

Sustainability Committee

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Sustainability Committee Inquiry into Carbon Reduction in Wales Submission by Environment Agency Wales Industry and organisations

1. Background and Agency Role.

The Agency submitted a general paper covering aspects of carbon reduction in Wales which was presented to the committee on 4th October. This covered the background to Climate Change, key Agency roles, indicators, emissions of green-house gases in Wales and some comments on policy issues.

In this paper we would like to take the opportunity to expand our submission on the reduction of greenhouse gas emissions in the industrial sector and within our own organisation.

The Environment Agency's role in reducing greenhouse gas emissions with respect to industry and our own carbon footprint includes:

Regulation of the European Union Emissions Trading Scheme in Wales (EUETS) whose industrial processes give rise to over 50% of Wales's Carbon Dioxide emissions.

Statutory consultee in the planning process that covers energy installations.

Reduction of Methane emissions by regulations requiring installation of electrical generation or flaring at landfill sites and through the diversion of biodegradable waste.

Involvement at a Welsh level in partnerships which seek to promote energy saving, waste minimisation and a switch to low carbon technologies.

Regulation of industry under the Pollution Prevention Control regime through the application of Best Available Techniques which seeks to maximise energy efficiency of the installation.

The Agency will administer the F gas regulations within Wales which will, for example, ensure the efficiency of large refrigerant systems. This was the subject of a recent consultation on the regulations.

The Agency is also set to be the regulator for the Carbon Reduction Commitment that will bring large commercial retail and public organisations into a trading scheme by 2010.

The Agency seeks to be an exemplar in the reduction of its own Carbon footprint.

2. Industrial emissions as a contributor to total CO₂ emissions.

Data available from National Atmospheric Emissions Inventory shows that the total CO₂ emissions for 2005 in Wales were 43.4 Mtonnes. The figures show that certain individual companies in Wales emit equivalent or greater amounts of CO₂ than the total emitted from road transport or domestic sources in Wales. Wales is unusual within the UK context in this as it has a larger industrial sector and this should not obscure the significant contribution from both domestic and transport sources. The following table shows a breakdown of CO₂

Emissions by industrial sector:

Source	M tonnes CO ₂	% of CO ₂ emissions
power generation	13.73	32.3%
manufacturing	10.37	24.4%
road transport	5.95	14%
residential	4.59	10.8

petroleum refining	3.3	7.9%
Emissions from soils	1.2	2.8
Commercial	1.02	2.4
cement	0.43	1.0
Solid fuels	0.34	0.8
Total	42.5	

3. Impact of Agency Regulation and Activity.

3.1 Emissions covered by the EUETS scheme.

The emissions covered by the EUETS scheme in its first year (2005) represent 54% of the total CO₂ emissions in Wales (on the basis of the first year total emission results). This includes 37 sites within the Power Generation, Steel, Oil and Cement sectors. Each installation is given a carbon dioxide allocation by the UK Government which is based on previous emissions, that they then need to surrender on a yearly basis to cover their total emissions. If their annual emissions exceed their allowance then they will need to buy more allocations and, if under, they are able to sell and profit from their efficiency. The Agency administers and ensures compliance with this trading scheme but the allocations are determined by the Department of Trade (now BERR) in consultation with WAG.

For the first year (2005) of the scheme within Wales, the emissions exceeded the total allocation by 1.1Mtonnes. The results from the 2nd year of operation(2006) of the EUETS in Wales indicate that a total of 25.1 Mtonnes of CO₂ was released from 39 companies. This is up by 2.1 Mtonnes on the verified figure for 2005 and exceeds the allocations by 3.4 Mtonnes.

In 2006, all companies have complied with the regulations by their submitting their verified emission returns and have surrendered appropriate allocations to cover their carbon dioxide releases. Therefore the administration of the scheme has been successful. However the results in terms of carbon reduction are disappointing and reflect the greater use of coal to generate electricity due to the higher gas price prevailing during the winter of 2005-2006. The low price of carbon on the market and the ability of the Electricity Supply Industry to pass on costs both act against long term investment in efficiency measures. The impact may be more positive in smaller companies as 24 of the 39 companies managed to reduce their emissions. A total of 11 sites in Wales produce 98% of the total emissions from the sites and we are discussing with them possible ways of reducing their emissions.

3.2 General Comment on EUETS scheme.

The first phase of the EUETS lasts from 2005-2008 and the allocations are the same each year.

The allocations for phase 2 have also now been set (2008-2012). Whilst across the UK as a whole, these are projected to provide a decrease in carbon dioxide emissions(on the basis of the allocations) of 3.5 % during the 5 years of the phase, the impact in Wales is far less at around 1%. This is a small contribution to a possible 3% per year carbon target- and reliance should be placed more on the management of energy demand at present than the trading scheme. The emission trading scheme is the great hope for a global agreement, however, and the Agency would urge continued support for the long term.

There is now some clarity on what may happen with the scheme after 2012 (Phase 3). The European Commission has stated they will remove a national setting of the allocation and tie this to targets for greenhouse gases reduction set by the EU as a whole. The allocations may also be based on benchmarking within sectors as opposed to historical emissions. If the economic models prove correct there could be substantial reductions in emissions from the Industrial area post 2012 from energy efficiencies.

The top 11 carbon dioxide emitters in Wales are as follows however it should be noted that there are some difficulties in securing future emission reductions at all of these sites:

Site	Operator	Sector	carbon dioxide tonnes 2006	carbon dioxide tonnes 2005
Aberthaw Power Station	RWE npower plc	Power Station	7,340,340	5,264,973

Port Talbot	Corus UK Ltd (Tata)	Iron & Steel	6,589,194	6,132,851
Connah's Quay	E.ON UK plc	Power Station	3,158,476	3,434,321
Pembroke	Chevron Limited	Refineries	2,251,765	2,320,641
Total Milford Haven	Total Milford Haven Refinery Ltd	Refineries	1,234,371	1,038,345
Baglan Bay	Baglan Operations Ltd	Power Station	1,142,501	1,104,318
Uskmouth	Uskmouth Power Company Ltd	Power Station	866,926	993,930
Deeside	Deeside Power Development Company Ltd	Power Station	640,379	978,825
Padeswood Cement Works	Castle Cement Ltd	Cement	623,006	300,016
Shotton CHP	Gaz de France Generation Ltd.	Power Station	485,252	542,497
Barry CHP	Centrica Barry Ltd	Power Station	237,008	321,303
TOTAL	24,569,218	22,432,020		
Total Carbon Dioxide emissions in Wales in 2005 = 43,400,000				

Source : Verified data returns EU ETS

3.3 The Changing Regulatory Context

3.3.1 Operators subject to Pollution Prevention and Control regulations (PPC) have to have regard to energy efficiency in their installations and to review and record, at least every 4 years, any possible improvements in energy efficiency. They must manage operations; maintenance and housekeeping well and implement an energy efficiency plan.

3.3.2 For those installations that it applies to, 'The Greenhouse Gas Emission Trading Scheme Regulations' prohibits the setting of carbon dioxide emission limits or equivalent parameters or technical measures through PPC. Current Defra / WAG guidance states that participation in the EU Emission Trading Scheme or having a Climate Change Agreement satisfies the energy efficiency requirements of PPC.

3.3.3 The review of the IPPC Directive is looking at new technologies like Carbon Capture and Storage (CCS) and how these might be affected by the PPC regime. . It would be helpful if all Government policies could be assessed for their CO₂ impact prior to implementation. We also see little benefit in creating the situation where industrial production is exported to less efficient countries (in terms of CO₂/ tonne of product produced)

4 Wider Considerations

Our ability to reduce CO₂ emissions from regulated installations in Wales is limited by location, technology, infrastructure and lack of investment confidence. Sufficient CO₂ reductions cannot be made by just using our regulatory powers. We must also influence wider

changes such as:

4.1 Energy Consumption

Every 1kW saved by end users avoids the consumption of 2.5kW of fuel by the generator. There would also be reductions in SO₂, NO_x and particulate emissions especially from coal fired stations. All our regulated sites should be energy efficient; and we need to be sure that abatements (e.g. UV treatment at STW's) required by our policies can justify their energy consumption. The way EAW runs its own business should be an example of efficient energy use. A 5% reduction in the consumption of fuel & non-renewable electricity by domestic, commercial and industrial end-users in Wales would save about 1,500,000 tonnes CO₂ annually.

4.2 More Effective Spatial Planning

Being able to use "waste" heat from power plants requires that nearby customers for "waste" heat are available. Future power plants should be located where there are end-users for CHP including district heating. This probably means smaller plants located in more urban areas.

4.3 Renewables

EA regulates renewables where they involve the abstraction or impoundment of water (hydroelectricity and tidal) and where they are subject to PPC due to burning biomass. We support renewables except where the overall environmental impact is adverse.

4.4 Emission Trading Schemes

Schemes, such as EU ETS, can only work if they generate a carbon price that can finance moves to more efficient generation and consumption. The carbon prices for EU ETS phase I fell to less than €1/tonne because EU Governments provided too many allowances. For phase II (2008 - 2012), the forward price is €25/tonne (June 2007) because of the less profligate allocations. Another UK based scheme is the Carbon Reduction Commitment that will capture organisations with high energy consumption such as supermarket chains, local authorities, hospitals, large schools and universities etc.

4.5 Other Technical Fixes

Examples are:

the use of biogas as a partial replacement for fossil gas in CCGTs,

The cracking of natural gas into CO₂ and hydrogen before combustion, CO₂ and hydrogen are easily separated and hydrogen could then be burned in appropriately designed turbines.

Gasification of coal and then burning the gas in CCGT, however this is not seen as viable by the generating companies because of cost and "unproven" technology.

4.6 Emission Targets

An emission production target - it may be necessary to have a measure of CO₂ emitted for each MW electricity and tonne product produced. This will then show a benchmark productivity to compare with other countries. A consumption target - this could be influenced at a Government and Local authority level. There are targets for CO₂ reduction for Local Authorities in England and something similar, if not already adopted in Wales, could be utilised.

5. Internal Environmental Management and Agency Footprint

5.1 Accreditation

Environment Agency Wales is accredited to EMAS and ISO14001 environmental standards and

Subject to external audits by LRQA every 6 months there is an annual programme of internal audits at all offices and depots and site responsible officers carry out monthly/quarterly compliance checks at these sites.

5.2 Training/Awareness

All EAW staff receive an IEM induction during the new-starter Regional Induction day and we carried out an IEM awareness presentation to all staff informing them of what we do and why. Our Regional Environmental Management Advisor advises all managers on what we do and why and is constantly seeking their opinions on what we should do to imbed IEM within the business. Operations Delivery (field staff) and Facilities Management staff receive training on topics such as waste management, pollution prevention and energy/water efficiency.

We record (monthly) and report (quarterly) our environmental performance against a set of challenging targets aimed at reducing our impacts - business mileage, energy and water use, CO₂ emitted, waste produced, permit breaches, priority audit actions completed and environmental incidents caused.

5.3 Carbon Footprint

A Carbon Footprint survey was carried out in 2006 by consultants working on behalf of Carbon Trust - the aim was to obtain EAW's

carbon footprint and carry out a staff survey to assess attitudes to and awareness of internal environmental management. Results from the survey are shown below for 2005/2006.

Category	Annual tonnes CO ₂
Badged vehicles	1,154
Lease cars and casual users	947
Buildings	275
Hire cars	46
Rail transport	22
Air transport	5

This gives a total of 2449 tonnes in which road transport overall accounts for 86% of the CO₂ emissions. We buy green electricity at all possible sites.

This year we launched a national Internal Environmental Strategy 2007 -2012. This includes a set of challenging targets to reduce our environmental impacts. In Wales we have developed an action plan detailing how we will meet these targets. The ultimate target is to reduce carbon emissions by 30% by 2012 (from 06/07 levels). EAW have recently enhanced our original carbon footprint work of 2006 and introduced area footprints on a quarterly basis. This will help us target the aspects of the footprint that have the biggest impacts across the region.

Within Wales we are currently involved in trials using 22% biodiesel (recycled cooking oil) in 30 vehicles. To reduce travel emissions we are now only leasing cars with low emission values and slowly changing the profile of our badged fleet

We also have a fund within the Agency to invest in renewables to ensure our whole business is as near as possible to Carbon Neutral. Successful bids for this money include new energy efficient pumping systems and alternative energy generation system for salmon hatcheries in mid Wales, solar water heating systems for two area offices and improved telephone conferencing facilities across Wales.

5.4 Performance

Implementing the measures recommended within our Carbon footprint report has resulted in a reduction of 23% CO₂ (05/06 to 06/07). The main cause was a reduction in mileage and using less energy in our buildings. We provide detailed information to Managers and team leaders about their lease/casual mileage and as a consequence, we drove over 600,000 less lease/casual business miles in 06/07 than in 05/06.

We are also sending less waste to landfill. We segregate all our waste and have recycling streams for paper, card, magazines, toner, glass, metal, plastic, batteries, cooking oil, mobile phones, electrical equipment, and hazardous waste. We reuse, where possible, all items of furniture and stationary. We compost food waste (peelings, teabags etc). This has resulted in us sending less waste to landfill each year - 25 kg per person in 04/05 compared to 15.5 kg per person in 06/07. EAW has Internal Environmental Management groups at area and regional level (senior manager-led groups) who review performance and tackle specific issues to reduce the impacts locally - ownership of issues sit with local teams.

5.5 Procurement

All procurement projects over a certain value (£25k) require a sustainability assessment and we have minimum environmental specifications for most of our purchasing including:

Stationery, Printing;

Cleaning, Catering, Furnishings;

Computers, Telephones, Mobile Phones, Fax Machines, Photocopiers;

Timber, Paints;

Engineering Material, Plant Hire, Pollution Control;

Corporate Clothing, Protective Clothing.

These specifications mean for example that we procure only sustainable timber for everything from furniture to field equipment and paper made from a recycled source

6 Summary

1. We will work with the Welsh Assembly Government 's Climate Change Commission to develop delivery of a low carbon economy.
2. For EUETS- we have been working with the UK government to influence the EU to set overall allocations for the scheme which reflect the required reductions in emissions rather than being controlled by member states.
3. We are discussing the emissions from our top CO₂ emitters in Wales with a view to identifying possible reductions.
4. We are working to improve industrial energy efficiency through Climate Change Agreements and the IPCC procedure and we will use the review process to maintain progress.
5. We will be responsible for regulation of F-Gases (probably this year) and as a regulator for the Carbon Reduction Commitment for commercial and public bodies.
6. Reduction in methane emissions from landfill sites has been a significant success over the last 5 years and we will continue to seek for further reductions.
7. The Agency undertook a measurement of its Carbon Footprint in 2006. Implementing the measures identified has reduced the carbon footprint by 23% in a year.