

Lluniau

Datblygiad hydrogen yng Nghymru

*Adroddiad llinell sylfaen ar weithgareddau ac arbenigedd hydrogen yng
Nghymru*

Figur : Trosolwg o weithgareddau ac arbenigedd hydrogen yng Nghymru

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			

Irish Sea – Môr Iwerddon

Holyhead – Caergybi

Anglesey – Ynys Môn

Colwyn Bay – Bae Colwyn

Rhyl – Y Rhyl

Liverpool - Lerpwl

Chester – Caer

Wrexham – Wrecsam

Snowdonia National Park – Parc Cenedlaethol Eryri

Oswestry - Croesoswallt

Shrewsbury – Amwythig

Shropshire Hills AONB – AHNE Bryniau Swydd Amwythig

Cardigan – Aberteifi

Hereford – Henffordd

Fishguard – Abergwaun

Carmarthen – Caerfyrddin

Brecon Beacons National Park – Parc Cenedlaethol Bannau Brycheiniog

Monmouth – Trefynwy

Pembrokeshire Coast National Park – Parc Cenedlaethol Arfordir Penfro

Milford Haven – Aberdaugleddau

Pembroke Dock – Doc Penfro

Tenby – Dinbych-y-pysgod

Swansea – Abertawe

Bridgend – Pen-y-bont ar Ogwr

Cardiff – Caerdydd

Newport – Casnewydd

Bristol – Bryste

Bristol Channel – Môr Hafren

Ferry links from – Cysylltiadau fferi o Gymru i lwerddon gyda chyfleoedd hydrogen yn y porthladd a photensial symudedd hydrogen o gysylltiadau trafnidiaeth

Inter-connector – Rhwng-gysylltydd o lwerddon a chyfleoedd i fewnforio ynni adnewyddadwy, yn ogystal ag ynni ar y môr ar gyfer cynhyrchu hydrogen gwyrdd

Links from – Cysylltiadau o Gymru i fentrau hydrogen yng ngogledd-orllewin Lloegr yn cynnwys

HyNet a Net

Links across – Cysylltiadau ar draws Môr Hafren a Phwerdy Porth y Gorllewin yn cysylltu Cymru â gweithgareddau hydrogen ym Mryste a Swindon.

Key – ALLWEDD

Existing – Prosiectau hydrogen presennol

Other – Prosiectau eraill o ddiddordeb i hydrogen

Potential hydrogen electricity – Diddordeb cynhyrchu trydan hydrogen posibl (gorsafoedd pŵer)

Potential hydrogen aviation – Diddordeb hedfan / awyrofod posibl

Hydrogen research – Cyfleusterau ymchwil hydrogen

Private hydrogen – Safleoedd cynhyrchu hydrogen preifat

Planned – Prosiectau hydrogen arfaethedig

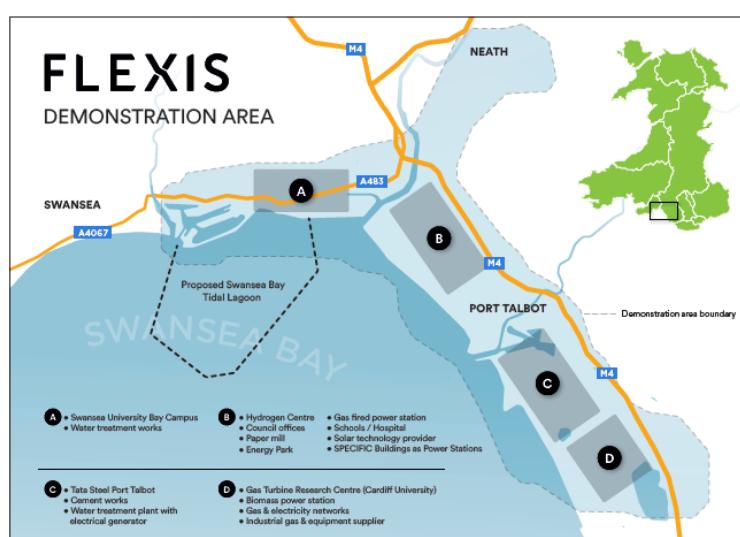
Potential hydrogen commercial – Diddordeb masnachol posibl mewn hydrogen (gweithgynhyrchu)

Potential / current – Diddordeb gweithgynhyrchu / integreiddio cerbydau hydrogen posibl / presennol

Potential hydrogen interest – Diddordeb hydrogen posibl (purfeydd petroliwm)

Merchant – Safleoedd cynhyrchu hydrogen masnachwyr

Figur 1: Ardal Arddangos FLEXIS (30)



ARDAL ARDDANGOS FLEXIS

Swansea – Abertawe

Neath – Castell-nedd

Swansea Bay – Bae Abertawe

Proposed – Morlyn Llanw Arfaerthedig Bae Abertawe

Demonstration – Ffin ardal arddangos

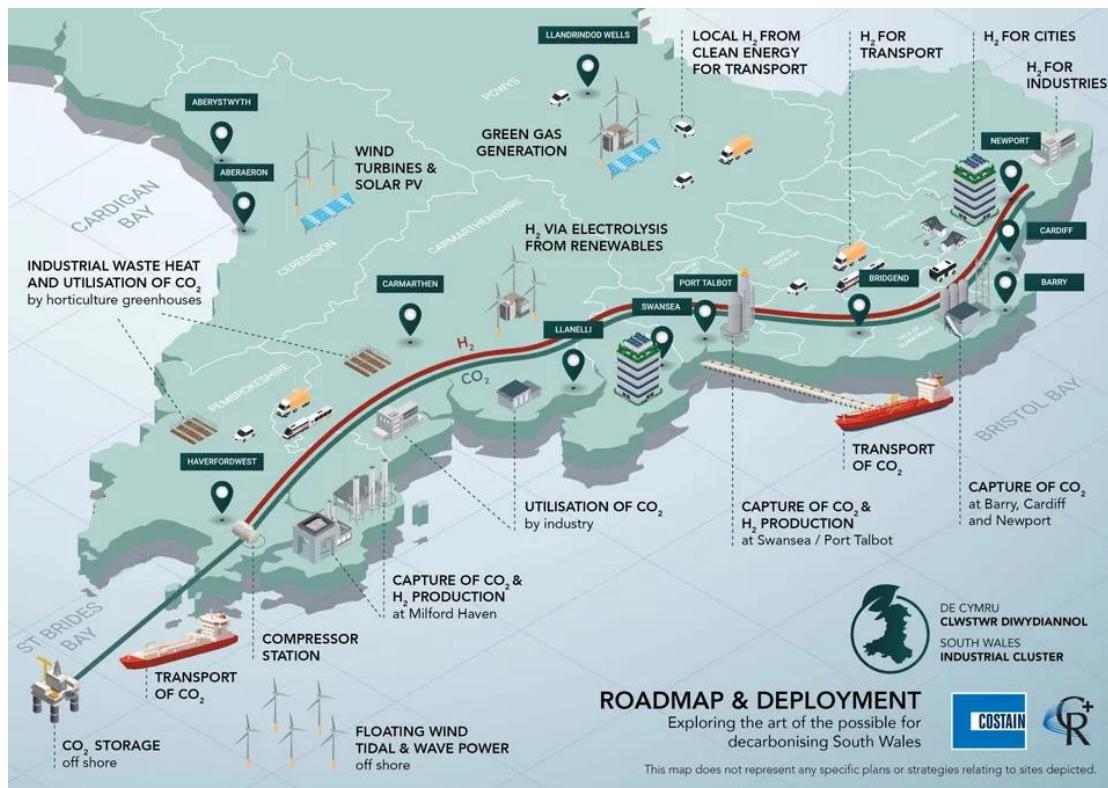
Swansea University – Campws y Bae – Prifysgol Abertawe

Water treatment – Gwaith trin dŵr

Hydrogen – Canolfan Hydrogen

Council - Swyddfeydd y Cyngor
 Paper – Melin bapur
 Energy – Parc Ynni
 Gas – Gorsaf bŵer nwy
 Schools – Ysgolion / Ysbyty
 Solar – Darparwr technoleg solar
 SPECIFIC – Adeiladau PENODOL fel Gorsafoedd Pŵer
 Tata – Tata Steel Port Talbot
 Cement – Gwaith Sment
 Water – Gwaith trin dŵr â generadur trydan
 Gas Turbine – Canolfan Ymchwil Tyrbinau Nwy (Prifysgol Caerdydd)
 Industrial – Cyflenwr nwy a chyfarpar diwydiannol

Figur 2: Map Ffordd SWIC (52)



Cardigan Bay – Bae Ceredigion
 St Brides Bay – Bae Sain Ffraid
 Bristol Bay – Bae Bryste
 Cariganshire – Ceredigion
 Pembrokeshire – Sir Benfro
 Carmarthenshire – Sir Gâr
 Neath Port Talbot – Castell-nedd Port Talbot
 Caerphilly = Caerffili
 Vale of Glamorgan – Bro Morgannwg
 Monmouthshire – Sir Fynwy
 Llandrindod Wells – Llandrindod
 Haverfordwest – Hwlffordd
 Carmarthen – Caerfyrddin
 Swansea – Abertawe
 Bridgend – Pen-y-bont ar Ogwr
 Barry – Y Barri
 Cardiff – Caerdydd

Newport – Casnewydd

Industrial Waste Heat and - GWRES GWASTRAFF DIWYDIANNOL A DEFNYDDIO CO₂ gan dai gwydr garddwriaethol

Wind Turbines – TYRBINAU GWYNT A PV SOLAR

Green gas – CYNHYRCHU NWY GWYRDD

Local H₂ – H₂ LLEOL O YNNI GLÂN AR GYFER TRAFNIDIAETH

H₂ for Transport – H₂ AR GYFER TRAFNIDIAETH

H₂ for Cities – H₂ AR GYFER DINASOEDD

H₂ for industries – H₂ AR GYFER DIWYDIANAU

H₂ via Electrolysis – H₂ TRWY ELECTROLYSIS O YNNI ADNEWYDDADWY

CO₂ Storage – STORIO CO₂ ar y môr

Transport of – CLUDO CO₂

Compressor – GORSAF CYWASGYDD

Floating Wind – PÂWER GWYNT, LLANW A THONNAU ar y môr

Capture Milford – DAL CO₂ A CHYNHYRCHU H₂ yn Aberdaugleddau

Utilisation – DEFNYDDIO CO₂ gan ddiwydiant

Capture Swansea – DAL CO₂ A CHYNHYRCHU H₂ yn Abertawe / Port Talbot

Transport of – CLUDO CO₂

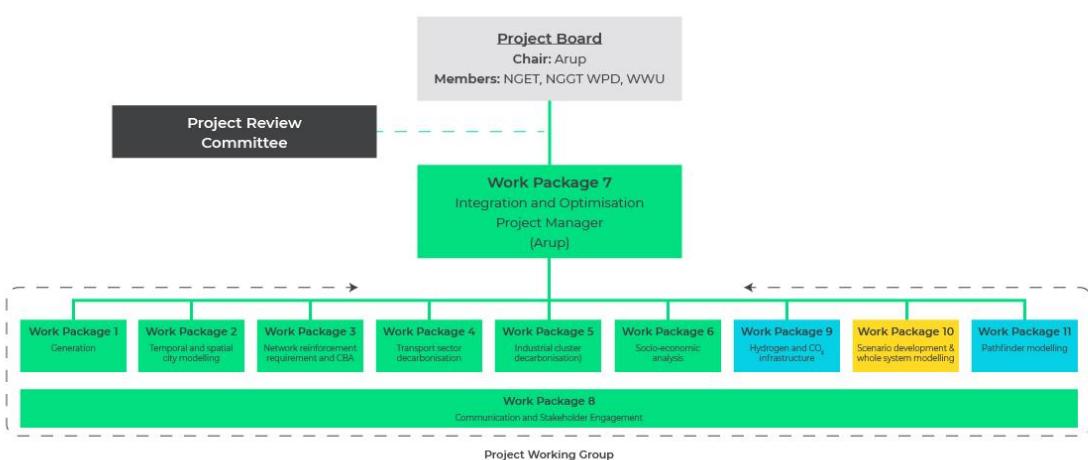
Capture Barry – DAL CO₂ A CHYNHYRCHU H₂ yn y Barri, Caerdydd a Chasnewydd

Roadmap and deployment – MAP FFORDD A DEFNYDD

Exploring – Archwilio'r hyn a all fod yn bosibl ar gyfer datgarboneiddio'r De

This map does – Nid yw'r map hwn yn cynrychioli unrhyw gynlluniau na strategaethau penodol sy'n gysylltiedig â'r safleoedd a ddangosir.

Figur 3: Trosolwg o strwythur a llywodraethu'r prosiect ar gyfer Zero2050 (73)



Project Board – Bwrdd Prosiect

Chair – Cadeirydd

Members – Aelodau

Project Review Committee – Pwyllgor Adolygu Prosiect

Work Package 7 – Pecyn Gwaith 7

Integration and Optimisation Project Manager – Rheolwr Prosiect Integreiddio ac Optimeiddio

Work Package – Pecyn Gwaith

Generation – Cynhyrchu

Temporal and spatial city modelling – Modelu dinesig amseruddol a gofodol

Network reinforcement requirement and CBA – Gofyniad atgyfnerthu rhwydwaith a CBA

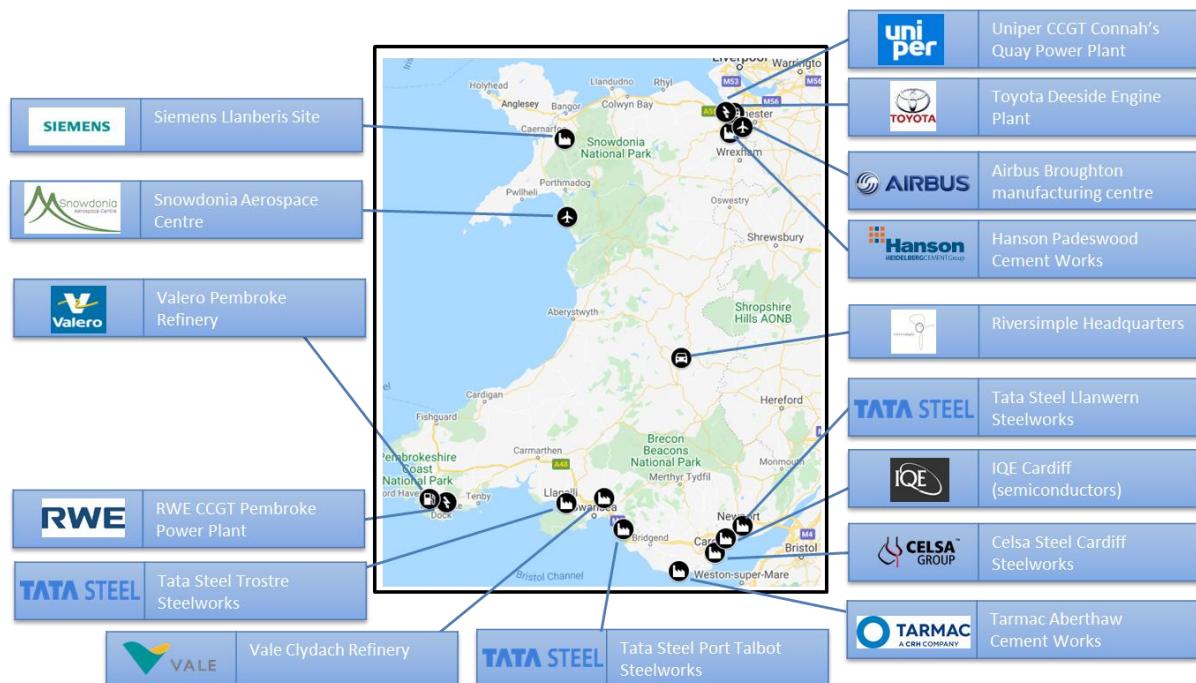
Transport sector decarbonisation – Datgarboneiddio'r sector trafnidiaeth

Industrial cluster decarbonisation – Datgarboneiddio'r clwstwr diwydiannol

Socio-economic analysis – Dadansoddiad economaidd-gymdeithasol

Hydrogen and CO₂ infrastructure – Seilwaith Hydrogen a CO₂
 Scenario development & whole system modelling – Datblygu senarios a modelu system gyfan
 Communication and Stakeholder Engagement – Cyfathrebu ac Ymgysylltu â Rhandeiliaid
 Project Working Group – Gweithgor y Prosiect

Cwmnïau sydd â diddordeb mewn hydrogen



Holyhead – Caergybi
 Anglesey – Ynys Môn
 Colwyn Bay – Bae Colwyn
 Rhyl – Y Rhyl
 Chester – Caer
 Wrexham – Wrecsam
 Snowdonia National Park – Parc Cenedlaethol Eryri
 Oswestry - Croesoswallt
 Shrewsbury - Amwythig
 Shropshire Hills AONB – AHNE Bryniau Swydd Amwythig
 Cardigan – Aberteifi
 Hereford – Henffordd
 Fishguard – Abergwaun
 Carmarthen – Caerfyrddin
 Brecon Beacons National Park – Parc Cenedlaethol Bannau Brycheiniog
 Monmouth – Trefynwy
 Pembrokeshire Coast National Park – Parc Cenedlaethol Arfordir Penfro
 Milford Haven – Aberdaugleddau
 Pembroke Dock – Doc Penfro
 Tenby – Dinbych-y-pysgod
 Swansea – Abertawe
 Bridgend – Pen-y-bont ar Ogwr
 Cardiff – Caerdydd
 Newport – Casnewydd
 Bristol – Bryste
 Bristol Channel – Môr Hafren

Siemens – Safle Siemens Llanberis
Snowdonia – Canolfan Awyrofod Eryri
Valero – Purfa Valero Penfro
RWE – Gorsaf Bŵer RWE CCGT Penfro
Tata – Gwaith Dur Tata Steel Trostre
Vale – Purfa Vale Clydach
Tata – Gwaith Dur Tata Steel Port Talbot
Uniper – Gorsaf Bŵer Uniper CCGT Cei Connah
Toyota – Ffatri Injans Toyota Glannau Dyfrdwy
Airbus – Canolfan Weithgynhyrchu Airbus Brychdyn
Hanson – Gwaith Sment Hanson Padeswood
Riversimple – Pencadlys Riversimple
Tata – Gwaith Dur Tata Steel Llanwern
IQE – IQE Caerdydd (Iled-ddargludyddion)
Celsa – Gwaith Dur Celsa Steel Caerdydd
Tarmac – Gwaith Sment Tarmac Aberdawan

Prosiectau hydrogen a meysydd o ddiddordeb

Y De-orllewin



St Davids – Tyddewi
Solva – Solfach
Wolfs Castle – Cas-blaidd
St Brides Bay – Bae Sain Ffraid
Pembokeshire Coast National Park
Haverfordwest – Hwlffordd
Wiston – Cas-wis
Narberth – Arberth
Whitland – Hendy-gwyn ar Daf
Little Haven – Aber Bach
Red Roses – Rhos-goch
St Brides - Sain Ffraid
Milford Haven – Aberdaugleddau
Kilgetty – Cilgeti
Pemroke Dock – Doc Penfro
Pembroke – Penfro
Manorbier - Maenorbwyr
Penally – Penalun
Tenby – Dinbych-y-pysgod
Milford Haven Energy – Teyrnas Ynni Aberdaugleddau
SWIC – Prosiect SWIC – Purfa Valero
Celtic – Fferm Wynt Arnawf y Môr Celtaidd

Greenlink – Greenlink – Is-orsaf Penfro
SWIC – Project SWIC - RWE CCGT

Y De-ddwyrain



Brecon Beacons National Park – Parc Cenedlaethol Bannau Brycheiniog

Crickhowell – Crucywel

Abergavenny – Y Fenni

Merthyr Tydfil – Merthyr Tudful

Aberdare – Aberdâr

Pontypool – Pont-y pwll

Cwmbran – Cwmbrân

Swansea – Abertawe

Neath – Castell-nedd

Port Talbot – Port Talbot

Porthcawl – Porthcawl

Bridgend – Pen-y-bont ar Ogwr

Caerphilly – Caerffili

Newport – Casnewydd

Cardiff – Caerdydd

Penarth – Penarth

Barry – Y Barri

Rail Centre – Canolfan Ragoriaeth ar gyfer Rheilffyrdd

Uni of South Wales – Canolfan Hydrogen Prifysgol De Cymru

SWIC – Project SWIC – Gwaith Dur Tata Steel

SWIC – Project SWIC – Gwaith Sment Tarmac Aberddawan

Welsh Water – Gwaith Trin Dŵr Gwastraff Dŵr Cymru Caerdydd

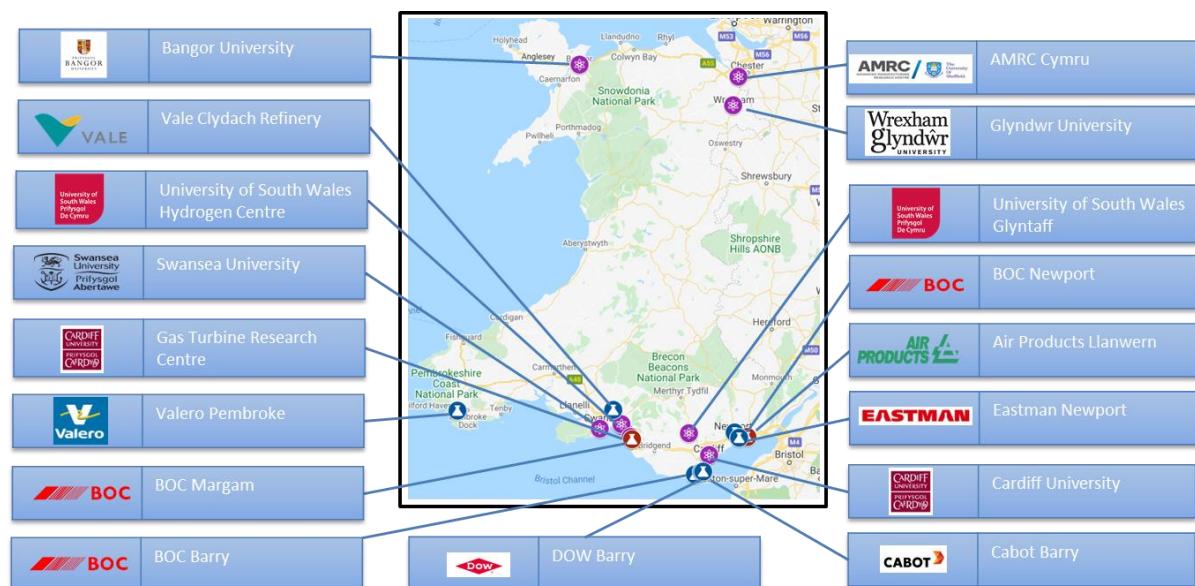
Riversimple – Treialon car RASA Riversimple

Y Gogledd



Holyhead – Caergybi
 Valley – Y Fali
 Anglesey – Ynys Môn
 Colwyn Bay – Bae Colwyn
 Snowdonia National Park – Parc Cenedlaethol Eryri
 Rhyl – Y Rhyl
 Bala – Y Bala
 Ruthin – Rhuthun
 Mold – Yr Wyddgrug
 Wrexham – Wrecsam
 Chester – Caer
 Liverpool – Lerpwl
 River Mersey – Afon Merswy
 Port of Mostyn – Morlyn Llanw Porthladd Mostyn
 Ynys Mon – Ynys Hydrogen Ynys Môn
 Deeside – Hyb Hydrogen Glannau Dyfrdwy

Meysydd ymchwil hydrogen a chyfleusterau cynhyrchu hydrogen



Holyhead – Caergybi
 Anglesey – Ynys Môn
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Snowdoia National Park – Parc Cenedlaethol Eryri
Oswestry - Croesoswallt
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Bridgend – Pen-y-bont ar Ogwr
Cardiff – Caerdydd
Newport – Casnewydd
Bristol – Bryste
Bristol Channel – Môr Hafren
Bangor University – Prifysgol Bangor
Vale – Purfa Vale Clydach
University of South – Canolfan Hydrogen Prifysgol De Cymru
Swansea University – Prifysgol Abertawe
Gas Turbine – Canolfan Ymchwil Tyrbinau Nwy
Valero – Valero Sir Benfro
BOC Margam – BOC Margam
BOC Y Barri
DOW - DOW Y Barri
AMRC – AMRC Cymru
Glyndwr – Prifysgol Glyndŵr
University of South – Prifysgol De Cymru Glyntaf
BOC Newport – BOC Casnewydd
Air Products – Air Products Llanwern
Eastman – Eastman Casnewydd
Cardiff University – Prifysgol Caerdydd
Cabot – Cabot Y Barri