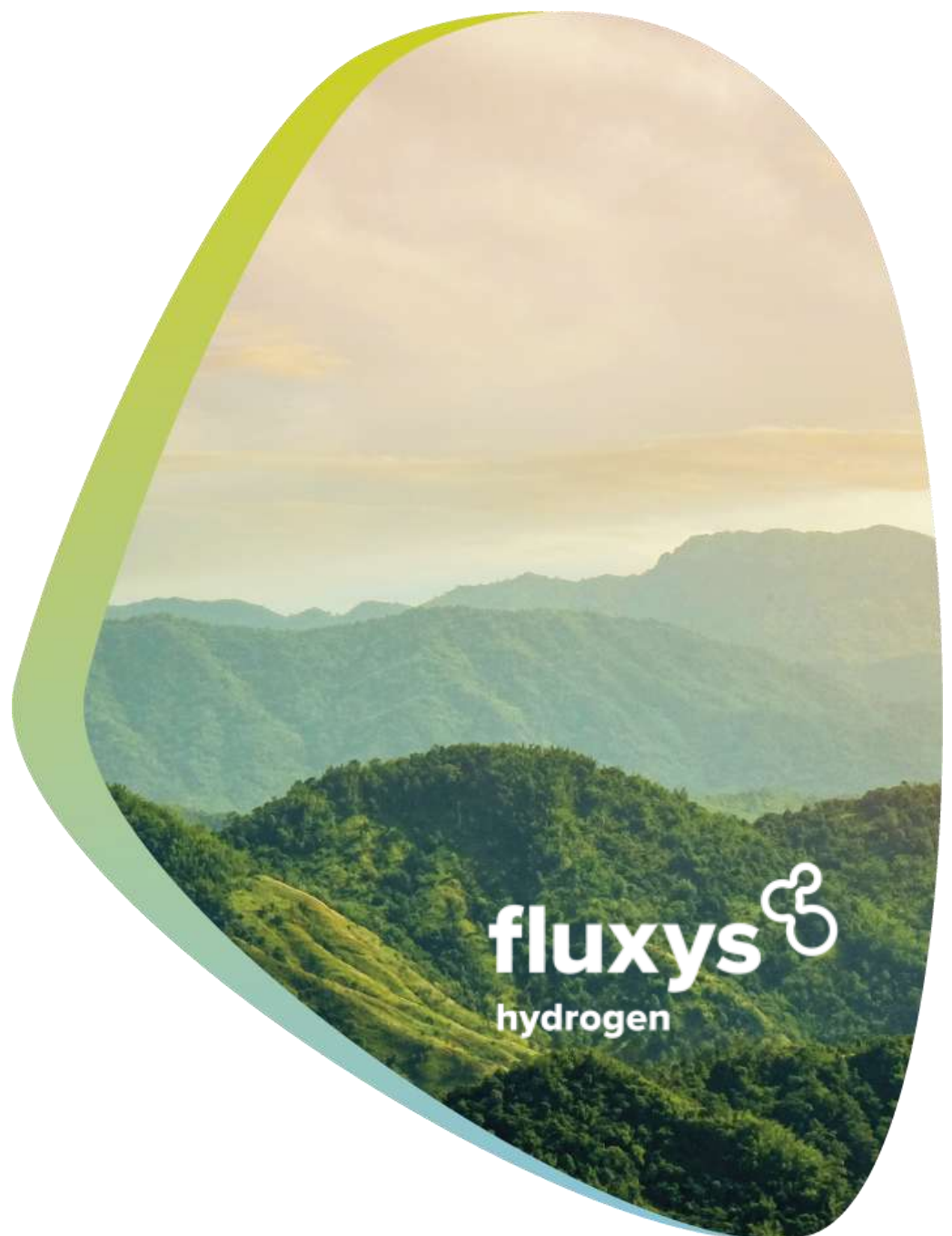


# Indicative network development plan for hydrogen infrastructure 2025-2034



2025



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# 1 Purpose

This indicative investment plan sets out the infrastructure investments currently envisaged by Fluxys hydrogen, the designated Hydrogen Network Operator (HNO) in Belgium, for the period 2025–2034. The plan has been prepared as input for (1) the hydrogen (H<sub>2</sub>) transmission tariff proposal for the 2026 – 2028 regulatory period and (2) the re-certification of Fluxys hydrogen as HNO following updated EU regulation (EU directive 2024/1788, EU regulation 2024/1789).

The proposed investments are designed to address the most mature transport infrastructure needs, enabling connections between hydrogen supply and demand, both for domestic and import / transit purposes.

The scope and timing of these investments are indicative and may evolve in response to:

- Changing domestic and international market dynamics;
- The materialisation and maturing of market demand;
- Technical and regulatory constraints, including permitting;
- The availability of risk mitigation mechanisms and supporting policy frameworks.

As such, this plan should be interpreted as a non-binding, evolving framework, intended to provide transparency and guidance while remaining adaptable to future developments.

The information is shared to the best of our knowledge and in good faith, based on feedback received through market consultations regarding market expectations for hydrogen as explained on [our website](#).

This document constitutes a first interim network development plan, not yet subject to approval by authorities, prepared pursuant to Article 14 of the Federal Hydrogen Law (published in the Belgian Official Gazette on 25 July 2023), which governs the transport of hydrogen via pipelines. It anticipates the submission of an official network plan proposal by the legally mandated deadline of 1 July 2027.



# Context

## 2.1 Role of hydrogen towards decarbonisation

Hydrogen is already part of Europe's energy and industrial landscape, used today in refining, ammonia production, and various chemical processes. Looking ahead, its role is expected to grow as part of the EU's strategy to reduce greenhouse gas emissions by 55% by 2030 and reach climate neutrality by 2050<sup>1</sup>. In Belgium, where industry accounts for nearly 40% of carbon emissions<sup>2</sup>, hydrogen offers a practical pathway to decarbonise sectors that are hard to electrify. In combination with new-built infrastructure where required, existing natural gas infrastructure can be partially repurposed to transport hydrogen, offering a cost-effective solution for industrial decarbonisation. Hydrogen complements electricity – providing clean energy where direct electrification isn't feasible or adequate.

## 2.2 Belgian Federal Vision & Strategy for hydrogen<sup>3</sup>



On October 28<sup>th</sup> 2021, the federal government of Belgium approved and published its hydrogen strategy. The Belgian federal Hydrogen Strategy consists of 4 pillars:

1. position Belgium as an import and transit hub in Europe for green hydrogen,
2. make the country a leader in hydrogen technologies,

<sup>1</sup> [https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/delivering-european-green-deal\\_en](https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/delivering-european-green-deal_en)

<sup>2</sup> <http://statbel.fgov.be/en/themes/energy/energy-statistics-economic-sector-and-energy-source>

<sup>3</sup> <https://economie.fgov.be/sites/default/files/Files/Energy/View-strategy-hydrogen.pdf>

3. create a robust hydrogen market through the implementation of a hydrogen open access backbone,
4. encourage the different stakeholders to pool their strengths and know-how.

The creation of a robust hydrogen market requires the ability to transport molecules easily from import locations such as the Belgian ports and domestic production facilities to different industrial areas as well as neighbouring countries.

Belgium's hydrogen strategy was updated in October 2022 and expresses the ambition to further accelerate the development of a hydrogen backbone, with connections to the neighbouring countries France, the Netherlands and Germany as from 2028. A clear commitment was also made to adapt the legal and regulatory framework in Belgium for the transport of hydrogen via pipelines.

## 2.3 Ambition as HNO – our long-term perspective

On 4 August 2023, the Federal Act on the Transport of Hydrogen by Pipeline ('Hydrogen Act') came into force. This law anticipated the revision of the European Gas Directive 2024/1788 and Regulation 2024/1789. The Hydrogen Act promotes, among other things, a regulated, open access hydrogen backbone operated by an independent operator.

On 17 November 2023, Fluxys hydrogen, a 100% subsidiary of Fluxys Belgium, was created. This new entity was appointed by Ministerial Decree on 26 April 2024 for 20 years as an independent and neutral HNO for Belgium to develop an open access hydrogen backbone in accordance with the framework laid down in the Hydrogen Act, including full ownership unbundling.

As HNO, Fluxys hydrogen is committed to supporting Belgium's ambition to become an international hub for hydrogen import and transit. Mirroring its current role in natural gas, the Belgian hydrogen backbone is set to become an integral part of the European hydrogen network.

This backbone will ensure reliable access to hydrogen for industrial users, fostering an open, transparent and competitive hydrogen market. It will also contribute to economic development by accelerating the integration of renewable energy sources across Europe and enabling the cost-effective deployment of hydrogen.



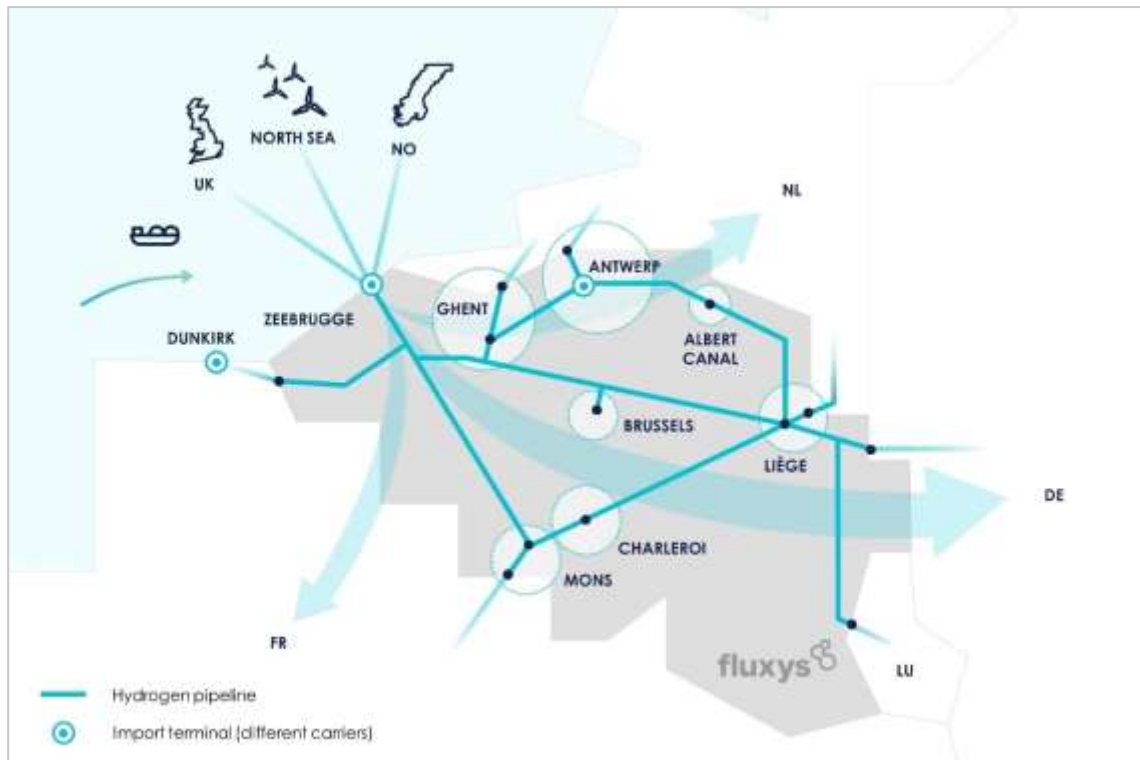


Figure 1 - Long - Term hydrogen network vision for Belgium

The development of this infrastructure is being carried out in close alignment with market needs and in cooperation with the relevant authorities. To realise Belgium's strategic role as a hydrogen hub, Fluxys hydrogen is advancing following initiatives:

- **Future-oriented hydrogen transport infrastructure**, aimed at the development of a hydrogen backbone in industrial areas and the connections between them.
- **Interconnections with other countries** are essential to ensure cross-border hydrogen flows, enable market integration, and support security of supply. In line with market needs, Fluxys hydrogen targets connections with the Netherlands (HNS, a subsidiary of GASUNIE), Germany (OGE), France (NATLAN), Luxembourg (CREOS) and the United Kingdom (NATIONAL GAS).
- **Reuse of natural gas pipelines and storage** as demand for natural gas phases out.

In light of these initiatives, Fluxys hydrogen applied for Project of Common Interest (PCI) status in 2023. PCI is an EU designation for cross-border energy infrastructure projects that are essential to market integration, sustainability, and security of supply. The status was successfully granted in 2024 and reaffirmed in 2025, underscoring the strategic relevance of Fluxys' hydrogen backbone and interconnection plans. The status of PCI project enables faster permitting, access to EU funding via the Connecting Europe Facility (CEF) and coordinated development with neighbouring countries. In the list of PCI projects<sup>4</sup> the

<sup>4</sup> Full list of projects granted PCI status in the '24/'25 PCI call can be found here: <https://energy.ec.europa.eu/document/download/f3358e26-6bec-444b-8024->

Fluxys hydrogen project is labelled '*Internal hydrogen infrastructure in Belgium [currently known as Belgian Hydrogen Backbone]*' - which includes also the interconnections with other adjacent countries.

## Methodology

### 3.1 Infrastructure development approach

Fluxys hydrogen develops new hydrogen infrastructure based on validated and mature market needs. These needs are initially identified through market consultations, after which follows a step-by-step process to reach a binding agreement between the commercial party and Fluxys hydrogen, ahead of a final investment decision.



Depending on the specific context, this step-by-step process may vary to accommodate the characteristics and requirements of each project:

- **New connection requests to existing infrastructure** – Interest from market parties is to be covered by an *Expression of Interest*, in which demand and/or supply requirements are confirmed, followed by a *Feasibility Study*. With a positive outcome of the *Feasibility Study* a connection can be obtained through a binding commitment documented in a *Connection Agreement for Consumers or Producers*.
- **New, independent infrastructure requests** – Based on the consolidation of market requirements, gathered e.g. via market consultation, an *Infrastructure Proposal* can be developed where multiple customers are at the basis of a new ecosystem with both supply and offtake. Following this proposal, a similar process as for *new connection requests to existing infrastructure* is to be followed, to move into a final proposal and binding agreements.

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- **New connections between existing infrastructure and (other) independent areas or cross border connections** – A *Call for Market Interest (CMI)* is organised for a specific point-to-point connection to assess the market needs, without any commitment or cost coverage required. If the CMI is positive and minimum mature capacities are reached compared to the estimated investment, an *Infrastructure Proposal* is made which is followed by the process of *Expression of Interest* and *Feasibility Study*. The binding commitment however, required for the Fluxys hydrogen investment decision, is made through subscription of capacities for the specific route-based service under the *Transmission Agreement*.

## 3.2 Identified market needs

In order to assess market demand for hydrogen transmission capacity, Fluxys launched a Request for Information (RFI) process in 2021, which remains open for participation. Over 150 companies initially participated to this non-binding RFI, demonstrating strong interest in an open-access hydrogen backbone.

Following the initial results in 2021, Fluxys took on a facilitating role in reconciling supply and demand, including matchmaking open to all interested parties. In line with the approach outlined in the previous section, the following steps were taken:

1. *Infrastructure Proposals* were defined for various regions in Belgium, allowing interested parties to express interest in becoming Connected Customers.
2. A detailed route proposal, based on feasibility studies, was presented to parties that had signed an *Expression of Interest*.
3. Iterative interactions were held with interested parties and market participants demonstrating market maturity – such as a defined project timeline, a readiness to enter into capacity commitments, etc. – to shape a first concrete infrastructure development proposal.

In line with the methodology outlined in the previous section, binding capacity subscriptions under the *Transmission Agreement* are now required to advance with concrete infrastructure development.

Nevertheless, to send a strong signal to the market and demonstrate Fluxys hydrogen's commitment as HNO, a strategic decision was made in February 2025 to initiate construction of the first phase of a Belgian hydrogen backbone in the Antwerp port area, including a connection between Antwerp and Ghent. The design and sizing of the infrastructure – further detailed in the next section – were defined based on the most mature market needs.

Meanwhile, bilateral discussions continue with market participants in order to achieve binding commitments or identify new prospects to explore expansions of the existing infrastructure and/or the development of new pipeline routes.

In parallel, interactions are also ongoing with adjacent Transmission System Operators (TSOs) to support the development of cross-border infrastructure, essential to enable market integration and address potential supply or demand imbalances in the Belgian hydrogen market. Based on current market insights, the French market – and especially the Dutch and German markets – have been identified as first key emerging markets with whom import and export of hydrogen could be established.

As for the German and French markets, a *Call for Market Interest (CMI)* was launched in October 2024 to evaluate interest in potential interconnections. The results revealed a particularly strong interest for export routes to Germany, which has led to the Germany-focused infrastructure development proposal outlined later in this document.

Following this CMI, bilateral discussions now continue with participants to move into the next stages of development. In line with the methodology defined in previous section, preparations are ongoing to launch an *Expression of Interest* process for an interconnection with the network in Germany and the network currently under construction.

## 4 Indicative network planning

The following sections outline the ongoing and indicatively planned hydrogen transport infrastructure developments in the 2025 – 2034 timeframe.

The proposed indicative infrastructure plan is the result of market consultations and stakeholder interactions (cf. previous section) and has been sized in alignment with identified market capacity requirements, while accounting for varying maturity levels of these market needs. Compared to the list of projects presented in the Project of Common Interest process in 2024 / 2025, this is an actualisation in both timing and scope, optimised to include only development needs through 2034.

It is important to emphasise that this development outlook is indicative. The timing, scope, and sizing of the infrastructure projects remain subject to change and will depend on a range of factors, including but not limited to:

- Changing domestic and international market dynamics
- The materialisation and maturing of market demand;
- Technical and regulatory constraints, including permitting;
- The availability of risk mitigation mechanisms and supporting frameworks.

As such, the indicative plan should be interpreted as a non-binding, evolving framework that will be refined in response to market developments and project feasibility confirmations.

### 4.1 Infrastructure under construction

In March 2025, construction commenced on the first phase of a Belgian open-access hydrogen network located in the Antwerp port area and including a connection between Antwerp and Ghent. Further network development within the Ghent port area is planned for a subsequent phase, as detailed in the following section. No repurposing opportunities were identified at this stage; the entire infrastructure consists of new-built pipelines.

The network topology and sizing have been defined based on the most mature market needs as identified through the market development process outlined in the previous section. These market needs have not yet materialised in binding agreements with Fluxys hydrogen.

The planned infrastructure and associated investment details are illustrated in the high-level figure and table below.

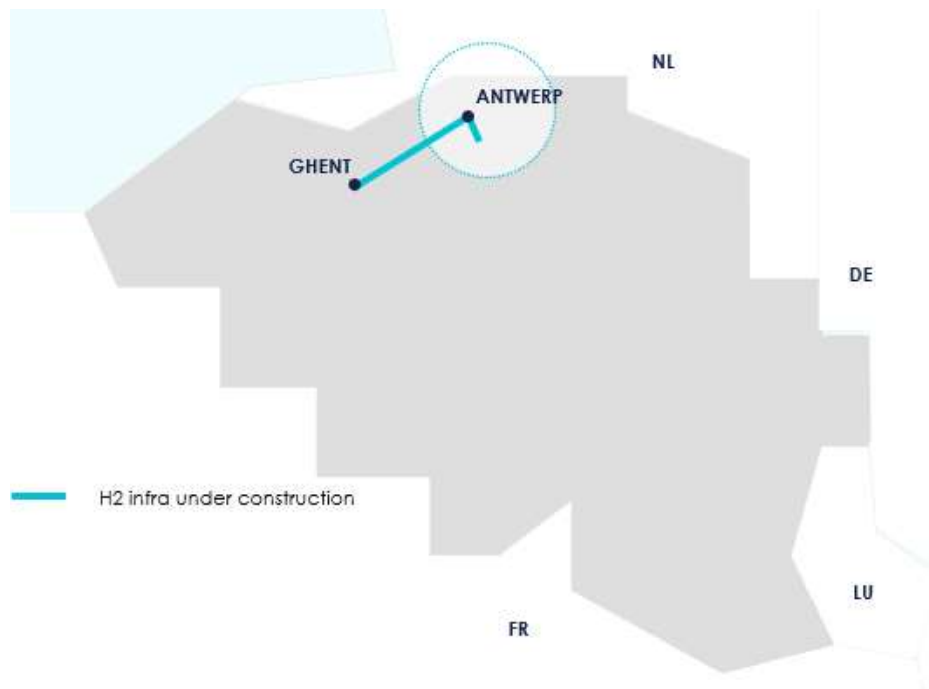


Figure 2 – Schematic representation of the hydrogen backbone under construction

Project location	CAPEX [M€ 2025]	Diameter [mm]	Network length [km]
Antwerp	~73	600	~15
Connection Ghent - Antwerp	~92	600	~37
<b>Total</b>	<b>~165</b>	/	<b>~52</b>

### Network in Antwerp and connection between Ghent and Antwerp

The Ghent and Antwerp industrial regions will be connected by a dedicated new pipeline between Zelzate and Lillo through Kallo.

The network in Antwerp encompasses infrastructure on both the right and left banks and covers different areas:

- The left bank along the Ketenislaan;
- The right bank along the Scheldelaan down towards the Oosterweelsteenweg;
- A connection underneath the Scheldt river between both sections.

The network is designed to meet commercial needs both in the short and long term. Taking these needs into account, the network can support a capacity of up to 3 GWh/h. After initial commissioning, the network will operate at a reduced pressure between 30 and 50 barg, with a planned increase to 66,2 barg at a later stage. In the initial phase, the first network users will generate the flow in the pipeline based on their production and/or consumption needs.

## 4.2 Indicative subsequent investments by 2034

In the subsequent phase(s), the hydrogen backbone will be further developed and gradually integrated as part of the pan-European hydrogen backbone, with Belgium as a major hub for the import and export of hydrogen.

Based on our current view on the most mature market needs, we foresee the further development of hydrogen transport infrastructure along three strategic axes:

- Axis 1 – Connection between the Liège industrial cluster and the German border
- Axis 2 – Expansion of the network around the Ghent and Antwerp port areas to enable customer connections, including interconnection(s) with the Netherlands
- Axis 3 – Link between Antwerp (and the hydrogen network currently under development) and the Liège region, enabling further interconnection with Germany

These three development axes are illustrated in the figure below and further detailed in the next sections.

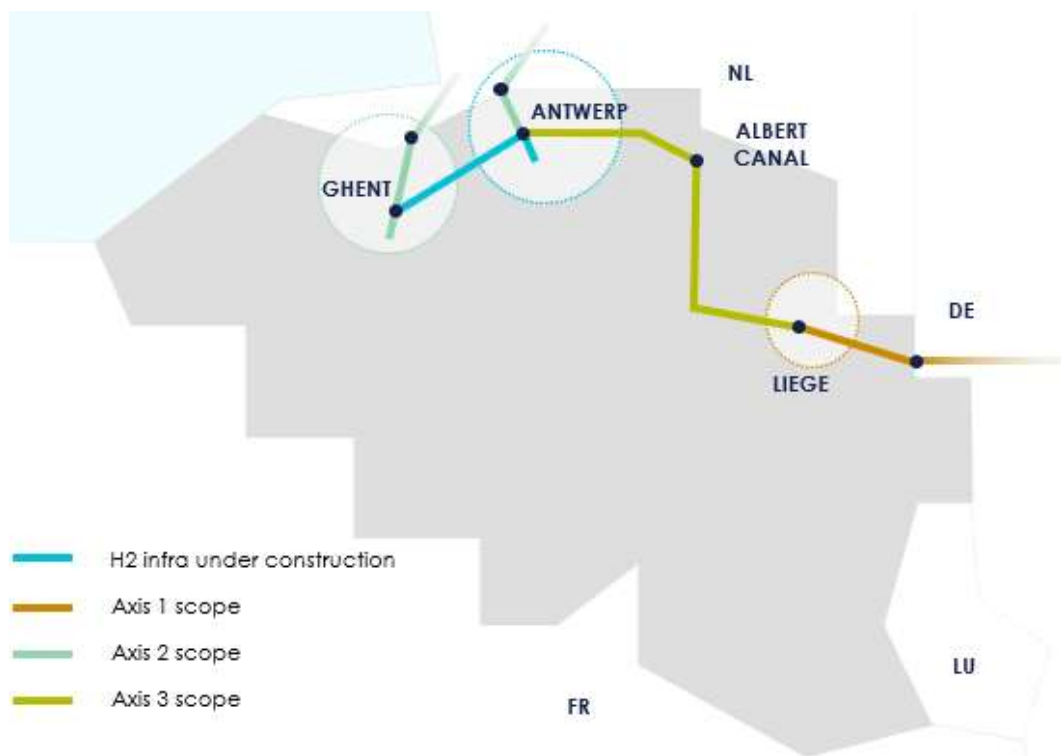


Figure 3 – Schematic representation of the hydrogen backbone provisional development scope up to 2034

The total investment required for the realisation of this next phase of the Belgian hydrogen backbone – aligned with the three strategic axes outlined above and further down below – is estimated at approximately €940 million (2025 real values), subject to evolving market conditions and demand signals. This investment is to be allocated to the different sections according to the table presented below.

This table also shows the anticipated commissioning dates (COD) of these respective infrastructures, providing a rolling window for infrastructure which will be gradually developed over time. These timings are indicative and contingent to e.g. the ratification of market interest in commercial (binding) commitments, securing the necessary permitting and financing, and any de-risking measures needed from authorities.

Axis	Project scope	CAPEX <sup>5</sup> [M€ 2025]	Diameter [mm]	Connection capacity [GW]	Network length [km]	Target COD
Axis 1	Connection Liège – DE border (Eynatten)	~ 80	600	3,8	~ 34	2029 <sup>6</sup>
Axis 2	Customer connections and expansion network Ghent	~ 90	150 - 600	up to 2 <sup>7</sup>	~ 28	2032 - ...
Axis 2	Customer connections and expansion network Antwerp	~ 20	150 - 600	up to 2	~ 8	2028 - 2032
Axis 2	Interconnection Ghent - NL border (Zelzate) incl. metering station	~ 20	600	1,5 - 3 <sup>8</sup>	~ 4	2032
Axis 2	Interconnection Antwerp - NL border (Zandvliet) excl. metering station	~ 40	600	1,5 - 5	~ 11	2030
Axis 3	Connection Antwerp - Liège	~ 690	600 - 900	3,8	~ 180	2032
<b>Total</b>		<b>~940</b>			<b>~ 265</b>	

## Axis 1: Liège – German Border (Eynatten)

This axis involves the development of an initial hydrogen transport corridor between the industrial region of Liège and the German border at Eynatten. At this interconnection point, the Belgian network will link with Open Grid Europe's infrastructure, which is part of Germany's national hydrogen backbone ('Kernnetz'). This connection marks a critical first step in establishing a strategic east-west corridor that will ultimately connect Belgian industrial hubs and ports with major hydrogen demand centres in Germany.

The currently proposed routing in Belgium – subject to further market developments – will extend from Berneau, near Liège, which also serves as a regional natural gas hub, to the

<sup>5</sup> CAPEX figures are indicative and subject to change due to evolving market conditions, regulatory developments, and other external factors.

<sup>6</sup> Timing subject to validation of market demand for a local connection between Liège and DE connection; timing may still be adjusted.

<sup>7</sup> Capacity dependent on client connection and specific operating conditions.

<sup>8</sup> Dependent on operating conditions on NL side of the border. In first instance up to 1,5 GW will be feasible with the possibility to build up to 3 GW with an increase of the operational pressure regime as the market matures.



border point in Eynatten. Berneau's strategic location enables integration with potential future network developments in the Liège area, with pipeline infrastructure coming from the northern port regions (cf. axis 3), and is compatible with the possible repurposing of natural gas pipelines passing through Berneau towards Germany. In a first instance, no repurposing opportunity is identified for this section.

A connection could be established as early as 2029. However, this remains subject to confirmation of market demand on both sides of the border.

## **Axis 2: Expansion of the Ghent & Antwerp port areas to enable customer connections and interconnection with the Dutch network**

This axis focuses on the expansion of the hydrogen infrastructure within the forementioned port regions (Ghent / Antwerp) to establish commercial connections (both supply and demand) in line with market needs. The first expansion is planned for late 2028, aligned with the projected client connection needs in the area.

In addition, this axis includes two cross-border interconnections with the Netherlands: one near Ghent (Zelzate) and another near Antwerp (Zandvliet). These will connect the hydrogen network in the Ghent and Antwerp port areas to the Dutch hydrogen transport network operated by Hydrogen Network Services, to allow both import and export of hydrogen volumes. These cross-border flows are to feed potential hydrogen supply deficits in Belgium or to move to The Netherlands possible surplus of blue hydrogen production in Belgium. No repurposing opportunity is identified for this axis.

The first interconnection with the Netherlands (in Zandvliet) is currently projected for 2030, in line with the Dutch Hydrogen Infrastructure Roll-out Plan published last year.

## **Axis 3: Antwerp – Liège – Germany**

This axis aims to establish a direct connection between Antwerp and Liège, which will also link – via the infrastructure planned under Axis – to the German network at the Eynatten cross-border point. This route will enable the integration of the port and industrial zones of Ghent and Antwerp with the Liège region and, ultimately, with Germany's hydrogen backbone, supporting the anticipated large-scale demand.

This axis could partially leverage existing infrastructure – if repurposed – along the segment that follows the VTN route. However, actual repurposing largely depends on Germany's methane demand. In the current project timeframe repurposing is considered unfeasible and will be reassessed at a later stage, as it could significantly enhance hydrogen transmission capacity.



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