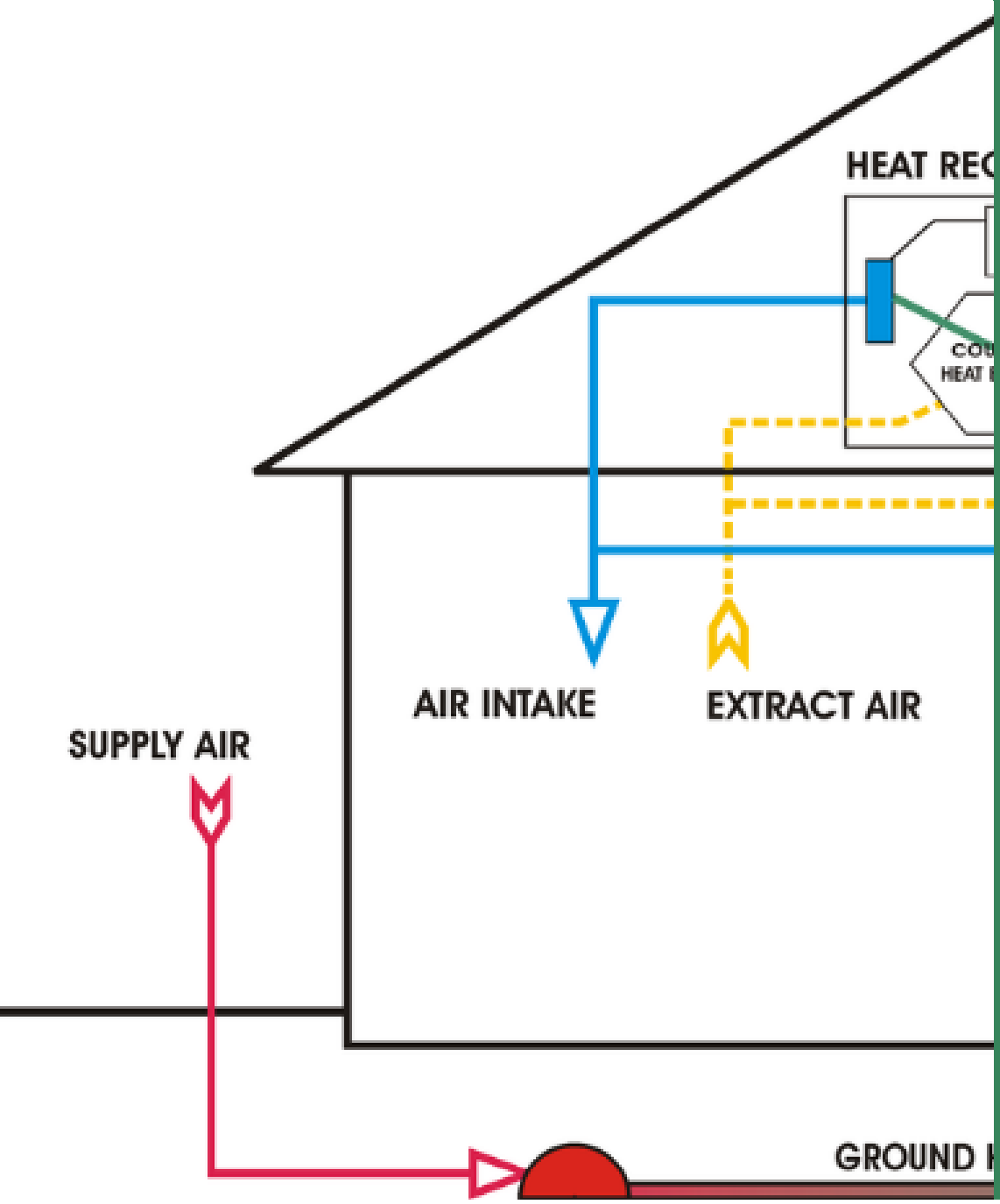
HOUSE OF COMMONS
LIBRARY

BRIEFING PAPER
Number 6328, 3 April 2017

Renewable Heat Incentive

By Elena Ares

Inside:



Contents

Summary

What is the Renewable Heat Incentive?

The Renewable Heat Incentive (RHI) is a Government scheme to support households and businesses to generate renewable heat for their buildings. The first phase of the RHI, non-domestic RHI, was introduced in 2011. The domestic RHI was opened to applicants in 2014. The RHI is similar to the Feed-In Tariffs, which incentivise smaller renewable electricity generation, but it is paid for by HM Treasury, rather than through consumers' energy bills. Ofgem has a dedicated RHI page setting out how the scheme works in detail and how to apply.

In the Spending Review in November 2015, the Government confirmed funding for the scheme to 2020. It also published a consultation on its review of the RHI, aimed at maintaining affordability and increasing the focus on technologies that are likely to be strategically important. It also proposed imposing a spending cap on the scheme. The former Department of Energy and Climate Change (DECC) introduced new sustainability criteria for installations using biomass and biogas fuels and producers of biomethane in October 2015. To continue to receive RHI payments, participants must now use fuels that meet the sustainability criteria.

Deployment Statistics

The Department for Business, Energy and Industrial Strategy (DBEIS), previously DECC, publishes monthly statistics on Renewable Heat Incentive (RHI) deployment and a quarterly statistical release. The data release for February 2017 showed 16,456 accredited commercial schemes and 54,131 accredited domestic schemes. The total capacity was 3.1MW and the total generation to date, since November 2011, was just over 13,095GWh for commercial installations and 1,519 GWh from domestic installations. This compared to a total combined figure of 998.6 GWh in June 2016.

Changes to RHI

The Government published a *consultation on reforming and refocusing the RHI scheme* in March 2016. At the same time, it also published an Impact Assessment and some data on cost of installation for both non-domestic and domestic systems. One of the Government's aims in revising the scheme was to reduce what it regarded as overcompensation. The *Renewable Heat Incentive Scheme (Amendment) Regulations 2016* (SI 2106/718) came into force on 1 August 2016. The regulations were introduced:

> to close a loophole that has come to light which represents a financial and value for money risk to the scheme (…) The further amendment being introduced here is part of a planned programme of scheme improvements to drive uptake and deliver value for money.

Biomass-CHP plant are now prevented from receiving the (higher) biomass-CHP tariff for all their heat output *unless* a power efficiency threshold of 20% is met. The remaining changes proposed in the consultation, including degression of tariffs, will be implemented through the draft The Domestic Renewable Heat Incentive Scheme (Amendment) Regulations 2017, currently before Parliament.

Other Commons Library briefings on energy and climate change issues are available from Parliament's topic pages on energy and climate change.

1. The Renewable Heat Incentive: background

A policy paper from the former Department of Energy and Climate Change (DECC) summarised the scheme:

> The RHI pays participants of the scheme that generate and use renewable energy to heat their buildings. By increasing the generation of heat from renewable energy sources (instead of fossil fuels), the RHI helps the UK reduce greenhouse gas emissions and meet targets for reducing the effects of climate change.
>
> There are two parts to the RHI:
>
> Domestic RHI – launched 9 April 2014 and open to homeowners, private landlords, social landlords and self-builders
>
> Non-domestic RHI – launched in November 2011 to provide payments to industry, businesses and public sector organisations
>
> The RHI is the main scheme of our heat strategy.[1]

The RHI is similar to the Feed-In Tariffs (which incentivise smaller renewable electricity generation schemes) but it is paid for by HM Treasury, rather than through consumers' energy bills.

The first phase of the Renewable Heat Incentive (RHI) - non-domestic RHI - was introduced in 2011. The domestic RHI was opened to applicants in 2014.

Ofgem has a dedicated RHI page setting out how the scheme works in detail and how to apply.

1.1 Costs of the scheme

In 2014, the estimate of the cost of the scheme to meet the renewable heat target was between £1.3 – 2.4 billion annually from by 2020/21 as set out in reply to a PQ:

> The Impact Assessment of the Renewable Heat Incentive scheme published in December 2013 suggests that plans for the Renewable Heat Incentive could deliver between 29-59 TWh by 2020/21 (including a baseline of 15TWh) with a central range of 41-47TWh.
>
> Such deployment would cost between £1.3 – 2.4 billion (in 2014 prices) annually from by 2020/21, with an average annual expenditure of £0.8 - 1.4billion (in 2014 prices) over the period 2016/17 to 2020/21. These cost estimates assume current tariff rates continue.[2]

A more recent PQ was tabled on 29th March by Kate Hoey asking what the net cost of the domestic and non-domestic consumer RHI scheme was in Great Britain in each year since 2012.

1.2 New sustainability criteria in October 2015

DECC introduced new sustainability criteria for installations using biomass and biogas fuels and producers of biomethane in October 2015. To continue to receive RHI payments, participants must now use

1 DECC and the Environment Agency, *2010 to 2015 government policy: low carbon technologies*, updated May 2015. The work of DECC has been subsumed into the new Department for Business, Energy and Industrial Strategy

2 PQ 213224, 4 November 2014

fuels that meet the sustainability criteria. Full details of the changes and revised criteria are available in Ofgem's guidance documents.[3] The measures included the creation of an approved Biomass Suppliers List, and for non woody biomass, a Sustainable Fuel Register.

1.3 RHI deployment

The former Department of Energy and Climate Change (DECC) and now the Department for Business, Energy and Industrial Strategy (DBEIS) publish monthly statistics on Renewable Heat Incentive (RHI) deployment and a quarterly statistical release. The data release for February 2017 showed 16,456 accredited commercial schemes and 54,131 accredited domestic schemes. The total capacity was 3.1MW and the total generation to date, since November 2011, was just over 13,095GWh for commercial installations and 1,519 GWh from domestic installations. This compared to a total combined figure of 998.6 GWh in June 2016.

The former DECC and now the Department for Business, Energy and Industrial Strategy publish monthly statistics on RHI deployment and a quarterly statistical release.

1.4 Funding extended to 2020

The *Financial Times* reported in September 2015 that DECC's submission to HM Treasury for the autumn Spending Review included plans to trim back the RHI. However, a DECC spokesperson had dismissed this as "speculation".[4]

The spending review set spending to 2020. s the original funding for new installations had been confirmed only until 2016[5] (and against a backdrop of other announcements at that time on support for other forms of renewables) this was well received, even though - as *BusinessGreen* suggested - it still represented a reduction in projected spending:

> The budget for the Renewable Heat Incentive (RHI) is set to increase to £1.15bn per year by 2020/2021. However, the planned increase is now £690m less for that year than the previous forecasts from the Office for Budget Responsibility (OBR). There will also be a new spending cap on the scheme's annual budgets, allowing Secretary of State Amber Rudd to close the scheme to new applicants if the yearly budget is reached early. The Treasury said that by the end of the Parliament it expects to have delivered enough renewable heat projects to heat the equivalent of 500,000 homes.
>
> Industry sources said there had been a "sigh of relief" across the sector, after the new budget promised continued support for companies that had feared the scheme could be axed altogether. However, green groups warned the reduction in funding would

---

3 Ofgem, Non-Domestic RHI Main Guidance, 24 March 2016. For a summary of the requirements see Ofgem's *Easy Guide to Sustainability (25* February 2016 and DECC's *2010 to 2015 government policy: low carbon technologies: Appendix 6*, (updated 8 May 2016).

4 Jim Pickard and Pilita Clark "Green heating subsidies to be pruned", *Financial Times*, 2 September 2015 [subscription required]

5 DECC, *RHI Consultation Impact Assessment*, 3 March 2016

> make it harder to meet the EU's renewable energy target for 2020.[6]

2. Changes to the RHI scheme

2.1 Consultation and review

The Government published its consultation on reforming the scheme in March 2016.[7] At the same time, it published an Impact Assessment[8] and some data on cost of installation for both non-domestic and domestic systems.[9]

The consultation estimated that the amended scheme would support 23TWh of renewable heat generation in 20/21, and could support between 27 and 40 MtCO2e of carbon abatement in the UK Fourth Carbon Budget, which covers 2023 to 2027.

The Government's stated aim is to maintain affordability and rebalance the scheme to focus on technologies that are likely to be strategically important, through two packages – simplifying the scheme and refocussing it through tariff and eligibility reviews and other measures:

> The first occurring in 2016 helping to maintain the affordability and implement simplifications to enhance the functioning of the scheme. The second is implementing the re-focusing of the RHI, through tariff and eligibility reviews, introduction of assignment of rights and tariff guarantees, whilst also establishing the long term budget management and affordability mechanism.[10]

The consultation document highlighted the need for the mass roll-out of low carbon heating technology from the 2020s onwards:

> The RHI also aims to contribute to renewable energy generation in order to help the UK meet its 2020 renewable energy target for sourcing 15% of energy demand from renewables. Renewable low carbon energy technologies can also deliver fuel bill savings and so help tackle fuel poverty.[11]

The consultation also set out a series of proposed measures for both the domestic and non-domestic scheme, including a spending cap for the scheme. For the domestic scheme, the consultation proposed measures aimed at improving access for those less able to pay and promote deployment of strategically-important technologies:

- Improving access for those less able to pay by introducing assignment of rights to payments, to allow new 3rd party financing models to develop; and consulting on two options to drive deployment of heat pumps with shared

---

6 Madeleine Cuff, *Autumn Spending Review – at a glance*, Business Green, 25 November 2015

7 DECC, *Renewable Heat Incentive: A reformed and refocused scheme,* URN: 16D/012, 3 March 2016

8 DECC, *Consultation Stage IA: The Renewable Heat Incentive: A reformed and refocused scheme* IA No: DECC0211, 3 March 2016

9 DECC, *Non-Domestic RHI and domestic RHI installation cost estimate: October 2015*

10 DECC, *Consultation Stage IA: The Renewable Heat Incentive: A reformed and refocused scheme* IA No: DECC0211, 3 March 2016

11 DECC, *Renewable Heat Incentive: A reformed and refocused scheme,* 3 March 2016: Executive Summary

ground loops (one through the Domestic scheme and one through the Non-Domestic scheme).

- Promoting deployment of those technologies which are likely to be strategically important in the longer-term, by reviewing the current Air to Water Heat Pump (AWHP) tariff and potentially amending the current Ground Source Heat Pump (GSHP) tariff. We also want to drive up the performance of heat pumps installed under the RHI, and are seeking views on the best way to achieve this.
- Promoting affordability and value for money by introducing heat demand caps to limit payments to new participants, and so significantly limiting the level of returns for owners of larger properties. [12]

And for the non-domestic sector, several measures were proposed, including tiering the tariff for biomass-CHP plant:

- Ensuring the affordability of the scheme and promoting value for money by moving to one tariff for all new biomass boiler deployment. The proposed tariff is expected to drive deployment of larger systems and of biomass-fired process- and district-heating, as well as continued deployment of smaller systems where these can be cost effective, for example, where participants have easy access to low cost supplies of sustainable local biomass (see Chapter 8).
- Retaining the current tariff for biomass-CHP plant, in order to drive deployment of this technology, but ensuring the affordability of the scheme by introducing tiering to minimise the risk of overcompensation (see Chapter 9).
- Promoting the decarbonisation of heating by limiting support to new biogas and biomethane plant using crop-based feedstocks and so promoting a focus on waste-based feedstock. We also propose potentially resetting biomethane support from spring 2017 for new installations (see Chapter 6). In addition, Government is proposing to end support for heat used to dry digestate.
- Promoting value for money by introducing tariff guarantees and extending the range of technologies eligible for preliminary accreditation, to drive deployment of cost effective larger scale plant (see Chapter 11).
- Promoting deployment of those technologies which are likely to be strategically important in the longer-term by driving the deployment of AWHPs by allowing 'reversible' AWHPs to apply to the scheme (see Chapter 7). [13]

2.2 Overcompensation in the previous scheme

One of the Government's aims in revising the scheme was to reduce what it regarded as overcompensation be ensuring the consultation

[12] DECC, *Renewable Heat Incentive: A reformed and refocused scheme,* 3 March 2016: page 9
[13] *Ibid:* page 10

incorporates robust scheme design that avoid the creation of, or respond to existing, perverse incentives.[14]

The consultation therefore posed a number of suggestions about overcompensation. For example it set out the following for the non-domestic sector:

> Retaining the current tariff for biomass-CHP plant, in order to drive deployment of this technology, but ensuring the affordability of the scheme by introducing tiering to minimise the risk of overcompensation.

The original intention had been to make all the amendments to the scheme in 2017, but for value for money reasons Ministers decided to deal with the overcompensation issues separately and sooner. The Explanatory Memorandum to the 2016 regulations said that they have been introduced:

> to close a loophole that has come to light which represents a financial and value for money risk to the scheme (…) The further amendment being introduced here is part of a planned programme of scheme improvements to drive uptake and deliver value for money.

The *Renewable Heat Incentive Scheme (Amendment) Regulations 2016* (SI 2106/718) came into force on 1 August 2016.

The purpose of the change (also set out in the Explanatory Memorandum) is to prevent some biomass-CHP plant from receiving the higher biomass-CHP tariff for all their heat output. It is now available only where a power efficiency threshold of 20% is met:

- We intend that the biomass-CHP tariff will only be available for all eligible heat use where the power efficiency of the biomass-CHP plant is 20% or higher. A threshold of 20% has been selected as this is the threshold currently used within CHPQA to judge whether schemes are Good Quality CHP. This is used as a criterion to access a range of benefits other than under the RHI.
- Where the power efficiency is below this level, the amount of heat output eligible for the biomass-CHP tariff will reduce proportionately, with the remainder of the heat receiving the tariff applicable for a standard biomass plant of the relevant size.[15]

The Regulations were subject to the negative resolution procedure and so was not debated or voted on.[16]

Biomass-CHP plant are now prevented from receiving the (higher) biomass-CHP tariff for all their heat output *unless* a power efficiency threshold of 20% is met.

---

14 DECC, *Renewable Heat Incentive: A reformed and refocused scheme*, 3 March 2016: Executive Summary

15 *Ibid:* pages 3-4

16 As the House of Commons Background Paper: Statutory Instruments explains in more detail, Acts of Parliament (primary legislation) often confer powers on Ministers to make more detailed orders or regulations by means of secondary (also known as subordinate or delegated) legislation. Whether secondary legislation is subject to parliamentary procedure, and if so which one, is determined by the parent Act. The affirmative procedure provides more stringent Parliamentary control, since the instrument must receive Parliament's approval before it can come into force or to remain in force. (SN 06509, 18 December 2012).

2.3 Consultation Response

The Government's response to the consultation on changes to the RHI scheme was published on 14 December 2016. It included proposals for a number of changes to domestic RHI:

- An uplift of RHI tariffs for three renewable heating technology types: new air source heat pumps (ASHP), ground source heat pumps (GSHP) and biomass system accreditations. Those changes would come into force in the Spring 2017 – from 31 March 2017 onwards – and would apply to those who apply to the scheme on or after 14 December 2016.

  This uplift has not been applied to solar thermal and comes after two biomass tariff degressions between 1 July 2016 and 31 December 2016. Degression is a mechanism used by BEIS to lower a tariff rate for new applications when uptake of the scheme is higher than anticipated.

- The introduction of 'heat demand limits' – i.e. limits to the financial support that scheme participants can receive for their heat use annually. For biomass plants, the limit has been set at 25,000kWh; at 20,000kWh for ASHPs; at 30,000kWh for GSHPs. No such limits have been imposed to solar thermal.
- Regulations requiring that electricity metering arrangements be installed alongside heat pumps.
- New rules for when BEIS can introduce a degression on a tariff.
- All the changes mentioned above would be made through regulations that, if approved by Parliament, and were expected to come into force by Spring 2017.

In the same consultation response, the Government also announced changes to non-domestic RHI including

- Changes to tariff guarantees
- Changes to tariff bands for biomass
- Changes to biomethane tariffs
- Changes to eligibility rules for support for biomethane and biogas plants. At least 50% of their stock would now have to come from feedstocks derived from wastes and residues

2.4 Domestic installations – Regulations March 2017

The Draft Domestic Renewable Heat Incentive Scheme (Amendment) Regulations 2017, currently before Parliament include explanatory notes, which set out the purpose of the new regulations for domestic installations:

- The tariffs for new air source heat pumps (ASHPs), ground source heat pumps (GSHPs), and biomass boilers and stoves increased to increase deployment of these technologies.
- All new ASHPs and GSHPs will be required to have electricity metering in place alongside their heating system.
- Biomass and heat pump installations will be limited on the level of annual heat demand any household can receive support for.

- Tariff degression introduced if growth or expenditure of forecasts exceeded to slow down instillations. Regulations also aim to remove the potential for the rules to continue to reduce tariffs after deployment has slowed down.
- Changes to payments for metering and monitoring service packages (MMSPs) to encourage their installation. Half of total payments paid within the first three months.
- Additional powers are also being granted to Ofgem to recover payments for breach of rules or overpayments.

The Government also published also a draft explanatory memorandum and a draft impact assessment for the regulations.

2.5 ECCC view on proposals

On launching the inquiry, the Committee noted that the UK may not be on track to meet its 15% renewable target for 2020:

> The Government has proposed to achieve this across the electricity, heat and transport sectors by ensuring that 30% of electricity, 12% of heat and 10% of transport demand are met by renewable sources. Progress in the heat and transport sectors will be crucial to meeting the UK's own long-term decarbonisation targets as set out in the Climate Change Act.
>
> While progress towards the share of renewable electricity is on track, concerns have been raised regarding progress in renewable heat and transport, and the Committee on Climate Change has warned that the Government's ambitions may no longer be achievable. Moreover, some research has suggested that renewable transport fuels may cause more carbon emissions than they save.[17]

The Energy and Climate Select Committee launched an inquiry into 2020 renewable heat and transport targets in March 2016.

Written submissions are available on the Committee website and will include transcripts of evidence sessions, and the Committee's report published which was published in September 2016. With regard to the RHI the Committee was critical of the Government reforms.

> The Government's proposed reforms to the Renewable Heat Incentive (RHI) are not the optimal pathway to the 2020 renewable heat target. Heat pumps have proven unsatisfactory in actual use, yet are being prioritised over biomass—which has been successful. Sudden realignment from small to large biomass will damage the former's supply chain, and the latter is unlikely to be taken up at scale. Above all, biomethane is crucial to meeting the 2020 target and must remain a funding priority. The Government should revise its RHI reforms to reflect these priorities, especially in protecting biomethane support.

[17] Energy and Climate Change Committee, *2020 renewable heat and transport targets inquiry launched*, 9 March 2016

3. The role of heat in meeting the 15% renewable target

DECC's *UK Renewable Energy Roadmap* set out how the Government expected to deliver the EU target of 15% final energy consumption from renewables by 2020:

> 2.1 We have gathered evidence on the potential deployment and costs of renewable energy technologies to 2020. This has allowed us to understand how, and with which mix of technologies, the market can deliver 15% of our energy consumption from renewable sources by 2020.
>
> (…)
>
> 2.5 The central ranges do not represent technology specific targets or the level of our ambition. They are based on our current understanding of deployment, costs and non-financial barriers and could change significantly as the market evolves to 20203. Indeed in some cases – such as for offshore wind – we are targeting specific actions to reduce cost and increase likely deployment. In others, forthcoming work – including on the RO [Renewables Obligation] Banding Review consultation and decisions on biofuels – could have an impact. We will update our analysis annually to reflect the evolution of policy and observed levels of deployment.
>
> (…)
>
> 2.7 The analysis also indicates that approximately 90% of the generation necessary to meet the 15% target can be delivered from a subset of 8 technologies (set out in Figure 2 below). These technologies are particularly significant due to their cost effectiveness, potential level of deployment, and importance to the UK's 2050 energy mix.

Figure 2: Technology breakdown (TWh) for central view of deployment in 2020

	Central range for 2020 (TWh)
Onshore wind	24-32
Offshore wind	33-58
Biomass electricity	32-50
Marine	1
Biomass heat (non-domestic)	36-50
Air-source and Ground-source heat pumps (non-domestic)	16-22
Renewable transport	Up to 48TWh
Others (including hydro, geothermal, solar and domestic heat)	14
Estimated 15% target	234

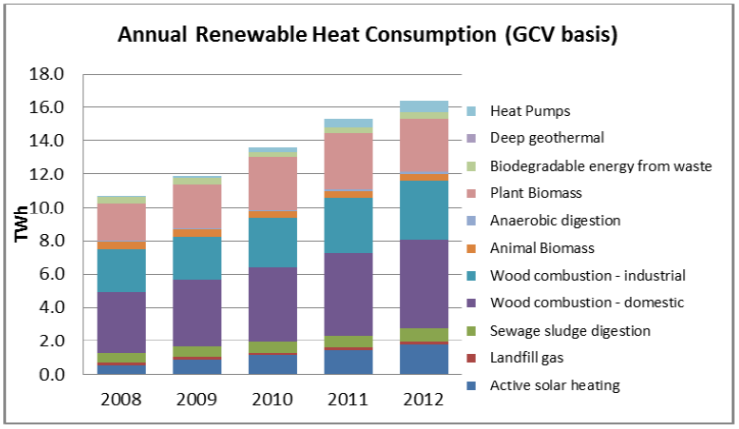
Source: DECC, *UK Renewable Energy Roadmap*, July 2011: pages 13-4

In a later update, DECC observed that the sector – and the amount generated from all renewable heat sources – was growing:

> In 2012, around 16.4 TWh was generated from all renewable heat sources, an increase of 7% on the previous year. *See Figure 18 below*. The sector is continuing to see some growth, following

> a decline that started more than 10 years ago as a result of tighter emission controls which discouraged on-site burning of biomass, especially wood waste. Since their 'low point' in 2005 bioenergy use has more than doubled to 13.9 TWh; the increase between 2011 and 2012 was 4%.

Figure 18: Annual Renewable Heat Consumption[124]



Source: DECC *UK Renewable Energy Roadmap Update 2013*, November 2013

The former Energy and Climate Committee summarised progress on meeting the Government's aims on renewable heat as follows in September 2016:

> The biggest challenge is decarbonising the heating sector, National Grid posits. The UK is not yet halfway towards its 12% heat sub-target. Dunelm Energy, a consultancy, predicted only 5% of heat would be renewable in 2020; E.ON (a major supplier), the Institution of Civil Engineers (ICE) and the Renewable Energy Association (REA) all forecast 8–9%.19 None of the written submissions we received asserted the heat sub-target would be met; approximately 45% claimed it would be missed.[18]

3.1 Will the UK meet its renewables target?

In November 2015, the Energy and Climate Change Select Committee took evidence from the then Secretary of State for Energy and Climate Change, Amber Rudd, on the department's annual report and accounts.

The Secretary of State was questioned about a leaked letter, apparently showing that the UK was likely to miss its legally binding obligation to achieve strict EU targets on renewable energy by an estimated 50TWh (terawatt hours), or 3.5% of its 15% obligation.[19] In response, she said that the shortfall in meeting the renewable energy targets should be met by renewable heat, and by more biofuels in petrol and diesel:

> We have made our interim target — in fact, we have just exceeded it — but it is going to be challenging to make the rest of the target. I remain committed to making good progress towards that target and it is because I am so committed to that that I am encouraging other Secretaries of State to take action. This is, after all, a cross-Government target; it is not just for my Department. I am going to be working with Transport and

18 ECCC, 2020 renewable heat and transport targets, 9 September 2016
19 Oliver Tickell, "Leaked letter: Rudd admits 25% green energy undershoot, misled Parliament", T*he Ecologist* online, 9 November 2015

> internally I am going to be putting together policies on heat to try to address the shortfall that we currently have in order to achieve that 2020 target.
>
> (…)
>
> It is my aim we should meet the 2020 target. I recognise we don't have the right policies, particularly in transport and heat, but we have four to five years and I remain committed to making the target. [20]

The Secretary of State also committed to publishing an Emissions Reduction Plan beyond the end of 2016.[21] However, the publication of what will be now be called the Clean Growth Plan is now not expected until after June 2017.

[20] Energy and Climate Change Committee, *Oral evidence: DECC Annual Report and Accounts 2014-15*, 10 November 2015HC 544: Qs3 and 4

[21] Written evidence submitted by the Department for Energy and Climate Change (HAT0063)

BRIEFING PAPER
Number 6328, 3 April 2017

About the Library

The House of Commons Library research service provides MPs and their staff with the impartial briefing and evidence base they need to do their work in scrutinising Government, proposing legislation, and supporting constituents.

As well as providing MPs with a confidential service we publish open briefing papers, which are available on the Parliament website.

Every effort is made to ensure that the information contained in these publically available research briefings is correct at the time of publication. Readers should be aware however that briefings are not necessarily updated or otherwise amended to reflect subsequent changes.

If you have any comments on our briefings please email papers@parliament.uk. Authors are available to discuss the content of this briefing only with Members and their staff.

If you have any general questions about the work of the House of Commons you can email hcinfo@parliament.uk.

Disclaimer