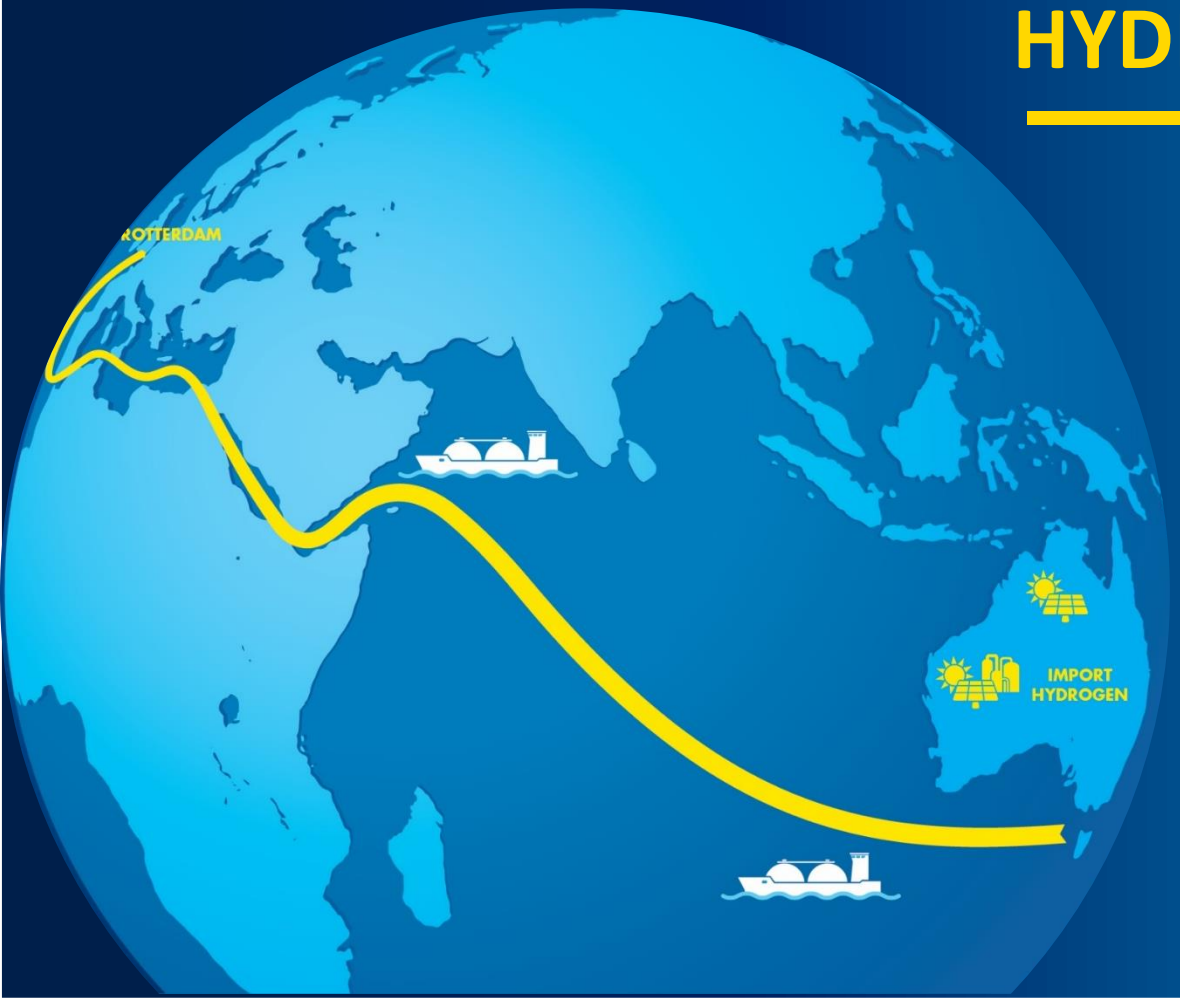
TASMANIA - PORT OF ROTTERDAM
HYDROGEN SUPPLY CHAIN



Joint Feasibility Study

June 2023

ReCFIT
Renewables, Climate and Future Industries Tasmania

Tasmanian Government

Port of Rotterdam

Executive summary

Tasmania has great potential

- Tasmania has unique natural conditions that allow it to become one of the most competitive producers of green hydrogen in the world. Besides Hydropower, excellent wind and the Marinus link allows for very high capacity factors
- The global market in general but the European market in particular is gearing up to see a significant rise in hydrogen demand and the Port of Rotterdam is already leading the necessary infrastructure to receive significant amounts of imports
- Shipping distance from Bell Bay to Rotterdam is not a limiting factor and can be easily overcome for Tasmanian hydrogen to compete on the future Rotterdam HyXchange trading platform
- The Tasmanian Government and TasPort's plans and leadership in the hydrogen space are world-class.
- 5 export-sized projects in the pipeline in the Bell Bay area.

Recommendations

1. Local utilisation of green hydrogen should always be priority
Local citizens and climate should benefit first.

2. Quick scale-up critical for export
Strong government coordination role required;

- Develop new renewable energy projects in large quanta
- Development of common user infrastructure
- Consider sequential versus simultaneous development of hydrogen projects, or merging of projects so that the right scale can be reached.

3. Reduce hydrogen market uncertainties
Both local, as well as through cooperation with EU that is working on regulations and subsidy schemes to get the industry started.

4. Scale up offshore wind development
The Bass Strait has excellent conditions for offshore wind power production but rapid development requires government coordination.

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1. Setting the scene

A major new market is emerging

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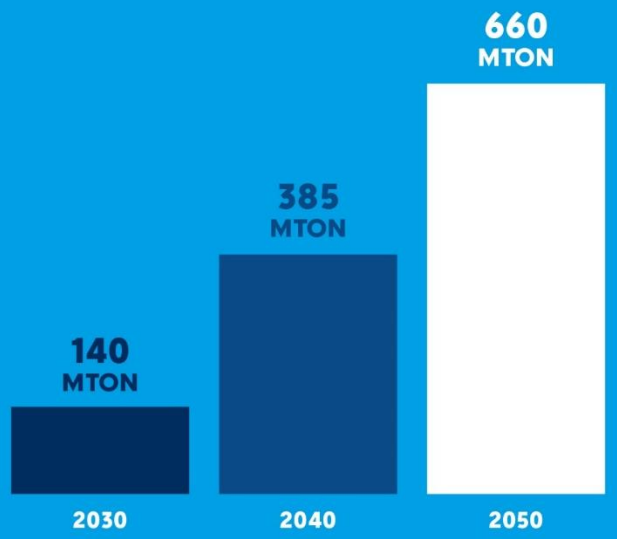
1

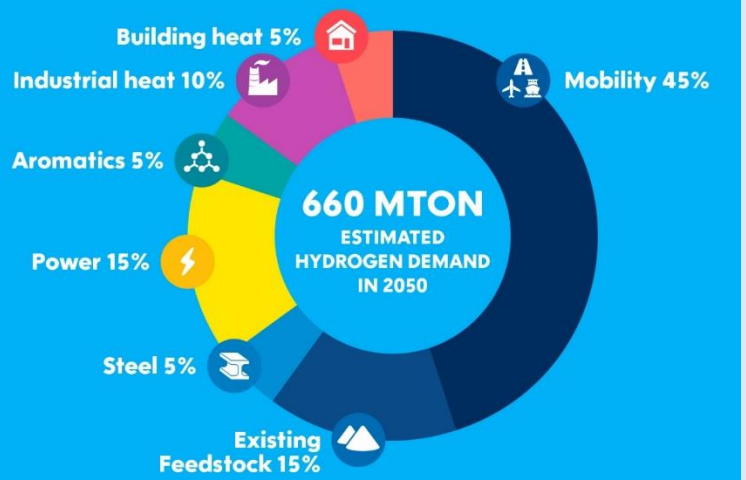
A huge new global hydrogen market is developing

Northwest Europe will be short on energy and hence will rely heavily on imports

Global Demand by 2050

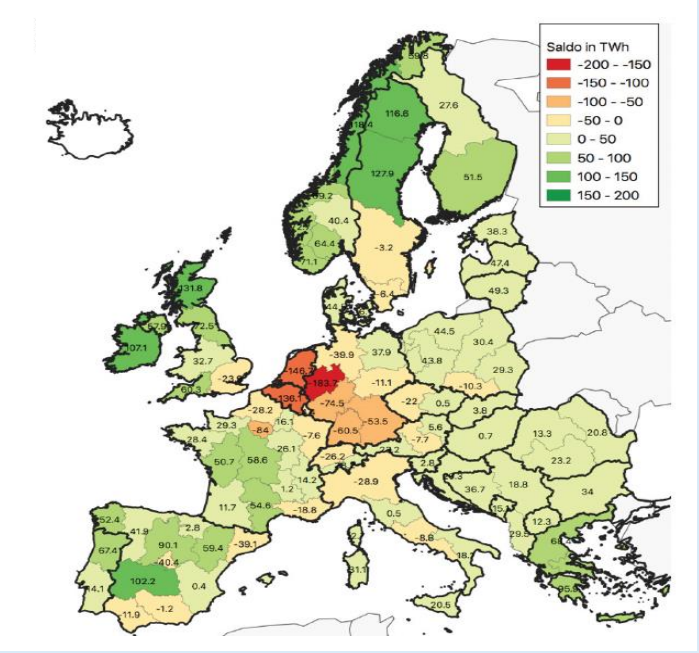
To meet net-zero targets, long-term hydrogen demand should reach 660 MT in 2050, making up 22% of the final energy demand globally.





Source: Hydrogen Council, McKinsey & Company, Hydrogen for Net-Zero (2021)

European demand



Repower-EU targets for 2030: 20 mtpa

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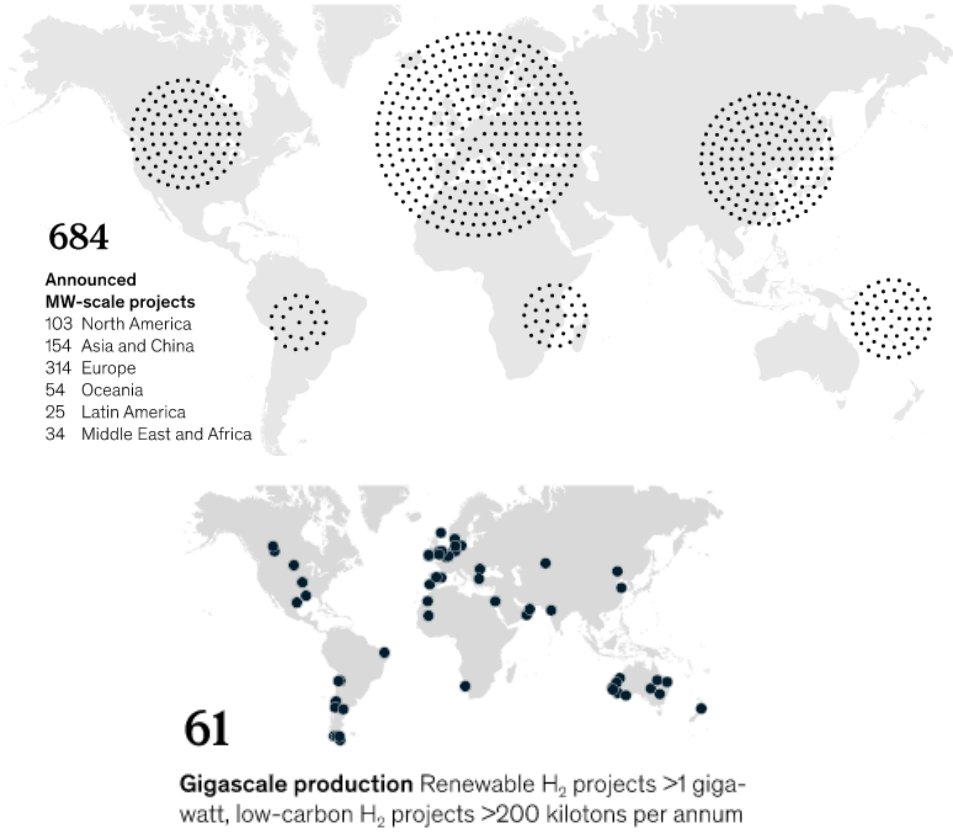
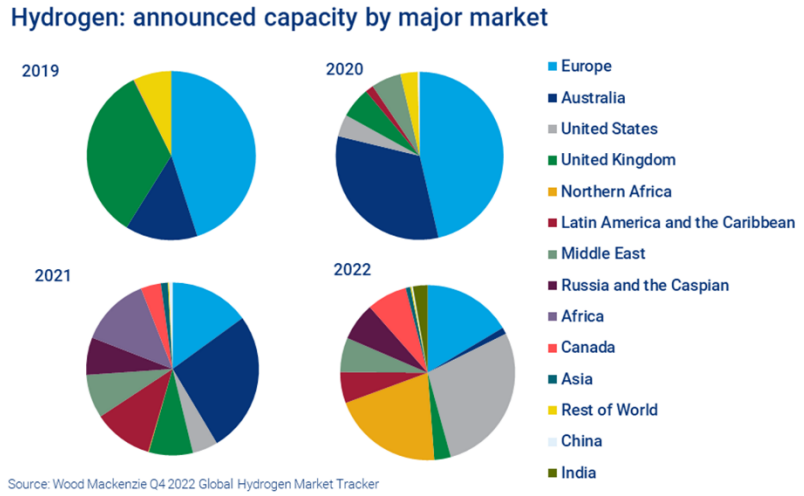
The momentum is building up fast

61 Giga scale production projects announced to date





1. Large-scale projects announced globally reflecting investments of US$ 240 billion until 2030, an increase of 50% since November 2021
2. US$22 billion, or 10% of proposed investments, have reached FID, are under construction, or are already operational

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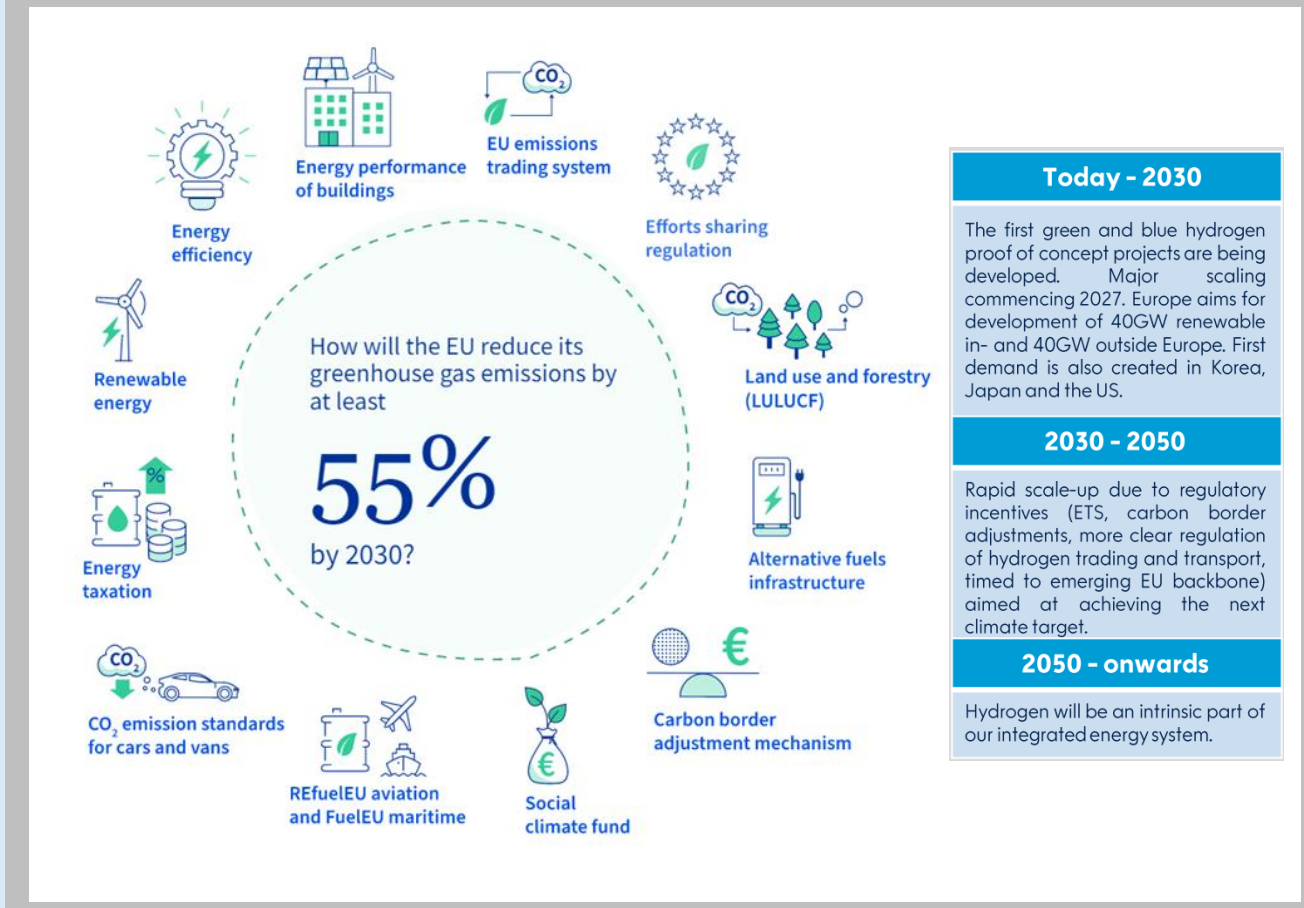
Regulatory measures will drive up green H2 demand in EU

FIT-FOR-55 – THE EU's plan for a green transition to climate neutrality in 2050

Fit-for-55 target: Net greenhouse gas emissions by 2030 must be reduced by at least 55% compared to 1990 levels. Europe aims to be the first climate-neutral continent in the world by 2050. To reach this target EU industries must reduce their emissions by 62% in 2030.

Recent regulatory measures driving acceleration for demand:

1. **REpowerEU -** In May 2022, the Commission launched the RepowerEU plan to accelerate the deployment of renewables in the context of the EU's plan to become independent from Russian fossil fuels following the Russian invasion of Ukraine.
2. **Various Funding mechanisms** – CapEx & OpEx (CFD's)
3. **REDII & REfuelEU -** Important proposals in the field of hydrogen are contained in the renewable energy directive (REDII) and REfuelEU. The REDII provisional agreement of March 2023 states o.a. 42% of industrial hydrogen consumption must be produced renewable by 2030.
4. **CBAM -** In addition, the EU-ETS will be reformed, and the Carbon Border Adjustment Mechanism (CBAM) will be introduced in 2023 to stimulate imports into Europe to become greener as well



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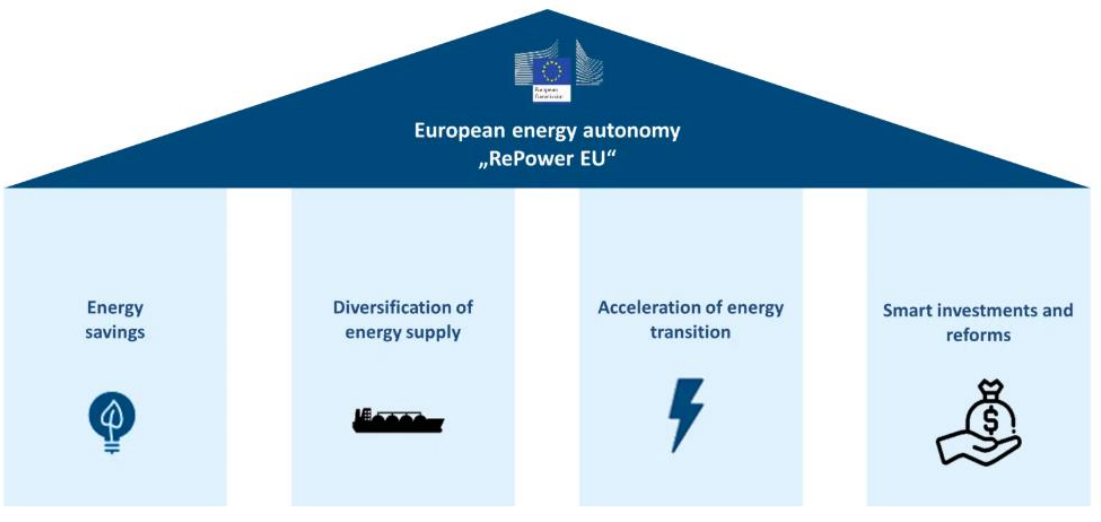
REpowerEU hydrogen import targets in EU for 2030

REPOWER EU 2022 – target 10 Mtpa of green hydrogen import by 2030

The European Commission has presented the REPowerEU Plan in May 2022, a combination of becoming independent of Russian fossil energy and accelerating the energy transition.



A target of 10 million tonnes of domestic renewable hydrogen production as well as ***10 million tonnes of imports by 2030****, to replace natural gas, coal and oil in hard-to-decarbonise industries and transport sectors.*

The REpowerEU target in combination with the introduction of Fit-for-55, CBAM and the reforming of the EU-ETS system shows that policy is in place leading to a rapid increasing demand for green hydrogen in EU. Nevertheless, funding mechanisms need to be put in place to bridge the gap between supply and demand.

Short term measures include:

- New energy partnerships with reliable suppliers, including future cooperation on renewables and low carbon gases
- Approval of first EU-wide hydrogen projects.

Medium term measures to be completed before 2027 include:

- New national REPowerEU Plans under the modified Recovery and Resilience Fund – to support investment and reforms worth €300 billion
- A modern regulatory framework for hydrogen
- Boosting industrial decarbonisation with €3 billion of frontloaded projects under the Innovation Fund.

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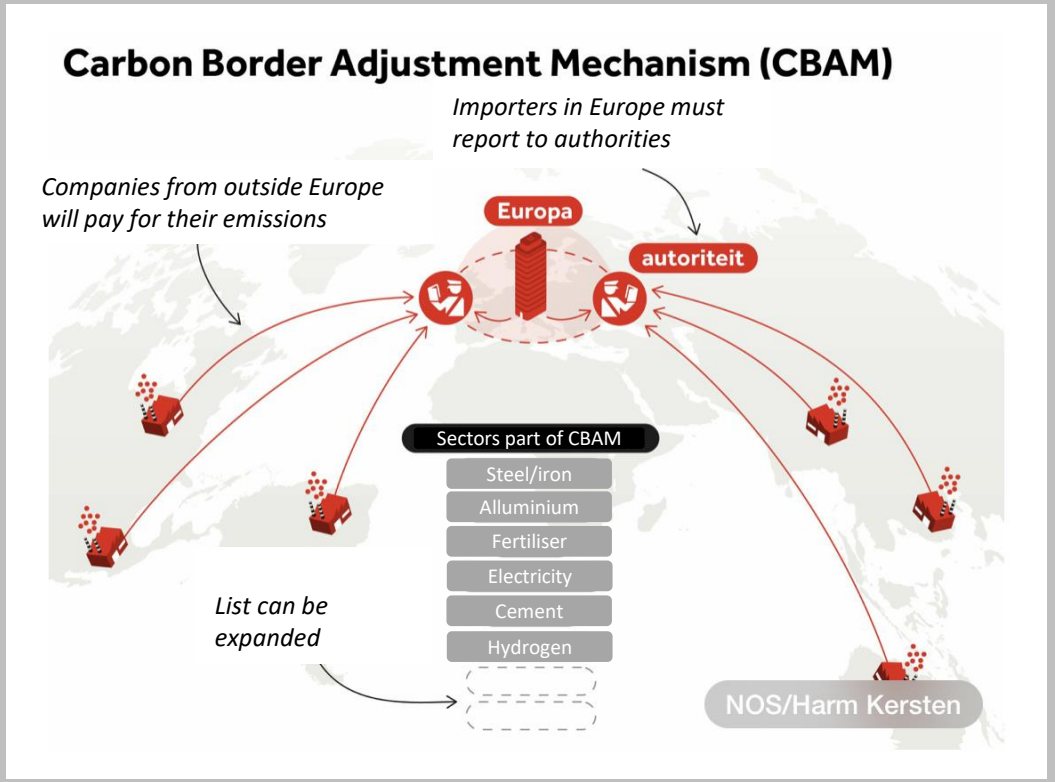
The reforming of ETS & CBAM stimulates hydrogen demand

Reforming of EU Emissions Trading Scheme (ETS) - now including maritime shipping

Under the ETS, a cap is set on the total amount of certain greenhouse gases that can be emitted by participating industries in the EU covering 40% of the EU's total emissions. Furthermore, ***the CBAM is introduced to level the playing field.*** *The latest policy announcements lead to an ever higher and faster need for hydrogen.*

In December 2022 the EU made the following announcement:

1. Sectors covered by the Carbon Border Adjustment Mechanism (recently agreed EU carbon import tax) such as cement, aluminium, fertilisers, electric energy production, hydrogen, iron and steel, will see an end to free allowances for these sectors, over a nine-year period between 2026 and 2034.
2. Agreed to include maritime shipping emissions within the scope of the EU ETS starting in 2024. They agreed on a gradual introduction of obligations for shipping companies to surrender allowances: 40% for verified emissions from 2024, 70% for 2025, and 100% for 2026.
3. It was decided to create a new, separate emissions trading system for the buildings and road transport sector starting in 2027.



The carbon border adjustment mechanism (CBAM) is a policy that aims to level the playing field for domestic producers by imposing a carbon price on imported goods that are produced with high greenhouse gas emissions.

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Funding mechanisms are being put in place for first projects

Contract for difference schemes to overcome the gap between supply & demand pricing

H2Global is a double-sided auction-based mechanism with the objective to kickstart a PtX market. Hintco is the implementing entity of the H2Global instrument.

H2 Global (900M euros 2021, 3,5 billion euros 2023+) – is based on a double-sided Contracts for Difference (CfD) mechanism, the difference between supply prices (production and transport) and demand prices will be compensated using grant funding from the German government.

EU Innovation fund (1bn euro) - EU will allocate 1 billion euros for electrification and renewable hydrogen production and use in industry. It will support mid-sized pilot projects with deep decarbonisation potential.

European Hydrogen Bank (3bn euro) - The pilot phase of the Bank will start in 2023 with a contracts for difference (CfD) scheme that aims to close the market price gap between renewable green hydrogen and its fossil-derived grey counterpart under the auspices of the €3bn European Hydrogen Bank (EHB)

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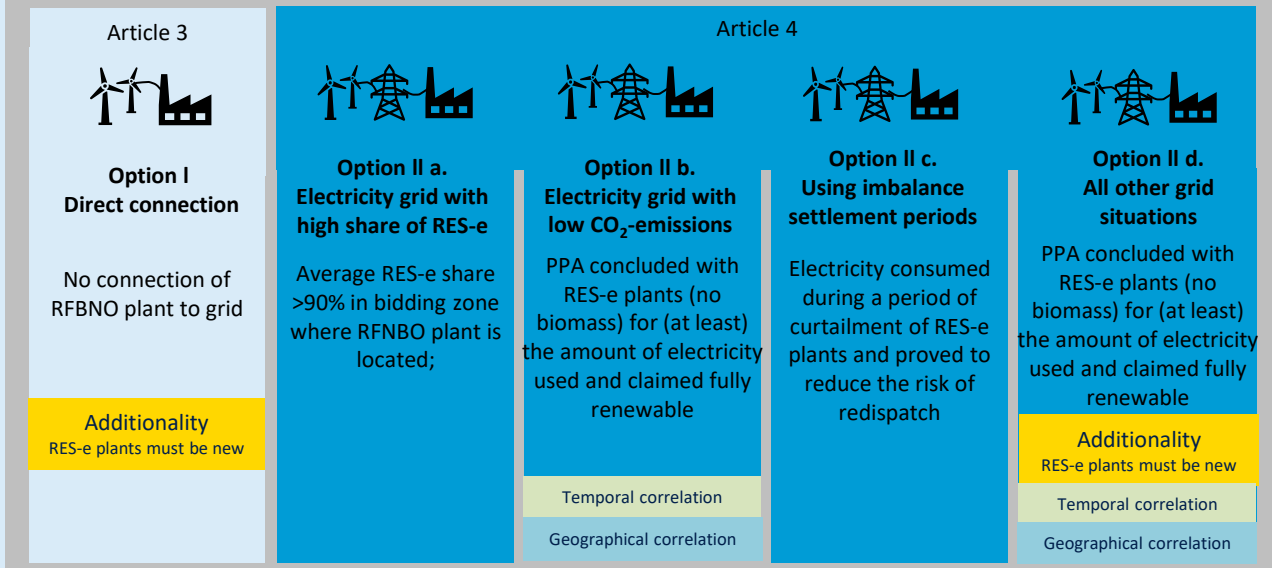
Minimum target requirements of renewable hydrogen

REDII & REfuelEU delegated acts (After Provisional Agreement)

The Renewable Energy Directive (RED) governs the production and promotion of renewable energy. The current directive (RED II 2018) sets the collective target that 32% of all consumed energy within the European Union to be renewable by 2030. Recent targets (Provisional Agreement March 2023) include:

- Raise the share of renewable energy in the EU's overall energy consumption **to 42.5% by 2030 with an additional 2.5% indicative top up that would allow to reach 45%**
- Industry: to increase their use of renewable energy annually by 1.6%. **42% of the hydrogen used in industry should come from renewable fuels of non-biologic origin (RFNBOs) by 2030 and 60% by 2035**
- Transport: **5.5% for advanced biofuels** (mostly from non-food-based feedstocks) and RFNBOs. Within this target, there is a minimum requirement of **1% of RFNBOs** in the share of renewable energies supplied to the sector in 2030



Applicable to EU-internal and outside

- The Delegated Act (DA) to Article 27 of RED II of 2022 sets out **detailed requirements for sourcing renewable electricity** used in the production of RFNBOs including renewable hydrogen → Determines when electricity used for production of RFNBOs is considered fully renewable
- Delegated Act to Article 28 REDII specifies the **methodology for assessing GHG emission savings from RFBNOs** → Determines the amount of GHG emissions savings from RFNBO (min 70% compared to fossil alternative)

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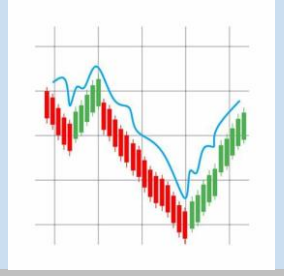
HyXchange – European trading platform for hydrogen

Mutually recognised certification schemes essential to enable hydrogen market

Diverse supply of H2

Dutch H2 backbone (2026 – 2030+)

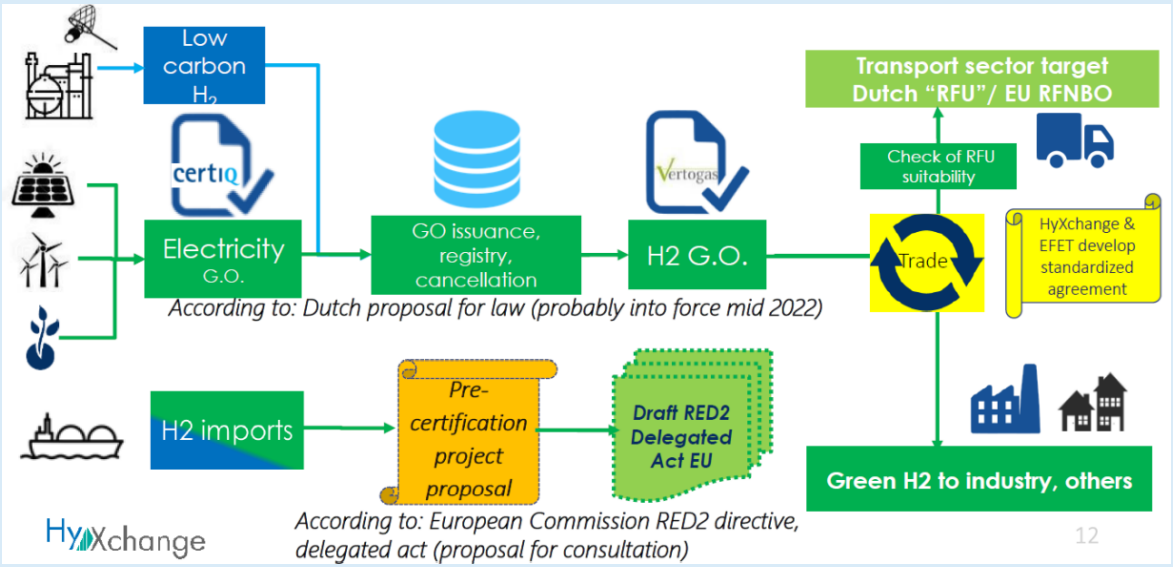
HyXchange platform



The HyXchange trading platform, initiated by Dutch ports, Gasunie and Dutch government, aims to realize a trading platform for hydrogen on the main Dutch and connecting European hydrogen infrastructure.

Conditions precedent for the successful implementation of a European H2 spot market include: An openly accessible transport infrastructure for H2, a diverse supply of H2, including import of green hydrogen from other countries and continents and a trading platform that is dependable and transparent.

HYXchange - Dutch initiative on exchange platform. First pilot completed already and now working on international pilots. A global system for certification schemes is essential.
The Australia and Dutch governments have a set up joint working group under the G2G MOU that is working on aligning certification schemes.



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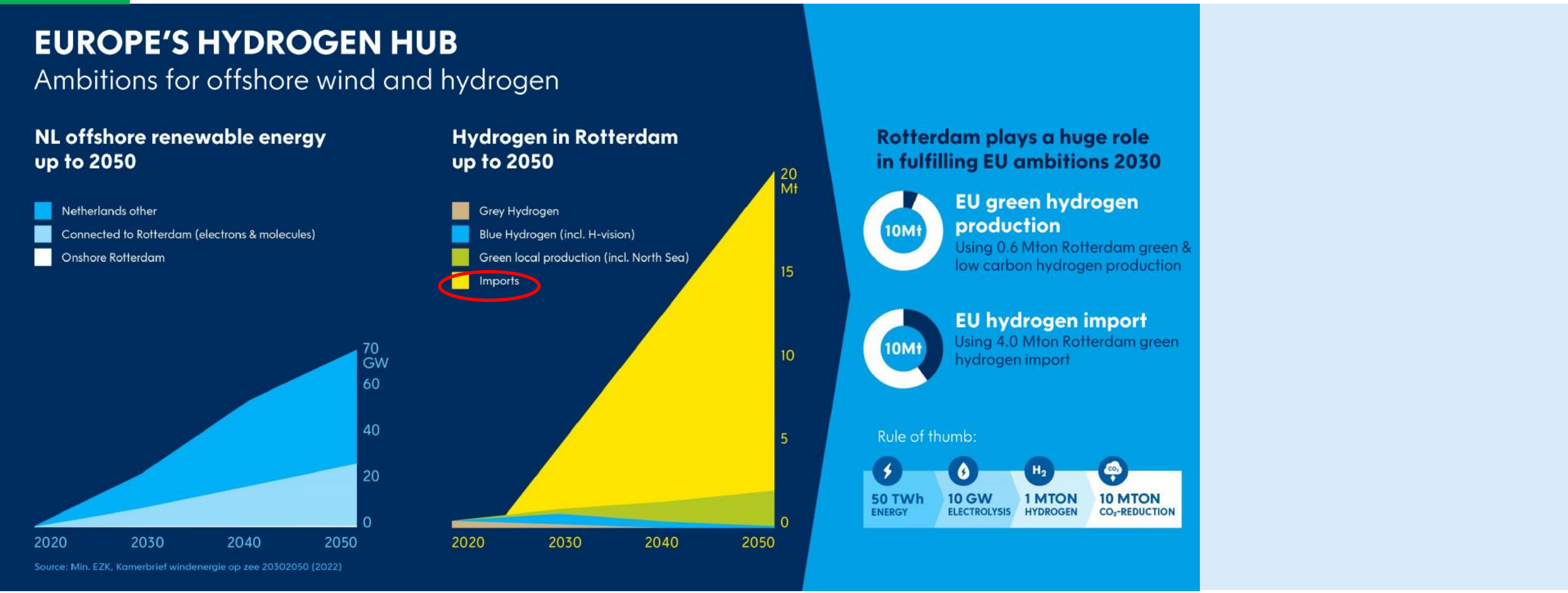
Rotterdam set to play a key role as Europe's hydrogen hub

Despite or on top of significant offshore windpower developments imports are also needed



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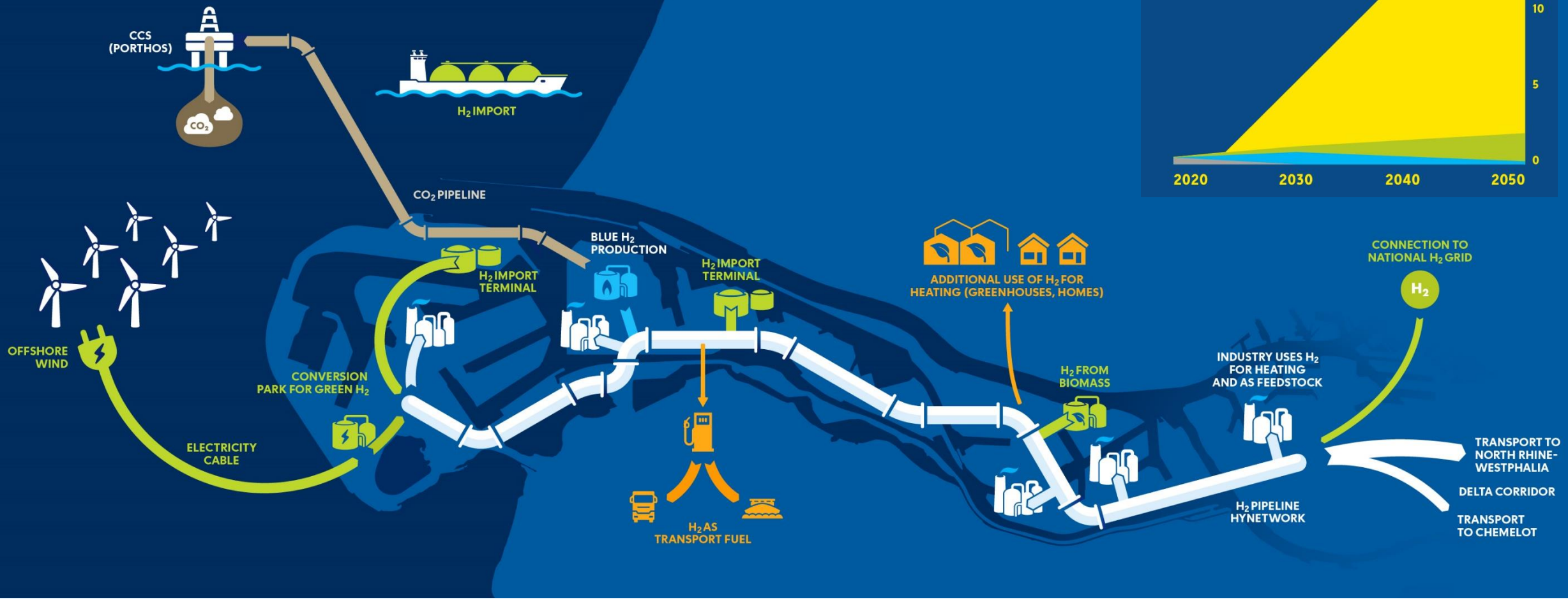
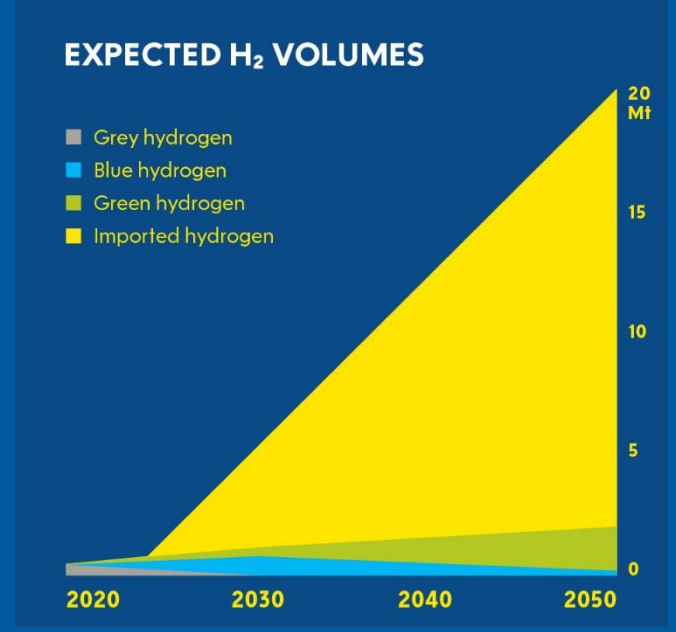
HYDROGEN ECOSYSTEM IN ROTTERDAM

ALL PARTS OF THE VALUECHAIN BEING DEVELOPED





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7.4 GW WINDFARMS NORTH SEA CONNECTED TO ROTTERDAM BY 2030

7.4 GW = 35% of all windpower projects in the Dutch part of the North Sea. These projects are to be realized by 2030.

Dutch ambition is to have 70 GW installed in 2050.
Rotterdam aims to connect 25 GW = 35% to the port.

WINDFARMS	CAPACITY	OPERATIONAL
Hollandse Kust Zuid, kavel 1-4	1.4 GW	2023 ✓
IJmuiden Ver, kavel 3-4	2 GW	2029
IJmuiden Ver Noord, kavel 5-6	2 GW	2029
Nederwiek, kavel 2	2 GW	2030
Total	7.4 GW **H_2 production: 2-2,5GW**	

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LOCAL GREEN HYDROGEN PRODUCTION STARTS AT DEDICATED SITES FOR ELECTROLYSIS

Ambition Rotterdam
2030: 2.5GW (onshore)
2050: 20GW (onshore & offshore)

Conversion park 1

COMPANY	CAPACITY	FID	OPERATIONAL
BP & HYCC: H2-Fifty	250MW	2023	2026
Shell: Holland Hydrogen 1	200MW	2022 ✓	2025
Air Liquide: Curthyl	200MW	2023	2026
Not announced	200MW	2023	2026–2027

COMPANY	CAPACITY	FID	OPERATIONAL
Uniper	100-500MW	2023–2028	2026–2030

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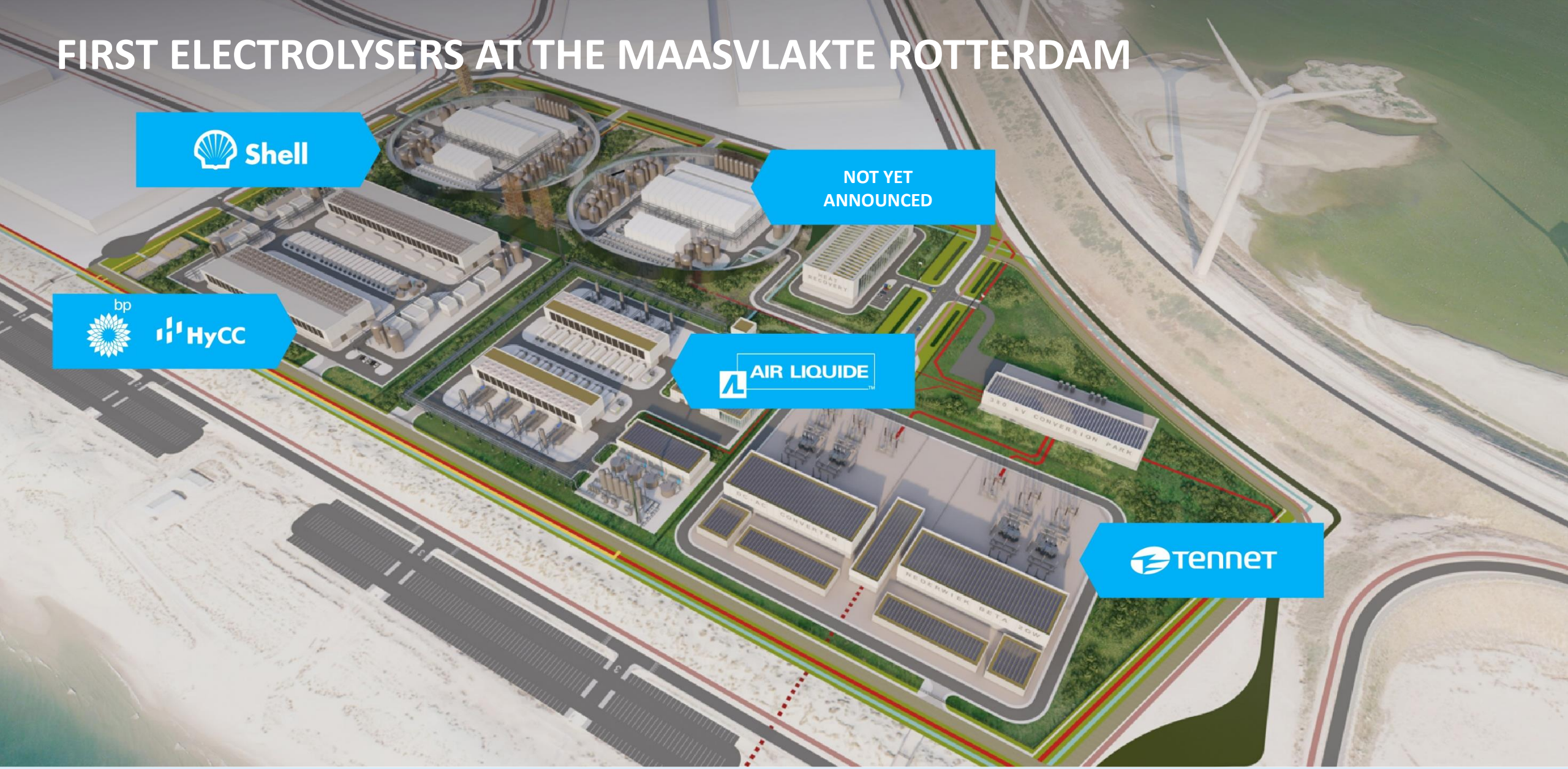
FIRST ELECTROLYSERS AT THE MAASVLAKTE ROTTERDAM



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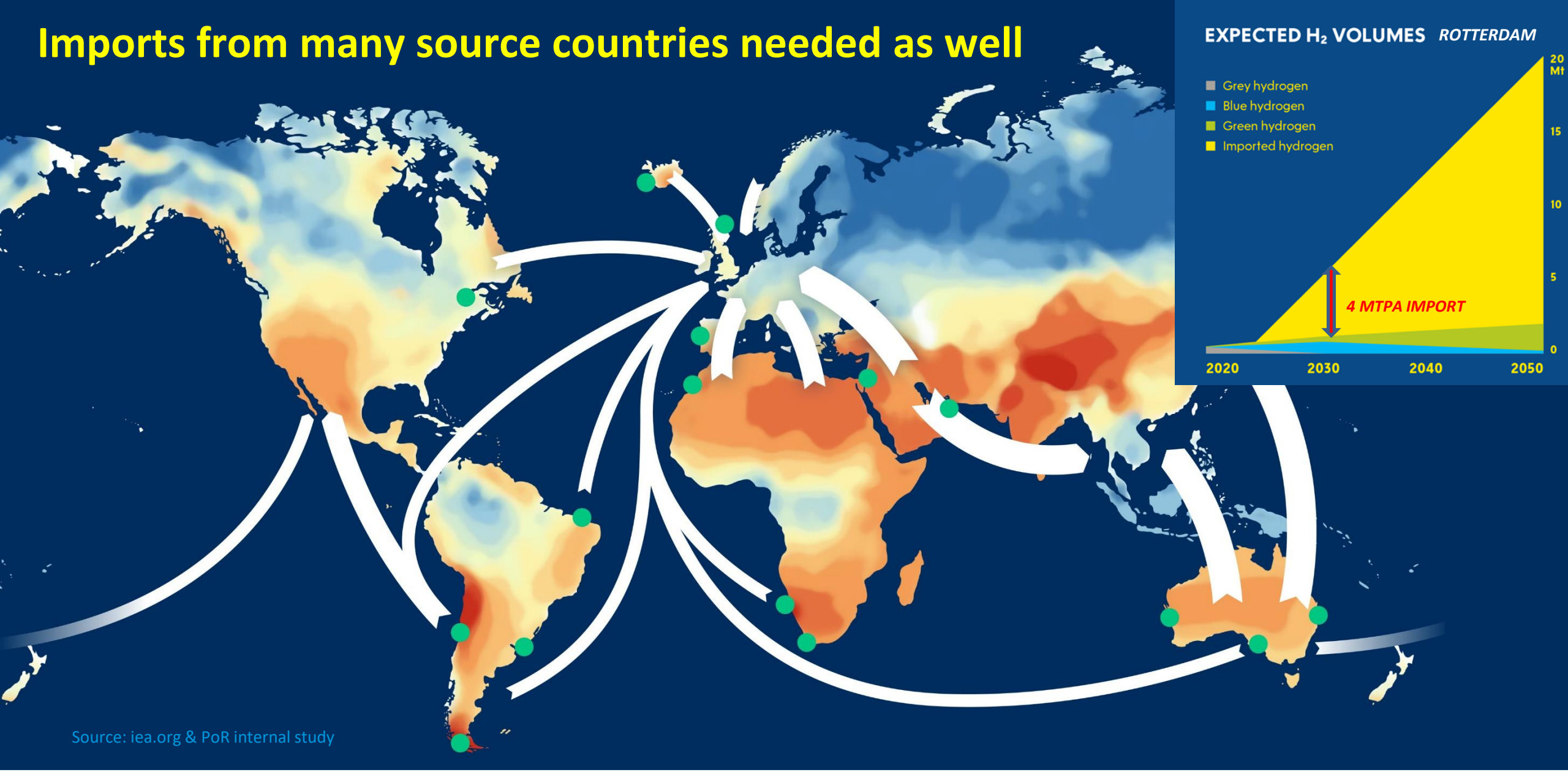
Imports from many source countries needed as well



Source: iea.org & PoR internal study

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8 HYDROGEN TERMINAL PROJECTS ANNOUNCED

More initatives expected

SHELL, ENGIE, VOPAK, ANTHONY VEDER

ACE TERMINAL

AIR PRODUCTS, GUNVOR

OCI

GLOBAL ENERGY STORAGE, GUNVOR

VOPAK

KOOLE , CHIYODA, MITSUBISHI

KOOLE, HORISONT ENERGI

Recent announced H_2 and H_2-carrier terminals in Rotterdam.

- NH3 Terminals
- LH2 Terminals
- LOHC Terminals
- Location undecided

& at least 3 ammonia crackers announced

& INTERNATIONAL INFRA CONNECTIONS

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PLANNING- FIRST FID'S HAVE ALREADY BEEN TAKEN

	2023	2024	2025	2026	2027	2030
Production	FID →		First 200 MW electrolyser operational		First H-vision plant operational	2,5 GW electrolysers operational (0.25 Mton H_2) 0,35 Mton low carbon H2 production
Import	FID	Expansion existing ammonia terminal operational	First low carbon ammonia imports	First new import terminal for green ammonia operational LOHC imports at industry scale	First LH_2 terminal operational	4 Mton H_2 imports
Infrastructure	Order LLI →		'Hydrogen network' pipeline in the port operational		'Delta Corridor' pipelines to Chemelot, North Rhine-Westfalia operational	
Use	FID	First tank station for trucks operational	First green hydrogen replaces grey in refineries Road transport: 1000 H_2 powered trucks (500 in Rotterdam)	'Condor' hydrogen powered inland barges operational		

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IT'S HAPPENING!

Offshore wind landfall

Pipeline segments

Expansion ammonia terminal

Building site Conversion Park

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2. Tasmania's key capabilities

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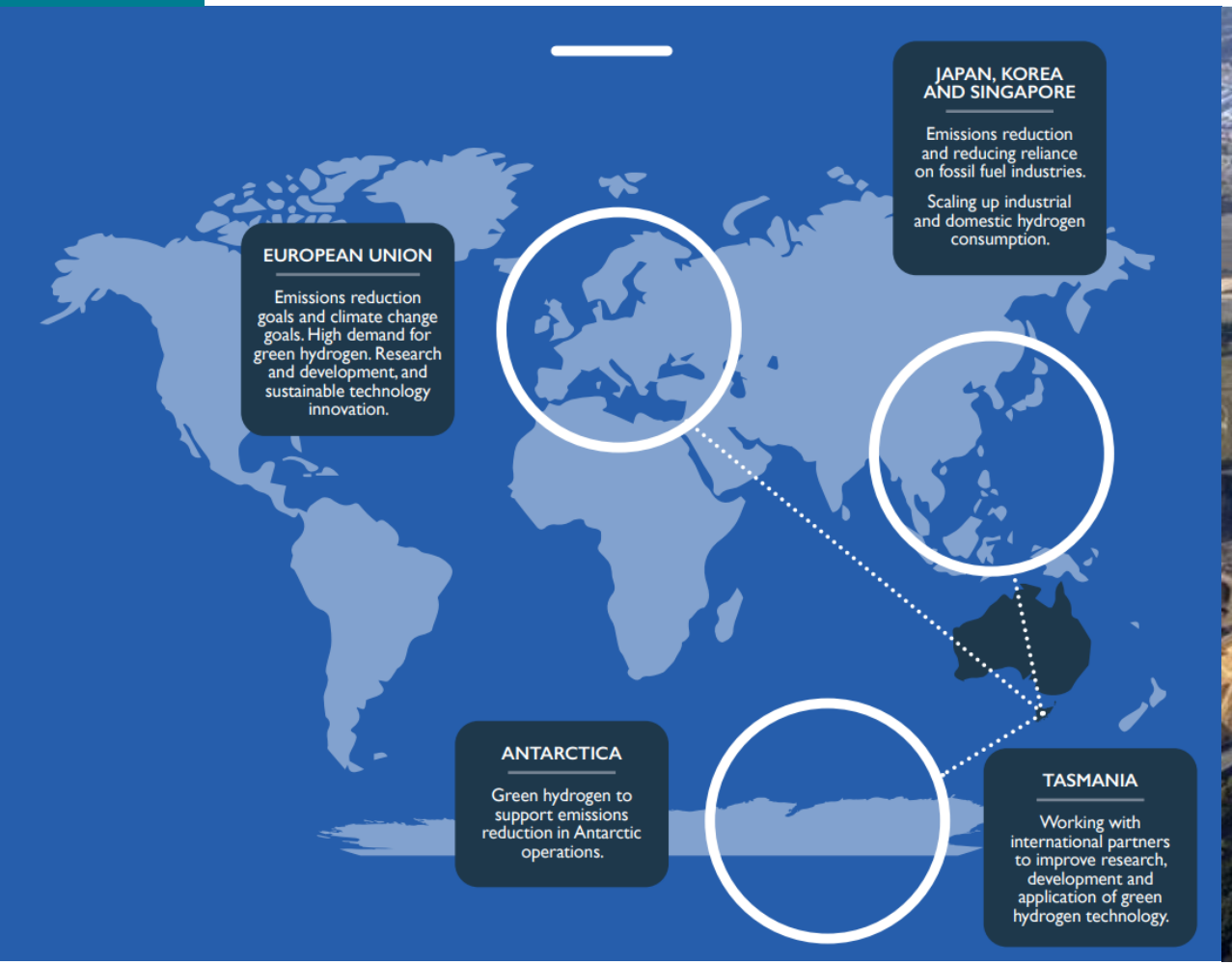
Tasmanian Green Hydrogen Export Strategy – A global focus

Vision - From 2030 we will be a significant global supplier of renewable hydrogen for export and domestic use



To be a significant exporter of green hydrogen to supply emerging global demand and deliver benefits to all Tasmanians.

Formalising ongoing cooperation with international partners is of key benefit to the successful development of Tasmania's hydrogen industry

Source: *Tasmania green hydrogen international engagement and export strategy*
The strategy was developed in consultation with other Tasmanian Government and Australian Government departments.

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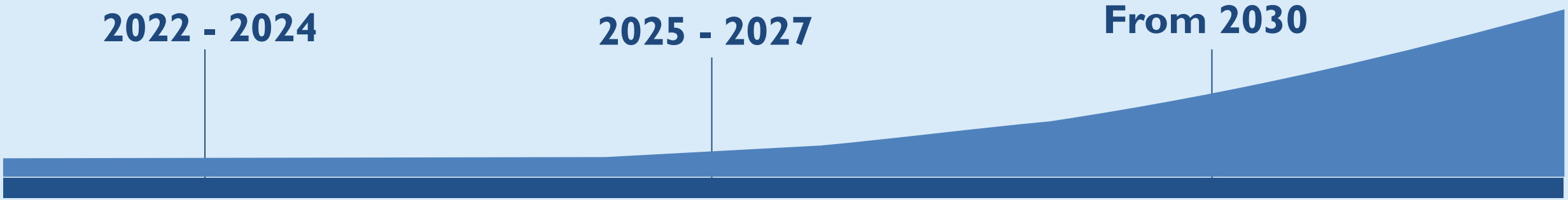
Tasmania Green Hydrogen Vision & Goals

Vision - From 2030 we will be a significant global supplier of renewable hydrogen for export and domestic use

Tasmania will use our existing and expandable renewable energy resources to become a leader in large-scale renewable hydrogen production. The international engagement and export strategy outlines Tasmania's vision to deliver the State's green hydrogen goals. It sets out three key objectives:

1. Identify international engagement opportunities for the export of green hydrogen and hydrogen derivatives
2. Implement engagement activities to facilitate green hydrogen supply chains, and
3. Promote Tasmania's competitive advantage in renewable energy. This includes the wider benefits it presents to the Tasmanian economy and community



- Commenced hydrogen production
- Domestic use of hydrogen
- Export-based production projects well advanced

- Hydrogen export commenced

- Significant global hydrogen producer and exporter
- Hydrogen is significant form of energy used in Tasmania

Source: [Tasmania green hydrogen international engagement and export strategy]

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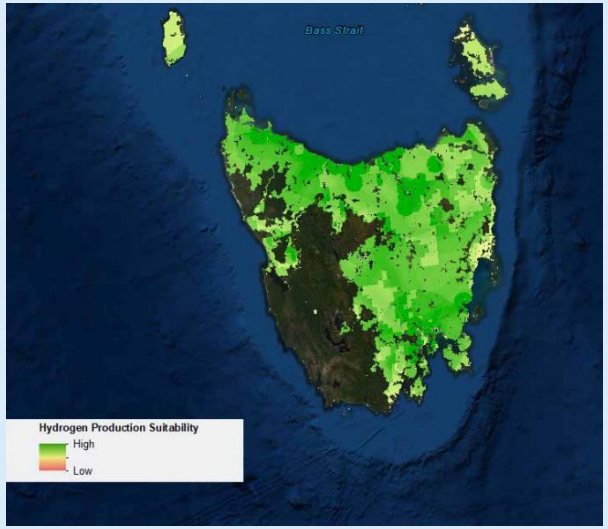
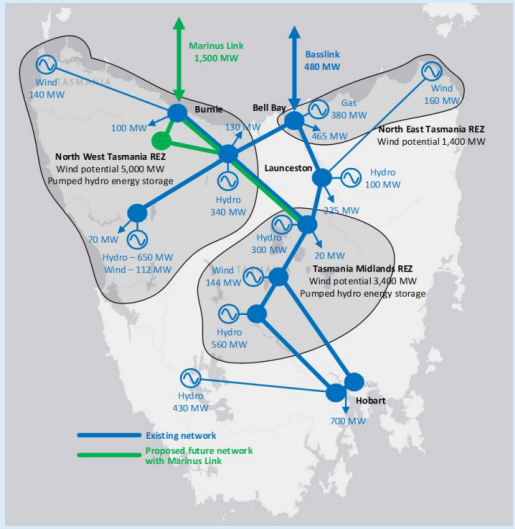
Tasmania’s unique selling point: high capacity factors

Continuous supply of renewable power leads to high capacity factors and thus competitive hydrogen prices

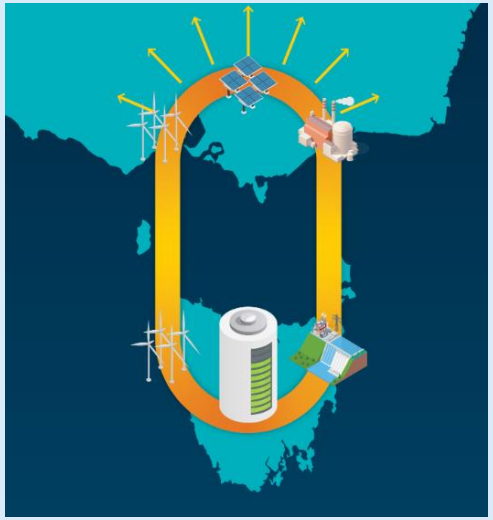
Tasmania has a special combination of factors that if aligned may ensure a continuous supply of renewable electricity. The complementary use of solar, wind, and hydro power, along with hydro storage options and the Marinus Link, contribute to this advantage. So, in contrast to other regions, Tasmania can minimize the need for oversizing of electricity production capacity to enhance electrolyser utilization. This is particularly significant as electricity accounts for around half of local hydrogen production costs. The high capacity factor of Tasmania contributes to reducing renewable energy expenses by minimizing the need for oversizing.



1. High onshore & offshore wind potential



2. High hydro power & hydro storage potential



3. Proposed large interconnector to Victoria

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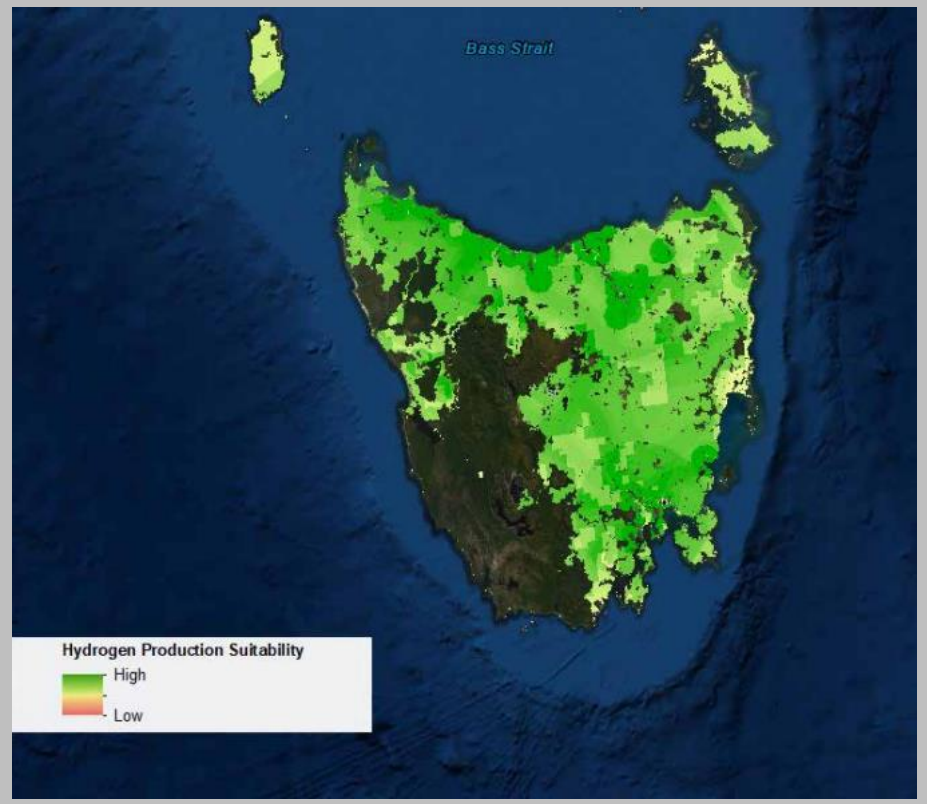
Tasmania's grid already 100% renewable

Tasmania aims to double its green power and develop green hydrogen industry



Highly cost-competitive and reliable hydropower and wind generation, reflecting the world-class nature of Tasmania's renewable energy resources

Tasmania has several key competitive advantages for the development of a renewable hydrogen sector:

- Tasmania is the only jurisdiction in Australia to achieve 100 per cent renewable electricity generation.
- The Tasmanian Government has legislated a new Tasmanian Renewable Energy Target to double its renewable energy production and reach 200 per cent of its current electricity needs by 2040.
- Latent renewable energy development potential, including approximately eight gigawatts of wind and pumped-hydro upgrades to existing infrastructure could support hydrogen production on a multi-gigawatt scale over the longer-term.
- Wind power potential also exists in offshore locations that have high capacity factors. Wind parks in the Bass Strait are seen as an ideal location for future development of the renewable power base.

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Large renewable energy generation and storage potential

Tasmania is in the top areas in the world for competitive renewable energy production

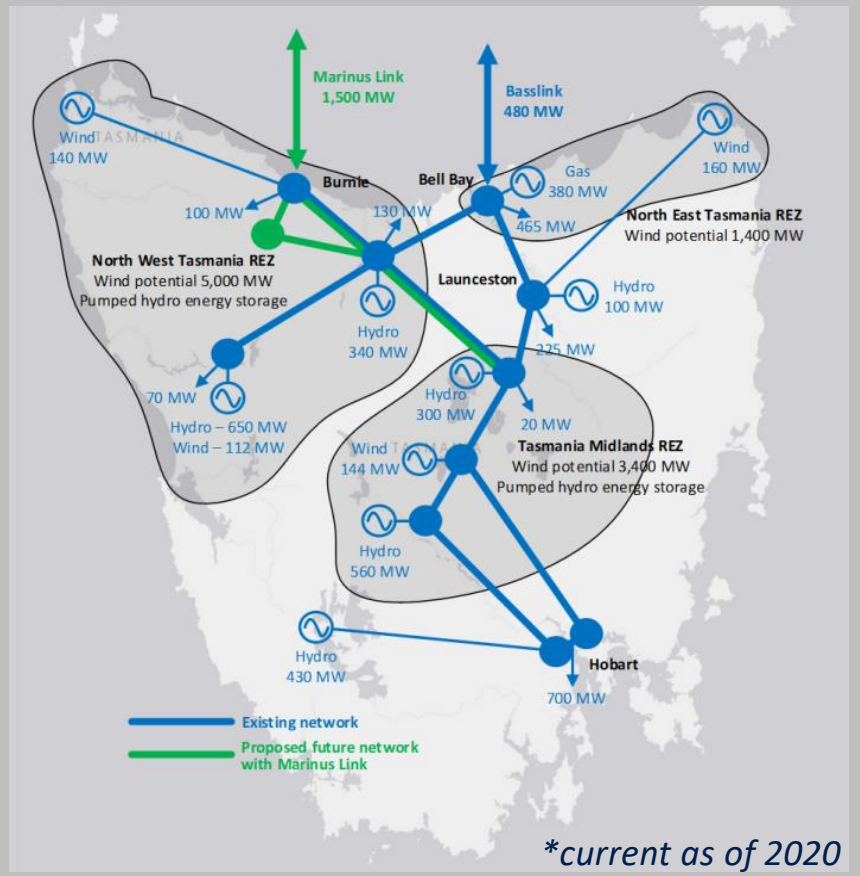
Tasmania is uniquely placed to develop a competitive large-scale renewable hydrogen industry using its abundant existing and expandable world-class renewable wind energy firmed by hydro power, hydro storage, abundant fresh water, and access to industrial zones with high quality infrastructure. In total the potential in the coming years is:

- ❑ 5 GW generation potential onshore by 2030
- ❑ 25 GW potential by 2040
- ❑ Offshore wind potential of 21 GW

Potential on land and offshore Wind Resource

REZ ID	REZ	Wind Capacity (MW)			
		Medium	High	Offshore wind	Total
T1	North East Tasmania	1 000	400	0	1 400
T2	North West Tasmania	3 700	1 300	0	5 000
T3	Central Highlands	2 500	900	0	3 400
04	Offshore	0	0	10 000	10 000
	Total	7 200	2 600	10 000	19 800

Equal to about 1.6 Mtpa of Hydrogen



*current as of 2020

Source: AEMO ISP | Current inputs, assumptions and scenarios

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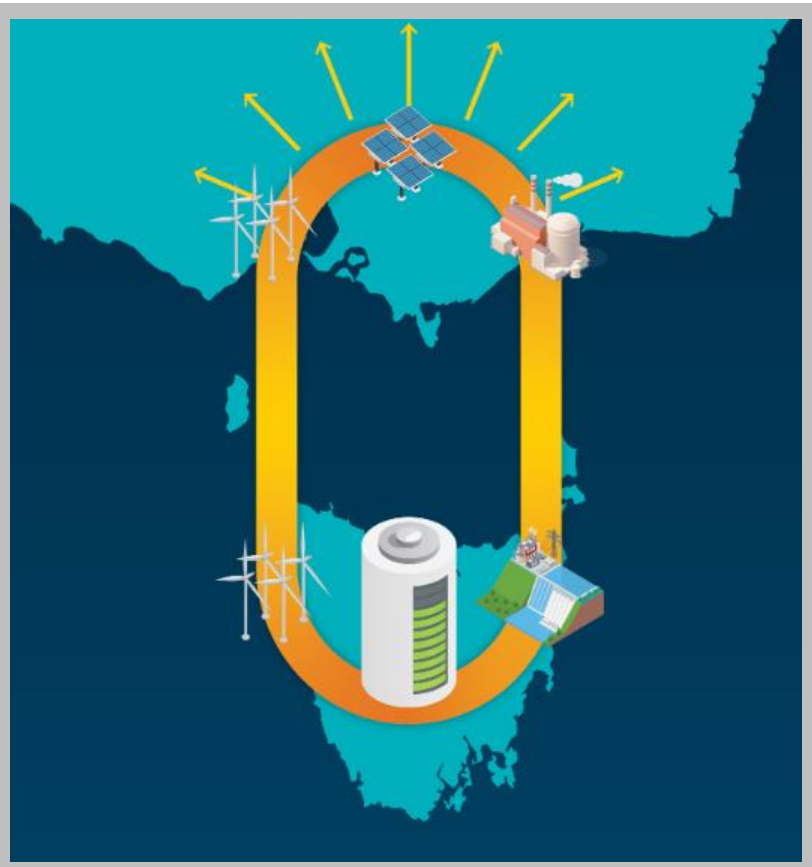
Hydro storage & Marinus Link for balancing green power

Marinus link: proposed 1,500 MW interconnector between Tasmania and Victoria



The first 750 MW stage of Marinus Link is being progressed to be commissioned from 2029, with the second 750 MW stage from 2031

Marinus Link will enable the flow of electricity in both directions between the two states, delivering low-cost, reliable and clean energy for customers in the National Electricity Market (NEM).

- It will enable excess energy generated on the mainland to be stored in Tasmania's hydro storage and made available for use when NEM demand outstrips supply.
- Marinus Link will also support increased firming capability for load, including large scale hydrogen production.

The combination of wind power, hydropower, proposed future pumped-hydro schemes and Marinus Link can provide a high electrolyser utilisation, compared to regions which have wind and solar generation, but limited firming of this variable renewable generation.

Source: Marinus link

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Current Hydrogen Projects Pipeline (export scale)

Following out of Tasmania's hydrogen action plan in 2020.

Currently there is approx. 2 GW installed renewable electricity capacity.
Target for 2040: 200% renewable energy

- Bell Bay intended as first green hydrogen hub in the state

Proponents	Capacity electrolyser	Production volume
Woodside Energy	250 MW (Stage 1)	250 ktpa green ammonia
Origin Energy	500 MW (Stage 1)	420 ktpa green ammonia
Fortescue Future Industries	250 MW (Stage 1)	250 ktpa green ammonia
Grange Resources	90 -100 MW	local utilisation
ABEL Energy	240 MW	300 ktpa green methanol

* There are other export scale projects under development in other areas of Tasmania.
For more information see HyResource website.

Source: HyResource

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Good potential for hydrogen production & export

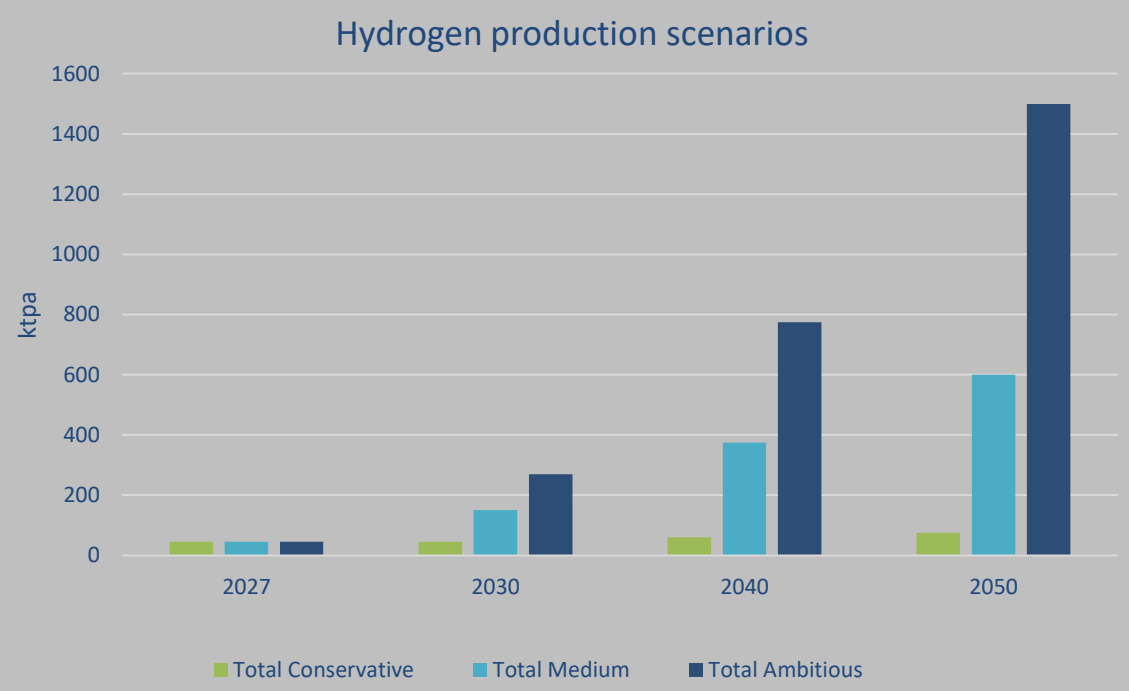
Important to reach economies of scale to reduce production costs

To facilitate a smooth development of this new economy it is vital to prove the concepts with local utilisation first.
This serves two key purposes: obtaining social license from the community and ensuring Tasmania's reaches its decarbonisation targets by 2030.

Following the first demonstration projects it will be important to try to scale projects significantly. Only at scale – typically projects of over 1 GW electrolyser capacity which equals 100 ktpa of hydrogen – will hydrogen prices reach competitive levels.

To achieve this Tasmania needs to consider:

- Not spreading power-for-hydrogen distribution too thin over too many producers
- Striving at the least for "medium" and even better "ambitious" scenario targets as presented in plans.



Source: scenarios based off AEMO ISP 2022

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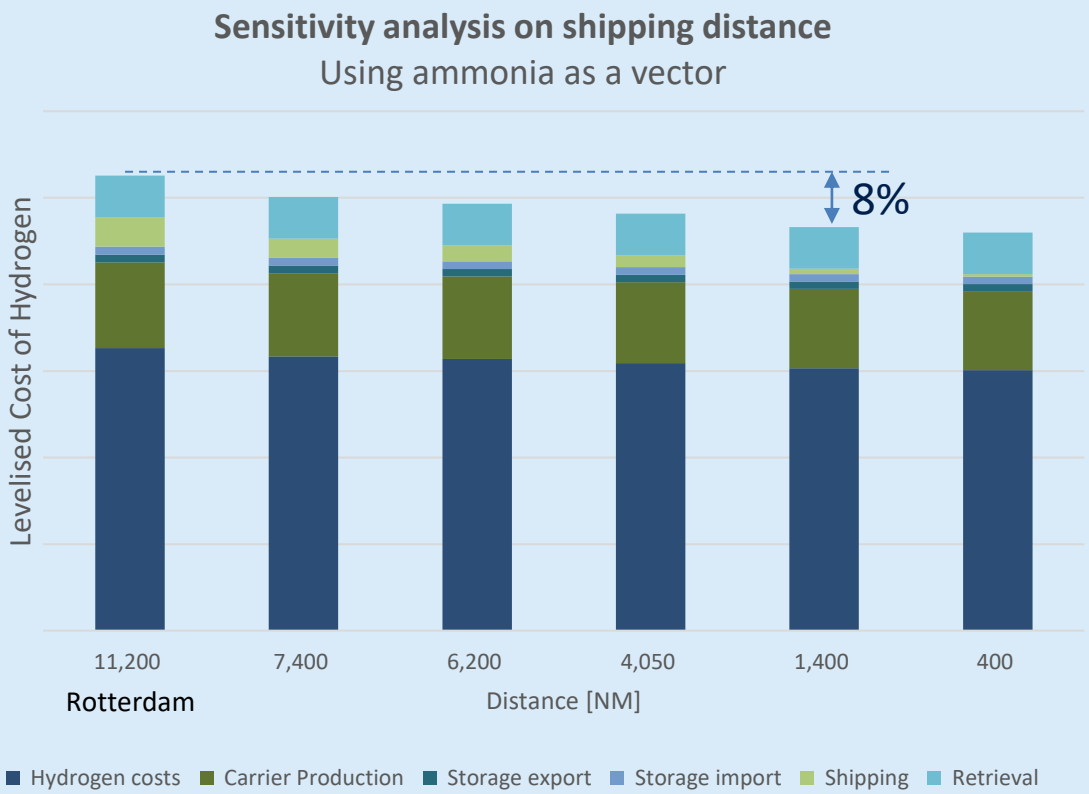
Exports from Tasmania can be very competitive

The disadvantage of distance is easily overcome by higher efficiency & a low risk investment climate



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3. Main insights H2 supply chain Tasmania - Rotterdam

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Setting up the hydrogen supply chain

For new supply chains to be successful all components will need to be developed simultaneously as supply chain risk is possibly one of the largest risks

Developing any of the supply chain components independently is practically impossible for a new market. Hence coordination is crucial. Governments have an important role to play.

In order to minimize impacts common-user infrastructure such as grids, pipelines and terminals are key enablers that can be developed by ambitious authorities.

H2 TRADE

1 **Renewable power**

2 H2 Production

3 Local utilisation

4 Local Logistics & Export

5 Shipping

6 Import & Distribution

7 **H2 usage**

- Industry feedstock
- Mobility
- Industrial heating
- Power
- Urban use

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4. Utilisation of green hydrogen in Tasmania before export

The small geographic size of Tasmania means hydrogen infrastructure investment can be minimised

First domestic projects have been announced:

1. Tasmanian Government funded **3 green hydrogen buses** and **1 hydrogen refueller** in Hobart to be operational early 2024
2. Blue Economcy CRC **700KW electrolizer for offshore application** and to support local trials operational by end 2023
3. 100 MW **electrolyser equivalent needed for local mining industry**.
4. Proposed project **local hydrogen for trucks** in Bell Bay.
5. 10 MW electrolyser for Brighton Industrial and Transport Hub - **Hydrogen blending** trial for recycling plant, refueller for transport and trucks 5MW electrolyser at Launceston Airport for 100% hydrogen trial, **hydrogen refueller**
6. Hydrogen Marine Vessel demonstration project in development

Strategy on Tasmanian offtake is in development. Potential markets are:

- Mobility (Buses, Trucks, Freight trains, Marine vessels). A small number of hydrogen refuelling stations would be required as part of an initial roll-out.
- Value-added 'green' mining products – eg green iron ore pellets, green aluminum, green steel
- Bunker fuels - "Gateway to the Antarctic" Future shipping fuel and energy source in Antarctic and sub Antarctic.

Advantageous characteristics make Tasmania a highly attractive low-cost location for the offtake of green hydrogen:

- Tasmania has industrial precincts with available land and access to high quality infrastructure.
- Access to a highly skilled and innovative workforce
- The comparatively small geographic size of Tasmania means hydrogen infrastructure investment can be minimized.

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Economies of scale required to be competitive for export

Exports only feasible with large scale projects that can produce cost competitive hydrogen

Previous studies by Port of Rotterdam have shown that 1 GW electrolyser capacity is the minimum capacity required for export to be competitive and reach economies of scale. To realize large scale hydrogen production the following is required:

I. The Scale up of renewable energy production needs to be realized in large steps and supply needs to be to fewer rather than many hydrogen proponents to be able to reach that minimal electrolyser scale. For Tasmania it would be better to have the projects be developed sequentially than simultaneously.

II. The uncertainty of the development of a local hydrogen market needs to be addressed.

III. Development of offshore wind concessions in the Bass Strait will be key to really reach scale. This development needs to be managed by ReCFIT.

These points will be further elaborated on the following slides.

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I. Smartly align the development of H2 projects

Strong government coordination role needed in order to reach economies of scale

Economies of scale - Projects are at risk of staying too small too long. Strong governmental coordination is needed on:

- **Fast development of renewable power is crucial** to the competitiveness of Tasmanian hydrogen export and thus its viability. This is why a strong coordination role from the governments is needed, so that all parties will have a guideline and projections that justify investments. If all goes well business plans will be executed as planned.
- It is expected that in the short term the availability of renewable power for hydrogen production is limited. If the current five projects are developed simultaneously there is the risk the size of each will remain small. Then the Tasmanian government needs **to consider sequential versus simultaneous development of hydrogen projects**, or merging of projects so that the right scale can be reached.
- Similarly, infrastructure such as terminals may be spread to thin if too many are built. It is recommended **considering one common-user terminal instead of multiple dedicated ones**.

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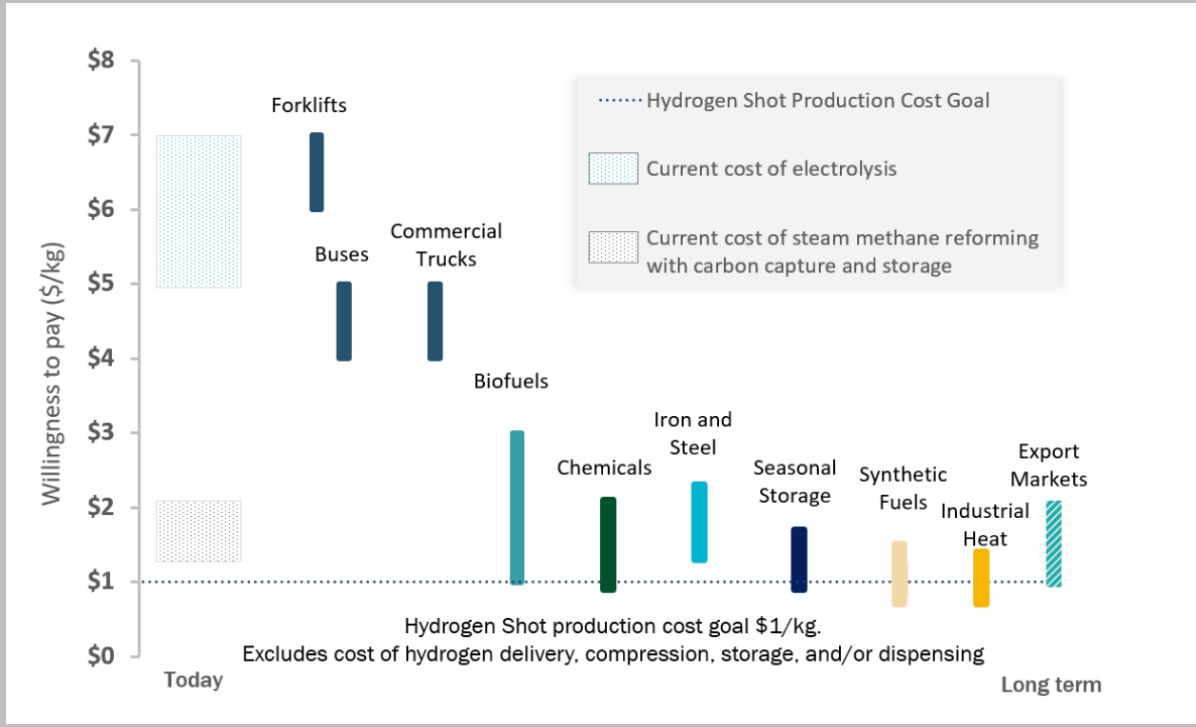
II. Tackle hydrogen market uncertainties

Support needed for local and industrial market developments

USA Clean hydrogen strategy roadmap shows an overview of the willingness to pay for hydrogen per application ($US). Especially, the first hydrogen production projects result in a mismatch between cost and willingness to pay



Uncertainty in global green hydrogen demand developments, particularly, regarding the willingness to pay for the green hydrogen, pose a risk to project developers.

- Currently, there is no business case until there are offtake guarantees. Multiple contract for difference schemes have started, or are planned, to roll out in the UK, Germany, Norway and in the European Union. Most notably the European Hydrogen Bank and H2 global. The goal of these projects is to bridge the price gap between green and grey hydrogen and will in part focus on international import.
- Delays in FID's can be prevented taking away the uncertainty of future national and international H2 offtake.
- Lastly, aligned certification schemes are expected by the end of 2023.

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III. Offshore wind development to reach scale

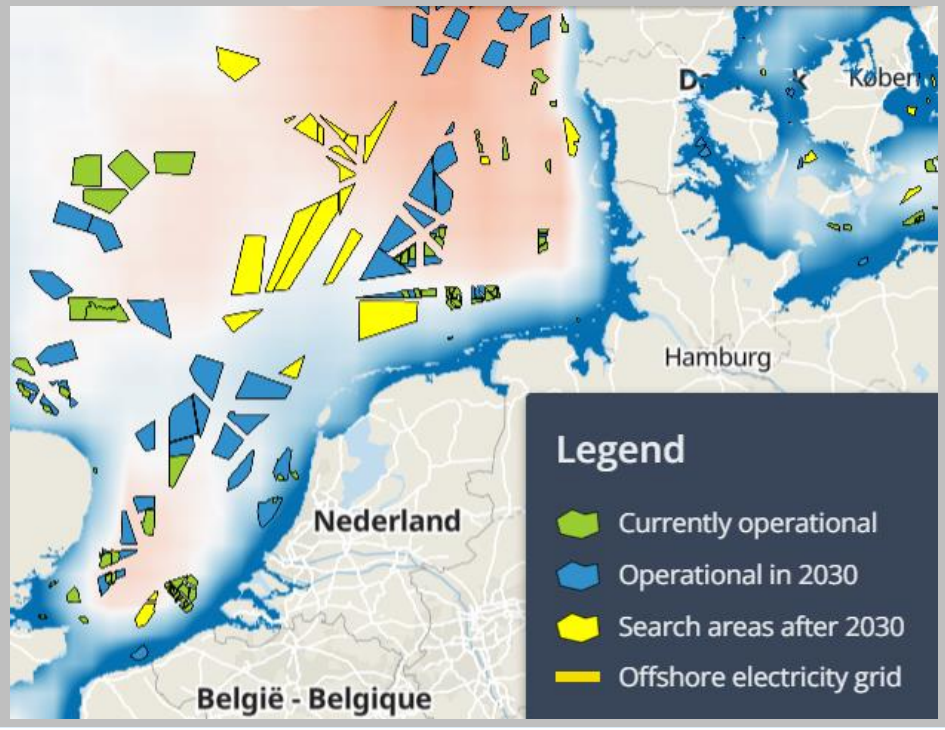
Scaling up offshore wind farms allows for a substantial increase in green hydrogen production

Offshore wind provides a crucial pathway to achieve economies of scale in green hydrogen production. In the Bass Strait large-scale wind farms can be established that would generate significant amounts of new renewable electricity. This electricity can be used to power electrolyzers and produce green hydrogen.

Scaling up offshore wind farms allows for a substantial increase in green hydrogen production, driving down costs through economies of scale. This cost reduction is essential for making green hydrogen competitive with traditional fossil fuel-based hydrogen production methods. Therefore, offshore wind plays a vital role in unlocking the full potential of green hydrogen as a clean and sustainable energy carrier.

There are opportunities for collaboration on offshore wind development between the Netherlands and Tasmania due to the Netherlands' extensive experience in large-scale offshore wind projects.

The development of offshore wind parks in the North Sea is taking off at enormous speed. In the Dutch North Sea alone 70 GW of offshore wind power will be developed by 2050 under a tight development regime by Dutch Ministry of Economic Affairs.



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4. Conclusion

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Conclusions & Recommendations

Tasmania has great potential

- Tasmania has unique natural conditions that allow it to become one of the most competitive producers of hydrogen in the world. In addition to hydropower infrastructure, excellent wind resources allow for high-capacity factors.
- The global market, but the European market in particular, is gearing up to see a significant rise in hydrogen demand. The Port of Rotterdam is already leading the necessary infrastructure to receive significant amounts of imports.
- Shipping distance from Bell Bay to Rotterdam is not a limiting factor and can be easily overcome for Tasmanian hydrogen to compete on the future Rotterdam HyXchange trading platform
- 5 world-class projects in the pipeline at Bell Bay.

Recommendations

1. Local utilisation of green hydrogen should always be priority
Local Citizens and climate should benefit first

2. Quick scale up critical for export
Strong government coordination role needed.

- Develop new renewable energy projects in large quanta
- Development of common user infrastructure
- Consider sequential versus simultaneous development of hydrogen projects, or merging of projects so that the right scale can be reached.

3. Reduce hydrogen market uncertainties
Both Local as well as through cooperation with EU who are working on regulations and subsidy schemes to get this going

4. Scale up offshore wind development
The Bass Strait has excellent conditions for offshore wind power production but rapid development requires government coordination

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