CBI Policy Briefing December 2013

FUELLING GROWTH

SUPPORTING THE ROLE OF GAS AS PART OF THE UK'S ENERGY FUTURE

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Gas plays a crucial role in supplying our heat and electricity needs, having been the largest single source of energy in the UK since 1996 and meeting more than a third of our energy demand. It is also a major contributor to our industrial and economic competitiveness, with gas exploration and extraction supporting hundreds-of-thousands of jobs throughout the economy, boosting our balance of trade and providing a substantial revenue stream to the Treasury. This role will continue into the future, evolving as we transition towards a lower carbon economy and look to diversify our gas supplies, both at home and abroad.

Amid highly-charged debates over the summer around the impact of unconventional gas, shale gas in particular, it is important to be clear that continued investment in gas should not be seen as a threat to our environmental ambition. Indeed, just as 'green vs. growth' represents a false choice, so does 'gas vs. renewables'. Ultimately, we cannot rely on any one fuel or technology, and will need investment in a broad portfolio if we are to meet our three energy objectives of security of supply, decarbonisation and affordability.

With this in mind, this policy brief argues that:

- Gas is a crucial part of the UK's energy mix and its economy
- Policy must support the changing role of gas in our evolving energy future…
- …While enabling a diverse and secure source of supply to meet our immediate and long-term needs

Gas is a crucial part of the UK's energy mix and its economy

Gas is a critical component of the UK's energy mix…

Fossil fuels play an important role in the UK's energy mix, heating homes, powering industry and facilitating the transportation of goods and people – all crucial to the success of any economy. Of these fossil fuels, gas has played an increasingly central role, having been the largest single source of the UK's energy since 1996, and meeting more than a third of current energy demand.[1] Moreover the UK's ready access to natural gas from the North Sea has helped provide households and businesses with competitively priced energy, with our domestic and industrial gas prices consistently below the EU average for the best part of two decades.[2]

In addition, gas power generation has attracted significant investment since the early 1990s due to its relatively low capital costs[3] and its flexibility (i.e. its ability to provide both baseload and peaking services). According to the Department for Energy and Climate Change's (DECC) *Gas Generation Strategy*, gas accounted for 70% of new capacity

coming online between 2000 and 2011, at which point it provided around 40% of the UK's electricity.[4] This has since fallen to below 30%, given the relative price of coal.

Beyond electricity generation, gas is also the main fuel by which we heat our homes, office buildings and industry. In 2011 52% of the 906 TWh of natural gas consumed by the UK was used to provide heat to buildings, compared to 34% that was burned by power stations to produce electricity.[5] Indeed as a nation, 70% of the UK's heat needs are met with gas.[6]

...underpinning our economic competitiveness

Gas allows industry access to high-grade heat and electricity, both of which are fundamental for producing materials such as steel, ceramics, glass and many other essential components of a modern economy. Additionally, industries such as the chemicals sector rely on gas by-products, such as propane, butane and ethane, as a feedstock for their processes.

More broadly, the UK's world-leading oil and gas sector makes a vital direct contribution to the economy, with operations on the UK Continental Shelf (UKCS) boosting the UK's balance of payments by £32bn in 2012. Indeed, production alone generated £6.5bn in tax revenue in 2012/13[7], while projects approved in 2011 and 2012 will generate £25bn of additional tax revenue over their lifetime.

As the largest industrial investor and contributor to national Gross Value Added, the oil and gas sector supports a supply chain which generates over £20bn of sales and underpins some 450,000 jobs[8], many of which are highly skilled, well-paid[9] and outside of the South-East of England, with Scotland benefitting significantly.

As recognised by the *UK Oil and Gas Industrial Strategy* this year, the industry also leads the world in numerous highly valued areas including subsea engineering, project management, research and development, safety management training and financial services.[10] Indeed the UK captures 45% of the global subsea engineering market.[11]

Policy must support the changing role of gas in our evolving energy future…

Despite its current dominance in the UK energy mix, the role of gas is set to change as we move to diversify our energy system in order to meet our three key objectives of security of supply, affordability and decarbonisation. While its exact contribution will depend on how the market develops over the coming years, there is no credible scenario in which gas does not play an important part in underpinning our move away from a high-carbon economy to a more balanced and secure energy future.

A smart policy framework is needed to drive this change which, if well-designed and implemented, could support significant levels of investment, leading to further opportunities for economic growth in the UK.

The right market signals are needed to encourage investment in gas power generation

With £110bn private sector investment needed to secure and decarbonise our power system, the right market signals need to be in place to drive this transformation. This is best achieved through a market-based and technology-neutral approach starting at a European level, with individual markets left to decide the best mix to suit their national circumstances (see box 1).

In the UK, the government's Electricity Market Reform (EMR) will encourage a shift in our electricity generation portfolio whereby nuclear and renewables will see their share of the mix increase, while gas is intended to support their rollout by providing relatively low-cost and flexible 'back-up' capacity. According to the *Gas Generation Strategy*, this will require around 26GW of new unabated gas capacity out to 2030, while the Committee on Climate Change (CCC) expects up to 40GW out to 2030 in any scenario consistent with meeting our fourth carbon budget (see figure 1).

This 'back-up' role would require gas plant to run for fewer hours, thus reducing the economics for investment. As such, the government has put forward welcome proposals for a Capacity Market as part of

EMR, which will provide a guaranteed revenue stream for capacity providers – both existing and new plant – therefore enabling investment in sufficient generation capacity.

Box 1: Delivering an effective EU-wide policy framework

An effective policy framework for achieving a low-carbon, secure and competitive economy should start at the European level. To this end, the CBI has been calling for an EU-wide emissions reduction target out to 2030 to build upon the current target which exists up to 2020. Unlike the current framework, the British business community advocates an emissions only target at the EU level as the most effective way of ensuring a technologically neutral approach that allows Members States to meet targets according to their national circumstances. Renewable and energy efficiency targets would unhelpfully overlap and distort investment decisions.

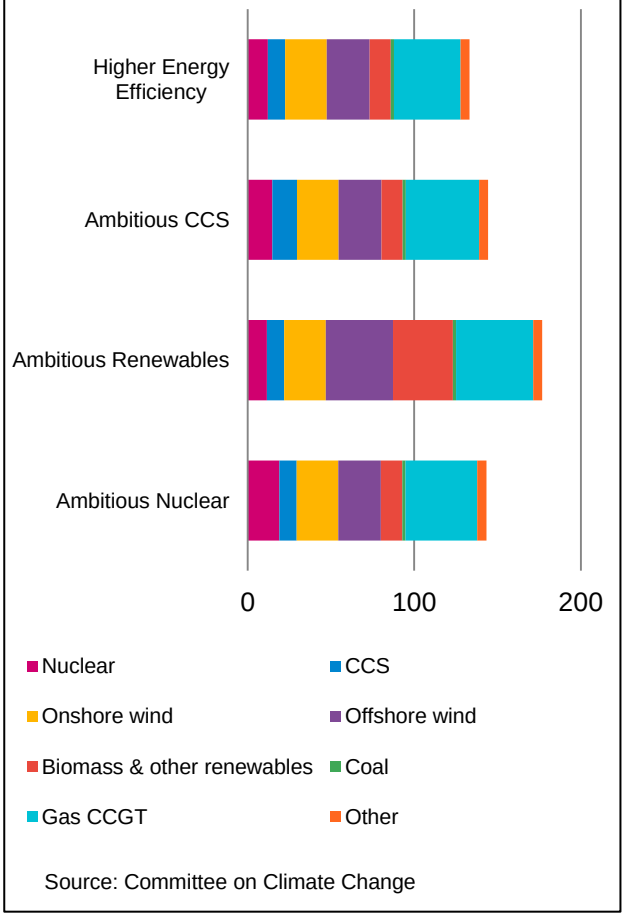
This framework should be underpinned by the EU Emissions Trading System (EU ETS), which must remain as the cornerstone of EU energy and climate policy. It is, however, important that the EU ETS is extended beyond 2020 to take the long-term view that is needed in order to achieve the confidence of industry and investors. This requires an emissions cap to be set out to 2030 in line with the overarching EU wide 2030 emissions target.

However in light of Ofgem's recent analysis highlighting the tightening generation capacity margins in the middle of the decade, the government should strongly consider bringing forward the year of the first delivery date of the Capacity Market (currently set for 2018/19). A delivery date before this point may prove more challenging in ensuring that the key components of the mechanism (e.g. auction process and state aid clearance) are in place, however government should work with industry to achieve this. Temporary interventions from National Grid may be necessary in the meantime, but it is right to move to the new regime as quickly as possible in order to provide investor certainty.

Furthermore, to ensure that this capacity is delivered at the lowest cost to business and domestic consumers, the Capacity Market should be designed to allow existing assets to be utilised efficiently, avoiding perverse incentives to build new capacity in preference to keeping existing plant in service.

RECOMMENDATION 1: *Government should bring forward the delivery date of the proposed Capacity Market to ensure that sufficient capacity is available. Its design must also seek to retain existing plant capacity while incentivising new plant.*

Figure 1: Power Sector Scenarios in reaching 50gCO2/kWh by 2030



Source: Committee on Climate Change

Greater progress is needed on Carbon Capture and Storage to secure the role of gas over the long-term

Over the long-term, developing Carbon Capture and Storage (CCS) technology will enable an on-going contribution from gas in a low-carbon, balanced energy portfolio. This also supports a lower-cost pathway to

decarbonisation, with the Energy Technologies Institute calculating that meeting our carbon targets without CCS adds an additional 2p/kWh on all UK energy use in 2050.[12] Furthermore, developing CCS early in the UK could help establish early-mover advantage and allow us to export the technology and expertise abroad.

The government has provided a strong signal of intent to lead the world in developing CCS through its commitment to investing up to £1 billion to fund full scale projects in the UK, and creating a role for CCS within EMR through Contracts for Difference (CfDs).

While progress on White Rose and Peterhead is encouraging, the pace at which CCS has moved forward has been limited. Given the complexity and long lead-in times for these projects – the exploration and appraisal of storage facilities taking 6-10 years alone[13] - it is essential that companies have visibility of a market beyond the planned demonstrations. The government must therefore continue to work with industry and other countries to make progress towards wide-scale deployment of CCS, and show its commitment to stimulating an enduring CCS sector.

***RECOMMENDATION 2**: Government must maintain its ambitious approach to CCS seeking to ensure that it can reach a commercial stage in a realistic and cost effective timescale.*

Greater consideration should be given to the efficient use of gas in industry

For industry, there are limited fuel alternatives to gas, and it will continue to be the predominant fuel out to 2050. A focus on energy efficiency (see box 2) is therefore vital to reduce both emissions and costs for industrial users.

The most energy-efficient way of using gas is to convert it into power and heat simultaneously, with Combined Heat and Power (CHP) a highly efficient process to achieve the heat and electricity needs of industry, while also heating and powering local communities with what would otherwise be waste energy.

However, several businesses have reported that the current policy framework is not conducive to investing in this technology following the removal of Levy Exemption Certificates (LECs), which exempted CHP users from the Climate Change Levy (CCL), at Budget 2012. This, together with the additional cost of the recently introduced Carbon Price Floor (CPF), means that the savings in running costs from using CHP will often no longer outweigh the higher capital cost of installing it.

BOX 2: Energy efficiency and the relationship between heat and electricity

When considering a holistic energy policy in the UK, it is crucial to recognise the importance of energy efficiency which has for too long been left in the shadow of supply-side policy. As noted in the CBI's recent report, *Shining a Light*, energy efficiency has the potential to deliver a triple win for consumers, the environment and the wider economy, therefore greater policy attention should be given to driving this change in the UK's households and businesses.

Furthermore, it is important that the policy debate around energy supply is not solely focused on electricity generation. Equally important within the energy debate, but often overlooked, is heat demand, and where it interlinks with electricity generation. Indeed, while the government's *Gas Generation Strategy* set out its vision for gas within the power sector, and its *Future of Heating* strategy looked at how we will meet our long-term heat needs, the government has yet to provide a holistic view of the relationship between the two. A joined up approach to these issues is particularly important given the government's stated ambition of meeting 90% of the UK's heat demand through electricity, which would require a huge level of investment.

Finding a solution to this is made all the more difficult due to the fact that CHP falls between the policy cracks of the heat and electricity teams within government, whereby the heat team owns the policy area but the team working on EMR controls the policy levers which may impact upon it.

Business welcomes the fact that government is currently working with industry to identify how best to support CHP but recognises that this will only apply to new plant, and not before 2015, damaging the case for businesses that continue to operate CHP units. Support for existing CHP is therefore vital in order to strengthen industrial competitiveness, retain the viability and output of current sites and ensure government remains credible on this issue.

***RECOMMENDATION 3**: Government should foster closer working between heat and electricity teams and ensure that policy is not made in silos. Specifically, DECC must continue to work with industry to mitigate the loss of value created by the removal of LECs for CHP facilities.*

…While enabling a diverse and secure source of supply to meet our immediate and long-term needs

With gas continuing to play an important role in meeting the UK's electricity and heat needs well into the future, we must ensure that we have access to a diverse and secure supply of gas to meet this long-term energy demand.

Historically, the UK has met its gas needs through our substantial reserves in the UK Continental Shelf (UKCS), and it is sensible to continue to maximise our domestic resources, as far as is economically feasible. Doing so would not only support our security and cost objectives, but would generate lower lifecycle greenhouse gas emissions than gas imported from abroad.[14] It would also provide the additional economic benefits of job creation, tax revenue and supply chain growth.

However, with our domestic reserves declining, the UK is increasingly reliant on the global market for its gas requirements. Indeed, 2014 will represent the UK's tenth anniversary as a net gas importer. This does not necessarily need to be a cause for concern. By ensuring an investment framework that enables the UK to continue to develop multiple sources of supply, domestically as well as through imports, we can ensure that our gas supply is robust and secure.

A supportive and stable regime is needed to encourage continued investment in the UK Continental Shelf…

The UK's offshore oil and gas tax and regulatory regime has, to date, had a poor track record in providing consistency and certainty for investment – a perception which was reinforced with the introduction in Budget 2011 of an unforeseen windfall tax on industry.

Having recognised the damage caused by this change, the government put in place a number of supportive measures with the intention of restoring confidence, including brown field allowances, large shallow-water gas field allowances and small field allowances. More recently, the government introduced Decommissioning Relief Deeds, which provide clarity about post-tax decommissioning costs, thus giving industry greater certainty when making investment decisions. Indeed, Oil and Gas UK has estimated that between 2013 and 2040, £31bn will be spent on decommissioning existing assets, representing a significant opportunity for the UK to develop expertise and supply chains in what will become an increasingly important and valuable industry for the UK economy.

This clear commitment to the sector has encouraged industry to continue to invest heavily into the UKCS to ensure a productive future, despite its maturity. Indeed, total capital committed to projects in production or under development reached £44bn at the start of 2013, which is a strong vote of confidence from industry. Yet despite these record levels of investment, production has been declining, reflecting the major challenges and less favourable economics in extracting from tougher basins. It is therefore crucial that the government continues to work with industry to ensure that the UKCS remains an attractive place to invest.

The interim report by Sir Ian Wood on maximising UK offshore oil and gas recovery represents a practical analysis of the challenges facing the industry, and makes a number of sensible recommendations, such as the development of a new strategy to maximise recovery and the need for greater collaboration to better exploit reserves. However, despite acknowledging that fiscal

policy is one of the most significant issues for investment in the UKCS, this aspect is not considered within the scope of the review.

In seeking to understand how best to enhance recovery in the North Sea the CBI believes taxation is crucial and identifying further opportunities to improve the competitiveness of the tax framework is essential. It would therefore seem sensible to take a more holistic view of the extraction landscape for the UKCS.

***RECOMMENDATION 4**: Government should work with industry to identify what further policy instruments, including taxation, might be utilised to encourage greater activity in the UKCS.*

…As well as the exploration of new indigenous supplies

As well as maximising recovery from the North Sea, it is sensible to look to enhance supply through new domestic sources, such as unconventional gas.

One such unconventional source, shale gas, has received significant attention recently, particularly following the British Geological Survey's announcement over the summer that it had increased its estimate of resources in the North of England. While, due to a range of challenges, it is highly unlikely that this will translate to a US-style shale 'revolution' (see box 3), it is important that the exploration phase gets underway as quickly as possible in order to better understand what is technically and economically recoverable.

To support this, the government has taken the right approach in seeking to establish an advantageous tax regime, reducing the effective tax rate on a portion of production income to stimulate investment. Additionally, attempts to minimise the barriers to exploration by simplifying the planning process, whilst ensuring rigorous environmental safeguards, represents a sensible approach to supporting this immature industry.

Furthermore, the government is also right to resist attempts at EU level to create new regulations for the onshore unconventional gas industry. Current EU legislation covering unconventional exploration presents one of the most stringent regulatory regimes in the world, and industry is confident that exploration will take place safely under this framework. Attempts to legislate further at EU level risks delaying exploration, or creating an unworkable regime.

BOX 3: Unconventional gas in the UK and the US

The impact of unconventional gas, and more specifically shale gas, in the US has piqued the interest of industry and government in the UK, particularly in light of the British Geological Survey's estimating that the Bowland Basin may contain 1329 trillion cubic feet of gas (central estimate).[14]

In 2011, 95% of gas consumed within the US was produced domestically[17] while gas production is expected to increase by 44% between 2011 and 2040 according to the US Energy Information Administration – almost all of this increase is in shale production.[15] This boost in domestic supply has seen US wholesale gas prices falling significantly since 2007, as prices have risen elsewhere.[16]

However, it is worth keeping in mind that the experience in the US, although often described as a revolution, has been more evolutionary and is the result of several decades of supportive legislation, R&D and a century old tradition of large-scale onshore oil and gas exploration.

While the UK also has a long and proven history of onshore drilling, including the use of hydraulic-fracturing, it is unclear at this stage whether our unconventional resources will be economically or technically feasible to recover. Furthermore, higher population density and differing planning laws – including mineral rights being owned by the state rather than landowners – means that the pace of any unconventional gas development in the UK is likely to be more measured than in the US. While this may enhance our energy security, UK gas prices are unlikely to be affected, particularly given that we are part of a highly interconnected gas market.

Despite this comprehensive and robust regulatory framework for exploration, there

remains a public perception challenge for the shale industry, particularly regarding the hydraulic fracturing or 'fracking' process, as demonstrated by the protests in Balcombe in July 2013. To address this issue and ensure local buy-in, it is vital that industry proactively engages with local communities to educate them about how risks are managed and dispel myths about the industry and its processes. Indeed, taking these steps will help improve the likely success of the unconventional gas sector, leading to additional jobs and future tax revenue for the Treasury.

RECOMMENDATION 5: *Government should continue to develop a supportive tax and regulatory framework that removes barriers to the exploration and production of unconventional gas. It should also work with European partners to ensure proportionate regulation for unconventional gas exploration in Europe.*

The UK must continue to proactively engage in the global gas market…

Although we must do all we can to maximise domestic production of gas, the UK will remain a net importer for the foreseeable future. This means it is essential that we have a robust and resilient framework whereby we can import gas from multiple sources, including Liquid Natural Gas (LNG) and pipeline gas from Norway and continental Europe.

LNG in particular is becoming increasingly important to the UK, with significant investment in our re-gasification capacity in recent years enabling LNG imports to rise from less than 5% of total imports in 2005 to almost half of the UK's total imports of gas in 2011. This reflects the global growth of the LNG market, which accounted for 32% of all natural gas, traded internationally in 2011 and is predicted to grow dramatically in the coming years, driven in large part by additional demand[17] and high prices in Asia.[18]

How the international LNG market functions has a direct impact on the UK gas market, and one of the key uncertainties is around how much LNG might be exported from the US, and to where. By law, companies are not permitted to export gas from the US without a licence, which is granted automatically for countries that have a Free Trade Agreement with the US, but must be approved for exports to non-FTA countries, including members of the EU.

This has meant that very little of the US's unconventional gas has entered the global LNG market to date, although this is starting to change with the US Department of Energy having now approved four applications for permits to export LNG to non-FTA nations. The Transatlantic Trade and Investment Partnership (TTIP) – the trade agreement that is currently being negotiated between the EU and the US – presents an excellent opportunity to ensure that barriers to US LNG exports are fully removed, and that natural resources can be traded more freely between the EU and the US.

RECOMMENDATION 6: *Working with European partners the UK government should ensure the UK has access to US LNG exports through the Transatlantic Trade and Investment Partnership.*

… And support a market-based approach to gas storage

Gas storage is also an important contributor to ensuring that the UK has a secure supply of gas providing an important buffer should we face disruption to our pipelines, LNG supply or UKCS production.

While the UK has lower storage capacity than other European countries – around 14 days' worth of supply compared to 69 days in Germany and 59 in Italy – this is largely a function of the security and flexibility that has historically been provided by the UKCS, as well as the result of greater competition between sources of supply. Whether by LNG tankers responding to price signals, increased UKCS or onshore production, pipeline imports or storage, the market has so far delivered security of supply. Indeed, Ofgem's analysis indicates that on a 1 year-in-20 peak day, non-storage capacity provides an adequate safety net.

The CBI therefore supports the government's recent decision not to intervene in the gas storage market and to instead allow free competition between multiple sources of supply – ensuring a fair and competitive market that delivers security of supply at the

lowest cost to consumers. However, it is appropriate for the government to continue to periodically assess whether the market provides the right incentives for the appropriate level of gas storage.

RECOMMENDATION 7: *UK government should continue to encourage a market-based approach to gas storage, periodically assessing that the right incentives are in place.*

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