Open Market Consultation for the purchase of Hydrogen for Hystock Cushion gas

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Version 1.0

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1) Introduction

Context

HyStock B.V. ("HyStock"), a 100% subsidiary of N.V. Nederlandse Gasunie ("Gasunie"), intends to develop, between 2026 and 2030, four salt caverns at Zuidwending, in the North of the Netherlands, for storage of hydrogen to support the energy transition. Each cavern will have a physical volume of about 1.000.000 m^3, resulting in an effective storage volume of between five (5) and seven (7) Kton hydrogen each. The facility at Zuidwending is expected to be connected to the Dutch Hydrogen Network in 2025.

HyStock is preparing for a tender to purchase cushion gas for the first cavern (A5). This cushion gas will also be used to debrine the cavern to enable it to commence storage services. As this is the first purchase of hydrogen as cushion gas, in a new and yet to be developed market, HyStock has decided to start with this market consultation to engage with the market prior to launching the tender. All interested parties are invited to join in this market consultation.

Purpose

HyStock aims to use this market consultation to call upon interested parties to express their interest in participating in an upcoming tender. By means of this consultation HyStock also wishes to receive answers from interested parties to a number of questions (please refer to the final section), so that a (possible) tender can be launched to the market in the most optimal way.

HyStock will use insights obtained from the market consultation (where relevant) in the preparation of a (potential) tender. It is possible that HyStock will change scope and principles. HyStock reserves the right not to use insights provided in this market consultation, or to use them only in part. HyStock aims to be as transparent as possible in its approach by using the results of the market consultation to draw up the tender.

For the sake of clarity: there are no rights that can be derived in regard to participating in this market consultation. There is no gain or financial advantage awarded to a participant in a potential upcoming tendering procedure.

2) Proces and planning for market consultation

This market consultation follows the steps below:

a. Last week of May - Announcement on TenderNed
    i. HyStock will also actively approach parties who previously indicated an interest in supplying cushion gas with a notification on this market consultation.
b. 3 June – explanation of the market consultation at the HyStock Hydrogen Storage Meet-Up at Forum Groningen. This event will give an update of all aspects of the hydrogen storage project to prospective customers and other interested parties of HyStock.
    i. Presence at the HyStock Hydrogen Storage Meet-Up is not required to participate in this market consultation.
c. Wednesday 8 & Wednesday 15 June from 10-12 & 14-16 hr. There is an opportunity to request a virtual or physical slot of one hour max on these days with the HyStock purchase team to discuss and further clarify this document. Slots will be allocated on a first come first serve basis. Alternatively, clarifying questions can be asked by e-mail.
    i. Participation in this discussion is not required to participate in this market consultation
d. Friday 17th June – if at all needed based on the discussions, HyStock will provide written clarifications to this market consultation with the aim to help provide better answers. This document will be posted at TenderNed
e. Friday 24th June– final deadline to submit written responses to this market consultation
f. End June/early July – clarification calls on submissions if required
g. End of July - HyStock will publish a summary report on the market consultation to the participants in this market consultation.

The above planning is indicative. Participants cannot derive any rights from it and HyStock reserves the right to change the planning.

There are no fees to be paid for participating in the market consultation and likewise costs incurred by a participant will not be reimbursed by HyStock.

3) Confidentiality

HyStock wants to ensure that all market parties have access to the same information prior to the start of the tender and hence a summary of the market consultation will be made available to the market. During the market consultation it is possible to share confidential information with HyStock that cannot be shared with other market parties. Parties are asked to inform HyStock In this market consultation in writing which information cannot be shared with the market and HyStock will then not include this information in the summary report. If there is any doubt as to (the confidentiality of) information HyStock wishes to have included in the summary, HyStock reserves the right to consult with the provider of said information.

Confidential information is only shown to employees of HyStock and other subsidiaries of N.V. Nederlandse Gasunie, and consultants who are directly involved in the market consultation. HyStock is also entitled to use the information provided for the preparation of (any) tender documents and will not refer to participants in the market consultation or to confidential information provided in this market consultation.

4) Project overview

4.1 High-level Scope

HyStock is planning to tender the purchase of cushion gas for the first cavern in 2022 or 2023. Delivery of cushion gas would then take place in 2027 (or, if there is an opportunity to commence earlier, from Q2 2026). HyStock expects to purchase seven (7) Kton of cushion gas.

In addition, HyStock requires an additional volume of six (6) Kton to complete the debrining process ("debrining gas"). The difference between cushion gas and debrining gas is the following: cushion gas will be purchased and remains in the cavern for as long as the cavern is in operation. The debrining gas is only used for the first fill, to remove the brine from the cavern. Thereafter the debrining gas will be released and only cushion gas remains in the cavern. This debrining gas has no further use for the first cavern. This additional amount could be supplied in various ways like for example: i) it could come from the supplier of the cushion gas and delivered back to this supplier, or ii) that it could be supplied by the launching customers of the HyStock storage (as initial working gas fill). However, there might be other ways following any suggestions made by the respondents of this consultation. On the Hystock.nl website you can find a small movie that explains the process of creating a cavern, including debrining (News, caverns: a battery under the ground).

If there is only limited market demand for hydrogen storage in the early years, HyStock may want to only partially debrine the first cavern and offer a smaller cavern to the market. Partial debrining is currently not the base case but could be decided at Conditional Final Investment Decision (CFID) or Final Investment Decision (FID). If this would happen, then the volumes required for cushion gas and debrining gas will be lower as well.

For the other three caverns, HyStock expects to purchase the cushion gas at a later date and the cushion gas required for the future caverns is not part of the current consultation.

4.2 Timing of cushion gas and debrining gas delivery

As the HyStock project is still pre-FID, the timing of the actual offtake of the hydrogen is still depending on a number of factors, like the granting of permits and finalization of construction. HyStock is planning for a conditional FID in March 2023 (conditional primarily on permits) and a FID in Q2 2024. At FID the timing of the delivery of cushion gas and debrining gas will be more precise. Potential suppliers will be required to be flexible in their timing for delivery.

Current expectation is that desired delivery period starts once the above ground facility is ready for operations. Delivery of cushion gas and debrining gas is expected to take place between January 2027 and December 2027.

There might be an opportunity to commence earlier with the delivery of the cushion gas, prior to the completion of the above ground facility, if a temporary smaller compressor kit is installed. If HyStock would elect this option, it is possible to commence cushion gas delivery from Q2 2026.

4.3 Technical requirements

Flexibility:

Intake of cushion gas and debrining of a cavern takes between three to six months and is a process whereby the inflow of gas and outflow of brine is not constant and might need to be adjusted day-to-day. Adjustment of flows is important to ensure a smooth salt surface in the cavern and efficient handling of the brine flow. Further, it will be necessary to have two to four periods of up to five days of no intake of hydrogen to perform a botox operation (intake of fresh water to reduce salinity of brine). HyStock will develop a debrining framework which will be the basis for the debrining. However, based on the actual process itself, changes to the program might occur. Hence, it is important for the cushion and debrining gas supplier to be able to supply the gas on demand of HyStock and not on a as produced basis.

Connection to Dutch Hydrogen Network:

Given the large volume of cushion gas, it is expected that the supplier will make use of the Dutch Hydrogen Network to supply cushion and debrining gas to HyStock. Delivery point will be at the flange of HyStock or at a new to be created exit point for HyStock at the Dutch Hydrogen Network. Supplier will also need to ensure the appropriate capacities to transport the volume through the network. The current roll-out plan for the Dutch Hydrogen Network is still under investigation. It is expected that before the summer of 2022 more clarity will be given by the Dutch State. More details can be found on the website of the Dutch Hydrogen Network (Hynetwork.nl).

Origin:

HyStock takes a non-discriminatory stance on the carbon footprint of the cushion gas. One of the award criteria that is to be considered is the carbon footprint of the supply of the cushion gas where the objective is to have this as low as possible. HyStock acknowledges that with a developing sustainable hydrogen economy and the additional requirements for debrining it might be difficult for the market to fill this tender with only green hydrogen.

Quality:

As The hydrogen storage is connected to the Dutch Hydrogen Network the quality of cushion gas and debrining gas needs to follow the standard set for the Dutch Hydrogen Network. More details can be found on the website of the Dutch Hydrogen Network (Hynetwork.nl).

Min/max flows:

Due to the compressor limits, the desired minimum flow during the delivery period is four (4) tons per hour, a smaller flow is possible but will come with additional costs on the side of HyStock. The maximum flow during the delivery is twenty (20) tons per hour. The flow for reclamation of hydrogen by supplier can range between one (1) and twenty (20) tons per hour.

As stated above, there is an option to commence early delivery at much lower rates (200 kg/hr or more) by installing a temporary smaller compressor kit. If prospective suppliers have an interest to supply hydrogen early at a much lower rate, please indicate this during the market consultation.

Contractual units of measurement:

HyStocks requirement is to fill the storage with a certain volume and pressure range. As such all the units of measurement in this document are given in mass basis (tons or kg). It is expected, however, that the Dutch Hydrogen Network, will operate on an energy basis and final units of measurement might be in energy (MWh/h).

5 Questions to the market

Market parties are asked to submit their response to this market consultation by e-mail to HyStock by answering the below questions latest Friday 24 June 2022.

- Question 1: Are you interested to take part in the tender for supplying cushion gas to HyStock?

- Question 2: Are you interested to take part in the tender for supplying debrining gas to HyStock?

- Question 3: Are you interested in supplying the full volume, or are you only interested in partial supply and/or the early delivery services? Please elaborate your interest.

- Question 4: If you would be interested in delivering debrining gas, can you explain how and how fast you would take back the debrining gas after the debrining is completed?

- Question 5: Considering that HyStock might tender in 2022 or 2023, what would be your preference? When would you be able to make a firm commitment to supply the scope?

- Question 6: Any internal or external dependencies that might impact your tender response? (E.g., connection to the Dutch Hydrogen Network and/or any other hydrogen network, subsidies, partner approvals, other?). Please explain.

- Question 7: Do you have any views on the technical and contractual requirements that would make the tender more effective?

- Question 8: what would be sensible award criteria that would allow an optimal price to quality ratio?

- Question 9: what would be the minimum period required to prepare your tender?

- Question 10: Any other comments or suggestions you would like to make at this point?

Please e-mail your responses to info@hystock.nl, titled ' Responses to Market Consultation', latest Friday 24th June 2022