

**Fifth Progress report on the promotion and use of energy from renewable
sources for the United Kingdom**

1. Sectoral and overall shares and actual consumption of energy from renewable sources in the preceding 2 years (2017 and 2018) (Article 22(1)(a) of Directive 2009/28/EC).

Please fill in the actual shares and actual consumption of renewable energy for the preceding 2 years in the suggested tables.

Table 1:
The sectoral (electricity, heating and cooling, and transport) and overall shares of energy from renewable sources¹

	2017	2018
RES-H&C ² (%)	6.91%	7.50%
RES-E ³ (%)	27.04%	30.40%
RES-T ⁴ (%)	4.80%	6.45%
Overall RES share ⁵ (%)	9.76%	11.03%
<i>Of which from cooperation mechanism⁶ (%)</i>	-	-
<i>Surplus for cooperation mechanism⁷ (%)</i>	-	-

Table 1a:
Calculation table for the renewable energy contribution of each sector to final energy consumption (ktoe)⁸

	2017	2018
(A) Gross final consumption of RES for heating and cooling	3,782.6	4,190.3
(B) Gross final consumption of electricity from RES	8,187.5	9,228.6
(C) Gross final consumption of energy from RES in transport	1,068.2	1,437.2
(D) Gross total RES consumption ⁹	13,038.3	14,856.1
(E) Transfer of RES <u>to</u> other Member States	-	-
(F) Transfer of RES <u>from</u> other Member States and 3rd countries	-	-
(G) RES consumption adjusted for target (D)-(E)+(F)	13,038.3	14,856.1

¹ Facilitates comparison with Table 3 and Table 4a of the National Renewable Energy Action Plans (NREAPs).

² 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.

³ 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.

⁴ 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.

⁵ Share of renewable energy in gross final energy consumption. The same methodology as in Table 3 of NREAPs applies.

⁶ In percentage point of overall RES share.

⁷ In percentage point of overall RES share.

⁸ Facilitates comparison with Table 4a of the NREAPs.

⁹ 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 1b:
Total actual contribution (installed capacity, gross electricity generation) 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 electricity¹⁰

	2017		2018	
	MW	GWh	MW	GWh
Hydro ¹¹ :				
non pumped				
<1MW	1,872.9	4,809.9	1,878.3	4,973.3
1MW–10 MW				
>10MW				
Unallocated	-	-	-	-
pumped	2,600.0	2,862.0	2,600.0	2,489.7
mixed ¹²	300.0	0.0	300.0	0.0
Geothermal	0.0	0.0	0.0	0.0
Solar:				
photovoltaic	12,781.8	11,475.5	13,118.3	12,857.4
concentrated solar power	0.0	0.0	0.0	0.0
Tide, wave, ocean	18.4	4.2	20.4	9.3
Wind:				
onshore	12,596.9	28,717.1	13,553.9	30,216.9
offshore	6,987.9	20,915.9	8,216.5	26,687.1
Biomass ¹³ :				
solid biomass	3,118.0	20,541.5	4,563.0	23,531.5
biogas	1,793.0	6,466.5	1,811.0	6,188.2
bioliquids	0.0	0.0	0.0	0.0
TOTAL (excluding pumped storage)	42,068.9	91,729.4	46,061.5	103,638.8
of which in CHP	899	3,678	945	3,876

Table 1c:
Total actual contribution (final energy consumption¹⁴) 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 heating and cooling (ktoe)¹⁵

	2017	2018
Geothermal (excluding low temperature geothermal heat in heat pump applications)	0.8	0.8
Solar	52.0	52.7
Biomass ¹⁶ :		
solid biomass	2,798.0	3,125.3
biogas	279.7	348.8

¹⁰ Facilitates comparison with Table 10a of the NREAPs.

¹¹ Normalised in accordance with Directive 2009/28/EC and Eurostat methodology.

¹² In accordance with new Eurostat methodology. Mixed hydro generation is included in other hydro.

¹³ Take into account only those complying with applicable sustainability criteria, cf. Article 5(1) of Directive 2009/28/EC last subparagraph.

¹⁴ Direct use and district heat as defined in Article 5.4 of Directive 2009/28/EC.

¹⁵ Facilitates comparison with Table 11 of the NREAPs.

¹⁶ Take into account only those complying with applicable sustainability criteria, cf. Article 5(1) last subparagraph of Directive 2009/28/EC.

<i>bioliquids</i>	-	-
Renewable energy from heat pumps:	588.0	599.0
- of which aerothermal	528.6	536.8
- of which geothermal	59.5	62.2
- of which hydrothermal	-	-
TOTAL	3,718.6	4,126.6
<i>Of which DH¹⁷</i>	-	-
<i>Of which biomass in households¹⁸</i>	1,721.2	1,880.6

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)^{19, 20}

	2017	2018
- Bioethanol	360.82	381.42
- Biodiesel (FAME)	561.40	907.81
- Hydrotreated Vegetable Oil (HVO)	1.02	1.94
- Biomethane	-	0.21
- Fischer-Tropsch diesel	-	-
- Bio-ETBE	-	-
- Bio MTBE	-	-
- Bio-DME	-	-
- Bio-TAEE	-	-
Biobutanol	-	-
- Biomethanol	24.52	15.84
- Pure vegetable oil	-	-
Total sustainable biofuels*	948.49	1,310.33
Of which	-	-
sustainable biofuels produced from feedstock listed in Annex IX Part A	204.61	216.05
other sustainable biofuels eligible for the target set out in Article 3(4)e	-	-
sustainable biofuels produced from feedstock listed in Annex IX Part B	493.32	766.11
sustainable biofuels for which the contribution towards the renewable energy target is limited according to Article 3(4)d	250.56	328.17
Imported from third countries	-	-
Hydrogen from renewables	-	-
Renewable electricity	119.73	126.84
Of which		
consumed in road transport	4.56	6.14
consumed in rail transport	115.17	120.70
consumed in other transport sectors	-	-
others (Please specify) gaseous biofuels	0.00	14.06
others (Please specify)	-	-

*Total sustainable biofuels also includes diesel (origin bio) of 0.73 and 3.23 in 2017 and 2018 respectively, and methanol (non-bio, renewable) of 0.10 in 2018 only.

¹⁷ District heating and / or cooling from total renewable heating and cooling consumption (RES- DH).

¹⁸ From the total renewable heating and cooling consumption.

¹⁹ For biofuels take into account only those compliant with the sustainability criteria, cf. Article 5(1) last subparagraph.

²⁰ Facilitates comparison with Table 12 of the NREAPs.

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					
Renewables Obligation	Regulatory	Increase production of renewable electricity from a diverse technologies mix by setting an obligation on electricity suppliers to source a proportion of their electricity from accredited renewable generators.	Primarily large-scale renewable electricity by licensed generators.	Existing	Started in 2002 (2005 in Northern Ireland). Accredited capacity will generally receive support for up to 20 or 25 years, depending on when the station accredited. All support ends on 31 March 2037. The scheme closed to new applications on 31 March 2017 (with exceptions that extended the deadline for certain projects to January 2019 in Great Britain and 31 March 2019 in Northern Ireland).
Contracts for Difference (CfDs)	Financial Regulatory	Increase generation of a range of renewable and other low carbon technologies and drive down costs for consumers through technology competition. Scheme provides efficient long-term revenue support for low carbon forms of generation.	Primarily targeted at medium and larger scale renewable electricity generation by licensed generators located in Great Britain. Smaller/new entrants also encouraged to participate.	Existing	The scheme was launched in October 2014. Three CfD allocation rounds have been successfully completed, in 2015, 2017 and September 2019, awarding contracts to over 11GW of new generating capacity. The price of offshore wind is now around 65% lower than the first auction held in 2015.

					<p>The Government has announced that the next auction is planned for 2021.</p> <p>CfD contracts provide support for 15 years from the date that the project commissions.</p>
Final Investment Decision (FID) Enabling for Renewables	Financial Regulatory	<p>Increase generation from of a range of renewable and other low carbon technologies.</p> <p>Offered investment certainty in advance of CfD regime being put in place.</p>	Primarily large-scale renewable electricity generation by licensed generators.	Existing	<p>The FID enabling for renewables process was launched in March 2013.</p> <p>Eight contracts were awarded in April 2014. State aid approval has been received for all eight projects.</p> <p>The contracts provide support for 15 years from the date the projects commission, with the exception of biomass conversion projects, for which support ends in 2027.</p>
Feed in Tariffs	Financial Regulatory	Incentivise generation of low carbon electricity from a range of smaller scale technologies by paying for electricity which is generated and/or fed back into the grid.	Households, communities, organisations and businesses investing in projects up to 5MW	Existing	<p>Introduced on 1 April 2010. Accredited installations receive support for 10-25 years dependent upon the technology and time of application.</p> <p>Scheme closed to new applications on 31 March 2019 (with a grace period and time-limited extensions, the deadline for certain projects will be October 2022).</p>

Smart Export Guarantee	Regulatory	Small -scale low-carbon generators from a range of technologies will be able to sell their excess electricity back to the grid.	Households, communities, organisations and businesses investing in projects up to 5MW	Planned	The SEG, from 1 January 2020, will give small scale low-carbon electricity generators the right to be paid for the renewable electricity they export to the grid.
Renewable Heat Incentive (RHI)	Financial	<p>The programme provides payment for heat generated by registered installations from renewable sources, or for the generation and injection of biomethane into the national gas grid.</p> <p>Objectives:</p> <ul style="list-style-type: none"> • Contribute directly to decarbonisation of heating in the UK and to meeting Carbon Budgets. • Contribute to renewable energy in order to help meet the UK's 2020 renewable energy target. • Support growth of the renewable heat supply chain and challenge the market to deliver. 	<p>Non-domestic RHI: Non-domestic properties, industrial, commercial, public and district heating installers and manufacturers.</p> <p>Domestic RHI: Households, social and private landlords. In 2018 the scheme was reformed to additionally support registered third party finance providers who use an assignment of rights funding model.</p>	Existing	<p>Non-domestic RHI: opened in November 2011. Accredited capacity receives support for 20 years from that installation's accreditation date.</p> <p>Domestic RHI: opened in Spring 2014. Accredited capacity receives support for 7 years from that installation's accreditation date.</p> <p>Both domestic and non-domestic schemes are currently funded for new accreditations until the end of March 2021.</p>
Renewable Transport Fuel Obligation (RTFO)	Regulatory	Increase proportion of renewable fuel in road transport and non-road mobile machinery by obligating the supply of sustainable renewable fuel. In April 2018 targets were increased for 2018, 2019 and 2020 in line with Renewable Energy Directive (RED) requirements.	Fuel suppliers	Existing / Planned	The RTFO was launched in April 2008 and is currently ongoing. Increasing targets have been set to 2032.

1 Plug in Car Grant.	Fiscal	Increase the number of cleaner vehicles bought	Vehicle purchasers	Existing	The plug-in car grant launched in 2011 to support the purchase of ultra low emission cars. Grants changed in October 2018 to focus support on the cleanest vehicles
2.Plug in Van Grant	Fiscal	Increase the number of cleaner vehicles bought	Vehicle purchasers	Existing	The plug-in van grant launched in 2012 and continues to provide grants for buyers towards the cost of ultra low emission vans and HGVs
3.Plug-in Taxi Grant	Fiscal	Increase the number of cleaner vehicles bought	Vehicle purchasers	Existing	The plug-in taxi grant began in 2018, with grants available towards the purchase of ultra low emission taxis.
4. Plug in Motorcycle Grant	Fiscal	Increase the number of cleaner vehicles bought	Vehicle purchasers	Existing	Since 2016, grants are available towards the purchase of zero emission motorcycles.

Other funding and grants to encourage deployment and innovation

Rural Community Energy Fund	Financial	Provision of grants (and previously loans) to support costs of feasibility studies into local renewable energy projects (Stage 1 funding) and to fund costs to enable project to become investment-ready (Stage 2)	Community groups-England	Existing	£15m Government scheme launched in June 2013. Expected to run until 2021 or when the funding is fully allocated; whichever comes first.
UK Marine Energy Testing Infrastructure	Infrastructure and innovation	Provision of testing facilities for developers of wave and tidal energy.	Developers, manufacturers	Existing	There are currently three main UK wave and tidal testing centres – the European Marine Energy Centre (Orkney), Wave Hub (Cornwall), the former “National Renewable Energy Centre” which is now operated by the Offshore Renewable Energy Catapult (NE England). These were opened in 2003, 2012 and 2002 respectively

					and continue to operate. A number of other potential privately funded testing and demonstration centres are being considered off the Welsh coast but are still at an early stage of development.
Electric Vehicle Homecharge Scheme	Fiscal	Increased infrastructure across the UK for electric vehicle chargepoints	End users	Existing	2014-ongoing. Scheme amended July 2019 to fund only smart charge points.
Workplace Charging Scheme	Fiscal	Increased infrastructure across the UK for electric vehicle chargepoints	End users	Existing	2016- ongoing
On-street Residential Charging Scheme	Fiscal	Increased infrastructure across the UK for electric vehicle chargepoints	End users	Existing	2016 - ongoing
Taxi charging infrastructure	Fiscal	Increased infrastructure across the UK for electric vehicle chargepoints	End users	Existing	2017 - ongoing
Charging Infrastructure Investment Fund	Fiscal	Increased infrastructure across the UK for electric vehicle chargepoints	Chargepoint industry/investors	Existing	2019 - ongoing
Hydrogen for Transport	Fiscal	Increase the uptake of Fuel Cell Electric Vehicles (FCEVs) and expand the number of hydrogen refuelling stations in the UK	End users	Existing	2017 - ongoing
FCEV Fleet Support Scheme	Fiscal	Support public and private sector fleets to become early adopters of FCEVs	End users	Existing	2016 – ongoing
Office for Low Emission Vehicles (OLEV) Research & Development (R&D)	Fiscal	Increased infrastructure across the UK for public electric vehicle chargepoints	Manufacturers	Existing	2010 – ongoing
Go Ultra Low Cities	Fiscal	Behaviour Change around electric vehicles	End users	Existing	2016 – ongoing

Marine Energy Array Demonstrator	Financial and 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. A grant of £10m was offered to the MeyGen project to deploy a 6MW array comprising 4 tidal stream turbines. The project deployed in Summer 2016. This small demonstration array is the first in the world. 3GWh and 7.5GWh was generated in 2017 and 2018 respectively.
Alternatively fuelled trucks	Financial	Trials to evaluate potential for alternatively fuelled HGVs by working with industry on prototype vehicles and funding further R&D. The UK government provided £11.3m of funding. Final report is available at: https://www.gov.uk/government/publications/low-carbon-truck-and-refuelling-infrastructure-demonstration-trial-final-report	Government and Industry	Completed	Trial started in 2013 and concluded in 2016.
Advanced Biofuel Demonstration Competition (ABDC)	Financial	Promote advanced biofuels and address the risks and barriers associated with it. The scheme aims to create industry partnerships to develop novel fuels. The UK Government has provided £16m of funding to 2 UK SMEs to construct and commission advanced biofuel plants.	Government and industry	Existing	Started in August 2013 and finished in March 2019

Hydrogen Technology Advancement Programme	Fiscal	Behaviour Change	End users	Existing	2016 - 2018
Low Emission Freight and Logistics Trial	Financial	Demonstrate new technologies and encourage the widespread introduction of low and zero emission vehicles to UK fleets. The UK government has provided £20m of funding.	Government and Industry	Existing	Trial started in 2017 and is expected to continue until 2020.
Future Fuels for Flight and Freight Competition (F4C)	Financial	Promote advanced fuels which aim to reduce GHG emissions from the difficult-to-electrify aviation and HGV sectors. The UK Government is providing £22m of funding to UK projects to construct and commission advanced fuel plants by September 2021.	Government and industry	Existing	Launched in August 2017 and will continue until September 2021.
Green Investment Bank	Financial	Mobilising private sector investment into green infrastructure. Between 2012-2017, the programme provided Government funding to new green infrastructure projects, alongside the private sector.	Developers and investors	Complete	By the end of March 2017, GIB invested in 100 projects with a total transaction value of £12.0 billion, committing £3.4 billion of its own capital. GIB was sold to Macquarie in August 2017.
Offshore wind sector deal	Financial and innovation	Increase the production of offshore wind energy while driving down the cost to consumers; increase the economic growth across the UK (target of 60% UK content by 2030 and 27,000 jobs – up from 7,200), including growth in regions and to increase the diversity of the workforce (ambition for 40% women).	Offshore wind sector/Regions/ diverse workforce	Planned	Offshore Wind Sector deal was published on 7 March 2019.

Heat Network Investment Project (HNIP)	Financial	<p>Funding offered through HNIP seeks to leverage around £1bn of private sector and other investment to support the commercialisation and construction of strategic, optimised and low-carbon heat networks.</p> <p>This funding, in combination with industry, will deliver a step change in the development of the heat networks market, build the capability of project sponsors and the supply chain to develop heat networks of the right type and quality.</p>	Heat Networks in England and Wales	Existing	HNIP launched in autumn 2018 and provides funding of up to £320m
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Wider regulatory measures that support renewable deployment

Biomass sustainability.	Regulatory	Ensure all solid and gaseous biomass in receipt of subsidy under Renewables Obligation (RO), Feed-In Tariffs Scheme (FITS), Renewable Heat Incentive (RHI) and Contracts For Difference (CfD) is sustainable by introducing minimum sustainability requirements of: a greenhouse gas saving (at least 60% saving compared to the EU grid average) and land criteria	<p>Generators of electricity and heat from biomass.</p> <p>Investors.</p>	Existing	The Renewables Obligation, Feed-In Tariffs Scheme, Renewable Heat Incentive and Contracts for Difference include support for biomass and biogas technologies. Since 2015 the UK has applied sustainability criteria for biomass and biogas receiving support under these four schemes.
New car and van CO2 regulations	Regulatory	Ensures that vehicle manufacturers reduce their tailpipe CO2 emissions by setting CO2 emissions targets that must be met newly registered vehicles, either by improving the efficiency of the vehicles being sold or by deploying new technologies that emit less CO2 than ICEs – BEV, PHEV, FCEV etc.	Manufacturers of cars and vans	Existing	Directly applicable EU regulations – initially launched in 2009 for cars and in 2011 for vans. New regulations for HDVs were adopted in 2019, with the first target applicable from 2025.

Unblocking barriers					
Go Ultra Low Communications Campaign	Soft	Behaviour Change around electric vehicles	Consumers	Existing	2014- ongoing
Measures being taken by the Devolved Administrations					
Scotland					
Scottish Renewable Heat Loan Fund	Financial Loans	To assist in development of heating Schemes using renewable heat sources	Open to all, public business and third sector	Existing	2011 - ongoing
Small and Medium Enterprises (SME) Energy Efficiency Loans	Financial loans	To support SMEs to uptake energy efficiency and renewable measures in	SMEs 250 or less employees – private and third sector	Existing	2008 - ongoing
Home Energy Scotland loans	Financial loans	To support individuals to uptake energy efficiency and renewable measures in properties	Individuals	Existing	2016 – ongoing
Community and Renewable Energy Scheme (CARES)	Financial and soft	To assist in delivery of target for 1 GW of renewable energy in Scotland to be locally/ community owned by 2020 and 2 GW by 2030. Programme provides - enablement grants and development loans and advice as well as assistance to negotiate for community benefits from commercial schemes.	Community groups and rural SME businesses	Existing	2011- ongoing To date over 150 projects have been funded with average community payments of around £4,500 per MW per year.
Energy Investment Fund	Financial	Scottish Government operated £103m fund on a commercial basis to fill market gap in support for community groups (linked to CARES support above), for marine energy schemes and for	Targeted at community groups, marine energy and district heating developers.	Existing	2012 - ongoing Case studies can be found on the Scottish Enterprise website .

		district heating.			
National Renewables Infrastructure Fund	Financial	To support the development of offshore wind manufacturing at coastal locations The fund looks at providing some funding for projects which could help de-risk the project to attract further private funding and / or benefit from government schemes such as FiTs and CfDs.	Port owners; turbine manufacturers; foundation manufacturers	Existing	Opened Oct 2010 with £70m to invest in offshore wind in Scotland.
Northern Ireland					
Northern Ireland Renewables Obligation (DfE)	Regulatory	Increase generation of renewable electricity from a range of technologies by setting obligations on electricity suppliers to ensure they generate electricity from renewable sources.	Renewable electricity generation of all sizes	Existing	Introduced in April 2005. Support is provided for 20 years from the time of accreditation or to 31 March 2037, whichever is earlier. The NIRO closed to new large-scale onshore wind on 31 March 2016, new small scale onshore wind on 30 June 2016 and all new non-wind technologies on 31 March 2017, with exceptions for projects that satisfied the criteria for grace periods. All of the grace periods have now closed.
Renewables Heat Incentive (Domestic and Non-Domestic)	Financial	The NIRHI schemes are intended to increase the uptake of renewable heat technology among householders (domestic scheme) business, public sector, and other non-domestic and non-profit organisations in Northern Ireland	Renewable Heat generation of all sizes	Existing	The non-domestic scheme started in 2012. Support is provided for up to 20 years from the time of accreditation. The domestic scheme started in 2014. An up-front payment is followed by seven annual

		and to assist in achieving EU, UK-wide and the Northern Ireland Executive's target of increasing heat consumption from renewable sources.			payments. Both schemes were suspended to new applications in February 2016.
Northern Ireland Biomass Processing Challenge Fund (DARD)	Financial	<p>Installation on-farm of an increased number of biomass-fueled renewable energy technologies.</p> <p>To provide farmers with a secure supply of clean energy for use in support of their agricultural activities.</p>	Primary producers from the land based sector in Northern Ireland	Completed	<p>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. Projects to be implemented by 2017</p> <p>Tranche Two of the BPCF provided almost £1m in funding for a range of on-farm renewable energy projects, supporting a total investment of almost £5million. The scheme made its last payments back in 2015 and over the last few years have been in the post project monitoring phase.</p>
Funding for Grid Infrastructure for Renewables	Regulatory	£25m has been provided for Distribution Network Reinforcement (An additional £10.5m may be available during RP6 if NIE Networks can demonstrate that the uptake of Low Carbon Technologies are having a material effect on the system requiring further investment to mitigate arising issues. A further determination will be made in March 2021 after a mid-term review has been conducted. £10m was provided within the RP6 period for 33kV Congestion.	Investors End Users Renewable Industry	Existing	2017 to (2023/24).

Strategic Planning Policy Statement (SPPS) for Northern Ireland	Regulatory	<p>The SPPS consolidates a suite of existing Planning Policy Statements (PPSs) and provides a strategic planning policy framework for a range of land uses including renewable energy. Planning,</p> <p>Local councils must take account of the SPPS when bringing forward their Local Development Plans and determining planning applications.</p> <p>The aim of the SPPS in relation to renewable energy is to facilitate the siting of renewable energy generating facilities in appropriate locations within the built and natural environment in order to achieve Northern Ireland's renewable energy targets and to realise the benefits of renewable energy without compromising other environmental assets of acknowledged importance.</p>	NI Department for Infrastructure (DfI) Planning, local councils, developers	Existing	<p>SPPS published September 2015.</p> <p>The provisions of PPS 18 'Renewable Energy' published August 2009 will remain relevant under the transitional arrangements of the SPPS until a Council adopts its Plan Strategy document of its Local Development Plan.</p>
Nearly Zero Energy Buildings	Regulatory	By 31 st December 2020 (from 31 st December 2019 for public sector buildings) all new buildings to be nearly zero	New buildings	Planned	Implementation on certain public buildings from Jan 2019 and full implementation

		energy buildings.			on by 31 st December 2020, to follow standards in England.
Duty to promote renewable heat	Soft	Behavioral change	Public administration – requirement will be on the Department of Enterprise Trade and Investment	Existing.	2014 and on-going.
Wales					
FLEXIS	Soft	Led by Cardiff University FLEXIS aims to create a world class energy systems research capability in Wales, by bringing together research experts specializing in energy networks, infrastructure, resources, storage, load management, demand and safety management, who will adopt a systems approach to energy challenges, both within Wales and internationally.	Academic, Research and Design and Industry.	Existing	From 01/07/2015 to 28/02/2021
Active Buildings Centre	Soft	Led by Swansea University. The Active Building Centre’s vision is to transform the UK construction and energy sectors through the deployment of Active Buildings contributing to more efficient energy use and decarbonisation. Plans to deliver a pipeline that proves the case for these innovative Active Buildings, which are more sustainable, perform better,	Research and Innovation, collaborating with supply chain companies	Existing	Funded through Industrial Strategy Challenge fund via the Engineering and Physical Sciences Research Council (EPSRC) until 2021

		and could significantly contribute to UK decarbonisation.			
Marine Renewable Energy Strategic framework.	Soft	Practical Wave and Tidal Resource Assessment based on development constraints. Encourage deployment by de-risking potential sites through running scenarios and assessments which will be available to those interested in developing energy from wave & tidal resources.	Welsh Government Policy Officials, industry and investors.	Completed	Final report published in 2011
Welsh Government Energy Service	Soft/Financial	Advice, grants, capital support to community groups and small businesses to develop their own renewable energy schemes which provides a benefit to people and communities in Wales. To assist in delivery of target for 1GW MW of renewable energy in Wales to be locally/ community owned by 2030. Public sector - technical, commercial, financial and procurement expertise. Also loan finance available where it is compliant with state aid and other restrictions.	Public sector, communities, social enterprises, small businesses	Existing	From 2018 to 2022

		To support the public sector in becoming carbon neutral by 2030			
SPECIFIC		<p>Developing and working with others on technology integration to generate store and release within the built environment to create active buildings.</p> <p>An innovation and Knowledge Centre funded by EPSRC and ERDF funds through Welsh Government.</p> <p>SPECIFIC is led by Swansea University</p> <p>SPECIFIC brings together world class expertise in a range of fields including photovoltaics, solar thermal, functional coatings as well as heat and electrical storage.</p> <p>SPECIFIC builds first-of-a-kind buildings to test and prove the systems in meaningful situations</p>	Research and innovation collaborating with businesses	Existing	Funded until 2022
Smart Living Wales	Soft	<p>Studies supporting development of innovative demonstrator proposals</p> <p>Phased approach to development using key milestones for review to reduce risks</p>	Public Sector	Existing	Commenced 2015/16 and ongoing
Marine Energy Wales	Soft	Supporting the promotion of marine energy development in Wales.	Marine developers and supply chain companies.	Existing	Commenced 2016.

		http://mresf.rpsgroup.com/			
2014-2020 ERDF Priority 3 – Renewable Energy & Energy Efficiency	Financial	Support for the development of marine energy sector, community renewable energy and for tackling extreme fuel poverty	Marine energy sector, local community groups, local authorities and Welsh Government	Existing	Jan 2014 – Dec 2020

2.a. 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)(e) of Directive 2009/28/EC).

Since the last progress report, the UK Government has taken a number of steps to reduce the regulatory and non-regulatory barriers to the uptake of renewable energy.

Power Purchase Agreements

As part of the package of measures aimed at facilitating transition from the Renewables Obligation (RO) to the Contracts for Difference support regime, Government 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 work is now complete and was published in 2013.²¹

This has helped to reduce administrative and financial barriers for independent renewable generators and mitigate any investment hiatus. This has been achieved through the creation of a framework and guidelines agreed by purchasers of power and sellers.

Off-taker of Last Resort

The Off-taker of Last Resort (OLR) scheme was also introduced²² to help generators holding CfDs by providing an alternative route to market for their electricity by facilitating a Backstop Power Purchase Agreement (BPPA) between the generator and a supplier via a competitive auction process. OLR is intended as a last resort to help generators who cannot get a power purchase agreement through the usual commercial routes, so the electricity generated under a BPPA is sold at a specified discount below the market reference price.

The aim of this scheme is to ensure that new entrants to the energy market will always have a market for the electricity they produce. Even if the electricity is sold at below market value, lenders to new entrants can take this into account when considering returns on their investment. It is hoped that the market will continue to grow so the OLR market will be an actual “last resort”. While as intended the OLR has not yet been used, there is evidence that it has helped in the financing of projects.

²¹https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/262555/Working_Group_Two_Draft_Best_Practice_Guidelines_-_November_2013.pdf;
<http://webarchive.nationalarchives.gov.uk/20140320233615/https://www.gov.uk/government/policies/maintaining-uk-energy-security--2/supporting-pages/electricity-market-reform>

²² <https://www.gov.uk/government/consultations/implementing-the-offtaker-of-last-resort>

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*).

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 (TO) companies. As regulated monopolies, these companies 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, the ‘Electricity System Operator’ (ESO), which has certain responsibilities in the planning of the transmission network.

For the current electricity transmission price control that runs from 2013-2021 in Great Britain, Ofgem has introduced a new price control framework, 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. Ofgem agreed funding of up to £21.5bn in this price control period for the TOs 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.²³

The current electricity distribution price control period runs from April 2015 to March 2023. Ofgem has allowed funding of up to £24.6bn for the six Distribution Network Operators’ (DNOs), who own the 14 regional distribution networks.²⁴

Timely grid connections

To ensure the timely connection of new generation projects, the Government introduced enduring ‘connect and manage’ transmission grid access reforms in 2010. These have proved successful, particularly in reducing the grid connection times for renewable projects by an average of five years. The regime now forms a standard part of the transmission grid connection arrangements in Great Britain.

DNOs have a range of incentives and penalties relating to providing efficient connections to customers. Under the Time to Connect Incentive DNOs are rewarded when they meet the target time for issuing a connection offer and completing a connection for smaller projects. The target gets tougher throughout the price control. For larger and more complex connections there is the Incentive on Connections Engagement. Under this incentive DNOs publish and implement an

²³See <https://www.ofgem.gov.uk/publications-and-updates/riio-1-gas-transmission-annual-report-2017-18>; <https://www.ofgem.gov.uk/publications-and-updates/riio-electricity-transmission-annual-report-2017-18>

²⁴ <https://www.ofgem.gov.uk/publications-and-updates/riio-gas-distribution-annual-report-2017-18>; <https://www.ofgem.gov.uk/publications-and-updates/riio-electricity-distribution-annual-report-2017-18>

annual action plan that meets the needs of these customers. Ofgem oversees the process and consults stakeholders on the effectiveness of DNO performance. Ofgem has the powers to impose financial penalties on DNOs who underperform. DNOs are increasingly offering flexible connections to renewable projects which has resulted in over 3GW of extra connection offers being made without the need for network reinforcement.

Offshore transmission

For the transmission of generation from offshore sources (e.g. windfarms) to the onshore network, BEIS and Ofgem have put in place a competitive regime in which licences to operate (or construct and operate) offshore transmission assets are granted by competitive tender to Offshore Transmission Owners (OFTOs) for a 25-year revenue stream (increased from 20 years for the current tender round onwards). Our innovative OFTO regime is harnessing competition to create a strong market and deliver value for money. There have now been 18 OFTO licences granted by Ofgem, totalling about £3.8bn of investment in offshore transmission through the regime, with another £2.8bn currently in the tender process.

Smart Grids

The UK Government is working closely with the energy regulator (Ofgem) and industry to support the transition to a smarter, more flexible energy system. In July 2017, the Government and Ofgem jointly published the Smart Systems & Flexibility Plan²⁵, following close engagement with stakeholders across the energy industry and beyond. This plan outlines the underlying principles of our approach to enable the transition to a smart and flexible system, followed by 29 actions for the Government, Ofgem and/or industry to lead on to realise this. Our aim is to establish a best-in-class regulatory framework to harness the full potential of smart and flexible energy solutions through improvements in the regulatory and policy environment for smart technologies, including storage and demand-side response, enabling smarter homes and businesses, and making markets work for flexibility. The Government's rollout of smart meters is just one of the actions that will provide a platform to support the development of smarter networks.

A Progress Update on the Smart System and Flexibility Plan was published in October 2018²⁶, announcing that over half of the original 29 actions had been implemented and setting out nine new actions which continue to support the transition to a smart and more flexibility energy system. The new actions include the launch of new work to improve the availability and transparency of data which can be used to reduce costs and facilitate competition, innovation and new business models in the energy sector.

As part of the electricity distribution price control that ran until 31 March 2015, Ofgem established the Low Carbon Networks (LCN) Fund, which allowed up to £500m for DNOs to carry out smart grid pilot projects. These projects piloted various smart innovative solutions including Active Network Management and Distribution based storage to accommodate accelerated connection of renewables, which are now being rolled out across the electricity network. The current electricity distribution network price control period is continuing this work with Ofgem introducing an annual Electricity Network Innovation Competition (NIC) and the Electricity Network Innovation Allowance (NIA) for electricity network companies.

²⁵ <https://www.gov.uk/government/publications/upgrading-our-energy-system-smart-systems-and-flexibility-plan>

²⁶ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/756051/ssfp-progress-update.pdf

The NIC funding, up to £70m per annum, is provided through a competitive process for large innovation projects that help all network operators understand what they need to do to provide environmental benefits and security of supply at value for money. The NIA is part of the price control revenue allowance for each network company and is for smaller projects that have the potential to deliver financial benefits to the network company and its customers; and/or to fund the preparation of submissions to the NIC. Unlike the NIC, the NIA does not solely focus on innovation projects with potential low carbon and environmental benefits, but includes wider benefits to network customers.

Interconnection

Great Britain currently has 5GW of interconnection capacity with other countries. The Government recognises the potential of increased electricity interconnection capacity to promote positive impacts on energy costs, decarbonisation and security of supply.

The Government's Clean Growth Strategy indicates the potential for a further 8.1 GW of interconnection, in addition to the 5 GW already operational and the 4.8 GW under construction. The Ofgem "Cap and Floor" regime has brought forward a strong pipeline of projects, with 6.1 GW of projects pursuing regulatory approval in the connecting country and a 2 GW project seeking an exemption to pursue a merchant route.

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.

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 introduced in England and Wales a planning system for applications to build nationally significant infrastructure projects (NSIPs), including electricity networks. More recently, some of those powers have been transferred to the Welsh Government for projects in Wales.

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 individual planning decisions. The Welsh Government has also issued its own planning guidance on energy infrastructure projects which works alongside the NPSs.

Smaller electricity networks infrastructure projects which fall below the thresholds set out in the Planning Act 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.

The Government has introduced an electronic application service for processing applications under the Electricity Act 1989 for electric lines below the Planning Act threshold in order to help streamline the process. This service is being utilised by the majority of DNOs.

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 has been devolved to Scottish Ministers by the Scotland Act 1998.

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

- A review of scoping 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 is joined up and considered in a streamlined way.
- On line guidance and information on good practice.
- 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; whereby electricity transmission and distribution companies can install their electric lines and associated equipment on, over or under private land; 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. The main change is the defining of cases where the consent of Scottish Ministers is not required for the installation, or keeping installed, of an electric line above ground.
- 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 are obtained from two separate Northern Ireland government Departments. For those projects deemed to be strategically significant, the Department for Infrastructure (DfI) administers the planning regime (i.e. land use) and the Department of Agriculture, Environment and Rural Affairs (DAERA) administers the marine licensing regime. They will consider if a project complies with Northern Ireland planning and marine licensing legislation and all environmental controls (e.g. Environmental Impact Assessments, Habitats Directive). For smaller projects planning consideration and approval falls within the remit of local councils and DAERA have remit for marine licensing consent. Other consents may also be required e.g. a generation or transmission license from the Northern Ireland Authority for Utility Regulation.

Under the Electricity (Northern Ireland) Order 1992, the Department for the Economy (DfE) is responsible for the grant of consents to construct and operate generating plant above certain output capacities. DfE 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 (the requirement for Member States to lay down the criteria for the grant of authorisations for the construction of generating capacity in their territory). 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, DfE, DfI and DAERA have had an agreed memorandum of understanding in place for some time setting out roles, responsibilities and clear lines of communication within which the three Departments will work closely together to ensure that planning, marine licensing and consent applications for all energy infrastructure and installations requiring a consent are brought to the most appropriate decisions as quickly as possible. That memorandum is currently under review following some statutory changes.

Dispatching generation

Great Britain has a self-dispatch regime. The ESO is therefore not in charge of dispatching generation installations. The ESO may take actions to alter which generators are able to export power 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 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) rather than 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 network constraints.

In Northern Ireland a central dispatch model is used in which 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 Single Electricity Market Decision Document;
- c) installations generating electricity from high efficiency co-generation; and
- d) energy to waste plants.

The above approach is designed to diversify Northern Ireland's generation mix and apply downward pressure on bills.

Grid adaptation costs

The ESO is required to offer terms of connection to the transmission network, including connection charges to be paid and the date by which the necessary works will be completed to enable connection. A connection offer must be made within three months of receipt of receiving an application and necessary information from the applicant.

For the transmission network, connection charges relate to the costs of assets installed solely for, and only capable of use by, an individual generator. Wider network reinforcement to accommodate a connection is underwritten by the connectee and, when completed, the costs are recovered from all users of the transmission network through use of system charges.

DNOs are required to offer terms of connection to distribution networks, including connection charges to be paid and the date by which the necessary works will be completed to enable connection. A connection offer must be made within 30-65 working days (depending on the size of the connection) of receiving an application and necessary information from the applicant. When connecting to a distribution network, a connectee pays for any assets which they alone will use ('sole-use assets') and a share of any reinforcement they have triggered up to one voltage level above their connection. The remaining reinforcement costs are recovered from all other customers in the DNO region through use of system charges. Should another project connect to the sole-use assets within ten years, the original connectee will receive a payment from the later connectee via the DNO. Applicants may also appoint an independent connection provider or independent distribution network operator, instead of the DNO, to design and build the 'sole-use assets' part of the connection. This can reduce connection costs and timescales.

The ESOs and DNOs are required to publish a statement of their connection charging methodology and to send a copy to any person who asks for it. The ESO and DNOs are not permitted to discriminate between network users or classes of users.

In Northern Ireland the methodology for complaints, disputes and appeals is published on the TSO and DSO website. Dissatisfied parties can raise a dispute with the Utility Regulator²⁷.

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 groups or "clusters" generators (generally on shore wind farms) so that they 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.

Clustering large wind farm generators also offers advantages in managing information and control of that part of the system.

²⁷ Utility Regulators Dispute Resolution guidance can be found at:
http://www.uregni.gov.uk/uploads/publications/Utility_Regulator_Appeals_Complaints_and_Disputes_Policy_Jun

Network Charging

Charges for use of the transmission and distribution networks are designed to reflect the network companies' costs of investment, maintenance and operation. Renewable generators are subject to the same charging mechanisms as non-renewable generators.

Efficient economic signals are provided to transmission network users as services are priced to reflect the incremental costs of supplying them i.e. they reflect the impact that users at different locations have on the TOs costs. These charges are applied to all generators on a consistent basis and therefore do not discriminate against renewable generation located in peripheral regions. At distribution level, the charging mechanism varies depending on whether the generation station is located on the Extra High Voltage distribution network (33kV in Scotland, and 33kV and 132kV in England) or on the lower voltages of the distribution network.

Ofgem is currently progressing two Significant Code Reviews related to electricity network charging, the Targeted Charging Review and the Access and Forward-Looking Charges Review, to ensure that network charges remain fair, proportionate and incentivise efficient network use. Any changes are expected to be implemented from 2021-2023.

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 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 developments in the measures used with respect to those set out in your National Renewable Energy Action Plan (Article 22(1)(b) of Directive 2009/28/EC).

The Commission reminds Member States that all national support schemes must respect the state aid rules as foreseen in Articles 107 and 108 of the Treaty on the Functioning of the EU. The notification of the report in accordance with Article 22 of Directive 2009/28/EC does not replace a state aid notification in accordance with Articles 107 and 108 of the Treaty on the Functioning of the EU.

*It is suggested that **table 3** is used to provide more detailed information on the support schemes in place and the support levels applied to various renewable energy technologies. Member States are encouraged to provide information on the methodology used to determine the level and design of support schemes for renewable energy.*

The Renewable Heat Incentive

The Renewable Heat Incentive (RHI) opened for Non-domestic applicants at the end of November 2011. The Domestic scheme opened for applicants in Spring 2014. Both 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 RHI pays participants of the scheme that generate and use renewable energy to heat buildings or water, carry out processes involving heat or generate and inject biomethane into the national gas grid. The Non-domestic RHI scheme supports renewable heat installations in business, industry and the public sector, as well as heat networks.

The Non-domestic RHI has delivered support for almost 38TWh of heat generation and over 19,000 accreditations to September 2019. The Domestic RHI has supported over 73,000 accreditations to September 2019. Further details can be found in the RHI monthly Statistics²⁸.

Further support for the RHI scheme was announced on 25 November 2015 as part of the Spending Review²⁹. The Government has committed to spend approximately £1.15 billion in funding the RHI in 2021 to ensure that the UK continues to make progress towards its climate goals and will continually assess ways to ensure the scheme offers value for money. In December 2016, a series of wide-ranging reforms to the domestic and non-domestic RHI schemes were announced. The first tranche of Reforms were implemented in September 2017, and the second tranche were implemented in 2018. These reforms were designed to refocus the RHI to ensure that it;

Focusses on long-term decarbonisation:

Offers better value for money and protects consumers:

Supports supply chain growth and challenges the market to deliver.

There are no further plans to reform or amend either the domestic scheme or non-domestic scheme before March 2021.

²⁸ <https://www.gov.uk/government/collections/renewable-heat-incentive-statistics>

²⁹ <https://www.gov.uk/government/topical-events/autumn-statement-and-spending-review-2015>

Renewables Obligation

The Renewables Obligation (RO) was the main financial mechanism since 2002 by which the Government incentivised the deployment of large-scale renewable electricity generation in the UK, before the introduction of the Contracts for Difference scheme. It places an obligation on UK electricity suppliers to source a certain amount of their electricity supply from renewable generators.

The RO operates as three separate, but complementary, mechanisms working together - one for England and Wales, and one each for Scotland and Northern Ireland. At 31 March 2018, a total of 26,422 stations had accredited under the RO since April 2002, with a total capacity of 32.7GW. 75.2TWh of renewable electricity was generated in 2017-18 under the RO, representing 26% of the total UK supply (compared to 1.8% in 2002).

The RO closed to new capacity on 31 March 2017 with exceptions that extended the deadline for certain projects to January 2019 in Great Britain (and March 2019 in Northern Ireland). New projects in Great Britain have now transitioned to the more cost-effective and competitive Contract for Difference scheme, which provides greater revenue stream stability and de-risks the investment process.

Contracts for Difference

A Contract for Difference³⁰ (CfD) is a private law contract between a low carbon electricity generator and the Low Carbon Contracts Company (LCCC), a government-owned company, introduced as part of the now implemented Electricity Market Reform (EMR) programme. A generator party to a CfD is paid the difference between the 'strike price' – a price for electricity reflecting the cost of investing in a particular low carbon technology – and the 'reference price' – a measure of the average market price for electricity in the GB market. It gives greater certainty and stability of revenues to electricity generators by reducing their exposure to volatile wholesale prices, whilst protecting consumers from paying for higher support costs when electricity prices are high.

The third competitive allocation round of CfD scheme for less established renewable energy technologies was completed in September 2019, and led to twelve generators signing contracts to deliver 5.8GW of new renewable generation capacity. The allocation rounds to date have shown the beneficial impact of competitive processes, with the contracted capacity costing consumers significantly less than it could have in the absence of competition. The price of offshore wind projects are now around 30% lower than the second auction in 2017 and 65% lower than the first auction in 2015. This is the first time that renewables are expected to come online below market prices, meaning a better deal for consumers.

In total, competitive CfD auctions have so far awarded contracts to over 11GW of new renewable electricity capacity. This is in addition to the contracts awarded to about 4.5GW of new renewable electricity capacity under the Final Investment Decision Enabling for Renewables programme.

The Feed In Tariffs Scheme

The Feed-in Tariffs (FIT) scheme opened to applicants on 1 April 2010 with the objective to incentivise the deployment of small-scale low-carbon electricity generation by individuals,

³⁰ <https://www.gov.uk/government/publications/contracts-for-difference/contract-for-difference>

householders, organisations, businesses and communities. It supports solar photovoltaic, hydro, anaerobic digestion and onshore wind projects up to 5MW and micro CHP installations up to 2kW. Under the scheme generators receive three sources of income/savings:

- Generation tariff - a payment for every kWh generated, dependent on the technology and capacity of the installation, and date installed.
- Export tariff - an additional payment for every kWh exported to the local electricity network, currently set at 5.38p/kWh
- Bill savings - additional benefit from usage of electricity “onsite” as opposed to paying the retail price for importing that energy from the grid

Over 865,000 FIT-scale installations (6.32GW capacity) were registered on the scheme as at the beginning of November 2019. Of these, around 99% are solar PV installations (81% of capacity).

In July 2018, government announced its intention to close the export tariff alongside the generation tariff at the end of March 2019. The consultation and government response can be found at: <https://www.gov.uk/government/consultations/feed-in-tariffs-scheme>. The scheme closed in full to new applications from 1 April 2019 subject to time-limited extensions and a grace period.

The Renewable Transport Fuel Obligation

The RTFO is the Government’s main policy for reducing GHG emissions from transport fuels. It places an obligation at the duty point (the point when chargeable duty to HM Revenue and Customs must be paid) on owners of fuel supplied for road transport and non-road mobile machinery to ensure that a certain amount of renewable fuel is supplied. Exemptions are provided for suppliers supplying less than 450,000 litres a year.

Obligated suppliers must demonstrate that they have met their obligation by redeeming Renewable Transport Fuel Certificates (RTFCs) at the end of the year. An obligated supplier can obtain RTFCs either by supplying renewable fuels, or by buying them from renewable fuel suppliers. Trading RTFCs provides potential financial support for the production of renewable fuels. The value of RTFCs, as tradable commodities, is determined by the market.

The RTFO was amended 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 reward for those derived from wastes and residues.

In March 2018 the RTFO was amended to:

- increase the obligation level to 9.75% in 2020, rising to 12.4% in 2032,
- set a sub-target for development fuels at 0.1% in 2019, rising to 2.8% in 2032,
- introduce a crop cap at 4% in 2018, reducing in equal increments annually from 2021 to reach 3% in 2026 and 2% in 2032, and
- bring renewable aviation fuels and renewable fuels of non-biological origin into the scheme.

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

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).

Article 21(2) of the Renewable Energy Directive was implemented in UK law (into the RTFO) on 15 December 2011 resulting in double reward for biofuels made from wastes, residues, non-food cellulosic material, and ligno-cellulosic material. This means that qualifying fuels attract two Renewable Transport Fuel Certificates (RTFCs) rather than one per litre of renewable fuel supplied to the UK market.

From 2018 a waste is not eligible for double RTFCs where it would not otherwise be used for higher value end uses according to the waste hierarchy concept. The extent to which using that material for biofuel delivers a better environmental outcome will determine whether it is eligible for single or double RTFCs. The Administrator considers any alternative uses and alternative disposal outcomes which could have been adopted or used for the relevant residue or waste.

We exempt materials that meet the Waste Framework Directive definition of waste from having to comply with the land criteria. The requirement to meet the land criteria therefore only applies to feedstocks which are crops, dedicated energy crops and residues from agriculture, aquaculture, fisheries or forestry. Residues from agriculture, aquaculture, fisheries or forestry need to meet the land criteria, regardless of whether they are a waste or not. Relevant Government departments are working closely to ensure consistent policy on wastes and to identify areas where Government can help make the collection and utilisation of waste streams easier for business.

To further support the use of wastes, residues, non-food cellulosic material and lingo-cellulosic material we introduced a development fuel target in 2019. A development fuel is biofuel made from certain sustainable wastes or residues (excluding segregated oil and fats) or a non-biological renewable fuel (RFNBO). The feedstock must be used to produce hydrogen, aviation fuel, substitute natural gas or be a drop in fuel (able to blend at 25% concentration or higher). Qualifying fuels are rewarded with a new category of RTFC - development fuel RTFCs (dRTFC). In recognition of the greater costs of production of these advanced fuels we have set a higher buy-out price of £0.80/l compared to general RTFCs set at £0.30/l.

RFNBOs, which have been produced using renewable energy, are eligible for double RTFCs in recognition of their potential environmental benefits and to encourage their deployment. 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 Renewable Transport Fuel Certificates (RTFCs) rather than one per litre of biofuel supplied to the UK market. Following our 2017 consultation a waste will be eligible for double RTFCs where it would not otherwise be used for higher value end uses according to the waste hierarchy concept. The extent to which using that material for biofuel delivers a better environmental outcome will determine whether it is eligible for single or double RTFCs.

Following consultation on the Renewable Heat Incentive (RHI), published on 3 March 2016, the scheme was restructured in 2018 to incentivise the use of wastes and residues in order to account for the additional benefits these feedstocks offer in the production of biogas and biomethane. A requirement was introduced for new biomethane and biogas installations to produce gas from at

least 50% waste and residues in order to receive full RHI payments. Producers who chose to comply with the new regulations on waste and residues before they came into force, but after the consultation response was published, were given early access to the new, higher tariffs. Additionally, waste feedstocks are not subject to the same sustainability and land use criteria as other feedstocks.

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.

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.

All requests for REGOs made before 5 December 2010 were 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. 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. Ofgem has a fraud prevention strategy in place for the administration of the REGO scheme and the other Renewables schemes it administers. As required by legislation Ofgem also recognises Guarantees of Origin from other Member States when requested.

6. Please describe the developments in the preceding 2 years in the availability and use of biomass resources for energy purposes (Article 22(1)g) of Directive 2009/28/EC).

The Renewables Obligation, Renewable Heat Incentive and Contracts for Difference include support for biomass and biogas technologies. Since 2015 the UK has applied sustainability criteria for biomass and biogas receiving support under these three schemes. The criteria are based on the recommendations from the European Commission and include a minimum 60% lifecycle greenhouse gas savings requirement and land criteria. There may be a need to revise these in the light of the revision of the Renewable Energy Directive. For woody biomass, the land criteria is based on the Timber Standard and is designed to protect certain habitats from exploitation and take into account a range of social, economic and environmental issues including protecting biodiversity, land use rights, sustainable harvesting and regeneration rates. Other biomass types may not be sourced from protected areas. There are certain exemptions to the land criteria and greenhouse gas saving requirement, including for wastes.

Generators with capacity greater than or equal to one megawatt must also complete an annual sustainability audit of the biomass they have used. In addition all woody biomass is expected to comply with the EU Timber Regulation.

There have been three Contract for Difference (CfD) allocation rounds since 2015. A number of biomass plants were successful in obtaining CfDs in these auctions. These are as follows:

2015 CfD allocation round³¹

<i>Project Name</i>	<i>Developer</i>	<i>Technology</i>	<i>MW</i>	<i>Strike Price (£/MWh, 2012 prices)</i>	<i>Delivery Year</i>
BHEG Walsall	BH Energy Gap (Walsall) Ltd	Advanced Conversion Technologies	26	114.39	2018-2019
Energy Works (Hull)	Energy Works (Hull) Limited	Advanced Conversion Technologies	25	119.89	2017-2018
Enviroparks Hirwaun Generation Site	Enviroparks Operations Ltd	Advanced Conversion Technologies	11	119.89	2017-2018
Wren Power and Pulp	Gent Fairhead & Co. Ltd	Energy from Waste with CHP	49.75	80.00	2018-2019
K3 CHP Facility	K3CHP Ltd	Energy from Waste with CHP	45	80.00	2018-2019

2017 CfD allocation round³²

Project Name	Developer	Technology Type	MW	Strike Price (£/MWh, 2012 prices)	Delivery Year
Drakelow Renewable Energy Centre	Future Earth Energy (Drakelow) Limited	Advanced Conversion Technologies	15.00	74.75	2021/22

³¹ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/407059/Contracts_for_Difference_-_Auction_Results_-_Official_Statistics.pdf

³² https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/643560/CFD_allocation_round_2_outcome_FINAL.pdf

Station Yard CFD 1	DC2 Engineering Ltd	Advanced Conversion Technologies	0.05	74.75	2021/22
Northacre Renewable Energy Centre	Northacre Renewable Energy Limited	Advanced Conversion Technologies	25.50	74.75	2021/22
IPIF Fort Industrial REC	Legal and General Prop Partners (Ind Fund) Ltd	Advanced Conversion Technologies	10.20	74.75	2021/22
Blackbridge TGS 1 Limited	Think Greenergy TOPCO Limited	Advanced Conversion Technologies	5.56	74.75	2021/22
Grangemouth Renewable Energy Plant	Grangemouth Renewable Energy Limited	Dedicated Biomass with CHP	85.00	74.75	2021/22
Rebellion	Rebellion Biomass LLP	Dedicated Biomass with CHP	0.64	74.75	2021/22

2019 CfD allocation round³³

Project Name	Developer	Technology Type	MW	Strike Price (£/MWh, 2012 prices)	Delivery Year
Bulwell Energy Limited	Bulwell Energy Limited	Advanced Conversion Technologies	27.50	39.650	2023/24
Small Heath Bio Power Limited	Small Heath Bio Power Limited	Advanced Conversion Technologies	6.10	41.611	2024/25

The Woodfuel guidance Version 2 – published 8 March 2017 – set out how to comply with RHI, RO and CFD woody biomass land criteria³⁴.

Ofgem publish biomass sustainability information from the Renewables Obligation (RO), alongside the RO Annual Report, on their website. Generators are required to report to the best of their knowledge and belief, so not all the data has been fully verified. Exemptions from reporting include generating stations up to 50kW using solid biomass or biogas and where biomass is from waste or wholly derived from waste.

Links to this data, covering 2016/17 and 2017/18 are below:

<https://www.ofgem.gov.uk/publications-and-updates/biomass-sustainability-dataset-2016-17>

<https://www.ofgem.gov.uk/publications-and-updates/biomass-sustainability-dataset-2017-18>

³³ <https://www.gov.uk/government/publications/contracts-for-difference-cfd-allocation-round-3-results>

³⁴ Use of high carbon North American woody biomass in UK electricity generation.
<https://www.gov.uk/government/publications/use-of-high-carbon-north-american-woody-biomass-in-uk-electricity-generation>

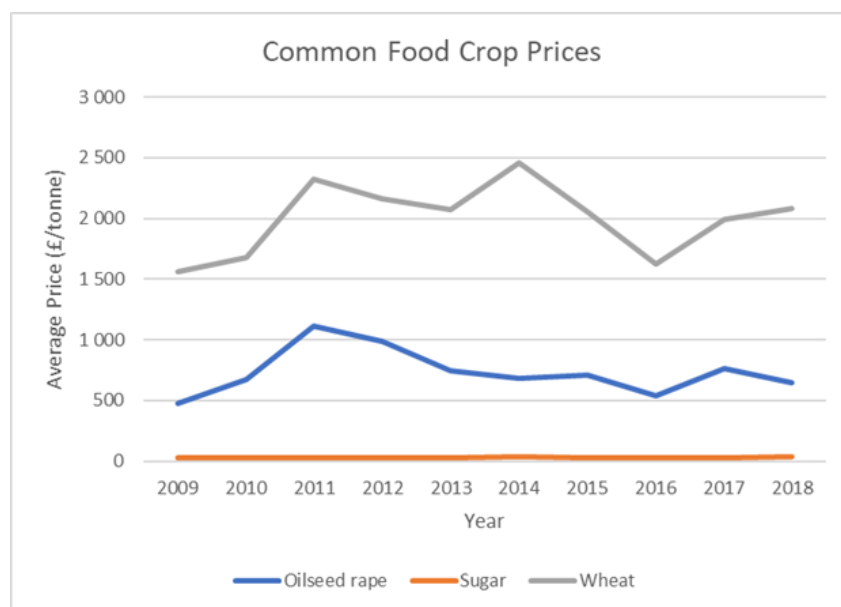
7. Please provide information on any changes in commodity prices and land use within your Member State in the preceding 2 years associated with increased use of biomass and other forms of energy from renewable sources? Please provide where available references to relevant documentation on these impacts in your country (Article 22(1) h) of Directive 2009/28/EC).

When assessing commodity price impacts, it is suggested to consider at least the following commodities: common food and feed crops, energy wood, pellets.

The Government currently has no evidence linking commodity prices and land use change with the increased use of biomass and other forms of energy from renewable sources.

The Department for Environment, Food and Rural Affairs (Defra) publish figures on land use change in England, which date back to 2013. Since then the statistics show that a greater proportion of land has changed from non-developed (including agriculture and greenbelt) to developed land (i.e. residential and commercial), than has changed from expansion of non-developed land onto developed land. (<https://www.gov.uk/government/statistical-data-sets/live-tables-on-land-use-change-statistics>).

Defra also publish data on the area of agricultural land and coverage of crops (<https://www.gov.uk/government/statistical-data-sets/agriculture-in-the-united-kingdom>). Since 2009 the area of agricultural land has remained relatively stable (3,075 thousand hectares in 2009 and 3,106 thousand ha in 2018). Likewise the area of agricultural production on set aside land has remained at zero since 2008. The report also shows that commodity prices for wheat, oilseed and sugar have fluctuated over the last 9 years, with no clear trend.



Source based on data from: <https://www.gov.uk/government/statistical-data-sets/agriculture-in-the-united-kingdom>

8. Please describe the development and share of biofuels made from wastes, residues, non-food cellulosic material, and ligno cellulosic material (Article 22(1)i) of Directive 2009/28/EC).

**Table 5:
Development in Biofuels**

Please provide the total amounts of biofuels made from the feedstocks listed in Annex IX of Directive 2009/28/EC (ktoe)

<i>Feedstock as listed in Annex IX Part A of Directive 2009/28/EC</i>	2017	2018
(a) Algae if cultivated on land in ponds or photobioreactors	0	0
(b) Biomass fraction of mixed municipal waste, but not separated household waste subject to recycling targets under point (a) of Article 11(2) of Directive 2008/98/EC	4.63	8.05
(c) Bio-waste as defined in Article 3(4) of Directive 2008/98/EC from private households subject to separate collection as defined in Article 3(11) of that Directive	0	0
(d) Biomass fraction of industrial waste not fit for use in the food or feed chain, including material from retail and wholesale and the agro-food and fish and aquaculture industry, and excluding feedstocks listed in part B of this Annex	182.24	187.87
(e) Straw	0.33	0
(f) Animal manure and sewage sludge	6.91	2.22
(g) Palm oil mill effluent and empty palm fruit bunches	3.18	13.89
(h) Tall oil pitch	0	0
(i) Crude glycerine	3.36	3.85
(j) Bagasse	0	0
(k) Grape marcs and wine lees	3.52	0
(l) Nut shells	0	0
(m) Husks	0	0
(n) Cobs cleaned of kernels of corn	0.18	0
(o) Biomass fraction of wastes and residues from forestry and forest-based industries, i.e. bark, branches, pre-commercial thinnings, leaves, needles, tree tops, saw dust, cutter shavings, black liquor, brown liquor, fibre sludge, lignin and tall oil	0	0
(p) Other non-food cellulosic material as defined in point (s) of the second paragraph of Article 2	0.27	0.07
(q) Other ligno-cellulosic material as defined in point (r) of the second paragraph of Article 2 except saw logs and veneer logs	0	0
(r) Renewable liquid and gaseous transport fuels of non-biological origin.	0	0.10
(s) Carbon capture and utilisation for transport purposes, if the energy source is renewable in accordance with point (a) of the second paragraph of Article 2.	0	0
(t) Bacteria, if the energy source is renewable in accordance with point (a) of the second paragraph of Article 2.	0	0
<i>Feedstock as listed in Annex IX Part B of Directive 2009/28/EC</i>	2017	2018
(a) Used cooking oil	471.31	719.12
(b) Animal fats classified as categories 1 and 2 in accordance with Regulation (EC) No 1069/2009 of the European Parliament and of the Council	22.02	46.99

Resource assessment

Please provide a resource assessment of the feedstock listed in Annex IX of Directive 2009/28/EC focusing on the sustainability aspects relating to the effect of the replacement of food and feed products for biofuel production, taking due account of the principles of the waste hierarchy established in Directive 2008/98/EC and the biomass cascading principle, taking into consideration the regional and local economic and technological circumstances, the maintenance of the necessary carbon stock in the soil and the quality of the soil and the ecosystems.

An assessment of feedstocks in Annex IX are considered in the RTFO consultation:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/644843/renewable-transport-fuel-obligations-order-government-response-to-consultations-on-amendments.pdf

The UK has considered research such as the ‘Wasted’ report <http://www.theicct.org/publications/wasted-europes-untapped-resource>, including the country specific case studies, to consider the resource availability of Annex IX feedstocks. This was further considered in the UK Transport Energy Taskforce report. <http://www.lowecvp.org.uk/projects/transport-energy-task-force.htm>

The conclusions of this research are broadly that whilst there is potentially significant resource availability in this area, there are significant competing uses which limits the available sustainable resource. ICCT published research in August 2017 exploring in detail the greenhouse gas implications of diverting waste and residual materials to biofuel production. http://www.theicct.org/sites/default/files/publications/Waste-not-want-not_Cerulogy-Consultant-Report_August2017_vF.pdf. The research illustrates that where materials are diverted from existing productive uses, there can be significant greenhouse gas implications which can reduce or even negate the benefits of using the material for biofuel.

To address this issue the UK has a system of assessing materials for double counting in the RTFO system. Materials with existing alternative higher values uses do not qualify for double counting. Information on materials that have been assessed under the RTFO is available at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/397476/List_of_wastes_and_residues_year_7_7.3.pdf

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 in the preceding 2 years. Please provide information on how these impacts were assessed, with references to relevant documentation on these impacts within your country (*Article 22 (1j) of Directive 2009/28/EC*).

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.

Biodiversity policy is a devolved responsibility in the UK; England, Scotland, Wales and Northern Ireland have each developed, or are developing, their own biodiversity or environment strategies. Indicators are being developed to track progress with the respective commitments in each country. The UK indicators have a specific purpose for international reporting and were selected following consultation and agreement between the administrations. The indicators provide a flexible framework and a common set of methodologies which in some cases can also be used for country reporting. The indicators may be subject to further review as necessary.

The 2019 update on UK biodiversity indicators can be found at:

<https://jncc.gov.uk/our-work/uk-biodiversity-indicators-2019/>

Area of crops grown for bioenergy in England and the UK: 2008-2016

These statistics give the areas of non-food crops grown in the UK. This includes the areas of oilseed rape, sugar beet, wheat, maize, miscanthus, short rotation coppice and straw crops grown in the UK for use as bioenergy. They are derived from a range of sources and are a secondary analysis of data that have already been published. Although much of the source data are published as National Statistics, there are limitations to these statistics and these are described within each section.

<https://www.gov.uk/government/statistics/area-of-crops-grown-for-bioenergy-in-england-and-the-uk-2008-2016>

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).

For the calculation of net greenhouse gas emission savings from the use of renewable energy, the following methodology is suggested:

- *For biofuels: In accordance with Article 22(2) of Directive 2009/28/EC.*
- *For electricity and heat it is suggested to use the EU wide fossil fuel comparators for electricity and heat as set out in the report on sustainability requirements for the use of solid and gaseous biomass sources in electricity, heating and cooling³⁵, if no later estimates are available.*

If a Member State chooses not to use the suggested methodology for estimating the net greenhouse gas emission savings, please describe what other methodology has been used to estimate these savings.

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

Environmental aspects	2017	2018
<i>Total estimated net GHG emission saving from using renewable energy³⁶</i>		
- Estimated net GHG saving from the use of renewable electricity	44,828,237	48,961,845
- Estimated net GHG saving from the use of renewable energy in heating and cooling	-	-
- Estimated net GHG saving from the use of renewable energy in transport	2,638,995	3,726,475

³⁵ Report available on:

http://ec.europa.eu/energy/renewables/transparency_platform/doc/2010_report/com_2010_0011_3_report.pdf

³⁶ 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.

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*).

In 2018, 11% of UK energy consumption came from renewable sources. This is up from 9.9% in 2017 and results in an average of 10.5% over 2017-18, against the fourth interim target of 10.2%. The UK is not considering engaging in statistical transfers at this time, and we have therefore not included estimates of excess/deficit renewables production to 2020.

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

No procedures have 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 (Article 22 (1)n of Directive 2009/28/EC).

Please note that in the first progress report (2011 report) Member States are invited to outline their intentions with regard to the questions addressed in Article 22(3 a-c). In addition, Member States are also welcome to provide any other information considered relevant to the specific situation of developing renewable energy of each Member State.

Under the Renewables Obligation, support is given only to electricity generated from renewable fuels: the scheme does not support generation from fossil fuel or fossil-derived material. Those materials with a renewable content less than or equal to ten per cent (by energy content) are not considered renewable and instead treated as “non-renewable waste”, which is not eligible for support.

In line with the legislation the regulator Ofgem has put in place detailed Fuel Metering and Sampling (FMS) procedures³⁷ for assuring an accurate calculation of the proportion of biodegradable material. The operator must be able to account for the proportion of renewable content, and the regulator has the power to require further testing and sampling to occur to provide assurance of the proportion of renewable content. This sampling and testing of the material is often undertaken by independent accredited laboratories. Furthermore, Ofgem undertakes an audit programme and selects a group of generating stations each year for further audit and verification.

³⁷ <https://www.ofgem.gov.uk/publications-and-updates/renewables-obligation-fuel-measurement-and-sampling-guidance>

13. Please provide the amounts of biofuels and bioliquids in energy units (ktoe) corresponding to each category of feedstock group listed in part A of Annex VIII taken into account by that Member State for the purpose of complying with the targets set out in Article 3(1) and (2), and in the first subparagraph of Article 3(4).

Table 8

Feedstock group	2017	2018
Cereals and other starch-rich crops	200.42	204.32
Sugars	49.60	99.77
Oil crops	0.54	24.08
Product / Residue	0.00	0.00