Project Discovery
BP's submission to OFGEM
on its consultation: 30th March 2010

Introduction

1. While the document presenting conclusions from 'Project Discovery' covers a range of issues of great significance to the security of UK Energy Supplies, and raises a large number of questions in this context, we propose to restrict our comments to a few crucial issues where BP has both expertise and experience.

2. The document outlines five possible policy packages. Consistent with our support for basically a non-interventionist approach, BP is drawn towards preferring Options B, C, and D, to A (Targeted Reforms) and E (Central Energy Buyer).

3. We do, however, acknowledge the dilemma posed by the reality that UK Energy Policy is now expected to pursue two over-riding objectives – namely Security of UK Energy Supply and the decarbonisation of UK Energy Supplies. A free market can arguably deliver the former, but the substantial carbon price which is necessary to achieve the latter (or, indeed, both) requires a degree of intervention in the market. How much intervention is of course open to debate, depending upon one's view of both market realities, and the practicality of the CO_2 targets themselves.

4. Even so, we would argue that the market has a very good record so far in delivering whatever investment is required in essential areas (a recent example being UK LNG infrastructure), so long as there are no conflicting policy objectives or political obstacles imposed for other social reasons (such as sometimes encountered in planning consents).

Unconventional & Shale Gas

5. It is clear that, for both security and environmental reasons, gas will continue to play a highly significant role in the UK's energy mix, not least because it is the cleanest burning fossil fuel, as well as being extremely efficient, flexible, versatile and well placed to back-up the intermittency of renewable energy. There have been concerns, however, that the role of gas could be too dominant in the foreseeable future for reasons of its availability.

6. In assessing this issue, we consider that 'Project Discovery' has not given sufficient attention to the potential offered by Unconventional Gas which, at least in the United States, is a 'game-changer'. This has important implications for the global gas market as well.

7. This 'revolution' in developing new supplies of gas in North America has occurred in relative obscurity, but is no less significant for that. As little as four or five years ago, the United States of America was expecting to become a major net gas importer merely to satisfy its own existing needs. But technological advances in hydraulic fracturing and horizontal drilling are now being used to access unconventional gas deposits in tight/shale gas formations, as well as coal bed methane. The result is that, while estimates vary, the United States can now confidently assume the existence of between 50 and 100 years' worth of recoverable natural gas.

8. This has one direct consequence for countries such as the UK – namely, that vastly increased US production of unconventional gas will in turn free-up LNG cargoes for the rest of the world. The expected increase in uncontracted LNG cargoes will be free to go to wherever the price mechanism signals the greatest need. This is especially important for Europe, because it addresses the misconception that increased use of natural gas involves greater dependence on a narrow range of gas suppliers. In fact, the opposite is becoming true. The UK is particularly well placed in this connection because the investment which has already been made in UK LNG infrastructure allows us to cope with increased LNG imports.

9. However, it is not just that US unconventional gas relieves the pressure on LNG supplies. The new technologies currently being applied in the United States have only just begun to be applied in the rest of the world. Worldwide and in total, BP estimates that as yet undeveloped or unidentified unconventional gas could contribute a further 4,000 tcf to gas resources, adding another 60 per cent to proven gas reserves – a combined total of approximately one hundred years of consumption at current rates.

10. Gas is increasingly becoming a global commodity – more flexible, more tradable and (given its diversity) more secure than ever in the past. There are now twenty two countries importing LNG, whereas a decade ago there were as few as nine. The movement and nature of the trade is also changing – from traditional point to point cargoes, to multi-basin, multi-point deliveries with increased trade between the Atlantic Basin and Asia-Pacific.

11. This means that the UK needs have little hesitation in accepting the significant role which gas is destined to play in the UK's energy mix – and especially in paving the way to a low carbon future without risks to security of supply. The discovery and exploitation of Shale Gas should also sound a cautionary note for those who see no option other than increased state intervention and planning.

UK Infrastructure

12. The intermittent nature of renewables requires some complementary form of load management to match supply and demand when generation is not available. Over time, the roll out of smart grids, smart meters and smart appliances is expected to contribute via the demand side, but the lead times necessary to replace the appliance stock are likely to be extensive and its effects are as yet uncertain. It is, therefore, unlikely to be sufficient to bridge the gap in the medium term, requiring some additional load-following generation at scale within this time period to provide a balance. Correlation between peak demand and low wind generation at times of low temperatures will also mean that such generation must also be guaranteed to be able to run at peak. It is likely that a substantial proportion of this capacity will be CCGT.

13. However, it is far from certain whether the necessary investment will take place to ensure that adequate plant will be built in the timescales envisaged. The reason for this uncertainty is the risk to investors posed by current energy incentives and subsidies, especially in relation to support given to nuclear and renewables and the distorting effect these can have upon price signals across the board. The assumption appears to be that Renewables, Nuclear and CCS all require some sort of

price support, while the construction of new CCGT capacity will be forthcoming on the basis of market signals alone. As CCGT running times are likely to reduce when the plant is in load-following mode, the fixed investment costs will need to be recovered over relatively few running hours compared to historical base-load plant. The expected level of electricity pricing will therefore need to be high enough during these short periods to justify such investments, creating a level of price volatility that may give rise to political concerns.

14. Similarly, the increased flexibility required of gas supply may require additional investment in storage. Again, if this is expected from market signals alone, a sustained period of increased gas price volatility will be required to justify private investment. The danger is that promoting renewable generation, and inflexible generation such as nuclear, through different forms of financial assistance – but relying on the market for investment in the necessary complementary forms of generation – will create a period of intermittent low reserve margin and supply shortage, with high reliance on price-effects and self interruption to manage system balance in power and gas. While we have confidence that the market will react to these signals, the price levels required may give rise to other social concerns that Ofgem has a duty to consider.

Minimum Carbon Price

15. BP has long accepted that the pricing of carbon is the best and most efficient way over the long term of attracting investment into low and carbon-free energy. Our preference is that this price is established via a broad-based cap and trade system.

16. The concept of a Minimum Carbon Price raises many difficult practical issues. Is it to be done on a national basis (as currently proposed by the Conservative Party Document 'Rebuilding Security') or through EU mechanisms (which many would argue is politically unrealistic)? It does not necessarily avoid uncertainty, because presumably everything to do with the 'floor' will be subject to political review and challenge. Neither is there any guarantee that a minimum carbon price would lead to increased investment, even though a minimum carbon price would further enhance the profitability of *existing* renewable and nuclear generation.

17. There is a suspicion, therefore, that the attractions of a minimum carbon price may in practice prove to be disappointing and no substitute for the reality of a fully-fledged carbon price.

Conclusions

18. Under any conceivable energy scenario, gas will have a central role to play. It is as important, therefore, to ensure that investment takes place in new gas capacity as it is to encourage investment in nuclear, CCS and renewable energy. Especially regarding the latter, gas has an indispensable role in allowing for flexible back-up generation without which investment in renewables could seriously compromise this country's energy security.

19. There is a danger that with all attention and incentives directed towards other forms of energy, the attractions of investing in gas generation required for solely back-up use will be insufficient to attract the necessary investment in time.

20. We have argued that the outlook for global gas supplies is much more resilient than some have assumed up to now. The exploitation of Shale Gas in the United States has undoubtedly changed the outlook dramatically. There is little argument over the need for more gas storage, and this should be one priority for energy policy. The other priority is to ensure that necessary investments in new CCGT capacity are not discouraged through misjudged intervention elsewhere.