

## UK and EU trade of wood pellets

### Introduction

In July 2015, DECC published for the first time a table detailing UK imports and exports of wood pellets between 2008 and 2014, with imports being disaggregated by country of origin, available at: [www.gov.uk/government/statistics/digest-of-united-kingdom-energy-statistics-2015-internet-content-only](http://www.gov.uk/government/statistics/digest-of-united-kingdom-energy-statistics-2015-internet-content-only) (see Annex G: Foreign trade).

Wood pellets have in the past few years become an increasingly important fuel source for large-scale biomass plants in the UK. In 2014, the use of wood pellets by the UK's major power stations accounted for more than 22 per cent of all renewable energy sources and 36 per cent of all bioenergy fuels used to generate electricity.<sup>1</sup> Both of these figures stood at less than half of one per cent in 2008. As such, this fuel source has become a central component of the UK's renewable energy mix.

This article provides an overview of the UK's volume of imports and exports of wood pellets since 2008. It compares this against the European Union (EU)'s own trade volumes, and shows how the EU wood pellet market has changed over the past seven years. Finally, the article examines how the UK's trade in this fuel source impacts its renewable electricity generation, using data on fuel use from the country's major biomass plants.

### UK trade of wood pellets

UK imports of wood pellets reached a record high in 2014, with nearly 4.8 million tonnes being imported over the course of the year. This represents an almost 15-fold increase on 2008 imports, which amounted to some 323 thousand tonnes. **(Table 1)** In comparison, the UK's exports of wood pellets remained negligible throughout this period, growing from 23 thousand tonnes in 2008 to just over 98 thousand tonnes in 2014.

**Table 1: UK imports and exports of wood pellets 2008 to 2015 Q2 (thousand tonnes)**

	2008	2009	2010	2011	2012	2013	2014	2015 (up to Q2)
Imports	323	45	551	1,015	1,487	3,432	4,757	2,891
Average monthly imports	27	4	46	85	124	286	396	482
Exports	23	12	60	41	53	105	98	50
Average monthly exports	2	1	5	3	4	9	8	8

Source: H. M. Revenue and Customs Overseas Trade Statistics database<sup>2</sup>

To note there were changes to the commodity codes for wood pellets between 2008 and 2009, and 2011 and 2012, which may have impacted on these figures, particularly the first of these periods.<sup>3</sup>

The pattern of wood pellet imports broadly matches the activities of the UK's major biomass stations. **(Chart 1)** Total wood pellet imports remained at modest levels between 2008 and 2011. During this period, wood pellets were normally co-fired with coal at power stations in relatively small quantities, with less than 100 thousand tonnes imported per month on average. The first significant increases came in 2012, when average monthly imports for the year exceeded the figure of 100 thousand tonnes for the first time. This was in part due to the conversion of Tilbury B (previously coal-fired) power station to a dedicated biomass plant, which became operational

<sup>1</sup> 'Bioenergy' includes the following categories of generators: landfill gas, sewage sludge digestion, biodegradable energy from waste, co-firing with fossil fuels, animal biomass, anaerobic digestion and plant biomass. Wood pellets fall under the 'plant biomass' category.

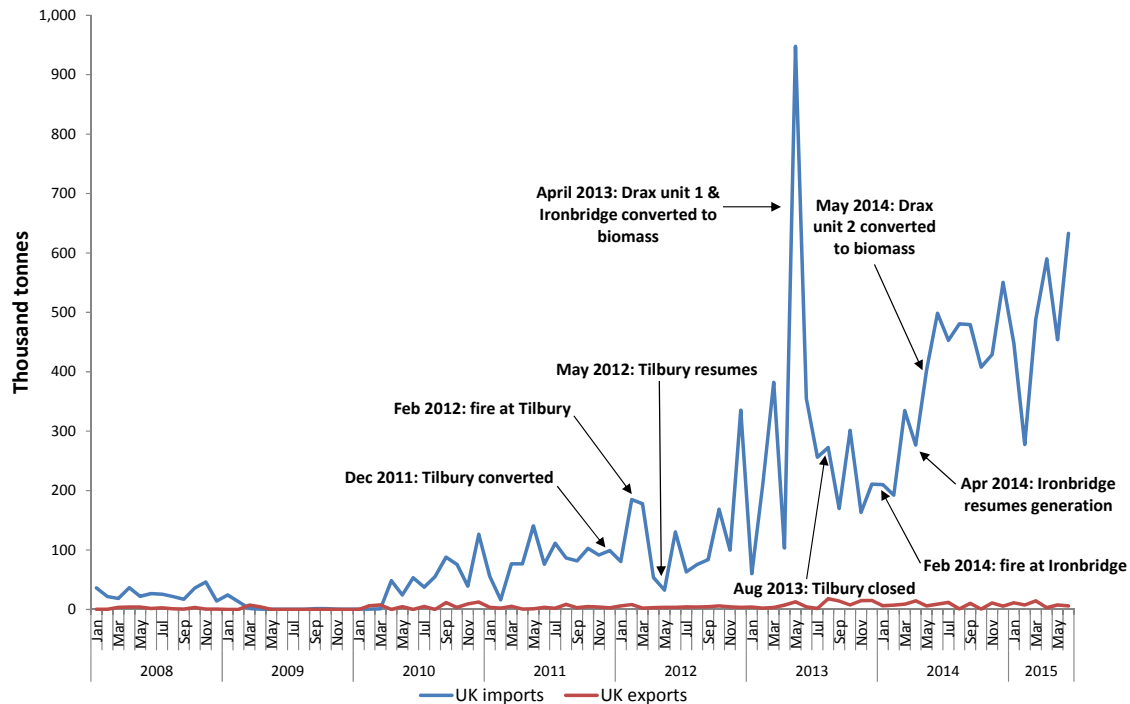
<sup>2</sup> Data available at: [www.uktradeinfo.com/Statistics/BuildYourOwnTables/Pages/Table.aspx](http://www.uktradeinfo.com/Statistics/BuildYourOwnTables/Pages/Table.aspx)

<sup>3</sup> Commodity levels HS 2, 4, 6 and CN 8 were used. Commodity codes used may vary by year due to periodic revisions. For 2008 data, the commodity code used was HS 44013090 ("Wood waste and scrap, whether or not agglomerated in logs, briquettes, pellets or similar forms, excl. sawdust"). Due to changes made by Eurostat, data between 2009 and 2011 uses the commodity code 44013020 ("Sawdust and wood waste and scrap, agglomerated in pellets"). For 2012 and onwards, wood pellets were reclassified into commodity code HS 44013100 ("Wood pellets"), which has been used in all subsequent periods.

towards the end of 2011. A fire in February 2012 put the biomass plant at Tilbury out of operation for four months, and had a noticeable impact on the volume of imports during this period. However, Tilbury's reopening in May 2012 helped to stabilise demand for imports for the rest of the year.

Imports rose substantially in the few months prior to the completion of two new conversions of coal power stations to biomass in April 2013 – one unit at Drax and Ironbridge. In December 2012, imports were 335 thousand tonnes, increasing to a new record of 382 thousand tonnes in March 2013. In May 2013 – one month after the Ironbridge and Drax conversions became fully operational – 947 thousand tonnes of pellets were imported into the UK, a record that has yet to be surpassed. However, imports fell significantly towards the latter half of 2013 and the beginning of 2014, coinciding with the final closure of Tilbury in August 2013 after exhausting its hours under the Large Combustion Plant Directive (LCPD), and a fire at the Ironbridge unit in February 2014 that left the station dormant for three months. A significant rise in imports in the second half of 2014 and the first half of 2015 came ahead of the resumption of generation at Ironbridge in April 2014 and the conversion of a second unit at Drax one month later. Average imports reached their highest ever level in the first half of 2015, which now stand at 482 thousand tonnes per month.

**Chart 1: UK monthly imports and exports of wood pellets**



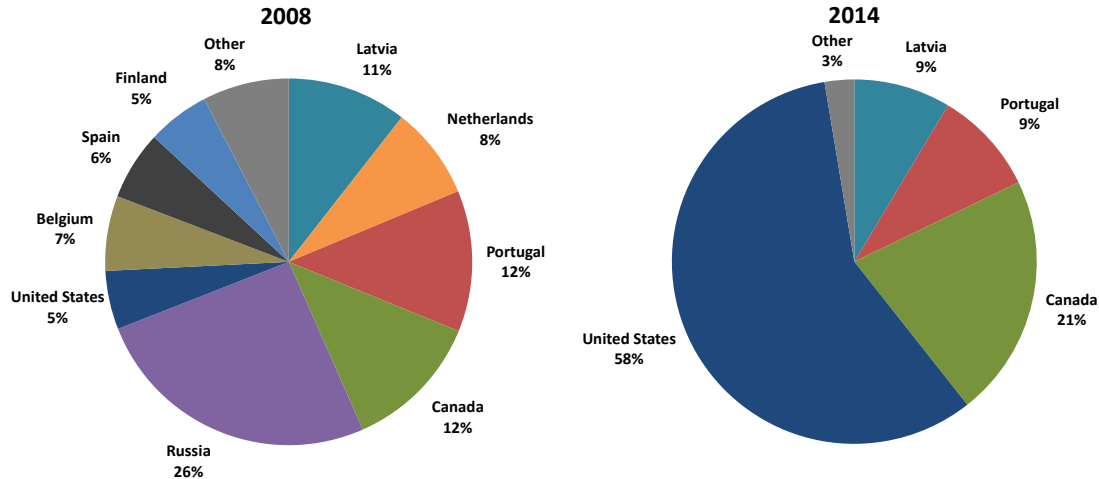
Source: H. M. Revenue and Customs Overseas Trade Statistics database

### UK sources of wood pellet imports

Between 2008 and 2014, not only did the UK's imports of wood pellets grow substantially, but there were also substantial changes in the composition of the UK's main trade partners in the wood pellet market. EU countries accounted for over 56 per cent of the UK's total imports in 2008, but by 2014 this figure fell to 20 per cent.

In 2008, Russia was the UK's largest single trading partner in wood pellets, with some 26 per cent of all UK imports; by 2014, these were almost negligible. Russian imports and those of several EU countries (notably the Netherlands, Belgium and Spain) have been completely displaced by a large increase in wood pellet imports from the United States, whose share of total UK imports increased from five to 58 per cent between 2008 and 2014. The United States is now the largest exporter of wood pellets to the UK, ahead of Canada's 21 per cent share of the market. Portugal and Latvia are the only other countries that have maintained their share of total UK imports, at around nine per cent each in 2014; this was still a decrease in their shares of total UK imports of three and two percentage points respectively, on 2008. **(Chart 2)**

**Chart 2: UK wood pellet imports, by country of origin**

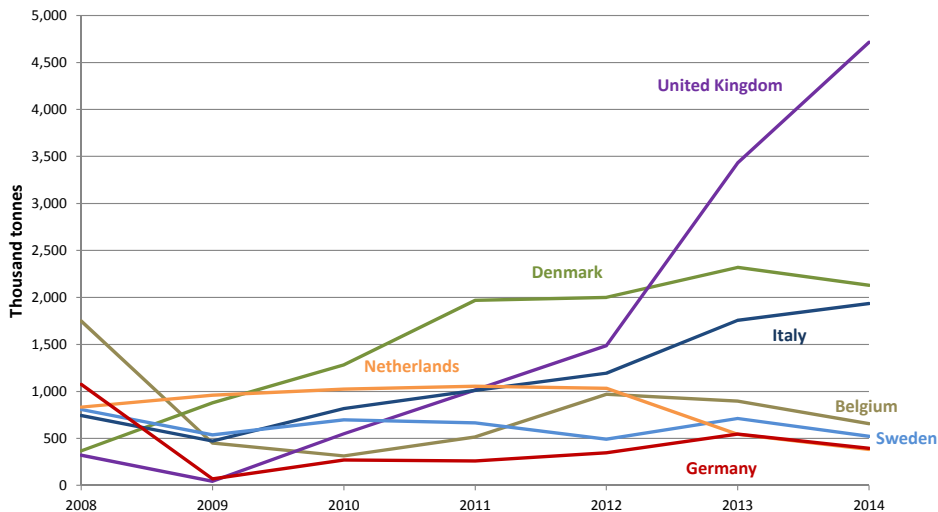


Source: H. M. Revenue and Customs Overseas Trade Statistics database

**European Union trade in wood pellets**

EU trade in wood pellets also changed significantly between 2008 and 2014. In 2008, the UK was one of the smallest importers in the EU, with the largest importer being Belgium, followed by Germany. By 2014, the UK's imports of 4,757 thousand tonnes were double that of the second highest EU importer, Denmark, which stood at 2,219 thousand tonnes. **(Chart 3)** Starting from a similarly low position in 2008, Italy was the EU's third largest importer of wood pellets in 2014, at 1,936 thousand tonnes. Denmark and Italy are the only EU states besides the UK to have steadily increased their annual wood pellet imports over this period, reflecting the increasingly significant role of biomass in these countries' energy mix.

**Chart 3: Main EU importers of wood pellets 2008 to 2014**



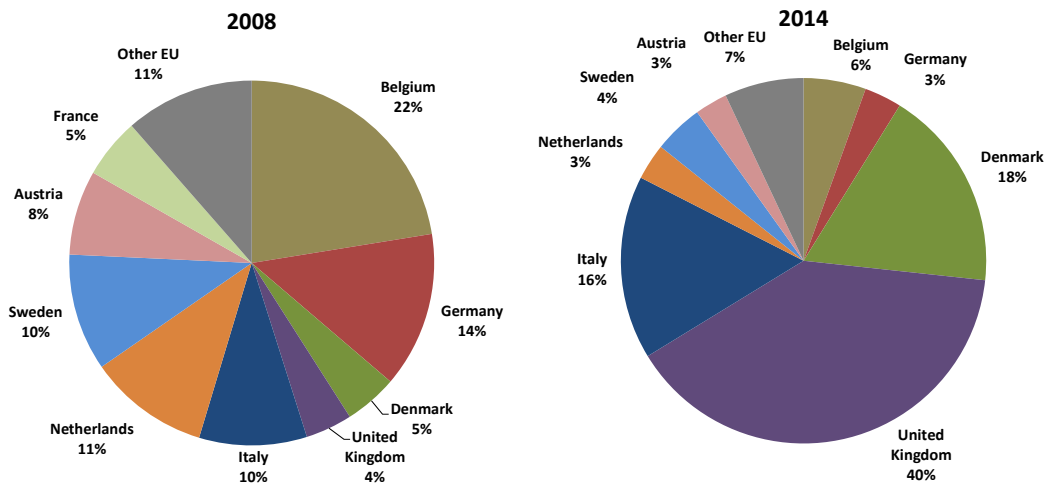
Source: Eurostat International Trade Database<sup>4</sup>

Between 2008 and 2014, the UK increased its share of total EU imports of wood pellets by almost tenfold, from 4 per cent in 2008 to 40 per cent 2014. **(Chart 4)** In the same period, Denmark's share of EU imports more than trebled from 5 to 18 per cent, while Italy's share grew from 10 to 16

<sup>4</sup> Data available at: <http://ec.europa.eu/eurostat/data/database> Figures were obtained from the dataset 'EU trade since 1988 by HS 2, 4, 6 and CN8.' Commodity codes used may vary by year due to periodic revisions. For more details, see footnote 3.

per cent. Although Belgium's 22 per cent share of EU wood pellet imports was the largest in the entire EU in 2008, by 2014 it had fallen to 6 per cent. Meanwhile, Germany's share of EU wood pellet imports fell from 14 per cent in 2008 to three per cent in 2014, becoming one of the smallest importers of wood pellets in the entire EU.<sup>5</sup>

**Chart 4: Member states' shares of total EU imports of wood pellets**



Source: Eurostat International Trade Database

The EU has, as a whole, remained a net importer of wood pellets throughout the years 2008 to 2014. Although its tonnage of wood pellet exports did increase in this period – predominantly due to the large volumes of intra-European trade in this fuel source – it was far outstripped by the growth in imports, especially from the United States. In 2008, the EU's net imports<sup>6</sup> of wood pellets amounted to some 2,818 thousand tonnes, but by 2014 this figure had almost doubled to 5,475 thousand tonnes.

### EU exporters

Over the 2008 to 2014 period, the UK has remained one of the smallest exporters of wood pellets in the EU, with exports below 100 thousand tonnes. **(Chart 5)** The UK's share of the EU wood pellet export market was negligible in 2008, at less than half a per cent. Despite, exports increasing in 2013 and 2014, the UK's share of exports remained at just 1.4 per cent in 2014. **(Chart 6)**

Reflecting their natural resources, the Baltic states (Latvia, Lithuania and Estonia) have become some of the largest exporters of wood pellets in the EU, accounting for 35 per cent of total EU exports at the end of last year. In 2014, Latvia was the EU's leading exporter, with exports trebling from 433 thousand tonnes in 2008 to a record 1,277 thousand tonnes. Latvia's exports exceeded that of Germany – the EU's largest wood pellet exporter between 2008 and 2011 – for the first time in 2012.

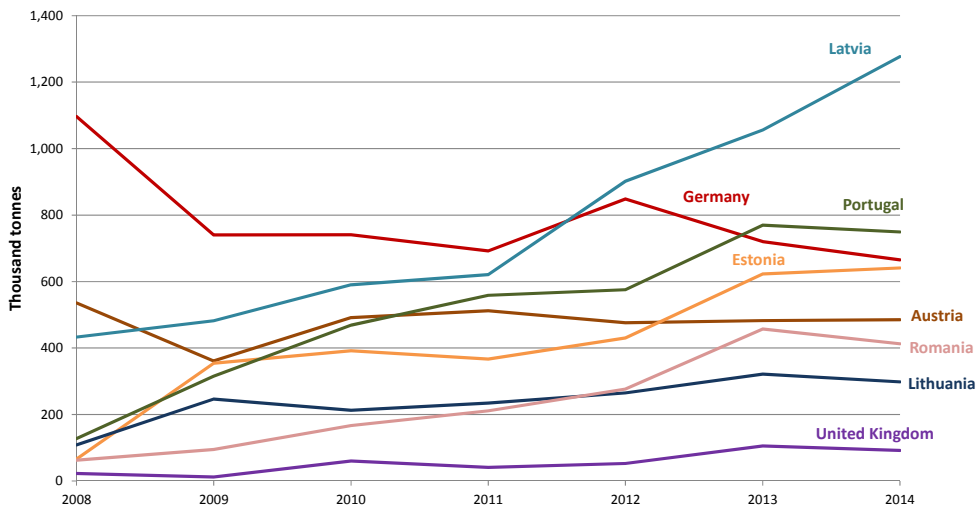
This increase more than doubled Latvia's share of total EU wood pellet exports, from nine to 20 per cent. Estonia's share of exports increased from one to ten per cent, due to exports increasing almost tenfold, from 66 to 641 thousand tonnes.

Portugal also significantly increased its exports of wood pellets over the period, becoming the second largest exporter in the EU with a share of 12 per cent. Germany was the third largest exporter of wood pellets at the end of 2014, ahead of Estonia. However, its share of EU exports had decreased significantly over the seven year period, from 22 to ten per cent.

<sup>5</sup> Although Germany was the EU's second largest importer of wood pellets in 2008, it was the largest exporter in the same year as well. Germany has been a net exporter of wood pellets during the entirety of the period between 2008 and 2014, a reflection of its position as an important trade and transit hub for wood pellets. This caveat doesn't apply to Belgium: it was the largest net importer of wood pellets in 2008, and continued to be a net importer throughout the entirety of the seven year period.

<sup>6</sup> Net imports = total imports minus total exports.

**Chart 5: UK and main EU wood pellet exporters 2008 to 2014**

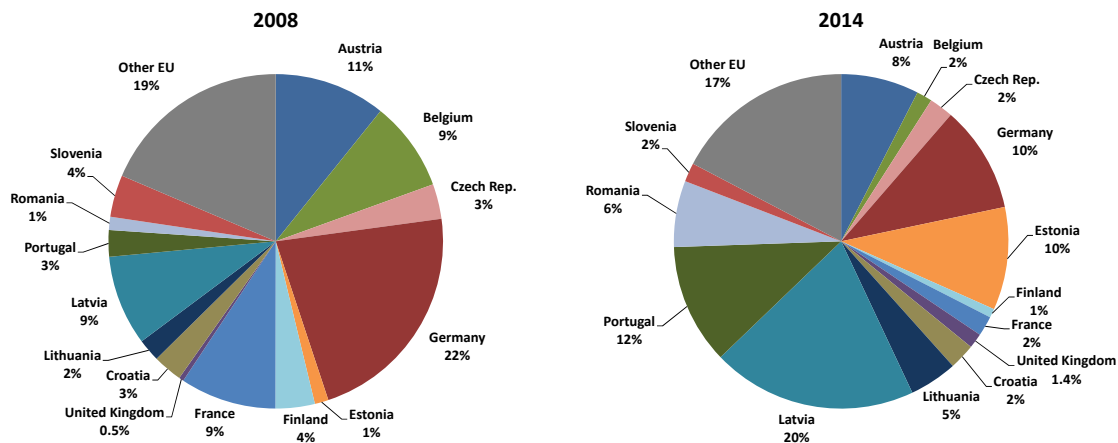


Source: Eurostat International Trade Database

Compared to its imports market – where three countries comprise 74 per cent of the total – the EU’s wood pellet export market remains diverse. As evidenced by the changes in the country shares of total EU exports of wood pellets, the EU’s export market has adapted to the increase of imports from the US, with increasing exports coming from the Baltic states, Romania and Portugal. **(Chart 6)**

Much of the EU trade is within the EU, rather than international, reflecting the lack of trade barriers, and the increased competition from large non-EU exporters (such as the US) in supplying the remainder of the world.

**Chart 6: Member states’ shares of total EU exports of wood pellets**

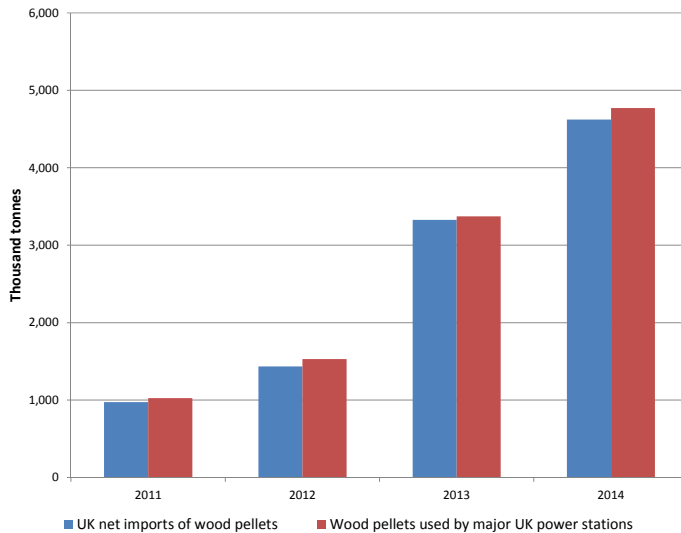


Source: Eurostat International Trade Database

**The growing role of wood pellets in the UK energy system**

The vast majority of the imports are burned in large power stations for electricity generation, either exclusively or co-fired with coal. **(Chart 7)** On average, UK net imports supplied more than 95 per cent of the wood pellets used by the main power stations between 2011 and 2014. As such, UK domestic production accounts for a negligible proportion of wood pellets used in generation.

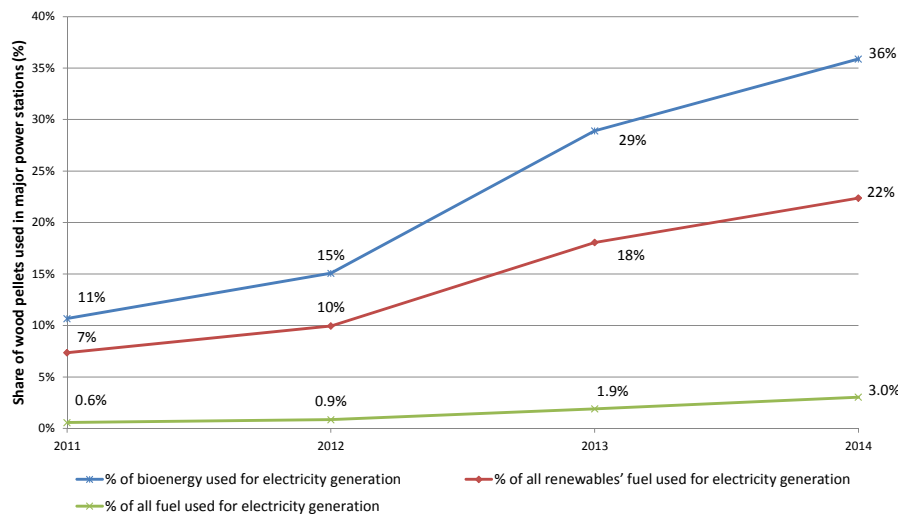
**Chart 7: UK net imports and use of wood pellets by major UK power stations**



Sources: Eurostat International Trade Database & DECC Major Power Producers data

Imported wood pellets have come to play an increasingly important role in the UK's energy mix. In 2014, wood pellets used by the UK's major power stations accounted for 36 per cent of all bioenergy fuels used to generate electricity, an increase of 25 percentage points compared to 2011. **(Chart 8)** In terms of all renewable sources, the share of wood pellets in fuel used for renewable electricity generation increased from seven per cent in 2011 to over 22 per cent in 2014. Wood pellets have also significantly increased their share of fuel used for total UK electricity generation, from less than one per cent in 2011 to over three per cent by 2014.

**Chart 8: Share of wood pellets used by major UK power stations for electricity generation**



Sources: DECC Major Power Producers data & table 5.3, Digest of UK Energy Statistics 2015<sup>7</sup>

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<sup>7</sup> Data for electricity from bioenergy and renewable sources used figures from table 6.6 of the Digest of UK Energy Statistics, which can be found here: [www.gov.uk/government/statistics/renewable-sources-of-energy-chapter-6-digest-of-united-kingdom-energy-statistics-dukes](http://www.gov.uk/government/statistics/renewable-sources-of-energy-chapter-6-digest-of-united-kingdom-energy-statistics-dukes)

Data for fuel used in electricity generation can be found in table 5.3 of the Digest of UK Energy Statistics, available at: [www.gov.uk/government/statistics/electricity-chapter-5-digest-of-united-kingdom-energy-statistics-dukes](http://www.gov.uk/government/statistics/electricity-chapter-5-digest-of-united-kingdom-energy-statistics-dukes)