PIU ENERGY PROJECT : ELECTRICITY AND GAS NETWORKS – INITIAL SCOPING NOTE

1 Introduction

This note provides an excellent summary of current issues. It poses a number of relevant questions, not all of which can be answered immediately. However, what is needed is to structure the issues so that decisions can be taken in an appropriate sequence. If, for example, it is necessary to re-design electricity distribution networks to facilitate the development of greater volumes of diverse renewable generation, work to establish the basic design should precede more detailed work on the structure of charges or the duration of access rights. In the time available we have not been able to make a complete response along these lines. However in the sections below, we provide an initial reaction to the questions posed.

In summary, our view is that the gas and electricity networks should be seen as facilitators of wider energy market developments. What is important is to establish a clear vision of the future, so that infrastructure investments can be encouraged that are consistent with the longer term policy goals. Most network investments made now will still be operational in 2050. Network providers need to be encouraged to provide assets that will meet the needs of customers for many decades into the future. This requires a framework of incentives that will continue to focus attention on the core service levels that customers have come to expect, whilst also stimulating the development of services in new areas (such as connection of more embedded generation) where this aligns with broader long term government policy goals. We hope to have the opportunity to expand on these ideas during the life of the project.

2 General Background

Is the concept of a natural monopoly a useful one to apply to these networks ? Is it likely to remain so for the foreseeable future ?

Yes. Once a network has been created, it has such a strong competitive advantage over a new entrant, that it is effectively in a monopoly position. However, the initial creation of a network is not a monopoly, and there is increasing interest from other parties in building new networks on green field sites. These too will become local monopolies. For this reason we have argued that all network businesses of a particular type should have common licences. All aspects of the new electricity distribution licences should be applied to any operator of such a network.

It is the monopolistic characteristic of electricity distribution networks that underpins the present low cost of capital used in price regulation. Investors have been prepared to accept comparatively low rates of return from these businesses because of their reasonable assurance of cost recovery.

If there were some technological breakthrough which removed the substantial fixed cost associated with distribution of electricity or gas or allowed the network to be circumvented (by domestic CHP, for example), the monopoly position could not be relied upon and the question would arise of how to deal with potential stranding of network assets.

Is it appropriate to apply common carriage access to the main networks and NTPA to other wires and pipelines ?

Common carriage is part of a commercial package that secures common access to distribution networks in order to support competition in energy supply. It is essential, if such competition is to be successful, that all suppliers know that they are equally able to gain access to, and use, local distribution facilities. Such an approach is normally coupled with rights to cost recovery (including an appropriate return) for the network operator. Negotiated Third Party Access (NTPA), with rights of appeal to the regulator, may not turn out to be too different, unless it leads to more unbundling of costs on the basis of location. It is worth noting in this regard that Ofgem's recent proposals on transmission access potentially represent something of a shift away from common carriage.

Where do the natural monopolies end ?

As mentioned above, this is primarily about shared assets. If joint-use assets make up an appreciable part of the delivery path, the scope for competition is markedly reduced.

3 Background and Existing Networks

No questions are posed.

4 Key Issues for Network Regulation

Is it appropriate that, where practicable, network users should pay different prices depending on the costs they impose on the networks ? If not, why not, and what could be an alternative approach?

Cost reflective charges are important if the overall costs of meeting demand are to be kept down. This will encourage customers and generators to take account of the network operator's costs in choosing their location, for example, and should ensure that the network operator is able to make some return from all the customers it services. The more challenging question is to identify the extent of bundling of costs that is appropriate. Traditionally network costs have been averaged across quite broad geographical areas and classes of customer, but it is clear that the actual costs of providing network services to a property in urban Manchester will be lower than for a property in a remote Lakeland hamlet. Such differences can be absorbed only for as long as widespread competition does not become a reality. We favour an approach where cost differences that can be made as a result of customer choice are made explicit. This would include the customer's choice of metering or the payment terms agreed with a supplier. Many network cost differences can be isolated in connection charges, leaving the ongoing network usage charges standard.

Are the approaches used by Ofgem to tackle information asymmetry between regulator and regulatee appropriate ? Are there better ones ?

We agree with the paper that information asymmetry has diminished over time. RPI-X regulation does not need perfect information on costs at the outset. Companies' behaviour will reveal their cost structures over time. We are more concerned that Ofgem's attempts to compare performance between companies takes insufficient account of the differences, inherent or inherited, that contribute to overall costs. We welcome Ofgem's proposal, within the Information and Incentives Project, to engage independent contractors to develop a normalisation model. This will be a difficult task, and sufficient time must be allowed for the work to reveal all significant drivers of cost differentials, which can then be used within price control reviews as well as to allow comparison of service performance.

Is Ofgem striking the right balance between seeking costs (and hence price) reduction and investment and maintenance of the quality of service ?

We do not yet believe Ofgem have fully addressed this question. The Information and Incentives Project was a recognition that the link between price and service quality was not fully taken into account at the last price control review. Within the IIP, it has been acknowledged that Ofgem need more information on the links between medium term network performance and short term expenditure. It is also necessary to establish how customers see the trade off between price and quality. We have been urging Ofgem to research customers' willingness to pay for various aspects of service enhancements.

If not, what are the implications for the approach to network regulation ?

Until price and quality (long, as well as short-term) are brought together in the price control review, the regulatory framework will continue to be vulnerable to criticism. Given the long-term nature of most network assets, there needs to be a clear understanding of the medium term performance expectations for the network. Around these can be built investment plans that aim to sustain the required performance at minimum cost.

Is Ofgem's approach to measuring network quality in terms of numbers and duration of involuntary interruptions appropriate ?

Ofgem have identified two very important measures of service to customers. However it is unlikely that these will capture all the aspects of performance that matter to customers. For example, Ofgem are also investigating standards of performance related to 'worst served customers', intended to target those customers who experience more interruptions each year. This demonstrates the difficulty of defining customer requirements solely in terms of average performance. We believe that a portfolio of measures will be needed to embrace the many dimensions of service that matter to customers.

Is there a need for more market-based instruments to allocate existing capacity and improve investment decisions, and if so, how could they be introduced ?

This is more a question for transmission systems. We see difficulties, especially at the distribution level, of creating the appearance of preferential arrangements for delivery when the network can not be segmented. We also remain wary over the proposition that investment decisions can be based on short-term market activity. It is hard to escape the conclusion that the regulator must effectively specify the capacity to be provided and then ensure that the network operator is able to fully recover the costs of efficiently providing that capacity.

Are the costs of introducing such measures likely to outweigh their potential benefits?

This challenge has been put to Ofgem in response to their consultation on transmission access. We certainly feel that the burden of proof should be with those proposing yet more upheaval to the market.

Are capacity auctions and tradables access rights appropriate instruments and, if not, what instruments might be used ?

As discussed above, we suspect there are limitations on the practical aspects of implementing market-based solutions. At one level the costs of operating markets may outweigh the benefits, while at another level we suspect that major investment decisions will always need to be supported by regulatory commitments on cost recovery.

Has the balance of network charges tended to favour producers in Scotland and Northern England to a greater extent than warranted by variations in cost?

We believe this to be a transmission issue on which we are not qualified to comment.

Are the recommendations of the EG Working Group consistent with a general approach of cost reflective pricing for networks ?

The EGWG recommendations do not need to take us away from cost reflective pricing, but we are concerned that there will be continuing pressure to dampen cost signals in our pricing. We also think it is important to separate the discussion over price structures (which should provide incentives for other parties) and the need for explicit incentives on network operators to support the development of embedded renewable and CHP plant. We have recently written an article for Utilities Journal on this subject, a copy of which is attached.

Do they address the key problems identified with embedded generation ?

There are more issues related to embedded generation than just the network related ones covered by the EGWG; for example difficulties with planning consents have probably frustrated more projects than connection charges. Also uncertainty over wholesale market prices does not create the confidence necessary to invest. However we felt the EGWG had identified the main network issues, although the management of the programme for tackling them seems to lack the urgency needed if 2010 targets are to be satisfied.

Is reform of distribution network regulation the most important network issue at present ?

Having an appropriate framework for regulating network businesses is an essential prerequisite for delivery policy objectives. However it is more important to establish what the policy goals are. If we are to change the way networks operate, so as to accommodate more local generation, or to seek a concerted improvement in service levels, the new design standards must be specified. The first priority for networks is therefore to agree their future role. Having done that, a regulatory framework which will support and encourage delivery of those ambitions must be defined and implemented.

5 Networks and security

Should consumers of all kinds be given further encouragement to consider their own security requirements, and if so, how?

For the vast majority of customers the standard of security provided by their local network is perfectly adequate. The cost of providing on-site back up is often very high and unlikely to appeal to many customers. There may nevertheless, be merit in encouraging customers to think about the value of security, since this may help to inform future debate on standards of service, and the willingness of users to pay for changes. It is a characteristic of networks, that a wide group of customers must receive the same quality of service, and will therefore be asked to contribute to the costs related to that level of service. In specialised cases, on-site solutions will be more cost effective. However we need to be cautious before letting network standards fall in the expectation that individual customers would then take adequate precautions themselves

Is there a risk that current and proposed regulatory approaches would lead to inadequate investment in the networks ? If so, why and what is the appropriate means of securing adequate investment ?

Yes. Companies need to be confident that investment costs will be fully recovered over time, including an appropriate return. Ofgem’s Initial Thoughts on Incentives suggested that income would in future depend on out performing other companies. This would significantly increase the risk that investments were not fully remunerated. While the main regulatory pressures are to reduce costs and beat yardsticks, there will always be a tendency to under-spend rather than over-spend.

Incentive schemes should offer rewards for improving absolute performance, with additional income related to the value to customers of the service provided. Without confidence of future income, companies cannot be expected to seek to match customer demands.

We also believe it is important to take a longer term view of investment needs. It has become the norm to only look five years ahead for price control purposes. This is insufficient to ensure that medium term network performance is adequately addressed within investment plans.

Is there a case for a deliberate regulatory policy to encourage oversizing of networks on precautionary grounds ?

All network design standards embody a degree of redundancy and hence oversizing. We think it is appropriate to review network design standards to take account of current attitudes to service failure. This may lead to a more prudent approach. It may be more valuable to encourage debate on asset replacement policy, than to argue for oversizing, if the intention is to reduce the prospects of catastrophic failure. However there may be particular reasons for creating additional spare capacity, for example if this facilitates the connection of increased amounts of renewable or other novel generation.

We would strongly support the development of a medium-term vision of customers' expectations for service from our network, covering both the consumer perspective and the need to connect dispersed generation.

If so, how should this be done, to what extent, and who should bear the costs ?

As discussed above, there would be value in a fundamental review of service levels and capacities. This may not lead to any calls for change, but would at least provide the reassurance that design and operational standards were appropriate. If it were found necessary to advocate changes that would increase costs, the effect would have to be higher prices for customers. Network operators should still have the same expectation of cost recovery. Costs should, as far as practicable, be allocated to customer classes expected to benefit from the changes.

Is uncertainty created by regulatory changes currently being considered, causing medium-term security risks ? If so, how can these risks best be dealt with ?

We do not believe that the way we manage our network is creating security risks at present. There is a strong sense of stewardship of our network, that means we try to maintain and improve the quality of service. However we are concerned that some proposed reforms of the regulatory framework could cause problems in the future. The sooner a firm commitment is made to the approach to future price controls and service standards, the better. This will not only allow investment plans to be drawn up covering a longer period but will also reduce investor uncertainty over the reliability of future income streams.

Can market forces be relied upon to provide the appropriate number and capacity of international links, especially if energy market competition is less well developed than in the UK ? Is there a case for Government intervention to promote new links and if so, what form should this take ?

We would be very surprised if markets alone could achieve an appropriate outcome. Markets tend to be relatively short-term in their thinking and are unlikely to reflect the social consequences of disruptions to supply that may be caused by inadequate capacity. We see a role for Government or regulatory intervention to guide the specification of capacity requirements, though it should still be possible to use elements of competition to secure the most effective price for new assets.

What, if any, further steps need to be taken to ensure that trading and network arrangements for gas and electricity provide appropriate incentives for arbitrage between the two markets ?

We believe that transparency and cost reflective pricing should be encouraged in all markets.

What further lessons can the UK learn from network regulation in other countries with liberalised energy markets ?

This is a question we have been asking recently. We have commissioned research, which we hope will identify regulatory best practice around the world. We will be pleased to share the main findings of that research with you once complete.

6 Networks and the Environment

Should network access and trading arrangements be 'technology blind' ? If not, why not and how could environmental considerations be incorporated in a fair and transparent manner ?

Yes. We think that transparency of pricing is particularly important for monopoly infrastructure providers. By presenting fair, cost reflective prices in an open manner, network operators can help to inform the need for additional support for providers of particular forms of energy. Even where there is a clear desire to support developing technologies, such as new renewables, there is value in presenting appropriate cost signals to guide the location and operation of new plant. If there are public policy grounds for financial support for particular technologies, this should not be achieved by distorting the commercial arrangements for network access.

How should the local environmental impact of networks, and in particular, overhead electricity transmission lines, be taken into account in network regulation and investment plans ?

As with the discussion above on security issues, there is a need for consistent and enduring guidance on customers' expectations. These can then be built into future 'regulatory contracts', so that customers receive the price/quality balance that they prefer. Given the common service aspect of transmission and distribution the regulator will have to represent the general body of customers in striking this contract. He may find it helpful to have guidance from Government.

Is there a role for a designated independent expert, perhaps Ofgem, to advise local planners on the wider benefits of proposed new lines, so these can be weighed against local considerations ?

Local planning discussions can become emotive. We see merit in an independent economic assessment, and it may be helpful for Ofgem to take on that role.

7 Longer Term Network Changes

Does the above vision of electricity networks seem plausible ? If so, over what period might it evolve ?

We do not feel able to comment at this stage, but agree that such a question should be explored. This would be part of the work the EGWG recommended to be undertaken later this year. We would however note that the period necessary to achieve fundamental change would be determined not only by technical considerations but also by the costs that would result.

What might be the costs of moving to networks of this kind ?

as above

Would current approaches to network regulation, based on cost reflective pricing and investment to meet user requirements be able to deliver the non-marginal changes required? Would it be able to do so if the costs of carbon abatement were internalised in electricity prices ?

The traditional pricing models used by network businesses would have difficulty in coping with a change of this nature. At some stage prices would need to reflect the new world instead of the old. Without a clearer vision of how different things might be, it is hard to be specific. What would drive costs in the new model? It is not immediately obvious how the issue of carbon abatement costs is relevant. This is not necessarily a question of price levels, but one of structures.

If not, what does this suggest for approaches to network regulation and investment and, in particular, for any urgent changes to these approaches ?

Before such change could be achieved, assuming it would have significant cost implications, there would have to be a clear understanding of what was to be delivered and how much it would cost. This would become part of the future regulatory contract. There may be models from the world of water regulation where substantial environmental programmes have been delivered to meet tightening European standards. There is then a second, but still very important, question as to how companies would structure charges to reflect the economics of the networks that were being created. Typically charging structures have been changed gradually when underlying characteristics have altered in order to allow customers time to adapt. The sooner the long-term price structure could be published, the better, since that would provide the most appropriate signals for new users of the network.

These are big questions, which will need careful consideration and not precipitous action.

Should network reinforcement to accommodate large, remote sources of power be discouraged in order to provide stronger incentives for local generation ?

It is generally easier to provide positive incentives for desirable behaviour, than discouragement for less desirable options. If the social benefit of local generation is fully reflected in the rewards available, nothing more should need to be done.

How might such discouragement work ? Would it have unacceptable implications for generation costs and network security ?

see above

Would current approaches to network regulation, based on cost reflective pricing and investment to meet users requirements, be able to deliver the changes needed to accommodate significant new sources of gas and expand the network to more consumers ?

We do not feel qualified to answer this question.