

The Development of Hydrogen Infrastructure in the Netherlands and Third-Party Access

Maaïke Broersma, Philipp Jäger and Marijn Holwerda

17.1 INTRODUCTION

Both the EU¹ and the Netherlands² have recently announced their ambitions on the production and consumption of (renewable) hydrogen. The European Commission has proposed legislation on hydrogen by means of a recast of the Gas Directive³ and the Gas Regulation,⁴ the so-called Decarbonisation Package, in December 2021.⁵ The EU has also taken other steps to increase the use of (renewable) hydrogen.⁶ With its experience in hydrogen production, strategic location near the North Sea, potential for offshore wind energy production and extensive onshore natural gas (gas) pipeline network, combined with the expected substantial consumption of hydrogen domestically and in neighbouring countries, the Netherlands has a good starting position for developing a hydrogen economy both at home and in the wider EU.

A significant increase in hydrogen production and consumption in the Netherlands will require the development of large-scale hydrogen infrastructure such as hydrogen transport and

¹ The target for the EU is at least 40 GW of renewable hydrogen electrolyzers and the production of 10 million tonnes of hydrogen, both by 2030, EU Commission, 'EU hydrogen strategy for a climate-neutral Europe', Communication to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, COM(2020) 301 final, p. 6 <<https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020DC0301>> accessed 22 October 2023.

² The target for the Netherlands is 4 GW electrolyser capacity in 2030 and 8 GW electrolyser capacity in 2032, Dutch Minister of Climate and Energy Policy, 'Vormgeving instrumentarium hernieuwbare waterstof (Set up instruments renewable hydrogen) (letter to the Dutch Parliament, 23 June 2023) <<https://open.overheid.nl/documenten/9b957903-442d-4ca3-9aba-d73b6785cf6e/file>> accessed 22 October 2023.

³ European Commission, 'Proposal for a Directive of the European Parliament and of the Council on Common Rules for the Internal Market in Renewable and Natural Gases and in Hydrogen', COM (2021) 803 final (15 December 2021) (hereinafter: COM (2021) 803).

⁴ European Commission 'Proposal for a Regulation on the internal markets for renewable and natural gas and for hydrogen (recast)', COM 804 final (15 December 2021) (hereinafter: COM (2021) 804).

⁵ The EU Decarbonisation Package is discussed in depth in Chapter 2 by Leigh Hancher and Simina Suciuc.

⁶ Such as the revision of Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources <<https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018L2001>> accessed 22 October 2023, where the final text has been agreed before summer 2023 and which is awaiting adoption into law, 'Outcome of Proceedings', European Council, 19 June 2023 (10794/23) <www.consilium.europa.eu/media/65109/st10794-en23.pdf> accessed 22 October 2023, and the rules on hydrogen infrastructure, discussed further here.

storage infrastructure. This chapter examines the development of such infrastructure in the light of recent EU proposals for so-called third-party access to new and repurposed infrastructure. For clarity's sake, when talking about the development of hydrogen infrastructure, we also refer to the later operation of such infrastructure, even when not explicitly stating so.

N.V. Nederlandse Gasunie (Gasunie), together with its group companies, is active in the development of hydrogen infrastructure in the Netherlands and northern Germany. Gasunie is wholly owned by the Dutch state and one of its group companies operates the Dutch high-pressure natural gas network. Gasunie also operates other natural gas infrastructure.

Below, we will briefly discuss the plans of Gasunie and the Dutch government for the development and operation of hydrogen transport, storage and import infrastructure (Section 17.2). Thereafter, we will give a concise overview of the current Dutch legal framework regulating the hydrogen infrastructure activities Gasunie is developing (Section 17.3). Finally, we will discuss the European Commission's proposals on third-party access to the different forms of hydrogen infrastructure as well as its proposals for (possibly) exempting new hydrogen infrastructure (Section 17.4). In doing so, we will try and give a first assessment of how these proposals could impact the development of hydrogen infrastructure in the Netherlands, with a focus on hydrogen transport and storage infrastructure. We aim to give the reader an idea of how the different possible regimes for third-party access to hydrogen infrastructure could impact the development of such infrastructure and what challenges could arise for an energy infrastructure company like Gasunie.

17.2 HYDROGEN INFRASTRUCTURE ACTIVITIES IN THE NETHERLANDS

In the northern part of Germany and in the Netherlands, Gasunie acts as a transmission system operator of a high-pressure gas network as well as, through its group companies,⁷ an operator of gas storage and gas import infrastructure. In the remainder of this chapter, we will refer to the activities of Gasunie group companies as Gasunie activities.

Besides its more traditional energy infrastructure activities, Gasunie partakes in the Dutch and EU energy transition by developing renewable hydrogen projects. Gasunie hydrogen activities consist of a wide set of initiatives for the development and operation of hydrogen transport, storage and import infrastructure, which will now be discussed in turn.

17.2.1 *Transport*

In 2021, a study conducted by several organisations in the Netherlands showed that it is possible and, from a societal point of view, desirable to reuse the Gasunie gas transport network for hydrogen transport.⁸ The existing network could be reused to transport hydrogen and connect future hydrogen consumers, suppliers and storage.⁹ The gas transport network would be gradually freed up to accommodate the increasing need for transporting hydrogen. This reuse would be more cost effective than the development of new hydrogen transport pipelines and

⁷ Such as the gas storage EnergyStock in the north of the Netherlands and the LNG terminals GATE in the harbour of Rotterdam and EemsEnergyTerminal in the harbour of Eemshaven in the north of the Netherlands.

⁸ HyWay 27, 'Hydrogen transmission using the existing natural gas grid? Final report for the Ministry of Economic Affairs and Climate Policy', June 2021 <www.rijksoverheid.nl/documenten/kamerstukken/2021/06/30/kamerbrief-over-ontwikkeling-transportnet-voor-waterstof> and <www.hyway27.nl/en/latest-news/hyway-27-realisation-of-a-national-hydrogen-network> both accessed 22 October 2023.

⁹ Ibid, pp. 8 and 56 et seq.

HyWay 27: Realisation of a national hydrogen network

Together with Gasunie and TenneT, the Ministry of Economic Affairs and Climate Policy carried out the HyWay27 study. The study concluded that the current natural gas transmission network provides a cost-efficient basis for safe hydrogen transmission. The national hydrogen infrastructure, including connections to storage facilities, is needed to realise the Netherlands' hydrogen ambitions by 2030. This report makes the following recommendations.

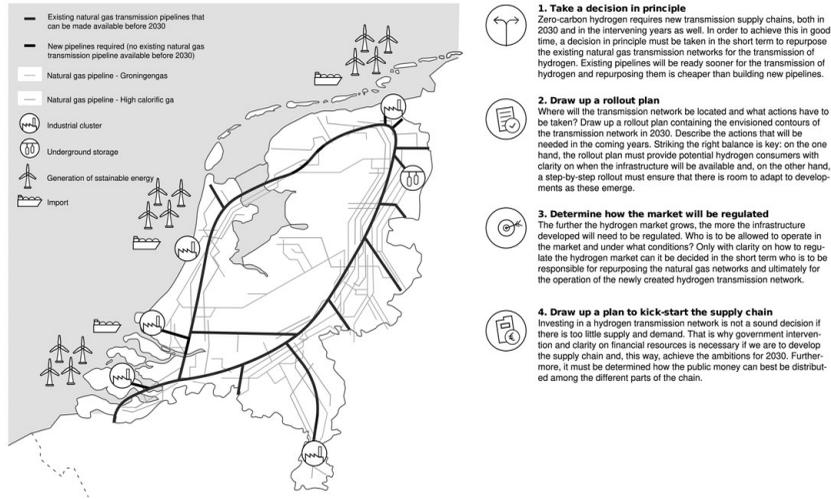


FIGURE 17.1 HyWay 27: Realisation of a national hydrogen network

Source: HyWay 27, 'Hydrogen transmission using the existing natural gas grid? Final report for the Ministry of Economic Affairs and Climate Policy', June 2021, p. 11 <www.rijksoverheid.nl/documenten/kamerstukken/2021/06/30/kamerbrief-over-ontwikkeling-transportnet-voor-waterstof>

would require an investment of around €1.5 billion.¹⁰ The main recommendations of the study are displayed in Figure 17.1.¹¹

Based on the HyWay 27 report, the Dutch State Secretary of Economic Affairs and Climate (State Secretary) indicated in a letter to the Dutch parliament that a hydrogen transport network would be necessary for a CO₂-free hydrogen chain and that as far as possible it should be based on reuse of existing gas pipelines. The State Secretary also announced a plan for the rollout of the national hydrogen transport network and indicated the intention to request Gasunie to develop this network and free up gas pipelines for reuse.¹²

In June 2022, the Dutch government proclaimed that HyNetwork Services, a Gasunie group company, is to develop and operate a dedicated nationwide hydrogen transport network. The investments would have to be made for the, yet to be developed, different hydrogen markets. However, it would not be an option to defer these investments to a later time, because the planned projects for hydrogen production, storage and import require such a hydrogen transport network to be available in order to be realised. The Dutch government has reserved a maximum of €750 million for the development of the hydrogen transport network. The network will connect the major Dutch industrial clusters and storage facilities, and with the neighbouring countries; it is expected to be fully operational by 2030, at the latest.¹³

¹⁰ Ibid, pp. 9 and 71 et seq.

¹¹ HyWay 27, 'HyWay 27: realisation of a national hydrogen network', June 2021 <www.hyway27.nl/en/latest-news/hyway-27-realisation-of-a-national-hydrogen-network> accessed 14 January 2024.

¹² Dutch State Secretary of Economic Affairs and Climate Policy – Climate and Energy Policy, 'Ontwikkeling transportnet voor waterstof (Development transport network for hydrogen) (letter to the Dutch Parliament, 30 June 2021) <<https://open.overheid.nl/documenten/ronl-66d67cdc-8d97-42e5-9f61-c4bc4bf5a1c6/pdf>> accessed 22 October 2023.

¹³ Dutch Minister of Climate and Energy Policy, 'Ontwikkeling transportnet voor waterstof (Development transport network for hydrogen) (letter to the Dutch Parliament, 29 June 2022) <<https://open.overheid.nl/repository/ronl->

In July 2023, the Minister of Climate and Energy Policy informed the Dutch Parliament of the progress being made on the development of the hydrogen transport network. He indicated that several steps had been taken to centralise the permitting process (*Rijkscoördinatierегeling*). Furthermore, the planned routing of the hydrogen transport network had to be partly changed, due to two recent developments. First, the war in Ukraine changed natural gas flows, meaning that certain gas pipelines would only become available for reuse at a later time than initially planned. Second, the planned routing had to be aligned with a recently initiated project for the transport of several commodities (including hydrogen) from Rotterdam harbour to the Ruhr area in Germany (Delta Rijn Corridor).¹⁴

The development and operation of the hydrogen transport network is expected to have a learning-by-doing character. This means that in the first period the network will be developed in stages and as a linear connection. The pipelines will have fewer connections to other pipelines than in the existing gas transport network. The hydrogen transport network will, at first, due to its linear setup, not have any rerouting possibilities. This means that the operational behaviour of the first hydrogen transport network users will have considerable influence on the integrity of the hydrogen transport network. For example: the consequences of the feeding in of hydrogen that does not comply with the quality specifications, as published, could be felt throughout the whole hydrogen value chain.

17.2.2 Storage

Hydrogen storage is considered an integral part of the development of the hydrogen value chain. The Dutch National Hydrogen Programme, a public–private hydrogen collaboration, foresees a hydrogen storage demand of 750–1,000 gigawatt hours (3–4 salt caverns) for 3–4 gigawatts (GW) electrolyser capacity in 2030 in the Netherlands.¹⁵ In Germany, expectations of future demand for hydrogen storage are even higher.¹⁶

Hydrogen storage activities focus on the development and operation of large-scale underground hydrogen storage connected to hydrogen transport networks in both the Netherlands and Germany. The idea is to create flexibility and provide hydrogen market players a tool for dealing with both short-term and long-term fluctuations in hydrogen supply and demand. Another function of hydrogen storage will be to increase the security of supply in the energy system as a whole and the socio-economic benefits by allowing the storage of electricity produced and its conversion to hydrogen in a period of over-production of electricity (from renewable sources) and to use that hydrogen to produce electricity in a period of under-production (from renewable sources).¹⁷ The first Gasunie hydrogen storage will be developed in the north of the Netherlands

^{5pt>>} accessed 22 October 2023 (hereinafter: Dutch Minister of Climate and Energy Policy, letter 29 June 2022).

¹⁴ Dutch Minister of Climate and Energy Policy, 'Voortgang ontwikkeling transportnet voorwaterstof (Progress development transport network for hydrogen) (letter to the Dutch Parliament, 3 July 2023) <<https://open.overheid.nl/documenten/6c20acd7-2d88-47e7-8f52-15573c75da95/file>> accessed 22 October 2023 (hereinafter: Dutch Minister of Climate and Energy Policy, letter 3 July 2023).

¹⁵ Nationaal Waterstof Programma, 'Routekaart Waterstof (November 2022) <<https://open.overheid.nl/repository/ronl-4e9a5511ceof4193c14ef14fe7f820838b84fbo3/1/pdf/routekaart-waterstof.pdf>> accessed 22 October 2023.

¹⁶ Demand for hydrogen storage of at least 5 TWh, see German Nationaler Wasserstoffrat, 'Wasserstoffspeicher-Roadmap 2030 für Deutschland', p. 2 <www.wasserstoffrat.de/fileadmin/wasserstoffrat/media/Dokumente/2022/2022-11-04_NWR_Stellungnahme_Wasserstoff-Speicher-Roadmap.pdf> accessed 22 October 2023.

¹⁷ European Commission, Energy Transition Expertise Centre (ENTEC), 'The role of renewable H₂ import & storage to scale up the EU deployment of renewable H₂', 28 February 2022 <https://energy.ec.europa.eu/publications/role-renewable-h2-import-storage-scale-eu-deployment-renewable-h2_en> accessed 22 October 2023.

and the first cavern is expected to be fully operational in 2028. Three more caverns are planned to be operational after 2030.¹⁸

17.2.3 *Import*

Hydrogen import activities in the Netherlands consist of the development and operation of hydrogen terminal infrastructure for ships in both the Netherlands and Germany, currently with a focus on the ports of Rotterdam, Eemshaven (both in the Netherlands) and Brunsbüttel (Germany).¹⁹ The import of renewable hydrogen²⁰ is seen by the Dutch government as essential for meeting expected future demand for such hydrogen.²¹ By combining hydrogen with nitrogen to create ammonia, it can be transported, stored and converted into green hydrogen in larger quantities. Another possibility is to transport hydrogen via ships by use of so-called liquid organic hydrogen carriers (LOHC), which are essentially organic compounds that may store hydrogen as reversible chemical bonds.

17.2.4 *Offshore*

In May 2022, Denmark, Germany, Belgium and the Netherlands signed the so-called Esbjerg declaration, agreeing to develop the North Sea as a ‘green power plant’. This will consist of multiple connected offshore energy projects and hubs, centring around large-scale offshore wind energy production, and electricity and hydrogen interconnectors. By 2030, the four EU Member States intend to produce at least 65 GW of offshore wind energy, increasing to at least 150 GW by 2050; 20 GW of the targeted offshore wind energy for 2030 is to be earmarked for onshore and offshore production of green hydrogen and these four countries look to expand the production even further for 2050.²²

In December 2022, the Dutch government stated that it intends to assign to Gasunie the task of developing and realising an offshore hydrogen transport network.²³ This offshore hydrogen transport network will connect with the onshore network, thereby also connecting offshore infrastructure with onshore hydrogen storage infrastructure.

Having briefly sketched the different hydrogen activities, we will now turn to the Dutch legislative framework which regulates these activities.

¹⁸ See the website of HyStock and in particular ‘The project’ <www.hystock.nl/en> accessed 22 October 2023.

¹⁹ The ACE Terminal project in Rotterdam <www.aceterminal.nl/>, the EemsEnergyTerminal, <www.eemsenergyterminal.nl/en> and the LNG Terminal in Brunsbüttel <www.gasunie.nl/en/news/new-step-in-development-of-lng-terminal-in-brunsbuettel> all accessed 22 October 2023.

²⁰ Renewable hydrogen is defined in Chapter 2 by Hancher and Suciu.

²¹ Dutch Minister of Climate and Energy Policy, Minister of Economic Affairs and Climate Policy, Minister for Foreign Trade and Development Cooperation and Minister of Foreign Affairs, ‘Energiediplomatie en import van waterstof (Energy diplomacy and import of hydrogen) (letter to the Dutch Parliament, 2 June 2023) <<https://open.overheid.nl/documenten/3b08e36c-7e15-430b-a5c6-2577fa9ca05f/file>> accessed 22 October 2023.

²² ‘The Esbjerg Declaration on the North Sea as a Green Power Plan of Europe’, by the Heads of State of Denmark, Belgium, the Netherlands and Germany, 18 May 2022 <https://open.overheid.nl/repository/ronl-1e299d084fbc5bfc2968d934ca2f4a97b3931d9f/1/pdf/Esbjerg_declaration_for_prime_ministers.PDF> accessed 22 October 2023.

²³ Dutch Minister of Climate and Energy Policy, ‘Voortgang waterstofbeleid’ (Progress hydrogen policy) (letter to the Dutch Parliament, 2 December 2022) <<https://open.overheid.nl/repository/ronl-7c7b4555e9e760329c2a83ebef633fdac833dc18/1/pdf/voortgang-waterstofbeleid.pdf>> accessed 22 October 2023.

17.3 THE NATIONAL LEGISLATIVE FRAMEWORK FOR HYDROGEN INFRASTRUCTURE ACTIVITIES

Alongside the obvious areas of law such as spatial planning law and competition law, the Dutch legislative framework for hydrogen activities in essence consists of the Dutch Gas Act. In June 2023, a draft for a new Energy Act was submitted to the Dutch Parliament, aimed at amending and merging the Gas Act with the Electricity Act 1998, to form a new, all-encompassing act.²⁴

A two-stage process is foreseen, whereby in the current first stage the Gas Act and Electricity Act will be merged and in the second stage the amendments to the Gas Directive that the European Commission proposed in December 2021 in the so-called Decarbonisation Package²⁵ will be implemented into Dutch law, very likely in the Energy Act.²⁶ The latter will be initiated after these proposals have gone through the complete EU legislative process and have been enacted as EU law.

Currently it is foreseen that Gasunie will, under national law, be given the statutory task of developing and managing a nationwide onshore and offshore hydrogen transport network (see Section 17.2.1). Considering that the legislative recast process for the Gas Act is ongoing, and the outcome is not clear, our focus here is on the current Gas Act.

As a so-called sector-specific regulation, the Gas Act represents the Dutch transposition of the various EU Gas Directives, such as the current Gas Directive.²⁷ The Gas Act determines which tasks the Dutch gas transport network operator, Gasunie Transport Services (GTS), is to fulfil and which activities it may perform. Since 2019, the Gas Act has also contained a provision on the activities that Gasunie group companies, which form part of the same group as GTS, are allowed to perform in areas other than gas transport.

According to this provision, the Gasunie group, within the meaning of the Dutch Civil Code, shall mainly perform the tasks assigned to GTS by the Gas Act or any act based on it.²⁸ It is to mainly focus on the regulated activity of gas transport.²⁹ However, Gasunie group companies are allowed to perform a limited number of listed activities other than gas transport, mainly in the energy transition field.³⁰

The Gas Act states that Gasunie group companies are allowed to develop and manage hydrogen pipelines or installations (*leidingen of installaties voor waterstof*), including the transport of hydrogen,³¹ as long as the Dutch ownership unbundling rules are observed.³² Even

²⁴ Wetsvoorstel Energiewet (Draft Energy Act), submitted to Dutch Parliament on 9 June 2023 <<https://zoek.officielebekendmakingen.nl/dossier/kst-36378-2.pdf>> accessed 22 October 2023.

²⁵ The EU Decarbonisation Package is discussed in depth in Chapter 2 by Hancher and Suciu.

²⁶ 'Memorie van Toelichting op de Energiewet' (Explanation on the Energy Act) pp. 5 and 6, submitted to Dutch Parliament on 9 June 2023 <<https://zoek.officielebekendmakingen.nl/kst-36378-3.pdf>> accessed 22 October 2023.

²⁷ EU Directive 2009/73/EC of 13 July 2009 concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC (hereinafter: Directive 2003/55/EC).

²⁸ Article 10d (1) Gaswet (Gas Act).

²⁹ Dutch Minister of Economic Affairs, 'Wijziging van de Elektriciteitswet 1998 en van de Gaswet (voortgang energietransitie – Tweede Nota van Wijziging)' (Amendment to the Electricity Act 1998 and the Gas Act (progress energy transition) – Second declaration of amendment) 25 January 2018 <<https://zoek.officielebekendmakingen.nl/kst-34627-22.pdf>> accessed 22 October 2023 (hereinafter: Dutch Minister of Economic Affairs).

³⁰ Article 10d (2) Gaswet (Gas Act).

³¹ We use unofficial translations of Dutch into English. To our knowledge, there is no official English translation of the Gaswet (Gas Act).

³² The Dutch ownership unbundling rules stem from the Gas Directive and require a separation between the transport of gas on one side and the production and trade of gas on the other side. This is to guarantee non-discriminatory access to the Gasunie gas transport network. See article 10d (2) (e) of the Gaswet (Gas Act). The Dutch transposition

though the Gas Act speaks of pipelines *or* installations, the legislator's intention clearly has been to allow Gasunie to be involved in both types of infrastructure.³³

Finally, the Gas Act gives the Minister of Economic Affairs and Climate Policy the authority to instruct GTS in case the provisions of the Gas Act, or any legislation based on them, are not adhered to.³⁴

In addition, the Dutch Minister of Climate and Energy Policy intends to assign to Gasunie, until the proposed changes to the Gas Directive have been implemented in the new Energy Act, the service of general economic interest of developing and managing a nationwide hydrogen transport network (see Section 17.2.1).³⁵

The concept of a service of general economic interest stems from EU state aid law.³⁶ The term refers to a service which cannot profitably be provided for by the market, but which an EU Member State would like to have carried out in the general (societal) interest.

Since the ruling of the European Court of Justice in the *Altmark* case, compensation from an EU Member State given to a company for providing a service of general economic interest does not constitute state aid within the meaning of article 107 of the Treaty on the Functioning of the EU, if four conditions are met.³⁷ One of these conditions is that the recipient has to have clearly defined public service obligations.

In a nutshell, at the time of writing, the Dutch legislative framework for hydrogen activities principally consists of the abovementioned provisions of the Gas Act, allowing companies belonging to the Gasunie group to develop and manage hydrogen pipelines and installations, including the transport of hydrogen itself. In addition, the Dutch Minister of Climate and Energy Policy will, through decisions on the hydrogen transport service of general economic interest, also determine part of the legislative framework for hydrogen transport activities, at least until the changes proposed by the European Commission in December 2021 have been transposed into Dutch law. As such, the service of general economic interest decision can be seen as a temporary elaboration of the broader framework of the Gas Act.

17.4 THIRD-PARTY ACCESS TO HYDROGEN INFRASTRUCTURE UNDER THE EU DECARBONISATION PACKAGE

On 15 December 2021, the European Commission proposed several changes to both the Gas Directive and EU Regulation 715/2009 (Gas Regulation), in order to include hydrogen in the EU's legislative framework on gas. These proposals have become known as the Decarbonisation Package.³⁸ As the European Commission's proposals for including hydrogen in the EU gas regulation are extensively discussed in Chapter 2 of this book, 'Hydrogen Regulation in Europe' by Hancher and Suciú, we will not get into their full details here.³⁹ Having said that, this chapter

of the ownership unbundling rules of EU Gas Directive may be found in the 'Besluit uitvoering onafhankelijkheid seisen energierichtlijnen' (Decision execution independence requirements energy directives) <<https://wetten.overheid.nl/BWBR0031810/2014-08-01>> accessed 22 October 2023. This is a decision by the Minister of Economic Affairs and Climate Policy, stemming from 2012. Importantly, the decision only looks at natural gas and electricity and not at hydrogen (production, trade and transportation).

³³ See Dutch Minister of Economic Affairs.

³⁴ Article 5 (2) Gaswet (Gas Act).

³⁵ See Dutch Minister of Climate and Energy Policy, letter 29 June 2022.

³⁶ See e.g. Herwig C. Hofmann and Claire Micheau, *State Aid Law of the European Union* (Oxford University Press 2016), p. 87 and further.

³⁷ Case C-280/00 *Altmark* [2003] ECR I-07747.

³⁸ See COM (2021) 803; and COM (2021) 804.

³⁹ The EU Decarbonisation Package is discussed in depth in Chapter 2 by Hancher and Suciú.

will analyse one particular aspect, namely third-party access to hydrogen infrastructure, and the proposals for exempting new hydrogen infrastructure.

The European Parliament⁴⁰ and the Council of Ministers (Council)⁴¹ have adopted their respective starting position for the trilogue in spring 2023. Negotiations between the European Parliament, the Council and the European Commission have started and are, at the time of writing, still ongoing. No clarity yet exists regarding the final versions. We base our appraisal on the Commission's original proposals only, paying attention to the starting position of the European Parliament and the Council where they differ from the Commission's original proposal. In doing so, we will also try and have a look at the European Commission's possible intentions behind the proposals.

The term third-party access refers to access to (energy) infrastructure by parties who do not control the relevant infrastructure. EU energy regulation traditionally differentiates between various third-party access regimes ranging from so-called *regulated* third-party access, whereby the national regulator sets the tariff and access conditions,⁴² to so-called *negotiated* access, whereby the network operator and its customers are principally free to determine tariff and access conditions through commercial negotiations.

17.4.1 Third-Party Access to Hydrogen Transport Networks

Starting with the proposed third-party access regime for hydrogen transport networks, the European Commission proposes that as of 1 January 2031 (and the Council's starting position is as of 1 January 2036), all EU Member States shall have a system of regulated third-party access in place based on published tariffs, which are applied objectively and non-discriminatorily.⁴³ In the amended preamble to its proposal for a new Gas Directive, the European Commission indicates that 'as a result of the high capital expenditure required for their construction, hydrogen pipeline networks could constitute natural monopolies'.⁴⁴

Until 31 December 2030 (until 31 December 2035 in the Council's starting position), EU Member States have the freedom to opt for a negotiated third-party access regime, whereby the network operator and its customers are obliged to negotiate 'in good faith'. If the EU Member

⁴⁰ European Parliament, Report on the proposal for a directive of the European Parliament and of the Council on common rules for the internal markets in renewable and natural gases and in hydrogen (recast) COM(2021) 803, 17 February 2023 <www.europarl.europa.eu/doceo/document/A-9-2023-0035_EN.pdf> and Report on the proposal for a regulation of the European Parliament and of the Council on the internal markets for renewable and natural gases and for hydrogen (recast) COM(2021) 804, 16 February 2023 <www.europarl.europa.eu/doceo/document/A-9-2023-0032_EN.pdf> both accessed 22 October 2023.

⁴¹ EU Council, 'Proposal for a Directive of the European Parliament and of the Council on common rules for the internal markets in renewable and natural gases and in hydrogen (recast) – General approach', 28 March 2023 <<https://data.consilium.europa.eu/doc/document/ST-7911-2023-INIT/en/pdf>> and 'Proposal for a Directive of the European Parliament and of the Council on common rules for the internal markets in renewable and natural gases and in hydrogen (recast) – General approach', 28 March 2023 <<https://data.consilium.europa.eu/doc/document/ST-7909-2023-INIT/en/pdf>> (hereinafter: Proposed Gas Directive) both accessed 22 October 2023.

⁴² Under a regime of regulated third-party access, the regulator usually also determines the allowed revenues to be recovered by the network operator by means of the tariffs charged to its customers. In other words, the regulator in such a system determines how much of its costs the network operator is allowed to earn back through its tariffs. On the concept, see e.g. Martha M. Roggenkamp, 'The concept of third party access applied to CCS' in Martha M. Roggenkamp and Edwin Woerdman (eds.), *Legal Design of Carbon Capture and Storage* (Intersentia 2009) 273, 281.

⁴³ See the proposed article 31 Gas Directive in the European Commission's proposal, COM (2021) 803, and the later date of 1 January 2036 for the requirement of regulated third-party access in the Council's starting position.

⁴⁴ COM (2021) 803, recital 66. Somewhat contrastingly, the European Commission in the explanatory memorandum to its proposals states that 'hydrogen infrastructure is likely to constitute a natural monopoly, resulting in non-competitive market structures', p. 7.

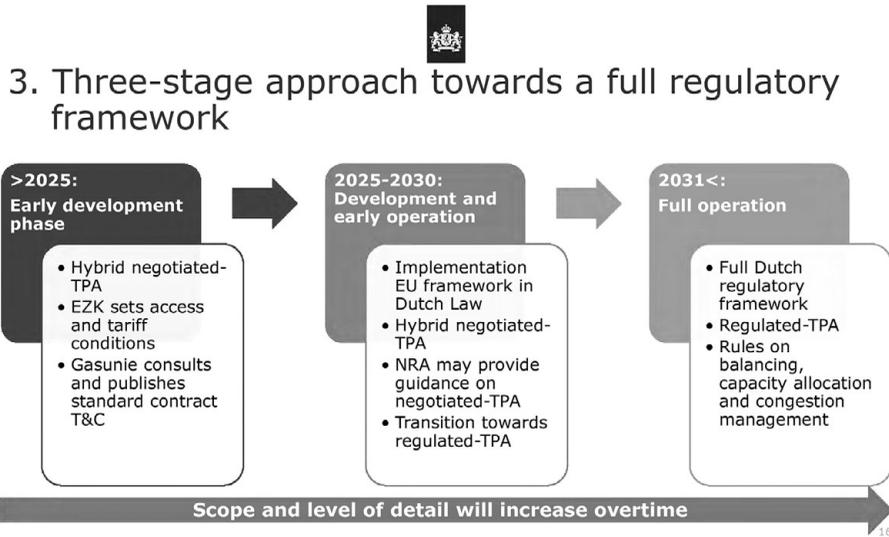


FIGURE 17.2 Three-stage approach towards a full regulatory network

Source: Gijs Kreeft, Ministry of Economic Affairs and Climate Policy, 'Policy framework conditions hydrogen transport', presentation given at the Hynetwork Services Information Session 'National Hydrogen Network and Hydrogen Contractual Framework', online 22 April 2022, slide 16. See 'Explanatory Slidepack Consultation' <www.hynetwork.nl/en/become-a-customer/contracts> accessed on 22 October 2023.

State opts to apply negotiated third-party access to the hydrogen transport network(s) until the end of 2030 (until the end of 2035 in the Council's starting position), the regulatory authorities of the Member States need to provide guidance for the network operator's customers as to how negotiated tariffs will be affected when regulated third-party access is introduced.⁴⁵

In the Netherlands, the Minister of Climate and Energy Policy has indicated his intention to make use of the option to introduce a negotiated third-party access regime until 2031 and to determine the framework within which the conditions and tariffs for access and services are set up and HyNetwork Services has to negotiate with parties.⁴⁶ This so-called hybrid negotiated third-party access regime, which will be a combination of a regulated and negotiated third-party access regime,⁴⁷ will be applied under the earlier mentioned service of general economic interest (see Section 17.3), in advance of the implementation of the Decarbonisation Package. Once the provisions of the Decarbonisation Package have been implemented in the new Energy Act, this hybrid negotiated third-party access regime will gradually be transformed into a regulated third-party access regime with an advisory role for the Dutch regulator, the Netherlands Authority for Consumer and Markets (ACM). Roughly, the foreseen planning is as shown in Figure 17.2.

Considering that nationwide pipeline infrastructure, such as the natural gas transport networks in the various EU Member States, often forms a natural monopoly, it is understandable

⁴⁵ See article 31 COM (2021) 803.

⁴⁶ See Dutch Minister of Climate and Energy Policy, letter 29 June 2022, p. 10. The Minister has explicitly stated that this access regime will end in 2031, despite signals from the trialogue that the date in the Gas Directive will be moved from 2031 to 2036, see Dutch Minister of Climate and Energy Policy, letter 3 July 2023, p. 2.

⁴⁷ It will in essence be a third-party access regime that will be somewhere in between a true negotiated third-party access regime and fully regulated third-party access, through which some, but not all, of the terms and conditions set under a regulated third-party access regime are set by the Minister.

that the European Commission seeks to, in the end, have a regulated third-party access regime.⁴⁸ It also makes sense not to require EU Member States to immediately introduce such a regime as the different national hydrogen transport markets are yet to develop or, at best, have only just started developing. Too deep regulation (in the form of detailed network codes) at too early a stage could slow or even hamper the development of these markets.

What is more, there would simply be very little infrastructure to apply the regulation to in the first place. Think, for instance, of the very detailed EU regulation on gas transport capacity allocation,⁴⁹ which would make no sense at all to apply to the hydrogen transport markets in the coming years as these markets will simply be too immature and not yet liquid enough for such regulation to have any effect. From that perspective, the European Commission's approach seems sensible.

Nevertheless, for Gasunie, which is, as discussed in Section 17.2, in the middle of the development of a nationwide hydrogen transport network, it is also valuable to have sufficient legal certainty.⁵⁰ To be able to invest in such a network, Gasunie will need to have long-term financial commitments from customers. Such commitment usually comes in the form of long-term transport agreements, as has, in our experience, long been the practice in the EU gas transport sector.

The risk of a 'simple' negotiated third-party access regime, whereby Gasunie and its potential customers have almost complete commercial freedom in agreeing on tariff and access conditions, is that greatly (between customers) differing long-term hydrogen transport agreements are concluded which later (partly) prove not to be in line with the requirements of the then introduced regulated third-party access regime. This divergence could relate to the agreed tariff as well as to other conditions such as hydrogen quality, pressure and the like.

Therefore, a 'hybrid' negotiated third-party access regime that forms a step up to a fully regulated third-party access regime in 2031 seems to be a good option. By setting several of the key tariff and access conditions, the Dutch Minister of Climate and Energy Policy ensures a basic form of non-discriminatory third-party access to the hydrogen transport network while simultaneously providing both Gasunie and its customers some certainty that the long-term commitments accordingly entered into will not become obsolete as soon as a regulated third-party access regime applies. In addition, it provides for learning-by-doing experiences which can be used for the design and roll-out of the regulated third-party access regime as of 2031.

Nevertheless, considerable uncertainty remains for both Gasunie and its potential customers. Even though access conditions such as tariff and hydrogen quality are of great importance to both Gasunie and its potential customers, the exact roles of Gasunie and its potential customers are still to be developed, as are more detailed access conditions. This uncertainty will remain until a full-fledged regulatory third-party access regime has been introduced. Together with

⁴⁸ Natural monopoly infrastructure cannot economically be replicated. A natural monopoly, in other words, is a monopoly in a market that can be served at a lower cost by having only one producer rather than many producers. See William W. Sharkey, *The Theory of Natural Monopoly* (Cambridge University Press 1982) 2. A regime of regulated third-party access generally guarantees non-discriminatory third-party access to such natural monopoly infrastructure by setting the tariff, as well as other relevant access terms and conditions.

⁴⁹ Commission Regulation (EU) 2017/459 of 16 March 2017 establishing a network code on capacity allocation mechanisms in gas transmission systems and repealing Regulation (EU) No. 984/2013.

⁵⁰ As it is for its (potential) customers who will likely enter into hydrogen transport agreements for more than just a few years. The European Commission also seems to generally recognise this risk as it states in its explanatory memorandum that 'harmonising rules for hydrogen infrastructure at a later stage ... would lead to ... uncertainty for companies, especially where long-term investments in hydrogen production and transport infrastructure are concerned', COM (2021) 804, p. 6.

other, more external, uncertainties such as the availability of sufficient renewable wind energy for converting renewable electricity into ‘green’ hydrogen as well as the availability of sufficient subsidies, this will have an impact on the willingness to, on both sides, engage in long-term commitments in the current development phase.

17.4.2 *Third-Party Access to Hydrogen Storage*

The European Commission has proposed a system of regulated third-party access to hydrogen storages, which came as a surprise to companies active in the sector.⁵¹ The European Commission notes the following in the proposed preamble to the revised Gas Directive:

The availability of large-scale underground storage facilities is limited and distributed unevenly across Member States. In view of the potentially beneficial role for the functioning of hydrogen transport and markets, the access to such large-scale underground storages should be subject to regulated third-party access in order to ensure a level playing field for market participants.⁵²

The European Commission’s proposal is remarkable in at least two respects.

First, for gas storage, the Gas Directive leaves the choice between either negotiated or regulated third-party access to the Member States.⁵³ As hydrogen storage markets currently seem to be developing, we have no reason to assume that the structure of these markets would be very different from that of the gas storage markets. In that respect, the difference between the access regime for the two categories of storage is striking. It would only make sense to introduce a system of regulated third-party access in the case of (perceived) problems with regard to the hydrogen storage market structure. To date, we have no indications that such problems are likely to arise.

Second, the European Commission’s argumentation as to large-scale underground (hydrogen) storage facilities being limited and distributed unevenly across EU Member States likewise holds for (potential) CO₂ storage (for the application of carbon capture and storage – CCS). Nevertheless, Directive 2009/31/EC (CCS Directive) appears to leave EU Member States the choice between the two third-party access regimes.⁵⁴

The European Council has taken a more nuanced starting position. It would require negotiated third-party access in the start-up phase and would prescribe regulated third-party access only from 1 January 2036 onwards.⁵⁵

But there is also a point to be made concerning the development of hydrogen storage infrastructure. The timeline for the development of hydrogen storage infrastructure mentioned above (Section 17.2.2) is based on the expected demand for storage services. The lead time that is required for developing hydrogen storage is relatively long and can easily take 6–8 years, as considerable time is required for the permitting processes of the underground activities and the above-ground facilities, for the preparation of the underground infrastructure such as assessing

⁵¹ See the proposed article 33 Gas Directive, COM (2021) 803.

⁵² See the proposed recital 72 Gas Directive, COM (2021) 803.

⁵³ See article 33 (1) Directive 2003/55/EC. In the European Commission proposal, COM (2021) 803, this is the new article 29 (1).

⁵⁴ See article 21 of the Directive 2009/31/EC of 23 April 2009 on the geological storage of carbon dioxide and amending Council Directive 85/337/EEC, European Parliament and Council Directives 2000/60/EC, 2001/80/EC, 2004/35/EC, 2006/12/EC, 2008/1/EC and Regulation (EC) No 1013/2006 (CCS Directive). Article 21 of the CCS Directive does not prescribe a particular third-party access regime and as such seems to leave the choice for a particular regime to the EU Member States.

⁵⁵ See the proposed article 33 (1) and (2) Gas Directive in the starting position of the Council, Proposed Gas Directive.

and monitoring the geological details, leaching a salt cavern and removing brine with a first fill of hydrogen.

Developers of hydrogen storage infrastructure need to take development decisions soon in order for hydrogen storage to be fully developed by the time the developing hydrogen markets needs hydrogen storage infrastructure. They need to take these decisions, even though hydrogen markets are still nascent and only a limited number of market participants in the different parts of the value chain have sufficient insight into their specific demand for storage services and are able and willing to commit at this early stage.

For developers of hydrogen storage infrastructure, legal certainty is crucial to proceed with their projects. The more freedom the developers of hydrogen storage have to enter into storage agreements with initial storage customers and the longer-term the commitment of the latter, the better these developers can mitigate the financial risks associated with the cost-intensive development of hydrogen storage. Likewise, early commitment of the hydrogen storage developer is crucial for storage customers to mitigate part of their commercial risk through certainty as to the storage products they will receive and the tariffs they will have to pay.

A regime of negotiated third-party access, as would be the case under the starting position of the European Council, but not pursuant to the European Commission and the European Parliament, would support the early development of hydrogen storage infrastructure as the developers of such infrastructure would have sufficient freedom to agree on long-term contracts with storage customers at an early stage, while complying with the obligations of non-discrimination and open access. However, the European Commission's proposal is rather aiming to apply a regulated third-party access regime. Such a strict regime may pose problems for the development of the hydrogen storage market, in particular due to the two following issues.

The first issue is that a regulated third-party access regime can only provide for a limited degree of certainty on the storage services and tariffs for the coming period. Only once the amended Gas Directive has been adopted and entered into force will the regulated third-party access regime be formally applicable and the regulator have the legal competence to approve the applicable tariffs for the storage services. Up to that moment, hydrogen storage developers and their customers will bear the risk that the tariff approved by the regulator at a later stage will differ from any agreement negotiated between the two at an earlier stage.

In this respect, developers of hydrogen storage infrastructure differ from hydrogen transport infrastructure developers. For the latter, the Member States may choose the negotiated third-party access regime for a transition period, but if they do so, 'the regulatory authorities shall provide guidance to hydrogen network users on how the negotiated tariffs will be affected when regulated third-party access is introduced'.⁵⁶

Such guidance, as well as a transition period towards the regulated third-party access regime, will not be available for hydrogen storage infrastructure developers. This lack of certainty may result in potential storage customers delaying the contracting of storage services. A delay in the contracting of storage services may in turn delay the development of the hydrogen storage infrastructure. It may also create a bigger challenge for the developer to design storage infrastructure that will fully meet future market demand.

The second issue is that under a regulated third-party access regime the storage operator has limited possibilities to adapt the storage services to changing market demand. The storage operator can only provide a storage product once the tariff has been approved by the regulator.

⁵⁶ See the proposed article 31 (5) Gas Directive, COM (2021) 803.

This limitation on the ability to quickly adapt to market needs may pose problems, in particular in the phase of the market ramp-up when the storage customers have yet to learn in practice whether their anticipated need for specific storage services is justified by market reality or not.

17.4.3 *Third-Party Access to Hydrogen (Import) Terminals*

For hydrogen (import) terminals, EU Member States are, according to the European Commission's proposal to implement a system of negotiated third-party access, whereby the national regulators shall take the necessary measures for potential hydrogen terminal customers to be able to negotiate access to such terminals.⁵⁷ The term "hydrogen terminal" covers both an installation used for the transformation of liquid hydrogen or liquid ammonia into gaseous hydrogen as well as an installation used for the liquefaction of gaseous hydrogen.⁵⁸ The national regulators shall monitor access conditions and their impact on hydrogen markets and take measures where necessary to safeguard competition.

The starting position of the Council is less strict: it allows a Member State to apply a system of regulated instead of negotiated third-party access, without a compulsory end date for the negotiated third-party access.⁵⁹

From what we currently see, it is our expectation that some of the parties currently active in the liquified natural gas (LNG) (import) terminals market will also be active in the hydrogen terminal market. In our opinion, the LNG terminals market is competitive and, accordingly, we expect no fundamental problems with regard to market structure in the future hydrogen terminals market. Apparently, the European Commission is of the same opinion. It expects competition not only between the various future hydrogen import terminals, but also between different means of hydrogen import.⁶⁰

However, the European Commission leaves some leeway for national regulators to intervene by taking required measures should these markets not develop properly under a negotiated third-party access regime. This seems like a reasonable and prudent approach. Under the starting position of the Council, the Member State would be allowed to apply regulated third-party access.

17.4.4 *Exemptions for New Hydrogen Infrastructure*

The proposal for a revised Gas Regulation opens up the possibility of exempting certain new hydrogen infrastructure from specific rules of third-party access and unbundling.⁶¹ This provision is similar to one in the existing Gas Directive for new gas infrastructure.⁶² Several gas infrastructure projects have received such exemptions, such as the new floating terminal for LNG in Eemshaven, the Netherlands, and LNG terminals in Lubmin and Stade in Germany.⁶³

⁵⁷ See the proposed article 32 Gas Directive, COM (2021) 803.

⁵⁸ See the proposed article 2 (8) of the Gas Directive, COM (2021) 803.

⁵⁹ See the proposed article 32 (1) in the starting position of the Council, Proposed Gas Directive.

⁶⁰ Justin Rosing DG ENER, 'Hydrogen and Gas Markets Decarbonisation Package – key elements to enable the development of dedicated hydrogen infrastructure and markets', presentation given at the Dutch Energy Law seminar, The Hague, 23 May 2022, slide 12.

⁶¹ See the proposed article 60 (1) sentence 2 in the European Commission's proposal, COM (2021) 804.

⁶² Article 36 of the current EU Gas Directive, Directive 2003/55/EC.

⁶³ Dutch Minister of Climate and Energy Policy 'Ontheffingsverlening aan EemsEnergy Terminal voor LNG-installatie, 30 June 2022, Staatscourant No. 18454, 14 July 2022, German Bundesnetzagentur, Decision of 17 November 2022 to exempt the LNG-installation 'Deutsche Ostsee' in Lubmin on the Baltic Sea Coast (BK7-22-086), German Bundesnetzagentur, Decision of 19 September 2022 to exempt the LNG installation in Stade (BK7-20-107 final).

Under the European Commission's proposal for the revised Gas Regulation, new hydrogen storage infrastructure may be exempted from the regulated third-party access regime, provided the conditions for exemptions are met. These are, in short, that the investment (1) enhances competition, (2) contributes to decarbonisation, (3) is of such a risk level that the investment would not take place without the exemption, (4) is undertaken by a person independent at least in legal form from the hydrogen system operator and (5) that the exemption is not detrimental to competition and other specified goals. The starting position of the European Parliament adds the requirement that demand-side solutions have been taken into account as possible alternatives.⁶⁴

It is commendable that the European Commission proposed the possibility of exempting certain new hydrogen infrastructure from the requirements of third-party access under the proposed new Gas Directive. However, one of the exemption conditions seems to form a barrier for exempting new hydrogen infrastructure for which the final investment decision was taken before entry into force of the amended Gas Regulation and thus the coming into existence of the exemption possibility. It is the condition that the level of risk is such that the investment would not take place unless the exemption was granted.⁶⁵ At first sight, this condition seems to make it very difficult to argue, in cases where the final investment has already been made, that the investment in question has such a level of risk.

Obviously, this limiting of the exemptions would not help with the quick development of hydrogen markets. If we take the example of hydrogen storage: A hydrogen storage developer who intends to be a frontrunner by taking the necessary investment decision at an early stage before the amended Gas Regulation has been adopted and has come into force will have great difficulties in getting the new infrastructure exempted and very likely remain faced with a regulated third-party access regime. A hydrogen storage developer who makes an investment decision at a later stage, after the amended Gas Regulation entered into force, may receive an exemption under the amended Gas Regulation. Thus, the front runner is put in a more problematic situation than the party that waits.

This barrier could be removed by introducing a transitional provision for the exemption of new hydrogen infrastructure, where the investment decision was taken prior to the entering into force of the exemption possibility of the proposed recast Gas Regulation. The barrier could also be removed, as a side note, if the Council adopted as a starting position that the Member State can apply negotiated third-party access to hydrogen storage until 2036 (see Section 17.4.2). However, should the European Commission's proposal be adopted unchanged in this respect, this could prove to be a disincentive to the development of hydrogen storage markets at an early stage, which in turn could delay the development of hydrogen markets in general.

17.5 CONCLUSION

The regulatory framework for hydrogen infrastructure in general and the rules on third-party access in particular are in full development. Conducting business in a (rapidly) changing regulatory framework creates (legal) uncertainty and this uncertainty generally comes at a cost. Gasunie has chosen an early development (and consequent operation) of hydrogen infrastructure in the Netherlands to try and help kick-start the Dutch and EU hydrogen economy. The

⁶⁴ See the proposed article 60 (1) (ca) Gas Regulation in the starting position of the European Parliament, COM (2021) 803.

⁶⁵ See the proposed article 60 (1) sentence 3 (c) Gas Regulation, COM (2021) 804.

early development of hydrogen infrastructure against the backdrop of an outdated national legal framework and rapidly developing and highly uncertain EU rules creates several challenges.

When looking at the development of a nationwide Dutch hydrogen transport network and third-party access to such infrastructure, we see a gradual approach chosen by the EU and Dutch legislators trying to fill in the blanks until the network as well as a regulated third-party access regime develops. In general, we believe this is a sensible and workable approach from the perspective of the development (and subsequent operation) of such a network. The biggest challenge for Gasunie and its initial customers will be to create sufficient (legal) certainty on both sides as well as clear respective roles and divisions of responsibility, while reserving leeway for changes and adjustments.

As far as the development of hydrogen storage infrastructure is concerned, a different picture emerges. In contrast to the hydrogen transport infrastructure, there will possibly be no gradual transition to a regulated third-party access regime. Instead, hydrogen storage infrastructure could be governed by a regulated third-party access regime once the amended Gas Directive has been transposed into national law by the Dutch legislator. On the one hand, such a regime seems to offer too little flexibility and commercial freedom for both hydrogen storage infrastructure developers and their customers to ensure early development of such infrastructure. On the other hand, it will still take some time until such an access regime is fully in force. The lack of clarity concerning the precise content of the future regulated third-party access regime creates doubts, which may delay the development of hydrogen transport infrastructure. The lack of a transition provision for exempting new hydrogen storage infrastructure only adds to this uncertainty. This raises the question whether it would not be better to provide EU Member States with the option for a negotiated third-party access regime, as this is currently the case with gas and CO₂ storage.

FURTHER READING

- Dutch State Secretary of Economic Affairs and Climate Policy – Climate and Energy Policy, ‘Ontwikkeling transportnet voor waterstof (‘Development transport network for hydrogen’) (letter to the Dutch Parliament, 30 June 2021) <<https://open.overheid.nl/documenten/ronl-66d67edc-8d97-42e5-9f61-c4bc4bf5a1c6/pdf>> accessed 22 October 2023
- European Commission, Energy Transition Expertise Centre (ENTEC), ‘The role of renewable H₂ import & storage to scale up the EU deployment of renewable H₂’, 28 February 2022 <https://energy.ec.europa.eu/publications/role-renewable-h2-import-storage-scale-eu-deployment-renewable-h2_en> accessed 22 October 2023
- Hystock, website of HyStock and in particular ‘The project’ <www.hystock.nl/en> accessed 22 October 2023
- HyWay 27, ‘Hydrogen transmission using the existing natural gas grid? Final report for the Ministry of Economic Affairs and Climate Policy’, June 2021 <www.rijksoverheid.nl/documenten/kamerstukken/2021/06/30/kamerbrief-over-ontwikkeling-transportnet-voor-waterstof> and <www.hyway27.nl/en/latest-news/hyway-27-realisation-of-a-national-hydrogen-network> both accessed 22 October 2023
- Nationaal Waterstof Programma, ‘Routekaart Waterstof’ (November 2022) <<https://open.overheid.nl/repository/ronl-4e9a5511ceof4193c14ef14fe7f820838b84fb03/1/pdf/routekaart-waterstof.pdf>> accessed 22 October 2023