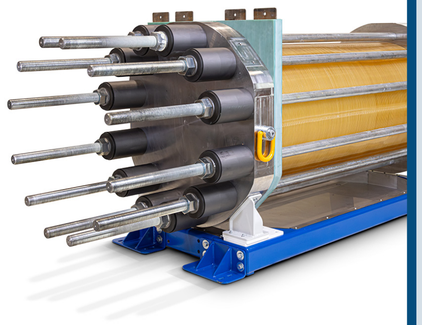
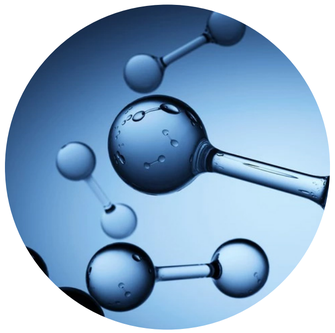
stargate hydrogen



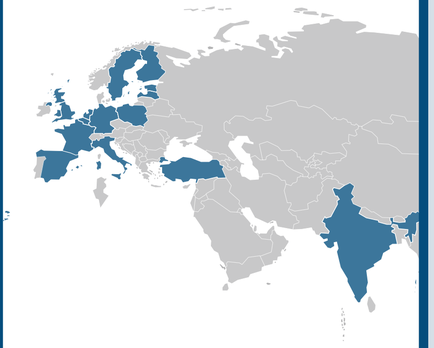
Stacks

Electrolysers

Projects



Innovation



Presence

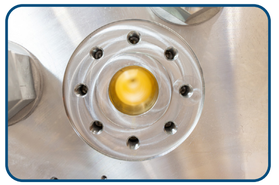
stellar
SERIES

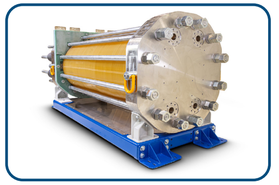
Next Generation alkaline electrolyser stacks

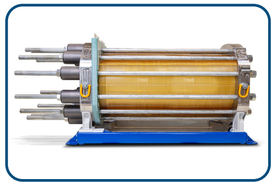
Pressurised alkaline stacks for system integrators

Specification sheet >

stargate hydrogen







Performance guarantee

Integration support

Fast delivery

Up to 100 Nm3/h

High Efficiency

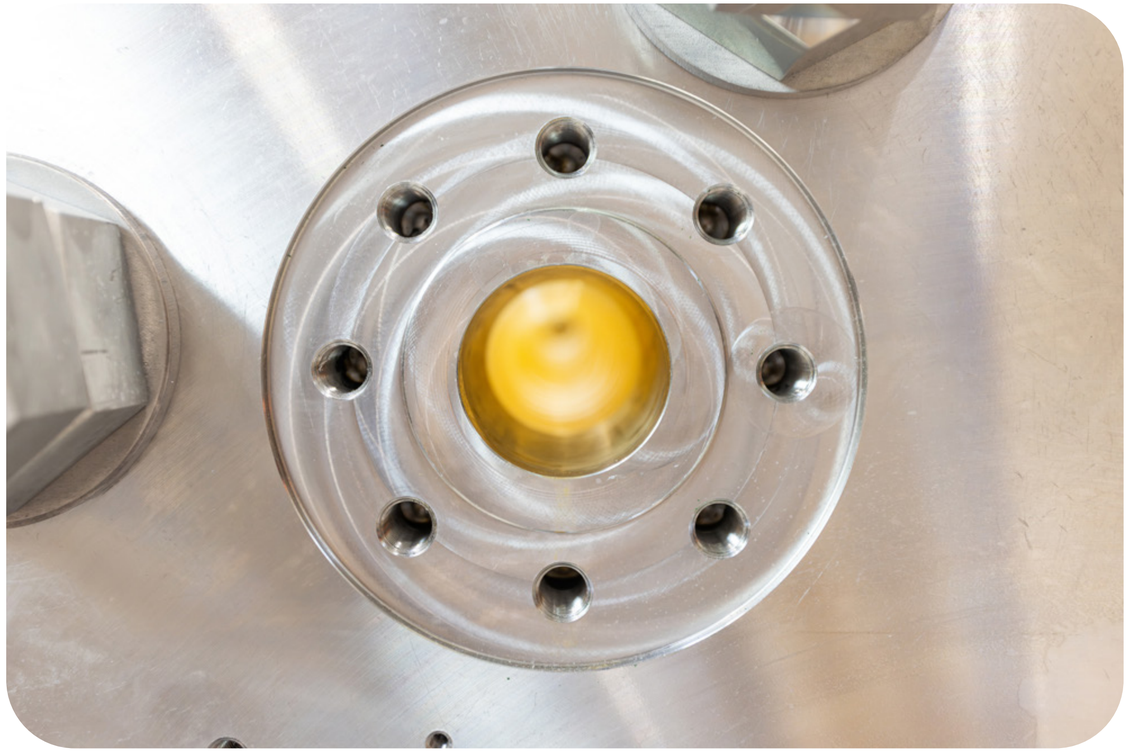
stellar
SERIES

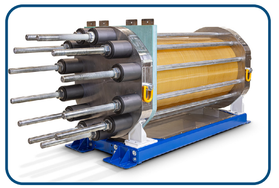
Next Generation alkaline electrolyser stacks

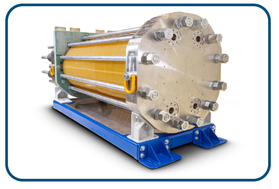
Pressurised alkaline stacks for system integrators

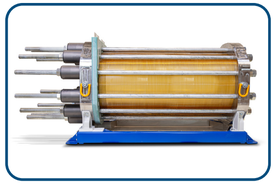
Specification sheet >

stargate hydrogen









Performance guarantee

Integration support

Fast delivery

Up to 100 Nm3/h

High Efficiency

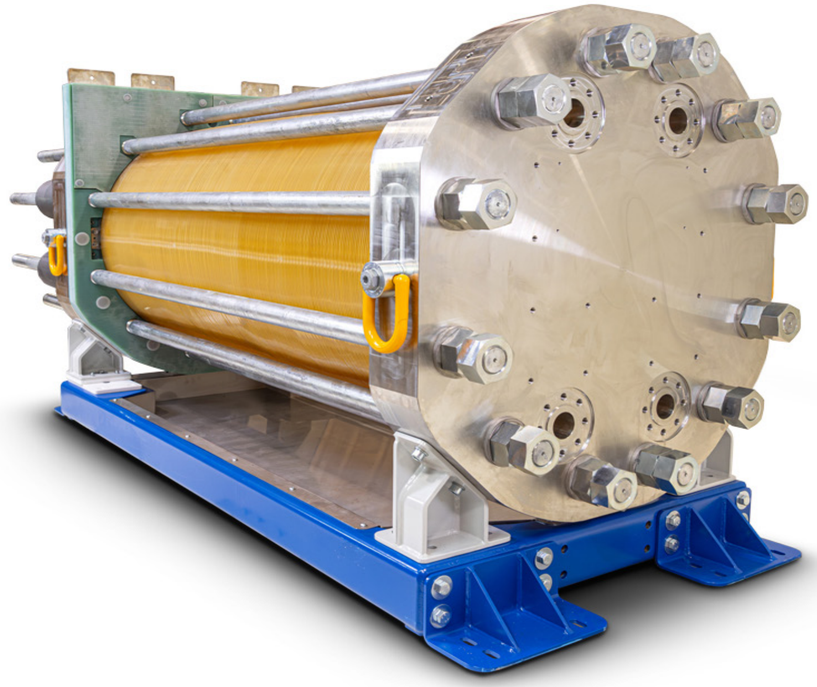
stellar
SERIES

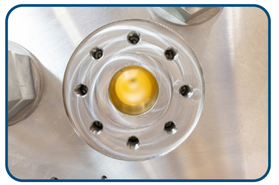
Next Generation alkaline electrolyser stacks

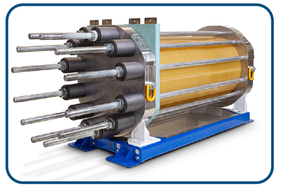
Pressurised alkaline stacks for system integrators

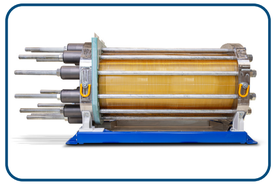
Specification sheet >

stargate hydrogen









Performance guarantee

Integration support

Fast delivery

Up to 100 Nm3/h

High Efficiency

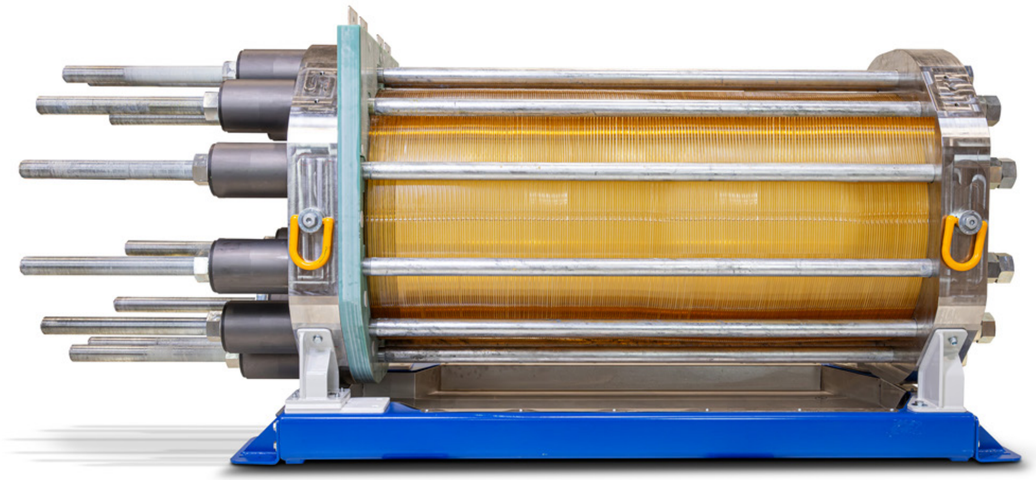
stellar
SERIES

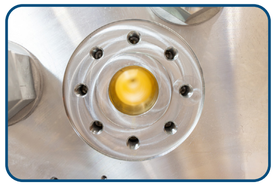
Next Generation alkaline electrolyser stacks

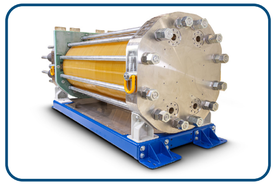
Pressurised alkaline stacks for system integrators

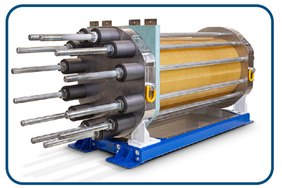
Specification sheet >

stargate hydrogen









Performance guarantee

Integration support

Fast delivery

Up to 100 Nm3/h

High Efficiency

stellar
SERIES

Technical specifications

Hydrogen hourly production rate [Nm^3/h]	100
Hydrogen daily production rate [kg/day]	215
Hydrogen pressure [barg]	32
Hydrogen purity [%] **	>98%
Oxygen purity [%] **	>98%
Stack Consumption [kWh/Nm^3]	4.59
Stack Consumption [kWh/kg]	51.07
Stack Operating temperature [°C]	80-90
Stack rated voltage - BOL [V]	227
Stack rated voltage - EOL [V]	264
Stack rated current [A]	2027
Stack minimum current [A] *	1150
Stack rated power - BOL [kW]	460
Stack rated power - EOL [kW]	535
Stack minimum operating point [%] *	55%
Stack efficiency (HHV) [%]	77.2%
Stack efficiency (LHV) [%]	65.2%

* Lower minimum load point on request.

** Crossover purity (wet) at stack outlet given that all operational conditions for the stack are maintained within their respective limits.

The final dry hydrogen purity depends on the separation and purification systems which are part of the Balance of Plant (not included).

gateway SERIES

Containerised turn-key alkaline

hydrogen production systems

Specification sheet >

stargate hydrogen

Modular system

Fully Automated remote operation

Maintanance support

High purity Hydrogen

RES - Following in dynamic operation

Low CAPEX

gateway
SERIES

Technical specifications

Product	Gateway 200
Hydrogen hourly production rate [Nm^3/h]	200
Hydrogen daily production rate [kg/day]	432
Hydrogen pressure [barg]	30
Hydrogen purity [%] *	> 99.999%
Installed electrical power [MVA]	1.2
Stack consumption [kWh/Nm^3]	4.59
System efficiency (HHV) [%]	69.4%
System efficiency (LHV) [%]	58.7%
Operating range [%]	20-100%
Electrolyte	KOH
Electrical interface	Low-Voltage substation
Tap water requirement [l/h]	328
System installation location	Outdoors (containerized)
Equipment footprint incl. maintenance zones [m^2]	155
Ambient temerature range [°C] **	-20 to +40
Communication interface	OPC UA

* Target purity achievable with optional purification system

** Target temperature range available with optional extra package - Standard: +5 to +40°

stargate hydrogen

Hydrogen Projects

Integration stories

Rockfin

ROCKFIN®

Read more >

Milani

MILANI SPA
IMPIANTI ELETTRICI E TECNOLOGICI

Read more >

stargate hydrogen

Rockfin Case Study

About the project

Rockfin aimed to showcase its electrolyser system capabilities, demonstrate commitment to hydrogen through an unsubsidized project, and contribute to the decarbonization of the industry.

Stargate supported their entrance in the hydrogen market by developing a tailor-made pressurised alkaline electrolyser stack, build to fit Rockfin's balance of plant. Besides the delivery of the stack, Stargate provided integration support from start to finish.

This was the first integration project for both Stargate and Rockfin, the main challenge was to ensure that both companies were aligned on their approach and development methods to implement the Stargate's Stellar stack with the minimum friction.

The result was not only the creation of Rockfin's new product, the Mini Green box, but also the birth of what we now call the ROCKSTAR TEAM, a combination of both companies' names that reflects the amazing synergy between our teams, stretching from project management to engineering.

ROCKFIN®

About Rockfin

Rockfin Sp. z.o.o., a leading Polish engineering firm founded in 1991, operates in over 100 countries with 1,000+ employees, 500 active clients, and 6,200 contracts. Its 20,000 m² facility specializes in designing, manufacturing, testing, and servicing systems for turbines, generators, and compressors. In 2022, Rockfin began integrating alkaline electrolysers, selecting Stargate's stack as the core of its systems.

stargate hydrogen

Milani Case Study

About the project

Milani has got a sound division involved in skid manufacturing for the chemical, oil and gas and pharma industries, with particular expertise in dealing with the generation and purification of technical gases.

It is approaching the green H2 market sector through the production of electrolysers utilizing Stargate's Stack and combining it with advanced system of energy storage and H2 reconversion into electric and thermal energy.

Installation of an operative unit in Milani's HQ has been kicked off in the 2nd half of 2023 and began operations in Spring 2024. It leverages excess energy from photovoltaics to venture into green hydrogen production utilizing Stargate's alkaline stack.

Overview

Milani's project target consists of demonstrating the capabilities of Hydrogen in the building sector, having a full-scale unit that will contribute to decarbonizing the operation of large buildings.

MILANI SPA
IMPIANTI ELETTRICI E TECNOLOGICI

About Milani

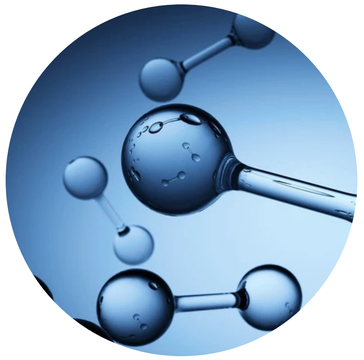
Founded in 1964 as a family company, Milani S.p.A. rapidly broadened its activities realising important projects and transforming the company from a family business into an industrial enterprise, able to equally deal with small private clients and big industrial ones. Located in Osnago, Milani S.p.A. has 800 sqm of office space and a warehouse of 2000 sqm, and is equipped with a photovoltaic system.

stargate hydrogen

Innovation

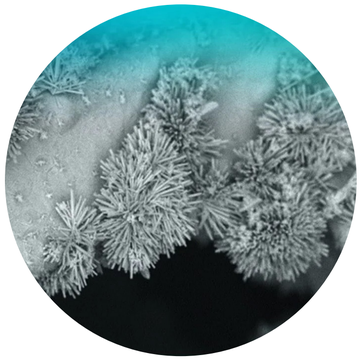
Stargate R&D and demonstration projects

ELECTROLIFE



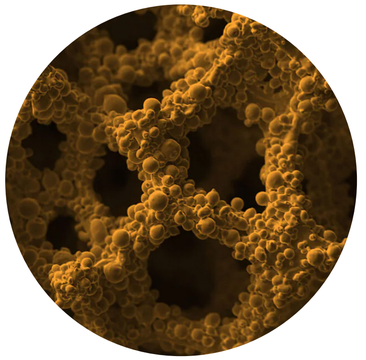
Read more >

ENDURE



Read more >

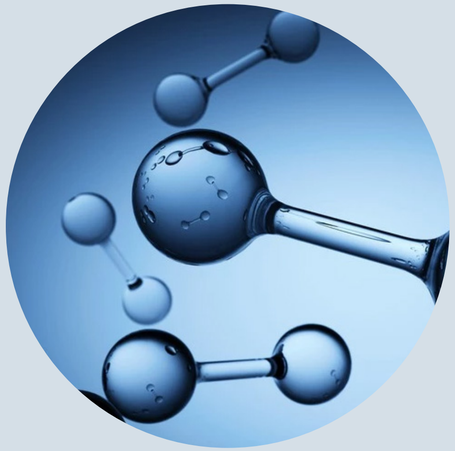
EXSOTHyC



Read more >

stargate hydrogen

ELECTROLIFE



ELECTROLIFE – Enhance knowledge on comprehensive electrolysers degradation technologies towards industrialization – Clean Hydrogen Partnership project

Duration: January 2024 – December 2028

Overview

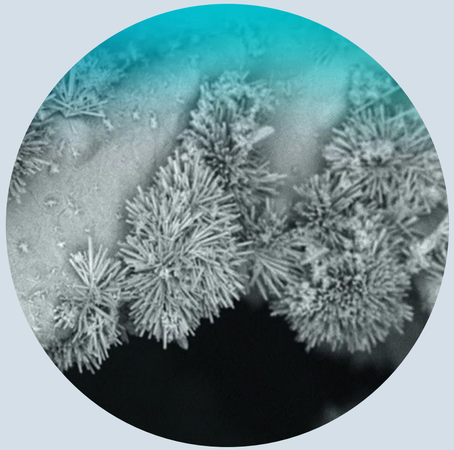
ELECTROLIFE aims to enhance the comprehensive knowledge on degradation mechanisms and improvement of the cell performance to increase the efficiency performance of electrolysers by reducing the use of critical materials and extending the useful life of these systems.

About ELECTROLIFE

The ELECTROLIFE project aims to advance green hydrogen technologies for industrial decarbonization in Europe. Over five years, it seeks to improve electrolyzer efficiency, reduce critical material use, and extend system lifespan by addressing limitations in cost, efficiency, and durability. This will be achieved through degradation analysis, multiphysics simulations, component prototyping, and specialized test benches.

stargate hydrogen

ENDURE



ENDURE – Elevating Alkaline Electrolysers through Enhanced Current Density and Stability – Clean Hydrogen Partnership project

Duration: January 2024 – December 2026

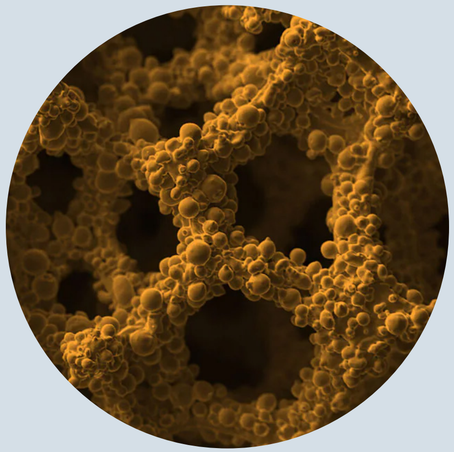
Overview

The main objective of ENDURE is to improve the current density and stability of electrolysers bringing the performance and durability of alkaline electrolysers to a new level. The number of publicly available durability data on alkaline electrolysers is scarce; therefore, the efforts will contribute to enriching the understanding of current density and stability of electrolysers for the scientific community.

The ENDURE project will result in an innovative electrolyser stack design with innovative technological components. ENDURE will yield in higher durability thanks to decreased degradation rate of alkaline electrolysis cells and stacks via electrode improvements, design and material innovation on stack level and via the development of accelerated testing procedures. By the end of the project the sub-components and the short stack of at least 5 cells will be tested, validated and demonstrated at a lab scale.

stargate hydrogen

EXSOTHyC



EXSOTHyC – Exsolution-Based Nanoparticles for the Lowest Cost Green Hydrogen – Clean Hydrogen Partnership project

Duration: January 2024 – December 2026

Overview

The main objective of the EXSOTHYC is to develop and validate a next generation alkaline electrolyser short-stack prototype with a novel cell design containing disruptive sub-components and breakthrough materials to fulfil the future needs of gigawatt-sized storage of renewable energy.

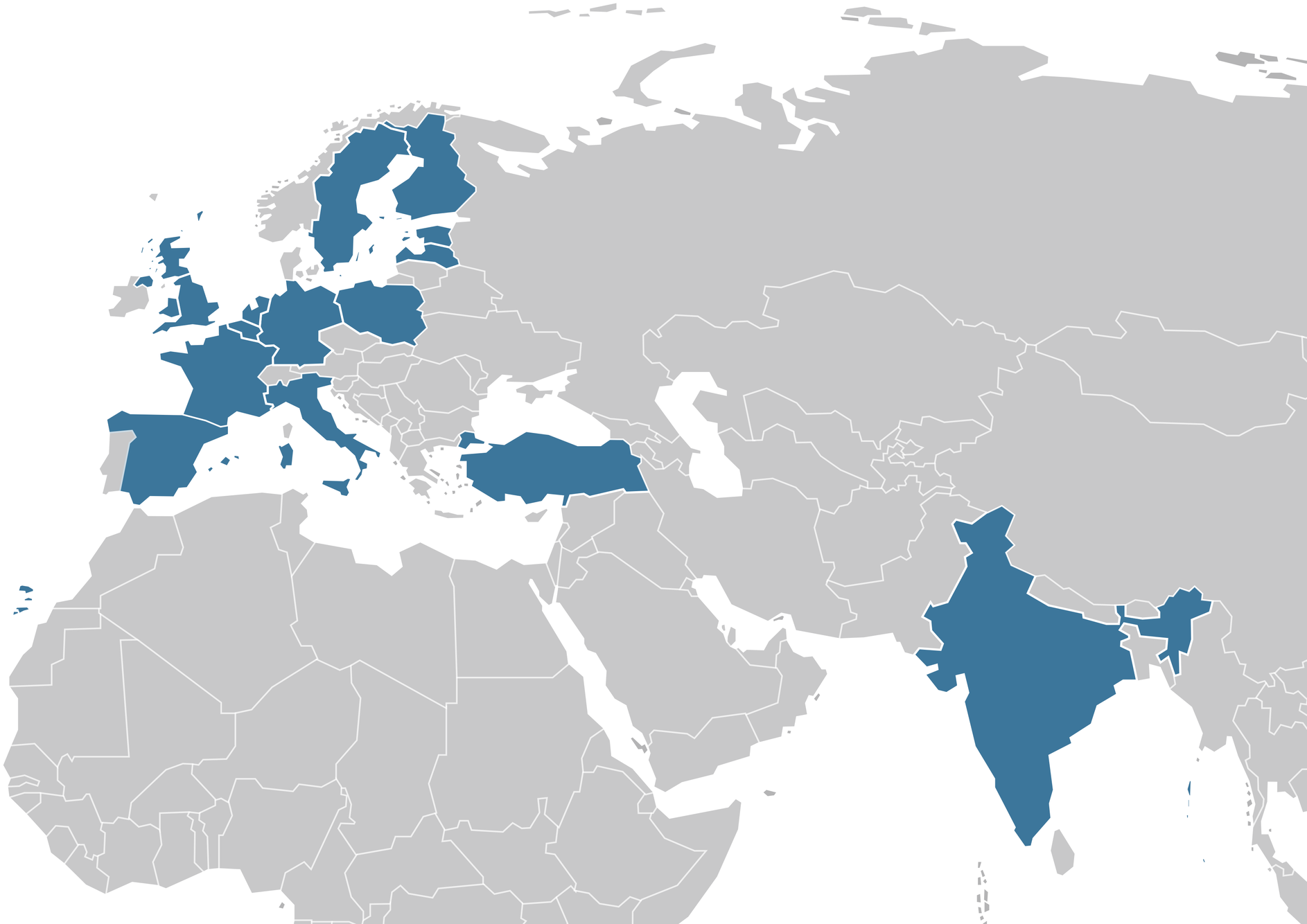
The impact

The development of new catalysts for alkaline electrolysers is a notable achievement, potentially sparking a wave of exploration in similar materials. Additionally, advancements in membrane science and engineering, such as scaling up membrane concepts and challenging longstanding beliefs, promise to stimulate further research and innovation.

The project aims to enhance EU competitiveness by fostering a European value chain for hydrogen systems. This involves creating new materials, catalysts, and production methods that can be applied beyond hydrogen technology, thus driving innovation and potentially reducing the cost of producing green hydrogen, ultimately fostering the growth of the renewable energy sector and creating job opportunities.

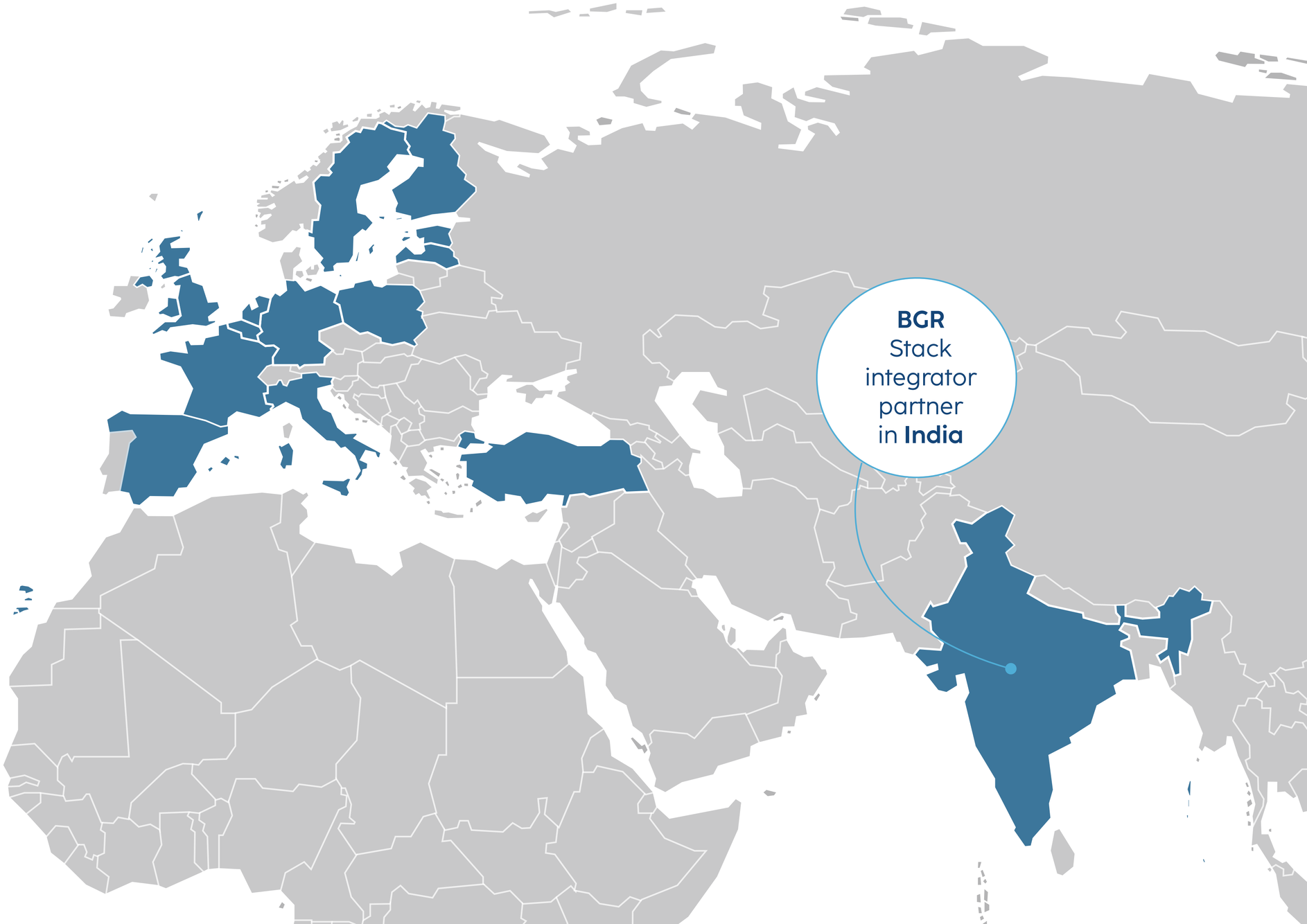
stargate hydrogen

Presence



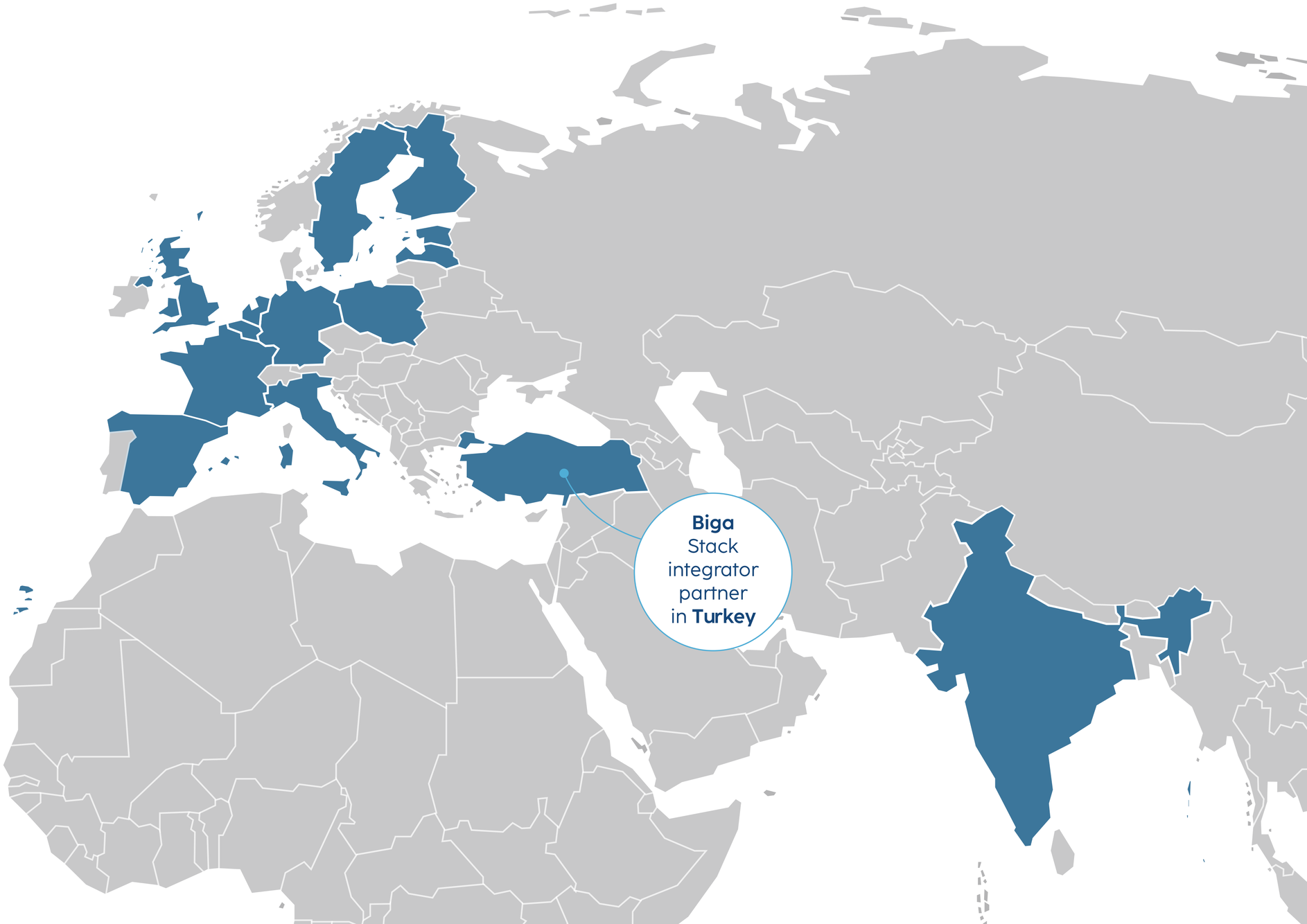
stargate hydrogen

Presence



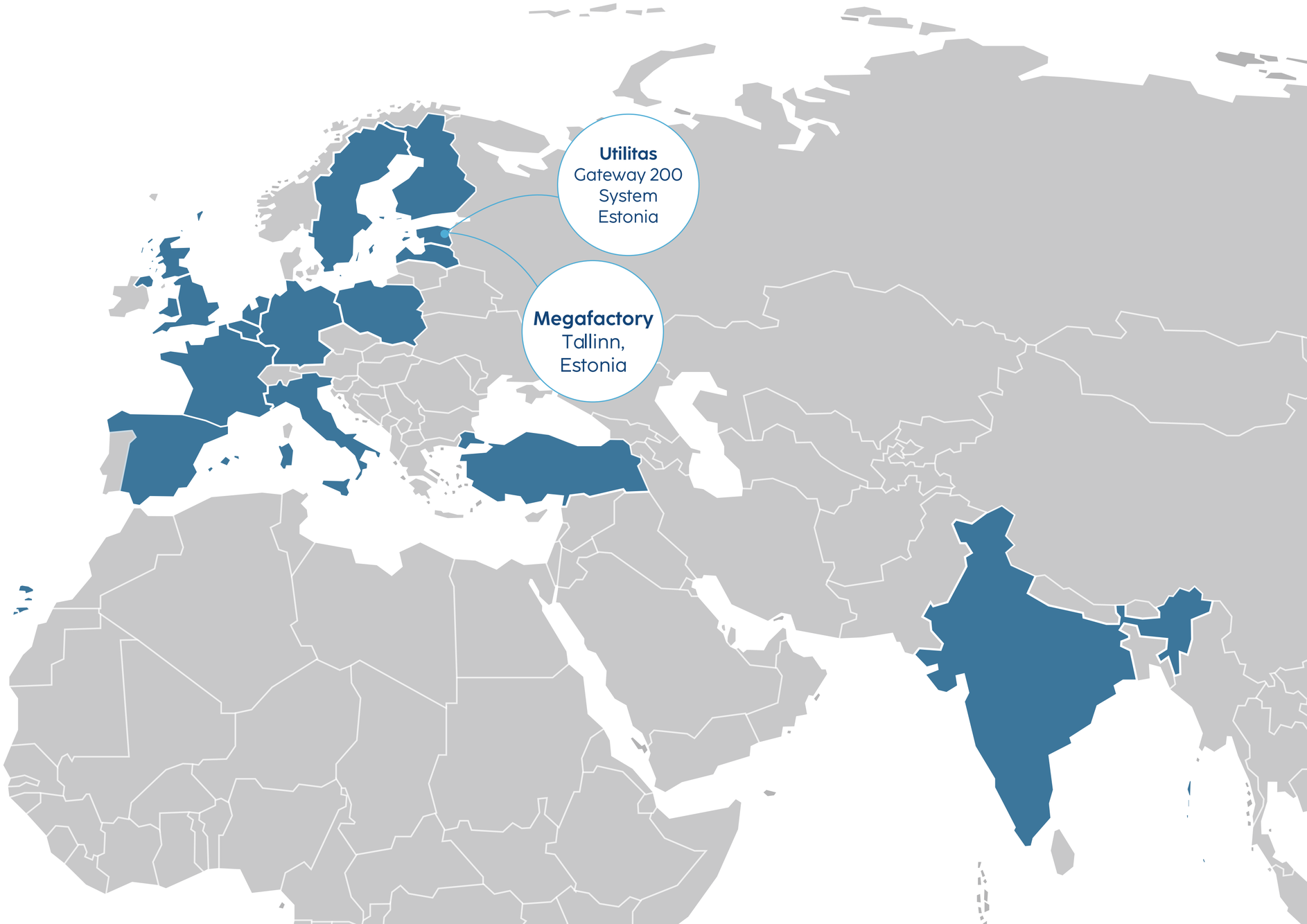
stargate hydrogen

Presence



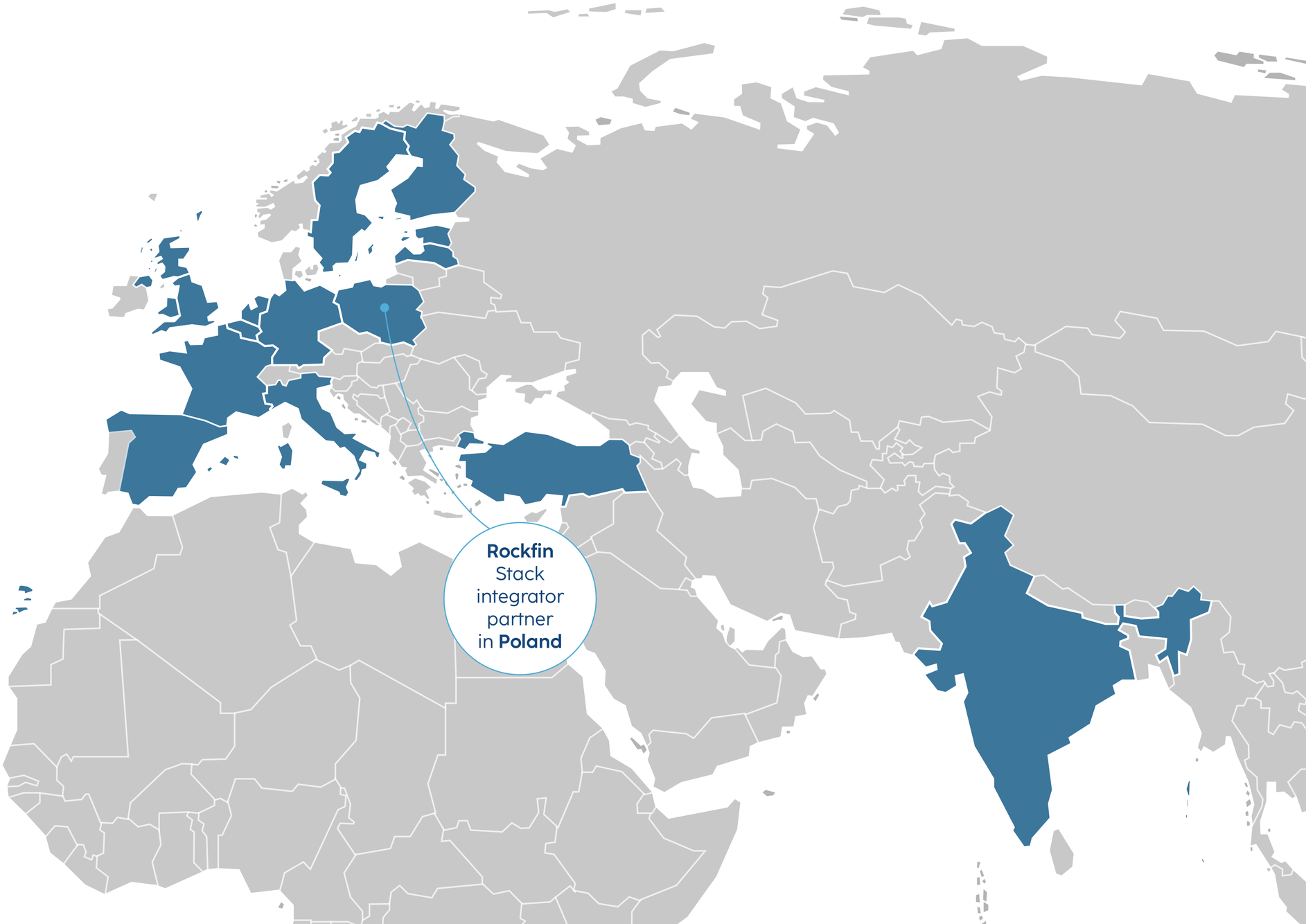
stargate hydrogen

Presence



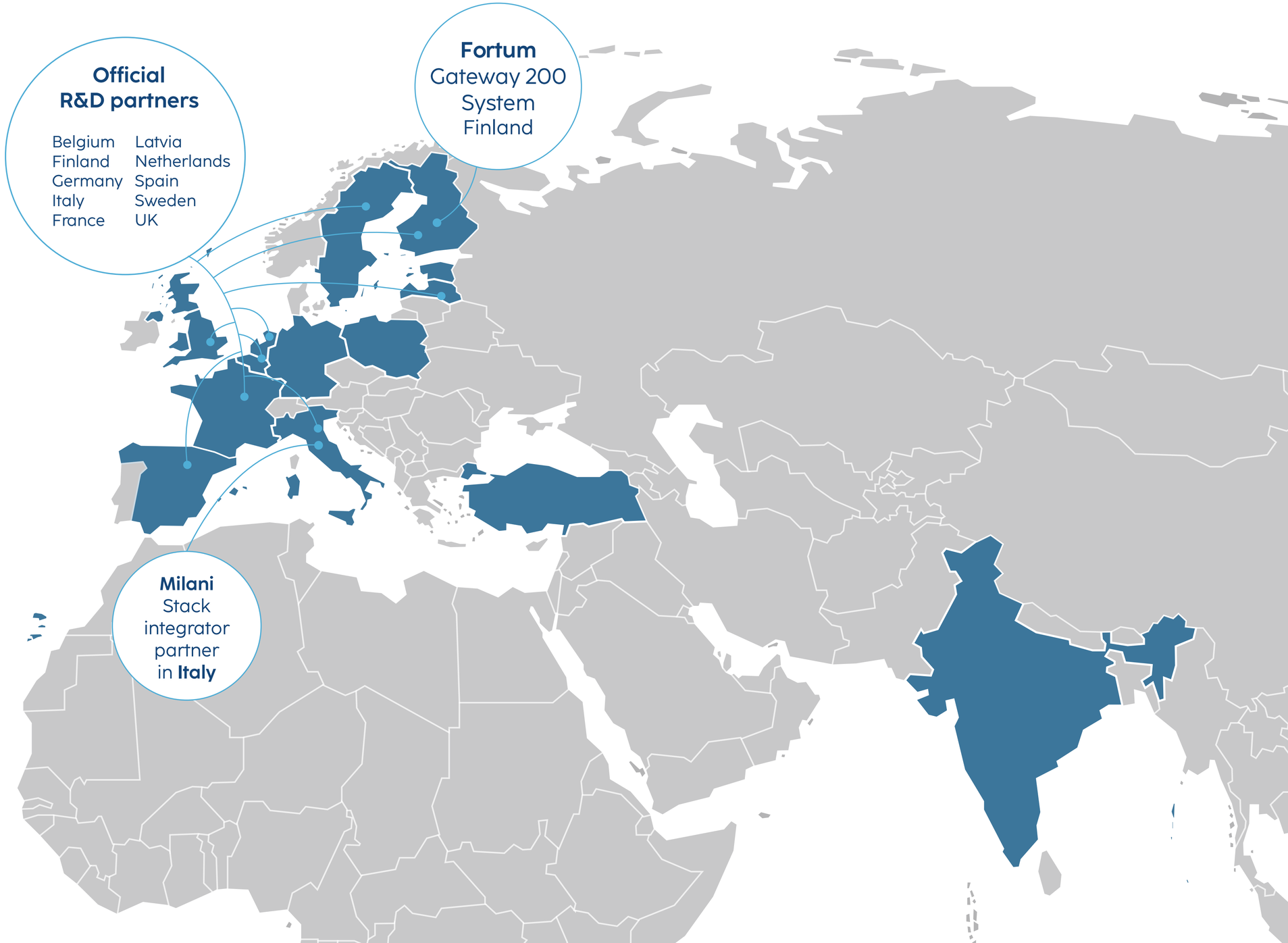
stargate hydrogen

Presence



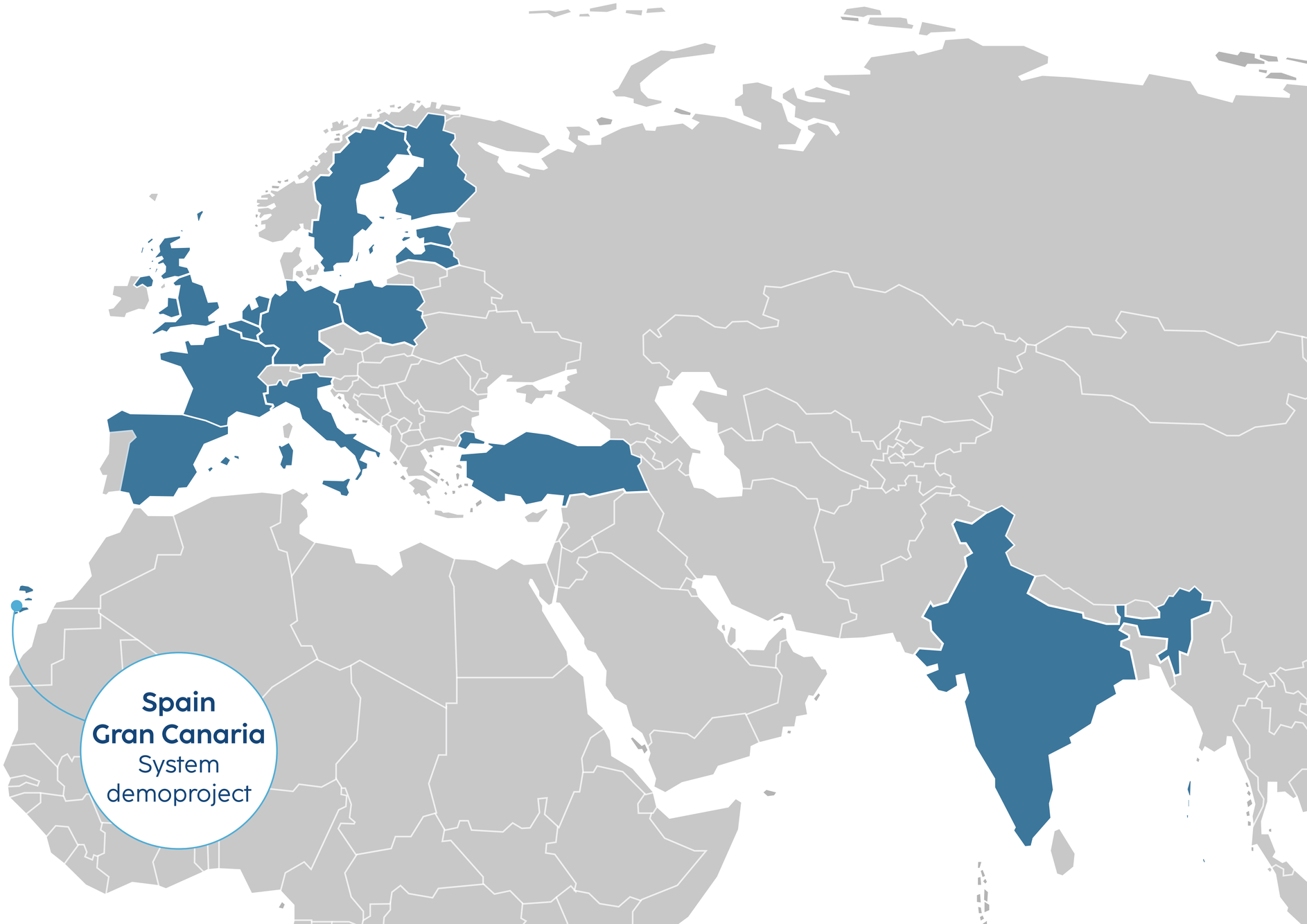
stargate hydrogen

Presence



stargate hydrogen

Presence



stargate hydrogen

Presence