Regulating energy networks for the future: RPI-X@20

Delivering a sustainable energy sector and value for money

A modified ex ante incentive framework

Summary

In our working paper on 'What should a future regulatory framework for energy networks deliver' we suggested that future regulatory frameworks should encourage networks to facilitate the delivery of a sustainable, low carbon energy sector while providing value for money for existing and future consumers. We have published a separate paper on 'what we mean by efficiency' in the context of providing value for money for existing and future consumers when there is uncertainty about how best to deliver desired outcomes.

In the working paper on 'what do we mean by efficiency' we highlighted that we would assess a number of alternative regulatory frameworks, including the current, to determine the extent to which they would encourage networks to deliver desired outcomes efficiently over the long term. In this paper we present our current ideas on one potential model, a modified ex ante incentive framework, that would be fundamentally similar in structure to the current but with signficant modifications.

We focus on three specific elements of a modified ex ante framework: more extensive use of output measures, richer business plans and an improved incentive framework. These are our current ideas and we continue to develop our thinking on the definition and merits of a modified ex ante incentive framework. This series of changes to the current framework might lead to quite a different regulatory framework, albeit built from the same structure. Implementing the regime may require a change in mindset by both networks and Ofgem.

We are presenting this work at an early stage consistent with the guiding principles to the review of transparency and "no surprises" and to stimulate debate. The ideas set out in the paper may change as our thinking develops. We intend to provide further clarification in our winter 'Emerging Thinking' consultation paper.

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1. Introduction

1.1. RPI-X@20 is a "root and branch" review of the RPI-X framework that has been used to regulate the transmission and distribution energy networks successfully for the past 20 years. Our first consultation document regarding RPI-X@20 was published in February[1] and our recommendations on RPI-X@20 will be provided to Ofgem's governing Board, the Gas and Electricity Markets Authority (GEMA), in summer 2010.

1.2. A guiding principle of RPI-X@20 is to ensure active engagement with stakeholders. As part of this, we aim to publish a series of working papers on our web forum outlining our current thinking on key issues. This paper follows the publication of our RPI-X@20 working paper on what we want a future regulatory framework for energy networks to deliver[2]. In that working paper, we suggested that the future regulatory frameworks should encourage networks to facilitate the delivery of a sustainable energy sector and to provide value for money for existing and future consumers.

1.3. We have published a separate paper on 'what we mean by efficiency' in the context of providing value for money for existing and future consumers when there is uncertainty about how best to deliver desired outcomes. In that paper we highlighted that we intend to assess a number of different models, including the current regulatory frameworks, to determine which may provide the best way forward for delivering desired outcomes efficiently in the long term.

1.4. This paper looks at one option, namely a modified ex ante incentive framwork. The model is based on the structure of the current regulatory framework but adapted to address some of the limitations of that approach discussed in our 'what do we mean by efficiency' paper. It is intended to be a framework that encourages delivery rather than directing the networks as to what to do. It is also intended to be a framework that ensures delivery of outputs that are in the interest of existing and future consumers, but not with the provision of funding from consumers at any cost.

1.5. Our previous working paper[3] on who decides what the future energy networks should look like considered three options including an enhanced regulatory framework. A modified version of the current regime is one approach to delivering this enhanced framework. The other two models in that paper, the central government led model and the industry led model would also need a regulatory framework, though with some decisions taken separately having direct impact on some of the elements of the framework. This modified ex ante incentive framework could remain valid under each of the options in that paper, with variation in the precise features of the framework.

[1] See for instance: http://www.ofgem.gov.uk/Networks/rpix20/publications/Presentations/Documents1/RPI-X@20%20workshop%20-%207%20November%20-%20Ofgem%20presentation.pdf

[2] This paper is available from http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=27&refer=Networks/rpix20/forum

[3] Ofgem, Regulating energy networks for the future: RPI-X@20, Working paper 3, Delivering desired outcomes: who decides what energy networks of the future look like?, 31 July 2009 (http://www.ofgem.gov.uk/Networks/rpix20/forum/Documents1/rpix20%20who%20decides%20what%20energy%20networks%20of%20the%20future%20look%20like%20FINAL.pdf) .

1.6. In this paper we look at three core elements of a potential modified ex ante incentive framework:

- more extensive use of output measures;
- basing price controls on richer business plans; and
- an improved incentive framework.

1.7. These elements represent options for modifying the current regime. They need not be applied as a bundled package. For instance, the incentive framework could be improved without a move towards richer business plans. We recognise that there are other potential modifications to consider, both within each of these categories and across other aspects of the regime. We continue to develop our thinking on what a modified ex ante incentive framework might look like for our winter emerging thinking consultation paper. Our updated thinking will reflect ongoing developments in DPCR5 and our work on TO investment incentives (as part of TAR). We welcome ideas from interested parties in response to the current thinking presented here.

1.8. As noted earlier, the idea of a modified ex ante incentive framework is only one model that we are considering. Other regulatory frameworks that are more radical departures from the current regime may turn out to offer a better way forward for delivering desired outcomes efficiently. We are examining a range of options ahead of the publication of our winter emerging thinking consultation paper.

1.9. We recognise that changes can, and are, being made to the existing arrangements in line with some of the ideas presented here, for example through DPCR5. The RPI-X@20 team works with other Ofgem policy teams to ensure that thinking is consistent. However, we recognise that changes to the overarching regulatory framework may impact on existing and current policies. In this context we would reiterate that when applying recommendations of RPI-X@20 to each of the network industries (electricity and gas transmission and distribution) we will, save in exceptional circumstanaces, seek to ensure that no retrospective action is taken in relation to funding that has already been allowed for under previous and existing price controls. Where appropriate we will also consult on any important or material transition arrangements necessary to implement our recommendations.

2. Overview of a modified ex ante incentive framework

2.1. A modified ex ante incentive framework would retain the basic properties of the current regime:

- a price/average revenue control would be set up front for a fixed period;
- the size of the price control would be determined by assessing required baseline revenue allowances, based on forecast expenditure requirements, and taking account of anticipated productivity improvements;
- actual revenue earned by the network would depend not only on the baseline but also on the performance of the network in delivering desired outcomes(e.g. rewards for performance against output measures specified up front, although care would be needed not to trigger perverse incentives where outputs and revenue cannot easily be related); and

- networks would have incentives to reduce costs and consumers would enjoy some of the benefits of cost reductions.

2.2. In this paper, we focus on potential modification to three specific areas of the regime:

- output measures;
- business plans; and
- the incentive framework.

2.3. We present a number of current ideas on what modifications might be beneficial for ensuring delivery of outcomes efficiently over the long term. We recognise that there are other potential modifications to consider, both within each of these categories and across other aspects of the regime. We will develop our thinking on what a modified ex ante incentive framework might look like for our winter emerging thinking consultation paper. If this framework is identified as part of a preferred way forward we would look at more detailed issues around how it would operate after our emerging thinking consultation.

3. More extensive use of output measures

3.1. The specification of the required outputs is an important aspect of an ex ante control. Carefully defined output measures can provide evidence on whether networks have delivered what is required. We recognise that any consideration of performance against specified outputs would need to be done carefully, particularly with regard to setting out upfront the criteria for taking any action that may result from any assessment.

3.2. In this section we identify a number of issues to consider when defining outputs. Incentivisation of delivery of these outputs is considered below. We will continue to develop our thinking on these issues in RPI-X@20, in ongoing sectoral policy development, and in sectoral price reviews.

Types of output measures

3.3. We considered outputs in our earlier working paper (paragraph 3.21) on 'who decides what the future energy networks should look like'. We argued that for outputs to be as useful as possible they should be widely defined to reflect all key delivery measures.

3.4. Output measures can include:

- **Service quality measures**: e.g. complaints handling, number and frequency of interruptions;
- **Network capacity/capability indicators:** e.g. the load index outputs being developed in DPCR5; and
- **Asset condition/health indicators:** e.g. the health index outputs being developed in DPCR5.

3.5. High level output measures can be considered in their own right or they might be supported by leading and lagging indicators. We need to consider further, in RPI-X@20 and future sectoral price reviews, whether a framework with output measures and associated indicators would be appropriate.

3.6. We use a range of output measures, across the regulatory frameworks for electricity and gas, transmission and distribution, when setting ex ante controls. We are undertaking work in both transmission and in the ongoing distribution price control review to improve outputs, particularly those that reveal network capability and health. These should give important information about the choices being taken by the network company, e.g. between investment in new network assets versus changed utilisation of the current network assets.

3.7. Going forward we will need to consider how best to develop outputs that reflect, where possible, the desired outcomes:

- meeting the needs of consumers;
- security of supply; and
- de-carbonisation.

Desirable properties and potential obstacles

3.8. The following are potentially desirable properties of output definition.

- measurable;
- relevant to consumer needs;
- relevant to delivery of sustainable energy sector; and
- widely defined to reflect all key delivery measures.

3.9. The extent of the above properties needs to be considered against problems that can occur, e.g. defining too many outputs can lead to issues about how to trade off particular measures with each other.

3.10. There are a number of potential obstacles to getting appropriate output definitions:

- **measurement issues:** outputs that are easier to measure might not be ones that reflect the outcomes that we want the networks to deliver; designing outputs related to the outcomes may be complex;
- **achieving consistency:** making sure that the data collected is consistent over time, across one network and between networks; and
- **achieving objectivity:** making sure that the data collected can be interpreted in as objective a way as possible.

3.11. Taking these into account, we will need to recognise that it is not always possible to identify tightly defined outputs for all desired outcomes and we will need to consider whether there are alternatives ways of embedding the outcomes in the regulatory framework.

Questions to consider when defining outputs

3.12. When defining outputs there are a number of questions to consider, including:

- detail of definition: high-level company wide targets or asset condition targets around particular assets?

- who is involved in the setting of outputs: Ofgem, Government, consumers, network companies, a combination?

- what is the process for setting outputs: consultation between interested parties, shadow running of outputs?

- should the outputs be company specific or generic?

- should the outputs be defined individually or combined into composite output measures?

3.13. Choices between these options will be informed by judgements on:

- the need for different degrees of accuracy against the costs of obtaining them;

- the best way to ensure that outputs are defined in a way which is in the interests of existing and future consumers. This will be important if companies are responsible for defining the outputs themselves; and

- reflect particular circumstances. For example, particular output may become a more significant requirement or a particular company may need its own output to get a better focus on its delivery.

3.14. It will be important that the regulatory framework allows sufficient information to support the best decision on these options at each control, including learning the lessons of previous controls. In this context it may be better to develop and test different measures rather than implement straight away. This will allow refinement over time.

3.15. We will continue to develop our thinking on these issues for emerging thinking, for our final recommendations to our Board in summer 2010, and in sector specific price reviews.

4. Richer business plans

4.1. Under the modified ex ante incentive regime considered in this working paper, a ‘price control’ would be set by determining a baseline revenue allowance up front for a fixed period.

4.2. As is the case now, the determination of the baseline revenue allowance would reflect a view on the required efficient costs to deliver the desired outcomes. Our current thinking is that business plans prepared by network operators would play an important role in the assessment of what required efficient costs are. As part of the assessment of business plans, we need to consider how comparative methods, such as benchmarking comparisons between networks, could be used to inform our view on what is the expected efficient costs of delivering outcomes. This issue is not explored in this paper. Our focus is on potential improvements surrounding the network’s own business plan.

4.3. The business plan would, as now, set out what the network operator expects to do over the planning period and what it expects this to cost. The plan provides a starting point for the assessment of expected efficient costs of delivering outcomes for the regulatory period.

4.4. The nature and value of the information generated by the business plan will depend on the actions of the regulator. In particular: the regulatory specification of what needs to be included in the business plan; how the regulator encourages the network to produce the desired type and quality of plan; how the regulator reviews the plan; and how the plan is used to determine the network's revenue allowance, including that earned via incentive mechanisms.

4.5. Ofgem's current business plan process could be developed to give more confidence that network operators' plans are likely to deliver the required outputs in a way that minimises long-term costs for existing and future consumers.

4.6. This might involve some or all of the following elements (some of which are present in the current approach but could be developed further, e.g. analysis of options and consideration of different scenarios):

- **Long-term business plans**. Even if the price control period is, say, five years, network operators could be required/encouraged to produce plans that cover a much longer time horizon. The network's proposed approach for the period of the price control could be justified in relation to a longer term view on what the network will need to do to meet the needs of existing and future users. This may help mitigate the concerns with the current regulatory framework, e.g. where a five-year price control risks overly short-term approaches at the expense of higher costs to future consumers or delays in the delivery of what future consumers will need.

- **Output-led plans.** Business plans can be made at different levels of detail. More detailed plans would link specific expenditure programmes with the delivery of specific outputs.

- **Options analysis**. Network operators could be required to justify their proposed approach to delivering the specified outputs through an evaluation of alternative options. This would include keeping options open pending more information as well as considering how some options might provide benefits in different circumstances.

- **Evidence for cost forecasts**. Network operators could be required to support their cost forecasts with specific types of evidence, such as information from benchmarking analysis or from the use of competitive tenders or outsourcing.

- **Scenario analysis**. As emphasised, network operators will need to take decisions in a context of substantial uncertainty. Network operators could be required to justify their proposed approach in light of an explicit consideration of different scenarios about future developments.

- **Evidence of learning.** Network operators could be asked to explain how their proposed approach builds effectively on lessons they have learnt from their own activities and from other companies in Great Britain and overseas.

4.7. These elements could be applied to the whole of a network operator's business plan, or to specific parts of the plan where the need for these considerations appears most acute. The elements above are interlinked. For instance, a move towards output-led plans would tend to facilitate options analysis.

4.8. We recognise that the current plans involve a lot of work and may include some of the elements above. Still, we think that a structure in which these elements form a core part of the information generated by the business plan process would represent a significant change in the regulatory framework.

4.9. We also recognise that there is a balance to be struck between the information sought and the administrative burden, for both network operators and Ofgem.

4.10. We will need to consider how best to encourage networks to deliver the right type of business plans to a sufficient quality. There are a range of options using both reputational and financial incentives. We might highlight best practice in order to help companies develop a better understanding of what is considered sufficient quality. If necessary financial incentives and/or penalties might be used to encourage particular considerations in drawing together the business plans. Criteria could be drawn up to support this. Further work will be needed after our emerging thinking consultation paper if these options are to be taken forward.

5. An improved incentive framework

5.1. Business plans, and the assessment of them, provide a basis for determining expected required revenue of an efficient business for the fixed period of any price control. By its very nature, an ex ante control is based on uncertain forecast information and there is an expectation that outturn performance will be different to what was in the plans. Indeed, part of our definition of long term efficiency is that networks would make choices during a price control period that reflect what is considered to be long term efficient at that point in time, even if different to what is in the plan.

5.2. In this context we think it is important to ensure that the modified ex ante framework is underpinned by an effective incentive framework focused on delivery of desired outcomes. The current frameworks may need to be modified to better reflect a focus on long term efficiency and the related potential modification to the way in which business plans are assessed and used to set revenue allowances. Modifications might be considered for both the overarching incentives stemming from the nature of the price control, as well as supplementary incentive schemes targeted at specific regulatory objectives. We are also aware of comments from a number of parties on the complexity of current incentive schemes, both individual schemes and in terms of the number of schemes that are in place. The case for modifying the current arrangements to reflect these issues will be given further consideration in the review.

5.3. We know that networks respond to incentives. For example, the current RPI-X regime has encouraged significant expenditure reductions since privatisation (e.g. real unit operating expenditure has fallen by approximately 5.5% per year across the electricity distribution networks)[4]. We have also seen considerable innovation in corporate and financial structure.

5.4. Whilst recognising the successes of the current regulatory frameworks, we think it is appropriate to take a fresh look at the incentive framework as part of the development of a modified regime. As far as possible, incentives would be needed to:

- encourage networks to deliver the specified outputs on time; and
- encourage efficient delivery of these outputs.

[4] Ofgem, Regulating energy networks for the future, RPI-X@20: Performance of the energy networks under RPI-X, February 2009 (http://www.ofgem.gov.uk/Networks/rpix20/publications/CD/Documents1/Performance%20of%20the%20Energy%20Networks%20under%20RPI-X%20FINAL_FINAL.pdf) .

5.5. In this context we need to consider outputs in a broad sense, including desired outcomes that may not be easily linked to a specified output measure. In addition, as noted in the previous section, if the modified regime involves basing revenue allowances on richer business plans, incentives may need to be put in place to encourage networks to produce these plans. We are already taking steps in this direction in DPCR5, with TO investment incentives (as part of TAR), and in other areas of policy development.

5.6. In line with the main focus of this working paper, a modified ex ante regulatory framework will need to incorporate incentives to encourage efficient delivery. As part of the review, we will consider a number of options for change to the incentive framework, including:

- **Price controls for more than five years**. There are concerns that network operators do not face incentives to take decisions today that would reduce costs in periods beyond the five-year price control. Missing these opportunities might cause a significant loss of consumer value. One way this might be addressed is through a longer price control period. Here the five year focus is replaced by the new control period length. A longer price control could be applied to the whole of the network's business or to specific parts of it. However, longer periods might not be consistent with a regime that adapts and improves over time and may involve higher costs to consumers if a higher cost of capital is needed.

- **Exposure to greater demand risk**. There may be opportunities to make greater use of mechanisms in which a network bears demand risk for a specific new investment, such that the revenue it earns from making that investment depends on the extent to which that investment is subsequently contracted for and/or used by customers. The allowed rate of return set in the regulatory settlement would need to reflect these risks. One option for delivering higher returns would be through adjusting regulatory asset values.

- **Commitment about ex post adjustments**. Ofgem could set out the criteria for the circumstances where it would, and importantly where it would not, expect to intervene and make an ex-post adjustment based on outturn. This could also be done through identifying some money within a project that would be exempt from clawback while others are subject to further checks against circumstances at specified milestones, e.g. based on comparisons of actual versus outturn demand. This approach would recognise that some differences in outturn expenditure or even output delivery from a regulatory control is an inevitable part of a network striving to use its initiative and take greater risks.

- **Incentive schemes to reward performance**. Incentive schemes could be introduced that reward companies against some measures of overall cost performance (not just operating expenditure). Performance might be assessed in relation to other companies or to improvement over time.

- **Risk-sharing.** Current price controls in energy networks involve risk-sharing arrangements, through which the costs of networks spending more than forecast, or the benefits from spending less, are shared with consumers. Changes to the balance of these risk-sharing arrangements can be used to affect the incentive on networks to reduce costs, and the extent to which consumers benefit from cost reductions, within a price control period.

5.7. These are examples of the types of modifications that might be considered for an ex ante incentive framework. They are not mutually exclusive, nor is it necessarily the case that all of these aspects will be required in a modified ex ante framework. We will continue to develop our thinking on these ideas, and provide an update on our ideas in our winter emerging thinking consultation period.

6. Conclusions and next steps

6.1. The table below summarises the key features of the modified ex ante incentive framework outlined in this paper.

Figure 1: Modified ex ante incentive framework – summary of key characteristics

Area of regulation	**Modified regulatory framework characteristics**
Setting outputs	More extensive in scope Related as far as possible to desired outcomes – de-carbonisation, security of supply, consumer value
Setting revenue allowances for five year period	Network's business plans to reflect richer analysis, e.g. - long term horizon - scenario planning - consistent with understanding of needs of existing and future consumers
Incentives framework	Incentives to deliver the desired outcomes, and to encourage richer business plans envisaged above This may involve refinement and augmentation of existing incentive arrangements to promote efficient delivery over the long term

6.2. We think that the modified ex ante incentive framework set out here could be a realistic alternative way of delivering the desired outcomes efficiently over the long term. The framework could also encourage the networks to do more to understand the needs of users of the networks and to learn from information elsewhere in the sector.

6.3. We recognise that to make this approach work significant changes would be needed, not least in both Ofgem's mindset and that of the networks. It might be that not all of the networks will behave in the same way. The framework might need to be sufficiently flexible to allow for different company and investor priorities through the level of return and other aspects of the framework. We will examine this further.

6.4. We intend to continue to develop our thinking on what this framework might involve and to assess it against other frameworks including the current. Our updated thinking will build on ongoing developments in DPCR5, our TO investment incentives work (as part of TAR) and other policy developments. We will set out our updated views in our winter emerging thinking consultation paper. In the meantime we welcome views on the ideas presented here.