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

Country Report: United Kingdom

Ecologic Institute

Authors team: Lena Donat, Eike Karola Velten, Matthias Duwe

eclareon

Author: Jurga Tallat-Kelpsaite

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Ecologic Institute

Ecologic Institute, Berlin:

Pfalzburger Strasse 43/44
10717 Berlin
Germany

www.ecologic.eu

Contact:

Eike Karola Velten
Fellow, Climate and Energy

Tel. +49 (30) 86880-165
Fax +49 (30) 86880-100
eike.velten(at)ecologic.eu

eclareon

eclareon GmbH

Giesebrechtstraße 20
10629 Berlin
Germany

www.eclareon.eu

Contact:

Jurga Tallat-Kelpsaite
Consultant, Policy Department

Tel. +49 (30) 88 66 74 000
Fax +49 (30) 88 66 74 010
policy(at)eclareon.com

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

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

Short summary

Background: The 2008 Climate Change Act provides the framework for climate policy with binding carbon budgets for the UK. The UK is implementing a very broad set of different policy measures that are often adjusted and partially overlap. Next to renewable energy, the UK focuses on the use of nuclear energy, CCS and unconventional natural gas as part of the future energy mix.

Non-ETS emission reduction target: The national target is -16% (compared to 2005 emissions by 2020). Between 2005 and 2011 these have been reduced already by 14%. According to the latest national projections submitted to the Commission and when existing measures are taken into account, the target is expected to be reached: -19 % in 2020 compared to 2005 (with a margin of 3 percentage points).

Key indicators 2011:

GHG emissions	UK	EU27
ESD EU 2020 GHG target (comp. 2005)	-16%	
ESD GHG emissions in 2011 (comp.2005)	-14%	-9%
Total GHG emissions 2012 (comp.2005)	-14%	-12%
GHG emissions/capita (tCO2eq)	8.8	9.0

→ **2% lower** per capita emissions than EU average

GHG emissions per sector	UK	EU27
Energy/power industry sector	34%	33%
Transport	21%	20%
Industry (incl. industrial processes)	17%	20%
Agriculture (incl. forestry & fishery)	9%	12%
Residential & Commercial	15%	12%
Waste & others	3%	3%

→ **Transport** followed by Industry, Energy/power industry sector and Agriculture

Energy	UK	EU27
EU 2020 RES target	+15%	
Primary energy consumption/capita (toe)	3.2	3.4
Energy intensity (kgoe/1000 €)	104	144
Energy to trade balance (% of GDP)	-1.0%	-3.2%

→ **6% lower** per capita consumption; **28% lower** energy intensity, contribution of energy to trade balance below EU average.

Taxes	UK	EU27
Share of environmental taxes (% of GDP)	2.6%	2.4%
Implicit tax rate on energy (€/toe)	270	184

→ **Slightly higher** share of environmental taxes; **47% higher** implicit tax rate on energy than EU average.

Key policy development in 2013: The long-awaited Energy Act was finally adopted and provides the framework for the decarbonisation of the UK's energy system. However, the UK government seems to increasingly shy back from ambitious climate policies as recent debates on the carbon budget show. This might partly be driven by rising prices for end-consumers.. However, the lack of new commitments for deeper cuts at the international and the EU level is also a factor.

Key challenges: Frequent changes of the regulatory framework for renewable energy has been a major barrier for progress and has, for example, prompted companies to draw back from major wind energy projects. The adoption of the Energy Act in late 2013, including the Electricity Market reform, gives hope for more political certainty for investment but the details of its implementing legislation are still to be decided. The recent debates on a revision of the carbon budget also add to the political uncertainty for low-carbon investment.

Energy efficiency in buildings is a major challenge for the UK. The much promoted Green Deal scheme witnessed a very slow start and fell behind expectations. The Energy Company Obligation, which is meant to complement the Green Deal but has so far been the main driver for energy-efficiency improvements in households, was recently watered down in order to lower consumer energy bills.

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1 Background on climate and energy policies

The 2008 Climate Change Act ([1]) is the legal basis for climate policies in the UK. It requires emission reductions by at least 34% by 2020 and by at least 80% by 2050 as compared to 1990 levels. In total, the act stipulates four Carbon Budgets as stepping stones ([2]). In 2013, the Committee on Climate Change (CCC) raised concerns that the UK might miss its third and fourth Carbon Budgets (CCC 2013a). Upon request by the government to review the fourth Carbon Budget (2023-2027), the CCC assessed that there are no legal or economic reasons for changing the fourth carbon budget (CCC 2013b). Although the full report is due to be published by CCC in December 2013 (CCC 2013b), many MPs from the Conservative Party (Tory) already expressed their wish to disregard the CCC's recommendations and vote for less stringent carbon targets during the review of the fourth carbon budget to be published in 2014 (The Guardian 2013a). It should be noted that despite stringent carbon budgets set for the period until 2027, in 2012 the UK GHG emissions rose by 3.5%, partly due to cheap coal (The Guardian 2013b).

In addition, the statistics concerning the 2020 targets for renewable energy sources is alarming, as in 2011 energy consumed in the UK that has been produced from renewable sources amounted only to 3.8%, far away from the target of 15% in 2020 (Eurostat 2013a). Policy risks and uncertainty have been indicated by stakeholders as main barriers for investments in the renewable energy sector (EREC et al. 2013). To address this, the UK government developed an Electricity Market Reform (EMR), established in the Energy Bill that was introduced to Parliament in November 2012. The main elements of the reform are a Carbon Price Floor; a long term Feed-in Tariff with Contracts for Difference; a Capacity Market; and the use of an Emission Performance Standards (see Chapter 4). In particular, Contracts for Difference shall encourage investment in renewables by providing predictable revenue streams and thus reducing the risks to investors. In addition, Capacity Market is designed to provide sufficient and reliable capacity to all kinds of electricity generating technologies (DECC 2013a). The Bill is currently in a "ping pong" stage and is expected to achieve Royal Assent in December 2013 ([3]).

For achieving its climate change objectives, the UK has also a strong focus on nuclear power and Carbon Capture and Storage (CCS). In addition, hydraulic fracturing ("fracking") became one of the key priorities for energy generation in the UK. To encourage shale gas industry, a generous tax break for shale gas producers is planned to be introduced by the government (see Chapter 4).

([1]) For the key provisions of the Climate Change Act see: www.legislation.gov.uk/ukpga/2008/27/contents

[2] Carbon budget places a restriction on the total amount of GHG emissions the UK can emit over a 5-year period. So far, 4 carbon budgets have been set in law: First carbon budget covers the period from 2008 to 2012 and limits the UK's GHG emissions to 3,018 million tonnes of carbon dioxide equivalent (MtCO2e), second carbon budget (2013-2017) limits the GHG emissions to 2,782 MtCO2e, third carbon budget (2018-2022) to 2,544 MtCO2e and fourth carbon budget (2023-2027) to 1,950 MtCO2e.

[3] For more information on the Energy Bill examination procedure see the website of the UK Parliament: http://services.parliament.uk/bills/2013-14/energy.html

Important developments could be observed also with regards to adaptation to climate change, as in July 2013 the government published a National Adaptation Programme (HM Government 2013b), which indicates actions already taken by diverse stakeholders in addressing not only climate change related risks but also opportunities. Moreover, the most urgent action required for the proper functioning of such sectors as energy, water, health or travel and business are indicated in the programme. The Devolved Administrations - Scotland, Wales and Northern Ireland - are currently developing their own National Adaptation Programmes which are due to be published by the end of 2013 (Defra 2013a).

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 CO_2eq (UNFCCC inventory 2011), 28% less than in 1990. One third of the total emissions stems from energy supply and energy use. However, emissions in both sectors have been reduced by more than 25% between 1990 and 2011. This reflects a switch of fuel from coal to gas 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 2012, UNFCCC 2012). However, from 2011 to 2012, total GHG emissions are expected to increase (EEA 2013b).

Progress on GHG target

There are two sets of targets to evaluate: 1) the Kyoto Protocol targets for the period 2008-12 (which has already 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 CO_2, CH_4 and N_2O and on 1995 for F-gases. An evaluation of the latest complete set of greenhouse gas data (for the year 2011; there is only preliminary data for 2012) 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) ([4]). The

[4] 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.

latest data (EEA 2013b) suggest that the United Kingdom is on track at present. Emissions in 2012 were 4 percentage points (of the 2005 base year) below the Annual Emissions Allocation ([5]) for the year 2013. Up to 2020, national projections show that the United Kingdom is expected to meet its target as emissions are projected to be reduced by 19% in scenarios with both existing and with additional measures (see **Fehler! Verweisquelle konnte nicht gefunden werden.**).

Table 1: GHG emission developments, ESD-targets and projections (in Mt CO_2eq)

						ESD target**		2020 Projections***	
	1990	2005	2010	2011	2012*	2013	2020	WEM	WAM
Total	767.3	658.2	593.9	552.6	567.7				
Non-ETS		380.7	356.6	331.7	335.0	350.4	317.5	307	307
(% from 2005)					-12%	-8%	-16%	-19%	-19%
Energy supply	236.7	212.0	191.7	178.8					
(% share of total)	31%	32%	32%	32%					
Energy use (w/o transport)	215.4	199.5	179.0	154.4					
(% share of total)	28%	30%	30%	28%					
Transport	115.2	126.9	116.6	115.2					
(% share of total)	15%	19%	20%	21%					
Industrial processes	54.4	31.2	27.5	26.3					
(% share of total)	7%	5%	5%	5%					
Agriculture	57.8	50.2	46.4	46.4					
(% share of total)	8%	8%	8%	8%					

Source: UNFCCC inventories; EEA (2013b); Calculations provided by the EEA and own calculations.
** national proxies for 2012 emissions summarised by EEA (2013b)*
*** The ESD target for 2013 and for 2020 refer to different scopes of the ETS: the 2013 target is compared with 2012 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 adjusted scope of the ETS from 2013-2020. 2005 non-ETS emissions for the scope of the ETS from 2013-2020 amounted to 380 Mt CO_2eq.*
**** 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 ([6]) 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.

[5] Commission decision of 26 March 2013 on determining Member States' annual emission allocations for the period from 2013 to 2020 pursuant to Decision No 406/2009/EC of the European Parliament and of the Council. Online available at: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:090:0106:0110:EN:PDF

[6] 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.

In the following two tables, these measures - as outlined by the UK as basis for the projections as of May 2013 - have been summarised with a focus on national measures and those EU instruments expected to reduce emissions the most ([7]). 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 2013 GHG projections

Existing Measures (only important national measures)		Status of policy in November 2013
Energy	The Green Deal and Energy Company Obligation (Domestic)	Ongoing. The Green Deal was launched on 28 January 2013 in England and Wales and on 25 February in Scotland; ECO started on 1 January 2013 for Great Britain) (DECC 2013b).
	National Products Policy (Tranche 1 – Agreed measures)	Implemented by the Ecodesign for Energy Related Products Regulations (SI 2010, No. 2617). Latest amendments made on 8 May 2013.
	National Products Policy (Tranche 2 - Measures in the process of being agreed)	Implemented by the Ecodesign for Energy Related Products Regulations (SI 2010, No. 2617). Latest amendments made on 8 May 2013.
	Renewable Heat Incentive (RHI): 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 expanded to include additional technologies. Plans for scheme expansion expected to be published in autumn 2013, together with the outcomes of the 2013 Non-Domestic Tariff Review. Launch of the domestic RHI scheme was postponed until spring 2014 (initially planned to be launched in summer 2013) (DECC 2013c).
Energy Efficiency	Building Regulations 2010, in the domestic sector (Building (Scotland) Amendment Regulations 2010; review planned following devolution of building regulations in Wales in 2012)	Ongoing. Latest amendments to Building Regulations in Wales were issued in April 2013; latest amendments to Building Regulations (Part L) in England were made in July 2013).
	Building Regulations 2002, 2006, including 2005 condensing boiler update	Expired
	CRC Energy Efficiency Scheme	The CRC Energy Efficiency Scheme Order 2013 came into force on 20 May 2013. The majority of the proposals will be introduced in 2014/15 (DECC/Environment Agency 2013).

[7] 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.

Transport	Biofuels Policies (8% by energy in 2020)	Ongoing
	EU new car CO_2 emissions targets (130 gCO2/km by 2015 and 95 gCO_2/km by 2020) and complementary measures	Ongoing. Set by the Regulation (EC) No 443/2009 of the European Parliament and of the Council of 23 April 2009.
Other non-ETS sectors	English Agriculture Sector Greenhouse Gas Action Plan (GHGAP)	GHGAP was launched in March 2011. In 2012-2015, the second phase of GHGAP is running (Industry Delivery Partners group 2010).

Source: Reporting of MS in accordance with Decision No 280/2004/EC about their GHG emission projections up to 2020, May 2013.

As of November 2013, the majority of the policies and measures contained in the WEM scenario are ongoing. Most of them have been in place for some years but have undergone some changes lately, e.g. CRC Energy Efficiency Scheme was simplified or Building Regulations applicable in Wales and England were amended in spring 2013. In 2013 the non-domestic RHI is due to be expanded to cover additional technologies and in spring 2014 a domestic RHI scheme is planned to be introduced (DECC 2013c). Only two measures - the Green Deal and the Energy Company Obligation – are new measures, launched in the beginning of 2013. The Green Deal, the government's "flagship" energy saving initiative, is rather lagging behind expectations so far (see Chapter 4). There is no scenario with additional measures.

Although the existing measures would be sufficient to meet the 2020 target according to the national projections, concerns have been raised with regards to the achievement of 2020 carbon reduction and RES targets and the UK has to put more efforts in proper and timely implementation of the existing measures (Eurostat 2013b; HM Government 2013a; The Guardian 2013b).

3 Evaluation of National Reform Programme 2013 (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 ([8]).

The UK NRP of April 2013 has its focus on the actions to reduce emitted greenhouse gases, increase the amount of renewable energy in electricity, heat and transport sector as well as improve energy efficiency in households, businesses and energy-intensive industries. On the other hand, the document does not indicate any measures concerning adaptation to the impacts of climate change, or measures in sectors such as waste or agriculture.

[8] 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).

In the following table, the main policies and measures as outlined in the NRP of April 2013 ([9]) 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 2013

Plan for Growth (Mar 2011)	
Status as stated in the NRP	Published in 2011
Status as per Nov 2013	Under implementation. Last implementation update indicating completed measures published in 3/2013. According to the update, over 60% of the commitments set in the Plan for Growth are already complete (HM Treasury/BIS 2013).
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 NR	Published in 2011
Status as per Nov 2013	Under implementation. The Carbon Plan Implementation Update for Q3 2012 was published. It indicates the status quo of actions due to be completed during July-September 2012 (DECC 2012a).
Description of policy or measure	This is a government-wide plan of action on climate change. It specifies actions and deadlines for the next five years. The plan focuses, in particular, on efforts needed to decarbonise the power sector, improve energy efficiency of buildings and reduce emissions in the transport sector.

Climate Change Act 2008 (Nov 2008)	
Status as stated in the NRP	Published in 2008
Status as per Nov 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 (Apr 2012)	
Status as stated in the NRP	Published in 2012
Status as per Nov 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 in the 2020s are set out in the CCS Roadmap.

[9] All NRPs are available at: http://ec.europa.eu/europe2020/making-it-happen/country-specific-recommendations/index_en.htm

Electricity Market Reform set out in Energy Bill:	
Status as stated in the NRP	Energy Bill introduced into Parliament in November 2012; committee stage completed in February 2013
Status as per Nov 2013	The Bill is currently in the "ping pong" stage between the House of Commons and the House of Lords. On 27 June 2013, the Cabinet of Ministers disclosed new details on the Electricity Market Reform. On 18 July 2013, the government published the draft Electricity Market Reform Delivery Plan for public consultation. The Energy Bill is expected to achieve Royal Assent in late 2013 (see Chapter 4).
Description of policy or measure	The Electricity Market Reform proposes four interlocking policy instruments: Carbon Price Floor from 4/2013; a long term 'Contract for Difference' Feed-in Tariff from 2014; Capacity Market; and Emission Performance Standard (see Chapter 4).

Renewables Obligation (RO)	
Status as stated in the NRP	Introduced in 2002
Status as per Nov 2013	Last amendments in force since April 2013 (covering England, Wales and Scotland) and May 2013 (covering Northern Ireland).
Description of policy or measure	The Renewables Obligation provides incentives for large-scale renewable electricity producers (of more than 5 MW) by obliging them to generate a certain amount of electricity from renewable energy (quota system). The scheme will close to new generators on 31 March 2017. Electricity generation that is accredited under the scheme will continue to receive its full lifetime of support (20 years) until the scheme closes in 2037. (DECC/DfT 2013)

Feed-in Tariff (FiT) scheme	
Status as stated in the NRP	Introduced in April 2010
Status as per Nov 2013	Last amendments to the scheme through Feed-in Tariffs (Amendment) Order 2013 came into force on 1 July 2013
Description of policy or measure	The FiT scheme supports small-scale power plants (less than 5 MW) generating electricity from renewable energy sources. Power plants between 50 kW and 5 MW are entitled to choose between FiT scheme and Renewables Obligation.

Renewable Heat Incentive (RHI), launched in November 2011, and Renewable Heat Premium Payment (RHPP), launched in August 2011	
Status as stated in the NRP	Non-domestic RHI to be extended. Domestic RHI is due to be in place from spring 2014.
Status as per Nov 2013	On 26 March 2012 the second phase to the RHPP scheme was announced and on 20 May 2013 rates for one-off payments under the scheme were increased (The Guardian 2013d; DECC 2013d)In September 2012, consultations on the government's proposals to expand the non-domestic RHI scheme to include additional technologies started. The government is currently considering the responses received (DECC 2012b; DECC 2012c). In September 2012 the government also published proposals to launch a domestic RHI scheme. The domestic scheme shall be introduced in spring 2014. On 12 July 2013 some details (e.g. tariff levels) on domestic RHI were disclosed by DECC (DECC 2013e).
Description of policy or measure	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 the introduction of the domestic RHI. RHI is a scheme for the non-domestic sector providing payments to industry, businesses and public sector organisations.

Energy Efficiency Strategy	
Status as stated in the NRP	Published in November 2012
Status as per Nov 2013	Under implementation
Description of policy or measure	Sets out measures to improve UK's energy efficiency such as the Green Deal (launched on 28 January 2013), the CRC Energy Efficiency Scheme, the Climate Change Levy and the Climate Change Agreements.

4 Policy development

This section covers significant developments made in key policy areas between January 2013 and November 2013. It does not attempt to describe every instrument in the given thematic area.

Environmental Taxation

In the UK, the share of environmental tax revenues in total tax revenues was at 7.1% in 2011. This value was above EU average and the same holds if the revenues are compared with the country's GDP. In the latter case the percentage reaches 2.56%. The UK has no explicit carbon tax in place but has the second-highest implicit tax rate on energy of all EU MS, with a value of 269.8 € per tonne of oil equivalent (toe) in 2011. In addition, the energy intensity of the UK's economy is compared with other MS the third-lowest in the EU. As a consequence, the share of energy tax revenues in total tax revenues is despite the high implicit tax rate only moderate (Eurostat 2013a).

A report published by the Overseas Development Institute (ODI) in November 2013 disclosed that despite its commitments and efforts to reduce carbon emissions and fuel subsidies, Great Britain is the fifth among the world's largest subsidizers of fossil fuel.

According to the report, Great Britain annually spends £2.6 billion (approx. €3.1 billion) to subsidize its coal, oil and gas. In 2011, tax breaks to oil and gas producers amounted to £280 million (approx. £334 million). In addition, the VAT on fossil fuel was reduced by several billion pounds. In this context, the report highlighted the need to finally phase out subsidies for fossil fuel in order to eliminate "perverse incentives that drive up carbon emissions" and thus encourage investments in low-carbon economy (ODI 2013; The Guardian 2013e).

To encourage investments in low-carbon electricity generation, the Carbon Price Floor (CPF) was introduced in Great Britain in April 2013. The new tax is one of the key elements of EMR outlined in the Energy Bill, which is aimed at backing up the carbon price in the EU Emissions Trading Scheme (ETS). The tax is levied on fossil fuels used for electricity generation such as gas, liquefied petroleum gas (LPG) coal and other solid fossil fuels. Combined heat and power (CHP) stations are exempt from the newly introduced tax (HMRC 2013; Ofgem 2013a). In 2013, the CPF price amounts to £16 (approx. €19) per tonne of CO_2 and shall rise to £30 (approx. €36) by 2020, and £70 (approx. €84) in 2030 (DECC 2013f). According to DECC, for an average energy intensive firm the CPF will amount to £130,000 (approx. €155,000) in 2013 and £1.1million (approx. €1.3 million) in 2020 (businessGreen 2013).

In addition, in spite of growing protests opposing "fracking" as well as suggestions of scientists for more research on environmental impacts of fracking, plans to introduce a 30% income tax rate for shale gas producers, which is much lower than the income tax for North Sea oil operations (62%) and older offshore fields (81%), have been announced by the Chancellor George Osborne in July 2013 (HM Treasury/ Department for Communities and Local Government 2013). The tax break is meant to encourage the shale gas industry, as a study published by the British Geological Survey (BGS) in July 2013 disclosed a potential of 1,300 trillion cubic feet of shale gas in the North of England, which is double previous estimates (BGS 2013). Currently, consultations on the planned fiscal regime for shale gas are running (HM Treasury 2013; The Guardian 2013f).

Energy Generation

For achieving its climate change objectives, the UK very much relies on nuclear power and Carbon Capture and Storage (CCS). Three projects with the plans to develop around 16 GW of nuclear power in the UK are currently being implemented (DECC 2013g; The Guardian 2013c). They are expected to create around 14,000-19,000 direct jobs in the nuclear supply chain at the peak of construction activity. Investment by the industry will amount to around £60 billion (approx. €71.6 billion) ([10]) (HM Government 2013a). In October 2013, agreement between the UK government and the French energy company *EDF Group* on the key investment conditions could be reached for the construction of the Hinkley Point C (HPC) nuclear power station in Somerset, the first nuclear power plant of those replacing the existing ones, due to close in the 2020s. £16 billion (approx. €18.8 billion) will be invested into the HPC construction by *EDF Group* together with other investors. From 2023 onwards HPC shall provide power to nearly 6 million households

[10] All currency exchange rates in this country report are of 30.09.2013 (www.oanda.com)

and annually cut UK's CO2 emissions by 9 million tonnes ([11]) (DECC/Prime Minister's Office 2013).

CCS is seen as one of the most cost effective technologies able to decarbonise UK's power and industrial sectors (DECC 2012d). In April 2012, the Department of Energy and Climate Change (DECC) published the CCS Roadmap setting out the government's commitments with regards to this new technology. Key interventions such as CCS Commercialisation Programme with capital funding amounting to £1 billion (approx. €1.2 billion) to support commercial-scale CCS or a £125 million (approx. €148 million) funding for a four-year R&D and innovation programme are expected to help deliver cost-effective and competitive CCS in the UK in the 2020s (DECC 2012d). Furthermore, Emissions Performance Standards, one of the key elements of EMR, will require new coal-fired power stations to be equipped with CCS (DECC/Ofgem 2013).

Energy Efficiency

As mentioned above, the UK's economy is the third least energy-intensive economy in the EU, and the intensity declined considerably (-17%) from 2005 to 2011. The country's final energy consumption in 2011 had also dropped by 13% compared to 2005. This is undoubtedly a result of a precipitous drop in energy consumption in industry. From 2010 to 2011 the energy consumption declined only half as much (~7%) but was still approximately double as high as he EU average (Eurostat 2013a).

The energy efficiency of the industry increased in the UK from 1990 to 2010 by 18%, but progress has fluctuated over the years. Especially since the beginning of the financial crisis most of the industrial sectors experience a decrease in efficiency. In contrast, the energy efficiency in the household sector improved in particular since 2005 due to improvements in space heating. Between 1990 and 2010, the total efficiency increase of UK's households amounted to 23% (Odyssee 2012).

In the UK, a wide variety of policy measures to reduce energy demand are in place. Some of the existing ones were adjusted in 2013. The CRC Energy Efficiency Scheme ([12]), in place since April 2010, was simplified with the CRC Energy Efficiency Scheme Order 2013 ([13]), which came into effect on 20 May 2013. The order establishes an emissions trading scheme in the UK covering direct and indirect GHG emissions from supplies of electricity and gas by public bodies and undertakings. This scheme will run in six phases, each of five years. The initial phase will start on 1 April 2014. In addition, private and public organisations participating in CRC Energy Efficiency Scheme shall benefit from reduced complexity of the scheme, clearer rules and thus greater certainty over the scheme (DECC/Environment Agency 2013).

[11] Ireland's environmental group An Taisce is taking legal action against the UK government concerning HPC construction. An Taisce is questioning whether the construction is in line with the Environmental Impact Assessment directive of the EU as well as UK's own regulations. The environmental group announced its intention of going to the high court in London in December 2013.

[12] 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.

[13] CRC Energy Efficiency Scheme Order 2013 (No. 1119 of 2013).

The government also adjusted the Climate Change Agreements (CCA) scheme (DECC et al. 2013) which allows eligible energy-intensive businesses to receive discounts from the Climate Change Levy (CCL) in return for meeting energy efficiency or carbon-saving targets. From April 2013, the discount rate for electricity was increased from 65% to 90%. Moreover the administration of the scheme was transferred from DECC to the Environment Agency (DECC/Environment Agency 2013).

The principal schemes for addressing energy efficiency in buildings are the Green Deal scheme and the Energy Companies Obligation, both introduced by the 2011 Energy Act. Residential houses are among the least energy-efficient in the world. The Green Deal financing mechanism was made operational in January 2013, allowing consumers to pay back the cost of energy efficiency improvements through their energy bills. A total budget of £125 million (approx. €149 million) is foreseen for this programme. The rates currently available are guaranteed for the first £40 million (approx. €48 million) of the scheme. It is expected that the Green Deal will improve energy efficiency for 26 million homes and up to 2.8 million 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 (Parliament 2012). However, the uptake of the scheme has been rather slow, as statistics released by the government show. According to a statistical release, published by DECC on 19 November 2013, 101,851 Green Deal Assessments were submitted by the end of October 2013; 1,173 Green Deal Plans were in the system for individual properties, of which 360 were "new" Green Deal Plans; 594 households signed the Green Deal Plan and 219 energy efficiency measures have been already installed (DECC 2013h). The scheme is criticised for the high interest rates for loans (around 7.5%), which are much higher than in other countries like for example Germany (around 1-2%) (The Guardian 2013g; paula owen consulting 2013).

Under the new scheme called Green Deal Communities, which was launched in July 2013, local authorities will be responsible for selecting streets and areas having the greatest potential for energy efficiency improvements under the Green Deal scheme and make proposals to the DECC, responsible for final evaluation. The overall budget of the scheme amounts to £20 million (approx. €24 million) (DECC 2013i).

The Energy Companies Obligation (ECO), which complements the Green Deal was also made operational in January. Energy companies are required to improve energy efficiency in low-income households, mainly by providing insulation and heating measures. Given that the start of the Green Deal is lagging behind expectations, the ECO is currently the most important driver for energy efficiency improvements in buildings, although most companies are behind in delivering their obligations (DECC 2013h). However, in an effort to cut energy bills, the government announced in early December 2013[14] to delay the deadline for fulfilling companies' targets from two to four years, i.e. halving the target (DECC 2013v). NGOs criticised the policy change for being short-sighted and due to the uncertainty over the future of the ECO some insulation projects have already been cancelled (The Guardian 2013m).

[14] As this is a very important policy development regarding energy efficiency and also of relevance for the recommendations, these news are included here although they fall outside the covered timeframe of February to November 2013.

A number of low-carbon incentives and actions to reduce emissions in the UK heating sector, accounting for around 30% of UK's GHG emissions, are envisaged in the Heat Strategy Action Plan called *The Future of Heating: Meeting the Challenge* that was published by DECC in March 2013. The measures indicated in the plan relate to industrial heat, networked heat, heat in buildings, as well as grids and infrastructure and shall contribute to the UK's decarbonisation by 2050. For example it envisages a £9 million (approx. €10.7 million) funding to help local authorities upgrade their heat network schemes or a £1 million (approx. €1.2 million) funding for the cities of Manchester, Leeds, Newcastle, Sheffield and Nottingham to develop their heat networks (DECC 2013j).

On the other hand, introduction of some planned energy efficiency measures are lagging behind the initial schedule. For example, higher energy efficiency standards to ensure that all new residential buildings are built zero carbon from 2016 were supposed to be in place from April 2013. Due to different opinions within the government coalition on the stringency of the new energy efficiency rules, regulations were postponed until autumn 2013 (The Guardian 2013h). In addition, the introduction of household smart energy meters was postponed until autumn 2015 (initially planned to be introduced in 2014). As a result, the national plan will be completed in 2020, instead of 2019 (BBC News 2013). The delay is caused by the complexity of the roll-out coordination process due to number of different standards, lacking consent on the technology or varying views on the payment for the meters (The Guardian 2013i). Some progress has, however, been made on the roll-out of smart meters as some energy companies have already started with the installation of smart meters. In September 2013, a Data and Communications Company (DCC) was established, which is responsible for connecting 53 million smart electricity and gas meters, planned to be installed in households and small businesses, with the business systems of network operators, energy service companies (ESCOs) and utilities (DECC 2013k).

Although UK's energy efficiency schemes have a large contribution to the economic growth of the country, a report of the Confederation of British Industry (CBI) disclosed that a number of these schemes addressing businesses overlap and add extra cost and burden to commercial sector with little environmental benefit. In this context, CBI recommends the government to streamline current legislation, especially with regards to reporting requirements for the various instruments such as the CRC, CCA and energy audits (CBI 2013).

Renewable Energy

Renewable energy use as a portion of final consumption has been increasing slowly but steadily in the UK. However, at a level of 3.8% of total consumption in 2011, the country is quite far from reaching its target of 15% by 2020. The share of renewably-generated electricity in final electricity consumption increased from 4.1% to 8.7%from 2005 to 2011 (Eurostat 2013b).

The key barrier hindering higher deployment levels of renewable energy in the UK is the policy risk and uncertainty in the market. This barrier negatively affects electricity, heating & cooling as well as transport sectors and aggravates all project development stages. Policy risk and uncertainty result from the permanently changing policies in the UK, which makes development of and investment in renewable energy high risk (EREC et al. 2013).

In November 2012, the Secretary of State for Energy and Climate Change submitted the Energy Bill ([15]) to the Parliament. The Energy Bill implements *inter alia* the main aspects of the long-awaited EMR, expected to provide long term certainty for renewable project developers and investors. As part of a wider set of measures, the EMR proposes four interlocking policy instruments: Carbon Price Floor (CPF); Long term Feed-in Tariff with Contracts for Difference (CfD); Capacity Market (CM); and the use of an Emission Performance Standards (EPS). The Energy Bill is currently in the "ping pong" stage and is expected to achieve Royal Assent in late 2013 ([16]).

In June 2013, the Cabinet Ministers disclosed new details of EMR, for example, that the CM will be initiated in 2014, for the delivery of electricity capacity from 2018-19. CM participants will have to bid in order to provide the total amount of electricity capacity projected to be required. Successful bidders would then receive a stable payment in the year of the agreement for the available capacity. On the other side, suppliers would be obliged to deliver electricity in periods of system stress. Otherwise they would have to pay financial penalties. In addition, new subsidy levels for renewable energy (so called "strike prices") have been disclosed. For example, from 2014 the draft subsidy level for offshore wind power will be £55/MWh (approx. €66/MWh) and will be increased to £135/MWh (approx. €161/MWh) in 2018. ([17]) (DECC 2013l; The Guardian 2013j; DECC 2013m).

To further provide low-carbon energy generators and investors with policy certainty and secure their willingness to invest in major energy projects, Draft Terms of the Contracts for Difference ([18]) and the Allocation Methodology for Renewable Generation (DECC 2013n) were published in August 2013. The published documents are complementary to the draft Electricity Market Reform Delivery Plan (DECC 2013o), published for consultation in July ([19]). Final terms are expected to be published by the government in December 2013 (DECC 2013p). In addition, government's proposals for implementing the EMR have been published for consultation in October 2013 (DECC 2013q), where stakeholders have a chance to submit their views on the key mechanisms of the reform – CfDs and CM, as well as on the management of potential conflicts of interest for National Grid, the delivering body of EMR. EMR implementing secondary legislation is expected to become law in summer 2014 (DECC 2013r).

Greater certainty to renewable generators shall further be provided by the "Offtaker of Last Resort" mechanism that is expected to be established in autumn 2014. Plans to introduce this new scheme have been confirmed during the Energy Bill report stage in the House of Lords on 4 November 2013. Under this scheme electricity suppliers would be

[15] 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

[16] For more information on the Energy Bill examination procedure see the website of the UK Parliament: http://services.parliament.uk/bills/2013-14/energy.html

[17] Under the Renewables Obligation, which is due to run until 2017, current subsidy for onshore wind amounts to around £90/MWh and for offshore wind to around £130/MWh.

[18] Online available at: gov.uk/government/uploads/system/uploads/attachment_data/file/227071/CfD_contract__amended.pdf

[19] Consultation was closed on 25 September 2013. Currently government is analysing the feedback received.

obliged to buy electricity from the producers of renewable energy, in case they are unable to sell their renewable electricity on commercial terms (DECC 2013s).

It has to be noted that with regards to renewables deployment in the UK a positive push comes largely from wind energy. Between July 2012 and June 2013 wind energy experienced the greatest increase ever, as a recent report by *RenewableUK* indicates. The report shows that by the end of June 2013, UK's operational wind power almost reached 10GW (RenewableUK 2013). Between July 2012 and June 2013 the cumulative capacity of onshore wind increased by 25% and of offshore wind by 79%. As of July 2013 more than 1,000 offshore wind turbines with a total capacity of about 3.6 GW were installed in the UK (HM Government 2013c). Currently, wind energy accounts for more than 50% of UK's renewable electricity generating capacity (RenewableUK 2013).

Wind energy growth shall be further supported by a number of actions by 2020 that are set out in the Offshore Wind Industrial Strategy (HM Government 2013c) launched in April 2013. The strategy envisages funding of £20 million (approx. €24 million) for the new Manufacturing Advisory Service programme called *GROW: Offshore Wind.* The announced funding will come from the Regional Growth Fund and will run for three years (BIS et al. 2013). The strategy indicates that under a strong growth scenario, the offshore wind sector could deliver up to £7 billion (approx. €8.4 billion) Gross Value Added (GVA) to the UK economy (without exports) in 2020/21. In addition, more than 30,000 jobs could be supported by the end of this decade (HM Government 2013c).

Onshore wind development shall be accelerated by the new regulations, which will be laid before Parliament shortly. Developers of onshore wind projects involving more than two turbines or any turbine exceeding 15m height will be required to consult the respective local community about location and other relevant planning issues prior to submitting a planning application. Through involving local population as early as possible planning processes shall gain more transparency and thus be facilitated and accelerated. These requirements will be set out in the Town and Country Planning (Development Management Procedure and Section 62A Applications (England) (Amendment) Order 2013 and are due to come into force by the end of this year (Department for Communities and Local Government/DECC 2013).

Recently, some positive developments could be observed also with regards to solar energy. In October 2013, the UK Solar PV Roadmap was published by DECC (DECC 2013t). It sets out the government's guiding principles that will form the basis of the future Solar PV Strategy, due to be published in 2014. Thus, only cost-effective solar PV projects will be supported by the government in the future. In addition, support for solar PV should result in significant carbon reductions to ensure timely achievement of UK's 2020 RES target of 15% as well as decarbonisation of UK's economy in the long run. As of June 2013, UK's total installed capacity of solar PV reached 2.4GW and generated 1.4 TWh of electrical energy between July 2012 and June 2013 (DECC 2013t; DECC 2013u).

Energy Networks

The UK recognizes that electricity networks are crucial for its energy and climate policy. In March 2007, the electricity and gas company National Grid signed contracts for the upgrade and expansion of 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 - Transmission

Constraint Licence Condition (TCLC) - came into effect on 29 October 2012. The 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 around £115-300 million (approx. €137-358 million) over 5 years. (DECC 2012e).

In August 2013, the Office of Gas and Electricity Markets (Ofgem) announced its intention to approve modifications to the Transmission Use of System (TNUoS) charging methodology (National Grid 2013) that regulates payments by generators for the use of the electricity transmission grid in Great Britain. The amendments were proposed to facilitate the timely transition to a low carbon energy sector and at the same time to ensure a stable and efficient supply of electricity in Great Britain's transmission network. The amended methodology would, however, retain the currently established "locational element", i.e. generators situated further from the electricity demand would still face greater charges ([20]) (Ofgem 2013b). It is worth to be noted that the "locational element" plays not in favour of developing wind energy as areas with the highest wind resources are usually located far away from the load center (eclareon/Öko-Institut 2011). The new charges would be applicable from April 2014 onwards (Ofgem 2013b).

The government expects that the EMR will attract £110 billion (around €130 billion) of private investment, which is the amount needed to replace and upgrade UK's electricity infrastructure by 2020 (HM Government 2012). According to the estimates of DECC and Ofgem, around £35 billion (around €41.5 billion) need to be invested in electricity transmission and distribution (DECC 2012e). The London School of Economics (LSE) further estimates that to avoid blackouts and to meet carbon reduction targets investments in the UK's energy infrastructure amounting to GBP 330 billion (around €391 billion) will be necessary by 2030 (LSE 2012).

Transport

Emissions from transport have increased between 1990 and 2011. However, since 2005 a downward trend can be reported. In contrast, the proportion of these emissions among the UK's total emissions has further increased, reaching 21% in 2011 (Table 1). The emissions from transport will thus need to be further addressed in the future.

Average emissions for newly registered cars are moderate in the UK with a level of 132.9 CO_2/km. The level is the 11th lowest in the EU and has decreased at a higher rate than the EU average between 2005 and 2012 (Eurostat 2013a). While no registration tax applies, the ownership tax is based on CO_2 emissions and fuel type, and for the first tax year, different rates apply making a stronger differentiation between low and high emission cars (ACEA 2012, CE Delft 2012).

Considering the importance of transport in overall emissions, it is remarkable that the UK is the only EU MS that applies the same tax rate to petrol and diesel, and that the diesel tax rate is the highest in the EU (European Commission 2013).

The UK government is working towards reducing emissions from transport by supporting ultra-low emission vehicles, the use of biofuels, and local transport projects. The main

[20] In this way, the transmission network operation and upgrade costs are taken into account.

support scheme in the UK transport sector is the Renewable Transport Fuel Obligation (RTFO). It 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 compensation is paid. On 15 April 2013, the Renewable Transport Fuel Obligations (Amendment) Order 2013 ([21]) came into effect. It partly transposes the Fuel Quality Directive (98/70/EC) ([22]), as amended by Directive 2009/30/EC ([23]). The overall purpose of the amendments is to expand the RTFO to cover suppliers of fuel for additional end uses such as non-road mobile machinery (including inland waterway vessels which do not normally operate at sea), agricultural or forestry tractors, and recreational craft which do not normally operate at sea. Initially the RTFO covered suppliers of fossil road transport fuel only. Moreover, the amendment order reduces the renewable transport obligation from 5.2632% to 4.9870% from April 2013 onwards.

According to a report by the Department for Transport (DfT), between April 2012 and April 2013, 1,337 million litres of renewable fuel have been supplied in the UK, of which 1,031 million litres (77%) have been verified to be sustainable. Of the sustainable renewable fuel, bioethanol accounted for 56% of supply, followed by biodiesel (FAME, 39%). Biomethanol and methyl tertiary butyl either (MTBE) accounted for 5% of supply. In addition, there were small amounts of biogas and pure vegetable oil (a).

In September this year, the Office for Low Emission Vehicles sitting in DfT published a strategy for ultra low emission vehicles (ULEV) called *Driving the Future Today* (Office for Low Emission Vehicles 2013). The strategy sets out measures that shall provide certainty to investors and ULEV consumers, such as continued provision of grants for plug-in vehicles until May 2015 and consumer incentives until May 2015 and beyond. Moreover, necessary infrastructure for ULEVs shall be further developed. To this end, the strategy envisages continued financial support (up to £37 million, approx. €44 million) for the installation of charge points in homes and public places. The government also commits itself to secure tax incentives for ULEVs at least until 2020 as well as through R&D funding strengthen ULEVs supply chain (Office for Low Emission Vehicles/DfT 2013a). In this context, in November 2013, the Office for Low Emission Vehicles together with the Department for Transport launched a consultation on measures to increase the ULEV uptake, covering the period between 2015 and 2020. The consultation will be open until 10 January 2014 (Office for Low Emission Vehicles 2013b).

In addition, a number of grants were launched in the UK in 2013, with the aim to reduce GHG emission from transport sector. In February, a £37 million (approx. €44 million) until April 2015 to partially cover the costs of installing new charge points for electric vehicles (up to 75%) was announced by the government. Eligibility for grants extends to e.g. private persons, local authorities, or train operators (DfT/Office for Low Emission Vehicles 2013). Further £5 million (approx. €6 million) from the Department for Transport's Clean Bus Technology Fund to support England's local authorities in equipping their bus fleets with pollution-reducing technologies (e.g. cleaner engines, exhaust after-treatment equipment) have been announced in June 2013 (DfT 2013b). In October, the Transport

[21] The Renewable Transport Fuel Obligations (Amendment) Order 2013 (No. 816 of 2013).

[22] OJ No L 350, 28.12.1998, p.58.

[23] OJ No L 140, 5.6.2009, pp. 88-113.

Minister Norman Baker announced that over £1 million (approx. €1.2 million) will be allocated for the modification of local buses resulting in reduced emissions of harmful pollutants and improvement of air quality in parts of Kent, South Yorkshire, the West Midlands, Buckinghamshire and York. In addition, £2.4 million (approx. €2.8 million) will be allocated through the Green Bus Fund to bus companies and local authorities in Manchester, Oxfordshire, York and Sunderland, allowing them to acquire new electric, hybrid and biomethane gas-powered buses (DfT 2013c).

Finally, government and car manufacturers plan to invest together £1 billion (approx. €1.2 billion) in a research centre - the Advanced Propulsion Centre – to explore low-carbon technologies, which shall replace traditional diesel and petrol engines by 2040. Initially, £10 million (approx. € 12 million) funding will be available for innovative and collaborative low-carbon vehicles. Although details concerning the proposed Advanced Propulsion Centre are still uncertain it is expected to secure 30,000 jobs related to manufacturing of car engines, according to the government (BIS 2013; The Guardian 2013l).

Waste

Some policy developments in the waste sector could be observed in Wales and England recently. In June 2013, the Welsh government's plans to establish a food waste collection service for 90% of the households in order to prevent throwing food and garden waste to landfill or sending for incineration were announced. The white paper on these plans is due to be published by the Welsh government in autumn 2013. Moreover, investments in anaerobic digestion (AD) plants totalling approx. €60 million (approx. 71.6 million) are foreseen. These plants are expected to produce 60 MW of renewable energy. Two new AD facilities – 11,000 tonnes plant and 22,500 tonnes plant - are planned to start their operation later this year and next spring respectively (ENDS Europe 2013).

In England, a consultation on a new *Waste Prevention Programme for England* has been launched in August this year. Stakeholders (local authorities, consumers and private companies) were able to submit their views on a number of proposals, *inter alia,* on potential savings by companies and local authorities through reducing waste and managing resources or improving access to information with regards to waste reduction. In addition, the government proposed ways to design longer lasting products, products containing less hazardous parts, or suggests ways to diminish environmental impact of waste. The Waste Prevention Programme is part of the EU Waste Framework Directive (2008/98/EC) ([24]) and is scheduled to be finalized in December 2013 (Defra 2013b).

Moreover, the Deputy Prime Minister Nick Clegg announced that from autumn 2015 onwards a five pence mandatory charge for single use carrier bags will be introduced in England. Similar charges are already applicable in Ireland and Wales and they resulted in 80% reduction of issued carrier bags. Small businesses (with fewer than 250 employees) as well as businesses meeting new high standards for biodegradable bags will be relieved from the envisaged charge (Defra/Deputy Prime Minister's Office 2013).

[24] OJ No L 312, 22.11.2008, p.3.

Land Use, Land Use Change and Forestry

Only small developments could be identified within the past year with respect to land use, land use change and forestry (LULUCF). On 5 September 2013, the Department for Environment, Food & Rural Affairs (Defra) published a consultation paper (open until 7 November 2013) on the government's proposals for a biodiversity offsetting system and seeking feedback from the public on how such a system might operate best. Biodiversity offsetting ("securing net gain for nature through planning and development"), as one of the means of addressing biodiversity loss and at the same time achieving economic growth, was recommended in the report "Realising Nature's Value" by the Ecosystems Market Task Force, which was published in March 2013 (Defra 2013c). Conserving and restoring biodiversity is of crucial importance as it helps to address climate change by carbon storage (mitigation) and to reduce negative impacts of the changing climate (adaptation) (Ecosystem Markets Task Force 2013).

Adaptation

In July 2013, the government published a National Adaptation Programme report, which describes a number of actions that have already been taken by the government, local governments, industry, and civil society in addressing climate change-related risks and opportunities in sectors as built environment, infrastructure, agriculture and forestry, etc. in order to provide good practice examples for adapting to changing climate to the stakeholders. Moreover, it sets out the most urgent actions required for the proper functioning of energy, water, health, travel and business sectors in the future. The report disclosed that although 70% of UK major businesses and their suppliers are faced with significant risks posed by climate change, only 40% of large businesses are taking action to be prepared for the impacts of climate change. The Devolved Administrations - Scotland, Wales and Northern Ireland - are currently developing their own National Adaptation Programmes which are due to be published by the end of 2013 (Defra 2013d; Defra 2013e).

Moreover, since different parts of the UK had already been confronted with harsh floods in the past a range of incentives have been launched within the last six months to reduce the risk of flooding.

In this context, construction of 93 new flood defences was approved by the respective authorities in 2013. They should protect more than 64,000 homes from the devastating effects of flooding in the UK. In 2013, £294 million (approx. €351 million) are earmarked for flood risk management. By 2015 £2.3 billion (approx. € 2.7 billion) are planned to be spent by the UK government for the prevention of flooding and coastal erosion. As a result, by 2015 165,000 homes are expected to be better protected. The Environment Agency has committed to provide more than 1.1 million households with free flood warnings by 2015 (Defra 2013f).

In addition, £5 million (approx. €6 million) shall benefit thirteen communities across the UK with innovative projects aiming at protecting homes and businesses from the risk of floods. The projects are funded by the Flood Resilience Community Pathfinder scheme that has been launched by Defra in December 2012 (Defra 2013g).

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 2013 are listed, and their progress towards their implementation is assessed.

Existing Country Specific Recommendations	Progress
Provide a stable regulatory framework for investment in new energy capacity, including in renewable energy.	The long awaited EMR, envisaged in the Energy Bill, is expected to provide a long-term policy certainty to the project developers and investors and thus bring forward investments in energy infrastructure and renewable technologies. A sufficient and reliable capacity shall, in particular, be guaranteed by the CM, one of the key elements of ERM due to be initiated in 2014. With regards to renewables, besides CfD, also the latest modifications to the key financial support schemes (e.g. revision of the FiT scheme in 2012 and subsequent amendments in 2013 as well as RO Banding Review in 2013) are expected to result in greater willingness to invest in renewable technologies (DECC 2012f). As the aforementioned developments are still ongoing or very recent, it is not yet possible to evaluate their success in stabilising the legal framework.

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