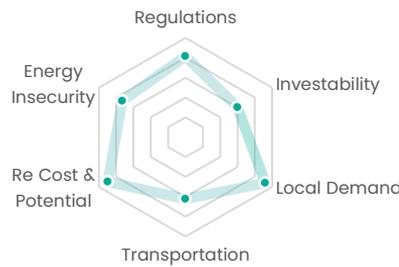
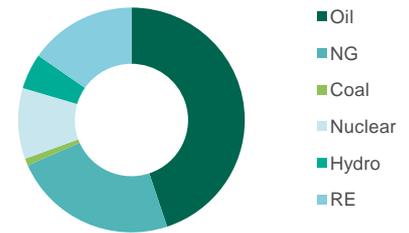


GDP - USD (trn):	1.3
GDP per capita - USD:	27,057
Land area ('000 km2):	500
Population density (per km ²):	94
Grid emissions factor (gCO ₂ /kWh):	288

Hydrogen Drivers Matrix



Primary Energy Mix



4.1 Regulatory commitment

- Net zero by 2050
- EUR1.5bn green hydrogen funding earmarked through 2023
- No CfD program or similar

3.1 Transportation

- Pipeline connections to North Africa
- Limited (yet present) storage potential
- TSO Enagas actively involved

3.0 "Investability"

- Rated A by S&P
- 30th in WB Ease of Doing Business
- Regulatory risk given historic retroactive change to RE support

4.5 RE cost and potential

- One of the strongest and cheapest solar energy resources in Europe
- Average onshore wind resources

4.6 Local demand potential

- Substantial refining sector and decently sized steel sector
- Massive heavy transport sector
- 10th busiest container port

3.6 Energy insecurity

- 71% net energy import

Low-cost renewables and strong industry to ignite strong early start

Spain has the scale and the solar resource needed to become a cornerstone supplier of Europe's green hydrogen economy, as well as a domestic industry mix suited to jumpstart early demand. Spain has some of the cheapest renewable energy in Europe, achieving tariffs of EUR15.0/MWh for solar PV and EUR20.0/MWh for wind in 2021 auctions. Its national hydrogen strategy targets the mobilisation of EUR8.9bn (USD10bn) of investments between 2020-2030 to install 4GW of electrolyzers and other hydrogen-related infrastructure. In December 2020, MITECO¹ closed a public call for interest for potential IPCEI projects which received healthy interest in the form of 28 submissions, but final selection has yet to be made. Spain has earmarked EUR1.5bn of public funding under the NextGen EU recovery program towards green hydrogen through 2023, but to date has not yet identified projects for disbursement. There has also not yet been discussions of a standardized support scheme like a CfD. Any such long-term schemes would need to reassure investors with respect to their overall sustainability, after the retroactive solar FIT cuts in the past, and the current levies on renewable generators to prevent "windfall profits" from rising wholesale prices².

Strong domestic industrial base

Spain today uses 500kt of hydrogen per year in industrial applications – primarily 71% in refining and 25% in fertiliser production -- and Spain's hydrogen

roadmap targets 25% of all hydrogen consumption to be renewable by 2030. The country also hosts a substantial steel manufacturing base (4th largest in EU): as an early mover, ArcelorMittal signed an MoU in July 2021 with the Spanish Government that will see EUR1bn investment to convert its Gijón plant to DRI-EAF process, targeting zero emissions.

Heavy transport decarbonization

Spain has one of the largest transportation sectors in Europe – the 2nd highest container port traffic, 3rd highest air traffic, and 2nd highest freight volumes. If the proposed REDIII draft is adopted, 26% of all energy use in its transportation sector must be renewable by 2030. Iberdrola is planning the Y Basque Green Hydrogen Initiative that will build three green hydrogen plants for a transport corridor connecting the logistical centres of Vitoria/Júndiz, Bilbao and Pasaia.

Strong project pipeline

Spain has a number of ambitious projects under development pending funding, such as: Endesa's EUR2.9bn portfolio of 340MW electrolyzers plus 2GW of renewable energy; an alliance between Iberdrola and Fertiberia to build 800MW of green hydrogen capacity over seven years for ammonia production (20MW electrolyser/100MW PV pilot already in construction); plans to deploy a fully functioning hydrogen ecosystem in Mallorca to turn the island into the first hydrogen hub in Southern Europe. Cummins has also partnered up with Iberdrola to build a 500MW PEM electrolyser manufacturing plant.