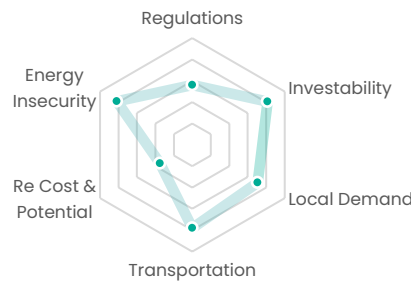
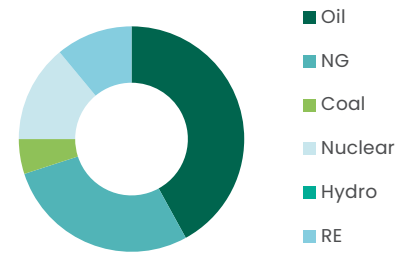


GDP – USD (bn):	515
GDP per capita – USD:	44,594
Land area ('000 km ²):	30
Population density (per km ²):	377
Grid emissions factor (gCO ₂ /kWh):	167

Hydrogen Drivers Matrix



Primary Energy Mix



2.8 Regulatory commitment

- National hydrogen strategy under development but strong port initiatives under development
- Limited funding to date

3.9 Transportation

- Strong port with established international routes for diverse sectors

4.1 "Investability"

- AA rated by S&P
- 46th in WB Ease of Business

1.7 RE cost and potential

- Limited renewable potential but strong governmental efforts to develop what exists

3.5 Local demand potential

- Strong port industrial clusters including refining and methanol
- 6th largest ammonia importer in the world

4.1 Energy insecurity

- 80% net energy importer
- 6GW nuclear phaseout planned for 2025

Strong port and import focus; Flanders region leads hydrogen efforts

Though relatively small, Belgium is Europe's second-most densely populated country in Europe after Netherlands, with very high energy dependency and limited renewable energy potential. The country has already largely exploited its available renewable resources, having installed 5.6GW of solar, 2.4GW of onshore wind and 2.8GW of offshore wind. Unlike the Netherlands, its short coastline means that its offshore wind potential is limited to 14GW, and the country has no salt cavern storage potential. With a 2025 6GW nuclear phase-out on the horizon – today generating c.50% of Belgium's electricity – the story of green hydrogen in Belgium in the long run is likely to be overwhelmingly one of import, and the national strategy currently under development is expected to reflect this. An "expressions of interest" round was launched by the Belgian government in March 2020 and elicited a strong response.

Limitations notwithstanding, within Belgium, the Flanders Region has already announced its intent to be a European frontrunner in hydrogen and has issued its own regional hydrogen strategy targeting 200MW at seaports by 2025 and 500MW by 2030. Approximately EUR125m funding is available under the IPCEI. They will invest across the value chain from production to transport and storage, notably leveraging the strategic value of the Port of Antwerp, the second largest port in Europe. The country also has the advantage of a well-developed pipeline network connecting to neighbouring states, seaport and terminal infrastructures and energy-hungry industrial clusters.

Leveraging port potential

Some of the largest maritime and chemical clusters sited at the ports of Antwerp and Zeebrugge offer attractive green hydrogen opportunities, in particular in combination with neighbouring offshore and onshore wind farms. A "Hydrogen Import Coalition" consisting of DEME, ENGIE, Exmar, Fluxys and the respective ports has begun a techno-economic feasibility study of the import value chain, to be fully established by 2030.

Green Octopus 2000km pipeline

Lack of large-scale hydrogen storage options emphasize the need for strong connectivity and trade with neighbouring countries. The Green Octopus IPCEI project plans for a 2,000km hydrogen backbone that will connect Belgium to France, Germany and Netherlands through repurposing existing pipelines, connected to the offshore wind corridor in the North Sea.

Venture for low-cost electrolyzers

Belgian mechanical engineering group John Cockerill is one of the most mature manufacturers of electrolyzers today. Its Chinese joint venture may prove to be the key to unlocking low-cost electrolyzers for local projects. It has also formed a consortium named "Hyve" alongside Bekaert, Colruyt Group, Deme, Imec and Vito to develop more efficient components and systems.