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

# Current thinking working paper:

## The length of the price control period

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**Summary**

RPI-X@20 is our fundamental review of how we intend to regulate energy networks for the future. As emphasised throughout the review, we want the future regulatory framework to encourage decision-making by network companies that achieves value for money for existing and future consumers. We set out in our Emerging Thinking consultation (January 2010) a number of reasons why the existing framework needs to change. We also presented proposals on a potential new framework that could encourage a focus on longer-term value for money. These include requirements for companies to submit longer-term business plans as part of the price control process, and a separate innovation fund.

One additional aspect of the framework discussed in Emerging Thinking was the length of the price control and whether the nature of a five-year price control period poses some risks to value for money, at least over the longer term. A five-year price control may lead companies to focus on short-term cost reductions, at the expense of decisions and activities that could help to restrain costs in periods beyond the five-year window. These concerns are particularly relevant in the current context: network companies will be taking investment decisions with substantial long-term consequences against a background of uncertainty — and there is an expectation that innovation is needed to ensure delivery of sustainable energy networks and value for money.

Extending the length of the price control period could bring additional benefits for consumers. Companies would have a clear financial stake in their costs over a longer time horizon. We would expect this to have a positive effect on the way they run their networks.

In this paper, we set out a straw man to show current thinking on how we would introduce longer-term price controls if we decide to go down this route.

This paper is intended to stimulate further stakeholder feedback on an important part of the RPI-X@20 review. We welcome views on the issues raised. We are continuing to assess the merits of extending the length of the control in this way and as part of this are holding a small focused workshop to discuss the ideas. Ideas may change as we finalise our recommendations for summer 2010.

The paper is not a consultation or decision paper. The proposals and ideas have been developed for the RPI-X@20 project alone and do not in any way bind or constrain GEMA's flexibility — both now or in the future — when taking decisions and interpreting its legislative powers and duties.



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## 1. Introduction

1.1. RPI-X@20 is Ofgem's comprehensive, two-year review of how we regulate energy network companies. We are looking to the future on behalf of existing and future consumers, asking whether the existing "RPI-X" frameworks will remain fit for purpose.

1.2. We published our "Emerging Thinking" consultation document in January 2010. The document set out our desired outcomes for the regulatory framework and a potential new regulatory framework that we believe could deliver these.

1.3. In our consultation, we recognised concerns that existing arrangements for comprehensive price control reviews every five years may not achieve value for money, at least over the longer term. We proposed that, under the new regulatory framework, we would commit to some elements of the price control for longer than five years and give network companies a clear financial stake in their long-term costs.

1.4. We published a paper on "Longer-term price controls" by Reckon LLP at the same time as our Emerging Thinking consultation.[1] This paper provided a high-level review of the potential benefits and risks of longer-term price controls, and identified a number of different options. We said that we would consider these issues in more detail.

1.5. This working paper is intended to provide stakeholders with a clearer picture of our current thinking on longer-term price controls. In particular, we set out and assess a "straw man" which illustrates how we could implement longer-term price controls if we decide to recommend a move away from the existing five-year price control period. We are continuing to assess whether such a move to longer-term controls would be a better way of delivering the desired outcomes of any new regulatory framework. In developing the thinking in this working paper, we have drawn on stakeholder responses to our Emerging Thinking document as well as the discussions in our various workshops. [2]

1.6. This working paper provides a further opportunity for stakeholders to give their views before we develop and consult on our final recommendations to the Gas and Electricity Markets Authority (GEMA) in summer 2010. We welcome views on the issues raised. We will be discussing a number of these at a workshop on 17 May 2010.

1.7. This paper is not a consultation or decision paper, although we welcome reactions to the thinking set out here through the workshop, in writing or bilaterally. We are continuing to assess the merits of extending the length of the control and ideas may change as we finalise our recommendations for summer 2010. The proposals and ideas have been developed for the RPI-X@20 project alone and do not in any way bind or constrain GEMA's flexibility — both now or in the future — when taking decisions and interpreting its legislative powers and duties.

1.8. The remainder of this paper is structured as follows:

- Section 2 highlights the need for the regulatory framework to bring a long-term perspective and summarises our concerns with five-year price controls.

[1] Longer-term price controls, Reckon LLP (2010) http://www.ofgem.gov.uk/Networks/rpix20/publications/CD/Documents1/reckon%20lt%20controls.pdf

[2] Our Emerging Thinking consultations and responses to the consultation can be found on our website: http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=36&refer=Networks/rpix20/publications/CD and http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=50&refer=Networks/rpix20/publications/CD.

- Section 3 sets out different options for bringing a longer-term perspective, including options for longer-term price controls.
- Section 4 provides an overview of a "straw man", which shows our current thinking on how a longer-term price control might best be implemented.
- Section 5 presents a summary and invites views from stakeholders.

1.9. We also provide a supporting annex to provide a more detailed and technical explanation of a number of aspects of the straw man.

## 2. The need for a longer-term perspective

2.1. The new regulatory framework should encourage energy network companies to play a full role in facilitating delivery of a sustainable energy sector and deliver value for money network services over the long term for existing and future consumers. It is in consumers' interests that companies find ways to reduce and restrain the costs that they face, over the long term.

2.2. We expect that network companies will need to:

- Give sufficient attention to the long-term implications of their decisions (e.g. when planning network reinforcements or developing skills in the workforce).
- Anticipate future customer needs.
- Understand potential future scenarios that may affect energy networks and the outputs that they are likely to need to deliver in the future.
- Innovate and experiment with new delivery approaches.
- Manage risk and uncertainty effectively.

2.3. The existing regulatory frameworks are, to varying degrees, geared towards encouraging network companies to adopt delivery approaches and business strategies that minimise costs in the short term, without necessarily providing value for money over the long term. This reflects the following:

- The five-year duration of current price controls represents, broadly, the period of time over which Ofgem commits to refrain from: (i) fully compensating the network company for any cost increases it experiences during that period and (ii) denying the network company the full benefits of any cost reductions it achieves during that period (e.g. by reducing prices to consumers accordingly). This commitment provides the network company with profit opportunities from finding ways to reduce its expenditure during the five-year price control period (whilst still delivering outputs).
- At the end of the five-year period, a new price control is determined in light of fresh information on the network company's future expenditure needs. The network company faces no guarantee that it will enjoy the benefits of any actions it takes now insofar as these enable it to reduce its expenditure requirements, or better serve its customers, beyond the end of the five-year period.

2.4. There are also risks that companies distort their behaviour in anticipation of the next price control review. For instance, a network company may spend more than necessary in its day-to-day operations in the latter years of a price control period as a means to

persuade Ofgem that its running costs are higher and that it should be given a greater revenue allowance during the next price control period. Similarly, a company may delay a planned investment project until the next price control period if it sees an opportunity to get additional revenue allowed for that expenditure as part of the new price control review.

2.5. Finally, at a more practical level, the existing price control review processes run for around two years. Holding reviews of this nature for two out of every five years may distract companies' management teams from finding the best ways to run their networks.

2.6. Our concerns are perhaps more relevant now than in the past. Network companies will be taking investment decisions with substantial long-term consequences (e.g. for the prices that consumers will face) against a background of uncertainty. We also recognise a need for innovation to ensure delivery of sustainable energy networks and value for money.

## 3. Bringing a longer-term perspective to price controls

3.1. We have considered different ways to tackle the concerns highlighted above. Some changes could be applied in the context of five-year price controls. We turn to these first. We then consider how an extension of the five-year control period might work, and discuss options around their length.

### *Changes to the wider regulatory framework*

3.2. In our Emerging Thinking consultation, we identified a range of changes to the regulatory framework that could bring a longer-term perspective. These could be applied as part of five-year price controls — or they could be adapted to fit with longer-term price controls. The measures considered include the following proposed in Emerging Thinking which are, to some degree, complementary:

- **Longer-term business plans**.[3] We proposed that, at price control reviews, companies would prepare business plans that cover a period of time longer than five years, even if the price control period remains at five years. They would not necessarily provide annual cost forecasts for the period beyond the five-year horizon. Instead, the proposed delivery approach over the five-year period would need to be justified in the context of a longer time horizon. For instance, we would expect companies to take account of different future scenarios, to show an understanding of future customer needs and to consider the long-term cost implications of different delivery options. We would assess, as part of the price control review process, whether the companies' proposals are sufficiently well-justified in a long-term context.

- **Longer-term outputs**. In the outputs-led regulatory framework we would set out what we expect energy network companies to deliver, focusing on the six output categories set out in Emerging Thinking. To enable companies to develop longer-term business plans we would provide an indication of what outputs they are expected to deliver beyond the end of the price control period. We would provide commitment where possible to the principles relating to output rewards and penalties over time. We are considering this aspect of the framework in more detail for our summer recommendations.

[3] We will ensure that our proposals for longer-term business plans are compatible with the requirements for ten-year network development plans under the Third Package Electricity Directive (Directive 2009/72/EC of the European Parliament and of the Council concerning the common rules for the internal market in electricity and repealing Directive 2003/54/EC).

- **Innovation stimulus.** We proposed that innovation would be stimulated, on a time limited basis, by allowing network companies and third parties to bid through an open competition for financial support to undertake innovation projects related to delivery of sustainable energy services.

- **Clarity on limited scope for ex post efficiency adjustments**. We proposed that the regulatory framework would provide strong, clear up-front efficiency incentives (these are described further in Section 4). We would not be reliant on backward-looking reviews of the efficiency of companies' decision-making. We would retain the option to make adjustments so as not to expose consumers to expenditure that is demonstrably wasteful. But we would provide clarity on the limited role for such adjustments. For instance, we might recommend a clear policy that we would not penalise companies that took reasonable decisions to anticipate future customer needs, or to experiment with new delivery approaches, even if these turned out to be unsuccessful with the benefit of hindsight. We would consider the risk implications of this and other aspects of the framework when considering what the appropriate allowed return is.

3.3. In addition, we are proposing that RPI-X@20 provides clear regulatory principles across the framework. Reduced regulatory uncertainty could also play a role in supporting longer-term thinking.

3.4. The measures above could be applied to five-year price controls and we expect that they could bring significant benefits in this context. Even so, they may not do enough, on their own, to ensure that network companies, Ofgem and stakeholders take a sufficiently longer-term perspective to achieve value for money for existing and future consumers. The table below provides some examples of the potential limitations of these options.

**Table 1: why these options may not do enough to encourage longer-term value for money**

| Option | Examples of potential limitations (not exhaustive) |
|---|---|
| Longer-term business plans at price control reviews | Network companies may question the extent to which Ofgem can assess the quality of long-term thinking in companies' business plans (e.g. whether a proposed approach would best achieve value for money over the long term).<br><br>A detailed review every five years may limit the extent to which network companies and stakeholders consider it is important to think long term during the price control period. |
| Innovation stimulus | The relative success of the stimulus is dependent on the ability of Ofgem (or another governance body) to decide which proposals for funding to approve and prioritise, and to put in place arrangements for funded projects to be carried out efficiently and effectively.<br><br>Potential concern that bidders, and potentially Ofgem, will focus on what is needed for the next five-year horizon rather than thinking about what might be value for money and feasible over the longer term . For example, projects in the stimulus may focus on trialling changes in one five-year period that could, if successful, be implemented in the next five-year period rather than considering ideas that have longer-term horizons. |

3.5. The role of longer-term business plans could be taken further than we envisaged in Emerging Thinking, but limitations would remain:

- To the extent that the business plan extends beyond the immediate price control period, Ofgem could set a five-year price control followed by a set of indicative revenue allowances for the subsequent five-year price control period. The plans, and the indicative revenue allowances, could form the starting point for discussions at the next price control review. However, the indicative revenue allowances may have limited influence on network companies' behaviour if Ofgem does not provide a firm commitment to them.

- Rather than only using a longer-term business plan at each price control review, each company could be required to update and maintain a long-term asset management plan throughout the regulatory period. Ofgem could review whether these plans are likely to provide long-term value for money — potentially with major expenditure decisions subject to Ofgem approval. However, this may give Ofgem a much more active role during the price control period and there would be risks of micro-management.

***Extending the price control period beyond five-years***

3.6. What each of the changes to the wider regulatory framework identified above lacks is a clear, direct financial incentive for companies to take actions that they consider likely to reduce and restrain the costs they will face in the period beyond the five-year price control period.

3.7. We have considered how we could provide a longer-term commitment to the revenues that companies are allowed to collect from customers and whether we could hold comprehensive reviews less frequently. A number of options are set out in the Reckon LLP (2010) referred to in Section 1. We focus here only on the approaches that we believe have most potential.

3.8. We could simply extend the period between price control reviews, such that the type of comprehensive review that currently takes place every five years would take place less frequently (e.g. every eight or ten years). However, we have identified some concerns, which suggest that this would not necessarily provide the most effective and credible approach. For instance:

- As part of RPI-X@20, we are proposing an outputs-led approach. We will need to develop output measures across a range of areas and specify clearly, at the price control review, what companies are required to deliver over the price control period. An extension of the period between price control reviews may risk creating too much rigidity in the outputs that companies are required to deliver. For example, new developments might mean that the types of things that customers want network companies to deliver change, and existing output requirements might need to be supplemented with new ones or altered.

- Ofgem's existing price control arrangements include incentive schemes which are implemented through revenue adjustments at the subsequent price control review (e.g. the incentive regime for efficiency incentives). If the period between price control reviews were extended, there would be a longer time lag between a company's performance and the intended impact on its revenues and profits. This time lag poses risks that the schemes do not work as intended.

3.9. These are not arguments against longer-term price controls by themselves. But they have potential implications for the way in which longer-term controls are introduced.

3.10. We believe that a better way to introduce longer-term price controls, if we were to do so, would involve changes to other aspects of the price control framework. In particular, we see a case for a small-scale review midway through an extended price control period to bring flexibility to the outputs that companies are required to deliver. We have developed a "straw man" which sets out our current thinking on the best way to introduce longer-term price controls. This is described in Section 4.

3.11. We do not believe that the straw man described in Section 4 would solve all the problems we have identified with the existing five-year price controls. But it would:

- Give network companies a greater financial stake in their performance in planning network investment and anticipating customer needs beyond the five-year horizon.
- Allow network companies to keep more of the rewards from innovation that reduces their expenditure requirements beyond the five-year horizon.
- Reduce the scope for distortions in company behaviour as they approach the end of price control periods.
- Reduce the proportion of time that companies' management teams are involved in comprehensive price control reviews.

***Deciding on the length of a longer-term price control***

3.12. The balance of benefits and drawbacks associated with longer-term controls depends to some extent on the length of the price control. We have not identified any directly comparable precedent of regulatory commitments to longer-term price controls. The most similar regimes in the UK involve price controls that are set for between three and five years. There are other examples of regulators setting commitments to maximum revenues for periods longer than five years, but these involve significant differences[4].

3.13. Our current thinking is that if we were to extend the period between comprehensive price control reviews, it would be for between eight and ten years. The length needs to be sufficiently longer than five years to make the change worthwhile. But to go beyond doubling the length seems too radical a step, especially in light of the other changes to the regulatory framework that we envisage.

3.14. When considering whether an eight, nine, or ten year control period would be appropriate we expect that the decision would include consideration of practical issues. For instance, the first price control reviews following RPI-X@20 will be for transmission networks and for gas distribution networks. There may be an argument for setting slightly different lengths, at these first reviews, so that future reviews for transmission and gas distribution are staggered. There might also be a case for a shorter period of eight years at the initial reviews, with an aim to set ten-year (or longer) price controls once other aspects of the new regulatory framework have bedded down. We welcome views on what length of price control might be set for each sector, both initially and at future reviews.

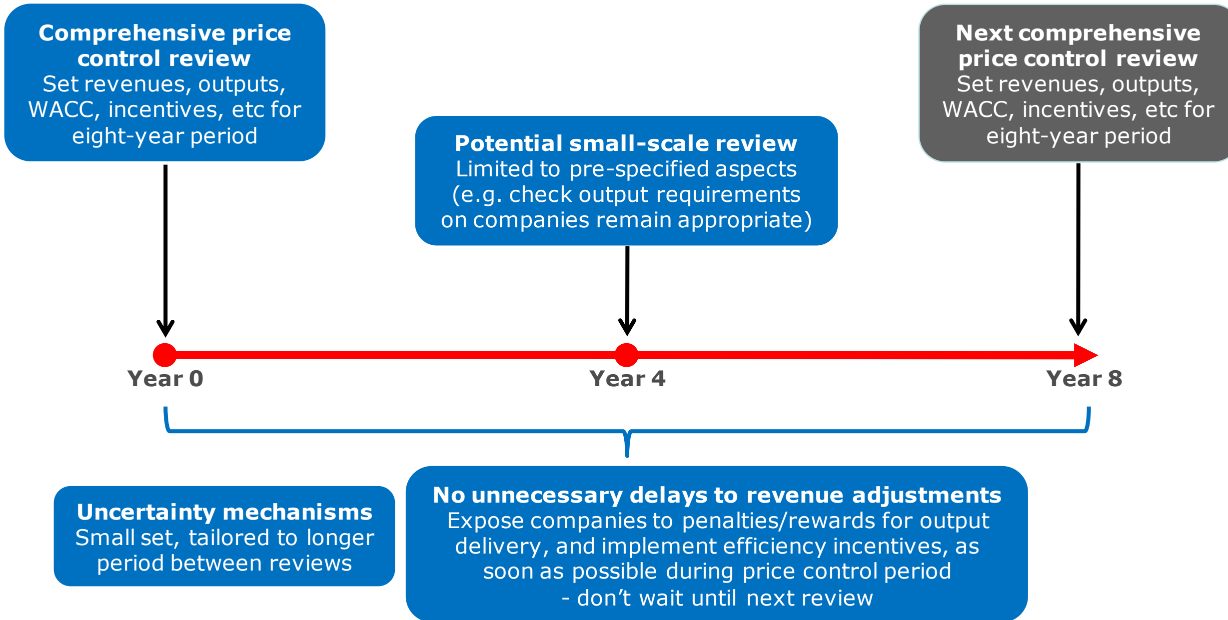
[4]For example, the water regime established at privatisation had 10-year price controls with the option to undertake a full scale review after five-years. This option was used in 1994 and 1999, and from 1999 the price control length was changed to five-years. In our regime for offshore electricity transmission we are providing a twenty-year commitment to revenue streams. The nature of the competitive process used to determine the levels of revenue means that it is not possible to make read-across to the onshore transmission regulatory framework. Further details on regulatory precedent on length of the price control period can be found in Reckon LLP (2010).

3.15. We appreciate that the nature of energy network investments means that network companies' planning and decision-making has very long-term implications (e.g. asset life cycles). Any finite price control period will mean that some decisions have important implications that stretch beyond the end of the current price control period. A price control set for eight or ten years could provide substantial benefits over a five-year control, but would not, in itself, ensure that network companies focus on a sufficiently long period of time. Other aspects of the proposed framework, including business plans that are made in a longer-term context than the price control period, would remain important.

## 4. Longer-term price control "straw man"

4.1. This section provides an overview of a "straw man" model of how we could provide a longer-term commitment to the revenues that network companies are allowed and reduce the frequency of comprehensive price control reviews. Figure 1 provides an illustration.

**Figure 1: Overview of straw man**




4.2. Our straw man is intended to set out *how* we think a longer-term price control could be implemented under a new regulatory framework. It builds on the ideas for "partial" longer-term price controls that we included in our Emerging Thinking consultation in January 2010 and further work and discussion since then. The straw man is not a policy proposal under RPI-X@20 at this stage. We will carry our further work before reaching a view on our proposed approach. We welcome comments on the ideas here to inform our thinking ahead of making our recommendations to GEMA in summer 2010.

4.3. For the purposes of the straw man, we have taken a price control period of eight years. This is not intended to lock us in to this number. As discussed in Section 3, our current thinking is that a price control lasting eight, nine or ten years would be appropriate if we were to extend the period.

4.4. The remainder of this section is structured as follows. First, we provide an illustration of the price control building blocks we envisage in the new regulatory framework. We then summarise how each of the main elements would work with the

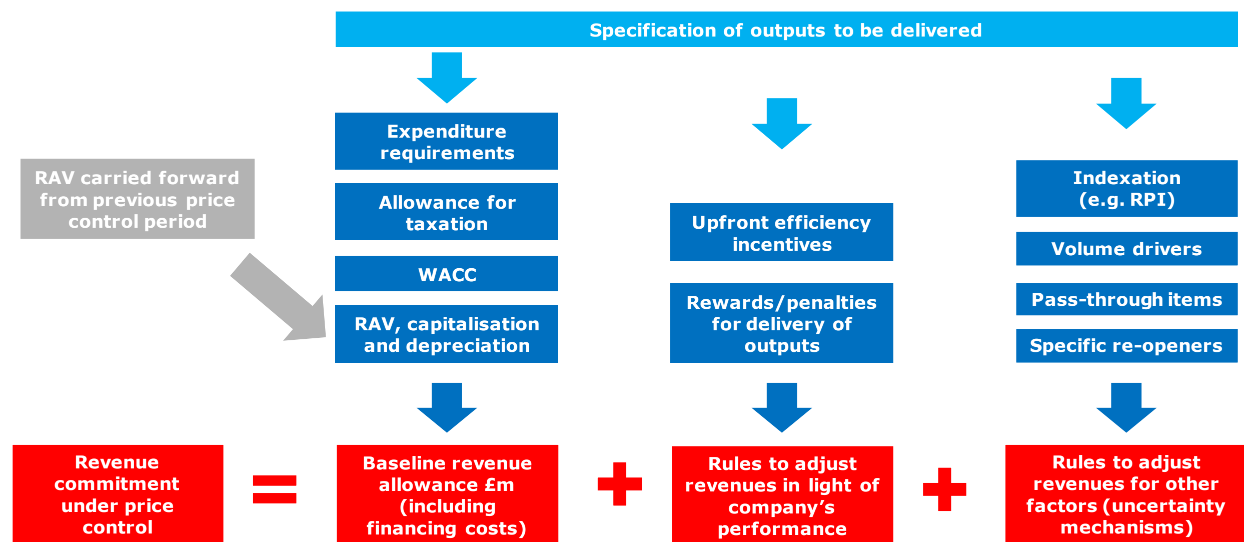
longer-term straw man control. Finally, we comment on potential variations by sector. Further details on specific aspects of the straw man are provided in the annex.

***Price control building blocks***

4.5. In Emerging Thinking we set out a proposal to introduce an outputs-led regime. The principle was widely supported in the responses to the consultation, with questions around how the framework would be designed, developed and implemented.

4.6. Under the straw man, the outputs that the network company is required to deliver would be clearly specified for an eight-year period (we would also provide an indication of expected outputs requirements over a longer period than this). We would provide a commitment to the revenues that the company can collect from customers in respect of its activities over this eight-year period. Figure 2 provides an illustration of the commitment.

**Figure 2: what the price control looks like (simplified illustration)**




4.7. As illustrated in figure 2, the revenue commitment can be broken into three parts:

- Baseline revenue allowance (including financing costs).
- Adjustments to revenues in light of company's performance.
- Uncertainty mechanisms.

4.8. We describe below what the straw man would mean for each of these parts. These relate to the revenue commitment provided under the price control. A final section turns to the time profile over which the revenue commitment is collected from customers.

***Baseline revenue allowance (including financing costs)***

4.9. There would be a "baseline" annual revenue allowance for each of the eight years of the price control. This is a number, in millions of pounds, specified in the company's licence. These annual allowances would include a provision for funding the expenditure requirements that we consider necessary for efficient delivery of outputs over the price control period. They would also include depreciation of the company's regulatory asset

value (RAV), an allowance for taxation and an allowed return on the RAV based on our assessment of the weighted average cost of capital (WACC).

4.10. We would need to forecast the company's efficient expenditure requirements over the eight-year period. To do so, we would ask companies to provide output and cost information in their business plans covering at least the eight-year period. We would expect the plans to be presented within a planning context that goes beyond the length of the price control review (e.g. a transmission operator might need to set out what it expects to need to do meet future Government low carbon targets and explain why its outputs and costs for the eight-year period would provide long-term value for money in this context). We would review these and other sources of information (e.g. cost benchmarking analysis).

4.11. The allowed return on capital would need to be set in light of the financial risks that companies face under the eight-year price control, taking account of the overall price control package that they face.

***Adjustments to revenues in light of company's performance***

4.12. There would be a set of rules and policies which govern how the revenues that the company is allowed to collect may vary around the baseline allowances according to the company's performance. These include penalties and rewards for its delivery of outputs.

4.13. There also would be efficiency incentives which involve risk-sharing arrangements such that, if the company spends more (or less) money to deliver outputs than Ofgem envisaged when the price control was set, the revenue that it can collect from customers would adjust upwards (downwards) so that the difference is shared between the company and consumers. As highlighted below, we would not wait until the end of the price control period before sharing any cost savings with consumers — these would feed through to prices on an annual basis in accordance with upfront rules on the efficiency incentives.

4.14. We would consider interactions between the length of the price control period and the efficiency incentives when determining the scale of the "incentive rate", which sets the strength of these incentives. Any concerns about greater forecasting risks associated with a longer price control period could be mitigated, in part, by exposing companies to a smaller proportion of any deviations between the levels of annual expenditure forecast by Ofgem and the company's actual expenditure. This is discussed in more detail in the annex.

***Uncertainty mechanisms — including potential small-scale review***

4.15. There would be a set of rules that enable the revenue that the company is allowed to collect to be adjusted in light of other factors — including things that are deemed outside the company's control but which could have a significant impact on its costs. These rules are intended to provide some protection to consumers, and the company, against the uncertainties faced by Ofgem in determining an appropriate baseline revenue allowance over the period of the price control.

4.16. There would be an indexation mechanism (e.g. such that the allowed revenue adjusts in line with changes a price index such as the RPI). There may also be mechanisms that allow revenues to adjust according to measures of the scale of activity required from the company (e.g. the number of new connections to the network). We call these "uncertainty mechanisms".

4.17. Under the straw man, the uncertainty mechanisms included in the price control would be tailored to accommodate an eight-year period between comprehensive price control reviews.

4.18. As shown in figure 1 above, we would also include provisions for a potential small-scale review after four years:

- The small-scale review would not provide a general opportunity to revisit the price control (e.g. if actual expenditure has differed from forecasts, or to reassess the allowed rate of return). Our ability to change the price control would be limited to specific elements that are agreed at the start of the eight-year price control period and specified in the licence.
- Our current thinking is that we would design the small-scale review to provide an opportunity to assess whether the outputs that the company is asked to deliver remain appropriate. There would have to be a clear case that the existing set of outputs do not deliver what customers need before any change is made. We do not envisage that this provision would be used, for example, to reconsider whether a particular output target is set at 98 per cent or 99 per cent.
- If we decided that we did need to change the outputs the company is required to deliver, we may need to adjust the revenues allowed under the price control to compensate the company (for increases in outputs requirements) or to compensate consumers (where output requirements are reduced).
- The scope and duration of the outputs review would be limited to ensure that it does not undermine the benefits that the eight-year control is intended to bring. Indeed, where there is consensus that there is no need to revisit outputs, it may be limited to a short consultation process.
- The small-scale review would not be used to revisit the rules of the price control. We would not use the review to adjust the strength of efficiency incentives that network companies face (e.g. the extent to which savings made by the company are shared between investors and consumers). We would not add or remove uncertainty mechanisms at this review.
- In extreme cases we might need to include an uncertainty mechanism that provides the opportunity to re-visit a particular area of expenditure at the small-scale review (e.g. if there is acute uncertainty about expenditure requirements relating to smart grid developments). The scope and nature of such a mechanism would need to be specified clearly in advance, and tightly defined. There would have to be a clear need for such a mechanism. We would ensure at the comprehensive price control review that it is designed in a way that does not risk undermining the efficiency incentives that the longer-term price control is intended to bring

4.19. We provide further details on these aspects of the straw man in the annex.

***Time profile over which revenue commitment is collected from customers***

4.20. The commitment provided under the price control concerns the company’s activities over an eight-year period but affects the revenues that it is allowed to collect from customers over a longer period of time. For instance, Ofgem may commit to fund £1bn of expenditure by the network company over the price control period (provided the company

delivers its outputs). Some of this amount would contribute to the annual baseline allowances over the eight-year period. The rest would be added to the regulatory asset value (RAV). It would then contribute to the amount of money that the company is allowed to collect during subsequent price control periods.

4.21. Under Ofgem's existing price controls, many of the adjustments made in light of the company's performance, or from the uncertainty mechanisms, do not take effect during the eight-year period but would instead affect the revenues the company is allowed to collect in subsequent price control periods (e.g. through adjustments to the RAV). If the price control period were eight years we would seek — as far as possible — to feed through adjustments to the revenues it is allowed to collect from consumers annually during the price control period (potentially with lag until data becomes available), rather than waiting to the next price control review.

***Potential variation by sector***

4.22. The straw man set out above could be applied in all four network sectors: electricity distribution, electricity transmission, gas distribution and gas transmission. But there is a question of whether it might be appropriate to apply longer-term price controls to some but not all of the sectors.

4.23. In cases of greater uncertainty, it is even more important that the regulatory framework ensures that network companies take a longer-term perspective (e.g. by thinking hard about different future scenarios and options). We recognise that it may be more difficult to forecast expenditure requirements over a longer period of time in some sectors than others. But as set out above, and in more detail in the annex, there are potential ways of mitigating forecasting uncertainties. Perceived variations in the extent of uncertainty that sectors face may not be a sufficient reason to have different control periods for different sectors.

4.24. Our current thinking is that the straw man is equally applicable to all sectors. This reflects its flexibility. The nature and scope of the small-scale review after four years, and the other uncertainty mechanisms, would be tailored to the conditions facing each sector. We welcome ideas on whether there is a case for varying the length of the period between sectors and/or varying the use of uncertainty mechanisms.

## 5. Summary and next steps

5.1. In Emerging Thinking we identified a range of measures that would bring a longer-term perspective to the regulatory regime and support the achievement of value for money for existing and future consumers. These include measures that could be applied within a five-year price control framework, such as longer-term business plans during the price control review process and an innovation fund. But these may not do enough to encourage network companies to play a full role in facilitating delivery of a sustainable energy sector and deliver value for money network services over the long term for existing and future consumers.

5.2. A longer-term price control framework may bring benefits to consumers that could not otherwise be achieved. The straw man set out in this working paper reflects our current thinking on the best way to implement longer-term price controls.

5.3. The straw man is designed to mitigate the risks and downsides we have identified with longer-term price controls. Even so, adopting this approach would bring some risks

that could be avoided if we continued to hold comprehensive price control reviews every five years. For instance, the straw man would bring additional complexity, particularly to the next set of price control reviews.

5.4. If we decided that now was not the time to introduce longer-term price controls, we would need to consider whether there are other ways to address our residual concerns about five-year price controls. For instance, rather than just using a longer-term business plan at each price control review, each company could be required to update and maintain a long-term business plan / asset management plan throughout the regulatory period. Ofgem would review whether these plans are likely to provide long-term value for money, with major expenditure decisions subject to Ofgem approval. Our current view is that this would be a poor substitute for a regulatory framework that creates conditions in which it is in companies' own financial interests to reduce and restrain their long-term costs.

5.5. This working paper reflects current thinking. We will be carrying out further work to understand the potential scale of benefits from a longer-term price control.

5.6. We welcome views on all this issues raised in this paper, in particular:

- The potential nature and scale of benefits of a longer price control period, over and above those achievable through the other options we have identified.
- Whether the straw man sufficiently addresses the potential drawbacks of setting a longer-term price control.
- The length of time between comprehensive price control reviews.
- The scope of any small-scale mid-period review.
- How the approach might vary between sectors.

5.7. We will provide our recommendations to the Gas and Electricity Markets Authority (GEMA) in summer 2010.

## 6. ANNEX: a closer look at the straw man

6.1. Section 4 of the working paper provided an overview of the straw man. This annex provides further information on specific aspects:

- Provisions to adjust output requirements.
- Cost forecasting risks under a longer-term price control.
- Calibration of upfront efficiency incentives.
- An enhanced role for uncertainty mechanisms.
- Avoiding unnecessary delays to revenue adjustments.

### *Provisions to adjust output requirements*

6.2. In our Emerging Thinking consultation in January 2010, we proposed that the new regulatory framework will focus on outputs. These outputs will be high level, limited in number and reflect those things that consumers want from their network. The output categories set out in Emerging Thinking related to reliability, customer satisfaction, environmental impact, connections, safety and any social obligations. As far as possible, outputs would be specified in a way that is not unduly rigid.

6.3. Under the straw man, the price control would set out the outputs that the company needs to deliver over the eight-year period. After the price control has been set, there may be developments in what customers, Ofgem and Government need network companies to deliver under the regulatory regime. We expect that the six output categories would remain valid. But within an eight-year period, there may be a need for changes to the output measures — for example, introducing new measures.

6.4. Under the straw man, the licence modifications agreed with the network company at the price control review would include provisions for Ofgem to assess, during a small-scale review, whether the outputs that network companies are required to deliver remain appropriate. This review would be conducted in the fourth year of the eight-year price control price control and have effect from the start of the fifth year.

6.5. There would need to be a strong justification before we proposed any changes. We would set out at the comprehensive price control review on what grounds we would consider it appropriate to make changes. There are potential risks and downsides from instability in the output requirements, and the review process would bring administrative costs and risks of distracting network companies. We would need to take these into account.

6.6. If we decided, as part of the review, that we did need to change the outputs the company is required to deliver, we may need to adjust the revenues allowed under the price control to compensate the company (for increases in outputs requirements) or to compensate consumers (where output requirements are reduced).

6.7. Any changes to allowed revenues would be focused on the incremental impacts on expenditure requirements from the specific change to outputs, without re-opening the whole price control. The adjustments would be strictly the minimum necessary to compensate network companies for increases in requirements — or to compensate consumers where output requirements are reduced. The review of outputs would not

provide an opportunity to adjust revenues for any other reason (e.g. unexpectedly high input prices or the company's expenditure in particular areas being lower than expected). We would need to make this clear to all stakeholders and provide a firm commitment.

6.8. This process would work through arrangements specified in the licence conditions agreed with the company at the end of the price control review. It would depend on a determination, by Ofgem, of an appropriate revenue adjustment to compensate for any changes to outputs. Before making such a determination, we would publish a draft adjustment, and supporting analysis, and consult stakeholders.

6.9. It may be appropriate to specify in the licence the circumstances in which the company could request that Ofgem refers the magnitude of the adjustment to the Competition Commission.

6.10. The review would provide an opportunity to change the outputs that the company is required to deliver in the remaining years of the price control period. It would not apply retrospectively. Even if outputs were changed, companies would still be held to account for their performance to date in delivering the original set of outputs.

6.11. The arrangements summarised above would allow flexibility to adapt outputs within the eight-year price control. They would not undermine the purpose of the longer-term price control. There would still be a longer-term commitment that if the company finds a way to deliver the original set of outputs at lower cost, it would benefit to the extent specified in the upfront efficiency incentives. Similarly, the review of outputs would not provide the company any protection against escalations in its costs of delivering the original set of outputs.

6.12. An alternative to the approach discussed above would involve no scheduled review of outputs during the period, but an option to make changes to outputs as and when needed. This alternative would provide more flexibility as to when changes to outputs could be implemented. But it may create greater instability in outputs and a continual stream of requests for variations from different stakeholders. In any event, it is possible that major changes to Government policy could mean that we need to implement changes to output requirements outside of the timescale of the small-scale review.

### *Cost forecasting risks under a longer-term price control*

6.13. Under the straw man, we would need to set price controls on the basis of a forecast of the company's (efficient) expenditure requirements to deliver outputs over an eight-year period. This forecast would be made in a context of uncertainty. An eight-year price control may exacerbate the following risks:

- The risk that the baseline revenue allowance that we set at the price control review is too high and that a company is able to collect much more money from consumers than it needs to deliver its outputs. Apart from the direct impact on the prices that consumers pay, there are further risks that such an outcome could lead to perceptions of companies making "windfall profits" —reflecting good fortune rather than good management — which could undermine stakeholder confidence in the regulatory regime.
- The risk that the baseline revenue allowance that we set at the price control review is too low and that a company is not able to finance its activities in the delivery of outputs. Whilst we might expect a well-managed company to adopt a capital structure that

mitigates this risk (e.g. lower gearing), consumers may need to pay for the company's ability to absorb these risks by funding a higher cost of capital.

- The risk that, because of either of the above, Ofgem need to re-open the price control before the next scheduled price control review date. An unplanned review of the price control would create a period of uncertainty and could pose risks to the delivery of outputs. Furthermore, the prospect of such a re-opening could impede Ofgem's credibility in setting fixed-term price controls and undermine the incentive properties of the regulatory framework.

6.14. However, the risks that consumers and companies face under a price control are determined by the regulatory framework. Besides the length of the price control period there are a host of incentive schemes and uncertainty mechanisms which affect these risks (see figure 2 above).

6.15. We would be able to tackle concerns about forecasting uncertainty in two main ways. First, we would calibrate the strength of the upfront efficiency incentives in light of the uncertainty. Second, we would develop uncertainty mechanisms that would help manage the risks from forecasting uncertainty without undermining the benefits of setting a longer-term price control. The next two sub-sections provide further detail on these tools.

***Calibration of upfront efficiency incentives***

6.16. As set out in our Emerging Thinking consultation document, we propose that the core efficiency incentives of the regulatory framework come from an upfront "incentive rate" which determines how the revenue that the company is allowed to collect from customers is affected by its actual expenditure during the price control period. The same incentive rate would apply to operating expenditure and capital expenditure.

6.17. The incentive rate (sometimes called the sharing factor) represents a commitment on the extent to which the company's investors are exposed to its actual costs, once the price control has been set. If the incentive rate is 40 per cent, the intention is that the company makes £40 more profit (before tax) for each £100 that the company saves during the price control period (e.g. a saving against the expenditure envisaged by Ofgem when the price control was set) and that the company bears £40 of each additional £100 that it spends; in each case, the remainder is passed on to consumers through lower or higher prices.

6.18. The revenue adjustments from the incentive rate are separate from any penalties (or rewards) that the company may face for its performance in delivering outputs. For instance, a company that under-spends against the baseline expenditure allowance and does not deliver its outputs would face a revenue adjustment from the application of the incentive rate (e.g. so that it only enjoys 40 per cent of the value of the under-spend) and potentially a further adjustment representing a penalty for not delivering outputs. In any event, outputs funded in one price control period that are deferred into a future period will not be funded twice.

6.19. The level of the incentive rate will be set at each price control review, albeit with a presumption that changes are not made from previous price control periods unless these can be justified. A balance needs to be struck when setting the level of the incentive rate:

- The higher the incentive rate, the more a network company's profit can be increased by cutting costs and the more its profit is reduced by incurring additional expenditure. A

higher incentive rate can be seen to provide the company with stronger incentives to reduce and restrain its expenditure during the price control period.

- The lower the incentive rate, the less Ofgem's forecast affects the money that the network company is allowed to collect from customers under the price control. This provides greater protection to consumers in the scenario where the company needs to spend much less than Ofgem forecast. Similarly, a lower incentive rate provides greater protection to investors in the scenario where the company needs to spend much more than Ofgem forecast — which can benefit consumers if we are able to set a lower cost of capital in recognition of the decreased risk to investors.

6.20. We would take account of the length of the price control period in reaching an appropriate balance. For instance, if there are greater forecasting risks under the eight-year price control, we may choose to set a lower incentive rate than we would have done in the context of a five-year price control.

6.21. For the purposes of illustration, table 2 below shows how we might use the incentive rate to help manage forecasting uncertainty that we face in setting revenue allowances for an eight-year period. In the scenario presented in table 2, our best forecast of the company's expenditure requirements over the period is £100m in each year of the price control, but the company actually ends up spending £125m each year in order to deliver its outputs.

**Table 2: Simplified illustration of use of incentive rate to manage forecasting risks**

| Length of price control | Ofgem forecast of company's expenditure over control period | Company's actual expenditure | Incentive rate | Investors' exposure to the over-spend |
|---|---|---|---|---|
| Five years | £500m | £625m | 40% | £50m |
| Eight years | £800m | £1,000m | 25% | £50m |

6.22. In our example, the size of the over-spend against the Ofgem forecast is greater under the eight-year price control than under the five-year price control. But investors' exposure to the over-spend is dependent on both the size of the over-spend and the incentive rate. There is a lower incentive rate under the eight-year price control, which compensates for the larger over-spend. In both cases, investors face the same financial loss by the end of the price control period. Because the incentive rate would apply symmetrically to under-spends, consumers would equally enjoy a similar level of protection against the risks that Ofgem's forecast of annual expenditure requirements was greater than what the company actually needed to spend.

6.23. The example above is intended to show interactions between the incentive rate and the length of the price control period. We do not expect a mechanistic link between the two. A very low incentive rate could render the efficiency incentives that companies face too weak to protect the interests of consumers. It would be important to retain strong efficiency incentives regardless of the length of the period. In any event, we would take account of the risks that companies face when setting the cost of capital.

***The role of uncertainty mechanisms under a longer-term price control***

6.24. In general, we think it is appropriate for network companies to manage the uncertainty that they face. However, we recognise that there may also be a role for specific uncertainty mechanisms in the regulatory framework that enable the revenues the company can collect to be adjusted during the price control period for events largely outside companies' control — provided that these do not undermine the efficiency incentives that companies face. This can provide protection to both companies and consumers.

6.25. Uncertainty mechanisms would be selected at each price control review. They should be kept to the minimum necessary. We recognise that uncertainty mechanisms may bring their own downsides. Depending on their nature and the details of their implementation, they may dampen or even undermine efficiency incentives. They can also bring additional complexity to the regulatory framework, especially during the price control review process, which in turn brings risks of administrative error and unintended consequences.

6.26. In our summer recommendations we will set out the factors that we will consider when making decisions, at a price control review, about when and how to design and implement uncertainty mechanisms.

6.27. Figure 3 illustrates the breadth of uncertainty mechanisms that might be used. These are in addition to the potential small-scale review of what outputs networks are expected to deliver discussed earlier.

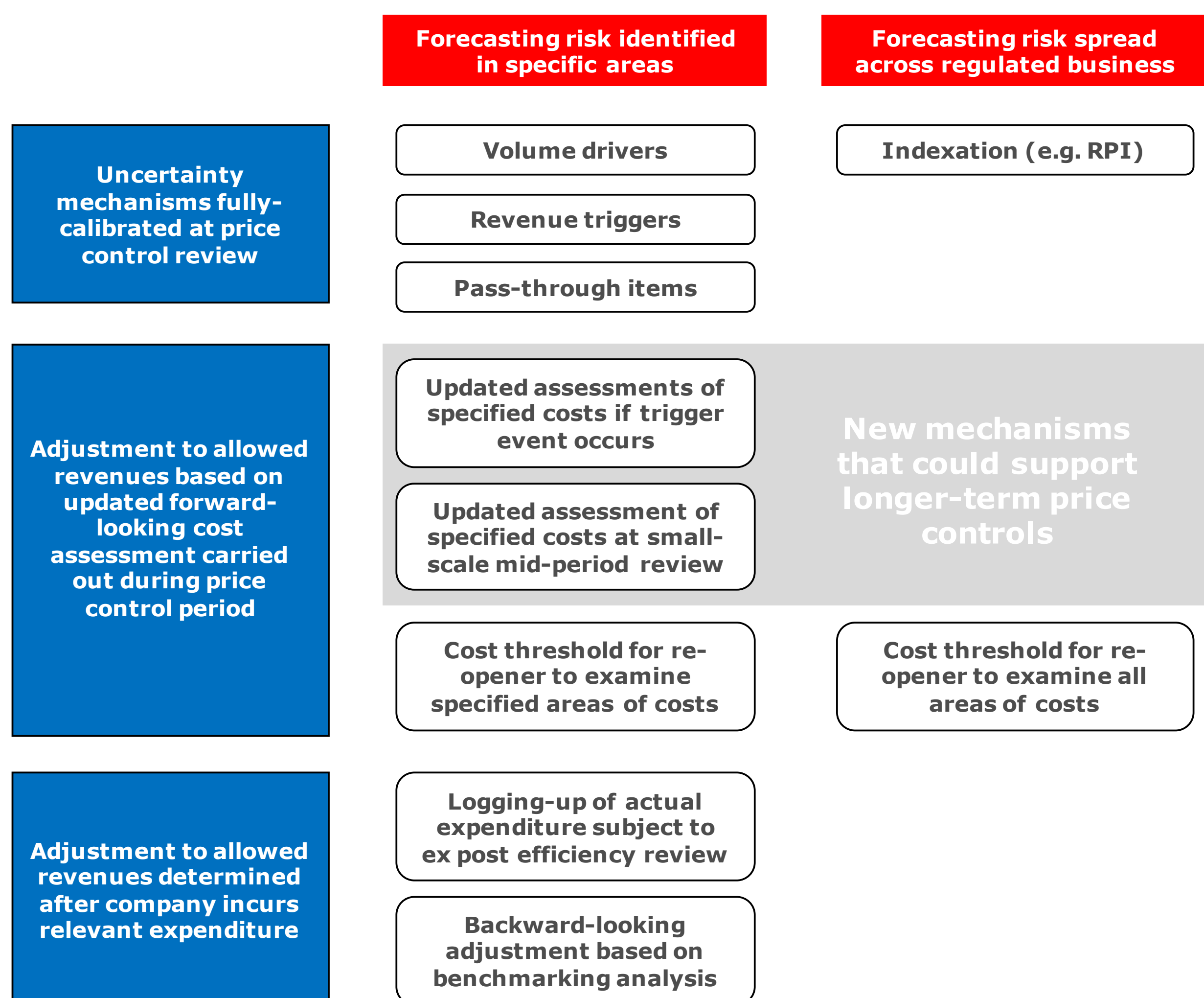
6.28. The majority of the tools in figure 3 are familiar uncertainty mechanisms, which have featured in price controls set by Ofgem or other economic regulators in the UK.[5]

6.29. In addition, we have identified in figure 3 new mechanisms which could help support longer-term price controls in cases of acute uncertainty. The distinguishing feature of these new mechanisms is that they would allow price controls to be adjusted following updated cost assessments carried out by Ofgem during the price control period. For instance, the licence could include provisions for an updated cost assessment, limited to specific areas of activity, if a specified trigger event occurs during the eight-year period. We believe that these can be designed in a way that does not undermine efficiency incentives (e.g. by limiting their scope to a small area of expenditure and, where relevant, making a partial rather than full adjustment to revenues in light of the updated assessment[6]). Any such mechanisms would need to be specified upfront at the comprehensive price control review.

6.30. Regardless of what mechanisms are included, the role of uncertainty mechanisms would not be expanded so as to mean that the small scale review discussed in Section 4 provides an opportunity to revisit large parts of the overall price control. The use of uncertainty mechanisms would need to be carefully designed and limited, to ensure that it does not undermine the longer-term financial incentives that the longer-term price control is intended to bring.

[5] A glossary of terms can be found on our website: http://www.ofgem.gov.uk/Networks/rpix20/publications/CD/Documents1/glossary.pdf
[6] The "Partial adjustment of price control for updated cost forecast after five years" model provided in Reckon (2010) illustrates how this might be done.

**Figure 3: Overview of uncertainty mechanisms**




***Avoiding unnecessary delays to revenue adjustments***

6.31. As indicated in Figure 2 above, the revenues that the network company is allowed to collect from customers would be subject to adjustments in light of its performance — in terms of both its success in delivering outputs and how much it actually spends compared to what was allowed. Revenues would also be adjusted according to uncertainty mechanisms.

6.32. Ofgem's current price controls include similar incentive schemes and mechanisms. However, a number of them do not affect the revenue that the company can collect during the price control period. Instead, they are implemented as part of the next price control review. For instance, the strength of the upfront efficiency incentives (the incentive rate) does not affect revenues that the company can collect during the price control period, but rather feeds into the revenues that the company is allowed to collect during the subsequent price control period. Similarly, uncertainty mechanisms that involve "logging up" delay both the confirmation and implementation of revenue adjustments to the next price control review.

6.33. There are a number of potential downsides with this approach. For instance, the links between a company's performance and its allowed revenues may be unclear if

adjustments are made as part of a wider, forward-looking price control settlement at the next review. Company management may not give sufficient attention to aspects of performance that do not affect revenues until the start of the next price control period.

6.34. Taken together, there are risks that the incentive schemes for output delivery and efficiency, and the uncertainty mechanisms, will not work as effectively as they could if revenue adjustments are not implemented until after the next price control review. These risks could be exacerbated if there is a longer period between price control reviews.

6.35. Under the straw man, the upfront efficiency incentives and the penalties (or rewards) for output delivery would be implemented as soon as possible, without waiting until the next price control review. For instance, to implement the upfront efficiency incentives, there would be annual adjustments to the revenues that the company can collect in light of its actual expenditure in the previous year. There would be some limits to this approach — for example, some aspects of output delivery may only be assessed over a period of several years and the timing of adjustments will depend on when data are available.

6.36. Making adjustments sooner rather than later also seems to provide a fairer balance between the interests of current and future consumers. For instance, there is a good argument that if consumers have suffered from poor performance this year, they should benefit from lower prices (through a downward adjustment to the revenues that the company is allowed to collect, applied as a penalty) as soon as possible, rather than leaving this benefit to accrue to consumers during the next price control period.

6.37. We would also favour uncertainty mechanisms that feed through to revenues adjustments during the price control period, rather than after the next price control review.

6.38. This approach might lead to greater volatility in a network company's prices during a price control period, even if the extent of price changes between price control periods is reduced. It would be more important than ever for network companies to provide indicative future network charges to network users (e.g. based on forecasts of future revenue adjustments due under the rules of price control framework). We would also need to ensure that there is transparency on how the changes will work year-on-year to help those that pay network charges to understand the basis for any changes.