ENERGY BRIEFING 2016 Q1

Martin Rawlings

A briefing on energy markets both globally and in Europe.

1/31/2016

Contents

MARKET ISSUES 2
World Energy Market – 2
ELECTRICITY 3
UK Market – 3
Global Markets – 4
GAS 6
UK Market – 6
Global Markets – 6
OIL 7
Market News – 7
COAL 10
UK Market - 10
Global Markets – 10
WATER 11
News – 11
ENVIRONMENT & CLIMATE CHANGE 12
UK News 12
Global News – 12
APPENDICES 14
Notes 14
Appendix I - Electricity Price Forecasts 14
Appendix II - Electricity Price Forecasts 16
Appendix III - Gas Price Forecasts 18
Appendix IV - Oil Products Price Forecasts 19
Appendix V - Emissions Allowances Price Forecasts 20
Appendix VI - Quarterly Energy Prices Forecast 21
Appendix VII - 5 Year Energy Prices Forecast 23

MARKET ISSUES

World Energy Market –

New global climate change treaty agreed at COP21in Paris. Investment group launches to generate funding for low carbon technologies. Ofgem issues fines to big six energy companies. Petrol prices fall below £1/litre at the pump. Governor of the Bank of England issues climate change warning to investors. National Grid put majority stake in UK gas distribution business up for sale. HMRC announce plans to increase VAT charged on solar panels and wind turbines. Class action lawsuit over the Deepwater Horizon disaster has been launched in Mexico. Fossil fuel divestment continues. Areva abandon deal with Schneider Electric. After two weeks of negotiations, preceded by months of preparatory talks, a new treaty between the world's governments to end the use of fossil fuels was agreed at the COP21 climate change conference in Paris during December. The legally binding agreement between almost 200 countries, the first new global deal since the Kyoto Protocol in 1997, sets targets to reach net-zero emissions in the second half of this century and to keep global mean temperature rises to under 2 °C, whilst pursuing efforts to keep temperature rises below 1.5 °C. This is likely to bolster arguments from environmental groups which pronounce that some fossil fuels must be left in the ground to limit temperature rises. The deal has been criticised for lacking teeth however, as the agreements are only 'goals' and the only obligations are that countries have to resubmit voluntary commitments to cut emissions every 5 years. This will improve the monitoring and reporting of emissions and make it easier to see what measures countries have put in place to reduce them.

Developed countries have also committed to providing $100bn of funding a year by 2020 to poorer countries to aid the financing of climate change mitigation measures. No binding targets for emissions reductions were agreed and current targets set by individual countries would only limit temperature increases to between 2.7 °C and 3 °C if not tightened. The treaty will be available to sign from April 2016 and will come into force once 55 countries accounting for more than 55% of global emissions have approved it.

Ahead of the COP21 climate talks in late-November, a group of 25 investors including billionaires Bill Gates, Mark Zuckerberg and Richard Branson launched the Breakthrough Energy Coalition. The group will aim to invest in new and innovative low carbon energy companies from sectors including energy storage, transport, agriculture and electricity generation, although the expected amount of investment has not yet been disclosed. The project was launched alongside an initiative from 21 governments called Mission Innovation that will invest public money in similar areas with the aim to double the current level of investment.

Around $270bn was invested in renewable energy globally in 2014. In December, Ofgem fined energy company npower £26m for unfairly treating its customers. The fine is the largest that has been imposed on any of the big six energy companies. The regulator could bar npower from selling its services should the company not improve its customer services by reducing the number of complaints and late bills by June 2016. Npower had issued over half a million late invoices between September 2013 and December 2014, a result of a new IT system it had installed. Inaccurate, poorly detailed bills had also been issued, the regulator found. This had resulted in over 2m complaints to the company that were not dealt with promptly. The measure followed a £7m fine for Eon in November for failing to provide business customers with advanced electricity meters. Scottish Power is also under investigation regarding its customer services.

Early in the quarter, the governor of the Bank of England, Mark Carney, warned investors of potentially huge losses should laws governing climate change tighten and fossil fuel reserves are 'stranded' i.e. left in ground. The warning was met with praise and criticism from differing interests. Estimates suggest that around 565 gigatonnes of CO_2 is able be emitted between now and 2050 to limit global temperature rises to 2 °C. If all of the total known fossil fuel reserves were burnt however, around 2 795 gigatonnes of CO_2 would be emitted. This suggests around 80% of current confirmed reserves would need to be left in the ground to avoid catastrophic climate change.

Towards the end of the year, petrol prices fell below £1/litre at the pump for the first time since 2009.

In mid-November, National Grid put a majority stake of its UK gas distribution business up for sale. The deal could be worth around £11bn, with National Grid keeping a minority stake of between 25 and 49%, and is expected to be completed by early-2017.

In December, HMRC announced plans to increase VAT charged on solar panels and wind turbines from 5% to 20%, blaming new EU rules governing energy saving materials in the construction industry. The changes are likely to affect around half a million individuals and households, with the government expecting the changes to be negligible. The Solar Trade Association criticised the change, arguing that it would add around £900 to a typical domestic rooftop PV installation.

In December, a class action lawsuit against BP over the Deepwater Horizon disaster was launched in Mexico. Last quarter, the company settled with US authorities for $20.8bn after being found guilty of gross negligence. Sinaloa Class Actions, a Mexican NGO is now seeking compensation for the clean-up and for the environmental damage caused in Mexico's waters. Earlier in the month manslaughter charges related to the disaster against two BP rig supervisors were dropped by US federal prosecutors. In October, Transocean, the owner of the drilling rig, reached settlements with the 5 affected US states, with the largest payment of $20m being paid to Alabama.

Divestment in fossil fuels is continuing. Around 500 institutions responsible for around $3.4tn of assets have now pledged to cut back or avoid investments in fossil fuel holdings, up from around $50bn last year.

In December, Areva abandoned its deal with Schneider Electric to sell a 53.5% stake to the French Company. Shares in Areva fell by a third on the news. The deal would have been an attempt to insulate Areva from the oil price crash, as around three quarters of its revenues are influenced by oil prices.

ELECTRICITY

UK Market –

Wylfa nuclear power station closes. Electricity supply margin drops below 1% prompting extraordinary measures by National Grid. National Grid confirms 46GW of back up electricity generating capacity following capacity auctions. Cuts to solar power systems and small scale wind turbines announced by government. Committee on Climate Change releases Power Sector Scenarios for the Fifth Carbon Budget report. EDF and China General Nuclear Power (CGN) agrees deal to build Hinkley Point C nuclear power station. Toshiba hits financial trouble and seeks finance for new 3.4GW Sellafield nuclear power plant.

Onshore wind farm company REG sells out to US firm BlackRock. Supreme Court rules against Donald Trump over offshore wind farm in Scotland.

Global Markets –

Noor-1 solar project in Morocco postponed for unknown reasons. The oldest nuclear power station in the UK and the last magnox reactor, Wylfa in Anglesey, Wales, closed at the end of December after 44 years' service. The 980MW plant's life was extended by five years in 2010 taking it beyond its original design life.

The decommissioning will cost around £700m, taking around 10 years.

In early-November, National Grid was forced to ask companies to reduce their electricity demand by issuing a 'demand-side balancing reserve' (DBSR) notice for the first time. The notice, which was issued to companies taking part in the electricity demand reduction scheme, followed multiple breakdowns of UK power plant and a notification of inadequate system margin (NISM), the first since 2012, issued earlier in the day to electricity generation companies after the capacity margin dropped to under 1%. The notice requested around 500MW of extra electricity generation for the peak 4:30 - 6pm period. Prices soared on the day to £2 500/MWh, around 40 times the normal price, paid to Severn Power for last minute emergency supplies. Some analysts see this as a warning sign that the UK electricity supply system is under stress, with slim supply margins and an increasing risk of black outs. National Grid has warned that the falling margin could lead to a supply crunch over the next two winters as aging coal fired power stations close with not enough capacity replacing them. The supply margin is expected to be as low as 1.2% at peak times this winter.

In December, National Grid confirmed that it has secured around 46GW of back up electricity generating capacity for peak demand periods from 2018/19 in its latest capacity market auction. Total spend on the capacity will be around £1.1bn as the government attempts to avoid future blackouts as the supply margin narrows. This included around £250m of small gas and gas oil fuelled engine generation capacity, with around £176m of that awarded to 'diesel farms', totalling around 650MW. This was criticised by environmental groups and the Renewable Energy Association as these small scale engines are much less efficient than larger turbine power plant making them more polluting and expensive to run, although they are relatively cheap to set up. EU rules forbid the discrimination of one type of generation over another in the auctions. Around half of the contracts awarded went to existing gas-fired power stations. However, no plans to build new gas turbine facilities came out of the auction, despite this being the government's implicit aim. So far the capacity market auctions have only resulted in one new gas turbine power station which is currently behind schedule. Around £80m was been awarded to coal generators to keep older stations online despite the government's pledge to close all coal plants by 2025 (see Coal section). Previous members of the government's implementation panel that helped design the scheme have called for the system of auctions to be revised with one suggestion to set minimum emissions standards for projects.

In Mid-December, cuts of around 65% to domestic solar power systems and small-scale wind turbines were announced by the Government. This is forecast to save the treasury around £500m to £600m. The move, which followed the COP21 climate change agreements, was criticised by the industry who stated that the cuts would result in thousands of lost jobs. A group of large companies including Tesco and IKEA wrote a letter to David Cameron urging a rethink. The cuts have been scaled back somewhat from the 87% cuts proposed by the Department of Energy and Climate Change in August and are part of the government's "reset" energy agenda, which has the stated priority of reducing energy costs for consumers.
In October, the Committee on Climate Change released its Power Sector Scenarios for the Fifth Carbon Budget report. The report suggested that a carbon price of around £78/tonne would need to

be imposed on gas-fired electricity generation by 2030 in order for low carbon technologies to achieve parity of cost. This will be required if future UK carbon budgets and renewable energy targets are to be met.

In mid-October, EDF and state-owned China General Nuclear Power (CGN) agreed a deal for the building of the Hinkley Point C new nuclear power station. The deal, which coincided with the state visit of Chinese president Xi Jingping to the UK, gives CGN a 33.5% stake in the project, with the remainder going to EDF. EDF expect the new £18bn plant to be constructed by 2025, however many are sceptical that the plant will be built on schedule and the governments subsidy agreement lasts until 2033. The strike price for electricity from the new 3.2GW plant will be £92.50/MWh over 35 years. The current wholesale electricity price is around £40/MWh, although this is expected to increase significantly over the next decades. The plant is expected to provide around 7% of UK electricity when finished.

Toshiba, a 60% shareholder in the NuGen project to build the new 3.4GW Sellafield nuclear power plant hit financial trouble in December as its share price fell due to an accountancy scandal for which they are to be fined around £40m by Japanese authorities. Since the start of the year, shares in the company have fallen by around 40% and they are now seeking finance to fund the £8bn Sellafield project. The total investment could nearly double as the original estimate was made around two years ago and the similar Hinkley Point C project in Somerset is expected to cost around £18bn. earlier in the month, EDF, who are planning to build Hinkley Point C, fell out of France’s CAC 40 stock index. EDF stock performed poorly over the year, losing around 40% in value since January, in part due to the level of capital investment the company needs to make over the next few years for new build nuclear and maintaining its existing fleet.

In early-December, UK onshore wind farm company REG sold out to US investment manager BlackRock. This is the most high profile casualty so far of the government’s announcement that it is to end subsidies for onshore wind from April 2016. The cuts have also raised fears that aging turbines that will reach the end of their design life over the next decade will not be replaced.

The Supreme Court has dismissed claims from US Billionaire and would-be presidential candidate, Donald Trump, that the 11 turbine offshore wind farm project near to his links golf course in northeast Scotland had been unfairly approved by the Scottish Government. The dispute has been long running, with Trump concerned that the turbines would hinder views from the course. The European Offshore Wind Deployment Centre project is expected to cost around £230m. Further legal challenges are expected.

The Noor-1 solar project in Morocco that is set to become part of the largest solar power generation plant in the world was postponed in late December with authorities offering no explanation for the delay. The 160MW project was set for inauguration before the delay and is part of Morocco’s push for greater energy independence. There are three more phases to the project before completion. Once finished, the facility will cover around 30km2 and generate up to 580MW.

GAS

UK Market –

Government grants 159 new licences for shale exploration in England. Shale gas task force final report released. Government intervenes in planning application for fracking in Lancashire. INEOS buys 12 North Sea gas fields from L1 Energy.

Global Markets –

Russia and Ukraine are in further gas supply disputes. Chevron has cut 1 200 jobs at Australian LNG 'Gorgon' project. Norway seeks assurances that the EU will be committed to the use of gas over the next few decades. $11bn plan to build the Nord Stream 2 gas pipeline between Russia and Germany criticised.

In mid-December, the government granted 159 new licences for shale gas and oil exploration in England to companies such as Cuadrilla, GDF Suez and INEOS, who won 21 of the licences. Before drilling can take place, the companies must demonstrate environmental safety. Environmental groups have criticised the severity of these checks, whilst also expressing concern over the areas where licences have been granted and doubts over the need for fracking at all. The government are determined to establish a shale gas industry in the country to increase energy security and independence. The news followed a vote in the commons in favour of allowing fracking under national parks and sites of special scientific interest – in which surface drilling was banned in early-November. The vote was criticised by Labour and the Lib Dems as the measure was passed into law via a statutory instrument, meaning a debate was not required. Drilling in such areas had previously been given an outright ban. A surface drilling ban is still in place, however horizontal drilling 1 200m below the surface is now allowed. This was welcomed by the UK oil and gas representative body, UKOOG. There is a moratorium on fracking currently operating in both Wales and Scotland. Meanwhile, a study by Greenpeace showed that around 40% of fracking licences awarded in the UK are being held by companies owned, partly or wholly, in offshore tax-havens.

The final report of the task force on shale gas, led by Lord Smith, was released in December. The report concluded that the development of shale gas in the UK could be beneficial, potentially creating thousands of jobs, and safe as long as strict protection of the environment is enforced. With strict regulations, the risk to public health would be no greater than the current risk associated with existing oil and gas operations, the report found. It warned however, that the scrapping of the government's £1bn carbon capture and storage (CCS) competition in November (see Environment section) had damaged the viability of a widespread UK shale industry as this has hindered the prospects of meeting binding emissions targets.

The independent review was funded by companies involved in the shale gas industry, such as Cuadrilla, Total and Centrica.

In late-November, the government intervened in a planning application for fracking in Lancashire that was due to be decided in February by local government following recommendations from the local planning inspector. The secretary of state for communities and local government, Greg Clark, will now make the final decision, bypassing local government, with the government citing what it sees as the national importance of the shale industry. The change has been criticised by environmental groups and local authorities.

In October, chemicals group, INEOS, bought 12 North Sea gas fields previously owned by L1 Energy, the company owned by Russian Mikhail Friedman. The billionaire was forced to sell the assets due to the sanctions against Russia over Ukraine (see previous editions of EB). The deal is worth £490m.

In late-November, Ukraine closed its airspace to Russian airlines following a dispute over prepayment for gas supplied by Russia to Ukraine. The Ukrainian prime minister claimed that the state gas company had been ordered not to purchase any gas from Russia after receiving better prices from other countries.

The supply dispute could have repercussions for the rest of Western Europe. Russia supplies around a third of overall European gas demand, with around half of this transiting Ukraine.
In late-December, Chevron cut over 1 200 jobs at its Australian LNG 'Gorgon' project as part of its global effort to cut up to 7 000 jobs in the face of the low oil and gas prices.

In early-November, Norway, who currently supply around 30% of Europe's natural gas demand, were seeking assurances that the EU will be committed to the use of gas over the next few decades. The call is in anticipation of the publication of an EU gas strategy in early-2016. The country will need to invest in new pipelines from the north in order to supply enough gas to fill expected EU demand and so requires assurances that demand will not significantly diminish, in order to assuage potential investors.

In mid-December, President of the European Commission, Donald Tusk, criticised the $11bn plan to build the Nord Stream 2 gas pipeline between Russia and Germany. He joins a list of European politicians that have criticised Germany over the project which will bypass Ukraine transit fees that currently account for around €2bn of the countries revenue, potentially increasing tensions and instability. There are also concerns that the pipeline will further increase Europe's dependency on Russian gas, which currently accounts for around 30% of supply. A number of countries are calling for the EU to veto the project, not least due to the monopoly of supply and large stake in the project for Russian state-owned company Gazprom.

Last year the $50bn South Stream gas pipeline project collapsed for the same reasons.

OIL

Market News –

Oil prices continue to slide as OPEC fails to agree production ceiling and maintains output. Goldman Sachs warns prices could fall to $20 a barrel as oversupply continues. Floating storage and national inventories rise to record levels prompting Moody's to downgrade price forecasts. Low prices are having major effects on oil-exporting countries' government budgets.

Prospect of oil companies defaulting on loans puts banks in danger. Shell lowers 2016 group capital spending plan in anticipation of finalising BG takeover. Further job cuts hit the oil industry as companies announce fall in profits. Rockhopper Exploration announces £57m deal for Falklands Oil & Gas. Negative tax receipts from the North Sea sector for the first time in its history. US Government cancels two auctions of offshore Arctic oil leases and imposes more stringent conditions. US lifts ban on exporting oil.

Obama rejects plan for Keystone XL Pipeline. Oil prices have continued to dominate proceedings over the past quarter. At the closing of the year on 30th December, oil prices fell a further 3% to a

near 11-year low of $36.58 as EIA data was released showing crude supplies from the US growing to 9.2m bbl/day. Oil prices fell by over 15% during December and have fallen by nearly 70% since the $115 peak of June 2014. Meanwhile Saudi Arabia and OPEC continued to maintain output in a sustained effort to win and conserve market share. This followed a meeting in Vienna on the 4th December which had ushered in price falls of around 5% on the day. The OPEC meeting had ended acrimoniously after members could not agree on a production ceiling, with Iran insisting on sustaining increases in production at least to levels seen before Western sanctions. Saudi Arabia had suggested cutting output before the meeting took place. The previous production target of 30m b/d which has been exceeded for months has now been abandoned. The next meeting is in June 2016.

Oil prices fell below $40 a barrel for the first time since February 2009 prompting warnings from banks such as Goldman Sachs that prices could drop to as low as $20 a barrel. Global supply is currently outstripping demand by around 2m bbl/day despite demand growing at its fastest pace in five years. This is a primary factor in the dramatic falls in prices. OPEC output increased to 31.7m b/d in November, with the increases primarily from Iraqi oil fields. Russia was also increasing output.

In mid-November, over 100m barrels of oil, more than one day of global consumption, were in floating storage, as ports around the world became congested and oil inventories increased to the highest level on record. The oversupply caused ratings agency, Moody's, to cut its oil price forecast for 2016 from $53 to $43 for Brent crude and down to $40 for WTI. The agency expects oil prices to increase by around $5/bbl in 2017 and then again in 2018, increasing only to around $63/bbl by 2020 adding further to the expectations of a drawn out period of low prices. In late-December OPEC released its World Oil Outlook report. In it, the cartel reduced its long term estimates for oil demand and stated that they did not expect oil prices to return to $100/bbl until at least 2040.

The fall in prices is still having a major effect on government budgets, with Saudi Arabia, at the end of the year, announcing planned public spending cuts to address a record annual budget deficit of around £66bn, around 15% of GDP. Earlier in the quarter, the IMF had warned large oil exporting countries that rely heavily on oil exports for revenues, to prepare for a sustained period of budget disruption. Saudi Arabia has enjoyed years of budget surpluses prior to 2014. This has since drastically changed into a major deficit that is expected to continue over the next 5 years, falling slowly. Other states such as Libya, Angola and Kuwait have seen similar impacts on their budgets with strong surpluses just a couple of years ago turning into deficits. Libya ran a deficit of around 79% of GDP in 2015. Total export earnings from oil for the Gulf region have reduced by around $360bn over 2015.

Saudi Arabia is continuing with major sell offs of public assets in an attempt to mitigate this fall in revenue. The country is also looking to international bond markets to fund its budget for the first time in its history. The 6 Gulf Cooperation Council (GCC) states will have an estimated overall deficit of around 13% of GDP in 2015, according to an IMF statement in October, which is expected to continue over the entire of 2016. This is having major wider spread economic effects, such as reduced construction projects hitting Chinese contractors operating in the region. China and India are two of the largest trading partners for the region and any slowdown will have knock on effects on those economies. Gulf sovereign wealth funds have also be pulling money from asset managers at the fastest rate on record, withdrawing around $19bn in Q3.

US Banks are also in danger due to the prospect of companies defaulting on loans taken out to fund oil projects. In November, US regulators warned that the number of gas and oil loans in danger of default had increased five-fold over the year.

Wells Fargo, the bank with the largest market capitalisation in the world, warned in December that its energy portfolio was under stress and held discussions with clients in regards to cutting

borrowing limits. In November, figures showed that nearly 100 companies had defaulted so far in 2015, many of which were US shale producers feeling the effects of the crash in prices. UK oil company Ithaca was the first company to have its credit cut by its lending bank due to the devaluing of its assets in early-November. The IMF also warned that the low prices are suppressing investment in renewable energy and so having a negative effect on the fight against climate change.

In mid-December, Shell lowered its 2016 group capital spending plan by $5bn, reducing the expanded group 2016 capital spending budget by around $2bn overall, as the company announced it is expecting to finalise its takeover of BG Group in mid-February. This followed China granting the deal regulatory approval earlier in the month, the last barrier that could have prevented the deal going ahead. The low oil price has increased concern amongst Shell shareholders, with the company expecting to boost profits per share in 2017 as a result of the deal, but only if average oil prices are above $65 a barrel – an assumption that is by no means guaranteed, as shown by Moody's revised forecasts. When the deal was first tabled in April, an oil price of $70-$110 had been assumed. Following the completion of the deal, the company is planning to cut around 2 800 jobs – 3% of the combined workforce - as part of its cost cutting measures to protect group profits. Shell already announced 7 500 job cuts back in July and £650m of further savings in early-November in a bid to reassure investors. Shares in Shell fell earlier in December to the lowest they had been since the 2008 financial crisis. In late October the company reported losses of around $7.4bn over the preceding quarter due to the estimated $8bn costs of withdrawal from the Arctic and the suspension of a Canadian oil sands project. Underlying earnings had fallen by 70%; however the losses have again been mitigated somewhat by a large increase in downstream earnings - from refining for example.
At the end of October, US oil group Chevron, announced up to 7 000 job cuts adding to cuts announced by the company last quarter and bringing the total number of job losses in the US energy industry to around 90 000 over the past year. This is a dramatic symptom of the oil price crash that has had widespread effects on the industry in the country – as reported over the last few quarters of EB.

The company announced a fall in profits of 64% in quarter 3 and in December announced capital spending cuts of 24% for 2016. BP also saw drastic falls in 3rd quarter profits of around 40% and warned that they may also need to cut more jobs. Other companies such as Maersk Oil also announced job cuts, with 220 being lost in the UK due to the closure of the North Sea Janice installation. In December, US group ConocoPhillips cut capital spending plans for 2016 by 25% to less than half of what it had spent in 2014.

In November, exploration company Rockhopper Exploration, announced a £57m deal for Falklands Oil & Gas, just after the Argentinian general election brought Mauricio Macri to power, a figure seen as less strident than his predecessor, Cristina Fernández de Kirchner, over the Falklands territorial dispute with the UK.

The company hopes that the deal will increase its chances of successfully developing the 'Sea Lion' oil field in the north Falklands.
The continued crash in oil prices led to negative tax receipts from the North Sea sector for the first 6 months of the financial year for the first time in its history.

Around £39m was paid into the sector due to a drastic fall in corporation tax takings and negative petroleum taxes of -£242m. In July, the government had predicted that income from the North Sea would rise around £700m for the treasury. This has particularly hit the Scottish government budget, which receives around 90% of oil tax revenues from the region.

In mid-October, the US Government cancelled two auctions of offshore Arctic oil leases and imposed more stringent conditions for leases making it very difficult for companies to be given permission to explore the US controlled parts of the region for oil. The US Geological Survey estimates that around 13% of undiscovered oil lies in the arctic; however environmental campaigners argue that this should be left in the ground in order to avoid catastrophic climate change – a view supported by the majority of climate scientists. This is a change of attitude for the Obama administration, who previously granted licence to Shell to explore the Arctic in the face of strong pressure from environmental groups and fellow Democrats.

In early-October, the US House of Representatives, voted to lift the ban on exporting oil that had been in place since the oil shocks of the 1970s. The Obama administration opposes the move that has widespread support from Republicans and the US oil industry. Congress then voted on the measure in December, approving the end to the 40 year ban. The White House had threatened to veto any decision to lift the ban, however this was not followed through due to concessions included in the package for extensions to tax credits for solar and wind projects. Oil production in the US has increased over recent years due to the widespread uptake of fracking and the country now produces over 9m barrels of oil a day, although output has been falling since a peak of 9.6m b/d in April 2015. Due to the crash in prices, it is unlikely that large amounts of US oil will flood an already saturated global market.

In early-November, Obama rejected plans for the 1 179 mile Keystone XL pipeline between the US and Canada after months of discussion and campaigning from environmental groups.

COAL

UK Market -

All UK coal-fired power plants to close by 2025. Last deep coal mine in the UK permanently closes.

Global Markets –

Shares in coal companies fall following COP21 agreement but India maintains expansion ambitions. Unilever pledges to stop the use of coal for its energy requirements whilst Allianz decrease investment in coal consuming companies.

Energy Secretary, Amber Rudd, announced in November that all coal-fired power plants will be closed by 2025 under the Conservative's new "reset" energy policy.

This is 2 years after the 2023 deadline for closures set by EU air quality rules. The capacity will be replaced with new gas and nuclear power plants as the government emphasise making energy affordable for consumers. This makes the UK the first major economy to set a date for the complete phasing out of the use of coal for electricity generation. To meet this target however, a large investment in new build power plants will need to be made, with coal currently providing around 30% of UK electricity. This will be made difficult by the reluctance of energy companies to invest in new generating plant due to the current low wholesale price of electricity.

The news caused around £40m to be wiped off shares in Drax power station in Yorkshire, the largest coal fired plant in the country.

In mid-December, the last deep coal mine in the UK, Kellingley in North Yorkshire, permanently closed, bringing an end to an era of deep coal mining in the country.

The industry has been struggling to compete with cheap international coal imports from countries such as Russia and Columbia which have far lower running costs, and current coal prices at historic lows with pressure being felt across the global industry. It cost around £43/tonne to mine coal from Kellingley whilst international prices are around £30/tonne. The industry employed around 1.2m people in 1920 and around 50 years ago there were nearly 1 000 deep mines in the country, employing around 700 000 people. Around 450 jobs were lost from Kellingley. The closure does not completely end the coal mining industry in the UK, with surface mining still active. The death of the coal industry has heavily affected regions that were sustained by it – over 40% of coalfield wards in the UK are in the bottom 30% of deprived areas.

Shares in coal companies such as Peabody and Consol Energy fell drastically by 12.6% and 3.3% respectively, following the agreements made in Paris at the December COP21 climate change conference (see 'Market Issues' section). This prompted secretary-general of lobbying group Euracoal to release a letter strongly criticising what he saw as an unfounded attack on the coal industry. However, despite the deal, the Indian Minister for Power, Coal and Renewable Energy, stated that the country would continue with plans to double coal output to around 1.5bn tonnes by 2020, citing the fact that although India has around 17% of the world's population, it contributes only 2.5% of carbon emissions. There has been a strong international campaign of divestment in coal in recent months, however it is expected that state group Coal India will have plenty of internal resource to fund the opening of new coal mines over the coming years. Like India, Bangladesh also has plans to increase coal use, with aims to increase the share of electricity output coming from coal to 50% by 2030, from around 2% now.

In November, Unilever, one of the largest consumer goods corporations in the world, pledged to entirely stop the use of coal for its energy requirements within 5 years and source 100% of its energy from renewable sources by 2030. Later in the month, financial asset managers Allianz announced that they would be decreasing investment in companies using coal for more than 30% of their electricity or that gain more than 30% of their sales from coal mining, whilst increasing investment in companies using wind power. This is estimated to affect around $4bn worth of investments and highlights the risk that investment companies are now assigning to fossil fuels and coal in particular. Australian bank Westpac stated in December however, that it would not rule out investing in coal projects in the country.

WATER

News –

United Utilities to install a permanent UV treatment plant following an outbreak of cryptosporidium in Lancashire. 97% of UK bathing waters meeting EU water quality target. Major drought in South Africa due to El Nino.

Following an outbreak of cryptosporidium in the Lancashire water supply in August, it was announced at the end of December that permanent UV treatment rigs would be installed at the Franklaw water treatment works. United Utilities, who own and operate the works, expect the rig to be installed and working by April 2016.

In November, the latest report on bathing waters showed that 97% of England's bathing waters are now meeting new stringent EU standards for water quality.

Around 60% of the water bodies were rated as excellent.

South Africa is suffering a major drought due to the effects of the strong El Nino phenomenon that has been seen this year and is expected to continue until March 2016. The sparse rainfall has affected the country's corn output, with estimated output falling by 750 000 tonnes and corn prices increasing to a 20-month high.

ENVIRONMENT & CLIMATE CHANGE

UK News

Government cancels £1bn CCS competition. Autumn Spending Review results in cuts to energy efficiency schemes and low-carbon energy.

Total fined £1.125m for 2012 Elgin gas leak.

Global News –

Dutch appeals court finds Shell liable for oil spills in Nigeria.

ExxonMobil to be investigated over Climate Change misinformation.

Growth in global carbon emissions slowed to 0.5% in 2014. Global temperatures rise to the highest level since the industrial revolution. BP chief economist accepts that the majority of confirmed fossil fuel reserves cannot be exploited if catastrophic climate change is to be avoided In November, the Government cancelled its £1bn carbon capture and storage (CCS) competition. The news was roundly condemned by environmental groups, companies involved in CCS development and organisations such as the Institution of Mechanical Engineers, with the government being accused of moving the goalposts and shadow energy secretary for Labour, Lisa Nandy, calling it a "betrayal". A commitment to CCS was included in the Conservative manifesto for May's general election and the technology had previously been championed by the government and David Cameron in particular. Both UK CCS projects - Shell's Peterhead project in Scotland, which was expected to submit its plans in the near future, and the Drax consortium White Rose Project in Yorkshire, which had ran into trouble in the previous quarter – are now dead. The competition had been running for four-years and was approaching its conclusion. According to the IPCC, the cost of preventing catastrophic climate change is likely to double should the uptake of CCS technology not be widespread. This view was echoed by the UK Committee on Climate Change in October and there are estimates that CCS could save the UK £32bn by 2050 through reduced costs of meeting the legally binding carbon budget. This advice appears to have been ignored. The EU also stated in December that "negative emissions" technologies, such as CCS, will be required if global temperature rises are to stay below 1.5 °C as targeted in the COP21 Paris agreement.

The Government Autumn Spending Review also resulted in the cutting of £132m of spending on domestic energy efficiency under the ECO scheme and £690m cuts to the Renewable Heat Incentive (RHI) scheme. It was also announced that investment in energy research and technology will double over the next 5 years in an effort to boost nuclear expertise.

Total were fined £1.125m in December for the 51-day Elgin platform natural gas leak in the North Sea that occurred in March 2012. The 6 000 tonne leak was the largest that has ever occurred in the North Sea and has led to the largest fine ever imposed on a company operating there. Environmental groups such as the WWF welcomed the size of fine which is much larger than the few fines that have been imposed over the last few years. In November, Shell were also fined for a 200 tonne oil spill that occurred during 2011, however the cost was far lower at £22 500.

During December, a Dutch appeals court found that Shell could be held liable for oil spills in Nigeria, overturning a finding in 2013 that the Netherlands-based company could not be held responsible for its Nigerian subsidiary. This could lead to an increase is compensation cases being brought against the company by local farmers affected by oil spills in the country that fail to get cleaned up

In late-October, environmental campaign group 350.org released a letter signed by a number of other organisations, calling for an investigation into claims that ExxonMobil had intentionally misled the public over its knowledge of climate change during the 1970s and 80s in order to protect its fossil fuel profits, a claim the company strenuously denies. The call has been echoed by both leading Democratic candidates in the US presidential election, Bernie Sanders and Hilary Clinton, as well as climate scientist James Hanson. Members of congress had called for a federal investigation earlier in the month following investigations by the LA Times and Inside Climate News which showed that the company had denied that fossil fuel use was causing climate change despite its scientists confirming the contrary. In November, the New York state attorney general opened investigations into the company's public statements on climate change under the 1921 Martin Act that made misleading investors a crime in the state.

Figures released at the end of November showed that the growth in global carbon emissions slowed to 0.5% in 2014; down from 1.5% growth in 2013 and far lower than the average of 4% a year over the last decade. This was mainly due to a significant fall in emissions in the EU of around 5.4%, whilst Chinese and US emissions grew more slowly than expected, at 0.9% each. India increased emissions the most of all – up by 7.8% which cancelled out the reduction in emissions seen in the EU. Global GDP growth was around 3% in the same year which suggests links between GDP and emissions growth are becoming less connected.

The Met Office released findings in October showing that global temperatures in 2015 are expected to have risen to the highest level since the industrial revolution.

In October, BPs chief economist, Spencer Dale, accepted that the majority of confirmed fossil fuel reserves cannot be exploited if catastrophic climate change is to be avoided. It is estimated that a maximum of around 1tn tonnes of CO_2 can be emitted during this century, i.e. by 2100, to limit rises in temperature to 2 °C.

Current reserves equate to far above that limit, and this does not take into consideration revised aims to limit global mean temperature rises to 1.5 °C, as discussed at the Paris COP21 climate talks in December.

APPENDICES

Notes

- Price forecasts reflect known and anticipated trends and changes in each element of the delivered price for each of the products covered.
- Price forecasts are prepared on the first day of the month of issue of this forecast. Any Changes occurring after this are not included.
- Electricity prices forecasts for England & Wales are representative and based on charges in Eastern England.
- Electricity prices forecasts for Scotland are representative and based on charges in the Edinburgh area.
- Gas prices forecasts are representative and based on charges in the Midlands.

Appendix I - Electricity Price Forecasts 2016

England & Wales

PRODUCT		January 2016	February 2016	March 2016	April 2016	May 2016	June 2016
<100kW Unrestricted	LV	10.81	9.76	9.37	9.47	9.15	9.28
<20%	LV	10.90	9.76	9.31	9.30	8.89	9.01
<30%	LV	10.10	9.11	8.75	8.97	8.50	8.55
<40%	LV	9.24	8.38	8.11	8.42	7.97	7.95
>40%	LV	8.45	7.69	7.47	7.73	7.32	7.26
<1MW 30%	LV	9.73	8.78	8.43	8.50	8.20	8.30
	HV	9.24	8.28	7.97	8.10	7.84	7.90
50%	LV	8.79	8.08	7.79	8.12	7.65	7.72
	HV	8.17	7.45	7.20	7.54	7.11	7.13
70%	LV	8.12	7.50	7.22	7.47	7.01	7.07
	HV	7.60	6.94	6.71	6.96	6.56	6.57
90%	LV	7.77	7.17	6.92	7.16	6.76	6.83
	HV	7.27	6.65	6.44	6.67	6.32	6.34
>1MW 30%	HV	9.02	8.09	7.79	7.93	7.67	7.73
50%	HV	8.06	7.35	7.10	7.43	7.01	7.04
70%	HV	7.52	6.88	6.64	6.89	6.49	6.50
90%	HV	7.18	6.56	6.35	6.56	6.22	6.24

PRODUCT			July 2016 p/kwh	August 2016 p/kwh	Sept 2016 p/kwh	October 2016 p/kwh	Nov 2016 p/kwh	Dec 2016 p/kwh	Average 2016 P/kwh
<100kW	Unrestricted	LV	9.12	9.22	9.25	9.54	10.01	10.01	9.58
	<20%	LV	8.81	8.80	9.00	9.37	10.07	10.04	9.44
	<30	LV	8.42	8.55	8.61	8.89	9.34	9.33	8.93
	<40%	LV	7.85	7.99	7.95	8.12	8.53	8.54	8.28
	>40%	LV	7.22	7.37	7.35	7.46	7.79	7.81	7.58
<1MW	30%	LV	8.19	8.40	8.26	8.52	9.03	9.01	8.61
		HV	7.82	8.03	7.84	8.11	8.52	8.53	8.18
	50%	LV	7.57	7.76	7.71	7.79	8.23	8.14	7.95
		HV	7.01	7.18	7.12	7.23	7.59	7.55	7.36
	70%	LV	6.95	7.13	7.16	7.19	7.60	7.51	7.33
		HV	6.48	6.63	6.64	6.70	7.04	7.00	6.82
	90%	LV	6.70	6.82	6.87	6.88	7.25	7.17	7.03
		HV	6.24	6.33	6.37	6.41	6.73	6.7	6.54
>1MW	30%	HV	7.66	7.86	7.67	7.93	8.32	8.34	8.00
	50%	HV	6.92	7.08	7.02	7.13	7.49	7.44	7.26
	70%	HV	6.41	6.55	6.57	6.62	6.97	6.93	6.75
	90%	HV	6.14	6.23	6.27	6.31	6.63	6.60	6.44

1. All prices are fully delivered and include: energy, transmission charges & losses, distribution charges & losses, renewables obligation & climate change levy.
2. All prices exclude VAT.

Appendix II - Electricity Price Forecasts 2016

Scotland

PRODUCT			January 2016 p/kWh	February 2016 p/kWh	March 2016 p/kWh	April 2016 p/kWh	May 2016 p/kWh	June 2016 p/kWh
<100kW	Unrestricted	LV	11.16	10.10	9.65	9.75	9.39	9.52
	<20%	LV	11.12	9.97	9.46	9.48	9.06	9.20
	<30%	LV	10.25	9.25	8.85	9.08	8.61	8.68
	<40%	LV	9.39	8.51	8.22	8.53	8.08	8.06
	>40%	LV	8.60	7.83	7.59	7.85	7.44	7.39
<1 MW	30%	LV	9.90	8.96	8.54	8.62	8.30	8.43
		HV	9.30	8.37	8.07	8.23	7.98	8.05
	50%	LV	8.99	8.31	7.97	8.29	7.80	7.91
		HV	8.25	7.57	7.31	7.66	7.21	7.26
	70%	LV	8.38	7.78	7.47	7.70	7.23	7.32
		HV	7.66	7.05	6.81	7.06	6.63	6.68
	90%	LV	8.02	7.45	7.16	7.39	6.98	7.08
		HV	7.33	6.75	6.52	6.75	6.38	6.44
>1 MW	30%	HV	9.09	8.18	7.88	8.05	7.80	7.87
	50%	HV	8.14	7.46	7.21	7.55	7.11	7.16
	70%	HV	7.58	6.98	6.74	6.98	6.56	6.61
	90%	HV	7.23	6.66	6.43	6.64	6.29	6.35

PRODUCT			July 2016 p/kWh	August 2016 p/kWh	Sept 2016 p/kWh	October 2016 p/kWh	Nov 2016 p/kWh	Dec 2016 p/kWh	Average 2016 p/kWh
<100kW	Unrestricted	LV	9.38	9.46	9.51	9.81	10.35	10.34	9.87
	<20%	LV	9.01	8.98	9.19	9.57	10.27	10.25	9.63
	<30%	LV	8.56	8.69	8.75	9.02	9.48	9.48	9.06
	<40%	LV	7.99	8.13	8.09	8.26	8.67	8.68	8.38
	>40%	LV	7.37	7.52	7.49	7.60	7.93	7.95	7.71
<1MW	30%	LV	8.31	8.48	8.42	8.67	9.22	9.17	8.75
		HV	7.99	8.22	8.00	8.26	8.61	8.62	8.31
	50%	LV	7.76	7.97	7.93	8.00	8.47	8.34	8.14
		HV	7.15	7.35	7.29	7.37	7.71	7.63	7.48
	70%	LV	7.20	7.40	7.44	7.45	7.89	7.76	7.59
		HV	6.59	6.75	6.78	6.81	7.15	7.08	6.92
	90%	LV	6.96	7.09	7.15	7.14	7.53	7.42	7.28
		HV	6.34	6.45	6.50	6.51	6.83	6.76	6.63
>1MW	30%	HV	7.82	8.05	7.83	8.07	8.41	8.42	8.12
	50%	HV	7.05	7.25	7.19	7.27	7.60	7.53	7.38
	70%	HV	6.52	6.67	6.70	6.74	7.08	7.01	6.85
	90%	HV	6.25	6.35	6.39	6.40	6.73	6.67	6.53

1. All prices are fully delivered and include: energy, transmission charges & losses, distribution charges & losses, renewables obligation & climate change levy.
2. All prices exclude VAT.

Appendix III - Gas Price Forecasts 2016

Supply Type	Usage therms/yr	Load Factor	January 2016 p/Therm	February 2016 p/Therm	March 2016 p/Therm	April 2016 p/Therm	May 2016 p/Therm	June 2016 p/Therm
Firm Gas	1,000	35%	77.70	77.80	79.10	80.30	80.70	80.70
Firm Gas	5,000	30%	70.01	70.20	71.60	72.70	73.00	73.10
Firm Gas	20,000	35%	70.30	70.30	71.80	73.00	73.40	73.40
Firm Gas	50,000	35%	64.70	64.80	66.30	67.40	67.80	67.80
Firm Gas	100,000	35%	60.10	60.10	61.60	62.70	63.10	63.10
Firm Gas	200,000	45%	55.70	55.80	57.30	58.50	59.10	59.20
Firm Gas	500,000	80%	54.10	54.20	55.40	56.30	56.80	56.90
Firm Gas	1,000,000	60%	52.70	52.70	54.00	54.90	55.30	55.50
Firm Gas	2,000,000	80%	48.40	48.50	49.40	50.20	50.70	50.90
Firm Gas	10,000,000	80%	47.10	47.10	48.10	48.80	49.30	49.50

Supply Type	Usage therms/ yr		July 2016 p/Therm	August 2016 p/Therm	Sept 2016 p/Therm	October 2016 p/Therm	Nov 2016 p/Therm	Dec 2016 p/Therm	Average 2016 p/Therm
Firm Gas	1,000	35%	80.70	80.80	80.80	80.80	80.90	81.10	80.10
Firm Gas	5,000	30%	73.10	73.10	73.20	73.20	73.30	73.50	72.50
Firm Gas	20,000	35%	73.40	73.50	73.50	73.50	73.60	73.80	72.80
Firm Gas	50,000	35%	67.90	67.90	67.90	67.90	68.10	68.20	67.20
Firm Gas	100,000	35%	63.10	63.20	63.20	63.20	63.40	63.50	62.50
Firm Gas	200,000	45%	59.20	59.30	59.30	59.40	59.50	59.60	58.50
Firm Gas	500,000	80%	57.10	57.30	57.40	57.50	57.60	57.70	56.50
Firm Gas	1,000,000	60%	55.70	55.80	56.00	56.00	56.20	56.30	55.10
Firm Gas	2,000,000	80%	51.20	51.40	51.60	51.70	51.80	51.90	50.70
Firm Gas	10,000,000	80%	49.80	50.00	50.20	50.30	50.50	50.60	49.30

1. All prices are renewal prices for 1 year's gas starting in the month shown in p/therm.
2. Please note that all supplies are deemed firm
3. Each price includes the annualised energy price together with the transportation and metering charges and climate change levy for the current month
4. To convert prices to p/kWh divide price in p/therm by 29.3071

Appendix IV - Oil Products Price Forecasts 2016

PRODUCT		January 2016	February 2016	March 2016	April 2016	May 2016	June 2016
HEATING FUELS							
Heavy	p/Litre	29.12	22.86	23.99	24.59	25.22	25.83
Medium	p/Litre	30.17	23.63	24.80	25.43	26.09	26.72
Light	p/Litre	35.39	27.27	28.66	29.44	30.25	31.04
Gas Oil	p/Litre	36.58	28.46	29.85	30.63	31.45	32.33
LPG	£/tonne	538	573	583	594	606	618
MOTOR FUELS							
Derv ULS	p/Litre	79.60	72.80	74.00	74.60	75.30	76.00
Petrol ULS	p/Litre	83.80	75.70	77.10	77.90	78.70	79.50
Petrol UL	p/Litre	83.80	75.70	77.10	77.90	78.70	79.50
Petrol – (Lead)	p/Litre	93.40	85.30	86.70	87.40	88.20	89.00
LPG	p/Litre	61.10	64.10	65.10	66.00	67.10	68.10

		July 2016	August 2016	Sept 2016	October 2016	Nov 2016	Dec 2016	Average 2016
HEATING FUELS								
HEAVY	p/litre	26.42	27.02	27.59	28.17	28.40	29.30	26.54
MEDIUM	p/litre	27.34	27.96	28.56	29.17	29.41	30.34	27.47
LIGHT	p/litre	31.81	32.58	33.30	34.40	34.34	35.49	31.97
GAS OIL	p/litre	33.00	33.77	34.49	35.24	35.54	36.69	33.16
LPG	£/tonne	623	628	636	640	645	648	611

MOTOR FUELS								
DERV-ULS	p/litre	76.60	77.30	77.70	78.40	78.60	79.60	76.71
PETROL - ULS	p/litre	80.20	81.00	81.60	82.30	82.60	83.80	80.33
PETROL U/L	p/litre	80.20	81.00	81.60	82.30	82.60	83.80	80.33
PETROL (lead)	p/litre	89.80	90.60	92.10	92.80	93.10	94.20	90.21
L.P.G.	p/litre	68.6	69.0	69.7	70.0	70.4	70.7	67.5

1. All prices include duty and climate change levy where appropriate.
2. LPG for use as a heating fuel includes climate change levy but excludes excise duty.
3. LPG for use as a motor fuel includes excise duty but excludes climate change levy.
4. Prices are for oil products supplied in the industrial & commercial consumers (ICC) markets. Prices in the retail market (i.e. forecourt prices) are normally higher.
5. All prices exclude VAT.

Appendix V - Emissions Allowances Price Forecasts

EU ALLOWANCES							
		January 2016	February 2016	March 2016	April 2016	May 2016	June 2016
EUA	€/tCO2	7.12	7.12	7.14	7.14	7.14	7.06
Exchange Rate	€/£	0.74	0.74	0.75	0.75	0.75	0.75
EUA	£/tCO2	5.27	5.27	5.27	5.37	5.37	5.33
CERTIFIED EMISSION REDUCTION (Units)							
CER	€/tCO2	0.46	0.46	0.46	0.46	0.46	0.45
Exchange Rate	€/£	0.74	0.74	0.75	0.75	0.75	0.75
CER	£/tCO2	0.34	0.34	0.35	0.35	0.35	0.34

		July 2016	August 2016	Sept 2016	October 2016	Nov 2016	Dec 2016	Average 2016
EU ALLOWANCES								
EUA	€/tCO2	7.06	7.06	7.15	7.15	7.15	7.18	7.12
Exchange Rate	€/£	0.75	0.75	0.75	0.75	0.75	0.76	0.75
EUA	£/tCO2	5.33	5.33	5.38	5.38	5.38	5.43	5.35
CERTIFIED EMISSION REDUCTION (Units)7.18								
7.CER	€/tCO2	0.45	0.45	0.44	0.44	0.44	0.41	0.45
Exchange Rate	€/£	0.75	0.75	0.75	0.75	0.75	0.76	0.75
CER	£/tCO2	0.34	0.34	0.33	0.33	0.33	0.31	0.34

Appendix VI - Quarterly Energy Prices Forecast

PRODUCT		Units	Qtr1 2016	Qtr2 2016	Qtr3 2016	Qtr4 2016	Qtr1 2017	Qtr2 2017	Qtr3 2017	Qtr4 2017
ELECTRICITY										
<100kW	Poor LF	p/kWh	9.99	9.07	8.87	9.82	10.22	9.02	8.88	9.97
	Good LF	p/kWh	7.87	7.44	7.31	7.69	8.10	7.46	7.37	7.85
<1MW	30%LF - LV	p/kWh	8.98	8.33	8.28	8.85	9.20	8.33	8.33	9.00
	30%LF - HV	p/kWh	8.49	7.95	7.89	8.38	8.71	7.95	7.94	8.53
	70%LF - LV	p/kWh	7.61	7.18	7.08	7.43	7.84	7.23	7.15	7.60
	70%LF - HV	p/kWh	7.08	6.70	6.58	6.91	7.30	6.74	6.65	7.07
>1MW	30%LF - HV	p/kWh	8.30	7.77	7.73	8.20	8.51	7.78	7.78	8.34
	70%LF - HV	p/kWh	7.01	6.63	6.51	6.84	7.23	6.67	6.57	7.00

PRODUCT		Units		Qtr1 2016	Qtr2 2016	Qtr3 2016	Qtr4 2016	Qtr1 2017	Qtr2 2017	Qtr3 2017	Qtr4 2017
NATURAL GAS											
FIRM GAS	<2,500 therms/yr	from	p/therm	77.70	80.30	80.70	80.80	81.10	81.70	81.70	81.70
		to	p/therm	79.10	80.70	80.80	81.10	81.40	81.80	81.70	82.10
FIRM GAS	<25,000 therms/yr	from	p/therm	70.30	73.00	73.40	73.50	73.80	74.30	74.30	74.30
		to	p/therm	71.60	73.10	73.20	73.50	73.80	74.10	74.00	74.30
FIRM GAS	>25,000 therms/yr	from	p/therm	54.10	56.30	57.10	57.50	57.80	57.80	57.90	57.90
		to	p/therm	66.30	67.80	67.90	68.20	68.50	68.70	68.60	69.00
	>1,000,000 therms/yr	from	p/therm	47.10	48.80	49.80	50.30	50.60	50.60	50.60	50.70
		to	p/therm	54.00	55.50	56.00	56.30	56.50	56.50	56.50	56.80

PRODUCT	Units	Qtr1 2016	Qtr2 2016	Qtr3 2016	Qtr4 2016	Qtr1 2017	Qtr2 2017	Qtr3 2017	Qtr4 2017
OIL PRODUCTS									
2017HEAVY FUEL OIL	p/litre	25.32	25.21	27.01	28.63	29.83	30.57	31.27	31.85
MEDIUM FUEL OIL	p/litre	26.20	26.08	27.95	29.64	30.89	31.67	32.40	32.99
LIGHT FUEL OIL	p/litre	30.44	30.24	32.56	34.63	36.17	37.13	38.01	38.70
GAS OIL	p/litre	31.63	31.44	33.76	35.82	37.37	38.33	39.21	39.91
LPG	£/Tonne	565.00	606.00	629.00	644.00	660.00	674.00	685.00	696.00
DERV - ULS	p/litre	75.50	75.30	77.20	78.80	80.10	80.90	81.60	82.00
PETROL – USL	p/litre	78.80	78.70	80.90	82.90	84.40	85.40	86.20	86.70
PETROL - UL	p/litre	78.80	78.70	80.90	82.90	84.40	85.40	86.20	86.70
PETROL – LRP	p/litre	88.40	88.20	90.80	93.40	94.90	95.90	97.20	98.80
LPG	p/litre	63.50	67.1	69.10	70.40	71.80	73.30	74.20	75.10

EMISSIONS ALLOWANCES									
EU ALLOWANCES		Qtr1 2016	Qtr2 2016	Qtr3 2016	Qrt4 2016	Qtr1 2017	Qtr2 2017	Qtr3 2017	Qtr4 2017
EUA	Euro/tCO2	7.13	7.11	7.09	7.16	7.16	7.14	7.22	7.26
Exchange Rate	Euro/£	0.74	0.75	0.75	0.75	0.76	0.76	0.76	0.76
EUA	£/tCO2	5.30	5.36	5.35	5.40	5.41	5.42	5.50	5.55
CERTIFIED EMISSION REDUCTION		Qtr1 2016	Qtr2 2016	Qtr3 2016	Qtr4 2016	Qtr1 2017	Qtr2 2017	Qtr3 2017	Qtr4 2017
CER	Euro/tCO2	0.46	0.46	0.45	0.43	0.42	0.45	0.46	0.46
Exchange Rate	Euro/£	0.74	0.75	0.75	0.75	0.76	0.76	0.76	0.76
CER	£/tCO2	0.34	0.34	0.34	0.32	0.32	0.34	0.35	0.35

1. All electricity prices are fully delivered and include:
2. Energy, transmission charges & losses, distribution charges & losses, renewables obligation & climate change levy.
3. All gas prices are fully delivered and include: energy, transportation, metering & climate change levy.
4. All oil prices include duty and climate change levy where appropriate.
5. All prices exclude VAT.

Appendix VII - 5 Year Energy Prices Forecast

PRODUCT	Units	2016	2017	2018	2019	2020
ELECTRICITY						
<100kW Poor LF	p/kWh	9.44	9.52	9.54	9.69	9.98
Good LF	p/kWh	7.58	7.70	7.79	7.99	8.31
<1MW 30%LF - LV	p/kWh	8.61	8.72	8.78	8.95	9.25
30%LF - HV	p/kWh	8.18	8.28	8.34	8.51	8.80
70%LF - LV	p/kWh	7.33	7.45	7.55	7.77	8.09
70%LF - HV	p/kWh	6.82	6.94	7.03	7.24	7.55
>1MW 30%LF - HV	p/kWh	8.00	8.10	8.16	8.34	8.62
70%LF - HV	p/kWh	6.75	6.87	6.96	7.17	7.48

PRODUCT	Units	2016	2017	2018	2019	2020
NATURAL GAS						
FIRM GAS <2,500 therms/yr	p/therm	80.10	81.70	82.10	82.20	83.30
FIRM GAS <25,000 therms/yr from	p/therm	72.80	74.20	74.60	74.40	75.40
FIRM GAS <25,000 therms/yr to	p/therm	72.50	73.90	74.30	74.10	75.10
FIRM GAS >25,000 therms/yr from	p/therm	56.50	57.90	58.00	57.50	58.10
FIRM GAS >25,000 therms/yr to	p/therm	67.20	68.60	68.90	68.60	69.40
FIRM GAS >1,000,000 therms/yr from	p/therm	49.30	50.70	50.70	50.00	50.40
FIRM GAS >1,000,000 therms/yr to	p/therm	55.10	56.50	56.60	56.00	56.50

PRODUCT	Units	2016	2017	2018	2019	2020
OIL PRODUCTS						
Heavy Fuel Oil	p/litre	26.54	30.88	33.05	34.51	35.52
Medium Fuel Oil	p/litre	27.47	31.99	34.24	35.74	36.79
35Light Fuel Oil	p/litre	31.97	37.50	40.21	42.00	43.21
Gas Oil	p/litre	33.16	38.71	41.43	43.22	44.45
LPG	£/tonne	652	701	737	765	784
Derv - ULS	p/litre	76.71	81.17	83.21	84.44	85.18
Petrol - ULS	p/litre	80.33	85.68	88.12	89.59	90.48
Petrol - UL	p/litre	80.33	85.68	88.12	89.59	90.48
Petrol - LRP	p/litre	90.12	96.70	100.83	104.24	107.17
LPG	p/litre	71.13	75.69	79.17	82.07	84.14

PRODUCT	Units	2016	2017	2018	2019	2020
EU ALLOWANCES						
EUA	Euro/tCO2	7.12	7.20	7.33	7.47	7.65
Exchange Rate	Euro/£	0.75	0.76	0.77	0.78	0.79
EUA	£/tCO2	5.35	5.47	5.65	5.85	6.07
CERTIFIED EMISSION REDUCTION						
CER	Euro/tCO2	0.45	0.45	0.46	0.46	0.46
Exchange Rate	Euro/£	0.75	0.76	0.77	0.78	0.79
CER	£/tCO2	0.34	0.34	0.35	0.36	0.37

1. All electricity prices are fully delivered and include:-
2. Energy, transmission charges & losses, distribution charges & losses, renewables obligation, climate change levy.
3. All gas prices are fully delivered and include: energy, transportation, metering, climate change levy,
4. All oil prices include duty and climate change levy where appropriate.
5. All prices exclude VAT.

Disclaimer

This material is intended for information purposes only. It does not constitute an independent investment research, a personal recommendation or other general recommendation relating to transactions in financial instruments or an investment advice.

This material is intended for general distribution, it does not take into account any specific investment objectives, financial situation or particular needs of any recipient. It cannot be transmitted to any other person without the prior written consent of Martin Rawlings.

The information contained herein, including any expression of opinion, is not intended to constitute an offer or a solicitation to buy or sell any financial instruments, products or services, an investment research or an investment recommendation or other financial, investment, legal, tax or accounting advice or any other advice.

Further, all information contained herein has been obtained from and/or is based upon sources believed to be reliable is deemed to be clear, fair and not misleading but cannot be guaranteed as to accuracy or completeness. The views and opinions, forecasts, assumptions, estimates and target prices reflected in this material are as of the date indicated and are subject to change at any time without prior notice. The figures that may refer to past performance herein are in no instance an indication of future valuations or future performance. Martin Rawlings is under no obligation to disclose or to take account of this document when advising or dealing with customers. Martin Rawlings, agents or advisers nor any other person accept any liability to anyone for any direct, indirect, special, incidental, consequential, punitive or exemplary damages (including, but not limited to, lost profits) arising from the use and dissemination of this material or the information contained herein.