Sustainability Committee

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Paper for the National Assembly for Wales Sustainability Committee, 18 June 2008

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INTRODUCTION

1. This paper provides an update, as requested by the Committee, on carbon reduction by industry and the public sector. Within this paper the following areas are covered:

   - A - Background
   - B - Carbon reduction by industry
   - C - Carbon reduction by the public sector
   - D - Leadership role of the Welsh Assembly Government

A - BACKGROUND

Emissions of Greenhouse Gasses in Wales

2. Data available from National Atmospheric Emissions Inventory (Annex A) shows that the total CO_2 emissions (representing over 80% of total emissions of Greenhouse Gasses) for 2005 in Wales were 43.4M tonnes. UK figures were 572M tonnes. Wales emits 7.5% of the UK's $C0_2$.

3. The following table shows a breakdown of emissions produced in Wales:

Source - AEA Published in: Greenhouse Gas Inventories for England, Scotland, Wales and Northern Ireland 1990 – 2005.

Greenhouse gas emissions for Wales - 2005
(Kilotonnes Carbon corrected for global warming potential)

Sector	Carbon Dioxide	Methane	HFCs	Nitrous Oxide	SF6
Agriculture	129	742		770	
Business	2,636	14	68	22	1
Energy Supply	4,822	182		22	
Industrial Process	659	4	0	7	12
Land Use Change	-67	0		0	
Public	105	0		0	
Residential	1,244	9	37	3	
Transport	1,845	2		80	
Waste Management	5	282		16	
Total	11,379	1,235	105	920	14
Grand Total	13,653				

4. The 2005 figures show that Wales' total emissions of greenhouse gases have decreased and emissions of CO_2 specifically have also decreased. The figures are as follows:
   - Total emissions of the six Greenhouse Gases in Wales for 2005 were 50.1MtCO_2. This represents a **11.9% decrease** in emissions of the six greenhouse gases compared with base year emissions.
   - In 2005 there was a **7.5% decrease in CO_2** emissions compared to the base year emissions.

5. These figures mark a change in the trend over recent years, where CO_2 emissions rose between 2002 – 2003 and 2003 - 2004. The increases were largely due to fluctuations in the iron and steel industry. In 2003, the blast furnace at Port Talbot was rebuilt and operating, which lead to an increase in emissions of 6% between 2002 and 2003.

6. A large industrial base and small population contributes to Wales' higher than average per capita emissions. Wales proportionally generates more energy and high-energy products than the rest of the UK and much of this electricity, steel, cement and oil are exported. The top 11 emitting industrial sites (7 are power stations) emit 24M tonnes of CO_2 out of Wales's total of 42.5M tonnes. Emissions are high because of <u>both</u> production and consumption of energy. CO_2 emissions based on consumption within Wales are 30M tonnes = ~10 tonnes per person.

7. The largest source of greenhouse gas emissions in Wales comes from the Energy Industries, which includes power generation, refineries, and solid fuel transformation process. Changes in operations at the large energy intensive plants can have significant effects on the emissions figures for Wales as was seen in 2003.

8. Combustion emissions from manufacturing industries and construction are also high and can be explained by the high concentration of iron and steel plant in Wales, (the sintering process in the iron and steel sector is also the most significant combustion source of methane in Wales).

9. Business commitment to tackling Climate change is growing, with recognition increasing that action to reduce emissions can bring wide ranging benefits including lower costs, improved competitiveness and new market opportunities.

10. Many important emission sectors operate within a UK (such as energy generation) or global market (such as iron and steel). Emission reduction from these sectors should be considered at the UK or European level and many parts of the industrial sector such as in Wales, including electricity generation, are already regulated by the EU through the EU Emissions Trading Scheme (EU ETS).

11. There are a number of legislative instruments that are relevant in terms of regulating and reducing carbon emissions from industry and the public sector. Regulatory tools such as the EU ETS and the proposed Carbon Reduction Commitment will provide an incentive to industry and businesses to reduce their emissions year on year, but also provide for emissions savings to be made at the point of least cost.

12. These tools include:
    - EU Emissions Trading Scheme
    - Carbon Reduction Commitment
    - Climate Change Levy/Climate Change Agreements
    - EU Directive on Energy End Use Efficiency and Energy Services
    - Integrated Pollution Prevention and Control Directive (IPPC)

- EU Regulation on certain Fluorinated gases
- UK Climate Change Bill

EU Emissions Trading Scheme (EU ETS)

13. The EU ETS is a European regulatory regime and is one of the key policies introduced by the European Union to help meet the EU's greenhouse gas emissions reduction target under the Kyoto Protocol. The essential purpose of the EU ETS is to drive emission reduction and encourage investment in low carbon technology in the energy intensive industrial sector. It aims to do this by putting a price on carbon which installations should pay if they emit CO_2.

14. Given the relative importance of energy intensive industry in Wales, the EU ETS is a significant regulatory instrument. The EU ETS currently covers 54% of the total emissions of CO_2 in the Wales (on the basis of the first year total emission results).

15. The Directive currently covers only CO_2 emissions from combustion installations with an installed capacity of 20MW or more. At present there are 82 installations in Wales in Phase ll (1 January 2008 – 31 December 2012) of the scheme, which includes many installations in the industrial sectors and some larger hospitals.

16. The Environment Agency has compiled results for 2006 in respect of the Welsh Installations in the scheme. In summary:
    - 25.1MtCO2 was emitted from 39 companies
    - This is increased by 2.1MtCO2 on the verified figure for 2005 and exceeds allocations by 3.4MtCO2
    - All companies in the scheme have verified returns and have submitted appropriate allocations to cover their emissions
    - Of the 39 Welsh companies in the EU ETS in 2006 the top 11 emitters of CO2 represent 98% of the total emissions from Wales EU ETS sites, these are shown within Annex C

17. In 2006, all companies have complied with the UK Regulations that transpose the EU ETS Directive by submitting their verified emission returns and have surrendered appropriate allocations to cover their carbon dioxide releases.

18. It is not helpful to interpret EU ETS data on a Wales-only basis. The EU ETS establishes a carbon market across the EU and, within the UK, requires an overall reduction in emissions from the installations covered by the scheme. This reduction can be delivered anyway and if an individual installation wishes to emit more that its allocation of allowances it can purchase more. This means that it is possible for emissions from installations in the EU ETS in Wales to go up, but to still remain within the cap.

The Carbon Reduction Commitment

19. The Carbon Reduction Commitment (CRC) is an auction based cap-and-trade scheme and it is intended that the CRC will begin an introductory phase in January 2010. The first capped phase would therefore begin in January 2013.

20. The CRC will cover emissions outside the EU ETS and would be limited to sites with a mandatory half-hourly electricity meter and where consumption of electricity exceeds 6,000MWh per year. This threshold corresponds to an electricity bill of approximately £500,000 per year.

21. The CRC will apply to companies and the public sector in Wales and will target both direct CO_2 energy use emissions and indirect CO_2 emissions (i.e. from electricity usage). However, emissions which are already covered under the EU ETS will not be included under CRC. In this way there will be no emissions overlap between the schemes. It is also proposed that organisations with more than 25% of their emissions in Climate Change Agreements (CCAs) will be completely exempt from CRC.

22. The types of organisations covered could include: large retailers and supermarkets; hotel chains; fitness centres; multiplex cinemas; mobile phone network operators; rail transport operators; large commercial laundry services, large office based service organisations, light industry and manufacturing, government and public bodies, hospitals, universities and local authorities.

23. It is intended that the scheme will begin in January 2010, or as soon as possible thereafter, with the introductory phase covering the first 3 years. The first capped phase would therefore begin in January 2013.

Emission trading powers

24. The Welsh Ministers already have powers to introduce emission trading schemes through the Pollution, Prevention and Control Act 1999 and the Climate Change Bill provides some additional powers. The Assembly Government has no plans to introduce a separate Wales-specific trading scheme. Emission trading is more effective the larger the market for trading.

Climate Change Levy / Climate Change Agreements

25. The Climate Change Levy is a tax on the use of energy in industry, commerce and the public sector, with offsetting cuts in employers' National Insurance Contributions and support for energy efficiency schemes and renewable sources of energy.

26. The aim of the levy is to encourage users to improve energy efficiency and reduce emissions of greenhouse gases. The levy was introduced on 1st April 2001, and is expected to lead to reductions in carbon dioxide emissions of at least 2.5 million tonnes of carbon a year by 2010.

27. Defra negotiated with trade bodies representing energy intensive business sectors for climate change agreements (CCA's). In these agreements the sector undertakes to meet a challenging energy efficiency or carbon saving target in return for an 80% discount from the levy.

28. There are 284 facilities in Wales that are covered by the CCA's, which includes many of the heavy industry.

29. The UK Government is currently considering the role that CCAs should play in future.

EU Directive on Energy End Use Efficiency and Energy Services

30. The EU Directive on Energy End Use Efficiency and Energy Services came into force on 17 May 2006. The purpose of the Directive is to enhance the cost effective improvement of energy end use efficiency in Member States. It covers all forms of energy including: electricity, natural gas, liquefied petroleum gas and other fuels such

as coal and heating oil, biomass and transport fuels (except aviation and bunker fuels).

31. It applies to providers of energy efficiency measures, energy distributors, distribution system operators and retail energy sales companies; and all energy users except those involved with the EU Emissions Trading Scheme.

Integrated Pollution Prevention and Control Directive (IPPC)

32. Industrial production processes account for a considerable share of pollution and for emissions of greenhouse gases, such as fluorinated gases and nitrous oxide (waste water emissions and waste). The EU has a set of common rules for permitting and controlling industrial installations in the IPPC Directive.

33. The integrated approach means that the permits must take into account the whole environmental performance of the plant, for example covering emissions to air, water and land, generation of waste, use of raw materials, energy efficiency, noise, prevention of accidents, and restoration of the site upon closure. The purpose of the Directive is to ensure a high level of protection of the environment taken as a whole.

34. The IPPC Directive does not regulate emissions of CO2 directly.

EU Regulation on certain Fluorinated gases

35. Industrial processes can produce significant emissions of nitrous oxide and fluorinated gases (both greenhouse gases). Although emissions of the fluorinated (or industrial) gases are small, they have a high global warming potential. Large industrial sites are regulated by IPPC but the EU Regulation on certain fluorinated gases places a requirement on all businesses to contain prevent and thereby reduce their emissions of the fluorinated gases.

Regulatory Burden on Industry/Business - Climate Change Simplification

36. The UK Government decided to undertake a review of non-fiscal instruments used to tackle climate change. A confirmation of the review was included in the 2007 Energy White Paper. The scope of the review was to look at the overlap between the three major climate change instruments – EU Emissions Trading Scheme (EU ETS), Climate Change Agreements (CCAs), and the Carbon Reduction Commitment (CRC) – with a view to eliminating avoidable overlap, simplifying existing regulations, and ensuring that the regulatory burden on the economy is kept to a minimum.

Devolution of Building Regulations

37. The Assembly Government's goal, as set out in One Wales, is to achieve zero carbon standards for both domestic and non domestic new build as soon as feasible. Devolution of the Building Regulations is required in order to achieve the aspiration in respect of all new buildings, and discussions with the UK Government are ongoing.

38. Devolution would allow the Assembly Government to prescribe a standards framework for all buildings which are subject to building control, whatever their source of funding, which is tailor made for Wales.

B - CARBON REDUCTION BY INDUSTRY

39. The Assembly Government can support carbon reduction by industry through economic regeneration and development, reclamation of derelict land and improvement in the environment and the promotion of business and competitiveness.

Regeneration and Development

40. As part of work in each Department to deliver the Assembly Government's 2011 zero carbon aspiration, the Department for Economy and Transport (DE&T) has developed a Sustainable Buildings Action Plan focusing on achieving BREEAM Excellent and 'Code for Sustainable Homes' ratings, and the preparation of carbon strategies for 28 of the most strategic masterplan sites. The intention is to use these sites to trial technologies and methodologies and inform progress towards low/zero carbon development. These sites will also be subject to climate change considerations as set out in Planning Policy Wales (PPW).

41. *Creating Sustainable Places*, the DE&T guidance for integrating sustainability into masterplans for regeneration and development, is currently being revised. This will address wider urban design and sustainability issues, in addition to buildings related carbon savings.

Promotion of Business and Competitiveness

42. The *One Wales* commitment to an all Wales Green Jobs Strategy will provide a new strategic context for all of DE&T's activities to support carbon reduction by businesses. Work on developing the Strategy is underway. It will promote, help and support businesses to improve the efficiency both of their operations and production processes and of the design of their products and services. a key aim will be to support businesses in reducing greenhouse gas emissions and minimising waste.

The May Day Summit and Network

43. Organised by Business in the Community (BITC), and under the patronage of HRH the Prince of Wales, a follow-up to last year's Climate Change Summit for Businesses was held on 1 May 2008. Arising from this, BITC are setting up a "Business Leaders" group to act as a forum on Climate Change for business. The Assembly Government has supported these events.

Carbon Trust

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

45. The Carbon Trust in Wales has its own business plan agreed and majority funded (£4.5 million for 08/09) by the Assembly Government. Activities include: energy surveys; free advice including helpline; website, publications and on-line tools; interest free energy loan scheme for the installation of energy efficient equipment; a range of training and awareness raising events, and management of the Enhanced Capital Allowance scheme.

Energy Saving Trust Energy Advice Centre

46. The Energy Saving Trust's Energy Advice Centre (ESTac) - formerly known as the Sustainable Energy Network - has expanded the service previously on offer to provide advice to a wider audience of householders, communities and small businesses on energy efficiency. It also offers a greater scope of guidance, including on green homes programmes, micro-generation and transport issues. The Assembly Government has helped fund the rollout of the ESTac in Wales, although the ongoing funding comes from the UK Government.

Environment Agency Role

47. The Environment Agency's role in reducing greenhouse gas emissions with respect to industry includes:
    - Regulatory body for the EU ETS (except in relation to offshore installations).
    - Statutory consultee in various consenting regimes, for example power station consents under the Electricity Act 1989.
    - Reduction of methane emissions by Regulations requiring installation of electrical generation at landfill sites.
    - Involvement at a Welsh level in partnerships which seek to promote energy saving, waste minimisation and a switch to low carbon technologies.
    1. Regulation of larger industrial installations under the Pollution Prevention Control regime (local authorities regulate smaller businesses)

Waste

48. Waste contributes to greenhouse gas emissions and climate change in two principal ways:
    2. Directly through the release of greenhouse gas emissions when waste is recycled or disposed of (especially when biodegradable waste decomposes in landfill to produce methane, which has a global warming potential 23 times greater than CO_2);
    3. Indirectly through the greenhouse gas emissions associated with the production of goods – i.e. all the energy used in obtaining the raw materials, manufacturing the product and its packaging, transporting it at various stages of the production and sale process, any power used in running the product during its life and then any energy used in disposing of it at the end of its life (know as the "embedded energy" of the product).

49. Wise About Waste, The National Waste Strategy for Wales (June 2002) sets out the Assembly Government's policies, targets and programmes for the more sustainable management of waste. Reducing greenhouse gas emissions associated with waste was identified as one of the key environmental outcomes of the Strategy.

50. In relation of wastes from businesses, the Strategy identified a programme of work to both help businesses reduce and recycle more wastes and to incorporate secondary recyclable materials in production processes. The programme included free advice and support for businesses. The programme evolved into the "Materials Action Programme" that ran between 2005/06 to 2007/08. One of the key sectors/wastes being targeted are biodegradable wastes produced by the food and drink sector because of its significant contribution to both Wales' ecological footprint and to greenhouse gas emissions associated with the production of methane when biodegradable waste is landfilled.

Energy Generation

51. Although Wales is a net exporter of electricity, this is primarily due to the level of generation in North Wales; but South Wales is a net importer and prices are amongst the highest in the UK. This is partly because there are no transmission links between North and South Wales.

52. On the back of the Milford Haven LNG facilities and the new gas pipeline, there has been interest expressed in building 6/7GW of new gas-fired power stations in South Wales. At present, only the Uskmouth 800MW project has received a consent from the Department for Business, Enterprise and Regulatory Reform (Berr). While recognising that consents for this scale of energy generation plant are a matter for Berr, the Assembly Government is looking for opportunities to make better use of the waste heat and considers that that operators should proceed on the basis that these new plants should be retro-fitted with CCS systems as soon as practicable.

Energy Prices for Industry

53. A variety of factors have contributed to the rise in energy prices not least the rise in the price of oil, the UK's dependency on gas (gas prices are linked to oil prices), diminishing North Sea reserves and the lack of liberalised energy markets in the EU.

54. In our response to the UK Government Energy Review, the Welsh Assembly Government stressed that high UK energy prices have a disproportionately large impact on Wales as we have a larger proportion of energy intensive industry than other parts of UK.

C - CARBON REDUCTION BY THE PUBLIC SECTOR

55. The Assembly Government through 'Value Wales' is using the leverage of Welsh public sector procurement spend to produce better long-term decision making and delivery of economic, environmental and social benefits.

56. Much of the work undertaken is overseen by the Business Procurement Task Force (BPTF), chaired by the Finance and Public Services Minister, Andrew Davies, and with a membership drawn from both the public and private sectors.

57. Value Wales has:
    - Promoted the use of public sector spending on buildings to drive the creation of sustainable building practices.
    - Developed a Sustainable Procurement Training Programme in conjunction with the Environment Agency called "Making it Happen". This programme provides guidance and practical tools for those involved in procurement so that they can ensure that sustainability is a key issue in the procurement process.

58. Assembly Government funding and land disposal arrangements provide key levers to promote emission reduction. These are being used to require higher standards of environmental performance, in particular in relation to CO_2 emissions and waste.

Salix

59. Salix is an independent publicly funded company set up by the Carbon Trust that provides interest free match-funding to the public sector to invest in energy efficiency measures and technologies that will reduce carbon emissions. The Assembly Government has made funding available to Salix to work with local authorities in Wales to promote energy efficiency.

Waste

60. In respect of wastes from the public sector, the Assembly Government has been running the Wales Public Sector Waste Minimisation Programme since 2002.
61. Key successes so far include:

4. 35 Public Sector bodies signed up to the Campaign - 100 Public Sector managers from environment and finance receiving training
5. 111 Public Sector bodies receiving grant support for waste reduction and recycling equipment
6. 62 Public Sector bodies receiving support for sustainable waste management

NHS and Emission Reduction

62. The Welsh Assembly Government introduced an Environmental Management Policy for the NHS Estate in Wales in October 2002. This policy established measures including energy efficiency targets and environmental requirements which have an indirect impact on CO_2 emission reduction. It contained a number of actions for NHS Trusts to implement. These are mainly centred on the environmental management of the estate.

63. The NHS also has a requirement of a NEAT (NHS Environmental Assessment Tool the current healthcare version of BREEAM) Excellent standard for new build projects, requiring a business case submission to Assembly Government and a recycled content target of 15% of the total value of recycling content of materials selected for new build projects.

Schools, Eco Schools and emission reduction

64. Over 1,800 schools in Wales are currently registered on the Eco-Schools Programme, which encourages pupils to engage with environmental and sustainable development issues. It provides a structured system for the environmental management of schools. Pupils take key roles in decision-making and participation in order to reduce the environmental impact of the school.

65. The programme extends beyond the classroom and develops responsible citizenship attitudes both at home and in the wider community. The International Green Flag, awarded to schools who become Eco-Schools, is a recognised and respected eco-label for performance in environmental education.

66. We have introduced BREEAM ‘Excellent’ or equivalent as a condition of grant for all brand new school buildings and stand-alone extensions supported by the School Buildings Improvement Grant, in order to drive towards zero carbon aspiration and for wider sustainability purposes. We have promoted the BREEAM environmental assessment framework method to Local Education Authorities.

67. When framing proposals for use of their School Buildings Improvement Grant, authorities are required to promote sustainability and security in the design of new schools and significant refurbishments by having regard to BREEAM standards. Authorities are referred to the authoritative guidance on ways of measuring and minimising the adverse effects of buildings on the global and local environment.

Local Service Boards and Climate Change

68. Two of the pilot area local service boards (LSBs) are working on delivering projects on emission reduction. Gwynedd, within the context of the report 'Gwynedd Tomorrow', are building a partnership delivery model for carbon reduction by cutting energy use, reducing waste and increasing recycling, reducing the need to travel and sustainable procurement by raising awareness of opportunities for action among staff, communities and businesses and prioritising actions within the LSB partner organisations. Carmarthenshire LSB, within a commitment to sustainable development, is exercising its corporate leadership role in taking positive action to reduce energy consumption; reduce emissions and increasing, social and individual awareness.

69. To support the delivery of these projects an LSB climate change innovation network has been established which brings together all LSBs working on or considering working on tackling the effects of climate change with the Assembly Government, the WLGA and Forum to the Future. This is an important way to develop and disseminate best practice.

D - LEADERSHIP ROLE OF THE WELSH ASSEMBLY GOVERNMENT

Assembly Government Estate

70. The Assembly Government is committed to showing leadership on emissions reduction and sustainability and have taken many actions to address these issues. These include:
    - An aspiration to zero carbon for all new buildings from 2011;
    - Pursuit of the devolution of the Building Regulations in order to provide a regulatory framework for the zero carbon aspiration and ensure a level playing field for all; and
    - The use of all other existing levers within its power to drive forward a step change in the sustainability of new buildings and the zero carbon aspiration.

71. The Assembly Government is now promoting the Code for Sustainable Homes as the assessment framework for new housing and requiring at least Code Level 3 for all new housing that we influence through grant funding, investment and land disposals; moving to higher levels as quickly as possible. In terms of energy efficiency, Level 3 equates to a 25% reduction in emissions currently regulated under the Building Regulations.

72. The Assembly Government is also earmarking exemplar projects to help us plan effectively for zero carbon. These are being driven by the Department for Economy and Transport. An initial 28 sites have been identified to undergo energy assessments to underpin low/zero carbon developments, many of which are mixed use. The aim is to have a focused strategy in order to learn lessons and gain experience which can be applied to subsequent projects.

73. An example is the 'The Works' in Ebbw Vale; a pioneering development to achieve a 60% reduction in regulated emissions relative to 2006 Building Regulation standards using communal energy systems. Another example is 'The Mill' (Ely Bridge, Cardiff) which is seeking to achieve a 100% reduction in regulated emissions by 2011 and 'future proof' for zero carbon thereafter, again using communal energy systems.

74. We are aiming to use convergence funding to help realise some of these projects.

75. Through the Location Programme, the Welsh Assembly Government has begun to implement a High Performing Property Strategy (HPPS) which sets out the

framework and direction for improving strategic property asset management over a defined period which provides a comprehensive and strategic approach to transforming the estate. This provides benefits through:

- Rationalising the estate through the creation of new, low carbon, office buildings in Merthyr Tydfil, Llandudno Junction and Aberystwyth
- A significant contribution towards achieving a carbon neutral administrative estate
- A smaller, more efficient estate that is fit for purpose
- An estate that has increased flexibility and can more easily adapt to future changes

76. The Assembly Government achieved Green Dragon Level 5 for its Cathays Park, Merthyr and Carmarthen offices in September 2007. 15 of its other offices are also certificated to Level 5. The organisation is committed to establishing rigorous environmental management across its entire administrative estate by July 2009.

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June 2008

Annex A

Greenhouse Gas Emissions for Wales