DEPARTMENT OF ENERGY & CLIMATE CHANGE

UK Report on Articles 4 and 14 of the EU End-use Efficiency and Energy Services Directive (ESD)

Update on progress against the 2007 UK National Energy Efficiency Action Plan

July 2011

Contents

Part 1 – Summary of Progress

Context

1. The Energy End-Use Efficiency and Energy Services Directive (ESD) was adopted in May 2006. The ESD aims to enhance the cost-effective improvement of energy end use efficiency in EU Member States. Its provisions include a requirement for Member States to establish a national indicative energy saving target of 9% to be met by the end of 2016.This report is intended to fulfil the requirement in Article 14 of the ESD for all Member States to set out the policies and measures put in place to reach the energy saving target in Article 4 of the Directive and then to provide updates on progress towards achieving that indicative target every three years.

2. Other provisions of the ESD include a requirement for the public sector to fulfil an exemplary role, a requirement for Member States to place obligations on energy suppliers and distributors to promote energy efficiency and requirements relating to metering and billing to allow consumers to make better informed decisions about their energy use. The provisions of the ESD were to be implemented by Member States by May 2008.

3. This report also fulfils the UK's obligation under the Energy Performance of Buildings Directive to submit details of any existing or proposed fiscal instruments that will improve the energy performance of existing buildings and support their transition to nearly-zero energy buildings.

4. This Report fulfils the UK's reporting obligations in respect of the ESD. Government will set out further details on energy efficiency in the Autumn alongside the 4th Carbon Budget report and the establishment of a new Energy Efficiency Deployment Office within DECC. The office will be at the centre of a new drive to improve the way we use energy across the UK and will work with leading industry experts to bring greater coherence to the Government's existing suit of energy efficiency policies; to identify ways to drive further carbon abatement across the economy; and to learn from best practice in other countries.

Targets

5. As required by the Directive the UK is required to meet an indicative national energy savings target for 2016 of 9% or 136.5 terawatt hours (TWh).

6. The Directive also asked Member States to make an assessment of the expected interim energy savings to be delivered over the three year period 2008 to 2010 as an indicator of progress towards the full target. On the basis of the analysis completed in 2007 it was expected that 9% savings could be achieved over these first three years of the target period.

Assessment period covered in this report

7. The savings identified in this progress report as contributing towards the 2016 target result from policies introduced under the previous Government. The most recent published figures

relating to energy savings from policy were produced in June 2010[1], only a month after the current Government came to power.

8. Policies that have subsequently been announced or amended as part of the coalition programme will be incorporated in the next set of published projections, due for publication in Autumn 2011.

Expected UK energy savings

9. The table below summarises the key policies and measures for which energy and carbon savings have been calculated. The table shows that, on latest projections, the UK expects to exceed the 9% target, delivering over 200TWh in savings by the end of 2016, equivalent to a saving of 14% over the target period.

Energy efficiency improvement programmes, energy services, and other measures to improve energy efficiency planned for achieving the target	Annual energy savings expected by end of 2010		Annual energy savings expected by end of 2016		Annual energy savings expected by end of 2020	
	TWh	MtCo2e	TWh	MtCo2e	TWh	MtCo2e
Household sector	**58.5**	**14.9**	**125.9**	**31.7**	**153.0**	**38.9**
Building Regulations[2]	22.4	4.3	40.9	7.8	48.8	9.4
Supplier obligations	26.7	7.6	61.4	14.8	66.1	15.9
Products policy	1.4	0.7	8.5	3.8	18.8	5.7
In home displays / Smart meters	0.0	0.0	5.3	1.4	7.5	2.0
Renewable Heat Incentive	0.0	0.0	1.3	1.2	3.3	3.3
Warm Front	8.0	2.4	8.4	2.6	8.4	2.6
Private and public sectors	**23.6**	**6.3**	**43.9**	**15.2**	**58.9**	**29.1**
Building Regulations (2010 Part L)	0.0	0.0	4.3	1.2	5.6	1.5
Building Regulations (2002+2005)[3]	8.3	1.9	6.9	1.4	6.1	1.3
Business Smart Metering	0.0	0.0	3.4	0.7	4.9	1.1
Carbon Trust programmes	6.1	1.6	4.3	1.2	6.6	1.7
Climate Change Agreements	7.5	2.1	7.5	2.1	7.5	2.1
Carbon Reduction Commitment	0.2	0.0	6.4	1.6	12.6	3.2
Energy Performance of Buildings Directive	0.0	0.0	0.9	0.3	1.6	0.5
Products policy	1.6	0.7	6.0	2.6	10.3	4.4
Renewable Heat Incentive	0.0	0.0	-1.5	4.0	-1.9	13.3
Energy Intensive Industry	0.0	0.0	5.7	0.0	5.7	0.0
Transport	**17.3**	**8.2**	**37.4**	**19.4**	**60.6**	**30.4**

[1] http://www.decc.gov.uk/en/content/cms/about/ec_social_res/analytic_projs/en_emis_projs/en_emis_projs.aspx

[2] These figures differ to the policy savings published in the most recent Emissions Projections (June 2010). Because the demand equations in the model underpinning the baseline projections are based on historic energy consumption data, the impact of the progressive tightening of building regulations in the period 1970-2000 has a dampening effect on projections of energy demand post-2000. Published emission projection estimates of policy savings strip this effect out, which understates the expected future impact of building regulations when policy savings are assessed relative to the NEEAP baseline . This effect has therefore been added back into the policy savings for the purposes of this analysis.

[3] Ibid

EU Voluntary agreement to 2009	16.6	5.1	24.7	7.6	25.0	7.7
Interim EU target to 130gCO2/kg	0.0	0.0	4.9	1.5	13.1	4.0
Biofuels in transport	0.0	2.9	0.0	7.9	0.0	11.6
Low carbon buses & SAFED bus driver training	0.4	0.1	0.8	0.3	1.1	0.4
EU new car CO2 regulation: 95gCO2/km target for 2020	0.0	0.0	0.9	0.3	12.0	3.7
Low Carbon Transition Plan additional intended measures	0.4	0.1	6.1	1.9	9.4	3.0
Total energy and carbon savings[4]	**99.4**	**29.4**	**207.2**	**66.2**	**272.5**	**98.3**

10. By 2010, the UK expects to have achieved almost 100TWh of savings. This is less than the level of expected savings in our 2007 report (136.5TWh or 9% by 2010). This decrease in projected savings is owing largely to refinements in UK calculation methodology since 2007 (see paragraphs 17 to 24 below). However the current projection, that the UK will achieve 99.4TWh of savings (or a 7% reduction) by 2010, puts the UK on a strong pathway to meeting or exceeding the 9% target in 2016.

11. As set out above, the latest projections indicate that in 2016 the UK will exceed the energy saving target of 9%, delivering 207TWh of savings, or 14% against the baseline. The household sector is expected to be the biggest contributor to these savings, contributing 61% of total expected savings by 2016, with private and public sector savings expected to contribute 21% of total savings and transport 18%.

Methodology used to assess energy savings

12. The energy savings from these policies are calculated according to supplementary Green Book policy appraisal guidelines[5]. Where possible, policies are modelled and incorporated into the DECC Energy and Emissions Model. Other policies enter the model as exogenous demand reduction or in a few cases as off-model adjustments. Re-evaluations of policy are made periodically and savings adjusted where appropriate. Care is taken to ensure that policy overlaps are identified and the double-counting of savings is avoided.

13. Further information relating to policy evaluation is provided in the Annex.

Target calculation

14. The table below sets out the calculation of the 2016 national energy saving target for the UK, which is 136.5 TWh.

[4] Note that this includes only quantified policies. Notable exceptions include savings from tax policy such as the Climate Change Levy and Enhanced Capital Allowances. See the end of this chapter for a list of policies not included here.

[5] This guidance supplements the HMT Green Book (http://www.hm-treasury.gov.uk/data_greenbook_index.htm) that provides general guidance on how to conduct appraisal and evaluation of energy use and greenhouse gas emissions.

	2001			2002			2003			2004			2005		
	Elec.	**Other**	**Total**	**Elec.**	**Other**	**Total**	**Elec.**	**Other**	**Total**	**Elec.**	**Other**	**Total**	**Elec.**	**Other**	**Total**
Final inland energy consumption [1]	320	1391	1711	321	1341	1662	319	1339	1657	321	1344	1665	327	1326	1654
energy consumption of EUETS installations [2]	0	160	160	0	151	151	0	143	143	0	141	141	0	142	142
energy consumption of armed forces [3]	2	3	5	2	3	5	2	3	5	2	3	5	2	3	5
Total energy consumption of exemptions	2	163	165	2	154	156	2	146	148	2	144	146	2	145	147
Final inland energy consumption in scope of ESD	318	1228	1546	319	1187	1506	317	1192	1509	319	1200	1519	325	1181	1506
Of which: Households			560			553			560			565			546
Tertiary sector			229			204			205			211			211
Industry (ESD scope)			259			244			233			228			230
Transport			497			505			510			515			519
													Average over 5 year period		1517
													9% energy saving target [4]		136.5

Notes:
[1] Final consumption data is taken from the Digest of UK Energy Statistics (DUKES), i.e. it is based on official national statistics. 2005 data was the most recently available at the time and so the 5-year average is taken as the average from 2001 to 2005 inclusive.
[2] EU-ETS coverage is derived from participants' reports under Phase 1 of the ET Directive in 2005 and is at the installation rather than company level. The proportional coverage of the industry sector and public sector is then assumed constant for years 2001-2004.
[3] Military applications comprise energy consumption by the army, air force and navy only.
[4] The target, and energy savings that contribute to meeting this target, are measured on a delivered energy basis.

15. As described in the UK's 2007 report, the level of energy savings required to meet the UK's 9% indicative target as set by the Directive was calculated on the basis of the annual average final inland energy consumption of all energy users within the scope of the Directive over the five year period 2001 to 2005.

16. It should be noted that since the 136.5 TWh target was calculated, the scope of the EU ETS has expanded. This has the effect of reducing the level of final energy consumption in scope. However, the impact on the target is estimated to be small and, in the interests of transparency and simplicity, it has been decided to leave the 136.5TWh target unchanged.

Explanation of variations to 2007 estimates

17. Since 2007 there have been a number of policy changes and methodological improvements to the policy savings calculations. As a result of this, the expected policy savings in 2010, 2016 and 2020 have, in some cases, been revised:

    a. some policies that are included in the projections have been re-appraised;

    b. the methodology associated with specific policy savings has been updated to more accurately reflect the attribution of savings to policy; and

    c. overlaps between policies have been more rigorously identified and accounted for.

18. As a result of these changes, policy savings now better reflect our increased knowledge and depth of understanding about future reductions in UK energy demand and emissions.

19. There are several key areas where policy savings estimates have been revised. A short explanation of the changes is set out below.

20. Building Regulations: Policy savings from building regulation have been revised downwards since the 2007 projections. This results from a re-appraisal of the savings associated with the policy and a methodological change to the way that policy savings are calculated. The methodological change relates to the incorporation of an efficiency improvement to boilers which had previously not been considered. This decreases energy use in the counter-factual scenario and reduces the savings associated with the policy.

21. Energy Performance Building Directive (EPBD): Policy savings have been revised downwards since the 2007 projections owing to a reassessment of the policy overlaps in this area. The EPBD requires energy performance certificates to be produced for buildings on their sale, rent or construction. Whilst these will increase awareness of potential energy efficiency improvements, and so increase the demand for certain energy efficiency measures, these measures are also incentivised by the supplier obligations and the Carbon Reduction Commitment Energy Efficiency Scheme (CRC).

22. Carbon Trust measures: Policy savings have been revised downwards since the 2007 projections owing to a reassessment of the policy overlaps in this area. The Carbon Trust operates in a busy policy environment and is recognised as a valuable facilitator of savings that are driven by policies such as the CRC, Climate Change Agreements and revolving public sector loan schemes. The revised methodology eliminates any possible double counting of these savings by revising down the savings expected from Carbon Trust energy efficiency measures.

23. Voluntary Agreement to 2009 in the transport sector: This policy has been revised downwards since the 2007 projections. This reflects a re-appraisal of the savings associated with the policy given that Voluntary Agreements have underachieved up to 2009.

24. It should also be noted that the reduction in carbon savings attributed to the policy savings has not gone down in the same proportion to the energy savings. This is owing to the addition of two policies which are focussed on the supply side and contribute more to CO2 savings than to energy demand reduction: the Renewable Heat Incentive and the Biofuels in Transport Requirement.

Summary of contributing policies

25. The policies for which savings have been estimated in 2010, 2016 and 2020 are set out below together with a brief explanation. More policy details are set out in Part 2.

▪ Building Regulations (2002, 2005, 2010) and Zero Carbon Buildings	Policies relating to energy efficiency standards of existing and new homes and non-domestic buildings, setting increasingly ambitious standards over time
▪ Energy Performance of Buildings Directive	Policies resulting from the EPBD, e.g. mandating of Energy Performance Certificates
▪ Supplier Obligations	The Energy Efficiency Commitment (EEC), the Carbon Emissions Reduction Target (CERT), the Community Energy Savings Programme (CESP) and future supplier obligations.
▪ Smart Meters and In Home Displays	Policies with the objective of delivering the mass rollout of smart meters in Great Britain and encouraging the use of near real time displays to inform more energy efficient behaviour
▪ Products policies	A number of policies aimed at improving the energy efficiency of products purchased and used in homes, businesses and the public sector
▪ Renewable Heat Incentive	A financial support mechanism for renewable heat aimed at changing the way in which heat is generated and used
▪ Warm Front	Targeted energy efficiency scheme to deliver improvements and associated benefits to the fuel poor
▪ Carbon Trust programmes	The advice and finance funded by Government (including SME and Salix loans) delivered by the Carbon Trust to business and public sector
▪ Climate Change Agreements (CCA)	A rebate on the Climate Change Levy for taking steps to improve energy efficiency
▪ Carbon Reduction Commitment (CRC)	A mandatory emissions trading scheme for large organisations outside of the EU Emissions Trading System
▪ UK emissions trading scheme	Trading scheme covering UK emissions as a precursor to the EU Emissions Trading System

▪ EU voluntary agreements on new car fuel efficiency to 2009	A voluntary agreement between the European Commission and car manufacturers to achieve an average new car fuel efficiency target of 140 CO_2 per kilometre (gCO_2/km) by 2008/9
▪ EU interim target of 130gCO2/kg from cars	A mandatory EU target for manufacturers to achieve an average new car fuel efficiency target of 130 grams of CO_2 per kilometre (gCO_2/km) by 2012, with full compliance by 2015
▪ EU new car CO2 regulation: 95gCO2/km target for 2020	A provisional mandatory EU target to achieve an average new car fuel efficiency of 95gCO_2/ km by 2020
▪ Biofuels in transport	UK and European policies and regulations to promote the use of sustainable biofuels in transport
▪ Low carbon buses & SAFED bus driver training	Policies to encourage the introduction of low carbon buses and the adoption of driving techniques which improve safety and fuel efficiency
▪ Devolved Administration policies Scottish Government policies	Those policies specific to Scotland, Wales and Northern Ireland that will deliver energy efficiency savings and associated benefits
▪ Public sector policies	Those policies relating to central Government and local Government as well as wider public sector (e.g. health and education), that will deliver energy efficiency savings and associated benefits

Other important considerations

26. There are a number of policies, announced as part of the coalition programme that will be incorporated in the next set of published projections, due for publication in Autumn 2011 and, as such, may play a role in achieving the UK's energy saving target for 2016.

27. Notable additions include the Green Deal, a market mechanism expected to be operating from late 2012 that will enable energy efficiency retrofit in homes and businesses to be financed through energy bill savings. Working alongside the Green Deal to protect households against rising energy costs while driving more insulation of solid wall homes, will be the Energy Company Obligation (ECO), which will replace the current CERT and CESP.

28. Policies which facilitate energy savings also play an important role in the UK Government's strategy to increase energy efficiency savings both domestically and non-domestically. For example, there are a number of policies relating to improving the information provided on bills to enable customers to save money and energy and policies relating to company reporting of greenhouse gas emissions. These policies are likely to facilitate the savings associated with

other policies, reducing costs of delivering energy efficiency measures. They may also elicit some behaviour change and associated energy savings, but they have not been quantified in the modelling.

29. The National Energy Efficiency Data-framework (NEED), has been recently set up to provide a wider understanding of energy use and energy efficiency (see Annex). This important development will strengthen our evidence base and analytic capacity. This will be key to our understanding of the effectiveness of current and future policies.

Part 2: Updated Policy Landscape

This part of the report provides an overview of the UK's energy efficiency policy landscape as a whole and describes the key changes between June 2010, when the savings contributing to the 9% target were calculated, and today

30. The table on pages 8 and 9 sets out the energy efficiency improvement programmes, energy services, and other measures to improve energy efficiency for which savings have been calculated towards the achievement of the UK's 9% target. For clarity, policy savings are those projected and published as of June 2010 and do not include more recent policy announcements or the impacts of policies that have been updated since then. The projected policy savings of these more recently announced policies, such as the Green Deal will be quantified in subsequent UK Government publications

31. As also explained in Part 1, the policy savings that have been forecast for 2010, 2016 and 2020 are derived from figures published in June 2010, just one month after the creation of the current Government.

32. Since then, a number of new and amended policies have been developed and announced. The impact of these updated policies will be quantified in the next set of published projections, due for publication in Autumn 2011.

33. The policy landscape described below, which is sub-divided into three sections covering the household sector, the business and public sectors and the transport sector, bridges the period June 2010 to the present.

34. Policies relating to the wider public sector (local Government, Health and Education) and to each of the three Devolved Administrations are covered separately towards the end of this chapter.

The Household Sector

Sector overview

35. By addressing the energy efficiency of UK housing we can help to save individuals and families hundreds of pounds a year and give them the opportunity to make a meaningful contribution to tackling climate change and enhancing energy security.

36. The existing housing stock in the UK has huge potential for additional savings to be made. To enable homeowners and tenants to take steps to improve the efficiency of their homes we need to ensure that they have the information to support decisions, the confidence to invest and the means with which to do so.

37. Energy efficiency of new homes is also crucial if we are to avoid locking ourselves into higher emissions for years to come. Innovation in materials and methods of construction won't only

deliver significant energy efficiency savings, it will also help to place the UK at the forefront of the market in green construction and retrofit.

38. Underpinning the policies aimed at the household sector must be particular consideration for those least able to take the steps to improve the efficiency of their homes. Effective targeting towards the fuel poor and other vulnerable groups will ensure we deliver maximum additional benefits and avoid leaving these customers behind.

39. The June 2010 assessment of policy savings contributing towards the UK's 9% target centre around broad expectations of a future supplier obligation. Whilst many of the policies taken account of are still in existence, a number have changed, or are being developed to be launched in the near future (e.g. the Green Deal).

Green Deal

40. The Green Deal is a market framework which will enable private firms in Great Britain to offer consumers energy efficiency improvements to their homes, community spaces or businesses at no upfront cost with repayments recouped through a charge made in instalments on their energy bill. The scheme is being established by the Coalition Government through the Energy Bill introduced to Parliament in December 2010 and should be available from late 2012.

41. Operating across all types of housing tenure, the Green Deal will operate alongside a new Energy Company Obligation and has the potential to improve the energy efficiency of most of the 26 million homes in the UK, whether they are built with cavity or solid walls.

42. A key element of Green Deal finance is that only packages of measures that pay for themselves over the lifetime of the Green Deal will qualify. It will allow householders and businesses to enjoy the benefits of efficiency measures and the energy bill savings they can bring, without the need for up-front finance. If they move to a different property, the charge will not move with them, meaning those in the property will pay from the savings they make.

43. We anticipate Green Deal finance will come from the private sector. We are in discussions with energy companies, retailers and banks about how best to facilitate this.

44. The success of the Green Deal will be dependent on the trust of consumers and business in the impartiality, quality and robustness of the advice and recommendations provided. We are looking to provide support through a remote advice (web/phone based) service.

45. The Energy Bill is introducing powers alongside the Green Deal to require private landlords, from 2016, to make reasonable energy efficiency improvements requested by tenants, and by 2018 to improve the least efficient properties, provided there are no net negative costs to landlords.

New build

46. From 2016 for homes and 2019 for non-domestic buildings, all new buildings in England will be required to be built to a zero carbon standard. The policy and standard has continued to undergo revisions since 2007 in order to protect economic and technical viability and ensure these requirements remain achievable. Similar policies for the Devolved Administrations are set out later in this chapter.

47. In 2010, Part L (Conservation of Fuel and Power) of Building Regulations in England and Wales (responsibility for Building Regulations in Wales is scheduled to transfer to the Welsh Assembly Government at the end of 2011) were amended to improve energy efficiency standards for new homes by 25% and energy efficiency standards for new non–domestic buildings by an average of 25% across the build mix. The revisions also strengthen the energy efficiency standards required when work is carried out to existing properties (e.g. replacement boiler standards raised from B to A rated). The Government has announced a further review of Part L with changes planned for 2013 to take the next step towards zero carbon for new buildings (as above) and to support wider retrofit policy for existing buildings.

48. The Code for Sustainable Homes in England, Wales and Northern Ireland provides a single voluntary national standard to guide industry in the design and construction of sustainable new homes. The Code measures the sustainability of a new home against nine categories of sustainable design, rating the 'whole home' as a complete package – including energy/carbon. Each category contains “credits” which developers can gain by building to those standards and the Code uses a one to six star rating system to communicate the overall sustainability performance of a new home against these nine categories, with 6 being the highest rating. The Code has been updated on several occasions since its launch to ensure it remains up to date and ahead of policy changes. As of March 2011 more than 25,000 Code homes had been constructed, with nearly 60,000 currently at the design stage and en route to construction.

Planning

49. The 2007 Plan refers to the draft Planning Policy Statement on planning and climate change (published in 2007). In 2010 the Government announced an overhaul of planning policy which applies to all forms of development under the threshold for major infrastructure, designed to consolidate existing planning policy into a single concise National Planning Policy Framework. A draft Framework was published for public consultation in July 2011. It sets out the national economic, environmental and social priorities for planning, and expects the planning system to support energy efficiency improvements to existing buildings. The final Framework will be published by the end of 2011 if at all possible.

Product standards and labelling

50. Reducing the energy intensity of the products used in the home not only contributes to energy savings, it also has the potential to significantly reduce energy costs for households. The UK has been working to adopt Minimum Energy Performance and labelling requirements for the first 21 priority products covered by the Ecodesign of Energy related Products Directive (ErP). Agreement has been reached on 13 products so far; the average annual net benefits of which will (by 2020) be £900m to UK consumers and Businesses. Products covered include Televisions, Washing Machines, Fridges, Domestic Lighting and restricting Standby and off mode power consumption. Work continues on the remaining products, including Boilers, water heaters, ICT, Tertiary lighting and Commercial refrigeration and Freezers.

Energy Saving Trust advice

51. Advice can be an important factor in tackling the barrier that a lack of information can represent to taking action on energy efficiency. DECC, the Scottish Government and Welsh Government provide grant funding to the Energy Saving Trust (EST) to support its provision of free, impartial, expert energy efficiency advice to consumers. In 2010/11, EST's contact centres dealt with nearly one million telephone and online enquiries across the UK, 43% of which were in Scotland. In addition, in Scotland EST gave face-to-face advice on 147,403 instances.

52. As announced in the DECC Delivery Review[6] in May 2011, the contract to deliver remote advice services in future alongside the Green Deal will be put out to competitive tender. That contract will replace the grant funding for energy efficiency advice in England, Northern Ireland and Wales as currently provided by DECC to EST and the Carbon Trust (see Business and Public Sector section below). Separate arrangements will apply to Scotland going forward.

Fuel poverty

53. Government is committed to helping people, especially low income vulnerable households, heat their homes more affordably. A household is in fuel poverty if they need to spend more than 10% of their household income on energy to maintain a warm home. A range of programmes and policies contribute to tackling fuel poverty by supporting more of the most vulnerable to keep their homes warm at an affordable cost.

54. The Warm Front scheme (now extended to 2012) is one of the Coalition Government's key tools for tackling fuel poverty through energy efficiency measures among private sector households in England. Eligibility for assistance is based on a combination of income related benefits (mirroring those used to identify Cold Weather Payment recipients) and the thermal efficiency of the applicant's property (having a SAP rating of 55 or below). Households who are entitled to assistance under the Scheme can benefit from energy efficiency measures including efficient heating systems, insulation, and draught proofing. Since its launch in June 2000, the Scheme has assisted over 2.2 million households in England, with an average potential saving of over £650 per household per annum during the lifetime of the measures.

55. The Carbon Emissions Reduction Target (CERT), which replaces the Energy Efficiency Commitment detailed in the 2007 Plan, places an obligation on larger energy suppliers to help GB households reduce their carbon footprint. They achieve this mainly through the promotion (typically free and subsidised offers) of insulation, lighting and other energy efficiency measures. For reasons of equity, two sub targets are set. The Priority Group prescribes that at least 40% of the carbon saving target be achieved in low income (on certain benefits) and elderly households (aged 70 and over), of which 15% is targeted at a Super Priority Group of low income families, elderly and disabled households on means tested benefits. Around 185,000 households could receive measures to provide a long term solution to fuel poverty, whilst many more households will receive measures which will protect them from falling into fuel poverty. This year and next, over 3 million households are

[6] http://www.decc.gov.uk/en/content/cms/about/partners/review/review.aspx

expected to receive insulation measures, with suppliers investing some £1.8 billion in meeting their targets.

56. The Community Energy Savings Programme (CESP) was introduced in September 2009 and is an energy efficiency programme which targets designated low income communities across Great Britain. It is a statutory carbon based obligation on energy suppliers and generators and is designed to deliver whole house retrofits on a street by street basis, particularly tackling hard to treat homes and providing a range of energy saving measures such as solid wall insulation, new boilers, solar heating and microgeneration. It is anticipated that there will be up to four hundred schemes across Great Britain by December 2012 achieving permanent fuel bill savings of up to £300 a year per household.

57. In the light of recent and expected fuel price rises, the Government recognises that the attainment of our fuel poverty targets remains very challenging. Looking to the future, assisting the fuel poor will be a key element of the new Green Deal and Energy Company Obligation (ECO) policies. The ECO will take over from the existing CERT and CESP schemes, and will improve targeting and ensure that those who most need support stand to benefit. As part of this objective, the carbon reduction element of the ECO target is designed to assist hard to treat properties, including properties that require solid wall insulation. The ECO will also assist low income, vulnerable households through an Affordable Warmth target, which will focus on providing upfront support for thermal performance measures to help households to heat their homes more affordably. Through these mechanisms, the ECO and the Green Deal will help to protect households from rising energy prices in the future through greater energy efficiency savings.

Smart Meters

58. The Government's vision is for every home in Great Britain to have smart electricity and gas meters with In-Home Displays (IHD). The rollout of smart meters will play an important role in Great Britain's transition to a low-carbon economy, and help us meet some of the long-term challenges we face in ensuring an affordable, secure and sustainable energy supply.

59. Over the next 20 years, smart meters are expected to deliver £7.3 billion net benefits to consumers, energy suppliers and networks. We estimate that by 2020 the average domestic household with both electricity and gas ('dual fuel') will save an average £23 per year on their bills.

60. Through smart energy meters and IHD, consumers will be provided with near real-time information on energy consumption, enabling them to monitor and manage their energy consumption, save money and reduce carbon emissions. Bills will be accurate and switching between suppliers will be smoother and faster. New products and services will be supported in a vibrant, competitive, more efficient market in energy supply and energy management services. The rollout will also support the development of a smart grid delivering improved network efficiency and responsiveness and supporting the uptake of electric vehicles and microgeneration.

61. The rollout of smart meters by energy supply companies will involve visiting over 28 million homes and the replacement of around 49 million domestic gas and electricity meters. Government has a key role to play, particularly in setting the policy framework, revising the

regulatory framework including updating consumer protections, and ensuring the necessary cross-industry arrangements are in place. DECC established the Smart Meter Implementation Programme to deliver these.

62. In March 2011, DECC and Ofgem published the Government's Response to the Prospectus consultation which set out the overall strategy and timetable for the rollout as well as the arrangements for procurement of data and communications services and the benefits smart meters will provide consumers and industry.

63. The response set out that we will bring forward the planned completion of the rollout to 2019; at least one year ahead of previously published plans. We also announced that smart meters would be installed over two implementation phases; the Foundation Stage and mass rollout. During the Foundation Stage, which began in April 2011, Government is working with industry, consumer groups and other stakeholders to ensure that all the necessary groundwork is completed for mass rollout. The Government expects the mass rollout to start in early 2014 and to be completed in 2019.

64. The transfer of data to and from domestic smart meters will be managed centrally by a new, GB-wide function covering both the electricity and gas sectors. This central Data and Communications Company (DCC) will be independent of suppliers and distributors. It will provide two way communications to smart meters, to which smart meter service users (suppliers, network companies and other authorised third parties) will be given access to data for specified purposes.

65. The DCC will be created as a new licensed entity, responsible for the procurement and contract management of data and communications services that will underpin the end-to-end smart metering system. To deliver the early establishment of the DCC's services, Government has decided it will initiate procurement of service provider contracts in parallel with the competitive DCC licence application process. The strategy for the procurement of first-generation DCC service providers is currently being prepared by DECC, with input from stakeholders.

Billing

66. Government will put consumers in control of their energy costs by ensuring energy bills tell them how to switch to the lowest tariff offered by the supplier and how their energy consumption compares with similar households. DECC has conducted research on how best to present comparative consumption information on energy bills and introduced legislative powers to enable it to require lowest tariff information on household energy bills. Suppliers have started trails of different approaches to providing lowest tariff information. During 2011-12, DECC will seek suppliers' agreement to provide the information on energy bills voluntarily: if agreement is not forthcoming, Government will initiate the legislative process in the autumn.

Boiler scrappage

67. In England, a boiler scrappage scheme opened in January 2010, and closed to applications in March 2010, when all of the £50m available had been allocated. The scheme offered vouchers to householders for £400 cash back on the installation of a new "A" rated boiler or renewable heating generation when a "G" rated or equivalent boiler was replaced. The vouchers were redeemed once the new boiler had been installed. In all, 118,000 households

in England benefited from the scheme. Similar schemes operate in the Devolved Administrations and are described later in this chapter.

The Business and Public Sectors

Sector overview

68. The business sector is extremely diverse and includes companies which range from high energy intensive industries to those for whom it represents a very minimal element of their cost base.

69. Considering this variety across the sector, a range of policies are required to encourage and support energy saving and efficiency. These need to target a range of barriers including motivation, information and finance. An active and engaged business community will not only deliver savings of its own accord, but will also drive savings across suppliers, customers and consumers.

70. The public sector in the UK has and continues to make significant energy savings and in so doing provides an example of how the business sector, as well as individuals, can cut energy waste and in so doing make significant financial savings. As the coalition Government takes steps to reduce the deficit and improve the efficiency of public expenditure by delivering more for less, energy efficiency will play a central role.

71. The policies accounted for in the June 2010 savings include both financial and reputational incentives to improve energy efficiency in the business and public sectors. Now a year into the coalition Government, there is a stronger and more ambitious mix of policies directed towards at these sectors, with a greater focus on the example that the public sector can set (e.g. the 10% and 25% targets for central Government) as well a move towards creating a mass market in energy efficiency with the Green Deal potentially opening up financing to millions of organisations that previously were unable to finance their ambitions.

Green Deal

72. The Green Deal market mechanism for Great Britain is described in the Household section above. It will be available to businesses on the same basis and will provide a financing solution for energy efficiency improvements to many of the estimated 2.8 million businesses working out of commercial buildings – enabling them to become more energy efficient, cut energy waste and improve the bottom line.

Carbon Reduction Commitment

73. The CRC Energy Efficiency Scheme[7], which began in April 2010, is a mandatory emissions trading scheme for large electricity users (outside the energy intensive industrial sector), covering both business and the public sector. These organisations are responsible for around 10% of the UK's emissions. The scheme features a range of reputational,

[7] http://www.decc.gov.uk/en/content/cms/emissions/crc_efficiency/crc_efficiency.aspx

behavioural and financial drivers, which aim to encourage organisations to develop energy management strategies that promote a better understanding of energy usage.

74. To minimise administrative burdens the scheme focuses on large organisations for whom the energy efficiency benefits would outweigh the administrative costs. The CRC scheme covers emissions from energy use by organisations with mandatory half hourly metered electricity consumption of more than 6000MWh/year. This would generally capture organisations with annual electricity bills above £750,000.

75. The CRC scheme targets CO_2 emissions from both direct and indirect energy use (i.e. the use of electricity) and to avoid overlap with existing measures, the CRC scheme does not target emissions covered by Climate Change Agreements nor direct emissions covered by the EU ETS. The CRC scheme allows self-certification of energy use and emissions, backed by an independent risk based audit regime.

76. The introductory phase of the CRC scheme lasts from 2010 to 2014. The Government is currently reviewing the operation of the scheme in order to simplify its operation in future phases (from 2014 onwards).

Climate Change Levy

77. The Climate Change Levy (CCL) is a tax on non-domestic energy use in the UK. It applies to all energy consumption across industrial, commercial and public sectors, although different rates apply to different types of energy.

78. By increasing the costs of consuming energy it helps to strengthen the price signal attached to energy use and will encourage reductions in demand for energy and improve the financial case for investment in energy efficiency projects.

Climate Change Agreements

79. Climate Change Agreements (CCAs) give 54 sectors a rebate on their Climate Change Levy payments in exchange for adopting agreed energy efficiency targets. The discount is currently 65%.

80. CCAs are aimed at improving the energy efficiency of energy intensive industry and reducing their emissions by increasing the economic benefits to a company of putting in place energy efficiency improvement measures. In so doing it helps to ensure that energy efficiency investments are prioritised at board level.

81. The current scheme expires in 2013. A replacement scheme will be implemented in 2013 and will run until 2023. The CCL discount will remain at 65% for all fuels except for electricity which will be increased from 65% to 80% from April 2013. A Consultation is scheduled for Summer 2011 to consider and seek to take steps to reduce complexity and overlap.

Carbon reporting

82. Measuring and reporting greenhouse gas (GHG) emissions can be a useful tool in enabling organisations to reduce emissions and achieve energy and other resource efficiencies – on the basis that “what gets measured gets managed”.

83. The Government published guidance for organisations on measuring and reporting their GHG emissions in October 2009, to fulfil the requirement under section 83 of the Climate Change Act 2008. The Climate Change Act also places a duty on the Government to make regulations under the Companies Act 2006 by April 2012 requiring the directors' report of a company to include information about GHG emissions, or to lay a report before Parliament explaining why no such regulations have been made. The Government will be announcing a way forward on this in autumn 2011.

84. A large number of companies are already required to collect data and report on some of their GHG emissions under the EU ETS and CRC Energy Efficiency Scheme. Many companies also report on their emissions voluntarily through initiatives such as the Carbon Disclosure Project or in their annual reports.

Carbon Trust advice and finance

85. As for households, advice can be critical in enabling organizations to realise their potential energy efficiency savings. DECC and the Devolved Administrations have continued to grant fund the Carbon Trust (CT), a private company limited by guarantee, to provide specialist advice and finance to help businesses and public sector bodies to improve their energy efficiency, cutting carbon and saving money from energy bills. A range of services are funded targeting different sizes of business and the public sector, centered around a core free and impartial expert remote advice service.

86. CT's business energy efficiency loan scheme, funded by DECC as well as Wales and Northern Ireland, has offered 0% interest loans to small and medium sized businesses to tackle the financial barrier to energy efficiency improvements. Now closed to new applications in England, at its peak in 2009/10, the scheme provided over 2,100 loans worth £72m, helping recipients to collectively save around £24m a year on their energy bills over the lifetime of the measures. Energy efficiency support to small and medium sized businesses in Scotland is set out below.

87. As with the EST (see Household Sector above) the core grant funding previously provided by DECC to CT will come to an end in April 2012, with remote advice provision for business and the public sector to be contracted out and delivered as part of the Green Deal.

Enhanced Capital Allowances

88. The Enhanced Capital Allowance (ECA) scheme encourages businesses invest in more energy efficient equipment by enabling businesses to claim 100% first year capital allowance on the purchase of qualifying energy saving plant and machinery from the Energy Technologies List (ETL). It also provides an incentive for manufacturers to innovate in order to produce more energy efficient products.

89. The ETL currently consists of approximately 18,000 products across 14 categories and is managed by Carbon Trust on behalf of DECC.

Smart Meters

90. The Government's vision is for every businesses and public sector energy user in Great Britain to have smart or advanced energy metering suited to their needs. Smart meters will deliver a range of benefits to consumers, energy suppliers and networks. Non-domestic consumers will have real-time information on their energy consumption to help them control energy use, save money and reduce emissions. We estimate that by 2020 the average small and medium non-domestic customer will save over £100 on their energy bill as a result of smart metering.

91. The experience of business users of meters with varying degrees of smart functionality has been that the information they provide can materially improve energy management, and thus optimise energy spend, as well as ensuring more accurate billing. Many large organisations have used such advanced[8] metering across their property portfolios for a number of years.

92. Since 2009, where suppliers have replaced or newly installed a meter at a medium-sized non-domestic site[9], that meter has had to be an advanced meter. All supply to these sites will be provided through advanced meters by April 2014. The rollout of smart and advanced metering to the remaining sites[10] will complete the provision of new, non-domestic metering.

93. The same broad obligations for domestic sites, including rollout phasing, will apply to suppliers in the smaller non-domestic sector (as described in the Household Sector section above). Nevertheless, in recognition that some smaller non-domestic consumers already have meters with advanced rather than full smart functionality, certain exceptions will apply. If customers have advanced meters installed before April 2014 and wish to retain them, then these meters will not need to be replaced by smart meters. This also applies to meters installed after April 2014 under pre-existing contracts. This approach will help customers to continue to make energy and carbon savings from these meters and minimise disruption and cost.

94. Suppliers in the smaller non-domestic sector will not be obliged to use the services of Data Communications Company (DCC) for meters with smart functionality given that there is a competitive market already established for the data and communications services in this sector. Instead, suppliers will be able to choose to use DCC if they wish to do so. This should allow smaller non-domestic customers better access to the competitive market, increase competitive pressure on industry costs and improve interoperability. This position will be kept under review.

10% Target for Central Government

95. The Prime Minister announced on 14th May 2010 that this would be the 'greenest government ever' and that, as part of this, central government would reduce its carbon emissions by 10% within 12 months and that real time reporting of energy efficiency data would be implemented across government HQ buildings in England.

---

[8] Advanced meters are defined in supply licence condition 12 as being able to provide measured consumption data for multiple time periods (at least half hourly for electricity and hourly for gas) and to provide the supplier with remote access to the data.

[9] An electricity site in profile classes 5-8 or a non-domestic gas site with consumption between 732 MWh and 58,600 MWh per annum.

[10] 2.1 million electricity sites in profile classes 3-4 and up to 1.5 million non-domestic gas sites with consumption of less than 732 MWh per annum.

96. The target included all central government departments, most executive agencies, and a number of Non-Departmental Public Bodies. It excluded the operational estate (such as prisons and Ministry of Defence barracks). The Government announced on 6th July 2011 that all bodies in scope achieved a 10% reduction and that overall savings were 13.8%.

Sustainable Operations on the Government Estate (SOGE) target framework

97. The SOGE framework for England was launched in 2006 and ran until the end of March 2011 when it was replaced by new commitments for greening Government's operations and procurement (see below). The framework included a range of targets on sustainable operations (e.g. carbon, water, waste, recycling etc), mandated mechanisms (e.g. that all new builds should achieve certain sustainability standards) and sustainable procurement. The Efficiency Reform Group in Cabinet Office led on pan-government performance management and reporting on the SOGE targets.

98. Pan-government performance on all the main operations targets improved in 2009/10 compared to 2008/09, and performance exceeded the targets set for 2010/11. Carbon dioxide emissions from offices reduced by 17% in 2009/10 against the target of 12.5% by 2010/11, relative to a 1999/00 baseline. CO_2 emissions from administrative road travel reduced by 24% in 2009/10 against the target of 15% by 2010/11, relative to a 2005/06 baseline.

Low Carbon Technology Programme

99. The Central Government Low Carbon Technology Programme was a capital funding programme which supported 44 projects in 15 central government departments in England (and their agencies) to achieve carbon emission reductions and cost savings in heat, energy or transport, through the deployment of low-carbon technologies. Funding was allocated for two financial years 2009-2010 and 2010-2011 and total expenditure was £14 million.

100. The funding was used towards a variety of projects across government departments, drawing upon framework agreements and testing of technologies, to help realise carbon and financial savings for departments and provide evidence that will enable other departments to realise savings. The funding aimed to help departments to meet their SOGE targets, to demonstrate leadership, to develop symbolic technologies, to be in a good position for the introduction of the CRC Energy Efficiency Scheme and to invest in innovative technologies in the most energy and cost-effective way.

Greening Government Commitments

101. The Government announced in February 2011 new commitments for Greening Government's Operations and Procurement in England. This includes a stretching commitment on reducing greenhouse gas emissions from the central government estate and business-related transport by 2015 from a 2009 baseline.

102. The Prime Minister announced on 6 July a new five year commitment to reduce central Government greenhouse gas emissions by 25% for 2014/15 on a 2009/10 baseline. The proposed new greenhouse gas commitment will cover the widest scope of the central government estate in England, all greenhouse gases (not just carbon dioxide), and business

related transport emissions (including owned vehicles and business travel - but excluding staff commuting).

Procurement and Product Standards

103. The Government Buying Standards initiative has set high energy efficiency standards in Government procurement to deliver value for money, improve the Government's own energy efficiency and develop the market for more efficient goods. Government Buying standards cover a wide range of products including furniture, paper and paper products, electrical goods and cleaning products.

Public Sector Energy Efficiency Loans

104. Salix Finance Ltd is a private company set up in 2004 by the Carbon Trust to offer public sector bodies interest-free loans for energy efficiency projects. The majority of its £140m of public funding under management has come from DECC (and previously Defra) funding alongside contributions from the Devolved Administrations.

105. Salix loans are available to organisations including local authorities, central government departments, hospitals, universities and schools. The loans are for cost-effective projects achieving high CO2 and energy consumption reduction, through tried and tested technologies such as boiler improvements, cooling and heating projects, insulation and lighting upgrades. Average payback period is 3 ½ years and for every £1 invested £4 of savings are achieved.

The Transport Sector

Sector overview

106. Transport is an engine for economic growth, moving goods and people around the country, but it also accounts for nearly a quarter of UK domestic energy use and greenhouse gas emissions. The vast majority of this comes from road transport, which accounts for around a fifth of all domestic UK greenhouse gas emissions. Domestic transport emissions grew steadily between 1990 and 2007, followed by a fall between 2007 and 2009.

107. The level of greenhouse gas emissions from transport is primarily driven by the amount of transport activity, the efficiency of vehicles and the use of alternative fuels. As the UK economy grew between 1990 and 2007 the level of transport activity also grew, which in turn led to an 8% increase in domestic transport emissions over that period. The level of emissions from transport then fell back by 8% between 2007 and 2009 as transport activity reduced, partly as a result of the economic downturn. This reduction in emissions was also supported by the purchase of more fuel efficient vehicles and the increased uptake of biofuels in road transport.

108. Over the next decade, we expect the most significant greenhouse gas savings from transport to continue to come from improvements to the fuel efficiency of conventional vehicles and from the use of sustainable biofuels in road vehicles. In the longer term, a step change is needed to move away from oil-based fuels and towards ultra-low carbon alternatives such as electric vehicles.

109. While decarbonising road transport is likely to have the most significant impact on greenhouse gases from transport, and so be our greatest priority for change, it is also

important that people have viable, low carbon alternatives. Government has introduced a range of policies and funding to support low carbon alternatives, both at a local and national level.

110. Over time, as other parts of the economy - including road transport - reduce their carbon emissions, aviation and shipping are likely to become proportionately more significant sources of greenhouse gas emissions. The UK Government believes that for international industries such as these, a global solution will be the best way to tackle climate change impacts.

Improving the efficiency of new vehicles

111. Improvements to the fuel efficiency of cars and vans are a key part of our strategy to reduce greenhouse gas emissions from transport. Passenger cars and taxis alone accounted for 58% of all UK domestic transport emissions in 2009, while light vans made up a further 12.5%. Given the international nature of the automotive industry our focus has been to actively support efficiency improvements through the European Union (EU).

112. The EU introduced a New Car CO_2 Regulation in 2009 to establish a clear, long term framework for the development of lower emitting cars. The regulation has introduced mandatory targets for manufacturers for the CO_2 emissions of each new car sold in the EU. This is set to achieve an average new car fuel efficiency target of 130 grams of CO_2 per kilometre (gCO_2/km) by 2012, with full compliance by 2015. There is a further provisional longer term target of $95gCO_2$/ km by 2020, representing a 40% reduction on 2007 levels. We will continue to work with the Commission in considering the details of this longer term target. In the UK the average fuel efficiency of the new car fleet improved by 12% between 2007 and 2010.

113. In December 2010, the European Commission agreed a similar regulation to achieve an EU-wide reduction in the average CO_2 emissions of new vans. The regulation sets a mandatory target for individual van manufacturers to achieve an average new van fuel efficiency of $175gCO_2/km$ from 2014, with full compliance by 2017. A longer term target of 147 gCO_2/km by 2020 has also been specified, representing a 28% reduction on 2007 levels.

114. Fiscal measures also play a role in incentivising the development and purchase of fuel efficient vehicles in the UK. While the primary role of Vehicle Excise Duty (VED) and Company Car Tax is to contribute to the sustainability of the public finances, they can also incentivise the purchase of fuel efficient vehicles as their structure is based on CO_2 emissions.

115. The VED structure for cars has been graduated by carbon emissions for new registrations since 2001. There are now 13 VED bands with higher rates in the first year to strengthen environmental signals at the point of purchase. The payments range from £0 for cars that emit less than $101gCO_2/km$, to £1000 for cars with emissions over $255gCO_2/km$ in the first year of registration, reducing to £460 in subsequent years.

116. Company car tax was restructured to reflect CO_2 emissions in 2002. Payments are based on applying an appropriate percentage to the list price of the car, which increases with CO_2 emissions. The appropriate percentage ranges from 5% for cars with emissions below

76gCO_2/km to 35% for those with emissions above 230gCO_2/km. Zero emission vehicles are exempt. The appropriate percentage is set to increase each year, so that a higher charge will apply to a given CO_2 band. (Rates at 1 April 2011).

Promoting low emission vehicle technologies

117. The Government is convinced that the introduction of Ultra Low Emission Vehicles (ULEVs) will play an increasingly important role in decarbonising transport in the longer term. All credible evidence suggests that the market for ULEVs needs to start immediately if the UK's carbon targets are to be met. That is why the UK Government has confirmed a budget of over £400m over the lifetime of this Parliament (up to May 2015) to support a package of measures for the introduction of ULEVs. This includes funding for a consumer incentive; infrastructure; and research and development.

118. The Plug-In Car Grant commenced in January 2011 to help both private consumers and businesses purchase an electric, plug in hybrid or hydrogen fuelled car. Buyers are able to receive a grant of 25% of the vehicle price, up to a value of £5,000. These vehicles will, initially, be more expensive 'up front' than conventional cars due to low production volumes and the high cost of the battery. The grant will help to provide a more level playing field for new technologies, until the growing market drives purchase costs to a more competitive level. There is funding provision of around £300m to support consumer incentives over the lifetime of the Parliament.

119. The growing plug-in car market will also need an effective recharging infrastructure. The UK Government published its Infrastructure Strategy on 30 June 2011 to set out the framework for the development of recharging infrastructure in the UK. For plug-in vehicles to be a viable solution for consumers, we want infrastructure to be targeted, convenient and safe. We want to see the majority of recharging taking place at home, at night, after the peak in electricity demand. This should be supplemented by workplace charging for commuters and fleets and supported by a targeted amount of public infrastructure where it will be most used. In support of this we are providing around £25m of funding through the Plugged-In Places programme to install charging infrastructure in eight cities around the UK by March 2013. We will also work with the EU on the adoption of new common standards for charging infrastructure.

120. The UK Government also funds research and development into low and ultra low carbon vehicle technologies through the Technology Strategy Board (TSB) - an executive body established by the Government in 2007. As part of this funding, the Government has contributed to a total award of £24m for six projects to help develop the UK's low emission capacity. The projects include the development of new engines for plug-in hybrid cars. A range of demonstration projects are also currently underway, including the Ultra Low Carbon Vehicle demonstrator programme which is trialling 344 ultra-low carbon cars (electric, plug-in hybrid and hydrogen) and the Low Carbon Vehicle Public Procurement programme which is trialling 201 electric and low carbon vans in 21 public sector fleets.

Promoting the use of sustainable biofuels

121. The Government believes that biofuels have a role to play in efforts to tackle climate change, particularly where there is no viable alternative fuel, such as with aviation and Heavy Goods Vehicles. We are determined that in realising the potential carbon benefits of biofuels, we must ensure that they are produced in a sustainable way.

122. Biofuels are supported in the UK through the Renewable Transport Fuels Obligation (RTFO). The RTFO obligates fossil fuel suppliers (who supply at least 450,000 litres a year) to produce evidence that a specified percentage of their fuels for road transport in the UK comes from renewable sources. The RTFO came into effect in April 2008, with an obligation level of 2.5% in the first year. For 2011/12 the obligated level is set at 4%, this increases annually to a level of 5% in 2013/14.

123. The Department for Transport recently consulted on proposals to implement the transport elements of the Renewable Energy Directive and the greenhouse gas savings requirements of the Fuel Quality Directive. The RED requires the UK to source 15% of its overall energy, and 10% of energy used in transport, from renewable sources by 2020. The FQD requires fuel and energy suppliers (principally those providing fuel and energy for land-based transport) to reduce the lifecycle greenhouse gas emissions of the fuel/energy that they supply by 6% per unit of energy by 2020.

124. The two consultation documents set out proposals to implement the transport requirements of the RED and FQD through amendment to the UK's RTFO and the proposed Motor Fuel Greenhouse Gas Saving Regulations. The Government intends to publish a summary of consultation responses shortly.

125. The Government remains concerned about the potential Indirect Land Use Change (ILUC) impacts of biofuels. In response to a European Commission consultation on ILUC the UK Government called on the European Commission to work with Member States to develop detailed options to address ILUC which can be subjected to full impact assessments. This response has been published on the Department for Transport's website.

126. The European Commission published a report on the impacts of biofuels on ILUC on 22 December 2010, which commits to undertake impact assessments on a range of options before a decision is taken on ILUC by July 2011.

Providing low carbon alternatives

127. While technology-driven decarbonisation of road transport is likely to have the most significant greenhouse gas impact, it will also be important for people to have viable, low carbon alternatives, including rail.

128. The Government has proposed a new high speed rail line linking London and Birmingham with Manchester and Leeds. The Government believes that high speed rail could provide significant and sustainable capacity to meet the increasing demand for travel between the UK's largest conurbations over the next 20-30 years. The Department for transport is currently consulting on the proposed strategy for high speed rail and will confirm decisions later in 2011.

129. The Government also supports a progressive electrification of the rail network in England and Wales as a way of reducing the cost of running the railways, increasing passenger comfort and reducing carbon. Electric trains are not only quicker, quieter and more reliable than diesels but they are also cleaner - producing no emissions at their point of use.

130. The Government has announced the electrification of the Great Western Main Line as well as routes between Liverpool, Manchester, Preston and Blackpool. The Government has also given the go-ahead for the £4.5bn Intercity Express Programme to introduce a new generation of 125 mile per hour electric and bi-mode (diesel and electric) trains. These new trains will take advantage of the electrification of the Great Western Main Line to deliver faster acceleration, greater comfort and cleaner, greener travel to rail passengers in Wales and the south west.

131. Low carbon public transport is also being encouraged through the Green Bus Fund, where funding of almost £47m is expected to introduce around 550 new low carbon buses across England. Low carbon buses use at least 30 per cent less fuel and emit nearly a third less carbon than a conventional bus, yet they currently make up a tiny fraction of buses on the road. This investment will stimulate the market for low carbon buses by reducing some of the initial costs for operators and councils in England. This funding will also help to address industry uncertainties about performance as the winning bidders are required to share information with the DfT who will then produce summary reports for others in the industry.

132. Modern technology also has a role to play in reducing unnecessary travel. Information and communications technology solutions can provide fast and effective alternatives to travel - enabling people to work at home, to attend meetings remotely through audio or video conferencing or to do their shopping online. This improved connectivity can lead to a number of additional benefits for individuals, businesses and communities, including improved staff motivation, access to a wider staff pool and financial savings, as well as reduced emissions. The Government is committed to ensuring that the UK has the best superfast broadband network in Europe by 2015. Broadband Delivery UK (BDUK), the government team delivering this agenda, has £530 million of funding available to implement this strategy. However, technology alone is not the answer – behaviour change is also key.

Changing behaviour to reduce emissions

133. Significant carbon savings can come from changing the way we travel or transport goods or from finding alternatives to travel. The Government's Local Transport White Paper, published January 2011, promotes sustainable transport at a local level. The paper sets out the tools available to us now to provide carbon emissions reductions through sustainable local travel measures. This includes the Local Sustainable Transport Fund, which provides £560m to support local sustainable travel measures that help promote growth and cut carbon. The focus is on encouraging and enabling people to make sustainable travel choices for local trips. Two out of every three trips in the UK are less than 5 miles; these represent the biggest opportunity for sustainable travel options such as walking, cycling or public transport.

134. The Government is also committed to delivering the infrastructure to allow most local public transport journeys to be made using smart ticketing by December 2014. By making it easier for people to use public transport in this way, we will help get them out of their cars for those all-important short journeys.

135. The Government also supports the transfer of freight from road to rail and water, where it is practical and economically and environmentally sustainable to do so. The transport of freight in the UK is estimated to account for 22% of domestic transport greenhouse gas emissions, with the majority coming from road freight. The impact of road freight is disproportionate to the amount of freight it transports - in 2009 road freight accounted for

93% of domestic freight emissions in transporting 68% of freight. The Government has confirmed a budget of £20m for 2011/12 and £19m for 2012/13 to support the transfer of freight from road to rail and water, through the provision of mode shift grants.

Labelling and Communication

136. Technology and cleaner fuels are important in reducing emissions, but they are not enough on their own. The vehicle purchasing decisions of individuals and businesses also have an important role to play in reducing the carbon impact of road travel. That is why the UK Government is continuing to support the provision of information to help consumers make informed choices about carbon and fuel efficiency when they purchase a new car.

137. The UK's new car fuel economy label helps consumers to compare the carbon emissions, fuel costs and vehicle tax for different cars. Over 90% of new car dealerships in the UK now use this voluntary colour-coded label in their showrooms. Following the success of this scheme, the UK's used car fuel economy label was launched in 2009 with support from dealerships, manufacturers, the Low Carbon Vehicle Partnership and Government. To date over quarter of a million labels have been circulated into the used car market and nearly 2,000 used car dealers have signed up to this voluntary scheme.

138. The European Commission has not yet launched its proposal to recast the New Passenger Car Fuel Economy Labelling Directive (1999/94/EC), although it can be expected some time in 2012. The 2011 EU Transport White Paper signalled that the EC may consider making the Directive more effective by extending its scope to light commercial and L-category vehicles (mopeds, motorcycles and quadricycles); and by harmonising not only the label itself, but also the fuel efficiency classes throughout Member States.

139. The UK Government ran a consumer focussed communications campaign between 2007 and 2010 with a focus on climate change and its impacts. This included campaigns to promote fuel-efficient driving and new car purchasing. We continue to explore other avenues to communicate the message of reducing CO_2 emissions from UK road transport, working with industry and business stakeholders.

Energy Saving Trust

140. The Energy Saving Trust continues to play a role in supporting a more energy efficient use of transport through its promotion of lower carbon vehicles, fuel efficient driving techniques and low carbon transport alternatives. Advice and support has been available to both business and the consumer.

The Energy End Use Efficiency and Energy Services Directive

141. The Energy End-Use Efficiency and Energy Services Directive requires Member States to place obligations on suppliers of transport fuels to promote or offer either competitively priced energy services, energy audits or other energy efficiency improvement measures to their final customers excluding those covered by the EU-ETS. The UK has developed a voluntary Energy Efficiency Agreement with road transport fuel suppliers to meet the requirements of the Directive.

Sustainable aviation and shipping

142. Government believes that the most effective way to tackle emissions in an international sector like aviation is through international agreement, and we are pressing ahead with the inclusion of aviation in the EU Emissions Trading System (ETS) from 2012. We will also continue to push for an ambitious global agreement on reducing aviation's CO_2 emissions, and we support ICAO's recently agreed goal of stabilising CO_2 emissions from international civil aviation from 2020 onwards.

143. The Government is clear that sustainable biofuels have a role to play in reducing CO_2 emissions from transport, particularly in sectors where there are limited alternatives to fossil fuel. The Government will continue to work with European partners, the wider international community and industry to explore how to bring about a significant increase in the use of biofuels in aviation.

The Wider Public Sector

Local Government

144. Our efforts to cut greenhouse gas emissions should enthuse our whole society, in line with our commitment to localism. Local authorities are uniquely placed to provide leadership and vision to communities, raise awareness of energy efficiency and help change behaviour. Many are enthusiastic about playing their part in meeting national carbon mitigation targets and have already set in place stretching ambitions and policies for emissions in their area.

145. In recognition of the substantial contribution local authorities can make to carbon reduction within their sphere of influence, a Local Carbon Frameworks pilot programme was implemented in 2010/11 to help integrate measures to combat climate change into the core business of local authorities as stewards for community action on carbon (at business, commercial and neighbourhood level), align carbon reduction to the growth of the green economy and public sector efficiency, and optimise the local authority contribution to the national carbon budget and secure local carbon accountability in line with the Coalition's localism agenda.

146. In line with the Coalition commitment to maintaining a light touch, the responsibility for driving and optimising low carbon performance in the public sector will in future rest with local government. The recently signed Memorandum of Understanding between DECC and the Local Government Group constitutes the basis of this agreement and should result in robust, self regulated action on carbon reduction in the form of new 'Council Frameworks on Climate Change', to be overseen by a second phase 'Nottingham Declaration'.

147. Work commissioned to define baseline data and methodologies will provide the foundations from which any local authority can begin to plan how it can optimise it's contribution, and do so in a way that is wholly compatible with its core aspirations for economic growth, efficiency savings and community engagement. This evidence based policy approach will encourage local initiative without imposing central burdens on local authorities.

148. We have considered how best Local Authorities can be supported so that they can best contribute to the climate change agenda in their areas, and in particular deliver the Green

Deal. Therefore, in tandem with working with local government to deliver under the MoU, the Government has decided to retain the Home Energy Conservation Act 1995.

Health

149. The National Health Service (NHS) in England spends approximately £563m on energy each year. In the ten years to March 2010 energy efficiency of the NHS estate improved by 11.7 per-cent overall.

150. The Department of Health's Energy and Sustainability Capital Fund (£100 million) enabled the NHS to produce estimated annual revenue savings (based on 2007-08 energy costs) of £14 million per annum and savings of over 126,000 tonnes CO2/annum.

151. The Carbon Trust is in the fourth phase of the NHS Carbon Management Programme, and this has already identified annual revenue savings in excess of £20 million per annum and savings of 185,000 tonnes CO2/annum. These programmes are being implemented over a five-year period.

152. The Department of Health established the NHS Sustainable Development Unit in April 2008 with the aim to developing organisations, people, tools, policy and research to enable the NHS to fulfil its potential as a leading sustainable and low carbon healthcare service. 74% of NHS organisations now have an Sustainable Development Management Plan,

153. The NHS themselves continue to innovate and lead on energy efficiency. University College London Hospitals (UCLH) and BRE are delivering an NHS Sustainability Portal, giving information and advice to help health trusts and other healthcare organisations cut carbon emissions and energy use and operate more efficiently. Under the Forward Commitment Procurement pioneer NHS trusts are trialling innovative energy efficiency lighting and waste solutions (reduction and energy from waste), with the potential to roll out across the NHS providing significant improvements.

154. New NHS capital schemes (requiring business case approval) need to achieve an BREEAM Healthcare (Building Research Establishment's Environmental Assessment Method) Excellent rating, signifying, amongst other things, a high level of energy efficiency.

155. The NHS Carbon Reduction Strategy[11] sets a target of reducing its 2007 carbon footprint by 10% by 2015. The strategy identified that around 60% of the carbon footprint of the NHS in England was related to the goods and services procured. Procuring for Carbon Reduction (P4CR) is the NHS response to support procurers across the healthcare sector address greenhouse gas emissions associated with goods and services procured.

[11] Saving Carbon, Improving Health. NHS CARBON REDUCTION STRATEGY FOR ENGLAND January 2009 http://www.sdu.nhs.uk/documents/publications/1237308334_qylG_saving_carbon,_improving_health_nhs_carbon_reducti.pdf

156. The P4CR initiative, has issued a workbook and tools to support procurement practitioners[12] and is central to the development of Learning and Development materials in conjunction with the Defra led National Sustainable Public Procurement Programme.

157. NHS organisations are encouraged to adopt Government Buying Standards and contribute to the development of EU Green Public Procurement standards for Medical Devices, with the first issue of standards planned in 2012.

158. The NHS Sustainable Procurement Forum has established an on line 'community of practice' to encourage exchange of experience and knowledge on procuring for carbon reduction and other sustainable procurement issues. Details of the community can be found at www.communities.idea.gov.uk.

Education

159. Schools account, on average, for around 40 - 50% of carbon emissions in local authorities. A study into the carbon footprint of schools estimated that the energy used within school buildings results in emissions of approximately 3.9Mt CO_2 per annum.

160. Schools are now using more energy than ever and their consumption has been increasing for the last twenty years. At the same time, energy costs are rising. English schools' expenditure doubled between 2004 and 2009, energy spend for 2008-09 was £553m and costs are set to rise further.

161. Energy is one of the largest non-staff costs in schools. The average cost of energy per school is £27,000, although secondary schools can have bills of over £80,000. Rising energy costs will have substantial implications on schools budgets.

162. Over the last 10 years, more than £34 billion has been invested in educational buildings and by the end of February 2011, 834 schools had been built or refurbished under the three major capital programmes (Building Schools for the Future, Academies and Primary Capital Programme). The Coalition Government has made clear its commitment to continuing investment in schools, where it is needed.

163. If schools wish to reduce their energy usage, thereby saving money and reducing the amount of carbon we produce, there is a range of actions that they can consider. These include engaging staff and students to reduce energy and carbon and simple actions such as turning off lights and equipment when not in use, and saving between five and ten per cent of a school's energy bill by reducing the temperature by one degree. Other measures include installing a smart meter, procuring low energy ICT equipment and reducing energy demand through good passive design, and low energy engineering systems to support energy conscious behaviour.

164. The Government remains fully committed to sustainable development and the importance of preparing young people for the future. At the same time, our approach is based on the belief that schools perform better when they take responsibility for their own improvement. We want schools to make their own judgments on how sustainable development should be

[12] http://www.sdu.nhs.uk/publications-resources/23/Procuring-for-Carbon-Reduction-P4CR--NEW/

reflected in their ethos, day-to-day operations and through education for sustainable development, including climate change. Those judgments should be based on sound knowledge and local needs. The good practice materials that underpin the national framework for sustainable schools are available online through the Department for Education's website. Since summer 2010, work on Sustainable Schools has been taken forward by a group of voluntary organisations working together as the Sustainable Schools Alliance. We continue to work closely with the lead umbrella organisations, Sustainability and Environmental Education (SEEd) and the National Children's Bureau, who are working together to provide a clear and compelling offer of support to all schools in the country. This will help and encourage schools to put sustainability at the heart of what they do. If you would like to find out more about the Alliance's work, you can visit their website at http://sustainable-schools-alliance.org.uk/.

165. The Department also welcomes initiatives to support schools, including for example the Carbon Trust initiative "Collaborative Low Carbon School Service". Improving energy efficiency in England's schools can potentially save tens of millions of pounds every year. It also helps reduce carbon emissions which contribute to climate change. Through this programme, local authorities and schools can work together on practical ways to save energy.

166. Further Education (FE) colleges are playing an active role in reducing their energy consumption. They have agreed a Carbon reduction target of 43% by 2020 against a 2005 baseline. As a result of the substantial capital investment significant progress has been made against the baseline with a reduction of 37% in carbon emissions. The Department for Business, Innovation and Skills requires that all major new capital build and refurbishment projects are subject to a BREEAM FE College assessment. Unless it gains the required rating, funding from the FE Capital Programme will not be approved for the project by the Skills Funding Agency (formerly the Learning and Skills Council).

167. A sustainable development framework is being developed to support FE colleges to become more sustainable through programmes to build leadership and capacity to drive sustainability, both at organisational level and at the level of sustainability leads/co-ordinators/champions. Initiatives also underway include: 'Stepping up Sustainability' projects - identifying and developing effective practical approaches to sustainable development - and 'Cut the Carbon' pilots - covering a range of approaches to carbon reduction. Both of these initiatives will result in a range of case studies in 2011 from which colleges can draw. Through the 'FE-HE Carbon Reduction Partnerships' programme, 9 higher education institutions are sharing their successful carbon reduction strategies and projects with an FE partner to support the development of similar projects by those FE partners.

168. Universities are already making a unique and substantial contribution through their teaching and research, their business operations, and through their influence on communities and the lives of their staff and students. Research into new solutions is of critical importance. The Higher Education Funding Council for England (HEFCE) is introducing new arrangements for the assessment and funding of research - the Research Excellence Framework (REF). This will include an explicit assessment of the impact that research has

on society, the economy, culture, the environment, health and quality of life. In 2008 HEFCE published an update to its sustainable development strategy and action plan[13], setting out how the Higher education sector in England will work towards sustainability and tackle climate change.

169. HEFCE, Universities UK and GuildHE have published a carbon reduction strategy for higher education in England. The sector has demonstrated strong commitment to this strategy including agreeing to a reduction in scope 1 and 2 emissions of 34 per cent by 2020 and 80 per cent by 2050 against a 1990 baseline. Progress will be measured on an annual basis and published by HEFCE. HEFCE's Capital Investment Framework (CIF) links the provision of infrastructure funding to performance in reducing carbon emissions. Universities face a 40% reduction in capital funding unless they have a carbon management plan and have made absolute or relative reductions in carbon emissions.

170. The first phase of the Revolving Green Fund (RGF1), a partnership between HEFCE and Salix Finance, has provided £30M to 59 universities for small scale projects using proven technologies and three large transformational projects[14]. A recent independent evaluation of the RGF[15] showed that current projects are already saving over 2% of sector carbon emissions each year. If projects continue at current levels and frequency, the fund could lead to 9% carbon emissions savings at universities each year by 2020. HEFCE made a further £10 million available in June 2011 for a second phase of the RGF[16]. HEFCE has provided grants to institutions through their Leadership, Governance and Management Fund to support the development and promotion of good practice.

Scottish Government Policies

Introduction

171. Scotland has set a framework for energy efficiency and micro-generation that furthers our climate change, economic and social agendas and contributes to our Low Carbon Economic Strategy. Cost-effective action is required if Scotland is to meet its challenging statutory emissions reduction targets of at least 80% by 2050 and 42% by 2020, as set out in the Climate Change (Scotland)Act 2009. By reducing energy consumption we aim to reduce costs for consumers whilst improving levels of comfort. Towards this end we published "Conserve and Save The Energy Efficiency Action Plan for Scotland"[17] in October 2010. This sets out the target to reduce final energy consumption by 12% by 2020 using a 2005-7 baseline and the actions to be taken. We will report on the plan annually and the plan will be reviewed and update at least every 3 years.

[13] http://www.hefce.ac.uk/pubs/hefce/2009/09_03/

[14] http://www.hefce.ac.uk/lgm/sustain/rgf/

[15] http://www.hefce.ac.uk/pubs/rdreports/2010/rd10_10/

[16] http://www.hefce.ac.uk/pubs/circlets/2011/cl16_11/

[17] http://www.scotland.gov.uk/Publications/2010/10/07142301/0

Household Sector

172. The Scottish Government will continue to provide ongoing support and financial assistance for energy efficiency in existing housing, levering investment from energy companies and private householders wherever appropriate.

173. Historic Scotland will take the lead in researching and promoting energy efficiency in traditional buildings. As part of this it will carry out research and case study projects, and disseminate findings to and through relevant partners, and will include energy efficiency in domestic properties in its existing and future regeneration and grants programmes.

174. In March 2011, the Scottish Government published a report setting out its approach to the use of regulations to improve the energy efficiency of Scotland's housing. This stated that the Scottish Government would not introduce regulations under the Climate Change (Scotland) Act before 2015. This will allow a further opportunity to provide assistance and incentives to improve the energy efficiency of housing. In the meantime, the Scottish Government will begin a range of actions to prepare for regulation which include identifying a suitable process to examine the issues affecting regulation.

175. Work continues with social landlords and other stakeholders to consider how best to meet carbon reductions from social housing, including the development of and consultation on an appropriate energy efficiency standard beyond the existing Scottish Housing Quality Standard (SHQS).

176. Guidance for local housing strategies has also been strengthened by issuing supplementary guidance jointly with the Convention of Scottish Local Authorities (COSLA**)** on local authority coverage of climate change.

177. Scottish Government has committed to driving improvements to the energy efficiency of Scottish Building stock through building standards. This has included introducing in 2010 new energy standards for new buildings, which deliver a 30% reduction in carbon dioxide emissions compared to 2007 standards, and committing to further review energy standards for 2013 and 2016. Improved energy efficiency measures for extensions, conversions and alterations, including where building elements such as boilers, cooling systems, windows and doors are being replaced were introduced in 2010, as were measures for the improvement of existing buildings triggered either by the extension of a dwelling or work to an existing non-domestic building with building services component. Further details on these and other actions, relating to building standards for domestic and non-domestic dwellings are available in the Energy Efficiency Action Plan.

Business and Public Sectors

178. Scotland published a Low Carbon Economic Strategy in November 2010, developed in partnership with key stakeholders including Scottish Enterprise, Highlands and Islands Enterprise and SEPA.

179. To support energy efficiency in the private sector the Scottish Government is developing a single Scottish Energy and Resource Efficiency Service for business. This brings together key delivery bodies (including Carbon Trust, Energy Saving Trust, Zero Waste Scotland and

SEPA), the enterprise agencies and Business Gateway, to provide better cross-referral of services, more consistent advice and encourage more SMEs to reduce their emissions and save money.

180. The Scottish Government continues to provide interest-free loans to both SMEs and the public sector. The Energy Saving Scotland small business loans scheme offers funding of up to £100,000 for a range of energy efficiency and renewables measures and paid out over £2.4 million in loans during 2010/11. The Central Energy Efficiency Fund (CEEF), launched in 2004, continues to support local authorities, NHS Scotland and Scottish Water in a similar manner through revolving loans. To date CEEF has funded over £19 million worth of energy saving projects, achieving estimate lifetime emissions savings of over 900,000 tonnes of carbon dioxide

181. The Scottish Government has committed to working with the public sector to develop a methodology for setting appropriate energy saving targets in Scotland with the intention of setting an overarching energy saving target for the public sector as a whole and encourage all public bodies to set individual annual energy efficiency targets. It will also promote the reporting of public sector energy consumption and help enable more low-carbon building procurement through the publication of suitable guidance in 2011.

Transport Sector

182. While EU and UK Government policies have a significant impact on emissions reductions in Scotland, a series of devolved policy proposals have been packaged into three key groups in the published RPP: reducing the need to travel, widening travel choices, and driving more efficiently.

183. The feasibility of delivering the published proposals as firm policies is currently being assessed. However, more tele-working from home and shared managed space ICT venues within communities is expected to lead to greater sustainability within, and reduced emissions from, our transport system whilst potentially increasing productivity also.

184. Widening travel choices encourages more sustainable communities through travel planning towards lower carbon options, including public transport, improved cycling and walking infrastructure, car sharing and the establishment of more car clubs.

185. Our Climate Change Delivery Plan of June 2009, included the transformational outcome of almost complete decarbonisation of road transport by increased uptake of low carbon vehicles (LCVs) and infrastructure development by 2050, with significant progress by 2030. We have already made good progress through the LCV Procurement Support Scheme, which will add around 150 additional LCVs added to public sector fleets, with associated electric vehicle charging points. In addition, the Scottish Green Bus Fund led to the procurement of 48 low carbon buses.

186. Until significant progress towards decarbonised vehicles is achieved, behavioural change through fuel efficient driving techniques will continue to play a key role in reducing energy consumption and emissions.

Welsh Government Policies

Introduction

187. In 2011 the Welsh Government published its National Energy Efficiency and Savings Plan for Wales[18] and an Energy and Environment Action Plan. The former outlined the Welsh Government's vision for energy efficiency and set out the role of the Welsh Government, what has been achieved and future activity. This included activity in relation to energy efficiency for individuals and householders, communities and the third sector, businesses and the public sector. The latter seeks to place Wales at the forefront of the transition to a low carbon low waste economy and will lead to the development of a programme of actions (under the direction of a private sector panel) to exploit the economic opportunities associated with a number of sectors, including energy efficiency.

Household Sector

188. A new Fuel Poverty Strategy for Wales was published in 2010 [19] setting out the action to be taken in Wales to tackle fuel poverty. In 2011 replacing the former Home Energy Efficiency Scheme (which supported almost 50,000 homes between 2007 and 2010), NEST was developed and launched in Wales. NEST is a Fuel Poverty programme offering whole house improvement packages to those likely to be vulnerable to fuel poverty living in For G rated properties. It has been designed to target limited Welsh Government investment where it is needed most.

189. Introduced in 2009, Arbed is an area-based, whole house energy performance improvement programme which has seen £30m of Welsh Government funding invested alongside £30m leveraged from energy companies, Housing Associations and local authorities. Arbed Phase 1 supported over 7,500 homes. Phase 2 is part funded by European Structural Funds and is currently being implemented.

190. The Welsh Boiler Scrappage Scheme was introduced in April 2010, offering vouchers worth £500 for persons aged over 60 to go towards the replacement of very inefficient boilers (G rated) with highly efficient A rated boilers. The scheme has seen 5,000 new efficient replacement boilers installed.

191. Welsh Government funding has contributed towards the establishment of the Wales Low Zero Hub, a public/private sector initiative that will develop best practice and act as an engagement and dissemination mechanism between the Welsh Government and industry, with particular reference to the proposed changes to the newly devolved Welsh Building Regulations.

192. The Welsh Housing Quality Standard (WHQS) in social housing which specifies a minimum SAP rating of 65, equivalent to an Energy Performance Certificate rating of D.

---

[18] http://wales.gov.uk/docs/desh/publications/110323energyplanen.pdf

[19] http://wales.gov.uk/docs/desh/publications/100723fuelpovertystrategyen.pdf

Between 2004 and 2008 in Wales the average SAP for local authority housing rose from 48 to 58, and for housing associations rose from 60 to 63.

Business and Public Sectors

193. All Welsh Government funded building projects must meet the BREEAM Excellent standard. This policy continues and has resulted in a range of schools, further and higher education and health projects meeting the Excellent standard.

194. For the NHS in Wales, the latest figures indicate a 17% reduction in net energy use and a 21% improvement in efficiency using the NHS performance indicator from a 1999/2000 baseline. In 2009/10, 16% of the electricity requirement for the NHS in Wales was provided by on site CHP. A Central Energy Fund allocated £3.1m to NHS organisations in Wales to invest in low to medium cost energy efficiency initiatives and low carbon technologies. It ended in 2009 it and saved £0.004 MtC annually. The Fund has been evaluated and the Welsh Government are considering how to build on its success.

195. A 21st Century Schools[20] Standard for Schools in Wales is being developed to assist with understanding and applying sustainable design, focusing on energy use and carbon dioxide emissions in school design and refurbishment. The standard, and guidance, will relate to other aspects of sustainability including the indoor environment, green space, attractiveness of design, quality and durability of the building and sustainability of construction materials. The standard which will be available in July 2011.

196. Three-year agreements have been set between the Welsh Government and each of the 22 Welsh local authorities, covering 10 outcome themes and setting out local collaborative action to deliver them. One of the themes is that “Wales is an energy efficient, low carbon and low waste society”. Within that, 12 authorities have chosen to focus on energy efficiency.

Transport Sector

197. Safe Routes to Communities: This programme aims to improve accessibility, safety and encourage walking and cycling more generally within communities and was launched in 2008.

198. The Walking and Cycling Action Plan 2009-2013, brings together the key initiatives which the Welsh Government and its key partners are undertaking or planning to undertake in support of walking and cycling in Wales. The first annual report (2009/10)[21] indicated increases in 3 of the 6 targets listed in the plan during the first year following launch.

[20] http://21stcenturyschools.org/?lang=en

[21] http://wales.gov.uk/topics/transport/integrated/walkingcycling/annualreport0910/?lang=en

Northern Ireland Executive Policies

Introduction

199. The Department of Enterprise, Trade and Investment's (DETI) strategic aim is for a more secure and sustainable energy system for Northern Ireland where:

a. energy is as competitively priced as possible alongside robust security of supply;

b. much more of our energy is from renewable sources and the resulting economic opportunities are fully exploited; and

c. energy efficiency is maximised.

200. The Strategic Energy Framework[1], which flags the direction for Northern Ireland energy policy over the next ten years, concentrates on the key areas of electricity, natural gas, and renewable energy sources.

201. DETI recognises the pivotal role that energy efficiency plays in maximising the value we get from the energy we use. Everyone benefits when energy is used more efficiently – consumers save money, demand is reduced and environmental impacts are minimised. At present a number of Northern Ireland government Departments and agencies have clear statutory roles in relation to energy efficiency, including the Department of Finance and Personnel (DFP), the Department for Social Development (DSD) and Invest Northern Ireland (Invest NI). DETI has sought to play a co-ordinating role.

Household Sector

202. In Northern Ireland the Warm Homes Scheme continues to support approximately 9,000 fuel poor private sector households each year to make energy efficiency improvements. This is in addition to Energy Service Agreements with all major energy suppliers in Northern Ireland to promote and provide energy efficiency services to domestic and small business consumers.

203. The Boiler Replacement Scheme for Northern Ireland is to launch in July 2011 and will target private sector householders who have inefficient boilers and do not qualify for the Warm Homes Scheme. Recipients must be in receipt of State Pension with Rates Relief.

204. The Utility Regulator is currently undertaking a cost benefit analysis on a rollout of smart metering in Northern Ireland. This is due to be completed during the summer of 2011, after which a policy decision on smart metering will be made.

205. The Northern Ireland Energy Efficiency Levy (EEL), administered by the Utility Regulator), has now been replaced by the Northern Ireland Sustainable Energy Programme (NISEP)

[1] http://www.detini.gov.uk/deti-energy-index/deti-energy-strategic-energy-framework.htm

which will run to at least 2012/13. The NISEP will provide around £7.5m per annum in grant funding for energy efficiency/renewable energy schemes for both domestic and non-domestic properties. However, as with the former EEL, 80% of the funding is ring-fenced for schemes that target households at risk of fuel poverty but which do not qualify for the Warm Homes Scheme.

206. Building Regulations Part F (Conservation of fuel & power) have been amended to enhance thermal standards progressively towards carbon neutral dwellings from 2016 & carbon neutral non-dwellings from 2019; implemented EPBD through Energy Performance of Buildings (EPB) Regulations, requiring EPCs for buildings on construction, sale & rental and display in larger public buildings, regular inspection of air-conditioning systems with a cooling capacity greater than 12Kw, to promote energy performance of buildings, and will implement the recast EPBD by further amending the EPB Regulations, particularly to extend display requirements to smaller public buildings.

207. Voluntary agreements with all major energy suppliers in Northern Ireland have been established to promote and provide energy efficiency services to domestic and small business consumers. Not only were agreements made with all electricity and gas suppliers in Northern Ireland they were also made with the oil and coal trade bodies and the largest supplier of wood pellets. A forum was set up and all agreement holders meet on a regular basis to discuss and compare performance. Agreement holders report to DETI on volumes of energy sold and number of customers.

Business and Public Sectors

208. In May 2011, the Northern Ireland Sustainable Development Strategy, “Everyone’s Involved”, was published. This was followed in March 2011 by a detailed Implementation Plan setting out the approach (until end March 2014) to the delivery of the objectives contained within the Strategy.

209. A central theme of both the Strategy and Implementation Plan is that Government will ensure that the principles of sustainable development underpin its approach to all of the work that it undertakes. A range of specific commitments to action have been included, and they constitute a very challenging programme for the promoting sustainable management of the office estate. Specifically, with regard to the reduction of greenhouse gas emissions, a commitment is given to the production of an Energy Efficiency Action Plan for the Government office estate, detailing targets for energy efficiency/carbon reduction measures that are achievable within budget during the period 2011-2014.

210. The Sustainable Development Strategy and Implementation Plan are underpinned by a statutory duty requiring Departments and District Councils to act in the exercise of their functions in the way best calculated to contribute to the achievement of sustainable development in Northern Ireland. The Implementation Plan includes a variety of measures for implementation by OFMDFM to ensure that Departments and Councils have access to the support and guidance they require to act in fulfilment of the statutory duty.

211. The Department of Finance and Personnel’s Central Procurement Directorate achieved the first target and developed the Northern Ireland Sustainable Procurement Action Plan (NI SPAP) by 2008. The plan ran from 2008 to the end of March 2011. The Plan presented a number of overarching actions to assist in the delivery of the Programme for Government commitment to support the wider Public Sector in taking account of sustainable development

principles when procuring works, supplies and services. Targets in the Plan included channelling procurement through Centres of Procurement Expertise (CoPE) and ensuring that sustainable development principles guided capital investment decisions on all major publicly funded building. As the Plan has now officially finished, future actions on sustainability relating to public sector procurement are being taken forward under the new Sustainable Development Implementation plan.

212. The Policy Framework for Construction Procurement was refreshed and guidance issued in December 2010. Construction CoPEs confirm they provide advice to Government Construction Clients on sustainable development principles relating to construction procurement consistent with this Policy Framework. They have also confirmed the inclusion of the Construction Industry Forum for Northern Ireland sustainability requirements in contracts where appropriate.

213. A total of 98% of the procurement spend (£2.304bn) in 2009 - 2010, was subject to professional procurement influence. Nine of the eleven Northern Ireland Departments either met or exceeded the 95% target and the remainder have put actions in place to reduce their non-CoPE spend to achieve the target by 31 March 2011. The Departmental Procurement Expenditure survey for 2010 – 2011, commissioned in June 2011, will be used to determine the final outturn. This will help to ensure that spend is subject to professional procurement influence and sustainability considerations.

Annex – Policy Evaluation

Effective evaluation of the impact of continuing and completed programmes is essential in informing the future development of policy. This annex provides details of a number of examples of evaluations completed on energy efficiency policies as well as an explanation of the National Energy Efficiency Data-framework which will improve the evidence base on energy efficiency and the impacts of policies across the board.

National Energy Efficiency Data-framework

The National Energy Efficiency Data-framework (NEED), has been set up to provide a wider understanding of energy use and energy efficiency.

A report published in July 2011[22] set out the encouraging results achieved to date with NEED and the important role it can play developing the energy efficiency evidence base.

The report focuses on the household sector and presents a wide range of results about how energy use changes as dwelling or household characteristics (such as property type or number of bedrooms) change. It also shows that energy efficiency investment in homes can reduce energy consumption and how those savings can vary by property type. The report also highlights a variety of questions that need further work and shows some of the linkages between datasets which will need to be better understood to improve models to fully understand all the drivers of energy use.

Improving the evidence base on energy efficiency is a major aim for DECC. It benefits energy consumers to understand how energy can be saved both through investment and understanding more about energy use could help change behaviour. It also benefits DECC in providing the evidence for policy design and in future more detailed monitoring of policies and will benefit providers of energy efficiency investments in understanding more about what savings can be realised.

The analysis included in the report demonstrates that the installation of energy efficiency measures enables significant energy savings for real households.

Some examples of the types of analysis covered in the report include:

- Analysis of median energy consumption per bedroom is lower for three bedroom properties than for one or two bedroom homes for both gas and electricity. Beyond three bedrooms there are very small savings per bedroom with each additional bedroom adding roughly 5,400 kWh of gas and 1,200 kWh of electricity to household consumption.
- Analysis of energy consumption by income group quantifies the extent to which higher income households have both higher median consumption and a greater range of consumption for both gas and electricity.

[22] http://www.decc.gov.uk/media/viewfile.ashx?filetype=4&filepath=11/stats/energy/energy-efficiency/2078-need-data-framework-report.pdf&minwidth=true.

- Analysis of median changes in gas consumption for homes receiving energy efficiency measures in 2006 relative to a control group has shown that homes receiving cavity wall insulation used around 2,200 kWh less gas than the control group but there is large variation in the savings for individual households.

This analysis is being used to support the development of key DECC policies including the Green Deal alongside other evidence including scientific studies of what technologies save in field trials. The evidence in this report focuses on savings from real households and produces new understanding of the range of observed savings.

In the first report all results are for England. However, the NEED project covers the whole of Great Britain. The NEED project also covers the non-domestic sector, which is considerably more complex and work to examine the suitability of this framework to improve understanding of non-domestic energy use is still ongoing.

Evaluation Case Study: Carbon Emissions Reduction Target and the Community Energy Savings Programme

The Carbon Emissions Reduction Target (CERT) is the main legislative driver for improving the energy efficiency of existing households in Great Britain and contributes to the UK's legally binding emissions reductions commitments. CERT has run since April 2008 and places an obligation on the six major gas and electricity suppliers to meet a carbon emissions reduction target. This target is set by DECC and requires at least 40 per cent of the carbon savings to be met in Priority Group households (who are on certain benefits and/or over 70 years old).[23]

The Community Energy Savings Programme (CESP) targets households in low-income areas across Great Britain to improve energy efficiency standards and permanently reduce fuel bills. It is funded by an obligation on energy suppliers and electricity generators. CESP has the twin objectives of significantly reducing the fuel bills of low income households; and improving the energy efficiency of the existing housing stock in order to reduce the UK's CO2 emissions.

CESP's role is also to provide a 'bridge to the future', to enable Government to learn lessons from elements of the delivery of the programme to inform future energy efficiency policy design and implementation beyond 2012.

The Department of Energy and Climate Change is undertaking a number of work-streams to evaluate the delivery and effectiveness of CERT and CESP, to inform the design of a future energy company obligation policy and provide lessons for future policy evaluation. This includes the following externally commissioned research, as well as further analysis undertaken by DECC.

[23] Further information on CERT can be found on the DECC website (http://www.decc.gov.uk/en/content/cms/what_we_do/consumers/saving_energy/cert/cert.aspx)

1. Research to examine how CERT has been delivered in practice, and how energy efficiency measures offered under CERT have been taken up by households, comprising two main strands:
   - A process evaluation, comprising 65 in-depth interviews with key delivery stakeholders, a national workshop and desk research; and
   - Research with householders, comprising a representative national household survey (1,613 adults responsible for household decisions); and face-to-face in-depth interviews with 47 householders who had taken up CERT measures and 30 who had not.

   This research had a number of objectives, including the following key questions:
   - How is CERT being delivered in practice?
   - How are measures offered under CERT taken up by households?
   - What are the main effects of measures offered under CERT?
   - What are the successes and limitations of CERT?

2. An evaluation of CESP, which consisted of three work streams:

- A process evaluation - to evaluate the processes involved in CESP i.e. the mechanics of the programme – the 'how' part – that enable outputs to be achieved.
- A householder experience programme - to understand householder's experiences of CESP, barriers to participation, the impact of CESP measures and attitudes and behaviours in relation to energy efficiency
- A physical monitoring programme - to assess a sample of refurbished dwellings across a number of CESP schemes on a before and after basis.

For all the workstreams identifying the lessons learned from CESP has been a key focus. Work on the first two workstreams has been completed, however the physical monitoring programme runs until 2012 and detailed findings will not be available until then.

Findings of this work will be published by DECC in autumn 2011, including a synthesis report drawing together all the evaluation evidence about CERT and CESP, as well as the individual reports of externally commissioned research.

Evaluation Case Study: Energy Demand Research Project

The Energy Demand Research Project (EDRP) was a major project to test the impact of improved energy information on energy consumption in Great Britain.[24] The project was launched in July 2007 and has been managed by Ofgem on behalf of DECC. Four energy suppliers[25] each conducted trials of the impacts of various interventions between 2007 and 2010.

[24] The EDRP trials pre date the decision to roll out smart meters and as such was not designed to represent the reality of a national rollout.

[25] EDF Energy Customers Plc, E.ON UK Plc, Scottish Power Energy Retail Ltd and SSE Energy Supply Ltd (EDF, E.ON, Scottish Power and SSE).

The interventions were primarily directed at reducing domestic energy consumption, with a couple of trials also focused on shifting energy use from periods of peak demand. Measures were generally applied at household level[26] and included (individually or in combination): smart meters, in-home displays (or real-time displays, RTDs), energy efficiency advice, financial incentives and a variety of ways to give feedback (on paper, on the web, using alert or messages on the RTD). Over 60,000 households were involved, among which 18,000 had a smart meter installed.

The final report[27] presents the full analysis of the trials. The results are also contextualised within the wider literature to identify the interventions that have proved most effective in reducing consumption, and, importantly, key findings on *how* such interventions can best be delivered. Smart meters were shown to be a necessary enabling platform to help consumers change behaviour. Levels of savings varied depending on how an intervention was deployed and how it was delivered in combination with other interventions. However, when the trial involved a smart meter with an RTD, it consistently resulted in statistically robust energy savings around 3%, and up to 5% from energy efficiency advice and historic billing information provided with smart meters.

The report provides a unique source of information. Valuable practical lessons have been drawn, especially as regards the savings' potential across different consumer groups and the effectiveness of different delivery mechanisms. The detailed findings will inform the work of the Smart Meters Programme going forward on further steps to maximise benefits from smart metering and engage consumers.

[26] One supplier also tested action at community level.

[27] Published in June 2011 by Ofgem, available at: http://www.ofgem.gov.uk/sustainability/edrp/Pages/EDRP.aspx.

Department of Energy & Climate Change
3 Whitehall Place
London SW1A 2AW
www.decc.gov.uk

11D/824