

Regulating energy networks for the future: RPI-X@20 Delivering a sustainable energy sector and value for money

What do we mean by 'efficiency'?

Summary

In our working paper on 'What should a future regulatory framework for energy networks deliver' we explained that future regulatory frameworks should encourage networks to facilitate delivery of a sustainable, low carbon energy sector whilst providing value for money for existing and future consumers. We recognised that we need to understand, in particular, what we mean by value for money when there is greater uncertainty about the technologies and networks needed to deliver these outcomes.

When we think about value for money, we consider both the need to deliver outcomes that are in the interests of existing and future consumers, and the need to ensure that the delivery of those outcomes is undertaken as efficiently as possible. RPI-X regulation has traditionally been considered as a framework for delivering efficiency savings but we expect that clarification is needed, to assist our assessment of alternative regulatory frameworks, on what is meant by efficient delivery over the long term.

In this working paper we present our initial ideas on what we mean by long term efficiency reflecting uncertainty about what is needed to deliver the outcomes. We will continue to refine our ideas during the review. We are developing our ideas in conjunction with ongoing work on the fifth distribution price control review (DPCR5) and the Transmission Access Review (TAR). Our ideas on the broad definition of efficiency over the long term may allow for situations where expenditure to deliver outcomes is higher in the short term but lower in the longer term. It also involves networks considering different ways of doing things informed by effective communication with industry partners, analysis of different possible outcomes and keeping options open where appropriate. Our work in DPCR5 and TAR, amongst other projects, is already taking us in this direction.

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.

Contact names and details:

Hannah Nixon, Director Regulatory Review

Cloda Jenkins, Head of Regulatory Review

Tel: 020 7901 7165 / 020 7901 7145

Email: RPI-X20@ofgem.gov.uk

Team: RPI-X@20 and Regulatory Finance

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 February¹ 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 deliver². 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. This paper forms part of our work on what the regulatory framework should look like to deliver the desired outcomes. We are interested in exploring further what we mean by value for money. We think that this requires a broader definition of efficiency, involving both a focus on the need to deliver outcomes that are desirable for existing and future consumers (particularly a sustainable energy sector) and a need to ensure that those outcomes are delivered as efficiently as possible over the long term. This requires a broad definition of efficiency, that is not focused on the lowest cost options today or on the other extreme of considering delivery of outcomes at any cost.

1.4. We think that it is important for our assessment of alternative regulatory frameworks as part of RPI-X@20, and for the effectiveness of any future regulatory framework, that there is clarity and mutual understanding of what is meant by efficient delivery of outcomes. This is particularly important in a world where there is greater uncertainty over future network use and the best technologies to deploy if innovation is to be supported. In this paper we present our current ideas on ‘what we mean by efficiency’. We welcome comments from interested parties as we continue to refine our thinking in this area.

1.5. This paper explores:

- what we mean by efficiency and how it fits into the desired outcomes of the regulatory framework identified in our first working paper;
- whether the current regulatory framework is likely to deliver value for money for existing and future consumers given greater uncertainty; and
- what alternative frameworks might deliver value for money.

1.6. This paper considers the limitations of the frameworks as they currently stand. Many of the ideas outlined in the paper are already being developed in the context of the distribution price control review (DPCR5), or work on transmission investment incentives³ (as part of TAR) and in other policy development.

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 See the following papers available at <http://www.ofgem.gov.uk/Networks/Trans/ElecTransPolicy/tar/Pages/Traccrw.aspx>:

1.7. We are also publishing a working paper looking at one type of regulatory framework that might deliver value for money for existing and future consumers; a modified ex ante incentive framework. The model we consider is akin to the current framework but with modifications in key areas. This is one possible framework and we will consider others. These include more radical departures from the current regime, which may be more effective regulatory frameworks in terms of delivering the identified desired outcomes.

2. What do we mean by efficiency? What behaviour/decision making from the companies do we want to encourage?

2.1. Figure 1 illustrates the outcomes that we think future regulatory frameworks should deliver. We set these out in our first working paper.

Figure 1: Desired outcomes that a future regulatory framework should deliver

| | | |
|---|--|--|
| An effective future regulatory framework should encourage networks to... | | |
| Focus on needs of existing and future consumers by... | | |
| Playing their role in delivering a sustainable energy sector | | |
| Secure and safe supplies | Environmental targets Low carbon Greenhouse gases | Specified social targets |
| Providing value for money | | |
| Efficiency Long term | Quality of service Standards Incentives | Choice Service offered Network provider |

2.2. The regulatory framework must encourage the timely and efficient delivery of a sustainable energy sector. Where networks do not facilitate timely delivery of a sustainable energy sector, the desired outcomes would not be met.

2.3. The question is then raised as to what we mean by 'efficiency' in the context of designing a regulatory framework for the future.

2.4. A narrow definition of efficiency might refer to the delivery of an output at lowest cost in the short term (potentially within a five-year price control period). In some cases this might be a satisfactory efficiency concept. For example, if an activity is familiar, predictable and has only short-term implications, a focus on this narrow definition of

efficiency may be sufficient to protect the interests of existing and future consumers. However, given future network uncertainty, which largely results from the need to contribute to the delivery of a sustainable energy sector, such a definition of efficiency may no longer be appropriate.

2.5. Decisions that networks take today will affect costs imposed on future consumers. These decisions may relate, for instance, to investment in long-lived assets or to the exploration of innovative approaches to network development and operation. A short-term focus might not, for instance, place sufficient emphasis on:

- benefits that might be gained from a long-term assessment of what networks should do and how they might operate in the future; and
- benefits from seeking to leave options open and taking a more incremental approach to delivering outcomes, utilising information that would not have been available at the start of the process.

2.6. These concerns have been recognised by stakeholders. For example EA technology stated in its response to our February principles, process and issues consultation document that *'actions taken now which in the short run appear to be inefficient, may prove to be efficient in the long run'*.

2.7. To provide value for money for existing and future consumers, we need to treat efficiency as a long-term concept. Whilst delivering the required outputs, we want networks to take decisions that restrain costs over the long and short term. We also want to encourage networks to keep options open, where appropriate, even if this involves some extra short-term cost, for instance where there is significant uncertainty over future demand for network capacity and/or the appropriate technology to deploy. In this way networks may be able to avoid significant costs in the future and there may be additional benefits to consumers in terms of quality of service and choice.

2.8. It is not possible to assess directly whether a network has acted in a way that meets this aim. We can monitor the expenditure of the network companies but there is typically no way to tell whether the approach they took was best suited to minimising costs over the long run. There is also a danger that looking backwards at levels of expenditure may involve an element of hindsight and information that was not available to the companies when they made their decisions. We need to have confidence that the regulatory regime will, as far as possible, encourage networks to act in a way that is expected to deliver the desired outputs whilst minimising the costs imposed on existing and future consumers. In doing this networks may need to maximise the information they have available to effectively manage any uncertainty.

3. What does this long-term concept of efficiency mean in practice?

3.1. We expect that to deliver efficiency in the way we describe above, networks are likely to need to adopt some or most of the following types of behaviour:

- **Making productivity improvements:** introducing improved approaches to delivering what is required is a core part of efficient delivery.
- **Thinking long term:** assessing the potential costs and benefits of approaches over the long term is important if future costs are to be controlled effectively. This includes questions about what to do and when to do it. It may be necessary to assess a number of different scenarios for future developments before deciding on an appropriate approach.

- **Innovation/experimentation:** innovation and experimentation are likely to be needed to reveal improved approaches over time. Judgements need to be made about the merits of using new technologies over existing ones, balancing the risks of moving away from the familiar and the opportunities that innovation may deliver.
- **Keeping options open where appropriate:** in the face of uncertainty, the probability of finding the most efficient approach might increase over time. It may therefore sometimes be prudent to keep options open until more information has been revealed even if this involves higher short-term costs. In other cases options may narrow and delay in progressing the issue may incur additional cost. Therefore it is important to make appropriate choices about when to keep options open.
- **Learning over time:** given the degree of uncertainty involved about what might be the most efficient approach to adopt the framework needs to encourage learning and adaptation over time. Networks and Ofgem may also need to adapt in response to learning. In the context of a regime similar to the current one, this adaptation may take place during a price control period or from one period to the next through price reviews.

3.2. We will need to consider these characteristics in the decisions we take if the regulatory framework is to deliver value for money over the long term.

4. Potential limitations with current regulatory framework

4.1. The current regulatory framework has been successful in delivering efficiency savings, quality of service and investment. However, this has been set against a fairly stable and predictable background both for network technologies and demand for network capacity. For details of what the current framework has delivered see our supporting document on the performance of energy network regulation⁴.

4.2. The current regulatory frameworks differ across electricity and gas, transmission and distribution. A stylised summary is presented in figure 2.

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

Figure 2: current regulatory framework (stylised and not reflecting changes being worked on in DPCR5 or TAR)

| Area of regulation | Current regulatory framework characteristics |
|---|---|
| Setting outputs | Until recently, these were limited in scope and largely focused on quality of service Recent work in distribution and transmission has seen outputs developed on capability and condition of network |
| Setting revenue allowances for the five-year control period | Review of network business plans takes place every five years and this involves: <ul style="list-style-type: none"> • modelling of investment needs • developing asset condition measures/asset life assumptions • information quality incentive (IQI) to encourage accurate forecasts of expenditure (distribution) • forecasts of costs over the price control period to take account of expected productivity improvements • benchmarking of costs between networks |
| Incentives framework | 'Fixed price' element of revenue allowance and how allowance is set provides incentives to reduce costs within price control period Specific incentive schemes (e.g. innovation funding incentives, losses incentives, quality of service incentives, reliability incentives) |
| Adjustments during price control period | Various measures in place to deal with changes over time including revenue drivers, specific reopeners, the capex safety net and logging up |

4.3. Stakeholders have raised a number of challenges facing networks, which may have a bearing on whether the current framework can encourage networks to deliver the desired outcomes efficiently in the future, taking our definition of long term efficiency into account. These include:

- facilitating delivery of the sustainable energy sector may require networks to take decisions about new and unfamiliar deliverables with long-term consequences (significantly longer than the current 5-year price control period);
- an expectation that delivery of a sustainable energy sector will significantly increase the scale of networks costs;
- a range of options for delivery (including some not yet applied in practice);
- no one knowing the "right" answer as to the best way to proceed; and
- a need for innovation and trialling.

4.4. Given these challenges, the current framework (prior to changes being developed on distribution and transmission for the near future) might have the following limitations:

- the desired outcomes of the regulatory regime are not fully translated into output measures that can be used to assess whether a network is delivering what is required;

- Ofgem's assessment of what constitutes efficient expenditure may be perceived to be too narrow, not recognising long-run benefits; this could discourage networks from experimentation and trialling in favour of tried and tested approaches;
- expenditure plans tend to be short-term focussed and may not provide confidence that the plans represent the best approaches in the long term;
- the incentives within the price control may encourage reduction in costs in the short term but do relatively little to encourage networks to minimise costs in the long term; and
- worthwhile investment projects that were not anticipated at the time of the last periodic review may be delayed until the next review (unless they are addressed through specific mechanisms such as revenue drivers). Similarly investment projects designed to meet anticipated future requirements may be delayed until there is more certainty that such requirements will arise⁵.

4.5. Concerns have also been expressed by stakeholders in discussions on RPI-X@20 that the current price control incentive arrangements may be too complex to work effectively.

4.6. We are taking steps to address these issues, particularly in DPCR5 and in our work on transmission investment incentives (as part of TAR).

4.7. DPCR5 is developing ways to address a number of these concerns. This includes the equalisation of incentives across the categories of expenditure; work on the information quality incentive (IQI), work to develop output measures on network capability and asset health and the work to encourage greater innovation through trialling and experimentation: specifically, the proposed addition of the Low Carbon Network (LCN) fund. We will build on this work in RPI-X@20.

4.8. As part of our work on the Transmission Access Review (TAR), we are working to develop an appropriate funding framework for transmission investment to meet anticipated future requirements. This includes the development of enhanced incentives to encourage early and efficient investment, with higher returns where transmission companies accept additional risk. As part of this work we have provided, as a short term measure, initial funding for a range of investments which were not anticipated at the last periodic review and which have been identified by the transmission companies as likely to be required in order to accommodate the increase in conventional and renewable generation that may be needed by 2020 in order to meet Government targets. Further work is ongoing on the development of incentives for transmission investment.

4.9. In light of the issues raised we think there is concern about the effectiveness of current regulatory frameworks, as they are currently perceived and understood by networks and other stakeholders, to deliver the desired outcomes efficiently over the long term. We recognise that changes can, and are, being made to the existing arrangements to reflect some of these concerns, 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-

⁵ This issue is being considered as part of the work under TAR and was discussed in: Transmission Access Review – Initial consultation on enhanced transmission investment incentives (175/0)8, December 2008

X@20 to each of the network industries (electricity and gas transmission and distribution) we will, save in exceptional circumstances, 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.

5. Alternative regulatory models

5.1. In light of concerns about the potential limitations of the current regulatory frameworks, we are considering whether there are alternative models that might be more effective at promoting the efficient delivery of the desired outcomes. An assessment of these alternatives will, in itself, clarify our thinking on whether there is a case for moving away from the existing regulatory frameworks.

5.2. Within the RPI-X@20 review, we have structured our analysis of alternative models into two broad categories as follows:

- **Ex ante regulation.** These models are characterised by regulatory decisions that determine, in advance, the level of prices to be charged or the revenue the regulated company is allowed to recover. Ofgem's current approach of setting price controls for network monopolies for a five year period falls into this category. There is a spectrum of alternatives that reflect a range of modifications to the current framework.
- **Ex post regulation.** With these models, the role of the regulator depends on the actions of the regulated company, with broad rules set in advance and detailed regulatory intervention and scrutiny only applied where non-compliance is suspected. This category includes a range of approaches in which the control of the regulated company does not take the form of setting prices or revenues in advance.

5.3. These categories are not necessarily mutually exclusive. In practice, there is a continuum of different regimes between the ex ante and ex post regimes. Ex ante regulation often involves some 'backward looking' elements, e.g. reviews of particular expenditure allowed against what happened in practice. In ex post regulation the rules or criteria are generally established upfront, setting out the parameters for where ex post regulatory intervention might take place.

5.4. Under either category, there is also the prospect of encouraging efficient delivery of outcomes by enhancing competitive pressures on the network. We are therefore also looking at how competitive pressures might be used within a regulatory framework by allowing or facilitating others to compete in some activities with the networks.

5.5. We are considering each of these options in detail, and will present our emerging thinking in our winter consultation.

6. Conclusion

6.1. We have presented our current ideas on what efficient delivery of outcomes means when considering how to provide value for money to existing and future consumers. We have highlighted that it involves a need to focus on the long term, and take account of

alternative scenarios and options where there is uncertainty about what is the best way of delivering outcomes.

6.2. Our current view is that this concept of efficiency will need to be embedded in the future regulatory frameworks for energy networks. Our current assessment suggests that there is concern that the current regulatory frameworks, as they are perceived and understood by networks and stakeholders, do not sufficiently incorporate this concept of efficiency. We recognise that changes can, and are, being made to the existing arrangements to reflect some of these concerns, 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 circumstances, 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.

6.3. We will present our updated thinking on both the current regulatory arrangements and alternative models in our winter emerging thinking consultation. We welcome views in the meantime on the ideas presented here.

Current thinking