Running hours during winter 2011/12 for plants opted-out of the Large Combustion Plant Directive (LCPD)

The Large Combustion Plant Directive (LCPD) is a European directive aimed at controlling emissions of sulphur dioxide, nitrogen oxides and dust from large combustion plants. The directive imposes emissions limits on new plants (those licensed after 1st July 1987). Plants licensed before this date have three options.

1) Meet new emission limits which will require retrofitting of flue gas treatment equipment (i.e. opt-in).
2) Opt out limited life derogation – 20,000 hours of operation between 1st Jan 2008 and 31st Dec 2015.
3) Close before 1st Jan 2008.

Of the 16 coal fired power stations currently operating in Great Britain, 6 have opted out along with the 3 oil fired stations. A list of these plants is given in table 1. Peterhead power station (which is predominantly gas fired) is also affected by the directive as it was built prior to 1987 but has chosen to opt-in.

In 2009, the Balancing and Settlement Code was modified to increase the information made publically available about plants affected by the directive. This data can be downloaded from the following website www.bmreports.com/bsp/bes.php?prefix=LCPD .

This data has been used to produce Table 1 which shows the hours run during winter 2011/12 by plants which chose to opt-out of the directive (winter is defined as beginning October 2011 – end March 2012).

Table 1: Hours run during winter 2011/12 by plants opted-out of LCPD

Plant	Capacity[1] (MW)	Hours run during winter 10/11	Hours run during winter 11/12	Hours remaining	Hours remaining (%)
Cockenzie units 1 & 2	1,152	1,972	3,080	792	4%
Cockenzie units 3 & 4		2,824	2,859	1,961	10%
Didcot A	1,958	2,332	3,439	6,378	32%
Ferrybridge (1&2)	1,960	2,463	3,186	6,693	33%
Ironbridge	940	1,578	803	11,081	55%
Kingsnorth	1,940	2,644	3,021	3,037	15%
Tilbury (7 & 8)	750	1,921	1,056	6,778	34%
Tilbury (9 &10)		2,051	955	6,491	32%
Total (coal)[2]	**8,700**	**17,785**	**18,399**	**43,211**	**27%**
Fawley*	968	47	16	9,182	92%
Grain*	1,300	54	4	8,721	87%
Littlebrook*	1,370	53	22	8,708	87%
Total (oil)	**3,638**	**154**	**42**	**26,611**	**89%**

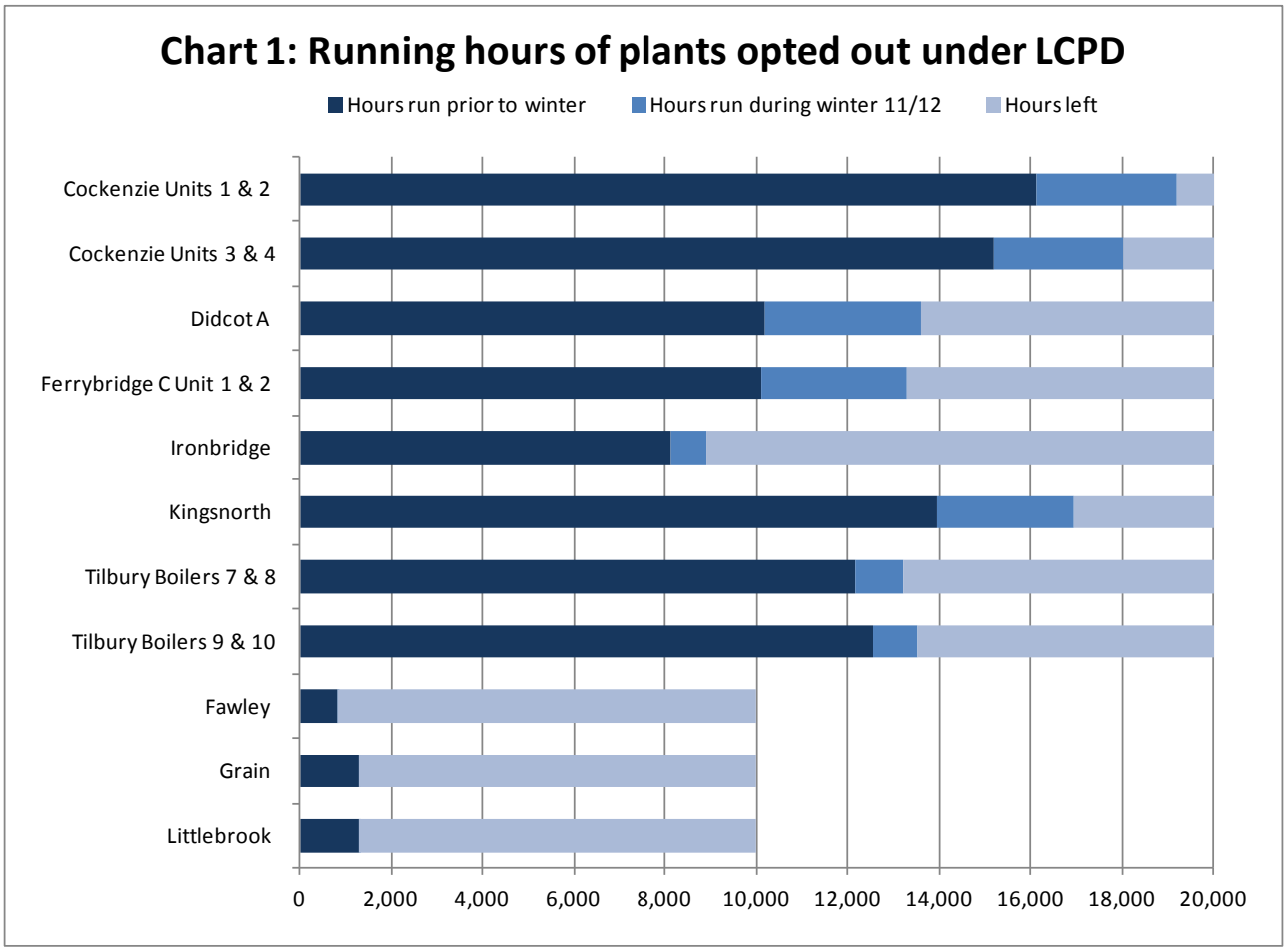
* These plants are oil fired and have taken the option of limiting running hours to 10,000. Under this option plants only need to provide sample measurements of SO2 rather than continuous measurements.

[1] Sourced from DUKES 2012 Table 5.11

[2] Coal total includes Tilbury, which converted from coal to biomass during 2011 and continues to be opted-out. Although biomass produces almost no CO2 emissions the plant will not be exempt from closure at the end of 2015 as the LCPD relates to particulate matter and sulphur dioxide/nitrogen oxide emissions.

In total the plants opted-out of the LCPD ran for 18,441 hours during winter 2011/12. Of which 29 per cent occurred in February (5,343 hours). This compares to 17,939 hours during the winter of 2010/11.

Didcot A and Ferrybridge ran the most hours during winter 2011/12. Both power stations have now used about two thirds of their allowance. Of the coal fired plants, Ironbridge has the most hours remaining with over half of its allowance left to use (55 per cent), and has not been running since February 2012, as it is being converted to run on biomass instead of coal. Tilbury converted to biomass from coal during 2011 and so was not generating from March 2011 onwards. After conversion it only exported to the grid for one month in the winter of 2011/12, before closing due to fire damage. Cockenzie (units 1-4) has used over 90 per cent of its allowance. As oil fired power stations tend to be used infrequently they still have a high proportion of their hours remaining despite only having an allowance of 10,000 hours.



When will the plants use up all their hours?

The hours left at the end of each month were plotted for each station, a line of best fit was drawn and an equation used to calculate when the plant would use up its allocated hours. An example for Ironbridge and Cockenzie 1&2 is shown in Chart 2. Data are not available prior to July 2009 so the trend line only looks at hours run since then.

The trend line for Ironbridge suggests that the plant is running for an average of 174 hours each month – extending this forward from the end of March 2012 means that Ironbridge is estimated to run out of hours in 64 months (this will take it beyond the deadline of December 2015).

Kingsnorth is using up its hours at a faster rate (on average 294 hours per month); if it keeps running at the same rate it will run out of hours during May 2013. Table 2 gives the estimated end date for each of the coal fired plants.

Chart 2: Running hours remaining at the end of each month

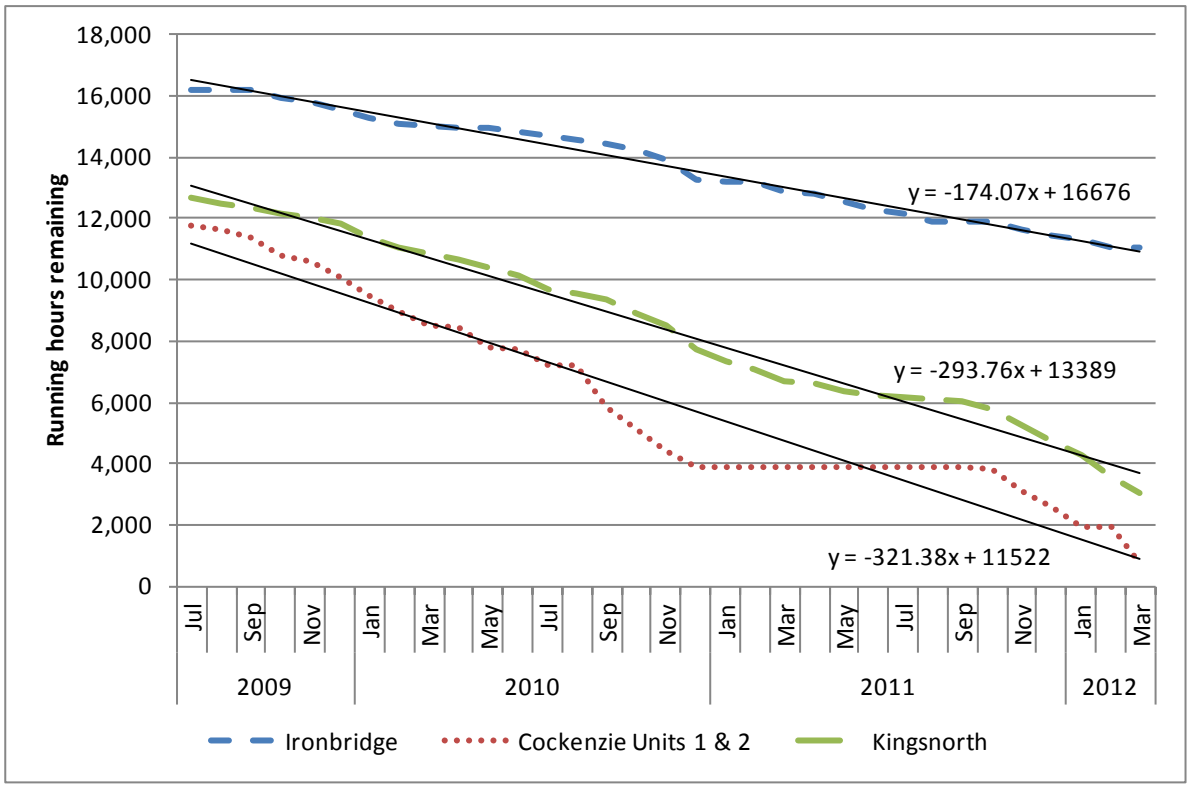


Table 2: Estimated end date (based on historic running pattern)

Plant	Estimated end date
Cockenzie units 1 & 2	July 2012
Cockenzie units 3 & 4	November 2012
Kingsnorth	May 2013
Tilbury (9 &10)	December 2014
Tilbury (7 & 8)	September 2014
Ferrybridge (1&2)	August 2014
Ironbridge	End 2015
Didcot A	September 2015

Limitations of the analysis

It is important to note that this analysis assumes that the plants will keep running at the same rate in the future as they have in the past. However, this is unlikely to be the case as the running of a plant is a commercial decision. For example, as shown in Chart 2, although Cockenzie 1&2 used its hours steadily between July 2009 and December 2010 (at an average rate of around 464 hours per month), between January and September 2011 it did not run at all. It then started to run again in October 2011 (at an average rate of 513 hours per month between October 2011 and March 2012). These short term changes make estimation of end dates very difficult and explain why, when similar analysis was carried out on this data last year (see article in the September 2011 edition of Energy Trends), it was estimated that Cockenzie 1&2 would close in November 2011, which did not happen. Although this year's modelling suggested an closure date of July 2012 for Cockenzie 1&2, this power station is still operational. The latest data, correct at the end of July 2012, indicated that the power station still had 172 hours remaining.

The latest data on electricity supplied by coal fired plants (see Energy Trends Table 5.1), shows that almost 29TWh of electricity was provided by coal plants in Q2 2012. This is substantially higher than the approx. 19TWh in the same quarter in each of the last three years (2009 to 2011). This would imply that coal plants in Q2 2012 have been running longer hours than historically and, as such, this will affect the estimated end dates (as these are based on modelling of the historic data).

Tilbury converted to biomass from coal during 2011. Although biomass produces almost no CO2 emissions the plant will not be exempt from closure at the end of 2015 as the LCPD relates to particulate matter and sulphur dioxide/nitrogen oxide emissions. If the biomass trial is seen to result in a reduction of these emissions Tilbury will need to apply to Europe for permission to extend its lifetime.

User feedback

We welcome all feedback from users, therefore if you have any comments or queries regarding this analysis, please contact either Chris Michaels or Laura Williams using the contact details below.

Chris Michaels
Energy Statistics
Tel : 0300 068 5050
E-mail: chris.michaels@decc.gis.gov.uk

Laura Williams
Energy Statistics
Tel: 0300 068 5045
E-mail: laura.williams@decc.gsi.gov.uk