



Sustainable Wales

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Wales can Lead in Tackling Climate Change

Mike Batt, Carbon Trust Wales manager



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Climate change is the biggest single issue we face today. Its effects are already being seen across the globe and there is little doubt that its potential impact will be devastating if immediate action is not taken. Whilst the greenhouse gas emissions generated by human activity are the single largest factor contributing to climate change, there is an opportunity for businesses in Wales to be at the forefront of tackling the issue.

Both the Stern Review of the economics of climate change and the United Nations' Intergovernmental Panel on Climate Change (IPCC), amongst others, have prompted significant changes in public, political and corporate attitudes towards climate change - moving the issue beyond scientific debate to focus on the actions needed to effectively reduce emissions.

Organisations in Wales are already starting to capitalise on the business benefits of reducing energy use and carbon emissions. It is inspiring to see some of these companies not only manage their direct operational emissions but also begin to reduce the indirect carbon emissions from their supply chains,

products and services, whilst improving their business performance.

With the continued support of the Welsh Assembly Government, we want to ensure that every organisation in Wales recognises the opportunity and understands the most appropriate actions they can take to save energy, cut costs and reduce carbon emissions.

We are thrilled with the progress being made in implementing auditable emission reduction measures in the industrial sector and are also delighted in the advances being made in the education and leisure sectors within local authorities. There is however still a lot more work to be done if the UK is to meet emissions reductions objectives and become a global leader in tackling climate change.

We need to be realistic about what we can and can not do. We do not have a ready-made route map. And we can not get there on our own. What we can do – and are doing – is show business and the public sector what we think a low carbon economy could look like, plan ahead and plot the most promising routes whilst addressing the barriers to progress. We also need to communicate that the cost of doing nothing vastly outweighs that of taking action now. By taking action now organisations in Wales can play their part in tackling the issue and position themselves to take advantage of the business opportunities ahead.

Mike Batt, Manager, Carbon Trust Wales office



About the Carbon Trust

The Carbon Trust is a private company, set up by government in response to the threat of climate change.

Our mission is to accelerate the move to a low carbon economy, by working with business and the public sector to develop commercial low carbon technologies and help organisations reduce their carbon emissions.

To achieve this aim the Carbon Trust works in five complementary business areas: Insights, Solutions, Innovations, Enterprises and Investments. Together these help to explain, deliver, develop, create and finance low carbon enterprise.

Insights

Carbon Trust Insights explains issues and opportunities surrounding climate change and carbon reduction, developing low carbon strategies that engage business and government.

Solutions

Carbon Trust Solutions delivers practical solutions, working with business and the public sector to identify carbon emissions and find ways of cutting them; and providing the know-how and resources (including funding) to help them do so.

Innovations

Carbon Trust Innovations helps develop commercially promising low carbon technologies, through partnerships, funding, expert advice and large-scale demonstrations.

Enterprises

Carbon Trust Enterprises creates high growth low carbon businesses brought about by identifying opportunities and bringing together key skills and resources.

Investments

Carbon Trust Investments finances emerging low carbon technologies that demonstrate commercial potential.

Other information

The Carbon Trust offers a variety of events ranging from introductions to our services, to technical energy efficiency training. We also support events run by other organisations, providing speakers and on occasion sponsoring/exhibiting. This activity is central to the work of the Carbon Trust in establishing climate change as a key business issue and delivering action within the business and public sector community.

If you are interested in attending one of our events, please visit our website www.carbontrust.co.uk/events

The Carbon Trust also provide a wide range of literature on saving energy and carbon, from starter packs & newsletters to technology and industry specific guides. We also produce strategic reports and case studies, which can be downloaded from our website www.carbontrust.co.uk/publications or alternatively ordered from our helpline on 0800 085 2005.

This picture was taken at the Wales Ideal Business Show where Carbon Trust Wales exhibited



Energy Management is High on the Agenda for Exopack Advanced Coatings



Exopack Advanced Coatings are global leaders in the development, manufacture and distribution of precision-coated papers, films and specialty substrates. They also specialise in contract coating, laminating and the finishing of flexible materials, supplying products to a worldwide customer base, including the medical, electronic, optical and imaging industries.

With support from the Carbon Trust, Exopack Advanced Coatings based in Wrexham is one Welsh SME, which has taken action on climate change.

Exopack Advanced Coatings applied to the Carbon Trust for a £100,000 loan in 2006 to upgrade inefficient emissions control equipment. As well as recovering the investment in six months, Exopack Advanced Coatings is now seeing a reduction of 2,300 tonnes in annual carbon dioxide emission.

Alan Parker, Vice President and General Manager (Europe) of Exopack Advanced Coatings said: "Minimising our impact on the environment is important

to us and the loan allowed us to take action to significantly reduce the size of our carbon footprint. The upgraded equipment is delivering real results both in terms of lower carbon emissions and improved efficiency."

Energy management had not always featured highly on the agenda within the company and a culture of paying energy bills without examining consumption existed.

Exopack Advanced Coatings did, however, have a strong commitment to being environmentally friendly and was aware that the Carbon Trust could help them make progress in environmental performance.

With the majority of production processes involving solvent-based chemicals, Exopack Advanced Coatings produces waste solvent vapour, which must be treated before being released into the atmosphere, as required by pollution regulations.

Two thermal oxidisers were used to burn the solvent, but changes to product mix and the growing inefficiency of the ageing equipment meant an increased amount of gas was required.

Exopack Advanced Coatings funded an upgrade on the first oxidiser and, along with the manufacturer, were astounded with the significant reductions in gas consumption that followed.

Funding was not available to upgrade the second oxidiser, which began to hold back levels of production due to its inefficiency.

The granting of the Energy Efficiency Loan from the Carbon Trust enabled them to upgrade the second oxidiser, without the need to wait until internal funds became available.

"Working with the Carbon Trust to secure the loan whetted our appetites to look at other areas where energy savings could be made. Using their expertise, we have taken steps on other projects to reduce further our energy consumption" added Alan Parker.

Exopack Advanced Coatings and the Carbon Trust will continue to work together to improve the energy efficiency throughout the plant. This will involve both short and long term strategies.

Exopack Advanced Coatings



Terram Beat a 30% Increase in Energy Costs



Terram Limited, based near Pontypool is a company dedicated to the supply of geotextiles and geosynthetic materials to the worldwide construction and civil engineering industries, with 75% of their product produced exported.

At Terram Limited the supply of compressed air is essential for the manufacturing process, but the system in operation was resulting in uncontrollable costs, escalating energy and maintenance costs, unreliability of air supply and variable quality.

Terram Limited had enjoyed a good relationship with Carbon Trust on several diverse projects and in the light of the increase in electrical energy costs, recognised the need to change the way it generated compressed air to reduce their plant operational costs. At 10 times the cost of electricity, compressed air is an expensive commodity.

Although Terram had already started to investigate the costs for new compressed air systems, they hadn't looked at where, when, and how much air was being used. The Carbon Trust worked with Control

Engineer, David Roberts to help identify this and design a system to meet their needs – thus reducing the likelihood of wastage, improving operational efficiency and reducing the Terram plant operational costs.

Specialist advice from the Carbon Trust enabled them to work with the chosen supplier to produce a bespoke system.

The result was an industry best in terms of energy usage, savings of 1,214 tonnes of CO₂ emissions every year and savings of over £200,000 per annum.

Mr Roberts said: "A lot of new infrastructure was needed. It was a big project but straight forward and the goal was too great, so we never thought of not making the changes. The savings we are seeing now are unbelievable but just as importantly we are reducing our carbon emissions and therefore benefiting the environment."

Ongoing monitoring of the fully automated system allows the savings to be quantified. Monitoring also ensures that the focus on the energy benefit is sustained regardless of future changes in demand and remains a high priority for Terram Limited to ensure that their manufacturing costs are constantly kept at a minimum.

Terram Limited



Hydrogen Technology

Driving a Hydrogen Economy for Wales



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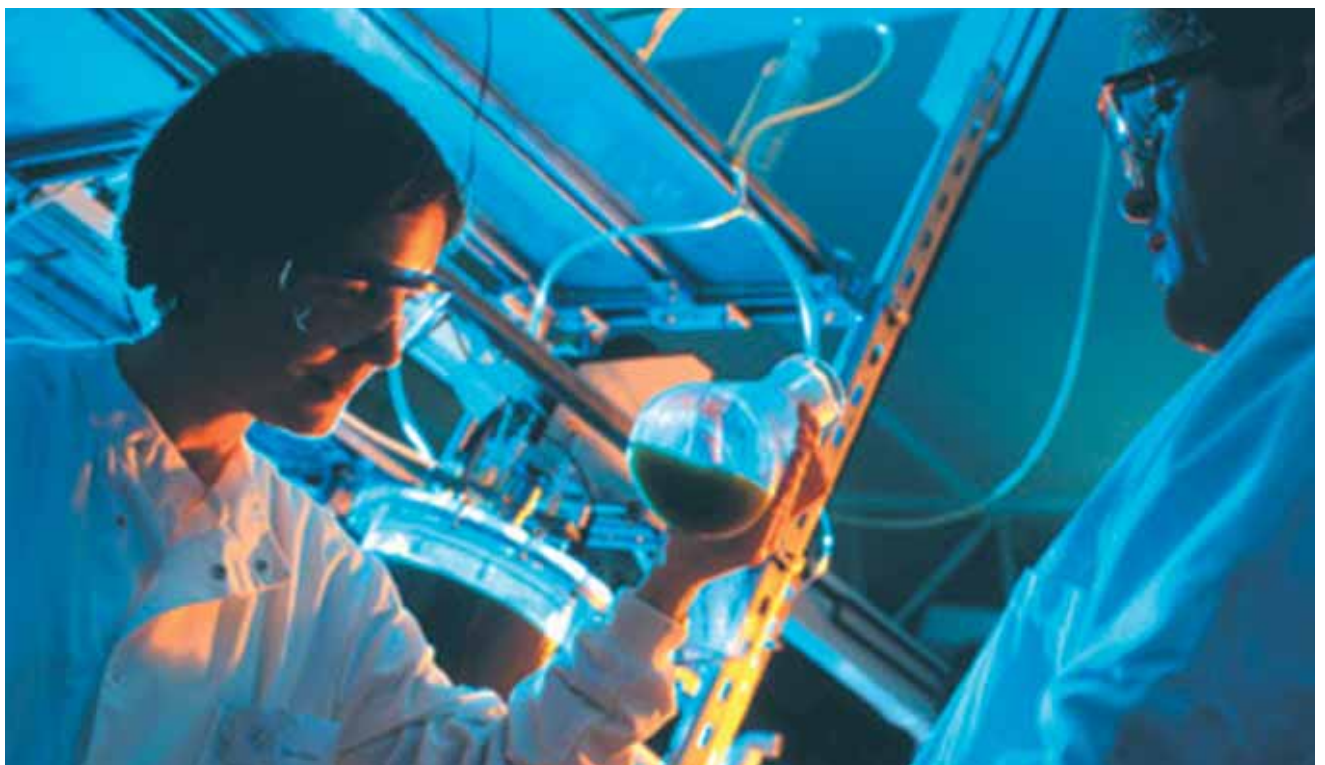
Universities everywhere are facing up to the challenge of solving the world's environmental problems. The Hydrogen Research Unit at the University of Glamorgan is leading the way with work on sustainable hydrogen production. Currently hydrogen is created as a bi-product from fossil fuels, particularly from natural gas by steam methane reforming, but must ultimately be produced from renewable resources to minimise CO² emissions. Hydrogen produced sustainably can be the basis of a low carbon economy, delivering a secure energy supply.

The University of Glamorgan's Hydrogen Research Unit is only one of a handful in the world researching the biological production of hydrogen by dark fermentation of food industry co-

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products, sewage sludge and crops, such as sugar beet and grass and other sustainable sources.

The Hydrogen Research Unit together with the Wastewater Treatment Research Unit makes up the Sustainable Environment Research Centre (SERC) which currently has 28 staff. SERC undertakes national and world-leading research into waste treatment and the sustainable production of energy from waste and grown biomass. The team is internationally recognised and multidisciplinary, combining experts in biochemistry, chemistry, physics, mechanical and control engineering,



renewable energies, chemical engineering, business and communicating science.

Many projects have been undertaken by the Hydrogen Research Unit including a wide ranging examination of the social, economic and technical implications for Wales in moving to a hydrogen economy. The H2 Wales project had backing from the Welsh Assembly Government and the Unit continues to work with the network of 70 organisations across Wales and the United Kingdom. The book 'Hydrogen and Wales' outlines the status of hydrogen development around the world and presents a road map for the development of the hydrogen economy in Wales. (www.H2Wales.org.uk)

As part of its commitment to developing the role of hydrogen in the low carbon economy for Wales, in spring 2007 the university announced the building of the Renewable Hydrogen Research and Demonstration Centre at Baglan, which will focus on producing hydrogen from indigenous renewable resources in Wales. Worth £1.7m, it will become a world-leading research and demonstration facility integrating renewable energy technologies (solar photovoltaic and wind) with hydrogen and fuel cell energy storage technologies.

Professor Alan Guwy who heads up SERC said, "There are currently no existing renewable hydrogen production or demonstration facilities in Wales. As the first of its kind, the Centre will open up a number of opportunities for academic and industrial research as well as prospects for organisational training and public demonstration."

Professor Dennis Hawkes who is leading the project explained, "Rather than an isolated one-off demonstration, this project is to provide the basis for a range of hydrogen energy and transport activities. The intention of the project is to put Wales at the forefront of European efforts to develop hydrogen communities. The new centre will bring together technology and expertise and will provide a platform for new business development, growth and employment in the region."

The building will be multi-functional with facilities for hydrogen production, conferencing, research activities,

demonstration and education and will be self-sufficient in renewable energy. It will serve as the hub for hydrogen business development through the support of the H2 Wales steering group. Using the sustainably produced hydrogen from the Centre, companies will be able to demonstrate hydrogen-related products and technologies.

Whilst the Renewable Hydrogen Research and Demonstration Centre at Baglan is being built, a more immediate and practical application of the University of Glamorgan's hydrogen research is also being developed in the form of a hydrogen fuelled mini-bus.

...the H² Bus research prototype will undergo a trial period in the spring, taking students between the University's campuses...

There are now over 290 hydrogen refuelling sites worldwide and most of the major automobile manufacturers are working on hydrogen fuelled vehicles. Fuel cell technology creates electricity through the conversion of hydrogen and oxygen into water. Unlike a battery it is an endless source of power, with no moving parts, that will keep running as long as there is a supply of hydrogen and oxygen.

The H² Bus Project is based on an extensive partnership of world class companies with local connections including Dragon Coachworks, Yuasa Battery, Hydrogenics and Taylor Made Marine and funded by the Energy Saving Trust.

The Welsh Assembly Government has supported and sponsored the development of this technology through the automotive Accelerate Clusters network, enabling industry partners throughout Wales to collaborate and link into the academic expertise at the University which has proved to be a winning combination.

The mini bus was the only passenger vehicle larger than a car to be exhibited at the Tenth Grove Fuel Cell Symposium in September. The event is a platform for

the progress being made in the fuel cell industry in the UK. The mini-bus was exhibited on the Wales stand, organised and sponsored by International Business Wales (IBW), the overseas trade arm of the Welsh Assembly Government.

The H² Bus research prototype will undergo a trial period in the spring, taking students between the University's campuses.

As demonstrated by the Renewable Hydrogen Research and Demonstration Centre and the mini-bus project, the University of Glamorgan is at the forefront of world-leading innovative hydrogen research. This research has the potential to ensure Wales makes significant environmental and economic gains from hydrogen as we move to a low carbon economy.

The Cost of a Green Office

Nigel Robert's, MD of Paramount Office Interiors Discusses the Cost of Providing a 'Green' Office Environment

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The last decade has seen intense international debate surrounding the issue of global warming, and despite the sceptics, scientifically robust and analysis indicates that if the industrialised world does not implement measures to reverse current trends, future generations will pay an increasingly heavy price for our inaction.

Global warming is generally considered to have arisen as a result of a build-up of 'greenhouse gases' in the Earth's atmosphere, these gases having being generated by the activities of our increasingly hydrocarbon hungry society. Principal amongst these factors is the generation of carbon dioxide, CO₂, released by the use of fossil fuels, this being exacerbated by widespread deforestation of the great rainforests in Africa, South America and south East Asia.

In terms of the commercial property sector, the key measure that can be implemented to reduce the industry's carbon footprint lie in its ability to

influence the design and construction of modern offices. This throws up the question – is it going to cost more money to go green and if so who bears that cost?

'The cost of going green to my industry is an interesting one,' says Nigel Roberts. 'I would say that initially the capital cost of a providing a modern office building with sound environmental credentials is going to be more, but looking at the whole-life picture, you are going to get a pay-back over time, with a large reduction in energy bills for example. Designing energy efficient buildings is good for the climate but also saves money – so why wouldn't you want to do it?' This begs the question 'What steps can the modern

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The Cost of a Green Office

office take to really make a difference?’

Starting with the physics of heat transfer, it is essential to have a properly insulated building envelope. ‘Without this you are simply allowing the thermal energy produced by your heating system to escape or the thermal energy absorbed by your cooling system to be immediately replaced. The thermal energy flow must be controlled to provide a suitable working environment,’ (and) ‘in terms of creating the initial heating energy, a method such as the biomass boiler, that uses wood chip, pulp or pellets, is an environmentally sound option, similarly low carbon air-conditioning can be used as the source of cooling.’

‘Building management and control systems are key in the green office,’ explains Nigel. Even simple changes in the way we run our businesses have a huge effect on energy costs and the emissions we expel. ‘Lights built with passive infra-red sensors that automatically turn off as someone leaves a room, turning on again upon their return, means that lights are not left on unnecessarily.’

The effect of ‘solar’ gain, i.e. heating of space from direct solar radiation, is a major contributory factor to the need for cool working spaces. When considering the environmental design of a building, Paramount consider a range of option to limit solar heat gain – workspace orientation, specialist glazing, protective films and blinds can all work individually or together to limit heat gain, providing significant reductions in energy bills that would usually be spent cooling buildings in the summer.

Whilst some may mourn the loss of air conditioning in the modern office space, often seen as a ‘must have’ by tenants (and so attracting a greater rent for the landlord), a well-design naturally ventilated building can work as effectively, with benefits for the environment – and the tenant’s staff.

‘There are those who think that the provision of a naturally ventilated building is purely a developer looking to save money by not providing air conditioning,’ says Nigel. ‘When in fact the naturally ventilated solution, with the provision of

wind chimneys, fans and ductwork can in be more expensive to install.’ Yet the running costs of this system mean big savings in the long run. ‘The occupier can enjoy future benefits by avoiding the use of air conditioning,’ says Nigel. ‘By cooling down the building during the night via wind chimneys and a cold air flushing system you can limit the impact of relatively energy-thirsty air conditioning.’

But do these changes go far enough? At the time of writing Paramount was involved in designing and building over 160,000 sq ft of offices and had decided to achieve the highest environmental standard of BREEAM Excellent for a number its projects. Having worked through this process, Nigel Roberts came to the conclusion that this standard does

thermal environment across the envelope. Considering how you intend to provide heat, cooling, light and power to the building are all important factors, and this is the area that can cause the developer and the occupier the most concern.’

‘There is a cost and benefit of going green, this needs to be reflected in rent and understood by designers, developers, tenants and investors,’ Nigel continues. ‘Likewise with heating, to provide a biomass boiler (using wood chip, pulp or pellet fuel) is more expensive than a gas boiler. Rainwater harvesting can enable the occupier to recycle water for use in toilets and landscaping, but again the developer is picking up the cost. One of the other main issues that surround the environmental debate is that landlords are incurring the original development costs,



not employ the vision needed for the future. ‘Regardless of personal viewpoints on global warming most will agree that recycling the world’s precious resources is a good idea, so in terms of building design, specifying recycled materials which ultimately can be recycled again sometime in the future is a good start,’ Nigel explains.

But it is not all plain sailing. ‘At the start of any design process you need to consider the construction of the building and work at how you can provide a stable

whilst the tenants are benefiting from lower running costs.’ Nigel also suggests that the costs involved in reducing a building’s environmental footprint should be reflected in higher rents, something that many would agree with.

Another heated issue within the debate pushes the green question towards the carbon neutral versus the carbon negative argument. Internationally recognised sustainability design expert, Guy Battle, points out that claimed carbon neutral buildings are no longer enough to combat

The Cost of a Green Office



Wales is Saving Energy

Jane Davidson Minister for Environment, Sustainability and Housing

One of the most important ways of tackling the causes of climate change is to look at how we consume and generate energy.

Here in Wales we have an opportunity to harness the potential of renewable energy – energy from the wind, water and the sun and need to look seriously at ways to make us self-sufficient in low carbon electricity within 20 years.

Our energy policy must be more than wind farms and discussions about the Severn Barrage. It has to be a holistic approach to generating energy, and also about using less and that is why we support energy efficiency measures, together with actively pursuing opportunities for:

Jane Davidson

- microgeneration technologies – solar panels and wind turbines - for producing heat and electricity for homes and businesses
- exploring energy in our seas and rivers
- fully utilising the potential for biomass, converting plants and waste into energy

And early next year I will be seeking everyone's views on how we can achieve this when I publish the consultation for the Wales Energy Route Map.

Action on climate change needs to be based upon facilitating the development, diffusion and deployment of affordable low and zero-emission technologies and renewable energy. There are opportunities for Wales to lead the way in developing and producing these technologies.

Tackling climate change is not down to one single sector to address, but for all of us, working in partnership. Businesses

have a critical role to play in tackling climate change and promoting a more sustainable pattern of consumption and production.

Climate change impacts will change existing business models and risks they face, presenting businesses with both challenges and opportunities.

Inaction is not an option – the Stern review confirmed that the benefits of early concerted global action to reduce emissions will outweigh the costs and that the developed world needed to lead that response.

...many businesses are already grasping the commercial and job creation opportunities posed by the need to develop new, innovative technologies and services in response to climate change...

Many businesses are already grasping the commercial and job creation opportunities posed by the need to develop new, innovative technologies and services in response to climate change. The environmental industry sector in Wales is high growth with approximately 1300 companies. It now accounts for an annual turnover of more than £1.2 billion and it is estimated that it has the potential to create 7000 new jobs over the next 3 years.

I want to harness this; and the positive action being taken in other sectors.

The Climate Change Commission for Wales, which I have recently established will have a key role to play in this. It will be the main driver for action providing strategic leadership, direction and a cross-Wales consensus.

The business sector and the public sector will be represented on the Commission, alongside other key interests, and I very much look forward to gaining from their input.

Jane Davidson is Minister for Environment, Sustainability and Housing in the Welsh Assembly Government



Energy Initiative



Sustainability in the Built Environment

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Jeremy Williams



A green, clean environment is generally far from the first image created when considering the construction industry, but with greater awareness and heightened sensitivity towards environmental issues, all this is about to change.

Sustainable development and green initiatives are now hot on the public and political agenda with rapidly growing recognition of the need to ameliorate the effects of climate change and create a cleaner environment for the future. This has been endorsed and embodied in the wide range of policies and legislation published in recent years - none more ambitious than the Government's pledge to achieve a 60 per cent reduction in UK carbon emissions by 2050 and a 26-32 per cent reduction by 2020.

With the construction industry being responsible for 40 to 50 per cent of the UK's total carbon emissions, and 19 per cent of the UK's total waste, it is well placed to lead the way in facilitating the development of a new sustainable world. Clearly this will not be an easy task, but it is a challenge that should be viewed by all concerned as an opportunity, not a threat. If the industry can be sufficiently mobilised, the effects could be significant.

But what action can the construction industry take to bring about these changes? The answers to these are considerable and wide-ranging, spanning from design to build, from the adaptation of old, to the construction of new. True sustainability involves adopting a holistic approach to the whole construction process. The industry can contribute by producing high quality designs capable of longevity, by using materials that have low energy intensity and by minimising the use of natural resources and energy during construction and operational phases. With the UK government challenging the construction industry to build 'zero carbon' homes in Wales by 2011, these will be fundamental considerations in the drive to deliver sustainability.

Notably, sustainable construction does not just effect future developments. It also has a role in improving buildings already in existence by means of renovation and alteration. Unfortunately, the environmental efficiency of UK buildings still lags far behind many of our European counterparts. The increasing production of domestic waste and growing energy consumption per household means that changes to environmental efficiency are desperately needed simply to limit the impact of existing buildings. Further, if the Government realise their planned implementation of the EU's Energy Performance Directive, then by October 2008, all commercial premises will require an Energy Performance certificate denoting the building's energy efficiency. This will increase awareness and intensify the sustainability incentive.

...sustainable construction does not just effect future developments. It also has a role in improving buildings already in existence by means of renovation and alteration...

The benefits derived from the promotion and development of sustainability in the built environment are not solely limited to climate and the natural environment. Environmentally friendly buildings wield both social and financial attributes which can foster community cohesion, stimulate staff productivity and improve business image and performance. These buildings then become more marketable, saleable and rentable and are demonstrative of how sustainability can add real value to a development and provide good investment return. Similarly, at the procurement stage, contractual mechanisms can be developed and incorporated to encourage consultants and contractors to achieve any number of 'green' targets whether in relation to carbon emissions, waste or BREEAM ratings.

In Wales, the positive approach adopted by the Welsh Assembly Government in relation to sustainable development and environmental issues is extremely encouraging. They are committed to using their enhanced legislative powers under the Government of Wales Act 2006 to encourage sustainable development, and their Sustainable Action Plan offers specific guidelines for green procurement and the design of sustainable buildings. Both aspects have been reflected in recent projects such as the National Assembly debating chamber and the new St Davids 2 shopping development. Wales has already been applauded for leading the way in relation to many aspects of sustainable development and our efforts should not stop here. We can now build upon these foundations and aspire to be a role model in the cause of sustainable development throughout the UK.

Consequently, as we move into the future, being green in the built environment must now be considered a necessity rather than a nicety; a responsibility to be endorsed and embraced.



Sustainability on the Business Agenda

Noreen Bray OBE, Chair of Good Relations, Wales,
The Prince's Ambassador in Wales

Not a day seems to go by without the topic of sustainability hitting the news headlines somewhere, either at local, national or international level. It's certainly moving fast up the political agenda and the Welsh Assembly Government has set some ambitious targets in relation to reducing carbon emissions.

Climate change is also increasingly moving up the business agenda and businesses of every size and from every sector have a great opportunity to really get to grips with this important

issue. This is particularly the case since the publication of the Stern report on the economics of climate change which was an important tipping point for business people.

Good Relations is keen to encourage 'green business' and every employee in the Company will be using his or her communications skills to promote the need to tackle climate change. That is in very practical ways from encouraging people to walk or cycle to work, to inviting every tenant in our building to watch Al Gore's film on Climate Change – An Inconvenient Truth – at our annual 'Green Day'.

I would also like to make mention of other companies who have been

instrumental in ensuring that sustainable issues are at the forefront in Wales.

Cardiff Bus – a company which is constantly investing in public transport technology and vehicles to ensure that its fleet is one of the most modern and environmentally-friendly in the UK.

BT – a company which has already achieved a 60% reduction in its carbon emissions and is committed to reducing them further to 80% by 2016.

I hope that businesses in Wales can take the Climate Change Agenda forward and I am proud to be part of an organisation that actively encourages responsible business practice, which has such a positive impact in the marketplace, environment, community and workplace.

Noreen Bray



Noreen Bray was announced as the winner of the Prince's Ambassador Award at the Business in the Community Wales Awards for Excellence Celebration Event.

The accolade, announced via video by HRH The Prince of Wales himself, recognises Noreen's outstanding contribution to business and corporate social responsibility. The award is 'for individuals whose leadership and commitment to responsible business has resulted in changes and improvements inside their own company and who have also inspired other organisations to take action.'

In congratulating Noreen, Prince Charles also referred to the fact that Good Relations Wales is part of Chime, Britain's largest independent communications consultancy, and praised the group for being carbon neutral.

Institute of Welsh Affairs



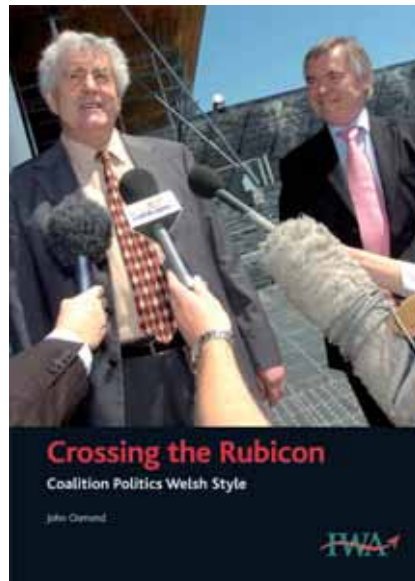
Founded in 1987, the Institute of Welsh Affairs promotes new thinking on Welsh issues. We have 1,300 individual members throughout Wales and beyond, more than 100 Fellows, and 150 corporate members. Our journal, *Agenda*, is the only regular, serious journal in Wales wholly dedicated to public affairs. Working with our members, we have produced a raft of new ideas that have brought benefits to the people of Wales, including:

- Contributing to the developing democratic process in Wales.
- Helping win EU Objective 1 status and later Convergence Funding for west Wales and the Valleys.
- Promoting the implementation of Integrated Children's Centres in Wales.
- Reshaping the curriculum for 16-19 year olds through the Welsh Baccalaureate.
- Supporting Higher Education's engagement with economic regeneration.
- Establishing the case for a performing arts centre in Cardiff, the Wales Millennium Centre.
- Establishing the case for a Design Commission for Wales.

IWA members can order purchase reports at a 25 per cent discount.

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For latest news of our activities and membership details log on to www.iwa.org.uk



RECENT PUBLICATIONS

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£10



Roaring Dragons Entrepreneurial Tales from Wales By Rhys David

This publication presents insights into successful Welsh businesses, describing how they have adapted to survive in an increasingly competitive environment. It analyses how they have overcome difficulties and assesses the assistance they have been able to call on.

£15

