Scottish Government Hydrogen Policy Priorities



















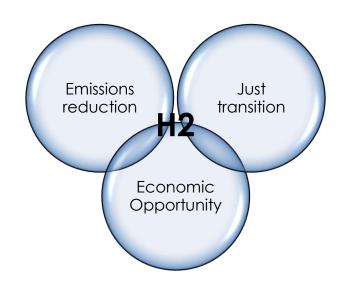




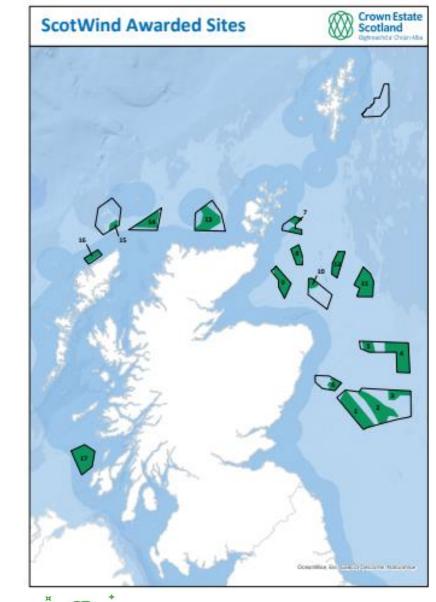




Why hydrogen and why Scotland?



- ✓ Abundant natural resources
- ✓ Experienced energy exporter
- ✓ Skilled energy supply chain
- ✓ Research and innovation expertise
- ✓ Supportive policy environment

























Learning by doing

End User

- 01 Aberdeen Exhibition and Conference Centre (AECC)
- 02 Cloverhill's Aberdeen Hydrogen First
- 03 Eden Mill distillery
- 04 Glasgow Hydrogen Gritters
- 05 H2SEED Stornoway Hydrogen Refueller
- 06 HECTOR project
- 07 HyDIME
- 08 HyFlyer
- 09 HySeas III
- 10 HySpirits
- 11 HyTransit Project Aberdeen Hydrogen Busses
- 12 Hytrec
- 13 JIVE 2 Dundee Hydrogen Transport
- 14 Kirkwall Airport Decarbonisation
- 15 LOHC feasibility project
- 16 Project HyLaddie
- 17 Scottish Hydrogen Train project
- 18 TimberLINK
- 19 Uist Distilling Company

Multi-vector

- 20 Aberdeen Hydrogen Hub
- 21 Aberdeen Vision
- 22 BIG HIT
- 23 East Neuk Power to Hydrogen
- 24 GENCOMM AD
- 25 Green Hydrogen Hub for Isle of Lewis
- 26 ITEG Integrating Tidal Energy into the European Grid
- 27 Levenmouth Community Project
- 28 Methiltounne
- 29 North of Scotland Hydrogen Programme
- 30 OHLEH Outer Hebrides Local Energy Hub
- 31 Orion Project
- 32 PITCHES

- 33 ReFLEX (Responsive Flexibility) Project
- 34 The Hydrogen Office
- 35 The PURE Project

Production

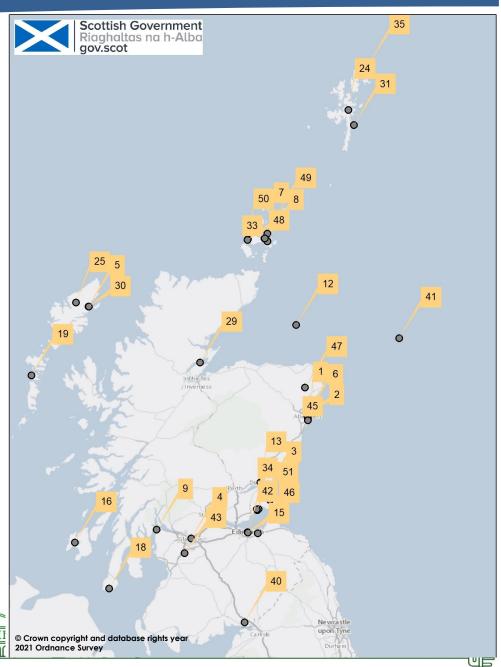
- 36 Aberdeen Hydrogen Centre (ACHES)
- 37 Acorn CCS
- 38 Acorn Hydrogen
- 39 Caledonia Clean Energy Project
- 40 Chapelcross Initiative
- 41 Dolphyn Project
- 42 Edinburgh International Festival
- decarbonisation project
- 43 Green Hydrogen for Glasgow
- 44 Hammars Hill Green Ammonia project
- 45 Kittybrewster Refuelling Station
- 46 Logan Energy HRS
- 47 Skelmonae Green Hydrogen
- 48 Surf 'n' Turf

Storage

49 Eday Flow Cell Battery Project 50 HyAl

Transmission/distribution

51 H100 Fife project



















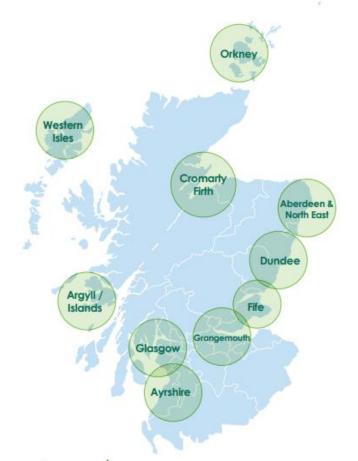




Regional Approach to scaling up

The Scottish Government has committed to support for the development of Regional Hydrogen Energy Hubs

A **Regional Hydrogen Energy Hub** is a geographic location (region, city, island, industrial cluster) that is host to the entire hydrogen value chain, from production, storage and distribution to end-use. Regional Hydrogen Hubs will include multiple endusers with applications ideally covering more than one sector.























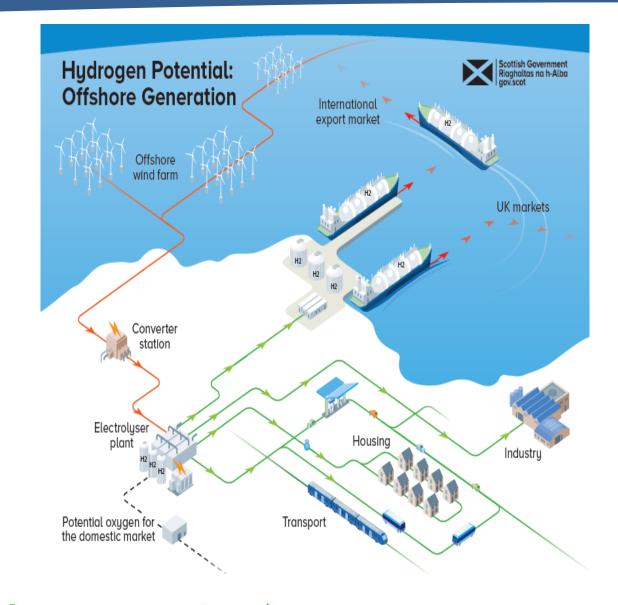




Policy Background

Hydrogen Assessment Project Hydrogen Policy Statement Draft Hydrogen Action Plan

- Scotland's abundant offshore wind resources offer the potential for large scale production of renewable hydrogen
- Hydrogen is not just an energy and emissions reduction opportunity, it could also have an important role in generating new economic opportunities in Scotland
- Both renewable and low-carbon hydrogen will play an important role in our transition to net zero in 2045
- Ambition of 5GW installed hydrogen production capacity by 2030 and 25GW by 2045

























- Companion document to Hydrogen Policy Statement
- Defines some of the key, short-term actions necessary to achieve aims, ambitions and commitments
- Commitment to working in partnership

The Hydrogen Economy Journey

1-20MW - scale co-located with demand (2021-23)

electrolyser projects NZHF launched (early 2022) Continued use of hydrogen

in transport trials and

demonstrator projects

Scotland's EETF fund and UK's UK hydrogen business model finalised (2022)

UK Low-carbon hydrogen standard finalised (2022)

UK Government's decision on blending up to 20% hydrogen in the gas network (2022-23)

Early 2020s

MoU agreements with international partners secured to support information sharing on hydrogen technologies, production and explore the foundations for possible export markets

Scotland's first Hydrogen Energy Hub is operational: Hub (2023)

Framework for a Scottish network of hydrogen multimodal refuelling stations Aberdeen Hydrogen to support the adoption of hydrogen vehicles across all appropriate modes of transport

Consortium established for hydrogen in Scottish transport

H100 Fife - world's first 100% hydrogen aas network operational

Crown Estate Scotland awards 10GW of ScotWind projects in 2022 - a potential catalyst for hydrogen production as many applicants have outlined their intention to incorporate aspects of hydrogen production into their development plans

Commence industry/ public sector-funded studies explorina hydrogen export opportunities between Scotland and German regions (2021)

Explore the use of hydrogen to assist the integration of renewables on the grid and address the issues of intermittency and explore the potential for hydrogen to be deployed in an energy storage role

Scotwind 2 planning and leasing process

Deep analysis report of site requirements for early renewable and low-carbon hydrogen production plants and hubs in Scotland completed in Q1 2022

Net Zero Technology Centre Transition Programme and the Hydrogen backbone Link project commences (2021)

Assessment of advantageous locations for hydrogen electrolysis to reduce electricity constraints and deliver maximum value (2022)

Innovation and Targeted Oil and Gas Decarbonisation (INTOG) (4GW) offshore leasing round projects in construction and operation

Renewable hydrogen production, linked to onshore wind. increasing in scale

Hydrogen used by industry and some transport applications and domestic heat trial in H100 Fife

A number of Regional Hydrogen Hubs now in development - FEED

Mid 2020























Scale up hydrogen production



Strengthen research and innovation



Facilitate development of domestic market



Establish and strengthen international **** partnerships and markets

5GW by 2030 25GW by 2045

Maximise benefits of integration into energy system



Enable growth and transition of supply chain and workforce































Key Commitments

- ☐ Ensure the regulatory, planning and consenting framework for renewable energy and hydrogen developments supports the scale-up of hydrogen production at pace
- □ Strengthen existing relationships and develop new bilateral partnerships to encourage collaboration and knowledge sharing to advance our mutual hydrogen economies.
- Work with industry to develop a sector export plan
- Support development of domestic and international supply chains
 - Scot2Ger project
 - Supply chain event
- Support the development of hydrogen infrastructure and transport options to connect Scotland to European customers.
 - NZTC Hydrogen Backbone link
- □ Support multi-national collaboration on research and innovation challenges.
 - RSE Scotland-Germany Hydrogen Research Scheme























Funding Programme

- £100m Emerging Energy Technologies Fund to support renewable hydrogen projects (Complementary to UK Gov Net Zero H2 fund)
- £10m Scottish Hydrogen Innovation Fund
- A call for projects will be launched in later in 2022

Funds	Target Group	£
Emerging Energy Technologies Fund (Hydrogen/CCUS/NETs)	Business/Industry	£180m (2021-26)
(11) alogoti (1200) (1210)		£180m breakdown: £100m hydrogen £80m CCUS/NETS
Energy Transition Fund	Business	£62m (2020-25)
Energy Investment Fund	Third Sector	£60m
Community & Renewable Energy Scheme (CARES)	Community/Third Sector	£8.25m (2021-22)
Successor to the Low-Carbon Infrastructure Transition Programme (LCITP)	Public and Private Sector	£400m (2021-26)
Low-Carbon Manufacturing Challenge Fund	Business	£50m
Scottish Industrial Energy Transition Fund (SIETF)	Business/Industry	£34m (2021-26)
Green Supply Chain Development Fund	Business	£50
Green Jobs Fund	Enterprise Agencies	£100m (2021-26)
Green Business Support Fund	Business	£50m
Green Growth Accelerator Programme – unlocking £200 million of public and private investment in low-carbon infrastructure projects across Scotland, underpinned by Scottish Government funding.	Local Authorities	£200m +
Switched-On Fleets	Public Sector	£12m
Scottish Zero Emission Bus Challenge Fund – support for the cost of zero-emission buses and the associated charging or refuelling infrastructure.	Public and Private sector	£50m























Policy Documents and Guidance

The Draft Hydrogen Action Plan can be viewed here: https://www.gov.scot/publications/draft-hydrogen-action-plan/

The Hydrogen Policy Statement can be viewed at: https://www.gov.scot/isbn/9781800045033

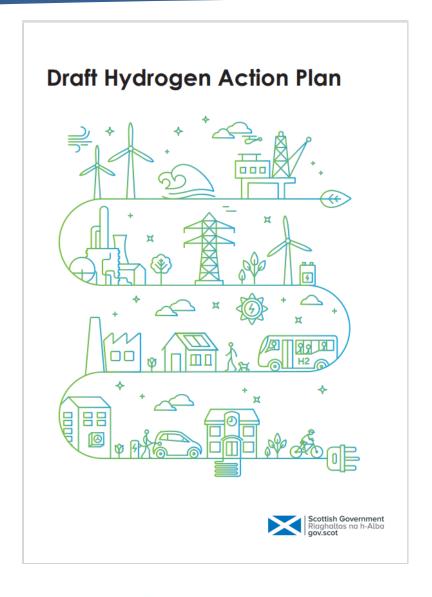
The Hydrogen Assessment report can be viewed at: https://www.gov.scot/isbn/9781800045057

The Wind to Green Hydrogen Supply Chain Study can be viewed at:

https://www.gov.scot/isbn/9781800045040

The Deep Decarbonisation report can be viewed at:

https://www.gov.scot/isbn/978180004411



























Thank you

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