Development of the National hydrogen transport network of the Netherlands

25 March 2022 - Creation of H2 Infra with Eur H2 Backbone

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Starting point HyWay27

Is a transport network for H2 necessary and if so, when?

- Yes, a transport network for hydrogen is needed. This is to efficiently connect users and suppliers to each other and to storage in a climate-neutral economy.
- A transport network is needed within and between regions even before 2030.

Can the existing natural gas grid be used for H2 and is it desirable?

- For interregional transport of hydrogen, the natural gas network can be freed up and made technically suitable.
- It is desirable to reuse the existing natural gas network because it is cheaper than building a new network, conversion: 1.5 billion.

What government intervention is needed to realize a transport network for H2?

- Government intervention is needed aimed at the whole chain.
- Compensation for transmission grid conversions to offset some of the risks of volatility.
- Decision in principle to convert natural gas network (Recommendation).
- Formulate roll-out plan (recommendation).
- Determine the desired market structure for transport (recommendation).
- Bring financial support in line with ambitions.
- Integral plan to boost chain -> instruments/financial support.

Process, publication & updates

- **30 mrt ’20**: approval of the Dutch Government H2 vision -> Publication of HyWay27 investigation.
- **30 jun ’21**: publication of the HyWay27 report with conclusions and recommendations.
- **21 sep ’21**: Government investment plan with financial government support of 750M€ to convert and building the National Hydrogen Transport network in the Netherlands.
- **Current period**: Preparation of the roll-out plan in close cooperation with the government. Roll-out plan in several phases to establish the National Hydrogen Transport network.

Starting point HyWay27
Groningen, 22 March 2022
#3
Summary of the “Market consultation” in the Netherlands - 1 October 2020

- The questionnaire received 58 responses from (future) hydrogen producers, users and producers & users across all industries and regions in the Netherlands.

- Respondents want hydrogen to reduce carbon footprint and envision it to fulfill a substantial share of their future energy usage.

- Users see barriers and risks mainly around (burner) technology availability and sufficient hydrogen supply, while producers also identify access to renewable energy as barrier.

- Producers are furthest in their project status, while many users have their projects still in the idea phase; nearly all respondents intend to use the hydrogen backbone for transport.

- This is reflected in expected volumes, where producers have a clear and sizeable expectation to produce and transport roughly 100 TWh hydrogen in 2030, while users plan to use roughly 20 TWh; in 2035 this increases to 225k and 80 TWh, respectively.

- 30 bar is the preferred pressure, for quality producers see the highest specification as best suited for their process, users the lowest.

- For connection equipment, compression and purification services, users look at Gasunie while producers prefer themselves or a third party to be responsible.
In 2030, producers expect to produce and transport roughly 100 TWh hydrogen, users expect to use roughly 20 TWh; in 2035 this increases to 225 and 80 TWh.

Can you give a (non-binding) indication of the volume you expect to transport in the period 2026-2035?

Note: Respondents in ‘producer & user’ segment have been manually assigned to ‘producer’ or ‘user’ for this questions based on their hydrogen plans, to avoid double counting of volumes; Producer includes import. Source: Gasunie questionnaire hydrogen infrastructure responses; Monitor Deloitte analysis.
In working: the proposed Roll-out plan

**Design characteristics**

- build-up largely from existing natural gas pipelines
  - around 10 – 15 GW excluding compression (→ 2035/40)
  - 25 → 50 GW or more including compression (→ 2040)
- magnitude of investments 1.5 – 2.0 billion €, from zero to full load 2025 – 2035/40
- initial government funding → commercial contracts (tariffs to be “minor part of H₂ cost chain”)
- physical constraints & market requirements - design bandwidth of pipeline specifications
Development of the National hydrogen Transport network

• The Dutch government has asked Gasunie to develop a national infrastructure for hydrogen transport in the Netherlands.

• Good progress is made in the engineering/design of the hydrogen backbone.

• Market interest is growing. Expressions of Interest are being submitted. In several regions market parties are requesting to work towards final transport and connection(s) contracts.

• These recent developments call for uniform national contract conditions on a non-discriminatory basis of third-party access.

• Through a consultation, scheduled for this spring, Gasunie aims to develop the contractual framework for hydrogen transport and connections to the transport system so that these services take into account the needs of the market.

• Prior to the official national consultation for the transport and connection agreements, Gasunie wishes to consult parties that are at the forefront of hydrogen development on the transport and connection agreements.
Welcome to new joiners & status update

The European Hydrogen Backbone Initiative

2021 member
New member
Contacted
Supply and import corridor scoping

Overview of supply and import corridors

1. Algeria, Italy
2. Morocco, Spain, Portugal
3. North Sea
4. Nordic and Baltic regions
5. East and South-East Europe

Plus injection & withdrawal branches in neighbouring countries
End of presentation