

# Definition Study “HyXchange”:

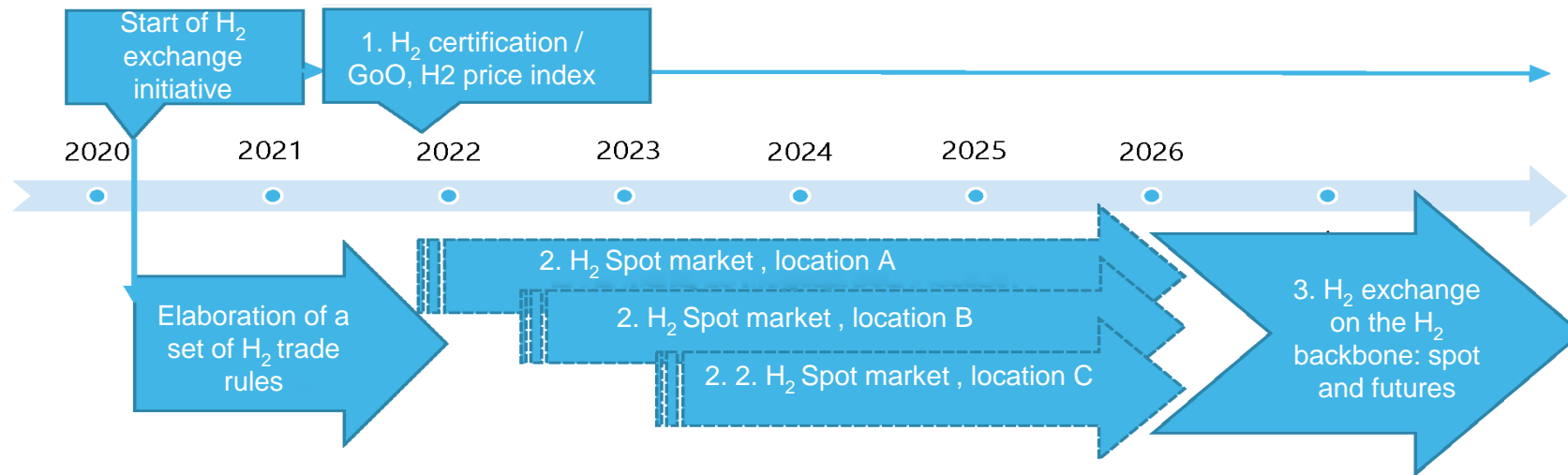
## Summary of Results

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# Management Summary (1)

Hydrogen is expected to play an important role in the energy transition towards climate neutrality. There will be a growing demand for climate-neutral hydrogen, generated by a multitude of sources, creating the necessity for a market to optimize supply and demand as well as transparent pricing. A hydrogen exchange will be able to facilitate both. The report 'A Hydrogen Exchange for the Climate'<sup>1</sup>, explored the vision of a gradual formation of such a hydrogen exchange growing along with the development of hydrogen infrastructure and market as shown below:



In the overall timetable, we expect hydrogen trading once the “hydrogen backbone” is created as announced by Gasunie, scheduled for 2027. Regional hydrogen grids at harbour regions can be operational earlier, being suitable for hydrogen spot markets or a possible “into pipe” market including im- and exports if applicable. In preparation we can already start with services and facilities that are useful even now, like hydrogen certification and price indexing.

<sup>1</sup> <https://www.government.nl/documents/reports/2020/09/24/a-hydrogen-exchange-for-the-climate>, 30 September 2020

# Management Summary (2)

Based on this exploration and timetable, Gasunie and four Dutch port authorities (Amsterdam, Rotterdam, Groningen and North Sea Port) have funded a definition study into the practical aspects of how a hydrogen exchange could be founded. The Netherlands has a unique starting position for hydrogen: its unique gas infrastructure that can re-used for hydrogen as a starting point for a European backbone; its North Sea location is perfect for offshore wind, with sea-ports for hydrogen imports as gateway for Europe; the large Dutch industrial sector with a big role in hydrogen.

These players will bring different hydrogen sources to the market: renewable hydrogen from wind energy and electrolysis; low-carbon hydrogen from industrial processes and CCS; imported hydrogen from countries with abundant renewable energy. While hydrogen from these sources will have to be transported and stored in a single infrastructure, this hydrogen should be labelled with certificates, guaranteeing the origin of the hydrogen to the end-users also determining the economic value. For this reason, a certification system is a key condition, for meaningful pricing and trading of hydrogen between parties and on the exchange.

Such a certification system should be there for all hydrogen sources (renewable, low-carbon, imports), as has been presented by us in the European Regulatory Forum (“Madrid Forum”<sup>2</sup>). For the hydrogen market kick off, a policy needs to be in place with a stimulus package to generate the necessary hydrogen volume. In this regard, government ambitions are high, but need to be backed up by concrete measures and regulations, with the right urgency .

<sup>2</sup> [https://ec.europa.eu/info/sites/default/files/energy\\_climate\\_change\\_environment/events/presentations/2.06.03\\_mf35\\_presentation-hydrogen\\_exchange\\_initiative-preconditions\\_for\\_establishing\\_a\\_hydrogen\\_exchange-den\\_ouden\\_v2.pdf](https://ec.europa.eu/info/sites/default/files/energy_climate_change_environment/events/presentations/2.06.03_mf35_presentation-hydrogen_exchange_initiative-preconditions_for_establishing_a_hydrogen_exchange-den_ouden_v2.pdf)

# Management Summary (3)

During the study, the key topics for a hydrogen exchange were discussed with market parties in several stages:

- Discussion with market parties in the harbour regions, involved in hydrogen initiatives
- A broad consultation meeting on a nationwide level with European involvement
- Two product committee meetings regarding hydrogen certificates and regarding hydrogen spot market and index

Out of this study and input from market parties, four preliminary products were selected.

- A. Certificate product** : This is a wish of many market parties and can be developed without a hydrogen infrastructure. It is also a precondition for all other products. This can be developed by doing a **pilot**.
- B. Index product**: this provides a value to the certificate product. This, too, can be developed without a hydrogen infrastructure. The index product is also a precursor for spot and futures and swaps.
- C. Spot market product**: there is interest for this, due to the intermittent output of electrolyzers. It can be prepared by doing a **market simulation**. Then it can be prepared, to be launched at sea port locations, when infrastructure and number of market players are ready. It can then be migrated towards the backbone when that is (partly) ready.
- D. Products for grid balancing and storage**: this is needed for these infrastructures; because these are being planned right now, it is important to develop the market design together with infrastructure developers.

In developing these plans, we work from our track record in energy exchanges, which includes the building of the European market for electricity and the creation of Europe's leading gas market. The activities for the hydrogen exchange are to be developed under the flag of **HyXchange**, the registered name for this Hydrogen Exchange Initiative.

Plans for the first activities of this HyXchange initiative will be further defined and instrumented in upcoming months.