# PROJECT DISCOVERY: Response to Ofgem Consultation

This paper is offered in response to Ofgem consultation *Project Discovery*, Ref 16/10 of 3 February 2010. It responds in particular to Qn 3: *Do you agree that the five issues we have highlighted are the most important?* and Qn 4: *what might happen if no changes are made?*


**Executive Summary**

- The possibility of much higher absolute energy prices on a sustained basis is a perspective from which many aspects of the five issues raised need to be re-cast
- Demand-side response deserves to be elevated in importance as an issue
- 3 of the 5 'most important' issues may prove not to be critical – 'unprecedented' capital funding; uncertain carbon price; and interdependence with international markets
- If no changes are made to the current regime there is the risk of unidentified (or unacknowledged) infeasibility in meeting some environmental targets, with consequently damaging dynamics of heightened distortions, perverse incentives and needless cost
- This calls for rigorous realism on progress towards and feasibility of targets; vigilant monitoring of carefully-set milestones and critical inter-dependencies; timely reviews; and decisive actions when milestones and inter-dependencies are not being achieved



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In 2005 he was principal author of the widely-cited report, ***Ensuring Effective and Efficient Gas Forward Markets***[1] – a report to the DTI (Global Insight).

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[1] http://www.berr.gov.uk/files/file33153.pdf

Response to Question 3:
***Are the five issues we have highlighted are the most important?***

The *Project Discovery* consultation paper identifies 11 clusters of issues [3.51] and concludes that five are most important, namely:

1. **The need for unprecedented levels of investment** (… in difficult financial conditions and against a background of increased risk and uncertainty)

2. **The uncertainty in future carbon prices** (… likely to delay or deter investment in low carbon technology and lead to greater decarbonisation costs in the future)

3. **Short term price signals** (… may mean that the incentives to make additional peak energy supplies available and to invest in peaking capacity are not strong enough)

4. **Interdependence with international markets** (… exposes GB to a range of additional risks that may undermine GB security of supply)

5. **The higher cost of gas and electricity** (… may mean some consumers are not able to afford adequate levels of energy and competitiveness of industry and business is affected)

These are all important issues that should all be analysed and monitored carefully. However, we suggest that

**A. one of the five – higher cost of gas and electricity - should be re-cast and identified as potentially the most pressing of all**
**B. demand-side response should be promoted to 'most important' status**
**C. three of the five may not be critical, and should be considered differently**

## A. Future cost of gas and electricity

The *Project Discovery* paper addresses Issue 5 (higher future costs of gas and electricity) primarily from the perspectives of (a) the additional costs, over and above underlying commodity costs, that will result from the need to fund large-scale capital investments in pursuit of environmental and security policy goals; and (b) the longstanding policy issue of fuel poverty, allied to possible problems of UK business competitiveness.

These perspectives are broadly relativistic (poorer vs more affluent consumers; UK vs foreign manufacturers) and do not take into account the possibility that absolute energy costs may rise very significantly once the world economy fully recovers from the current deep recession.

We make no detailed forecasts here, nor do we advance any theory of 'peak oil' or the like. However there is at very least a scenario where oil prices rise to levels substantially higher than the highest prices seen to date on a sustained basis, dragging with them the prices of all open-market energy commodities.

In such a case the concerns expressed in the *Project Discovery* paper's Issue 5 are altogether too narrowly drawn. In particular, a world opens up in which efficiency becomes the over-riding concern, on the one hand completely eclipsing security and the environment as priorities, and on the other alleviating them materially by dint of reductions in demand (and output and emissions) and spontaneous improvement in the economics of renewables without needing complex subsidy regimes.

This seems to us a sufficiently plausible scenario as to merit not only recasting Issue 5, but revisiting the whole scope of the *Project Discovery* paper's approach from that perspective. To give two examples:

- any large-scale subsidised investment programme involving high-capacity long-lead-time units (such as nuclear plant, Severn Barrage, CCS etc) that may need to be thrown into reverse by major changes in the macro situation (e.g. large-scale reduction in demand, sustained economic downturn) could badly exacerbate matters if not structured flexibly with this contingency in mind

- the clear potential for subsidised renewables projects receiving unearned super-profits in such a scenario might suggest that subsidies or guaranteed minimum rates of return be accompanied by a structure of windfall tax / capped rates of return.

**B. Candidate for promotion: demand-side response (DSR)**

The *Project Discovery* paper identifies DSR and related issues (including DG) as one of the 11 basic areas of concern [3.29 *et seq*], and makes reference to it in discussion of potential policy packages. It is not however included as one of the most important issues.

We suggest DSR should feature in the 'most important' category. Just as it is commonly observed that the potential for greater absolute energy efficiency is under-exploited at present, in our assessment the same is true for DSR, primarily in the industrial sector where the advent of $147 oil briefly showed signs of bringing about the long-awaited DSR revolution. However, the moment passed as swiftly as it came, followed immediately by recessionary and capital concerns that put paid to embryonic ideas for DSR investment, at least in the short term.

The scope for fuller exploitation of DSR potential should be (and is) a major thrust of policy, and its non-development spontaneously a cause for concern. DSR, of course, like efficiency, impacts favourably on all aspects of energy policy – environmental, security and cost.

Further, if wind turbines (and other intermittent sources) are to play an ever-increasing role in the power fleet, it is our view that only in direct conjunction with hydro-power on the supply-side, and/or 'opportunistic load' (including power storage) on the demand side can large-scale wind power be sustainable, practically and economically. To minimise grid issues this may ideally be in the form of local wind / DG / DSR / opportunistic load / storage clusters.

For all these reasons DSR / DG should be a 'most important' issue.

## C. Three issues that may prove non-critical

C1. **Levels of investment**: pragmatic optimism warranted

The capital sums identified by Ofgem and others that are required to be spent to achieve environmental and security objectives are very large, and may indeed warrant the description 'unprecedented'. The situation may appear magnified from the viewpoint of an economy only just emerging from a major recession and capital crisis. However, this should be considered in light of four important perspectives.

- Historical investment-levels in the UK energy sector have been commensurate with what is likely to be needed 'to keep the light on'. In particular we note (a) the UKCS and (b) the 30 GW of new generation capacity and 125 bcm/yr of new gas import capacity etc (which as the *Project Discovery* paper identifies [3.6] have been delivered by the markets over relatively few years in recent times).

- The UK energy sector holds much attraction for foreign investors, which is as great now as it ever has been, (and superior to most other European countries that might be competing for funds). Companies from India, China, South Korea and other Asian countries in particular are poised to make very substantial investments as they diversify their burgeoning resources away from dollar assets.

- The requirements for investment, year-on-year (which we acknowledge again are huge) look less daunting if a rigorous approach is taken to what is actually feasible in terms of the ability of the energy / engineering / construction sectors to implement projects on the scale intended by the description. 'Unprecedented' can in practice mean 'infeasible'. We return to the implications of this point in answer to Qn 4, below. (These include, of course, the commonplace observation that some of the UK's current environmental targets are highly unlikely to be met.)

- Demand for energy may turn out to be lower than 'business as usual' might suggest (see A above). In any event the range of potential future demand levels is currently the most uncertain it has ever been, as the DECC *Energy Markets Outlook* report (cited in the *Project Discovery* paper) indicates.

We suggest that shortage of capital availability will not ultimately prove an insuperable barrier to achieving what is feasible.

C2. **Carbon prices**: price risk is a fact of life

Future carbon prices are indeed uncertain, but large-scale price risk is endemic in energy, and commodities in general. The usual approaches to investing in circumstances of price risk are (a) to obtain hedges (the first phase of the GB 'dash for gas' was substantially built on the back of rigorously hedged exposures); or alternatively (b) to accept some or all of the price risk, speculatively, based on fundamental analysis of future market conditions (a very large part of the UKCS was built on this basis).

Hedges are not always available far enough forward for some purposes, and the liquidity in UK forward markets for gas and power have certainly been the cause of some concern in recent years – a matter that we strongly agree should be addressed systematically. At the same time it should be noted that often when would-be

hedgers complain of non-availability, they often mean that the forward prices on offer are not what they would like – a very different issue.

If by 'uncertain' is meant 'currently too low for some projects to be economic', then the logic of the EU ETS is surely that they are not yet needed in order to achieve the CO2 targets that underpin the Allocations. This is only a problem if it is pre-assumed that the projects in question (and/or their current promoters) are in some sense to be guaranteed a place in the GB power fleet prior to their being needed.

If by 'uncertain' is meant 'too risky for small companies to entertain unhedged', then perhaps small companies are not pre-ordained to participate in the sector as equity players – which is hardly a novelty in the capital-intensive aspects of the energy business.

Price risk in carbon is only one market risk among many. To guarantee a minimum carbon price is to abandon the market logic of the EU ETS in favour of an explicit subsidy. We see no good reason to adopt this course. There are arguments for replacing the EU ETS entirely with (e.g.) a carbon-tax approach, as advocated in several quarters, but this is a separate question.

C3. **International markets**: greater optimism warranted

An enduring theme of HMG policy over 20 years has been the promotion of liberalisation in European gas and power markets, with much frustration (and cost) being experienced in GB by the slow pace of Continental market development.

However, current developments in the gas market (particularly of Germany) caused by the unexpected medium-term supply overhang give reason for optimism that, after many years of stasis, the same type of rapid market evolution may be taking place as happened in the UK 1994-95. There are many specific recent advances that could be cited in favour of this view.

We strongly advocate that there be no let-up in UK pressure for these spontaneous changes to be followed through by regulators and consolidated into viable open-market regimes. This should include, over time, harmonisation of PSO regimes. We suggest that this will naturally follow the development of demonstrably effective internal markets, as 'irrational' PSO standards are expensive for the nation that maintains them and likely to become self-evidently unnecessary.

If we are right that there is every chance this will happen, coupled with ever-increasing physical interconnection in power as well as gas markets, and growing LNG import infrastructure, the position of the UK in a pan-European gas and power is not at all as disadvantageous as was the case in (e.g.) the adverse winter conditions of 2004 and 2005. If the UK is 'at the end of the system' in some senses, this is no more than a geographical fact, and is in any case much offset by the dynamics of LNG.

With satisfactory market opening, the residual disadvantages for the UK will be our lack of (a) hydro-powered generation – again, a geographical fact, and again, potentially offset by greater interconnection; and (b) seasonal gas storage. This too can be considered an accident of geology – there may be only one Rough in the ocean, subject to possible new UKCS storage prospects.. Yet again, interconnection and open markets address the issue, as they have ever since the UK became a net

summer exporter and winter importer of gas to Continental Europe. Not every nation is self-sufficient in gas storage (e.g. Belgium).

At this point our concerns over security of supply will be those of Europe as a whole, with far greater scope for, and access to, means of efficient allocation and diversification. Just as international cooperation resolved the 1973 oil crisis and embargo, so an effective pan-European internal market can best address future supply issues and crises.

If, on the other hand, a pessimistic view is taken, there can be no substitute for the most vigorous actions to address Continental gas market shortcomings, as well as purposeful development of trade relations with (e.g.) Russia, to secure gas imports bilaterally.

Question 4:
***What might happen if no changes are made?***

### 4.1 Risk of unidentified infeasibility and heightened distortions

In addition to several possibilities identified in the *Project Discovery* paper, we consider that the most significant danger if no changes are made is the potential for a sequence of events as follows:

- The requisite pace of investment etc needed to meet environmental targets will not be achieved (as seems to be the case at present)

- Failing to identify (or acknowledge) the actual infeasibility of these targets as delays are incurred, ever more market-distorting subsidies and other interventions will be made, ostensibly to make up ground towards the targets, but in practice only extending the dynamic of the infeasibility

- Outright infeasibility is only acknowledged openly at a very late stage, by which time some undesirable, and (from today's perspective) highly sub-optimal steps will be required to 'keep the lights on'

The detailed outworking of such an out-turn could take many forms, all of them needlessly expensive.

The key principle to be adopted for avoiding this eventuality is **rigorous realism on progress towards, and ultimate feasibility of targets**, coupled with permanent and vigilant monitoring, timely review, and decisive action when critical milestones are not met or required inter-dependencies break down.

Targets need not be unambitious, nor need milestones and programme schedules fail to recognize the slow-starting trajectories (the 'S-curve' of project schedules) of many historical shifts in the structure of an industry, which should be assessed in a soundly empirical manner.

However, 'unprecedented' programmes cannot be assured of success; and ambition cannot be allowed to become blind optimism in the face of hard facts, which in respect of some environmental targets has clearly been the case over the past decade. The sheer scale of what is intended by 'decarbonisation' is hard to overstate.

In any project, certain critical deadlines and milestones once missed, or critical inder-dependencies once broken, can only have the effect of delaying the project or diminishing its scope. Since 'keeping the lights on' is an imperative that brooks no relaxation, there can be no indifference as to whether the UK 'energy project' is on track.

In the spirit of hard-nosed realism it should be noted that several categories of players are often found to have an interest in denying the difficult reality of a situation. In the present case, as well as the obvious political considerations, it may be observed that if ever-increasing subsidies are the response to slow progress, the

potential recipients of subsidies may not be ideally aligned with securing the original goal. Other such 'perverse incentives' may readily be identified in the sector.

### 4.2 High prices and inflexibility

At response A to Qn 3 above we have sketched a possible future in which higher absolute energy costs cause the environmental and security concerns that are uppermost in 2010 to be recast significantly. If programmes set in train in the near future are insufficiently flexible to cater efficiently for such an eventuality (which we consider a plausible scenario), substantial waste and associated cost could result, at a time when *ex hypothesi* this would be hard to bear.

### 4.3 Ofgem scenarios

We conclude with some brief comments on some of Ofgem's scenarios what might happen if no changes are made.

- *Investment in renewables continues at the current or a somewhat increased pace but is insufficient to meet the 2020 targets. The capacity gap after 2015 is likely to be filled by new CCGTs … increase the dependence on imported gas, and risks increasing the costs of future decarbonisation* [3.54]

We suggest this will be the outcome in most plausible circumstances. 'Increasing the costs of future decarbonisation' could be viewed as a notional concept.

- *CCGT may not be forthcoming …* [3.55]

We foresee that new CCGT will be forthcoming in any circumstance where a clearly-identified capacity-gap otherwise emerges. Across the industry there is a significant portfolio of ready-to-go CCGT projects, and strikingly favourable gas-purchasing conditions currently prevail.

- *seasonal storage may not be forthcoming …* [3.56]

This is entirely possible, as a function of UKCS geology. Every UKCS gasfield that has been abandoned, was exhaustively studied for its storage potential before the costly step of abandonment was finally taken. Conditions at Rough are very hard to replicate. See also our comments at C3 above.

(It is arguable that even Rough itself may not have been re-developed a a storage facility in any other circumstances than under the ownership of BG in its former role as a monopoly, essentially unconstrained by commercial economic considerations.)

This being the case, the UK is intrinsically wedded to closer market dealings with Continental Europe. In C3 above we have presented an optimistic view of this state of affairs. If, on the other hand, a pessimistic view is taken, there can be no substitute for the most vigorous actions to address Continental gas market shortcomings, as well as purposeful development of trade relations with (e.g.) Russia, to secure gas imports bilaterally.

- *Over time … a more effective internal EU market … pace of change may be restricted by legacy contracts and PSOs, and by the concentrated structure of the industry* [3.59]

As noted in C3 above, we consider that a more optimistic view may be taken.

- *less clear whether it will be possible for the full benefits of smart meters to be realised and in particular in terms of enabling demand side response. Inadequate price signals and approximations within the current market rules may deter suppliers from offering innovative tariffs and technologies* [3.60]

We share this concern, see comments on DSR / DG at B above. On the other hand we are optimistic that smart metering represents an opportunity for the emergence of some radical and highly beneficial innovations: already some of the most entrepreneurial players are considering entry into this sector (most notably Google) with potentially exciting are far-reaching results.

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