
FEDERAL
HYDROGEN STRATEGY
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Cabinet Van der Straeten

H2 perspectives in Belgium

The Belgian demand for renewable molecules is expected to rise up to 125 – 175 TWh/year by 2050 (including bukering fuels)

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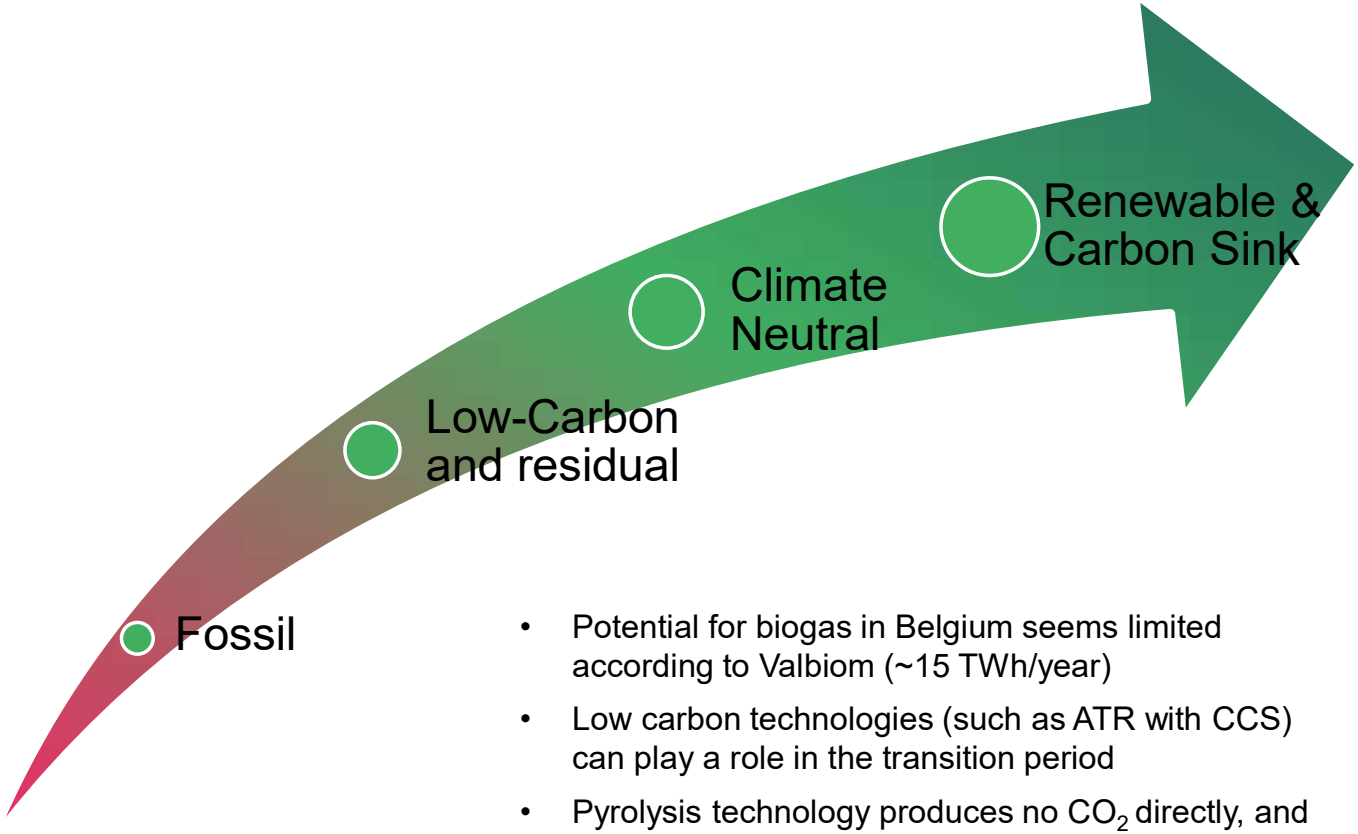
Minister van Energie

100% renewable molecules before 2050



- Potential for biogas in Belgium seems limited according to Valbiom (~15 TWh/year)
- Low carbon technologies (such as ATR with CCS) can play a role in the transition period
- Pyrolysis technology produces no CO_2 directly, and could act as a carbon sink if run on biomethane

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4 pillars of the federal H_2 strategy

1. Import and transit hub

2. Leader in H_2 tech

3. Robust H_2 market

4. Investing in collaboration

Pillar 1 – Import and transit hub for renewable molecules

Our ambition: Position Belgium as an import and transit hub for renewable molecules in Europe

Estimated import needs for national use
(lower bound, bunkering fuels included)

Transit activites could double these volumes

Way to go

1. Establish a trustable system for certificates for renewable fuels from non-biological origin by 2025 (RFNBO's, including green H_2)
2. Sign MOUs with third parties and other EU Member States to facilitate import of green H2 and engage our companies in this story

   Particular attention will be paid to the integration of the Sustainable Development Goals of the United Nations in these agreements

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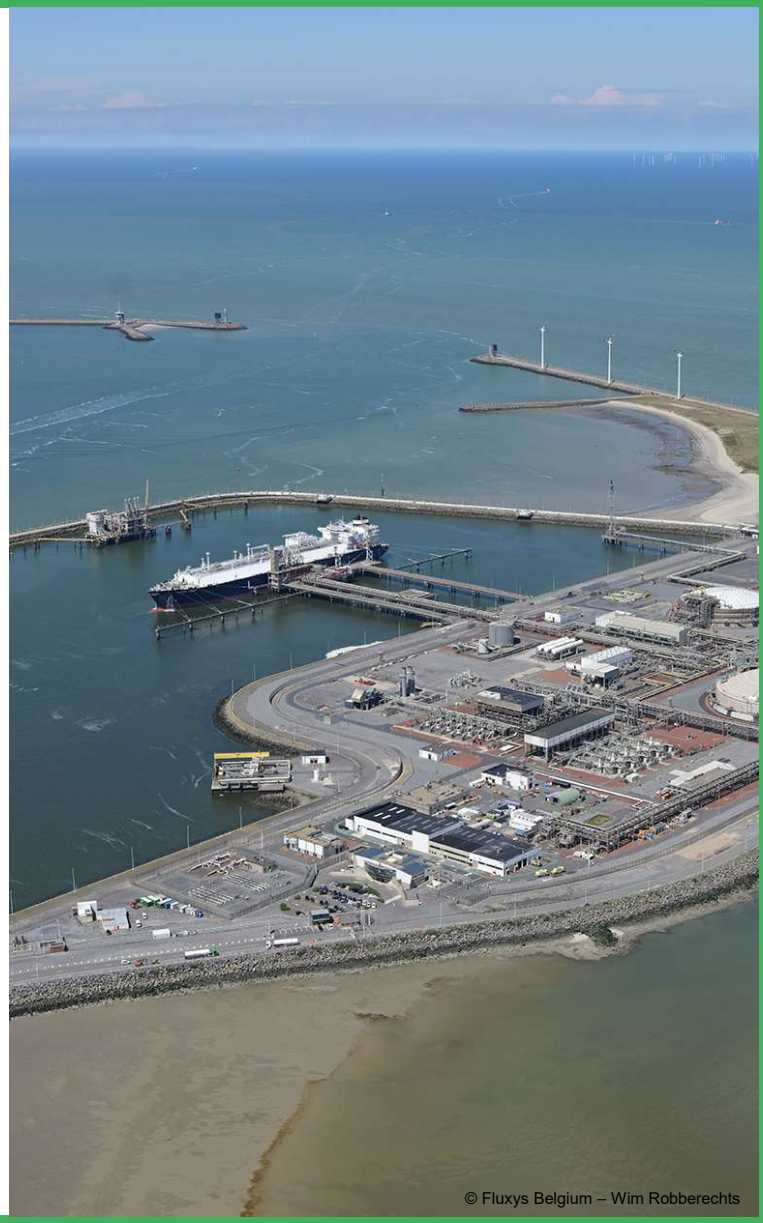
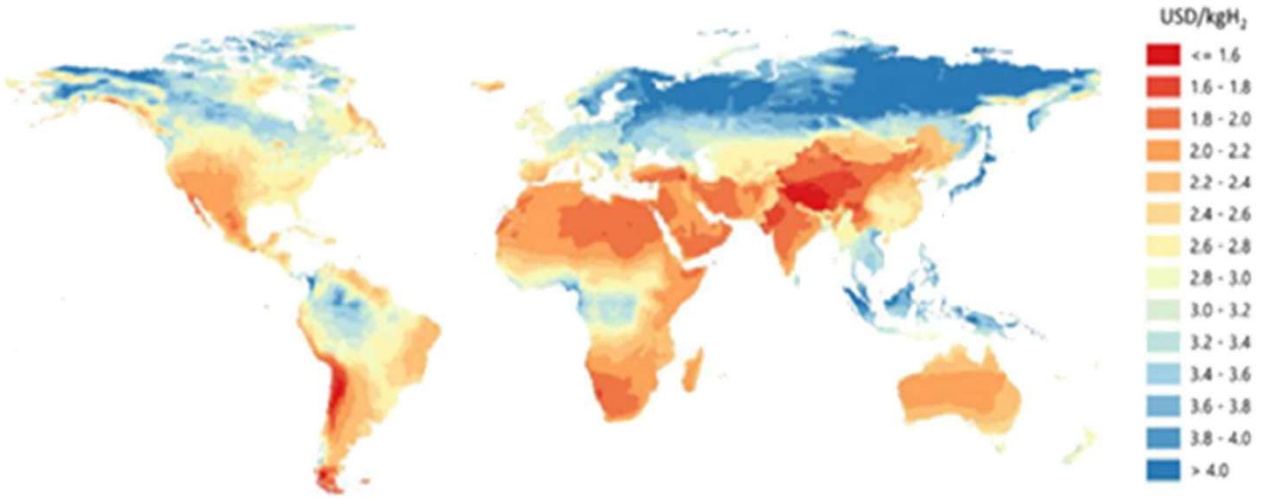


Renewable H_2 production is cheaper where RES are abundant

Hydrogen costs from hybrid solar PV and onshore wind systems in the long term

Source: IEA hydrogen report 2019

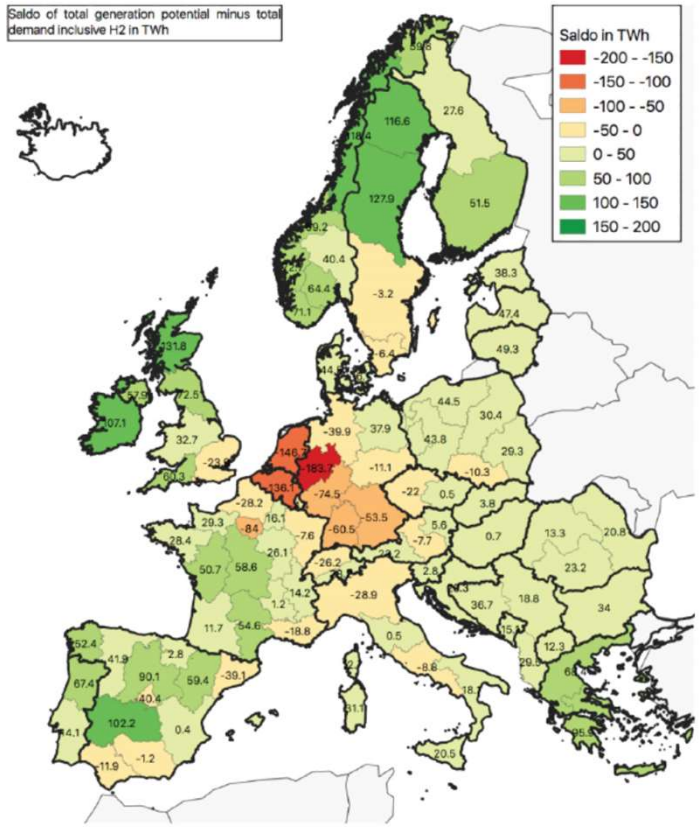


"Shipping the sunshine"

"Liquid wind"

H_2 and its derivatives (eg. NH_3) enable us to import cheap renewable energy

Belgium is perfectly placed to import large amounts of renewable H_2 in EU



- Saldo of total generation potential minus total demand inclusive H_2 [TWh]

Source: Wuppertal Institute

Potential renewable hydrogen producers

Figure 3.4 Technical potential for producing green hydrogen under USD 1.5/kg by 2050, in EJ

Source: IRENA (fothcoming-a). Map source: Natural Earth, 2021

Note: Assumptions for capital expenditures (CAPEX) 2050 are as follows: PV: USD 225-455/kW; onshore wind: USD 700-1070/kW; offshore wind: USD 1275-1745/kW. Weighted average cost of capital: Per 2020 values without technology risks across regions. Technical potential has been calculated based on land availability considering several exclusion zones (protected areas, forests, permanent wetlands, croplands, urban areas, slope of 5% [PV] and 20% [onshore wind], population density). Water availability was not considered in the analysis. EJ = exajoule; kW = kilowatt.

Disclaimer: This map is provided for illustration purposes only. Boundaries and names shown on this map do not imply any endorsement or acceptance by IRENA.

- Source: IRENA - Geopolitics of the Energy Transformation: The Hydrogen Factor – jan 2022

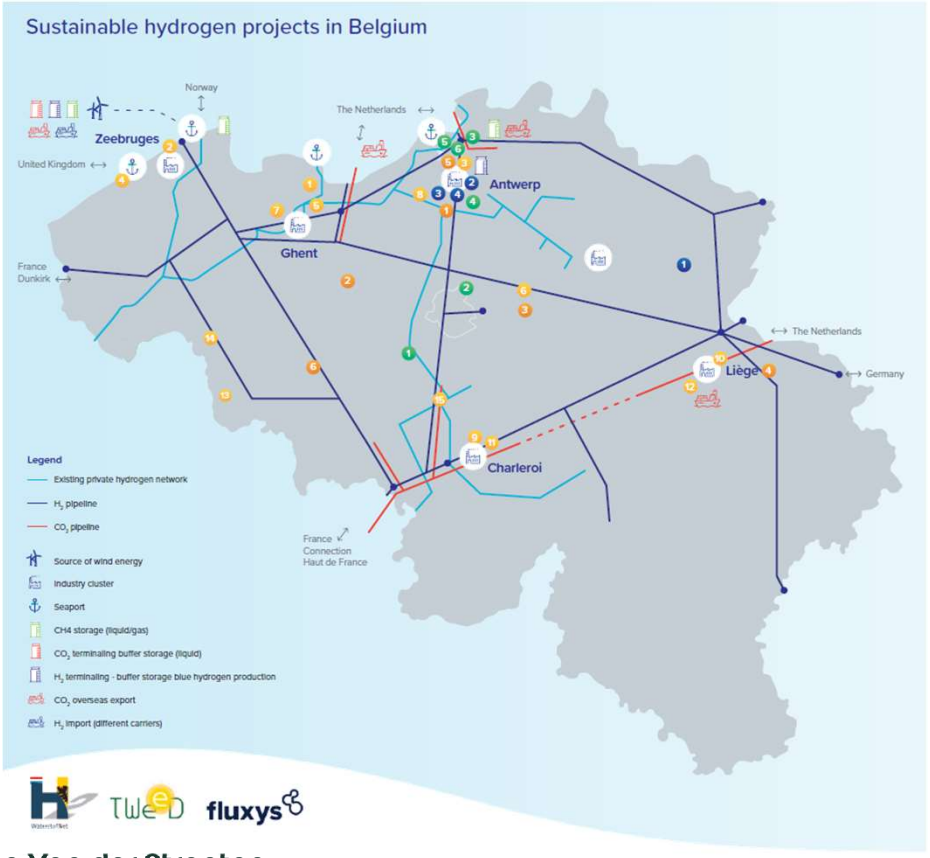
Pillar 2 – Becoming a leader in H_2 technologies

Building on existing experience of leading companies in Belgium

Means to our disposal to support the further development of the sector:

- Energy Transition Fund (ETF)
- RRF (2021-2026): call for demonstration projects on hydrogen production and its use within the offshore wind industry – April 2022
- Federal Transition Plan:
  - Hydrogen Test Facility
  - Hydrogen Import infrastructure

Pillar 3 – Establishing a robust hydrogen market



A strong and open-access H_2 pipeline network is required in order to efficiently connect supply and demand

Way to go

1. Integrated planning between natural gas, hydrogen, CO_2 and electricity
2. Further development of a dedicated H2 transport infrastructure
   - First steps within RRF backbone (additional 100-160 km by 2026)
   - Interconnections with all neighbouring countries by 2028 – speeding up our independence of fossil fuels
3. Guarantee fair-treatment of market actors open-access to the H2 transport infrastructure
   - The envisaged regulation is described in a public consultation – feedback is being processed
   - Gas Package EU Commission

Pillar 4 – Investing in cooperation

The strategy is a call to partnerships and collaborations

- With Regional Governments
  - Clear division of competences
- With relevant Stakeholders
  - Research institutions, Companies and Citizens
  - Clear Communication on targets
  - Round Table on hydrogen
- With Europe
  - Front-running to support EU ambitions
  - In close cooperation with EU institutions and Penta countries
  - Collaboration with FCH-JU, CHA, CHP and other industry initiatives
- With the world
  - MOUs to support industrial projects and diversify supply
  - Investigate futher participation in international organisations

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Thank you
for your attention.
BELGIEN