

## **Summary**

Exxon Mobil affiliates in the UK are key players in the UK's energy business and welcome the opportunity to participate in the important review of UK energy policy.

As always, there are tensions between the potentially conflicting goals of supply security, environmental protection, improving economic prosperity and satisfying consumers. While many approaches have been tried over time to resolve these potential conflicts, history illustrates that the operation of the free market, promoted by government policies that ensure a rational and predictable regulatory and legal framework, provides the best opportunity to make progress towards all these goals.

Within this free market approach, there is an important role for government at the national and international level to play. We would welcome HMG contributing to the promotion of energy supply security by using international diplomacy to encourage investment conditions which will bring forward the new energy supplies the UK and the rest of Europe will require. Providing stable positive fiscal and regulatory conditions in the UKCS to enable the maximum economic recovery of indigenous energy resources will also be a key task.

ExxonMobil would welcome the opportunity to develop further the themes outlined in this submission.

## **Background**

Since beginning exploration in UK waters in 1964, ExxonMobil has invested in excess of £25 billion (at today's prices) in the UK's offshore oil and gas industry. We have an interest in some 90 producing offshore fields and hold the second most extensive licenced acreage on the UKCS. ExxonMobil produces some 12% of the UK's total oil production and over 15% of total gas production.

Our Fawley refinery on Southampton Water is the largest in the UK in terms of primary distillation capacity and we operate the most extensive underground pipeline distribution network. We fuel one in six cars in the UK through a network of around 1500 service stations.

Our Fawley chemicals plant produces almost one million tonnes of chemical products each year and we are the major European manufacturer of halobutyl rubber. Our ethylene plant in Fife is one of the largest in Europe.

Globally, Exxon Mobil Corporation is the world's premier publicly quoted oil and gas company and, on the basis of revenues in 2000, the world's largest corporation. The company does business in some 200 countries world-wide and produces more than 4.5 million oil-equivalent barrels of energy resources every day from some 1600 fields. ExxonMobil is the world's leading non-government marketer of natural gas. Downstream, the company has interests in 50 refineries in 27 countries and through 45,000 services stations in 118 countries is the leader in petrol sales world-wide.

## Introduction

The launch of the PIU's review of UK energy policy is an important first stage of a debate on the inter-linked issues of energy policy, economic growth and the environment. ExxonMobil commends the Government for stimulating a needed debate on energy policy and welcomes the opportunity to participate in it.

Over the last fifty years, UK government policy has moved from one of nationalisation and centralised 'command and control' to the creation of one of the most liberalised energy markets in the world. There is an emerging view that market liberalisation could only succeed in an era of abundant indigenous supplies and low prices and that the case for government intervention is now growing. ExxonMobil does not share this view. Our preferred approach was best articulated in the UK by the then Secretary of State for Energy, Nigel Lawson, in 1982.

*'I do not see the government's task as being to try to plan the future shape of energy production and consumption. It is not even primarily to try to balance UK demand and supply for energy. Our task is rather to set a framework which will ensure that the market operates in the energy sector with a minimum of distortion and energy is produced and consumed efficiently.'*

*'It does not help us very much to try to guess the unguessable - namely, what UK energy consumption will be in 20, let alone 50, year's time -- and then aim to produce this amount judiciously divided up between the primary fuel sources. We will do far better to concentrate our efforts on improving the efficiency with which energy is supplied and used, an objective that will remain valid and important whatever the future may bring'.*

*'Nor should the Government seek to achieve overall and detailed control through the backdoor methods of regulations and subsidies. The Government's role is neither to induce the individual to take decisions against his better judgement, nor to waste public money in subsidising investment that is already well worthwhile.'*

## Key points

**1. Security of supply cannot be looked at in isolation from other policy goals. Inevitably, there are tensions between conflicting goals relating to supply security, environmental protection, competitiveness and satisfying consumers. Different stakeholders will take different views of where the priorities should lie. ExxonMobil believes that the operation of the free market within a rational and predictable regulatory and legal framework, provides the best long-term approach to making progress towards all these goals. The case for centralised policies relating to supply security does not appear to be persuasive.**

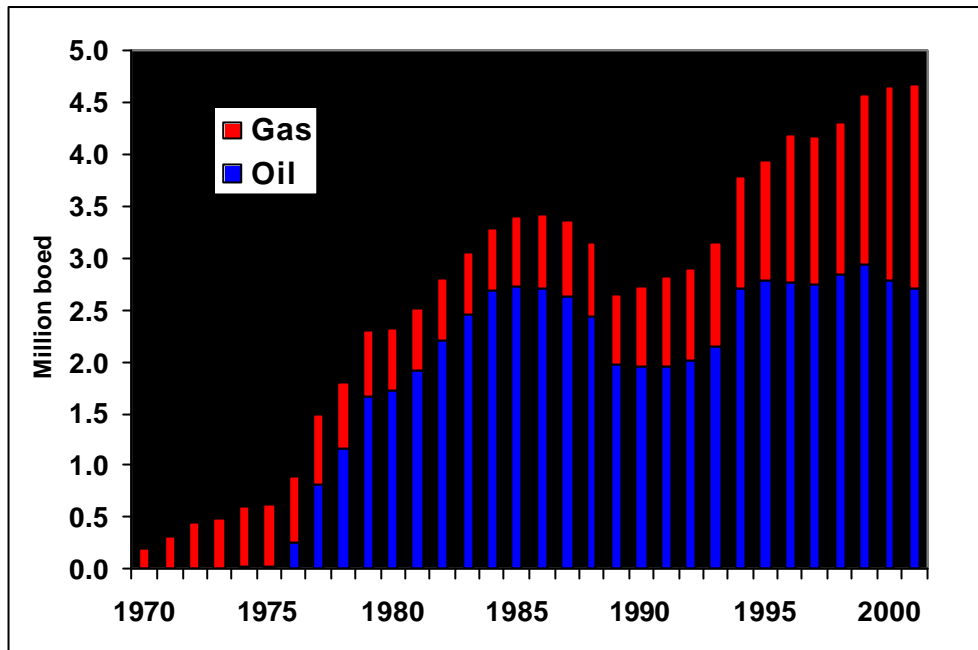
- For the last two decades, the UK has essentially been self-sufficient in oil and gas.
- ExxonMobil shares the consensus view that the UK will increasingly look to imports to meet its hydro-carbon needs.
- This is not necessarily a cause for concern. Long term energy self-sufficiency for the UK is neither an attainable nor a necessary objective for

an appropriate energy security policy and energy trading is a permanent part of the UK's energy future.

- While trading may bring risk, it also offers the benefits of specialisation, allowing the UK to focus on those activities where it has a comparative advantage. Not to participate in the trade process is to forgo the economic benefits of comparative advantage, with inevitable adverse consequences for UK competitiveness and economic welfare.
- Inevitably, balanced judgements have to be made. A potential source of supply may be lower cost than others simply because there is a higher risk of supply disruption. Alternative back-up facilities can be provided, but potentially they incur significant cost. High cost indigenous coal may be promoted over imported natural gas for power generation. Not only does this increase the price of electricity but it also negatively impacts CO<sub>2</sub> and other emissions. On the demand side, some industrial premises may be prepared to accept interruptible supplies in return for a price discount where others will pay a premium for guaranteed supply availability.
- A stable and predictable regulatory and legal framework is essential to underpin short and long term security and diversity of supply. Efficient economic signals between producers and consumers will be promoted, including the value the latter place on particular levels of supply continuity.
- Consumers and suppliers, when operating in this type of market, will be guided by it in making their own decisions on how to resolve the tensions between security of supply and other policy goals.
- Any decision as to specific regulatory intervention (which is in itself liable to fail, as the California case shows) should benefit from prior extensive consultation to minimize the risk of unintended consequences. We believe that markets move to self correct, if the right framework conditions are in place.

**2. For more than a quarter of a century, the oil and gas industry has provided the UK with an uninterrupted supply of energy to meet growing demand. The short term volatility of oil prices between 1998 and 2001 does not signal a new energy supply crisis. For the future, it is important to separate short, medium and long-term security issues and address the specific factors influencing each time horizon.**

- Over the last 25 years, the UK's oil and gas industry has been able to produce higher volumes of hydro-carbon at lower cost through the application of innovative technology.



- This has brought benefits to consumers, employees and contractors. Expenditure on UKCS activities alone supports some 270,000 jobs in the UK and has generated direct exchequer revenue of some £166 billion (2001 values) since the mid-1960's. Over this period, the industry's investment in, and application of, new technology has driven down the unit cost of discovery and production of oil and gas.
- In the event of short-term crises, market prices will work efficiently to balance supply and demand requirements.
- In addition, there are already strategic oil stocks and an emergency oil sharing mechanism covering the membership of the International Energy Agency. EU directives already provide for a 90-day cover for oil consumption, which is sufficient to cover a 10% shortfall for a period of over two years.
- In terms of gas, short-term security has been delivered as a result of gas being supplied through a large number of fields through a flexible system of offshore pipelines delivering to 11 terminals into a highly developed transmission and distribution infrastructure. Contractual arrangements, whereby those consumers with alternative fuel supplies are able to be interrupted, have added to that flexibility.
- In the medium term, the main economic risk arises from the potential for higher prices adversely impacting the balance of payments, the terms of trade and hence national wealth. However, it should be noted that the potential exposure of the UK (measured on the basis of the proportion of export revenues used to purchase imported energy) is likely to remain lower than that of most other major industrial country for the foreseeable future.

- It should also be noted that oil and gas exporting nations have a vested interest in the economic well-being of their customers. Dependence on the benefits of trade is two-way as the oil and gas exporting countries also depend on this expansion for their economic and social well-being. With increasing competition between oil and gas and an increasing geographical diversity in supplies, producer/consumer interdependence seems assured.
- Policies designed simply to reduce import dependence may deny to UK consumers the benefits of access to competing, lower cost supplies through international trade.
- For the longer term, as is outlined below, concerns over the availability of resources are overstated and a UK-specific security of supply policy would not seem justified on that basis.
- The PIU Scoping Note characterizes environmental issues, particularly relating to climate change, as another aspect of long term supply security. ExxonMobil believes this is drawing the definition of supply security too widely. While it is true that many of the policy measures appropriate for reducing greenhouse gas emissions (for example, a greater emphasis on energy conservation) would enhance supply security (if narrowly defined as a reduced dependence on imported energy as a consequence of lower energy demand), the fact remains that security of supply considerations potentially conflict with considerations over competitiveness and greenhouse gas emissions.
- However, as is outlined below, there can be synergies between reduced emissions, enhanced security of supply and improved UK competitiveness. In particular, this involves ensuring that already cost-effective energy conservation opportunities are fully exploited.
- ExxonMobil believes climate change is an issue to be taken seriously. Doing nothing is not an option. Both the Government and industry agree that the focus should be on those measures which are cost-effective in their own right. Implementation of such measures would yield the additional benefit of potentially enhancing supply security.

#### **Climate Change: What ExxonMobil is Doing**

- Over the last 25 years we have improved the energy efficiency of our operations world-wide by 37%
- The first \$100 million tranche of investment in our Global Energy Management System (GEMS), launched in 1999, has already cut energy use in own operations by a further 3%.
- EM is a leader in the installation of co-generation, which now meets about 70 percent of our refining and chemical plant energy needs. We have co-generation plants operating at 28 ExxonMobil sites world wide. Another 1000 megawatts of co-generation is under development, and our ultimate potential is even greater. The co-generation plant at Fawley Refinery is currently the largest in the UK.
- With Toyota and General Motors we are pushing the envelope to make fuel cells a viable transportation alternative. We are also working with Toyota and GM on highly efficient hybrid vehicles.

- Through corporate wide focused initiatives, we have cut internal fuel use. In the UK, for example, we have achieved savings of 11 percent or 1.5 million litres of diesel p.a. used to transport our products to our customers.
- We spend many millions every year to support scientific and economic research on climate change to improve understanding of its many complex dimensions.
- We continuously research and introduce new, cleaner fuels.
- We support programs to plant millions of trees.

**3. ExxonMobil agrees in broad terms with the PIU's analysis that the UK will continue to rely on oil and gas for the majority of its energy needs for at least the next 20 years.**

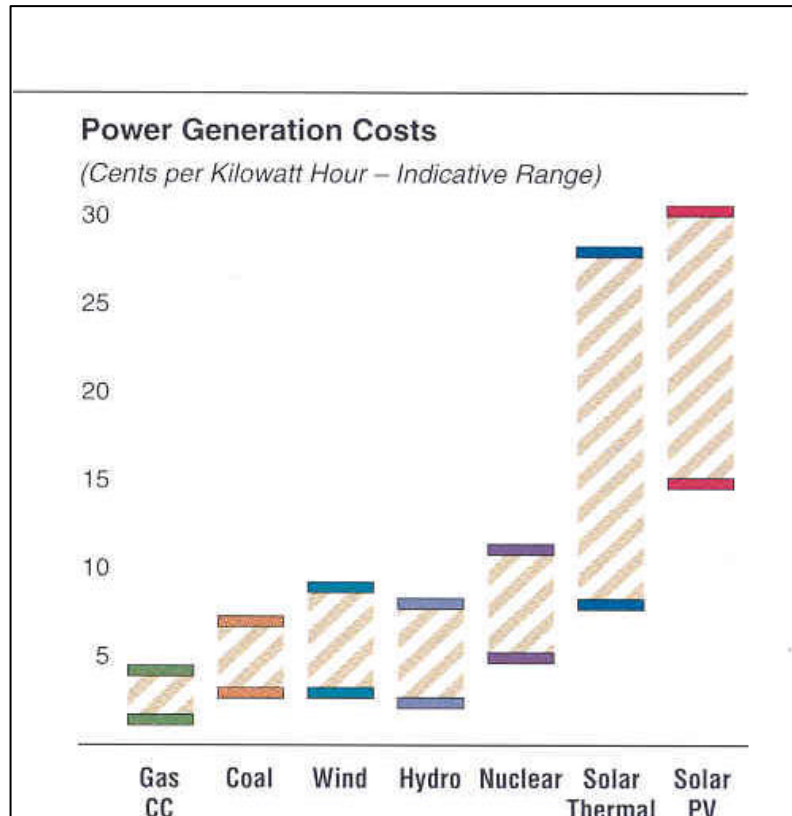
- ExxonMobil has in conjunction with the UK Petroleum Industry Association already commented in detail on the UK Government's forecast of energy demand to 2020 as outlined in Energy Paper 68. In summary, the assessment of overall energy demand are broadly similar but ExxonMobil believes EP 68 underestimates by a significant margin the impact of technology on road fuel demand and perhaps over-estimates the extent to which electricity demand might become decoupled from GDP growth.

	<u>1990</u>	<u>2020</u> <u>(EP68 CH case)</u>	<u>2020</u> <u>(XOM equivalent case)</u>
<u>mtoe</u>			
Coal	66.9	19.1	21.5
Oil	78.3	94.3	71.5
Gas	51.2	119.4	128.2
Nuclear	16.3	6.9	6.8
Renewable	1.2	11.4	19.0
Imports	<u>1.0</u>	<u>0.3</u>	<u>0.9</u>
Total	214.9	251.3	247.9

- In the above ExxonMobil analysis, renewables are forecast to grow at around 10% per annum to account for 10% of electricity production by 2020.
- The magnitude of the task confronting the renewables industry should also not be underestimated. For example, if the UK's goal of supplying 10% of its power from renewable sources by 2010 were met entirely through wind-power and assuming 100% load factor and an average turbine size of 1.3MW, this would suggest that one new wind turbine needs to come on-line every day between now and 31 December 2010.
- Though the costs of some technologies (particularly wind power) have fallen over recent years, it should also be noted that most renewable sources of electricity are significantly higher cost than gas-fired combined cycle gas turbines -- with implications for UK competitiveness. Though the UK

example quoted above assumes 100% availability, operating experience suggests that at best wind power achieves a load factor of around 30%. To give a similar degree of reliable power availability to more traditional technologies would therefore require the provision of back-up facilities. Typically, the cost of such facilities is not included in the economics of renewable energy projects.

- It should also be noted that there is no reason to presume that cost reduction and efficiency improvement opportunities for Combine Cycle Gas Turbine technology have been exhausted.

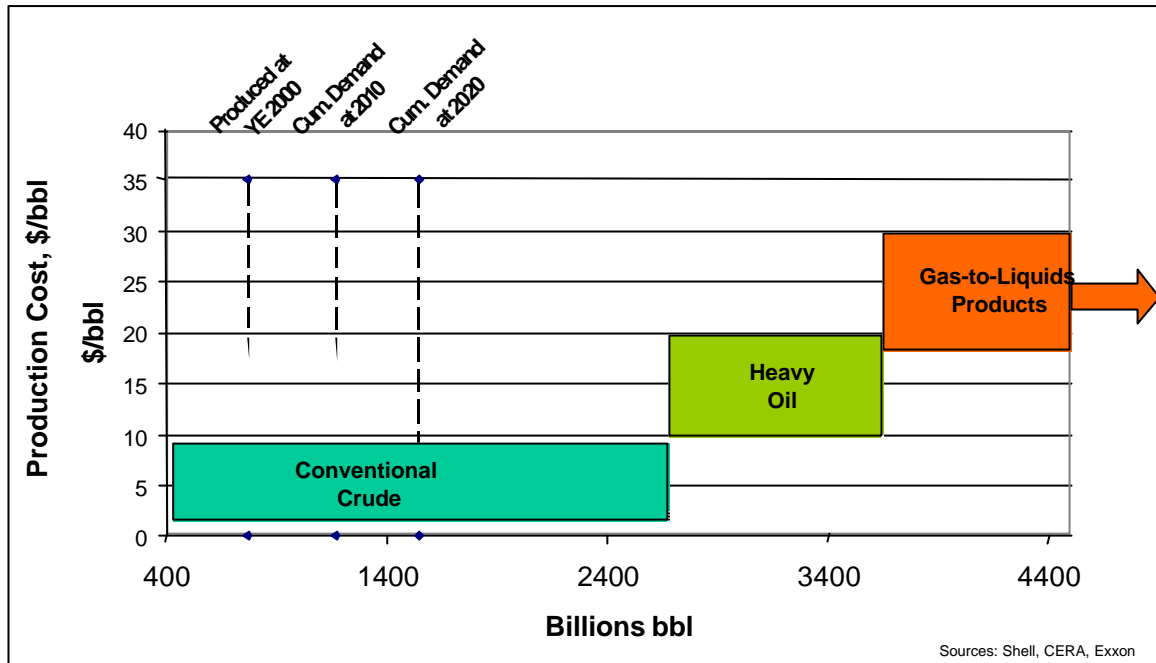


Source: ExxonMobil Annual Report, 2000

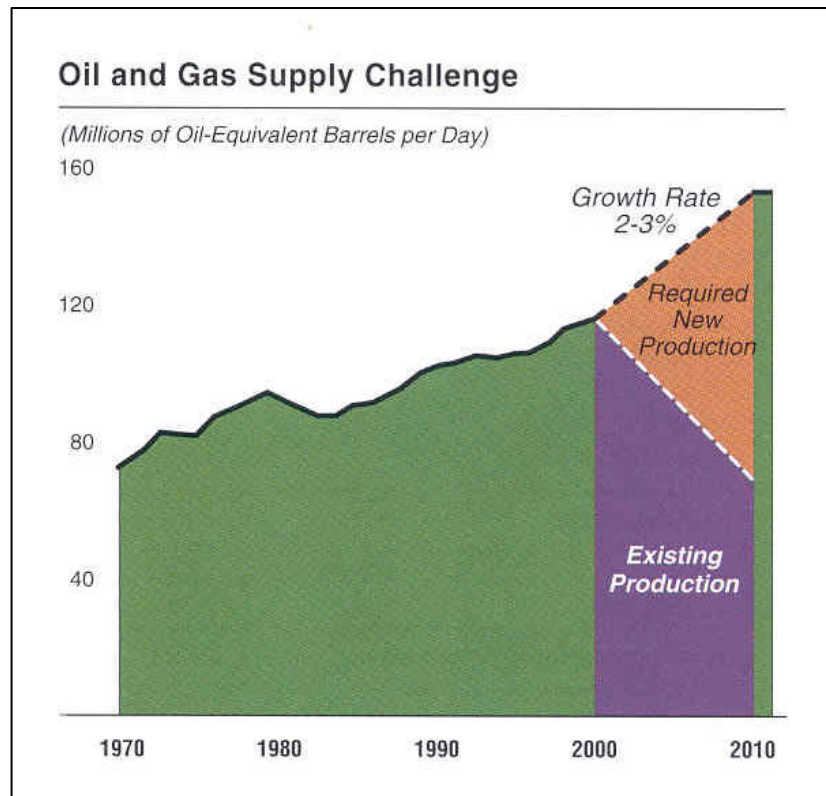
**4. There need be no shortage of oil and gas world-wide with the right investment climate and sufficient lead-times. The magnitude of the task, however, should not be underestimated. The Industry forecasts that at least US\$1 trillion of investment in new upstream facilities will be required, in the next decade alone to meet world-wide oil and gas demand. Similarly, good prospects remain for the UKCS, provided fiscal and regulatory conditions remain conducive to the encouragement of investment.**

- Commentators tend to focus on reserve to production ratios as the measure of resource availability. Such measures typically look at proved reserves to today's production. 'Oil and Gas Journal' on this basis suggest a world-wide R/P ratio for oil of 40 years for oil and 61 years for gas. For the UK, the corresponding figures are 5.3 and 7.0 years respectively. However, such ratios fail to take account of probable reserves and reserves yet to be

discovered. In terms of world-wide resource availability, development of new technologies will continue to make practicable new hydrocarbon sources, such as heavy oils, tar sands and remote gas. On this basis, world aggregate R/P ratios in excess of 100 years will likely be achieved. Resource availability is simply not the issue.



- It should also be noted that in the early 1970's, global proved oil reserves were estimated to be 700 billion barrels. Since then, almost 600 billion barrels have been produced, yet today's estimate of proved oil reserves is close to 1100 billion barrels.
- Similar considerations apply to the UKCS. Estimates of the remaining potential vary considerably depending on the view taken on Yet to Find reserves and the rate at which these are proved through exploration and appraisal drilling. Official estimates indicate a wide range from 5 to 30 billion barrels oil equivalent (boe), though it should be noted that this is a logarithmic distribution and the mid-point of the range is not therefore at the arithmetic mean. ExxonMobil supports the UK Offshore Operators Association mid-range estimate of 13 billion boe as realistic. Overall, remaining UKCS recoverable reserves are estimated by the Industry to be in the range 28-36 billion boe, more than has been produced to date and representing a substantial opportunity for the nation. Maximum exploitation of these reserves will require not just innovative technical and commercial solutions but also a stable fiscal and regulatory regime.
- Though the resource base is not a constraint, the magnitude of the task of meeting future demand should not be underestimated. While depletion rates around the world are difficult to assess, assuming an average depletion rate of 4 to 5% per annum, about half of the total oil and gas required 10 years from now is not yet in production. Assuming growth in demand of around 2-3% per annum, this implies some 80-90 million oil-equivalent barrels per day of new production will need to be brought on stream by 2010. It is this



analysis which results in the estimate of US\$1 trillion being required. A business and political climate where investments of this magnitude can be made with confidence is essential.

*Source: ExxonMobil Annual Report, 2000*

- In terms of natural gas, 70% of proved global reserves lie within currently economic transportation distance of the UK. There are increasing options for greater flexibility. Discoveries in the Caribbean, the Caspian, Egypt, Qatar and offshore West Africa have widened the range of potential suppliers. In addition, the cost of moving gas by ship as liquefied natural gas (LNG) rather than the more traditional, relatively inflexible, pipeline option has been falling as the industry has invested in innovative technology. All these trends add to the flexibility and diversity of gas markets and ease security of supply concerns.

**5. The UK Government can play a key role in the promotion of security of energy supply by using international diplomacy to encourage appropriate investment conditions and to facilitate a range of new import routes into the UK for diverse, additional sources of oil and gas and ensuring fiscal and regulatory stability to encourage maximum exploitation of indigenous supplies.**

- The experience to date of the UK Continental Shelf clearly demonstrates that putting in place a stable, predictable taxation and regulatory regime which is responsive to changing business conditions can shift the supply curve to the right. As a mature province, however, the scope for maintaining production at today's record levels may be challenging. The risks lie on the downside. Inappropriate taxation, regulatory and other

policies which increase costs in an already high cost province may result in resources not being exploited which would otherwise have been recovered. This would have adverse implications not only for energy self-sufficiency but also employment, the health of the industries which support oil and gas exploration and production and for government revenues. Mandated depletion policies and the imposition of taxes to fund uneconomic renewable energy technologies are examples of measures which would potentially have such adverse consequences.

- The UK is situated in a geographically advantageous location to attract diverse new supplies of oil and gas. The options for diversifying sources of supply are wide-ranging.
- However, ExxonMobil does not underestimate the political challenges implicit in developing and exporting oil and gas from some of the states in question. The UK has an important potential role to play in encouraging such states to adopt outward looking, market oriented economies with business, political and legal systems in place which will facilitate the introduction of the large quantities of foreign direct investment which will be required to develop the oil and gas resources.
- The UK may also have a role in facilitating the evaluation of new transportation links. Market forces, however, should dictate which links are actually built. Where a project is commercially attractive, there will be no need for direct investment by, for example, the EU or other institutions such as EBRD
- The idea of bilateral agreements between the UK and exporting countries runs counter to the free market principles which ExxonMobil believes are the essential underpinning of energy markets, would interfere with the EU single market and require the setting up of new institutional arrangements. ExxonMobil is concerned that bi-lateral negotiations between the UK and potential import sources may be counter-productive as such arrangements may delay the time at which fundamental reforms are initiated to create an attractive business investment climate.

**6. Introducing new taxes on hydrocarbons to fund the development of renewable fuels or to provide subsidies for chosen technologies, risks jeopardising exploitation of indigenous hydrocarbon reserves; increasing external dependency; in the transport sector, where demand is largely inelastic, increasing transport costs - disproportionately affecting lower income groups and consumers in rural areas and impacting the competitiveness of British business.**

- ExxonMobil has concerns over the imposition of new energy taxes, whether on the upstream or downstream. As outlined above, such taxes would likely render the UK upstream uncompetitive while the resultant higher costs on UK businesses as a consequence of higher downstream taxes would also adversely impact their ability to compete in world markets.
- In relation to duties and taxes on road transport fuels, there is a considerable body of evidence to confirm the view that given the relatively low elasticity of demand with respect to price, such taxes are a blunt policy instrument in

terms of achieving environmental and other goals. Several studies have also confirmed that the impact of such taxes falls disproportionately on households with lower incomes -- particularly in rural areas, where the fewest alternatives to the car exist.

- Given that taxation appears to be relatively ineffective at influencing behaviour and often results in adverse consequences for particular groups of consumer, it is reasonable to ask what alternatives exist. A considerable body of research exists to demonstrate that even at today's energy prices, many attractive energy conservation opportunities are not taken up -- particularly in sectors where energy costs are a relatively small proportion of total outgoings. This often reflects the limited availability of capital or management time. More information, better education on the opportunities available, bench-marking and the spreading of best practice are more likely to lead to such energy saving opportunities being taken up. Organisations such as the Rocky Mountain Institute have outlined numerous case studies where the tax system introduces perverse incentives or where markets can be streamlined to induce more desirable outcomes. An example of the former is the reform of company car taxation in the UK to remove the tax incentive to travel in excess of 29,000 kilometers per year. An example of the latter might be using building regulations to overcome the fact that the owner of an office block may pay the capital cost of the heating/cooling system while the operating costs are paid by the tenant. Finally, in terms of energy consumption by individuals (whether in the domestic environment or personal transport use), the key is changing consumer behaviour. As with the business sector, education and awareness are significant drivers of changed behaviour but they can be reinforced by measures such as better labelling of appliances and vehicles and encouragement for 'green' travel plans.
- Biofuels and other renewable should be pursued within the framework of a free energy market based on the principles of sound science and cost effectiveness. In the case of biofuels this means that thorough well-to-wheels analyses are needed to understand the overall energy balance. The amount of conventional fuel displaced by biofuels is reduced by the energy input needed for biofuel production. In some cases this can equal or exceed the energy content of the biofuel. Where such technologies are both cost- and environmentally-effective, they will find their way into the market. Premature or prescriptive advancement of particular fuels or technologies without sound environmental, logistical and economic consideration may lead to regretted actions. At most, the role of government is to facilitate research and development and encourage the development of demonstration projects.
- ExxonMobil believes that artificial barriers to the entry of new technologies should be removed. For example, the subsidy of indigenous coal in power stations damages the prospects for otherwise more desirable sources of electricity generation, including renewables. The adverse impact on Combined Heat and Power (CHP) schemes of the new electricity arrangements and treatment of CHP-generated electricity under the Climate Change Levy have been well documented.
- Though ExxonMobil does not currently see a business case for investing in renewables such as wind and solar power, other companies do. This

suggests they find these technologies economically proven and it is not therefore obvious that the potentially most promising renewable technologies need the kick-start of subsidies and protected market shares. It is also not clear what the 'most promising' technologies might be. We would anticipate significant technological changes over the next 10-20 years will result in rapid changes in the market's assessment of which technologies are promising.

- ExxonMobil is, however, devoting considerable resource to developing more efficient conventional vehicle engines and fuels, new engine technologies such as fuel cells and gas-to-liquids technology. Again, the market is a neutral arbiter among technologies, fostering more rapid and enduring adjustments than government policies can accomplish.

**7. The oil refining industry has made great strides in meeting the growing quality and cleaner fuels product specifications introduced through the Auto-Oil programme. These efforts have dramatically reduced air quality related emissions from road transportation. Tighter UK-specific refined oil specifications would limit the potential to import products. This would reduce the opportunity to offset short-term supply problems through product importation. A financially sound UK refining sector is a major potential contributor to the UK's supply security.**

- It is anticipated that with policies and measures already in place, air quality related (i.e. non-CO<sub>2</sub>) emissions from road transport will in 2010 be some 70-80% lower than in 1990. Further changes in conventional fuels specifications would give only a limited reduction in emissions and a barely measurable improvement in air quality – but would be costly to implement, especially prior to the introduction of new power trains able to take advantage of them. Calls for tighter fuel specifications may be inevitable, but likewise the costs to the public would seem to be increasingly high relative to benefits. Sound public policy requires appropriate weighing of limited resources to pursue all public policy objectives most effectively.
- In addition, such over-prescriptive product specifications could limit the availability of imported fuel suitable to offset short-term supply problems. Imposition of such specifications would therefore directly work against the goal of improved supply security.
- They would also have an indirect impact by increasing the energy required to produce the products in refineries, hence increasing the requirement for crude oil imports (and increasing emissions of greenhouse gases).
- More generally, the availability of refining facilities in the UK allows the import of a multiplicity of different quality crude oils from around the world and their processing into the products the UK market demands. Historically, refining has not been a profitable business and rarely have acceptable returns been earned over recent years. Ill-conceived regulation or onerous environmental or other legislation not justified on cost-effectiveness grounds could further damage the industry and potentially lead to refinery closures. The UK would then become increasingly dependent on imported refined products than crude oil -- a negative for supply security.

**9. ExxonMobil does not share the conclusion that the rapid growth in the use of gas, particularly in power generation, is per se a cause for concern.**

- The Gas Scoping Paper correctly identifies that gas is increasingly becoming the fuel of choice for power generation and space heating applications. EP 68 suggests that by 2020, gas could make up 50% of UK primary energy use and that gas firing might account in the same year for 65-75% of electricity generation. ExxonMobil finds such an analysis entirely plausible and it is one which is shared by many other energy commentators.
- Such a development does not, however, signal a fresh structural weakness or necessarily a matter requiring policy interventions to prevent. As outlined, gas reserves are much less geographically concentrated than oil reserves and some 70% of the world's proven gas reserves lie within currently economic transportation distance of the UK. The 'traditional' suppliers of the Europe's gas imports (the Russian Federation, Algeria and Norway) are being joined by a multiplicity of new suppliers such as Trinidad, Egypt, Nigeria, and Qatar. Other new players, such as Iran and Turkmenistan, seem likely to be competing for access to the European market in the future. Such diversity of supply enhances supply security rather than diminishes it.
- The gas supply infrastructure is growing in breadth and depth of coverage to create a supply and distribution network of enormous flexibility. Technological advances in pipeline technology continue to reduce the costs of building transmission systems both onshore and offshore and allow ever more remote gas reserves to be economically exploited. The development of new LNG liquefaction, shipping and regasification facilities in particular potentially offer enhanced supply flexibility over pipeline systems.
- Long term take or pay contracts, far from constraining the UK and EU gas markets, are key to its development. Large new gas projects are multi-billion Euro commitments, with long lead times. There are often political and legal uncertainties in host and transit countries and the projects involve a complex chain of assets and commercial agreements. In addition, there are the usual uncertainties surrounding the availability of a market, price risk and the risks of payment default.
- To mitigate these risks, the lending community typically requires for non-recourse financing of such projects (a) experienced developers and creditworthy offtakers (b) a joint approach to infrastructure (c) assured long term sales contracts and (d) long term capacity bookings through firm contracts.
- Without 'take or pay' contracts, therefore, there is a considerable doubt as to whether the major gas projects required by the market would be developed.
- Given the need for a long term contract to underpin a major gas project, an indexation formula is required that will compensate for the movement in the underlying level of inflation and/or the price movement of competing products over the life of the contract. Gas contracts have typically contained a large element of oil price indexation in the escalation formula – partly because it is with oil products that natural gas competes and partly because there is a liquid and transparent market in oil/oil products in which both buyer and seller have confidence.

- Other escalation formula are used; gas sold to electrical power plants may well have elements of electricity and coal prices in the escalation formula
- Gas contracts are signed between willing buyers and willing sellers and they will agree on an escalation formula that enables a transaction to take place that is satisfactory to both parties. There is no evidence that such contractual arrangements have had a negative impact on supply security or that any benefit will accrue from government intervention at either local or EU level in these private contractual arrangements.

**10. Gas liberalisation has the potential to underpin short and long term security and diversity of supply by promoting efficient economic signals between gas consumers and suppliers, including the value placed on particular levels of supply continuity. A satisfactory conclusion is not, however, a foregone conclusion.**

- Liberalisation is more likely to enhance supply security where it liberates commercial forces and keeps regulation to a minimum; where it establishes a level playing field for competition; and makes a clear and fair assignment of responsibilities and costs for delivering national security of supply requirements/obligations between the different market participants.
- There need to be free market entry to build, own and operate pipelines sustained by adequate investment returns and incentives which meet both customer and supplier requirements for capacity over the longer term. It is important that where regulators intervene for whatever reason, they do not distort these long term investment signals. There is evidence to suggest that the current 'capacity auction' system at St. Fergus is failing to provide appropriate investment signals.
- It is also essential that there is the opportunity to contract for long- as well as short-term capacity rights in UK gas transportation networks – at prices set by the free market. This would provide assurance to producers in developing new fields and signals to network operators about the need for capacity investment. For both, this could ensure the ability to attract project financing.