

Questionnaire

LNG Import at EemsEnergyTerminal

EemsEnergyTerminal, a joint venture between Gasunie and Vopak, is a floating LNG import terminal located in the Eemshaven port in the north of the Netherlands and operational since September 2022. The terminal consists of two interconnected FSRUs (Floating Storage and Regasification Unit) with a current combined send-out capacity of approx. 8 bln m3 (BCM) of natural gas per annum.

The terminal was developed at an unprecedented speed to increase the LNG import capacity of the Netherlands and Northwest Europe in a time of crisis. Together with multiple committed partners, the project was delivering gas into the TTF (Title-Transfer-Facility) market area within 6 months.

Since the start of operations EemsEnergyTerminal has received its [100th cargo](#) in June 2024. Typical LNG carriers calling at EemsEnergyTerminal are between 160.000 and 170.000 m3 LNG and moor ship-to-ship to the largest FSRU, the Energos Igloo. The Energos Igloo is directly connected to the second FSRU (the Eemshaven LNG of Exmar) and subsequently the LNG is regasified and delivered into the Dutch gas transmission network operated by GTS.

EemsEnergyTerminal has fulfilled an important role in the security of supply for natural gas to Northwest Europe and is carefully monitoring market developments to stimulate the production and import of bio-methane and e-methane to meet future decarbonization targets.

The terminal has ample land space and quay capacity available to develop the import terminal of the future.

Future energy ambitions at EemsEnergyTerminal

Hydrogen

Vopak and Gasunie have commenced a feasibility study into the possibilities of importing hydrogen at the Eemshaven harbour. This study focuses on the technical feasibility, inter alia available space, nautical capabilities and permitting requirements, and economic feasibility of a hydrogen import terminal. Various hydrogen derivatives are considered in the assessment. However, for this market consultation, the scope is limited to ammonia (+ cracking) and liquid hydrogen (+ regasification). Due to the limited options and modalities for transporting ammonia from Eemshaven, we anticipate that the majority of the incoming ammonia will be converted to hydrogen on-site. This hydrogen will then be distributed to end-users through the Hynetwork.

Hynetwork and Hystock

Hynetwork, a wholly owned subsidiary of Gasunie, is realising the national hydrogen network on behalf of the Ministry of Economic Affairs and Climate Policy. The network should connect the five largest industrial regions in the Netherlands, other countries and hydrogen storage and import sites. The hydrogen network in the northern part of the Netherlands is scheduled to be operational by the end of 2027, including border crossings with Germany at Vlieghuis and Oude Statenzijl. Via Vlieghuis the connection to Thyssengas (GetH2) system will be realized with a dedicated route to the Ruhr area / Duisburg. Additionally, via Oude Statenzijl and Gasunie's Hyperlink, another connection to the Ruhr area will be established.

For more information, see: <https://www.hynetwork.nl/en/in-your-region/north-netherlands>

Hydrogen Network Northern Netherlands will be connected to Gasunie's HyStock, the first underground hydrogen storage facility in the Netherlands. Storage in salt caverns is important for the flexible use of hydrogen and proper coordination between supply and demand at all times. The installation with a first cavern is expected to be operational in 2029. The other three caverns will be realized soon after 2030 in line with the growth of the renewable hydrogen market. Hydrogen storage will be accessible to all parties wishing to store hydrogen; for short or longer term.

For more information, see: <https://www.hystock.nl/en>

CO2

Gasunie and Vopak are in the process of exploring the development of a regional open-access CO2 transport network in the Eemshaven and Delfzijl region for the purpose of final storage (CCS) or utilization (CCU). As such, launching customers and future industries are expected to be able to fulfil their decarbonization objectives from 2030 onwards. This network does not only provide synergies in the region in terms of creating economies of scale in CO2 transport, but also facilitates the development of a negative emission (BECCUS) and blue hydrogen industry.

The regional CO2 network is envisaged to be connected to a combination of pipeline and shipping solutions for onward transport. Whereas ships provide the flexibility to connect to a variety of storage locations in the North Sea, pipelines can provide economies of scale when connected to larger storage clusters.

Way forward

In the questionnaire below, we seek to understand the market's perspective on the role of LNG, hydrogen and CO2 in the future energy mix and how EemsEnergyTerminal can facilitate the market in the upcoming years. Vopak and Gasunie will jointly assess the appropriate configuration for future energy imports/exports for the Eemshaven in close cooperation with the interested clients.

If, based on the outcome of the market consultation, sufficient market demand for: extending LNG imports, hydrogen imports or CO2 import/re-export in the Eemshaven is identified, a non-binding Expression of Interest (EOI) phase will be started subsequently. The EOI allows EemsEnergyTerminal and its shareholders to enter into preliminary discussions with the market on the required capacity and contract duration. Ultimately for LNG imports, we envisage to invite all market parties to participate in a binding phase for capacity allocation.

Questionnaire

Vopak and Gasunie are interested in your plans and ambitions for energy imports to the Eemshaven. In the questionnaire below, we seek more detailed information on the timing and capacities for continued LNG imports and/or your vision on the developments of renewable energy alternatives. This will enable us to effectively adjust and optimize the necessary infrastructure in the Eemshaven.

In case you have any questions, please don't hesitate to contact us via info@eemsenergyterminal.com.

Contact information:

Company name	
Company address	
Contact Person	
Job title	
Email address	
Telephone number	

If certain parts of the questionnaire below are not relevant to you, for example if the party or department you represent is not associated with the specific energy carrier, feel free to leave sections blank.

1. LNG Questionnaire

LNG Import Capacities	Input (tick the box)
Would you be interested in LNG import capacity at EemsEnergyTerminal beyond 2027?	<input type="checkbox"/> Yes <input type="checkbox"/> No

LNG Import Capacities	Years	LNG requirements BCMA
If yes, could you share your view on desired yearly LNG import demand (in BCMA) at EemsEnergyTerminal beyond 2027?	2028	
	2030	
	2035	
	2040	
	2045	
	2050	

LNG Import Capacities	Input (tick the box, multiple options possible)
If yes, could you share your preferred contract duration?	<input type="checkbox"/> 1-5 years <input type="checkbox"/> 5-10 years <input type="checkbox"/> 10-15 years <input type="checkbox"/> 15+ years

LNG footprint	Free text
Can you explain your strategies in measuring and lowering the footprint of the upstream LNG value chain. Do you have an opinion to what extend EemsEnergyTerminal should consider this upstream footprint while allocating future capacities?	

Bio-LNG & E-LNG (synthetic)	Input (tick the boxes)
Will Bio-/E-LNG play a role in your future portfolio?	<input type="checkbox"/> Bio-LNG <input type="checkbox"/> E-LNG

Bio-LNG & E-LNG (synthetic)	Free text
If yes, could you please elaborate further on the role of Bio-/E-LNG in your future portfolio?	

Will there be a role for LNG terminals for these molecules? Or will it be produced and transported in smaller volumes locally (e.g. via trucks)?	
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Bio-LNG & E-LNG (synthetic)	Years	Bio-LNG	E-LNG
If you expect Bio-/E-LNG to play a role in your portfolio in the future, what volumes do you envisage in tonnes per year?	2028		
	2030		
	2035		
	2040		
	2045		
	2050		

Blue hydrogen production	Free text
Please comment on your vision on the future demand for LNG import capacity for the purpose of local conversion to Blue H2 and CO2?	

Additional information	Free text
Please include any remarks which can help us to determine the requested technical configuration. (i.e. discharge rate, vessel dimensions, storage requirements, flexibility requests)	
Please provide any other information or suggestion you would deem relevant for us or the development of EemsEnergyTerminal you weren't able to make in the fields above.	

2. Hydrogen questionnaire

Hydrogen Import Capacities	Input (tick the box)
Would you be interested in hydrogen import capacity beyond 2027?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, in what form(s)?	<input type="checkbox"/> Ammonia <input type="checkbox"/> Liquid hydrogen <input type="checkbox"/> Other, please specify: [text box]

Could you indicate the expected annual throughput volume in tonnes per year?				
Year	Yearly ammonia throughput (tonnes/a NH3)	% of ammonia throughput to cracking facility	Yearly liquid hydrogen throughput	Yearly throughput Other
2028				
2030				
2035				
2040				
2045				
2050				

Could you indicate the expected import cargo size (or drop size)?	
What is your desired form of export from EemsEnergyTerminal?	<input type="checkbox"/> Gaseous hydrogen via pipeline (Hynetwork) <input type="checkbox"/> Gaseous hydrogen via other modalities (please specify) <input type="checkbox"/> Ammonia (pressurized or refrigerated) <input type="checkbox"/> Liquid hydrogen <input type="checkbox"/> Other (please specify):

Hydrogen remarks	
What are the key destination areas for your green hydrogen?	The Netherlands: <input type="checkbox"/> Rotterdam-Moerdijk <input type="checkbox"/> Zeeland <input type="checkbox"/> Chemelot (South-Limburg) <input type="checkbox"/> Northern Netherlands <input type="checkbox"/> The North Sea Canal Area (Amsterdam-IJmuiden) <input type="checkbox"/> The Netherlands other (please specify)

	<p>Germany:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Rhine-Ruhr Area <input type="checkbox"/> Germany other (please specify) <p>Europe:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Belgium <input type="checkbox"/> Other (please specify)
<p>Please include any remarks which can help us to determine the requested technical configuration. (i.e. discharge rate, vessel dimensions, storage requirements, flexibility requests)</p>	
<p>Please provide any other information or suggestion you would deem relevant for us or the development of EemsEnergyTerminal you weren't able to make in the fields above.</p>	

3. Energy transition scenarios and timeframe

We are considering various scenarios for the future configuration of EemsEnergyTerminal of which four scenarios have been included below. Could you please reflect on the below scenarios and how the EemsEnergyTerminal could facilitate you in your current business and your pathway to decarbonizing your energy imports.

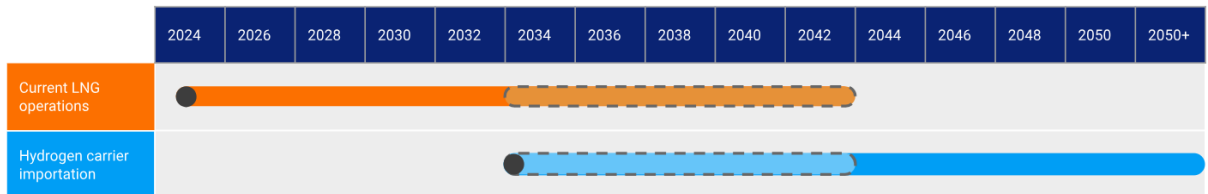
Scenario 1: Current LNG operations ends in 2027 and hydrogen carrier importation begins at EemsEnergyTerminal in 2030



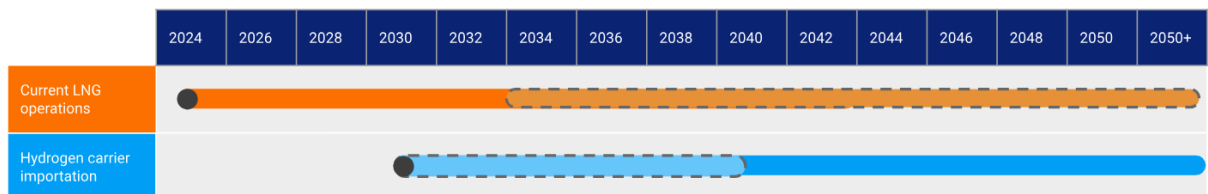
Scenario 2: Current LNG operations are extended for a further five years (up to 2032). Hydrogen carrier importation begins from 2032 onwards



Scenario 3: LNG operations are extended for a further 5 to 15 years and hydrogen carrier imports only begins once LNG operations end



Scenario 4: LNG importation continues for the foreseeable future with parallel future developments of hydrogen carrier importation



<p>Please select a scenario which best suits your future energy importation need:</p>	<div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"><input type="checkbox"/> Scenario 1</div> <div style="width: 50%;"><input type="checkbox"/> Scenario 2</div> <div style="width: 50%;"><input type="checkbox"/> Scenario 3</div> <div style="width: 50%;"><input type="checkbox"/> Scenario 4</div> </div>
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Could you describe the rationale for selecting this scenario?	
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We greatly appreciate your feedback. Kindly submit the form by July 31 to: info@eemsenergyterminal.com.