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Assessment of climate change policies in the context of the European Semester

Country Report: United Kingdom



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Client: DG Climate Action

Service Contract: 071201/2012/635684/SER/CLIMA.A.3

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This country report has been produced as a joint output by Ecologic Institute and eclareon to support the Directorate General for Climate Action (DG CLIMA) at the European Commission in its work on the European Semester (Service Contract: 071201/2012/635684/SER/CLIMA.A.3).

The report provides an overview of current emission trends and progress towards targets as well as policy developments that took place over the period May 2012 to January 2013.

The content of the report represents the state of knowledge in February 2013, specific updates were made adding the latest official greenhouse gas emission data by the European Environment Agency (EEA).

Please feel free to provide any comments or suggestions to the authors through the contacts listed above.

Short summary

- **Background:** With the 2008 Climate Change Act, the United Kingdom became the first country in the world having both a legally-binding long-term framework to tackle carbon emissions as well as a framework on adaptation to climate change.
- **GHG target:** Non-ETS emissions in 2011 were below the 2013 target and according to the latest national projections the United Kingdom is expected to overachieve its non-ETS target by 2020 with existing measures.
- **Policy development:** A number of climate change related policies have been passed or amended in the United Kingdom since April 2012. However, the main focus is currently on the Electricity Market Reform, introduced by the Energy Bill published in November 2012.

I Background on climate and energy policies

The UK was the first country worldwide to establish a long-term, legally-binding framework to cope with the threats of climate change. The 2008 Climate Change Act ⁽¹⁾ covers both mitigation and adaptation and requires emission reductions by at least 80% by 2050 as compared to 1990 levels. In addition, it introduces statutory carbon budgets and established a Committee on Climate Change ⁽²⁾ that provides advice on climate policy measures. The Act is being implemented through a set of national policies and strategies. The Carbon Plan, published in 2011, assessed progress towards the reduction target and set out a precise schedule for actions to be taken by relevant departments until 2016. The 2011 Carbon Plan also covers the role of Northern Ireland, Scotland, and Wales. In Scotland, the main target – to reduce GHG emissions by 42% by 2020 and by 80% by 2050 relative to 1990 levels – is set in the Climate Change (Scotland) Act 2009 ⁽³⁾. Northern Ireland has committed to reduce GHG emissions by 25% by 2025, compared to 1990. Wales aims to reduce green house gases by 40% by 2020 against a 1990 baseline (HM Government 2011c).

In line with the EU Renewable Energy Directive, the UK committed itself to a legally binding EU target of 15% RES share in the final energy consumption by 2020. In 2009, the UK Renewable Energy Strategy was published. The Strategy anticipated UK government's plans to meet its EU target. According to the UK government, the 15% target means by sector the following: 30% of electricity, 12% of heat and 10% of transport energy will need to come from renewable sources (HM Government 2009).

To meet the 15% target, the Strategy envisaged changes to main financial support schemes - the Renewables Obligation (RO) for large-scale renewable generation and the

¹ For the key provisions of the Climate Change Act see: <http://www.legislation.gov.uk/ukpga/2008/27/contents>

² For more information see the website of the Committee on Climate Change: <http://www.theccc.org.uk/about-the-ccc/climate-change-act>

³ Climate Change (Scotland) Act 2009. http://www.legislation.gov.uk/asp/2009/12/pdfs/asp_20090012_en.pdf

Renewable Transport Fuel Obligation (RTFO) to increase use of sustainable biofuels. Introduction of the Renewable Heat Incentive (RHI) to support renewable heat (from large industrial sites down to the household level) through payments per kWh of heat produced from April 2011 was anticipated. Introduction of Feed-in Tariffs to offer financial support for the generation of low carbon electricity from projects up to 5MW was planned from April 2010, etc ⁽⁴⁾.

In short, UK's energy policy is guided by three main objectives: securing energy supply, reducing GHG emissions, and stimulating investments in new jobs and business. A variety of support schemes exist to increase the use of renewable and nuclear energy and to reduce emissions through the employment of CCS. The 2011 Renewable Energy Roadmap was updated in December 2012 to provide an analysis of the progress made. Furthermore, an Energy Bill was introduced to Parliament in November 2012, which will establish a legislative framework for low-carbon energy supply. Its main feature is an electricity market reform aiming at attracting GBP 110 billion of investment over the next decade to replace UK's electricity infrastructure. With regard to the nuclear power, the UK's aim is to have eight new nuclear power stations generating electricity by 2025. In the 2020s, the UK plans to create a cost-competitive CCS industry in order to keep fossil fuels in the electricity supply mix.

Green growth is increasingly attracting attention in the UK. The UK government is pursuing a growth strategy, the Plan for Growth, which was published in March 2011 and specifies the key actions required to put the whole economy on a low-carbon resource efficient path. For example, a Green Economy Council was formed to cooperate with businesses (HM Government 2011b). Furthermore, in October 2012, a Green Investment Bank was launched to allocate GBP 3 billion to the transition to a green economy (Guardian 2012). Following this Plan, the government published a roadmap entitled "Enabling the Transition to a Green Economy: Government and Business working together" three months later promising to establish a legal framework for green growth, encourage investment, and promote the UK as a global leader in green exports (HM Government 2011a). CBI, the UK's leading business lobbying organisation, recently called on the UK government to take more ambitious action on green growth. According to their figures, green business made up 8% of UK's GDP and grew by 2.3% in 2010/11 (one third of UK's economic growth), providing jobs for 940,000 people. If the UK government adopted the proposed action, CBI estimates that the economy could grow by GBP 20 billion by 2014/15 (CBI 2012).

2 GHG projections

Background information

The United Kingdom is the 2nd biggest emitter of GHG emissions in the EU. In 2011, the country emitted 552.6 Mt CO₂eq (UNFCCC inventory 2011), 28% less than in 1990. A third of the total emissions stems respectively from energy supply and energy use.

⁴ For more information on the UK Renewable Energy Strategy 2009 see www.regensw.co.uk/projects/influencing-policy/renewable-energy-strategy

However, emissions in both sectors have been reduced significantly by more than 25% between 1990 and 2011. This reflects the switch of fuel and the declining energy intensity of industries. Emissions from transport account for 21% of total emissions, but they grew only slightly between 1990 and 2007 and dropped back to 1990 levels in 2011. Substantial emission reductions were reported from industrial processes. As a result of the employment of abatement technologies in the chemical industry and improved technologies in the metals industry, emissions from this sector were reduced by more than 50% between 1990 and 2011. Emissions from agriculture fell by 19% in this period, owed to reduced livestock numbers, lower fertilizer use, and less arable land (UNFCCC inventory 2011, EEA 2012c, UNFCCC 2012).

Progress on GHG target

There are two sets of targets to evaluate: 1) the Kyoto Protocol targets for the period 2008-12 (which has just ended) and 2) the 2020 targets for emissions not covered by the EU ETS.

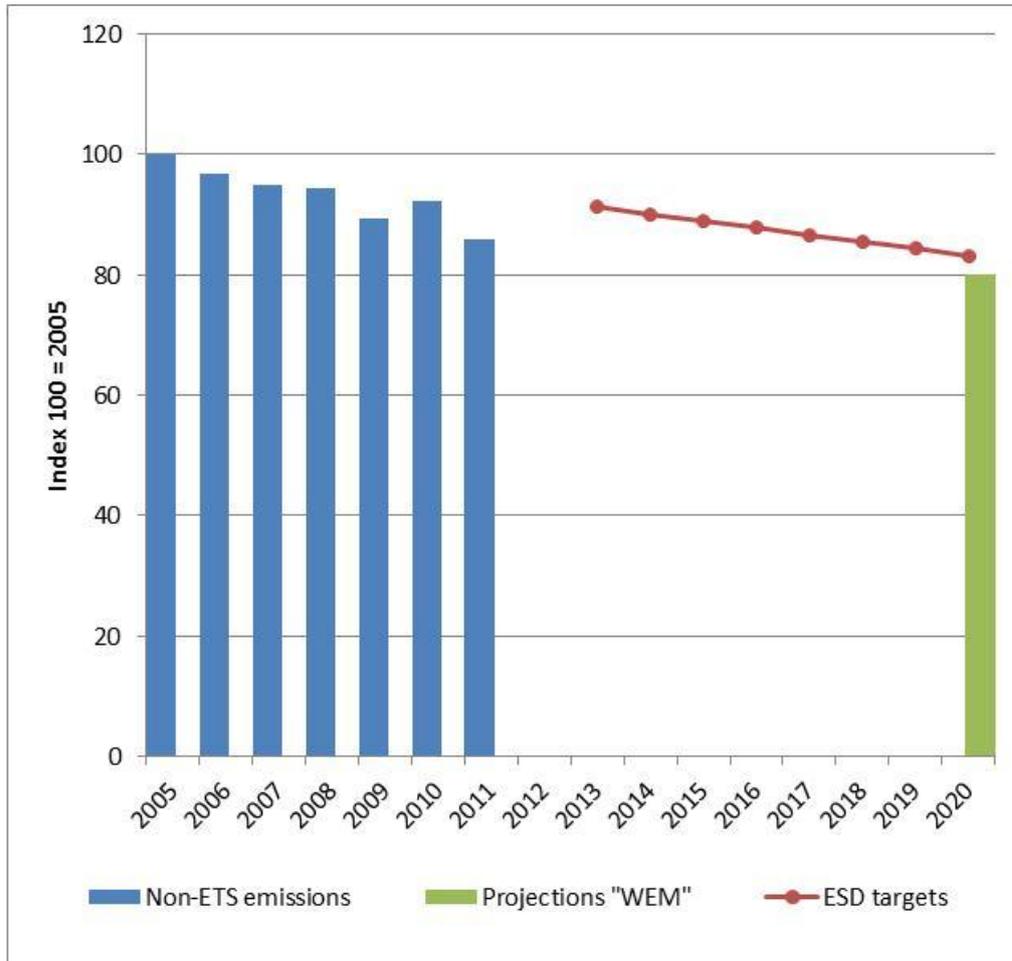
Under the Kyoto-Protocol the emission reduction target for United Kingdom for the period 2008-2012 has been set to minus 12.5% based on 1990 for CO₂, CH₄ and N₂O and on 1995 for F-gases. . An evaluation of the latest complete set of greenhouse gas data (for the year 2011) shows that the United Kingdom's emissions have decreased on average by 28.8% compared to the Kyoto base year (EEA 2013a). Therefore, the United Kingdom is expected to reach its target.

By 2020, the United Kingdom needs to decrease its emissions not covered by the EU ETS by 16% compared to 2005, according to the Effort Sharing Decision (ESD) ⁽⁵⁾. The latest data suggest that the United Kingdom is on track at present. Emissions in 2011 were 5% below the Annual Emissions Allocation (COM 2013) for the year 2013. Up to 2020, national projections show that the United Kingdom is expected to reduce its emissions by 19% in scenarios with both existing and with additional measures ⁽⁶⁾ (EEA 2013b).

Figure 1 shows UK's non-ETS emissions until 2011, targets under the ESD for the period 2013-2020 and the projections with existing measures for 2020.

⁵ Decision No 406/2009/EC of the European Parliament and of the Council of 23 April 2009 on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments by 2020.

⁶ Calculations are based on domestic emissions only, without accounting for possible use of flexibility options. The 2020 targets and 2005 non-ETS emissions are all consistent with 2013-2020 ETS scope, i.e., they take into account the extension of the ETS scope in 2013 and the unilateral inclusion of installation in 2008-2012.

Figure I: Non-ETS emission trends and projections compared to the ESD targets

Source: EEA. Projections are based on 15/04/2013 draft GHG inventory submissions under the UNFCCC and MS projections submitted

Table I: GHG emission developments, ESD-targets and projections (in Mt CO₂eq)

	1990	2005	2010	2011	ESD target*		2020 Projections**	
					2013	2020	WEM	WAM
Total	767.3	658.2	593.9	552.6				
Non-ETS emissions (% from 2005)		384.2	354.9	330.1	350.4	317.5	305.2	305.2
				-14%	-9%	-16%	-19%	-19%
Energy supply (% share of total)	236.7 31%	212.0 32%	191.7 32%	178.8 32%				
Energy use (w/o transport) (% share of total)	215.4 28%	199.5 30%	179.0 30%	154.4 28%				
Transport (% share of total)	115.2 15%	126.9 19%	116.6 20%	115.2 21%				
Industrial processes (% share of total)	54.4 7%	31.2 5%	27.5 5%	26.3 5%				
Agriculture (% share of total)	57.8 8%	50.2 8%	46.4 8%	46.4 8%				

Source: UNFCCC inventories 2011; EEA (2013b); COM (2013), Calculations provided by the EEA and own calculations.

* The ESD target for 2013 and for 2020 refer to different scopes of the ETS: The 2013 target is compared with 2011 data and is therefore

consistent with the scope of the ETS from 2008-2012; the 2020 target is compared to 2020 projections and is therefore consistent with the scope of the ETS from 2013-2020. Non-ETS emissions in 2005 for the scope of the ETS from 2013-2020 amounted to 377.9 Mt CO₂eq.

** 2013 projections with existing measures (WEM) or with additional measures (WAM).

Legend for colour coding: green = target is being (over)achieved; orange = not on track to meet the target

Total greenhouse gas emissions (GHG) and shares of GHG do not include emissions and removals from LULUCF (carbon sinks) and emissions from international aviation and international maritime transport.

National projections of GHG emissions up to 2020, summarised by the EEA, need to be prepared by the Member States in accordance with the EU Monitoring Mechanism ⁽⁷⁾ every two years, and the latest submission was in 2013. The projections need to be prepared reflecting a scenario that estimates emissions reductions in line with policies and measures that have already been implemented (with existing measures, WEM), and an additional scenario that reflects developments with measures and policies that are in the planning phase (with additional measures, WAM) may also be submitted.

In the following two tables, these measures - as outlined by the UK as basis for the projections as of April 2011 ⁽⁸⁾ - have been summarised with a focus on national measures and those EU instruments expected to reduce emissions the most ⁽⁹⁾. An update on the status of the policies and measures is included in order to assess the validity of the scenarios.

Table 2: Existing and additional measures as stated in the 2011 GHG projections

Existing Measures (only important national measures; w/o EU legislation)		Status of policy in January 2013
Energy	Renewable Obligation Certificates: Renewables Obligation (including Renewables Obligation (Scotland) and Renewables Obligation (Wales))	Ongoing
	Feed-in Tariffs (FITS) to incentivise small-scale electricity generation from renewable sources	Ongoing (latest changes in effect from 1 December 2012)
	Climate Change Levy: Levy on fossil fuel use in the non-domestic sector. Sub-sectors that have agreed to CCA receive a rebate. Good Quality CHP is exempt.	Ongoing
	Implementing the Large Combustion Plants Directive (LCPD) through a National Emission Reduction Plan (Regulations 2007 (SI 2007 No. 2325))	Updated in October 2012 (Update No. 7)
Energy Efficiency	Standards for design and construction that apply to most new buildings and many alterations to existing buildings in England and Wales: Building Regulations 2002, 2006 & 2010, including 2005 condensing boiler update, in the domestic and business sector (Building (Scotland) Amendment Regulations 2010; review planned following devolution of building regulations in Wales in 2012)	July 2012 - October 2012: Consultation on changes to Welsh Building Regulations (Part L) relating to conservation of fuel and power

⁷ Decision No 280/2004/EC of the European Parliament and of the Council of 11 February 2004 concerning a mechanism for monitoring Community greenhouse gas emissions and for implementing the Kyoto Protocol.

⁸ The respective policies and measures were not available at the time of the preparation of this country report. Thus, policies and measures as outlined in April 2011 are given here.

⁹ The implementation of the EU-ETS has not been included. Other EU Directives have only been considered if they have been outlined in the projections as one of the main instruments to reduce GHG emissions.

	Warm Front (in Scotland: Energy Assistance Package, in Wales: Nest and in Northern Ireland: Warm Homes Scheme) install heating and insulation measures to make homes warmer and more energy efficient for households in or at risk of fuel poverty (2000-2013).	Warm Front Scheme ended on 19 January 2013 Energy Assistance Package (Scotland): Ongoing Warm Homes Scheme (Nest and in Northern Ireland): Ongoing
	Carbon Trust: Measures to reduce emissions and save energy and money by providing advice and accreditation to businesses and the public sector.	Ongoing
	Climate Change Agreements (CCA): Energy-intensive industries get a partial rebate from the Climate Change Levy on Industrial fuels in return for meeting targets for emission reductions.	Ongoing (current CCA scheme will end in 3/2013)
	Revolving public sector loan fund to improve energy efficiency in the public sector	Ongoing (Salix Finance Ltd, funded by DECC, Welsh Assembly Government and Scottish Government via Carbon Trust)
	Reduce GHG emissions from appliances and products that use energy: Includes removing the worst products from the market and promoting sale of the most-efficient products.	Ongoing (Market Transformation Programme)
	Home Energy Management Strategy: Carbon Emissions Reduction Target (CERT) (2008-2012): Energy suppliers with more than 50,000 domestic customers are required to deliver a total of 293 million lifetime tonnes of carbon dioxide reductions in GB households, primarily through the promotion of energy efficiency measures.	CERT was to be achieved by 31 December 2012; no information on the achievement/non-achievement yet
	Energy Performance of Buildings (Certificates and Inspections) Regulations	Simplifications in April 2012
	Public sector loans through Salix Finance to increase investments in energy efficiency measures in the public sector	Ongoing
Transport	Renewable transport fuel obligation (RTFO): Requires suppliers of fossil fuels to ensure a specified share of renewable fuels	Draft RTFO (Amendment) Order 2013 laid before Parliament for approval in December 2012
	Voluntary agreements on new car fuel efficiency: Agreement with vehicle manufacturers on car emissions targets.	Current CCAs run until early 2013 and will be replaced by new CCAs in April 2013 ⁽¹⁰⁾
	Car taxation: Company car tax is charged on CO ₂ emissions for the car and its list price in order to incentivise the use of cars with lower emissions. From 2008/2009 a new lower rate band was introduced for company cars with very low emissions (120gCO ₂ /km or less). The vehicle excise duty (VED), the UK annual circulation tax on	Ongoing (tax increase from April 2012: For vehicles with an engine capacity of over 1549 cc - annual charge of £220.00; for vehicles with an engine size not over 1549 cc – annual charge £135) ⁽¹¹⁾

¹⁰ For more information see: <http://www.smmr.co.uk/energy-efficiency-regimes#eerCCA>

¹¹ For more information see: <http://www.politics.co.uk/reference/vehicle-excise-duty>

	vehicles, was reformed in light of this policy.	
	Transport biofuel target: Set enhanced targets for biofuel use by diesel and motor spirit suppliers to be achieved by 2020. New targets are by energy rather than by volume.	No changes
	Rail electrification: detailed plans for rail electrification are being developed.	Programme of improvements to the rail network published in July 2012 (£9.4 billion of investment in the rail network committed by the Government)
Other non-ETS sectors	Landfill tax to reduce biodegradable waste and associated CH4 emissions	Ongoing (tax increase from £56 a tonne to £64 a tonne from April 2012) ⁽¹²⁾
	Fluorinated greenhouse gas (F gas) mitigation action: Measures to minimise emissions through leak prevention and repair of equipment, and F-gas use bans.	Ongoing (The Fluorinated Greenhouse Gases Regulations 2009)

Source: Reporting of MS in accordance with Decision No 280/2004/EC about their GHG emission projections up to 2020, April 2011.

Additional Measures: Still to be implemented (only important national measures; w/o EU legislation)		Status of policy in January 2013
Energy	Renewable Heat Incentive: Financial incentive mechanisms for the generation of renewable heat in all sectors from large industrial sites down to household level.	Non-domestic RHI to be expand to include additional technologies; Domestic RHI scheme to be launched in summer 2013
	Increase of share of renewables in electricity generation through (a) Better planning via an Infrastructure Planning Commission (b) Increased grid coverage and faster provision of grid connections for new projects (c) Extending and increasing incentives, principally through the Renewables Obligation (d) Create a feed-in tariff by April 2010 to introduce an obligation for energy suppliers to buy energy from microrenewables.	(a) International Planning Commission abolished on 1 April 2012. Currently applications for major infrastructure projects shall be submitted to the Planning Inspectorate, for national infrastructure projects - to the Secretary of State. (b) ongoing (contracts by National Grid in 2007 to upgrade and expand the electricity transmission network across England and Wales) (c) ongoing (will be replaced in March 2017) (d) ongoing (certain amendments in 2012; further changes introduced by the Energy Bill)
	Demonstrate the use of CCS technology in post combustion coal fired power stations at a commercial scale.	CCS Commercialisation Competition (£1 billion capital funding): 4 full chain (capture, transport and storage) projects were shortlisted in October 2012. Projects are expected to be operational between 2016 and 2020.

¹² For more information see: <http://www.greenwisebusiness.co.uk/news/landfill-tax-set-to-rise-to-64-a-tonne-3167.aspx>

	CCA extension: Climate Change Agreements offer participating energy-intensive industries a partial rebate from the Climate Change Levy on Industrial fuels in return for meeting targets for emission reductions. The current scheme is due to expire; negotiation for a replacement scheme has begun.	New CCA scheme to be available after April 2013
Energy Efficiency	Home Energy Management Strategy: Smart meters (residential): By agreement with energy suppliers, a programme has been agreed to roll out smart meters nationwide.	In March 2011, the overall strategy and timetable for the installation of 53 Mio smart meters was announced; Licence conditions are expected to be laid before Parliament and first information requests to larger suppliers to be issued in early 2013
	Home Energy Management Strategy (HEM): Planned continuation of CERT.	On this issue no recent public information could be identified.
	Zero carbon homes: All new housing being zero carbon from 2016 by (a) Energy Efficiency improvements to design (b) Carbon compliance through on-site zero carbon energy, such as PV (c) Allowable solutions, which are offsite offsets.	Consultation from January 2012 to April 2012; New building regulations expected to come in force in 2013
Transport	EU new car CO ₂ regulation: Set fuel efficiency targets for new cars to be achieved by 2020.	According to the Carbon Plan (2011) review of car and van targets is due to be completed by January 2013. Additionally no recent public information could be identified.
	Implementing new EU complementary measures for cars and vans: Promotion of technologies that could improve fuel efficiency and could improve fuel efficiency within the existing fleet.	No specific policies/measures could be identified.
Other non-ETS sectors	English Agriculture sector Greenhouse Gas Action Plan (GHGAP): range of resource-efficient and land management measures (tbc) to reduce emissions to meet UK carbon budgets	GHGAP launched in March 2011; 2012-2015: GHGAP phase 2
	Review of all aspects of waste policy and delivery in England: Creating a 'zero waste' economy, where resources are fully valued.	Review's findings published in June 2011; Report of progress in delivering actions in the Review published in March 2012

Source: Reporting of MS in accordance with Decision No 280/2004/EC about their GHG emission projections up to 2020, April 2011.

3 Evaluation of National Reform Programme 2012 (NRP)

In April of each year, Member States are required to prepare their National Reform Programmes (NRPs), which outline the country's progress regarding the targets of the EU 2020 Strategy. The NRPs describe the country's national targets under the Strategy and contain a description of how the country intends to meet these targets. For climate

change and energy, three headline targets exist: 1) the reduction of GHG emissions, 2) the increase of renewable energy generation, and 3) an increase in energy efficiency (¹³).

In the following table, the main policies and measures as outlined in the NRP of April 2012 (¹⁴) have been summarised, and their current status (implemented, amended, abolished, or expired) is given, with specifics on latest developments.

Table 3: Main policies and measures as outlined in the NRP, April 2012

Plan for Growth (Mar 2011)	
Status as stated in the NRP	Published in 2011
Status as per Jan 2013	Last Implementation Update indicating completed measures published in 12/2012.
Description of policy or measure	Establishes key actions required to put the whole economy on a low-carbon resource efficient path.
Carbon Plan (Dec 2011):	
Status as stated in the NRP	Published in 2011
Status as per Jan 2013	To be implemented. The Carbon Plan Implementation Update for Q3 2012 published. Indicates actions due to be completed during July-September 2012.
Description of policy or measure	This is a Government-wide plan of action on CC. It specifies actions and deadlines for the next five years. The plan focuses, in particular, on efforts needed to decarbonise the power sector, improve EE of buildings and reduce emissions in the transport sector.
Forestry and woodland policy (an independent panel will provide advice to the Government in Spring 2012)	
Status as stated in the NRP	To be published in 2012
Status as per Jan 2013	On 04.07.2012 the Independent Panel on Forestry published its Final Report containing advice to the Secretary of State on the future direction of forestry and woodland policy in England. The Government has to consider the recommendations and give its response.
Description of policy or measure	High-level initiatives to tackle emissions from agriculture, land management and forestry.

¹³ There are specific targets for all MS by 2020 for non-ETS GHG emission reductions (see section 2) as well as for the renewable energy share in the energy mix by 2020 (see section 4, renewable energies). Specific energy efficiency targets will be defined (or revised) by the MS until the end of April 2013 in line with the methodology laid out in Article 3 (3) of the Energy Efficiency Directive (Directive 2012/27/EU).

¹⁴ All NRPs are available at: http://ec.europa.eu/europe2020/documents/related-document-type/index_en.htm

Review of car and van CO₂ targets

Status as stated in the NRP	To be implemented
Status as per Jan 2013	Review of car and van targets was due to be completed by January 2013. However, no information on reviewed targets is available
Description of policy or measure	The Plan outlines the UK's approach to tackling emissions from the transport sector in line with EU targets on biofuel use and vehicle CO ₂ targets. Cars shall produce no more than 130gCO ₂ /km in 2015 and 90gCO ₂ /km in 2020; vans 175 and 147gCO ₂ /km in 2015 and 2020, respectively

Climate Change Act 2008

Status as stated in the NRP	Implemented
Status as per Jan 2013	Implemented
Description of policy or measure	Long-term framework to reduce GHG emissions by 80% until 2050 as compared to 1990 levels using statutory carbon budgets, which limit total emissions over five year periods to 2050.

CCS roadmap

Status as stated in the NRP	Published in 2012
Status as per Jan 2013	To be implemented
Description of policy or measure	The document provides a strategic context for the UK's government interventions to support the development and deployment of cost-competitive CCS. Moreover, the steps needed to achieve this outcome are set out in the CCS Roadmap.

Electricity Market Reform (EMR) process:

Status as stated in the NRP	To be implemented
Status as per Jan 2013	Introduced by the Energy Bill (introduced by DECC to Parliament on 29.11.2012). The Bill has been sent to Public Bill Committee, where a thorough examination of the act is to take place. The Energy Bill is expected to achieve Royal Assent in 2013.
Description of policy or measure	The EMR proposes four interlocking policy instruments: a carbon price floor; a long term 'contract for difference' feed-in tariff from 2014; a capacity mechanism; and the use of an emission performance standard.

Replacement of the RES obligation (RO) in March 2017

Status as stated in the NRP	To be implemented
Status as per Jan 2013	Introduced by the Energy Bill (introduced by DECC to Parliament on 29.11.2012). The Bill has been sent to Public Bill Committee, where a thorough examination of the act is to take place. The Energy Bill is expected to achieve Royal Assent in 2013.
Description of policy or measure	The RO will close to new generators on 31 March 2017. Electricity generation that is accredited under the RO will continue to receive its full lifetime of support of 20 years until the scheme closes in 2037.

Long term 'contract for difference' feed-in tariff from 2014

Status as stated in the NRP	To be implemented
Status as per Jan 2013	Introduced by the Energy Bill (introduced by DECC to Parliament on 29.11.2012). The Bill has been sent to Public Bill Committee, where a thorough examination of the act is to take place. The Energy Bill is expected to achieve Royal Assent in 2013. The FiT CfD shall be available from 2014.
Description of policy or measure	FiT CfD is a long term, private law contract paying the generator the difference between an estimate of the market price for electricity ('reference price') and an estimate of the long term price needed to bring forward investment in a given technology ('strike price').

Carbon price floor

Status as stated in the NRP	To be implemented
Status as per Jan 2013	Introduced by the Energy Bill (introduced by DECC to Parliament on 29.11.2012). The Bill has been sent to Public Bill Committee where a thorough examination of the act is to take place. The Energy Bill is expected to achieve Royal Assent in 2013. The Carbon price floor starts from April 2013.
Description of policy or measure	At Budget 2011, the Government announced that it would introduce a floor to the carbon price for electricity generation from April 2013. This will start at around £16 per tonne of CO ₂ and move to a target price of £30 per tonne in 2020.

Capacity market

Status as stated in the NRP	To be implemented
Status as per Jan 2013	Introduced by the Energy Bill (introduced by DECC to Parliament on 29.11.2012). The Bill has been sent to Public Bill Committee where a thorough examination of the act is to take place. The Energy Bill is expected to achieve Royal Assent in 2013. Capacity Mechanism Impact Assessment was finished on 27.11.2012. The first auction for delivery of annual capacity beginning in the winter of 2018/19 shall take place in 2014.
Description of policy or measure	The measure shall incentivise sufficient reliable capacity (both supply and demand side) to ensure a secure electricity supply even at times of peak demand. The net amount of capacity needed to ensure security of supply will be contracted through a competitive annual central auction run by the System Operator (SO). All generation plants will be eligible to take part in the auction (except low carbon plants receiving CfDs). Providers of capacity (winning the auction) shall enter into capacity agreements and commit themselves to provide electricity or reduce demand for electricity when needed in the delivery year/s. Otherwise, they shall pay financial penalties.

Use of an emission performance standard

Status as stated in the NRP	To be implemented
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Status as per Jan 2013	Introduced by the Energy Bill (introduced by DECC to Parliament on 29.11.2012). The Bill has been sent to Public Bill Committee where a thorough examination of the act is to take place. The Energy Bill is expected to achieve Royal Assent in 2013.
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Description of policy or measure	Emission performance standards (EPS) shall provide a regulatory cap on the amount of emissions that new fossil fuel power plants are allowed to emit. These standards shall apply to all new fossil fuel power plants at or over 50MW (including those where CCS is demonstrated). The EPS will initially be set at a level equivalent to 450g/kWh. The EPS will be applied UK-wide
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Green Investment Bank

Status as stated in the NRP	To be established; operation to start in 2012-13
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Status as per Jan 2013	Launched in January 2013
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Description of policy or measure	The Bank provides funding for investments in low carbon infrastructure. The overall budget of the GIB amounts to £ 3 billion.
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Renewable Heat Incentive (RHI), launched in November 2011, and Renewable Heat Premium Payment, launched in August 2011

Status as stated in the NRP	To be extended
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Status as per Jan 2013	On 26.03.2012 the second phase to the RHPP scheme was announced. In 9/2012 consultation on the Government's proposals to expand the Non-domestic RHI scheme to include additional technologies published. Consultation closed on 07.12.2012. The Government is currently considering the responses received. On 20.09.2012 the Government published proposals to launch a domestic RHI scheme in summer 2013. The consultation closed on 07.12.2012. Currently, the Government is considering all the responses received
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Description of policy or measure	Renewable Heat Premium Payment (RHPP) offers grant support for homes which are not heated by gas to switch to renewable heating such as heat pumps, biomass boilers, and solar thermal panels. The scheme shall run until longer-term support for households is introduced under the RHI. The NRP describes only RHPP (RHI is a scheme for the non-domestic sector providing payments to industry, businesses and public sector organisations).
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Green Deal

Status as stated in the NRP	To be available starting autumn 2012
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Status as per Jan 2013	Launched in January 2013
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Description of policy or measure	The Green Deal is a financing mechanism which allows consumers to pay back the cost of energy efficiency improvements through their energy bills.
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Climate Change Agreements (CCAs) with energy intensive industry extended to 2023

Status as stated in the NRP	Implemented
Status as per Jan 2013	CCAs supporting legislation to be published: Eligibility SI 2012; and Environmental Permitting Regulations 2013 (to take effect from 15 March 2013) Consultation on Environmental Permitting Regulations 2013 started in December 2012.
Description of policy or measure	Climate Change Levy discount on electricity for CCA participants would be increased from 65 to 80 percent from April 2013. Under the CCAs, eligible sectors of industry receive this reduction in the levy in return for meeting ambitious energy efficiency or carbon saving targets. The current CCA scheme will end 03/2013. From 1 April 2013 to 31 March 2023, the new CCA scheme will be available.

Carbon Reduction Commitment Energy Efficiency Scheme

Status as stated in the NRP	Implemented
Status as per Jan 2013	Order before Parliament; intended to come into force in June 2013
Description of policy or measure	Mandatory scheme for large public and private sector organisations that covers emissions not already covered by the EU ETS or CCAs.

Smart meter strategy

Status as stated in the NRP	Announced in 2011; to be implemented
Status as per Jan 2013	The Government expects to bring the license conditions before the Parliament; to issue the first information requests to larger suppliers in early 2013, formally requesting submission of an annual roll-out report and establishing a cycle of quarterly updates. Foreseen roll-out completion date is 31.12.2019.
Description of policy or measure	Installation of 53 million smart meters providing real time information on energy consumption. Meters are planned to be installed in 30 Mio homes and businesses across GB. Estimated net benefit is £7.3 bn over the next twenty years

4 Policy development

This section covers significant developments made in key policy areas between May 2012 and January 2013. It does not attempt to describe every instrument in the given thematic area. The time-frame was chosen based upon the release of the National Reform Programmes (in the section above) in April 2012, which contain the status quo for policy on most topics.

Environmental Taxation

The United Kingdom has a very high implicit tax rate on energy, with a value of approximately 270 € per tonne of oil equivalent in 2009 (Eurostat 2013). This is almost double the EU average. However, the UK's economy exhibits relatively low energy intensity and is the third least intensive in the EU (Eurostat 2013). Accordingly, the UK revenues from energy taxes as a percentage of GDP can be placed in the middle of the

pack among EU MS: the UK ranked 13th in the EU for revenue from energy taxes (1.9% of GDP) and 10th in the EU when all environmental taxes are considered (2.6% of GDP) (Eurostat 2012).

The UK Treasury elaborated a definition for “environmental tax” in July 2012 to promote effective policy making. According to this definition, an environmental tax is explicitly linked to environmental objectives, primarily aiming at encouraging environmentally-positive behaviour changes and is structured in relation to environmental objectives. As a consequence, six taxes were defined as environmental: the Climate Change Levy, Aggregates Levy, Landfill Tax, EU ETS, Carbon Reduction Commitment Energy Efficiency Scheme, and Carbon Price Support Scheme. Revenues from these taxes provided 0.5% of total tax revenues in 2011/12; the UK Government expects this proportion to double by 2015/16 (HM Treasury 2012a). This is also a plan stipulated in the Programme of Government of the current government coalition (HM Government 2012). The Office of National Statistics uses a broader definition, which also includes taxes that are primarily aimed at revenue rising like the fuel duty, vehicle excise duty, and air passenger duty. According to this definition, the total revenues from environmental taxes almost doubled since 1993, but their share in total tax revenue fell from 9% in 1993 to 7.9% in 2011 (Office of National Statistics 2012).

Energy Efficiency

As mentioned above, the UK’s economy is the third least energy-intensive economy in the EU, and the intensity declined considerably (~11%) from 2005 to 2010. The country’s final energy consumption in 2010 had also dropped approximately 6% compared to the average from 2001-2005. This is undoubtedly a result of a precipitous drop in energy consumption in industry (Eurostat 2013).

The 2011 Carbon Plan highlighted the huge potential for energy efficiency. As a consequence, the UK released its Energy efficiency strategy (DECC 2012d) in November 2012. The document outlines UK Government’s mission to increase energy efficiency across all sectors addressing four barriers: embryonic markets; lack of information; misaligned financial incentives; and undervaluing efficiency. This strategic document establishes the UK’s goal to save 196 TWh of power in 2020 and accordingly reduce carbon emissions by 41 MtCO₂eq (DECC 2012d). Among other initiatives, five new End Use Energy Demand (EUED) research centres are to receive over £39 Mio funding from research councils and industrial partners (The University of Manchester 2012).

The UK has further introduced a number of measures to reduce the energy demand of the building sector. The Carbon Reduction Commitment (CRC) Energy Efficiency Scheme ⁽¹⁵⁾ was introduced in April 2010. It is a mandatory scheme aimed at improving energy efficiency in large public and private sector organisations, which are responsible for around 12% of the UK’s emissions. During 2012, the government carried out public consultations on new proposals to simplify the CRC Energy Efficiency Scheme (DECC 2012c) and will place an Order before Parliament and the devolved legislatures. The Order is intended to come into force in June 2013. The majority of the proposals shall be introduced in 2014/15.

¹⁵ For more information on the CRC Energy Efficiency scheme see the UK Government website <https://www.gov.uk/crc-energy-efficiency-scheme>

Additionally, Climate Change Agreements ⁽¹⁶⁾ (CCAs) allow eligible energy-intensive businesses to receive up to a 65% discount from the Climate Change Levy (CCL) in return for meeting energy efficiency or carbon-saving targets. As indicated by DECC, the discount for electricity is expected to increase to 90% from April 2013. The current CCAs scheme is administered by the DECC and ends in March 2013. The new CCA scheme shall be available from 1 April 2013 to 31 March 2023 and will be administered by the Environment Agency. Supporting legislation regarding the eligibility basis and environmental permitting regulations for 2013 has not yet been published.

The Carbon Price Floor is a tax aimed to underpin the carbon price in the EU ETS. The tax will be introduced starting 1 April 2013. The Carbon Price Floor will start at around £15.70/tCO₂ and will then follow a straight line to £30/tCO₂ in 2020, rising to £70/t CO₂ in 2030 (real 2009 prices). In the 2011 Budget 2011, the rates equivalent to £4.94/t CO₂ for 2013-2014 were set. The rates for 2014-2015 equivalent to £9.55/tCO₂ were considered in the 2012 Budget. According to DECC, these rates represent the difference between the Government's target carbon price (the floor) and the future market price for carbon in the EU ETS (DECC 2012b).

The government is also increasingly undertaking efforts to address residential houses in the UK, which are among the least energy-efficient in the world. According to the DECC, 38% of GHG come from "leaking buildings". Thus, the Green Deal ⁽¹⁷⁾ financing mechanism was launched in January 2013, allowing consumers to pay back the cost of energy efficiency improvements through their energy bills. A total budget of £125 Mio is foreseen for this programme. The rates currently available are guaranteed for the first £40 Mio of the scheme. It is expected that the Green Deal will improve energy efficiency for 26 Mio homes and up to 2.8 Mio commercial properties by the year 2030. The government estimates that the Green deal will support the creation of 60,000 jobs in insulation sector until 2015.

Renewable Energy

Renewable energy use as a portion of final consumption has been increasing slowly in the UK. However, at a level of 3.8% of total consumption in 2011, the country remains below the interim target of 4.1 % for 2011-2012 and is quite far from reaching its target of 15% by 2020. The share of renewably-generated electricity in final electricity consumption increased from 4.2 to 6.7% from 2005 to 2010 (Eurostat 2013).

In July 2011, the UK published its Renewable Energy Roadmap (DECC 2011) setting out UK's plan to accelerate the RES deployment in electricity, heat and transport sector. The Roadmap covers eight key renewable technologies - onshore and offshore wind, marine energy, solar PV, biomass, ground source and air source heat pumps, having greatest potential to meet UK's 2020 target (15% RES share in the final energy consumption which is equivalent to 234 TWh of renewable energy by 2020) (DECC 2011).

Some key targets for the above-mentioned technologies:

¹⁶ For more information on CCAs see the UK Government website <https://www.gov.uk/government/policies/reducing-demand-for-energy-from-industry-businesses-and-the-public-sector--2/supporting-pages/climate-change-agreements-ccas>

¹⁷ For more information see <http://www.greendealinitiative.co.uk>

Onshore wind:

- Through Electricity Market Reform (EMR) as well as managed transition from the Renewables Obligation (RO) to provide long term certainty to investors;
- Reform the planning framework to provide greater stake in development to communities.
- Upgrade onshore transmission capacity.
- Ensure that project developers secure timely and cost effective grid access. (DECC 2011)

Offshore wind:

- Set out an action plan to reduce the costs of offshore wind to GBP 100/MWh by 2020.
- Provide up to GBP 30 million support in 2011-2015 for offshore wind cost reduction.
- Provide greater certainty over financial incentives and ensure timely and coordinated development of the grid through the Offshore Transmission Coordination Project. (DECC 2011)

Marine energy:

- Provide up to GBP 20 million in 2011-2015 to support innovation in wave and tidal devices.
- Commission marine energy testing facilities at the National Renewable Energy Centre (NaREC).
- Introduce a knowledge sharing network to accelerate the level of marine energy deployment. (DECC 2011)

Biomass electricity:

- Publish a UK Bioenergy Strategy, articulating clear vision for the growth of sustainable biomass energy. (Note: Published in April 2012)
- Focus on measures to support long term waste fuel supplies.
- Introduce cost effective fuel monitoring and sampling systems. (DECC 2011)

Biomass heat:

- Increase the attractiveness of biomass heat and biomethane injection into the grid through introduction of the Renewable Heat Incentive (RHI) and the Renewable Heat Premium Payment (RHPP) in Great Britain. (Note: Non domestic RHI was launched in Nov 2011; RHPP started in August 2011; Domestic RHI is planned to be introduced in spring 2014)
- Consult on a new scheme to support renewable heat in Northern Ireland (Note: NI RHI was launched in 2012). (DECC 2011)

Ground source and air source heat pumps:

- Introduce the RHI for non domestic installations and the RHPP for eligible domestic scale heat pumps. (Note: Non domestic RHI was launched in Nov 2011; RHPP started in August 2011; Domestic RHI is planned to be introduced in spring 2014)
- Streamline the planning and consenting processes through the provision of guidance.
- Collect data on how best raise the technical abilities of installers by tightening standards of training under the Microgeneration Certification Scheme (MCS). (DECC 2011)

Renewable transport:

- Identify and agree a preferred approach to achieve the 2020 transport sub-target; actions for implementation after 2014.
- Consider the EC's proposals on ILUC impacts of biofuels to ensure effective standards.
- Support the market for plug-in vehicles by making up to GBP 30 million available for investment in recharging infrastructure; providing grant of up to 25% of the purchase price (capped at GBP 5,000) for eligible electric, plug-in hybrid or hydrogen fuel cell cars. (DECC 2011)

Devolved Administrations – Scotland, Wales and Northern Ireland - set their own targets to increase the RES deployment. Scotland introduced a target to deliver 100% renewable electricity by 2020. Northern Ireland aims at delivering 40% renewable electricity and 10% renewable heat by 2020. Wales has indicated that it has the potential to produce twice the amount of electricity it currently uses from renewable sources by 2025. In 2010, the share of electricity generation from renewable energy sources amounted to 5% and in 2011 to 7.9% in Wales. Moreover, 4 GW of electricity shall be delivered from marine energy (DECC 2011).

In December 2012, the Renewable Energy Roadmap Update (DECC 2012) providing analysis on the progress made has been published. The report indicates that in 2011 renewable energy accounted for 3.8% of energy consumption, reflecting growing renewable energy deployment compared to 3.2% in 2010. Renewable electricity is reported to have seen the most dramatic growth since publication of the Roadmap. From July 2011 to June 2012, the total RES-E generation increased by 27% reaching 37.9TWh from a total of 14.4GW installed capacity. Both offshore and onshore wind showed an obvious increase in installed capacity, up 60% to 2.5GW and up 24% to 5.3GW respectively over the period. Solar PV experienced the highest growth with a 5.5 times increase in capacity to 1.4GW by the end of June 2012 compared to June 2011 (DECC 2012). Renewables currently support 110,000 jobs directly and 160,000 jobs further along the supply chain (DECC 2012i).

According to the Update, in 2011 approx. 14TWh of UK heat was generated from renewable sources. This constitutes an increase of 5% over the year. The renewable transport is also on track to meet the interim transport target of approx. 5% by 2013/2014, as set by the Renewable Transport Fuel Obligation (RTFO) (DECC 2012i).

Additionally, the Update indicates that 72 of the 110 planned actions set out in the Roadmap have been completed. Good progress has been made also on the remaining 38 actions (DECC 2012i).

The UK is offering a wide range of support schemes for renewable energies, which have undergone important reforms in 2012.

As part of the FIT Comprehensive Review process run by DECC since April 2012, the Feed-in Tariff (FIT) scheme has undergone a number of significant changes. ⁽¹⁸⁾ Accordingly, new tariff rates and energy efficiency standards have been introduced for solar PV installations (with eligibility from March 2012 onwards) beginning in April 2012.

¹⁸ For more information see the website of the Office of the Gas and Electricity Markets (Ofgem): <http://www.ofgem.gov.uk/Sustainability/Environment/fits/Pages/fits.aspx>

Beginning in August 2012, the tariff support period for solar PV with eligibility dates on or after 1 August 2012 was reduced from 25 to 20 years. Furthermore, a degression mechanism for solar PV and PV has been introduced beginning in November 2012. A number of further changes to the existing FiT scheme came into effect beginning December 2012, including: revised tariffs for AD, wind and hydro (with the exception of hydro installations in the range of 100 – 500 kW); revised tariffs for micro-CHP; and a new band for hydro installations (when state aids approval is received). According to these changes, tariffs for the largest wind and hydro bands will be adjusted beginning in April 2013. Beginning in April 2014, a degression mechanism shall be applicable also to non-PV technologies (DECC 2013).

In November 2012, the Secretary of State for Energy and Climate Change submitted the Energy Bill ⁽¹⁹⁾ to the Parliament. The Energy Bill implements inter alia the main aspects of the Electricity Market Reform (EMR). As part of a wider set of measures, the EMR proposes four interlocking policy instruments: Carbon Price Floor; Long term Feed-in Tariff with Contracts for Difference from 2014; Capacity Mechanism; and the use of an Emission Performance Standards. The Energy Bill ⁽²⁰⁾ is expected to achieve Royal Assent in 2013.

As part of the EMR process, the Renewables Obligation ⁽²¹⁾ will close to new generators on 31.03.2017. Electricity generation that is accredited under the RO will continue to receive its full lifetime of support of 20 years until the scheme closes in 2037. Beginning in 2014, large renewable energy projects (above 5MW) completed will be able to choose between receiving Renewable Obligation Certificates (ROCs) or the new Feed in Tariff Contract for Difference (FiT CfD), which will be the only choice from 2017 onwards (ReedSmith 2012). The CfD is a long-term, private law contract that pays the generator the difference between an estimate of the market price for electricity ('reference price') and an estimate of the long term price needed to bring forward investment in a given technology ('strike price'). The aim is to reduce the commercial risks faced by generators resulting from electricity price volatility (DECC 2012b).

In September 2012, a Government proposal to expand the Non Domestic Renewable Heat Incentive (RHI) to include additional technologies was published (DECC 2012e). These additional technologies include air source heat pumps, biomass direct air heating, and biomass combustion over 200 kilowatts (kW). Also in September 2012, the UK Governments published a proposal for the domestic sector to launch a Domestic Renewable Heat Incentive (RHI) ⁽²²⁾ in summer 2013 (DECC 2012f). Any consumer wanting to replace his or her current heating system with RES-Heat installations will be eligible receive a subsidy to help cover the costs of the installation, providing that the

¹⁹ For the full Energy Bill text as introduced to the UK Parliament see http://www.publications.parliament.uk/pa/bills/cbill/2012-2013/0100/cbill_2012-20130100_en_1.htm

²⁰ For more information see the website of the UK Government <https://www.gov.uk/government/organisations/department-of-energy-climate-change/series/energy-bill>

²¹ For more information on RO see the website of the Government <https://www.gov.uk/government/policies/increasing-the-use-of-low-carbon-technologies/supporting-pages/the-renewables-obligation-ro>

²² More on the non domestic RHI see the UK Government website <https://www.gov.uk/government/policies/increasing-the-use-of-low-carbon-technologies/supporting-pages/renewable-heat-incentive-rhi>

installation meets the eligibility criteria. Consultations for both proposals closed in December 2012, and the Government is currently reviewing the applications received.

UK's Bioenergy strategy ⁽²³⁾ was published jointly by DECC, Defra, and DfT in April 2012, providing a holistic view of biomass uses in setting bioenergy policy and aiming to inform policy decisions on electricity, heat, and transport. The strategy targets a sector supporting 50,000 jobs and producing 11 % of the UK's energy by 2020.

Energy Networks

The UK recognizes that electricity networks are crucial for its energy and climate policy. In March 2007, National Grid ⁽²⁴⁾ signed contracts to upgrade and expand the electricity transmission network across England and Wales. The investments add up to £2.5 billion over five years. The planned upgrades seek to significantly reduce network congestion (known as 'transmission constraints'). Until the planned upgrades take effect, the new licence condition was laid before the Parliament by the DECC - Transmission Constraint Licence Condition (TCLC). TCLC is aimed at preventing the electricity generators from obtaining financial benefit during periods of electricity transmission constraint via balancing payments from National Grid that are then passed on to all consumers. According to DECC, the new rules could save consumers between £115m-£300m over 5 years. The new licence condition has been placed before the Parliament (DECC 2012h).

Transport

As can be seen in Table 1, the GHG emissions originating in the UK's transport sector dropped between 2005 and 2011, but their proportion among the UK's total emissions has slightly increased, indicating that these emissions are especially important to tackle going forward. Revenues in the UK generated by transport taxes (excluding fuels) as a percentage of GDP are slightly above the EU average; the UK ranks 10th among EU MS in this regard (Eurostat 2012). On the other hand, newly registered vehicles in the UK emitted on average 138.1 gCO₂/km driven which was just about the EU average (EEA 2012e).

The UK government is working towards reducing emissions from transport by supporting ultra-low emission vehicles, the use of biofuels, and local transport projects. Furthermore, the Renewable Transport Fuel Obligation (RTFO) Order obligates fossil fuel suppliers who supply at least 450,000 litres a year to prove that a percentage of supplied transport fuels come from renewable sources or that a compensation is paid. In December 2012, the Draft Renewable Transport Fuel Obligations (Amendment) Order 2013 ⁽²⁵⁾ was placed before Parliament for approval (PLC 2013). The draft document reduces the renewable transport obligation from 5.2632% to 4.9870% from April 2013 onwards.

²³ For more information see the UK Government website <https://www.gov.uk/government/news/a-vision-for-bioenergy>, and <https://www.gov.uk/government/news/a-vision-for-bioenergy>

²⁴ See the website of National Grid: <http://www.nationalgrid.com/uk/Electricity/projects/>

²⁵ Draft of the Renewable Transport Fuel Obligations (Amendment) Order 2013. Online available: <http://www.legislation.gov.uk/ukdsi/2013/9780111532713/introduction>

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The Carbon Plan (Government 2011) required the Independent Panel to provide advice concerning future forestry and woodland policy ⁽²⁶⁾ to the Government in spring 2012 addressing emissions from agriculture, land management, and forestry. In July 2012, the Independent Panel on Forestry completed its work by publishing a Final Report (Independent Panel on Forestry 2012) containing advice to the Secretary of State on the future direction of forestry and woodland policy in England. The report urges the government to commit to an ambitious target of increasing England's woodland cover from 10% to 15% by 2060. To this extent, the Panel suggests preserving the availability of grant schemes aimed at incentivising woodland expansion and management (e.g. England Woodland Grant Scheme funded through the Rural Development Programme for England). The Government has to consider the recommendations and provide a response.

Adaptation

The first UK Climate Change Risk Assessment (CCRA) was published in January 2012. The document sets out the key priorities for adaptation in the following sectors: Agriculture and Forestry; Business, Industries and Services; Health and Wellbeing; Natural Environment; and Buildings and Infrastructure. Furthermore, the Assessment describes the policy context and actions already in place to deal with some of the risks in each of the above areas (Defra 2012). A National Adaptation Programme ⁽²⁷⁾ building on this assessment is currently being developed by Defra and shall be published in 2013.

5 Policy progress on past CSRs

As part of the European Semester, Country Specific Recommendations (CSRs) for each MS are provided by the EU Commission in June of each year for consideration and endorsement by the European Council). The recommendations are designed to address the major challenges facing each country in relation to the targets outlined in the EU 2020 Strategy. In the following table, those CSRs that are relevant for climate change and energy that were adopted in 2012 are listed, and their progress towards their implementation is assessed.

Existing Country Specific Recommendations	Progress
Pursue a long-term strategy for improving the capacity and quality of the UK's network infrastructure, including measures to address pressures in transport and energy networks by promoting more efficient and robust planning and decision-making processes, and harnessing appropriate public or private financing arrangements	<p>The Programme of improvements to the rail network should address pressures in transport.</p> <p>The Transmission Constraint Licence Condition (TCLC) and the Energy Bill implementing EMR, aiming to provide certainty to investors to bring forward investment in new energy infrastructure, should address pressures in energy networks</p>

²⁶ For more information see: Defra website: www.defra.gov.uk/rural/forestry/panel-response/

²⁷ For more information see: Defra website: www.defra.gov.uk/environment/climate/government/nap

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