

Senedd Cymru
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Economi Gwyrdd
GE22
Ymateb gan: Cynghrair GW4

Welsh Parliament
Economy, Trade, and Rural Affairs Committee
Green Economy
GE22
Evidence from: GW4 Alliance



Welsh Assembly Economy, Trade and Rural Affairs Committee inquiry into the Green Economy - GW4 response

About GW4

Founded in 2013, the GW4 Alliance brings together four of the most research-intensive and innovative universities in the UK: Bath, Bristol, Cardiff and Exeter. From the creative arts to the physical sciences, we combine world-leading scholarship, infrastructure and expertise.

Collaboration is at the heart of everything we do and it makes us greater together than the sum of our parts. We work with other universities, businesses and civic bodies, acting as the anchor institutions to support a knowledge-intensive economy.

GW4 has identified Sustainable Net Zero as a strategic priority. This strategic priority brings together GW4 researchers, government, industry, and communities to better understand the challenges and priorities faced by different sectors in our region and identify opportunities to collaborate on innovative solutions.

Key messages

- GW4 welcomes the fact that the Welsh Senedd and Welsh Government have recognised the importance of partnership working to realise the potential of the green economy and deliver a just transition.
- Universities will play a vital role in shaping the green economy and supporting innovation in Wales.
- Projects such as GTE and GW-SHIFT demonstrate the impact that our collaborative working approach can have.
- The Welsh Government should continue to support the initiatives of GW4 and its partner universities, including Cardiff University, as part of its work to develop the green economy.

Consultation response

- How will the Welsh Government need to work in partnership with others to realise the potential of the green economy and deliver a just transition? To what extent is the partnership working that is needed being undertaken?

As an alliance of four of the most research-intensive and innovative universities in the UK – Bath, Bristol, Cardiff, and Exeter – collaboration is at the heart of everything we do.

Our universities have all declared a climate emergency, we have all committed to fully decarbonising our operations within ambitious timeframes and understand the need to accelerate the pace of transition. As a regional Alliance, we are perfectly placed to accelerate the transition to a sustainable Net Zero. The South

West has one of the highest concentrations of businesses in the Net Zero economy in the UK, and the Net Zero economy in Wales is over three times more productive than the regional average¹.

Our innovation landscape supports the transformation towards sustainable mobility in hard-to-decarbonise industries such as aviation and maritime. Our region is home to the largest aerospace sector in the UK, benefitting from substantial research and development investment to drive research and innovation and is the largest element of global export from Wales².

In the first two years since creating a GW4 Climate community, we have amassed a coalition of 450 researchers, local authorities, businesses, and community organisations working together to build our unique approach to sustainable Net Zero. We place climate action in the wider contexts of society, economy and environment, focusing on whole-systems approaches that take into account the need to both mitigate and adapt to a changing climate. Working together, and with local and regional stakeholders, we share best practice and innovation and collectively lobby for positive change and social transformation.

GW4 also has a strategic partnership agreement with the Western Gateway Partnership – the pan-regional partnership for South Wales and Western England. Our Memorandum of Understanding seeks to increase collaborative activities that will drive green and economic regional growth, supporting projects with the aim to level up communities and help the world achieve a net-zero carbon economy faster³.

For the remainder of our submission, we would like to provide the Committee with some examples of projects undertaken by GW4 partners which have a particularly strong Welsh presence, which can be seen as examples of how, as a University Alliance encouraging greater collaboration between our partner institutions, GW4 has helped to foster collaboration and delivery on a number of projects that could have a significant impact on growing the green economy in Wales.

i. GTE (Green Transitions Ecosystems) project

This project is the successor to the Circular Economy of Timber Buildings project⁴⁵, which had previously secured GW4 Generator Award funding⁶. The project sought to investigate the full potential of British-grown timber in the design of affordable and low-energy housing.

The seed funding GW4 provided allowed the project consortium to run workshops and engage with external partners, including through an ideas contest, which invited stakeholders to submit innovative proposals for architectural, housing and structural concepts which unlock growth in the local timber supply chain and help promote more sustainable construction techniques⁷.

This is an excellent example of the impact that our collaborative research communities approach can have. According to our latest research, GW4's return on investment in collaborative research communities has reached an all-time high of £25 in external research awards for every £1 it spends on networking its

¹ [Mapping The Net Zero Economy: Net Zero impacts in national, regional and local economies, Energy & Climate Intelligence Unit, January 2023, p.28](#)

² [Strategic Vision 2023-2028, GW4, p.11](#)

³ [Peter Davidson, "New strategic partnership launched between GW4 Alliance of universities and the Western Gateway", The Business Magazine, 9 March 2022](#)

⁴ ["£4.6 million for GW4 Alliance-led project to retrofit UK homes based on designs to push beyond Net Zero", GW4, 1 September 2023](#)

⁵ ["Circular Economy of Timber Buildings", University of Bristol](#)

⁶ Further information about the GW4 Generator Fund can be found on our website: <https://gw4.ac.uk/generator-fund/>

⁷ [Merlin Fulcher, "Reimagine a future built environment with UK timber", Architects Journal, 7 November 2022](#)

researchers – a significant increase from £16 in 2021, and up from the previous record high of £20 set in 2022⁸.

In the case of the Green Transitions Ecosystems, the community that was initially brought together under the Circular Economy Of Timber Buildings project were able to develop a more detailed proposal and secure £4.6 million of funding from the Arts and Humanities Research Council⁹.

As part of the two-year research project, the consortium will design, test, implement and monitor innovative prototype bio-based lower carbon solutions to improve the energy efficiency and resilience of housing, and evaluate their performance compared to traditional synthetic materials. The goal is to create scalable and transferable designs and solutions to retrofit a greater number of houses and different house types.

The project will also demonstrate bio-based solutions across a small number of traditional brick-built houses in Bristol and Swansea, constructed by councils between 1920-1940. These account for approximately 1.1 million of the homes occupied in the UK today and are generally viewed as one of the more challenging styles of houses to retrofit¹⁰.

External partners to the project include Swansea Council, Woodknowledge Wales, The Alliance for Sustainable Building Products, Mikhail Riches Architect, timber frame manufactures Sevenoaks Modular Limited and WeCanMake, a community land trust based in Bristol – which demonstrates the interdisciplinary nature of the project.

ii. **GW-SHIFT (Great Western Supercluster of Hydrogen Impact for Future Technologies)**

The Great Western Supercluster of Hydrogen Impact for Future Technologies (GW-SHIFT) Project aims to enable cross-sectoral partnerships to drive development of hydrogen infrastructure and technology and provide the necessary skills training to develop a skilled workforce for a green hydrogen future.

The project has secured £2.7 million from the Engineering and Physical Sciences Research Council (EPSRC) as part of their Place Based Impact Acceleration Account Awards (PBIAA). Our partner universities will work alongside the Universities of Swansea, South Wales and Plymouth, as well as 25 civic and industry partners, who will contribute over £1.5m in additional funds and support^{11,12}.

The partnership was co-created with Western Gateway, Great South West and West of England Combined Authority, this project was also supported by our civic partners Cornwall and Isle of Scilly LEP, Swindon and Wiltshire LEP and the Welsh Government. On top of this civic and academic engagement, the bid also includes Hydrogen South West and 18 key hydrogen companies including Airbus, digiLab Solutions, Ecomar, GKN, HydroStar, NCC, Johnson Matthey, Net Zero Industry Wales, ORE Catapult, PEP, SSQ, TFP Hydrogen Products, TNO Netherlands, Tower Group, Undercover Zero, Wales and West Utilities, and Zero Avia.

The growth of the low-carbon hydrogen sector has been identified by both the Welsh and UK governments as being important ways of decarbonising transport networks and achieving Net Zero targets. The project will build on South Wales and South-West England's strengths as an emerging hydrogen ecosystem, including the highest concentration of net zero economy businesses in the UK. The region is also home to the world's

⁸ ["25:1 return on research investment highlights the transformative power of seed funding", GW4, 5 March 2024](#)

⁹ [Oliver Morgan. "Project launches into designing eco-friendly way of retrofitting homes", Planet Radio, 3 September 2023](#)

¹⁰ ["Fit for the future: remodelling homes to push beyond net zero", MyScience, 1 September 2023](#)

¹¹ [Poppy Clements. "£2.5 million funding announced for hydrogen supercluster project", Global Hydrogen Review, 18 October 2023](#)

¹² [Charlie Currie. "Academia and industry team up to develop hydrogen supercluster in UK south-west", H2 View, 9 October 2023](#)

leading aerospace cluster outside of the US, which is currently exploring hydrogen solutions to deliver the future of long-haul flight¹³.

Conclusions and recommendations

Our region faces major challenges in moving to an equitable, sustainable Net Zero. The effects of climate change are already being felt by marginalised urban, rural and coastal communities, which are particularly vulnerable to flooding, heat stress, coastal erosion and a loss of biodiversity.

GW4's regional diversity provides a unique opportunity to explore and test equitable transitions to Net Zero. Our geography covers two national governments, two health systems, includes areas with among the highest and lowest deprivation rates, and rural, urban and city areas.

GW4's partnership working makes us greater together than the sum of our parts, because we understand that change doesn't happen alone. Cardiff University's inclusion in the GW4 partnership allows for greater cross-border collaboration, ensuring that knowledge benefits researchers, businesses and policymakers both within Wales and across the UK.

In order to fully deliver on growing the green economy in Wales, we would urge the Committee to make the following recommendations:

1. That the Welsh Government recognise the important contributions that universities can make to developing the green economy within Wales
2. That the Welsh Government continues to support the partnership working of the GW4 Alliance and its initiatives to deliver on its strategic objectives on Net Zero

As mentioned previously, GW4 has a strategic partnership with the Western Gateway. We understand that the Western Gateway will also be submitting evidence to this inquiry, and we would urge the Committee to give consideration to the evidence they have submitted, and any recommendations that they have made.

¹³ [Mark Cantell "£2.5m funding fuels UK hydrogen power supercluster project", *Building Digital*, 10 October 2023](#)