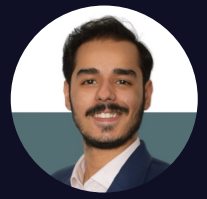
Who is paying the green premium in the 1st Hydrogen Bank Auction?

Insights from the results of 1st Hydrogen Bank Auction

Analyst Note

June 2024



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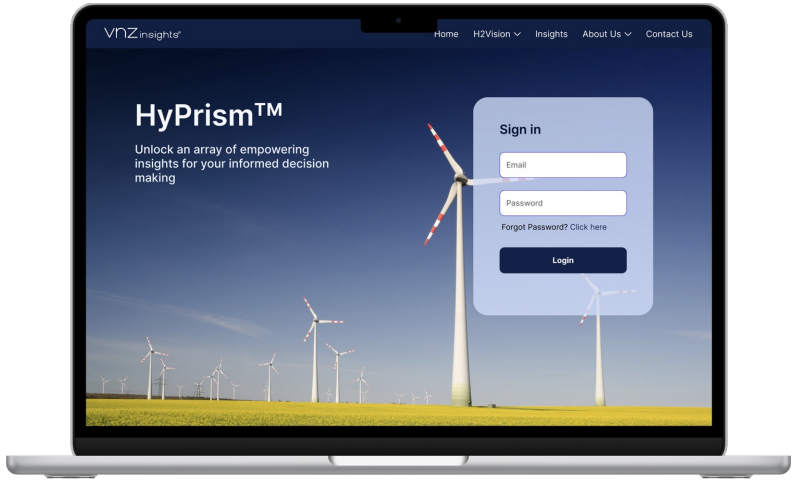

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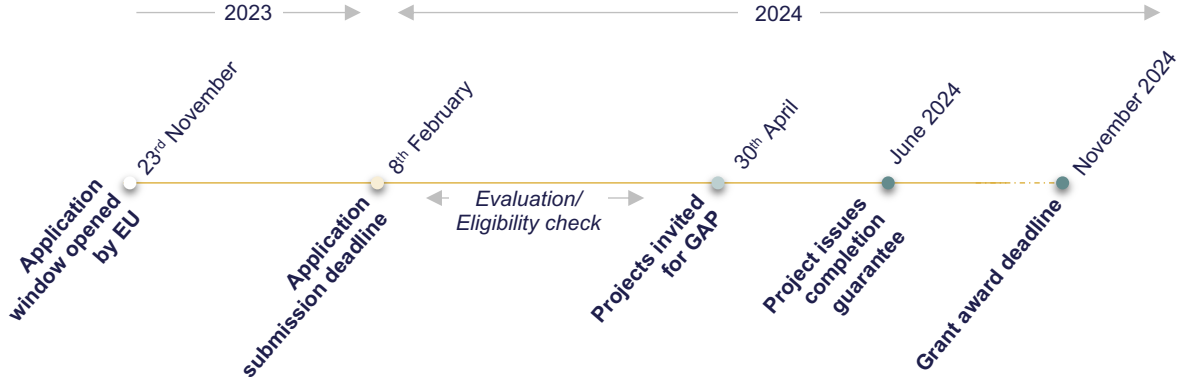
IF23 Auction was introduced to distribute cost-effective financial support, discover price, form market & de-risk RE H_2 projects

BASICS

Innovation Fund 23 Auction

Status	Closed
Subsidy type & capacity	• Fixed Premium on Hydrogen for 10 years
Product Funded	• RFNBO Hydrogen (Renewable Fuels of Non-Biological Origin)
Budget/ Funding	• 800 mEUR budget allocated by the EU for the auction • 720 mEUR awarded to 7 projects
Delivery timeline	Projects are expected to come online within 5 years of getting the funding which is expected to be closed by November 2024. The final deadline for the projects coming online is November 2029.

TIMELINE



AUCTION OBJECTIVES

- Reducing the cost gap between renewable and fossil hydrogen in Europe
- Allowing for price discovery and renewable hydrogen market formation
- De-risking European hydrogen projects
- Reducing administrative burden

AUCTION PROCESS

Pre-qualification

There are certain requirements for the projects, and those who qualify for these requirements will be assessed further.

- Electrolyser Capacity
- Maximum Grant Request
- Maximum Bid Price
- Planned entry into operation
- Completion Guarantee/ Deposit
- New project requirements

Assessment

The bids will be assessed on 2 categories which will result in the failure or pass of the project

- **Relevance** - Objective of the project, final product, tech details & scope
- **Quality** -
  - Technical Maturity: Assessment on the basis of tech characteristics of the project & the implementation plan
  - Financial Maturity: Financing & business plan of the project
  - Operational Maturity: Competence & experience of the project team & sufficient ops. resources

Ranking

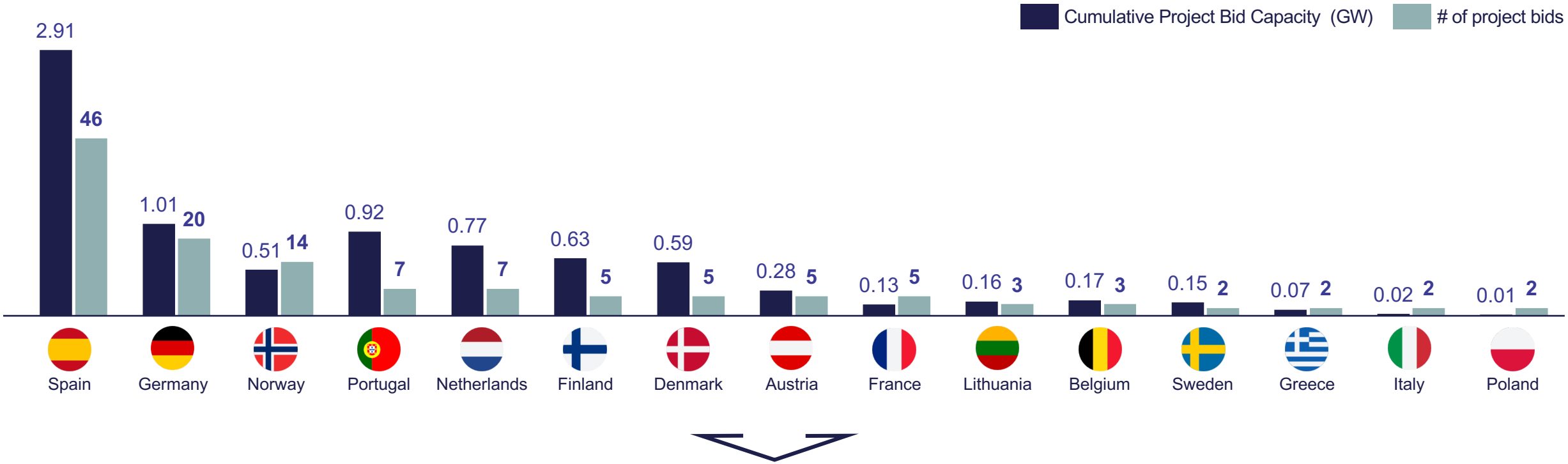
- The bids that will pass the assessment phase will be ranked as per their bid price (EUR/ kg), and the bids that fill the allocated budget will be the winners.

Note: GAP – Grant Agreement Preparation

 Source: European Commission; VNZ Auction Database; VNZ Insights analysis

Of the total 130 bids, Spain, Germany, and Norway had the highest number of bids, while Poland, Italy & Greece had the lowest bids

Cumulative project capacity of bids & # of project bids by country
GW

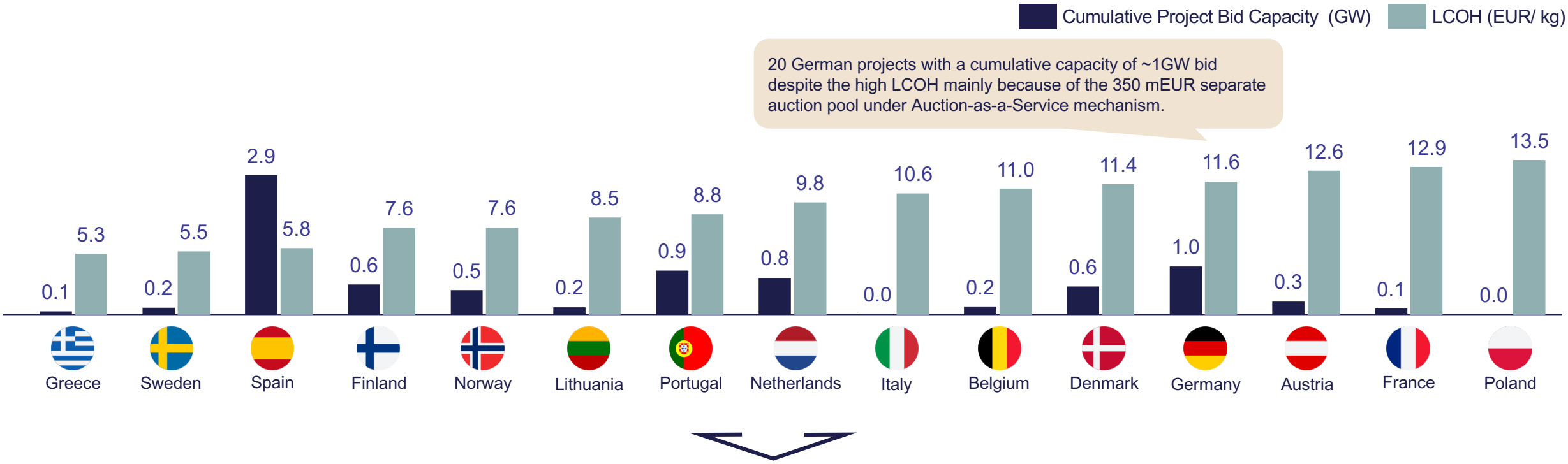


- Projects from Spain led the number of bids and project capacity in the auction mainly due to the low cost of RE in Spain and high solar PV penetration
- Germany, Norway, and Portugal followed Spain, mainly due to the Auction as a Service mechanism, low RE cost due to high hydro capacity & low cost of Solar PV, respectively.

 Source: European Commission; VNZ Auction Database; VNZ Insights analysis

Project Bids in Greece, Sweden, and Spain estimated the least LCOH; Poland, France, and Austria estimated highest levelized cost

Average Levelized Cost of Renewable Hydrogen by Country
EUR/ kg

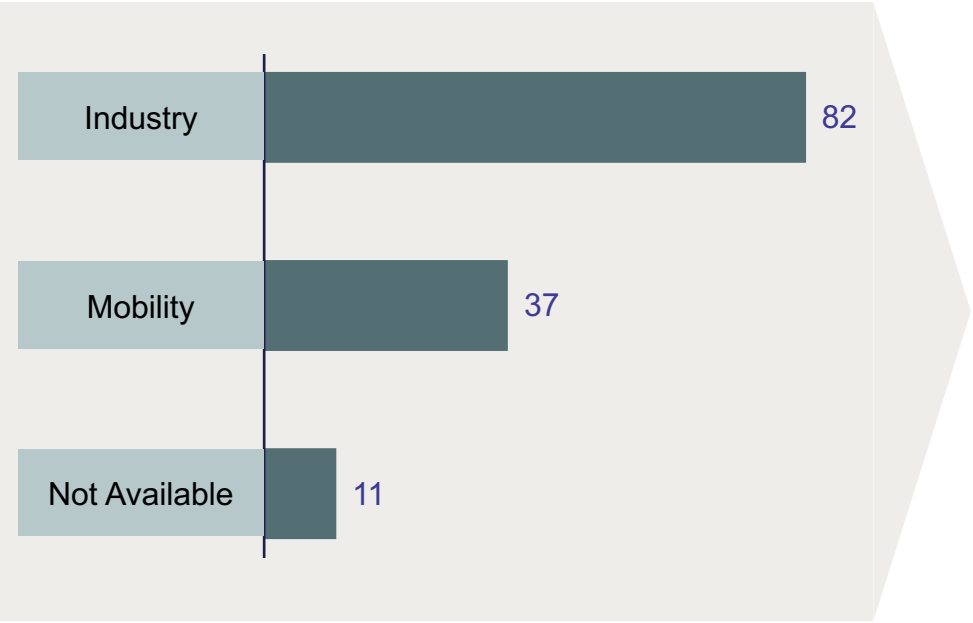


- Greece, Sweden, and Finland had one of the lowest LCOHs but the Green Hydrogen ecosystem is not yet mature, hence the projects were unable to win
- The high number of bids for Spanish & Portuguese projects can be partly attributed to the low LCOH of 5.8 EUR/kg & 8.8 EUR/kg respectively

 Source: European Commission; VNZ Auction Database; VNZ Insights analysis

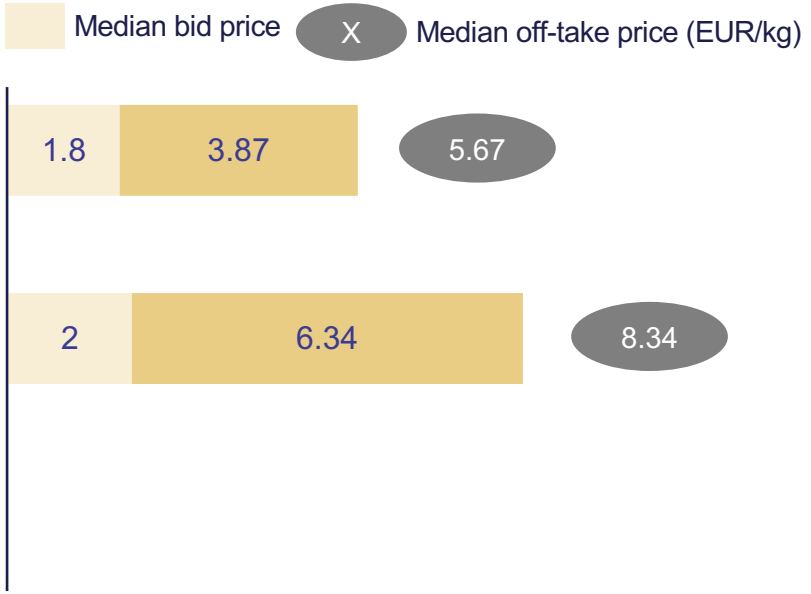
82 projects of the total 130 bids are considering industrial off-takers with median off-take price for industries being 5.67 EUR/kg of H_2

Main off-taker for the bidding projects



Hydrogen Off-take bid price & off-take price

EUR/ kg



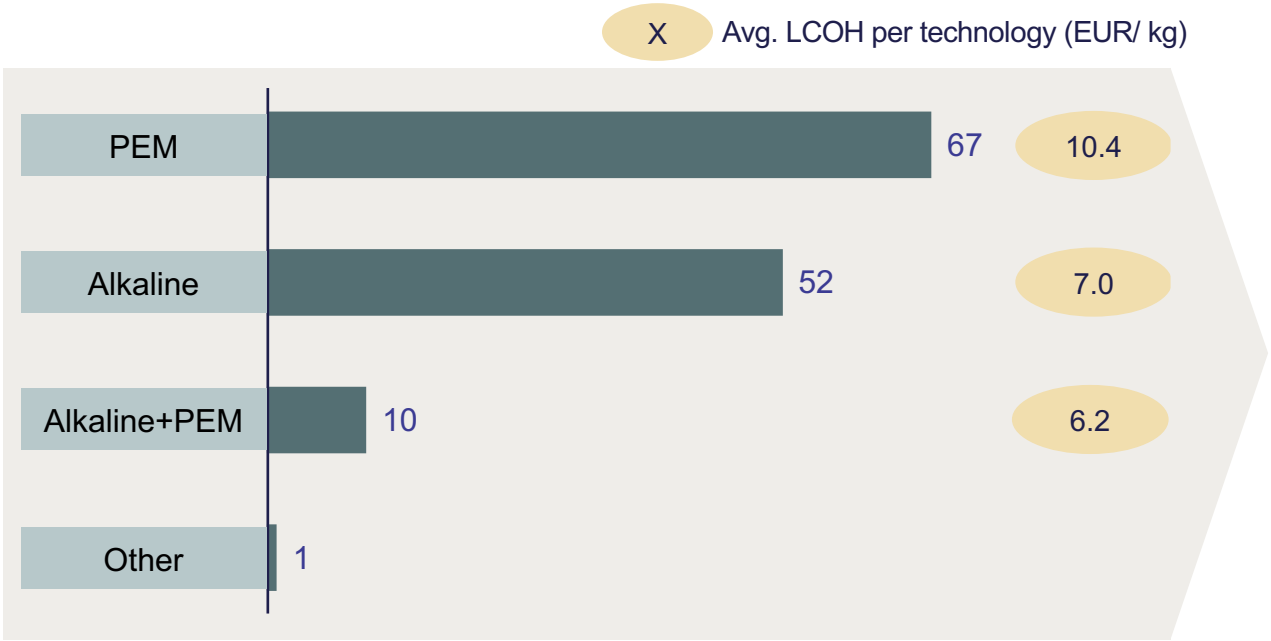
Top subsectors within Industry & Mobility

- Industrial applications are taking the forefront in Green Hydrogen application, as indicated by the number of off-takers for the bid projects, median hydrogen offtake price, and median hydrogen bid price.
- Fertilizers, Refining, Steel and Chemicals industries are the top sectors in the auction followed by Refueling, Logistics, and Maritime in the mobility space.

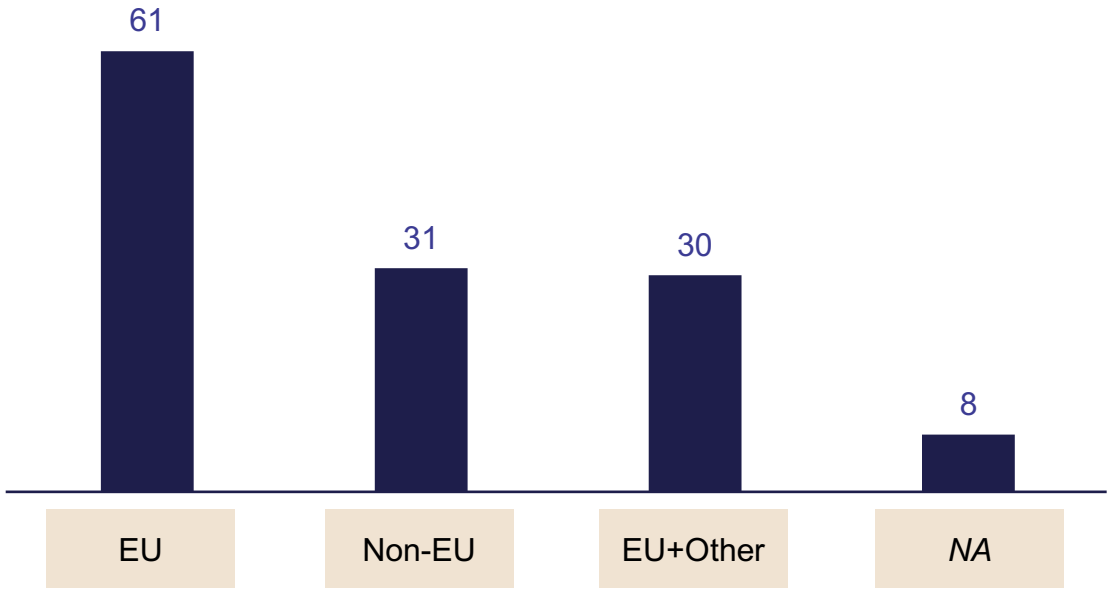
 Source: European Commission; VNZ Auction Database; VNZ Insights analysis

PEM electrolysers are being considered by 67 of the projects even though the avg. LCOH is ~50% higher than alkaline electrolysers

Electrolyser technology proposed by bidders & Average LCOH by technology
EUR/ kg



Origin of electrolysers proposed by bidders

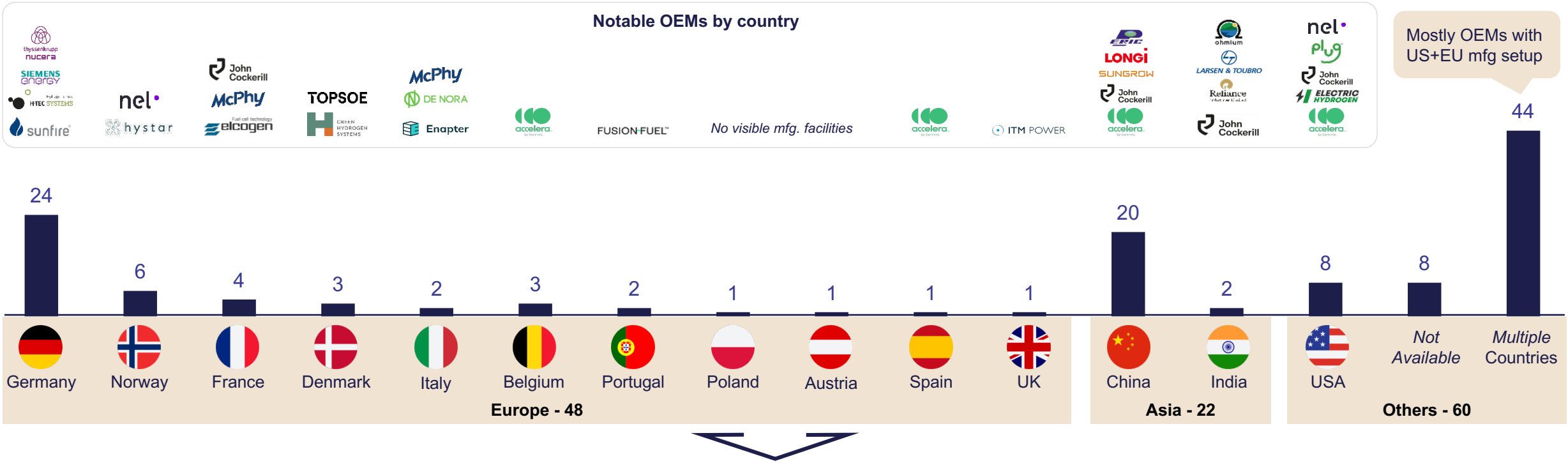


- PEM tech has been chosen by ~50% of the projects despite the high LCOH, followed by Alkaline tech and Alkaline + PEM tech, which is estimated to yield the lowest LCOH.
- Majority of electrolysers are being planned to be procured from Europe, followed by Non-EU countries, and then a mix of EU & other countries.

 Source: European Commission; VNZ Auction Database; VNZ Insights analysis

Germany is the top country for electrolyser procurement, followed by China and USA

Origin of electrolysers proposed by bidders



- Germany is planned to be the leading supplier of electrolysers with 24 agreements, followed by China with 20 and USA with 8, indicating the current landscape of electrolyser manufacturing around the globe.
- 44 projects have an agreement with electrolyser OEMs that have manufacturing setups across multiple countries, mainly in the EU and the US.

 Source: European Commission; VNZ Auction Database; VNZ Insights analysis

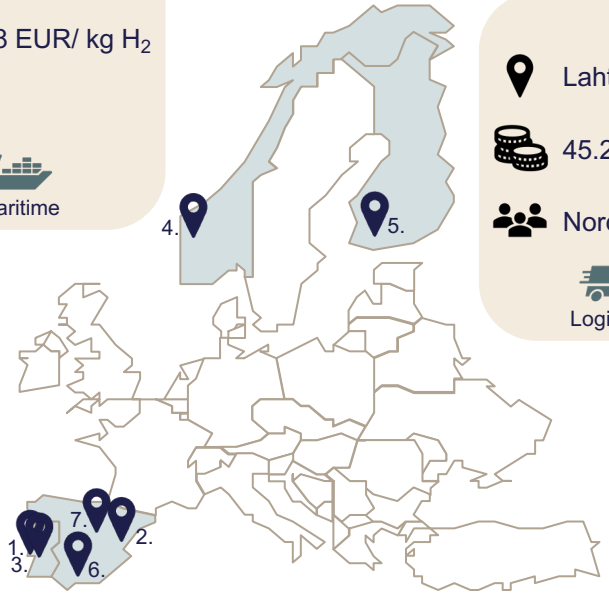
Auction Winners | 5 of the 7 winning projects are located in Spain and Portugal

Project Location | Project Capacity
Funding awarded | H_2 Bid Price
Project Developers

4. SkiGA
Gulen, Norway | 117MW
81.3 mEUR | 0.48 EUR/ kg H_2
Fuella, EnBW, Skipavika
Ammonia | Maritime

5. eNRG Lahti
Lahti, Finland | 90MW
45.2 mEUR | 0.37 EUR/ kg H_2
Nordic Ren-Gas, Lahti Energia
Logistics | Maritime | NG Mixing

3. Grey2Green-II
Sines, Portugal | 200MW
84.2 mEUR | 0.39 EUR/ kg H_2
Galp (Petrogal)
Refinery



7. Hysencia
Aragon, Spain | 35MW
8.1 mEUR | 0.48 EUR/ kg H_2
DH2 Energy
Ammonia | Steel

1. MadoquaPower2X
Sines, Portugal | 500MW
245.2 mEUR | 0.48 EUR/ kg H_2
Madoqua, Power2X, CIP
Ammonia | NG Mixing | Maritime

2. Catalina
Teruel, Spain | 500MW
230.5 mEUR | 0.48 EUR/ kg H_2
Enagas Renovable, Fertiberia, CIP
Ammonia | NG Mixing

6. El Alamillo H_2
Alamillo, Spain | 60MW
24.6 mEUR | 0.38 EUR/ kg H_2
Benbros Energy
No clarity on the off-take strategy

 Source: European Commission; VNZ Auction Database; VNZ Insights analysis

The Winners and their off-take strategy

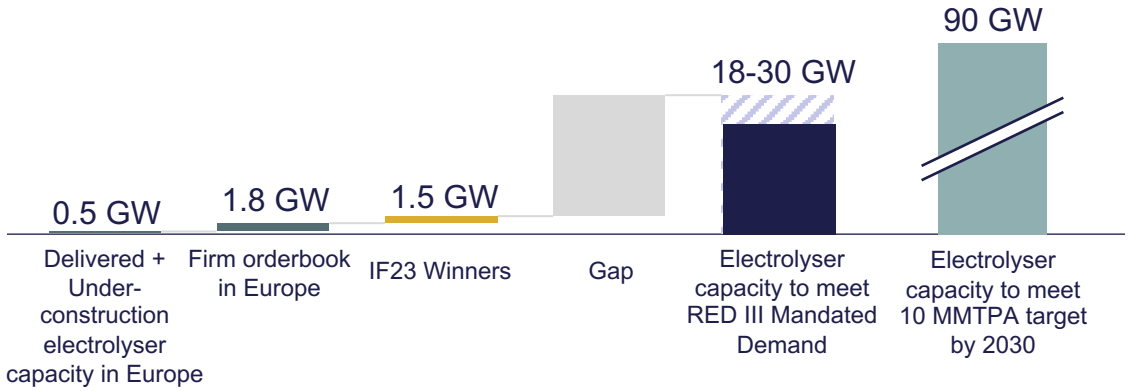
		1502 MW awarded 720 mEUR	CIP most successful developer	All projects in FEED or Pre-FEED	Ammonia has major share	4 projects already have off-taker	Fertilizer, Maritime and Refinery are top 3 applications		
Plant Name	**Location**	**Capacity (MW)**	**Developers**	**Project Status**	**End-Product**	**Off-taker**	**Offtake Application**	**RE Source**	**Suppliers**
MadoquaPower2X	Portugal	500	Madoqua, Power2X, CIP	FID planned to be done by H1 2025	Ammonia	*Not disclosed*	Fertilizer, NG Mixing, Maritime		
Catalina	Spain	500	Enagas, Fertiberia, CIP	FID planned to be done by 2024 end	Hydrogen/ Ammonia	Fertiberia	Fertilizer, NG Mixing		
Grey2Green-II	Portugal	200	Galp (Petrogal)	No visible update on the project status	H_2 Hydrogen	galp	Refinery		*NA*
SkiGA	Norway	117	Fuella, EnBW, Skipavika	FID planned to be done by 2024 end	Ammonia	EnBW	Possibly Co-firing*, Maritime	Hydro	CASALE
eNRG Lahti	Finland	90	Ren-Gas, Lahti Energia	Construction expected to start in 2025	CH_4 E-Methane	Gasum	NG Mixing, Maritime, Logistics		*NA*
El Alamillo H2	Spain	60	Benbros Energy	Commercial operations planned for 2027 end	*Not disclosed*	*Not disclosed*	*NA*		*NA*
Hysencia	Spain	35	DH2 Energy	Construction expected to start in 2024	H_2 Hydrogen	*NA*	Ammonia, Steel		*NA*

Note: FID – Final Investment Decision
* See detailed project profile for details

 Source: European Commission; VNZ Insights analysis

Why the aggressive bid price?

We believe initial 20-30 GW green hydrogen projects are not competing with Grey hydrogen but rather among themselves; a 10% subsidy on LCOH increases their likelihood of offtake



- Through the RED III directive, Europe has mandared Industry and Transport to source RFNBO/ Green hydrogen-based fuel which can create demand for ~18-30 GW electrolyser capacity by 2030
- Due to slow progress on deployment of subsidies, only a few projects have been able to take FID, creating a significant gap to meet the targets. Off-takers will be willing to pay a price premium to meet their mandated demand.
- The green hydrogen projects competing for this mandated demand are competing against each other rather than grey hydrogen.

The winning projects, at least the top 3, will likely remain among the most competitive towards 2030 in Europe; the threat is from cheaper imports but that might take time

TIMELINE

- We believe the top three projects which account for 1.2 GW out of the 1.5 GW winning capacity will remain among most competitive towards 2030
  - 5-year commissioning timeline allows them to use next generation of electrolysers which we expect will be launched in 2025-26 period. These would be more efficient and cost effective compared to today.
  - The top 3 projects are in Spain and Portugal which have the best RE potential in Europe giving them the lowest LCOH compared to anywhere else in Europe.
- There is potential threat to these projects from cheaper imports, however the progress on that front is slow. The impact may be seen in 2030s.

Note: For the analysis, we assumed 9 GW of electrolysis capacity is required to produce 1MMTPA green hydrogen

Source: European Commission Targets and IF23 Auction Results; VNZ Electrolyser Orderbook Database; VNZ Insights analysis

Several fundamental revisions have been made in the draft rules for IF24 auction from the learnings of IF23

IF24 Rules Change | IF23 Auction

Design element	FROM IF23 Rules	TO IF24 Draft Rules	Description
Auction Ceiling Price	€4.5/ kg of hydrogen	€3.5/ kg of hydrogen	Due to the low hydrogen bid prices in the IF23 auction, the ceiling price has been reduced for IF24 auction. There is probably room to go down further.
Planned Entry into Operation (EiO)	5 years	3 years	The median Entry into Operation for IF23 bids was 2.9 years, which resulted in the Entry into Operation being reduced to 3 years
Amount of completion guarantee	4% of total requested grant	10% of total requested grant	To attract more mature projects, the completion guarantee has been increased and Entry into Operation has been reduced
Dedicated budget basket for maritime sector	No special basket	Separate basket for maritime	A separate basket has been created for Maritime sector, in line with the ETS (Emissions Trading System) Directive & EU's Climate target
Electrolyser procurement strategy	Information on tech type, origin, capacity, delivery date, delivery terms & price	Added information on % of value from EU, Safety compliance, % of critical raw material & recycling plans	Beyond gathering the information, the commission is looking to incorporate & operationalise solid resilience aspects in line with European Union's obligations
Auction frequency	Annual auctions planned	Dependent on participation in IF24 auction	No specific reasoning visible for the change in auction frequency

 Source: European Commission; VNZ Auction Database; VNZ Insights analysis

Auction Winner Project
1-Pager Profiles

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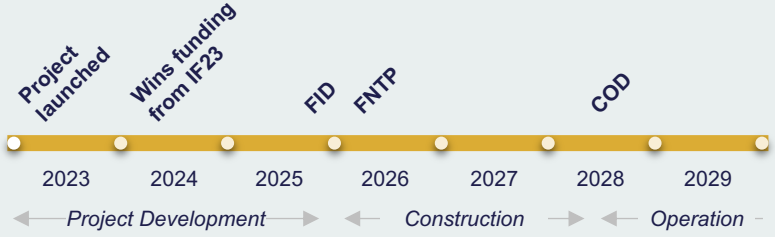
Auction Winner 1 | MadoquaPower2X 500MW project in Portugal

Project Description

MadoquaPower2X, a project developed by 3 developers in Portugal's Sines Industrial Zone, aims to produce green ammonia using green hydrogen for fertilizer manufacturing, natural gas mixing, and shipping fuel.

The project targets operation by H1 2028, with a final investment decision planned for H1 2025.

- **Capacity** – 500MW; 51k tonne annual H_2; 300k tonne annual Ammonia
- **Funding Won** – 245.2 mEUR
- **Bid Price** – 0.48 EUR/ kg H_2
- **Overall Estimated Budget** – 1.29 bEUR for Phase 1



Project Developers & Suppliers

Project Developers

- **Madoqua Renewables** – Project development company focused on industrial transformation by developing Power-2-X technology based out of Portugal and the Netherlands
- **Power2X** – An energy transition consultancy & project developer specializing in next-gen energy assets
- **CIP (Copenhagen Infrastructure Partners)** – Investment Fund focused on greenfield RE infra investments; The project will form part of CIP's Energy Transition Fund

MADOQUA | POWER2X LEADING IN ENERGY | CIP Copenhagen Infrastructure Partners

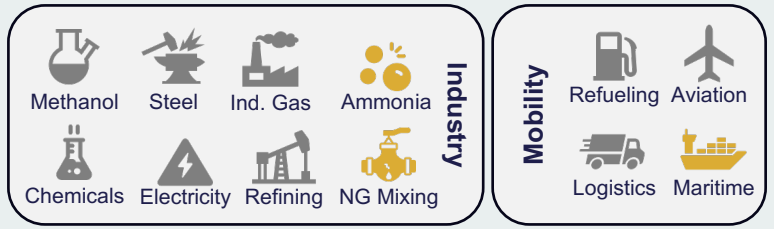
Suppliers

- **Electrolyser** – Electrolyser technology has been finalized as Alkaline but OEM has not yet been decided
- **Ammonia technology** – KBR has been selected to supply its K-GreeN technology for ammonia production
- **FEED Studies** – NextChem (part of Maire Tecnimont) has performed the Pre-FEED study for the project; Maire Tecnimont to do the FEED study & submit EPC proposal

KBR | NEXTCHEM | Maire Tecnimont

Offtake & Renewable Strategy

Offtake Strategy



The hydrogen produced is to be converted into Ammonia & then transported by pipeline to the Port of Sines for export to the Northern European markets through Rotterdam for use as:

- **Maritime Fuel –** The primary offtake market for the project will be maritime either directly from the Port of Sines or through export markets
- **Fertilizers** – The ammonia is also expected to be used for fertilizer production in Portugal and in export markets of Northern Europe
- **Energy** – The tertiary market for the ammonia produced is anticipated to be for injection into the Natural Gas pipelines

The developers are focusing on the North European buyers who will be willing to pay the premium for the green ammonia, particularly as a maritime fuel.

Renewable Strategy

- Renewable electricity is planned to be sourced from the projects in Portugal, specifically wind and solar plants that are being developed in parallel

Note: FID – Final Investment Decision; FNTP – Final Notice to Proceed

 Source: European Commission; VNZ Insights analysis

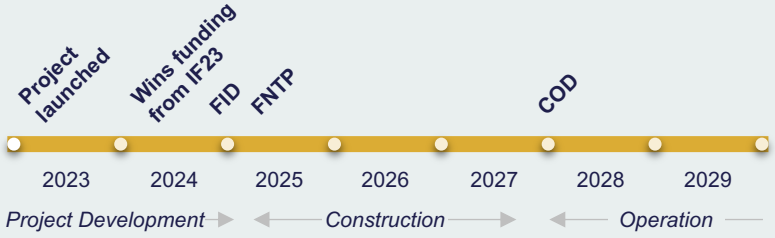
Auction Winner 2 | Catalina 500MW project in Spain

Project Description

Project Catalina, developed by a consortium of Enagas Renovable, Fertiberia, and CIP, will transport green hydrogen via pipeline to Fertiberia's facility for ammonia and fertilizer production.

The project is expected to launch by 2028, with a final investment decision targeted for late 2024.

- **Capacity** – 500MW; 55k tonne annual H2; ~290k tonne annual Ammonia
- **Funding Won** – 230.5 mEUR
- **Bid Price** – 0.48 EUR/ kg H_2
- **Overall Estimated Budget** – 2.33 bEUR



Project Developers & Suppliers

Project Developers

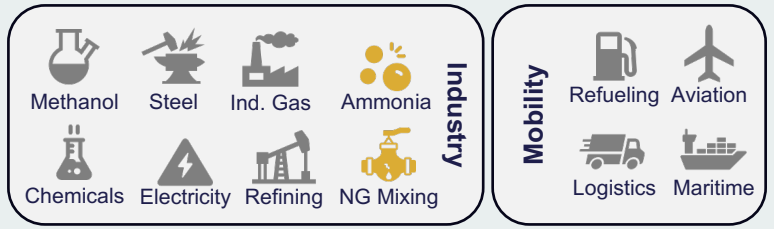
- **Enagas Renovable –** Spanish gas transmission company Enagas' subsidiary, developing Green Hydrogen & Biomethane projects.
- **Fertiberia** – European crop nutrition firm with 14 facilities, targeting net zero emissions by 2035
- **CIP (Copenhagen Infrastructure Partners)** – Investment Fund focused on greenfield RE infra investments; The project will form part of CIP's Energy Transition Fund

Suppliers

- **Electrolyser** – Tech & OEM have not been finalized
- **Ammonia technology** – OEM has not been finalized
- **FEED Studies** – Wood to lead as owner's engineer for FEED, preliminary studies & EPC tendering support; Tecnicas Reunidas to do the engg. works of tech documentation, permits & cost estimate

Offtake & Renewable Strategy

Offtake Strategy



The hydrogen produced is to be transported to a low-carbon ammonia production plant developed & operated by Fertiberia in Sagunto, Spain through a dedicated 221 hydrogen pipeline.

- **Fertilizer Production –** The primary off-take for the hydrogen produced will be for ammonia production by Fertiberia. The produced ammonia will be used to produce low-emission fertilizers.
- **Natural Gas Mixing** – The secondary off-take for the hydrogen produced is expected to be by Naturgy, which will mix the hydrogen into the local gas distribution network.

Fertiberia has partnered with Marks & Spencer, Pepsico, Vivescia, Grupo Gallo, Primaflor & Heineken for the supply of its Net Zero fertilizer products which will help the off-takers achieve their net zero goals.

Renewable Strategy

- The developers aim to develop 1.1GW of combined onshore wind (504MW) and solar (571MW) to power the project

Note: FID – Final Investment Decision; FNTP – Final Notice to Proceed

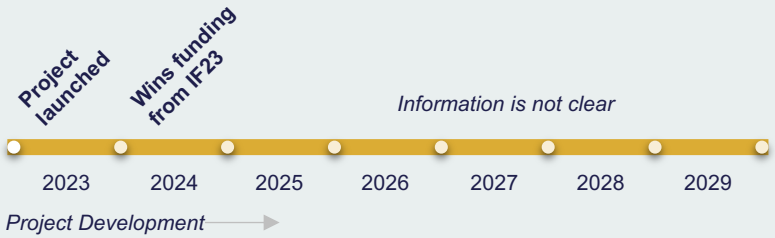
 Source: European Commission; VNZ Insights analysis

Auction Winner 3 | Grey2Green-II 200MW project in Portugal

Project Description

The Grey2Green-II project is the 2nd phase of the Grey2Green initiative by Galp to decarbonize the Sines refinery. The 200MW project adds to the 100MW 1st phase currently under construction, where the electrolyser is being supplied by Plug Power.

- **Capacity** – 200MW; 21.6k tonne annual H_2
- **Funding Won** – 83.2 mEUR
- **Bid Price** – 0.39 EUR/ kg H_2
- **Overall Estimated Budget** – *NA*



Project Developers & Suppliers

Project Developers

- **Petrogal (Galp) –** Petrogal is the refining subsidiary of Galp group, which is a Portuguese energy giant. Galp has been developing renewable energy assets in the Iberian Peninsula and runs a large refinery in Sines which is the largest consumer of grey H_2 in Portugal.

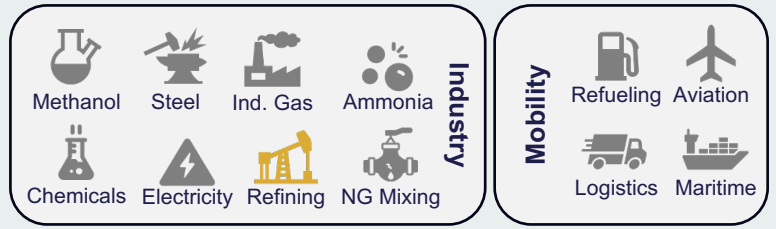
galp

Suppliers

- **Electrolyser** – No electrolyser technology and OEM has not been decided

Offtake & Renewable Strategy

Offtake Strategy



The green hydrogen produced from the project will replace the grey hydrogen which is currently being used in the Sines refinery for processing the petrochemicals.

Galp has to replace at least 42% of the grey hydrogen with green hydrogen or use Renewable Fuels of Non-Biological Origin (RFNBO), which are hydrogen derivatives, by 2030 under the EU directives.

Galp has already taken the FID for the 100MW 1st phase of the project and the funding by the EU for the 200MW 2nd phase brings the FID closer.

Renewable Strategy

- Galp has a large portfolio of renewable energy assets in the region which will provide electricity for the project.

 Source: European Commission; VNZ Insights analysis

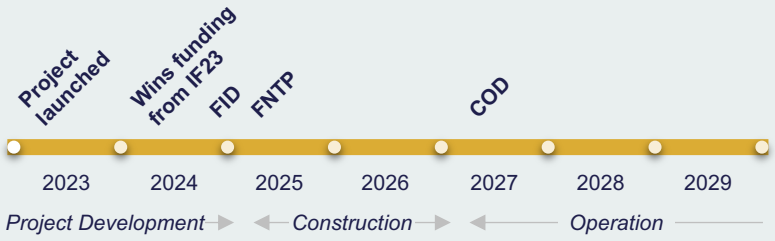
Auction Winner 4 | SkiGA 117MW project in Norway

Project Description

Project Skipavika (SkiGA) is a green ammonia production facility being built near Bergen, Norway. Fuella is the primary developer with EnBW as a minority stakeholder and the exclusive off-taker of the green ammonia.

The project is expected to start operations in 2027 with construction expected to start from 2024 end – 2025 beginning.

- **Capacity** – 117MW; 100k tonne annual Ammonia
- **Funding Won** – 81.3 mEUR
- **Bid Price** – 0.48 EUR/ kg H_2
- **Overall Estimated Budget** – 0.34 bEUR



Project Developers & Suppliers

Project Developers

- **Fuella –** Formed in 2020, Fuella is a Norwegian developer who is currently working on 117MW SKIGA project and 260MW Korgen project
- **EnBW** – German utility, EnBW acquired 10% in the project and also signed a deal to exclusively offtake the ammonia produced from the project
- **Skipavika** – Industrial park in the Mongstad harbor basin where the project is to be located

FUELLA FUTURE OF FUEL — EnBW — Skipavika

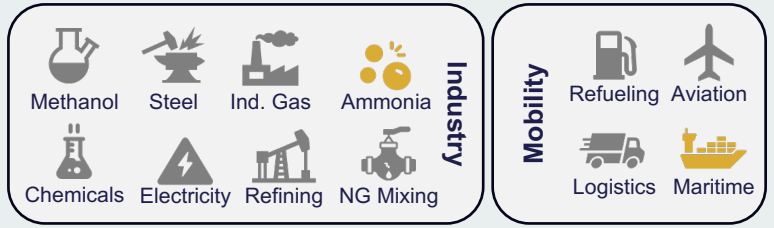
Suppliers

- **Electrolyser** – No electrolyser technology and OEM has not been decided
- **Ammonia technology** – No ammonia production technology and OEM has not been decided
- **EPC** – Casale has been chosen as the licensor and EPC contractor for the project

CASALE

Offtake & Renewable Strategy

Offtake Strategy



The green hydrogen produced from the project is to be converted into Ammonia. EnBW, which is a minority stakeholder in the project, has taken exclusive rights for the offtake of the ammonia.
As per press release of EnBW on this project- “Ammonia can be either converted to hydrogen for combustion in heat and power generation or directly used for this purpose. EnBW will be equipped to offer green ammonia for both **internal decarbonization initiatives** and their customers, including the local and international maritime sector”.

On ‘internal decarbonization initiatives’, EnBW’s ambition to retire its coal assets by 2028 seems difficult as per media reports (Mar’24). The Green Ammonia therefore could be used to meet EnBW’s interim SBTi targets.

Renewable Strategy

- The project has signed an agreement with Hafslund, Norway’s second - largest power producer, for the delivery of 130MW of renewable energy.

Note: FID – Final Investment Decision; FNTP – Final Notice to Proceed

 Source: European Commission; VNZ Insights analysis

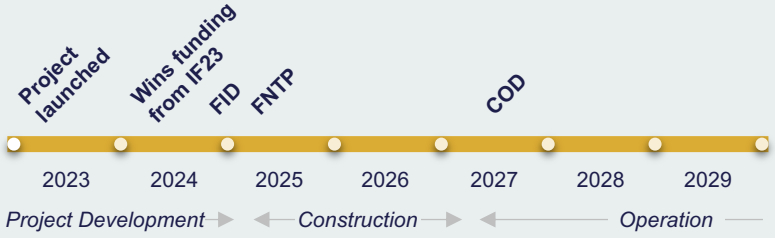
Auction Winner 5 | eNRG Lahti 90MW project in Finland

Project Description

eNRG Lahti is being developed in Finland to produce renewable synthetic methane from green hydrogen & district heating from the excess heat of the process.

Environment assessment and permitting started in Q3 2022 and is currently underway. The first hydrogen production from the project is expected in 2027, with the construction start expected in 2025.

- **Capacity** – 90MW; 12k tonne annual H_2; 24k tonne annual Methane
- **Funding Won** – 45.2 mEUR
- **Bid Price** – 0.37 EUR/ kg H_2
- **Overall Estimated Budget** – ~248 mEUR



Project Developers & Suppliers

Project Developers

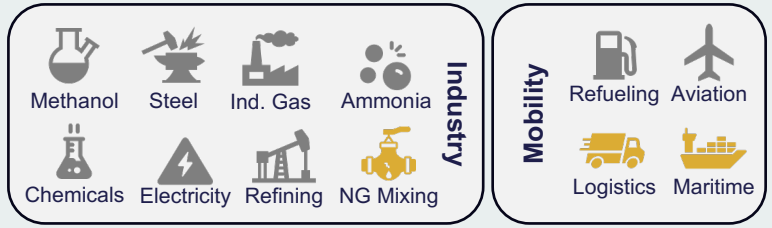
- **Nordic Ren-Gas –** Founded in 2021, Ren-Gas is focused on developing e-methane production plants in Finland with six plants in various development stages; the first one is due to start construction in 2024 in Tampere, Finland
- **Lahti Energia** – An energy company owned by the city of Lahti that provides electricity and heating to the city. The process heat generated in the process of methane creation will be used by Lahti for district heating.

Suppliers

- **Electrolyser** – No electrolyser technology and OEM has not been decided
- **Methane technology** – No methane production technology and OEM has not been decided

Offtake & Renewable Strategy

Offtake Strategy



The hydrogen produced from the electrolysis process will be used to produce methane, with carbon coming from the adjacent Kymijarvi power plant.

The e-methane produced will be injected into the gas grid by Gasum, a Nordic energy company that has an offtake agreement for all e-methane from Ren-Gas's two plants.

Gasum plans to distribute the e-methane to customers in land and maritime transport, as well as for industrial use. Fazer Bakery, for example, will use e-methane for bread production and transportation to aid in decarbonization.

The heat from the process will be used by the developer partner, Lahti Energia, for district heating in the city.

Renewable Strategy

- Ren-Gas aims to power two of its e-methane plants using electricity from onshore wind plants which are currently being developed in Finland in collaboration with local utilities.

Note: FID – Final Investment Decision; FNTP – Final Notice to Proceed

 Source: European Commission; VNZ Insights analysis

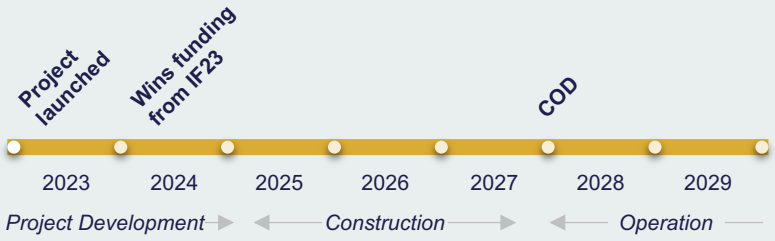
Auction Winner 6 | El Alamillo H2 60MW project in Spain

Project Description

El Alamillo H2 is being developed by Benbros Energy in Spain. There is very limited information available regarding the offtake, suppliers, and the project objective. The developer is also working on 3.4GW of solar PV projects through which it aims to power the green hydrogen project.

The project aims to produce the first hydrogen by 2027 end.

- **Capacity** – 60MW; 65k tonne annual H_2
- **Funding Won** – 24.6 mEUR
- **Bid Price** – 0.38 EUR/ kg H_2
- **Overall Estimated Budget** – *NA*



Project Developers & Suppliers

Project Developers

- **Benbros Energy –** Benbros is a business holding company focused on the development and promotion of renewable energy projects – PV plants, Data Centers, Industrial projects, Battery Storage Energy systems, and Green Hydrogen.
  Benbros Energy is developing green hydrogen projects specifically being powered by solar PV energy.
  CPF (Canadian Pension Fund) is also an equal member with Benbros Energy for the 3.4GW solar PV projects.

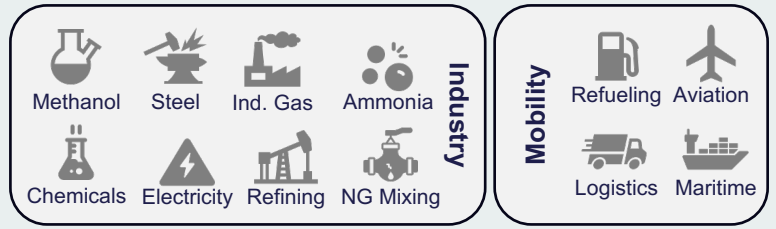
BENBROS

Suppliers

- **Electrolyser** – No electrolyser technology and OEM has not been decided

Offtake & Renewable Strategy

Offtake Strategy



The offtake strategy for the El Alamillo H2 project is unclear and no information has been provided is visible.

Renewable Strategy

- The developer aims to power the green hydrogen project using its portfolio of solar PV projects (total capacity of 3.4GW) currently being developed in Spain.

 Source: European Commission; VNZ Insights analysis

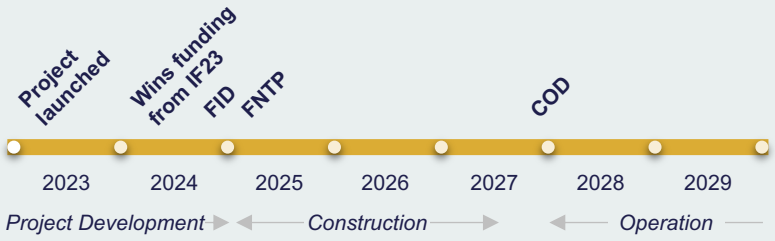
Auction Winner 7 | Hysencia 35MW project in Spain

Project Description

Hysencia is a 35MW project being developed by DH2 Energy, which is a green hydrogen-specific developer based out of Spain.

The project is expected to start construction in 2024.

- **Capacity** – 35MW; 1.7k tonne annual H_2;
- **Funding Won** – 8.1 mEUR
- **Bid Price** – 0.48 EUR/ kg H_2
- **Overall Estimated Budget** – *NA*



Project Developers & Suppliers

Project Developers

- **DH2 Energy (Angus) –** Angus, a possible pseudonym for DH2 Energy, is one of the largest developers of green hydrogen projects in the Iberian Peninsula.
  DH2 Energy has around 15GW of green hydrogen projects, primarily in the Iberian Peninsula & Mexico.

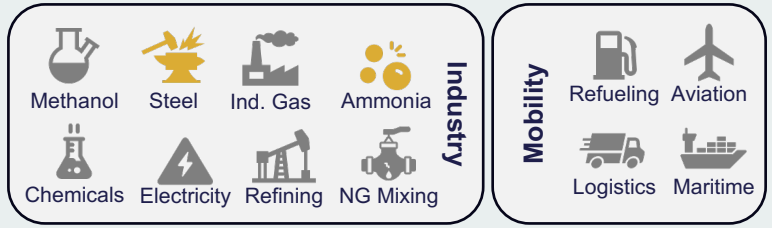
DH2 Energy

Suppliers

- **Electrolyser** – No information is available about the electrolyser OEM but electrolyser pressure is expected to be 20-30 bar

Offtake & Renewable Strategy

Offtake Strategy



There is no clear information visible about the direct off-takers of the green hydrogen produced in the Hysencia project.

However, DH2 Energy is one of the promoters of HyDeal Espana, which is a project bringing together players across the green hydrogen value chain including off-takers like ArcelorMittal and Fertiberia.

Renewable Strategy

- The project is to receive renewable power from a dedicated solar PV project with 49MW capacity which was being developed by DH2 Energy, not sold to Dhamma Energy.

Note: FID – Final Investment Decision; FNTP – Final Notice to Proceed

 Source: European Commission; VNZ Insights analysis

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