The Future of Energy Regulation in Britain

Summary of academic workshop

Venue: Trinity Hall, Cambridge
Date: 11 December 2008

In March 2008 Alistair Buchanan announced the RPI-X@20 review; a two year project to review the workings of the current approach to regulating GB's energy networks and develop future policy recommendations. The recommendations of the review will be reported to the Ofgem Authority in summer 2010.

On 11 December 2008 we held an academic workshop on 'The future of energy regulation in Britain' as part of our on-going consultation with stakeholders. The workshop was attended by a small number of leading academics (economists and engineers) and practitioners from a range of regulated sectors. The basis for discussion at the workshop was the existing incentive based arrangements that are used to regulate the electricity and gas transmission and distribution networks.

The workshop was structured around four key themes:

- Technical change;
- Encouraging investment;
- Financing vehicles/contracts; and
- Increasing competition;

Each theme was introduced by two short presentations and then opened up to discussion. The slides from these presentations are available at: http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=15&refer=NETWORKS/RPIX20/PUBLICATIONS/PRESENTATIONS.

The presentations sparked active discussion amongst attendees on both the process of the RPI-X@20 review and the scope and range of issues that it should address. The meeting was conducted under Chatham House rules.

A number of common ideas and issues were discussed throughout the day and the keys themes which emerged are summarised below.

- RPI-X regulation has worked well in a static world. However, the framework may need to be adapted or extended to accommodate changes in the gas and electricity sectors, including the networks, as a result of the environmental challenge, technological change and the increased variability of demand.
- It is important, when considering the environmental agenda, to look at the energy sector as a whole. It is not only about regulation of networks. In this respect, it is useful to look at the experience of the energy sectors where competition has developed, to varying degrees, to appreciate any lessons that may be learned.

- The review is being conducted during a period of uncertainty about the future direction of environmental policy and turbulence in the financial markets. The regulatory regime will need to be flexible to accommodate changes over time.
- There may be a need to review governance and property rights issues to enable the gas and electricity sectors to adapt to optimally deliver the environmental agenda and to allow for options for competition in networks to be explored. Changes in the operation of the system may also be needed.
- The role of the System Operator, and interactions with the transmission asset owner, may need to change going forward. Regulation will need to adapt to ensure that incentives to provide a low cost energy system are in place across all networks and the System Operator.
- Innovation needs to be encouraged to allow for new challenges to be met. Associated risks will need to be taken into account in the regulatory regime.
- We need to consider how to get more efficient use of existing assets. Additional investment may also be needed but should not be presumed to be the only way forward.
- Regulation should continue to ensure that customers get value for money. An increased focus on customers, potentially through a formal constructive engagement type arrangement, may help facilitate this. This may be more feasible for transmission networks than distribution networks.
- Financing of investment will be more difficult going forward. Ofgem will need to consider whether it can be provided through the traditional return on RAV approach or whether alternative models or financing vehicles need to be considered.

Ofgem welcomes the contribution of the participants at the workshop to on-going thinking in the RPI-X@20 review.

Theme 1: Technical change

The presenters for this session provided an overview of the potential future direction of the electricity industry, as demonstrated by Ofgem's LENS project. Change is being driven by security of supply concerns, climate change, ageing assets, technology changes and the energy markets themselves. It was made clear that there are a number of feasible outcomes and no one is sure which one will emerge. Within the scenarios, there are trade-offs to be considered between expanding the existing system and developing alternative 'smarter' systems based on new technologies.

The presenters asked what role regulation would play, either in encouraging one particular scenario or in adapting to whatever emerged over time. They emphasised that the regulatory framework would need to be sufficiently flexible to allow for a range of possible outcomes.

Ofgem was encouraged to be more proactive in encouraging and facilitating change and it was argued that change should happen more quickly than it has done in the past (for example with the Transmission Access Review). Ofgem was also encouraged to look at the system as a whole, rather than networks in isolation. It was argued that this was needed to foster more interactions between generators (renewable and conventional), transmission networks, distribution networks and suppliers.

It was emphasised that the overriding consideration should be ensuring that the energy industries provide value for money for consumers. Ofgem would also need to tackle the reluctance that network operators have to invest in riskier technologies or to trial new

ideas. It was noted that the reluctance may be partly driven by concerns about not meeting Ofgem's quality of supply targets in the short-term.

Some participants at the workshop noted that the RPI-X framework had performed well in static networks that are well defined and independent of the market. However, they pointed out that the model may need to be adapted or extended in recognition of the advances in technology and the changing nature and variability of demands on the networks. It was suggested that there may be lessons from the regulation of the telecoms sector, potentially an example of a more dynamic industry. The discussion also highlighted the need to consider any overlaps and differences between the electricity and gas sectors.

Attendees at the workshop noted that network regulation should be looked at in the context of the energy system as a whole. They considered whether it was for Ofgem, the government, the industry or another body to identify market failures and potentially design the energy systems for the future. Some of the delegates considered whether there was a need for increased interaction between transmission and distribution networks, and between the networks and generation and supply markets. They also discussed the potential role that the System Operator could play in facilitating investment if given appropriate incentives.

There was a general discussion about whether competition for the networks was desirable and feasible. Some of the participants emphasised that regulation of energy networks had delivered efficiency benefits and reduced information rents. It was important to consider how to incentivise new technologies, and to encourage networks to be proactive in delivering investment, within the regulatory regime. As part of this, Ofgem may also need to consider ways in which innovation in the networks can be encouraged.

Theme 2: Encouraging investment

The presenters for this session considered whether customers could play a more active role in the regulatory process, particularly with regard to the determination of required network investment. Lessons from the energy sector in Argentina, Florida and Canada were discussed, alongside lessons from the airports sector in GB. Potential read-across to regulation of GB energy transmission and distribution networks was considered.

One of the presenters emphasised that the regulation of investment within RPI-X was the least satisfactory part of UK energy regulation. It was important to think about consumer preferences and optimise the existing assets in place rather than investing in new assets where these might not be needed. An increased role for the market should also be considered. Ofgem would also need to look at the question of where the risk of investment should sit: with the network companies or customers?

The presenters argued that experiences in Argentina, Florida, Canada and CAA airports provided evidence that negotiated settlement or constructive engagement can work and that the RPI-X@20 review should take this approach seriously in terms of its applicability to the gas and electricity sectors. It was recognised that it was potentially easier to develop a framework for transmission than distribution. One presenter also noted that it may be easier for the process to work when considering investment for improvements in quality rather than investment to expand capacity.

Both presenters emphasised that an increased role for customers would not absolve the regulator from being involved in the overall regulatory process. It is important to have a

strong regulator in place to act as a credible regulatory threat and there are cases where the regulator has had to step in to make decisions where the regulated business and customers could not agree. The regulator would have a role in providing objective information, and would need to monitor developments to ensure there was confidence that the process was fair and effective. The regulator may also need to take responsibility for considering the needs of future customers.

There was less consistency on what the role of the regulator would be with regard to investment choices. Here, one presenter thought the regulator should have a limited role and the other saw the regulator as using information provided through the constructive engagement process to inform overall decisions on investment within the price control.

In the discussion that ensued, there was a mix of opinions about the feasibility of using constructive engagement to encourage investment by energy networks. Some delegates were sceptical that it could work at all, some thought it was potentially feasible in transmission but not in distribution, while others thought it should be given serious consideration by Ofgem. For example, one workshop participant outlined that although constructive engagement provided a useful vehicle to agree the points on which there was general agreement, the approach did not have any merit in facilitating agreement where there was not already a general consensus.

Generally participants were of the view that constructive engagement could be considered as part of the regulatory regime, rather than being a replacement for RPI-X. The discussion re-emphasised the point made by the presenters, that a clear and well-defined regulatory framework still needed to be in place. There were also a number of questions as to how customer groups would be represented, particularly households and small business customers.

There were a number of comments during the discussion about whether the examples cited had provided the benefits that the presenters suggested. For example, one workshop participant questioned whether negotiated settlements had worked effectively for the delivery of the Fourth transmission line in Argentina. There were also discussions about the fact that there was a radial system and nodal pricing in Argentina which may limit any cross-over to the system in GB.

When considering the need to encourage investment more generally, one workshop attendee suggested that it may be appropriate to make some new investment a contestable activity. This might include the development of transmission network connections for wind farms, and the development of offshore generation. Another delegate emphasised that efficient investment decisions could only be undertaken when generators and networks had an accurate understanding of the existing capacity of the network.

The workshop participants also considered whether networks were appropriately incentivised to invest within the existing regime. It was suggested that questions remained as to how monopoly network companies could be regulated to deliver at the lowest cost whilst also taking steps to innovate. The balance between risk and return would need to be altered to address this. One delegate also suggested that Ofgem should wait and see how menu regulation works for DNOs and water companies before "knocking it on the head" as this approach may internalise complexity by requiring the companies themselves to consider the issues.

Theme 3: Financing vehicles/contracts

The presenters considered the role of contracts and alternative financing vehicles in other regulated sectors. The examples discussed included regulation of PPP for London Underground Limited (particularly with respect to the contact with Metronet) and the regulation of investment in the water industry.

The presenter discussing the London Underground experience explained that 30 year contracts were put in place for the assets that were procured and 7½ yearly Periodic Reviews were carried out between London Underground and the three infrastructure companies. The arrangements were largely output based and the financing costs incurred were explicitly allowed for as part of the cash flows allowances.

Problems with the contracts were highlighted by the collapse of Metronet. The presenter identified a number of lessons for other sectors:

- When a large proportion of debt is underpinned by government a network may not be sufficiently incentivised to undertake its job effectively;
- Contracts can only work if all parties understand what they mean; and
- Fall-back to regulatory proceedings needs to be initiated early, to enable changes to be reviewed and agreed in a timely manner.

In general, the presenter thought that these contracts were workable in principle but that there were issues with their practical application. He also noted that long term contracts have been used successfully to underpin lumpy investment, for example in energy, but he emphasised that other mechanisms (such as SPVs) had not worked well in rail except in special circumstances. In this regard, the presenter emphasised that when considering a role for contracts or alternative financing vehicles, it was important to get the allocation of risk right, a distinction should be made between green field investment and investment in existing assets, and an on-going role for the regulator should be expected.

The second presenter considered whether there were any lessons to be learned from the financing of investment in the water industry. He noted that a detailed system for managing large scale investment programmes involving cost-base benchmarking and tracking of progress on large projects, had been set up by the regulator in England and Wales. The main focus was on the performance achieved by companies rather than on the expenditure incurred.

The presenter noted that it is difficult for a regulator to challenge project costing information provided by companies but that there was a concern with procurement processes being used, and the associated high costs. There was an associated concern with the cost of Private Finance Initiatives (PFIs) used in the water industry in Scotland, and with the quality of investment. There may be a need for regulators to invest in research to better understand the opex and capex required for different types of projects, particularly large infrastructure projects. Furthermore, as has been done in the case of Scottish Water, regulators can set up output monitoring groups which take responsibility for defining the projects that need to be delivered and for 'signing-off' projects at completion.

The discussion considered the question of how effective regulatory cost analysis could be. Participants at the workshop noted that company forecasts could be too high or too low, and it was difficult for regulators to predict what was needed. Even in sectors with detailed analysis of project costings, such as water, anomalies remained in the information. There

were also limitations to the benchmarking undertaken by regulators, which were largely focused on GB sectors only. Delegates at the workshop noted that in light of concerns about information on costs, there was an increased focus on output monitoring by regulators.

Amongst the participants, there were concerns that the RPI-X regime did not appropriately incentivise financing of large and long-term investment projects. Delegates noted that the requirements for financing are likely to be very different going forward. Some participants thought that new alternatives to the return on RAV were needed, while others thought that Ofgem should seek to work with traditional mechanisms of regulation. It was noted that the water industry had successfully delivered a large scale investment programme under the incentive-focused RPI-X framework. There may be lessons to be learnt for the future regulation of energy networks. It was noted, however, that the obligations on the energy networks needed to be pinned down.

Participants at the workshop also highlighted the need for innovation. It was noted that the network companies are essentially stable and that the companies and stakeholders are not willing to take the risks associated with innovation. The regulatory regime may need to change to encourage or incentivise more risky behaviour. There was debate about whether the market or the regulator should decide what investments were needed, and to ensure that financing was available for these. There was also discussion about whether innovation should happen sooner rather than later, whether networks should be proactive in encouraging innovation across the energy systems, or whether they should wait until someone actively demanded change. Ofgem would need to recognise that networks would require compensation for any increased risks associated with innovation. Changes of this type may also change the type of investors in the sector, with those looking for low risk-low return investments moving away.

Theme 4: Increasing competition

The presenters in this session considered whether it was appropriate to consider options for increasing competition in the provision of energy network services. Lessons from the telecoms sector were discussed, alongside a general discussion about potential options for competition in energy networks.

The presenters noted that further development of competition must be considered in the context of existing energy markets, and asked whether there were issues that needed to be addressed there. An open question remained as to whether competition in networks was the best way of dealing with existing uncertainty relating to investment. It was also noted that regulators need to adapt their views on the direction of competition over time; what emerges from a liberalisation process may be different to what was expected.

The first presenter emphasised that monopoly companies were not normally considered to be innovators and that this was a key challenge for RPI-X regulation. He noted, however, that there were also issues with investment, innovation and the effectiveness of competition in both upstream and downstream markets. It was not clear whether the Competition Act was a suitable instrument to address all problems that arise.

At the same time, the presenter noted that there were examples of infrastructure competition in energy and there may be lessons for other network investments. Examples cited included the development of new generation infrastructure, gas storage facilities, metering and the development of independent networks. It was emphasised that the

interaction between regulation and competition needed to be assessed carefully, with each case having different merits and concerns. The presenter also noted that new investments were different. In particular, there was uncertainty about whether assets would be used in the future and where the appropriate place to build or expand networks was. In this context, option values will become increasingly important and these would be difficult to accommodate in the traditional regulatory regime.

The second presenter looked at experiences with introducing competition in telecoms networks and considered whether there were any lessons for RPI-X@20. It was noted that the direction of competition changed over time in the sector and regulation needed to be sufficiently flexible to adapt accordingly. The presenter outlined that there had been a number of attempts to promote competition in the telecoms industry both in terms of end-to-end competition and facilitating access. Ofcom had sought to deliver innovation as well as low prices to consumers and this had required that it address issues of both price and non-price discrimination by the incumbent. The outcome of the measures had been positive with the removal of retail price controls in 2005 and the implementation, in its place, of light touch regulatory obligations which BT was required to meet. It remains to be seen whether new challenges (bundling and requirements for new investment) can be managed within this regime.

In the discussion, there was a mix of opinions about whether there could be increased network competition in energy. One delegate at the workshop thought that energy could follow the experience of US telecoms, with facilities based competition, resulting in a world where there was genuine competition between the traditional grid, micro-grids and on-site microgeneration. Others thought that the threat of competition would not be viable unless new network providers could increase to sufficient scale. There were also questions as to whether existing independent networks provided a good deal for customers. The discussion highlighted the need for a clear and well understood reason for introducing competition. In particular, network companies and Ofgem would need to be precise about what the problem was that a competitive process was trying to address.

A workshop participant made the point that the American view was that the UK had taken its 'foot off the gas' in incentivising competition in telecoms. A further participant considered that the UK cable market provided a very poor example of benefits from the duplication of networks as there has been very little extension of the existing networks. He noted that in other countries, for example the Netherlands, there was localised competition, with principalities building the infrastructure. He noted that this had not been seen in the UK context due to the negative attitude that both Ofcom and government had toward the duplication of existing networks.

Delegates returned to the question of whether the industry can take the initiative and be innovative in developing networks, and holistic energy systems, for the future. It was noted that concerns relating to interactions across the system may require changes to be made to governance arrangements and property rights. An increased role for the System Operator may also be needed. Such fundamental changes would be needed to facilitate increased competition, for example for new connections or 'joint' investments in new generation infrastructure and the transmission network.