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Department of Energy & Climate Change,
3 Whitehall Place,
London SW1A 2AW

2 July, 2012

Subject: Gas Generation Strategy: Call for Evidence

Dear Ms Devine,

Introduction

ExxonMobil¹ welcomes the opportunity for businesses and third parties to contribute to the DECC call for evidence on the role of gas in the electricity market. Our views on the issues raised are also reflected in the submissions made to this call for evidence by Oil and Gas UK and The Gas Forum, whose work we have been actively engaged in.

Background

Exxon Mobil Corporation is the world's largest publicly traded international oil and gas company with some eighty thousand employees operating across many countries around the globe. We hold an industry-leading inventory of global oil and gas reserves and are the world's largest refiner and marketer of petroleum products. We have a long-established presence in the UK, with some 7600 employees involved in many aspects of our upstream, downstream and

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chemicals businesses including offshore production, natural gas and electricity sales, oil refining, fuels marketing, and chemicals manufacturing and sales.

ExxonMobil is well positioned to help meet the world's growing natural gas demands. In 2010, ExxonMobil sold 14.7 billion cubic feet per day of natural gas, and was active across the gas value chain in most major markets. In Europe, ExxonMobil is a leading natural gas producer through ownership in key assets in the Netherlands, Germany, and both the U.K. and Norwegian sectors of the North Sea. In North America, ExxonMobil is a major gas producer with production both onshore and offshore. Following the 2010 merger with XTO Energy Inc., we are now the leading producer of natural gas and have the largest proved gas reserves in the United States. In the Asia-Pacific region, ExxonMobil is among the largest producers of natural gas in Australia and Malaysia, and also sells gas in Indonesia, Thailand and Far East Russia. In the Middle East, we are major producers in Qatar of both pipeline and liquefied natural gas (LNG), which is exported around the world.

ExxonMobil Gas Marketing Europe Ltd ("EMGME") contributes around 25% of the physical gas first sold on the GB wholesale market. EMGME, as part of ExxonMobil's global gas and power marketing organization, sources these gas supplies from within the UK, from continental Europe and from around the globe with deliveries to a number of UK market entry points via pipelines and regasified LNG. ExxonMobil has been an active participant in the UK market for two decades developing its gas marketing business over that time on the basis of (1) the support shown by successive governments and independent economic energy regulators for the principles of a competitive energy market and (2) the successful development and operation of a well-functioning and liquid gas wholesale market.

This response provides additional commentary on the benefits of fossil fuel combined heat and power (CHP) facilities, which are of significant interest to ExxonMobil's refining and supply organisation. For example, our refining and petrochemicals manufacturing complex at Fawley on Southampton Water is the UK's largest refinery and utilises two gas-fired CHP units, which have contributed to Fawley improving its energy efficiency by around 25% over the past ten years.

Overall comments and the evolution of the German Market

Overall, ExxonMobil believes that natural gas has a long term future in Europe including the UK for a variety of reasons including the abundance and diversity of accessible global gas resources and the significantly lower carbon content of natural gas relative to other fossil fuels.

Whilst we believe that with increasing demand for energy there is room for competition between all sources of energy, ExxonMobil's experience is that where governments intervene directly to alter the balance of competitive forces in energy markets there are often significant negative consequences for the end consumers. We believe that our experience of the evolution of the German market (Energiewende) is instructive and we offer some related observations below.

- Affordability. Consumers are now subsidizing renewable programmes at an estimated annual rate of about £12bn (2011) and cumulative subsidies are forecast to reach about £150bn by 2020 (McKinsey & Co.). Other costs associated with the renewables programme

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would need to be included to get a clear view of the total costs needed to properly integrate renewables: transmission debottlenecking investments, system operation, backup power and payments made by the TSOs to asset owners whose renewable production is constrained off. Thus far it appears that the German government has been unable to gain political agreement to significant reductions in solar tariffs despite the installed cost of PV in Germany being reported as fast approaching the level where it is economic without any support.

- **Security.** This rapid, unconstrained growth in renewables has pushed the German transmission system to its limits with the numbers of TSO-led system interventions increasing in order to maintain stability. The German regulator has argued that no further closures of conventional plants should be allowed as they are required to ensure stability of the system despite the fact that many of these plants have been made uneconomic even on a variable cost basis by the government's interventions through subsidies.
- **Sustainability.** There is a growing risk that future increments of renewable capacity in Germany will be constrained by the grid operators before the energy can be produced. Increasing costs and wastage (of capacity) in this way is not sustainable.

Call for evidence - engagement and questions (section 6.)

(a) What are the main strengths and weaknesses of gas generation in helping deliver a secure, affordable route to decarbonisation through to 2020 and then by 2050?

We believe the strengths of gas fired power generation are well known:

- The modern generation technology is proven, reliable, the most flexible of thermal plants, and achieves 60% lower CO2 emissions vs. coal. For each 400 MW coal fired unit that is replaced by a modern natural gas fired unit, CO2 emissions would be reduced by about 1.5 million tonnes per year (assuming 80% load factor).
- A new gas fired power station can be built in three years with the lowest upfront unit cost of any other equivalent output generation technology and, more often than not, can be built at a location that does not involve additional transmission investment.
- Natural gas supply has continued to grow as advances in technology unlock more conventional and unconventional resources and the outlook is one of continued growth in supply potential with vigorous competition amongst producers to bring gas to global markets.
- Natural gas import, transmission and distribution infrastructure is already available in the UK; pipeline connectivity to and across Europe will continue to improve.
- The UK continues to benefit from a liquid, well-functioning gas wholesale market connected to similar markets in Europe that are evolving quickly as the Third Package is implemented. The ability to source gas for the UK that is produced further afield in Europe continues to improve.

(b) What role can gas fired generation play in the future and what level of gas generation capacity is desirable?

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We see no reason why gas fired power generation would be any less important for the UK in the future than it has been in the past. We believe that investment in gas fired power generation will need to increase in the near and medium term to cover plant closures associated with the implementation of the Large Combustion Plant and Industrial Emission Directives. Modern gas fired power plants have the greatest potential to achieve the fastest and most cost effective base-load reductions in CO2 emissions in the near term while providing the cheapest, most flexible and environmentally friendly back-up capacity for renewables for the longer term.

(c) What are the key factors driving the economics of investing in new gas-fired power generation and how are these factors likely to change? (d) What barriers do investors face in building new gas generation plants in the UK? What are the key regulatory uncertainties that may prevent debt and equity investors making a final investment decision in gas generation and supply infrastructure?

At the simplest level an investor has to assess how much generating "space" will be available to be filled by gas fired power, at what times of day the "spaces" occur and what prices are achievable in those "spaces" over the lifetime of the plant to forecast their return on investment. We believe that such forecasts have been made much more difficult by Government interventions affecting the power sector that have created a significant range of new uncertainties affecting this assessment.

We believe that Government intervention to advance renewables and nuclear investment is promoting most of the uncertainty and has created the conditions under which potential investors in gas fired power, gas transmission and gas storage capacity can advance a case for fixed price support. Support may or may not be needed and may or may not be affordable but, until the design details of the EMR² capacity mechanism are available, and the funding limits of Government support for renewables, nuclear and gas are made clear we believe that an investment hiatus in gas fired power generation is likely to continue.

(e) Are there any other policy issues that need to be addressed beyond the Government's proposals for the capacity mechanism and the EPS?

As expressed in previous submissions to Government, whilst we recognize the efforts made under the EMR program to address the challenges posed by carbon budgets and EU renewables targets, we believe that investors will seek greater clarity from Government as to the limits in the renewables and nuclear cost burdens that it is willing to place on consumers over the next few years. This will directly inform the outlook for these generation technologies and will therefore affect investor views of the space available and economic risk associated with gas fired power generation.

Paragraph 2.2 of the call for evidence references the potential for and benefits of CHP facilities. ExxonMobil is of the view that large-scale CHP facilities are likely to be critical to the implementation of the Government's energy efficiency and decarbonisation agenda, especially at sites with large heat demands such as oil refineries. The efficiency gains from co-generation

² Electricity Market Review

of heat and power ensure that CHP can provide flexible fast response to power demands, relatively low emissions and highly flexible output for short-term security of electricity supply requirements.

We understand that the Government is currently assessing the evidence for future support for fossil fuel CHP and is considering the appropriate policy options for addressing barriers to increased fossil fuel CHP capacity in the UK. In ExxonMobil's view, both the construction of new fossil fuel CHP facilities and the commercial viability of existing facilities have been undermined following the removal of Climate Change Levy Exemption Certificates (LECs). An adequate replacement for LEC revenues is therefore, in our view, essential and the positive actions of the German authorities in providing a time-limited feed-in-tariff for CHP to achieve their target of 25% of total electricity generation by CHP by 2020 should be recognised.

(f) Given a continuing role for gas and the potential for increased volatility in gas demand, to what extent is gas supply and related infrastructure a barrier to investment in gas fired generation? What impact will unconventional gas have on the case for investing in gas generation and the supporting infrastructure?

The UK's gas market has evolved over the past 10 years towards a diversified range of sources of gas, balancing indigenous production against pipeline and LNG-based imports. The open and liberalized market-based approach to gas that has characterized the UK thus far has created conditions of confidence for companies to invest in infrastructure; for example ExxonMobil is proud of its investment in the South Hook LNG Terminal which imported 1.2 BCFD of gas in 2011. Currently National Grid Gas is completing final debottlenecking of the pipeline at Tirley that should allow the full capacity (2.1 BCFD) of the terminal to be available by next winter. Retaining an open, competitive market-based approach will be key to ensuring that this investment confidence is retained in the future so that supply and related infrastructure can continue to meet evolving demand.

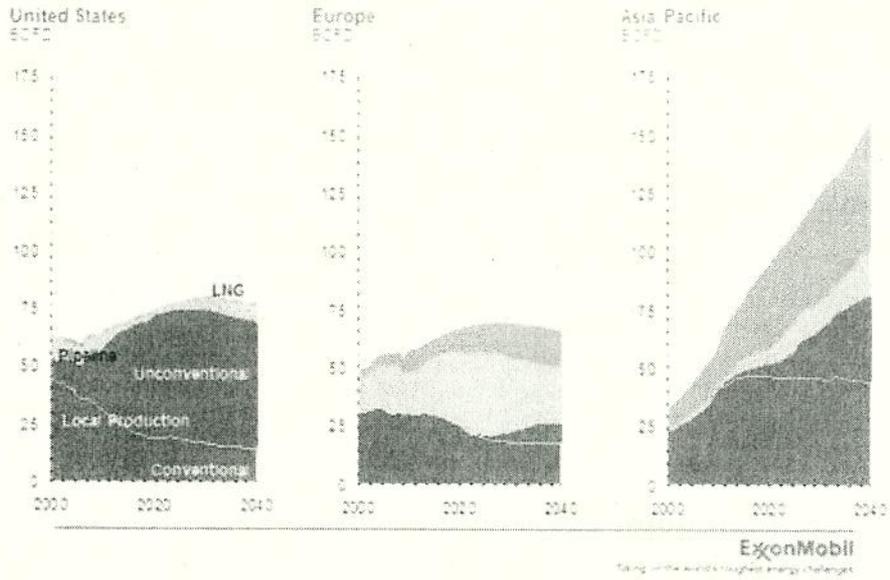
From a global perspective, we believe that unconventional gas production will be vital in meeting the world's future energy needs. In the US, the significant ramp up in unconventional production over the last few years has revolutionized the market and led to a significant reduction in gas prices that is driving reindustrialization. From a European perspective, exploration is at a very early stage; the scale and commercial potential of the resource base remains unknown (the chart below, taken from our annual Energy Outlook, shows our assessment of potential future unconventional gas development for the US, Europe and the Asia Pacific region to 2040). If successful, we believe it constitutes a significant opportunity to enhance EU and UK supply security, but projects and the deployment of associated technologies will have to secure public support to succeed.

In order to produce unconventional gas, a process called hydraulic fracturing is used to create small cracks in the shale rock that allow the gas to flow through a well to the surface. Hydraulic fracturing has been used since the 1940s in more than one million wells in the United States, and in Europe since the 1950s. It is safe and effective. Sound practices concerning well design and construction, water management, air emissions, and surface impacts exist and must be followed to ensure accidents do not occur, and to mitigate other safety and environmental concerns.

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EM View of Gas Market Development



We trust that you find this response helpful and are happy to meet to discuss any aspect of it.

Yours sincerely

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