Ofgem Project Discovery
Options for delivering secure and sustainable energy supplies

A response on behalf of Shell UK

Shell recognises the need for policy makers to consider which measures best deliver the long term commitment of the UK Government to reduce greenhouse gases by 80% by 2050 while ensuring that secure gas and electricity supplies are maintained in the medium term period over the next 10 to 15 years. Project Discovery raises a range of issues specific to the regulatory landscape as well as wider policy issues. Shell's response covers both areas with a focus on the regulatory aspects that impact on Shell Energy Europe Ltd, which through Shell Gas Direct Limited is a licensed gas shipper and supplier. Our views are summarised below.

The role of gas in the transition to a low carbon economy

- We believe that the Discovery analysis should take better account of the role that gas as a lower carbon fossil fuel can play in the transition to a low carbon economy. As a lower carbon fossil fuel, gas will play a key role as part of the transition to a low carbon economy. Gas is abundantly available. For example, the International Energy Agency has suggested that there is a 'gas glut' that is likely to persist until 2017 and that there is enough technically recoverable gas to supply the world for 250 years at current production levels.
- The UK's Low Carbon Transition Plan relies on rapid development of wind, nuclear and CCS. But these technologies will take time to deploy at scale. As atmospheric CO_2 is a cumulative issue, early reductions are disproportionately important. How much CO_2 has been emitted to date matters as much as meeting a target in any single year and therefore, energy efficiency and fuel switching should be immediate priorities. Shell's energy scenarios team recently produced a potential pathway for gas in the UK which suggested that replacing coal with CCGTs would result in overall emissions from electricity being 24% lower by 2050.
- The UK will be investing in significant levels of renewables but these are intermittent. Until electricity storage technologies are developed and widely deployed, gas fired power stations will provide the best form of flexible back up generation needed to support this high level of renewable electricity.
- One of the easiest and most effective way to reduce CO_2 emissions quickly is to use natural gas to replace coal for generation. In later periods, eg in the 2020s and beyond, the emissions from CCGTs will also need to be addressed: this can be done through implementing CCS for CCGTs. All new build power stations, including gas-fired, now must be built to be CCS-ready for future retrofit.
- Shell's analysis suggests that gas-fired generation with CCS will deliver electricity at about the same price to consumers as coal-fired generation with CCS.

Gas security of supply

- In the recently published DECC/HMT *Energy Market Assessment* notes that the Government's analysis confirms that the risks of the gas market being unable to meet demand are very low. With this in mind, Shell does not share Ofgem's view that increased reliance on gas is an unacceptable risk.
- In the UK the gas industry has invested substantially in the last 10 years to ensure that gas can be delivered to the UK. While there may be concerns about how investment for low carbon electricity can be delivered, as echoed in DECC/HMT's recent Energy Market Assessment, it is clear that the gas market has succeeded in delivering necessary investment in preparation for the transition of the UK to a net gas importer.
- The UK has just experienced the coldest winter is has had in 30 years and the gas market responded well. As National Grid has noted, diversity of supply ensured demand was met. The DECC/HMT energy market assessment also noted the gas market responded without significant increases in prices or any involuntary disruptions to supply.
- Globally, furthermore, the outlook for the supply of gas has changed substantially over the past years with the development of unconventional gas in the USA making it the leading gas producer globally. Unconventional gas is meeting 50% of USA national gas requirements and as a consequence it no longer has a need to import LNG for the foreseeable future.
- Between 2010-2013, global LNG capacity will increase by about 50%. As the *Economist* has recently noted[1] there is no need for any market to be dependent on single sources of gas, and provided that the UK secures diverse supplies concerns over security of supply should be allayed.
- More gas storage would address much of the present anxiety. How much and how to deliver this most cost-effectively are key questions. The market can deliver if it is allowed to but there are obstacles with planning permission and getting a regime that allows for commercially viable offshore gas storage projects.
- A recently published research by Sussex University, commissioned by Greenpeace, concludes that *"the common assumption that imported gas is inherently less secure than UK gas is not supported by the evidence."*[2] Shell shares this view.

In the attached response, we outline our views on why the 'do nothing' scenario with its increased reliance on gas is not unnecessarily risky. Indeed, by providing a route to a low carbon economy, it should decrease the risks associated with not meeting the Government's climate change objectives. We do agree that there may be further steps the regulator could take to improve security of supply - see paragraphs 11 to 13 and 21 in the attached for further detail.

Since Ofgem published its document, the Government has published its Energy Markets Assessment report alongside the Budget. In addition, the Conservative Party has published its own energy policy statement. Shell will be responding to these documents which look at the wider policy areas that may need to be considered to ensure that the UK has secure energy in its transition to a low carbon economy.

[1] 'An unconventional glut", The Economist March 13th 2010
[2] UK Gas Security: Threats and Mitigation Strategies, January 2010, Dr Jim Watson, Director, Sussex Energy Group SPRU – Science and Technology Policy Research, University of Sussex http://www.sussex.ac.uk/sussexenergygroup/documents/gas_security.pdf

Shell's response to the issues raised in the Project Discovery Options

Please find below Shell's views on the issues raised in the Project Discovery consultation.

Chapter 3 Appraisal of current arrangements: The UK Gas Market

Cost and availability of finance

1. The gas market has a successful record in delivering competitive and secure energy supplies, along with significant investment in interconnectors, LNG import terminals and storage facilities. The gas industry has invested substantially in the last 10 years to ensure that gas from a diverse range of sourcses can be delivered to UK customers. Three LNG import terminals have been opened with imports in this past winter coming from Qatar and Trinidad. Our gas import capacity is now around 125% of annual gas consumption – a 500% increase over the past decade.

2. Paragraph 3.13 of the consultation document suggests that investment in storage and smart meters is risky. In relation to storage, the long-term impact of the new offshore licensing regime and treatment of cushion gas has yet to be considered. Additionally, further guidance on the impact of the Third EU Energy Package, eg. the precise nature of either the Open Season requirement or the Negotiated Third Party Access regime would be helpful.

3. Regarding the rollout of smart metering, I&C gas suppliers are already proceeding with the rollout of AMR, in line with their statutory requirements. Suppliers are doing so in order to offer gas business customers more product choice, the ability to help meet their Carbon Reduction Commitment (CRC) obligations and for broader energy consumption reasons.

4. The pace of this rollout would be improved by greater regulatory clarity in a number of related areas, including whether AMR meets the statutory definition of Smart Meters or the extent to which the supporting regulatory framework and structure, eg. the Central Communications Provider, will take into account the specialist needs of the I&C gas sector. In the context of those considerations, we welcome the ongoing willingness of the regulatory authorities to engage in dialogue with the industry.

Market structure

5. Some key indicators would imply the competitive structure of the gas market. The "2010 Oil and Gas UK Activity Survey" published by Oil and Gas UK (OGUK) in February this year reported that investment in the UKCS in 2009 totalled £4.7bn. Additionally, over the last decade there has been significant in infrastructure such as the IUK & BBL interconnectors and the Langeled pipeline, which provide further interconnection with nearby markets, along with the Isle of Grain, South Hook and Dragon LNG import terminals, which give us access to the world LNG market. Our import capacity level compares favourably with overall demand levels.

6. Several on-shore storage facilities have also been built, while others are planned. In terms of seasonal storage, welcome regulatory developments in relation to the planning and licensing regime could be expected to help further investment.

7. Providing that there is a stable regulatory and investment climate, along with an acknowledgment of the need for a flexible approach to Third Party Access Exemption applications and Long Term Contracts, we believe that the current market arrangements in gas will continue to deliver investment and enhance security of supply.

8. With regards to the specific issue of storage, the licensing regime for offshore natural gas storage projects was only provided for in the 2008 Energy Act. Prior to this the regime for consent was unclear. This development, along with the National Planning Statements and Infrastructure Planning Commission to help streamline and simplify the onshore and offshore planning regime, could be expected to help bring forward further storage projects. The impacts of these changes should be reviewed before further regulatory intervention is considered. However, the nature of the National Transmission System (NTS) entry capacity regime, eg. capacity substitution, could be expected to have a debilitating impact on storage development and we expect Ofgem would want to address this possibility.

9. If there remains a view that the need for storage is over and above the level which the market will deliver with a clear regulatory and licensing regime, it will be important to address issues of funding and the potential impact on the commercial viability of existing and future storage facilities. Regarding the issue of a 'storage obligation' as a funding mechanism, the most appropriate route would appear to be via the TSO booking storage on commercial terms. The use of this storage should be limited to ex-ante specific instances to help guard against distorting the markets for the use of commercially booked storage or demand-side response. Additionally, costs should be recovered from market sectors that benefit from such a storage service. For example, where market participants can access the wholesale markets or offer turndown, it would be inappropriate for them to face such storage costs.

10. In the context of the above, we do not believe that the structure of the gas market is fundamentally unsound. Shell would support moves aimed at identifying improvements to the current arrangements. However, any changes are likely to be incremental rather than fundamental as we consider that the current gas market structure is well placed to continue delivering in the areas mentioned above.

11. With regards to the Code Governance Review, we understand the aim was to give effect to wholesale change. An alternative way forward may have been the introduction of Major Policy Reviews within the scope of the present arrangements, backed up by the use of the licence amendment route. This route would also have enabled the introduction of wholesale or strategic change.

Issues with the current market rules

12. The description of the volume of lost load suggests that there is no static emergency cash-out price and that prices should be allowed to rise to levels at which they exceed the value customers place on supply. This description implies market based prices even in an emergency where command-and-control is also operating. Given the increasing role for imported gas such as LNG for which there is an international market, allowing the 'emergency' cash-out mechanism to function in this way may have merit. Any sharper or higher cash-out prices, however, should not differentiate between different sources of gas, ie. gas which can be mandated to flow should attract the same prices.

13. It may be appropriate to consider any review of the current emergency cash-out regime as part of a broader review of the emergency arrangements. Such a review could allow for a

more holistic approach that included a number of related areas, eg. the removal of zero reserve prices for day-ahead system entry capacity, the current credit rules or the nature of equivalent cash-out arrangements in neighbouring markets.

14. Any review should also encompass the question of the maintainence of accurate emergency contact details; such information can be crucial in helping get load off the network speedily and efficiently. While the current responsibility rests with shippers, there may be merit in considering whether the current arrangements preclude a role for the TSO.

Enabling demand-side response and distributed generation

15. We would welcome recognition of active Demand Side Response (DSR) in the I&C gas market. The respective timetables for the rollout of AMR and Smart Meters respectively mean that the industrial and commercial sector will be a crucial source of DSR.

16. In that regard, Shell looks forward to continuing working with Ofgem on developing an appropriate regulatory framework for the rollout of AMR to the I&C sector to allow for:

    a) a growth in the numbers of I&C customers who could offer DSR;

    b) the I&C sector to reduce energy consumption; and

    c) I&C customers to meet their obligations under the Carbon Reduction Commitment.

Risk Management

17. We agree that a well functioning market is an important component of assuring security of supply especially in shorter time frames – i.e. once infrastructure to receive and distribute supplies has been built and is operating. What is also required is a supportive gas policy from Government and the regulator to help continue attracting future investments in gas infrastructure.

Costs to consumers

18. We agree with Ofgem that any policy or system of regulation should minimise the risk of prices being greater than necessary, which would "impact on the international competitiveness of GB's energy intensive industries" or "particularly affect those on low incomes and in fuel poverty". Policy packages need to include analysis of the future costs of UK and EU regulation such as the RHI, CRC EES, CCS levy and EU ETS Phase III and the issue of international competiveness, along with policies that ensure the continued functioning of the wholesale gas market to enable consumers to benefit from a competitive, secure and clean fuel source.

Interaction with interconnected markets

19. We agree that the impact of diverging arrangements in relation to Public Service Obligations (PSOs) may be undesirable While in broad terms we support moves aimed at reducing the use of such mechanisms that may otherwise limit the extent to which storage flows respond to price signals, we are conscious of the fact that market specific requirements may be a factor to consider. Access by GB players to firm supply from continental storage can help the market to maintain adequate short notice supply security, as can commercial storage

investment within GB.

20. According to DECC's Energy Markets Outlook, there are 19 gas storage projects at various stages of development in the UK. National Grid's Base Case in their 2009 TBE document rightly assumes that not all storage proposals will go ahead and delivery dates will slip. However, the Base Case expects the UK to be able to store about 12% of its expected annual demand by 2020/21. This will meet just over 70% of expected peak daily supply from stored supply. If all storage proposals were to go ahead, the maximum storage deliverability would increase from 120mcm/day to above 600mcm/day.

21. This market based approach to storage can also help mitigate concerns regarding the impact of the costs of overbuild on consumers. Under such an approach, it will be investors not consumers who face the risk of inefficient investment.

22. Regarding the issue of gas quality, given the scale of investment set against the probability of gas flow curtailment, we would support a role for the TSO in the construction of gas ballasting facilities as the most practical means of ensuring the required investment. We would advocate that such an activity should be price control funded, with subsequent costs levied at affected system entry points to help guard against cross-subsidies from unaffected entry points.

Chapter 4: Possible Policy Response – The UK Electricity Market

23. In this section, Shell outlines its initial views on the issues raised regarding the need to ensure low carbon electricity investment is secured. Shell's interests are as a consumer of electricity, a participant in the EU ETS, and our involvement in CCS developments. In the UK, Shell is a partner to the ScottishPower Longannet post-combustion project as well as being a technology provide to the RWE Aberthaw CCS pilot project and Powerfuel's Hatfield CCS project[3].

24. Shell has used the insights it has from its Energy Scenarios work to look at the role gas can play in the UK's transition to a low carbon economy. The detail has been shared with the DECC Pathways 2050 team. In summary, our analysis demonstrates that the increasing use of gas in place of coal for generation will not only reduce the overall level of CO_2 in the atmosphere but can also provide an important partner to increasing wind generation as gas can provide the essential back-up capacity needed to support intermittent generation.

25. We note that the DECC/HMT Energy Market Assessment suggests that a floor price for the EU ETS would not deliver the desired outcome. Shell agrees with this analysis and will consider further at the analysis provided by DECC/HMT and suggestions on how to address these issues.

26. Shell remains of the view that the carbon price should be the main driver for commercial deployment of low carbon technologies, including low carbon electricity. We do not support the introduction of a floor price as a support mechanism as it would distort the EU ETS, undermine its workings, lead to unintended consequences for non-power participants, and reduce the potential for linking with other emissions trading schemes around the world as they develop. Support to accelerate the development of low carbon technologies, including demonstration programmes, should be additional to carbon markets and not undertaken by

[3] Details on this project were provided in Shell's response to Ofgem's earlier Project Discovery consultation.

interfering with the carbon market. The EU ETS, like other carbon markets, should be seen as a mechanism for the deployment of commercially available low carbon technologies.

27. We note Ofgem's comments in paragraph 4.25 about the future of the carbon price and its impact on incentivising low carbon electricity but do not consider this reflects how the carbon markets work and its future. The EU ETS covers a broad range of industries: around 50% is the electricity industry and the rest a range of industries including steel, chemicals, cement etc. The non-power sectors' abatement opportunities are fewer and it could be expected that, at the margin, the cost of abatement in these industries will increasingly set the carbon price. For Phase III of the EU ETS, the 20% reduction target means that the overall cap will reduce at 1.74% per annum. For phases IV and V and beyond, we would expect much more stringent reductions so that the EU (and the UK) can reduce greenhouse gas emissions in line with the Copenhagen Commitment of keeping global temperature rises at no more than 2°C. The pass-through of the carbon price in electricity may reduce over time as electricity becomes decarbonised, but the signal for decarbonisation will remain and, if anything, will become stronger.

Conclusion

28. Gas can play a key role in the transition to a low carbon economy. The UK gas market is robust, worked well over the past winter and has access to diverse and plentiful sources of gas. The focus in taking forward changes in the regulatory regime should be on incremental improvements, not wholesale change.

29. Since Ofgem published its document, the Government has published its Energy Markets Assessment report alongside the Budget. In addition, the Conservative Party has published its own energy policy statement. Shell will be responding to these documents which look at the wider policy areas that may need to be considered to ensure that the UK has secure energy in its transition to a low carbon economy.

We would welcome the opportunity to discuss the issues raised in this document with Ofgem further. For general issues, please contact Tanya Morrison. For specific regulatory issues, please contact Amrik Bal.

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Attachment 1: Response to the specific questions raised in the Project Discovery document

CHAPTER 1: Introduction
There are no questions associated with this chapter.

CHAPTER 2: The Challenge
There are no questions associated with this chapter.

CHAPTER 3: Appraisal of current arrangements

Question 1: Do you agree with our assessment of the current arrangements?

No. Shell does not support Ofgem's view that increased dependence on gas imports is a 'key risk'. The introductory section to this response on 'Gas security of supply' page 2 provides a detailed outline of our views in this area. Shell also does not support the view that increased use of CCGTs could increase the costs of future decarbonisation. Instead, Shell considers that such an approach could reduce the costs of the transition by providing reductions in emissions in the short term along with potential further reductions through the use of CCS for gas fired generation. The introductory section on "The role of gas in the transition to a low carbon economy" should be reviewed when analysing the response to the question.

Question 2: Are there other aspects of the current arrangements which could have a negative impact on secure and sustainable energy supplies, or costs to customers?

As set out above, Shell does not agree that the current arrangements necessarily have a negative impact on secure and sustainable energy supplies, nor costs to consumers.

Question 3: Do you agree that the five issues we have highlighted are the most important?

No. See paragraph 26 for our view on the role of the carbon market. The carbon market's role is to provide a market for deployment of low carbon technologies, measures to accelerate the development of such technologies should be taken forward with separate policy measures not through intervention in the carbon market.

Question 4: Do you have any comments on our description of what might happen if no changes are made to the current arrangements?

As noted in response to Question 1, Shell does not support Ofgem's view that increased dependence on gas imports is a 'key risk'. The introductory section to this response on 'Gas security of supply' page 2 provides a detailed outline of our views in this area. Shell also does not support the view that increased use of CCGTs could increase the costs of future decarbonisation. Instead, Shell considers that such an approach could reduce the costs of the transition by providing reductions in emissions in the short term along with potential further reductions through the use of CCS for gas fired generation.

CHAPTER 4: Possible policy responses

Question 5: Do you believe that our policy packages cover a sufficient range of possible policy measures?

We have not reviewed the policy packages in detail given that we do not support Ofgem's views on the impact of increased reliance on gas for power generation.

We do agree that there may be further steps the regulator could take to improve security of supply in the gas market, on the emergency arrangements and to support development of gas storage projects - see paragraphs 11 to 13 and 21 in the attached for further detail.

Question 6: Do you have suggestions for variants to these policy packages?

No.

Question 7: What other policy measures do you believe should be considered, and why?

Since publication of Ofgem's Project Discovery paper, the Government has published its Energy Market Assessment report which outlines a range of policy measures that can be undertaken. We will engage with DECC on the issues raised in its document.

CHAPTER 5 : Assessment of the five packages.

Question 8: Do you agree with the assessment criteria that we have used to evaluate the policy packages?

The criteria themselves seem appropriate. However, as we have not addressed the five packages, we cannot respond further to the questions raised. We will consider these issues further in the context of the publication of the Government's Energy Markets Assessment.

Question 9: Do you have any comments on our initial assessment of each of the packages?

No. We consider that Ofgem has not sufficiently taken account of the benefits that gas can bring to making the transition to a low carbon economy in its analysis of implications if changes are not made. For example, Ofgem has not taken account of plentiful sources of gas now available on global markets.

Question 10: Do you agree with our summary of the key benefits and key risks of each policy package?

Shell has not commented in detail on the policy packages as we do not support the analysis made by Ofgem regarding the risks with continuing reliance on gas for power generation.

Question 11: Do you have a view on which package is preferable, or alternative policy measures or packages that you would advocate? We are particularly interested any analysis you may have to support your views.

No. See responses to questions above.