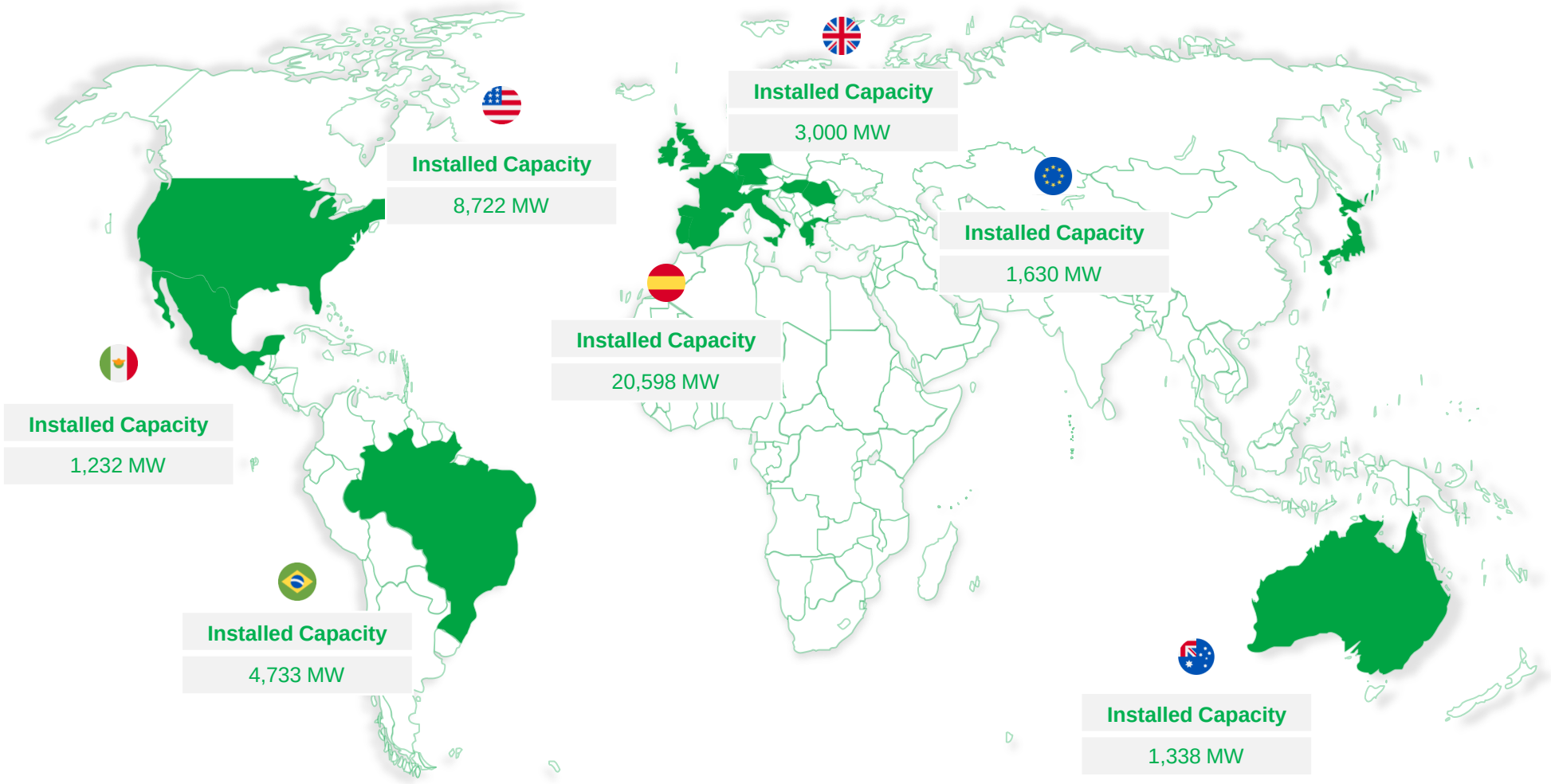
Green Hydrogen

ScottishPower

Leaders in the energy transition

Mark Griffin
Head of Hydrogen Market Development

Iberdrola: World Leader on Renewable Energy



Onshore Wind	
Installed Capacity	Pipeline 2025
20.57 GW	3.1 GW

Solar PV	
Installed Capacity	Pipeline 2025
4.99 GW	6.3 GW

Offshore Wind	
Installed Capacity	Pipeline 2025
1.37 GW	1.8 GW

Hydro	
Installed Capacity	Pipeline 2025
14.1 GW	0.2 GW

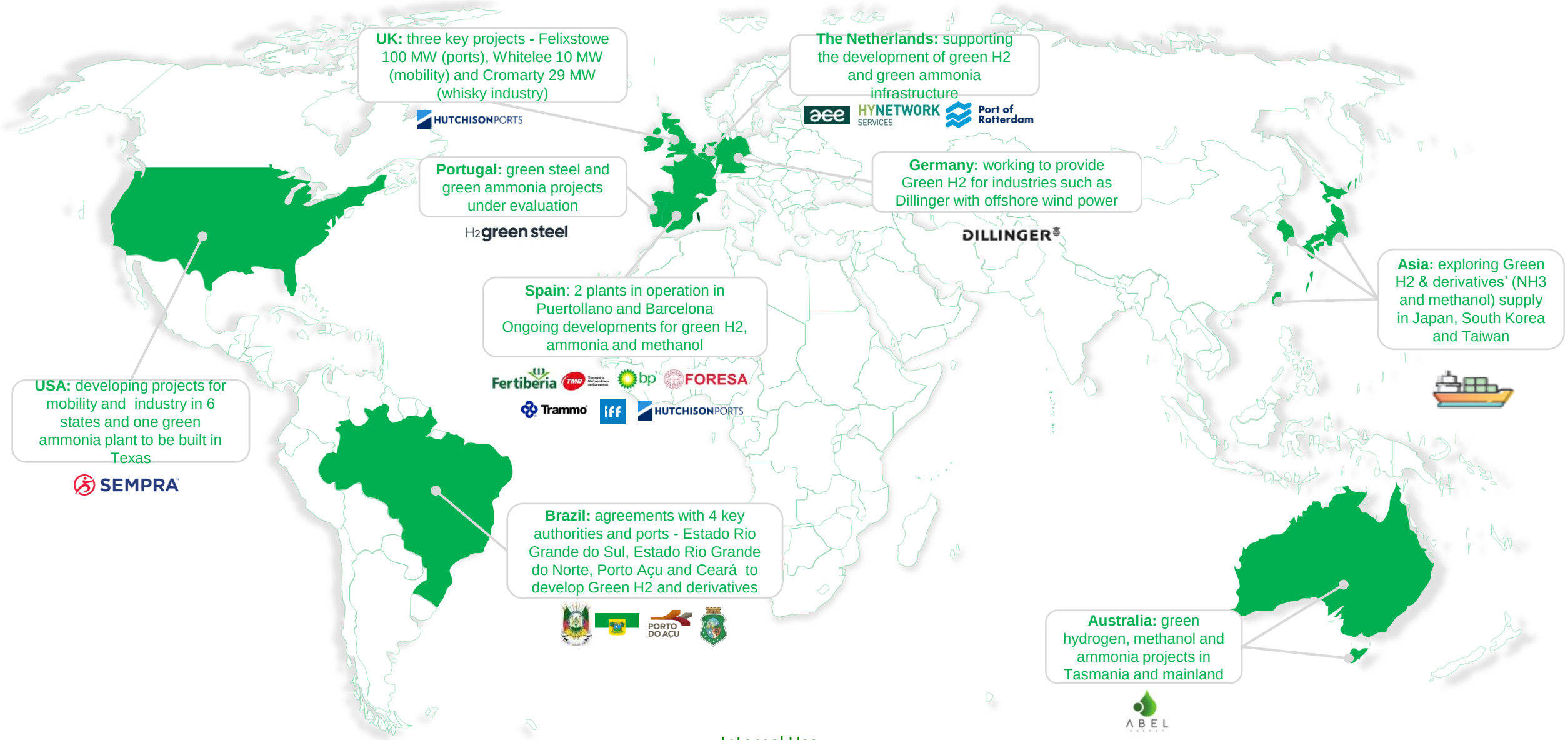
Batteries	
Installed Capacity	Pipeline 2025
0.2 GW	0.7 GW

A diversified portfolio of +41 GW (wind, solar, hydro…)

Data as of 31st Mar 2023

60 Projects Under Development in 8 Countries

ScottishPower | H2 Green Hydrogen



Our hydrogen vision

By 2030, we will be the ‘go-to’ producer of green hydrogen in the UK.

“We will inspire organisations **to fight climate change** by reducing their carbon impact, through using zero carbon electricity and green hydrogen where appropriate.

We will do this by leveraging the scale, complementary teams, and top talent of our global company to **secure a competitive advantage**.

To mark our journey, we will create and build two projects by 2026, which will provide the **strategic learning for our mission to 2030**, and beyond. ”

Why Hydrogen?

The green fuel of the future

- Hydrogen is needed to be used where electrification is not possible or suitable.
- A sustainable replacement for natural gas in high heat industries.
- Green hydrogen creates an opportunity for large scale industry decarbonisation.
- **Growth** in electricity demand, renewables and grid results from green hydrogen growth.

ScottishPower Green Hydrogen

Who are ScottishPower?

The first UK utility to generate 100% renewable energy.

Powering hundreds of thousands of homes every year we now look to harness the power of green hydrogen to decarbonise industries where electrification is extremely difficult or not possible.

Backed by International Experience

Working alongside our global colleagues.

With a pipeline of over 50 projects and experience in successful planning, delivery, and operation, Iberdrola's knowledge and input is extremely valuable.

Driven to lead

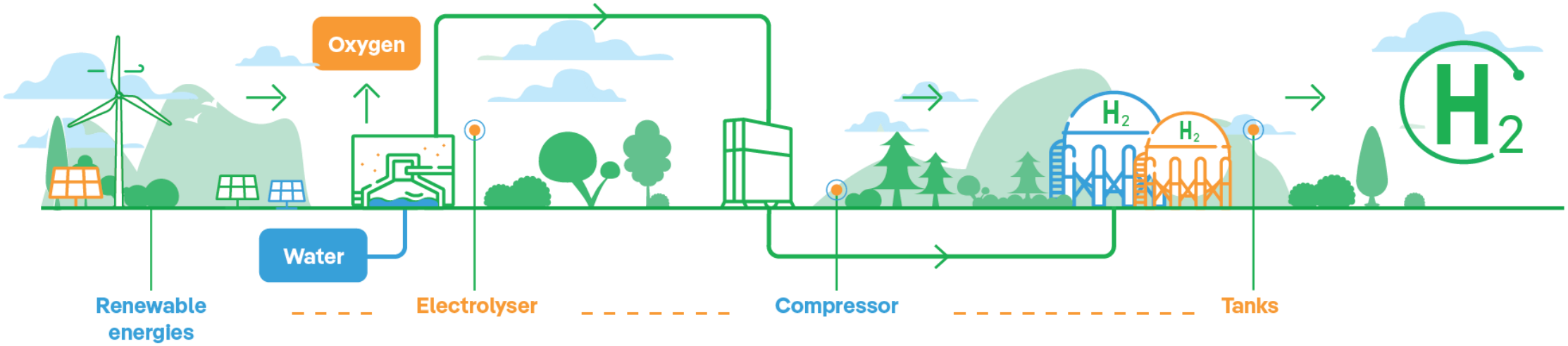
At the forefront of the UK Green Hydrogen Industry.

We are determined to lead the UK in the production of Green Hydrogen and the decarbonisation of key industries. The green hydrogen industry is in a key development stage where it has the potential to become a fuel of the future. We aim to pave the way for that future to become reality.

Hydrogen production overview

100% carbon-emission-free production and consumption:

Renewable energy production → H2 production in electrolyser → H2 storage and compression → Export and consumption by customer



Approach to hydrogen production

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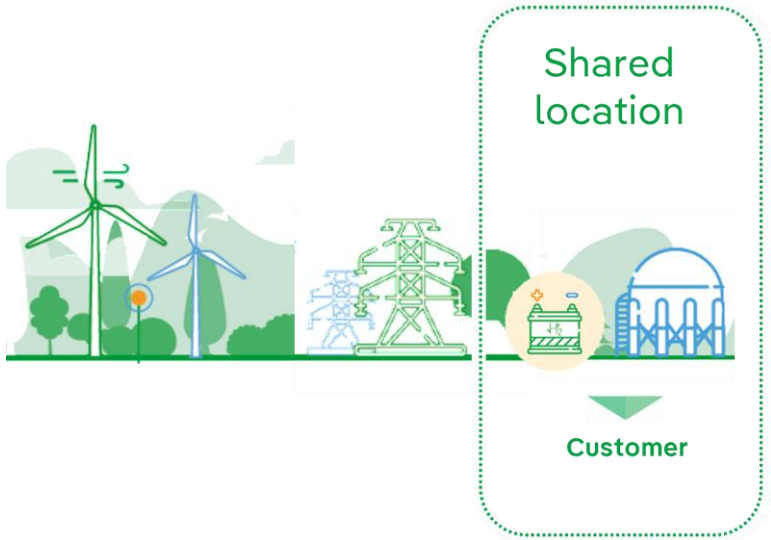
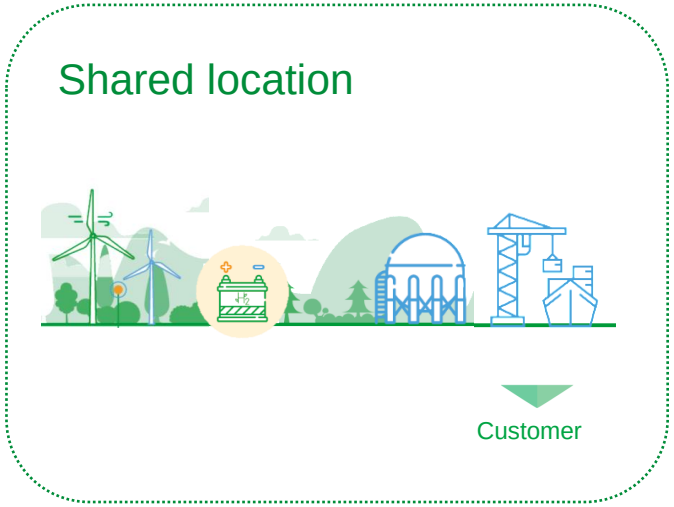
Three main options for hydrogen production:

Hydrogen co-located with customer - backed by SP renewable generation supplied through the electricity network



Hydrogen production co-located with renewables – hydrogen transported by lorry or pipeline to customer

Demand, renewable generation, hydrogen production, and customer co-located.



‘Hub & Spoke’ Model

Delivery by road makes sense over shorter distances

The global hydrogen roadmap

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Iberdrola is developing projects in all sectors that are difficult to decarbonize

Raw material for Industry

- Fertilisers
- Refinery
- Chemical industry

Heavy transport

- Railroad
- Heavy goods transportation
- Metropolitan transportation
- Ports and airports

Thermo-intensive Industry

- Steel
- Ceramic
- Others

ScottishPower is developing projects to decarbonize key industries

Distilling

Glass and Bottle Manufacture

Port Operations

Whitelee hydrogen development

Why Whitelee?

Operational
2027

Creating the Whitelee Renewable Energy Development.

Once complete, Whitelee will be home to wind, solar, BESS and green hydrogen forming a renewable energy generation hub.

The area will support vast levels of renewable energy generation powering homes and industries right across the UK. It will become the first of its kind with 3 kinds of renewable energy sources as well as battery storage all within the same development.

The green hydrogen produced at Whitelee will be co-located with a new 40MW Solar Farm, being developed by SPR, and will be used by distilleries across the west coast of Scotland with the potential for wider use.

Project Facts and Figures

Capacity
10MW Green Hydrogen

Electrolyser Type
PEM (Polymer Exchange Membrane)

Ownership
This project is wholly owned by ScottishPower

Energy supply
245MW supply from Whitelee WindFarm and 40MW Solar Farm

Offtake
Scottish distilling industry, Railway operator(s)

Water
Scottish Water Mains pipe

Cromarty hydrogen development

Why Cromarty?

Operational
2027

Working alongside Storegga to harness the power of Beinn Tharsuinn.

Bringing green hydrogen to the north of Scotland. Cromarty hydrogen development will bring forward the opportunity for northern distilleries to decarbonise their operations and take a step towards carbon neutrality.

A phased development, once fully complete, Cromarty could be home to 100MW of green hydrogen production making it one of the largest in the UK.

Its location next to Beinn Tharsuinn Windfarm provides the perfect location to receive direct power input from the windfarm topped up with time correlated renewable energy from the national grid.

Project Facts and Figures

Capacity
15MW Green Hydrogen

Energy supply
29MW supply from Beinn Tharsuinn Windfarm

Electrolyser Type
PEM (Polymer Exchange Membrane)

Offtake
Scottish distilling industry

Partnership
Developed in partnership with Storegga

Water

Water pipeline or borehole with water truck delivery

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Interested in a green hydrogen solution for your business?

Find out more on our website.