Reference

Gareth Evans
Technical Directorate
Office of Gas and Electricity Markets
9 Millbank
London SW1P 3GE

Date: 22 August 2003

Dear Gareth

Innovation and Registered Power Zones – July 2003

I am responding on behalf of EDF Energy to the above paper and welcome the opportunity to do so. EDF Energy owns and operates the distribution networks for the east of England, south-east of England, and London areas. It is also a major electricity and gas supplier, has coal and gas-fired power stations and leases for the development of two off-shore wind farms, as well as a range of other business interests.

We support the need to balance the current regulatory incentive framework with mechanisms that will encourage DNOs to develop and deploy innovative engineering solutions both for the connection and subsequent operation of distributed generation (DG) as well as for other aspects of the efficient and effective development and operation of the network. Both the Innovation Funding Incentive (IFI) and the Registered Power Zone (RPZ) concept have the potential to aid this, as will the proposals for a DG incentive included in the main price control review paper. (We will comment on this proposal in our response to the price control paper). However the degree of success of each of these incentives is dependent on the detailed implementation and we will examine and provide comments on this in the attachment to this letter. We will also incorporate in the attachment our responses to the specific questions that Ofgem has raised.

We see the innovation proposals as a refreshing approach and believe that, with some minor adjustments, a workable scheme could be established that would bring customer benefits (such as, for example, lower DG connection costs and better network performance than would otherwise be the case) and would also have the potential to both sustain and improve the research and development base of the UK, and the recruitment and training of engineers.

Atlantic House
Henson Road
Three Bridges
Crawley
West Sussex
RH10 1QQ
Tel: 01293 509373

By contrast the registered power zones section of the paper could be viewed as a disappointment and may not live up to the promise of previous proposals. It seems to be narrowly focused on the issues surrounding the connection of relatively small scale generation and proposes what could be characterised as arbitrary and prescriptive rules, rather than (as was proposed in the initial paper) challenging the DNOs to come up with innovative solutions without constraints. We make some suggestions in the attachment as to amendments to the proposals aimed at increasing its attractiveness and likelihood of success

Should you have queries on our response or wish to further discuss our comments please contact either myself or Tony Woods, Power Networks Projects Manager (on 01293 509257)

Yours sincerely

Paul Delamare
Head of Price Control
Networks Branch

Attachment

Detailed Response to Ofgem's Discussion Paper "Innovation and Registered Power Zones": July 2003

Innovation Funding Incentive

We share Ofgem's view that there is a need for a new mechanism where a DNO is pursuing new technologies and connection solutions and is operating in an environment exposed to higher risks than its core business.

We see the innovation proposals as a refreshing approach and believe that, with some minor adjustments, a workable scheme could be established that would bring customer benefits (such as, for example, lower DG connection costs and better network performance than would otherwise be the case) and would also have the potential to both sustain and improve the research and development base of the UK, and the recruitment and training of engineers. We have some comments below which are aimed at further enhancing the likelihood of success of the scheme.

a) It is our experience that many of the most innovative developments come out of a "three legged stool" created by pro-actively fusing together

- Business (DNO): A clear business need seeding an embryonic idea,
- Universities & research institutions: Developing a robust scientific understanding of the physical mechanisms and processes involved
- Technologist: Turning a concept or prototype into a viable product

There is often a need to understand how fundamental processes actually work in real systems before being in a position to develop an embryonic idea into innovative developments and/or better products.

In the later stages of the development marketing, manufacturing and other business functions are needed to complete the creation of commercially viable products and solutions.

It is not clear that Ofgem's model of the innovation process fully reflects this approach to the creation of fundamental new technologies. This can be mitigated by ensuring that there is a broad interpretation of the types of activity defined as Category B projects (see Table 1 of the paper). Category B therefore needs to cover a wide range of types of development activity – including the early stages outlined in the first two paragraphs of this section. This is necessary to encourage DNOs to get actively involved not only as sponsors but as key partners in such initial fundamental activity and to take the inevitably higher risk involved. Additionally this will encourage the innovation and development activities of manufacturers

who will gain comfort from the early involvement of DNOs which they may well see as reducing their own risks

It is highly likely that only a relatively small proportion of funds (within Category B) would need to be targeted at this sort of activity and, if necessary, a subsidiary target could be introduced which would limit the proportion of the total investment that was used in this way. As a track record of successful projects is developed the sponsoring companies should be allowed increasing degrees of freedom in the proportion of overall spend in this category. Without an acknowledgement of the need for such funding there is a real risk that support for such projects will be unobtainable leading to a further reduction in the capacity of the UK to pursue fundamental power engineering developments.

An important factor that supports this approach is that in order to create and sustain the necessary academic cadre and facilities, it is necessary for there to be a reasonable level of sustained development work involving laboratories and research staff at Universities. Such Institutions not only need cash but also the creative stimulation and the active support of committed and pro-active businesses.

Additionally by actively supporting research at target universities it creates a positive environment for the recruitment of undergraduate engineers who we see as the seed stock of the industry for creating the innovative future desired.

b) We understand the need for DNOs to set out their year-by-year innovation spending plans as part of the price control. Whilst it is appropriate to set out such plans, there is also a need for there to be some flexibility to adjust the plans to reflect the advantages of having some short, medium and long term projects in the development portfolio which may, in the event, progress at a different pace then originally expected.

c) We agree that a key objective of developing network technology is to increase asset utilisation and many projects will, no doubt, be focused on this. However, it is important not to lose sight of other important objectives of the activity – such as asset life extension, environmental aspects of renewal and the development, communication, integration and utilisation of real time knowledge.

Registered Power Zones

The registered power zones section of the paper could be viewed as a disappointment and may not live up to the promise of previous proposals. It seems to be narrowly focused on the issues surrounding the connection of relatively small scale generation and proposes what could be characterised as arbitrary and prescriptive rules, rather than (as was proposed in the initial paper) challenging the DNOs to come up with innovative solutions without constraints.

Thus the paper risks missing the opportunity for DNOs to use RPZ's to actively promote the location of new generation and storage systems in areas where generation could be available but may otherwise be uneconomic to connect.

We have comments on two of the specific panel two proposals:-

a) It may not also be practical to seek the consent of customers before proposing a zone, particularly if the intent is to seek to encourage them to come. However customers have to have a choice as to whether or not to connect under RPZ terms

b) If a RPZ failed to meet its objectives due to change in regulatory, governmental or macro economic events then we would not expect to be penalised

c) DNOs could offer liquidated damages but it must be up to the generator to weigh the risks and ultimately take or decline such financial protection that might come at a premium to a more basic solution

d) Normal quality of supply standards (including Guaranteed service Standards, IIP arrangements etc) may not necessarily always be appropriate or economic for customers who are both energy customers and generators – again it should be up to the customer to choose the RPZ package or not

Responses to specific Ofgem questions

Intellectual Property Question

1. Do you have any specific views on the management of intellectual property that may be created through the IFI and RPZ initiatives?

We support the general principles on IPR outlined in Ofgem's paper

There are very few instances where large sums of money are to be made from commercial exploitation of innovative technologies by distribution network operators (DNOs.) In our view the acquisition of intellectual property rights (IPR) can be expensive and overrated for DNOs and such rights can usually be easily circumvented by other players who are equally innovative.

The DNOs role in the research and development field is to promote and "pump prime" until products reach a self sustaining and competitive maturity. For most small to medium scale developments our experience is that the simplest approach is to hold IPR jointly with the developers and to seek to publish results so that other organisations cannot seek restrictive IPR themselves. Where appropriate we often seek a small measure of financial feedback from the commercial success of projects into the development cycle via royalty payments.

Innovation Funding Incentive (IFI) Questions

2. Do you support Ofgem's rationale for introducing the IFI? Do you consider the IFI to be aligned with consumers' interests?

We share Ofgem's view that customers are better served when the companies supplying them seek improved ways of doing things. Part of the process of achieving this, is efficient investment in technological development.

We see the innovation proposals as a refreshing approach and believe that, with some minor adjustments, a workable scheme could be established that would bring customer benefits (such as, for example, lower DG connection costs and better network performance than would otherwise be the case) and would also have the potential to both sustain and improve the research and development base of the UK, and the recruitment and training of engineers.

EDF Energy has in recent years been one of the most active DNOs engaging in innovative development. This has been done through collaborative partnerships with suppliers, universities, research organisations and independents. We have outlined above our belief that many of the most innovative developments emerge from the bringing together of the DNO with universities, research institutions and technologists.

3. What are your views about the use of the DTI's R&D Scoreboard as a yardstick in this context? It would be useful if DNOs could quantify their company's current R&D Intensity and offer their views on an appropriate level for the next DPCR period.

The DTI's R&D Scorecard seems a sensible yardstick to examine at this stage of the development of suitable mechanisms to encourage DNOs to devote activity to technological development. However the measure of the company's commitment and success in this field is not easily measured by the apparent direct financial spend on "Research & Development" as reported in Regulatory Accounts. Whilst EDF Energy has been a major innovator the level of resources allocated to this activity has been very modest.

The suggested R&D intensity seems appropriate but - as the paper suggests - needs to be phased in over a period of time. We would expect those, like EDF Energy who have established programmes, relationships and track records to be supported in growing their activity and expenditure more quickly than those who have, so far, been less active. It will also be important to ensure that a rapid increase in UK spending does not lead to a raft of unsatisfactory and/or duplicated projects that will merely push up costs as parties bid for scare skilled resources.

It should be noted however that the R&D intensity of 0.5% which is suggested is very prudent. It compares with an average UK company figure of 2.2% (and figures for other countries are even higher – see the Innovation R&D Scorecard website). Whilst these figures are probably currently inappropriate for the DNO industry they do emphasise the cautiousness of the current approach.

4. Do you think the three category approach (A, B and C) and treatment of allowed funding is a reasonable balance in the interests of all parties? What should the value be of the proposed F1 and F2 factors?

We have commented at length above on the need to have a broad definition of the activity which falls within Category B. In view of the relatively small amount of expenditure that is currently spent on research and development, and Ofgem's desire that there should be a rapid dissemination of good practice among all DNOs so that customer benefits are maximised we believe that the F1 and F2 percentages should be high. Thus the 75% maximum percentage outlined in the paper is too low and F1 and F2 should be set at around 85 to 90%.

Consideration needs to be given to the scenario where only a small subset of DNOs makes use of the IFI approach. Since such companies are likely to have themselves made a significant contribution to the costs of pursuing technological innovation it will not be equitable if, as a result of the sharing of the fruits of such work, other less active companies are able to "free ride" – gaining access to the benefits without having incurred the costs. This problem is exacerbated as the proportion of costs that the DNO is asked to provide increases. A mechanism is required which, in this situation, allows active companies to recover a larger portion of costs or potentially even provides for them to be additionally rewarded for the scale and effectiveness of their R&D effort.

5. What are your views on establishing good practice for the management of innovation and could such a framework be adopted commonly across the industry?

We are not aware of any specific guidelines of good practice for the management of innovation suitable for implementation across DNOs. However we recognise the importance of ensuring that such good practice emerges. One approach would be to ask DNOs to each submit to Ofgem a statement outlining the policies that they adopt in regard to technological development. Typically, this would include the set of points shown in the bullet points listed in Section 2.5 of the paper.

Whilst good project management is clearly an important component of best practice it is also vital that it is recognised that the quality of the sustainable relationships and the ongoing production of creative and viable ideas will maximise the likelihood of success. This needs to be fully embedded in the best practice guidance which needs to recognise the range of various approaches that should be adopted at different stages of the development cycle i.e. that suitable for the creative idea generating phase of activity will be different from a more goal focused approach later in the project.

6. Should the IFI percentage cap be varied between companies according to performance or some other criteria?

Varying the IFI percentage gap between companies is likely to be difficult to equitably manage. However as mentioned in the response to Question 3 those organisations with a track record in innovation and suitable innovation policies and procedures, should be able to increase their expenditure more quickly and reach the cap in an earlier year than those who need to develop the necessary expertise, policies and procedures.

Registered Power Zone (IFI) Questions

7. Do you share Ofgem's view that DG is likely to be connected more efficiently if innovation and new solutions/technologies are employed?

We believe that there is a growing body of evidence that supports Ofgem's view that DG is likely to be connected more efficiently if innovation and new solutions/technologies are employed.

8. Do you have a view regarding the annual RPZ MW capacity and numbers of projects that might be appropriate per DNO licensee per year, and whether the number should be allocated by the suggested gold, silver and bronze categories?

The RPZ proposals seem to be narrowly focused on the issues surrounding the connection of relatively small scale generation and propose what could be characterised as arbitrary and prescriptive rules, rather than (as was proposed in the initial paper) challenging the DNOs to come up with innovative solutions without constraints. We believe that the potential success of RPZ's in encouraging new DG connection solutions and other innovative changes is likely to be inhibited and compromised if Ofgem seeks to be too prescriptive in the controls that it establishes on their number and scale. Whilst Ofgem may wish to issue general guidance on such numbers and scale – so at to ensure that the quality of the registered power zone label is maintained - the scheme should be structured such that Ofgem has the discretion to register more or larger schemes for a DNO where the potential customer benefits merit it.

9. Should the premium return be common for all RPZs or should it be related to the innovative content of the project? If the latter is considered appropriate, is the gold, silver, and bronze approach helpful, or can you suggest a better alternative?

There is a balance to be drawn between the overall complexity of the scheme and the desire to encourage technological innovation. Reviewing each project individually to assess its performance against the criteria in Table 2 is not likely to be practical. The idea of a small number of categories thus seems preferable

However it will be necessary for the criteria under which projects are allocated to the categories to be clear. Possible factors that could help to assess the quality of projects could include

- Materiality – examples of this could be the amount of DG which can be directly connected as a result, and improvements in quality of supply
- Replication - the scope for repetition and replication of the project maximising overall materiality
- Uniqueness – the extent to which similar techniques have been used in the UK or in the world
- Information and communication technologies – the scale of the use of emerging technologies and the use of real-time information
- Equipment – the use of specially developed and potentially still prototype equipment

10. Is it practical to base financial rewards on a project meeting or failing to meet performance objectives?

We would welcome clarification of Ofgem's position here. There is a statement that Ofgem acknowledges the nature of innovation and that success cannot be guaranteed, even in well managed projects. We have suggested a mechanism in the response to Question 11 that may provide some comfort to DNOs who are investing in relatively risky projects. However the introduction of mechanisms to base financial rewards on the meeting of performance objectives is likely to be complex and difficult to implement and operate and could be inequitable in view of the potential DNO risks.

Reference is made in the paper for there to be risk mitigation plans to "counter **any** (*EDF Energy emphasis)* foreseeable technical problem" within RPZ. Whilst risk mitigation plans are a normal part of such projects this requirement seems excessive and some element of reasonableness needs to be introduced

11. Do you think a mechanism relying on an enhanced £/MW driver to provide a premium return is appropriate, and if not what alternative could be considered?

We are not wholly convinced that a simple £/MW driver would necessarily be the most effective in encouraging innovative approaches. Whilst it will perhaps drive the connection of additional generation, the newest and most innovative approaches are likely to be initially piloted on a relatively small-scale. Thus the RPZ incentive in such cases would be quite limited. This could perhaps be mitigated by establishing minimum per project per annum regulatory benefit figures – a higher figure for gold projects and a separate lower one for silver ones. These would provide a floor for the incentive associated with a project and thus would help to mitigate the risks to the DNO. The DG £/MW * RPW Factors would also be applied so that if this calculation resulted in a figure that was lower than the "floor" then the floor figure would be used; whilst if it exceeded the "floor", the calculated figure would be used.

12. What lifespan do you consider should assigned to an RPZ and to the premium return?

In order for there to be a meaningful incentive to DNOs to pursue the establishment of RPZ's then the period for which a premium return is payable needs to be as high as possible. Thus we support a 10 year period from the date of establishment of the RPZ

13. What premium do you consider to be appropriate to encourage innovation in DG connections and how could this be justified?

As previously mentioned there will need to be a meaningful incentive for DNOs to pursue the establishment of RPZ's. This will need to be sufficient to recompense DNOs for the additional risks that they will be taking in establishing such zones. A level around twice the weighted average cost of capital as used by the NGT incentive scheme seems appropriate.

14. Do you have a view on how, in principle, the boundaries of RPZs might be defined? Should they, for example, encompass a physical area, rather than simply an electrical node? Do you see potential, in design or operation, for outsourced specialist services?

There needs to be some flexibility in the definition of RPZs so that they can be defined appropriately for each individual case. For example, there should be an option – where appropriate - to define the RPZ by electrical network rather than geographically. In some cases it may be appropriate to limit the RPZ to perhaps one or two of the voltage levels in a particular area. Indeed in some densely loaded areas where there are multiple over-layed systems it may be suitable for only one of these to be an RPZ.

15. In your view, how should the RPZ initiative be funded?

Whether RPZs will, in the short-term, be self-financing - which we interpret as meaning that the cost of connection will be less than the conventional connection solution – is at this stage unproven. Whilst in some cases this may well be true there are also likely to be cases where it is not. It is suggested that this could be handled by restricting the connection charge to the generator resulting from the application of connection charge policy (which itself may have been changed from current practice following the review currently being undertaken on the structure of charges) to the lower of the cost of the conventional connection solution or the innovative RPZ solution. Costs not covered by the connection charge should be recovered either from site specific or generic generator distribution use of system charges or potentially, to some extent, from demand distribution use of system charges.

General Questions

16. Can you suggest alternative regulatory mechanisms that might better deliver the stated objectives of the IFI and RPZs?

We are supportive to the general principles of both the IFI and RPZs and believe these are suitable regulatory mechanisms to take forward. However we have made suggestions elsewhere in this response on ways to increase the likelihood of success on the two initiatives.

17. Would it be helpful to consider whether IFI and RPZ arrangements could be introduced on an interim basis, ahead of commencement of the next price control period in 2005?

We believe that serious consideration should be given to the introduction of both the IFI and RPZ arrangements as soon as possible. The beginning of the next price control period in 2005 is arbitrary as far the introduction of innovative ideas on the network is concerned. If such opportunities emerge in the near future there is a risk that their development will be delayed until 2005 in order to obtain the potential benefits either as they are outlined in the paper or as they may subsequently be amended. However if DNOs are to move forward with such projects on an interim basis before 2005, they would need to be clear on the details of such interim arrangements.

EDF Energy
August 2003