

## Invitation to tender

### Preparation of a study

### „Assessment of emission rights of green PtX products“

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## Table of contents

- I. Background and objective of the project
- II. Services to be provided
- III. Further Provisions
  - a) Results and Timing
  - b) Expert Profile
- IV. General Information / Formal Requirements
  - a) Tender Agent Deployment
  - b) e-procurement Deployment
  - c) Technical Proposal Format
  - d) Financial Proposal Format and Content
  - e) Proposals Evaluation
- V. Notes on the use of the results

## List of abbreviations

|                 |   |
|-----------------|---|
| CO <sub>2</sub> | Carbon Dioxide                                      |
| CV              | Curriculum Vitae                                    |
| EU              | European Union                                      |
| EUR             | Euro (Currency)                                     |
| GIZ             | Gesellschaft für Internationale Zusammenarbeit GmbH |
| H2              | Hydrogen  |
| PtX             | Power-to-X  |



## I. Background and objective of the project

In line with the Paris Agreement, which came into force in November 2016 and aims to keep global warming well below 2 degrees and, if possible, limit it to 1.5 degrees, the EU and Germany have set themselves the ambitious climate protection target of achieving climate neutrality by 2050 and 2045 respectively. These ambitions were most recently anchored politically in the resolutions of the German cabinet on the Climate Protection Program 2030 and the recently updated Climate Protection Act. However, for effective climate protection, it is also imperative to support the defossilization of partner countries outside the EU.

Globally, drastic changes are needed in all sectors of the economy. Almost all sectors of industry, energy, thermal energy and transport are affected by the complete transformation to a climate-neutral future. However, some sectors cannot be decarbonized through electrification alone, or can only be decarbonized with difficulty or inefficiency, and will continue to rely on gaseous and liquid energy sources. CO<sub>2</sub>-free gaseous and liquid energy carriers such as hydrogen and hydrogen-based derivatives (hereinafter also: Power-to-X (PtX) products), which include ammonia, methane, methanol, and kerosene, among others, consequently play a crucial role in the further development and completion of the German, European, and global energy transition.

Therefore, the aim of the research project is to explore the eventual emission rights of green hydrogen - produced in country A, and exported to country B - with country B paying a premium price for green hydrogen that is higher than the market price of gray hydrogen.

### *Definition of PtX projects*

Green hydrogen is defined as hydrogen which has been produced exclusively on the basis of renewable energies by means of electrolysis. Green hydrogen and the downstream products of green hydrogen are collectively also called PtX products. PtX products can be energy carriers for combustion or basic materials for further processing in chemical processes and can be used, among other things, in industry and in the transport sector. PtX products include hydrogen, gasoline and diesel fuels, kerosene, ammonia and petrochemicals (e.g. methane and methanol).

PtX projects therefore encompass the entire production chain: from power generation using renewable energies, electrolysis of water, further processing of hydrogen into downstream products, and transport, storage and, if necessary, further processing, to the end product at the customer.



Therefore, in the context of this research project, the term PtX project always includes:

- i) renewable power generation capacity; and
- ii) electrolyzer, compressor and storage;
- iii) any loading infrastructure, transport, storage and further processing.

Depending on the question and the work package, the respective context can be considered or neglected.

## II. Services to be provided

The assignment is divided into the following work packages:

### i. **Work Package 1: Scenarios of offsetting green hydrogen and derivatives regarding associated emission reductions**

In this work package, it shall be discussed to what extent green PtX products imported from countries outside the EU and their use inside the EU can be reflected in various instruments / mechanisms of national and international climate protection.

On the one hand, it should be considered to what extent the emission reductions associated with the production and use of the products are captured in the context of various scenarios and instruments (see below) under the current regulatory framework. In cases where capture does not occur, concrete regulatory prerequisites and necessary regulatory adjustments will be presented and, for example, specific requirements for possible guarantees of origin will be formulated. Furthermore, a time perspective for a possible introduction of necessary (and possibly already planned) regulatory adjustments will be presented.

On the other hand, the economic effect of a possible offsetting of emission reductions under the European Emissions Trading Scheme (ETS) is to be quantified using various scenarios as examples. The current price level for emission rights and technical processes of the ETS in the fourth trading period (2021 - 2030) are to be taken into account, as they have been with the adjustments and reforms under the Fit-for-55-package. Based on the different scenarios and instruments mentioned, general statements should be derived, if possible.



Basically, the following generic supply chain is to be used as a basis for the analysis:

- i) Production of the green hydrogen or green PtX product in a non-EU third country for export;
- ii) Import / purchase of the product by an intermediary / reseller in the EU or in Germany;
- iii) resale of the product to or use of the product by a customer in the EU or in Germany.

Furthermore, different green products (pure hydrogen, ammonia, methanol and jetfuel) and different scenarios regarding the initial situation on the customer side (e.g. initial importers and self-producers and users of the grey products) shall be included in the analysis, provided that different results arise. Further scenarios relevant in the context of a developing import market for green hydrogen and PtX products can be proposed / described in the offer as well as be discussed with the contractor and be included in the analysis.

The following instruments / mechanisms of climate protection are to be considered:

- i) Reduction targets/quotas and emissions trading at EU level (EU-ETS);
- ii) Reduction targets/quotas and emissions trading at national level, Germany (nETS);
- iii) Sectoral reduction quotas, such as the GHG reduction quota in the transport sector.

Result: The results are to be summarized in a report (at least 10 pages, excl. appendices). The report structure shall be agreed with the Employer in advance. A draft shall be submitted to the Employer by early September and shall be commented by the latter within 5 working days. Subsequently, the Consultant shall complete a final report within 10 working days.

## **ii. Work Package 2: Examples of emission reduction accounting for green hydrogen and green derivatives (trading in the EU and imports from non-EU countries)**

The assignment shall be executed in close coordination with the Employer. The Contractor shall consult with the Employer at the beginning and end of the order and, if required, on a monthly basis. The country-specific process paths to be considered are defined in coordination with the Employer.



The contractual correspondence and documentation shall be in German. Reporting will be in the form of presentations or short written reports. All relevant literature sources, the central details of the study, the methodological and simulative procedure as well as the selected parameters will be provided. The reporting will be done in English (if necessary also in German) in agreement with the Employer.

In this work package, the (prospective) accounting under the EU ETS will be traced by means of illustrative examples, in each case in comparison to intra-European trade. The question of how emissions can be tracked will also be addressed.

- i) Crediting of green methanol imported into the EU from non-OECD / OECD countries;
- ii) Crediting of green ammonia imported into the EU from non-OECD / OECD countries;
- iii) Crediting of green e-kerosene imported into the EU from non-OECD / OECD countries;
- iv) Crediting of green hydrogen imported into the EU via pipelines from EFTA, EU and North Africa.

In each case, the consumption is to be traced as follows:

- i) Consumption of green hydrogen in energy-intensive industry and heavy transport;
- ii) Consumption of green methanol in the chemical industry as a raw material and as a fuel in marine transport;
- iii) Consumption of green ammonia in fertilizer production, as an H2 carrier, and as a fuel in marine transportation;
- iv) consumption of green e-kerosene in aviation (mandatory refueling in the EU; with destination in the EU).

In particular, the requirements to be fulfilled in the third country and in the EU for accreditation have to be examined and elaborated. In this respect, the following guiding question is important: What are the requirements for GHG accounting and recognition of the green attribute today, based on the European / German regulation and in relation to a possible further development in RED III?

Result: The results are to be summarized in a report (at least 10 pages, excl. appendices). The report structure shall be agreed with the Employer in advance. A draft shall be submitted to the Employer by early October and shall be

commented by the latter within 5 working days. Subsequently, the Consultant shall complete a final report within 10 working days.

### iii. **Work Package 3: Assessing the impact of a revised ETS and chargeability mechanisms**

In this work package, it shall be analyzed how the EU ETS can be further developed. An outlook will be given on which adjustments are necessary to accelerate the hydrogen and PtX market ramp-up (crediting the use of e-kerosene also on flights to the EU, allocation of emission rights for industries converting to "green", targeted incentives for the use of PtX, etc.). It shall also be assessed how to work with emerging and developing countries on an emissions trading mechanism that also incentivizes and documents emissions reductions locally. The main objective is to capture mechanisms for projects where part of the production is exported and part remains in-country.

In addition, it must be examined whether the GHG reductions envisaged in the RED (70%) can be achieved for PtX products if longer transport distances are included.

- i) What would be the impact of tightening mitigation requirements (e.g. to 80%, 85%, 90%) for GHG emissions? Would this exclude some emerging and developing countries and / or transport vectors?
- ii) What is the role of a border adjustment mechanism that explicitly includes ammonia?
- iii) What are the synergies and also divergences - based on the current state of discussion - between border adjustment mechanism and existing EU regulation?
- iv) To what extent does the GHG accounting methodology of the border adjustment mechanism differ from the RED methodology and what interactions result from this?

Result: The results are to be summarized in a report (at least 10 pages, excl. appendices). The report structure shall be agreed with the Employer in advance. A draft shall be submitted to the Employer by early November and shall be commented by the latter within 5 working days. Subsequently, the Consultant shall complete a final report within 10 working days.

### III. Further Provisions

#### a) Results and Timing

The results are to be summarized in reports according to the above specifications, which are to be submitted on the indicated dates. The report structure shall be agreed with the Employer in advance. The Consultant shall submit a work plan with the technical offer, which transparently shows the work steps, milestones and estimated working days of the expert(s). The reports shall be written in English.

#### b) Expert Profile

The research project is to be carried out by one or more experts with the following profile. If several experts are working on the questions, they should be guided by a leading expert.

- i) Minimum 10 years of professional experience in research on GHG emissions in the energy and/or transportation sector in non-OECD countries. Research experience on PtX projects is an asset.
- ii) Experience in developing methodologies (CDM and / or VCS) for calculating GHG emissions and emission reductions in the energy sector and / or the transport sector.
- iii) Experience in developing monitoring plans to calculate and communicate GHG emissions.

### IV. General Information / Formal Requirements

#### a) Tender Agent Deployment

The tender will be administratively supported by a tender agent (exficon GmbH, Frankfurt am Main). The tender agent is responsible for coordinating and communicating with the bidders during the process and for ensuring that the tender is carried out in accordance with public procurement law.

For questions of any kind regarding this RFP, please contact the Tender Agent by email at [tender@exficon.de](mailto:tender@exficon.de). Clarifications will be accepted and collected until Friday, June 24, 2022 (amended to Tuesday, July 12, 2022). Responses will be distributed to all interested parties simultaneously no later than Wednesday, June 29, 2022 (amended to Friday, July 15, 2022).

#### b) e-procurement Deployment

The submission of the proposal (separately for technical and financial offer) is carried out exclusively via an electronic platform operated by the Tender Agent. Bidders are



asked to contact [tender@exficon.de](mailto:tender@exficon.de) and request access to the e-procurement system no later than 5 working days prior to submission. Without this personalized access, the submission cannot take place. Submission by email is not permitted.

Detailed information and a step-by-step description of the upload procedure can be downloaded here: <https://exficon.de/tad/e-procurement>

### c) Technical Proposal Format

- The proposal shall be provided in German or English.
- The entire proposal must not contain more than 15 pages (excl. CVs). If the number of pages is exceeded, the additional content will not be taken into account in the evaluation.
- The CVs of the offered personnel must be submitted in the Europass CV format. CVs must be limited to 4 pages each. The CVs must indicate which position and function the proposed person has held in the designated relevant projects and how long the person has worked there.

### d) Financial Proposal Format and Content

- The financial offer may not exceed the budget cap of EUR 85,000 (plus – if applicable – German VAT, currently 19%). The financing of the study is secured by GIZ funds.
- The financial offer shall be prepared as a transparent presentation of the required man-days of the expert(s), the (respective) remuneration and any other costs (materials, etc.). Consistency of the financial offer with the technical offer must be ensured. The number of working days in a month is to be considered as 22 days, a working week consists of 5 working days.
- The contractual involvement of subconsultants is not permitted if the share of work performed by the subconsultant exceeds 30%.
- Travel is not intended for this assignment. If you consider travels to be indispensable in the course of processing, please include the cost of transportation, accommodation, per diems, and any travel-related expenses as an option into the financial proposal. Travel(s) require the approval of the Employer.
- The financial offer may include a maximum of EUR 5,000 (net) in translation costs.
- The contract does not automatically entitle the consultant to exhaust the full number of days / the full budget. The number of days / trips or the budget cap are contractually agreed as an "up to" clause. Invoicing must be based on the actual time spent, the number of working hours must be documented transparently, and any reimbursement amounts must be underpinned by receipts.



### e) Evaluation Methodology

- The evaluation of the offers is carried out in two stages. The technical offers are evaluated on the basis of the following catalog of criteria:

|                 |   |    |     |
|-----------------|---|----|-----|
| 1.              | Concept and methodology   |    | 40  |
| 1.1             | Clarity and completeness of the tender  | 5  |     |
| 1.2             | Critical analysis of the project objectives and the Terms of Reference (TOR)  | 10 |     |
| 1.3             | Description of the concept and the methodology to be applied, e.g. regarding <ul style="list-style-type: none"> <li>• Work plan</li> <li>• Milestones</li> <li>• Personnel concept (responsibilities)</li> <li>• Quality control /-assurance</li> <li>• etc.</li> </ul> | 25 |     |
| 2.              | Qualification of proposed staff   |    | 60  |
| 2.1             | Team Leader / Responsible Expert  | 30 |     |
| 2.2             | Other Experts   | 30 |     |
| Total (maximum) |   |    | 100 |

- The score achieved in the technical evaluation is weighted with 80% ("Technical Score"). Submitted offers that exceed the score of 70 in the technical evaluation are admitted to the evaluation of the financial offer.
- The financial offers are checked for arithmetic errors as well as inconsistencies and ranked according to the amount of the total price (EUR, net). The lowest priced offer (EUR, net, without option(s)) is awarded 20 points (equivalent to 20% of the total result) ("Financial Result"), the points of the ascending more expensive offers are calculated as lower score accordingly.
- The offer with the highest sum of "Technical Result" + "Financial Result" will be invited to contract negotiations.

### V. Notes on the use of the results

The purpose of the non-profit foundation is to promote environmental protection and climate protection. The purpose of the statutes is realized, among other things, by (a) promoting the development of models for the sustainable production and use of climate-neutral energy sources and (b) promoting the development of models to improve the German and European legal framework for such energy sources.



The generation of results within the scope of the research project neither serves the economic (self-)interest of the H2Global Foundation nor the preparation of the economic activity of HINT.CO GmbH. Instead, the project exclusively pursues the overarching interest of environmental and climate protection.