Innovation and Registered Power Zones – Discussion Paper – July 2003

A Response by British Gas Trading

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EXECUTIVE SUMMARY

British Gas Trading (British Gas) agrees that innovation is important in delivering future efficiencies where, for example, the cost of a given standard/quality of output is delivered at lower cost. Consequently, it is important that the regulatory regime not just facilitates but incentivises efficient (appropriate and effective) levels of innovation.

If distribution network operators (DNOs) are not achieving a sufficient level of innovation then Ofgem should improve incentives in this area or remove other barriers to innovation. However, it is not clear from Ofgem's report that DNO innovation (which includes R&D expenditure) has been or will be at inappropriately low levels.

Innovation funding incentive

Assessing the level of innovation is difficult as it includes many aspects including the R&D reported in companies' annual accounts, as well as investments in capital equipment, skills, market development, new ways of working and other intangible assets.
A simplistic way to assess DNO innovation might be to look at DNO efficiency.

Current levels of R&D expenditure might reflect the appropriate (efficient) levels in light of the historic and current non-R&D related low hanging fruit largely as a consequence of the post privatisation effect.

Operating expenditure (opex) and capital expenditure (capex) efficiency neutrality (via increased capex efficiency incentives) will remove the: -

- Existing distortions away from R&D led efficiency and may increase the real levels of R&D expenditure.
- Current perverse incentives to inappropriately reclassify capex expenditure as opex and may increase the declared levels of R&D expenditure.

We note that Ofgem does not agree that a 50:50 customer:company incentive share is appropriate. We believe that Ofgem should consider this further.

Even if the erosion of the post privatisation effect is not yet sufficient to justify increasing DNO incentives generally then the unique challenges of DG may be sufficient reason to do so.

Only if it is not appropriate or practical to enhance DG or general incentives and DG R&D needs to be increased should the Innovation Funding Incentive be introduced.

Registered Power Zones

Many of our comments elsewhere with respect to the Innovation Funding Incentive are applicable to Registered Power Zones (RPZs). It is not clear why either enhancement of general incentives nor introduction of appropriate DG-related non-RPZ incentives would not deliver a better outcome.

The significant advantage of RPZs appears to be the sharing of the results (best practice) with other DNOs. Because of the potentially significant benefit to society of DG, this would appear to be a desirable outcome until such time as DG becomes a business as usual DNO activity.

Despite our reservations, we believe that RPZs deserve additional consideration and development. However, their implementation should be considered in conjunction with, not separate to, the development of DG-related incentives generally.

1. INTRODUCTION AND GENERAL COMMENTS

British Gas Trading (British Gas) welcomes the opportunity to respond to Ofgem's consultation in respect of 'Innovation and Registered Power Zones'. British Gas has a significant interest in the outcome of this issue because of our extensive presence in the gas and electricity markets.

The main part of this response covers our detailed comments. Answers to Ofgem's specific questions are contained in Appendix A of the response.

British Gas is happy for this non-confidential response to be placed in the Ofgem library.

2. Detailed comments

British Gas agrees that innovation is important in delivering future efficiencies, for example the cost of a given quality/standard of output being delivered at lowest cost. Consequently, it is important that the regulatory regime not just facilitates but incentivises efficient (appropriate and effective) levels of R&D.

3. Innovation funding incentive

3.1 What is an efficient level of R&D expenditure?

The Department for Trade and Industry (DTI) has an R&D Scorecard that provides an indication of research and development spending in a range of business sectors. This is presented as "R&D intensity" which is the R&D spend expressed as a percentage of a company's turnover. Ofgem notes that the available data, which may be incomplete, indicates that the Distribution Network Operators' (DNOs') R&D intensity is less than 0.1% and that this is significantly less than broadly comparable companies on the scorecard.

The DTI notes that: -

"What the Scoreboard **doesn't** [our emphasis] say

- That the R&D reported in companies' annual accounts is the only measure of innovation. Investments in capital equipment, skills, market development, new ways of working and other intangible assets are all methods of gaining competitive advantage.
- That it is simply a case of investing more. The Scoreboard is rather an international benchmarking tool to help companies decide if they are investing the right amount compared to competitors within their sector as part of their overall business strategy.
- That it is the only source of information. Companies and their shareholders are best placed to assess this and all the other information relevant to their business plans."

If distribution network operators (DNOs) are not achieving a sufficient level of innovation then Ofgem should improve incentives in this area or remove other barriers to innovation. However, it is not clear from Ofgem's report that DNO innovation (which includes R&D expenditure) has been or will be at inappropriately low levels.

3.2 How should DNO innovation be assessed?

Assessing the level of innovation is difficult as it includes many aspects including the R&D reported in companies' annual accounts, as well as investments in capital equipment, skills, market development, new ways of working and other intangible assets.
A simplistic way to assess DNO innovation might be to look at DNO efficiency.

Since privatisation, DNOs' costs have fallen significantly faster than the rest of the economy whilst the level of DNO outputs (e.g. quality of supply) have generally been stable or increasing. Ofgem's analysis of DNOs' recent performance indicates that they continue to significantly outperform their price controls, i.e. DNOs have improved their efficiency considerably faster than the rest of the economy.

This improvement in efficiency has come about through a range of changes to the way DNOs operate their businesses. The measure of efficiency indicates that DNO innovation is high. The existing RPI-X incentives will continue to encourage innovation (efficiency). Ofgem has existing and developing techniques to assess the efficiency of DNO activities. These existing incentives (enhanced and/or with additional DG-related incentives where appropriate) should provide the best method of producing innovative behaviour yet allow Ofgem to adequately reward successful (efficient) outcomes.

3.3 Why might current DNO R&D intensity be so low?

3.3.1 Differential opex and capex incentive rates

R&D disincentive

Ofgem's analysis has recently clearly demonstrated that the reward (incentives) for operating expenditure (opex) efficiency (avoided expenditure or underspend) is greater than the reward for similar capital expenditure (capex) efficiency, approximately 29% for opex and 11% for capex where the DNO incentive retention period is five years.

R&D is usually an opex activity although the benefits to customers may come in the form of lower opex or capex costs. For capital-intensive industries like DNOs, R&D could be expected to primarily provide capex efficiencies. There is a higher DNO hurdle rate for R&D expenditure where the eventual efficiency is in the form of capex costs because of the differential incentives.

Opex and capex efficiency neutrality (via increased capex efficiency incentives) will remove the existing distortions away from R&D led efficiency and may increase the levels of R&D expenditure.

Inappropriate reclassification of R&D expenditure

Because of the differential opex and capex incentive rates, DNOs have a perverse incentive to reclassify opex expenditure as capex expenditure. The effect of reclassification is to provide DNOs with cash windfalls that are the net of the: -

- Opex efficiency incentive received (29% - larger amount); minus
- Capex efficiency incentive forgone (11% - smaller amount).

Consequently, actual R&D expenditure (opex) may be higher than the amounts declared by DNOs because of inappropriate opex to capex reclassification.

Opex and capex efficiency neutrality (via increased capex efficiency incentives) will remove the current perverse incentives to inappropriately reclassify capex expenditure as opex and may increase the declared levels of R&D.

3.3.1 Post privatisation effect

It is now generally accepted that DNOs were very inefficient at privatisation largely because their previous government ownership structure provided little if any incentive to innovate or minimise costs. DNOs were privatised under an RPI-X form of price control. This form of control provides relatively strong incentives to efficiency (innovation). As noted earlier, DNO efficiency has increased significantly since privatisation.

A recent paper prepared by DNOs and submitted to Ofgem notes: -

> "Where a DNO has a range of potential opportunities for efficiency improvement, it will not necessarily take advantage of all of them. There are the resource costs associated with a particular savings project. Managers have limited time and competing priorities. The resource costs are not necessarily proportionate to the size of savings available. This explains why, contrary to profit maximisation theory, many small sources of savings are not exploited. There can also be cash flow constraints. Whether or not the NPV of a project is positive, there could be short term financing issues that prevent the project going ahead. In addition, projects may well have an element of risk attached. To take account of this, a higher hurdle rate of return may be required, or alternatively a hurdle absolute NPV (e.g. only projects that exceed an NPV of £5 million will be attempted)."

DNOs are likely to choose to improve efficiency via the easy pickings first. R&D related efficiency improvements present a higher degree of risk than many others, for example, manpower reductions and changes to working practices. The privatisation effect has meant that there have been significant amounts of easy efficiency savings that DNOs have been able to take advantage of, for example in relation to reducing the previously excessive levels of manpower. That is, DNOs have largely been able to choose the 'low hanging fruit' largely non R&D related efficiency improvements. Only when the 'low hanging fruit' is becoming exhausted will continued DNO efficiency improvements be dependent on those elements requiring additional effort and risk, namely investment and R&D expenditure.

Current levels of R&D expenditure might reflect the appropriate (efficient) levels in light of the historic and current non-R&D related low hanging fruit largely as a consequence of the post privatisation effect.

3.4 Do incentives need to increase to provide increased levels of DNO R&D intensity in the future?

3.4.1 Differential opex and capex incentive rates

As noted earlier, opex and capex efficiency neutrality (via increased capex efficiency incentives) will remove the: -

- Existing distortions away from R&D led efficiency and may increase the real levels of R&D expenditure.
- Current perverse incentives to inappropriately reclassify capex expenditure as opex and may increase the declared levels of R&D expenditure.

As noted in British Gas's response to Ofgem's "Electricity Distribution Price Control Review – Initial consultation – July 2003": -

> "Ideally, the incentive mechanism for companies to pursue efficiency savings would be capital expenditure / operational expenditure neutral and accordingly, we believe that developing a mechanism that achieves parity warrants further investigation."

3.4.1 Erosion of post-privatisation effect

As noted earlier, only when the post-privatisation effect 'low hanging fruit' is becoming exhausted will continued general DNO efficiency improvements be dependent on those elements requiring additional effort and risk (higher DNO hurdle rates) namely investment and R&D expenditure.

In general terms, the greater the DNO incentive the greater the likelihood and amount of efficiency improvement (innovation) as DNO risk is reduced (lower DNO hurdle rates). However, beyond a particular size of DNO incentive the value of the efficiency improvement delivered to customers in the form of reduced prices begins to reduce. Hence, there is likely to be an ideal DNO incentive level, many commentators consider this to be in the region of a 50:50 customer:company share. However, the need to move to such an increased share depends to a large degree on the extent to which the post privatisation easy wins have been (or will soon be) eliminated, i.e. if it is easy for DNOs to continue to achieve significant efficiency improvements then they do not require additional incentive to do so. Conversely, if further efficiencies will only materialise if there is further R&D and / or investment then incentives will need to increase.

If the DNO efficiency incentives are set at the appropriate rate, then those incentives will deliver the efficient behaviour. This efficient behaviour may (but need not) include R&D expenditure.

As noted in British Gas's response to Ofgem's "Electricity Distribution Price Control Review – Initial consultation – July 2003": -

> "It is therefore essential that an incentive mechanism creates a climate where companies seek continuous improvements and implement these as soon as identified. We note that Ofgem does not agree that a 50:50 share is appropriate, however, no justification for this view is given. We believe that as the marginal rate of out performance declines i.e. greater efficiencies become more difficult to achieve, the incentives provided need to be greater. We believe that Ofgem should consider this further."

3.4.2 Challenges of distributed generation

Facilitating distributed generation (DG) is, until such time as DG becomes business as usual, going to require increasing levels of innovation, which includes R&D. If the government is to meet its environmental targets and further aspirations then DG will need to provide an important and increasingly large contribution. Because of the importance of DG, it is important that DNOs sufficiently prioritise DG innovation compared to other possibly easier forms of innovation.

Therefore, even if the erosion of the post privatisation effect is not yet sufficient to justify increasing DNO incentives then the unique challenges of DG may be sufficient reason to

do so. However, if this is the case then increased DNO incentives should be ring-fenced to DG related expenditure which in turn will increase DNO incentives to increase their DG related innovation (including R&D) if that is the efficient outcome. British Gas's response to Ofgem's "Electricity Distribution Price Control Review – Initial consultation – July 2003" contains our detailed views on DG incentives.

3.5 Does the Innovation Funding Incentive have a role to play?

R&D is just one form of innovation. Even if (increased levels of) R&D is the efficient response it is far from clear what the efficient levels should be. Moreover, some R&D will be more efficient in terms of outcomes than others. The proposed form of Innovation Funding Incentive (IFI) will incentivise increased amounts of R&D per se.

As noted earlier, it is preferable to review and if appropriate amend the general level of or DG-specific incentives to ensure that the regulatory regime not just facilitates but incentivises innovation which includes efficient (appropriate and effective) levels of R&D. Only if it is neither possible nor practical to do this, and increased levels of DG-related R&D are justified should the IFI be introduced. However, in this instance the IFI should be: -

- Limited to DG-related expenditure;
- No more than 0.5% of turnover; and
- Related to outcomes (effectiveness) and not R&D per se.

It would also be important to be able to verify the expenditure to avoid DNOs reclassifying other expenditure as IFI to effectively gain an inappropriate cash windfall. We additionally agree with Ofgem's thinking in relation to price controls generally, i.e. that a multitude of incentive mechanisms should be avoided as it increases the risk of company gaming or other inappropriate responses.

4. Registered Power Zones

Many of our comments elsewhere with respects to IFIs are applicable to Registered Power Zones (RPZs). It is not clear why either enhancement of general incentives nor introduction of appropriate DG-related non-RPZ incentives would not deliver a better outcome. Ofgem should be incentivising an efficient outcome, say a particular standard/quality of DG connection at lowest cost, by setting the DNO incentive at an appropriate (premium?) level. RPZs are a poor second to such an approach as they relate to inputs not outputs. I.e. they incentivise innovation/experimentation for their own sake. If incentives could be linked to efficient outcomes rather than inputs, the potential benefits of the RPZ scheme could be significantly enhanced.

If RPZs are to be used then it is the net effect of the amount of premium return plus period over which it is to be paid that is important. The amount of premium return and period of incentive should not be considered in isolation. Ofgem's rationale appears to be that the greater the experimentation the greater the financial reward to the DNO. However, the level of experimentation does not necessarily determine the level of efficiency. The Ofgem approach is likely to incentivise experimentation per se. Ideally, the DNO incentive should be related to the outputs, i.e. to the efficiency improvements delivered by the project. This would of course mean that some projects would not qualify for any funding. Enhancing non-IFI incentives would be likely to deliver this desirable outcome.

Ofgem's rationale for twice Weighted Average Cost of Capital (WACC) would be appreciated. If RPZs are to be introduced then the incentive should be directly proportional to the additional risk, if any, being borne by DNOs. A modest WACC plus 1% would appear to be reasonable on the information presented in the Ofgem document.

The significant advantage of RPZs appears to be the sharing of the results (best practice) with other DNOs. Because of the potentially significant benefit to society of DG, this would appear to be a desirable outcome until such time as DG becomes a business as usual DNO activity.

Despite our reservations, we believe that RPZs deserve additional consideration and development. However, their implementation should be considered in conjunction with, not separate to, the development of DG-related incentives generally.

The Appendix to this response contains British Gas's response to the individual questions posed by Ofgem.

Tahir Majid/Regulatory Affairs/British Gas/ 26.08.2003

Appendix A – Ofgem Questions

Intellectual Property Question

Q1. Do you have any specific views on the management of intellectual property that may be created through the IFI and RPZ initiatives?

An: Ofgem should not rule out DNOs retaining intellectual property rights. DNOs can currently retain intellectual property rights as a consequence of their other price control funded activities. It will be important to ensure that excluding these rights from IFI and RPZ initiatives does not act as a significant barrier to DNO participation. Ofgem should further explain its thinking in this area.

Innovation Funding Incentive (IFI) Questions

Q2. Do you support Ofgem's rationale for introducing the IFI? Do you consider the IFI to be aligned with consumers' interests?

An: It is preferable to review and if appropriate amend the general level of or DG-specific incentives to ensure that the regulatory regime not just facilitates but incentivises innovation which includes efficient levels of R&D. Only if it is neither possible nor practical to do this, and increased levels of DG-related R&D are justified should the IFI be introduced. However, in this instance the IFI should be: -

- Limited to DG-related expenditure;
- No more than 0.5% of turnover; and
- Related to outcomes (effectiveness) and <u>not</u> R&D per se.

Therefore, it is not clear that the proposed schemes are either an appropriate regulatory response nor are aligned with customer's interests.

Q3. 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.

An: The DTI yardstick is a useful indicator. However, it should be used alongside other indicators to evaluate DNO innovation levels. As the DTI itself notes, the R&D scorecard should not be used to target specific levels of expenditure. As noted in Q2 above, if the IFI is introduced it should be set no higher than at a modest 0.5% of DNO turnover for DG-only R&D.

Q4. 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?

An: Ofgem's rationale appears to be that the greater the R&D the greater the financial reward to the DNO. However, the level of R&D does not necessarily determine the level of efficiency. The Ofgem approach is likely to incentivise R&D per se. Ideally,

the DNO incentive should be related to the outputs, i.e. to the efficiency improvements delivered by the project. This would of course mean that some projects would not qualify for any funding. Enhancing non-IFI incentives would automatically deliver this desirable outcome.

Q5. What are your views on establishing good practice for the management of innovation and could such a framework be adopted commonly across the industry?

An: Facilitating the spread of best practice is likely to be beneficial. There is merit in considering this further.

Q6. Should the IFI percentage cap be varied between companies according to performance or some other criteria?

An: As noted in Q4 above, the funding should be ideally output related. This approach would automatically have a performance related component.

Registered Power Zone (RPZ) Questions

Q7. Do you share Ofgem's view that DG is likely to be connected more efficiently if innovation and new solutions/technologies are employed?

An: Innovation is important for any DNO activity. However, it is likely to be especially important to DG until DG becomes business as usual.

It is not clear why either enhancement of general incentives nor introduction of appropriate DG-related non-RPZ incentives would not deliver a better outcome.

The significant advantage of the RPZ appears to be the sharing of the results with other DNOs.

Many of our comments elsewhere with respects to IFIs are applicable to Registered Power Zones (RPZs).

Q8. 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?

An: An explanation of Ofgem's rationale for the parameters selected would be appreciated.

Q9. 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?

An: As noted above, it is better to incentivise DNO behaviour by having a sufficient incentive rate or incentive premium to deliver an efficient DG outcome.

Q10. Is it practical to base financial rewards on a project meeting or failing to meet performance objectives?

An: Ideally it should be based on delivering efficient outcomes and not necessarily on meeting the initial (possibly flawed) objectives. Also see response to Q9.

Q11. 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?

An: It is better to ensure that the general DG related DNO incentive is set at the right level to deliver the efficient outcome, innovation may or may not be part of that. £/MW appears to be a reasonable DG incentive parameter.

Q12. What lifespan do you consider should [be] assigned to an RPZ and to the premium return?

An: If an RPZ is to be used then it is the net effect of the amount of premium return plus period over which it is to be paid that is important. The amount and period of incentive should not be considered in isolation. Ofgem's rationale for the proposed 5 to 10 years would be appreciated?

Q13. What premium do you consider to be appropriate to encourage innovation in DG connections and how could this be justified?

An: See answer to Q12. Ofgem's rationale for 2 * WACC would be appreciated. The reward should be directly proportional to the additional DNO, risk if any. A modest WACC plus 1% would appear to be reasonable.

Q14. 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?

An: No views.

Q15. In your view, how should the RPZ initiative be funded?

An: If RPZs provide benefits then those benefits accrue to distributed generators. Consequently, the costs should be passed onto future generators and not demand. Ofgem should be mindful of the fact that existing generators have already fully paid up-front deep connection charges.

General Questions

Q16. Can you suggest alternative regulatory mechanisms that might better deliver the stated objectives of the IFI and RPZs?

An: See main body of this response and British Gas' response to Ofgem's "Electricity Distribution Price Control Review – Initial consultation – July 2003".

Q17. 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?

An: Though IFI and RPZ arrangements might not be the best way forward, if they are to be introduced then it would be better to introduce them as soon as possible before the next price control period. This would allow an assessment, on a trial basis, of their effectiveness at delivering efficient outcomes prior to introducing them for the longer 5-year price control period.