

# TOWARDS A LOW CARBON SOUTH WEST WALES: A ROUTEMAP



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## Foreword by Peter Davies



The development of this routemap is part of the enactment of the Sustainable Development Commission's 'Low Carbon Regions' project for the Welsh Assembly Government building on the report we published in November 2009<sup>i</sup>.

As I said in the foreword to that report, our lifestyles take up an unsustainable 2.7 planets' worth of the earth's resources and generate vast amounts of emissions that are causing dangerous climate change. Transition to low carbon living is therefore urgent. However, the lack of immediate impacts and the deferred nature of the results of our lifestyles make it challenging.

This routemap is all about turning that challenge into an opportunity, and to place South West Wales at the vanguard of action not just in Wales but on the international stage. The region is exceptionally well placed already to assume this role with its superb natural resources, its skilled workforce and its impressive record in community-led action and regional collaboration.

We are seeing a global 'gold rush' to develop the secure, clean energy resources we will need in the future. Other parts of the UK, such as the South West of England and the North of Scotland, are already moving to harness the economic benefits. If we are to create green jobs here in Wales, we must not get left behind. South West Wales is well placed to produce clean energy, especially given its long coastline. What we need now is for local people to be fully involved, harnessing tidal, wind and solar energy in ways that benefit the people and environment of South West Wales.

### **Peter Davies**

*Vice Chair and Commissioner for Wales, Sustainable Development Commission*

*Chair of South West Wales Low Carbon Taskforce*

## 1. Introduction – Setting the Scene

1.1 South West Wales is home to circa 0.7 million people and, notwithstanding some regional variations, its population is steadily increasing. Whilst the great majority live in the region's towns and cities, a significant minority live in sparsely populated rural areas where there are particular challenges around transport and access. The South West is relatively affluent, with low unemployment overall, but there are marked inequalities between areas and 'pockets' of real deprivation, both urban and rural. The region is renowned for its amazing landscapes and its internationally important coastline and other attractions draw in millions of visitors every year.

1.2 A popular retirement destination, particularly further west, South West Wales has a relatively older population than other regions of Wales, with the average age of residents on the rise. There are issues around economic inactivity and young people being able to find skilled employment and the lack of affordable housing in parts of the region (worsened by the trend in second homes) makes it hard for them to stay within their communities.

1.3 Climate change impacts are a particular concern to South West Wales, its expansive coast line making it vulnerable to extreme weather, sea level rise and coastal erosion. Conversely, the region's marine energy resources, together with its other natural advantages, which include a reputation for leading the way in environmental management and best practice, mean that it is well placed to be an exemplar in Wales in the transition to low carbon and one planet living.

1.4 The region's 'eco-footprint' reveals that if everyone in the world lived like the average South West Wales resident we would need an extra 1.8 planets to sustain us. Given that we only have one planet, this is clearly not sustainable! So the challenge for South West Wales is to develop 'one planet' ways of living and working that also support its social and economic well-being.

1.5 As part of this, it will be important for the region to make sustainable development its central organising principle. And in the longer term, South West Wales must aspire to become a region that is resilient, healthy, productive, socially just and lives within environmental limits. Achieving this will require both vision and courage to:

- Only use our fair share of the planet's natural resources by consuming less and using our resources more efficiently
- Meet everyone's basic need for healthy food, clean water, decent housing and learning
- Develop a thriving 'one planet'/low carbon regional economy that strengthens local economies
- Enhance the distinctiveness and diversity of the region's natural

environment and biodiversity along with its built environment, heritage and cultural assets

- Access goods, services, jobs, learning and leisure in low carbon ways
- Provide the infrastructure and services to enable people to live low carbon lives. These must be citizen centred and citizen easy.
- Meet most of our energy needs through renewable energy generation
- Fairly value everyone's contribution to society, provide satisfying work opportunities matched to local workforce needs and support a healthy work-life balance
- Provide access for everyone to learning, leisure and cultural activities
- Facilitate healthy lifestyles and caring communities to prevent poor health
- Help people to *be* safe and *feel* safe from crime or persecution
- Help everyone to learn why and how to live sustainably
- Involve everyone in public decisions and the sustainability challenge
- Successfully adapt to unavoidable climate change

1.5 Enactment of this low carbon routemap for South West Wales touches upon many of these critical milestones in the region's journey to one planet, sustainable living. However, quite deliberately, it is focused full square on probably the single most important priority in addressing the challenge of climate change, namely the transition to low carbon living. Readers can rest assured that sustainable development principles will continue to underpin our collective action to make this transition, and that we will be mindful of the importance of adapting to the inevitable consequences of climate changes.

1.6 However, the mission is a simple one, the destination is clear and defining the most important staging posts along the way is far from rocket science. The big challenge for us all will be to turn the words in this routemap into action; to make sure we erect sufficient signposts and that they are all pointing in the right direction; to provide citizens, businesses, organisations with the best low carbon vehicles and the right infrastructure to ensure the right choices are easy; to provide Learner drivers with the skills, instruction manuals, courage and confidence to begin their journey; and to have the courage to remove the speed cameras and the roadworks which are standing in the way of our trailblazers.

1.7 This promises to be an exciting journey; no ticket is required; and there is room for everyone. I hope we can inspire all of you to be part of it - we need you to be.

## **2. Purpose of the Routemap**

2.1 The publication of this route-map for the transition to a low carbon South West Wales is an important early milestone for the region.

2.2 It is designed to be integrated with the Assembly Government's strategic policy frameworks, including the developing Climate Change Action Plan, Low Carbon Revolution, Green Jobs Strategy and Economic Renewal: A New Direction. It is firmly grounded in a simple vision, supported by an inspirational mission, and action brigaded under seven generic areas of opportunity, each with their own vision characteristics.

2.3 This route-map is intended to be an enduring document – in effect, the Region's 'mission statement' for low carbon transition over the next 10-20 years. As such, is intended to serve a number of complementary purposes, including to:

- help create a South West Wales 'Low Carbon Region' brand by showcasing the region's natural, built, business and community assets that mark it out as an exemplar low carbon destination in which to invest, work, live and visit;
- act as a vehicle for connecting and supporting the region's low carbon champions, and to enable best practice to become normal practice;
- create a framework, a point of reference, within which current best practice in low carbon transition can operate within the region;
- create a mechanism that allows the totality of the region's collective action in transitioning to low carbon to be understood and new and/or future actions to be appropriately directed and resourced;
- act as a catalyst for:
  - new action (where there are gaps);
  - stepping up existing action and best practice (where there are proven benefits); and
  - better collaborative working across both geographical space and policy sectors/themes in order to maximise environmental (decarbonising), social and economic impacts

2.4 This route-map will be supplemented by a delivery plan, to be developed by Q1 of 2011 by a new South West Wales Low Carbon Task Force chaired by the Sustainable Development Commission's Commissioner for Wales, Peter Davies. That plan will describe the practical steps and tangible actions the region will be seeking to take over the coming three years to deliver on its aspiration to become Wales' first low carbon region. The main focus of that delivery plan will be on maximising the Task Force's catalytic role in creating

new, stepped up and more impactful action. However, in order to present an holistic picture of what is happening to help guide and prioritise collaborative effort, the Task Force will seek in parallel, including through the use of new media and on an evolutionary basis, to bring together all of the significant actions across the region that are already contributing to the achievement of the overall vision and associated vision characteristics. Creating and maintaining an open-source South West Wales Low Carbon Community of Practice, which all will be invited to join, will be at the heart of this.

### **3. Our Vision**

This is our vision:

“South West Wales is Wales’ first low carbon region, having cut its CO<sub>2</sub> emissions by at least 80% against a 1990 baseline.”

### **4. Our Mission**

This is our mission:

“To champion South West Wales’ transition to low carbon and inspire its citizens, public servants and businesses to leave no stone unturned in their pursuit of a lower carbon, more sustainable, future. This so that South West Wales is widely recognised as a leading EU region on the transition to low carbon by 2013.”

### **5. Our Priorities for Action**

5.1 We are committed, collectively, to develop, inspire and champion action to reduce carbon emissions in South West Wales based on seven critical areas of opportunity:

- a) Built environment
- b) Renewable energy
- c) Land use and food
- d) Transport
- e) Waste
- f) Business & skills
- g) Hearts & minds

5.2 Early action within each area of opportunity will be focused on the

achievement of a range of specific characteristics, which we believe are synonymous with the achievement of our overarching vision to become Wales' first low carbon region. The characteristics associated with each of these areas of opportunity is set out in Annex 1.

5.3 New actions that will help to realise these vision characteristics will be set out in the region's three-year delivery plan, to be developed by the Task Force and published by the first quarter of 2011. In parallel with developing that delivery plan, the Task Force will undertake a mapping exercise, which will seek to identify, in respect of each of the vision characteristics:

- legislative and policy initiatives which currently support the achievement of that vision characteristic in South West Wales;
- programmes and other delivery mechanisms which currently support the achievement of that vision characteristic in South West Wales;
- existing sources of evidence and data which may help better understand how south west Wales is currently performing in terms of meeting that vision characteristic;
- current examples of action on the ground in South West Wales that is contributing to the achievement of that vision characteristic

5.4 An initial analysis of each of the seven areas of opportunity detailed in 5.1. above, including case studies of existing best practice in the region and indicative actions that will be considered in developing the three-year action plan are set out in Annex 2. This will be supplemented by intelligence garnered from the Taskforce's wider engagement with stakeholders in the region, including through the new Communities of Practice website and from previous and further stakeholder workshops. It will also draw upon the wealth of material contained within the resource bank<sup>ii</sup> that supported the Sustainable Development Commission's 2009 Low Carbon Regions report.

## **6. Key indicators of progress**

6.1 We will develop and define a range of key indicators and benchmarks for each area of action so that progress towards our vision to become Wales' first low carbon region can be measured and monitored over time. Included in these will be indicators and benchmarks around:

- Energy efficiency
- Renewable energy generation

- Low carbon economy job creation
- Transport
- Local food production
- ICT – fast broadband access and usage

## **7. Delivery**

### ***Role of the South West Wales Low Carbon Region Task Force***

7.1 The South West Wales Low Carbon Region Task Force, chaired by Peter Davies, will lead delivery of the mission.

7.2 The role of the Task Force is to:

- Maintain a strategic overview of low carbon activity in the region and share that intelligence across the wider network
- Guide and coordinate low carbon activity
- Identify gaps and opportunities, synergies
- Facilitate collaborative working where required
- Be a focal point for low carbon inward investment into the region
- Engage with the low carbon business sector in the region
- Create networks and opportunities for cross sector dialogue
- Advise on the future proofing of existing and new projects
- Act as a conduit between the national and local level, both through its close links with national and international low carbon policy-makers/practitioners and through the online community of stakeholders to be developed in the region
- Help forge links with further and higher education in the region
- To develop and publish the region's 3-year low carbon delivery plan by Q1 of 2011, to refresh and update that plan as required and to report upon its implementation annually

- To champion, and where necessary, initiate action in the region's identified priorities for reducing carbon emissions

### ***Delivery Approach***

7.3 We believe that a regional, spatially-driven, approach is critical to:

- connect national strategies to local delivery;
- develop and implement solutions which can best be optimised through regional action and collaboration;
- ensure integration across sectoral and administrative boundaries; and
- promote innovation and connecting best practice across the region

### ***Adding Value***

7.4 In developing the low carbon delivery plan for South West Wales, the Task Force will focus primarily on areas where a regional approach can add value. Early priorities will include:

- Establishing a clear South West Wales low carbon region brand, which positions the region's natural advantages, its flagship low carbon initiatives and its future plans. This will require collaboration across the Economic Development functions of Local Authorities, the regional office of Economic Development and Transport and Research Institutions.
- As part of the above, developing an online presence for the South West Wales Low Carbon Region, including the utilisation of social media in order to improve connectivity, encourage open source access and promote, share and innovate across a wide 'community of stakeholders' in the region;
- Developing a regional renewable energy focus to maximise the potential of the region within sustainable development principles of marine, wind, biomass etc. This will include establishing a regional forum for developers, energy companies and community energy initiatives;
- Ensuring a regional focus for land use management including regional food production, woodland planting, etc;
- Developing a regional focus for the Zero/Low Carbon hub for the Built Environment with focus on engaging the construction sector and building the low carbon skills base;
- Connecting the climate change engagement work and providing a focus for the WAG climate Change engagement and communication programme and initiatives such as the Prince of Wales/Business in the Community's 'May Day' network;

- Ensuring low carbon delivery through existing regional strategies and collaborations e.g. transport via SWWITCH, Local authority waste management networks, regional tourism partnership;
- Developing benchmarks/key indicators of progress; and
- Developing a partnership or partnerships with other low carbon regions within the EU – possibly through a twinning relationship or a collaborative network linked to other EU programmes, including where appropriate a series of ‘Seeing is Believing’ type study visits.

## 8. Communications/Getting Involved

The launch of this Routemap coincides with the establishment of the Low Carbon Taskforce for South West Wales, which is the core group that will take ownership of and guide the Region’s transition to low carbon. Ultimately, however, success is dependent upon our being able to harness the collective wisdom, energy and passion of everyone in the Region who shares our vision.

We therefore want (and need) everyone in South West Wales – individuals, communities and organisations – to get involved in this transition to low carbon, to help themselves and others to make the different (and often difficult) and more sustainable choices that will translate this Routemap into hard action.

To do this, the overarching approach we will adopt will be based on the ‘4 Es Model’ that is already embedded in the Assembly Government’s Sustainable Development Charter and Advice Note for Community Strategies – that is to Exemplify, Enable, Engage and Encourage.

Collectively, we will seek to **Exemplify** by:

- Leading by example
- Promoting and encouraging best practice, including best practice you tell us about
- Achieving consistency, where you tell us there are inconsistencies

We will **Enable** by:

- Helping to remove the unnecessary barriers you tell us are getting in the way of your low carbon transition
- Becoming a focal point for providing and sharing information
- Providing or helping to facilitate the provision of facilities, infrastructure, skills, capacity to help you lead lower carbon lives

We will **Engage** by:

- Supporting and encouraging community action
- Co-production
- Facilitating deliberative fora and workshops
- Personal contact with enthusiasts and regional champions

We will **Encourage** by:

- Supporting/implementing reward/recognition schemes;
- Where we can, influencing expenditure;
- providing information about performance

### ***Establishing a Community of Practice Website***

As a first step, we are creating an online Community of Practice – the ‘South West Wales Low Carbon Community’ – which we hope will become the focal point for discussion and sharing about the region’s transition to low carbon. The Community of Practice website will be built around the seven key areas for action highlighted in this document and will include:

- a forum, where members can share, discuss and debate ideas;
- a library where members can post useful documents, guidance, articles, research and other information;
- a wiki page, where members can collaborate in real time to help each other and the taskforce develop their own content (documents, plans and programmes etc)
- an events calendar, where members can post information about upcoming events;
- for those so minded, the facility to publish your ideas, thoughts and general musings on low carbon transition in an online journal (blog)

We will be developing the architecture and content of the Community of Practice website over the coming 2-3 months with a view to making it an opensource website available to allcomers to join before the end of the year. In the meantime, we very much welcome expressions of interest from anyone who is interested in helping develop the website or in becoming a facilitator in the discussion fora. Expressions of interest should be sent to the South West Wales Low Carbon Mailbox at: [LowCarbonSouthWestWales@Wales.gsi.gov.uk](mailto:LowCarbonSouthWestWales@Wales.gsi.gov.uk)

## VISION CHARACTERISTICS

### Built Environment - Vision Characteristics

|     |                                                                                                                                                                                                                                                                                                                                                        |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| BE1 | Homes and businesses are far more energy efficient and sustainable – all existing buildings at least meet Energy Performance Certificate standard C and many are on the way to becoming carbon neutral.                                                                                                                                                |
| BE2 | All new buildings are constructed to the highest standards of energy efficiency and are zero carbon.                                                                                                                                                                                                                                                   |
| BE3 | New development and infrastructure is located, designed and constructed for the climate it will experience over its design life.                                                                                                                                                                                                                       |
| BE4 | Technology such as ground and air source heat pumps and solar panels on homes and businesses, community energy and district heating has become the norm.                                                                                                                                                                                               |
| BE5 | Pretty much every building is connected up to some form of localised renewable energy resource and solar water heating is ubiquitous.                                                                                                                                                                                                                  |
| BE6 | The public sector has led the way in this area. Public buildings, schools, further and higher education institutions, hospitals and community buildings have been early, visible demonstrators of greater energy efficiency and renewable technology. They have also pioneered staff and service delivery approaches that minimise the need to travel. |
| BE7 | <i>Low carbon zones have been created delivering focused action on the energy efficient refurbishment of existing buildings and on local microgeneration.</i>                                                                                                                                                                                          |

### Renewable Energy - Vision Characteristics

|     |                                                                                                                                                                                                                |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| RE1 | For large scale electricity demand, there has been a major increase in renewable energy generation, offshore and onshore.                                                                                      |
| RE2 | All remaining fossil fuel plants have taken measures to improve their total efficiency through productive use of waste heat and are also ready to deploy technology for collecting carbon from their emissions |
| RE3 | Large, energy intensive sites are maximising the productive use of waste heat and supplying other businesses and homes in the area.                                                                            |
| RE4 | In common with other sectors, there is a significant increase in the uptake of                                                                                                                                 |

|     |                                                                                                                                        |
|-----|----------------------------------------------------------------------------------------------------------------------------------------|
|     | renewable energy generation by businesses.                                                                                             |
| RE5 | <i>Low carbon energy generated at individual, community and large scales for local use is the norm.</i>                                |
| RE6 | <i>The region is creating low carbon electricity that feeds into the national grid as part of its contribution to a low carbon UK.</i> |

### Transport - Vision Characteristics

|     |                                                                                                                                                                                                                                                |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| T1  | There are fast, reliable, affordable and accessible public transport services connecting major settlements.                                                                                                                                    |
| T2  | There are frequent, reliable mass transit services within cities and more heavily urbanised regions.                                                                                                                                           |
| T3  | There is greatly enhanced provision for cyclists and pedestrians within towns and cities, with improved walking and cycling networks as well as better street design and traffic management measures, <i>including reallocated road space.</i> |
| T4  | There are widespread facilities for cycle commuters to store bikes and change prior to work.                                                                                                                                                   |
| T5  | The 'school run' has been replaced by organised school transport or group walking / cycling.                                                                                                                                                   |
| T6  | Petrol and diesel prices remain high, engine efficiency has increased with the widespread take-up of hybrid vehicles.                                                                                                                          |
| T7  | People buy smaller, more efficient cars.                                                                                                                                                                                                       |
| T8  | In addition, the carbon content of transport fuels has reduced through the development of 'second generation' biofuels.                                                                                                                        |
| T9  | <i>The region has a network of recharge, battery exchange and refill points for electrical and biofuel vehicles including private cars, public transport, light and heavy goods vehicles.</i>                                                  |
| T10 | The rate of growth in air travel has slowed down and it is no longer regarded as a necessity.                                                                                                                                                  |

### Land Use & Food - Vision Characteristics

|       |                                                                                                                                                                                                     |
|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LU&F1 | Increased localisation has means that people are eating more seasonal, fresh local produce and this has stimulated agriculture in Wales and a huge expansion in allotments and community gardening. |
| LU&F2 | The agricultural industry has adapted to a changing climate, including making provision for the impacts of warmer summers, and changes in land use and management.                                  |
| LU&F3 | We are also managing land for the wider ecosystem services it can deliver, including ensuring that high carbon upland soils retain the significant carbon stores they hold.                         |

### Waste - Vision Characteristics

|    |                                                                                                                                                                                                        |
|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| W1 | Waste – whether of energy or other resources is taboo – both from a cost and societal impact.                                                                                                          |
| W2 | Unnecessary lighting of buildings and shop fronts has ceased. Street lighting is far more efficient and directional focused, leading to less light pollution.                                          |
| W3 | Resources are valued and as a result there has been a huge reduction in waste production and a much greater emphasis on reuse.                                                                         |
| W4 | Composting and recycling are at very high levels. <i>The region is capitalising fully in the creation of energy from unavoidable waste e.g. through anaerobic digestions and industrial symbiosis.</i> |

### Business & Skills - Vision Characteristics

|      |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| B&S1 | The importance of these issues is firmly embedded in the curriculum and workplace training. This includes general awareness in the public and other sectors on the nature of climate risks and how they can be managed.                                                                                                                                                                                                                          |
| B&S2 | In a constrained carbon and energy future increased localisation is a key theme. People work closer to home. Many services are available locally and IT is used extensively to connect to specialist services. <i>Accessible hubs deliver local services and economic facilities and the whole region has ubiquitous high speed broadband coverage and access alongside a strategy that maximises its capacity to enable low carbon working.</i> |
| B&S3 | Alternate modes of working have become the norm, with emphasis on                                                                                                                                                                                                                                                                                                                                                                                |

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|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | virtual teams, and working from home. There are very high levels of video and audio conferencing and live streaming.                                                                                                                                                                                                                          |
| B&S4 | Heavy industry and the power generation sector will have made significant improvements by the development and use of new technologies for the energy efficiency of their processes and reducing the embedded carbon in their products.                                                                                                        |
| B&S5 | Other businesses across all sectors will have maximised the carbon efficiency savings of their processes, and will have made significant progress on new approaches to product design, to meet changed consumer expectations and patterns of use of goods and services.                                                                       |
| B&S6 | There has been a huge growth in businesses that supply the goods and services needed to support the transformed economy. Wales is home to a number of world-leading technology development companies and manufacturing plants. These products are used locally and exported.                                                                  |
| B&S7 | This growth has been underpinned by the development of training and qualifications in key sectors and the development of a skilled workforce. <i>Low carbon regional economic centres/gateways with higher education facilities, clusters of low carbon business innovation and rail links to key economic centres have been established.</i> |
| B&S8 | <i>The region has minimised carbon leakage through its development of strong resource efficient local enterprises backed by local purchasing.</i>                                                                                                                                                                                             |
| B&S9 | <i>The region has a skills base which enables transition to low carbon, developed through the education and training systems, prioritising key sectors such as sustainable construction and microgeneration</i>                                                                                                                               |

### Hearts & Minds - Vision Characteristics

|      |                                                                                                                                                                                                             |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| H&M1 | Across society there is recognition of the need to reduce energy use and cut carbon emissions.                                                                                                              |
| H&M2 | Individuals, businesses and communities understand what climate change impacts will mean for them <i>and have the information, advice and support to engage and encourage them to live low carbon lives</i> |
| H&M3 | People understand how they can contribute and what other sectors are doing to help.                                                                                                                         |
| H&M4 | We have strong, active, resilient and supportive communities where people                                                                                                                                   |

|      |                                                                                                                                                                                                                                    |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | take responsibility for their own actions and how they affect others. Many communities are taking action locally to reduce emissions and have developed local carbon budget programmes.                                            |
| H&M5 | Action has been taken to ensure that the transition to a low carbon society and economy does not increase social exclusion and is done in ways which promote social justice and equality of opportunity.                           |
| H&M6 | The energy intensity of society has decreased significantly. There has been a consistent drop in energy demand and the energy we do use is generated from a mix that is coming to be dominated by renewable or low carbon sources. |

## **An Initial Analysis of Areas of Opportunity in South West Wales**

### **Built Environment**

#### ***Context***

The built environment, in construction and in use, is a significant contributor to UK CO<sub>2</sub> emissions, with domestic energy use alone accounting for 27% of the total and non domestic buildings 20%. In Wales buildings, and energy use in buildings, are responsible for over 40% of the emissions covered by the Assembly Government's 3% target.

The region's existing building stock is our greatest challenge because 80% of these will still be here in 2050 and they have not been designed either to minimise their carbon footprint or to maximise their resilience to the impacts of climate change. Only a small percentage are currently fully fitted with energy efficiency measures; a large percentage were built pre 1950; and many others are deemed hard to treat e.g. with solid walls, which are hard to insulate.

Devolution of the Building Regulations to the Assembly Government from 2012 will facilitate the setting of ambitious standards for new build in Wales and a comprehensive programme to inform changes and support the construction industry in adopting these new standards is already underway.

#### ***Indicative actions to be considered by the Low Carbon Taskforce***

The main priority for action in the south west region will be to develop and implement a programme of action for the energy efficient refurbishment of existing housing and business stock. The types of actions might include:

- ensuring that we maximise outcomes in the region from the Low/Zero Carbon Hub Wales programme;
- mapping of the region's building stock (in conjunction with research being undertaken by the LCRI);
- identification of low carbon zones within each of the region's planning authority areas amenable to area based energy efficiency programmes such as Arbed; or (in hard to treat homes in deprived areas) CESP; or (in fuel poor areas), the new all-Wales Fuel Poverty Schemes (which will replace HEES in 2011); or CERT funding as part of improved schemes to meet the Wales Housing Quality Standard;

A secondary priority will be to establish the region as an exemplar in reducing emissions within new build, both in terms of embodied CO<sub>2</sub> arising from the construction and CO<sub>2</sub> emissions arising from its use. Activities might include:

- Promoting the Green Building Charter within the region and encouraging organisations to sign up to it;
- Developing the region's offer as a centre of excellence in sustainable construction skills – working with the construction sector to identify skills and training needs and with the FE and HE sectors to ensure that these are met;
- Co-ordinating the creation of a standard for materials to be used in new builds based upon the BRE's Green Guide to Specification;
- Working with the Forestry Commission and construction organisations to assess what is needed to proliferate timber frame housing within the region;
- Assessing the potential to locate building materials reuse centres in the region to act as a consolidation site for waste construction materials which can be purchased at a discounted price for reuse in another project *[DN: include under waste perhaps?]*
- Identifying opportunities to showcase in the region some exemplar/demonstration Code 6/passive buildings as a source of learning, best practice and inspiration.

### **Key Outcomes/Measures**

- Households in South West Wales have reduced energy costs and emissions
- Fuel poverty has been eradicated as far as reasonably practicable in South West Wales
- People in South West Wales understand their energy and water use and how they can reduce these, and have taken practical steps to do so

- The energy performance of the region’s homes and business stock have improved

See also Box BE12 in the Low Carbon Wales Resource Bank.

### **Case Study**

#### **CASE STUDY - BUILT ENVIRONMENT**

##### **‘Bringing Warm Homes to Neath Port Talbot’**

A major scheme aimed at tackling fuel poverty in Neath Port Talbot resulted in a significant cut in carbon emissions from homes.

‘Bringing Warm Homes to Neath Port Talbot’ was a three year scheme run by Warm Wales – Cymru Cynnes CBC, a community interest company working with Neath Port Talbot Council, National Grid and npower. It followed successful projects involving National Grid in England.

The first phase of the scheme involved intensive marketing on a ward-by-ward basis, to let people know that the scheme was about to start in their area. The project team then called at every house, inviting residents to complete a doorstep questionnaire. To make sure people weren’t left out, the team also visited workplaces, shopping centres and local groups. They also sent out self-assessment forms.

There were then surveys of homes eligible for free insulation and contractors made appointments with householders.

Insulation formed an important part of the project – including cavity wall, loft and hot water cylinder insulation and external cladding. The 19,000 homes which were insulated cut their energy use by a fifth on average.

In CO2 terms, the overall scheme saved the equivalent of the total emissions from around 4,100 homes.

*Photo: Warm Wales – Cymru Gynnes CBC*



## **Renewable Energy**

### ***Context***

In common with the rest of Wales, and consistent with the Assembly Government's 'Low Carbon Revolution – Wales' Energy Policy Statement', the approach in South West Wales will be to reduce energy consumption and improve energy efficiency first, whilst at the same time seeking to meet the region's necessary energy needs by maximising renewable and low carbon energy generation at both a small and large scale. This will include building on the region's existing strengths in developing a major role for marine renewable technologies and low carbon fuels.

As part of this, the Region will need to work to ensure that it makes (and, wherever possible, exceeds) its contribution to:

- the *One Wales* target of 3% reductions in greenhouse emissions in devolved areas of competence from 2011;
- the UK target of a 40% reduction in total emissions by 2020; and
- the Assembly Government's aim to renewably generate up to twice as much electricity annually by 2025 as it uses today and to meet almost of its local energy needs by low carbon electricity production by 2050.

The key imperative must be to significantly increase the region's energy generation capacity from community and large scale renewables.

### ***Indicative actions to be considered by the Low Carbon Taskforce***

Renewable energy generation at a local scale will be central to the development of new low carbon buildings and to the refurbishment of existing stock. This strand of work in the region needs to be closely aligned and integrated with action under the built environment priority. It must also be aligned to, and support and add value to, the commitments in the Assembly Government's Renewable Energy Route Map for Wales and Energy Policy Statement, A Low Carbon Revolution.

Preparatory work should include the mapping of renewable energy resources within the region to guide and coordinate renewable energy installation and to highlight the significant areas of opportunity. In parallel, this region should collate and map information about existing and proposed renewable energy installations.

As part of this opportunity mapping, and subsequent action planning, the Low Carbon Taskforce should look also to:

- identify suitable locations for district heating schemes, including by identifying sources of waste heat from industry that could feed district heating networks;
- identify suitable locations for wind turbines for large businesses /business parks;
- support existing Energy Service Companies in the region and explore the potential to create new ones;
- work with renewable energy developers, communities and landowners to identify opportunities for large scale renewable energy developments in the region;
- support and facilitate the work of the Marine Energy Pembrokeshire working group to establish the area as a centre of excellence in Wales for the generation of energy from ocean resources;
- identify suitable communities for community scale generation;
- provide advice and support to community energy projects, including exploring possibilities to pool resources to provide advisory and support service/development officers;
- facilitate wider engagement on the pros and cons of renewable energy developments in the region, including through the communities of practice website;
- explore funding opportunities with a view to developing bids (possibly by establishing a regional energy partnership) or supporting others to develop bids
- work with the South West Regional Learning Partnership and regional business groups to help progress low carbon skills development for renewable energy installations
- encourage the Region's planning authorities should look collectively at opportunities to streamline the planning process for renewable energy planning applications
- explore opportunities to work with the oil and gas industry in Pembrokeshire to ensure that they can be part of the low carbon solution for the region as a whole

### **Key Outcomes/Measures**

- Mapping of the region's renewable energy resources and installations
- Significant increase in the region's renewable energy generation capacity

See also Box BE14 in the Low Carbon Wales Resource Bank.

### **Case Study:**

#### **RENEWABLE ENERGY**

##### **Whitesands Café, St David's, Pembrokeshire**

When St David's City Council replaced the old beach café at Whitesands, it decided to incorporate sustainable energy features. Since 2004, the replacement building has harnessed energy from the sun and the wind. Photovoltaic solar panels provide electricity for lighting, with excess power supplied to the grid. Solar energy also provides hot water for the building – often meeting all of the needs of the kitchen and even making a contribution in the winter as the site is configured to received sunlight. A 40W

demonstration wind turbine runs a fan which extracts heat from the cold room to produce background heating for the main café. This successful project won a Pembrokeshire Coast National Park Authority award in 2005.



*(Photo: St David's City Council)*

## **Transport**

### ***Context***

Personal mobility and the transport of goods is responsible for over 16% of total CO<sub>2</sub> emissions in Wales and about a quarter of the emissions covered by the Assembly Government's 3% target. The long term trend in this sector has been one of increasing emissions, reflecting the underlying increase in the demand for travel.

The main levers available to the South West region to influence emissions from transport are likely to be around:

- Infrastructure and service provision;
- Supporting behavioural change;
- Land use planning;
- Supporting technology research, development and deployment; and
- Shaping wider public sector service delivery.

The following hierarchical approach to achieving a sustainable transport system within the region should be used to guide regional action and priorities:

- Measures to reduce demand;
- Measures to shift to more sustainable/space efficient modes of travel (e.g. walking, cycling, public transport);
- Measures to promote more efficient use of existing modes (e.g. car sharing).

Changing travel behaviour is integral to the enactment of all of these.

### ***Indicative actions to be considered by the Low Carbon Taskforce***

Initial action should be developed in close consultation with and complement the existing plans of the region's transport Consortium, SWWITCH, and also the region's Community Transport organisations, where there is already much exemplar action. It should be focussed on the two priorities identified in the Sustainable Development Commission's report, Low Carbon Wales, namely:

- Providing the infrastructure and information needed to enable smarter choices, including; and

- Significantly increasing the use of low carbon transport fuels and electric vehicles.

Opportunities for emissions reductions to be considered include:

- Strengthening the role of travel planning within the wider planning arena e.g. by local planning authorities working together to ensure sustainable transport provision/accessibility in new development and regeneration projects, including where appropriate adopting a live/work approach to development (Coed Darcy as a potential exemplar) or including mandatory ceilings on car parking spaces/mandatory provision of bicycle parking in planning requirements ;
- Supporting and guiding the development of the region's ICT strategy with a view to using ICT/telepresence as a replacement for business and personal travel;
- Targeted, demand responsive, transport to key sites (for employment, leisure, public services), particularly in the region's rural areas;
- Maximising opportunities for personal rapid transit in the region's urban centres;
- Supporting the development of a strategic series of modal interchanges within the region, providing access into city and town centres through park and ride/park and share opportunities as well as provision for walking and cycling;
- The development of sustainable travel choices through the Assembly Government's Sustainable Travel Centre Programme, building on the existing pilot in the region in Haverfordwest and Carmarthen;
- Collaborative action to promote Smarter Choices within the region, including exploring the potential to develop a dedicated smarter choices team within the region to help with personalised travel planning, production of smarter choices guides for developers/residents in new developments;
- Supporting and encouraging initiatives to increase the use of low carbon transport fuels and electric vehicles within the public sector;
- Supporting and encouraging public sector service delivery transformation projects that have the potential to reduce transport emissions. An example is the transport initiative being taken forward by the Hywel Dda Local Health Board;

- Supporting and encouraging action to increase access to safe walking and cycling routes within the region;
- Encouraging, supporting and facilitating initiatives within the region to reduce 'food miles', including by promoting local food production and consumption (this links to the land use and food priority);
- Working with Visit Wales, the South West Wales Regional Tourism Partnership and Sustainable Tourism Forum to explore opportunities for sustainable travel to and between the region's popular tourist destinations and attractions.
- Supporting and encouraging local and regional initiatives to encourage safe & fuel-efficient eco-driving, including participating in pilot programmes focused on behaviour changes that have the greatest potential to yield emissions savings
- Supporting and encouraging local and regional action to improve the region's infrastructure for walking and cycling, including traffic free walking and cycling routes.
- Supporting initiatives that encourage better provision of public and community transport services within the region
- Action to support the region's freight industry to reduce its emissions
- Action to support the development and use of alternative/cleaner fuels from renewable sources across the region (including the necessary infrastructure to allow their deployment e.g. electric charging points), with a particular focus on the region's existing strengths as part of the Low Carbon Economic Area for hydrogen energy

### ***Key Outcomes/Measures***

- More people walking and cycling in the region
- More people car sharing
- More people using public transport
- A reduction in the number of vehicle miles travelled
- A greater proportion of alternative fuelled vehicles on the Region's roads

- Sustainable transport options informing location choices, design of development and reconfiguration of public services

See also transport section of Low Carbon Regions Resource Bank.

### **Case Study**

#### **CASE STUDY - TRANSPORT**

##### **Car sharing and smart travel training**

A free website service for people in South West Wales –makes it easy to find others to share car journeys.

Thousands of people have already signed up with [swwitch2share.com](http://swwitch2share.com), which links up drivers and passengers for business or leisure trips within the region and beyond. Users simply register on the website and by sharing journeys they cut carbon emissions while saving money and reducing stress. This also helps to tackle congestion and parking problems. The site is part of a wider UK network with almost 400,000 members.

The car sharing scheme is one of the options promoted through the Smart Travel Training programme, which helps staff in various organisations to be ‘travel champions’. Once trained, participants provide information to their colleagues and others., helping them to make informed choices about how they can travel more sustainably – including car sharing and also public transport, walking and cycling. The DVLA and Hywel Dda Local Health Board are among the organisations that have already taken part in the training. Both schemes are run by SWWITCH – a transport consortium of four local authorities in South West Wales: Pembrokeshire, Carmarthenshire, Swansea and Neath Port Talbot.



*(Photo from SWWITCH collection)*

## **Land Use & Food**

### ***Context***

In 2005 agriculture and land use sector accounted for 11% of Wales' total greenhouse gas emissions, although it currently accounts for about a fifth of the emissions covered the Assembly Government's 3% target. The trend, however, is one of decreasing emissions and the vast majority of emissions from agriculture, forestry and land use comes from non-CO2 emissions. Importantly, the land use, land use change and forestry sector in Wales is currently a net sink, although importantly the trend e.g. in terms of Wales' woodland resource, is for it to become a net source rather than a net sink over the next 20 years. Abating this trend, and protecting the region's significant carbon sinks is therefore considered to be an important initial priority for regional action.

Food is responsible for about 10% of the region's carbon footprint, although recent research questions the use of food miles and traditional carbon footprinting as proxies for the carbon impact of food. A comprehensive approach to promoting low carbon food consumption is therefore optimum, from:

- managing the production of livestock and crops so as to minimise emissions;
- tackling energy use on farms, including the expansion of renewable energy both for on-farm and off-farm use (be that methane capture, small scale wind, hydro, solar, biomass or biogas from anaerobic digestion);
- increasing the efficiency of the food chain to reduce waste associated with processing, distribution, storage and domestic consumption;
- increased local food sourcing e.g. by encouraging individuals and communities to grow their own food, to reduce food transport and inputs.

Waste reduction and renewable energy generation are covered by other action areas to be taken forward by the low carbon taskforce. Therefore, it is suggested that a further priority for regional action under this heading should be around local food sourcing.

### ***Indicative actions to be considered by the Low Carbon Taskforce***

It is important that regional action is aligned with and complements the Assembly Government's Land Use and Climate Change Group's 2010 report, which assessed the science relating to emissions from the agriculture, land use and food sectors in Wales and outlined a way forward to achieve significant reductions in greenhouse gas emissions. The implementation plan for accepted recommendations is expected before the end of 2010.

As set out above, initial actions within the region should be developed under the following two priorities:

- Identifying and implementing a programme of action to protect all of the region's significant soil carbon stores and, where possible, enhance sequestration on suitable land; and
- Implementing a comprehensive programme of measures to enable and significantly increase community and individual food growing

Possible actions to be considered include:

- Mapping the region's priority areas for protection and restoration is an important necessary preparatory stage;
- Collective action to ensure that soil carbon maps inform local planning decisions within the region
- Supporting and encouraging the region's key partners (Forestry Commission, Farming Unions) to explore opportunities to promote soil carbon aware land management in agricultural and forestry practices;
- Exploring opportunities for soil carbon restoration projects and landscape scale farm woodland planting, potentially through the establishment of environmental farming co-operatives in the region;
- Seeking partnerships with large landowners to instigate woodland planting on mineral soils;
- Regional action to support the work of e.g. Wood Knowledge Wales to promote the use of local, sustainable timber in construction, including potentially through planning guidance or public sector own estate construction/new developments;
- Supporting and encouraging regional initiatives to promote local food to cut down on transport and manufacturing related emissions e.g. through public sector procurement initiatives (specifying seasonality and freshness), the creation of local supplier databases, encouraging food tourism (e.g. Pembrokeshire Fish Week);
- Initiatives aimed at increasing land provision for community food growing, community farms, gardens and allotments;
- Exploring the potential for land provision for food growing to be facilitated through the planning process (e.g. by making it a requirement in all residential, school developments).

## Key Outcomes/Measures

- More local production and sourcing (see also Box RLU7 in Low Carbon Wales Resource Bank)
- High carbon soils under protection/restoration in the region
- Woodland planted in region
- Increased use of timber framed buildings

See also Resource Bank.

## Case Study

### CASE STUDY - LAND USE AND FOOD

#### Sarn Helen Community Garden Team, Neath Port Talbot

The Community Garden, which is spread over an acre of reclaimed allotments, produces a range of seasonal vegetables, as well as plants and flowers. Over the past four years the team have set up a local food co-op involving over 150 local volunteers, including young people from local schools and colleges. They have produced vegetables for an isolated community with few fresh food outlets, with produce delivered for free within the Dulais Valley. The project has also run an organic food fair and sold other garden products such as compost, plants and seeds. Staff and residents of local care homes for people with learning disabilities are also involved in sorting the produce.



*(Photo courtesy of Sarn Helen Community Garden)*

## **Waste**

### ***Context***

The waste sector contributes a relatively small proportion (2% in 2004) of the total GHG emissions in Wales, but a significant contribution to much more potent methane emissions, with the key source the disposal of biodegradable waste to landfill. The trend since 1998 has been towards slight decreases.

In terms of indirect emissions, action on resource efficiency is very significant in terms of reducing the region's 'embedded' CO<sub>2</sub> emissions and, equally as important, its ecological footprint.

Regional action should complement the Assembly Government's waste strategy 'Towards Zero Waste', published in June 2010, which signposts reducing direct and indirect emissions from waste management as the key drivers. The long term aspiration is to achieve zero waste by 2050 where, as a minimum, the impact of waste in Wales (and in the South West Wales region) is reduced to within our environmental limits – phasing out residual waste through actions on waste prevention and sustainable consumption and production so that the only waste produced can be reused or recycled as a resource.

Regional action to support CO<sub>2</sub> and other GHG emissions from waste should also support the sector action plans being developed with stakeholders on a rolling basis to implement the waste strategy. It should be grounded in the familiar and broader waste hierarchy (reduce, reuse and recycle) and aligned with the following foci for action:

- reduction of emissions from landfill sites by taking action to further reduce emissions from the Region's existing sites and substantially reducing the amount of biodegradable waste by diverting to recycling, composting and anaerobic digestion;
- reducing indirect emissions associated with resource consumption by waste prevention, increasing reuse, recycling and composting; and
- supporting and encouraging behaviour change to ensure more efficient waste and resource use.

### ***Indicative actions to be considered by the Low Carbon Taskforce***

Initial action should focus on the two priorities identified in Low Carbon Wales:

- Identifying and developing of anaerobic digestion facilities within the region linked to significant sources of biomass waste; and

- Progressing sustainable production and consumption initiatives within the region to prevent or minimise waste.

Possible actions to be considered include:

- working collaboratively, in conjunction with others (including the Regional Waste Partnership/WLGA Regional Board) to identify sources of food and farm waste as feedstock for AD facilities; users, especially local users, for heat/power and biogas produced; and local use for digestate;
- utilising public funded capital projects and revenue spend (e.g. on food) in the region to support exemplar action, e.g. use of site waste management plans by the construction/demolition industry; to reduce waste arising throughout product lifecycles; choose and promote products that can be reused or easily remanufactured; promote low impact packaging and waste minimisation in food sector; implementing the demolition protocol on all new developments; setting voluntary targets for waste reduction and incorporation of recycled content; promoting the use of Welsh recyclate in Welsh manufacturing and construction;
- supporting, encouraging, rolling out and scaling up best practice initiatives in the region which encourage reuse;
- working collaboratively to support, encourage and help provide the infrastructure necessary to improve recycling rates e.g. trade waste recycling centres;
- identifying and supporting current initiatives to support delivery through regional partnership and collaboration.

### ***Key Outcomes/Milestones***

- Increased landfill diversion within the region
- Creation of an anaerobic digestion netin the region
- Increased levels of recycling in all waste streams
- Increased levels of composting and co-digestion of waste

See also Low Carbon Wales Resource Bank

## Case Study

### CASE STUDY - WASTE

#### Redevelopment of Quadrant Bus Station, Swansea for City and County of Swansea

To cut carbon emissions from waste, prevention and minimisation are among the top priorities.

The construction sector has an important role to play and the redevelopment of Swansea's main bus station in 2009 provides one example of how waste can be reduced.

The plan was to knock down the old bus station and build new facilities. Rather than simply sending the waste to landfill and

building with all new materials, Dawnus Constuction Ltd, Willmott Dixon Construction and the City and County of Swansea took steps to reprocess and reuse material from the old bus station. They contacted a local firm - Derwen Aggregates of Neath Abbey - to discuss the way forward.

About 25,000 tonnes of material were removed and reprocessed by Derwen. Around 5,500 tonnes of this was returned to the bus station site for reuse, with the rest used on other local sites. Approximately 5,000 tonnes of tarmac was reused on site. All Demolition materials were salvaged for re-use or re-cycling.

Another benefit of this approach was that by using lorries to take the waste in one direction and bring reprocessed material on their return journey, the project is estimated to have saved approximately 8000 lorry miles and 60 tonnes of Carbon.

The project won the Constructing Excellence Wales Waste Minimisation Award in July 2010.



*Photo (top):  
Willmott Dixon  
Construction –  
Main Contractor  
Diagram (right):  
Willmott Dixon  
Construction &  
Dawnus  
Construction*



## **Business & Skills**

### ***Context***

The overarching context for regional action is the vision for Wales' economy described in the Assembly Government's Sustainable Development Scheme (One Wales: One Planet), namely:

*A resilient and sustainable economy...that is able to develop whilst stabilising, then reducing, its use of natural resources and reducing its contribution to climate change.*

The Assembly Government's Green Jobs Strategy (Capturing the Potential) is an important delivery mechanism for this nationally, as is Economic Renewal: A New Direction, launched in July 2010, which particularly highlights, inter alia, the need to:

- move towards a low carbon, low waste, less resource intensive, low-carbon economy;
- integrate the way in which investment in infrastructure is planned and delivered; and
- ensure that Next Generation Broadband is available across all parts of Wales.

Economic Renewal Regionally led action in business and skills needs to be aligned with, complement and seek to maximise the opportunities arising from those wider policies and existing delivery mechanisms.

In addition, the key themes which should underpin regional action under this heading, drawn from the Sustainable Development Scheme, are:

- developing a South West Wales economy that is resilient to the negative impacts of climate change – resource efficient and future proofed against the challenges of energy security and scarcity of natural resources;
- supporting R&D and the commercialisation of new sustainable technologies, products and processes;
- maximising the growth opportunities for businesses in South West Wales, or businesses wishing to locate in South West Wales, in low carbon and resource efficient goods and services;
- integrating economic, social and environmental objectives in

- infrastructure, regeneration and other masterplanning;
- making full use of public procurement as a vehicle for demonstrating best practice, showing leadership in behavioural change;
  - providing future skills and training to equip individuals and businesses with the capacity and means to enact and exploit the economic potential of green economy.

***Indicative actions to be considered by the Low Carbon Taskforce***

It will be important to develop actions which capitalise, for the benefit of the South West Wales economy, on the key policies and programme set out in Economic Renewal: A New Direction which have both a direct and indirect positive impact of the Region's decarbonising agenda. As part of this, we should the potential to develop complementary actions to:

- encourage, showcase and support the growth of the region's existing sustainable technology businesses and maximise their potential to position South West Wales as a prime location for new such businesses to locate and flourish;
- further position the region as a location in which to exploit the largest and fastest growing Low Carbon and Environmental Goods and Services industries - alternative fuels, building technologies, renewable energy (wind, geothermal, biomass, photovoltaics, wave and tidal), water and waste;
- support businesses in the region to develop renewable energy projects at both a large and small scale, in particular by helping to create the conditions and environment in which they can flourish;
- support the region's businesses to adapt and seek competitive advantage through greater resource efficiency, including by using low carbon energy (where practicable generating such energy on site), and the development of new low carbon products and services;
- support the maximum involvement of the region's businesses in major low carbon energy and other sustainable infrastructure projects, including through catalysing supply chain development;
- support the research, development, demonstration and commercial exploitation of low carbon technologies as part of the Region's wider plans to develop the knowledge economy;
- lead by example in progressing significant capital/regeneration projects

and programmes e.g. in the development of proposed Innovation Campus and the Swansea and Western Valleys Regeneration Areas, by ensuring that these deliver the highest sustainability standards, provide opportunities to create sustainable green jobs and enable the people, businesses located there to live and work in a way that is consistent with a low carbon future;

- identify ways in which we can help integrate sustainable development into the region's law, marketing communication and creative industries and to harness their skills to help develop the region's low carbon economy e.g. by developing innovative communication techniques to encourage the region's citizens to move towards a lower carbon lifestyle. In parallel, to support the development of businesses in the region to both adapt and take advantage of the commercial opportunities that will appear as consumers change their purchasing decisions;
- support the development of the region's ICT infrastructure to enhance national and international connectivity e.g. through state of the art video-conference hubs available to all businesses, and flexible home/near to home working hubs, incorporating meeting space and hot desk facilities;
- forge stronger connections between businesses and skills providers, both to ensure the development of workforce skills appropriate to the transition to a lower carbon economy and to help develop learning which meets business needs, particularly in the environment and energy sectors;
- support and encourage the development and promotion of the region's tourism products that capitalise on its environmental and heritage assets through the enactment of the Sustainable Tourism Framework and Action Plan;
- support and encourage action which helps businesses in the region to adapt to a lower carbon future and improve their environmental performance and to identify opportunities for those credentials and wider sustainability principles can be appropriately recognised, particularly through public sector procurement.

### ***Key Outcomes/Measures***

- Increased stock of sustainable technology businesses in the region.
- South West Wales regarded as the ideal place for sustainable technology businesses and other businesses aspiring to have best in class environmental credentials, to start up, grow, mature and prosper.

- Increase in proportion of the region's businesses obtaining environmental accreditation.

To be developed further with reference to the Vision Characteristics in Annex 1.

### **Case Study**

#### **BUSINESS AND SKILLS**

##### **Pure Wafer, Swansea**

The development of low carbon technologies will be an important part of the transition to a low carbon South West Wales.

One of the companies already involved in this field is Pure Wafer. For over ten years the company has been processing silicon wafers from the electronics industry so that they can be re-used rather than scrapped.

However, the silicon wafers can only be reprocessed a limited number of times before reaching their end-of-life, so more recently the company has developed a way of transforming the waste material into an energy producing product.

In collaboration with Swansea University, the company developed a method for turning this waste into solar cells. The firm now produces both photovoltaic cells and a range of solar products, including roof mounted solar panels, fully integrated solar roof tiles and laminates, in addition to stand-alone solar power sources for both commercial and domestic use.

A number of the company's solar products carry the certification necessary to take advantage of the Feed-In-Tariff. The firm also offers advice on the selection and installation of solar power solutions.

These products and services are part of a market in renewable energy which has the potential to play an important part in the transition to a low carbon Wales, where innovative companies can benefit from new market opportunities thus creating and securing jobs.



(Photo: Pure Wafer)

## **Hearts & Minds**

### ***Context***

There is no magic bullet for tackling the transition to low carbon in the region. Many of the processes which produce emissions are currently central to the way the majority of people live their lives. Winning hearts and minds is therefore a critical precursor to instigating large-scale behaviour change within the region, be that at an individual or household level, at a community level, within organisations and businesses.

Furthermore, it is also critical to the acceptability and successful enactment of the great majority of the areas for potential action suggested in the foregoing six themes. It is important, therefore, that winning hearts and minds is considered in all six thematic areas and complementary action is developed in parallel to support and promote behavioural change. The central thrust of this should be encourage and support behavioural change by making low carbon living and working citizen-easy.

This is a national priority and it is important that regional and local action within the South West is in tune with, does not seek to duplicate but rather supports nationally led, locally implemented campaigns and actions, including action by organisations such as Cynnal Cymru, WCVA, Environment Wales and many others. It is also important that the initial focus of this complementary regionally led action should be on those behaviours which have the greatest carbon saving potential (e.g. domestic energy and transport) and which have the greatest potential for adoption given the current infrastructure.

### ***Indicative actions to be considered by the Low Carbon Taskforce***

- Identifying and showcasing the trailblazers
- Identifying opportunities for the public sector to lead by example e.g. by organisations signing up to the Sustainable Development Charter, working to achieve the highest environmental standards (such as Green Dragon), participating in campaigns such as 10:10;
- Supporting and learning from the region's communities taking part in the Low Carbon Communities challenge (Awel Aman Tawe in the Upper Amman and Swansea Valley, Cwm Arian in North Pembrokeshire and Lammas in Pembrokeshire);
- Supporting at a regional level for the Assembly Government's behaviour change programme, under the framework contract for services to support

- behavioural change programmes;
- Supporting at a regional level development officer capacity being put in place by the Assembly Government through its Pathfinder project;
  - Developing complementary action, at a regional scale, in support of scaling up community led initiatives;
  - To develop the region as an exemplar region in networking, sharing good practice, celebrating success and in contributing to the wider evidence base and policies and programmes
  - Exploit the potential of the Communities of Practice website to link and network the region's local and community activists, to share and learn about what works in different places and in different circumstances and to identify best practice that might potentially be scaled up or rolled out;
  - Review evidence/surveys to establish a regional evidence base on local behavioural change, possibly using the Wales Attitude Survey;
  - Explore potential, in conjunction with the region's third sector, to create a network of volunteer energy efficiency/sustainability advisors to provide advice at a local level, encouraging individual householders to implement energy efficiency measures (the Home Energy Service in mid Wales as a potential model);

### ***Key Outcomes/Milestones***

- Achievement of the Hearts and Minds vision characteristics (see above)

## Case Study

### CASE STUDY - HEARTS AND MINDS

#### **‘Pembroke can make a difference’, Pembrokeshire**

Launched in 2009, ‘Pembroke Can Make A Difference!’

is a project aimed at to encouraging lifestyle change to encourage the community to live more sustainably, including a reduction in carbon emissions.

Using a methodology developed by Cardiff University, organisers are measuring the carbon footprint and energy consumption of a sample of 350 people. People are

being encouraged to make lifestyle changes through a series of ‘monthly messages’ including tree planting, recycling and walking instead of taking the car.

Each area has a ‘Green Champion’ to raise awareness and give advice and information.

There have also been seminars and fairs with partner organisations and community workshops and events.

Based on the results of the audit, the group plans to begin projects such as small scale renewable energy projects and transport initiatives. The project ends in December 2010, when a further audit will measure any changes in attitudes, behaviour and lifestyles as well as improvements to environmental impact.

The project is registered with and part-funded by Environment Wales. Funding has also been received from Awards For All Wales and the Waterloo Foundation. A significant contribution was made to carrying out the research for and developing the questionnaire from post-graduate Sustainable Development students at the Welsh School of Architecture in Cardiff.

*Photo: Pembroke 21C*



<sup>i</sup> Low Carbon Wales: Regional Priorities for Action, <http://www.sd-commission.org.uk/publications.php?id=1018>

<sup>ii</sup> Low Carbon Wales: Regional Priorities for Action, Resource Bank, <http://www.sd-commission.org.uk/publications.php?id=1021>