

## Competition in UK electricity markets

### Introduction

This article includes information relating to competition in the UK electricity market, formerly published as part of UK Energy Sector Indicators. The article examines the two parts of the industry where there is competition for provision: generation and sales. For both markets, the article describes the number of companies operating, and the market concentrations. The Herfindahl-Hirschman measure (see explanation at the end of this article) is used to provide the market concentration as it provides extra emphasis on the contribution of participants with the largest shares. For electricity sales, this article covers the major suppliers<sup>1</sup> surveyed by BEIS comprising approximately 96% of the market.

### Key points

- Major electricity suppliers<sup>1</sup> increased in number from 16 in 1989 before privatisation to 39 in 2018. In 2018, BEIS surveyed 12 new small suppliers to maintain coverage of the market, with two companies discontinuing supply. Of these four had a market share above 0.1%.
- Since 2010, electricity market concentration has slowly declined year-on-year across the domestic, commercial and industrial sectors as more companies entered the market. However, market concentration in 2018 showed a slight increase in the commercial sector.
- The market share of smaller suppliers (outside the top nine) rose from 4.0 per cent in 2010 to 17.6 per cent in 2018, as new and smaller suppliers took market share from the large companies.
- Major power producers (MPPs) increased in number from 6 in 1989 to 56 in 2018.
- The top nine MPPs' share of generation decreased from 86.7 per cent in 2013 to 74.8 per cent in 2018. Their share of capacity decreased from 79.4 per cent in 2013 to 67.1 per cent in 2018 as new smaller generators entered the market.

### Background to changes in the electricity market

#### Electricity generation

Following the restructuring of the electricity supply industry in 1990, the former nationalised companies were classified as major generating companies to distinguish them from autogenerators and the new companies set up to generate electricity. However, over the next few years, some new independent companies were beginning to make significant contribution to the electricity supply and therefore a new terminology "Major Power Producers" (MPPs) was introduced to signify those companies whose prime purpose is the generation of electricity. The breakup of the nationalised power suppliers into smaller privatised companies immediately increased market competitiveness, with new companies beginning to build their own Combined Cycle Gas Turbine (CCGT) stations from 1992. Major wind farm companies and major solar photovoltaic (PV) operators are now also included in the MPP definition.

#### Electricity supply

Competition was introduced to the electricity markets in three phases. First the upper tier of the non-domestic market (customers with a maximum demand of over 1 MW, comprising 30 per cent of the market) was opened to competition in March 1990. Next, the 100 kW to 1 MW tier (15 per cent of the market) was opened to competition in April 1994. Full competition for the remaining 55 per cent of the market (below 100 kW peak load) was introduced in stages between September 1998 and June 1999. This final phase covered domestic consumers who account for over a third of electricity consumed in the UK.

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<sup>1</sup> In this article 'electricity supplier' refers to the major electricity suppliers surveyed by BEIS, covering approximately 96% of all UK electricity sales in 2018. Major electricity suppliers include suppliers that sold over 0.1% of traded electricity in the reference year. This differs from previous editions of this article where all suppliers surveyed by BEIS were included. The change allows BEIS to increase its survey coverage whilst still presenting comparable trends in this article. Please see the [BEIS Electricity statistics data sources and methodologies](#) and the revisions note below for more details.

### Competition in electricity sales

The number of electricity suppliers<sup>(1)</sup> rapidly increased, from 16 before privatisation in 1989 to an early peak of 21 in 2004. The number of companies reduced from 2004 to 2010 (14 companies), as despite new market entrants, other companies were either taken over or bought additional power stations to add to their portfolios. After 2010, the number of companies increased again, reaching their highest levels in 2018 of 39 companies. This was a net increase of two companies from 2017 and reflects new market entrants and that BEIS engaged with new and smaller companies, to maintain coverage in the more fragmented market.

The number of companies supplying electricity to each sector is given for selected years between 1996 and 2018 in Table 1.

**Table 1: Number of companies supplying electricity <sup>(1)</sup>**

	1996	2000	2002	2004	2006	2008	2010	2012	2014	2016	2017	2018
Domestic Sector	1	11	7	10r	9r	9r	9r	12r	17r	20	23r	27
Commercial Sector	17	13r	11r	17r	12r	13r	12r	18r	23r	27	28r	30
Industrial Sector	18	17r	14r	20r	16r	15r	13r	20r	22r	25r	25r	25
<b>Total</b>	<b>18</b>	<b>18r</b>	<b>17r</b>	<b>21r</b>	<b>19r</b>	<b>18r</b>	<b>14r</b>	<b>22r</b>	<b>28r</b>	<b>34r</b>	<b>37r</b>	<b>39</b>

*(1) Companies can supply into more than one market and are counted in each market they supply to. Includes only companies that sold over 0.1% of traded electricity in the reference year.*

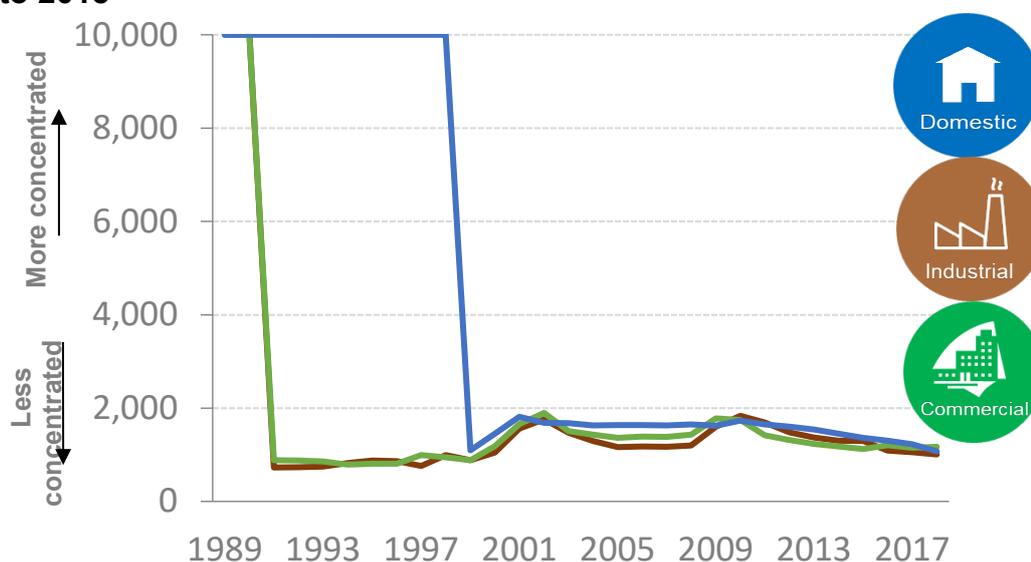
*(r) shows a revision to the data. See the revisions note at the end of the article for more information.*

Source: BEIS.

Four of the new electricity suppliers surveyed by BEIS in 2018 supplied over 0.1 per cent of the market, whilst two companies discontinued supply. All four of these suppliers sold to the domestic sector, whilst two existing companies also started supplying to domestic customers, increasing the net total to 27. Two of the new companies supplied the commercial sector, increasing the net total to 30. There were no new companies supplying electricity to the industrial sector in 2018. Across all sectors, there were 39 companies selling electricity in 2018; this is an increase of 25 compared to 2010. Despite some of the new companies supplying a small share of the market, the growth in the number of companies over the last 10 years resulted in a decrease to market concentration.

Chart 1 below shows the market concentration as expressed through the Herfindahl-Hirschman Index. In the chart, higher numbers show more concentration while lower numbers indicate a more diverse market.

**Chart 1: Herfindahl-Hirschman Index for electricity sales market concentration, 1989 to 2018**



There was an initial sharp decrease in market concentration following privatisation, then a rise between 1998 and 2002, mainly due to a spate of mergers. The market concentration subsequently fell and stabilised between 2003 and 2008, as the number of industrial and commercial suppliers increased. In 2009 and 2010, market concentration increased again, as several closures reduced the number of market participants. Since 2010, electricity market concentration has declined annually across the domestic and industrial sectors, as the market became more competitive; whilst market concentration in the commercial sector also dropped each year since 2010 with the exceptions of 2016 and 2018. For the domestic and industrial sectors, the index fell further across in 2018 and all sectors are now at similar level to in 2000. This downward trend in market concentration resulted from increasing numbers of smaller suppliers entering the market and reducing the market share of bigger companies.

The domestic market was a regional monopoly before 1998, dominated by the Regional Electricity Company (REC). Following a decrease in market concentration in 1999 as domestic sales became more competitive, concentration rose until 2002 due to mergers between former RECs, and with other suppliers/generators. Similarly, market concentration rose for industrial and commercial sales over the same period. Between 2002 and 2009, the Herfindahl-Hirschman Index for the domestic sector was broadly stable. In 2010 the index increased, though subsequently the index has decreased annually. In 2018, the index fell again to from 1,226 in 2017 to 1,074 – the lowest level recorded – reflecting the share of new entrants to the market.

The commercial market had 17 major electricity suppliers in 2004 but this fell to 12 in 2010, leading to an increase in market concentration. Since 2010, there has been a downwards trend in market concentration, as the number of commercial electricity suppliers grew. Despite the number of commercial companies growing again in 2018, market concentration increased slightly due to one large company taking commercial sales from other large and medium suppliers. With 25 industrial electricity suppliers in 2018, the industrial market was less concentrated than in 2010, when there were 13 industrial electricity suppliers. The largest concentration decreases in the industrial sector occurred in 2012 and 2016.

### Electricity supplied to all consumers by aggregated shares.

Table 2 shows how the market share of the largest companies have changed since 2010. The market share of the top nine suppliers peaked in 2010, but since has steadily fallen to 82.4 per cent in 2018. Between 2017 and 2018, the aggregated share of the top six suppliers fell a further 3 percentage points from 73.0 per cent to 70.4 per cent. When compared to 2010, the aggregated top six share for 2018 is 17.1 percentage points lower.

As the number of companies supplying electricity has increased, as evidenced in Table 1, the share of these suppliers outside the top nine has grown. The share of those outside of the top nine rose from 4 per cent in 2010 to 17.6 per cent in 2018. This reflects the fragmentation of the market from new entrants taking market share from the larger companies. This increase in share of suppliers outside the top nine further reflects the reduced market concentration as evidenced by the Herfindahl-Hirschman Index in Chart 1.

**Table 2: Percentage of total electricity supplied to all consumers**

Electricity Suppliers	Market Share (%)								
	2010	2011	2012	2013	2014	2015	2016	2017	2018
Aggregated share of top 3 suppliers	50.9%	48.9%	47.2%	46.3%	47.4%	45.1%	42.5%	41.9%	41.3%
Aggregated share of next 3 suppliers	36.4%	35.2%	36.7%	35.4%	33.5%	32.7%	32.3%	31.1%	29.1%
Aggregated share of next 3 suppliers	8.8%	8.5%	8.0%	8.1%	8.9%	10.1%	10.8%	11.7%	12.1%
<b>Aggregated share of top 9 suppliers</b>	<b>96.0%</b>	<b>92.6%</b>	<b>91.8%</b>	<b>89.8%</b>	<b>89.8%</b>	<b>87.8%</b>	<b>85.6%</b>	<b>84.7%</b>	<b>82.4%</b>
Other suppliers	4.0%	7.4%	8.2%	10.2%	10.2%	12.2%	14.4%	15.3%	17.6%

### Electricity generation competition

Table 3 shows the number of companies that are counted as Major Power Producers (MPPs). The number of companies increased rapidly, from six before privatisation up to an early peak of 36 in 2001, before mergers caused numbers to fall back to 29 in 2006. Starting in 2007, several renewable generators were reclassified as MPPs, leading to an increase in the number of MPPs to 34; this remained stable through to 2009. Since 2010, the number of MPPs has steadily increased as new generators came online, reaching a new peak in 2018 of 56.

**Table 3: Number of Major Power Producers**

Year	Number	Number producing at least 5% of total generation
1989	6	-
1990	6	-
1991	11	-
1992	14	-
1993	20	-
1994	23	-
1995	25	-
1996	26	-
1997	27	-
1998	29	-
1999	30	-
2000	34	7
2001	36	6
2002	36	7
2003	34	6
2004	32	7
2005	30	7
2006	29	7
2007	34	8
2008	34	9
2009	34	8
2010	39	8
2011	41	7
2012	44	7
2013	44	7
2014	47	7
2015	53	6
2016	52	5
2017	54	4
2018	56	5

Source: BEIS

(r) shows a revision to the data

Table 4 shows the MPPs aggregated share of generation and aggregated share of capacity for 2013 to 2018. The market share of the top 9 generators in this period peaked in 2013 at 86.7 per cent but has subsequently declined to 74.7 per cent in 2018, as new companies entered the market and reduced the share of total generation produced by the top 9 companies. The top 9 generators held a lower share of capacity (67.1 per cent in 2018) compared to generation. This indicates that a greater proportion of their generation is from non-renewable sources, which have higher load factors i.e. they operate closer to full capacity.

**Table 4: Percentage of total generation and total capacity by Major Power Producers**

	Share in Generation (%)						Share in Capacity (%) <sup>(1)</sup>					
	2013	2014	2015	2016	2017	2018	2013	2014	2015	2016	2017	2018
Aggregated share of top 3 companies	50.9	48.5	48.6	48.9	50.7r	48.9	41.9	43.5	32.5	32.9r	35.3r	33.8
Aggregated share of next 3 companies	24.0	25.6	21.4r	15.5	15.0	16.6	24.9	24.2	26.8r	18.2r	22.2	21.4
Aggregated share of next 3 companies	11.8	10.7	12.7	11.4r	9.2r	9.2	12.6	13.1	15.2	11.4	8.8r	11.9
<b>Aggregated share of top 9 companies</b>	<b>86.7</b>	<b>84.8</b>	<b>82.8r</b>	<b>75.8r</b>	<b>75.0r</b>	<b>74.7</b>	<b>79.4</b>	<b>80.9</b>	<b>74.5r</b>	<b>62.4r</b>	<b>66.4r</b>	<b>67.1</b>
Other major power producers	13.3	15.2	17.2r	24.2r	25.0r	25.3	20.6	19.1	25.5r	37.6r	33.6r	32.9

(1) Of the same companies in each band in generation terms

Source: BEIS

(r) shows a revision to the data

## User feedback

We welcome all feedback from users; therefore, if you have any comments or queries regarding this analysis, please contact either Vanessa Martin or Chrissie Frankland using the contact details below.

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## Herfindahl-Hirschman

The Herfindahl-Hirschman measure attempts to measure market concentration. It places extra emphasis on the contributions of participants with the largest shares. The measure is commonly used to assess whether mergers should go ahead and whether they will significantly affect the balance of the market in a particular sector.

It is expressed by the following equation: Herfindahl-Hirschman measure = the square of each participant's market share added together across all participants in the market.

Values vary between zero, which signifies a perfectly competitive industry, and ten thousand, for a pure monopoly.

### **Revisions**

This year we have revised the method for **Table 1: Number of companies supplying electricity**. In previous years all electricity suppliers in the BEIS electricity survey were included; however, from 2019 we introduced a 'major electricity supplier' definition which includes companies with a market share above 0.1%. This allows us to more accurately reflect the market rather than showing an apparent sharp increase due to smaller suppliers which were added to the BEIS electricity supplier survey to improve its coverage. We are considering further improvements to the electricity and gas articles. Please contact us with your feedback.