H2Global Pilot Auction Results

Summary

H2Global's EUR 900 million pilot auction was launched in 2022 with financing provided by the German Federal Ministry for Economic Affairs and Climate Action (BMWK). The pilot auction was split into three lots covering renewable ammonia (Lot 1), renewable methanol (Lot 2) and e-SAF (Lot 3). The auction, launched at the end of 2022, received interest from over 70 countries across five continents. Fertiglobe, a strategic partnership between ADNOC (Abu Dhabi National Oil Company) and OCI was the winner of Lot 1. Lot 3 ended without a contract being awarded. As a result, the funds from Lot 3 will be allocated to Lot 2. This brief focuses on Lots 1 and 3, while Lot 2 remains ongoing.

Lot 1 overview

Auction results

The bidding phase for Lot 1 attracted bids from 22 companies/consortia from five continents. Fertiglobe emerged as the successful bidder among five finalists. Fertiglobe is the largest producer of nitrogen fertilizers in the MENA region, and a pioneer in sustainable ammonia. The proposal submitted to Hintco had a convincing technical design and proven expertise along the entire value chain, including logistics. Moreover, TÜV Süd and GUTcer, organizations that specialize in certification, inspection, and testing services, reviewed the bid and were able to validate the proposal's adherence to sustainability criteria, and its compliance with regulatory requirements (Renewable Energy Directive II (RED II) and Delegated Acts (DAs). Incorporated in Abu Dhabi and listed at the Abu Dhabi Securities Exchange (ADX), Fertiglobe will have Hintco as a long-term customer, thereby providing the necessary investment security ("Bankability"), thanks to backing from BMWK. Fertiglobe's supply of renewable hydrogen will come from Egypt Green Hydrogen, a consortium between Fertiglobe, Scatec ASA, Orascom Construction, the Sovereign Fund of Egypt, and the Egyptian Electricity Transmission Company. The project is in the Suez Canal Economic Zone.

Fertiglobe will commence production of renewable ammonia in Egypt for European ports in 2027, with a maximum contract value of EUR 397 million. As a result, Europe has secured a significant supply of renewable ammonia starting at a potential 19,500 tons in 2027, subject to the start of production date and supply availability and rising up to a total of 397,000 tons cumulatively by 2033. This pilot auction established the first price signal at a contract price of EUR 1,000 per ton and a net price[1] of EUR 811 per ton. These price signals send a positive, clear, and strong message, indicating renewable ammonia can be produced and imported into the EU at attractive prices through targeted support to the most competitive projects. As the scale of production grows and

[1] Net price= ammonia production price ex-factory (excluding transport and import costs)

suppliers gain experience, costs are expected to decrease further, setting the stage for additional competitive pricing in subsequent H2Global auctions.

The amount of the subsidy will be dependent on the subsequent sales auctions in which the sales prices of the product will be determined separately. BMWK only pays Hintco the difference between the purchase price and the sales price. The first sale auction is expected to take place in 2025/26.

The pilot auction demonstrated that financial and procurement innovations like H2Global's mechanism are a necessary precursor to creating thriving markets that motivate and mobilize private finance. It also underscored the global effort required to fund large-scale energy transition projects aimed at tackling climate change. Furthermore, it complements existing national and regional auction schemes by covering the entire value chain of clean hydrogen and its derivatives and extending support beyond European borders, fostering the ramp-up of a global clean hydrogen market and promoting energy transition on a global scale.

Pilot auction process

Hintco carried out a two-stage negotiated procedure with a preliminary competition (qualification phase), followed by the negotiation and bidding phase. The award process was designed to (i) limit the number of bidders in the final bidding stage to a maximum of five and (ii) to ensure the successful execution of the awarded projects.

Qualification phase

The pilot auction was launched at the end of 2022. Hundreds of interested parties from 65 countries across five continents downloaded the tender documents pertaining to Lot 1 on Hintco's auction platform.

More than 1,400 questions were placed on the auction platform by interested parties, focusing primarily on regulatory conformity, volume, eligibility criteria and timeline flexibility of the Hydrogen Purchase Agreement (HPA). The qualification phase was therefore extended at the request of potential bidders.

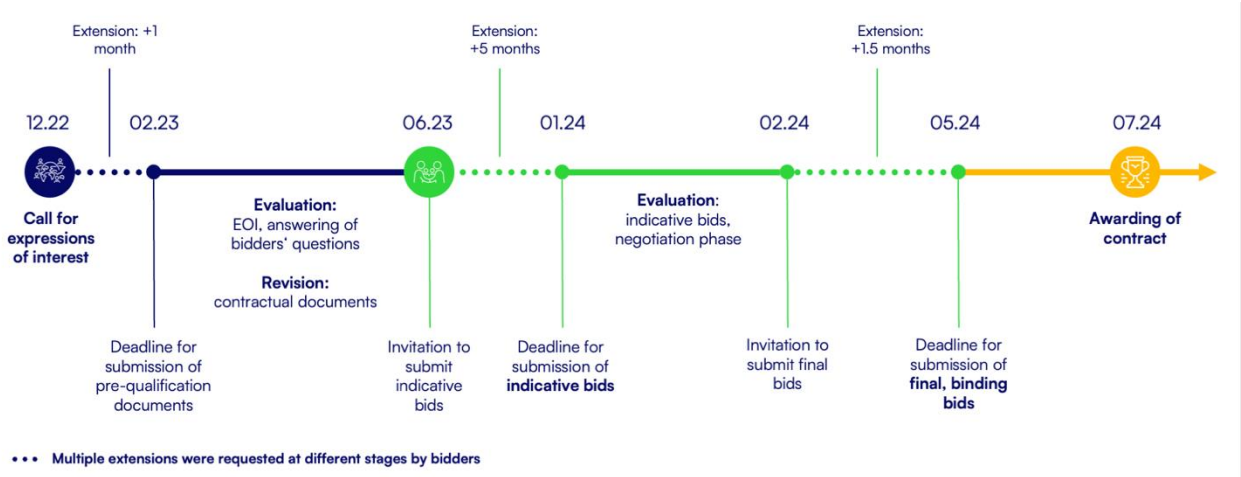
A total of 22 companies/consortia from 5 continents submitted a request to participate in the bidding phase for Lot 1. These were reviewed and ranked according to the previously defined eligibility criteria in line with standard public procurement law to ensure the economic, financial, technical, and professional suitability of the bidders. A total of five bidders from Asia, North Africa, Middle East and South America were invited to enter the bidding phase.

Negotiation and bidding phase

The qualified bidders were requested to place initial, unbinding financial and technical bids. The deadline for submission bids was extended four times at the request of bidders.[2] The initial bids were a basis for the individual contract negotiations that followed, which led to a redefined and uniform HPA contract. All bidders were invited to place their final and binding financial and technical bids based on the redefined HPA. A series of negotiation meetings were conducted with all bidders, which addressed contractual design aspects as well as adherence to the outlined minimum requirements defined in the HPA. As part of the negotiation process, the draft Environmental Impact Assessments to be submitted by the bidders were validated by external experts.

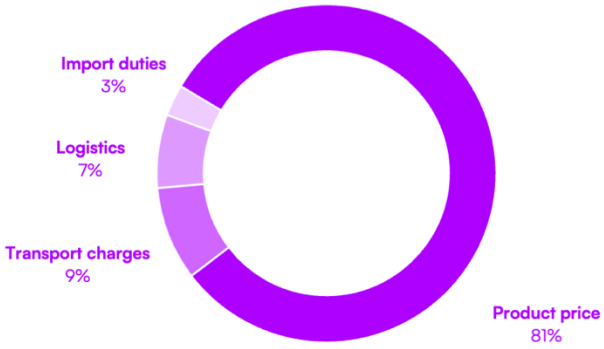
The revised HPA also had to incorporate adjustments pertaining to the adoption of the Delegated Acts (DAs) for RED II at the EU level and the EU Carbon Border Adjustment Mechanism (CBAM). The DAs define the RFNBO (renewable fuels of non-biological origin) properties that bidders had to fulfil. In addition, the global transport of the products purchased by Hintco requires infrastructure that is currently under construction, or for which contractual access cannot be concluded in short notice. This led to several additional rounds of negotiations to address these issues in the final HPA.

Once the final HPA was submitted, Hintco invited all parties to place their final bids. To place a final bid, bidders must be confident that they can meet their contractual obligations to avoid penalties. Therefore, projects need to be well developed, including advanced front-end engineering and design (FEED), a basic commitment from financial institutions for project financing, and indicative prices from main suppliers. Approval of a supervisory board or investment committee is probably necessary. As a result, a bidder *de facto* comes to a Financial Investment Decision (FID) by submitting a binding offer. Bidders in this pilot auction requested several extensions, resulting in a final and last deadline adjustment to May 19.



[2] One bidder refrained from submitting a bid, indicating that the procurement volume available was not attractive in relation to the investments required to fulfill the contract and the regulatory requirements to be met.

Aggregated bid insights

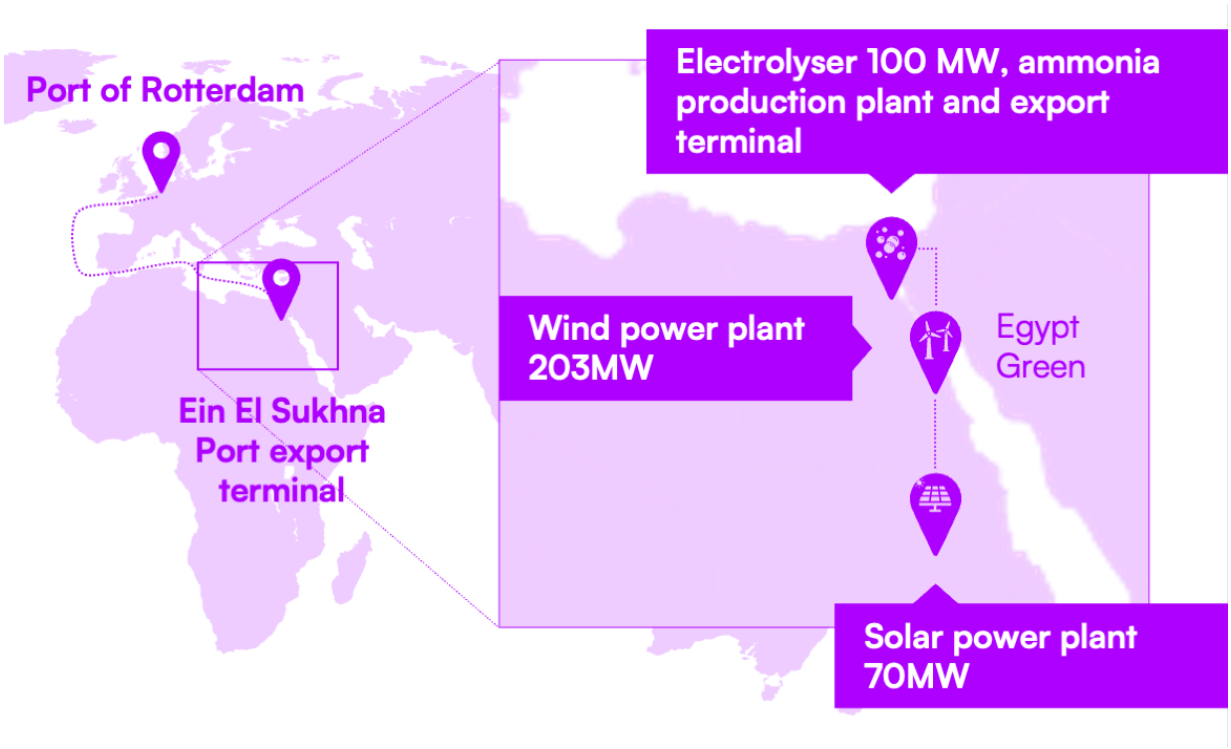


The received bids, including initial non-binding bids, demonstrated an average electrolysis capacity of 145 MW, with the construction of an average of 295 MW of additional renewable energy. The projects offered quantities of renewable ammonia in a range of 210,000 to 475,000 tons (guaranteed plus additional quantities). All projects proposed the use of alkaline electrolysers, two of which proposed the use of pressurized alkaline electrolysers. First deliveries were expected within a period of two to three years. The net product prices of the bids, including initial bids submitted, averaged at 1,048 €/t. On average, the net product price contributes 81% of the contract price, with transport charges adding a further 9%, logistics charges 7%, and import duties 3%. One of the submitted offers exceeded the communicated price cap. One project proposed delivery to the port of Antwerp, while the others proposed delivery to the port of Rotterdam.

Winning bidder: Fertiglobe

Production and transport of renewable ammonia (value chain)

The Egypt Green Hydrogen project, led by Fertiglobe, comprises a 100 MW electrolyser facility including respective renewable power assets and water sourcing, as well as technical upgrading of an existing Haber-Bosch plant to facilitate the processing of renewable hydrogen into ammonia. This project is expected to create 1,000-1,250 jobs during its construction phase and up to 80 jobs during operation and maintenance phase.



Power generation

The electricity used in the production process will be generated in a newbuild onshore wind park of 203 MW located in Ras Ghareb close to the Red Sea and a newbuild solar PV plant of 70 MW in Africa's largest solar complex located in Benban in the south of Egypt. Egypt's national power grid will be used for the transmission of the electricity to the production site. In compliance with European regulations, monthly matching of electricity generated and used will be applied until 31 December 2029. Thereafter, hourly matching will be applied.

Sustainability requirements

The producer must meet the EU standards for renewable hydrogen as well as additional sustainability criteria, defined by the provider of the funds to the pilot auction, BMWK. The additional sustainability criteria include protection of arid regions, sustainable land use, protection from forced resettlement, conservation of biodiversity and implementation of an environmental management system. Other requirements relate to local value creation, equal opportunities and gender. International labor standards (ILO) must also be observed. Compliance with these criteria

must be verified by an independent conformity assessment body, as part of an initial audit, and then in periodic audits.

The producer is also required to conduct an Environmental and Social Impact Assessment (EIA and SIA) in accordance with IFC (International Finance Corporation) or World Bank standards. Bidders were required to submit a draft EIA and SIA when submitting the final bid. Once awarded, the winning bidder is required to conduct a final EIA and SIA. In addition, the winning bidder is required to document how the project will contribute to meeting the Paris Climate Agreement goals and the Sustainable Development Goals (SDGs).

Ammonia and Hydrogen Output / Offtake

The pressurized alkaline electrolyser facility will deliver up to 13,000 tons of renewable hydrogen annually as feedstock to the ammonia production facility. The Haber-Bosch plant, which is scheduled to be operating by 2027 and reaching full capacity in early 2028, will have an annual output of up to 74,000 tons of renewable ammonia. Fertiglobe is planning a first delivery of up to 19,500 tons of renewable ammonia to Hintco as early as 2027. Hintco will sign an agreement with Fertiglobe for a guaranteed minimum offtake of 40,000 tons of renewable ammonia per annum from 2028 through to 2033. In addition to the guaranteed minimum offtake volumes, Hintco holds the option to obtain additional renewable ammonia in a range between 17,500 to 33,000 tons per annum from Fertiglobe.

Greenhouse gas savings

The produced renewable ammonia will achieve an emissions intensity reduction of approximately 75.5% relative to ammonia produced based on unabated fossil fuels,[3] equating to an emissions intensity of 0.432 t CO2eq/t NH3 produced or 23 g CO2eq/MJ in the base case operating

[3] The GHG emissions savings are calculated in accordance with the methodology for assessing GHG emissions savings from renewable liquid and gaseous transport fuels of non-biological origin and from recycled carbon fuels as set out in Article 28(5) RED II in conjunction with DR 2023/1185 which define the fossil fuel comparator of the product at 94 g CO2eq/MJ.

scenario corresponding to the first year of operations of the plant. The emissions savings associated with the contractual maximum supply commitment (397 kt over seven years) are equivalent to the annual emissions of 62,000 cars.

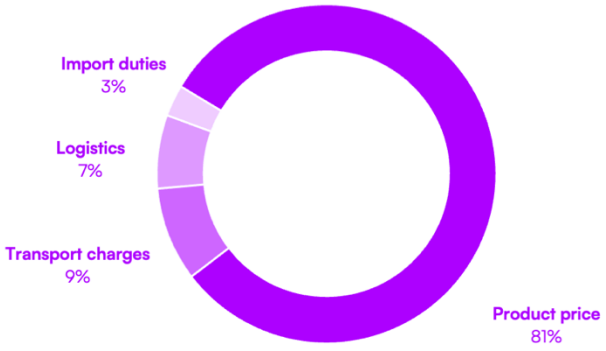
Transport to Europe and sales

The renewable ammonia will be transported to storage tanks at Ein El Sukhna Port via an existing seven km pipeline. The seaborne delivery to Europe will be overseen by Fertiglobe International Trading, a wholly owned subsidiary of Fertiglobe PLC. The renewable ammonia will be delivered to the Port of Rotterdam and sold by Hintco as standardized quantities in annual auctions. The results from the Hydrogen Sales Agreements (HSAs) auctions will provide continuous and uncorrelated price data regarding the markets' willingness and ability to pay for renewable ammonia in Europe, contributing to the development of a functioning market.

Price

The HPA guarantees the successful bidder an annual minimum offtake of approximately 40,000 tons, based on Hintco's available purchase budget of € 40 million per year. The maximum permissible net product price was set in the auction at 1,282 €/t or 1.28 €/kg. This bid cap was determined based on selected studies and forecasts. Fertiglobe's volume-weighted net product price is 37% lower than the bid cap.

Fertiglobe contract price composition



Lot 2 overview

Ongoing — results are expected in 2024. H2Global is unable to share information on Lot 2 (renewable methanol) until the auction has ended.

Lot 3 overview

Auction results

Since the market for e-SAF, a synthetic aviation fuel made from renewable electricity and hydrogen, is in a very early stage of development, participation in the e-SAF auction was expected to be lower than in the renewable ammonia auction. Over 300 interested parties from 43 countries across five continents downloaded the tender documents on Hintco's auction platform. Three companies requested to participate in the bidding phase after meeting all the necessary eligibility criteria in the qualification phase. However, only one of the three bidders submitted an indicative bid. The other bidders refrained from submitting for two main reasons: First, the requirements and uncertainties related to the implementation of the regulatory framework surrounding the GHG accounting of the carbon intended to produce e-SAF. Second, the relatively small contract value and duration, which was incompatible with the practicalities of setting up a new e-SAF plant, given the investment volume and project development time required to build such a plant.

The third bidder eventually decided against submitting a final offer. The bidder believed that for their Fischer-Tropsch plant to be economically viable, it would require flexibility to use the newly produced renewable hydrogen solely for making e-SAF, rather than having to distribute it across various products, for which no subsidy nor market currently exist. The EU Commission's current interpretation of RED II DA 28(5) requires a 'proportional allocation' of GHG savings to all end products of the Fischer-Tropsch process. Fischer-Tropsch plants produce multiple products — such as diesel or naphtha — and proportionally assigning renewable hydrogen to all products would lead to e-SAF being produced with higher GHG emissions than if all the renewable hydrogen was solely allocated to e-SAF production.

ANNEX

Lot 1 Renewable Ammonia: key facts overview

Project title	Egypt Green Hydrogen
Renewable Ammonia Supplier	Fertiglobe PLC (“Fertiglobe”)
Project partners (Renewable Energy and Hydrogen)	Scatec ASA, Orascom Construction, The Sovereign Fund of Egypt, Egyptian Electricity Transmission Company
Contractual partner (off-taker)	HINT.CO GmbH, Germany (hereafter “Hintco”)
Project location	Suez Canal Economic Zone (SCZONE), 120 km southeast of Cairo, Egypt
Average product price (FOB)	811.30 €/t4 (net price without value added tax)
Total contract price delivered to Europe	1,000.00 €/t (contract price without value added tax; including transportation, logistics, customs)
Contractual maximum supply commitment (including ramp-up and optional quantities)	19,500 t in 2027 (depending on supply availability during ramp up period), from 2028 up to 73,000 t per year; in total 397,500 t until 2033
Contractual offtake commitment	19,500 t in 2027, from 2028 40,000 t per year; in total 259,500 t until 2033
Electrolyser technology	Pressurized alkaline; 100 MW; 13,000 t renewable H2 per year. Final decision on manufacturer not yet taken
Ammonia production	Up to 74,000 t per year
Electricity sourcing	Newly build renewable energy capacity; ~203 MW onshore wind + ~70 MWp PV
Emissions intensity[2]	Approx. 75.5 % reduction compared to grey ammonia;[3] the emissions savings associated with the contractual maximum supply commitment

[1]Volume-weighted average price of firm quantities, including ramp-up quantity

[2] Cradle to receiving port emissions

[3] The GHG emissions savings are calculated in accordance with the methodology for assessing GHG emissions savings from renewable liquid and gaseous transport fuels of non-biological origin and from recycled carbon fuels as set out in Article 28(5) RED II in conjunction with DR 2023/1185 which define the fossil fuel comparator of the product at 94 g CO2eq/MJ.

(397 kt over seven years) are equivalent to the annual emissions of 62,000 cars.[4]

[4] With: Emissions per km: 108.1 gCO2/km; CO2 emissions performance of new passenger cars in Europe (europa.eu), Km per car and year:11298 km/a (ODYSSEE-MURE), emissions per car and year: 1.22 tCO2/a calculated, and bidder's emissions savings calculations, validated by TÜV Süd.