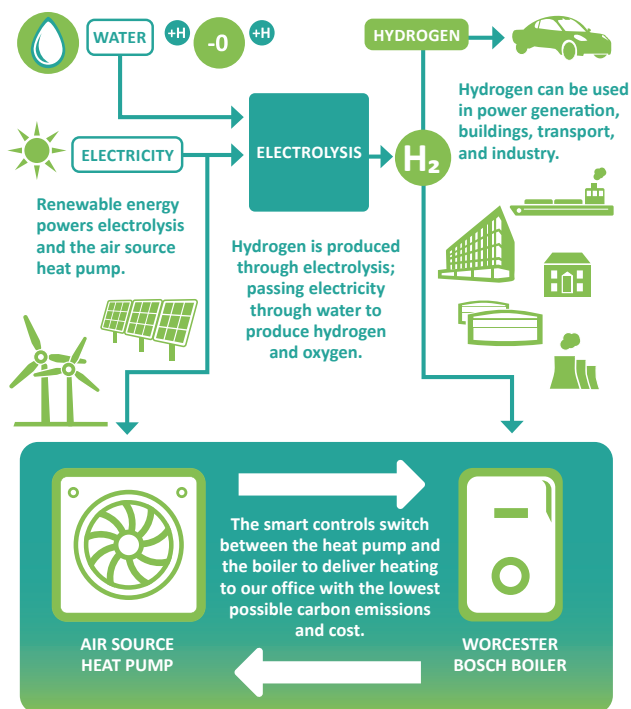


HYDROGEN HYBRID HEATING SYSTEM

The Port of Milford Haven is trialling a world-first hydrogen hybrid heating system. A partnership with Worcester Bosch and Passiv UK, the demonstrator will trial a hydrogen boiler operating alongside an air-source heat pump.

The system, installed at a port office, intelligently selects between the heat pump and boiler to make sure the building is heated in the most carbon-efficient way and at the lowest possible cost.

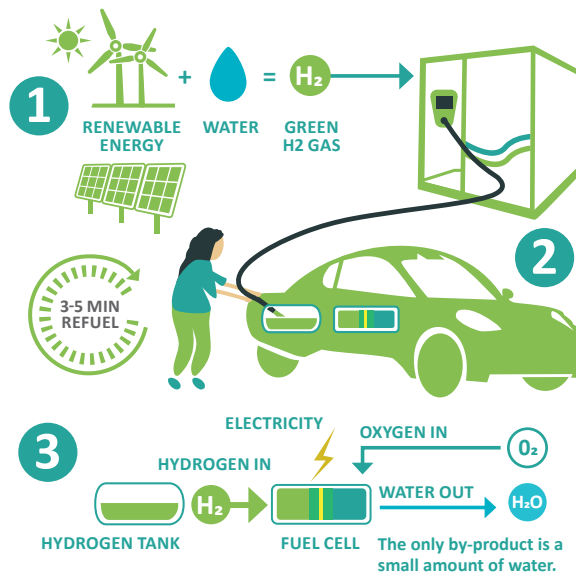


HYDROGEN FUEL CELL ELECTRIC VEHICLE

Pembrokeshire County Council and the Port of Milford Haven are trialling a hydrogen fuel-cell electric vehicle built by pioneering Welsh company Riversimple.

The Riversimple Rasa is an electric car powered by hydrogen rather than batteries. The hydrogen passes through a fuel cell, where it combines with oxygen from the air to produce electricity. This electricity flows to small, lightweight electric motors, one in each wheel, which give the car 4-wheel drive. The only emission is water.

Hydrogen can be produced through electrolysis and an electrolyser unit can be seen at Milford Waterfront, designed and built by Fuel Cell Systems. Power is taken from the local green energy grid and run through the electrolyser units, where water is split to produce hydrogen and oxygen.

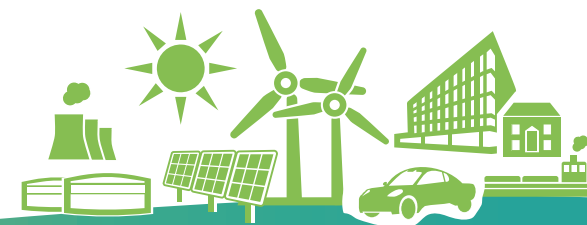


The Riversimple Rasa is powered using a hydrogen fuel cell, which utilises a chemical reaction between hydrogen from the Rasa hydrogen tank and oxygen from the air to produce electricity on board the vehicle.

DEYRNAS YNNI ABERDAUGLEDDAU

Mae DEYRNAS YNNI: ABERDAUGLEDDAU yn casglu mewnwelediad manwl i'r system ynni gyfan o amgylch Dyffrffordd Aberdaugleddau, i amlinellu a dylunio System Ynni Lleol Glyfar yn y dyfodol. Mae'r prosiect yn archwilio sut i wneud defnyddio a dosbarthu hydrogen gwyrdd yn ariannol hyfyw mewn adeiladau, diwydiant, pŵer a thrafnidiaeth.

Mae DEYRNAS YNNI: ABERDAUGLEDDAU yn un o'r prosiectau dyluniad manwl o fewn rhaglen waith *Prospering from the Energy Revolution* a ariennir gan Ymchwil ac Arloesi y DU fel rhan o'i Gronfa Her Strategaeth Ddiwydiannol.



OCHR YN OCHR Â DYLUNIO SYSTEM YNNI LLEOL GLYFAR, RYDYM HEFYD YN ARDDANGOS DAU ARDDANGOSWR:

SYSTEM WRESOGI
HYBRID HYDROGEN



DARLLENWCH
FWY

CERBYD TRYDAN Â
CHELLOEDD TANWYDD
HYDROGEN



DARLLENWCH
FWY

PARTNERIAID Y PROSIECT



CATAPULT
Energy Systems

CATAPULT
Offshore Renewable Energy

riversimple



Port of Milford Haven

ARUP

WALES & WEST
UTILITIES

Read more:

www.pembrokeshire.gov.uk/mh2-energy-kingdom

Contact us:

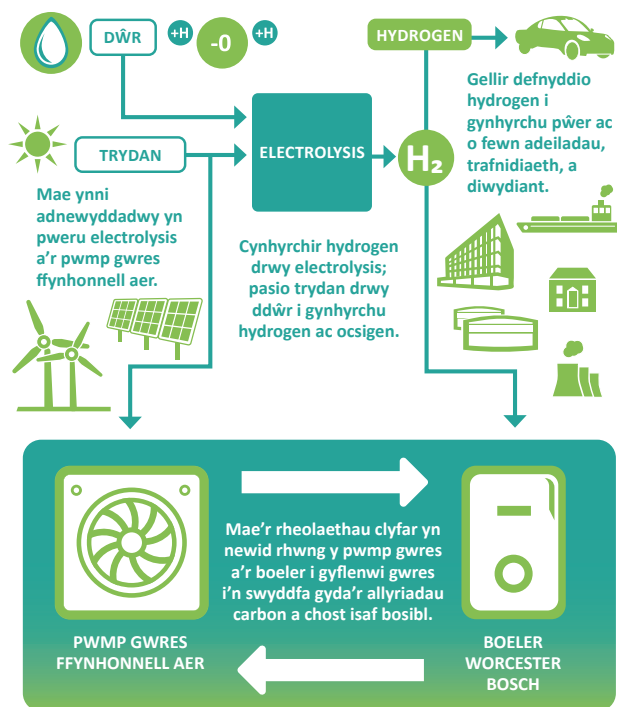
www.pembrokeshire.gov.uk/mh2-energy-kingdom/mh2-contact-us



SYSTEM WRESOGI HYBRID HYDROGEN

Mae Porthladd Aberdaugleddau yn treialu'r system wresogi hybrid hydrogen gyntaf yn y byd. Mewn partneriaeth â Worcester Bosch a Passiv UK, bydd yr arddangoswr yn treialu boeler hydrogen sy'n gweithredu ochr yn ochr â phwmp gwres ffynhonnell aer.

Mae'r system, a osodwyd mewn un o swyddfeydd y porthladd, yn dewis yn ddeallus rhwng y pwmp gwres a'r boeler i sicrhau bod yr adeilad yn cael ei wresogi yn y modd mwyaf carbon effeithlon ac am y gost isaf posibl.

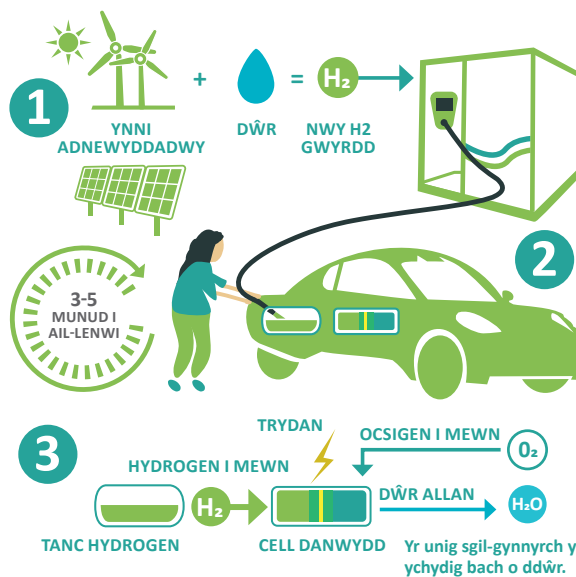


CERBYD TRYDAN Â CHELLOEDD TANWYDD HYDROGEN

Mae Cyngor Sir Penfro a Phorthladd Aberdaugleddau yn treialu cerbyd trydan â chelloedd tanwydd hydrogen, a adeiladwyd gan y cwmni arloesol o Gymru Riversimple.

Car trydan yw'r Riversimple Rasa sy'n cael ei bweru gan hydrogen yn hytrach na batris. Mae'r hydrogen yn pasio trwy gell danwydd, lle mae'n cyfuno ag ocsigen o'r awyr i gynhyrchu trydan. Mae'r trydan hwn yn llifo i foduron trydan bach ac ysgafn, un ym mhob olwyn, sy'n rhoi gryant pedair olwyn i'r car. Yr unig allyriad yw dŵr.

Gellir cynhyrchu hydrogen trwy electrolysis a gellir gweld uned electroleiddio yng Nglannau Aberdaugleddau, wedi'i dylunio a'i hadeiladu gan Fuel Cell Systems. Cymerir pŵer o'r grid ynni gwyrdd lleol a'i redeg trwy'r unedau electroleiddio, lle rhennir dŵr i gynhyrchu hydrogen ac ocsigen.



Mae'r Riversimple Rasa yn cael ei bweru gan ddefnyddio cell danwydd hydrogen, sy'n defnyddio adwaith cemegol rhwng hydrogen o danc hydrogen y Rasa ac ocsigen o'r aer i gynhyrchu trydan i'r cerbyd.

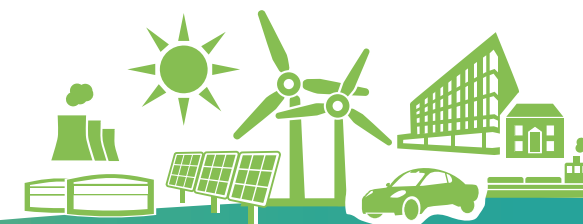
Argraffwyd y daflen hon ar bapur wedi'i ailgylchu gan ddefnyddio inciau a wnaed o lysiau



MILFORD HAVEN ENERGY KINGDOM

MILFORD HAVEN: ENERGY KINGDOM is gathering detailed insight into the whole energy system around the Milford Haven Waterway, to outline and design a future Smart Local Energy System. The project is exploring how to make the distribution and use of green hydrogen financially viable within buildings, industry, power, and transport.

MILFORD HAVEN: ENERGY KINGDOM is one of the detailed design projects within the *Prospering from the Energy Revolution* programme of works funded by UK Research and Innovation as part of their Industrial Strategy Challenge Fund.



AS WELL AS DESIGNING A SMART LOCAL ENERGY SYSTEM, WE ARE SHOWCASING TWO DEMONSTRATORS:

HYDROGEN HYBRID HEATING SYSTEM  [Read more](#)

HYDROGEN FUEL CELL ELECTRIC VEHICLE  [Read more](#)

PROJECT PARTNERS



riversimple

