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9<sup>th</sup> April 2010

Dear Hannah,

## Emerging thinking – Main consultation document

National Grid owns and operates the high voltage electricity transmission system in England and Wales and, as Great Britain System Operator (GBSO), we operate the Scottish high voltage transmission system. National Grid also owns and operates the gas transmission system throughout Great Britain and, through our gas distribution business, we distribute gas in the heart of England to approximately 11 million offices, schools and homes.

Through our subsidiaries, National Grid also owns and maintains a large number of domestic and commercial meters, the electricity Interconnector between England and France, and a liquid natural gas importation terminal at the Isle of Grain. Through our gas and electricity network operations in the US we have experience of a range of different regulatory approaches.

This letter covers our response to Ofgem's main RPI-X@20 "Emerging Thinking" consultation. A separate paper, commissioned by National Grid from PA Consulting, constitutes our response to the Third Party Right of Appeal consultation and we have submitted a separate response to the ideas raised in the "Embedding Financeability" consultation.

This response is in two parts: this opening section provides general comments on the issues raised in the consultation, and an appendix focuses on the specific questions raised.

### **Background to the review**

RPI-X regulation has served consumers well in the 20 or so years since privatisation. On the whole, investment has climbed and service and safety levels have improved while real prices have fallen.

The future, however, brings new challenges: in particular, meeting legally binding climate commitments and maintaining security of supply as indigenous gas reserves decline and the generation fleet changes to accommodate the climate commitments.

Ofgem's Project Discovery has detailed the medium term uncertainties for the gas and electricity sector. One of its most striking conclusions is the impact of these challenges on likely levels of investment in the sector as a whole and the implications for consumer prices.

Gas and electricity networks represent a relatively small (but still significant) proportion of the costs of the supply chains which deliver gas and electricity to UK consumers. They represent long-lived fixed assets which have to face the uncertainty inherent in both the supply of gas and electricity and future levels of demand in each sector.

Given the new challenges, and the unpredictable impact of government policy and technological innovation in each sector, it seems fair to conclude that networks will have to cope with unprecedented levels of uncertainty. Many commentators would also note that, notwithstanding the legally binding nature of some of the underlying commitments, the public acceptability of higher real energy prices remains a key risk.

What also seems likely is that significant additional investment will be required in both gas and electricity networks: to accommodate new supplies and higher levels of demand (particularly on electricity networks), and to maintain levels of reliability and public safety.

There has also been unprecedented financial turmoil in recent years and, although signs are encouraging, it is not clear that markets have returned to normal (or indeed that consensus has been achieved on what the “new normal” will look like).

The key question for the RPI-X@20 review is how, in the face of all this uncertainty, existing regulatory frameworks should be adapted:

- to encourage the development of optimal combinations of network capacity and other network services; and
- to finance increasing levels of network investment.

We have supported the review because we agree that these important issues should be addressed.

### **General comments**

We agree with Ofgem that network companies are creatures of the regulatory framework within which they operate and that the existing regulatory framework was laid down by Ofgem and its antecedents under very different circumstances. Both network companies and Ofgem will have to adapt significantly to meet the new challenges.

The review has been thorough and has examined a wide range of issues and potential solutions. It seems to us that the review resolves itself into three key themes:

- improving the **legitimacy** of regulatory process and so aiding the wider **public acceptability** of increasing real gas and electricity prices;
- encouraging networks to take a **longer-term view** of the efficiency of their operations and of the energy chains of which they form a part; and
- ensuring that networks remain **financeable**.

Ofgem’s suite of emerging thinking consultation papers outlines a “direction of travel” in a number of key areas and we support many of these suggestions:

- more comprehensive engagement with a variety of stakeholders;
- business plans which are set in the context of a longer-term scenario-based view of the future and which take account of the value of retaining options;
- the onus being placed on networks to demonstrate how they have incorporated stakeholder views and scenarios in an efficient business plan;
- price control settlements based on a clear view of the outcomes that need to be delivered and the network outputs which will lead to those outcomes;
- support for technical and commercial innovation through additional funding to encourage deployment of new technology and network scale trials (especially to aid the full realisation of the benefits of Smart technology); and
- incentives which encourage desirable outputs and a holistic view of efficiency up and down the energy supply chains.

At this stage in the review, however, the proposals remain high-level and somewhat conceptual. They map out, for the most part, a coherent and sensible direction of travel but the review has not yet acknowledged, or worked through, the practical problems which are likely to arise from implementing them or detailed the compromises which are likely to be needed along the way. A few examples may illustrate the point:

- While we agree that enhanced engagement would make a highly desirable contribution to improving the legitimacy of price control processes, exciting meaningful engagement from a representative number of small consumers, for whom network charges represent a tiny fraction of their living costs, is likely to be difficult.
- While we agree that a longer-term focus for business plans is desirable, networks will need to be clear about the specific time horizon which Ofgem have in mind and the strength of the commitment Ofgem can make to longer-term trade-offs.
- While we agree that an outcomes led price control is desirable:
  - The linkage between long-lived inputs (such as pipes, wires and control systems) and output requirements, which may change over much shorter time horizons, will not be perfect and may be unstable (particularly as technology develops). Ofgem do not question whether it will ever really be practical to establish clear and stable incentives around output performance; it might be better to start by acknowledging that, in the short-term, clear output measures may only allow a better informed discussion about efficiency at subsequent reviews
  - Regulatory contracts are bound to be incomplete and will still leave networks with judgements to make. For example, if input costs spike significantly at what point would it be in consumers' interests for networks to accept a bit more network risk rather than pay (and pass on to consumers a share of) the temporary additional costs of maintaining contracted levels of network reliability?
- The proposals seem to try and treat the government as one stakeholder among many (albeit an important one). However, energy policy shapes the environment in which networks and other industry players operate. In areas where network development is dependant on policy development (and policy development creates certainty or uncertainty), this principal role of government should be recognised more explicitly.

At several points in the proposals there are suggestions that comparative incentives ought to be applied to improve network behaviours (e.g. around achievements on stakeholder engagement and output measures). In the light of our concerns about the practical difficulties which will be faced in implementing these proposals, it is important that any such incentives are developed using objective measures against pre-agreed criteria rather than simply relying on the judgement of the regulator.

### **Specific comments**

Ofgem's straw-man for a third party right of appeal attempts to accommodate such a process within the existing legislative framework.

- Any decision to implement a third party merits-based right of challenge must be considered in the light of the purpose of regime established by the Gas and Electricity Acts. Each of these (together with the reforms introduced by the Utilities Act 2000) was aimed at implementing a regulatory regime that places GEMA at the heart of the regulatory structure and gives it a clear mandate to protect the interests of existing and future consumers. As such, any third party right of challenge appears to run counter to the notion that the regulator is paramount in protecting the interests of consumers and should only be implemented with the benefit of primary legislation to redesign the checks and balances in the regulatory regime as a whole. Where this sort of right has been proposed in other sectors (for example airports, telecommunications and for energy code modifications) it has arisen out of specific legislative action aimed at improving legitimacy. Ofgem's Project Discovery, the recent Energy Market Assessment and the recent Tory energy policy paper all suggest that further energy market legislation is likely to be needed in the near future and any consideration of such a major rebalancing of the regulatory framework should be considered properly as part of that activity.
- Ofgem seem intent on granting a right of appeal to parties whose own commercial interests are unaligned (or at least only partially aligned) with those of consumers. This was rejected in the case of airports where it was felt unlikely to operate in consumers' interests and similar arguments apply in energy. Again this would be best considered through a formal legislative consultation process.

Ofgem's "Embedding Financeability" paper singles out intergenerational concerns regarding the speed with which the RAV is repaid to investors, but fails to set this issue in the context of a much wider set of intergenerational issues which run through many parts of the price review settlement (such as the choice of allowing real returns and indexing the RAV rather than allowing nominal returns; capex/opex trade-offs in operational costs; and pensions costs). If there is an issue about managing affordability for consumers over time, it might best be captured in the round with other intergeneration issues rather than dealt with as a separate issue in this way.

### **In conclusion**

In working up its final recommendations, Ofgem should focus on the practical consequences of the new direction which they have charted and explore likely areas for compromise. This will inform subsequent price reviews with a set of high level principles which set realistic expectations of what can be achieved rather than an unrealistic set of aspirations which will more than likely be frustrated.

We remain keen to support Ofgem through this important process and would be happy to expand on any of the thoughts set out in this letter or the attached appendix.

Yours sincerely,

[By e-mail]

**Paul Whittaker**  
**UK Director of Regulation**

## **APPENDIX – RESPONSES TO DETAILED QUESTIONS**

### **CHAPTER 1**

#### **Question 1: Do you think our desired outcomes for the future regulatory framework are appropriate? Are there any we have missed?**

UK energy policy is generally couched in terms of balancing three high-level outcomes: meeting binding climate change targets and ensuring security of supply at an affordable price.

Gas and electricity networks form key parts of wider supply chain that delivers energy to end consumers; the desired outcomes for energy networks need to be seen within that wider frame. Optimising network regulation to achieve a narrow set of network goals should not be done at the expense of achieving wider sectoral goals. Ofgem are right to pitch their “desired outcomes” for energy networks as contributing to the achievement of sectoral goals in an efficient manner. It is a concern, however, that the approach to measuring such contribution has not been attempted so the scope for improving the regulatory regime remains unclear.

There is tension between the sectoral outcomes and the balance struck by public policy (including the degree of direct intervention by government) is likely to shift over time. This will affect the detail of the desired regulatory framework outcomes so Ofgem are right to emphasise flexibility. In Appendix 5 Ofgem highlight a long list of activities that networks might undertake; we would expect this list to change in response to public policy and consumer priorities. This reinforces the importance of active stakeholder engagement in regulatory processes and the need for networks and Ofgem to respond to the messages that are received.

Given the networks’ role in a relatively complex (and increasingly fragmented) supply chain, there is always a tension between developing the regulatory framework to incentivise specific network behaviours and encouraging transparency and engagement. Ofgem’s paper “Simplicity of the framework: Issues to consider” captures this conflict well (along with some of the attendant issues such as incentive compatibility and coherence) and sets out some principles for how that tension might be resolved. We are happy to work with Ofgem on that resolution but confess to being sceptical that the resulting framework (given increasing levels of uncertainty and fragmentation) will end up any more accessible – discussions between the networks’ engineers and the regulator’s economists are rarely dominated by considerations of simplicity.

#### **Question 2: Do you agree that we need a fundamental change to the existing 'RPI-X' frameworks to ensure these outcomes are delivered?**

The RPI-X framework worked well within a relatively steady state environment but it may not be well suited to dealing with increased levels of uncertainty. The future framework certainly needs to be adaptable, scalable and flexible to deal with change as it happens. Regulatory settlements may need to be more closely linked to policy decisions; on the other hand, if the objective is to improve sustained outcomes, a significant shift from the consideration of just the next five years is essential and ex ante controls might be better seen as the latest course correction to a longer term journey.

The RPI-X framework has evolved considerably since its inception. The appendix to the “Simplicity of the framework: Issues to consider” paper details, in part, how the framework has been embellished over time to broaden the framework from a simple efficiency incentive to which drives standards and network behaviours. The approach to price control setting itself has also evolved as Ofgem has felt the need to take a prospective view of efficiency improvements rather than just set the allowances based on the past and let the networks reveal their costs.

Whether the changes summarised in the paper represent a fundamental change to the frameworks or another round in the evolutionary cycle is probably a question of labelling; many of the developments suggested in the papers have their roots in previous regime developments and there is no doubt that further development is necessary.

**Question 3: Do you think the suggested new framework is the best way of delivering these outcomes in the future? Are there any aspects you would change? Have we missed any key aspects?**

We support many of the key changes summarised at high level in Chapter 1. In particular:

- Enhanced engagement will become increasingly necessary: to help understand (with a view to balancing) competing stakeholder objectives; to reassure consumers in the face of the projected gas and electricity price increases (as set out, for example, in Ofgem's Project Discovery); and, to engage future consumers more actively in gas and electricity market choices.
- Business plans which take account of longer term objectives and uncertainties and explain how levels of outputs relate to costs.
- Improved definition of the "regulatory contract" so that both networks and users are clear about what is to be delivered.
- Clear incentives to encourage innovative and efficient delivery for the long-term.

We particularly welcome Ofgem's recognition that price controls need to be couched in a longer term understanding of existing network condition, likely demands for future network development and longer term uncertainties. This is a distinct change from Ofgem's previous determination that the future can be built five years at a time. We look forward to seeing specific proposals on how this recognition is translated into detailed proposals.

This has implications for the approach Ofgem will adopt in assessing an efficient level of expenditure for the network companies. An approach based largely on regression analysis that builds from a base year, particularly one in which operating expenditure and capital expenditure are assessed independently of each other, is likely to be flawed if it fails to recognise that the approaches adopted by companies in the past will have implications for the base point and future spending. For example, a company that has adopted a maintain/fix-on-fail strategy for a number of years is likely to have a higher opex cost and would appear to be relatively inefficient (on one dimension) compared to one that has adopted a replace-on-fail strategy even though its cash costs over several investment cycles might be lower. An explicit output measure related to network sustainability might help identify a networks position within the investment cycle and might assist networks and Ofgem to determine the right long-term approach for a long-term asset custodian.

## **CHAPTER 2**

**Question 1: Do you agree that a new regulatory framework should focus on delivery of desired outcomes?**

We agree that there is scope to move towards a regulatory framework which focuses on delivery of the desired outcomes.

The outcome Ofgem discusses - facilitating the delivery of a sustainable energy sector while delivering value for money for existing and future consumers – is easy to state (and to agree with) but exactly what that means for the day to day decisions which networks have to make will require careful consideration and will be different for different network types.

Ofgem's discussion of the potential benefits of such an approach seems fair and relatively complete. Whether all of those potential benefits can be realised (and how quickly) is likely to be a major theme of future reviews and we support making the effort.

**Question 2: Do you have any comments on the categories of outputs related to these outcomes?**

The categories of outputs appear universal (as regards different network types) and complete.

Our experience of developing asset health measures in Transmission reinforces the view that developing high level output measures - as distinct from relatively detailed input measures – is likely to require considerable effort. There is plenty of scope for introducing complexity - in the interests of

completeness – and a balance will need to be struck if the simplicity and transparency objectives of the review are not to be lost.

Striking this balance will be greatly aided by active stakeholder engagement and we agree with Ofgem that their summer recommendations ought to focus on principles (rather than detailed measures by sector) which can then be taken forward with stakeholders.

**Question 3: Do you have any comments on how these outputs should be incorporated into the new regulatory framework?**

We agree that it should be for networks to propose levels of outputs and demonstrate the extent to which they are supported by stakeholders, and for Ofgem to use their own stakeholder engagement to propose the final level of outputs.

However, the goal of establishing a complete set of network outputs, agreed with stakeholders and linked clearly to costs which can then be reviewed to assess performance is somewhat idealistic. For example:

- stakeholders have varying levels of interest in and understanding of network regulation - often those with the best understanding also have interests which do not align well with those of consumers
- stakeholders have conflicting requirements and judgements will have to be made among them
- stakeholders may have an incomplete understanding of wider ongoing policy developments
- desired outputs are likely to change within review periods
- different outputs may depend on the same inputs
- the most efficient way to deliver outputs will evolve as network technology evolves

Ofgem should couch their aspirations in this area in practical terms: more can be done to link stakeholder requirements to outputs and outputs to costs; Ofgem should expect networks to make strides in delivering better linkages but Ofgem should recognise that messy reality is always likely to intrude.

We agree that a variety of approaches to incorporating the outputs into the regulatory framework is likely to be appropriate. It might be useful to consider - in principle – how different features of the outputs might dictate the way that they are incorporated. Different features which might lead to a different approach might include:

- Quantitative versus qualitative
- Clarity of trace between costs and outputs
- The relative importance of the output (e.g. alignment with stated policies)

Clearly, networks should be accountable for their performance against output measures, but it is important that they should be able to argue, when performance is being reviewed, that pursuing a particular output became inconsistent with the overall desired network outcomes because of changed circumstances.

An outputs based framework is also likely to become more reliant on measurement and reporting. All output measures (existing and new) ought to be subject to a clear set of reporting standards so that networks can assess in advance the cost of efficiently complying with those standards.

**CHAPTER 3**

**Question 1: Do you agree that it is appropriate for network companies and Ofgem to improve their engagement with stakeholders as a way of improving the quality and legitimacy of decision making? Do you have any ideas on how to improve engagement by network companies and Ofgem?**

The legitimacy problem which Ofgem identifies goes much wider than network regulation. It undermines consumer confidence in the operation of the whole gas and electricity sector and is a problem which may get worse as the steps made, by government and industry, to meet low carbon and security objectives work through into consumer prices. The risk that the public will not accept the cost is regarded by many commentators as the key risk to the UK meeting its climate change targets

and this legitimacy concern must be addressed holistically and at the highest level. That said, we agree that network regulation should contribute to the overarching solution.

The goal of RPI-X@20 – reflecting Ofgem’s principle duty – is to build a framework for network regulation which protects the interests of present and future consumers. This should not, in and of itself, present a legitimacy problem.

All the potential solutions seek to enlist third parties in building the regulatory framework. A number of obvious difficulties present themselves including the following.

- The majority of consumers have little understanding or interest in network regulation: it represents a small fraction of their living costs. Unlike parts of the US, there are no adequately resourced groups (beyond Ofgem) that can represent this “silent majority” in discussions with other stakeholder groups.
- Major consumers, for whom network costs are more significant, are likely to argue in favour of their interests at the expense of other consumer groups. Balancing the interests of “domestic” and “industrial/commercial” consumers has been an important theme in the evolution of network regulation.
- Future consumers remain stubbornly unavailable for comment. There is always a risk that present day stakeholders (consumers, commercial stakeholders and politicians) transfer an unreasonable proportion of current risks or costs through to future consumers.
- Other commercial stakeholders (such as suppliers, generators and producers) use network regulation to pursue their own commercial and competitive interests (in part) by influencing network regulation in their favour. Their interests are unlikely to be aligned with those of present and future consumers; balancing the interests of these companies with the interests of consumers has been another enduring theme in network regulation.
- Many lobbying groups (local and national) have very specific (and conflicting) objectives and their interests may have imperfect alignment with those of present and future consumers.
- Government may have to adjust gas and electricity policy goals in the light of circumstances both within the sector and as part of their need to balance wider policy goals.

As an independent regulator, Ofgem has the difficult duty of balancing these competing interests and views. At this level, the legitimacy problem is that the interests and views are incompatible and difficult choices will have to be made; there will always be vocal parties who take the view that the balance has been wrongly struck. Ofgem’s bundled role as consumer advocate and final arbiter may contribute to the legitimacy problem.

The legitimacy problem – to some extent – becomes one of ensuring that interested parties are able to contribute their views and that the final decision contains a clear and compelling rationale for the balance that is finally struck.

The RPI-X@20 process has identified a number of potential solutions to the legitimacy problem including:

- more active and accessible stakeholder engagement
- negotiated settlements
- a third party right of appeal

We agree with Ofgem’s decision to discount negotiated settlements - at least for now - although we agree that this decision should be kept under review as levels of information available within the sector evolve.

We also agree that, despite the difficulties outlined above, networks and Ofgem should engage more actively with stakeholders both as part of day to day network activities and as part of the price review process.

Ofgem should not be too prescriptive about the mechanisms that networks use to achieve that engagement. Modest incentives available for those networks which do an excellent job – distributed using objective criteria – will encourage experimentation and best practices will emerge over time.

Engagement processes provide an opportunity:

- to explain how network and regulatory framework choices impact on consumers;



- to explore different scenarios for the future – what is known and what is unknown;
- to identify what outputs are important to stakeholders and consumers willingness to pay for different output levels;
- to gather views on how risks should be shared between networks and consumers;
- to set out how plans align with UK and EU policy thinking;
- for networks to set out how they organise themselves to deliver outputs efficiently; and
- to identify areas of agreement and conflict between stakeholders – where judgement will have to be applied.

From the engagement processes, networks should use their business plan narratives to explain how they have reconciled stakeholder views and how the regulatory framework and delivery plans they have drawn up deliver the outputs efficiently over time.

Ofgem then have the opportunity to use existing, and enhanced, stakeholder engagement processes to test the plans and other assessment mechanisms to judge the efficiency of the plans.

**Question 2: Do you think we should consider introducing a third-party merits-based right to challenge our final price control proposals?**

We have commissioned a separate piece of work from PA Consulting which we have submitted alongside this response. The paper considers a number of approaches to third party appeals around the world, identifies best practice in this area and argues against retrofitting such a right of appeal within the existing legal framework.

**CHAPTER 4**

**Question 1: Do you have views on our suggestion that financial commitments could be provided for longer than five years for some elements of the price control? What would be the appropriate length of this partial “longer” period? To which aspects of the control might it be appropriate to give a longer-term commitment?**

The length of the price control period has always represented a compromise between number of factors which all amount to a risk that conditions during the price control will be very different from what was assumed when the price control was set.

These risks may present themselves as uncertainty around:

- the quality or quantity of outputs required of the network
- the volume of work that needs to be done by the network to secure those outputs
- the cost of the work to the network

The uncertainty may have a number of sources – for example:

- changes in government policy – either general (e.g. tax rates) or specific to the sector (e.g. relative levels of subsidy for particular renewable technologies)
- decisions taken by other parties in the gas and electricity supply chain (e.g. to site new generation plant in a particular location)
- wider market factors which affect networks’ inputs (e.g. copper prices)
- technology or commercial innovation

RPI-X regulation has adopted a range of conventions which manage these risks - including:

- leaving some of the uncertainty risk with the networks and allowing for the scale and asymmetry of any risk in the returns and the capital structure
- developing revenue drivers – which typically fix unit costs but allow revenues to change as volumes of a particular output vary
- indexing specific cost components – (so while the overall control might be indexed to RPI, sub-components such as fuel costs might be indexed to a specific index)
- allowing pass through of certain costs – typically those imposed by government agencies (e.g. rates and licence fees)
- renegotiating price controls relatively frequently

Ofgem note that the frequency of price controls is bound to affect network decision making and may hinder networks from considering longer-term efficiency trade-offs and limit the scope of innovation. The differential treatment of asset replacement within our networks might help to illustrate this point.

- In gas distribution, the thirty year steel mains replacement programme (imposed by the HSE) has provided us with a clear view of what we need to organise to deliver over a long period of time (i.e. there is a clear and credible long-term regulatory commitment). We also assume that Ofgem will use comparative assessment to judge efficient allowances in the future. With these conditions in place, we are clearly incentivised to innovate to deliver the plan efficiently for the long-term - in our contracting approach, our workforce planning and training, our replacement techniques and our replacement modelling.
- In electricity transmission, the need to replace large volumes of assets over a lengthy period to maintain safety and reliability is just as clear. However, there is no agreement on long-term volumes and the concern that Ofgem may choose to sculpt volumes over time (for example to help with short-term affordability concerns) means that we tend to see each five year period as a separate negotiation with considerable uncertainty about what we will be funded for. While we have a clear idea about what would be an optimal approach we do not have the same confidence to implement a long-term plan to deliver it. In this case, a credible commitment (by Ofgem) to long-term reliability (output) measures or replacement volumes (input measures) would allow us the confidence to take an efficient longer-term view.

The time-frame for considering efficiency raises a number of considerations including:

- that investments made today will still be in services in forty years time and their utilisation (and value to users) may vary over that period
- Ofgem's ability to commit to future investment levels, or the regulatory treatment of investment and efficiency trade-offs, may be limited
- technology and consumer developments may render efficient investments redundant much earlier than originally considered.

In other markets, companies subject to such uncertainties might manage such investment risks using short write-off periods or higher discount rates. Regulation tends to limit the use of such tools in the energy networks sector.

It is clear that the degree and intensity of some of the uncertainties outlined above is likely to increase in the future - in particular around how the size and patterns of demand change in response to climate change, supply security and technology developments. In some ways this works against any goal of longer-term price controls.

Ofgem's paper outlines two possible partial approaches. Under both a longer-term control is created and a mid-period partial review is carried out:

- either to review output requirements, or
- to review costs and share changes in expectations with consumers.

Ofgem also discuss committing to longer-term rules (which may best capture the discussion above around gas distribution asset replacement activities) and specific project by project funding (for which we take the TIRG and enhanced incentive regimes in electricity transmission as a precedent).

The issue of input costs is also difficult. We note that Ofgem's move to unified sharing factors in DPCR5. Different sharing factors undoubtedly affect the level of financial uncertainty that networks face and their ability to commit to longer-term controls. This will need to be accounted for in the allowed return - which may need to be higher to compensate for the additional risk and longer-term uncertainty being borne.

Overall, we agree that a straightforward move (for example) from a five year a ten year control is unlikely to be successful. We would support a detailed consideration of the length of each component of the price control settlement at each price control – informed perhaps by guidelines developed as part of the RPI-X@20 process. Longer-term components will probably be easier to agree where there is some relative stability – for example around the volumes (or reliability outputs) expected from the asset replacement programme, or where additional outputs have a relatively predictable impact on inputs over the period - for example providing entry capacity at particular gas network entry points.

We also consider that networks should be able to volunteer (and Ofgem agree) to longer periods over which performance of specific investments are considered – along the lines discussed, but not implemented, during the Enhanced Incentives work in electricity transmission.

**Question 2: Do you have views on our suggestions on what business plans might look like in the new regulatory framework?**

Ofgem's straw man places a great deal of weight on the business plans developed by networks.

There is a tension between allowing networks to respond in a specific and creative way to the stakeholder requirements that they identify (and the specific issues that individual networks face) and the need for Ofgem to conduct a sensible and timely assessment of the efficiency of the detailed proposals.

To resolve this tension Ofgem seem to suggest that networks should have relative freedom to draw up business plans and a narrative which explains what they are trying to do but combine that with a "mandatory data template" for submission of the data.

This seems a sensible approach but navigating between the plans and the data template is likely to lead to a new set of interpretive issues which will have to be negotiated.

The RPI-X@20 project can probably do no more than set out at high-level the generic issues which networks ought to aim to cover in their businesses plans and narratives. The early engagements for a particular review might then choose to draw up more detailed guidelines which steer the plans towards the specific issues which apply to the particular review. This must be done early in the process – at least a year before the expected submission of the business plans - to allow networks to design their own business planning processes and engagement programme to inform the final submission.

There must be a very close relationship between any mandatory data template and the RRP templates which networks have been populating, and will continue to populate, up to and beyond the next review. Navigating between even mildly varying data formats would raise countless reconciliation issues, would sow needless doubt about data accuracy, and raise numerous questions which add effort without aiding either transparency or the actual assessment of costs. A specific review of the form and function of the RRP process would also be useful as we are not sure that the benefits outlined when implementing the process have been realised in practice (in many ways reflecting our concern about the potential gap between aspiration and practice which is included in our high-level view of these proposals).

**Question 3: Do you have comments on our ideas on how efficient costs might be assessed in the new regulatory framework?**

Ofgem identify a range of techniques which they use - and would continue to use - as part of assessing an efficient level of costs.

Ofgem will no doubt continue to assess the credibility of these techniques in future reviews – and in particular the extent to which those techniques reflect real information about efficiency or may be revealing information about the challenges of operating a particular network and/or different (or changing) service levels. Ofgem are often too ready to ascribe rising costs or comparative differences to inefficiency while playing down other possible explanatory factors. This bias towards inefficiency in Ofgem's analysis represents an asymmetric risk for networks.

If the new regulatory framework encourages networks to offer materially different service levels in response to stakeholder preferences, Ofgem will have to make suitable adjustments.

**Question 4: Do you have comments on our ideas on how efficient long-term delivery might be incentivised in the new regulatory framework?**

Long-term efficiency is difficult to assess. Where the assessment takes place against an uncertain background – particularly for those network types where uncertainty and/or speed of change is

greatest – the problems are magnified. Where decisions are taken in good faith under a particular set of assumptions, how should the costs of any apparent (ex post) inefficiency be shared between networks and consumers?

A particular problem - which has not been satisfactorily resolved so far - arises from different asset strategies which may be adopted by different networks. A network which replaces assets as soon as their operating costs begin to rise will do well in operating cost benchmarking but have relatively high capex. The long-term efficiency of such an approach, however, remains questionable.

Ofgem's approach under DPCR5, to equalise the incentive strength, is arguably a step in the right direction but, if the assessment of efficient operating costs and capital expenditure is still done independently at the next review, overall efficiency is still not being assessed. Ofgem mention the possibility of totex benchmarking but, in practise, this is much easier said than done.

**Question 5: Do you have comments on our suggestions of how the new regulatory framework might encourage network companies to anticipate and deliver on the needs of existing and future consumers and network users?**

There is considerable uncertainty about what future consumers and network users might require. Even if stakeholders have a clear opinion, unless they are prepared to commit to those service levels in some way (e.g. to make capacity payments) and networks invest to meet those needs, the costs will end up being shared between networks and consumers. In many cases, it would be most sensible for networks to wait to incur costs until an unambiguous need arises but there are circumstances where delay works against consumers' long-term interests.

A well known example, on the electricity transmission networks, concerned the queue which developed to connect renewables; the problem arose, at least in part, because transmission capacity took longer to develop than the generating capacity that wanted to use it.

Part of the solution was a proposal to develop "enhanced incentives" to encourage networks to build capacity ahead of user commitment; to be permitted a higher return if the capacity was utilised fully and/or early; but, to make networks bear a proportion of the costs should the network capacity be underutilised or utilised late. We were disappointed that Ofgem was unable to implement such a framework and we are currently investing on a "pay-as-you-go" basis.

The use of such incentives, in limited circumstances, is likely to be beneficial.

**Question 6: Do you have views on our ideas on how the interactions between charging and price review incentives might be taken into account at price reviews?**

As Ofgem note, network charging structures affect the level of costs faced by other players in the gas and electricity supply chain, which in turn may affect the demand they have for network services, which in turn may affect the level of network costs.

Networks make up only an element of the cost chain which links production and generation to consumers and, in principle, it is not for networks to fix prices to limit their own costs but to ensure that they send the right signals to network users to make help ensure that the whole chain is organised efficiently.

Charging methodology changes do not make up a very material component of networks' cost bases - although the cost may not be negligible if system changes are involved - but methodology changes can lead to a permanent and material reallocation of network costs between different classes of network user. Drawing up a compromise between user classes is often difficult and requires a network proposal to be supported by Ofgem.

To deal with these issues, networks are subject to a licence condition to ensure that they charge in a cost-reflective manner. This helps guide networks to set charges in an objective and efficient way. This should continue to apply in the future and any consideration of charging methodology at, and between, reviews should remain subject to this test.

If there is a concern that charging methodologies have become ossified, introducing incentives which tip networks away from a cost reflective charging principle are unlikely to be efficient overall. That is not to argue that networks should not keep their charging methodologies under review and make the case for continuing with, or changing, methodologies as part of their ongoing stakeholder engagement, but any incentives will need to be well designed. It may help if Ofgem set out more guidance on the nature of “cost reflectivity” e.g. short-term versus long-term signals, marginal versus equitable allocation, producer versus supplier considerations.

Significant downside for changes which fail in their objective should also be considered carefully as it may inhibit the search for innovative solutions. Ofgem should also consider how their role in the approval of methodology changes would operate. If Ofgem accept a change, which they must do before it is implemented, they are implicitly agreeing that it is likely to deliver the agreed objectives.

**Question 7: Do you have comments on our suggestion to treat companies differently at the price control, both in terms of process and incentives, reflecting planning and delivery performance?**

We do not object in principle to the introduction of differential treatment but Ofgem will need to introduce this alongside specific and objective criteria set out in advance.

**Question 8: Do you have views on our suggestion to open up some aspects of delivery to competition?**

Given the need to minimise already increasing investment demands, we agree with Ofgem that network-on-network competition should be discounted at this stage.

Ofgem draws attention to its commitment to promoting competition in gas and electricity connections by introducing rights for independent network operators. It might also have noted the rights it has established in metering. In neither case are we aware of any assessment about whether the competitive rights that have been introduced have indeed protected the interests of consumers (the primary purpose) and it would be interesting to see a balanced assessment of the success of those steps and any lessons learned for the future.

As Ofgem notes, many network activities are already tendered out for delivery by the networks themselves. Networks should continue to keep their organisational boundaries under review and be prepared to explain at price controls why their particular choice of organisation boundary is efficient. For the most part, comparative competition, efficiency reviews and cost incentives should be sufficient to encourage networks to make efficient choices for both operating costs and capital projects.

Turning specifically to capital projects, again a significant proportion of this work - particularly major works – is already tendered by networks. For Ofgem to conclude that it should take an active role in tendering out some of this activity, greater long-term efficiency will have to come from Ofgem accessing some benefit which the networks are failing to grasp. It would seem that this would have to be in some key project area such as engineering design, use of new technology, risk transfer or financing.

To access this potential efficiency, Ofgem will need to substitute its own judgement in these key project areas for that of the established licensee. It is by no means clear that Ofgem has the technical expertise or the correct incentives to act in this sort of central buyer role and it is by no means clear that Ofgem can buy in the expertise and replicate the long-term incentive structure which exists when an established licensee contracts for new capital projects. Ofgem will need to consider these features carefully before taking on a central buyer role for certain major capital projects.

Ofgem may cite the new offshore transmission arrangements as precedent. While in the early round of “transitional” projects, Ofgem are simply putting a long-term contract in place around existing assets they are still passing a significant proportion of performance risk through to consumers. For the “enduring” regime, where assets have not yet been designed or constructed, Ofgem have yet to articulate a satisfactory answer to the central buyer challenges set out above.

A further weakness in the offshore regime is that it specifically fails to take into account of longer-term strategic possibilities which an established licensee with long-term stewardship expectations might be incentivised to consider. Ofgem needs to consider how tendering out specific projects can be reconciled with a desire to encourage networks to take a long-term view. For example, Ofgem's incentive, as central buyer, may be to demonstrate a short-term benefit from a tendering activity rather than accepting a higher short-term cost in the interests of longer-term efficiency.

We note a series of tests which Ofgem suggests would need to be passed before a competitive approach could be introduced. Projects should:

- be sufficiently large to justify the transactions costs
- be appropriate from an engineering perspective (e.g. in the way they interact with the meshed network)
- provide opportunities for an innovative approach
- deliver value for consumers
- be able to attract new companies
- not jeopardise timely delivery of climate change targets.

To these we would add the need for Ofgem demonstrate that, in a central buyer role, it would have the technical expertise and to take on the role and decision making incentives that are compatible with the interests of consumers (present and future).

**Question 9: Do you have comments on the design of a cross-sectoral time-limited innovation stimulus that is open to a range of parties?**

Climate change and sustainability are high on the global political agenda. The UK has agreed legally binding targets to deliver cuts in emissions of greenhouse gases:

- 15% of our energy is to come from renewable sources by 2020;
- 80% cut in emissions by 2050.

These targets place sustainability firmly alongside affordability and security of supply as drivers of energy policy and regulation.

'The UK Low Carbon Transition Plan' (July 2009) sets out the UK Government's national strategy for achieving these targets. This plan states the requirement for significant capital investment, stating the need for a "bigger, smarter electricity grid", and calls for energy from renewable sources to provide around 30% of the UK's electricity needs. Above all, the plan recognises that transformative change is required in the energy industry.

The gas and electricity networks are a central enabler of this plan – we aim to be a key facilitator of that transformative change. Our goal is to provide networks that enable the achievement of the Government's targets, while delivering unparalleled safety, reliability and efficiency for the customer. In order to achieve this, we need to develop and demonstrate technologies which will:

- reduce the environmental impact of our operations (e.g. by reducing energy losses, or by finding alternatives to sulphur hexafluoride insulating gas, and by reducing fugitive methane emissions);
- enhance the capacity of existing network corridors (through the next generation of DC networks, superconductivity, smarter technologies, etc);
- enable the connection of new low carbon generation (e.g. working with industry to find large energy storage solutions);
- facilitate smart grids and customer choice (e.g. through demand management, or through interaction with vehicle charging systems, or network controllers).

However, "demonstration" of innovative technology and tools (particularly on transmission networks) requires significant investment – in excess of that provided by the current Innovation Funding Incentive. A step change in the level of financial support is needed to help achieve this. In addition, demonstration (particularly on transmission networks) takes time; this means that there is an urgent

need to undertake research, development and demonstration trials as soon as possible so that outputs feed into the investments being planned to achieve the 2020 targets. As Project Discovery states:

*“Although our scenarios do not indicate concerns over supply security until beyond the middle of the current decade, the timescales required to secure finance, mobilise supply chains and deliver the infrastructure needed suggests that the period around 2012 and 2013 could be important for investment decisions critical to future secure and sustainable energy supplies. Hence, there is a window of opportunity between now and then to implement any policy measures that may be necessary to make sure that investment takes place in a timely fashion.”*

Bearing in mind the fact that we are now fully utilising the 0.5% Innovation Funding Incentive in transmission, as an immediate proposal we will be seeking to enhance the current Innovation Funding Incentive provisions for the year 2012/13.

In the matter of competition in innovation, we are very supportive of the basic concept of introducing competition in research, development, demonstration and deployment, thereby increasing investment and creating a greater pool of ideas and options. Looking at the full spectrum of research through to deployment, it is relatively easy to see how multi-party input in the first two stages (i.e. R&D) will succeed; indeed, this already occurs now with key suppliers investing multi-million pound budgets in new products.

Whilst competition might be achieved at a smaller scale on the (relatively) small and distributed parts of lower voltage or lower pressure networks, the integrated nature of transmission means that it is impracticable to undertake large-scale demonstration or deployment projects without interaction with the rest of the network. The very nature of trials brings an increased level of risk of failure, and hence there is a risk of adversely impacting the entire network and its customers; indeed the safety considerations may well prohibit gas transmission demonstrations, resulting in expensive, large-scale, off-network trials. As a consequence, transmission network demonstration and deployment trials require careful planning and coordination involving transmission experts in order to minimise that risk. We believe that we would have to be actively involved in (and have a process for ‘signing on’ to) all such trials. To enable competition in innovative solutions and fairness in the demonstration phase, and given our access to both gas and electricity transmission networks, we would support an increased budget for innovation so that we could support third parties’ projects which would not otherwise make our priority list for funding.

**Question 10: Do you have comments on our straw man on how we would embed our financeability duty into the new regulatory framework?**

We have a number of misgivings about the straw-man proposal which are set out in a separate response to the Embedding Financeability consultation document.

**CHAPTER 5**

**Question 1: Do you agree that a new regulatory framework can deliver our desired outcomes within the existing industry structure?**

Our detailed response indicates that we think there are areas where the current regulatory framework can improve and that Ofgem have identified a number of promising avenues for development.

In structural terms we agree with Ofgem’s position (and the analysis presented in Frontier’s earlier report) that the existing TO/SO structure in transmission provides the best framework within which to optimise overall costs.

**Question 2: Do you agree that it is appropriate to encourage network companies to work with others to identify cross-sectoral solutions to the challenges the sector faces?**

As we noted above, networks form part of a value chain linking generators and gas producers with end consumers. The formal separation of roles to focus networks on providing non-discriminatory services was a necessary step in encouraging wholesale and retail competition in gas and electricity markets.

However, that separation discourages the sort of co-operation that is likely to be required as the industry tries to engage end consumers more actively in energy markets. Smart metering and Smart grids create opportunities to create value for consumers through co-operation up and down the chain. Maintaining rigid barriers will lead to aggregate costs which are higher than necessary and networks should be encouraged to identify cross-sectoral solutions.

**Question 3: Do you agree that the regulatory framework should ensure energy network companies facilitate effective competition in energy services?**

Networks should offer services to energy services companies on non-discriminatory terms and conditions – including using cost reflective charging. The services should not be provided or charged to those companies in a way that either favours or disfavors their development but should aim to create a level playing field on which they can compete with other services and service combinations.