Ofgem Project Discovery

A response by Shell UK

Shell welcomes the Ofgem's Project Discovery Energy Market scenarios publication. Ofgem's use of scenarios is a welcome development, allowing the consideration of a range of potential pathways for the UK gas and electricity markets. Shell has long used scenarios in its planning, most recently publishing the *Shell Energy Scenarios to 2050*.

Our principal observations are:

- The Project Discovery analysis shows pathways that can develop in the UK based on four scenarios based on economic and environmental drivers. This provides a robust approach to considering future UK gas and electricity market developments. However, the drivers appear to be based on UK specifics, and this raises questions about their global applicability.

- The role of gas should be considered in the context of the UK's transition to a low carbon economy. Gas has the lowest CO_2 footprint of all the fossil fuels when combusted, and will continue to be used for energy services in the decades to come. Ofgem's new duties on climate change should mean that it needs also to consider the impact on CO_2 emissions when considering next steps including proposed regulatory changes.

- Ofgem's analysis should take into account other factors which can impact the gas market in future including:

    - The potential for unconventional gas in Europe. There is exploration already underway and its use in the USA has transformed that market over just five years.

    - The flexibility that generators have when they build CCGTs on choice of future fuels. Newly built CCGTs can be developed so that they can switch to Integrated Gasification Combined Cycle (IGCC) power stations using gasified coal. The proposed Powerfuel project in Hatfield is an example of this.

- The diversity of sources of UK gas supplies enhances its security of supply. There are several gas storage projects in development which further underpin this. Ofgem may want to consider whether the regulatory regime sufficiently supports this activity. However, while analysis arising from Project Discovery may lead to proposals for changes to the regulatory environment, Ofgem should be careful to ensure that continual regulatory changes do not increase regulatory, and therefore project risk. A principal aim of the regulatory regime should be to provide certainty to attract gas supplies to the UK: a simple approach is preferred over complex ones for accessing the pipeline system.

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

Chapter 2: Approaches and Assumptions

Scenarios

1. Shell supports Ofgem's decision to adopt a scenario approach to allow it to consider the possible alternative views of the future. Shell has been using scenarios for almost 40 years. We use scenarios to explore possible developments in the future and to test our strategies against those potential developments.

2. Our most recent *Shell Energy Scenarios to 2050*[1] looks at two possible futures for energy out to 2050. There are a number of common factors in the Shell and Project Discovery approaches. In the first scenario –Scramble – policy makers focus on security of supply and not enough on energy efficiency until supplies are tight; nor on climate policy, until there are major climate shocks. In the second scenario - Blueprints - growing local action along with the widespread introduction of carbon pricing leads to the development of clean energy technologies and energy efficiency measures. Blueprints leads to lower carbon emissions than Scramble. Shell's view is that the Blueprints approach provides a better framework for moving towards a sustainable future. To enable a Blueprints approach, Shell is investing in increased energy efficiency, building capacity in CCS, continuing research and development into low carbon technologies and developing lower carbon sources of energy, including natural gas.

Ofgem's scenarios

3. Ofgem's approach to scenarios is well described and provides a good framework for considering potential outcomes of the interplays between climate policies and economic outlooks. The storylines which build on what we see today are a good approach. The transparency of the assumptions on UK fundamentals that underlie the scenarios is particularly welcome.

4. The set of key UK drivers underpinning Ofgem's four scenarios appear to be good ones in terms of assessing future UK demand. However, we are not as convinced that the drivers that Ofgem sets out can be, or should be, used for global energy supply/demand scenarios, for example in Figures 2.1, 3.2 and 3.3. It is plausible, or even likely, that the rest of the world will have very different growth rates and respond differently to environmental concerns. Shell's scenarios, along with those done by others eg CERA, reflect this in terms of co-ordinated joint responses and a bilateral patchwork approach. Ofgem should consider using other global scenarios, such as those developed by the IEA, for analysis beyond the UK and Europe.

5. On the specifics of the scenarios' application to global markets, we have a number of concerns:

[1] Details on Shell energy scenarios to 2050 including a downloadable pdf are available on ://www.shell.com/home/content/aboutshell/our_strategy/shell_global_scenarios/shell_energy_scenarios_2050/shell_energy_scenarios_02042008.html. There is also guidance available on scenario development.

- Both of Ofgem's greener scenarios assume a global agreement on climate change but there is a range of possible outcomes, including different approaches adopted by individual countries or regions, that should also be considered.

- In the Green Transition scenario, it is not clear why there would be tighter LNG supply or why there is a medium response in terms of pipeline gas. If gas prices are high, as the scenario indicates, then the market will respond to this as has been demonstrated in the past.

- In the overview of the UK scenarios, the Dash for Energy scenario includes barriers to new storage developments eg through planning delays. However, this could apply equally to all the scenarios. In a scenario where concerns about security of supply dominate, one would expect that governments would be most focused on ensuring that new gas storage investment could be delivered. The Dash for Energy scenario should reflect a plausible view of a future scenario, not a "worst case", as this is covered in the section of stress tests.

- Furthermore, we note that the range of potential outcomes over the next 10 to 15 years varies quite widely, eg a reduction of 20% in gas demand in the scenarios with higher levels of environmental action versus an expansion of growth of 20% plus in the scenarios with slower environmental action. This range of possible outcomes seems very high given the reality of how quickly capital stock turns over, rates of investment and other factors.

CO_2 Targets

6. Ofgem's scenarios provide some information on the CO_2 impacts in the gas and electricity markets. It would be useful to have an understanding of what this implies for the UK's CO_2 targets. The Ofgem scenario analysis does not explicitly examine the role that gas might play to meet climate change objectives in the transition to a low carbon economy. It will be important that new regulations or policies that Ofgem introduce as a result of this analysis, especially given Ofgem's new duties on climate change. The role of gas in meeting climate objectives is well understood as reflected in recent report for WWF, *Climate Solutions 2: Low carbon Re-industrialisation*[2]

   In the short-term (particularly prior to the effective operation of CCS), an increase in the use of natural gas as a "transition fuel" can play a significant part in avoiding the locking in of higher emissions from coal, thereby buying more development time for other energy solutions to grow. While this is more applicable in some countries than others, gas would have to be scaled up in the short-term (where it can enable the avoidance of coal use), without bringing about negative biodiversity impacts.
   If used with CCS technology, the carbon emissions from natural gas will be further reduced. In this way, natural gas can act as a bridging fuel for important applications, provided that energy security issues can be resolved. In this report, it has been assumed that, within the residual emissions block, natural gas usage follows the business-as-usual production forecasts until all proven reserves are essentially depleted by 2050. So while the overall share of energy generated by fossil fuels decreases as renewable energy sources take a greater share of energy generation, the amount of energy generated by natural gas initially continues to increase.

[2] http://assets.wwf.org.uk/downloads/climate_solutions_2_full_report.pdf

Measures of security of supply

7. We note from within the definition of gas security of supply in Box 1 it is stated that *'Security of supply concerns may be more acute where high utilisation of gas infrastructure is required to meet demand (particularly imports through interconnectors, the flows through which are dependent on Continental markets) since the system is less resilient to shocks.'* It can equally be argued that utilisation of gas infrastructure like interconnectors could improve security of supply concerns given that this provides access to greater to a range of gas supplies. The UK can be seen as being at the head of the European gas pipeline system, rather than the tail, as it develops as a focal point for LNG imports into Europe. The UK gas market is well accounted for in terms of gas infrastructure, having already developed substantial gas import capacity to support the need for a growing level of imported supply. Some 120 bcm/y of import capacity (incl. 50 bcm/y LNG regas capacity) has been developed in a short time frame (2005-2010) for a total market size of ~100 bcm/y. This new capacity has brought on an excess of capacity both seasonally and annually, as well as adding to UK supply diversity.

8. In addition, it is not clear why Ofgem considers high utilisation rates to cause concern on security of supply. If this were a concern , this would suggest that the NTS should be sized to have excess capacity; this has not been the approach of successive price controls which have made the NTS tighter.

LNG – flexible and major contributor to security of supply

9. We agree with Ofgem's identification of the role of LNG in providing swing gas, as this recognises its ability to respond to price signals. LNG will provide an important source of flexible supply to the UK market, as well as enhancing security of supply. The industry has made significant investments in infrastructure including new regasification capacity. This will allow the UK to access the world LNG market, giving the UK significant flexibility to respond to any demand changes and bypass potential infrastructure problems.

10. The UK also has access to the BBL and Interconnector which can provide short term swing gas. Through the interconnectors UK will have access to the possible future expansion of the Zeebrugge regas terminal and the Gate regas terminal currently under construction. The Netherlands has significant supply flexibility to which the UK has access eg the Groningen field and the new 4 bcm Bergemeer storage facility for which a final investment decision has now been made.

11. In summary, the measure of gas security of supply outlined by Ofgem require further analysis. We accept that defining adequate security of supply is difficult and open to interpretation, but any measure used for assessing security of supply should be objective and evidence based.

Chapter 3: Scenario Analysis

Security of supply – gas

UKCS

12. We note that Ofgem's analysis assumes a similar level of gas supplied from the UKCS in each scenario. To meet or even exceed these levels of production, it is important to ensure that we make the best use of the remaining gas reserves available to enhance UK security of supply. It is crucial that the need for adequate investment in the UKCS is seen against the backdrop of global competition for investment funding.

13. Government and regulators must recognise the requirement for a stable fiscal and regulatory environment, and understand that additional costs imposed on the UK's upstream industry, either directly or indirectly will impact future investment decisions.

14. First, it is important that the fiscal regime for offshore oil and gas production works to maximizes life of the North Sea. In particular it needs to incentivise incremental production from existing fields, where much of the remaining potential production lies, and from small and difficult fields. Measures in 2009 Budget were a good start, but more is needed in this area.

15. Second, there is a real risk of a faster decline in UKCS gas production which should be considered. For example, there is the risk that "carbon leakage" will occur with investment in upstream production moving elsewhere. In particular, we would draw attention to the significant impact of the issue of the allocation of allowances in Phase III of the European Union Emissions Trading Scheme (EU ETS). Shell is a strong advocate of both cap and trade as a means of cost-efficiently reducing CO_2 emissions and the EU ETS. However, there is not yet a global climate deal to stimulate the rollout of parallel schemes around the world; and ongoing discussions with the European Commission to benchmark the award of free allowances will mitigate only a diminishingly small proportion. Under Phase III of the EU ETS, free allocation will not be available for offshore generation, which represents approximately 50% of offshore emissions.

16. UKCS players, therefore, face additional costs running into billions of dollars. In the absence of a comprehensive rollout of parallel CO_2 pricing schemes, the UK may be disadvantaged against other provinces for further investment. The recovery of otherwise economic indigenous reserves of oil and gas would therefore be at risk.

EU gas supplies

17. Ofgem's analysis of supplies to Europe and the UK does not appear to take into account the potential for unconventional gas in Europe to be developed. Experience in the USA suggests that developing unconventional sources of gas can have significant impacts in a relatively short period of time. Unconventional gas includes shale (tight) gas, coal-bed methane, shallow gas and gas hydrates. Estimates of the potential of unconventional gas for Europe range but conservative estimates suggest that at least 1.2 trillion cubic meters (tcm) of coal bed methane could be made available and a further 1.0 tcm of tight gas. Exploration is already under way in the UK, Germany, Poland, France and elsewhere. In a Dash for Energy scenario, one would expect that these projects would be taken forward to respond to price signals.

18. The UK's increased dependence on imports will mean importing gas through the interconnectors which connect to the continent's gas pipeline system to access originating elsewhere in the EU or being transported through it. Measures to improve the gas interconnectedness of the EU gas transmission system, particularly interoperability should be a key priority. Speedy and comprehensive implementation of the 3rd Package in all EU Member States should be a priority. An increase in European interconnectivity and access to European storage capacity will enhance both competition and Security of Supply in all parts of the EU, including UK. We welcome Ofgem's continuing efforts to promote this at the EU level.

19. The IEA in its recent World Energy Outlook projected that gas demand is going to increase by 42% in the period to 2030. UK gas demand will remain strong in the transition period towards a low carbon economy with continuing use for heating, power generation (potentially with CCS) and industry. In addition, the UK's LNG import infrastructure is likely to make the UK a key destination for LNG cargoes, with the potential for some of this gas to be transported through the grid and interconnectors to other EU markets.

20. Given this, it is important to ensure that the role of gas in the UK's transitional energy mix is not 'talked down'. Producers need security of demand as much as the UK needs security of supply. Producer nations will seek to strike long-term contract with consumer countries to underwrite the massive capital investment required to meet the growing gas demand. If there is the perception that the UK will not provide a secure market, there is the risk that producing nations will seek this elsewhere.

Global LNG supply, demand and liquefaction capacity

21. We agree that the growth of unconventional gas in the USA will mean that more LNG will be available for the EU markets. We note that Trinidad LNG is being diverted to the EU and elsewhere already. It is not clear how factors in the Ofgem's UK scenarios would change the USA's demand for LNG; we would expect this effect to be consistent for all the scenarios.

22. In general, there is a tendency in the scenario approach, to ascribe features specific to the UK and/or to the EU, to global LNG demand, liquefaction and terminal utilisation. Shell's analysis suggests that different regions in the world will experience different economic growth rates over the next 15 years, with some areas coming out of recession earlier than others. In addition, we would expect different governments to implement climate policies at different times and have varying approaches. This will result in a much more variable picture between regions and countries.

23. The analysis as set out in Figures 3.2 and 3.3 is a case in point. Many decisions about investment in new liquefaction plants are being made now (as evidenced by recent decision by the Chevron-led consortium, in which Shell is a partner, to invest in the Gorgon LNG project[3]). It is not clear why Ofgem considers that there will be more global LNG production in some scenarios rather than others and more information about the assumptions behind this modelling should be made available. Shell's global energy model, which underlies the Global Energy Scenarios, shows a much smaller difference in global gas demand between

[3] See Shell press release 14 September 2009:
http://www.shell.com/home/content/media/news_and_library/press_releases/2009/fid_gorgon_lng_14092009.html

Blueprints and Scramble in 2020 and 2030[4]. Specifically, Ofgem's Dash for Energy scenario suggests a significant increase in global LNG supply but it is not clear what projects Ofgem has identified which will deliver this supply. All the liquefaction plants that are existing or are have funding to be built will deliver around 400 bcm by 2015. There are a number of further projects in development that could increase this by around 50% but it is not clear how the level of expansion that Ofgem suggests in the Dash for Energy scenario in Figure 3.3 would be delivered over the next 10 years.

GB severe winter gas supplies

24. Security of supply measures for gas usually focus on 1-in-50 winters or 1-in-20 peak days. This analysis focuses on 1-in-20 peak winters. It would be useful to know why Ofgem has chosen this metric.

25. Ofgem's analysis suggests different outcomes for GB winter gas supplies during a 1-in-20 winter. The potential for a 1-in-20 winter to occur over this time horizon is clear, but the figures in this section do not make it clear that the impacts would be discrete, ie not impacting several years in a row given that the 1-in-20 winter is, by definition, a rare occurrence. It is, therefore, not clear why there are continuous lines covering the 2000 to 2020 time period. It could be inferred from the figures shown, eg on Figure 3.6, that there could be significant interruption several years in a row which is in fact highly unlikely.

26. Another aspect of the supply forecasts covered in this section where further clarification would be helpful relates to the changes Ofgem has made recently, or proposes to make, to the capacity regime:

    - For the NTS entry regime, Ofgem's proposals for National Transmission System (NTS) entry capacity substitution will increase uncertainty for those who want to bring gas into the UK. In particular, there could be concerns that such a policy would not encourage short-term LNG and pipeline flows on a peak day, exactly when they are required. These proposals could also discourage development of marginal UKCS gas fields.

    - Ofgem has implemented a "universal firm" exit capacity regime in recent years at both NTS and Distribution Network (DN) levels. This has resulted in less transportation-only interruptible capacity availability than was available before its changes were implemented. A consequence of this is that the system operator will need to move earlier to interrupting firm customers in an emergency than before.

27. Ofgem states that *"... the greater risk of having an insufficient supply of gas to last through a severe winter, than meeting demand on a peak day."* Shell continues to be of the view that the market should be allowed to provide the necessary flexibility tools for security of supply. In the next stage of Project Discovery, if Ofgem considers that additional security is required, there may be merit in considering the reintroduction of a mechanism similar to top-up, with the costs of this mechanism appropriately targeted at the market sectors protected by such a policy. Another approach Ofgem could consider is the Dutch model, where a Public Service Obligation is given to the TSO which in turn contracts for the necessary flexibility services to

[4] Specifically, gas demand in 2020 is 133 EJ pa under Scramble and 139 EJ under Blueprints; in 2030 the figures are 134 and 143 respectively.

meet that obligation at commercial terms in the market. This approach that the overriding market arrangements are not hindered.

28. Ofgem may also want to explore whether regulatory uncertainty is having a negative impact on the speed of development of offshore gas storage projects. There has been welcome progress in clarifying the off-shore licensing regime and the need to hold an Open Season, as required by the 3rd Energy Package. There has been less progress in clarifying the timing of an Open Season in relation to a TPA Exemption application and the nature of the Negotiated Third Party Access (NPTA) regime. We urge Ofgem to address these issues soon.

29. The regulatory approach to gas quality issues also needs to be considered in terms of perceptions of regulatory risk and impact on the attractiveness of the UK for gas deliveries. Ofgem has only recently started to look again at these issues and we urge Ofgem to consider the impact of any proposals on the Project Discovery objectives.

30. The document considers the use of demand-side response (DSR) to help balance supply and demand in each scenario. DSR can also enhance security of supply particularly by customers in the Industrial and Commercial (I&C) sector. In developing regulatory responses, Ofgem should consider how it can facilitate the speedy rollout the role that Automatic Meter Reading (AMR), the preferred metering option of the I&C market. The rollout of AMR should be relatively straightforward as long as it does not become entangled with the rollout of smart metering (preferred in the domestic sector) in the context of necessary supporting industry arrangements, eg the timely implementation of Project Nexus, ie the replacement of xoserve's IT systems.

Security of supply – electricity

31. CCS has significant potential to contribute to the UK's CO_2 reduction targets while providing back up generation for more intermittent renewable generation and flexibility to generators. Shell is committed to developing capacity in CCS. We were pleased to announce this summer that we have joined the Scottish Power Longannet consortium developing a post-combustion CCS demonstration project. If this project, which is one of the two remaining candidates in the UK competition, goes ahead Shell will be providing the offshore transport and CO_2 storage.

32. We concur with Ofgem's view that there could be a significant increase in CCGT capacity in GB in the medium term. We note that National Grid and other commentators have come to similar conclusions. Gas has the lowest CO_2 emissions from combustion of all the fossil fuels and its increased use for power generation, was a principal contributor to the UK meeting its greenhouse gas reduction targets under the Kyoto Protocol. Its continuing use will help in the transition to a low carbon economy. In the Project Discovery analysis, Ofgem should give much greater attention to level of optionality available to generators when making investments, including where they make initial investments in CCGTs. An important contribution to optionality in fuel types and flexibility is the gas to coal generation plus CCS pathway. More details on this pathway are provided in Annex 1.

33. In addition to the potential for this pathway, there is also the potential for CCGTs to be retrofitted with post-combustion CCS technologies[5].

34. If Ofgem would like to explore the CCGT to IGCC&CCS pathway further, we'd be pleased to come in and provide a further detailed briefing.

Chapter 4: Stress tests

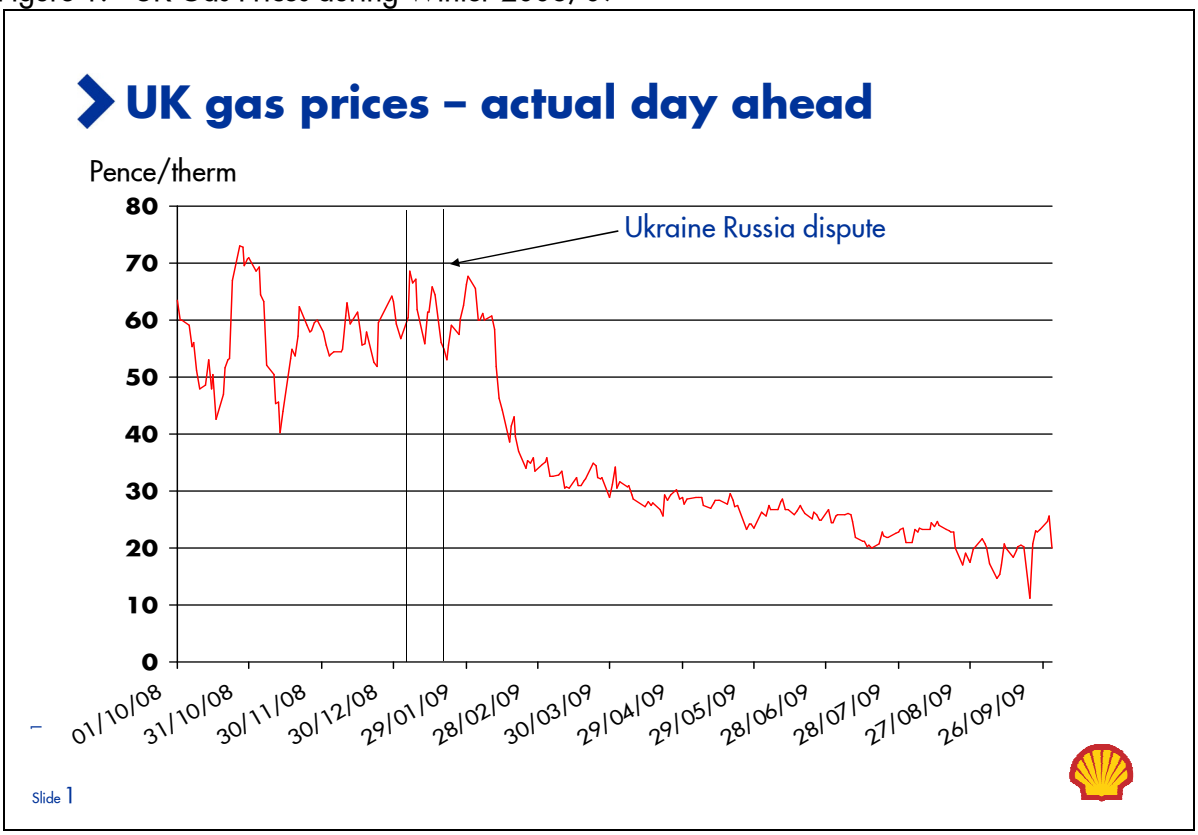
35. We have discussed above that Ofgem's analysis does not make it clear that its analysis under the stress tests show discrete events. That is, it is not likely that there will be several 1 in 20 winters over this time period. It may be that there will be more than one and/or that a couple of cold winters could occur in sequence it appears to us unnecessarily alarmist to suggest that interruption would occur over several sequential winters. In this respect, several of the figures, eg Figure 4.4 could result in an unnecessarily alarmist interpretation.

36. It is not clear from the figures what is being referred to as "gas interruptible I&C". During the winter of 2005/06, there was a significant amount of demand side response in the I&C sector. This was, in part, a response to the Gas Balancing Alert (GBA) which had been developed that year as a signal to customers that DSR is required (it should be noted that there were two NISMs – notice of insufficient margin - in the electricity market during the same winter). It was not necessarily the case that all the DSR was from customers on transportation interruptible contracts. Much of this DSR was voluntary and part of a response to market signals.[6] It would be more useful to make clear what DSR is and what is potential involuntary interruption in future analyses. While there was a requirement for some demand side response in the UK in 2005/6, some of the underlying issues that caused this have since been addressed or are in the process of being addressed. These include increases in pipeline import capacity which GTE expects to increase by 6% by 2018. LNG import capacity is expected to increase by 33% in the same period. This will mean it will become easier for the UK to access European gas and import from other sources if required.

[5] The principal CCS technology for gas under development has an amine based solvent (MEA) post-combustion Carbon Capture (CC) system added to capture CO_2 from the flue gas. Another potential post combustion technology for CCGTs uses chilled ammonia.

[6] Although we believe that there was some involuntary transportation interruption, eg in Scotland.

Figure 1: UK Gas Prices during Winter 2008/09



37. We note that the Ofgem's figures show no demand curtailment last winter when there was a Russia-Ukraine dispute. Russia supplies a relatively small proportion of gas to the UK market and our analysis suggests that this is unlikely to rise above 5% of overall demand by 2020. It is possible for there to be price impacts if there is such a disruption but as we know from last winter, such gas disruptions along with exports from the UK, do not do not necessarily cause UK gas prices to peak. This is illustrated in the figure above which shows no discernable price impact during the dispute.

38. Similarly, although there were media reports that there was little gas in store later in that Gas Year, indications from the market suggest that there was little cause for concern. Indeed, the fact that the colder than normal conditions and corresponding high demand was met without IUK imports is testimony to the strong performance by "new" supply sources in particular Norwegian and Dutch deliveries.

39. The diversity of gas supply sources to the UK should mitigate the risk associated with possible interruptions to Russian gas supplies. There is also scope for these to reduce through greater diversity of routes through planned new pipelines that will deliver gas direct to the EU eg Nordstream and Southstream. In addition, we note that Russia and the EU have recently developed an "early warning" system designed to avert future disruptions.

We would welcome the opportunity to discuss the issues raised in this document with Ofgem further. Please contact me if discuss this or have any queries raised by this response.

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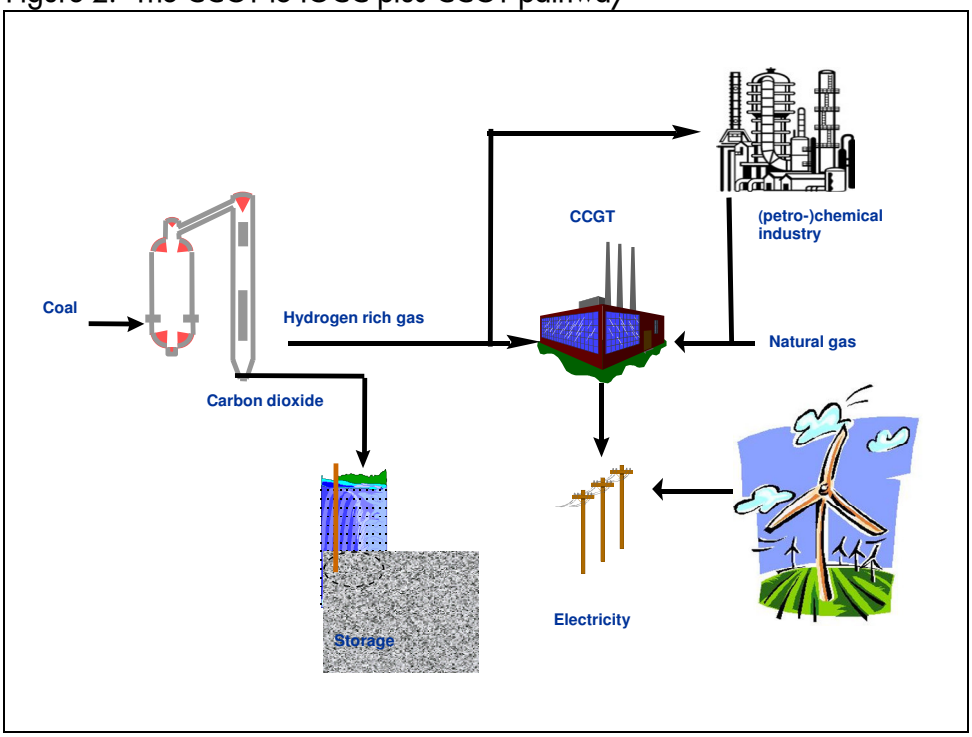
Annex 1: The Gas to Coal plus CCS pathway

From our discussions with generators, we understand that they find it attractive to have a diverse portfolio of generation assets. At the same time, there are plans for the UK is a clear objective in the Low Carbon Transition Plan for the UK to decarbonise its electricity supply over the next two decades. Following the publication of the Committee on Climate Change's first report in December 2008, Shell commissioned Redpoint to evaluate whether building CCGT power plants – with the potential for future conversion to Integrated Gasification Combined Cycle (IGCC) with CCS – offered a low emission pathway to 2020 and beyond. A retrofit-ready CCGT capacity could establish itself as a cost-effective pathway towards meeting UK CO_2 reduction targets while providing reassurance regarding concerns on gas security of supply.

Figure 2: The CCGT to IGCC plus CCGT pathway



The figure above illustrates the pathway. Initially, a CCGT will be built and run providing electricity to the grid. In parallel, or at a later point, a coal gasification plant can be built alongside it. In future, the CCGT can be converted relatively easily into an IGCC with CCS if the CO_2 price and/or the gas-coal price differential (ie gas prices become high relative to coal) provide an economic incentive to make this switch. The conversion can be done during a normal maintenance shut down period.

IGCCs are used to gasify base materials (coal, biomass, etc). The process creates CO_2 and hydrogen. The hydrogen is then used to drive the gas turbine, in place of natural gas or combined with it, with the CO_2 being available for capture and storage. IGCCs are flexible so can provide back up to wind power and other intermittent renewable sources of electricity as can CCGTs. A further advantage of using the gasification technology is that the hydrogen that is produced can be used either to produce electricity, or when there is a large supply of wind-generated electricity available, it can be delivered to any nearby petrochemical facilities, cogeneration plants or the gas network.

A significant advantage of this pathway is that projects can be implemented in phases and have significantly lower CO_2 emissions over their entire life cycle. Current (and future) natural gas plants can be converted relatively easily and new legislation requiring all new power stations to be capture-ready should facilitate this. CCS is not economically viable at the moment and government support is required for demonstration projects but in future the carbon price and price of source fuels, coal, gas or biomass, will drive generators' decisions. This pathway means that generators can choose to switch to coal if gas prices and/or security of supply concerns make this a sensible choice. It is not necessary to make the decisions about the balance of the mix now, as these decisions can be taken later as the energy markets develop.

IGCCs are established technologies with a number of power plants in operation, such as the NUON Buggenum plant in the Netherlands. In the UK, Powerfuel is developing a plant along the lines discussed above. Shell has licensed its coal gasification technology to Powerfuel which will be used in this project. Further details on Powerfuel's plans are available on their website: http://www.powerfuel.plc.uk/id15.html. Powerfuel was recently awarded funding for its project from the European Commission as part of its Economic Recovery Package funding.