



The Swansea and Carmarthenshire Green Industries Investment Zone

A prospectus

September 2023

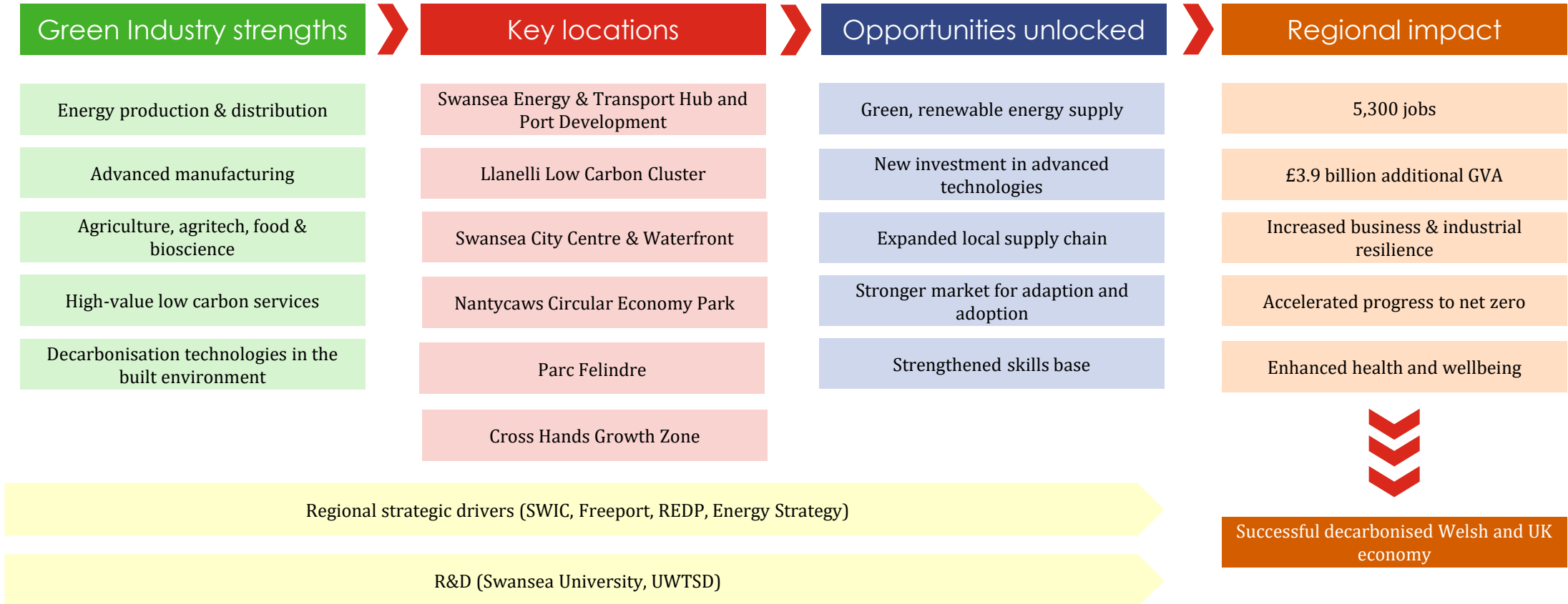
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Summary (i)

- Integrated within the South Wales Industrial Cluster and the Celtic Freeport, a **Swansea and Carmarthenshire Green Industries Investment Zone** will connect our **energy generation potential, research and innovation capabilities, major sites and industrial strengths** to support a higher-value, decarbonised economic future and greater wellbeing.
- It links together the two existing Freeport locations in Pembrokeshire and Neath Port Talbot, uniting them with the region's core research and development assets and **enabling the whole region to maximise its potential**.
- Incorporating some of the UK's most important renewable energy projects, the Green Industries Investment Zone will help to bring forward adjacent sites and business opportunities, ensuring that transition to net zero will mean new opportunities locally – helping existing industries to adapt and helping new ones to innovate and grow.
- Over 20 years, Investment Zone designation could unlock 5,300 jobs and £3.9 billion in additional annual GVA, supporting a cleaner, more resilient and higher-value future.

Summary (ii)



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*Swansea and Carmarthenshire Green Industries
Investment Zone*

Introduction and background

Introduction

Integrated within the South Wales Industrial Cluster and linking the two Celtic Freeport sites, there is an opportunity in Swansea and Carmarthenshire to connect our **energy generation potential, research and innovation capabilities, major sites and industrial strengths** to support a higher-value, decarbonised economic future.

The prospect of Investment Zone designation provides an opportunity to drive forward our potential. This prospectus sets out our ambition for a **Green Industries Investment Zone**, setting out:

- The **core rationale** for the Zone, including its approximate spatial footprint
- The **research capabilities** that the Investment Zone will leverage to increase the volume of research and development and collaboration with industry
- The specific place-based **growth opportunities** within the proposed Zone, including those locations that may be identified as Investment Zone sites for tax purposes and planning support
- Alignment with the **Celtic Freeport** and other programmes supporting Green Industries development and industrial decarbonisation
- Potential **benefits**, including direct, 'relatable' benefits to local people and businesses, as well as aggregate GVA and productivity growth
- How we will facilitate **delivery**, including local leadership from business, our universities and our local authorities.

Background: The Investment Zone concept

An opportunity for Wales and the UK

Investment Zones were launched by the UK Government in 2023 to develop high-potential clusters in areas where productivity is relatively weak, but where local strengths and assets can be leveraged to create sustainable growth with real benefits for local communities. The Government's [Policy Offer](#) identifies five sectors on which Investment Zones will be focused: green industries; advanced manufacturing; creative industries; life sciences and digital and tech – all areas in which the UK can play a leading role globally and where there are opportunities for growth.

Only a small number of Investment Zones are likely to be created. In England, eight areas have been identified for a Zone, and it is likely that at least one will be created in Wales. While guidance on the scope of an Investment Zone has not yet been published for Wales, the offer in England proposes an overall funding envelope of £80 million over five years, to be used flexibly across site-based tax incentives (such as enhanced capital allowances) and flexible spend on skills, infrastructure, R&D and business support.

The opportunity for Swansea and Carmarthenshire

In Swansea and Carmarthenshire, we have thought carefully about the potential that an Investment Zone could offer to grow our industrial capabilities, linked with the wider strategy for South West Wales and the ambitious plans of the Celtic Freeport in neighbouring Pembrokeshire and Neath Port Talbot.

Following a review of our key assets and opportunities, we propose **the UK's first Green Industries Investment Zone**, linking current, planned and potential investment in clean, renewable energy with scope to develop our potential in manufacturing, digital technology and the range of goods, services and skills that will drive the transition to net zero. This aligns with the transformation, cross-industry strategy set out in the UK Government's [Net Zero Strategy](#), which highlights the opportunities in renewable energy generation, industrial decarbonisation and the need for transformation across all sectors of the economy.

*Swansea and Carmarthenshire Green Industries
Investment Zone*

The strategic case for investment

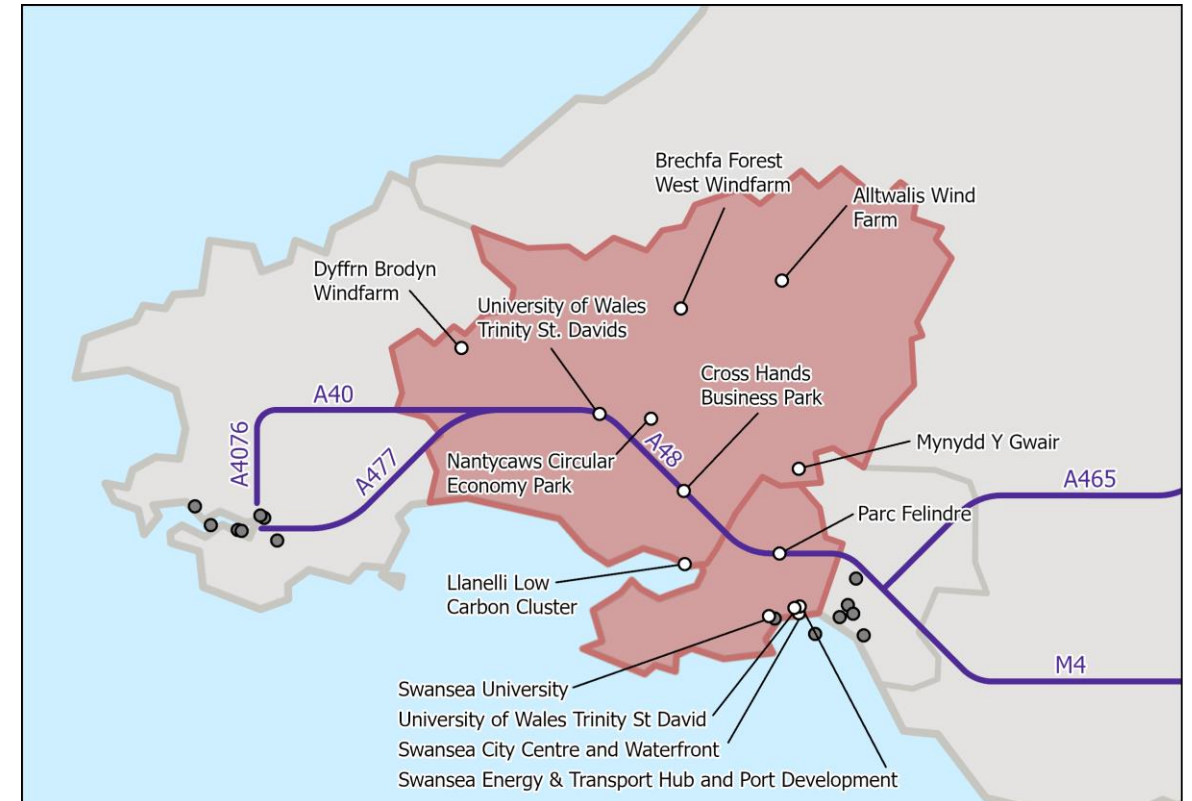
Locating the Investment Zone

The proposed **Green Industries Investment Zone** encompasses Swansea and Carmarthenshire, both of which contain key locations for **energy generation and transport**, as well as significant **research and development capabilities** and **major sites for cluster development and higher-value employment growth**. Some of the key assets are illustrated on the map opposite, and are described later in this prospectus.

Our key R&D assets and the sites proposed for expansion are all located within the **Swansea Bay and Llanelli National Growth Area**, which extends from Port Talbot through Swansea to Llanelli and Cross Hands, and the **Carmarthen Regional Growth Area**. Both of these are defined in *Future Wales: The National Plan 2040* as areas on which future housing and economic growth should be focused – we describe this further in Annex 1.

To the west and east of the proposed Investment Zone are concentrations of sites in Pembrokeshire and Neath Port Talbot which form the **Celtic Freeport**. These are highly complementary with the core assets and opportunities in Swansea and Carmarthenshire.

Green Industries Investment Zone and related assets



Source: SQW

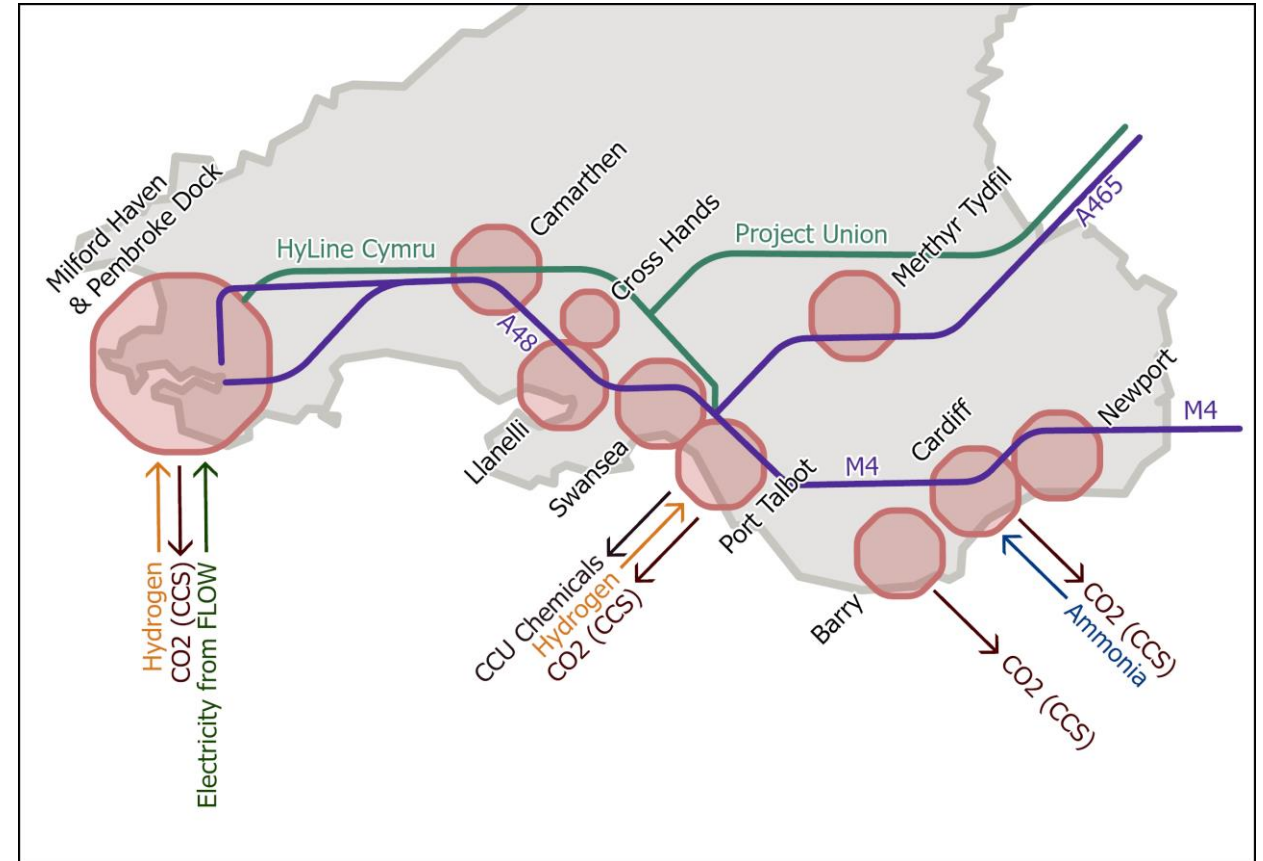
At the heart of industrial transformation

The Green Investment Zone is at the heart of the [South Wales Industrial Cluster](#): one of the world's original 'industrial districts', and now in the vanguard of the switch to net zero.

In 2019, UK Research and Innovation funded [six of the UK's most important industrial clusters](#) to develop plans for long-term, economically sustainable, decarbonisation. Of these, South Wales – extending from Pembrokeshire in the west to Newport in the east – is currently the second largest producer of CO₂ emissions, driven by its oil and gas, steel and related industries. Alongside these industrial activities, South Wales also has a large and diverse energy supply sector – with significant opportunities for new renewable onshore and offshore energy generation.

Driven by its leading industrial partners, SWIC has focused on the 'pathway' to industrial decarbonisation in South Wales. In summary, this means that as industries switch to electricity and hydrogen as sources of energy supply, they will require larger amounts of low-carbon power generation and electricity and gas grids that are 'fit for purpose'.

The South Wales Industrial Cluster



Source: SQW, adapted from South Wales Industrial Cluster

The vision for sustainable economic growth

With the UK and Welsh Governments committed to net zero by 2050, there is a supportive policy environment for transformational decarbonisation. In any case, **transformation at scale and at pace is essential to South Wales' competitiveness and future growth**: failure to do so risks 'decarbonisation by default', as industry contracts, emissions are 'offshored' and new industrial opportunities are taken up elsewhere.

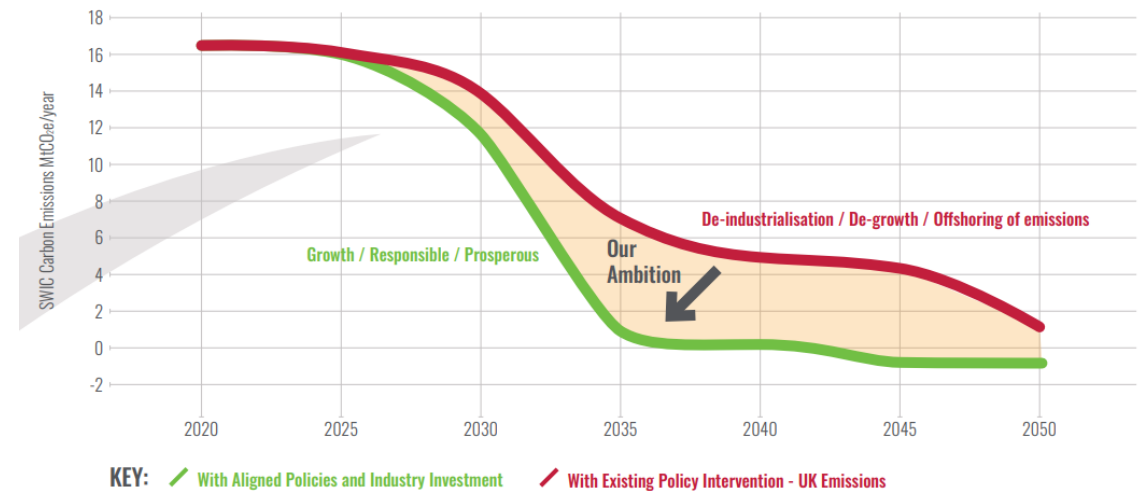
SWIC's [Cluster Plan](#) identifies 'five cogs' of decarbonisation – ways in which industries and power generators can move to net zero. They are all interlinked, and need to be implemented together:

- Energy and resource efficiency: reducing energy use
- Fuel switching: away from carbon intensive sources (especially natural gas) to renewable alternatives
- Clean growth hubs: establishing opportunities for decarbonisation outside of fixed site boundaries
- Carbon capture utilisation: converting captured carbon into useful products, such as fuels, chemicals and food
- Carbon capture and storage: focused on the largest emitters

Modelling by SWIC indicates potential to accelerate decarbonisation over the next decade, as the graph below illustrates. This also suggests that the plans envisaged by the Cluster could support **113,000 jobs** by 2040 – driving the region's economic resilience.

Swansea and Carmarthenshire are an integral part of this regional vision, to which our Green Industries Investment Zone will contribute.

CO2 emissions trajectory, with SWIC vision



Source: South Wales Industrial Cluster

Linked with the strategy for South West Wales

In 2022, the four local authorities in South West Wales adopted the [Regional Economic Delivery Plan](#), a strategy for the future of the region’s economy looking ahead to 2030. This also informed the **Regional Economic Framework**, and is itself informed by the

The REDP set out a Mission to make South West Wales “**a UK leader in renewable energy and the net zero economy**”, by:

- Delivering the region’s low-carbon energy projects at scale. These are highly significant, but the REDP noted that *“competing areas and technologies may move faster within a dynamic technology environment. South West Wales has distinctive assets – but if additional capacity and investment is directed elsewhere, some of these advantages could diminish”*.
- Decarbonising our industrial base, through the approach outlined by the South Wales Industrial Cluster: linking our energy generation capacity (and potential capacity) with industrial demand
- Decarbonising the wider economy, in relation to the housing stock, transport system and waste

Linked with this mission, there is already significant investment being made through the **Swansea Bay City Deal**. This includes the Homes as Power Stations project (supporting retrofit in the housing stock) and the Skills and Talent programme, which is working with industry and providers to deliver the skills that a decarbonising economy will demand.

The Celtic Freeport

In 2023, the UK and Welsh Governments announced that parts of Pembrokeshire and Neath Port Talbot will be designated (subject to a business case) as the ‘[Celtic Freeport](#)’. This brings together a series of sites with capacity for energy production, industrial expansion and port-related activity. Overall, the sites within the Celtic Freeport are anticipated to support around 16,000 new green jobs and £5.5 billion of new investment.

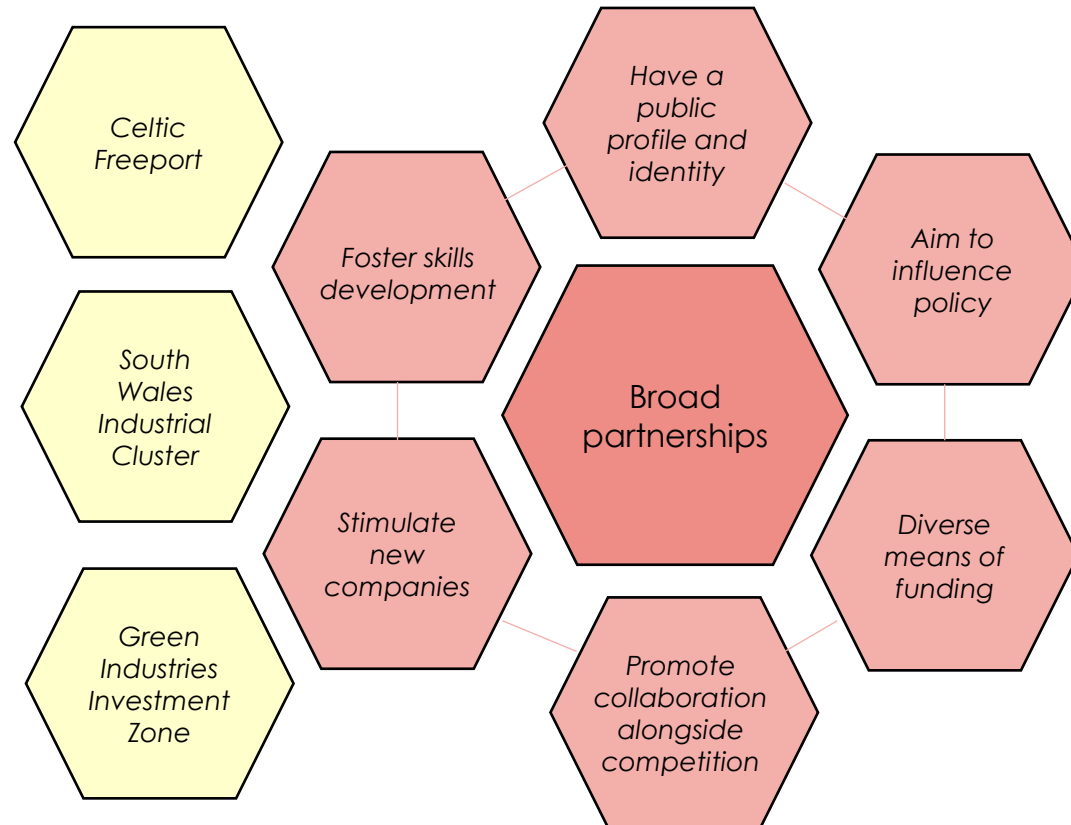
The Freeport will be an important element in delivering the REDP’s mission and the wider South Wales Industrial Cluster vision. But the scale of the regional challenge and opportunity is very significant, and many assets complementing the Freeport are just outside its bounds, in Swansea and Carmarthenshire. **The Green Industries Investment Zone will bridge the gap, ensuring an integrated regional response.**

Developing the regional Green Industries cluster

The Action Plan that accompanied the Regional Economic Delivery Plan set out a model for a 'Green Industries' cluster. [A review of UK and international examples](#) suggests that a regional decarbonisation 'system' ought to have a number of goals, set out in the diagram opposite. These include addressing long term skills and business development, as having a clear 'identity' to help galvanise and coordinate investment, as well as influence policy, extending beyond the delivery of specific initiatives or sectoral actions.

As the earlier pages demonstrate, we are making progress on all these fronts: we have an industry-led consortium in the form of SWIC, we have active skills development programmes via the City Deal and we have major investments coming forward. But there is more to do, and the urgency of the opportunity and challenge is greater in South West Wales (and Swansea and Carmarthenshire more specifically) than it is elsewhere in the UK

Components of a Green Industries cluster



Source: Accelar; SQW (adapted from REDP)

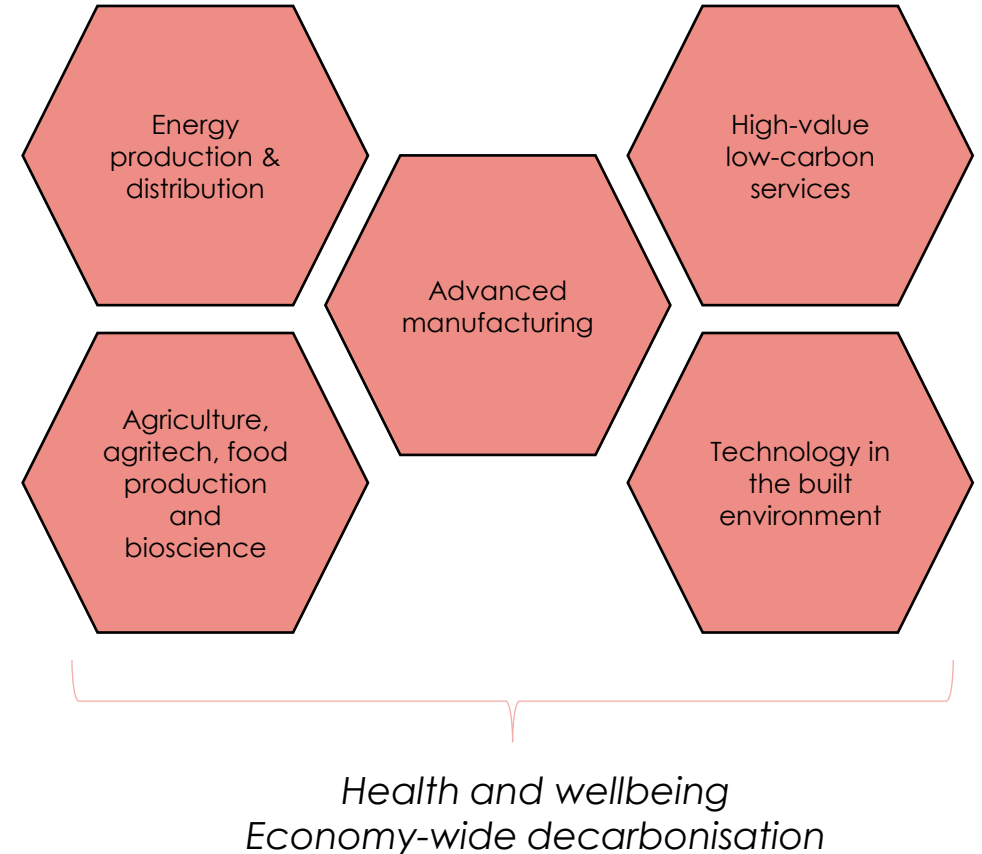
Defining the Green Industries focus (i)

Although the UK Government's Innovation Zones Policy Offer identifies Green Industries as a key area on which new Zones should focus, the Policy Offer does not specifically define Green Industries.

Ultimately, all industries will need to decarbonise – and it is this imperative that underpins the urgency of our approach. But there are some specific sectors where there are distinct regional capabilities and opportunities, and which are the focus of our Investment Zone proposition for Swansea and Carmarthenshire. These relate to:

- Energy production and distribution
- Advanced manufacturing
- Agriculture, agritech and food production and its links with bioscience
- High-value low carbon services
- Decarbonisation technologies in the built environment

... all of which support wider health and wellbeing, as well as 'economic' outcomes, and which are will be accompanied by decarbonisation throughout the economy. The table on the next page summarises the key regional focus for each of the identified sectors.



Defining the Green Industries focus (ii)

Green Industries segment	Relevance to the Investment Zone
Energy production and distribution	Core energy generation strengths and opportunities, especially at Swansea (Swansea Energy and Transport Hub) and Carmarthen (Nantycaws Circular Economy Park), as well as existing renewable energy generation (onshore wind, e.g. Brechfa Wind Farm) and emerging opportunities. Close links to major onshore and offshore energy generation elsewhere in South West Wales (see map on next page)
Advanced manufacturing	Opportunities for new investments linked with access to clean energy supply (e.g., battery manufacturing at Swansea). Some high-energy users (e.g., Tata at Llanelli) and automotive supply chain which will benefit from industrial decarbonisation
Food, agritech and bioscience	Large agriculture sector, especially in Carmarthenshire, supporting a large and growing food manufacturing and foodservice industry – widely distributed across the region, but with key concentration at Cross Hands. Key focus on decarbonisation of the food chain.
High-value low carbon services	Scope to build capacity in low carbon services, linked with the expansion of the energy sector, digital solutions to support energy efficiency and industrial decarbonisation and the growth of the circular economy. Currently, Swansea and Carmarthenshire have a relatively small presence in high-value services: the Green Industries cluster should offer opportunities to build up new capabilities.
Decarbonisation technologies in the built environment	Opportunities in the supply and servicing of lower carbon technologies, in construction, domestic and commercial heating, transport systems, etc. These apply everywhere – not just in SW Wales. But in the context of the region’s older housing stock and significant concentrations of disadvantage, opportunities to develop local businesses, supply chains and skills are especially important.

Potential major energy generation projects



Key research and innovation capabilities (i)

Swansea and Carmarthenshire have significant research, development and innovation capabilities linked with Green Industries. These are especially associated with **Swansea University** and **University of Wales Trinity St David** (UWTSD), both of which have a wider regional footprint and (in the case of Swansea University) and important presence in neighbouring Neath Port Talbot.

Swansea University is a leading research institution, ranked 14th in the UK on the 2021 Research Excellence Framework by grade point average in Earth Systems and Environmental Science; 32nd in Engineering; and 33rd in Computer Sciences. UWTSD is principally an applied university in relation to STEM subjects, and both have a substantial record in industry collaboration. Key research and innovation assets include:

- Linked with **advanced manufacturing**, Swansea is a leading centre for materials research, hosting the [Materials and Manufacturing Research Institute](#). Key research themes include rethinking and redefining the sources, uses and design of materials to meet the transition to net zero. This includes materials in the context of the circular economy (i.e., materials from waste and materials re-use). Swansea also maintains an industry-led Materials and Manufacturing Academy, focused on postgraduate research training. Just outside the proposed Investment Zone (but relevant to it), Swansea is also developing the new **SWITCH Hub** focused on the decarbonisation of the steel and metals sector and supply chain.
- UWTSD has strengths in the deployment of smart systems, supporting energy efficiency through data-driven decision making. Swansea also has significant strengths in **advanced computing** and the development of digital solutions to support decarbonisation – including the **Centre for Integrative Semiconductor Materials** and the **Computational Foundry**. The Materials and Manufacturing Research Institute also includes a focus and the use of artificial intelligence and computing to develop new materials – highlighting the extent of convergence between the twin transformational themes of decarbonisation and digitalisation, and the critical importance of research that links the two. Swansea’s [Zienkiewicz Institute](#) focuses on the use of modelling, data science and AI in the deployment of net zero solutions, with a wider mission to harness digital technology to combat climate change.

Key research and innovation capabilities (ii)

- In the **agriculture and food** sector, [Coleg Sir Gâr](#) manages the centre of excellence for land-based further education in Wales, operating a research and training farm at **Gelli Aur**, near Llandeilo. Gelli Aur also hosts the Agricultural Research Centre, an applied research facility with specific expertise in nutrient management. Current activities include a [project to reduce farm waste](#), working with Power & Water, a Swansea-based company specialising in electrochemical solutions.
- Also linked with food production, and further demonstrating the cross-sectoral, cross-disciplinary nature of low carbon technology, Swansea's [Centre for Sustainable Aquatic Research](#) (CSAR) is also a key partner in the groundbreaking [Biophilic Living](#) mixed-use development in central Swansea, linking food production, housing and technology, while Swansea is also developing the Natural Products BioHUB (see box).
- There are also substantial links with industry, including UWTSD's [MADE](#) programme to support efficiency and productivity in manufacturing; and the **Reducing Industrial Carbon Emissions (RICE)** programme, led by the **Energy Safety Research Institute** at Swansea University, which works with local supply chain companies to test how CO₂ produced from heavy industrial processes can be innovatively used to make high value products and industrially important chemicals.

Linking South West Wales' low carbon and life science capabilities

Swansea and Carmarthenshire have significant capabilities in life sciences, one of the other sectors identified as a priority by UK Government for Investment Zone designation. These include the **Institute of Life Sciences** at Swansea University and the **Pentre Awel** health and wellbeing village in Llanelli.

Linking our green industries and life science potential, the [Natural Products BioHUB](#) is a collaboration between Swansea University and Swansea Council to develop the use of natural products (such as fungi, algae and plants) within the agricultural, pharmaceutical and food manufacturing sectors. Examples include the use of natural products in pesticides, herbal medicines and cosmeceuticals. Plans are underway to develop an industry-focused centre, offering the use of specialist analytical equipment, spin-out and innovation space and a natural product bank, with opportunities accelerated through advances in artificial intelligence and computational biology

Key research and innovation capabilities (iii)

- In **decarbonisation in the built environment**, UWTSD's [Construction Wales Innovation Centre \(CWIC\)](#) seeks to help the construction sector to become a net zero industry, including via industry-focused programmes to support decarbonisation in offsite construction. Locally, UWTSD has also delivered the **Construct Net Zero** project in Carmarthenshire, increasing industry awareness, confidence and adoption in new and emerging digital technologies to support decarbonisation.
- [SPECIFIC](#) at Swansea University, a UK Innovation and Knowledge Centre accredited by UKRI, focused on the development and commercialisation of **building technologies** that can capture and store solar energy – especially relevant to our focus on decarbonisation technologies in the built environment. While SPECIFIC has collaborations with several national and multinational companies, it also has an important regional business relationships. For example, SPECIFIC recently helped Sea Trust Wales (based in Pembrokeshire) understand the efficiency of its Ocean Lab building, leading to a solution provided by a local company.

Applied research supporting innovation in low carbon goods and services

Although much of the focus of the South Wales Industrial Cluster is on the decarbonisation of the region's larger industrial firms, the Green Industries Innovation Zone will also seek to drive net zero transition among our wider stock of smaller, mainly locally-owned businesses.

In addition to the programmes highlighted above, South West Wales' universities are engaged in knowledge transfer partnerships with several local SMEs. For example, UWTSD is working with [Art of Eco](#), a ceramics company based in Ammanford, which is developing a circular approach to product development, reducing energy use and using recycled materials and chemicals in the production process. The circular production process is central to the company's mission: as well as driving decarbonisation in industries that had previously been reliant on older energy and production models, we also want to support the growth of those firms that are driving new production processes as a key part of their business model

*Swansea and Carmarthenshire Green Industries
Investment Zone*

Key Investment Zone locations

Key locations for growth

The proposed Green Industries Investment Zone includes **six key locations for growth**, all of which will benefit from a combination of site-based tax incentives, infrastructure and skills and R&D support to unlock private sector investment in a lower-carbon economy. These are:

- **Swansea Energy and Transport Hub and Port Development**, a transformational energy generation, advanced manufacturing, transport decarbonisation and (ultimately) residential project led by the private sector and previously referred to as 'Blue Eden'.
- **Llanelli Low Carbon Cluster**, a network of sites for business development, linked with opportunities for extensive regeneration and community decarbonisation.
- **Swansea City Centre and Waterfront**, including the city's key university assets and commercial opportunities.
- **Nantycaws Circular Economy Park**, a centre of excellence for the circular economy
- **Parc Felindre and Cross Hands**, both strategic business parks offering scope for advanced manufacturing, food production and high-value low carbon service businesses.

The locations offer a combination of energy generation, productive capacity and community benefits. They are at different stages of development: the following pages describe each in turn.

Key Investment Zone locations



Source: SQW

Swansea Energy & Transport Hub and Port Development (i)

Swansea offers a nationally-significant opportunity to generate tidal energy, and plans have been advanced for several years to develop a tidal lagoon to harness Swansea Bay's unique potential.

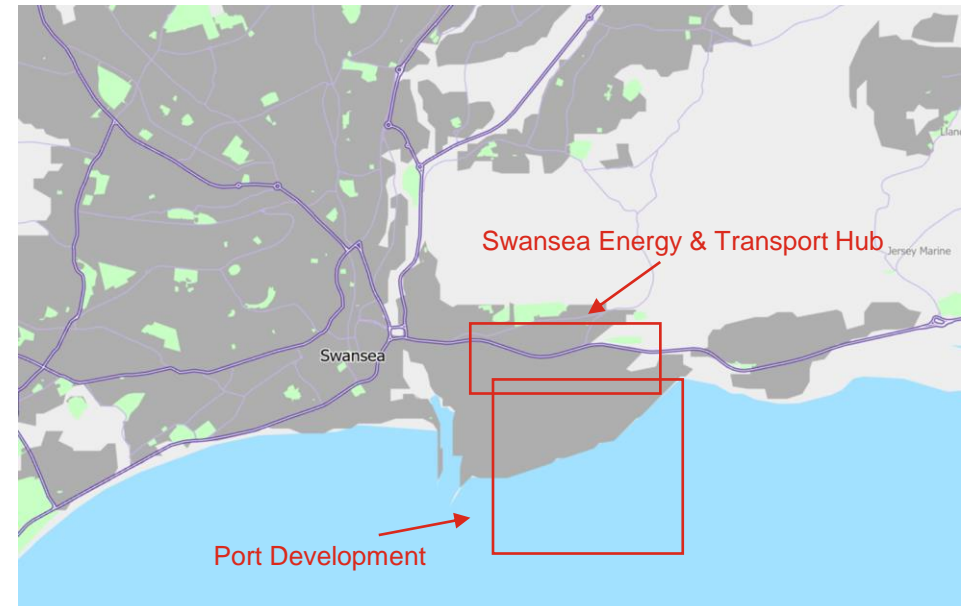
These are now coming forward as part of an integrated energy, transport, manufacturing, R&D and residential project known as **Swansea Energy and Transport Hub and Port Development**, led by the Bridgend-based DST Innovations and supported by private investment.

Previously known as 'Blue Eden', the project involves the development of a series of 'zones', which include:

- Energy generation linked with decarbonised transport on land around Fabian Way, to the north of the Port
- Battery manufacturing, R&D and training space and data centre capacity at the Port of Swansea, linked with a tidal lagoon.

The project directly adjoins the concentration of energy assets and capacity for manufacturing in Neath Port Talbot, immediately to the east along Fabian Way, with scope for close links with the Freeport opportunity. The following pages summarise the project in more detail.

Strategic location



Source: SQW

Swansea Energy & Transport Hub and Port Development (ii)

The **Swansea Energy and Transport Hub** element of the project will deliver:

1. An **energy and transport hub**, including solar canopies, and 100MW hydrogen production facility, with EV charging, hydrogen bus refuelling and vehicle maintenance centre.
2. Redevelopment of the existing **Park & Ride** to provide up to 790 solar canopied spaces to generate around 2,600 MWh of green energy, with EV charging.
3. The first phase of a proposed **giga factory**, to train staff and enable production to be scaled up in future phases, along with solar canopied parking and workspaces
4. A **solar and battery farm**, repurposing the Tir John landfill site to the north of Fabian Way. This will be a solar development of national significance, generating around 11,000 MWh annually when fully operational

The project involves the use of Swansea Council assets, and the Council is working closely with DST to bring this stage of the project forward.

Swansea Energy & Transport Hub



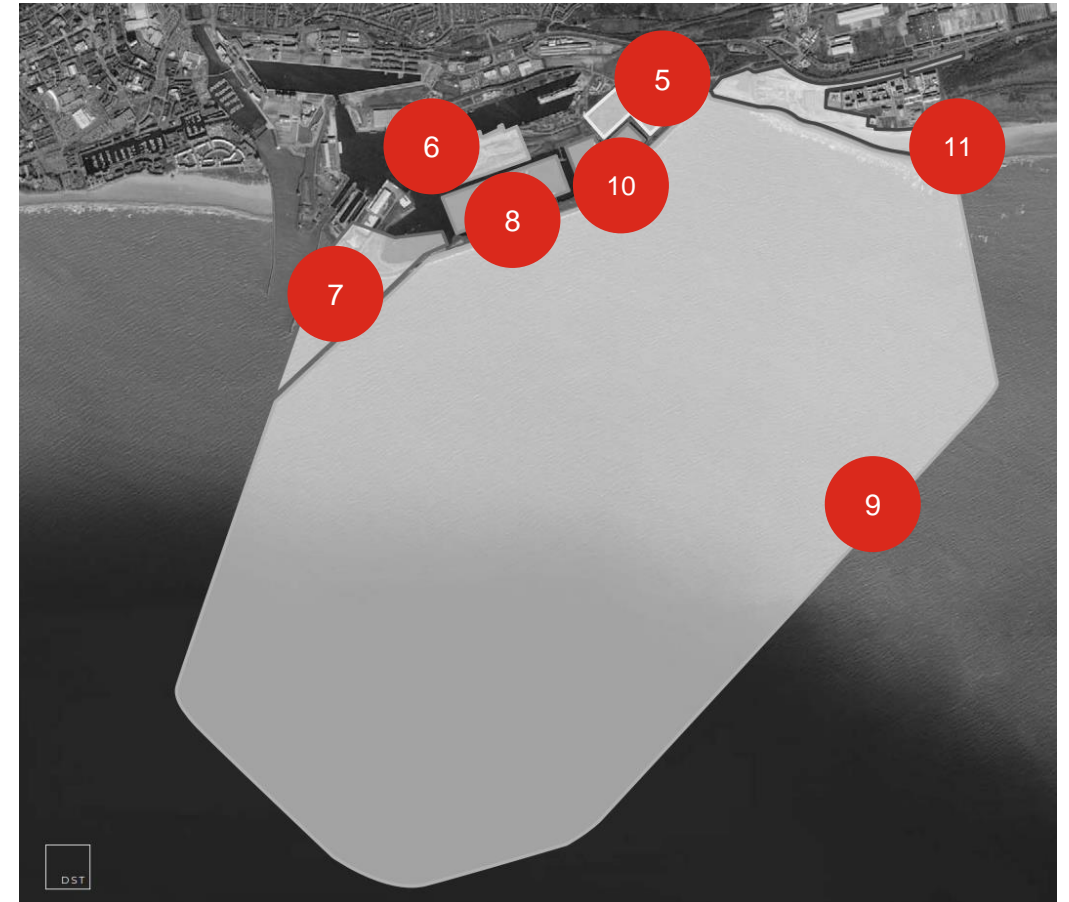
Source: DST Innovations Ltd

Swansea Energy & Transport Hub and Port Development (iii)

The **Port Development** is anticipated to come forward from 2027, and will deliver:

5. A **battery manufacturing centre**. Anticipated at around 60,000 sq m and 15 GWh capacity, this is expected to be a nationally-significant investment, placing Swansea (and South West Wales) as a global hub for green energy technology.
6. A **data centre**. Anticipated at c.94,000 sq m, this is envisaged as the first 'off grid' data centre in the UK, powered by renewable energy supply and battery back-up, with waste heat supporting businesses and homes.
7. A **research and innovation centre**, linked with recreational space focused on increasing public access to science and technology,
8. Floating **eco-homes**, inspired by innovative solutions in the Netherlands
9. A **tidal lagoon**, with a 9.5km structure enabling 320 MW of renewable energy through the first project of its kind in the UK.
10. A **floating solar array**, anticipated at 72,000 sq m
11. Onshore **utility and recreation** areas

Swansea Port Development



Swansea Energy & Transport Hub and Port Development (iv)

What happens next?

The Energy & Transport Hub and Port Development project is complex, and will be brought forward through a phased approach. Planning permission is already in place for the first phase of solar farm development, and other elements of the Energy and Transport Hub are going through the planning process. The Tidal Lagoon will require a Development Consent Order; work is underway to develop preliminary work ahead of a likely application to the UK Government.

How Investment Zone designation would support the opportunity

The project is led by private investment, although infrastructure investment, including in the road network and – as highlighted in the SWIC cluster development plan – electricity grid capacity – will be important. The project also includes a substantial training and development element: work is underway to develop a skills and talent pipeline, working with Swansea University and the further education sector, to ensure that new advanced manufacturing and supply chain jobs are accessible throughout the region.

The battery technology opportunity

Battery storage capacity is essential in harnessing renewable energy. [Research by the Faraday Institute](#) estimates that the UK will need at least 10 ‘gigafactories’ for battery production by 2035 to meet the needs of the automotive sector alone. To date, most of the focus of activity in the UK has been on automotive demand (e.g. JLR and Tata’s recent announcement of investment in Somerset). At Swansea, the focus of battery manufacturing is on static uses, utilising the Batri technology developed by DST. The gigafactory will have access to uninterrupted renewable energy supplies, with battery technology developed at Swansea also providing back-up to the proposed data centre.

Llanelli Low Carbon Cluster (i)

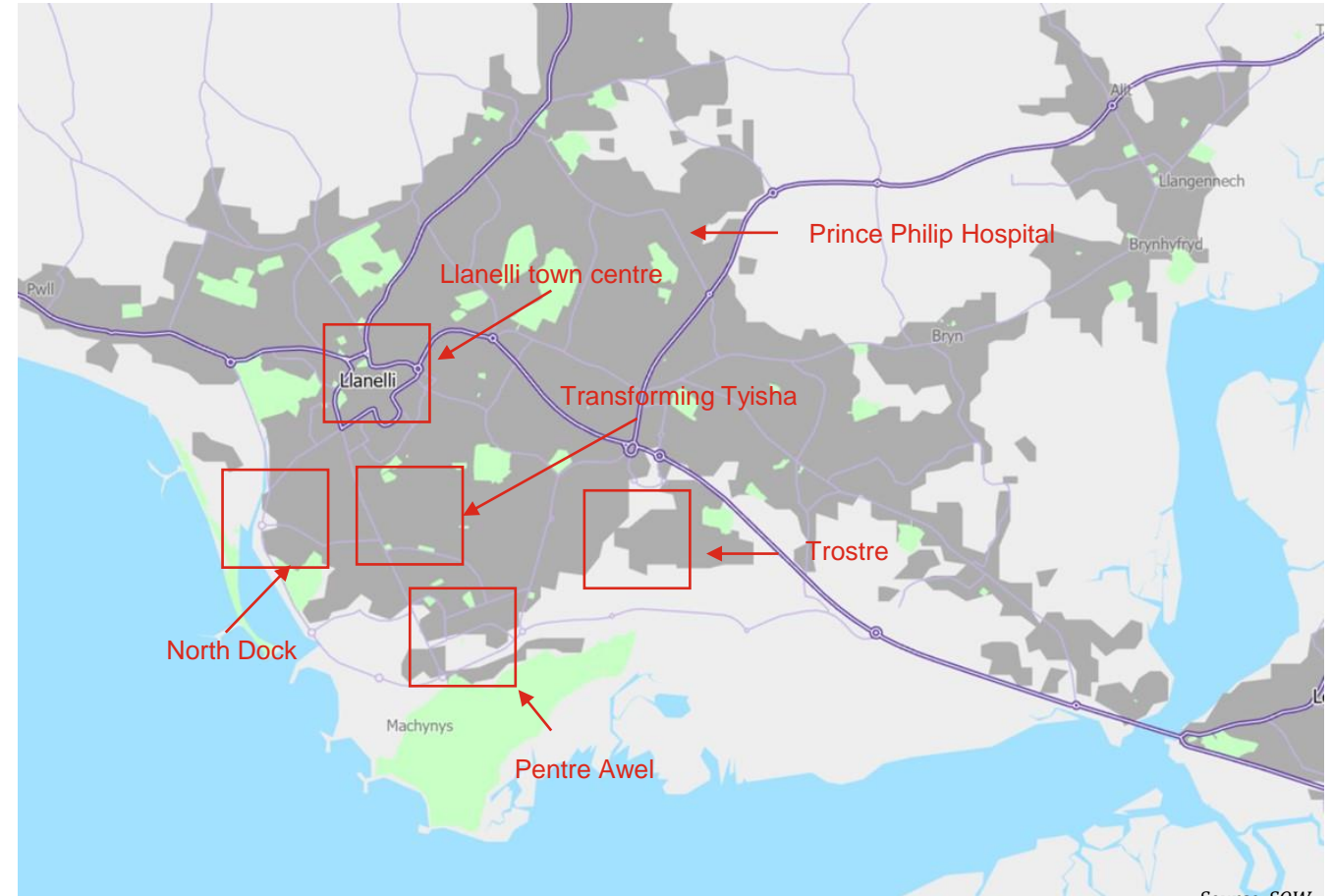
Llanelli offers a concentration of assets that have the potential to create a **'low carbon cluster'**, focused on **high energy users, strategic development sites, renewable energy generation, skills and supply chain development and community need**.

These align with the vision for Llanelli, which seeks to integrate the strategic Pentre Awel health, wellbeing and R&D development the heart of the town centre and surrounding communities.

Supporting industrial resilience

Llanelli has some energy-intensive industrial uses, including Tata Steel's works at **Trostre**. Trostre manufactures around 400,000 tonnes per year of tin, chrome and polymer coated steels for the packaging industries. It is also highly integrated into Tata's wider South Wales operations: the plant will be impacted by the wider decarbonisation of the region's steel industry, which will be accelerated by the [UK Government's £500 million investment](#) in greener steel production.

Strategic location



Source: SQW

Llanelli Low Carbon Cluster (ii)

Beyond steel, Llanelli has a large local **manufacturing** sector, including a relatively large presence in the automotive supply chain (e.g., Marelli Automotive and the electric vehicle technologies company Treharne). This concentration of activity makes Llanelli an important part of the South Wales Industrial Cluster, with key links across the region.

Developing strategic sites

Major progress has been made in recent years, with the development of **Pentre Awel** as a regionally-significant core strategic development, providing an anchor for the southern part of the town (see box opposite).

There are further opportunities to bring forward key sites along [Llanelli Waterside](#), a joint venture between Carmarthenshire County Council and the Welsh Government, which brings together a series of strategic sites. Several of these have already been completed: for example, the Dragon 24 scheme at North Dock offers around 30,000 sq ft of business space, including for businesses in the high-value low carbon services sector. But there is scope to bring additional space forward for industrial and innovation use.

Pentre Awel

[Pentre Awel](#) is a new centre for health and wellbeing, incorporating medical research and delivery facilities, assisted living and space for commercial development. A key project within the Swansea Bay City Deal, Pentre Awel is central to Llanelli's transformation strategy, 'anchoring' the southern end of the town and building opportunities adjacent to some of Llanelli's most disadvantaged communities.

Phase 1 of Pentre Awel is designed to minimise environmental impacts, with solar energy integral to the design. More broadly, Pentre Awel is central to a wider decarbonisation agenda, linked with proposals for active travel connecting it with the town centre and improving access to local services and supporting innovation in [health service decarbonisation](#) (a significant current area of research). This reflects the links between health and wellbeing and green industries that are at the core of this Investment Zone proposition.

Llanelli Low Carbon Cluster (iii)

Renewable energy generation

Opportunities for new **renewable energy generation** in Llanelli include scope for:

- Solar generation on commercial and industrial sites across Llanelli. Plans have been developed by a commercial investor for a new, 18-hectare solar farm at Felinfoel, which could supply energy to the nearby Prince Philip Hospital, as well as to local schools and care homes. Morryston Hospital in Swansea developed its own solar energy supply in 2020: potentially, there is scope for developing similar projects across the region.
- Floating solar opportunities within the Loughor Estuary, North Dock and the New Dafen inlet at Pentre Awel, with the potential to link to adjacent developments to support green hydrogen production facilities
- Experimental tidal stream generation, using the Loughor Estuary as a testbed, with opportunities to link to the regional university research base (including making use of the research facilities at Pentre Awel)

Addressing inequalities through decarbonisation

Llanelli contains several concentrations of disadvantage, especially in the southern part of the town that forms part of the strategic link between Pentre Awel and the town centre. Several neighbourhoods are in the 10% most deprived in Wales, with part of Tyisha the 17th most deprived out of 1,909 'lower super output areas' in Wales. A comprehensive regeneration programme is underway through the [Transforming Tyisha](#) initiative, with scope for investment in the energy efficiency of the housing stock, and the opportunities for local low carbon employment and business development that this could generate.

Skills and supply chain development

Development of the Llanelli Low Carbon Cluster should lead to business opportunities across the opportunity sectors identified at the start of this prospectus (including in retrofit and building decarbonisation). This will be supported by links to **Coleg Sir Gâr**'s largest campus at Graig, offering scope for skills development to support the transition to a greener economy, and with specialist facilities in engineering and manufacturing and computer aided design.

Llanelli Low Carbon Cluster (iv)

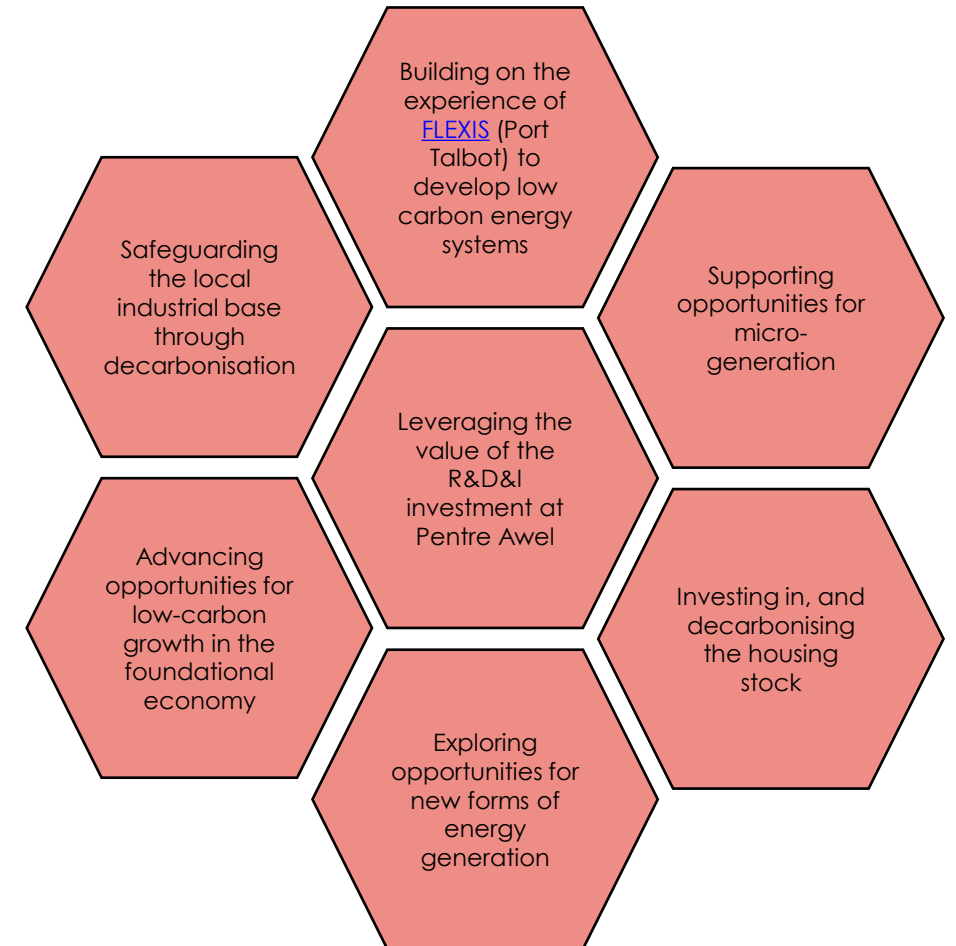
What happens next?

Some of the opportunities at Llanelli are in the early stages of exploration, especially in relation to the potential for offshore energy generation. Carmarthenshire County Council has commissioned further technical work to explore these further. More broadly, there is scope to develop a local decarbonisation strategy for Llanelli, expanding on the 'building blocks' outlined on the earlier pages.

How Investment Zone designation would support the opportunity

While the concept of an industrial cluster is in part based on 'national-scale' capabilities and unique research, development and innovation assets, the development of a Green Industries base in Swansea and Carmarthenshire ought to drive growth and resilience in the 'foundational economy', as well as at the 'leading edge'. Earlier-stage opportunities in Llanelli will also complement the closer-to-market potential of Swansea Energy and Transport Hub and the key business park sites that form our other locations for growth. Investment Zone designation will help to ensure that the whole region benefits and that new opportunities have community impacts, as well as helping to secure additional private sector investment. Further technical work has been commissioned to explore the opportunities associated with Llanelli's Low Carbon Cluster in more detail.

Ingredients for a local Green Industries strategy



Swansea City Centre and Waterfront (i)

Swansea City Centre is a major focus for investment, and the city is ambitious for the future. The city includes the largest concentration of higher education activity in South West Wales, including the majority of the 'research and innovation capabilities' highlighted earlier – and its university assets are integral to the region's large industrial transformation opportunities. In terms of physical locations, they include:

- **Swansea University's** campus at Singleton, to the west of the city centre, which includes the Institute of Life Science, a data science centre of excellence and Natural Resources Wales' analytical laboratories (the Bay Campus, which contains much of the University's STEM facilities, is located just to the east of the city, inside Neath Port Talbot). Work is underway on a further programme of investment in Swansea University's campuses in the city, highlighted in the box on the next page.
- **University of Wales Trinity St David's** Swansea Campus at SA1. The SA1 campus contains much of UWTSD's STEM offer, at the heart of the new Innovation Quarter.

Strategic location



Swansea City Centre and Waterfront (ii)

Developing Swansea's university campuses

Within the Swansea Bay City Deal, the **Campuses project** seeks to deliver two complementary initiatives in Swansea that will support innovation in health, wellbeing and life science, building on the success of Swansea's existing Institute of Life Science and complementing investment cited earlier at Pentre Awel in Llanelli.

The Campuses project will see the development of facilities at Sketty Lane in the west of the city to support innovation at the intersection of science, health, wellbeing and sport; and at Morriston in the north of Swansea, refurbishing existing facilities and planning for future expansion. As with the current scheme at Pentre Awel and initiatives such as Biophilic Living, these build on the regional opportunity to integrate environmental sustainability and population wellbeing.

Capitalising on research and development opportunities

Building on the concentration of engineering and digital technology expertise in Swansea (including the specialist research into the interface between digital technologies and decarbonisation led by the Zienkiewicz Institute), Swansea City Centre can help to capture innovation opportunities locally, through the development of a cluster of support a **cluster of high value low carbon service** firms in Swansea will help to support a cluster of activity – helping to capture innovation opportunities locally.

Key opportunities include:

- **71/72 Kingsway** in the heart of the city centre. This is due to be completed later in 2023, and will offer around 114,000 sq ft of new commercial floorspace, including a hub for technology businesses
- University of Wales Trinity St David's **Innovation Matrix** scheme within the SA1 Innovation Quarter, completing in 2024 and offering around 38,000 sq ft of business space
- The former **Palace Theatre** as a space for tech, start-up and creative businesses, in partnership with Cardiff-based Tramshed Tech, and due to complete in 2024.
- The **Biophilic** live/ work scheme, highlighted earlier

Swansea City Centre and Waterfront (ii)

Linked with ambitious proposals for regeneration and economic growth

Beyond these schemes, Swansea City Centre is a focus for wider investment. In 2022, the Swansea Arena was completed as part of Copr Bay Phase 1; the Council has entered into an agreement to take forward Copr Bay Phase 2; and there are wider proposals for leisure and commercial uses.

However, there is more that can be done. [A City Centre Retail and Leisure Review and Repurposing Strategy](#) was developed in 2021, setting out the key opportunities and challenges, especially in the context of the structural pressures impacting retail centres across the country. This noted that while new business space is coming forward, there is a *“lack of quality office accommodation and adequate provision for larger occupier”*: although there is demand, the market is not yet strong enough to drive the private sector investment to meet it.

How Investment Zone designation would support the opportunity

Development coming forward in the city centre reflects greater confidence in recent years, partly linked with the presence of the two universities and increased opportunities for innovation. This is likely to be reinforced by the Swansea Energy and Transport Hub and Port development, just to the east of SA1, and by the universities' future investment.

But there is a risk that without action to develop a cluster of businesses in the 'high value low carbon services' sector, the opportunities presented by location alongside major energy investment and innovation activity could be missed – and either lost to the region, or dispersed in such a way that weakens the scope for clustering and positive feedbacks into the local economy.

Investment Zone designation will enable investment to secure further capacity for Swansea's development as a centre of innovation and business growth, and will raise investor confidence in the city centre.

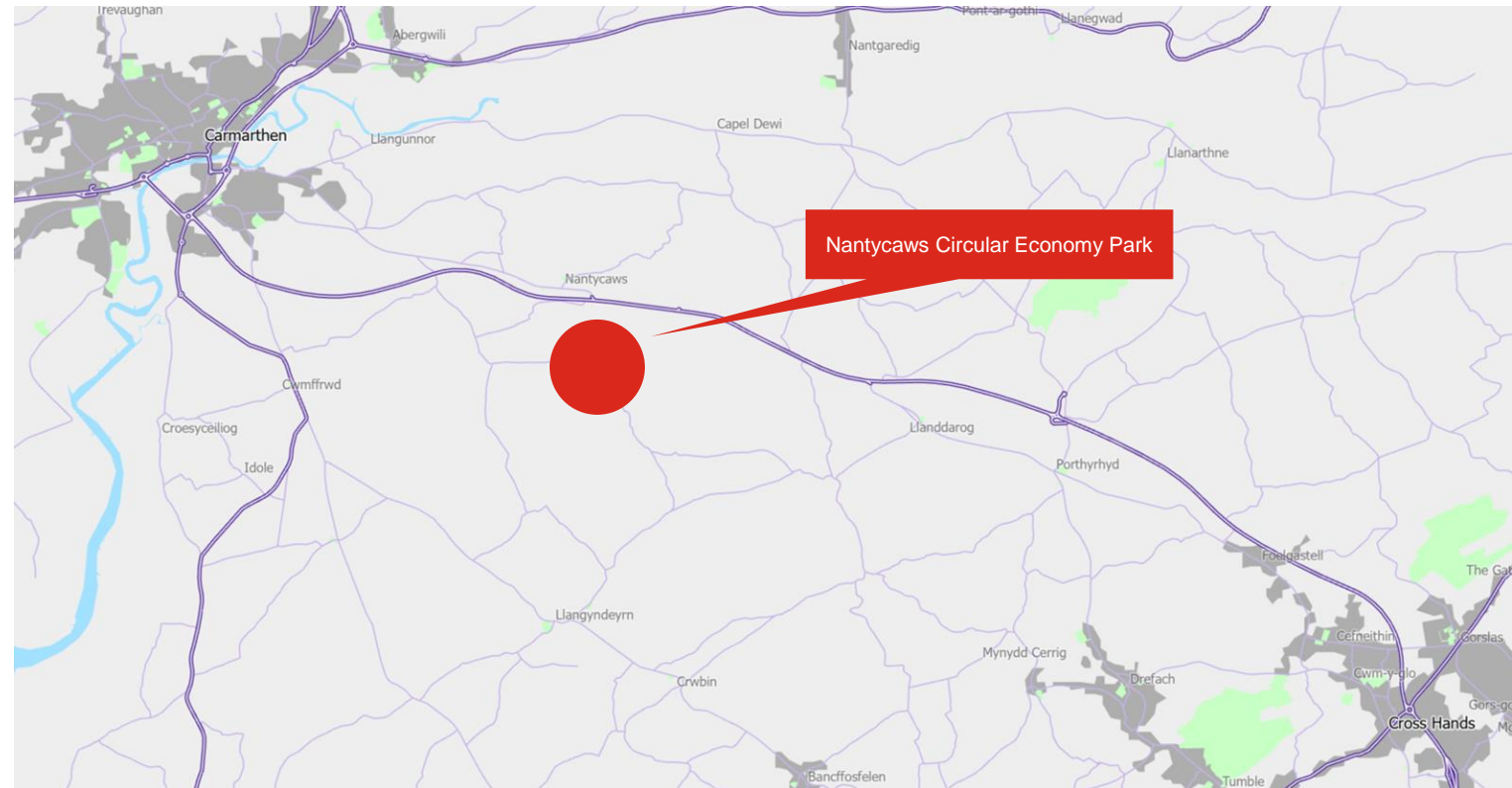
Nantycaws Circular Economy Park (i)

Nantycaws has the potential to be a **renewable energy, manufacturing and circular economy hub of regional significance** and a national example of best practice in the development of an eco-park.

Strategically located immediately to the south of the A48 between Carmarthen and the major employment development at Cross Hands, it has expanded from a household waste disposal and landfill site into a substantial recycling and circular economy centre, which currently includes a re-use and repair operation open to the local community, materials recovery facilities, production of garden compost from green waste and investment in biodiversity enhancement.

The site is operated by CWM Environmental Ltd, which has its headquarters on the site and delivers waste treatment services to several other local authorities.

Strategic location



Source: SQW

Nantycaws Circular Economy Park (ii)

Transformational opportunities

Building on these existing strengths, there is **potential for transformational development at Nantycaws** as a regional centre for the circular economy. This is already attracting private sector investment interest and includes:

In relation to energy generation...

- Expansion of wind and solar energy, with schemes for 7.5 and 13.5 MW capacity developed
- Potential energy from waste, with discussions already advanced with a private sector operator (although noting current Welsh Government limits on waste-to-energy)

In relation to energy use...

- Significant **electric vehicle recharging facilities**. It is strategically located on the A48, with scope to offer recharging for haulage vehicles travelling to and from Ireland, as well as for the public service fleet.

- **Industrial uses**, through serviced industrial plots or completed units, with a circular economy focus. These will benefit from electricity generated on-site, and the location is likely to be attractive to occupiers, given convenient transport access and proximity to the existing industrial cluster at Cross Hands

In relation to materials reprocessing and re-use...

- The expansion of a centralised depot facility for CWM's waste operations
- Development of a **Materials Recycling Facility**, linked with and supporting industrial development on the site.
- Opportunities for further investment in biodiversity, local food production and environmental enhancement.

In relation to research and development...

Opportunities have been identified for collaboration with Swansea University (see box below), building on regional engineering and environmental science expertise.

Nantycaws Circular Economy Park (iii)

i-SPACE

[i-Space](#) ('Innovation Steel Processing Accelerating the Circular Economy') was a European-funded project led by Swansea University which sought to develop technical solutions to extract raw materials from end-of-life components, so that this can be re-used in the steel and other foundational industries, reducing waste and 'down-cycling'. i-SPACE engaged with some 70 organisations: building on its project development and feasibility work.

Building on this, there should be opportunities for the region to take a leading role in the circular economy, both at Nantycaws and across the Green Industries Investment Zone.

Taking all this into account, **Nantycaws has the potential to be on a substantially greater scale than other circular economy parks or 'eco-parks' proposed elsewhere.**

There is significant live commercial interest in the development of Nantycaws, which could lead to very substantial private sector investment.

Barriers to growth

But realising the potential of Nantycaws will involve addressing several barriers. These include:

- **Improving access** to the site: This will require improvements to the A48, for which discussions are currently underway with the Welsh Government.
- Investment in **increasing electricity grid capacity** and in relation to the individual component projects proposed on the site.

Nantycaws Circular Economy Park (iv)

What happens next?

Work is underway to develop a 'business case' for the development of Nantycaws as a Circular Economy Park, which could then inform a masterplan for the site.

At the same time, all three of the key Investment Zone locations in Carmarthenshire offer significant opportunities for low carbon energy generation and use.

Focusing on Llanelli, Cross Hands and Nantycaws, Carmarthenshire County Council has commissioned a **technical study** to consider the feasibility of a range of technologies, including rooftop and floating solar, wind, green hydrogen, deep geothermal, tidal, heat networks and energy storage. This will support the further development of the opportunities identified in this prospectus, and will report later in 2023.

How Investment Zone designation would support the opportunity

Significant progress has already been made in expanding the opportunities at Nantycaws, and it already has an important 'circular economy' function. There are also links with the other key Investment Zone locations proposed in this prospectus – especially Swansea Energy and Transport Hub (given the parallel solar developments at Tir John) and Cross Hands, given its proximity.

Investment Zone designation will help to cement the regionally-significant nature of Nantycaws' offer, with incentive measures unlocking infrastructure, enabling new industrial development to come forward and helping to build a national 'exemplar' project. It will also help to unlock private sector investment, building confidence alongside existing investor interest.

Parc Felindre (i)

[Parc Felindre](#) is a major business park with **the potential to deliver new employment and business opportunities in the advanced manufacturing and high-value low carbon services sectors.**

The Park is located on the site of the former Felindre tinplate works, just off Junction 46 of the M4, at Llangyfelach, north of Swansea.

It offers around 16 hectares of commercial development land, with a series of serviced plots available. There are also plans for residential development, offering sustainable live/ work opportunities. Overall, the ambition, as set out in the Park's Development Framework, is for a "highly accessible, high quality business environment attracting high level services and emerging technologies"

Strategic location



Source: SQW

Parc Felindre (ii)

How Investment Zone designation would support the opportunity

With potentially significant manufacturing development coming forward in Swansea as a result of the Swansea Energy and Transport Hub and Port Development scheme, Parc Felindre offers an opportunity to accommodate service and supply companies (as well as a wider range of occupiers able to benefit from a high-quality, environmentally-sustainable offer. There is scope for solar energy generation, with four solar farms in close proximity, with around 25 MW installed capacity and good grid connections.

However, despite the potential for significant demand (and evidence of existing demand for good-quality industrial space across South West Wales), [the viability challenges associated with bringing forward new development is well-documented](#), even where infrastructure is in place. This is likely to be especially the case where schemes are seeking higher levels of environmental sustainability.

Investment Zone designation and the incentive measures associated with it will help to de-risk private sector investment and raise confidence in the market, accelerating development and delivering sufficient capacity to respond to economic opportunity.

Capturing added value: Low carbon opportunities in high-value services

Much of the focus on Green Industries is on energy production and advanced manufacturing – both areas in which South West Wales has comparative strengths. But around 80% of national output comes from the services sector, [and the UK has significant strengths in services for a low-carbon economy](#) – in areas such as project financing, technical consultancy, climate risk assessment, digital services, and so on.

Within the broad strategy advanced in this prospectus, we want to ensure that these high-value services are captured locally, alongside production. Our university base provides a strong platform for this, especially given local strengths in (for example) computer science and engineering and the talent that this generates. Space for investors to locate and expand will be an important part of a broad-based Green Industries offer.

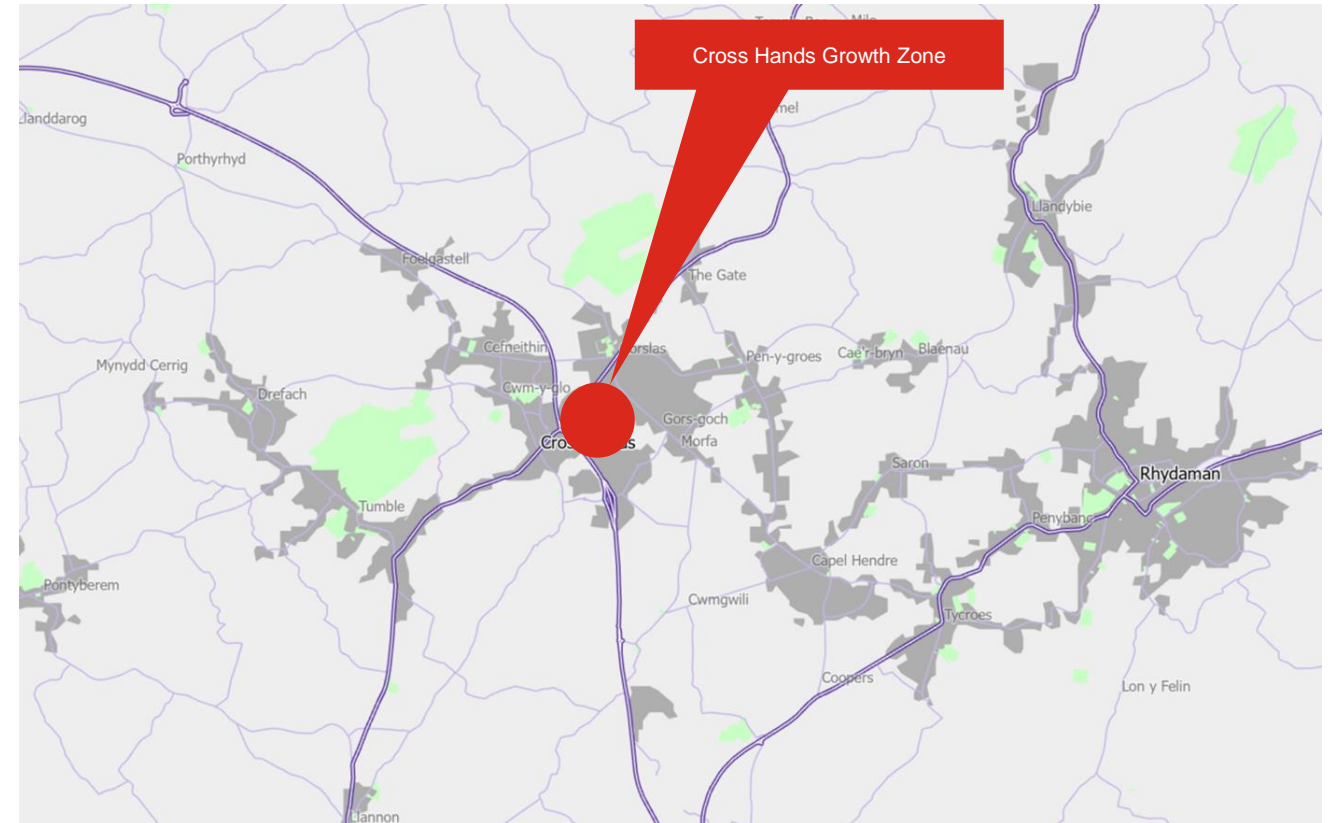
Cross Hands Growth Zone (i)

Cross Hands is a successful, regionally-significant strategic employment zone developed as a joint venture with the Welsh Government, located at the start of the M4 near Ammanford. **It has the potential to build on its existing concentration of businesses to become a focal point for environmental, food production and manufacturing activities.**

Cross Hands Growth Zone is being developed in five phases. The first two – the Food Zone and the mixed-use Business Zone are complete and well-established, with the Food Zone accommodating a cluster of food producers, anchored by Dawn Meats and Castell Howell. The Food Zone has expanded rapidly, with the site employing around 1,500 people.

The current focus of opportunity is on the Phase 3 **Employment Zone** at Cross Hands East, which offers a further 10 ha of development land, especially geared to environmental, manufacturing and services businesses, building on Cross Hands' existing strengths. The remaining two phases will offer mixed-use and residential development.

Strategic location



Cross Hands Growth Zone (ii)

How Investment Zone designation would support the opportunity

Cross Hands has successfully expanded as a strategic employment location over many years. There is a positive track record on which to build and recent units developed on the Park have been at the leading edge of sustainability. However, the viability challenges highlighted in relation to Parc Felindre are also relevant to the expansion of Cross Hands, especially for facilities offering an enhanced level of environmental quality.

More broadly, Investment Zone designation could help to 'raise the bar' in reducing the carbon footprint of the region's food industry – through enabling investment in the building stock and digital solutions to improve efficiency and through links with our substantial regional knowledge base.

Food production as a Green Industry

Food systems globally [account for around a third of all greenhouse gas emissions](#). In the UK, the Food and Drink Federation has set a target to reach net zero by 2040 – a decade ahead of the UK's legal commitment – [although it is some way from achieving this at present](#). The efficiency of the building stock is highlighted as a key challenge, especially for smaller producers, alongside the take-up of advanced digital technologies.

In Swansea and Carmarthenshire, there are significant strengths in the region's network of food manufacturers and primary producers, and in its research base (including assets just outside the region, such as [Food Centre Wales](#) in Llandysul and Aberystwyth University's agritech capabilities).

There are also important [health benefits associated with food decarbonisation](#), some of which may be achieved through 'demand-side' measures (growing demand over time for locally and more sustainably produced food). In a region with a large food sector and where 'provenance' is an important part of the offer, there ought to be significant economic gains from redefining food production as a Green Industry.

Sectoral links and deliverability

The key Investment Zone locations that we have identified map onto the distinct sectoral opportunities that we identified earlier in this prospectus. They also offer a range of ‘early wins’ – key sites that are ready to go and which Investment Zone designation could help to unlock, and longer-term transformational projects which the Investment Zone will help accelerate and to which it will bring confidence.

Alignment with regional Green Industry segments						
Key Investment Zone locations	Energy production	Advanced manufacturing	Agritech, food & bioscience	High-value low carbon services	Decarbonisation in the built environment	Health & wellbeing
Swansea Energy & Transport Hub and Port Development	✓✓✓	✓✓✓		✓✓		✓✓
Llanelli Low Carbon Cluster	✓✓	✓✓	✓✓	✓	✓✓✓	✓✓✓
Swansea City Centre		✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓
Nantycaws Circular Economy Park	✓✓✓	✓✓✓	✓✓		✓✓	✓✓
Parc Felindre	✓	✓✓✓		✓✓✓		✓✓
Cross Hands Growth Zone	✓	✓✓✓	✓✓✓	✓✓		✓✓

Indicative deliverability	
Key Investment Zone locations	Status and timescales
Swansea Energy & Transport Hub and Port Development	Planning and advanced development. Phase 1 by 2027; potential completion by 2031
Llanelli Low Carbon Cluster	Initial short term project, with longer term strategic development
Swansea City Centre	Early delivery and significant opportunities in short-medium term
Nantycaws Circular Economy Park	Energy production in medium term; manufacturing longer term
Parc Felindre	Available for early delivery
Cross Hands Growth Zone	Available for early delivery

*Swansea and Carmarthenshire Green Industries
Investment Zone*

Impacts, delivery and next steps

Indicative impacts

We have carried out an initial analysis of the scale of the impact that the key Investment Zone locations could have. This draws on several previous studies and a 'headline' review of the potential impacts in each key location, based on a series of assumptions relating to occupancy by sector, delivery timescales and so on.

Analysis indicates that the key Investment Zone locations could support an additional **5,300 jobs** in 'steady state', in addition to around 3,700 in the construction phase. This could generate around **£3.9 billion in additional gross value added** (in 2023 prices at net present value) over 20 years, as well as lever in additional private sector investment.

These figures are indicative at this stage, and relate to the total jobs and GVA that could be generated from the key Investment Zone locations, rather than jobs and GVA that could necessarily be *attributed* to Investment Zone designation. However, depending on the use of the Investment Zone financial envelope, there could be significant additional benefits to the wider regional economy through (for example) investment in skills development, increased knowledge transfer, and increased business resilience (e.g., through the adoption of new technologies). We would also anticipate accelerated progress in reducing carbon emissions and increasing energy efficiency and direct financial savings to businesses and households. More broadly, there should be regional benefits associated with the goals set out in the Regional Economic Delivery Plan, as Swansea and Carmarthenshire become known as centres for Green Industries investment, and the effect that this is likely to have in securing inward investment and locking in skills and talent, as well as health and wellbeing benefits. Since the proposition for Swansea and Carmarthenshire is a *contribution* to the overall South Wales Industrial Cluster vision and the wider strategy for South West Wales, there ought to be knock-on benefits across the wider region.

These benefits will need to be analysed in detail as the Investment Zone proposition is developed. But indicatively, the economic impacts are likely to be significant.

Governance and next steps

Clear governance

The South West Wales **Corporate Joint Committee** provides strategic leadership in economic development across the region, driving forward the vision set out in the Regional Economic Delivery Plan.

The Green Industries Investment Zone will be a key component of the CJC's wider regional strategy, ensuring strong alignment with the strategy adopted for the Celtic Freeport in Pembrokeshire and Neath Port Talbot, the Regional Energy Strategy for South West Wales and with wider Welsh Government strategy. As highlighted earlier, the Green Industries sub-sectors that we have identified, and the proposed key Investment Zone locations, also align with, and form a part of, the vision for the South Wales Industrial Cluster: looking beyond Swansea and Carmarthenshire and seeing the Investment Zone in its wider regional context will be important to its success.

Moving forward: Next steps

This prospectus sets out our ambitions to build a Green Industries Investment Zone in Swansea and Carmarthenshire, at the heart of the South Wales Industrial Cluster and supporting our commitment to *“make South West Wales a UK leader in renewable energy and the net zero economy”*.

As the process for Investment Zone designation is defined, we will develop these proposals in greater detail, responding to UK and Welsh Government guidance and ensuring that a Green Industries Investment Zone makes a nationally-significant contribution to sustainable low-carbon growth across Wales and the UK as a whole. This will include further technical analysis of the energy opportunities we have highlighted.

*Swansea and Carmarthenshire Green Industries
Investment Zone*

Annex A

Delivering the Wellbeing of Future Generations

The **Wellbeing of Future Generations (Wales) Act 2015** (WFGA) identifies seven Well-being Goals: a Prosperous Wales; a Resilient Wales; a Healthier Wales; a More Equal Wales; a Wales of Cohesive Communities; a Wales of vibrant culture and thriving Welsh language; and a Globally Responsible Wales. Guidance on the application of the WFGA states that policy should seek to contribute to all seven Well-being Goals, not just the one that most closely approximates to the central purpose of the initiative. The table below summarises how the Green Industries Investment Zone proposal contributes to the Wellbeing Goals:

Wellbeing goal	Contribution
A prosperous Wales	Direct contribution: The Investment Zone seeks to increase productivity, economic growth and higher-value employment and directly delivers the region's economic strategy.
A resilient Wales	Direct contribution: Decarbonisation of existing economic activity and securing new technologies and industries is central to Wales' economic and environmental resilience
A healthier Wales	Direct contribution: There is a link between decarbonisation and population health. More specifically, the IZ proposal aligns with health-related initiatives (e.g., Pentre Awel)
A more equal Wales	Direct contribution: The IZ proposal specifically includes community benefits and supports the development of the foundational and wider economy
A Wales of cohesive communities	Indirect contribution: Benefits are largely consequential on delivering against the 'more equal Wales' goal
A Wales of vibrant culture and thriving Welsh language	Indirect contribution: The IZ proposal will leads to "better jobs, closer to home" and support sustainability as key part of the region's identity and 'brand'.
A globally responsible Wales	Direct contribution: The IZ will directly seek to reduce Wales' carbon footprint.

Research, analysis and advice on economic and social development

SQW



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