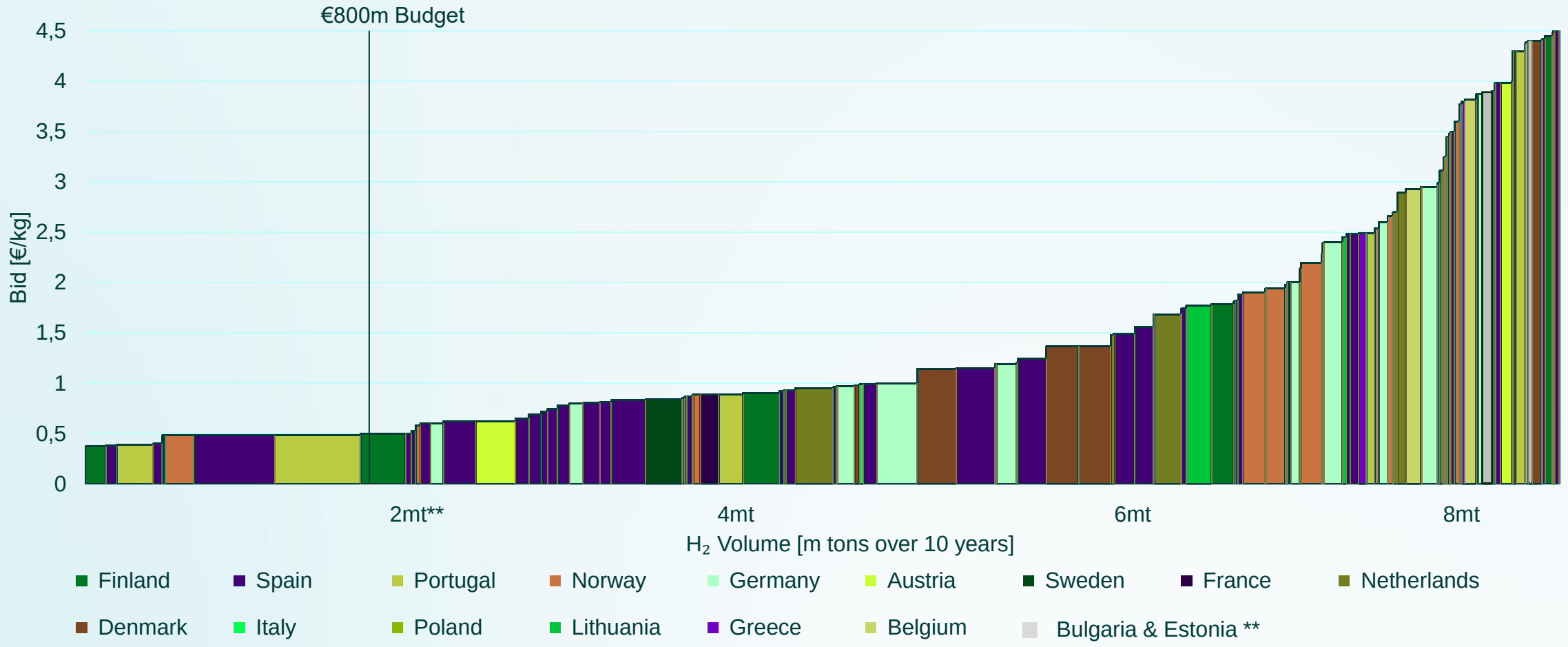
# Seven bids were selected for grant agreement signature, covering 1.5GWe of electrolyser capacity

At application stage (MoU/LoI), ~35% of electrolyser capacity of winners intended to be procured from outside the EEA

| Project acronym | Project Coordinator | Project location | Bid price (EUR/kg) | Bid volume (kt H2/10years) | Bid capacity (MWe) | Expected GHG abatement (ktCO2/10years) * | Total requested funding (EUR) ** |
|---|---|---|---|---|---|---|---|
| eNRG Lahti | Nordic Ren-Gas Oy | Finland | 0.37 | 122 | 90 | 836 | € 45,228,375 |
| El Alamillo H2 | Benbros Energy S.L. | Spain | 0.38 | 65 | 60 | 443 | € 24,605,819 |
| Grey2Green-II | Petrogal S.A. | Portugal | 0.39 | 216 | 200 | 1477 | € 84,227,910 |
| HYSENCIA | Angus | Spain | 0.48 | 17 | 35 | 115 | € 8,104,918 |
| SKIGA | Skiga | Norway | 0.48 | 169 | 117 | 1159 | € 81,317,443 |
| Catalina | Renato Ptx Holdco | Spain | 0.48 | 480 | 500 | 3284 | € 230,463,819 |
| MP2X | Madoquapower 2x | Portugal | 0.48 | 511 | 500 | 3494 | € 245,178,772 |
| | | | Ø 0.44 € | Σ 1580 kt_H2 | Σ 1502 MWe | Σ 10 808 kt_CO2 | Σ 719,127,056 € |

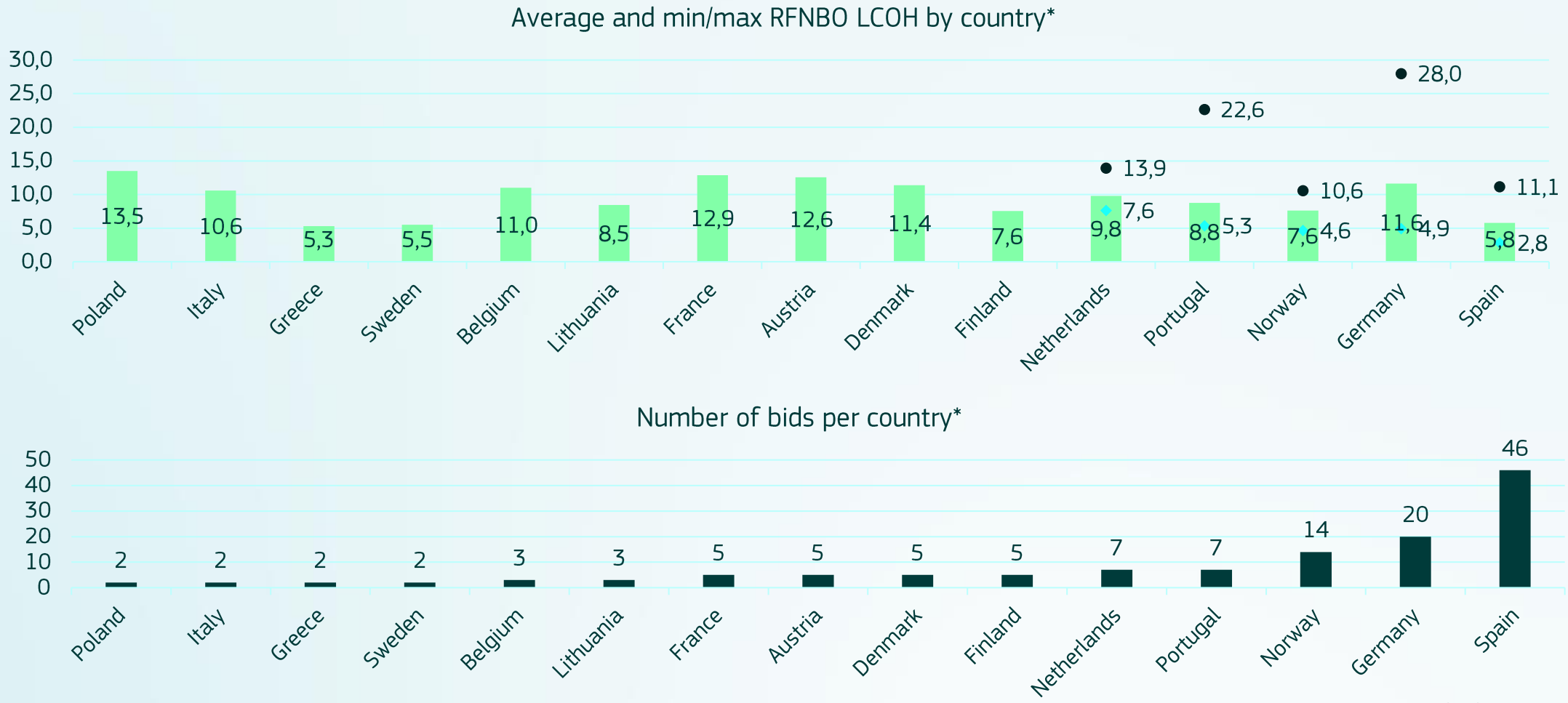
* Calculated vs. the 2021-2025 ETS benchmark of 6.84 t_CO2e/t_H2. Not taking into account additional carbon abatement due to substitution effects in the H2 end use application (i.e. conservative estimate).
** Remaining budget will accrue back to the Innovation Fund.

# Budget oversubscribed 15x. Bids are well distributed in size and price, resulting in a continuous bid curve




* Bid curve includes 130 bids (i.e. including 13 bids found inadmissible or ineligible, as well as bids not passing or not being evaluated on qualification criteria due to cascade approach – see call text).
** Estonia and Bulgaria aggregated for anonymisation reasons, as only 1 bid per country was received.

# The average levelized cost of RFNBO H2 of bids located in displayed countries* ranges from 5.8-13.5 EUR/kg






* Excludes countries with less than 2 bids for anonymisation reasons.

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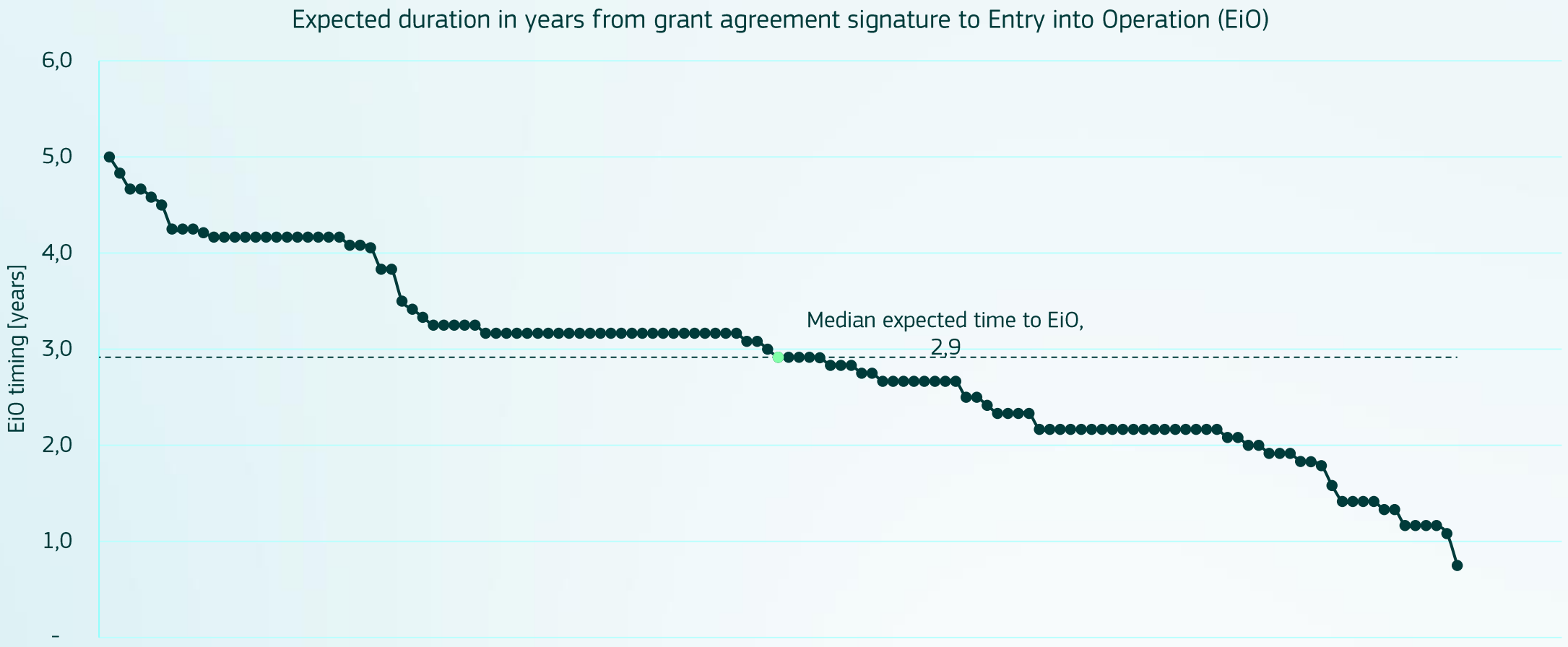
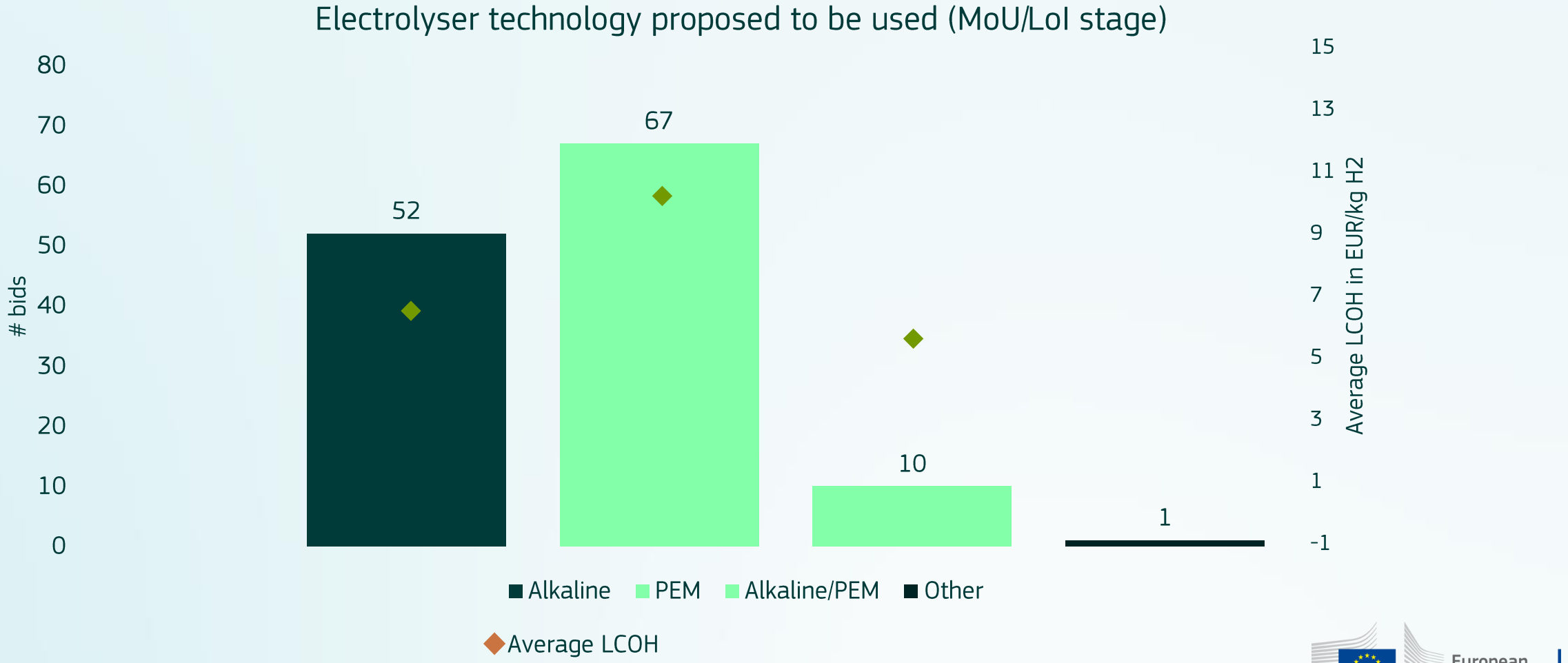
# The median expected time to entry into operation across the 130 bids is below 3 years






European Commission

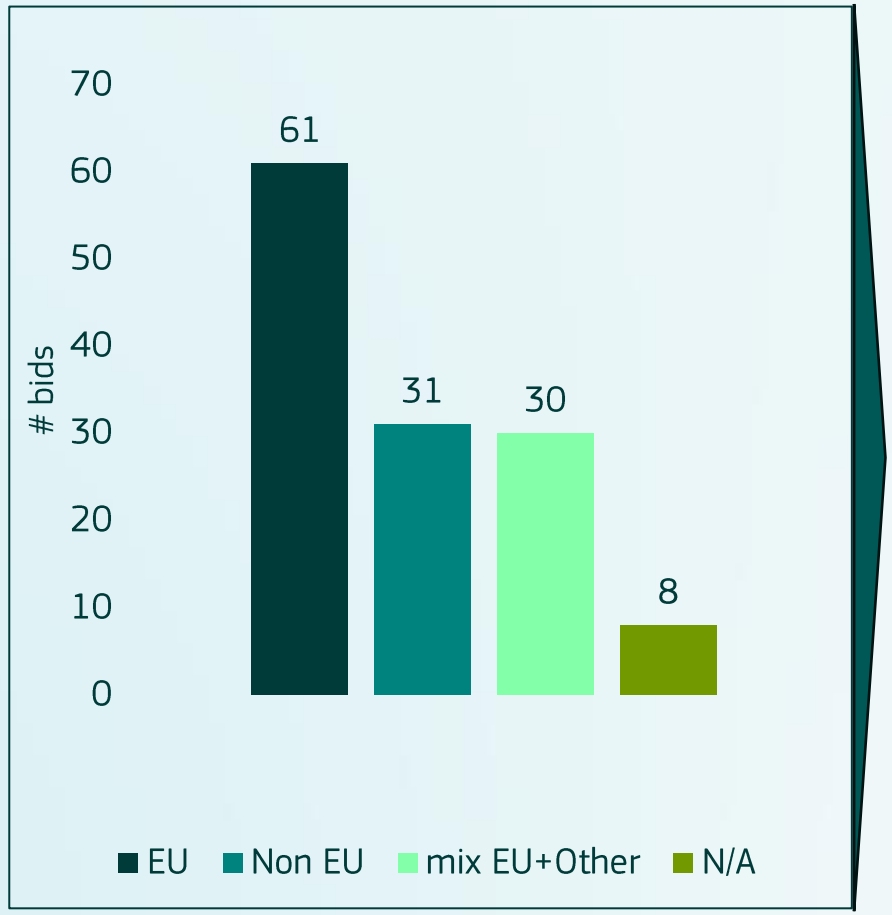
# Almost all bidders propose to use Alkaline or PEM electrolysers, or a combination of those technologies



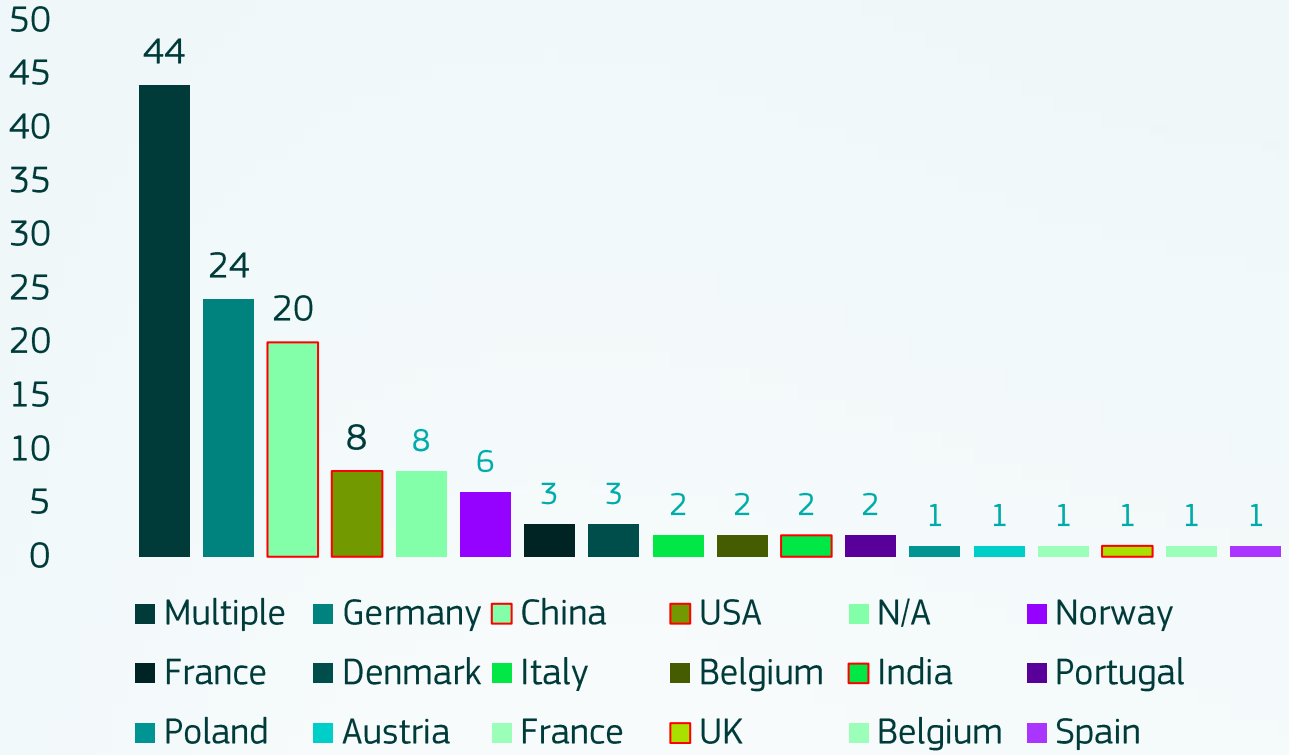



European Commission

# Most projects intend to procure an electrolyser that originates from the EU



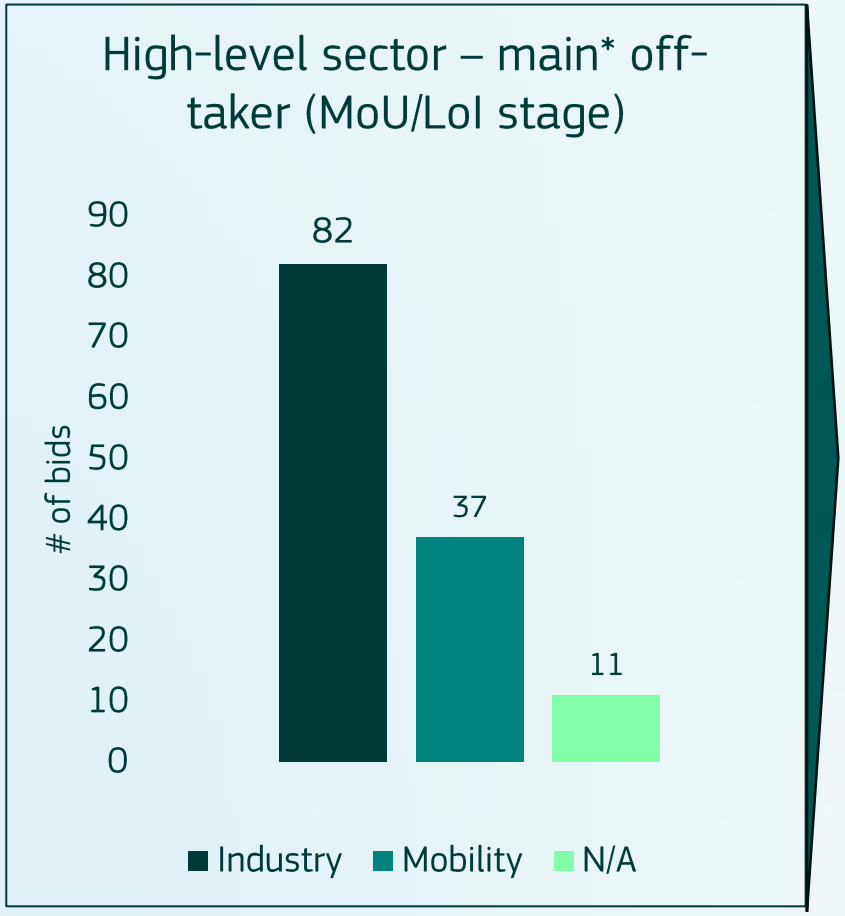

Origin of electrolysers proposed to be used (MoU/LoI stage)

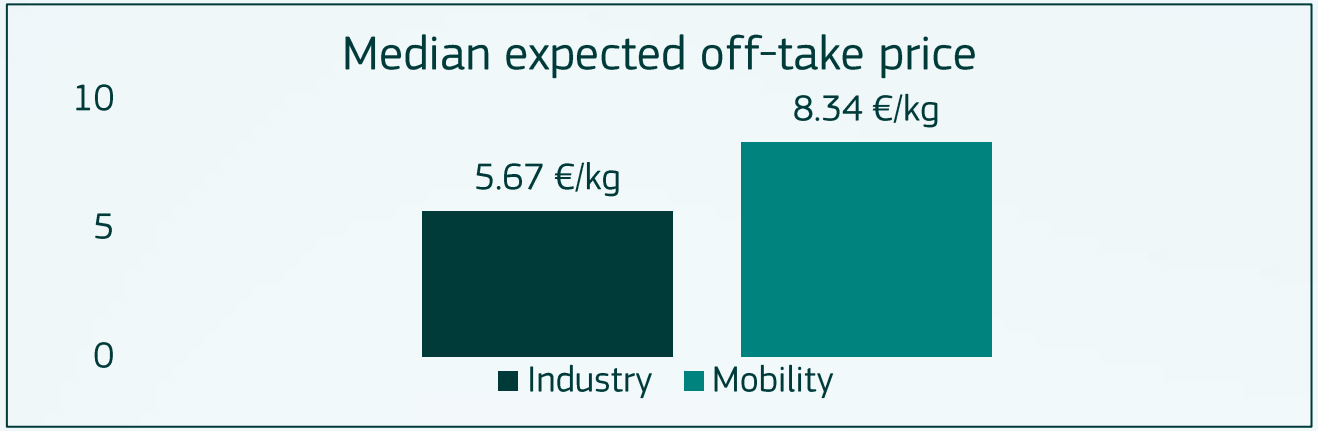


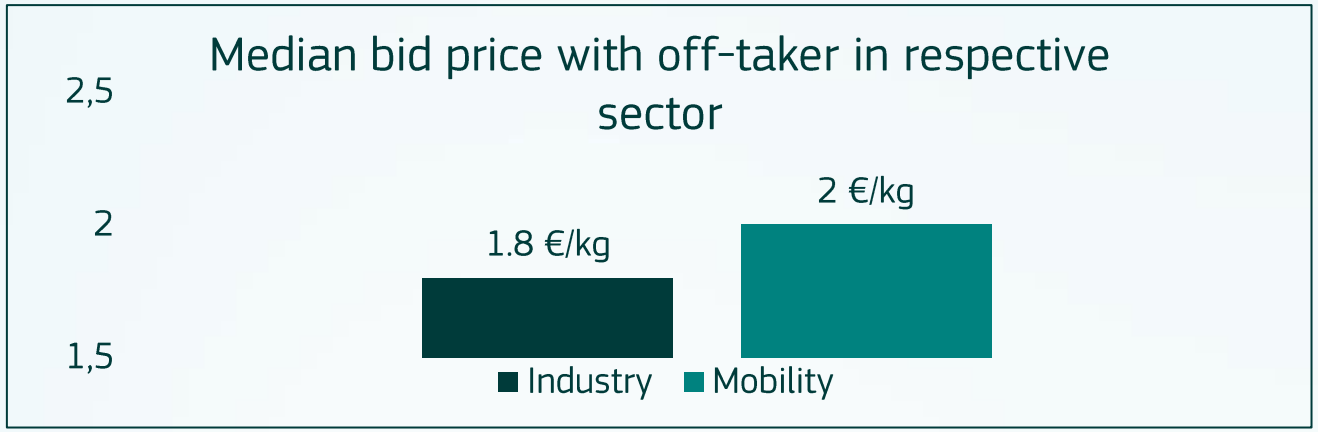



European Commission

# Despite higher willingness to pay in mobility, bids with proposed industrial off-takers are competitive



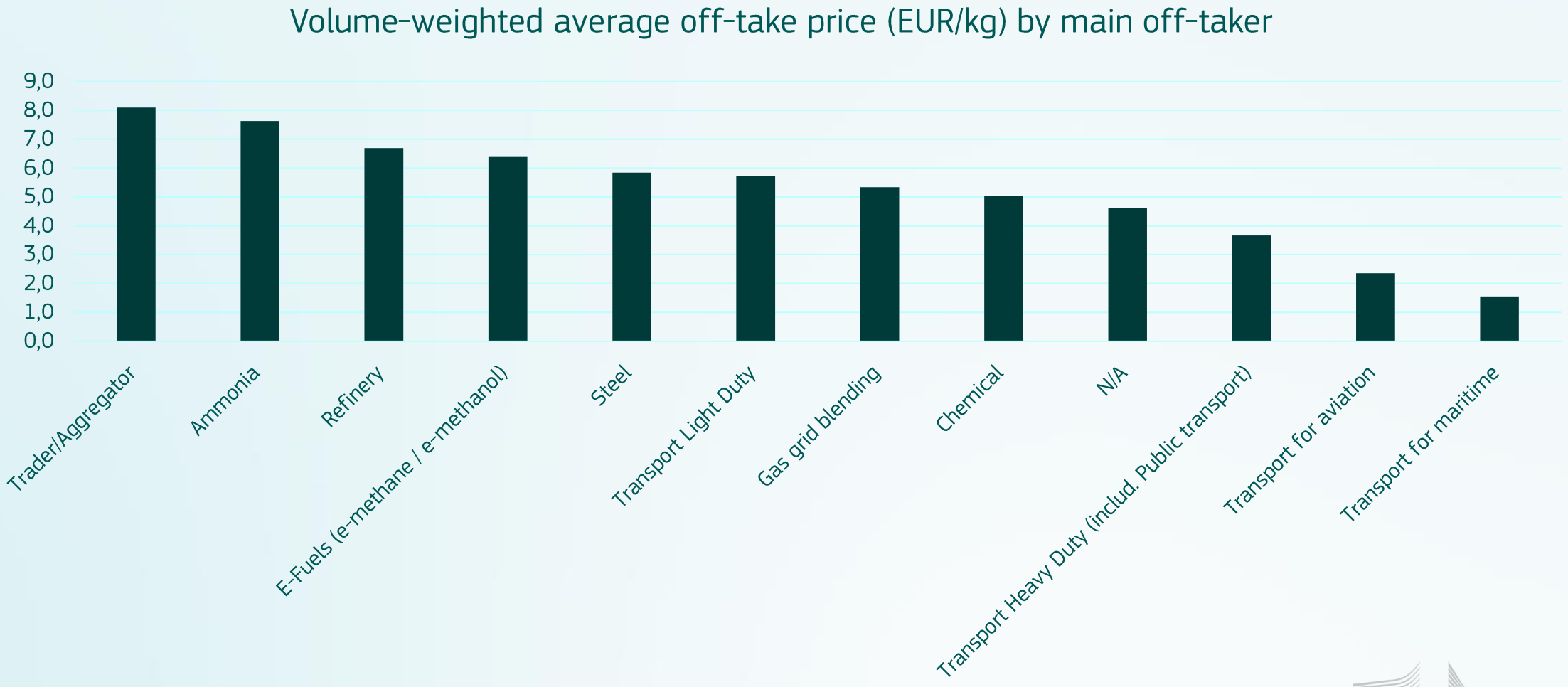






*Defined in terms of largest off-take volume in case of multiple proposed off-takers

European Commission

# Volume weighted average off-take price by subsector of the main off-taker



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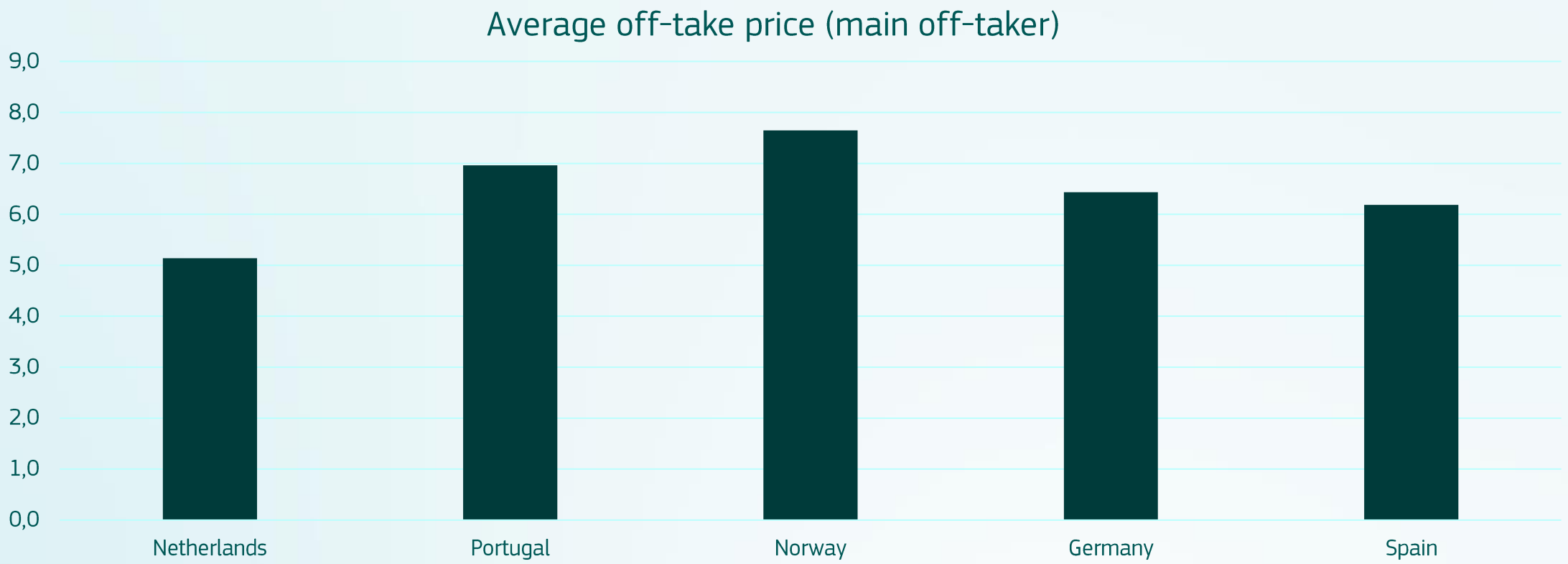
# Average off-take price (main off-taker) by country for countries with more than 5 bids






European Commission

# IF23 Auction objectives have been fulfilled

Putting Europe's net-zero industry in the lead:

**Reducing the cost gap** between renewable and fossil hydrogen in the EU

*Fixed premium support of up to EUR 0.48 /kg of renewable $H_2$*

Allowing for **price discovery** and renewable hydrogen **market formation**

*Price information shared on selected bids and anonymized European bid curve*

**De-risking** European hydrogen projects

*EUR 720 M budget in grant support to renewable H2 producers*

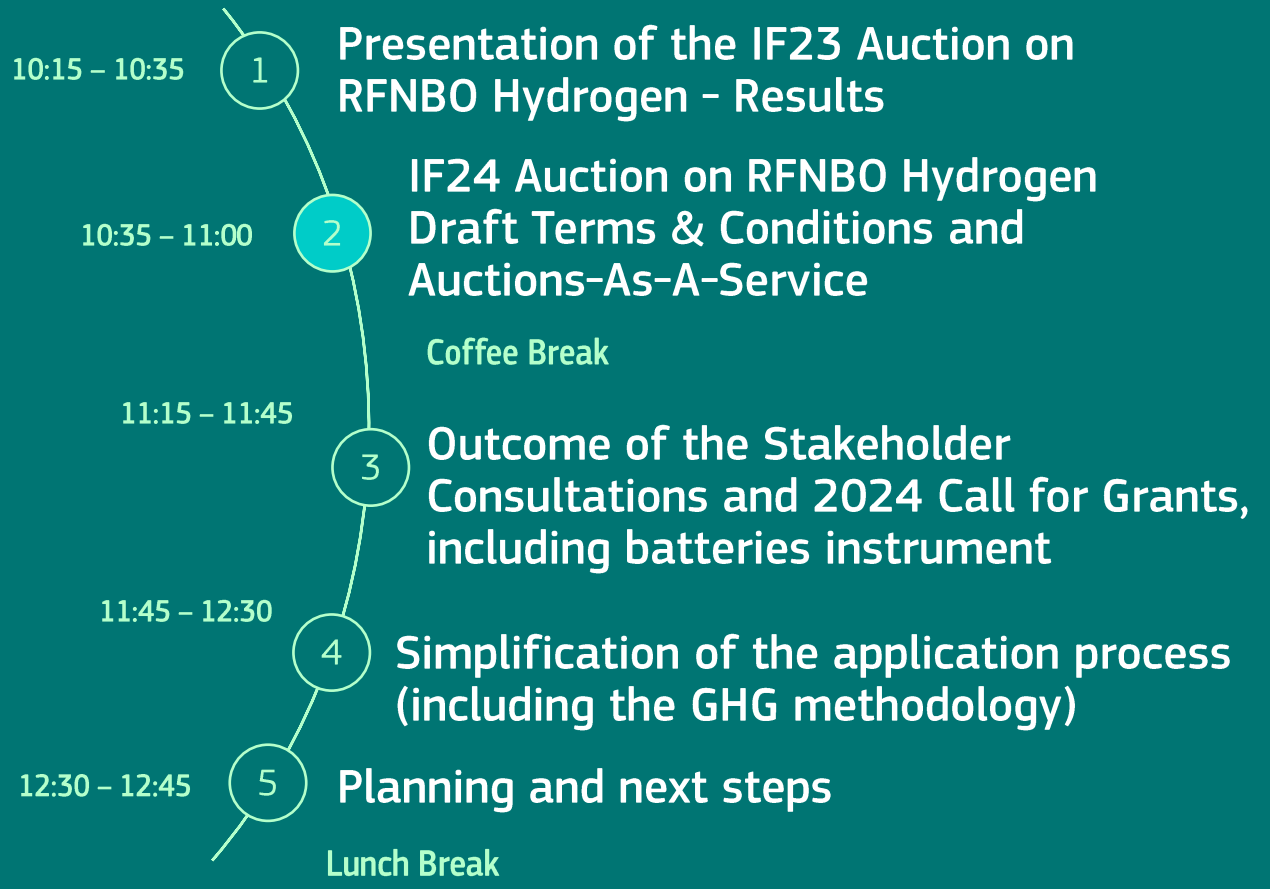
**Reducing administrative** burden

*Simplified application process and results provided in less than 3 months*

European Commission

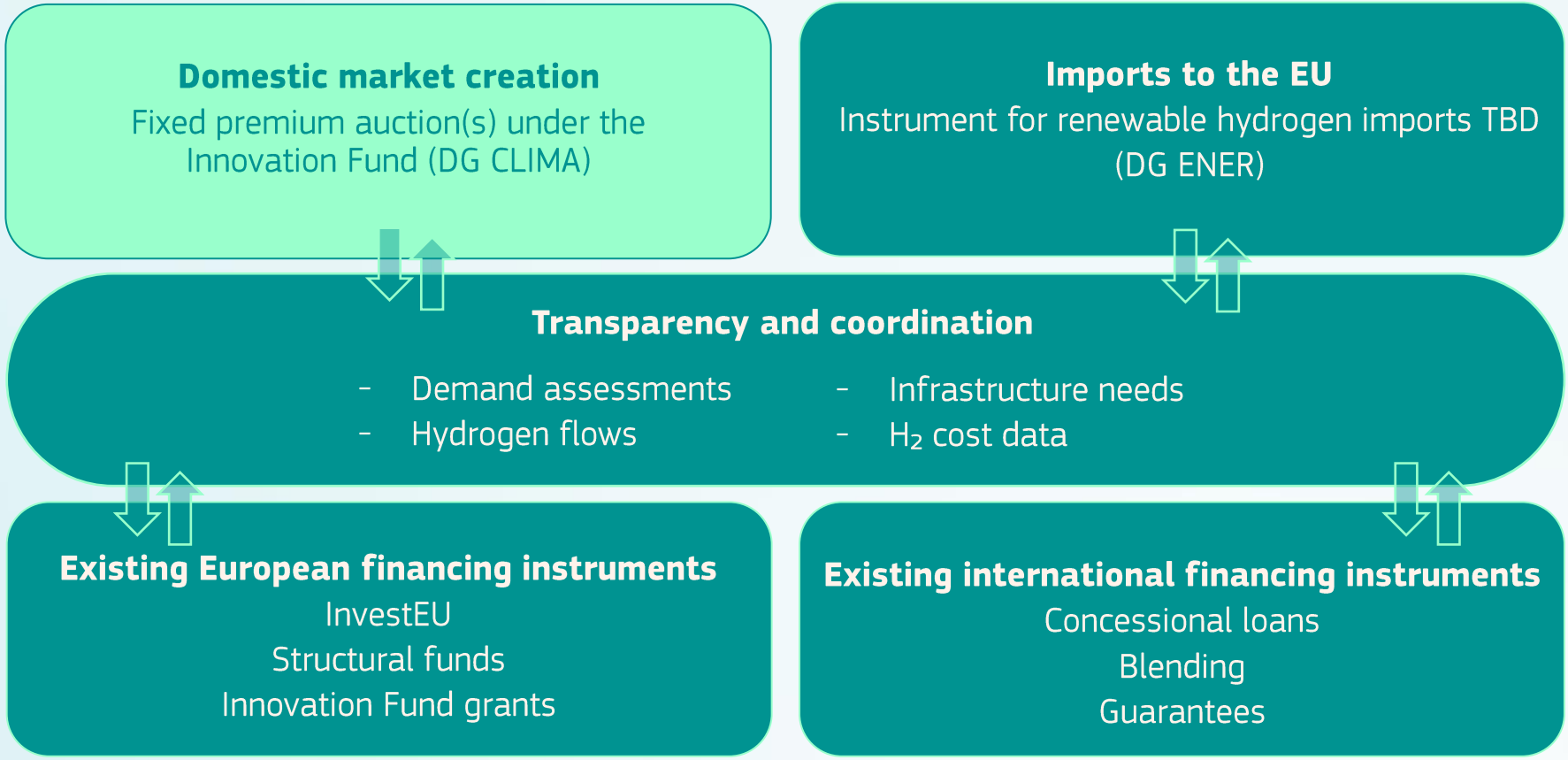
# IF24 Auction on RFNBO Hydrogen Draft T&Cs and Auctions-As-A-Service

Javier Garcia Fernandez, DG CLIMA - Policy officer, Low Carbon Solutions (II): Research & Low Carbon Technology Deployment




European Commission

# IF24 Auction in the context of the European Hydrogen Bank

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# Overview timeline for IF24 Auction

1. From April to 6 June – Written consultation with Stakeholders. Consultation Event held on 12 June. **Currently internal discussions to incorporate such feedback into T&Cs**.

2. Publication of **Final Terms and Conditions** for the Auction (End August/Beginning September 2024)

3. **Open the auction** for receiving bid (end of 2024)

4. **Selection** of bids (spring 2025)

# In summary: IF24 Auction compared with the IF23 Auction

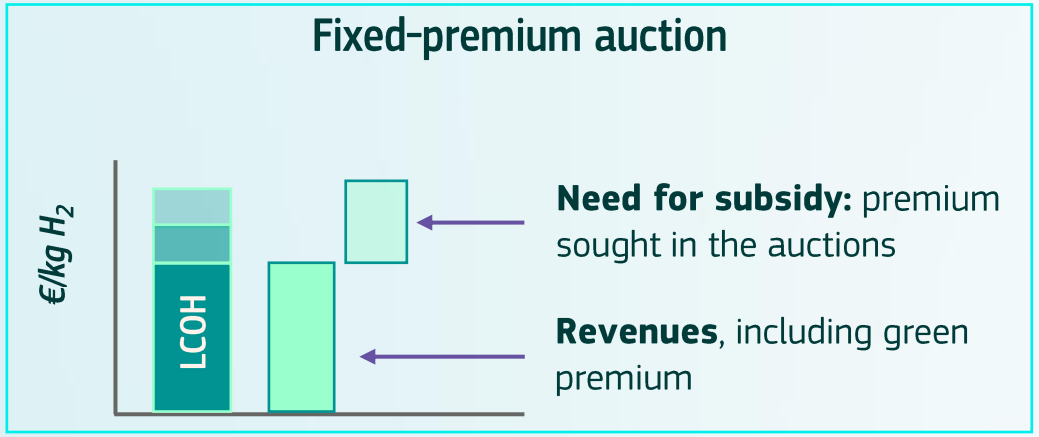
- Budget: Increased budget to an estimated **EUR 1.2 billion.** Divided in two topics:
  - **General topic:** EUR 1 billion (estimated) – no off-taker restrictions
  - **Maritime sector topic:** EUR 200 million (estimated)

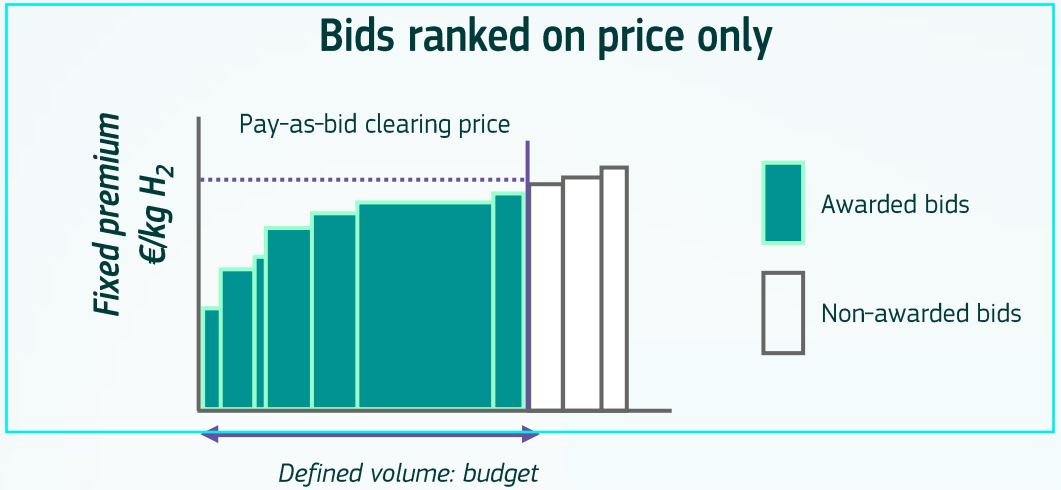
- Proposed **increased maturity requirements for bidding projects** (shorter entry into operation period, higher completion guarantee) and **lower ceiling price**

- Proposed increased information on the electrolyser procurement strategy and **"contribution to European industrial leadership and competitiveness" qualification criterion**

# Objective of the IF24 Auction – similar to the pilot auction

- Support **production** of **Renewable Fuel of Non-Biological Origin (RFNBO) Hydrogen** as defined in the RED and its Delegated Acts. NEW: Contribution to **Europe's industrial leadership** and competitiveness
- **Fixed-Premium auction**, single stage, pay-as-bid. Bidders are free to decide their bidding strategy.
- **Pass/Fail qualification** criteria and **Ranking based on price**



# Initially proposed eligibility conditions

- Location: **within the EEA** (no virtual production)
- Installed capacity: minimum **5 MWe, new** capacity**, single location**
- Bid ceiling price: **3.5 EUR/kg RFNBO Hydrogen** - *stakeholder consultation feedback suggested to increase this figure*
- Maximum size of the bid:
  - **1/3** of available budget (general topic) or
  - **1/2** of available budget (maritime)

# Initially proposed implementation arrangements

- Entry Into Operation: **3 years** after signing Grant Agreement - *stakeholder consultation feedback suggested to increase this figure to fit more realistic timelines of projects*
- Completion guarantee: **10%** of the requested grant - *stakeholder consultation feedback suggested to decrease this figure to facilitate participation smaller developers*
- Payments: No payments before entry into operation. Then, **biannual** basis - EUR/kg of RFNBO Hydrogen produced, **certified and verified** for a maximum period of **10 years**.
- Cumulation with other public funding – limitations apply, same as pilot auction
- Production requirements: Semiannual production may be increased to **up to 140%** of planned. Total grant amount cannot be increased. Production **can not fall below 30%** of planned production for more than three rolling consecutive years

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# A new criterion: contribution to Europe's industrial leadership and competitiveness

- **Standard approach** under other EU funding programmes
- Options to address it in the call text:

1. **Call objectives**: (amongst others) to support European industrial leadership and competitiveness in the hydrogen sector.

2. **Relevance sub-criterion (pass/fail assessment)** Contribution to Europe's industrial leadership and competitiveness: **In practice:** project would fail if it cannot demonstrate any such contribution. Projects with a value chain outside Europe can still pass this criterion.

3. **Mandatory reporting on origin of components + report at the end of monitoring period** on fulfilment of the claims in the application (grant reduction/claw-back possible)

# A dedicated topic for the maritime sector

- After its revision in 2023, the **ETS Directive extended to maritime transport** – applies to ships above 5,000 gross tonnage. **Innovation Fund**: **20 million allowances** will be deployed by the IF by 2030 to support the decarbonisation of the maritime sector, through **dedicated topics**, and supporting technology solutions such as **sustainable alternative fuels**. - *as explained in stakeholder consultation event, there are no plans for further dedicated topics in the IF auctions.*

- "Maritime projects" **can choose** if applying for the general topic (as any other project) or benefitting from the dedicated budget basket.

- "Maritime projects": those presenting with the application pre-contractual off-take agreements with **off-takers belonging to the maritime sector** covering **60% of their planned RFNBO H2 production**.
  - *use the hydrogen or the hydrogen derivative produced by the project for carrying out/making use of bunkering activities in ports under the jurisdiction of the EEA. Fuel traders or intermediaries will not be accepted to facilitate tracking.*

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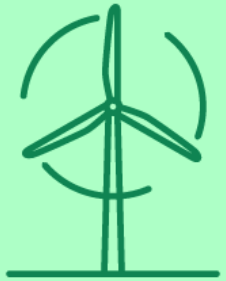
# Obligations during implementation for maritime projects

- Same rights and obligations as in general topic, and in addition:
- **At financial close**, signed off-take agreement with an off-taker belonging to the maritime sector covering 60% of the planned volumes. If not provided, grant agreement is terminated.
- **During implementation:** report on changes in the off-take agreement status
- **At the end of implementation**: third-party certification that at least 60% of the produced volumes were supplied to an off-taker of the maritime sector. If not complied, the maximum grant amount may be reduced proportionally to the non-compliance.

# General cumulation rules will still apply

**Electrolyser manufacturer**

**V** Other public support is allowed



**RE electricity producer**

Rules for public support spelled out in RFNBO Delegated Act

**Electrolyser**

**X** Cumulation is in general not allowed

**V** Some exceptions to this rule

**~~Hydrogen Offtaker~~ Direct consumer**

**V** For CAPEX or non-dedicated infrastructure other public support is allowed

**X** For OPEX related to consumption of hydrogen from auction winner other public support is not allowed

European Commission

# ‘Auctions-as-a-Service’ feature

European Commission

# Auction-as-a-Service – What is it?

- EEA countries can use the IF competition to **allocate *additional, national funds* to national projects**
  - Germany contributed an additional budget of EUR 350 million in the 2023 Pilot Auction
  - Austria is passing a budget law for an up-to EUR 400 million 2024 contribution

- The scheme is by design 'State aid' CEEAG compatible:
  - Notification facilitated with the help of Commission templates
  - *Note: no adjustments for fast State aid clearance*

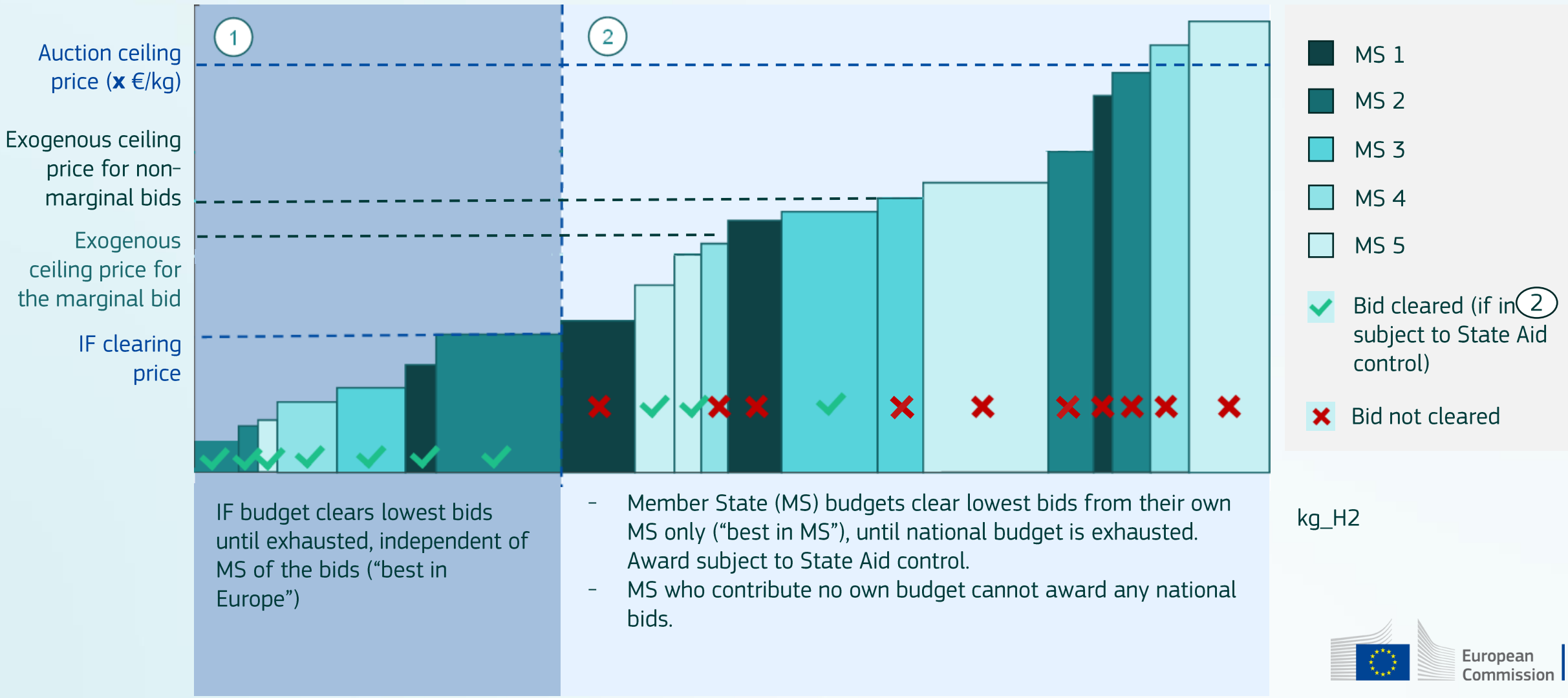
- **Avoid unnecessary administrative burden** of developing and running new support schemes

- **Streamline renewable hydrogen funding across the EEA**.

- For the second round of Auctions (IF24 2024), **MS interested in participating in the scheme should inform the Commission as soon as possible, ideally before the end of July 2024.**

# Auctions-as-a-Service Concept

illustrative




IF budget clears lowest bids until exhausted, independent of MS of the bids ("best in Europe")

- Member State (MS) budgets clear lowest bids from their own MS only ("best in MS"), until national budget is exhausted. Award subject to State Aid control.
- MS who contribute no own budget cannot award any national bids.

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# Exogenous ceiling price factor: Pragmatic approach to reduce MS spending uncertainty

**Current rule (Pilot auction round)**

- Member State specific, exogenous ceiling price beyond overall auction ceiling price defined as 3 x the last IF-awarded bid that is not from the same country as the AaaS budget.

**Possible suggestions to improve this rule under consideration:**

1. A volume control mechanism based on ex-ante national pipeline assessment i.e. setting limits to the maximum volume (in MW or EUR) that MS could allocate through AaaS based on an exogenous indicator of expected demand such as electrolyser permits requested or granted.

2. Moving to multiplication factors that can take into account different national price structures, but still avoid strategic bidding (methodologies yet to be identified).

3. Increase the current exogenous multiplication factor of 3.

# Next steps

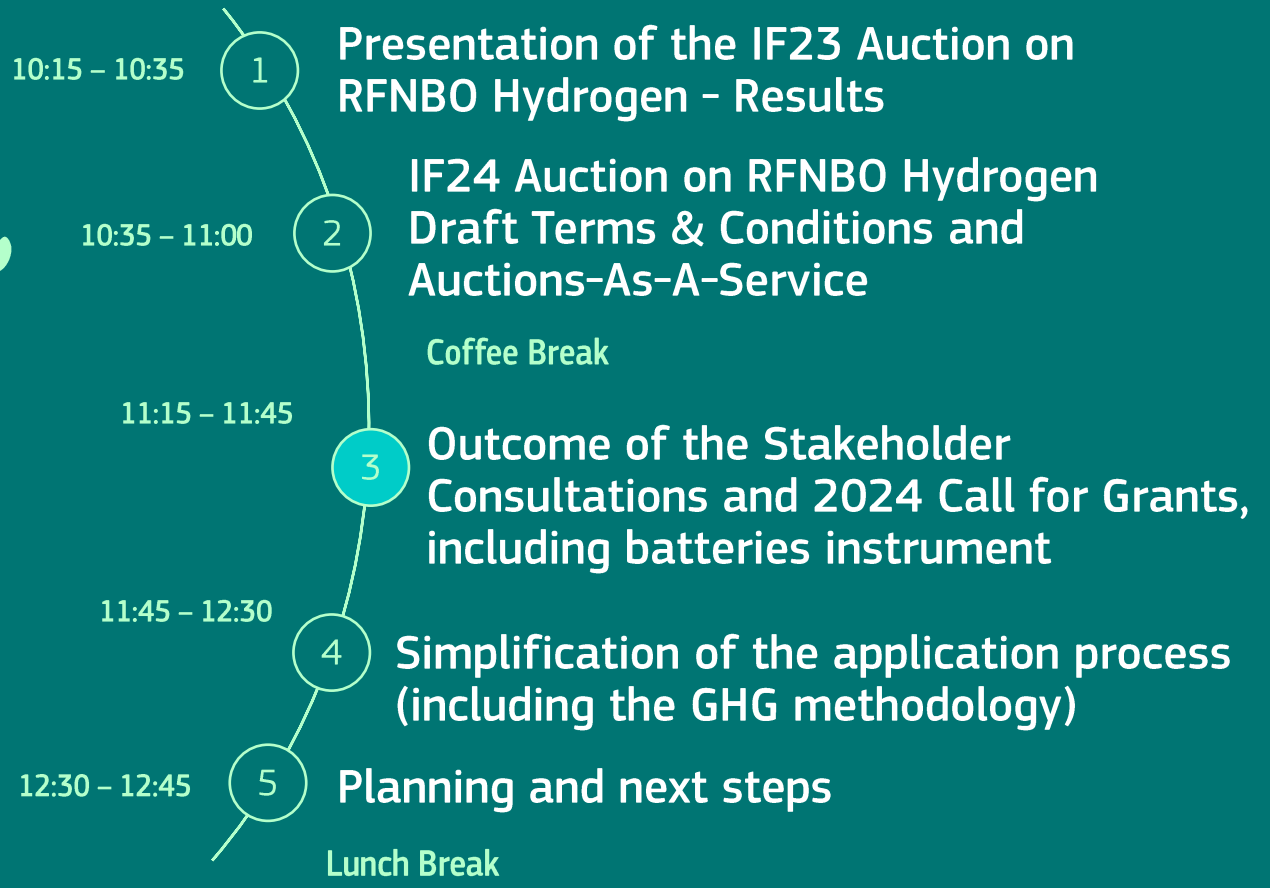
1. Publication of **Final Terms and Conditions** for the Auction (End August/Beginning September 2024)
2. **Open the auction** for receiving bid (end of 2024)
3. **Selection** of bids (spring 2025)

# Q&A

European Commission

# Outcome of the Stakeholder Consultations and 2024 Call for Grants, including the batteries instrument

Joao SERRANO GOMES and Ewelina DANIEL, DG CLIMA - Policy officers, Low Carbon Solutions (II): Research & Low Carbon Technology Deployment

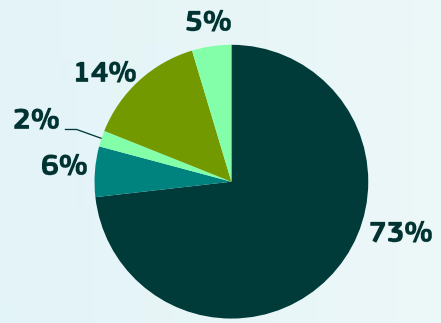



European Commission

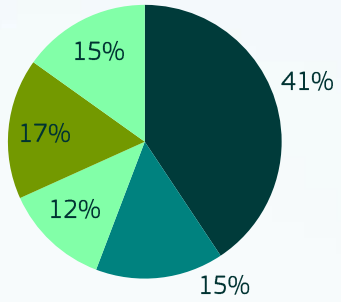
# IF23 NZT Call: applications overview

- **337 proposals received** requesting **EUR 24.66 billion in grant** support from IF
- With an initial budget of **EUR 4 billion** – that means an **oversubscription of x6.2 times**
- The most attractive topic has been the **Large-Scale Projects (LSP),** receiving 40% of the proposals and representing 73% of the total grant requested. The average size of the project applying to that topic has been EUR 700 million CAPEX.

**Requested EU funding**




**Number of projects**

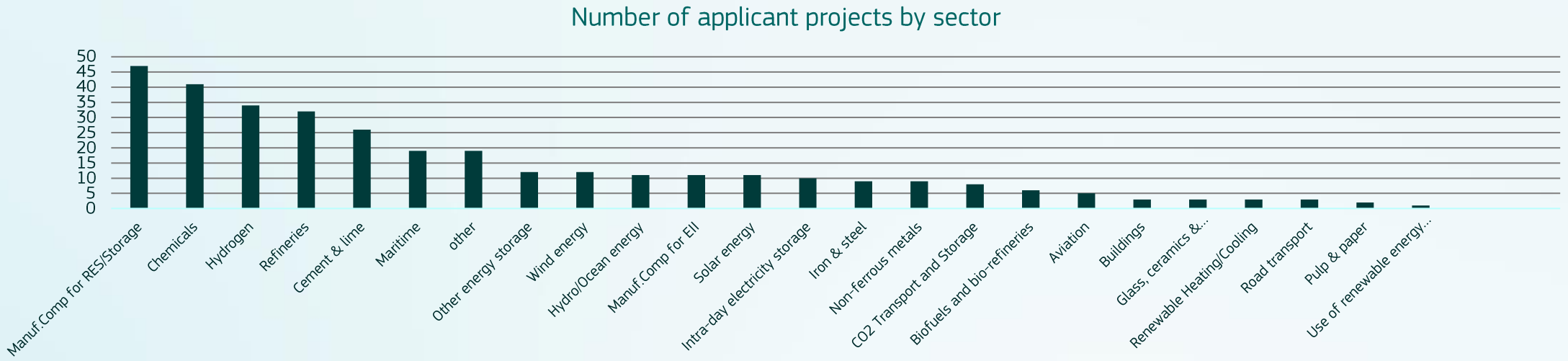


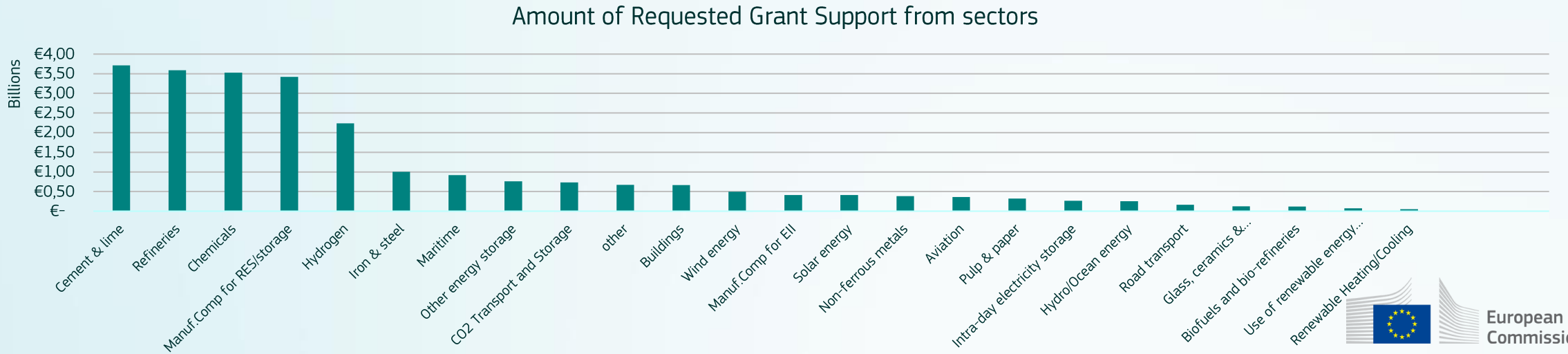

INNOVFUND-2023-NZT-GENERAL-LSP
INNOVFUND-2023-NZT-GENERAL-MSP
INNOVFUND-2023-NZT-GENERAL-SSP
INNOVFUND-2023-NZT-MANUFACTURING
INNOVFUND-2023-NZT-PILOTS



European Commission

# IF23 NZT Call: sectoral distribution



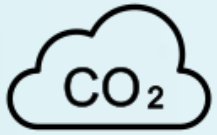




European Commission

# Session A: Energy Intensive Industries (including CCS and CCU)

European Commission

# Key takeaways from industry




- There is a need for **financing and support** to take projects through TRL levels from R&D to commercialisation.
- IF is an **effective instrument** but there is still room for improvement.
- IF success has **become a challenge** as it is currently **6 times** oversubscribed on average.
- **Upfront project financing**. Possibility for future ETS revenues to be used for dedicated frontloaded funds and called for a framework of carbon contracts for difference.
- Request for **more clarity** on the role in EU decarbonisation of point source non-biogenic $CO_2$ and called for infrastructure development for $CO_2$ transport and storage

# Key takeaways from discussion

Areas of improvement include:

- Standard **guidance** from DG Competition to Member State authorities about setting up **systems of carbon contracts for difference**.
- Provision of data on of the level of competition within specific sectors under the IF.
- **Environmental product declarations** as data inputs for IF GHG calculations.
- Alignment of **reporting time periods** with IF vs. calendar year vs. financial year reporting. Currently in the IF, reporting commences when the project becomes operational.
- Renewable Energy Directive (RED) rules allowing the use of $CO_2$ captured from fossil point sources in RFNBOs to be extended to **improve the bankability of fuel projects.**
- **Clearer commitment from Member State ETS revenue** to support climate action.

# Session B: Session B: Clean tech manufacturing, Renewable energy use and Energy storage use

European Commission

# Key takeaways from industry

- Emphasis on NZIA and recognition that the IF is aimed at **scaling up the manufacturing of net-zero technologies**.
- NZIA **includes** provisions to make sure there is no dependency on single supply countries.
- **Identification of strategic net-zero projects**, which address significant risks in the supply. Projects would be able to profit from faster permitting procedures and easier access to funding.
- Regulatory sandboxes would **enable innovative projects to be tested** in an environment with some of the regulatory limitations removed.

# Key takeaways from discussion

*Solar*

Areas of improvement include:

- Simplifying procedures to support **scale up** while supporting existing solar manufacturing in the EU.
- **Rethinking** the Innovation Fund design - create separate calls: one for carbon capture technologies and one for renewable technologies and energy storage.

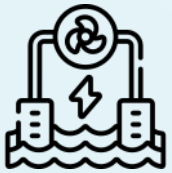
- **De-risking** project investments as much as possible.
- **Improving allocation of funds** - the PV industry has less flexibility and visibility on IF payback compared to other industries. The money granted through the fund is linked to the project's production, the risks become higher.

- **Setting up** a solar manufacturing facility within the IF.
- **Reducing** the consumption of raw materials.

# Key takeaways from the discussion

*Ocean, Wind, Geothermal*

Areas of improvement include:

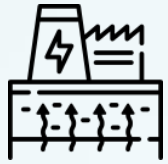


## Ocean energy

- The 'Pilot Projects' topic should be made permanent.
- Diversify instruments - IF is the **only instrument** that covers the funding scheme gap between Horizon Europe and commercial projects for highly innovative technologies.
- More clarity required on **eligibility criteria**.

## Wind energy

- Europe must **step-up** annual installations to deliver targets as there is a significant forecasted **increase** in wind capacity.



## Geothermal energy

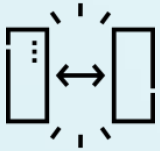
- Recognise benefits of geothermal technology in decarbonising the energy system **beyond reducing direct GHG emissions**.
- Introduce **technology-specific** calls or allocate funds for renewable heating, cooling, electricity, and lithium extraction.
- Promote innovative energy solutions for **smart sector integration**, such as renewable heating, cooling, and power applications in buildings and industry.

# Key takeaways from discussion

*Hydrogen, heat pumps*


## Hydrogen

- **Improvement** of the GHG savings calculation methodology led to some electrolyser manufacturing projects being able to secure grants.
- The **contribution** of the Innovation Fund towards the overall electrolyser capacity buildup has already been noticeable.



- The gap vs targets remains **sizeable**.
- Fuel cells manufacturing, which are also mentioned as strategic technologies under NZIA have so far **failed** to secure any funding.

## Heat pumps

- Focus on transition and industrial policy, maintaining / reshoring the heat pump industry.
- Bring **hard-to-abate** companies, cities and social housing companies on board.
- Agree with focus on **manufacturing** but encourage value chain optimisation for added efficiencies.
- **Consistent** policies that translate into concrete short to medium term funding (e.g. Heat Pump Action Plan).
- **Focus on the entire system** rather than component improvements, with consideration of ability to directly serve short term needs (such as climate friendly residential environments and industrial processes).

# Key takeaways from Q+A

Question: What criteria would be most relevant for assessing the resilience of EU value chains, specifically in terms of ensuring a secure and sustainable supply of net-zero technologies and enhancing competitiveness within Europe?

- Most participants considered it generally useful to address resilience, but there was no clear view what the most useful approach would be.

Question: Should upstream emissions (extraction, production, and distribution of raw materials) be included for manufacturing, renewable energy and energy storage projects?

*Noting the sustainability of the manufacturing process and the trade-off between accuracy of results and complexity of the process.*

- Most stakeholders considered it useful to include emissions in the whole life cycle for all such projects, while others preferred an inclusion for manufacturing plants only and some were in favour of keeping the focus on the use phase.

Question: What were the most relevant changes in the market conditions during the last year? What types of support had proven to be particularly successful?

- Participants highlighted the role of increased costs of capital and that funding by the IF was helpful to limit these costs by de-risking projects.

# Session C: Net Zero Mobility: Aviation, Maritime & Road Transport

European Commission

# Key takeaways from industry

*Maritime*

Planned pipeline of projects includes opportunities in:

- Energy efficiency solutions and use of fuel cell technology for refitting
- Ease of alternative fuels for new builds
- Electrification
- Bunkering infrastructure for fuels with lower energy density
- Carbon capture, usage and storage
- Greening of Port operation

Recommendations:

- **Support is needed** for projects that are most effective in reducing overall climate impact.
- **First applications** to ensure EU leads market competitiveness and industrial capacity.
- Ensure support to EEA shipbuilding capacities

# Key takeaways from industry

*Aviation*

Planned pipeline of projects includes opportunities in:

- **SAF production**, but the cost of production remains high, and financial support schemes other than the IF are needed to overcome the price gap.

Recommendations:

- Significant **emissions reductions will be successful at a fleet level**, not with one aircraft. Recognition that bringing tangible evidence of the fleet impact is a challenge and exceeds the projects' execution timeline.
- Need for a **review** of the relative GHG emissions avoidance threshold.
- Further **clarification is needed** on the benefits of projects that implement bio-based/ other SAF with other technologies.

# Key takeaways from industry

*Road transport*

Planned pipeline of projects includes opportunities in:

- Battery electric, including plug-in hybrid (BEV + PHEV); Hydrogen fuel-cell (FCEV); Hydrogen internal combustion engine
- **Example H2ICE:** $H_2$ injector production scale-up and a leading-edge component development accelerator, which is aimed at optimising inverter, e-motor, power electronics, whilst reducing cost, energy and material use.

Conclusions:

- **Obtaining funding is a real challenge** and uncertainty about volumes is undermining business case to industrialise production of electric propulsion and $H_2$ technologies in Europe.
- The IF should **include the manufacturing of components** of all technologies that are part of the solutions identified for road transport.

# Session D: Battery manufacturing

European Commission

# Political announcement and Stakeholder Event on 25 April

- Battery manufacturing supported in general clean-tech manufacturing window and 9 projects awarded so far.
- EVP Šefčovič made an announcement relating the EU-UK Trade and Cooperation Agreement that the Commission will support manufacturing of the "most sustainable [EV] batteries in Member States" through "a **dedicated instrument** under the Innovation Fund [...]" with "up to € three billion for the next three years".
- On 25.4. 2024, DG CLIMA presented an options paper outlining different types of possible funding for this dedicated instrument, and their features.
- Stakeholder survey was answered by 105 participants
  - Stakeholders largely in favour of "regular" grants
  - Indication of solid project pipelines (79 battery manufacturing projects, 35 on cells manufacturing)

# Stakeholder event on 11 June: (1) Scope and budget of the instrument

- **Scope: EV batteries cell manufacturing** (request for extension to stationary energy storage).
- **Budget: EUR 1bn for the dedicated call for proposals in 2024/25**
- Rest of the value chain would remain eligible in the general manufacturing of components topic.
- Possible additional financial instrument through EIB or other promotional banks for strengthening of the upstream value chain.

In the Battery Regulation [Article 3(1)14] EV batteries are defined as follows:

"'electric vehicle battery' means a battery that is specifically designed to provide electric power for traction in hybrid or electric vehicles of category L as provided for in Regulation (EU) No 168/2013, that weighs more than 25 kg, or a battery that is specifically designed to provide electric power for traction in hybrid or electric vehicles of categories M, N or O as provided for in Regulation (EU) 2018/858"

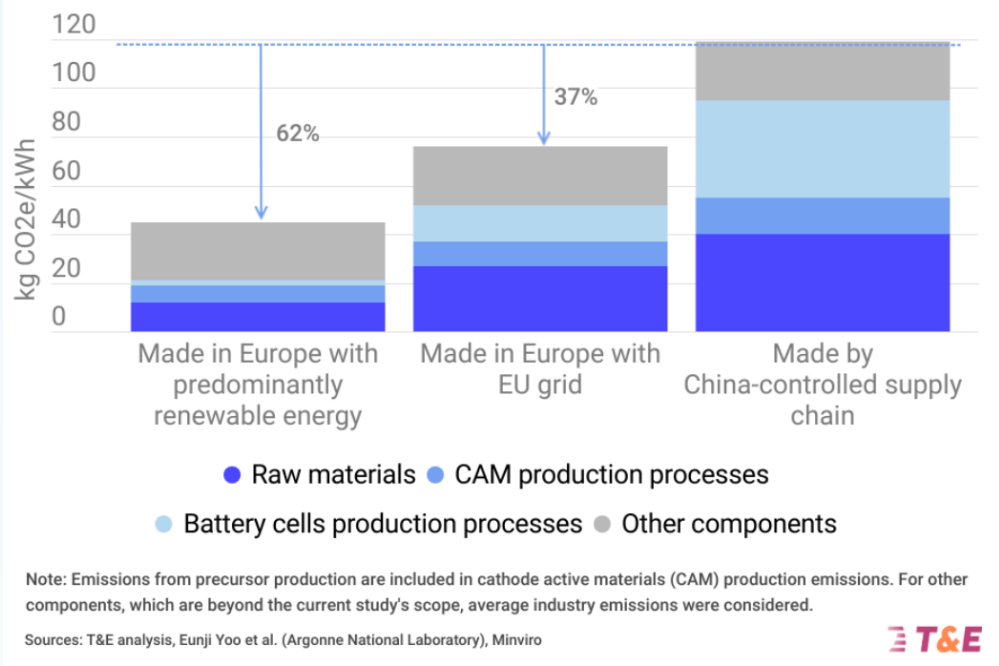
# Stakeholder event on 11 June: (2) Degree of Innovation criterion

- Stakeholder survey results make clear that scaling-up and **mass-manufacturing** of existing battery technologies to reach economies of scale is a key problem.
- Challenges in scale-up such as:
  - low error tolerance around sensitive chemistries
  - substantial investment needs in infrastructure and equipment
  - skilled labour and supply chain management
  - maintaining quality control and efficiency.
- => **Projects do not have to be first-of-their-kind** with regards to technology to compete on Degree of Innovation
- => **Innovation:** in production of batteries and in performance of batteries, reduced use of raw materials, recycling/circular economy etc. will also be considered

# Stakeholder event on 11 June: (3) A suitable GHG methodology for batteries manufacturing

- Currently, emissions from use are calculated and scored.
- Depending on the (LCA) approach taken, different parts of the lifecycle need to be considered
  - inputs to cell manufacturing
  - production of battery cells
  - use phase
  - end-of-life
- Substantial savings can be achieved depending on the production process.
- The source of electricity in the manufacturing process is an important lever for the overall GHG balance.
- Stakeholders split on approach to electricity emission factor.

A recent study (T&E) discusses GHG emissions of battery production




T&E, 2024, Fig. 25: https://te-cdn.ams3.digitaloceanspaces.com/files/An-industrial-blueprint-for-batteries-in-Europe-How-Europe-can-successfully-build-a-sustainable-battery-value-chain.pdf



European Commission

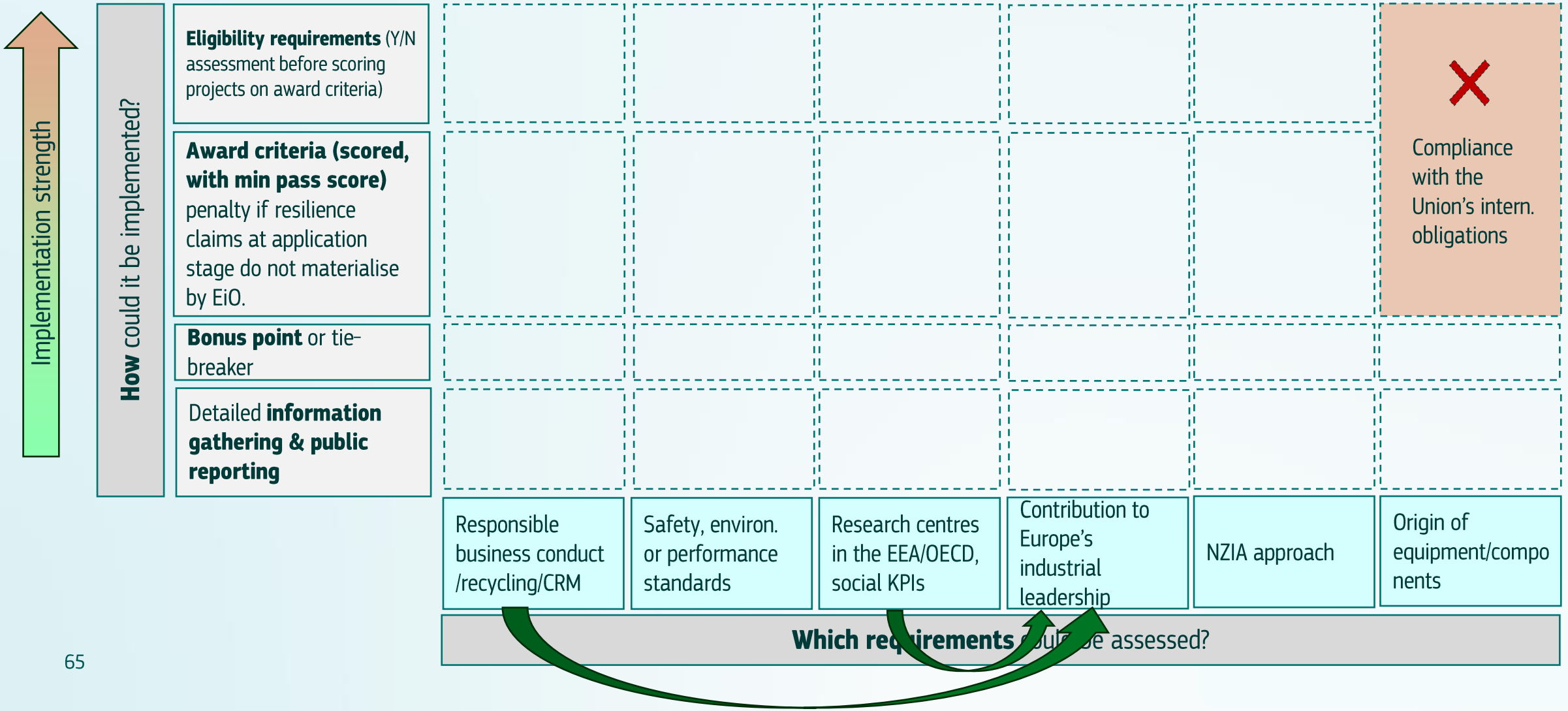
# (3) A suitable GHG methodology within the IF for batteries Defining IF reference and project emissions

- Reference scenario needs to consider use phase and production emissions
  - **Production phase** emissions:
    - A battery production scenario will be constructed based on the principal production steps of a battery cell
  - **Use phase** emissions:
    - proposing to use the EII approach (transport fuel substitute), which sets diesel in an ICE vehicle as the reference
- Project scenario needs to consider monitoring for a clear definition of scope
  - **Production within project boundaries** can be planned by projects and GHG emissions monitored
    - Electricity emissions to use a standard EU value taken from IF methodology
    - Or rated with zero if projects prove they are sourcing via a PPA or through a direct connection with a renewable plant
  - **Production emissions outside of direct control of the projects** to use standard values for each component class
    - with projects being able to deviate if they prove sourcing from EU countries due to lower electricity emissions or PPAs/direct connection.
  - **Use phase emissions savings also** outside the control of the projects
    - Standardised approach to determine the number of BEVs that can be supplied from the projects
  - Production + use phase will be evaluated under standard **"GHG emission avoidance" award criterion** and production phase under **new "Manufacturing carbon footprint" criterion**.

# Stakeholder event on 11 June: (4) Resilience

- Announcement of EVP Šefčovič: *This new instrument will provide support (…) of the most sustainable batteries creating important spill-over effects on the entire value chain, including its upstream segment.*
- Key priority for the EU, in line with Open Strategic Autonomy of the EU, RRF, NZIA and STEP Regulation.
- Since ETS Directive revision, "resilience" criterion has been added to the IF "regular" calls for proposals.
- Competitiveness of EU battery industry is challenged (lower production costs and subsidies in third countries for local manufacturers, global value chain is dominated by China, EU's share in global investments dropped).
- Number of possible "resilience" requirements and number of ways to implement them in a "regular" call for proposals + new possibilities under the Foreign Subsidy Regulation.

# How could resilience requirements be assessed in a “regular” call of proposals?



# Stakeholder event on 11 June: (5) Project Maturity and disbursement schedule

**Stakeholder feedback: Need for speed**

- Suggested time to financial close: 1 year
- Suggested time to Entry into Operation: 3 years
- Under “project maturity”, among other factors, we will assess the project’s ability to credibly reach those deadlines will be assessed

**Stakeholder feedback:** Need to reconcile **modular scale-up** and **“Start of Works”** requirement

**Stakeholder feedback: Pre-financing and flexible disbursement schedule**

- Projects can receive up to 40% of payments before financial close if well justified / needed.
- Project can receive up to 90% of payments for milestones before Entry into Operation if well justified.
- 60% of payments have to be linked to actual GHG emissions reduced

# Next steps

**Next steps:**

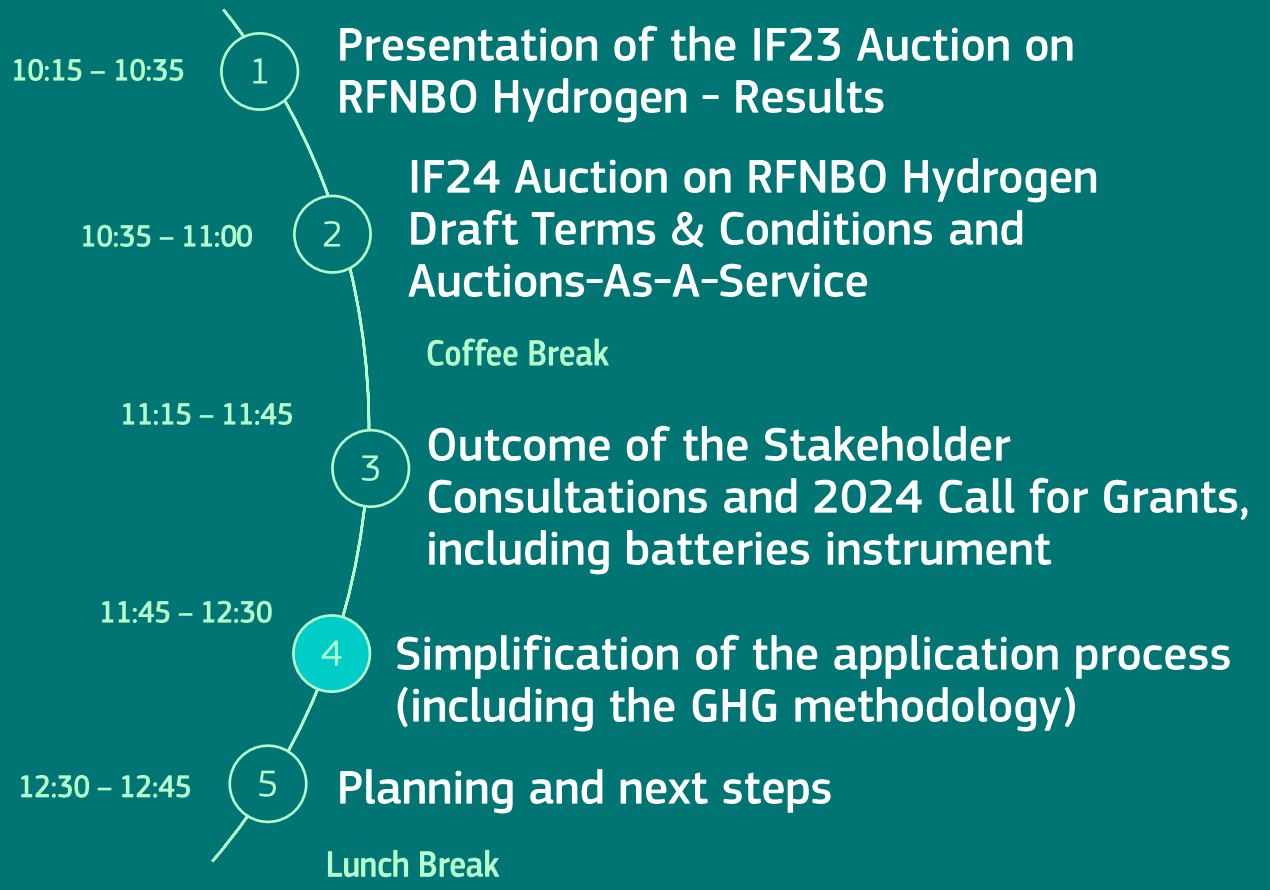
- Final internal deliberations around scope, separate call or topic in upcoming call and call design
- Finalisation of updated GHG methodology and resilience criteria.
- Finalisation of call requirements
- InfoDay to explain call conditions to prospective applicants.
- Call launch

# Q&A

European Commission

# Simplification of the application process (including the GHG methodology)

Maria ALFAYATE, CINEA, Deputy Head of Unit Innovation Fund
Christophe DEHOUT, CINEA, Head of Sector
Laura PERREIRA, ICF associate



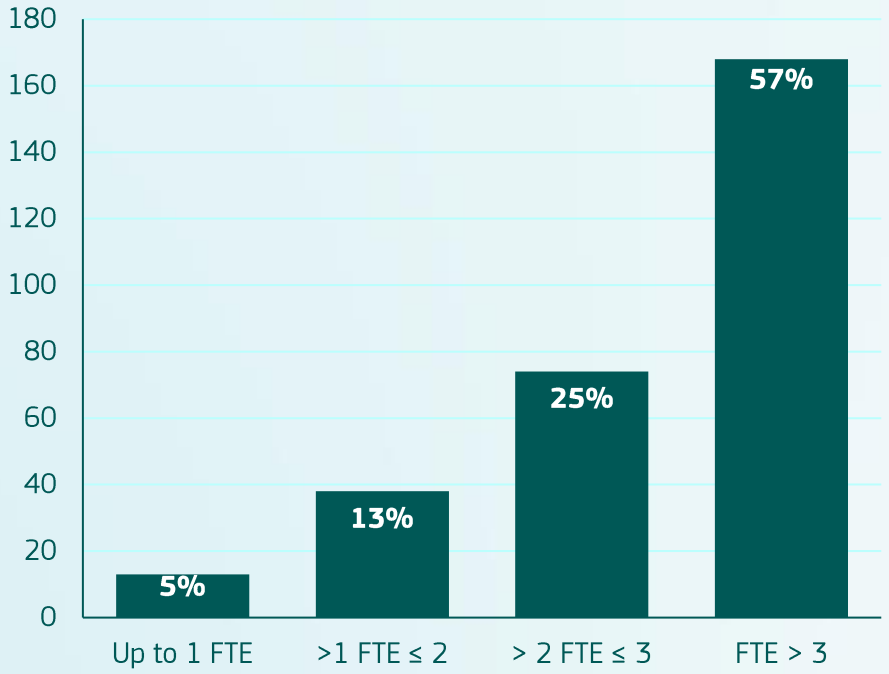

European Commission

# Applicants' survey | Major simplifications

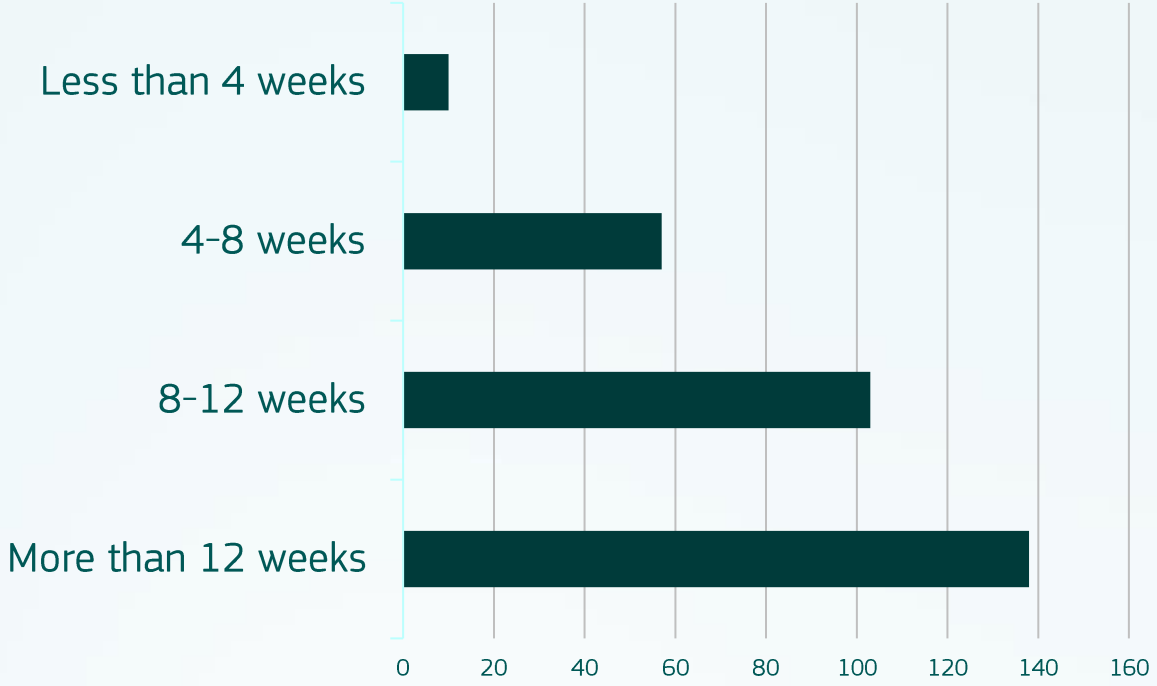
| | |
|---|---|
| Reduce the complexity of calculations | • GHG<br>• Relevant cost methodologies |
| Remove Knowledge sharing plan | • at application stage |
| Avoid duplications | • Linked to information requests between the application (part B) and annexes |
| Provide more templates | |
| Improve project classification | • Categories and sectors are not sufficient, confusing or overlapping<br>-> creating confusion |
| Less complexity for Small-Scale | • Simplified GHG calculation |
| Tracking of helpdesk | • submissions, including confirmation of receipt, and a process ID for tracking |
| Hands-on support for applicants | • For proposal preparation. Including opportunity to discuss specific questions about the application with a 2nd level support or project officer |

# Applicants survey | Level of effort

Level of effort required to complete application in full-time equivalent (FTEs)



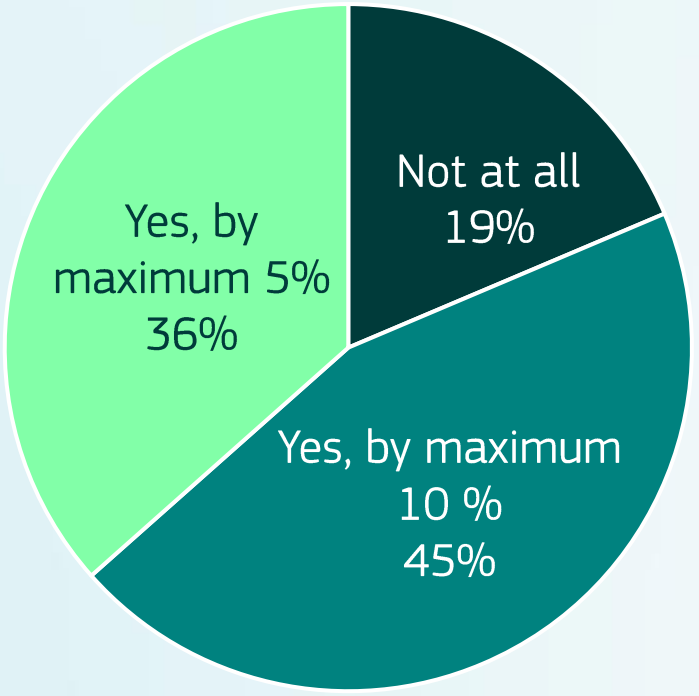

How many weeks did it take to prepare the submission for the IF23 call for proposals?



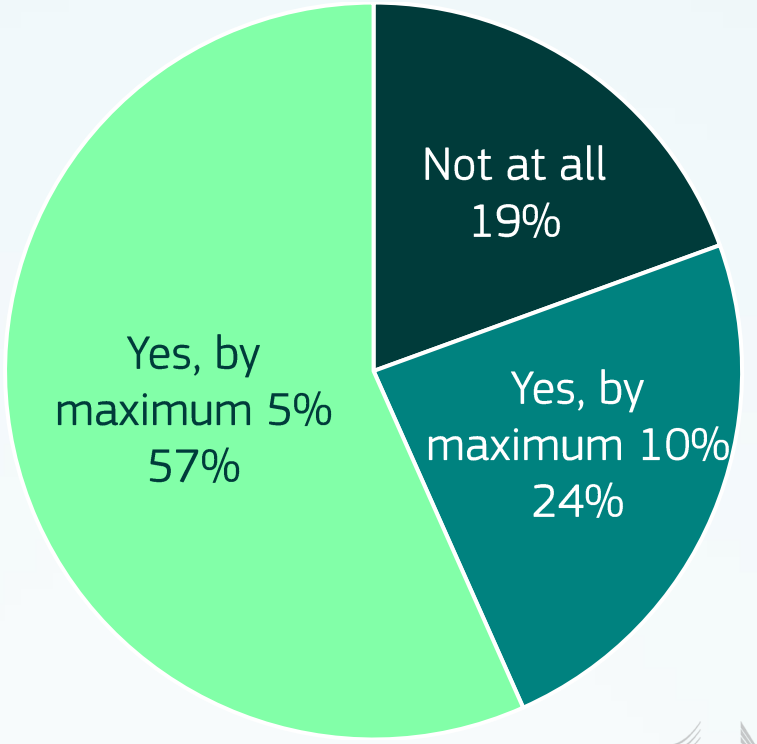

European Commission

# Applicants' survey | Business Plan, Feasibility study and Knowledge Sharing

Potential administrative cost reduction for application if templates or guidance would be provided **for Business Plan and/or feasibility Study**




Potential administrative cost reduction in case **Knowledge sharing plan** would no longer be mandatory (for the application)






European Commission

# The Innovation Fund is taking action:
# Focus on 4 simplification avenues




European Commission

# IF's Guidance on the Feasibility Study

Exemplary sections of a feasibility study

1

**Project description and requirements**

- Project background
- Location analysis and strategic overlook
- Project objectives
- Resources and feedstock availability

2

**Technical maturity assessment**

- Technology readiness
- Expected project output
- Expected impact

3

**Project organisation, staffing and schedule**

4

**Risk analysis and management**

- Technical risks and mitigation measures
- Operational risks and mitigation measures
- Risk heat map



Further details in the call text

# IF's Guidance for the Business Plan

Exemplary sections of a business plan

1

**General Business plan**

- Business proposition and assumptions
- Project counterparties and strategy to secure contracts

2

**Detailed cash flow projections and project profitability**

- Describe cash flow projections
- Expected profitability
- Sensitivity analysis

3

**Financing plan**

- Funding sources and uses
- Soundness of expected sources of financing
- Solidity expected debt terms

4

**Project funders and investors commitment**

- Description of financing parties
- Terms of support and strategy to secure financing agreements

5

**Risk analysis and management**

- BP and financing risks & mitigation measures
  - Risks related to Business Plan
  - Risks related to financing plan
  - Risk heat map



Further details in the call text

# Guidance on project funding support & project contract terms

## Dos and Don'ts

| | |
|---|---|
| **Supporting documents** | **Factual evidence** and pertinent documents contribute to **raise the credibility** of an application's **assumptions and claims** |
| **Credible commitment from funders & project's counterparties** | **preliminary agreements** or **letters of support** with indicative **terms and conditions** (if available) to evidence the proposal's business plan and financing plan assumptions, as well as the state of progress made towards financial close. |
| **Provide best form of evidence** | **Support the credibility of the application** with the best form of evidence including preliminary agreements with elaborated terms and conditions if available |

**No need for generic documents**

Avoid generic documents, which do not provide meaningful support to the credibility of the project maturity during the application.



Further details in the call text

# Clarification of the award Criteria | Replicability criterion

Remove redundancies & elements covered in other criteria

+

Clearer sub-criteria description

+

Define points per sub-criteria

→ Better structure to facilitate proposal preparation

# Simplification of the Relevant Cost Methodology

Christophe DEHOUT, CINEA, Head of Sector

# Relevant Costs (RC) methodology

- The IF23 NZT call included several changes to RC methodology
  - New definition of Relevant Cost following the amended IF delegated regulation
  - Further streamlining by reducing the number of methodologies to 2 (Levelised cost of product methodology removed)
  - Simplification of the WACC computation by proposing default values for the Beta levered and the Equity Risk Premium (ERP), alternatively-applicants can still apply sectoral/national values provided in Annex
  - New data transfer sheet in the FIF to help fill in the Application Form Part C
  - Further guidance for Manufacturing projects on CAPEX, EiO and FC

**Question to stakeholders: Do you see possibilities for further simplification?**

# RC methodology: 2 approaches

## No Reference Plant (NRP)

**Relevant cost (*) =**

*"the net extra costs, calculated as the difference between the best estimate of (i) the economic costs (covering investment and operation) and (ii) the economic revenues and operational benefits"*

**"Default" methodology, recommended for all projects and compulsory for add-on projects (for example carbon capture)**

## Reference Plant (RP)

**Relevant cost (*) =**

*"the difference between (i) the best estimate of economic costs (covering investment and operation) and economic revenues and operational benefits, and (ii) the best estimate of the economic costs and revenues and operational benefits of a project using a conventional technology with the same capacity in terms of effective production of the analogous final product."*

**"Fall-back" option subject to following conditions :**

- Project relates to construction of a completely new plant/unit
- RP has similar characteristics (output, capacity) as Project
- RP complies with EU environmental standards / EU legislation
- Applicants provide documents for financial and technical data of RP
- Applicants provide detailed and verifiable financial projections for RP

*(*) Article 5 of Innovation Fund delegated regulation (21/11/2023)*

European Commission

# Experience with RC methodology

| | NZT 2023 call | LSC 2022 call | LSC 2021 call |
|---|---|---|---|
| **Conditions for using the Reference Plant methodology in each respective call** | • No longer restricted to projects with intermediate products only<br>• Only for new plants (**add-on projects must use NRP**)<br>• RP needs to comply with EU ETS benchmark where relevant | • Could only be used for projects where the levelized cost methodology could not be applied (no substitute products exist and/or market prices cannot be established)<br>• Add-ons to an existing installation were allowed to choose between NRP and RP methodologies<br>• RP needs to comply with EU ETS benchmark where relevant | |
| **Proposals using Reference Plant** (% of total applications) | • 0.9% | • 5.4% | • 3.6% |
| **Proposals using Reference Plant excluding add-on projects** (% of total applications) | • 0.9% | • 2.5% | • 2.9% |

The **RP methodology was rarely used in IF23 NZT call**, even though a far greater share of applicants could in theory have used it, given that the choice of RP methodology was no longer restricted to only projects with intermediary products

European Commission

# Future of Reference Plant Option

**Questions to stakeholders:**

- **What is the reason to have such a low number of projects using the RP Option?**
- **Is RP too difficult to apply in practice?**
  - Is it difficult to credibly identify a reference plant compliant with EU environmental standards/legislation with similar capacity/output characteristics as the project plant?
  - Is it difficult to provide the documentation necessary to assess the credibility of the financial and technical data of a reference plant?
- **Is there a room to remove this option and thus simplify the application and evaluation?**
- **Are there sectors or cases which need this option and why?**

**Please let us know now or by written feedback.**

# Simplification of the GHG Methodology

Laura Pereira – ICF Associate

# Possible simplifications | GHG methodology

| | | |
|---|---|---|
| Adoption of a non-zero **emission factor for electricity** inputs | A combined **mobility section** for aviation, maritime and road transport | Including **upstream emissions for manufacturing of components** |
| Instructions for the calculation of credit related to **CCS/CCU** | Exclusion of **non-specific GHG requirements** to avoid overlap with the financial evaluation (e.g., contracts, letters of interest) | New approach and dedicated sector for **battery manufacturing** projects, aligned to relevant regulations |
| **Alignment of boundaries** (emissions sources and gases) across categories, whilst having in mind materiality for each sector | Clarified instructions on the adoption of **assumptions and data sources** | General tidying up of tools and methodology, removal of redundant fields, restructuring the document, alignment of terminology for clarity |

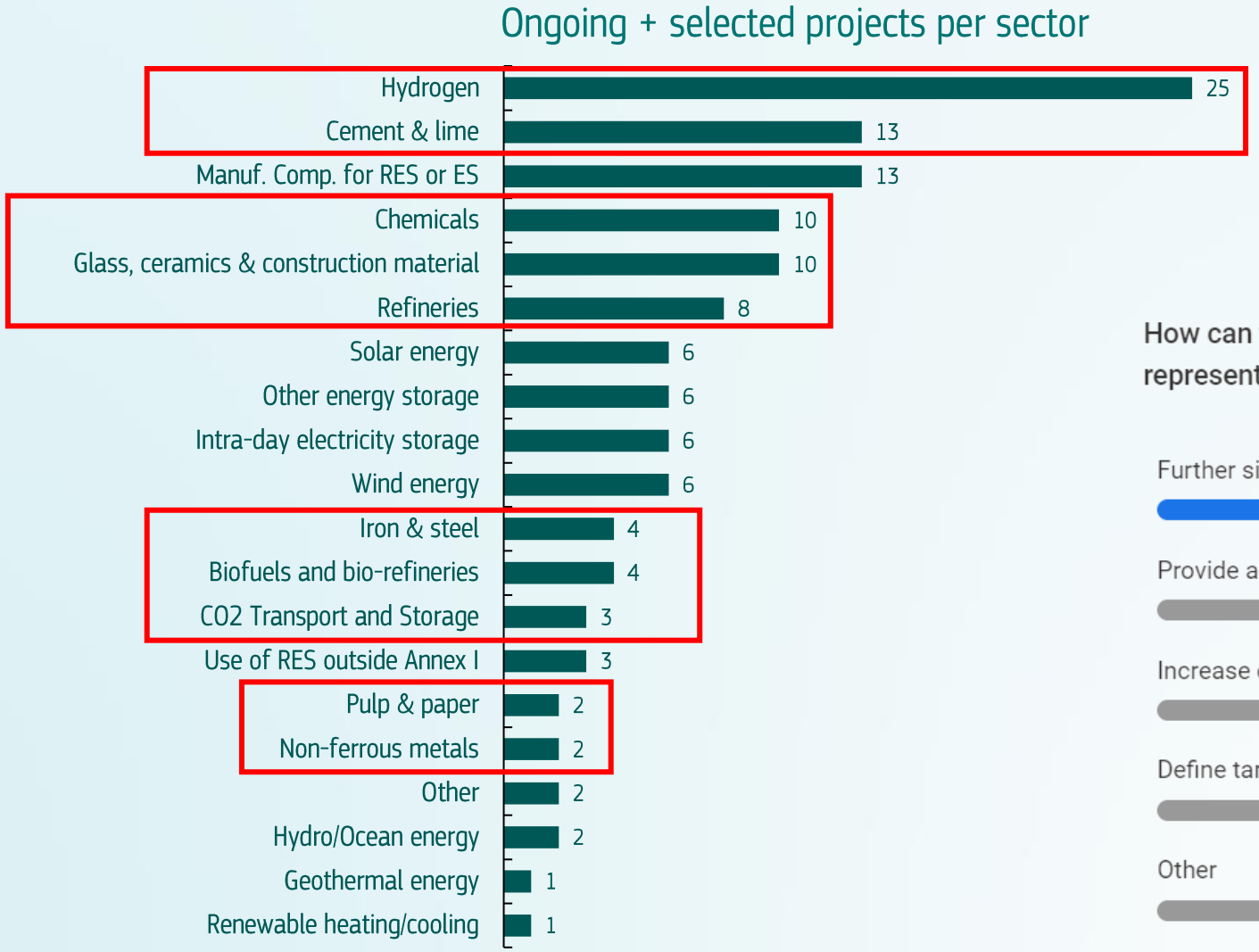
**Feedback from stakeholders**

1. Do you consider it useful to have a non-zero the emission factor for electricity inputs? "Yes, should be aligned with the EF for production of non-dispatchable electricity" for 43% of the 139 respondents, and 41% responded "No, should be kept as 0.0 tCO2/MWh".
2. Should upstream emissions be included within the boundaries of calculation? "Yes, for all projects" for 49% of 184 respondents, and 34% responded "No".

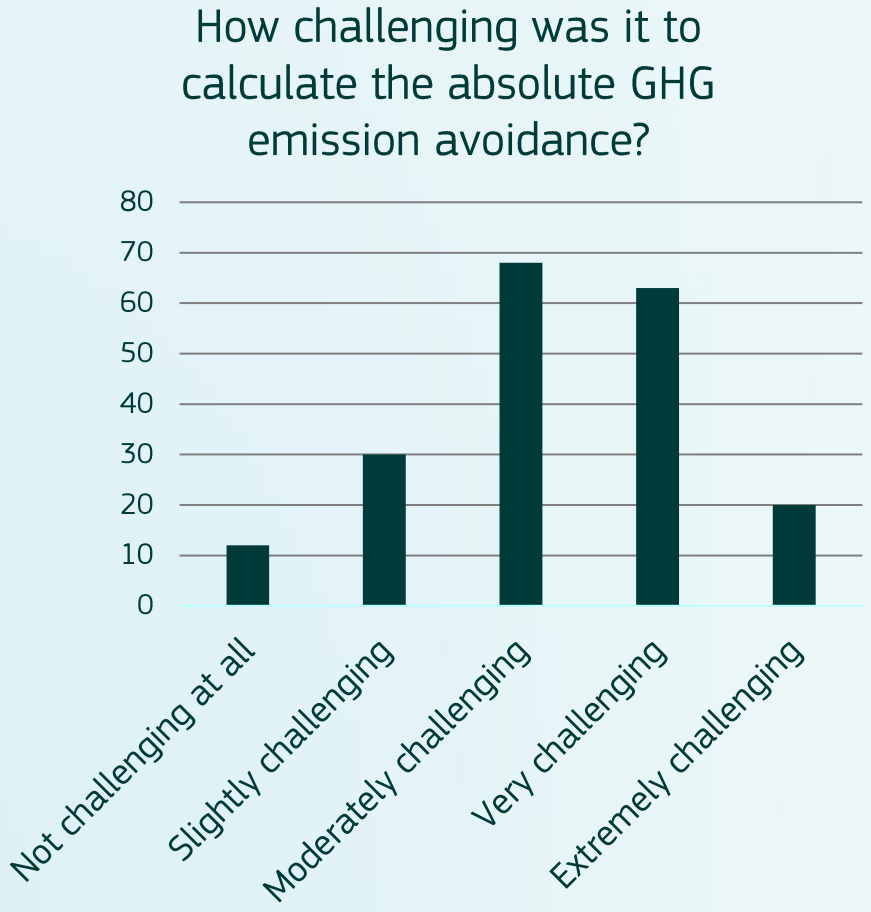
# Energy-Intensive Industries

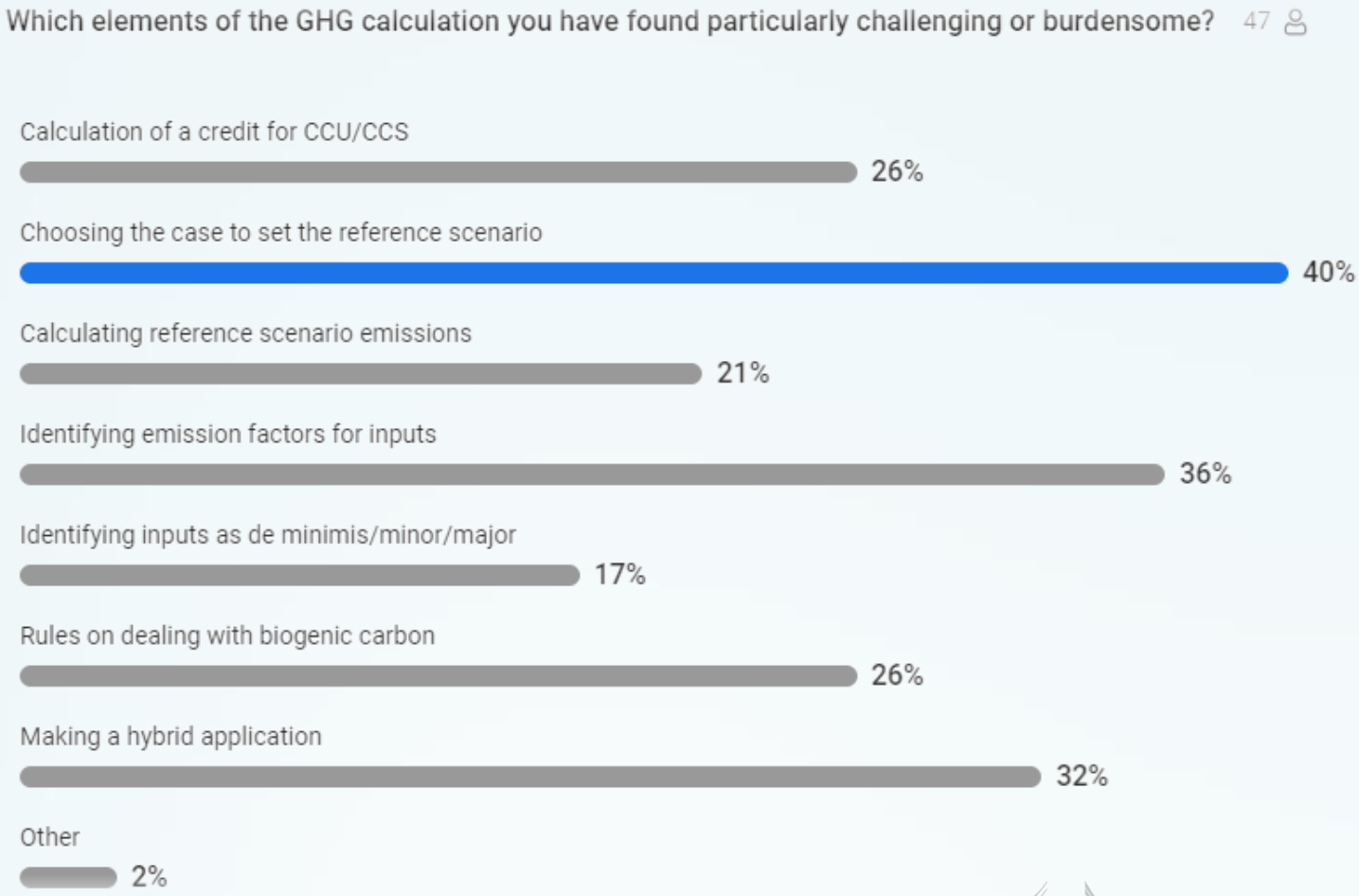
European Commission

# What measures can be implemented to enhance the attractiveness of the IF to smaller companies and less represented sectors?




# Are there any elements of the GHG calculation that you have found particularly challenging or burdensome to complete?





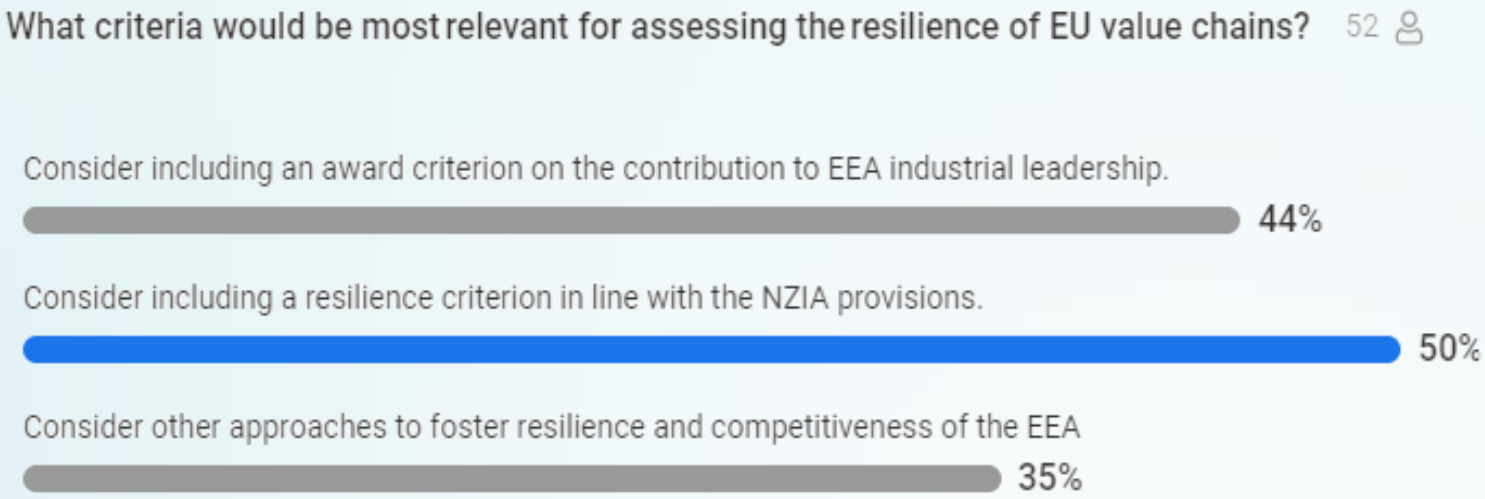

European Commission

# Clean tech manufacturing, Renewable energy and Energy storage

European Commission

# What criteria would be most relevant for assessing the resilience of EU value chains?

| | | | | | |
|---|---|---|---|---|---|
| Responsible business conduct /recycling/CRM | Safety, environ. or performance standards | Research centres in the EEA/OECD, social KPIs | Contribution to EEA industrial leadership | NZIA approach | Origin of equipment/co mponents |



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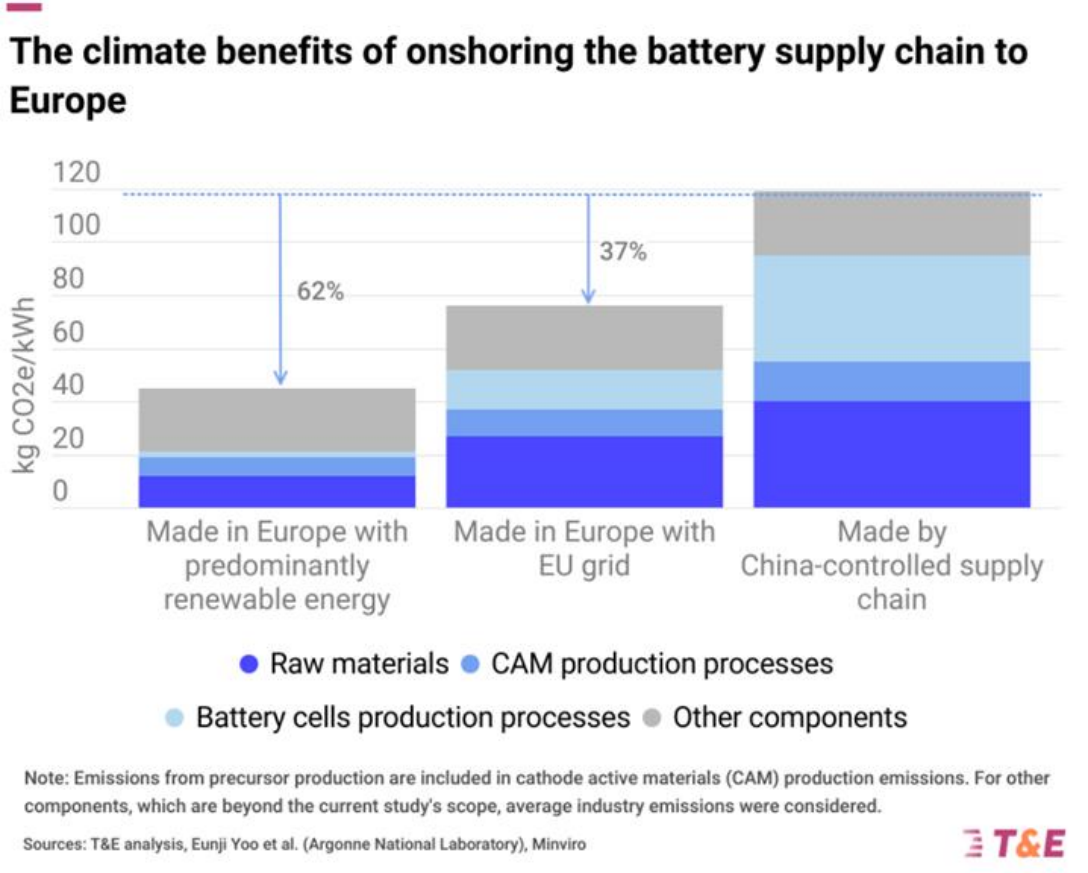
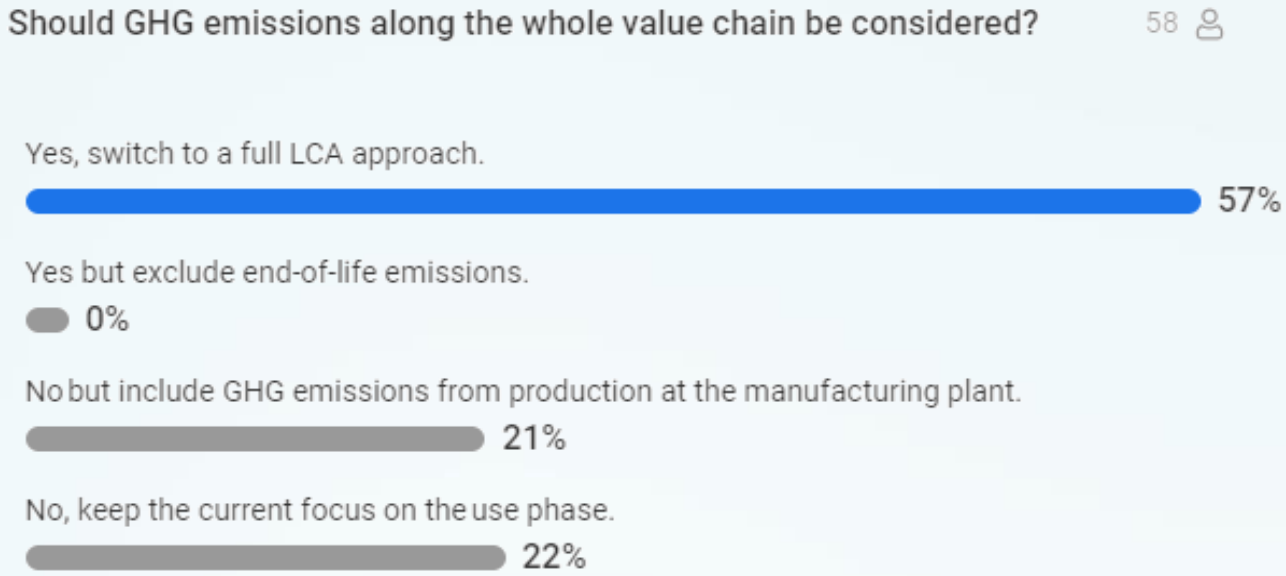
# Should upstream emissions (extraction, production, and distribution of raw materials) be included for Manufacturing, RES and ES projects?




T&E, 2024, Fig. 25: https://te-cdn.ams3.digitaloceanspaces.com/files/An-industrial-blueprint-for-batteries-in-Europe-How-Europe-can-successfully-build-a-sustainable-battery-value-chain.pdf

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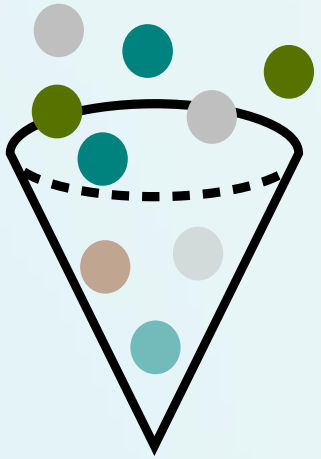
# Net Zero Mobility: Aviation, Maritime & Road Transport

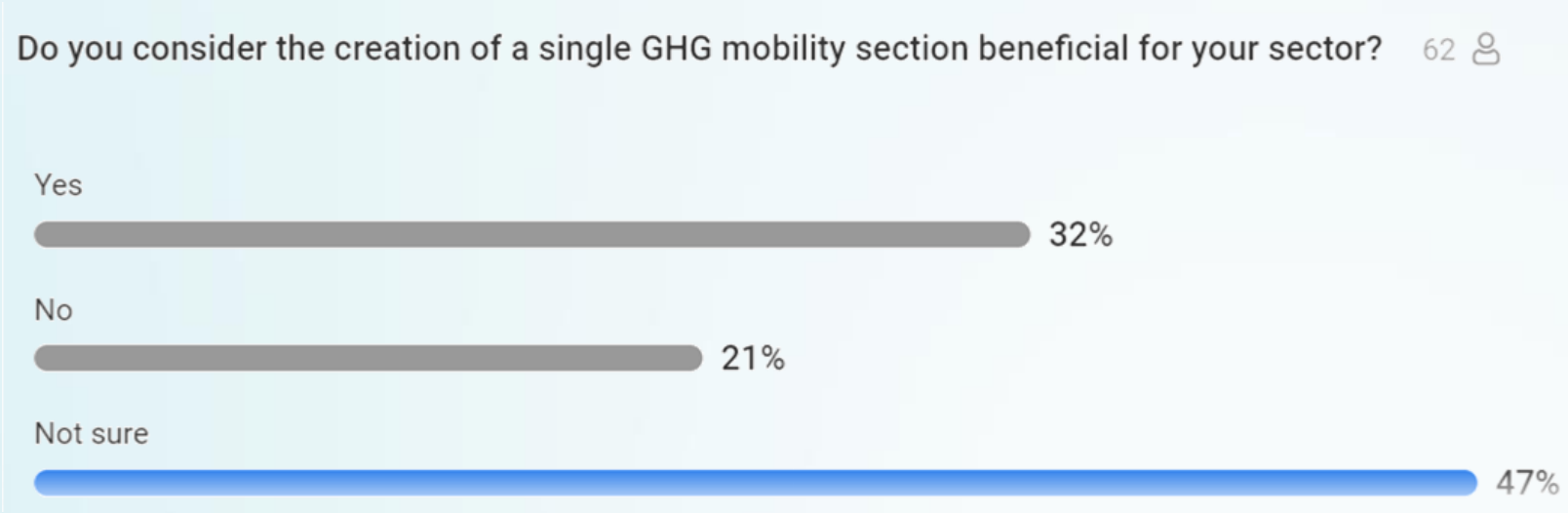
European Commission

# Do you consider the creation of a single GHG mobility section beneficial for your sector?



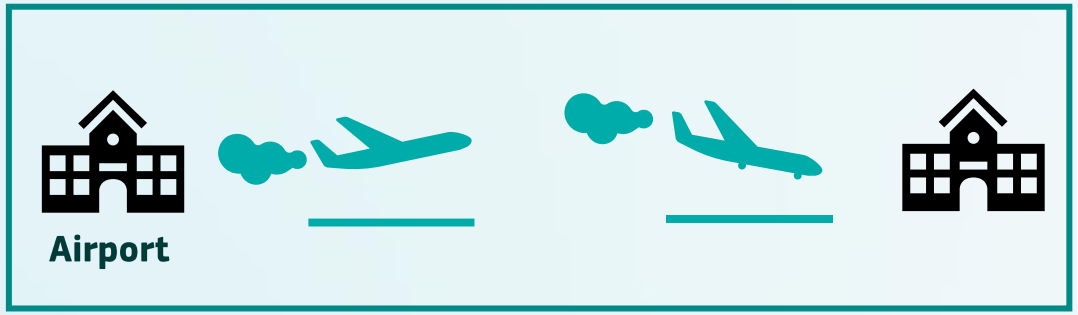
**PROS**: One multi-model that accommodates all possible combinations of modals and fuels, resulting in more flexible baselines

**CONS**: Reduced default provisions and a potential need for changes in resubmissions

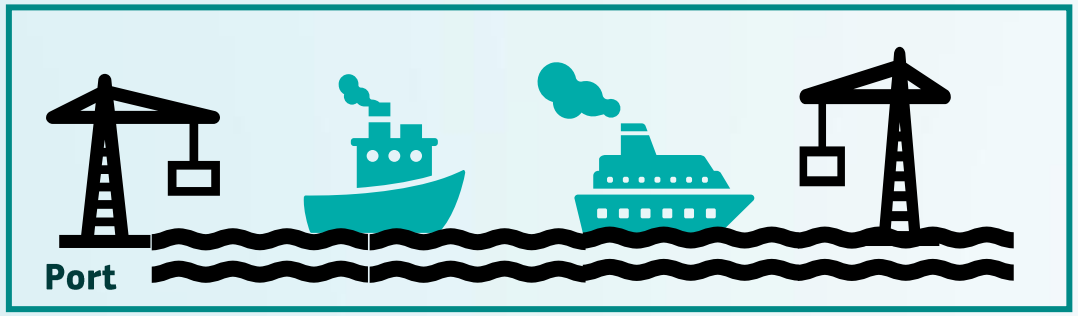


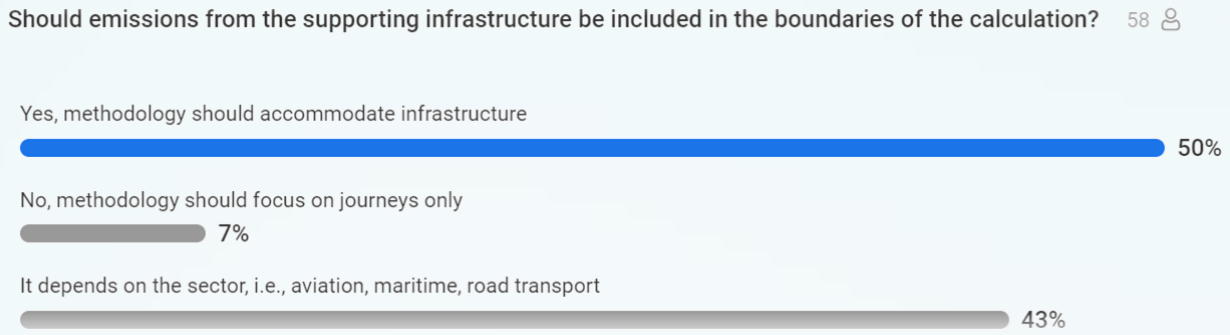

European Commission

# Should emissions from the supporting infrastructure be included in the boundaries of the calculation or just those from the journeys?







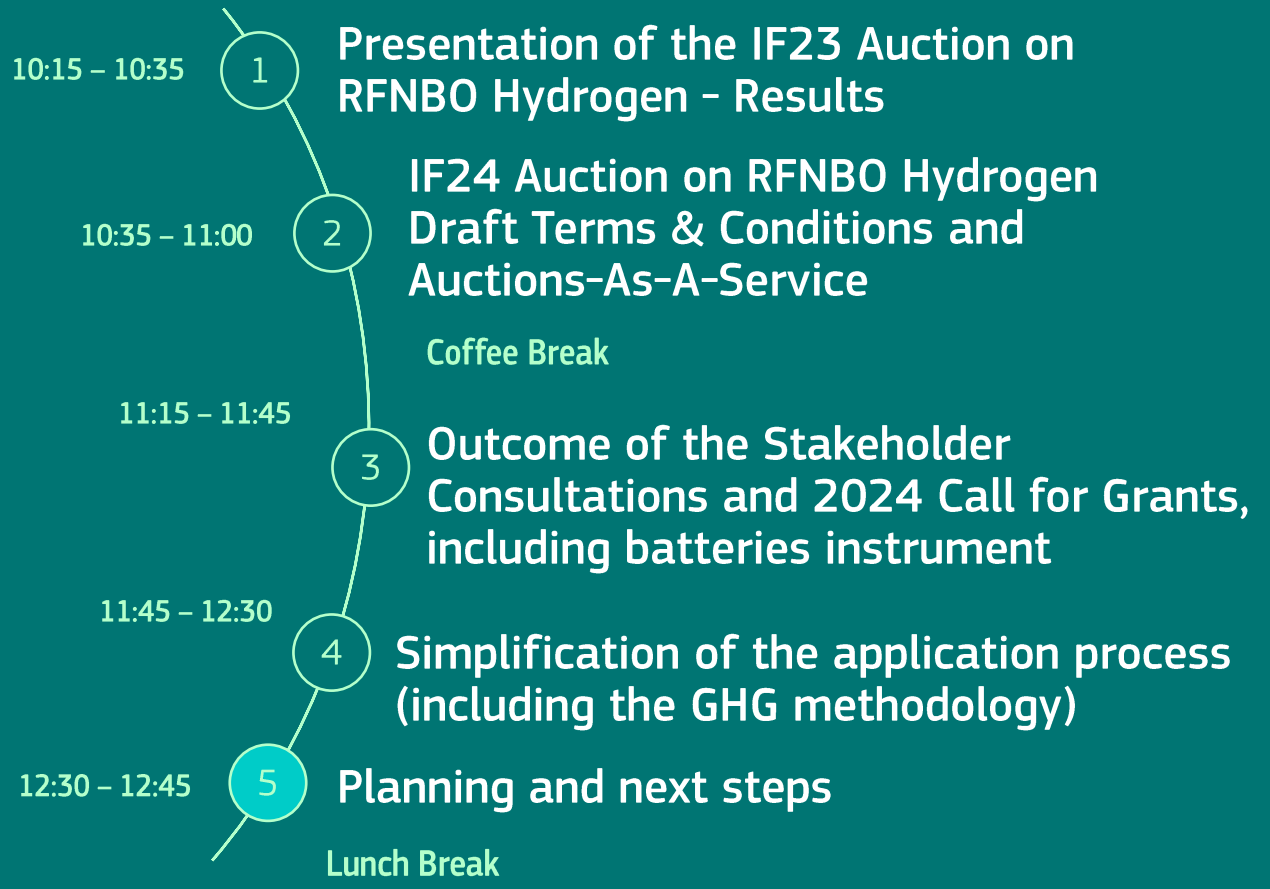



# Q&A

European Commission

# Planning and next steps

Stefanie HIESINGER, DG CLIMA - Head of Unit, Low Carbon Solutions (II): Research & Low Carbon Technology Deployment

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# Planning IF23Call

# Planning IF23 Auction




European Commission

# 2024 planning

## Financing Decision — To be adopted in November 2024

- Drafting ongoing
- Launch interservice consultations – September 2024

## MS consultations — October 2024

- Financing Decision
- List of pre-selected projects following the IF23Call

## Calls launch — **3 December 2024**

- IF24Call regular grants
- IF24Call EV cell batteries manufacturing
- IF24Auction RFNBO Hydrogen

## Other events and actions — upcoming

- Knowledge sharing event Hydrogen
- Knowledge sharing event ICM (CC(U)S)
- Infoday IF24Auction – December 2024 and Infodays IF24Calls (including EV Batteries) – January 2025
- Infodays and National Infodays + Orientation Dialogues: January – March 2025
- 2025 Cleantech Conference – 8 April 2025

# IFEG written consultation

- Request for **written consultation by 11 July 2024**, especially on the following:
  - ❑ IF24Batteries Call: additional award criteria, GHG methodology scope
  - ❑ Simplification of the IF process, including GHG Methodology

clima-innovation-fund@ec.europa.eu

Stakeholder feedback was requested by 28 June 2024.

The European Climate, Infrastructure and Environment Executive Agency (CINEA)

# Sign up as an EU expert for the INNOVATION FUND

Deploying innovative net-zero technologies for climate neutrality

More information here:

https://europa.eu/!RTnFrw

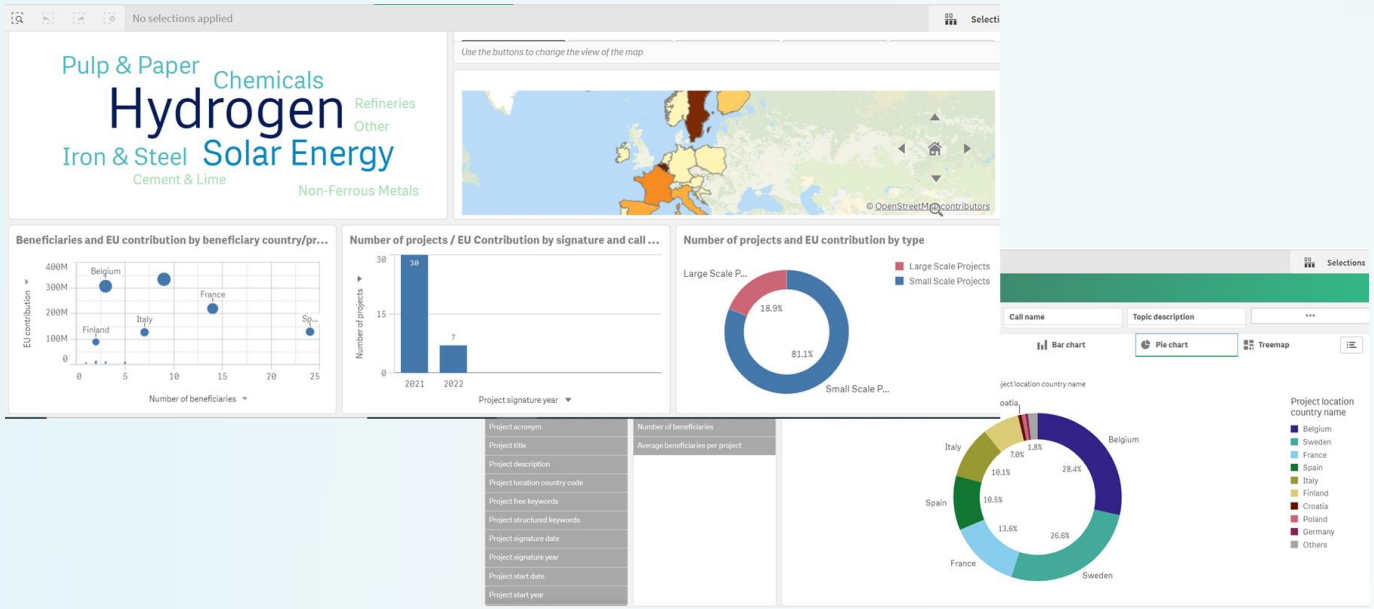
## Join as project evaluator for Innovation Fund

- Technical expert
- Financial expert
- GHG expert
- Rapporteur

Sign up as an Expert (europa.eu)

European Commission

# IF dashboard




Available on [CINEA's website]

European Commission

# More information

**All (past) call documents available on the Funding and Tenders Portal including:**

- ✓ Guidance and calculation tools on GHG emissions and relevant costs
- ✓ Frequently asked questions

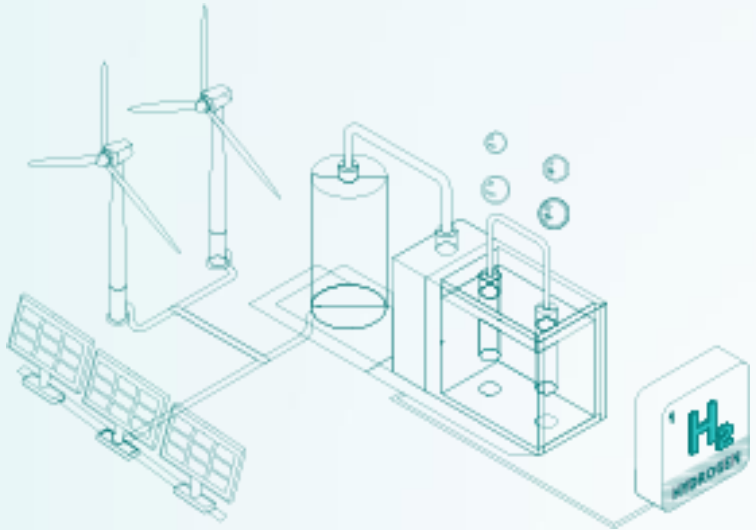
**https://europa.eu/!QB67by**

**Further info, planning of new calls, recorded webinars and videos available on the IF Website:**

**https://europa.eu/!rx34Dt**

**And more videos available on YouTube:**

**https://bit.ly/2WxK8w7**



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# Let’s keep in touch

climate.ec.europa.eu

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# Thank you



European Commission