GB Electricity Market Summary

SECOND QUARTER 2014

APR TO JUN

Recorded Levels of UK Generation by Fuel (based upon DECC Energy Trends & FUELHH data):

GAS: 10.8GW	**COAL:** 10.1GW	**NUCLEAR:** 7.8GW
WIND: 2.6GW	**BIOMASS:** 2.6GW	**INTERCONNECTORS:** 2.3GW

Contents

Foreword

As a specialist information business based in the UK energy markets, EnAppSys provides market participants with online market analysis, reporting and forecasting tools and regular weekly and monthly reports alongside bespoke analysis and consultancy and as part of providing these services the company has built up specialist knowledge in the UK energy market.

In this report, EnAppSys has used the insights that have resulted from this analysis to produce a summary of activity in Q2 2014.

The charts in the report are produced form our online data analysis tools which we provide to market participants and stakeholders.

Within this report EnAppSys has focused on the high level activity in this period, specifically that around the overall system activity and the by fuel type activity in the quarter, but with further details included where of particular interest.

The aim is to provide a concise overview of the most important activity noted in the three month period with the aim of the report to provide an understanding of the broad trends and notable events occurring in the period.

The topics discussed in the report are primarily related to the generation of electricity by power stations in the GB (i.e. UK excluding Northern Ireland) market.

Executive Summary

"In general the second quarter of 2014 saw a very benign system prices at which power can be bought and sold within day in the market low in the period"

In general the second quarter of 2014 saw a very benign system with electricity prices at which power can be bought and sold within day in the market low in the period, with low price volatility.

The system also saw a change in the previous quarters generating fuel mix due to coal plants opting to use this quarter to begin periods of major maintenance and a fall in gas prices removing some of the commercial benefit of coal generation over gas which has been a feature of the UK market for the last 4+ years.

Levels of demand were also low in the quarter compared with the same period last year, with the system margin declining as the quarter progressed as outages began at coal units; with system margin being a measure of the usable spare capacity in the market.

The low levels of demand were likely attributable to the excellent weather but usually heatwaves translate into increased air conditioning load but Q2-2014 was characterised by high generation levels from the GB solar fleet which are predominantly embedded into the distributions system and not operational at the generation level. This solar generation is likely to have offset the power usage of air conditioning systems.

Otherwise the most notable activity in the month was low gas prices towards the end of the quarter that increased levels of generation at gas-fired units.

These low gas prices came as high supplies of gas in storage coupled with what were low levels of gas burn resulted in an inverted supply crisis where too much gas was going into storage; with the system running out of storage capacity. In response, gas prices had to fall to a point at which there would be higher levels of gas burn to offset the supplies of gas entering the system.

Some of the drivers for the circumstances that have caused low gas prices in the quarter have been political tensions with concerns over Russian supplies being cut off causing high gas storage injection and the absence of any reduction in Russian gas leading to an oversupply, exacerbated by many UK gas fields also having associated oil production which with high oil price results in no reduction in gas production.

Executive Summary

For the first month of the period gas prices remained high enough to see no change in levels of coal-fired generation, but from early May some coal units struggling with emissions limits anyway began to be displaced by gas-fired units.

The quarter also saw the commencement of the return to service of Japan's Nuclear fleet which will start to impact on global demand for LNG (Liquefied Natural Gas) and hence its price.

"By early June gas prices had fallen far enough to make the most efficient gas plants more economically viable than the least efficient coal plants"

By early June gas prices had fallen far enough to make the most efficient gas fired generation plants more economically viable than the least efficient coal plants and at this point these newer gas plants began to displace some of the older coal plants.

For peaking plants that typically only generate when instructed by the grid to come online for prices at a premium to the within-day price (via a market used to balance supply and demand in the system – the balancing mechanism), this activity resulted in low levels of generation; with the system apparently benefiting from the increased flexibility that resulted from having the efficient gas plants coming online and low wind reducing variability in the renewable generating fleet.

Overall in the period, the system had little requirements to balance the system through such requests (via balancing volumes) with low levels of balancing volumes noted in the month and at particularly low prices.

System Summary in Quarter

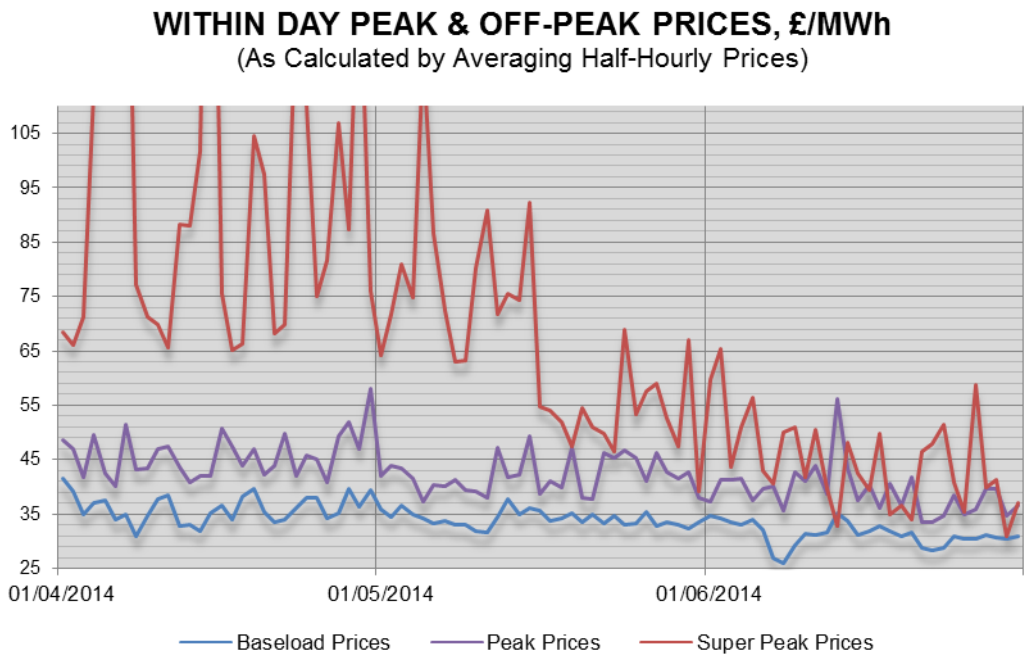
The second quarter of 2014 was notable for seeing higher levels of gas generation as the period progressed as gas prices steadily fell in the period as a result of high levels of gas supplies in storage, with gas storage nearly full by the period end.

Key Activity

Beyond the increased levels of gas generation the quarter was generally very quiet with low within-day market prices, at which power could be bought and sold, noted in the quarter and with lower gas prices supporting this decline.

Within-Day Market Prices

A summary of average within-day market prices (wholesale) during peak and off-peak hours can be seen in the following chart:



In this chart baseload prices are an average of spot prices over the day and night, peak price is an average of daytime price with super peak prices being an average of prices from 4PM to 7PM.

System Summary in Quarter

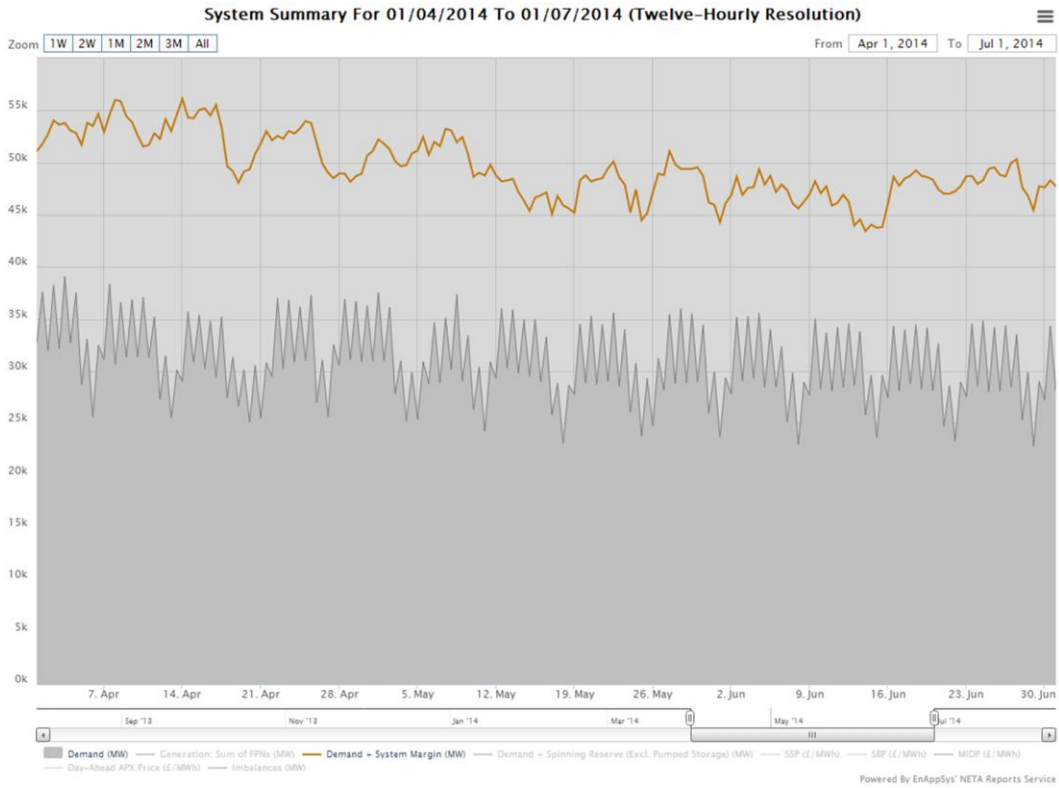
Most notable as the quarter progressed was a clear decline in levels of ‘super peak’ prices with this reducing levels of activity at peaking plants that generally generate only in these ‘super peaks’ for higher prices than are normally available.

Less pronounced but equally significant trends can be seen in the other price sets, with prices similarly declining through the month; with these prices falling as gas plants became more economically competitive, resulting in high levels of competition for levels of generation and bringing online some of the most efficient and most flexible plants in the market.

If this overall decline in prices continues it will increase pressure on suppliers to reduce their energy tariffs going forward.

System Margin & Demand

A summary of key demand & margin activity may be seen in the following chart:



Within this chart ‘Demand’ (dark grey area) indicates the levels of electricity consumed within the period by end-users and as is typical for the second quarter, levels of demand were reasonably low in the period, with further reduced levels during weekend periods.

System Summary in Quarter

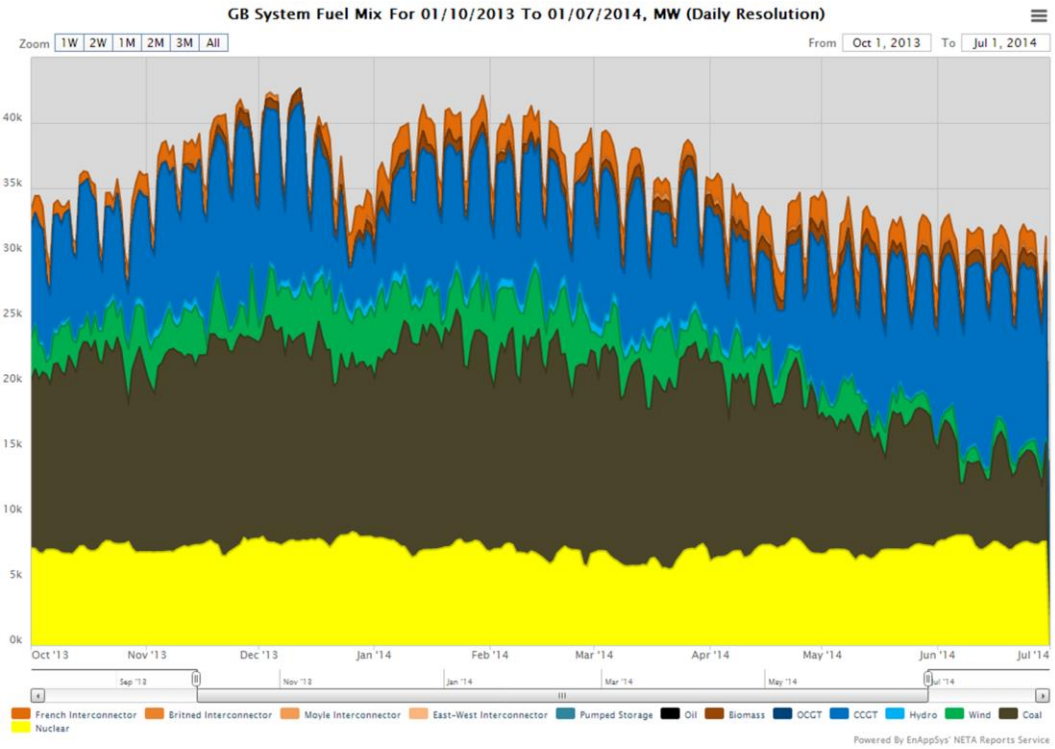
As the period progressed, levels of ‘Demand + System Margin’ (orange line) declined as plants went offline for maintenance with this indicating that the usable spare capacity within the system was reducing through the period.

Coal-fired plants typically see long periods of outage for maintenance once every 3/4 years with these periods of major maintenance lasting several months and with shorter periods of maintenance often occurring in other years.

With summer months seeing lower electricity prices, and hence lower incentives to generate, these coal units will often plan to undergo these periods of maintenance across quarters two and three in the year, reducing the available capacity in the system, but at a time when levels of demand are low anyway.

Fuel Mix

To put the quarters by fuel type activity into context the following chart plots levels of generation by fuel since the beginning of Q3 2013:



The reporting period (Q2 2014) began in April 2014 and as can be seen from the chart this was a period in which levels of coal-fired generation (dark gray area) declined, initially as coal-fired plants went offline for summer outages and later as gas prices fell resulting in

System Summary in Quarter

higher levels of generation at gas-fired plants (blue area). The gas fired plants also picked up the lost generation from the installed wind fleet, with wind farms seeing reduced levels of generation against previous quarters with output typically high over winter months and typically lower in the summer months of the year but with this quarter seeing particularly low levels with the heatwave and mild weather benefitting solar but not wind generation.

"The wind fleet also saw reduced levels of generation against previous quarters with output at wind farms typically high over winter months and typically lower in the summer months"

Also notable from the chart was the decline in levels of generation during the summer months as increased levels of natural light and generally warmer weather resulted in reduced levels of demand for electricity generation in the period and increased solar embedded generation.

Also of note in the month were increasing levels of nuclear generation with units returning to service.

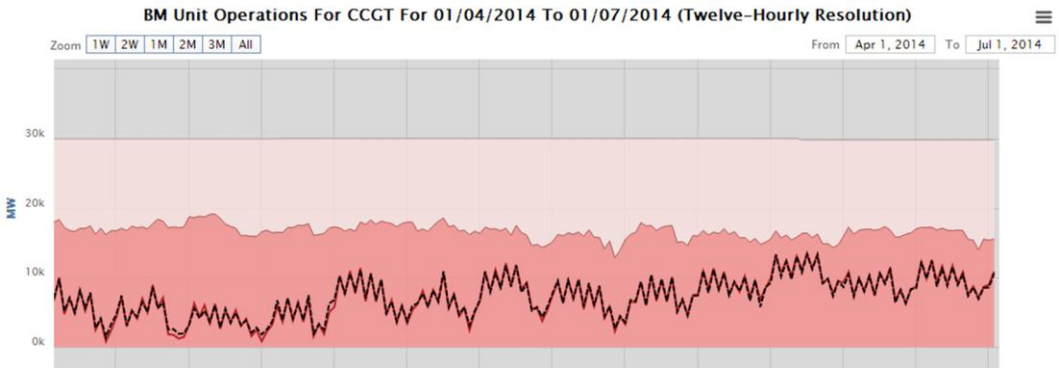
Activity by Fuel Type

Levels of generation by fuel have already been introduced in the previous section with this section going into that activity in greater detail. Any activity of note is summarised in the following by fuel type sections.

"By the end of the period the most efficient gas plants were economically more competitive than the least efficient coal plants"

Gas Generation

Generation by CCGT units (excluding CHP units) can be aggregated into the following summary chart for the quarter:



In this chart the light pink area denotes the nameplate capacity while the darker pink area denotes availability levels, with plants obliged to keep this data stream up to date. Alongside these series the dashed black line denotes levels of generation in the period and at the beginning of the period it can be seen that levels of CCGT fleet generation were very low, with utilisation at only a small percentage of total capacity.

However, as the period went on levels of gas generation climbed in line with falling gas prices as the market became increasingly aware of the high supplies of gas in storage; with gas prices changing in a manner correlating closely with the changes in activity in this chart.

By the end of the period the most efficient gas plants were economically more competitive than the least efficient coal plants.

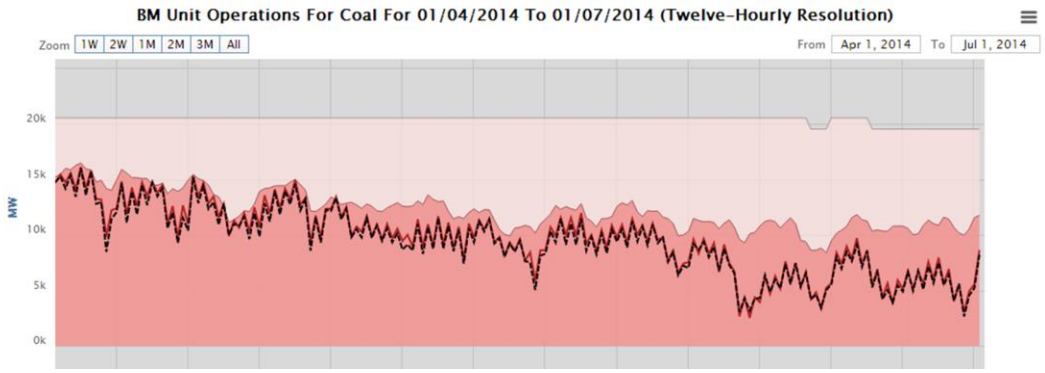
Activity by Fuel Type

Coal Generation

As gas units became more competitive they increasingly began to displace coal units and as a result the coal fleet saw declining levels of generation against availability as the month progressed.

"The coal fleet saw declining levels of generation against availability as the month progressed."

This activity can be seen in the following chart:



The declining levels of availability (dark pink area) came as units began summer outages, with the summer months ideal for such outages as prices are generally much lower than in winter months.

However, by early May levels of generation (dashed black line) had started to decline against levels of availability with this initially occurring primarily at plants struggling to meet emissions targets, but increasingly as the month went on at other older plants that were being displaced by gas-fired plants.

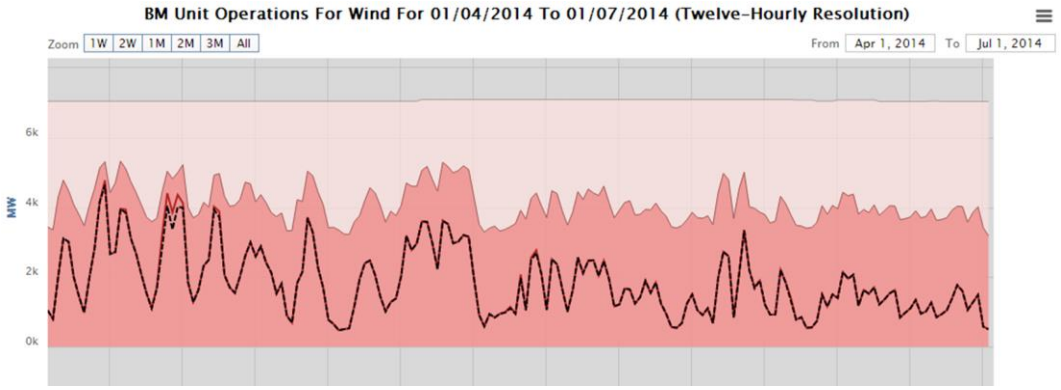
The lower levels of utilisation against availability towards the end of the month are also particularly notable in this chart.

Wind Generation

In the month levels of wind generation were reasonably low with far more variable levels of generation than those seen in winter months. This came as it became less common to see high levels of wind generation both in Scotland and in Southern England at the same time so that when many of the English offshore wind farms saw high levels of generation, it was typical that the onshore wind farms in Scotland would be seeing only low levels of generation and vice versa.

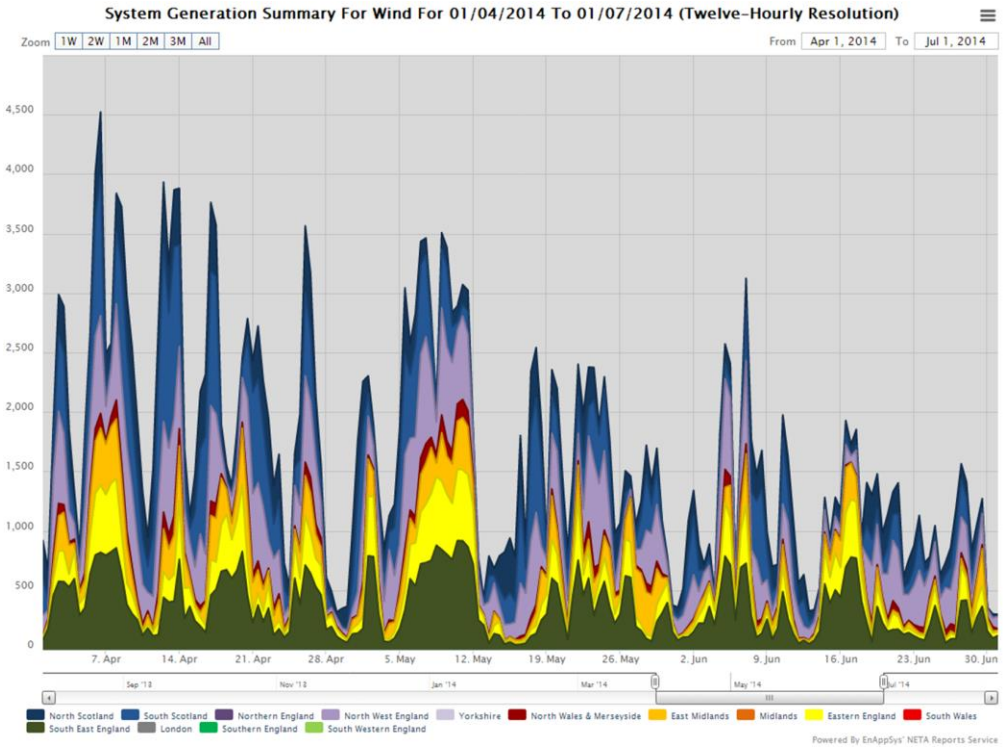
Activity by Fuel Type

The overall activity for the wind fleet in the period can be seen in the following chart: (only including CVA-metered wind farms - some 65% of the total)



These less consistent levels of generation are of stark contrast to levels of generation that would be seen in a winter quarter where generation levels are much higher and far more consistent across the period.

With levels of generation across the country noted in the following chart:



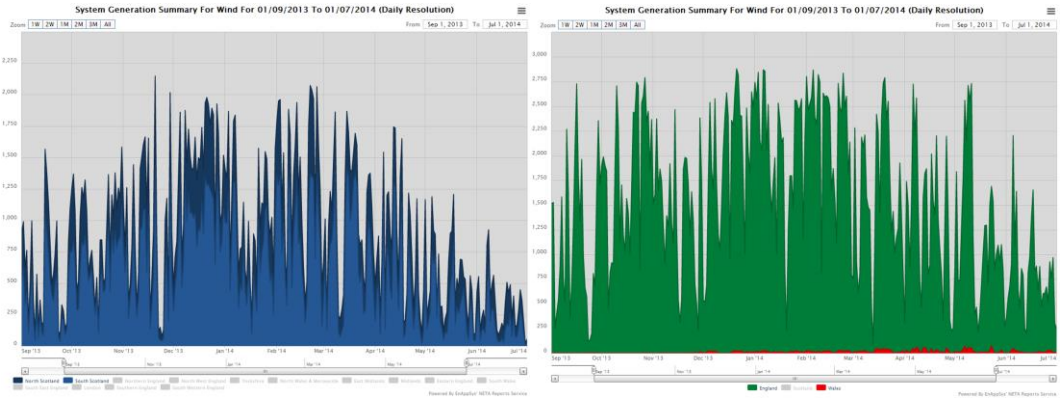
Activity by Fuel Type

By having wind farms in different regions, even over summer months there is a degree to which wind farms provide minimum levels of daily generation, with wind farms in one region making up for a lack of generation in another region.

Most notably, levels of wind generation were very high in England with this mostly coming from offshore wind farms with onshore wind farms seeing a much larger drop off in levels of generation over the summer months.

"While levels of wind generation in Scotland (at mostly onshore wind farms) were very seasonal, levels of generation at English (offshore) wind farms were very consistent"

This can be best seen through the two zoomed out charts that highlight trends from September 2013 to July 2014:



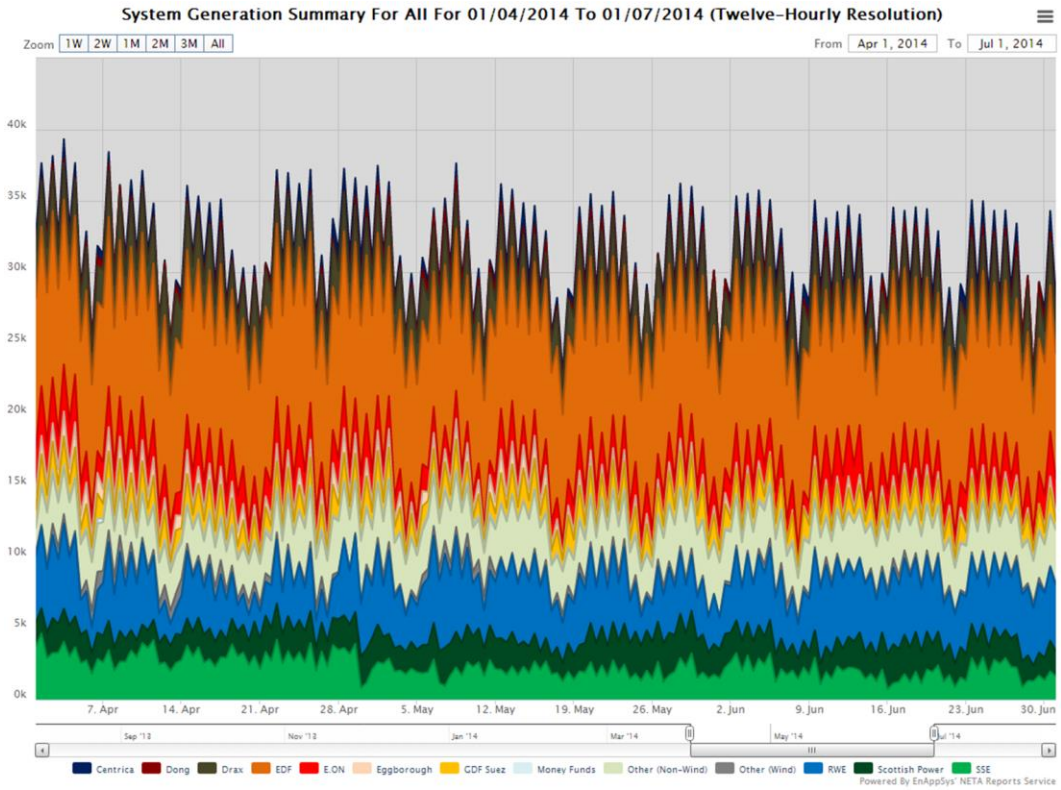
The chart on the left shows levels of wind generation in Scotland by region, which comprises mostly of the CVA metered onshore wind farms, while the chart on the right shows levels of generation in England and Wales, which shows offshore wind farms.

Notably different in the two charts is that while levels of wind generation in Scotland (at mostly onshore wind farms) were very seasonal, levels of generation at English (offshore) wind farms were very consistent.

Generation by Operator

Over the quarter the levels of generation can be broken down by operator to consider the effect of changing levels of generation on the different participants in the market.

"The largest generator of power in the period was EDF with 33.6% of the total generation.



Based on the operator allocations that EnAppSys was aware of at the time of producing this report, the largest generator of power in the period was EDF with 33.6% of the total generation.

RWE produced the next largest slice of generation with 13.2% of the total followed by the conglomeration of smaller thermal plant owners with 10.7%, Drax with 8.4% and SSE with 7.5%.

In the month the major change in levels of generation came as a result of changing levels of coal and gas generation with the levels of changing coal generation primarily the result of periods of outage at coal plants over the summer months.

About EnAppSys

Enappsys is a specialist information business providing both electricity and energy market data, systems and applications to parties with an interest in the UK energy market.

The company provides a range of services from access to energy data, analytical services, provision of consultancy services and development of bespoke energy data applications.

Enappsys is focused on providing information and analytical services covering the energy sector and is actively growing the business to provide products with enhanced analysis and forecasting capabilities and extending the geographic and sector coverage beyond the UK and the electricity market.

The company's business objective is to make available timely, optimal and insightful information, analysis and systems to the energy sector to ensure all sizes of company have the best available tools and information to make informed decisions and to optimise their business strategy.

Enappsys was formed in 2003 to support and provide IT development and services to businesses working in the UK energy sector.

At its formation the business was focused on the English electricity market which in 2003 had been completely restructured with the introduction of the New Electricity Trading Arrangements (NETA) from which Enappsys got the name for the NETA Reports Data Service.

Enappsys has continued to develop its services to this market and through the extension of the arrangements to the UK via the British Electricity Trading Arrangements (BETTA) to the current day.

The charts from this report have come from a beta version of an upgrade to EnAppSys' online charting service www.netareports.com/enbm with the data provided by the company's data service at www.netareports.com.

To find out more about EnAppSys contact the company at about@enappsys.com or visit the company's website at www.enappsys.com.