Second Progress Report on the Promotion and Use of Energy from Renewable Sources for the United Kingdom

Article 22 of the Renewable Energy Directive 2009/28/EC

December 2013

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Introduction

The UK Government strongly supports renewable energy as part of a diverse low-carbon and secure energy mix. Alongside gas and low-carbon transport fuels, nuclear power and carbon capture and storage (CCS), renewable energy brings energy security, decarbonisation of our economy and green growth.

We are committed to achieving the UK's challenging and legally binding target of 15% renewables by 2020 in a cost effective and sustainable way, minimising the impact on consumer bills. All parts of the UK are playing a part in delivering this commitment, with the Devolved Administrations setting themselves challenging targets for the level of renewable electricity and heat consumption by 2020.

Progress during 2011 and 2012

The UK has made very good progress against the 15% target. At the end of 2012, 4.2% of UK energy consumption came from renewable resources. This is up from 3.8% in 2011. Across 2011 and 2012 combined, an average of 4.0% energy consumption came from renewable resources against the first interim target of 4.04%, with the small shortfall falling within the margin of error around the estimate.

Renewables' share of electricity consumption in 2012 was 10.8 %, an increase from 8.8% in 2011. Around 40.2 TWh of renewable electricity was generated in 2012, an increase of 23% on the 32.7 TWh in 2011. Capacity increased by 27% from 12.2GW to 15.5GW between the end of 2011 and 2012 with strong growth in the onshore and offshore wind and solar sectors.

In 2012, around 14.8 TWh of renewable heat was generated from renewable sources, an increase of 7% on the previous year's 13.9 TWh. This increase is the result of a combination of reasons, including an increase in the number of renewable heating installations and, for some fuels, a cold winter. However, the cold winter resulted in overall heat demand increasing by a similar amount. Therefore, the proportion of heat from renewables remained at 2.3% of overall heat used. Biomass and solar thermal remain key renewable heat technologies, while the contribution of heat pumps is increasing.

The proportion of renewable energy used in transport increased from 2.7% in 2011 to 3.7% in 2012. This increase was a result of the introduction of double counting which provided further support for the most sustainable biofuels derived from wastes. As these fuels count twice towards the Renewable Energy Directive target for transport, suppliers were able to meet their obligations with less fuel and therefore the absolute amount of transport biofuels consumed in the UK reduced from 11.3TWh in 2011 to 10.3 TWh in 2012. Other factors in the reduction included a shift towards lower energy density fuels (principally ethanol but also biomethanol, and away from biodiesel); as well as carry-over of Renewable Transport Fuel Obligation (RTFO) certificates from preceding obligation periods.

During 2011 and 2012 the UK made considerable progress in delivering the financial incentives, policies and wider actions needed to unlock barriers and increase deployment across the electricity, heat and transport sectors.

Key achievements were:

Financial support

- In the renewable electricity sector, the Government published the Renewables Obligation (RO) Banding Review in July 2012, setting new tariffs for most technologies for 2013 - 17. The Feed-in Tariffs (FITs) scheme for small scale renewable and low carbon electricity installations has been revised so that it is on a sound and sustainable footing.

- The amount of market support to be available for low-carbon electricity investment (under the Levy Control Framework) up to 2020 was agreed. This will be set at £7.6 billion (real 2011/12 prices) in 2020/21.

- The Energy Bill was published to provide the legislative framework for the Government's Electricity Market Reform (EMR) programme. Under the EMR, support via Contracts for Difference (CfDs), available from 2014, will deliver stable financial incentives for low-carbon electricity development, bringing greater certainty for investors and lower costs for consumers.

- The Renewable Heat Incentive (RHI) was launched in November 2011 supporting commercial, industrial and community renewable heating installations. A Renewable Heat Premium Scheme was launched in August 2011 to provide grant funding for domestic installations, prior to the introduction of a domestic RHI.

- The RTFO was amended extensively in 2011 to implement the Renewable Energy Directive (RED). This gave greater certainty over the sustainability of biofuels by introducing mandatory sustainability criteria, as well as incentivising non crop biofuels by introducing 'double counting' for those derived from wastes and residues.

<u>Unlocking barriers</u>

- The UK Green Investment Bank was launched on 2012 with £3.8bn funding from the UK Government and identified offshore wind and energy from waste amongst its priority sectors.

- Offshore Wind Cost Reduction Task Force established to drive down cost of offshore wind to £100/MWh by 2020. The Task Force reported in June 2012 and developed 29 recommendations on how to do this. The Offshore Wind Programme Board, which was one of the recommendations, was established to take forward implementation of the recommendations as well as looking to address other barriers to offshore wind deployment.

- As part of Government's reforms to planning, the National Planning Policy Framework published in March 2012. It is based on a presumption in favour of sustainable development and encourages the promotion of renewable and low carbon energy, ensuring any adverse impacts are addressed satisfactorily.

- A new system of marine planning and licensing was introduced to deliver sustainable development and provide regulatory simplicity and certainty for developers.

- A joint Government/industry research programme to develop solutions to address the possible interference of wind energy to civilian en-route radar was completed.

Implementation will continue over the next 2- 3 years.

- Government conducted a military air traffic control technology demonstration programme during 2013 and will confirm the next steps during 2014.

Support for innovation and supply chain development

- Up to £50 million available up to 2015 for innovation in offshore wind and marine energy and to reduce technology costs

- Up to £60 million support available to 2015 to develop offshore wind manufacturing facilities at coastal locations in assisted areas in England.

- The Scottish Government is providing £70 million to strengthen port and manufacturing facilities for offshore turbines and related components.

- Government committed more than £400 million support to 2015 for Ultra Low Emission Vehicle customers with up to 25% (up to the value of £5000) of the purchase price of the vehicle and launch of a National Charge Point Registry

- Around £82 million is being managed by the Government's Technology Strategy Board to support a programme of research and development in ultra-low carbon technologies up to 2014.

- In November 2011 the Government announced the Low Carbon Trucks project, which will see £11.3 million used to fund a trial of low carbon trucks and their supporting infrastructure. The trial will see over 300 different vehicles tested in 13 separate projects

- In January 2012, Government launched UKH_2Mobility is a joint undertaking with key industry stakeholders evaluating the potential for hydrogen as a ULEV fuel in the UK before developing a plan for a possible roll-out to consumers.

Recent developments

Building on the 2011 and 2012 achievements set out above, 2013 has been one of the most successful years ever for Britain's renewable energy drive, with considerable progress in increasing levels of deployment, in new announced projects and in longer term policy completion.

There has been significant growth in renewable electricity sector with the renewables' share of total electricity generation in the UK increasing to a record 15.5 % in the second quarter of 2013. Overall renewable electricity capacity has grown by 38% over the period July 2012 to June 2013 and now stands at 19.5 GW. Deployment pipelines are strong for all key technologies across all stages of development.

There has been much progress with implementation of the Government's Electricity market Reform programme. Details of the strike prices and arrangements under contracts for difference have been published and are on track to be introduced in 2014. This provides long term certainty to industry on Government's commitment to renewables and is expected to support more than 30% renewable electricity by 2020.

The Government is continuing to take action to build new markets for renewable and low carbon heat in the UK and work has focused on setting the right incentives to bring forward deployment. An extension to the Renewable Heat Premium Payment (RHPP) scheme was announced in March 2013 and we intend to introduce the domestic RHI scheme from spring 2014. Revised tariff levels for certain technologies currently supported by the non-domestic RHI are also expected to come into force in spring 2014, and are expected to stimulate the market further to counteract lower than expected deployment of some technologies.

In the transport sector, the Renewable Transport Fuel Obligation (RTFO) is currently set at 4.7501% by volume of renewable transport fuel for each obligation year from 2013/14 onwards[1]. Going forward we will need to await the outcome of EU discussions on Indirect Land Use Change (ILUC), before determining our approach post 2014. Once resolved we hope to pursue the deployment of biofuels in a strategic and sustainable way.

The Government believes that ultra-low emission vehicles have an important role to play in the decarbonisation of UK transport and published in September 2013 a long term strategy – 'Driving the Future Today', underpinned by £500m support from 2015 to 2020.

Further information on these and other policy measures are set out in this report as well as the UK Renewable Energy Roadmap Update 2013 published in November 2013[2].

Progress to 2020

We now have a robust package of financial support and other policy measures in place across all parts of the UK to further accelerate renewables deployment, drive innovation and reduce the cost of renewables to ensure value for money for the customer.

DECC's latest analysis suggests that the UK is on course to meet our next interim target of 5.4% for 2013/2014, but we do not under estimate the challenges and uncertainties that lie ahead between now and 2020.

We will continue to closely monitor our progress towards our interim and 2020 renewable energy targets, ensuring that we have enough measures in place across electricity, heat and transport to reach the amount needed and are taking the right actions to overcome barriers to delivery.

This 2nd Progress Report

This is our second progress report to be produced on a two yearly basis. It provides information required within the reporting requirements of Article 22 of the Renewable Energy Directive 2009/28/EC and makes use of the template provided by the Commission as well as the supplementary guidance set out in the FAQ document.

[1] The reduction in percentage terms from the previous 5% is due to the inclusion within the obligation of NRMM[1] fuels. By increasing the scope of the obligation to cover both road and non-road transport, it is anticipated that the supply of biofuel overall will amount to at least This is the same quantity as if the obligation had remained at 5% for just road transport. This change was made due to the implementation of the Fuel Quality Directive. Double counting for waste derived fuels was also introduced. A consequence of this is that the obligation can be met with less than 4.75% fuels by volume.

[2] (DECC) The UK Renewable Energy Roadmap Update 2013 (November 2013) at : https://www.gov.uk/government/publications/uk-renewable-energy-roadmap-second-update

1. Sectoral and overall shares and actual consumption of energy from renewable sources in the preceding 2 years (2012, 2011) *(Article 22 (1) a of Directive 2009/28/EC))*.

Table 1: The sectoral (electricity, heating and cooling, and transport) and overall shares of energy from renewable sources[3]

	2011	2012
RES-H&C[4] (%)	2.3%	2.3%
RES-E[5] (%)	8.8%	10.8%
RES-T[6] (%)	2.7%	3.7%
Overall RES share[7] (%)	3.8%	4.2%
Of which from cooperation mechanism[8] (%)	0	0
Surplus for cooperation mechanism[9] (%)	0	0

1a: Calculation table for the renewable energy contribution of each sector to final energy consumption (ktoe)[10]

	2011	2012
(A) Gross final consumption of RES for heating and cooling	1,193	1,272
(B) Gross final consumption of electricity from RES	2,809	3,460
(C) Gross final consumption of energy from RES in transport	968	880
(D) Gross total RES consumption[11]	4,969	5,613
(E) Transfer of RES to other Member States	0	0
(F) Transfer of RES from other Member States and 3rd countries	0	0
(G) RES consumption adjusted for target (D)-(E)+(F)	4,969	5,613

[3] Facilitates comparison with Table 3 and Table 4a of the NREAPs.
[4] Share of renewable energy in heating and cooling: gross final consumption of energy from renewable sources for heating and cooling (as defined in Articles 5(1)b) and 5(4) of Directive 2009/28/EC divided by gross final consumption of energy for heating and cooling. The same methodology as in Table 3 of NREAPs applies.
[5] Share of renewable energy in electricity: gross final consumption of electricity from renewable sources for electricity (as defined in Articles 5(1)a) and 5(3) of Directive 2009/28/EC divided by total gross final consumption of electricity. The same methodology as in Table 3 of NREAPs applies.
[6] Share of renewable energy in transport: final energy from renewable sources consumed in transport (cf. Article 5(1)c) and 5(5)of Directive 2009/28/EC divided by the consumption in transport of 1) petrol; 2) diesel; 3) biofuels used in road and rail transport and 4) electricity in land transport (as reflected in row 3 of Table 1). The same methodology as in Table 3 of NREAPs applies.
[7] Share of renewable energy in gross final energy consumption. The same methodology as in Table 3 of NREAPs applies.
[8] In percentage point of overall RES share.
[9] In percentage point of overall RES share.
[10] Facilitates comparison with Table 4a of the NREAPs
[11] According to Art.5(1)of Directive 2009/28/EC gas, electricity and hydrogen from renewable energy sources shall only be considered once. No double counting is allowed.

Table 1.b: Total actual contribution (installed capacity, gross electricity generation) from each renewable energy technology in [Member State] to meet the binding 2020 targets and the indicative interim trajectory for the shares of energy from renewable resources in electricity[12]

	2011		2012	
	MW	**GWh**	**MW**	**GWh**
Hydro[13]:	1,675	5,115	1,686	5,186
non pumped				
<1MW	92	183	101	209
1MW–10 MW	180	552	182	566
>10MW	1,403	4,380	1,403	4,412
pumped	*2,744*	2,906	*2,744*	2,966
mixed[14]	0	0	0	0
Geothermal	0	0	0	0
Solar:	993	244	1,706	1,188
photovoltaic	993	244	1,706	1,188
concentrated solar power	0	0	0	0
Tide, wave, ocean	3	1	7	4
Wind:		14,104		18,666
onshore	4,638	9,754	5,893	11,735
offshore	1,838	4,351	2,995	6,931
Biomass[15]:	3,117	13,200	3,251	15,198
solid biomass	1,869	7,344	2,016	9,325
biogas	1,248	5,857	1,235	5,874
bioliquids	0	0	0	0
TOTAL	12,264	32,666	15,538	40,243
of which in CHP	*306*	*1,131*	*316*	*1,176*

Note to the table 1b: pumped storage should be included in the table but not included in the Hydro or overall totals, as it is not a renewable resource.

[12] Facilitates comparison with Table 10a of the NREAPs.
[13] Normalised in accordance with Directive2009/28/EC and Eurostat methodology.
[14] In accordance with new Eurostat methodology.
[15] Take into account only those complying with applicable sustainability criteria, cf. Article 5(1) of Directive 2009/28/EC last subparagraph.

Table 1c: Total actual contribution (final energy consumption[16]) from each renewable energy technology in [Member State] to meet the binding 2020 targets and the indicative interim trajectory for the shares of energy from renewable resources <u>in heating and cooling</u> (ktoe)[17]

	2011	**2012**
Geothermal (excluding low temperature geothermal heat in heat pump applications)	0.8	0.8
Solar	122	153
Biomass[18]:	981	1,000
solid biomass	909	922
biogas	72	78
bioliquids	0	0
Renewable energy from heat pumps: - of which aerothermal - of which geothermal - of which hydrothermal	47.0 24.3 22.6	67.3 38.3 29.0
TOTAL ***(includes derived heat)***	1,193 (42 ktoe derived)	1,272 (51 ktoe derived)
Of which DH[19]		
Of which biomass in households[20]	357	383

[16] Direct use and district heat as defined in Article 5.4 of Directive 2009/28/EC.
[17] Facilitates comparison with Table 11 of the NREAPs.
[18] Take into account only those complying with applicable sustainability criteria, cf. Article 5(1) last subparagraph of Directive 2009/28/EC.
[19] District heating and / or cooling from total renewable heating and cooling consumption (RES- DH).
[20] From the total renewable heating and cooling consumption.

Table 1d: **Total actual contribution from each renewable energy technology in the United Kingdom to meet the binding 2020 targets and the indicative interim trajectory for the shares of energy from renewable resources in the transport sector (ktoe)[21]**

	2009	2010	2011	2012
Bioethanol/ bio-ETBE	163	321	330	387
Of which Biofuels Article 21.2	0*	0*	0*	0
Of which imported	124	249	283	312
Biodiesel	826	829	635	471
Of which Biofuels Article 21.2	0*	0*	0*	453
Of which imported	649	693	511	339
Hydrogen from renewables	0	0	0	0
Renewable electricity	55	58	66	69
Of which road transport	0.2	0.3	0.3[22]	0.4
Of which non-road transport	55	58	66	69
Others (as biogas, vegetable oils, etc.) – please specify	0	0	4	24
Bio MTBE			0	13
Biogas			1	1
Biomethanol			0	10
HVO			3	0
Pure plant oil			0[23]	0[23]
Of which Biofuels Article 21.2	0	0	0*	19
TOTAL	1044	1208	1035	951

*Double counting measures were not implemented in the UK until 15 December 2011.

[21] Facilities comparison with Table 12 of the NREAPs.
[22] Figures for road and non-road transport taken from Digest UK Energy Statistics report – page 116 http://webarchive.nationalarchives.gov.uk/20130109092117/http://decc.gov.uk/assets/decc/11/stats/publications/dukes/5949-dukes-2012-exc-cover.pdf (2011) and page 112 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/225067/DUKES_2013_published_version.pdf (2012). Proportion of UK electricity from renewables from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/225067/DUKES_2013_published_version.pdf page 159 Table 6A.
[23] Rounding to nearest whole digit reduces figures <0.5 ktoe to 0.

2. Measures taken in the preceding 2 years and/or planned at national level to promote the growth of energy from renewable sources taking into account the indicative trajectory for achieving the national RES targets as outlined in your National Renewable Energy Action Plan. (Article 22(1)a) of Directive 2009/28/EC))

Table 2 – overview of all policies and measures

***Name and reference of the measure**	**Type of measure***	**Expected result****	**Targeted group and or activity*****	**Existing or planned ******	**Start and end dates of the measure**
Financial support regimes					
1. Renewables Obligation	Regulatory	Increase generation of renewable electricity from a range of technologies.	Primarily large scale renewable electricity generation by licensed generators.	Existing	Started in 2002 Support is provided for up to 20 years from the time of accreditation. For further details see section 3.
2. Introduction of new Contracts for Difference mechanism (CfDs) under Electricity Market Reform	Financial Regulatory	Increase generation of a range of renewable and other low carbon technologies.	Primarily at medium and larger scale renewable electricity generation by licensed generators.	Planned	We intend that the first early CfDs could be signed in the form of investment contracts by early 2014 and first CfDs under enduring regime in second half of 2014.
3. Final Investment Decision (FID) Enabling for Renewables	Financial Regulatory	Increase generation of a range of renewable and other low carbon technologies. Offers investment certainty in advance of CfD regime being put in place.	Primarily large scale renewable electricity generation by licensed generators.	New	The FID enabling for renewables process was launched in March 2013. We expect FID enabling for renewables investment contracts to be signed around March 2014.
4. Feed- in Tariffs	Financial Regulatory	Incentivise generation of low carbon electricity from a range of smaller scale technologies.	Households, communities, organisations and businesses investing in projects up to 5MW	Existing	Introduced on 1 April 2010. New entrants will be eligible for 10 -25 years, dependent upon the technology and time of application. Review of scheme completed in December 2012.
5. Renewable Heat Incentive (RHI) Domestic	Financial	Incentivise generation of renewable heat in domestic households	Households, social and private landlords.	Planned	Planned to open in Spring 2014 and remain open to new applications until– March Spring 2020 (with each applicant receiving a tariff for 7 years).
6. Renewable Heat Payment Premium	Financial	Financial support to encourage the deployment	Households, social and private landlords.	Existing	August 2011 – March 2014

		of renewable heating systems in domestic households.			
7. Renewable Heat Incentive (RHI) Non- Domestic	Financial	Incentivise non-domestic renewable heat	Group - Non-domestic properties: Industrial, commercial, public and district heating; installers and manufacturers. Activity - Production of renewable heat through the current technologies; biomass, ground source heat pumps (GSHP) including deep geothermal, solar thermal, biomethane injection and biogas combustion under 200kW. We are planning to introduce new technologies and specific tariffs from April 2014 for AWHP, Deep Geothermal, biogas over 200 kW and biomass CHP.	Existing	November 2011 – planned to remain open to new applications till March 2020. With a lifetime of tariff 20yrs the scheme is planned to remain active until March 2040.
8. Renewable Transport Fuel Obligation (RTFO)	Regulatory	Increase the proportion of renewable fuel in road fuel.	Fuel suppliers	Existing	The RTFO was launched on 15th April 2008.
8. Duty Differential on fuel produced from Used Cooking Oil (UCO)	Financial	Support the supply of UCO biodiesel.	Fuel suppliers and users.	Finished March 2012	From April 2010 and finished in March 2012.
Other funding and grants to encourage deployment and innovation					
9. Green Investment Bank	Financial	Mobilising private sector investment into green infrastructure.	Developers and investors. Offshore wind and energy from	Existing	Government has made available £3bn funding.

			waste have been identified as priority sectors.		
10. Rural Community Energy Fund	Financial	Provision of grants and loans to support costs of feasibility studies into local renewable energy projects and to fund costs associated with applying for planning permission.	Community groups, farming community and general public.	New	£15m Government scheme launched in June 2013.
12. Energy Crops Scheme (ECS)	Financial	Grants for establishment of energy crops such as miscanthus and short rotation coppice in appropriate locations in England for use in heat and electricity generation.	Farmers and landowners	Scheme closed August 2013	The ECS is part of the Rural Development Programme for England 2007 – 2013.
13. Anaerobic Digestion Loan Fund	Financial	£10m loan fund to support the development of new AD capacity in England. The fund can provide asset backed loans for plant, machinery and/or groundworks.		Existing	Fund launched in July 2011. In October 2013 scope of fund extended to include farm based AD projects with launch of a £3m. On Farm AD loan fund.
14. Offshore Wind Manufacturing Fund	Financial	To increase deployment of offshore wind and build supply chains by providing grants for major investments leading to large-scale coastal manufacturing facilities, for example for turbines, foundations, cables and towers.	Offshore wind and manufacturing industries.	Existing scheme but scope was broadened in August 2013 to allow ports / landowner at coastal locations in assisted areas of England to apply on their own- previously this had to be done jointly with manufacturers	Up to March 2015 (but closing date for applications is October 2013).
15. UK Marine Energy Testing	Infrastructure and innovation	Provision of testing facilities for developers of	Developers, manufacturers	Existing	

Infrastructure		wave and tidal energy.			
16. Marine Energy Array Demonstrator	Financial, innovation	The scheme will support up to 2 pre-commercial projects to demonstrate the operation of wave and/or tidal devices in array formation over a period of time, subject to state aid	Developers	Existing	£20m Government scheme opened in April 2012.
17. Support for research and development into low carbon transport	Financial	Improvements to internal combustion engines; energy storage and energy management; lightweight vehicles and power train structures; development of power electronics and electric machines; and developing and applying Intelligent Transport Systems.	Vehicle manufacturers and suppliers.	Existing	Funding up to 2014/2015
18. Plugged in Places programme for plug-in vehicles	Financial	Increase recharging infrastructure to support and enable increase in plug-in vehicles.	Investors recharging infrastructure.	Existing	April 2010 to March 2014.
19. Financial support for ULEVs	Financial	Increase the uptake of ultra-low carbon vehicles Includes funding £11.3m trial of low carbon trucks and their supporting infrastructure to encourage the uptake of heavy goods vehicles whose CO_2 emissions are at least 15% lower than those emitted by equivalent diesel vehicles.	Consumers - both private and business buyers.	Existing	January 2011 to March 2015, subject to review.

20. $UKH_2Mobility$	Financial	Evaluating the potential for hydrogen as a ULEV fuel in the UK before developing a plan for a possible roll-out to consumers.	Fuel suppliers and users.	Existing	From January 2012, on-going.
21. Advanced biofuel demonstration programme	Financial	£25m programme of capital l funding to enable the construction of demonstration scale waste to fuel and other advanced biofuel plants in the UK.	Fuel suppliers and users.	Planned	From 2015
Wider regulatory measures that support renewable deployment					
22. Climate Change Levy Exemption	Financial	Increase renewable electricity through exemption of generation from Climate Change Levy.	Corporates and electricity generators	Existing	On-going
23. Electricity Market Reform	Regulatory	Package of measures to enable investment in low carbon electricity generation (see entry no on contracts for difference element of this package). Also includes a carbon floor price, a capacity mechanism and an emissions performance standard.	Investors and developers in low carbon electricity.	Planned	Implementing legislation planned to enter into force in 2014.
24. Business rate retention: renewable energy projects	Regulatory /Financial	Allows business rates revenues from new renewable energy projects to be kept by local authorities.	Local authorities and local communities.	New	Introduced in April 2013
25. Biomass sustainability standards for	Regulatory	Increase deployment of sustainable	Generators of electricity from biomass,	Planned	Will be introduced into RO scheme from April 2014 and become

solid biomass and biogas feedstocks used to generate renewable electricity supported under the RO and forthcoming CfDs regimes and the domestic and non-domestic RHI.		biomass in electricity by providing clarity and certainty over standards.	investors		mandatory from April 2015. To provide long term certainty to industry and investors. Government has proposed that the first phase of CfDs awarded for bioenergy will include the same sustainability criteria as those set under the RO. Mandatory compliance under RHI to be introduced from 2014.
26. Zero carbon buildings and building regulations	Regulatory	The zero carbon standard will require all CO2 emissions arising from energy use regulated under Building Regulations to be abated from new homes (from 2016) and new non-domestic buildings (from 2019). Developers are likely to consider the use of renewable energy sources, both on and off site, to assist in achieving the standard.	Developers, building owners and occupiers.	Existing	Zero carbon standards to be reached through a staged approach of steadily strengthening energy efficiency requirements in the Building Regulation and through the use of 'Allowable Solutions'. These are off-site projects or measures that reduce carbon emissions (such as renewable energy sources) which developers may fund to offset some of the emissions from the new buildings. Strengthened Building Regulations requirements were announced in July 2013 to come into force in April 2014. Consultation on Allowable Solutions launched August 2013, with intention to be introduced for new homes in from 2016.
Planning related measures					
27. The Electricity Generating Stations (Variation of Consents) (England & Wales) Regulations 2013	Regulatory	The aim is to allow developers the opportunity to apply for variations to projects which would not be consistent with existing s36 consents.	Developers	Existing	The regulations were introduced in July 2013.
28. National Planning policy framework to set out planning policy for local	Administrative	The National Planning Policy Framework sets out the approach for local authorities in plan-making and	Local planning authorities, developers, local communities.	New	

development		decision taking on applications. It states that local planning authorities should have a positive strategy to promote renewable and low carbon energy and ensure adverse impacts are addressed satisfactorily.			March 2012
29. Planning practice guidance for renewable and low carbon energy	Administrative	Planning practice guidance has been published to ensure planning decisions reflect the balance of policies in the National Planning Policy Framework.	Local planning authorities, developers, local communities.	New	July 2013
30. Good practice guidance and registers on community engagement and benefits for onshore wind developments	Soft	To encourage greater community support for onshore wind projects.	Onshore wind developers, planning authorities, local communities.	New	Guidance expected to be in place by early 2014
31. Permitted Development Rights (PDR) for small scale renewables	Regulatory	To facilitate planning and by granting automatic planning approval for certain small scale renewables in certain situations.	Renewable suppliers and users including householders.	Existing	Permitted development rights for domestic micro wind and air source heat pumps meeting certain criteria introduced in December 2011. In April 2012 the Town and Country Planning (General Permitted Development) Order 1995 as amended introduced permitted development rights for the installation of microgeneration equipment on non-domestic properties. Review due to start December 2013 to consider extension of PDR for non-domestic sector.
32. Offshore renewables joint industry	Planning / overcoming	Joint Government/	Offshore developers and investors,	New	Programme on-going - preliminary results due

programme	barriers	industry Programme of research projects to mitigate against environmental impacts of offshore renewables and de risk planning.	environmental groups.		during 2014.
Unlocking barriers					
33. Anaerobic Digestion (AD)Strategy and Action Plan	Soft – but action plan describes some financial and regulatory measures.	Increase deployment of energy from waste by AD. Sets out a range of actions to overcome regulatory, financial and other barriers.	AD, waste and food industries, farmers, investors.	Existing	Published June 2011. Implementation of actions is on-going.
34. Bioenergy strategy	Soft	It sets out the Government's approach to achieving sustainable, low-carbon bioenergy deployment by defining a framework of principles.	Provides information to Bioenergy industry and investors.	New	Strategy published April 2012 and will be reviewed in at least 5 yearly intervals.
35. Radar and aviation programme	Infrastructure	Government working with Industry to invest in R&D and implement solutions to release aviation related objections to wind turbines in the planning system.	Wind Developers, Aviation Technology Providers, Air Navigation Service Providers.	Existing and Planned	R&D completed and underway on several issues and implementation to continue over the next 2-3 years.
36. Offshore wind industrial strategy	Soft – driving deployment, innovation and building supply chains	A long term industrial strategy that will strengthen the offshore wind industry.	Offshore wind industry and related supply chain businesses, investors.	New	Strategy published August 2013.
37. Solar PV strategy	Soft	The aim is to demonstrate Government commitment to solar PV in the UK and provide certainty to solar sector	Solar industry, investors, communities, planners.	New	First Stage Solar PV Strategy Roadmap published October 2013, Final strategy due to be published Spring 2014.

		and investors, other interested parties. Based on 4 principles: cost effectiveness, carbon savings, appropriate siting and grid issues.			
Measures being taken by the Devolved Administrations					
Scotland					
38. GP WIND	Soft	Behavioural change. Assisting quicker, cheaper and more transparent deployment of wind energy across Europe through faster decision making and increased application efficiency. Good practice guidance and a "how to" toolkit will be promoted for adoption by a range of stakeholders across Europe.	All stakeholders in wind energy development. Project will facilitate deployment of practices which positively address environmental issues and the concerns of local communities.	Existing	June 2010-September 2012. Implementation and sharing of good practice is on-going.
39. ePLanning system and improved guidance and processes for Scottish Government energy consents process	Soft	Greater transparency of process and efficiency of administration. Increased public faith and acceptance. Improved pre-applications process.	All stakeholders involved in planning and consents.	Existing	2012 – 2014
40. Promotion and facilitation of technical solutions to deployment constraints (e.g. aviation radar and seismic detection)	Financial and soft	Removal of technical barriers to deployment of wind energy.	Wind energy development and associated stakeholders.	Existing	2012 –

41. Community and Renewable Energy Scheme (CARES)	Financial and soft	To assist in delivery of target for 500 MW of renewable energy in Scotland to be locally/community owned by 2020.	Community groups and rural businesses to be assisted through pre-planning loans and advice to build their own renewables schemes, and community groups to be assisted to negotiate for community benefits from commercial schemes.	Existing	2011 – 2016
42. Renewable Energy Investment Fund	Financial	£103m from the Fossil Fuel Levy provided on a commercial basis to fill market gap in support for community groups (linked to CARES support and target above), for marine energy schemes and for district heating.	Targeted at community groups, marine energy and district heating developers.	Existing	2012 – 2016
43. Third National Planning Framework (NPF) for Scotland - Main Issues Report and Draft Framework	Regulatory	Influential. Provides long term strategy for the spatial development of Scotland. Will influence development plans across country, provide leadership and vision, will guide future development and decisions. Establishes national developments. One of key themes of Main Issues Report is transition to low carbon economy, promoting greater use of renewables, whilst addressing concerns raised about impacts.	All stakeholders including planning authorities, development sector, communities, and wider interest groups.	Existing. Updates and builds upon NPF2	Main Issues Report published 2013, Finalised NPF3 expected 2014. NPF3 will set out the Scottish Government's strategic development priorities over the next 20 – 30 years.

44. Draft Scottish Planning Policy(SPP)	Regulatory	Influential. Sets out national planning policies which reflect Scottish Ministers' priorities for the development and use of land.	All stakeholders including planning authorities, development sector, communities, and wider interest groups.	Existing. Updates SPP published in 2010.	Updated SPP expected to be published 2014.
45. Scottish Online Renewables Planning Advice	Soft	Communicates best practice, technical information, typical planning considerations and useful references. Assists in the effective submission and processing of planning applications.	All stakeholders including planning authorities, development sector, communities, and wider interest groups.	Existing. Regular updates of existing online advice	On-going
46. National Renewables Infrastructure Fund (N-RIF)	Financial - £70m fund to assist the development of the necessary infrastructure for offshore renewables.	Installed capacity, energy generated from offshore renewables.	Port owners; turbine manufacturers; foundation manufacturers	Existing	Rolling programme
47. Saltire Prize	Financial The £10m innovation prize will go to the individual, team or organisation that achieves the greatest volume of electrical output over 100 gigawatt hours during a continuous two year period using the power of the sea.	Behavioural change and installed capacity. The prize was created to accelerate the commercial development of wave and tidal energy technology.	Targeted group is any individual, team or organisation who has wave or tidal energy technology capable of fulfilling the challenge. Targeted sector is marine energy.	Existing	The Grand Challenge phase began in August 2012. The prize is due to be awarded in July 2017.
48. Marine Renewables Commercialisation Fund (MRCF)	Financial	£18m fund to support the development and subsequent commercialisation of the wave industry. Supports enabling technologies, crucial to both	Wave and tidal turbine developers.	Existing	2013 – 15

		wave and tidal arrays. Supports the activity of the Marine Farm Accelerator – a joint Carbon Trust and Offshore Renewable Energy Catapult initiative.			
49. Scottish Online Renewables Planning Advice					
50. District Heating Loan Fund (Scotland)	Financial	Low carbon and renewable district heating capacity and infrastructure.	Local authorities, registered social landlords, small and medium sized enterprises and energy services companies (ESCOs).	Existing	Piloted in 2011, and £5 million from 2011 – 15.
51. Renewable Heat Action Plan	Soft	Installed capacity	All stakeholders in renewables heat.	Existing, obligation under Climate Change (Scotland) Act 2009.	Published in 2009, update in 2011.
52. Microgeneration Strategy	Soft	Installed capacity, economic development.	All stakeholders in microgeneration. A Microgeneration Task Group has been set up to take forward recommendations.	Existing	Published in 2012.
53. Home Renewables Loans	Financial	Installed capacity	Homeowners	Existing, complements FIT, domestic RHI proposals and Green Deal.	£2.1 million in 2012/13, plus £4.5 million extension in 13/14 in run to RHI.
54. District Heating Action Plan	Soft	Increased district heating infrastructure, including increased low carbon and renewable energy capacity.	Response to recommendations by the Expert Commission on District Heating.	Existing	Published in 2013.
55. Heat Network Partnership for Scotland	Soft	Support for district heating development.	Public sector, industry, commercial, third sector and	Planned	Set up in 2013 – action from DH Action Plan.

			households.		
56. Scottish Islands Renewables Project	Regulatory and Financial	On-going Installed capacity	Joint piece of work chaired by DECC targeted at addressing financial barriers to deployment of renewables on islands with long HVDC links such as Western Isles, Orkney and Shetland. Regulator, TO, developers and investors.	Existing	Oct 2012 – end 2013
Northern Ireland					
57. Funding for Grid Infrastructure for Renewables	Regulatory	Current grid development plans, valued at £44m, of which £27.8 m have been approved by the NI Regulator should allow renewable penetration to reach up to 27% (approximately 1000 MW installed capacity).	Investors End Users Renewable Industry	Complementary	2013 – 2017
58. Northern Ireland Biomass Processing Challenge Fund (DARD)	Financial	Installation on-farm of an increased number of biomass-fuelled renewable energy technologies. To provide farmers with a secure supply of clean energy for use in support of their agricultural activities.	Primary producers from the land based sector in Northern Ireland	Existing	Tranche Two of the BPCF opened for applications on 10th September 2012 and closed to applications on 30th November 2012. All successful applicants received Letters of Offer by the end of June 2013.
59. Northern Ireland Planned policy Statement 18	Regulatory	Planning Policy Statements set out the planning policies which DoE Planning, local councils and developers are expected to take into account in plan making or preparing and determining planning	DoE Planning, local councils, developers	Existing	In force from August 2009

		applications. Specifically, PPS18 creates a positive framework for renewable energy to help facilitate greater renewable energy.			
60. Zero Carbon Homes	Regulatory	From 2017 all new - homes in Northern Ireland to be low or zero carbon.	Development of new housing	Planned (under review)	Staged approach to objective. Next stage to come into operation October 2014 and fully implemented from 2017.
61. Zero Carbon Non-Domestic Buildings	Regulatory	From 2020 (2018 for public sector buildings) all new non-domestic buildings in Northern Ireland to be low or zero carbon.	Development of non-domestic buildings	Planned (under review)	Staged approach to objective. Next stage to come into operation October 2014 and fully implemented from 2017.
62. Bioenergy Strategy	Soft	DETI has secured NI Executive approval to publish the Bioenergy Action Plan for Northern Ireland 2010 – 2015. This Plan sets out the agreed actions for the sustainable development of the sector in Northern Ireland.	Bioenergy stakeholders in both the public and private sectors. Four key objectives have been agreed: raise awareness and understanding of the benefits and opportunities of bioenergy policy and regulatory framework; encourage and support targeted investment; and encourage focussed and NI relevant research.	Strategy is existing - published February 2011. Actions contained within the plan are now being implemented and monitored.	Launch of plan in February 2011, runs until 2015.
63. Northern Ireland Renewable Heat Incentive (NI RHI)	Financial	Increase generation of renewable heat from a range of technologies across all scales.	Initially communities and businesses generating renewable heat at capacities up to but not including 1MW.	Existing (Complements the Northern Ireland Bioenergy Strategy)	Opened for applications from the non-domestic sector in November 2012. It is intended that the scheme will remain open to new applications until 2020 and once in the scheme, support will last for 20 years.
64. Northern Ireland Renewable Heat Premium Payment	Financial	Financial support to encourage the domestic	Householders	Existing Complements the Northern	Introduced 24 May 2012 to be superseded by a Domestic RHI scheme

(NI RHPP)		deployment of renewable heat technologies.		Ireland Bioenergy Strategy	in 2014.
65. Duty to promote renewable heat	Soft	Behavioural change.	Public administration – requirement will be on the Department of Enterprise Trade and Investment.	Planned (complementary)	2014 and on-going
Wales					
66. Review of the delivery of the planning system in Wales	Regulatory and Policy	To make planning system more transparent and accessible.	Industry, Planning Authorities	New	Work on going Call for evidence closed in 2012.
67. The Energy Wales programme.	Soft	Programme of actions to overcome barriers to growth of the renewable sector in Wales, with a view to maximising benefits to the Welsh economy and communities.	Industry , communities	New	Programme announced March 2012. On-going
68. Better Woodlands for Wales (Grant Scheme) from Forestry Commission Wales	Financial	To promote the creation and sustainable management of woodland in Wales.	Existing woodland owners and other land owners such as farmers. Tree planting and management.	Existing but closed to new applications.	BWW is in the process of being replaced by woodland creation and management grants within the Glastir land management scheme administered by WG from January 2013
69. Bioenergy Action Plan for Wales	Soft	Behavioural Change - Plan sets out the agreed actions for the sustainable development of the sector within Wales. Encourage Installed Capacity of 5TWh electricity and 2.5TWh heat from bioenergy by 2020.	Energy stakeholders in both public and private sectors, Local Planners.	Existing The Bioenergy Action Plan was published for consultation in February 2009, and amended actions were published in December 2009. A progress report was published in September 2010.	From 2009
70. Marine Renewable Energy Strategic	Soft	Practical Wave and Tidal Resource Assessment based on	Welsh Government Policy Officials, industry and	Existing. Outcomes were published in	2011 – 2016 (at 5 year review)

Framework		development constraints. Encourage deployment by de-risking potential sites.	investors.	March 2011.	
71. A Low Carbon Revolution: The Welsh Assembly Government Energy Policy Statement	Soft	Behavioural Change – Outlines Welsh Government's ambitions and actions for the development of renewable energy in Wales. Encourage annual electricity output of up to 48TWhr from renewables in Wales by 2025.	Energy stakeholders in both public and private sectors, Local Planners, General Public.	Existing The Energy Statement was published in March 2010.	2010 onwards
72. Strategic Traffic Management Plan	Regulatory	Behavioural Change – The Plan will manage delivery of wind turbine components to development sites in Wales.	The Welsh Government are working with the Wind Energy Industry, Welsh and English Local Authorities, Police and UK Highways Agency, all of which will need to agree the STMP before implementation.	Planned – The STMP is currently in draft form and being considered by the Welsh Government.	2011 onwards
73. The Ynni'r Fro Programme	Financial	Advice, preparatory grants and capital support to community groups looking to set up their own social enterprises to generate energy.	Communities, industry	Existing	5 year programme running up to 2015.
74. Low Carbon Research Institute	Financial	Led by Cardiff University, the LCRI has 4 strands of activity: 1) Low carbon energy generation, storage and distribution including Photovoltaics, marine energy, hydrogen, and bio energy.	Academic, Research and Design and Industry.	Existing – The LCRI was set up in 2007 with a grant of £5.1m from the Welsh Government.	2007 – 2013

		2) Energy demand reduction including zero carbon built environment, and work on large scale power generation. 3) An energy graduate School. 4) Partnerships with industry, research organisations and government.			
75. Planning Policy Wales – TAN 8 / TAN 22	Soft/Regulatory	Installed Capacity of 1700MW by 2020	Planning Authorities, Industry.	Existing – Policy was updated in 2010.	2005 onwards.
76. Zero carbon homes Wales	Regulatory	All new homes in Wales to be low carbon from 2013 – will stimulate greater uptake of on-site renewables.	Development of new housing.	Existing (Under review)	To come into operation (subject to current review) from 2013. Proposals including further steps towards zero carbon due for consultation in April 2012.

* Indicate if the measure is (predominantly) regulatory, financial or soft (i.e. information campaign).
**Is the expected result behavioural change, installed capacity (MW; t/year), energy generated (ktoe)?
***Who are the targeted persons: investors, end users, public administration, planners, architects, installers, etc? or what is the targeted activity / sector: biofuel production, energetic use of animal manure, etc)?
**** Does this measure replace or complement measures contained in Table 5 of the NREAP.

2a: Please describe the progress made in evaluating and improving administrative procedures to remove regulatory and non-regulatory barriers to the development of renewable energy. (Article 22(1) of Directive)

Assessing the proportionality and necessity of the national rules concerning authorisation, certification, and licencing of plants and network infrastructure

The UK Government has continued to implement its commitment to reduce the burden of regulation. The Red Tape Challenge (RTC)[24] which was launched at the end of 2011 included an Energy theme (which covered energy supply, generation as well as energy efficiency) and opened related regulations to public scrutiny

On 7 August 2012, DECC announced that 38% of energy regulations in the theme would be 'scrapped' or 'improved'[25]. These reforms will help ensure that the energy regulatory

[24] For further information see 'Red Tape Challenge' webpages at: http://www.redtapechallenge.cabinetoffice.gov.uk/themehome/energy/
[25] For further information see DECC Press Release of 7 August 2012 at: http://webarchive.nationalarchives.gov.uk/20121217150421/http://www.decc.gov.uk/en/content/cms/news/pn12_093/pn12_093.aspx

framework provides all environmental and industry protections without incurring unnecessary costs on businesses or wider society. In addition, DECC, along with all other government departments, must report on these reforms as well other regulatory changes in a Statement of New Regulation (SNR) published every 6 months.

As explained in our National Renewable Energy Action plan (submitted in 2009) and our first progress report (submitted in 2011), Governments across the UK are continuing to take action to speed up the planning, consenting and regulatory processes and ensure better coordination between regulators and local government.

(i) Simplifying, streamlining and expediting administrative procedures

Planning in England

In England, the Government has continued to implement its programme of reform to make the planning system simpler, swifter and more 'user friendly'. In particular:

- **The National Planning Policy Framework** was published in March 2012[26]. This 50 page document brings together national planning policy (previously set out in over 1000 pages), and applies to renewable energy projects of 50 MW or less. It sets out the Government's requirements for the planning system only to the extent that it is relevant, proportionate and necessary to do so. It provides a framework within which local people and their accountable councils can have a positive strategy to promote renewable and low carbon energy and produce their own distinctive local and neighbourhood plans, which reflect the needs and priorities of their communities.

- To help implement the environmental balance expected by the Framework we published **new planning practice guidance on renewable and low carbon energy** in July 2013[27]. This cancelled out the out of date previous guidance "Planning for renewable energy: A companion guide to PPS22

- Government has introduced a '**planning guarantee'** that it should take no longer than 12 months to determine any planning application, including any appeal. The guarantee places an equal expectation on local planning authorities and the Planning Inspectorate that they deal with cases in no more than 26 weeks. The guarantee is aimed at the minority of decisions that take a significant amount of time beyond the statutory timeframes of 8 and 13 weeks (for minor and major applications respectively) to determine. In addition as provided for in the Growth and Infrastructure Act 2013, we have given applicants for major development the ability to apply directly to the Secretary of State, where the local planning authority has a record of consistently slow or poor quality decisions.

- Following abolition of the Infrastructure Planning Commission (IPC) through the Localism Act 2011 on 1 April 2012, applications for renewable energy projects above

[26] DCLG (2012), The National Planning Policy Framework - March 2012 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf

[27] DCLG (2013), Planning Practice Guidance for Renewable and Low Carbon Energy – July 2013: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/225689/Planning_Practice_Guidance_for_Renewable_and_Low_Carbon_Energy.pdf

50MW (onshore), 100MW (offshore) and proposals for electric powers lines are now considered by the Major **Infrastructure Planning Unit** (MIPU) which forms part of the Planning Inspectorate within CLG. The MIPU will make recommendations to the Secretary of State for Energy and Climate Change, who will determine applications within 12 months of preliminary meeting which follows their acceptance for examination.

Planning in Scotland

In Scotland, the **National Planning Framework 3 (NPF3) Main Issues Report** and draft **Scottish Planning Policy** (SPP) were published for consultation on 30 April 2013. The consultation period ended on July 23**.** The NPF3 and the revised SPP are due to be finalised in Summer 2014.

Following the consultation on Draft SPP in Summer 2013, the Scottish Government is now considering replacing the Draft SPP principal policies on 'sustainable economic growth' and 'sustainable development' with a principal policy on 'Sustainability and Planning' and introducing a presumption in favour of sustainable development into the SPP. Consequently a short follow up consultation to the draft SPP is being undertaken on Sustainability and Planning until 16 December 2013.

The Scottish Government is also currently working as respondent with the Scottish Parliament on Petition PE 1469 Wind Turbine Applications And Neighbour Notification[28].

Planning in Northern Ireland

In Northern Ireland, The Department of Enterprise, Trade and Investment and the Department of Environment in Northern Ireland have signed (in 2013) a **Memorandum of Understanding formalising co-operation between them and giving priority to energy projects in the planning process**. The Memorandum aims to ensure that energy infrastructure and energy installations requiring a consent under Article 39 of the Electricity (Northern Ireland) Order 1992 are prioritised and that information on progress through the energy consent, marine licensing and planning processes is communicated efficiently between DETI and DOE on an on-going basis.

Also in Northern Ireland, **the Streamlined Council Consultation Scheme** is a key planning reform initiative involving partnership with local councils in agreeing an innovative process change aimed at supporting the economy through a responsive and proportionate approach to ensure the delivery of timely decisions. The scheme applies to an agreed list of applications, excluding EIA development where the recommendation is to approve and no objections have been received to the proposed development. It reduces the processing time of these streamlined applications by consulting with the council at the outset rather than the latter stages of the decision-making process. The scheme includes renewable energy applications where the relevant local council has agreed to their inclusion in the scheme. In the last 2 business years, Northern Ireland received 1623 renewable energy applications and approved 1018 of the 1163 applications decided in this period – 87.5% approval rate.

[28] For further information on Petition PE 1469 see:
http://www.scottish.parliament.uk/GettingInvolved/Petitions/turbineneighbournotification

(ii) *Steps to ensure the provision of information on the processing of authorisation, certification and licencing of installations and available assistance*

Guidance on public engagement

Government's Planning Advisory Service (PAS) will be producing case studies of local planning policies on renewable energy and in 2013 DECC commissioned a series of local seminars on the costs, benefits, impacts and opportunities for positive action on climate change with a focus on renewable energy and onshore wind.

DCLG has announced the introduction of **compulsory pre application consultation for more significant onshore wind projects** determined at a local level in England (this is already the case for national infrastructure applications). The new regulation applies to any proposals of more than two turbines or where the hub height of any turbine exceeds 15 metres height and came into force on 17 December. This will ensure that community engagement takes place at an earlier stage and is a critical step in facilitating the consenting process and improving the quality of proposed onshore wind development.

In 2012 and 2013, DECC ran a **call for evidence and engaged with a wide range of stakeholders to explore what should be done to ensure that local communities in England are better engaged with, and see real benefits from, onshore wind development**. A Government response to the call for evidence was published in June 2013[29], setting out a package of measures, including:

- Developing best practice guidance and a register of community engagement to raise standards, highlight best practice and enable communities and developers to report on engagement practices openly and transparently;

- Providing clear and reliable evidence on the impacts of onshore wind, through an evidence toolkit; and

- Developing best practice guidance and a community benefit register to support communities and developers to negotiate appropriate community benefit packages

Guidance on assessing environmental impacts

In Scotland, the Scottish Government is conducting a major 14-month study to examine the visual, noise and shadow flicker impacts of ten wind farms across Scotland. A steering group comprising Scottish Government, Scottish Natural Heritage (SNH), Scottish Renewables, Scotland Against Spin, and Heads of Planning Scotland has been set up to examine experienced and actual impact of operational windfarms in relation to the Environmental Assessment submitted with the planning application.

[29] DECC (2013), Onshore Wind Call for Evidence – Government Response to Part A Community Engagement and Benefits and Part B Costs – June 2013: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/205423/onshore_wind_call_for_evidence_response.pdf

The Scottish Government has been working with a steering group to update SNH's Visual Representation of Windfarms with the aim of moving to a single objective verifiable approach across Scotland.

(iii) What steps have been taken to simplify procedures for small and decentralised projects?

We have taken a number of measures to make it easier for smaller and decentralised projects to access financial incentives and compete in markets.

Simplifying planning for small projects

In December 2011 the Government introduced permitted development rights to grant automatic planning approval for domestic micro wind turbines and air source heat pumps that meet certain criteria. In April 2012 the Town and Country Planning (General Permitted Development) Order 1995 as amended introduced permitted development rights for the installation of microgeneration equipment on non-domestic properties.

In **Northern Ireland, PPS 18 'Renewable Energy'** seeks to facilitate all renewable energy generating facilities in order to achieve Northern Ireland's renewable energy targets and to realise the benefits of renewable energy. In April 2013 the **Planning (General Development) Order** was amended to introduce permitted development rights for the installation of non-domestic microgeneration in Northern Ireland.

The Northern Ireland Government also published **(Draft) Supplementary Planning Guidance (SPG) specific to Anaerobic Digestions (AD)** for public consultation on 17 June 2013. This document provides additional advice and guidance to complement the background information already set out in the Best Practice Guidance to PPS18

Facilitating access to finance for small projects

As part of the package of measures aimed at facilitating transition from the RO to CfD support regime Government has initiated a process to prepare the market for the introduction of CfDs by working with stakeholders to develop sample Power Purchase Agreements (PPAs) and best practice guidelines for PPA providers. This will help to reduce administrative and financial barriers for independent renewable generators and mitigate any investment hiatus.

In addition and following extensive analysis and consultation with industry, DECC is developing proposals for an *'***off-taker of last resort**' mechanism. This would provide independent renewable generators with a backstop route to market at a specified discount to the market price, improving investor confidence. The Government has amended the Energy Bill to allow such a mechanism to be established and is currently working closely with stakeholders to develop the detailed design, with the intention of consulting on the policy in early 2014.

The Energy Bill contains powers to enable **the maximum capacity ceiling of installations eligible for the FITs** scheme to be increased from 5 MW to 10 MW. The Government intends to consult on implementing these powers to increase the maximum capacity ceiling for community projects to enable larger projects to benefit.

DECC and Defra launched a joint £15 million **Rural Community Energy Fund (RCEF)** in June 2013 offering grants and loans to help eligible rural communities in England access the money needed to carry out feasibility studies into local renewable energy projects and to fund the costs of applying for planning permission.

Following a call for evidence in June 2013, the UK Government will be publishing a **Community Energy Strategy** in early 2014. This will consider the benefits of community-owned and community-led energy projects and set out how to address some of the barriers to these projects, such as lack of community capacity, lack of finance and planning and regulatory barriers.

Scotland has a comprehensive support scheme in place - Community and Renewable Energy (CARES) - offering a wide range of support, free at the point of use, to help communities and rural businesses to develop renewable projects or enter into Joint Ventures with commercial developers. The key element of this is a pre-planning loan scheme to help de-risk projects at such an early stage.

2 (b) ***Please describe the measures in ensuring the transmission and distribution of electricity produced from renewable energy sources and in improving the framework or rules for bearing and sharing of costs related to grid connections and grid reinforcements. (Article 22(1) f) of Directive 2009/28/EC)).***

(i)Steps to develop transmission and distribution grid infrastructure, intelligent networks, storage facilities and the electricity system, including interconnections, in view of accommodating an increased share of energy produced from renewable sources

Investment in transmission and distribution grid infrastructure

Considerable investment is taking place in electricity network infrastructure over this decade and beyond to ensure the timely connection of renewable and other low carbon generation plant onshore and offshore.

The onshore transmission network in Great Britain (England, Scotland and Wales) is built and owned by three Transmission Owner companies, which as regulated monopolies require approval from the independent regulator, Ofgem, to fund their activities, such as building new network and maintaining assets. This is primarily agreed through price controls where the network companies submit business plans to Ofgem for approval, presenting the outcomes they intend to deliver and the costs for doing so. The network is operated by one Transmission System Operator company.

For the latest transmission price control (RIIO-T1) that runs from 2013-2021 in Great Britain, Ofgem has introduced a **new price control framework, called "RIIO" (Revenue = Incentives + Innovation + Outputs)**. This is designed to help meet the investment and innovation challenge by introducing more emphasis on incentives to drive the innovation and investment needed to deliver a sustainable energy network that offers value for money to existing and future consumers. For RIIO-T1, which began on 1 April 2013 Ofgem agreed funding of up to £21.5bn for the Transmission Owners to expand, replace and maintain the Great Britain transmission network. This will help ensure that the network can accommodate new generation and demand in a cost effective, secure and timely manner.

Speeding up connections

In the meantime to speed up the connection of new generation projects the Government introduced enduring '**connect and manage'** grid access reforms in 2010, which are proving successful: to date 163 large, mainly renewable generation projects with a total capacity of 36.5GW have seen their connection time reduced by an average of five years. Work is also underway on the next **electricity distribution price control (RIIO-ED1) which will run from 2015 to 2023,** and which will set out funding for the six Distribution Network Operators' (DNOs), who own the 14 regional distribution networks. This will include a number of outputs against which performance will be judged. DECC has provided projections on the possible range of renewable energy deployment at distribution level to 2030, which has been used by the DNOs to inform their business plan proposals. In March 2013, Ofgem published its **strategy for RIIO-ED1 and DNOs submitted their business plans to Ofgem in July**. The business plans set out the DNO proposed activities (and funding) for the RIIO-ED1 period. Ofgem published its initial assessment of these plans in November 2013. When they proposed to fast-track one DNO's business plan but asked the other five DNOs to resubmit theirs, addressing greater value for consumers. Ofgem aims to make its final decisions on all DNO business plans around the end of 2014

Offshore transmission

For offshore transmission connecting generation (e.g. windfarms) to the onshore network, DECC and Ofgem have put in place a competitive regime in which licences to construct and/or operate transmission assets are granted by competitive tender to Offshore Transmission Owners (OFTOs) for a 20-year revenue stream. Our innovative OFTO regime is harnessing competition to create a strong market and deliver value for money. There have now been nine OFTO licences granted by Ofgem, totalling about £1.4bn of investment in offshore transmission through the regime, with a further three preferred bidders also appointed by Ofgem.

Smart Grids

Alongside this, the Government has continued to work with Ofgem and industry through the Smart Grid Forum to refine previous analysis on the benefits and impacts of 'smart' technology to inform DNOs' RIIO-ED1 business plan submissions. DECC's rollout of smart meters will provide a platform to support the development of smarter networks. **Ofgem has also made available up to £500m for the 2010-2015 price control for DNOs to carry out smart grid pilot projects**. These projects are looking at various smart solutions including Active Network Management and Distribution based storage to accommodate accelerated connection of renewables.

Interconnection

Great Britain currently has 4GW of interconnection with other countries. The Government recognises the potential of increased electricity interconnection capacity to promote positive impacts on energy costs and security of supply. **The UK supported a number of interconnection projects to be selected as Projects of Common Interest under Regulation 347/2013, including links with Belgium, France and Norway**. The Government is developing its evidence base on the potential impacts of further interconnection and has **committed to publish a policy statement by the end of 2013**. Ofgem is reviewing the GB approach to interconnection investment and intends to consult in

spring 2014. It is also developing a **new 'cap and floor' approach to provide a more certain revenue stream for interconnector developers.** This has been developed for a project with Belgium, though Ofgem is considering potential for application to other projects as part of its wider review.

In Northern Ireland there are a range of practices in place to facilitate the development of the transmission and distribution grid infrastructure, intelligent networks, storage facilities and the electricity system, including interconnections, in view of accommodating increased share of energy produced from renewable sources. These are currently under review as a result of the NIE Transmission and Distribution Price control process, which is currently being reviewed by the Competition Commission.

Steps to accelerate authorisation procedures for grid infrastructure and to coordinate approval of grid infrastructure with administrative and planning procedures

Authorisation procedures for grid infrastructure in England and Wales

The **Planning Act 2008** has introduced in England and Wales a new, simpler planning system for applications to build nationally significant infrastructure projects (NSIPs), including electricity networks.

This is an integrated consent regime which provides for projects to be considered in a policy framework set out **in National Policy Statements (NPS)** and decisions on projects made in accordance with the relevant NPS.

The Planning Act 2008 enables the decision making authority (the Secretary of State) to issue a development consent order that can make provision relating to, or to matters ancillary to, the development of energy infrastructure. This may include, for example, the granting of rights to the developer over land it does not own e.g. wayleaves.

National Policy Statements (NPSs), were approved by Parliament in July 2011 and set out the Government's policy for nationally significant infrastructure and provide the primary basis for decisions. These included an Overarching Energy NPS (EN-1) and one specifically on Electricity Networks Infrastructure (EN-5).

The reforms brought about by the Planning Act aim to create a holistic planning regime so that the cumulative effect of different elements of the same project can be considered together. The Government therefore envisages that wherever possible, applications for new generating stations and related infrastructure should be contained in a single application or in separate applications submitted in tandem which have been prepared in an integrated way. However, the Government recognises that this may not always be possible. In some cases applicants may therefore decide to submit an application that seeks consent only for one element of the project but contains some information on the second. Where this is the case, the applicant should explain the reasons for the separate applications.

Smaller electricity networks infrastructure projects which fall below the thresholds set out in the Planning Act will continue to be considered for consent under the existing Electricity Act 1989 regime. **The Planning Act thresholds were amended in June 2013 with the aim of ensuring applications for projects are dealt with using the most appropriate processes.** This means that as well as electric lines under 132 kV, those at 132kV or greater (but less than 2km in length) are considered under the Electricity Act 1989.

In addition, the government has introduced an **electronic application service for processing applications under the Electricity Act 1989 for electric lines below the Planning Act threshold and for necessary (compulsory) wayleaves, in order to help streamline the process**. This service is being utilised by the majority of DNOs as a means of processing such applications. The Government has also initiated new reforms to the necessary wayleave process which includes modernisation of out-dated hearing rules introducing a more streamlined and cost effective process.

Authorisation procedures in Scotland

In **Scotland,** the Electricity Act 1989 is the main legislation for dealing with consent to install or keep installed overhead electric lines. The power to grant consent under section 37 of the Electricity Act has been executively devolved to the Scottish Ministers by the Scotland Act 1998 (Transfer of Functions to the Scottish Ministers etc.) Order 1999 (S.I.1999/1750) and any application for consent for an overhead line is made to Scottish Ministers.

Recent steps taken to accelerate the authorisation procedure and to coordinate approval for grid infrastructure have included:

- A review of scoping and Gatecheck procedures to streamline and maximise their effectiveness by including statutory consultees/stakeholders from the outset.

- Promoting engagement with developers to ensure that where multiple consents are required for a single or related project the application process can be conjoined and considered in a streamlined way.

- On line guidance and information on good practice has been incorporated on to the Consents website.

- Requiring early engagement with local communities and evidence of this engagement at each stage of the consent process.

- Conducting regular meetings with the licensees to provide updates on current and new projects.

- An Energy Upgrade Forum is held biannually that includes Senior Scottish Government Officials, Senior Managers from the transmission licensees and statutory consultees. This ensures that plans and resources can be prioritised appropriately to expedite applications

- A template "Scotland's Approach to Planning" has been constructed in collaboration with the two licensees that details actions and responsibilities on individual projects.

- A review of the Necessary Wayleave process in 2013 with guidance and templates coming into effect from 1 December 2013.

- The Overhead Line Exemption Regulations 1990 have been reviewed and The Overhead Line (Exemption) (Scotland) Regulations 2013 came into force on the 1 November

- Developments deemed to be of national strategic importance have been included in the National Planning Framework.

Authorisation procedures in Northern Ireland

In **Northern Ireland** the primary authorisations for new energy installations or infrastructure is obtained from two separate Northern Ireland government Departments. The Department of the Environment for Northern Ireland (DOENI) administers the planning (i.e. land use) and marine licensing regimes in Northern Ireland. They will consider if a project complies with Northern Ireland planning law and all EU environmental controls (e.g. Environmental Impact Assessments, Habitats Directive). Other consents may also be required e.g. a generation or transmission licence from the Northern Ireland Utility Regulator.

Under the Electricity (Northern Ireland) Order 1992, the Department for Enterprise Trade and Investment (DETI) is responsible for the grant of consents to construct and operate generating station above certain output capacities. DETI will consider applications for consent against certain criteria, including criteria that have been determined in accordance with and for the purposes of Article 7(2) of Directive 2009/72/EC. A similar process operates for overhead lines above a certain voltage.

In terms of actions to accelerate the authorisations of new energy installations and infrastructure, DETI and DOENI have agreed a memorandum of understanding setting out roles, responsibilities and clear lines of communication within which the two Departments will work closely together to ensure that planning, marine licensing and consent applications for all energy infrastructure and installations requiring a consent under the Electricity (Northern Ireland) Order 1992 are brought to the most appropriate decisions as quickly as possible.

DETI has also recently introduced **new procedures to improve the process for the grant of necessary wayleaves and applications for tree felling/cutting for existing and new overhead lines.**

(ii) Guaranteeing the transmission and distribution of electricity from renewable sources

Great Britain provides guaranteed access for electricity produced from all types of generators, including renewables, meaning that every connected generator has a guarantee of being able to use the electricity network. In this context the only reason that generators may not be able to export power is to ensure the reliability and safety of the grid system. On such occasions, Great Britain's balancing market arrangements determine which generator curtails its output. These generators are compensated and the costs of managing these constraints are spread across all users of the transmission network. Output from renewable generation is well supported through this arrangement as it is usually more cost effective for fossil fuel generators to reduce their output (e.g. because of the fuel costs associated with fossil fuel generators).

(iii) Measures to ensure that TSOs give priority to RES when dispatching electricity generating installations

Great Britain has a self-dispatch regime. The TSO is therefore not in charge of dispatching generation installations.

In Northern Ireland, **Article 11AB of The Electricity Order (1992) as amended by the Electricity (Priority Dispatch) Regulations (Northern Ireland) 2012 requires that Transmission Licences shall include conditions which will ensure that in the dispatch of electricity generating installations**, priority is given to:

(a) generating installations using only energy from renewable sources;

(b) generating installations using energy from renewable sources and other energy sources, but which qualify to be treated as hybrid plants in accordance with the criteria set out in the SEM Decision Document;

(c) installations generating electricity from high efficiency co-generation; and

(d) energy to waste plants,

The appropriate amendments to licences are expected to be in place before the end of 2013.

(iv) Measures to minimise the curtailment of RES electricity

As noted above, Great Britain market arrangements will tend to curtail fossil fuel generators ahead of renewable generators.

In addition, **a major programme of transmission reinforcements is underway to ensure the continued reliable performance of the GB transmission system and to connect new generation**. This will help to reduce the overall level of transmission constraints. For example, the most congested area is the Scotland-England network boundary, which has recently been increased from 2.2GW to 2.8GW (and should reach 3.3GW shortly), with a further increase in capacity of 1.1GW due to be delivered in 2015, followed by a subsea link in 2016 which will add 2.2GW.

TSOs in Ireland and Northern Ireland have undertaken **a project aimed at Delivering a Secure, Sustainable Electricity System (DS3).** The objectives of the DS3 programme are to consider the operational implications for the power system of managing high levels of renewable generation.

(v) Do TSO/DSOs apply rules on bearing and sharing the costs of the technical adaptations of the grids? Are these rules accessible to public and transparent? What measures have been put in place to implement these provisions, in case they are not yet applied?

The TSO in Great Britain is required, under Standard Licence Condition C6 of its licence, to prepare a statement of its connection methodology charging and to send a copy to any person who asks for it. The rules for sharing costs in relation to the distribution networks between initial and subsequent connectees (including generators) are set out in the Electricity (Connection Charges) Regulations 2002 (as amended), which are provided for by section 19 of the Electricity Act 1989.

Both the TSO and DNOs in Great Britain are required, under their specific licence conditions, or as a condition of their status as licence exempt, not to discriminate against users or classes of users.

In Northern Ireland TSOs and DSOs are required to operate under licence, the methodology is published on TSO and DSO website. If not applied, dissatisfied parties can raise a dispute with the Utility Reguator[30].

[30] Utility Regulators Dispute Resolution guidance can be found at:
http://www.uregni.gov.uk/uploads/publications/Utility_Regulator_Appeals_Complaints_and_Disputes_Policy_June_11.pd

(vi) Are TSO/DSOs required to bear (in full or part) the grid adaptation costs related to integration of new producers of RES electricity? What mechanism has been put in place to ensure that cost-sharing is objective, transparent and non-discriminatory?

When connecting to a distribution network in Great Britain, a connectee pays the full cost for extra assets required for the connection. Should these assets be subsequently used to connect a later connectee within five years, the original connectee will receive a payment from the later connectee. In terms of the transmission network, connection charges relate to the costs of assets installed solely for, and only capable of use by, an individual generator. This is referred to as 'shallow connection cost charging'. Where a connection will be used by subsequent connectees the costs of the connection will be included in the TSO's overall costs and reallocated through cost reflective charging methodology to all transmission system users. Under Standard Licence Condition C6 of its licence the TSO is required to publish a statement of connection methodology charging.

In **Northern Ireland** , to facilitate the connection of renewable generation to the electricity grid whilst respecting the country's landscape and cultural heritage, the DNO/DO intends, in appropriate circumstances, to group or "cluster" generators (generally on shore wind farms) so that they will share network infrastructure. Where there is insufficient potential generation in an area to justify a cluster, then generators would continue to be connected on an individual basis to the 33kV system.

Clustering large wind farm generators also offers advantages in managing information and control related to that part of the system and could permit single point rather than distributed solutions to other engineering problems arising from high levels of renewable energy penetration.

Consultations have been carried out on the principle of clustering generators, assessment criteria for a cluster, the construction options and the associated charging mechanism with all stakeholders. The agreed outcomes of all these consultations have been adopted and put in place.

(vii) Has the framework on bearing and sharing the grid adaptation costs been reviewed as required in Article 16.4 of the RES Directive? What measures have been taken to improve the rules on cost bearing and sharing?

The framework on bearing and sharing the grid adaptation costs has been reviewed in Great Britain. As reported in the UK's *First Progress Report on the Promotion and Use of Energy from Renewable Sources for the United Kingdom*, Transmission Network Use of System charges are paid by electricity generators and supply companies. They are calculated to reflect the costs each places on the network.

Following a detailed review of the transmission charging methodology, **Ofgem proposed changes to the way the generation share of the charge is calculated to more accurately reflect the costs imposed by each generator.** It is National Grid's responsibility as the Great Britain system operator (TSO) to devise the detailed changes to the transmission charge methodology in accordance with their licence. Ofgem will then decide whether to approve these proposals. Approving the transmission charging regime is a matter for Ofgem, the independent regulator under the EU Third Energy Package. Ofgem's review has considered the apportionment of the costs of the grid adaptations between generators, including existing

and new renewable generators, as well as the electricity supply companies. **Ofgem's consultation and impact assessment on its preferred approach to the detailed changes to the transmission charging methodology closed in October 2013. A final decision is expected from Ofgem around the end of 2013, with a view to implementing changes in or after April 2014.**

(viii) What measures have been put in place to ensure that TSO/DSOs are effectively abiding by the rules of Art.16.5 on detailed cost-estimates, timetables for grid connections?

The TSO, National Grid, is required through Standard Licence Condition C8 of its System Operator Licence, to offer terms to those requesting a connection to their network. The TSO must provide terms of connection, including connection charges to be paid and the date by which the necessary works will be completed to enable connection, to the potential generator within three months of receipt of an application. In addition, under Standard Licence Condition C6 of its licence the TSO is required to publish a statement of connection methodology charging.

In relation to distribution networks, for the 2010-15 DNO price control, Ofgem maintained the incentive on DNOs to incentivise efficient connection to their networks by introducing guaranteed standards of performance, and also instituted mandatory information provision to provide different types of generator with connection information suited to their needs.

Up until then, the requirements for quotation timescales had been set out in Standard Licence Condition 12. This provided a 90 day time limit for getting quotes out to customers. However, the new connection standards go beyond this by requiring a minimum level of performance across the whole connections process.

For the new price control RIIO ED1 which will cover the years 2015-2023 Ofgem intends to introduce a new Incentive for Customer Engagement (ICE) which will penalise DNOs who do not meet minimum requirements of service for major connection customers. Ofgem also intends to introduce an incentive for those DNOs who meet above industry average quotation and connection times.

(ix) What measures are applied to ensure non-discriminatory transmission and distribution tariffs for RES electricity and gas from renewable sources?

Renewable generators are subject to the same charging mechanisms as non-renewable generators by the transmission and distribution networks. In relation to transmission network charges, the underlying rationale behind Transmission Network Use of System charges is that efficient economic signals are provided to users when services are priced to reflect the incremental costs of supplying them. These charges are applied to all generators on a consistent basis and therefore do not discriminate against renewable generation located in peripheral regions.

Transmission charging

Therefore, charges should reflect the impact that users of the transmission system at different locations would have on the Transmission Owner's costs, if they were to increase or decrease their use of the respective systems. These costs are primarily defined as the investment costs in the transmission system, maintenance of the transmission system and maintaining a system capable of providing a secure bulk supply of energy. Smaller generators connected at 132kV

in Scotland may in some circumstances be entitled to a 25% discount. All of this is set out in National Grid's *Use of System Charging Methodology Statement*[31].

Some changes to the way generators' transmission charges are calculated are likely to be implemented in or after April 2014 as a result of Ofgem's review of the charging regime under Project TransmiT. Ofgem's 'minded-to' position includes proposals that will narrow the difference in generation tariffs between the north and south of Britain, introduce an element of network sharing for intermittent generation , and will also be more cost-reflective of system use. The proposals will not reduce the significant costs associated with building and running future sub-sea links. In terms of how these proposals effect the significant renewables potential of the Scottish islands, an inter-governmental group has

been considering this and other matters relating to future island renewable energy development since 2012, and DECC is currently looking at further options for additional support for island renewables.

Distribution charging

In relation to distribution charging, the charging mechanism varies depending on whether the generation station is located on the Extra High Voltage network (33kV in Scotland, and 33kV and 132kV in England) or on the lower voltages of the distribution network. For generators located on the lower voltages, a new charging methodology came into effect from 1 April 2010 where all generators will receive a credit for units exported to the network. The unit rate is negative to reflect the benefits that distributed generation provide to the network by siting close to demand customers.

The charging methodology differentiates between intermittent (e.g. some renewable) generation and non-intermittent generation. In the case of intermittent generators the negative unit charge is a single rate for each kWh exported while in the case of non-intermittent the negative unit rate varies depending on the time of day (e.g. units exported at time of peak network load receive a higher credit than units exported during times of low load). Generators will also pay a small (positive) fixed charge and a (positive) reactive power unit charge. Total distribution use of system bill for generators located on the lower voltages will typically be negative as the fixed charge and reactive charges are relatively small. Charges for customers connected to the extra high voltage parts of distribution networks are calculated using each DNO's charging methodology, which in most cases is an average cost model.

From 1 April 2011, DNOs have had to choose one of two common methodologies (EDCMs), which were developed by the industry, to calculate charges for their Extra High Voltage customers. The purpose of the EDCM project was to replace existing Extra High Voltage methodologies with longer term methodologies that provide more cost reflective and locational cost signals to customers, so as to facilitate more efficient decisions in relation to choosing a location to connect to DNOs' networks and enduring use of the network.

Transmission and distribution in Northern Ireland

In **Northern Ireland** the current rules for 'Transmission use of System' allow a fixed charge per MW of capacity for all generation greater than 5 MW (reduced from 10MW from 1 Oct 2012) irrespective of technical characteristics. A new incremental rule has also been

[31] For further information see National Grid website at:
http://www.nationalgrid.com/uk/Electricity/Charges/chargingstatementsapproval/

implemented for distribution connector generators (i.e. a 7MW generator will be charged for 2MW, a 12MW generator will be charged for 7MW etc).

3: Please describe the support schemes and other measures currently in place that are applied to promote energy from renewable sources and report on any development in the measures used with respect to those set out in your National Renewable Energy Acton Plan. (Article 22 (1)b of Directive).

Renewables Obligation (RO)

The RO is the main support mechanism for commercial scale renewables electricity projects in the UK. It places an obligation on UK electricity suppliers to source an increasing proportion of electricity they supply from renewable sources. The RO operates as three separate, but complementary, mechanisms working together- one for England and Wales, and one each for Scotland and Northern Ireland. Details of the RO's operation in 2011, the last complete year for which complete data is available is available is set out in Table 3(i) below

A comprehensive review of the RO support rates was concluded by the UK Government and the Devolved Administrations in 2012. Secondary legislation brought the new rates into force in April 2013. These will apply to new generation or capacity added to existing generating stations accredited under the RO up to 2016/2017, and details are at Annex A.

DECC announced at the end of 2012 that it intended to introduce a new dedicated biomass capacity cap to be set at 400MW. Once triggered, Government would consider restricting further biomass deployment through the removal of grandfathering rights from additional dedicated biomass power coming forward. The purpose of the cap is to ensure that support for new dedicated biomass in the RO represents value for money and addresses concerns about feedstock sustainability is in line with the Bioenergy Strategy. Following a public consultation in May and June 2013, DECC implemented in August a non-legislative notification process to allocate spaces within the cap.

Table 3.1 – The Renewables Obligation

RES support schemes year : 2011/2012		**Per unit support**	**Total (M€)***
Instrument (provide data as relevant)	Obligation/quota (%)	England, Wales and Scotland -0.124 ROCs/MWh Northern Ireland – 0.055 ROCs/MWh	
	Penalty/Buy out option/ Buy out price (€/unit)	£38.69	
	Average certificate price	£44.27 nominal value	
	Tax exemption/refund		
	Investment subsidies (capital grants or loans)		

	(€/unit)			
	Production incentives			
		Feed-in tariff		
		Feed-in premiums		
		Tendering		
Total annual estimated support in the electricity sector				*£1.45bn (using nominal ROC value*
Total annual estimated support in the heating sector				
Total annual estimated support in the transport sector				

Electricity Market Reform and Contracts for Difference (CfDs)

Government's Electricity Market Reform will introduce a new support mechanism for commercial renewable and other low carbon electricity based on Contracts for Differences (CfD). It is our intention that the first early CfDs could be signed in the second half of 2014 subject to Royal assent of the Energy Bill and State Aid Approval. A draft CfD contract and CfD strike prices were published in December 2013[32].

The Feed in Tariff (FiT) Scheme

The objective of FITs is to incentivise the deployment of small scale low carbon electricity generation by individuals, householders, organisations, businesses and communities. It supports solar photovoltaic, hydro, anaerobic digestion and wind projects up to 5MW and micro CHP installations up to 2kW. The Government carried out reviews of the FiT Scheme in 2011 and 2012. In relation to solar PV installations, the results of these reviews included the introduction of: reduced tariffs for new 50kW to 5MW and all stand- alone PV installations from 1 August 2011[33] and new much reduced solar PV tariffs for smaller scale installations in 2012, with a cost control mechanism for all solar pv tariffs[34]. The next phase of the Comprehensive Review, looking at ~~of~~ the 'non solar PV' elements of the FITs scheme, launched in February 2012 and concluded in December 2012. It sought to improve value for money and reduce tariffs where appropriate in light of falling costs, as well as introducing a cost control mechanism. Details of the revised tariffs were announced in July 2012 and came into operation from 1 December 2012[35]. Full details of all tariffs are on the Ofgem website[36].

[32] Investing in renewable technologies - CfD contract terms and strike process (December 2013) at: https://www.gov.uk/government/publications/investing-in-renewable-technologies-cfd-contract-terms-and-strike-prices

[33] DECC (2012) Feed-in Tariffs Scheme: Summary of Responses to the Fast-Track Consultation and Government Response, https://www.gov.uk/government/consultations/fast-track-review-of-feed-in-tariffs

[34] DECC (2012) Feed-in Tariffs Scheme Government response to Consultation on Comprehensive Review Phase 2A: Solar PV cost control, https://www.gov.uk/government/consultations/solar-pv-cost-controls-comprehensive-review-phase-2a

[35] DECC(2012) Feed-in Tariffs Scheme, Phase 2B consultation on tariffs for non-PV technologies and scheme administration issues: https://www.gov.uk/government/consultations/tariffs-for-non-pv-technologies-comprehensive-review-phase-2b

[36] Details of FiTs tariffs can be viewed in a series of tables on the Ofgem website at: https://www.ofgem.gov.uk/environmental-programmes/feed-tariff-fit-scheme/tariff-tables

Table 3.2 – Feed in Tariff

RES support schemes year- 1 April 2011 – 31 March 2012 [37]			**Per unit support**	**Total (M£)***
[(sub) category of specific technology or fuel]				
Instrument (provide data as relevant)	Obligation/quota (%)			
	Penalty/Buy out option/ Buy out price (€/unit)			
	Average certificate price			
	Tax exemption/refund			
	Investment subsidies (capital grants or loans) (€/unit)			
	Production incentives			
		Feed-in tariff		£135,937,391.51[38]
		Feed-in premiums		
		Tendering		
Total annual estimated support in the electricity sector				
Total annual estimated support in the heating sector				
Total annual estimated support in the transport sector				

Renewable Heat Incentive

The RHI, the first of its kind in the world, opened for non-domestic applicants at the end of November 2011. The domestic phase will open for applicants during Spring 2014. Both phases, and schemes, are designed to incentivise uptake of renewable heat by paying owners of eligible technologies tariffs to assist with the costs of installing and running the systems. The tariff structures of both schemes are shown in Annex B.

The RHI pays participants of the scheme that generate and use renewable energy to heat buildings. The non-domestic RHI scheme supports renewable heat installations in business, industry and the public sector, as well as heat networks.

Since its launch in November 2011, the non-domestic RHI scheme has launched consultations on *Providing Certainty and Improving Performance* and on *Expanding the non-domestic scheme.* As a result of these consultations, DECC has made a number of changes to the non-domestic RHI – namely, a simplification of metering requirements, limit on air quality emissions and minor regulatory amendments.

As a response to under-deployment in the RHI scheme, a decision was taken to perform an early review of the non-domestic tariffs for some technologies. The non-domestic scheme Early Tariff Review consultation ran from 31 May – 28 June 2013. This proposed changes to the tariffs for: large biomass, ground source heat pumps and solar thermal collectors. The consultation also updated indicative tariffs for some technologies previously consulted on but which are not currently supported in the scheme.

The plans for expanding the non-domestic scheme were published alongside the tariff review consultation outcome on 4 December[39], with support being introduced from spring 2014. Subject to state aid and parliamentary approval, we are increasing the support available for

[37] Data based on Ofgem's Annual Review of FITs scheme (2012) at: https://www.ofgem.gov.uk/ofgem-publications/58860/fits-annual-report-2011-2012.pdf

[38] Figure sets out the total cost in payments made to accredited generators, based on renewable generation.

[39] DECC (2013) Government response to several non-domestic Renewable Heat Incentive (RHI) consultations and further information on the domestic RHI scheme - https://www.gov.uk/government/speeches/increased-support-for-renewable-heat

renewable CHP, biomass boilers >1MW, deep geothermal, ground source heat pumps, solar-thermal and biogas combustion. New support will also be introduced for air-water heat pumps and commercial and industrial energy from waste. We are updating our approach to budget management, using improved market intelligence to allow credible growth rates across the range of renewable heating technologies supported, whilst ensuring that the scheme remains affordable and achieves value for money. We estimate the policy changes set out here could incentivise around 5,000 non-domestic installations and an additional 6.4TWh of renewable heat by the end of 2015/16.

Table 3.3: The Renewable Heat incentive

RES support schemes year November 2011- March 2013 [40]			**Per unit support**	**Total (M£)***
Renewable Heat Incentive (non – domestic)				
Instrument (provide data as relevant)	Obligation/quota (%)			
	Penalty/Buy out option/ Buy out price (€/unit)			
	Average certificate price			
	Tax exemption/refund			
	Investment subsidies (capital grants or loans) (€/unit)			
	Production incentives			
		Feed-in tariff		7.62m
		Feed-in premiums		
		Tendering		

Renewable Transport Fuels Obligation (RTFO)

Since its launch in April 2008 the RTFO requires suppliers of fossil fuel for road transport to source a proportion of their supply from biofuels. The Renewable Transport Fuel Obligation is set at 4.7501% by volume of renewable transport fuel for each obligation year from 2013/14 onwards[41].

The level of obligation in any given year will not necessarily be the same as the level of actual fuel supply. This is due in part to the flexibility built into the RTFO that allows, for example, 'carry-over' of RTFCs issued for sustainable renewable fuel used in one year to be used to meet up to 25% of a supplier's obligation in the following year. More significantly, Article 21(2) of the RED requires that member states "double-count" biofuels derived from wastes and residues in national obligation mechanisms. In the RTFO this means that two RTFCs are issued per litre of waste/residue derived fuel supplied, and therefore a supplier can meet their obligation with as little as half the volume of fuel indicated by the percentage target.

Further details of its operation in 2011 and 2012 are shown in table 3.4 below.

[40] Data obtained from 'Ofgem – RHI Annual Report (2013)'at: https://www.ofgem.gov.uk/ofgem-publications/76061/rhi-annual-report-web.pdf

[41] The reduction in percentage terms from the previous 5% is due to the inclusion within the obligation of NRMM[41] fuels. By increasing the scope of the obligation to cover both road and non-road transport, it is anticipated that the supply of biofuel overall will amount to at least This is the same quantity as if the obligation had remained at 5% for just road transport. This change was made due to the implementation of the Fuel Quality Directive. Double counting for waste derived fuels was also introduced. A consequence of this is that the obligation can be met with less than 4.75% fuels by volume.

Table 3.4 – Renewable Transport Fuels Obligation

RES support schemes			**Per unit support**	**Total (M£)***
Biofuels calendar year 2011				
RTFO	Obligation/quota (by volume		4%	
	Buy out price (£/Litre)		£0.30	
	Average certificate price		9.5[42]	
	Tax exemption/refund (£/Litre)		£0.20[43]	
	Investment subsidies (capital grants or loans) (€/unit)		-	
	Production incentives		-	
	Feed-in tariff		-	
		Feed-in premiums	-	
		Tendering	-	
Total annual estimated support in the transport sector				468*

*The quantity of energy supported by the unit support gives an indication of the effectiveness of the support for each type of technology.
*Figure for the 2011/12 financial year.

RES support schemes			**Per unit support**	**Total (M£)***
Biofuels calendar year 2012				
RTFO	Obligation/quota (by volume		4.5%	
	Buy out price (£/Litre)		£0.30	
	Average certificate price		19.8[6]	
	Tax exemption/refund (£/Litre)		£0.20[7]	
	Investment subsidies (capital grants or loans) (€/unit)		-	
	Production incentives		-	
	Feed-in tariff		-	
		Feed-in premiums	-	
		Tendering	-	
Total annual estimated support in the transport sector				315*

*Figure for 2012/13 financial year

3*.1. Please provide the information on how supported electricity is allocated to final customers for purposes of Article 3 (6) of Directive 2003/54/EC. (Article 22(1)b) of Directive 2009/28/EC)).*

In accordance with article 15(7) of the Renewable Energy Directive, guarantees of origin are used by electricity suppliers for the purpose of proving the share or quantity of energy from renewable sources in their energy mix for the purposes of article 3(9)(a) of Directive 2009/72/EC (formerly article 3(6) of Directive 2003/54/EC).

The relevant legislation is the Electricity (Fuel Mix Disclosure) Regulations 2005, schedule 2ZB to the Electricity Act 1989 and electricity supplier standard licence condition 21.

[42] Using data from NFPAs e-TOC auction site - www.nfpas-auctions.co.uk/etoc/trackrecord.html. This information is based on sales from smaller suppliers via the auction and does not take account of direct trades between companies which make up the bulk of RTFC transactions, and for which price data is not available. Information on numbers of RTFCs which sell at different prices is unavailable from NFPA so these figures are un-weighted averages across all applicable Obligation Periods, and therefore these figures may not be fully representative of RTFC values.
[43] The 20pence per litre duty exemption only applied to biodiesel made from used cooking oil, and finished in March 2012.

4. *Please provide information on how, where applicable, the support schemes have been structured to take into account RES applications that give additional benefits, but may also have higher costs, including biofuels made from wastes, residues, non-food cellulosic material, and ligno-cellulosic material?) (Article 22 (1)c of Directive 2009/28/EC)).*

From April 2010 biodiesel made from used cooking oil benefited from a 20 pence-per-litre reduction in duty. This measure ended in April 2012. Article 21(2) of the Renewable Energy Directive was implemented in UK law on 15 December 2011 resulting in double counting for biofuels made from wastes, residues, non-food cellulosic material, and ligno-cellulosic material. This means that qualifying fuels attract two RTF certificates rather than one per litre of biofuel supplied to the UK market.

5. *Please provide information on the functioning of the system of guarantees of origin for electricity and heating and cooling from RES, and the measures taken to ensure reliability and protection against fraud of the system. (Article 22(1)d of Directive 2009/28/EC)).*

Ofgem administers the Renewable Energy Guarantee of Origin (REGO) scheme in Great Britain. It also administers the REGO scheme in Northern Ireland on behalf of the Northern Ireland Authority for Utility Regulation.

The relevant legislation for the REGO scheme is:

- for Great Britain, the Electricity (Guarantees of Origin of Electricity Produced from Renewable Energy Sources) Regulations 2003, as amended in 2010.

- for Northern Ireland, the Electricity (Guarantees of Origin of Electricity Produced from Renewable Energy Sources) Regulations (Northern Ireland) 2003 as amended in 2008, 2010 and 2011.

For Ofgem to issue a REGO, it must be satisfied that the electricity in question has been generated by a renewable source. Ofgem does not currently issue REGOs for heating or cooling. In advance of issuing a REGO, Ofgem requests that the operator of a generating station provides the majority of the information as set out in Schedule 1 of the Regulations before making a request for REGOs. This must include such further information or evidence as reasonably required for the purpose of determining the accuracy of the information provided or to satisfy Ofgem of the renewable energy source used to generate electricity. This information is requested via an accreditation application form. Typically generating stations using biomass or waste must also complete a "Fuel Measurement and Sampling Questionnaire" as part of the accreditation process. Prior to submitting the application form to Ofgem an "Information Declaration "must be signed online by the account super user. The super user will be prompted to make this declaration once an application has been completed.

A REGO can only be requested for the proportion of electricity generated by an individual generating station located in GB or NI using eligible renewable energy sources. A generating station must be accredited by Ofgem before it will consider a request for a REGO.
This provides Ofgem with the majority of the information to be presented in a request for REGOs (Regulation 4(4) – Schedule 1).

All requests for REGOs made before 5 December 2010 are calculated on the basis of one REGO per kWh of renewable source electricity. From 5 December 2010 onwards, following the 2010 Regulation amendments, all requests for REGOs made are calculated on the basis of one REGO per MWh of renewable source electricity. The unit of issue is dependent on the

2010 Regulation amendment date, NOT the month of generation. All claims for REGOs will be rounded up or down to the nearest whole unit i.e. kWh or MWh, with any exact half being rounded upwards. If less than half a MWh is generated for a period, no REGOs will be issued.

All REGOs issued have a unique guarantee sequence number. Ofgem issue REGOs sequentially in ascending numerical order in respect of all the renewable electricity produced by a particular generating station during the period to which the REGO request relates. Following a request for REGOs, Ofgem check the data submitted and determine whether they are able to issue REGOs. REGOs will be issued automatically into an operators account on the Register. Once issued, they will remain within the Register to avoid double counting.

If Ofgem discover, possibly as a result of an audit, that a generating station was never eligible for REGOs they shall revoke all of the REGOs issued to that station. If a generating station is found to be ineligible due to a change in nature of the station following accreditation, Ofgem shall revoke all REGOs issued from the date that the station became ineligible. REGOs can be revoked because the information presented to request REGOs was inaccurate. In these instances Ofgem will correct the number of REGOs issued for the generation period by revoking the REGOs issued, in descending numerical order, to correct the over issue. For REGOs issued before 5 December 2010, corrections will be calculated based on the original REGO unit of one REGO per kWh. For REGOs issued from 5 December 2010 corrections will be calculated on the basis of the original REGO unit of one REGO per MWh.

Ofgem has a fraud prevention strategy in place for the administration of the REGO scheme and the other Renewables & CHP incentive schemes it administers. In addition to this, Ofgem carries out periodic audits on accredited generating stations. Within the Renewables & CHP Register itself, there are a number of automated control checks which are carried out, supplemented by manual controls throughout the accreditation process and submission of output data. Where Guarantees of Origin are requested to be recognised from other EU member states, verification is sought from the issuing body before recognition is granted, to confirm that there are no reasons why we should refuse recognition. In relation to the recognition of Guarantees of Origin for heating and cooling from other Member States, where requested and if valid, these will be recognised and then published.

6. Please describe the development <u>in the preceding 2 years</u> in the availability and use of biomass resources for energy purposes. Article 22(1)g of Directive).

The primary use of biomass in the UK is for electricity and combined heat and power generation. Feedstocks are both from imported woody biomass material and from UK biomass. The UK uses a wide variety of domestically-sourced biomass feedstocks and fuels from municipal waste, woody forestry and sawmill products, landfill and sewage gas, agricultural residues and energy crops.

Large amount of biomass are also used for transport fuels. This consists of a wide range of feedstocks and is both imported and domestically produced. In 2011/12 half of the feedstocks were from double counting materials, mainly used cooking oil. In 2012/13 the proportion of biofuels made from double counting materials was 39%.

<u>Imports</u>

The last two years have seen improvements in the ability of large biomass plants to import and use woody biomass material. Former coal plants have converted individual combustion

units or whole generating stations to be able to operate primarily on biomass. This has required substantial investment in boiler upgrading, emissions control and fuel storage and handling equipment. Companies have also invested in rail and port facilities and in pellet manufacturing plants in North America. Examples include the Tilbury, Ironbridge and Drax former coal plants.

The result of this has been that imports of woody biomass have increased from 0.1 million oven dried tonnes in 2009-10 to 1.3 million oven dried tonnes in 2011-12.

For transport, around 88% of feedstocks for biofuels were imported in 2011/12 and around 78% in 2012/13. The major import in both years was non-EC corn ethanol (largely from the US), which made up 30% and 19% of total supply respectively.

UK biomass

The UK Bioenergy Strategy of 2012[44] set out the UK Government's principles for supporting bioenergy across heat, electricity and transport. One aspect of this was to estimate the amount of biomass material available from UK sources. The analysis indicated that with the current infrastructure, there already exists within the UK the potential to source 6.1 to 15.3 million oven dried tonnes (modt) of woody material for energy use. 'Woody' biomass includes forestry residues, arboricultural arisings, dry agricultural residues, sawmill co-products, small roundwood, energy crops and waste wood. In each of the years up until the 2011-12 period, the actual amount of UK biomass used for energy remained stable at between 2.2-2.6 modt. This is based on data provided to Ofgem as part of biomass sustainability reporting for the Renewables Obligation. Two of these potential feedstocks are discussed below:

Energy crops

The Government provided funding for the planting of energy crops, primarily short rotation willow and miscanthus on low grade agricultural land. Direct funding for planting energy crops has now ended, after the planting of 11 thousand hectares. Support for energy crops continues via support of electricity and heat generation (creating demand for the woody crops from generators).

Bringing woodlands back into management

The percentage of woodland in active management increased from 52% to 53% between 2011 and 2013. This means there is around 13,000ha more woodland in active management now (assuming a forest area of 1,300,000ha[45]).

The Woodfuel Woodland Improvement Grant is continuing to support activities aimed at increasing woodland management, fuel and timber production in existing, unmanaged woodland[46].

[44] DECC (2012), UK Bioenergy Strategy: https://www.gov.uk/government/publications/uk-bioenergy-strategy
[45] See analysis by the Forestry Commission in (a) Forestry Commission England Indicators Report 2013, at: http://www.forestry.gov.uk/pdf/FC-England-Indicators-Report-2013.pdf/$FILE/FC-England-Indicators-Report-2013.pdfand (b) Forestry Statistics 2013, http://www.forestry.gov.uk/website/forstats2013.nsf/LUContents/061E41873F94CC788025735D0034F33B
[46] For further information see: http://www.ngagesolutions.co.uk/case-study/woodfuel-woodland-improvement-grant-wig/

Transport

For transport, UK feedstocks made up 12% and 21% of supply for 2011/12 and 2012/13 respectively. UK feedstocks were mainly used cooking oil, but also sugar beet, wheat, tallow and small volumes of MSW.

Table 4 – Biomass supply for energy use

	Amount of domestic raw material (*)		*Primary energy in domestic raw material (ktoe)*		*Amount of imported raw material from EU (*)*		*Primary energy in amount of imported raw material from EU (ktoe)*		*Amount of imported raw material from non EU(*)*		*Primary energy in amount of imported raw material from non EU (ktoe)*	
	2011	**2012**	**2011**	**2012**	**2011**	**2012**	**2011**	**2012**	**2011**	**2012**	**2011**	**2012**
Biomass supply for heating and electricity:												
Direct supply of wood biomass from forests and other wooded land energy generation (fellings etc.)**	1,881,812	1,374,285	535	456	77,179	-	26	-				
Indirect supply of wood biomass (residues and co-products from wood industry etc.)**	3,175,333	2,517,452	952	954	1,064,869	1,596,002	436	651				
Energy crops (grasses, etc.) and short rotation trees (please specify)	112,757	53,460	44	19	2,352	-	1	-				
Agricultural by-products / processed residues and fishery by-products **	1,290,573	1,416,327	492	633	424,067	243,325	180	98				
Biomass from waste (municipal, industrial etc.) **	3,353,899	4,371,767	2,894	3,118	-	-	-	-				
Others (please specify)								-				

Biomass supply for transport	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012	2011	2012
Barley					10,898	632	6.88	0,40				
Corn[1]	0	-	0.00	-	42,133	153,511	26.62	96.97	325,417	301,181	205.57	190.26
Crude Glycerine						28,199		16.68		1,175		0.69
Molasses									1,464		0.92	
Municipal organic waste	555	1,184	0.66	1.41								
Oilseed rape	11,490	5,067	10.18	4.49	20,092	27,055	17.79	23.96	4,735	2,320	4.19	2.05
Palm									6,136	1,661	5.88	1.47
Soy									22,615	6,349	20.03	5.62
Sugar beet	18,859	45,080	11.91	28.48	117	6,052	0.07	3.82				
Sugar cane									6,832	7,752	4.32	4.90
Sweet sorghum									8,196		5.18	
Tallow[1]	5,347	20,839	4.74	18.46	1,891	27,687	1.68	24.52	3	647	0.00	0.57
Triticale					107		0.07					
Used cooking oil	108,912	115,130	96.45	101.96	283,381	184,383	250.96	163.29	114,390	110,384	101.30	97.76
Wheat	51,760	3,662	32.70	2.31	3,428	24,058	2.17	15.20	2,927	357	1.85	0.23

* Amount of raw material if possible in m3 for biomass from forestry and in tonnes for biomass from agriculture and fishery and biomass from waste.
** The definition of this biomass category should be understood in line with table 7 of part 4.6.1 of Commission Decision C (2009) 5174 final establishing a template for National Renewable Energy Action Plans under Directive 2009/28/EC.

Table 4a. Current domestic agricultural land use for production of crops dedicated to energy production (ha)

Land use[47]	Surface (*ha*)	
	2011	**2012**
1. Land used for common arable crops (wheat, sugar beet etc.) and oilseeds (rapeseed, sunflower etc.)		
Crops[48]		
Oilseed rape	6,258	3,202
Sugar Beet	3,314	9,843
Wheat	23,045	1,897
2. Land used for short rotation trees – **Short rotation coppice willow**	2720*	2551*
3. Land used for other energy crops- such as grasses (reed canary grass, switch grass, Miscanthus), sorghum. (Please specify main types)		
Miscanthus	8075*	7517*

Note: that these figures represent estimated domestic agriculture for biofuels supplied in the UK and do not include any agriculture relating to fuels which were exported.
*Data relates to England only.

7. Please provide information on any changes in commodity price and land use within the UK in the preceding two years, associated with increased use of biomass and other forms of energy from renewable sources. Please provide where available relevant references to relevant documentation on these impacts in the UK. (Article 22(1) h) of Directive 2009/28/EC)).

Biomass for electricity

The Impact Assessment accompanying Government's response to the 2012 Banding Review of the Renewables Obligation set out the potential wider impacts from policy changes resulting from that review, including on food security and the availability and prices of woody biomass[49]. The analysis suggested that to date, land used to grow woody energy crops in the UK has tended to be lower quality, marginal or idle land which is generally unsuitable for food production. However, we should continue to monitor patterns of agricultural land use carefully, to identify changes that happen as a result of, for example, changing commodity prices, and determine whether there is a shift in the way in which different types of land are being used for food or energy production.

[47] Yield was calculated using Defra crop statistics (https://www.gov.uk/government/collections/agriculture-in-the-united-kingdom). Land use has not been apportioned to other co-products of fuel production, but it should be noted that animal feeds are also produced from the same crops and land alongside the fuel.
[48] A small amount of EC Corn was also reported in 2011, but this has not been included as the total volume was only 20 litres
[49] Government response to the consultation on proposals for the levels of banded support under the Renewables Obligation for the period 2013-17 and the Renewables Obligation Order 2012. Impact assessment https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/42847/5945-renewables-obligation-government-response-impact-a.pdf

It also found that UK resources should be sufficient to meet demand for UK woody biomass. However, it recognised that the future demand for wood from other sectors and future supply is extremely difficult to predict and that for the upper end of the potential domestic supplies to materialise prices will have to rise. It recognised that the full impact of the RO (and other renewable policies) on the demand and prices for these feedstocks is very difficult to estimate at this stage. DECC therefore works closely with the wood products industry and biomass electricity generators to ensure monitoring measures are in place for biomass feedstocks to provide early warning of supply risks from the electricity sector.

Biomass for transport biofuels

Commodity prices in the UK for the three major crop based biofuel feedstocks for the period 2009 to 2010 are shown in the following chart[50].

Crop	**Price £/tonne**				
	2008	**2009**	**2010**	**2011**	**2012 (provisional)**
Feed Wheat	127	108	113	148	163
Oilseed rape*	319.6	248.7	302.3	402.3	385.6
Sugar beet $	27.3	29.1	30.1	29.6	31.1

* Average market price (£ per adjusted tonne).
$ Average weighted by volume of sales.

To the extent that biofuels and biomass policies result in an increase in aggregate demand for agricultural feedstocks and/or agricultural land, then they will result in higher agricultural product prices than would otherwise have been the case. This is likely to have only led to a modest rise in food prices, since crop prices represent only a small share of the cost of food production. The impact of biofuels on crop prices is small compared to the impact of changing agricultural input costs such as fertiliser prices.

Analysis by Defra's modelling team using the OECD-FAO Aglink-Cosimo model suggests that the removal of biofuels support at the EU level could have a modest (yet significant) medium-term price reduction impact on the feedstocks used for biofuels production[51]. For example, when EU biofuels mandate support is removed, on average over the projection period, projected EU wheat prices are around 7% lower than in the baseline scenario, vegetable oil prices around 12% lower on average, and oilseed prices approximately 4% lower than baseline levels. This is broadly consistent with earlier modelling by the OECD (2008).

The projected impacts of removing US biofuel support are larger than removing EU biofuel support. This is mainly because bioethanol is mostly produced from one feedstock in the US (maize) rather than from a more diversified feedstock base as in the EU and secondly, due to the USA's large export share in global agricultural markets, particularly maize.

[50] Source Agriculture in the UK 2012 - https://www.gov.uk/government/publications/agriculture-in-the-united-kingdom-2012
[51] Defra, Removing Biofuel Support Policies: An Assessment of Projected Impacts on Global Agricultural Markets using the AGLINK-COSIMO model, 2012.
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/48345/5134-removing-biofuel-support-policies-an-assessment-o.pdf

Over and above medium term impacts on agricultural product prices, there is a distinct question about the extent to which biofuel policies have contributed to recent international agricultural price spikes. In that context, a thorough cross-Whitehall analysis of the agricultural price spikes of 2007/8[52] concluded that biofuels had a relatively small contribution in 2008, particularly as far as wheat was concerned. Nevertheless, the report also concluded that the additional global demand for biofuels has and will put upward pressure on the prices for those agricultural commodities used in biofuels production.

The cross-Whitehall report also raised a question about the extent to which the inelasticity of demand for biofuels makes an important segment of agricultural product demand more inelastic so that international prices are more volatile than they would otherwise be.

Increased demand for biofuels has primarily been driven by Government policies incentivising biofuel production rather than market developments such as rising oil prices. The future impacts of biofuels demand on agricultural crop prices will still depend to a large extent on policy developments, especially the USA.

8. Please describe the development and share of biofuels made from wastes, residues, non-food cellulosic material, and lingo cellulosic material. (Article 22(1) i of Directive).

Consumption of biofuels from by-products [53](ktoe)

Biofuels from 'by-products'	**2011**	**2012**
Consumption – biofuels from 'by-products'	565	441
% share of total RES- T from 'by products'	59	53

[52] The 2007/08 Agricultural Price Spikes: Causes and Policy Implications, http://archive.defra.gov.uk/foodfarm/food/pdf/ag-price100105.pdf

[53] Prior to the implementation of the RED in December 2011, fuels not made from crops were classified as "by-products" under the RTFO. Post RED implementation, the term by-product has been phased out in favour of "wastes, agricultural residues, non-food cellulosic material and ligno-cellulosic material".

9. Please provide information on the estimated impacts of the production of biofuels and bioliquids on biodiversity, water resources, water quality and soil quality within your country <u>in the preceding 2 years</u>. Please provide information on how these impacts were assessed, with reference to relevant documentation on these impacts within your country. Article 22 (1)j of Directive).

Biofuels from UK by voluntary schemes (ktoe)	**2011**	**2012**
ACCS (Red tractor farm assurance)	38	30
Other schemes	19[54]	413
By-product (no crop impact)	565	441[55]
No scheme or unknown	332	383
Percentage of biofuels complying with a voluntary scheme accepted by the UK / EC[56] or from 'by-products'	65	86

The Joint Nature Conservation Committee (JNCC), the UK Government's statutory advisor on UK and international nature conservation, commissioned a report in 2013 to look at the impacts on UK biodiversity from the production of biofuels and bioliquids from domestic feedstocks.

The report looked at the potential of using bird population data as a proxy for broader biodiversity. It considered the annual Breeding Bird Survey data[57] collected and held by the British Trust for Ornithology (BTO), JNCC and the Royal Society for the Protection of Birds (RSPB), amongst other bird data sources. It also drew upon other experimental data (incorporating the Defra annual agricultural survey data[58]), that could estimate the area of biofuel crops (oilseed rape, sugar beet, wheat) grown in 2010 in the UK and used for biofuel production in 2011 (these were the latest available data). Biofuel crops grown for export markets were not included in these data.

The Defra data estimate that there was a 363% increase in the biofuel crop area from 2009 to 2010, and although it was a large increase, this still only represented 1.7% of the total arable area of the UK in 2010. The area of land involved was therefore quite small.

The multiple potential markets for the crops involved also mean that it was highly unlikely that much change in crop composition across the agricultural landscape had been driven by biofuels. Additionally, agronomic management practices for both food/animal feed crops and biofuel crops (e.g. water inputs, fertiliser, herbicide, pesticide, cropping regime etc.) are currently similar, so it was considered that birds would not be affected any differently by a crop grown for conventional purposes or biofuel/bioliquid purposes.

[54] Due to the pre-RED reporting requirements of the RTFO, fuel that was classified as a by-product did not need to have a standard or voluntary scheme reported for it. Post-RED implementation, fuel could be reported as both a waste and via a scheme, which explains the sudden jump in this figure between 2011 and 2012.
[55] This figure includes fuel that is both a by-product and which has been audited by a voluntary scheme.
[56] Prior to implementation of the RED, the DfT / RFA were responsible for benchmarking and accepting voluntary schemes. After RED implementation, the schemes accepted by the DfT are those that have been recognised by the EC as meeting the requirements of the RED.
[57] The BTO/JNCC/RSPB Breeding Bird Survey http://www.bto.org/volunteer-surveys/bbs
[58] The Area of UK Crops Grown for Bioenergy- Statistical Notice at : http://data.gov.uk/dataset/the_area_of_uk_crops_grown_for_bioenergy

For these reasons, although no analyses of the bird data were conducted, the report concluded that there was no evidence to suggest that biofuel or bioliquid production in the UK, using UK crops, was presently likely to be having an adverse impact on bird populations. Further, any effects on the agricultural landscape that could impact birds (and other biodiversity) would be due to changes in cropping driven by the broader crop markets, in which demand would reflect numerous other interacting influences, including biofuel/bioliquid demand.

The analysis in the report did however identify reasons to interpret the findings with caution. The reliability and completeness of the figures in the Defra annual agricultural survey had not been fully determined, despite much of their source being based on Government Statistics, and the methodologies for producing them were still evolving. The Breeding Bird Survey data are also better suited to analyses over periods longer than two years because of natural inter-annual fluctuations in bird numbers.

Looking forward, the report highlighted that marginal and idle land may be used for biofuel crops in the future, which could have an impact on bird populations (and other biodiversity) as some of these habitats have been shown to be important for certain bird species. Any such land-use changes should become apparent in future agricultural survey data collected by Defra, which could then be tested against the Breeding Bird Survey (or other) data.

The report also highlighted that, although future Defra agriculture data will incorporate more (later) years, the lag in reporting would mean that it will always be difficult to take the immediately preceding two years, as required by Article 22, into account. Initial indications were that changes in the landscape, due to crops used for biofuels and bioliquids, would be very small in the short to medium term. Therefore, the statistical power to detect effects at real 'conversion' rates was anticipated to be low. Some species would respond positively and some negatively to any given change.

The UK will continue to improve mechanisms to assess the impacts of biofuels and bioliquids on biodiversity for future reporting periods, but note that this assessment may be very difficult for the reasons described.

10. Please estimate the net greenhouse gas emission savings due to the use of energy from renewable sources (*Article 22 (1) k) of Directive 2009/28/EC))*.

Table 6: Estimated GHG emission savings from the use of renewable energy (t CO2eq)

Environmental aspects	**2011**	**2012**
Total estimated net GHG emission saving from using renewable energy[59]		
- Estimated net GHG saving from the use of renewable electricity	20,056,863	28,169,890
- Estimated net GHG saving from the use of renewable energy in heating and cooling	n/a	n/a
- Estimated net GHG saving from the use of renewable energy in transport[60]	2,192,207	1,983,928

[59] The contribution of gas, electricity and hydrogen from renewable energy sources should be reported depending on the final use (electricity, heating and cooling or transport) and only be counted once towards the total estimated net GHG savings.

[60] NB these figures do not include emissions from indirect land use change.

Net GHG savings from electricity have been calculated using the average CO2 emissions factor for the fossil fuel mix for that year, as published in table 5C in chapter 5 of the Digest of UK Energy Statistics, 2013, available at: https://www.gov.uk/government/publications/electricity-chapter-5-digest-of-united-kingdom-energy-statistics-dukes

Net direct GHG savings for transport have been calculated using the carbon intensity data reported by suppliers for the fuel supplied. This included a mix of RED Annex V default values and actual data calculated by fuel suppliers using guidance published by the Department for Transport in line with Annex V.

11.Please report on (for the preceding 2 years) and estimate (for the following years up to 2020) the excess/deficit production of energy from renewable sources compared to the indicative trajectory which could be transferred to/imported from other Member States and/or third countries, as well as estimated potential for joint projects until 2020. (Article 22 (1) l, m) of Directive 2009/28/EC)).

At the end of 2012, 4.2% of UK energy consumption came from renewable resources. This is up from 3.8% in 2011. Across 2011 and 2012, an average of 4.0% UK energy consumption came from renewable resources against the first interim target of 4.04%, with deployment falling within the statistical margin of error.

There has been very strong growth in generation in 2012 and the first part of 2013,[61] particularly in renewable electricity, where the renewable share was a record 15.5% in the second quarter of 2013. Renewable electricity capacity was 19.5GW at the end of the second quarter of 2013, an increase of 5.2 GW on a year earlier.

Looking ahead the UK remains committed to achieving the 2020 target through the most cost-effective and sustainable domestic action. As set out in the UK Renewable Energy Roadmap Update 2013, and section 2 of this report, policies to date have brought forward strong deployment pipelines across a range of technologies (especially in the renewable electricity sector) and we have put in place a robust suite of financial and other measures from which to continue to increase deployment.

There are, however, a number of uncertainties which make it difficult to provide estimates of surplus or deficits across the three energy sectors of electricity, heat and transport, beyond 2014 with sufficient confidence and we have therefore entered zeros into the table. In particular:

- Until negotiations have concluded on measures to address the Indirect Land Use Change (ILUC) impacts of biofuels it is not possible to determine the contribution that transport biofuels will make to the target.

- Developing a new market for renewable heat remains challenging and whilst deployment is expected to increase more rapidly towards the second part of the decade, final decisions on support levels under the Renewable Heat Incentive after 2015/2016 will not be confirmed until after next UK Government Spending Round in 2016.

We are also aware that external factors such the economy, costs and changes in political landscape can impact on longer term deployment levels.

[61] See DECC 'Renewable Statistics', Energy Trends, section 6 at : https://www.gov.uk/government/publications/renewables-section-6-energy-trends

We will continue to monitor growth across all sectors to enable us to adjust our strategy as needed.

We are actively looking at options to increase cost effective renewable generation and in particular we are looking at the costs, benefits and risks of bringing forward additional electricity generation in the Scottish Islands, and initiating cross border trading in renewables with Ireland.

As set out in the UK's First Progress Report, the UK Government is working with the Devolved Administrations, Ireland and other stakeholders to develop an 'All Islands Approach' to assess opportunities for aligning markets between regions and removing barriers to cross border trading of renewable energy. We are also committed to working jointly on energy trading and grid interdependencies with the Devolved Administrations and other Governments in the British Irish Council Grid workstream.

The UK Government signed a Memorandum of Understanding with the Irish Government in January 2013, committing to a programme of work to jointly evaluate the case, and prepare for, the physical export of renewable electricity from Ireland to the UK. The idea of cross-border trade in renewables is innovative and untested - not just for the UK, but for Europe as a whole. There are a number of hard questions to answer and practical problems that would need to be overcome if it were to go ahead. Work to address these issues is continuing and the UK Government plans to announce further details on trading in 2014.

We are also open to potentially using the Flexibility Mechanisms within the Directive to complement UK generation, either as a contingency measure and/or a means of reducing the costs to UK energy bill payers if required later in the decade.

Table 7: Actual and estimated excess and/or deficit (-) production of renewable energy compared to the indicative trajectory which could be transferred to/from other Member States and/or third countries in [Member State] (ktoe)[1],[2],[3]

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Actual /estimated excess or deficit production (Please distinguish per type of renewable energy and per origin/destination of import export)		-1TWh -90ktoe		+2TWh +210ktoe		0		0	No Target	0	No Target	No Target

[1] Please use actual figures to report on the excess production in the two years preceding submission of the report, and estimates for the following years up 2020. In each report Member State may correct the data of the previous reports.
[2] When filling in the table, for deficit production please mark the shortage of production using negative numbers (e.g.–x ktoe).
[3] Terrawatt hours (TWh) can be converted to thousand tonnes oil equivalent (ktoe) by dividing by 11.63 and multiplying by 1000

11.1 Please provide details of statistical transfers, join projects and joint support scheme decision rules.

No procedures have yet been established.

12. Please provide information on how the share for biodegradable waste in waste used for producing energy has been estimated and what steps have been taken to improve and verify such estimates.

There has been an on-going programme of waste analysis in the UK for many years to understand the level of biodegradable waste. For Local Authority Managed Waste the UK gathers data from all Local Authorities covering all the waste they manage. For other waste, estimates are made using a range of data sources. We use administrative data from landfill sites with estimates of landfill at exempt sites to get our estimates of landfill. We use biodegradable factors by waste code to estimate the proportion that is biodegradable.

The UK domestic waste has had a biodegradable content of 67.5% (+/-1%) and this accounts for about 62.5 % of the energy generated from its combustion.
However, we recognise that there is some uncertainty around this figure and will be publishing the results of further research in this area shortly/in 2014.

DECC has completed work with industry and Ofgem, to consider the best way to determine the renewable portion of a mixed waste stream, so that support under the various financial incentives can be calculated more accurately and cost effectively. Ofgem now accept a wider range of biomass sampling methods including Carbon 14 and Bioma, and will consider the suitability of new sampling methods on a case by case basis.

Annex A – Renewables Obligation

Details of ROC rates for key technologies between 2009 and 2016/17

Band	2009 banding support (ROC/MWh)	13/14 support (ROC/MWh)	14/15 support (ROC/MWh)	15/16 support (ROC/MWh)	16/17 support (ROC/MWh)
Anaerobic Digestion	2	2	2	1.9	1.8
Advanced gasification/ pyrolysis	2	2	2	1.9	1.8
Standard gasification/pyrolysis	1	2	2	1.9	1.8
Biomass Conversion (station or unit)	New band	1	1	1	1
Dedicated biomass (1)	1.5	1.5	1.5	1.5	1.4
Dedicated biomass with CHP (2)	2	2	2	1.9	1.8
Energy from waste with CHP	1	1	1	1	1
Onshore wind	1	0.9	0.9	0.9	0.9
Offshore wind	2	2	2	1.9	1.8
Solar PV- Building mounted	2	1.7	1.6	1.5	1.4
Solar PV - Ground mounted	2	1.6	1.4	1.3	1.2
Tidal stream (3)	2(4)	5	5	5	5
Wave (5)	2(6)	5	5	5	5

(1) Dedicated biomass subject to a 400 MW cap in England and Wales and 15MW cap in Scotland.

(2) Includes 0.5 ROC CHP uplift.

(3) Tidal Stream: 5 ROCs subject to 30 MW cap at each generating station. 2ROCs for any additional capacity added above 30 MW cap.

(4)) Tidal Stream: 3 ROCs in Scotland only.

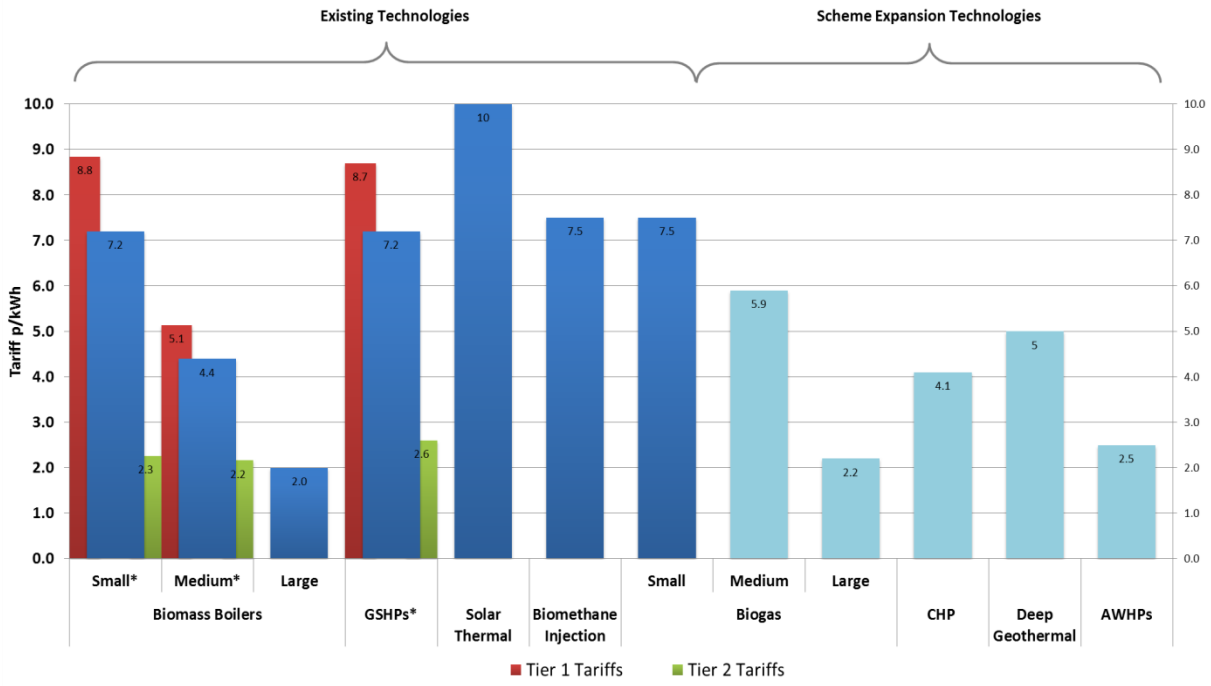
(5) Wave: 5 ROCs subject to 30 MW cap at each generating station. 2 ROCs for any additional capacity added above 30 MW cap

(6) Wave: 5 ROCs in Scotland only.

Annex B - The Renewable Heat incentive

Non-domestic tariffs

The plans for expanding the non-domestic scheme were published alongside the tariff review consultation outcome on 4 December 2013, with support being introduced from spring 2014. Revised tariff levels for currently supported technologies are also expected to come into force in spring 2014.



*The tariffs for these technologies are tiered. The untiered tariff level has been shown in this chart for comparison against other technologies.

For ease of comparison tariffs for small and medium biomass, biomethane injection and small biogas are shown in expected 2014 levels. This means that these tariffs have been inflated using an estimate of the annual RPI uplift (of 2.8%). The actual RPI uplift that will apply from 1 April 2014 may be different and will be confirmed prior to that date. These tariffs may be subject to degression on 1 April if deployment exceeds expected levels. The tariffs for large biomass, GSHPs, solar thermal, biogas combustion >200kW, biomass CHP, deep geothermal and AWHPs are subject to approval by the European Commission (S.A. 37562).

Domestic RHI

Details of the domestic RHI were published in July 2013. The scheme will provide support to homeowners, private and social landlords, third party owners of such systems in relation to air to water heat pumps; biomass-only boilers; biomass pellet stoves with back boilers; ground and water source heat pumps; flat plate solar thermal panels; and evacuated tube solar thermal panels. Payments will be made over seven years and represent expected costs of renewable heat generation over 20 years. Minimum energy efficiency criteria for the home will need to be met before applying and the heating system will need to be certified by recognised certification schemes as having been installed in accordance with their standards. Biomass systems will also need to meet air quality and fuel sustainability criteria.

Domestic tariffs

	Air source heat pumps	Biomass-only boilers; and biomass pellet stoves with back boilers	Ground source heat pumps; and water source heat pumps	Evacuated tube solar thermal panels; and flat plate solar thermal panels
Tariff (p/kWh renewable heat)	7.3	12.2	18.8	19.2

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