



# THE STATE OF NATIONAL HYDROGEN STRATEGIES

## Map Portfolio

### Abstract

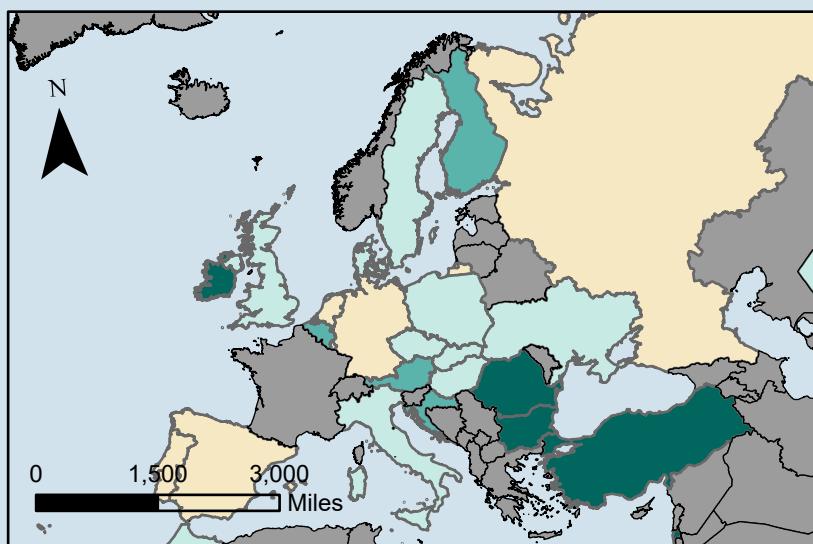
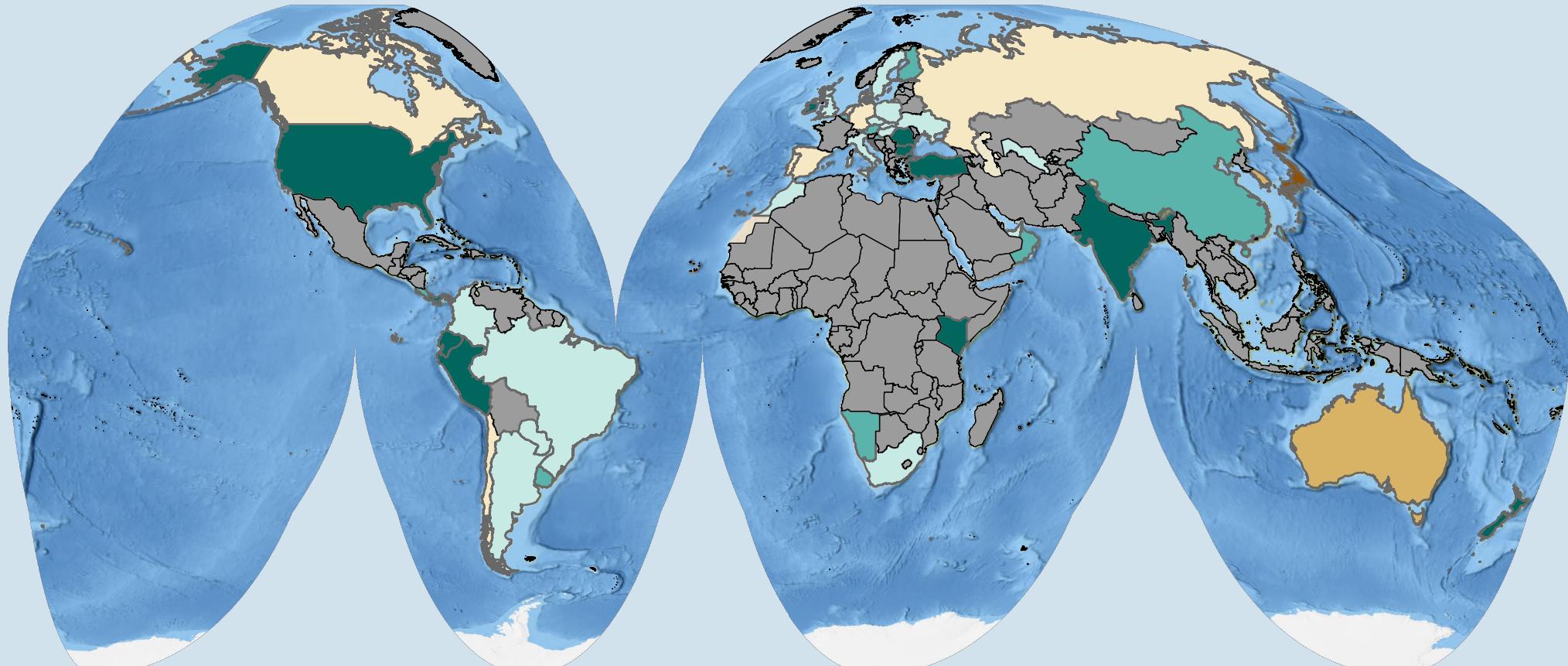
This map portfolio tries to explore the current state of national hydrogen strategies for all 51 countries whose national hydrogen strategies have been published officially. The exploration includes the trade strategy, potential of green hydrogen generation, and the potential of natural gas derived hydrogen generation.

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# State of National Hydrogen Strategy



Sources: Esri, USGS, Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community

## Year of Publication

2017	2021
2019	2022
2020	2023
	No strategy has been published

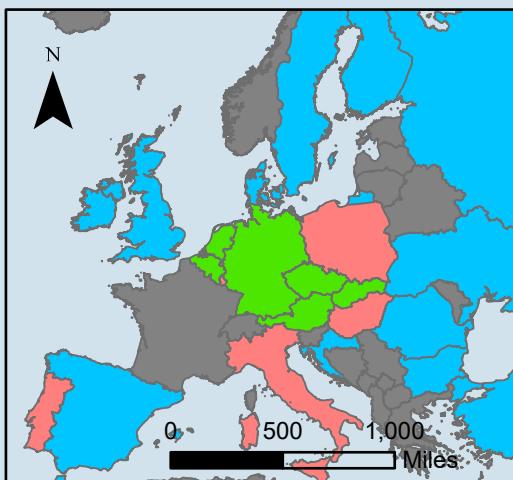
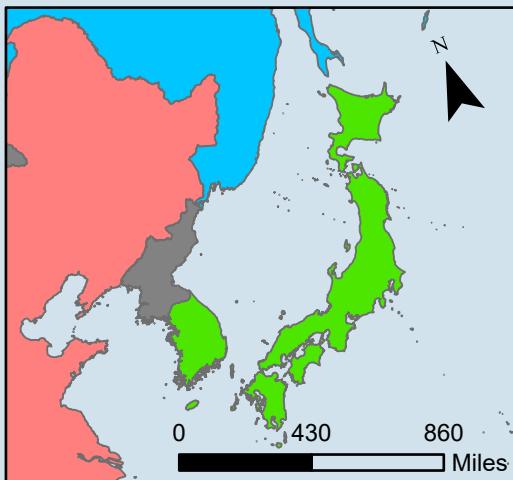
As of October 15, 2023, a total of 51 countries have taken a significant step forward by publishing their national hydrogen strategies. The journey towards embracing hydrogen as a clean energy solution began with Japan leading the way in 2017, setting a pioneering example for the rest of the world. Over the years, numerous nations have recognized the evolving landscape of hydrogen technology and market dynamics, leading them to update their strategies.

Map credit: Rio P. Kaswiyanto. Data sources: Compilation of various national hydrogen strategies by the creator.

# National Hydrogen Trade Strategy

## Legend

- Export (Blue)
- Import (Green)
- Neutral (Red)
- No strategy has been published (Grey)



The current global hydrogen trade strategy is characterized by a growing interest in hydrogen as a clean and sustainable energy source. Japan and South Korea are positioned to become two of the largest import markets for hydrogen in the future. This is primarily due to their geographic limitations, as they lack the abundant renewable energy resources necessary for large-scale hydrogen production. To bridge this energy gap and advance their sustainability goals, both countries are looking to import hydrogen from various exporting nations. Among their key sources, Australia stands out for its potential to supply green hydrogen using abundant solar and wind resources. The Middle East has historically been a hub for blue hydrogen production, derived from natural gas resources, while the USA is emerging as a versatile exporter, contributing to a diversified energy landscape.

In addition to Japan and South Korea, several European Union (EU) countries are also emerging as significant import markets for hydrogen. These EU nations are likely to import hydrogen from neighboring countries within the European region and from North Africa. This cross-continental trade is driven by a collective commitment to reducing carbon emissions and transitioning to cleaner energy sources. The evolving hydrogen trade landscape exemplifies the importance of international cooperation and coordination to achieve sustainable energy goals while fostering economic partnerships between nations to create a greener energy future.

Map by Rio P. Kaswiyanto

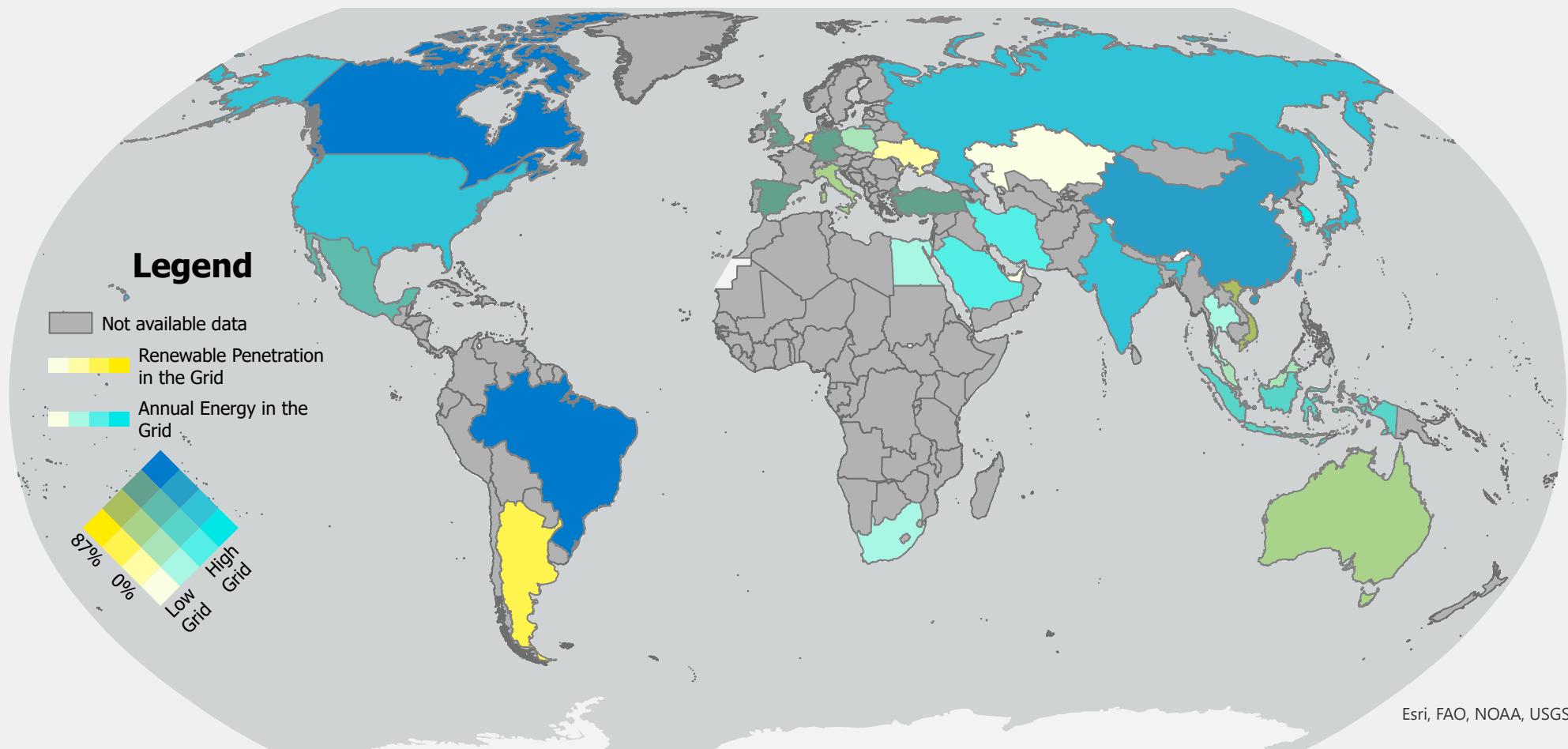
Source: Gathered from various national hydrogen strategies

# Grid-Powered Electrolysis Potential

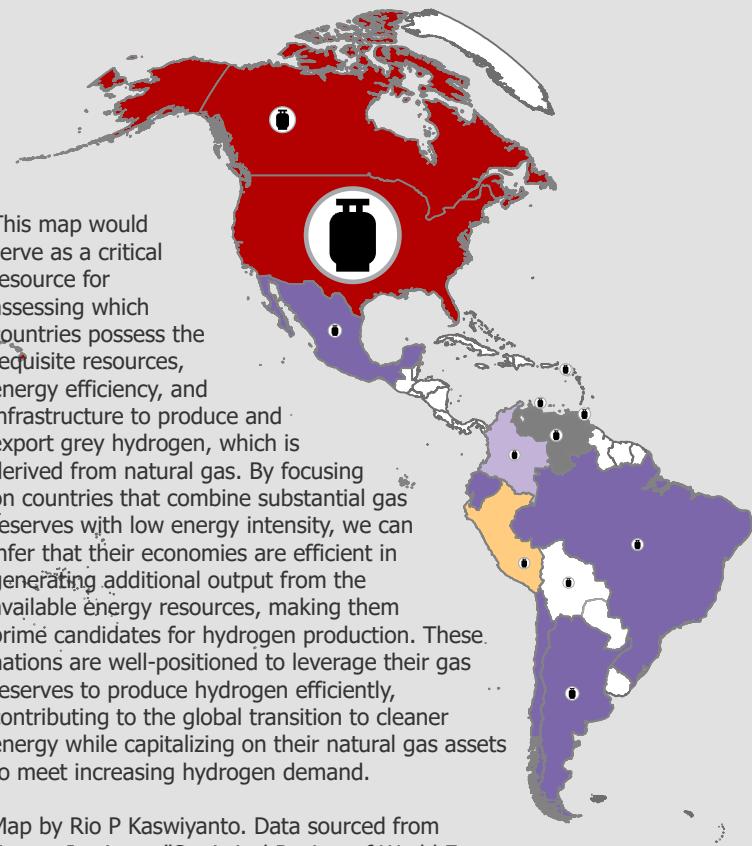
In assessing a country's potential to power electrolysis for green hydrogen production, it's essential to consider two key factors: the extent of renewable energy integration within its grid and the size of the grid itself. High renewable energy penetration within a nation's grid signifies an abundance of clean energy resources suitable for electrolysis.

Meanwhile, the grid's size is a critical factor in ensuring stable and ample power supply for energy-intensive electrolysis processes. By identifying countries that excel in both these criteria, we can pinpoint those with the greatest potential to lead the way in green hydrogen production, contributing significantly to a sustainable and environmentally friendly energy landscape.

Map by Rio P. Kaswiyanto,  
Data sourced from the Energy Institute's "Statistical Review of World Energy," 2023.



# Grey Hydrogen Potential



Map by Rio P Kaswiyanto. Data sourced from Energy Institute, "Statistical Review of World Energy 2023".

