

Picture Descriptors

Hydrogen Development in Wales

Baselining Report into hydrogen activities and expertise in Wales

Descriptors

Figure 1: Overview of hydrogen activities and expertise in Wales

Ferry links from Wales to Ireland, with hydrogen opportunities at the port and hydrogen mobility potential from the transport links



Links from Wales to hydrogen initiatives in the North West of England, including HyNet and Net Zero North West

Inter-connector from Ireland and opportunities to import renewable energy, as well as offshore renewables for green hydrogen production

Links across the Severn and the Western Gateway powerhouse, connecting Wales with hydrogen activities in Bristol and Swindon.

KEY

Existing hydrogen projects		Planned hydrogen projects	
Other projects of interest to hydrogen		Potential hydrogen commercial interest (manufacturing)	
Potential hydrogen electricity generation interest (power plants)		Potential / current hydrogen vehicle manufacturing / integration interest	
Potential hydrogen aviation / aerospace interest		Potential hydrogen interest (petroleum refineries)	
Hydrogen research facilities		Merchant hydrogen production sites	
Private hydrogen production sites			

Map Points

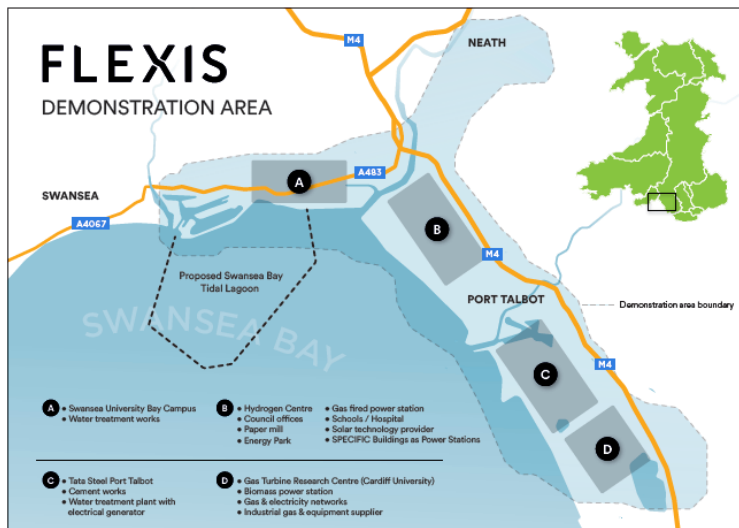
Irish Sea
 Holyhead
 Anglesey
 Colwyn Bay
 Rhyl
 Liverpool
 Chester
 Wrexham
 Snowdonia National Park
 Oswestry
 Shrewsbury
 Shropshire Hills AONB
 Cardigan
 Hereford
 Fishguard
 Carmarthen
 Brecon Beacons National Park
 Monmouth
 Pembrokeshire Coast National Park
 Milford Haven
 Pembroke Dock
 Tenby

Swansea
 Bridgend
 Cardiff
 Newport
 Bristol
 Bristol Channel
 Ferry links from Wales to Ireland with hydrogen opportunities at the port and hydrogen opportunities at the port and hydrogen mobility potential from the transport links
 Inter-connector from Ireland and opportunities to import renewable energy as well as offshore renewables for green hydrogen production
 Links from Wales to hydrogen initiatives in the North West of England, including HyNet and NetZero North West
 Links across the Severn and the Western Gateway powerhouse, connecting Wales with hydrogen activities in Bristol and Swindon

Key

- Existing hydrogen projects
- Other projects of interest to hydrogen
- Potential hydrogen electricity generation interest (power plants)
- Potential hydrogen aviation/aerospace interest
- Hydrogen research facilities
- Private hydrogen production sites
- Planned hydrogen projects
- Potential hydrogen commercial interest (manufacturing)
- Potential /current hydrogen vehicle manufacturing/integration interest
- Potential hydrogen interest (petroleum refineries)
- Merchant hydrogen production sites

Figure 2: FLEXIS Demonstration Area (30)

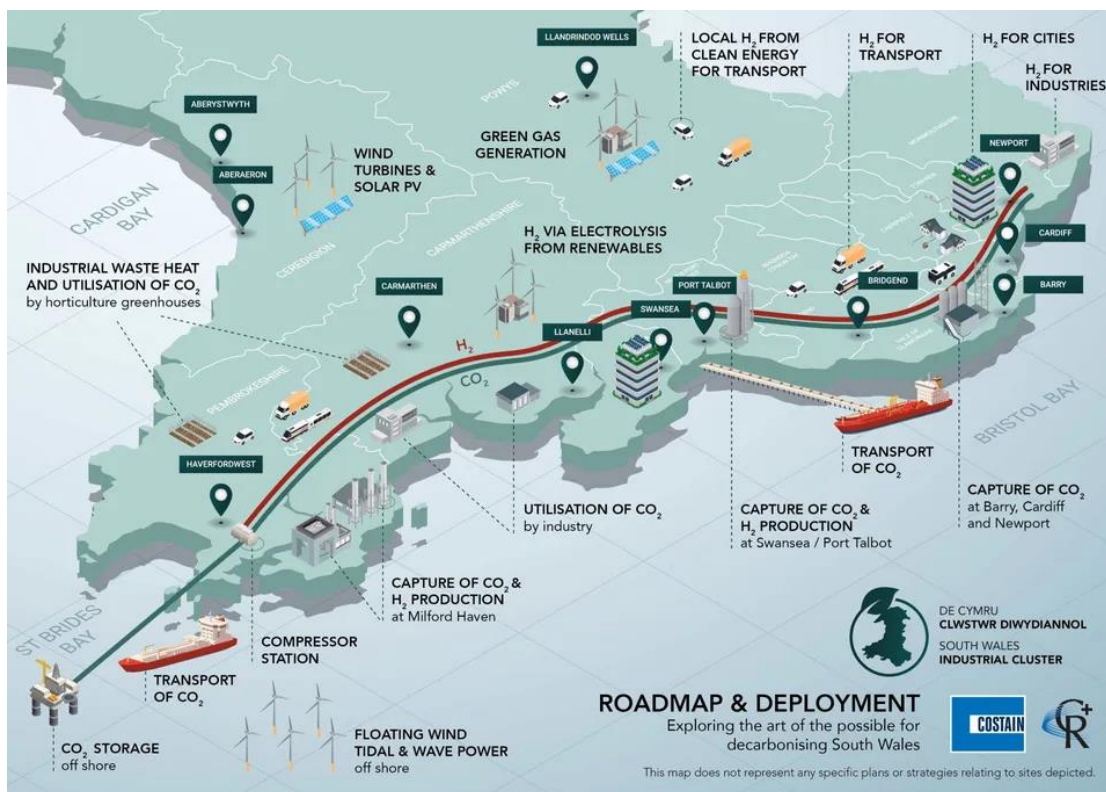


FLEXIS DEMONSTRATION AREA

Swansea
 Neath
 Swansea Bay
 Proposed Swansea Bay Tidal Lagoon
 Demonstration area boundary
 Swansea University Bay Campus
 Water treatment works

- Hydrogen Centre
- Council Offices
- Paper Mill
- Energy Park
- Gas fired power station
- Schools / Hospital
- Solar technology provider
- SPECIFIC Buildings as Power Stations
- Tata Steel Port Talbot
- Cement works
- Water treatment plan with electrical generator
- Gas Turbine Research Centre (Cardiff University)
- Biomass power station
- Gas & electricity networks
- Industrial gas & equipment supplier

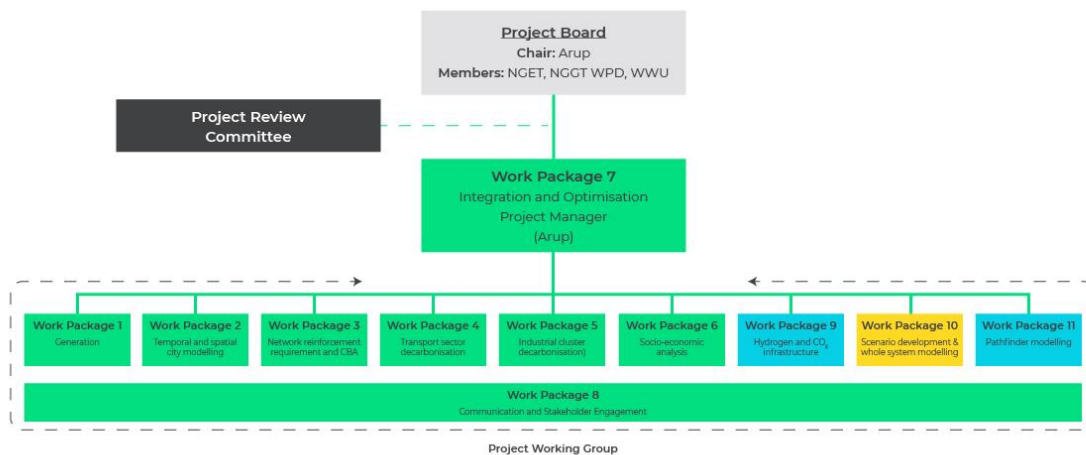
Ffigur 2: SWIC roadmap (52)



- Cardigan Bay
- St Brides Bay
- Bristol Bay
- Cardiganshire
- Pembrokeshire
- Carmarthenshire
- Neath Port Talbot
- Caerphilly
- Vale of Glamorgan
- Monmouthshire
- Llandrindod Wells
- Haverfordwest
- Carmarthen
- Swansea

Bridgend
 Barry
 Cardiff
 Newport
 Industrial Waste Heat and Utilisation of CO₂ by horticulture greenhouses
 Wind Turbines
 Green gas
 Local H₂ from clean Energy for transport
 H₂ for Transport
 H₂ for Cities
 H₂ for industries
 H₂ via Electrolysis from renewables
 CO₂ Storage offshore
 Transport of CO₂
 Compressor station
 Floating Wind tidal and wave power off shore
 Capture of CO₂ and H₂ production at Milford Haven
 Utilisation of CO₂ by industry
 Capture of CO₂ and H₂ production at Swansea/Neath Port Talbot
 Transport of CO₂
 Capture of CO₂ at Barry, Cardiff and Newport
 Roadmap and deployment
 Exploring the art of the possible for decarbonising South Wales
 This map does not represent any specific plans or strategies relating to sites depicted

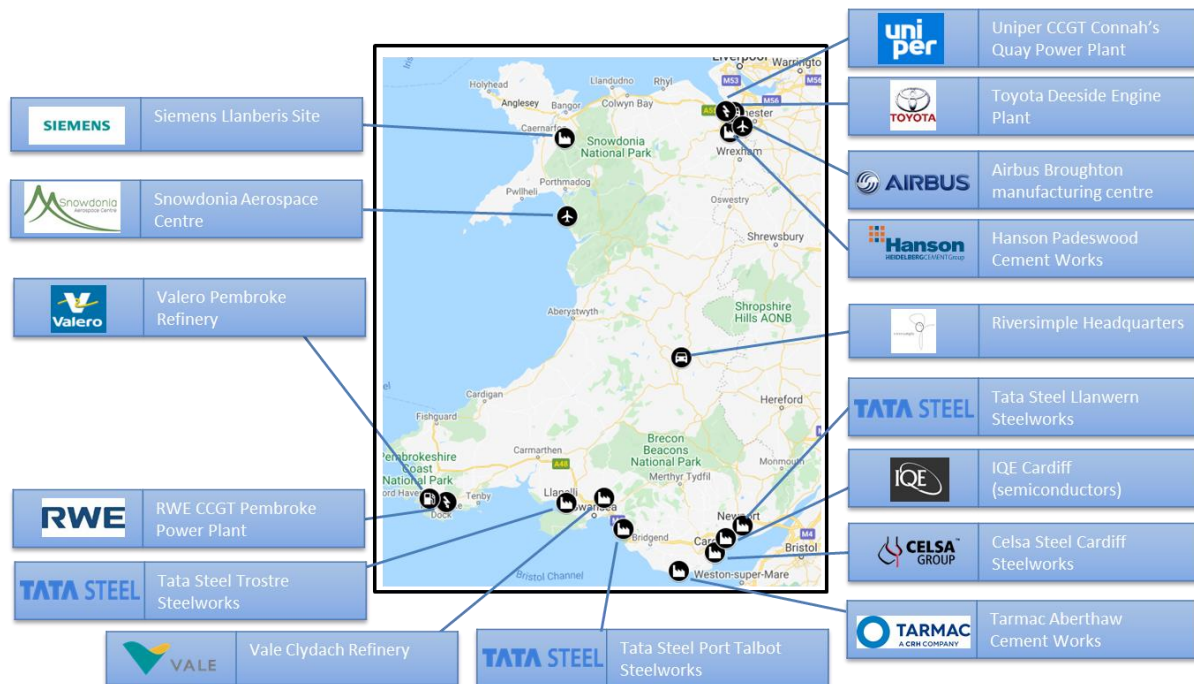
Figure 4: Overview of the project structure and governance for Zero2050 (73)



Project Board
 Chair
 Members
 Project Review Committee
 Work Package 7
 Integration and Optimisation Project Manager
 Work Package
 1 Generation
 2 Temporal and spatial city modelling
 3. Network reinforcement requirement and CBA
 4. Transport sector decarbonisation
 5. Industrial cluster decarbonisation

- 6. Socio-economic analysis
 - 9. Hydrogen and CO₂ infrastructure
 - 10. Scenario development & whole system modelling
 - 8. Communication and Stakeholder Engagement
- Project Working Group

Companies with an interest in Hydrogen



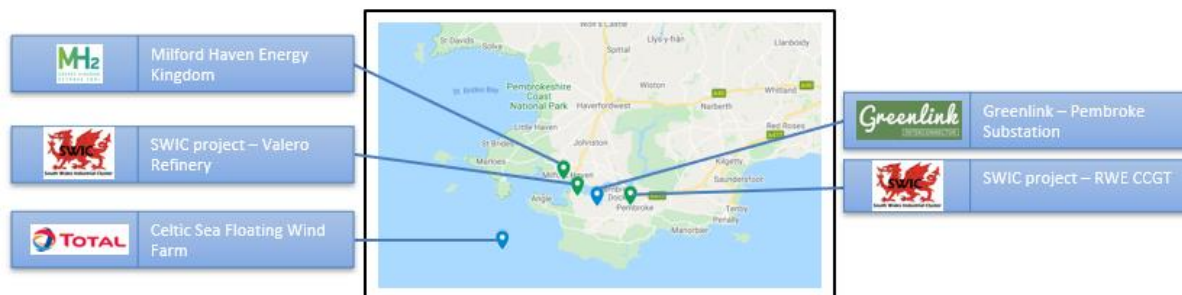
Map detail

- Holyhead
- Anglesey
- Colwyn Bay
- Rhyl
- Chester
- Wrexham
- Snowdonia National Park
- Oswestry
- Shrewsbury
- Shropshire Hills AONB
- Cardigan
- Hereford
- Fishguard
- Carmarthen
- Brecon Beacons National Park
- Monmouth
- Pembrokeshire Coast National Park
- Milford Haven
- Pembroke Dock
- Tenby
- Swansea
- Bridgend
- Cardiff
- Newport

Bristol
 Bristol Channel
 Siemens Llanberis Site
 Snowdonia Aerospace Centre
 Valero Pembroke Refinery
 RWE CCGT Pembroke Power Plant
 Tata Steel Trostre Steelworks
 Vale Clydach Refinery
 Tata Steel Port Talbot Steelworks
 Uniper CCGT Connah's Quay Power plant
 Toyota Deeside engine Plant
 Airbus Broughton Manufacturing Centre
 Hanson Padeswood Cement Works
 Riversimple Headquarters
 Tata Steel Llanwern Steelworks
 IQE Cardiff (semiconductors)
 Celsa Steel Cardiff Steelworks
 Tarmac Aberthaw Cement works

Hydrogen Projects and areas of interest

South West Wales



St Davids
 Solva
 Wolfs Castle
 St Brides Bay
 Pembroke Coast National Park
 Haverfordwest
 Wiston
 Narberth
 Whitland
 Little Haven
 Red Roses
 St Brides
 Milford Haven
 Kilgetty
 Pemroke Dock
 Pembroke
 Manorbier
 Penally
 Tenby
 Milford Haven Energy Kindgom

SWIC project - Valero Refinery
 Celtic Sea Floating Wind Farm
 Greenlink – Pembroke Substation
 SWIC project – RWE CCGT

South East Wales



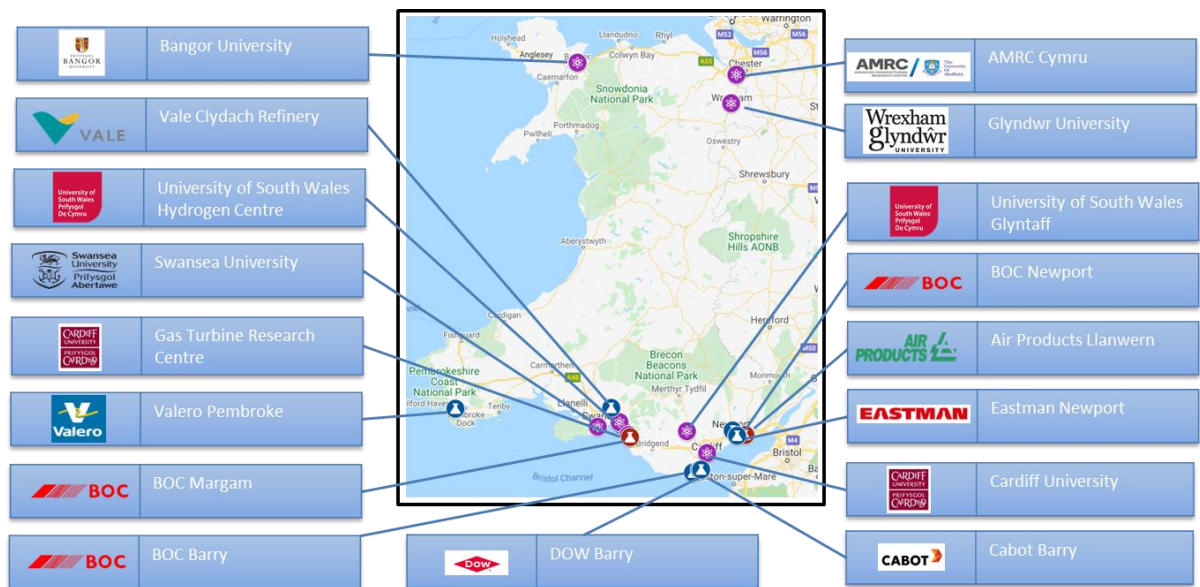
Brecon Beacons National Park
 Crickhowell
 Abergavenny
 Merthyr Tydfil
 Aberdare
 Pontypool
 Cwmbran
 Swansea
 Neath
 Port Talbot
 Porthcawl
 Bridgend
 Caerphilly
 Newport
 Cardiff
 Penarth
 Barry
 Rail Centre of Excellence
 University of South Wales Hydrogen Centre
 SWIC project – Tata Steel Steelworks
 SWIC project – Tarmac Aberthaw Cement Works
 Welsh Water Cardiff Waste Water Treatment Works
 Riversimple RASA car trial

North Wales



- Holyhead
- Valley
- Anglesey
- Colwyn Bay
- Snowdonia National Park
- Rhyl
- Bala
- Ruthin
- Mold
- Wrexham
- Chester
- Liverpool
- River Mersey
- Port of Mostyn Tidal Lagoon
- Ynys Mon Hydrogen Island
- Deeside Hydrogen Hub
- HyNet Net Zero North West
- Net Zero North Wales

Areas of hydrogen Research and hydrogen production facilities



- Holyhead
- Anglesey
- Colwyn Bay
- Rhyl

Chester
Wrexham
Snowdoia National Park
Oswestry
Shrewsbury
Shropshire Hills AONB
Cardigan
Hereford
Fishguard
Carmarthen
Brecon Beacons National Park
Monmouth
Pembrokeshire Coast National Park
Milford Haven
Pembroke Dock
Tenby
Swansea
Bridgend
Cardiff
Newport
Bristol
Bristol Channel
Bangor University
Vale Clydach Refinery
University of South Wales Hydrogen Centre
Swansea University
Gas Turbine Research Centre
Valero Pembroke
BOC Margam
BOC Barry
DOW Barry
AMRC Cymru
Glyndwr University
University of South Wales Glyntaff
BOC Newport
Air Products Llanwern
Eastman Newport
Cardiff University
Cabot Barry