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Ian Marlee  
Partner, Trading Arrangements  
Ofgem  
9 Millbank  
London SW1P 3GE

20 November 2009

Dear Mr Marlee

**Project Discovery – Mainstream Response**

Please find attached Mainstream Renewable Power's response to above document.

Mainstream Renewable Power is a leading renewable energy company developing renewable energy projects across several continents. The Company expects to be a major provider of renewable capacity for the UK and has a development pipeline in excess of 5,000MW.

We are actively seeking to develop opportunities throughout the UK and are currently both developing and evaluating a number of potential projects.

We welcome Ofgem's recognition that the foreseeable future will be characterised by the need for significant and continuing investment, in order to meet both environmental and security of supply objectives. However, Ofgem's scenarios assume only the current or planned level of electricity interconnection between the UK and its EU partners. There is enormous scope for further interconnection to both increase security of supply and lower consumer bills.

When interconnection at an EU level is considered, the potential to more easily harness the UK's vast offshore renewable resource available becomes clear. By combining offshore renewable deployment at scale, with complementary network development, in the form of a Supergrid, renewable energy and security of supply objectives can be met not only on a domestic basis, but with the potential to generate enormous enduring value for UK plc.



We endorse the work done so far under the auspices of Project Discovery in identifying the challenges for policy development. In this response we provide our views on the key messages and risks identified by the study. Further work needs to be conducted against the need to provide a stable, attractive investment climate in the UK, a supportive policy framework and a clear commitment to tackle the barriers to deployment which still exist in the UK energy sector.

We look forward to Ofgem making renewed efforts in these areas, in line with its obligations to include the reduction of carbon emissions and the delivery of secure energy supplies in its assessment of the interests of consumers. Mainstream Renewable Power welcomes the opportunity to actively contribute to the next steps of the Project.

I hope that you find this response useful. Please do not hesitate to contact me if you require further information or clarification.

Yours faithfully

A handwritten signature in black ink, appearing to read "Adam Bruce", with a horizontal line extending to the right.

Adam Bruce

**Global Head of Corporate Affairs**

Encl.





**Ofgem**  
**Project Discovery**

**A Response**  
**Mainstream Renewable Power**

**November 2009**

## Commentary on Ofgem Key Messages and Risks

We note that the scenarios show that gas and electricity supplies can be maintained to customers provided that market participants respond adequately to market signals. The importance of addressing and removing barriers to that response is fundamental and is discussed later.

High levels of investment are likely to be needed – up to £200 billion may be required by 2020. This would imply more than doubling the recent rate of investment. This will only be achieved by ensuring that a stable, supportive policy framework is put in place, adequate incentives for investment are provided and that non financial barriers to progress are addressed. The current rate of policy reform will not deliver our 2020 objectives.

It appears that the scenarios assume only the current or planned level of electricity interconnection between the UK and its EU partners. There is enormous scope for further interconnection to both increase security of supply and lower consumer bills.

When interconnection at an EU level is considered, the potential to more easily harness the vast offshore renewable resource available becomes clear. By combining offshore renewable deployment at scale, with complementary network development, in the form of a SuperGrid, renewable energy and security of supply objectives can be met not only on a domestic basis, but with the potential to generate enormous enduring value for UK plc.

The report suggests that existing regulatory and market arrangements may well be tested severely over the next two decades and a full range of policy responses needs to be explored. We agree that where shortfalls are identified, they need to be addressed in a timely manner, within an overall framework which promotes confidence and minimises regulatory risk.

Ofgem notes that consumer bills rise in all scenarios due to the levels of new investment required and increasing costs of carbon, and especially so if oil and gas spot prices spike sharply or continue their underlying rise since 2003. Our commitments with regard to climate change and our need for energy security are firm. These commitments have an associated cost, which is far less than that of inaction. Nonetheless, policy development needs to clearly recognise and accept the financial implications for all stakeholders, of the challenges ahead.

We note that the work encompasses scenarios where the current UK and EU environmental targets are not met. Policy development should recognise the need to mitigate outcomes as far as possible under these circumstances.

The significant risks posed by increasing gas import dependency are clearly defined, particularly where environmental measures have been compromised. This reinforces the need to ensure that

policy and implementation are both more effective and swifter in supporting the UK drive towards renewable energy. We reiterate the benefits that would accrue from greater offshore renewables deployment, when combined with a European SuperGrid. It is likely that without any specific policy initiative, retiring coal and nuclear capacity will be replaced by gas fired stations. This in turn will amplify the UK's dependency on imported gas.

A rapid expansion of renewables will lessen the risks associated with gas import dependency. This will require both policy intervention and market reform in order to ensure that the plant mix on the system is able to operate in an increasingly flexible manner, with appropriate commercial remuneration. An essential complement to the generation sector will be the provision of effective, responsive demand side participation in the market. This not only offers the opportunity to more effectively increase the penetration of variable renewable generation, but provides the consumer with the ability to manage both their consumption and their cost base.

The "pinch point" in the GB electricity capacity margin, around 2015, is an issue that needs to be addressed now, rather than allowing options to be closed off as we near the critical period.

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**November 2009**

## Responses to Questions

### Chapter One

#### *Observations*

We note the recognition by Ofgem that the requirement to address climate change and other environmental concerns is now embedded in EU and UK legislation. This forms a keystone in the formation of UK energy policy. Government policy intervention in energy markets has become broader, and will continue to be an increasingly important factor for both investors and energy market participants for the foreseeable future. A more proactive approach by Government in determining specific forms of investment means that it is vital that the work of the energy regulator is complementary to government policy and that the market is allowed to function effectively in order to deliver those elements for which it is the best suited. In examining what role the market will play in delivering future investment, Ofgem needs to ensure that an appropriate balance is achieved between overall policy objectives and the framework to deliver them, coupled with the opportunity for innovation, the promotion of market confidence and the recognition of the need for a commercial return on long term investments.

We agree that the scale of investment required to deliver both security of supply and environmental objectives is significant. The timetable for this investment is also challenging.

We concur that the experience gained as a consequence of the financial crisis requires an assessment of whether the current energy sector structures can deliver wider objectives on security of energy supply. This needs to be conducted against the requirement to provide a stable, supportive climate for investment. Whilst government is likely to wish to intervene more proactively in the energy sector, it is unlikely that this intervention will take the form of either increased financial support, or direct investment. This reinforces the need to ensure that policy objectives are underpinned by a supportive regulatory and market regime in order to support both investor confidence and the long term attractiveness of the U.K as a desirable place to invest. More proactive intervention by the government should occur in the context of securing value for the UK on the wider European stage. The increasing cooperation between member states and between energy regulators needs to be directed towards facilitating increased interconnection and enhanced renewables deployment.

The interest in the ability of energy markets to deliver secure and affordable energy and at the same time meet environmental objectives is intense. In conducting its scenario development and stress testing, Ofgem should note that the delivery of policy objectives is associated with underlying choices and costs. In a market economy, competition will drive down costs to competitive levels. However, in order to deliver certain objectives, particularly in a challenging timescale, even the most competitive process of delivery will necessarily entail an additional on-cost into the overall energy market value chain. We note that in its scenario work, Ofgem

recognises this fact, “Consumer bills rise in all scenarios due to the levels of new investment required and increasing costs of carbon” ; but it should also ensure that the implications of efficiently delivered, environmental and security of supply policy objectives are clearly identified, communicated and accepted.



## Chapter Two

Question 1: *Please provide comments on our approach of using scenarios and stress tests to explore future uncertainty, and as a basis for evaluating policy responses.*

We agree that the technique of using internally consistent, comprehensively developed scenarios, together with appropriate stress tests is an accepted and respected method of identifying future issues which require policy responses to be developed.

Where we have concerns is the mechanistic assumption that market participants respond adequately, *automatically* to market signals. Ofgem assumes that new investment takes place where companies could earn a reasonable return on their investment under each scenario's assumptions, taking into account the risks they face. Experience of UK energy markets over the past nineteen years has shown that there are many other barriers to investment, once financial considerations have been met. Planning difficulties, connection to the GB grid, policy uncertainty, fundamental market reform and a lack of long term consistency in approach all contribute to compromise the assumption of "automatic investment". These are fundamental considerations when assessing the rate and scale of investment and need to be adequately addressed in any scenario work which leads, in turn, to policy development.

Question 2: *Are there other techniques for analysing uncertainty that we should consider?*

Provided that the scenarios developed represent a sufficiently *diverse*, but *credible* set of potential future outcomes, the technique should be sufficient to allow robust policy options to be developed. By its nature, it is difficult to incorporate a response to all sources of uncertainty in initial policy frameworks. The key is to allow sufficient flexibility, within an overall framework which stakeholders have confidence in, to allow uncertainties to be dealt with as they arise. The *mechanisms* by which policy is reviewed and updated are equally important in generating confidence among stakeholders, and should also be addressed.

Question 3: *Do you agree with how we measure the impacts of our scenarios and stress tests?*

The methods for assessing impacts appear robust. We note that the cost to consumers depends on a number of *sequential* assumptions and steps regarding the total investment required under each scenario, its translation into wholesale electricity price impacts and consumer bills. It is



important not only to recognise the *spread* of outcomes that this will produce, but also the impact of exogenous factors such as support mechanisms, levies and third party network charges.

Question 4: *Do you agree with our key scenario drivers and choice of scenarios?*

Yes. These appear to encompass a sufficient envelope of outcomes with the addition of stress tests to enable robust policy development to proceed.

Question 5: *Do you believe our scenarios sufficiently cover the range of uncertainty facing the market, and hence cover the areas where future policy responses may be required?*

Yes. We reiterate the need for sufficient flexibility in policy initiatives and timely policy refinement processes in order to respond in a timely manner to unforeseen developments.

Question 6: *Do you have any specific comments on scenario assumptions, and their internal consistency?*

In all the scenarios Ofgem assumes market participants respond “adequately” to market signals. We note above that experience of UK energy markets has shown that there are many other barriers to investment, once financial considerations have been met. Planning difficulties, connection to the GB grid, policy uncertainty, imperfections in the market rules and a lack of long term consistency in approach all contribute to compromise the assumption of “automatic or adequate investment”. These are fundamental considerations when assessing the rate and scale of investment and need to be adequately addressed in any scenario work which leads, in turn, to policy development.

The analysis demonstrates the scale of response required to meet our objectives, including the levels of investment to deliver the envisaged scenario outcomes. We note that Ofgem does not consider it possible to conclude from the analysis in this first stage of the project what level of secure and sustainable energy supplies the current market arrangements would deliver. This is a fundamental question which has wider implications than regulatory policy alone. It requires proper integration with the policy development process currently being undertaken by HM Government, regarding energy and climate change objectives.

It appears that the scenarios assume only the current or planned level of electricity interconnection between the UK and its EU partners. There is enormous scope for further interconnection to both increase security of supply and lower consumer bills. This in turn has the potential to materially change the conclusions drawn from the scenario analysis.

Question 7: *Do you agree with our methodology for modelling gas and electricity supply/demand balances?*

Yes.

Question 8: *Do you agree that LNG is the likely medium-long term source of "swing gas" for the European market?*

Yes.

### **Chapter Three**

Question 1: *Do you have any observations or comments on the scenario results?*

We consider that the results have identified a fundamental difference in outcomes, depending on decisions which will be taken in the near to medium term.

A modest deployment of renewables, for whatever reason, will lead to a significant "lock in" to a CCGT capacity dominated electricity sector and consequent implications for security and environmental objectives.

In a world of significant environmental action, the penetration of renewable and nuclear due to support and/or high carbon prices results in a lower growth in CCGT and a decreased reliance on gas. Coal plant fitted with CCS also plays a role.

This represents a clear distinction between two possible outcomes. Policy development and regulatory initiatives should be conducted against the need to promote a high renewable penetration rather than a gas dependency outcome.

Question 2: *Do you agree with our assessment of what the key messages of the scenario analysis are?*

A key message of the analysis is that under the scenarios electricity capacity margins are uncertain and likely to vary considerably due to a complex array of different factors, including environmental policy. This reinforces the need to ensure that action to ensure adequate capacity margins is initiated now, rather than waiting until viable options are closed out.

In order for plant running at low load factor to remain profitable, prices based on *current market mechanisms* would need to be allowed to peak to high levels during periods of low wind output. As part of Project Discovery, Ofgem should consider whether current market arrangements are adequate to provide the necessary price signals, *or total remuneration* to ensure sufficient peak thermal capacity remains on the system, and/or that increased investment in demand side response occurs.

Of particular note is the level of sustained investment identified by the study to ensure that the UK meets its energy and climate change objectives. This peaks at an annual level of some £30bn, compared to a GB energy utility capital expenditure in 2008 of some £8bn. This level of investment requires a sustained commitment from all stakeholders, including Government and Regulatory authorities to ensure that the policy framework, the market arrangements, the commercial incentives and the delivery mechanisms are aligned, fit for purpose and functioning. With these in place, the challenge will be daunting, but achievable, without them it will not.

We note that in all four Scenarios, wholesale electricity prices are predicted to rise. Prices for the scenarios in which the UK meets its renewable energy and climate objectives do not appear to be higher than those in which it does not.

Question 3: *Are there other issues relating to secure and sustainable energy supplies that our scenarios are not showing?*

The scenarios identify virtually all the key issues that need to be considered by the policy development process. A significant omission is the beneficial impact that increased European interconnection, in the form of a SuperGrid, would have on renewables deployment, security of supply and consumer bills. This should be addressed.

Question 4: *To what extent do you believe that innovations on the demand side could increase the scope for voluntary demand side response in the future?*

The active participation of electricity demand in the supply/demand balance process, both in the immediate and near term, is a significant untapped resource. By actively engaging demand, facilitated by “Smart Grids” and other available technology, the potential for demand reduction, demand smoothing and more effective renewable energy deployment can be realised. As a large proportion of renewable heat will be delivered by electrical means, this further enhances the capability of demand to play its part in achieving climate change objectives at a lower overall cost. Efforts should be redoubled to enable the demand side to more actively participate in energy markets.

## **Chapter Four**

Question 1: *Do you agree that our stress tests are representative of the types of risks facing the GB energy sector over the next decade?*

Yes. We agree with the need for appropriately stress testing the scenarios. Ofgem note that they hope to “test how the ability of the market to deal with such shocks may differ between scenarios and may change over time”. It is important to note that the response to the results of any stress tests depends on the probability of them occurring and the materiality of their outcomes. It is important to ensure that low probability; low materiality events do not exert an undue influence in the considerations of policy developers. The key is to allow sufficient flexibility, within an overall framework which stakeholders have confidence in, to allow uncertainties to be dealt with as they arise. The *mechanisms* by which policy is reviewed and updated are equally important in generating confidence among stakeholders, and should also be addressed.

Question 2: *Are there further stress tests that you think should be considered?*

It is likely that any new nuclear build will be based on a very small [and relatively unproven] design base. This significantly increases the risks which arise from a generic type fault occurring across the fleet. Given the size of new nuclear units and their importance in the modelled energy portfolios, this should be addressed. Similarly, a type fault occurring for a particular CCGT design

should also be considered. Given the technology, this is likely to be a shorter term, but possibly equally acute issue for security of supply.

Question 3: *Do you agree with the assumptions behind our stress tests?*

Yes, but we consider them to be incomplete without the stress tests and accompanying suite of assumptions noted in Answer 2, above.

Question 4: *Do you have any views on the probabilities of these stress tests occurring?*

The analysis needs to examine whether policy responses would be significantly influenced by the *frequency* at which the events chosen for the stress tests occurred.

Question 5: *Do you agree with how we have modelled demand curtailment in response to constrained supply?*

We assume that demand curtailment is primarily based upon automatic actions, instructions or initiatives taken by National Grid and existing load management processes. The potential for a much greater active participation from the demand side has been noted above and should be examined in order to ensure that the conclusions drawn from the Study are robust to future developments.

Question 6: *Do you have any other comments on our stress tests?*

See answer to Questions 2 and 3, above.

## Chapter Five

### *Observations*

We support the work that Ofgem is doing as part of Project Discovery. The delivery of secure and sustainable energy supplies requires more than an examination of whether current market arrangements are capable of delivering policy objectives, although this is a vital element of the overall work programme. We have noted above the need to ensure that the required levels of investment – up to £200 billion – are supported. This will only be achieved by ensuring that a stable, supportive energy and regulatory policy framework is put in place, adequate incentives for investment are provided and that non financial barriers to progress are addressed. The current rate of policy reform will not deliver our 2020 objectives.

We believe that the addition of significantly increased European interconnection, in the form of a SuperGrid, would have a transforming impact on the results of the scenarios, particularly the “Green Transition” and “Green Stimulus” cases. It should be pursued as a subset of the scenarios.

The “real risks” identified by the Study reinforce the need for the reform process to be accelerated if we are to meet our energy and climate change objectives.

Facilitating the full and active participation of the demand side should be a high priority for policy development.