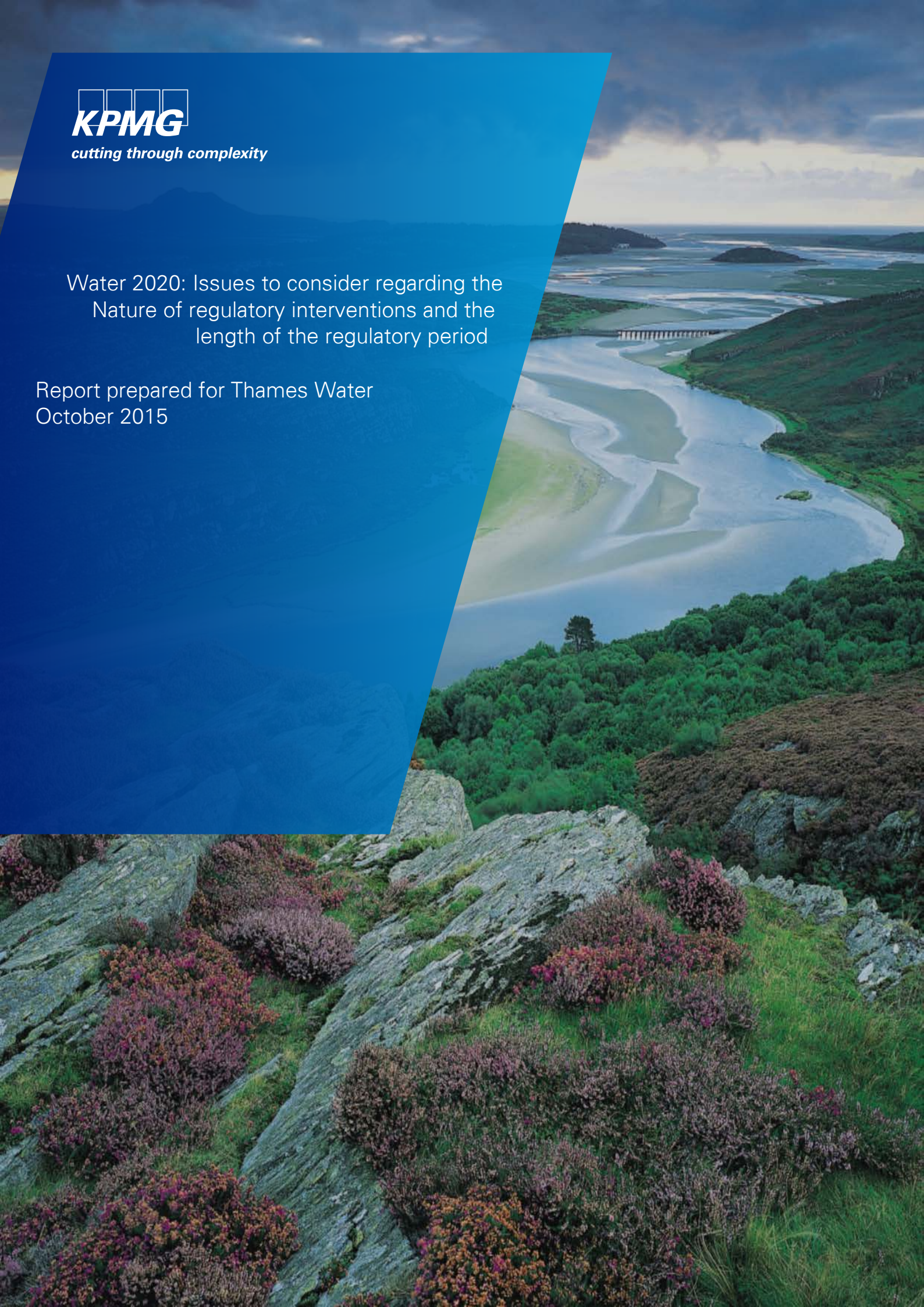




*cutting through complexity*

Water 2020: Issues to consider regarding the  
Nature of regulatory interventions and the  
length of the regulatory period

Report prepared for Thames Water  
October 2015



# Foreword by Thames Water

Earlier this year, Ofwat invited water companies and others to contribute to their “market place of ideas” on the future for regulation. We welcomed Ofwat’s collaborative approach and agreed to consider the related issues of the nature of regulatory interventions at the time of setting price controls and how the duration of the price controls might be determined. We saw value in combining a fresh view of these questions with a broad base of regulatory experience, and invited KPMG to consider these questions objectively. Drawing on publicly available information on the methodologies and tools used by economic regulators, KPMG has identified a number of issues that Ofwat might usefully consider as part of Water 2020. Inevitably, at this stage of the process, the report does not provide answers, but the material that KPMG has marshalled should serve as a useful checklist of issues as Ofwat develops its thinking.

The art of good economic regulation is to create incentives that align the interests of investors and management with those of customers. It is therefore important that the way in which Ofwat intervenes in a price control review, and the frequency of intervention, are designed to create appropriate incentives, i.e. incentives that bring about the best result for customers.

How Ofwat intervenes – and how it is expected to intervene – at a price control review will have a significant impact on companies’ business planning. For example, if companies have confidence that Ofwat will adopt plans that accurately reflect customers’ preferences, they will have a strong incentive to identify their customers’ preferences and reflect these in their plans. It follows that the regulatory framework should create the conditions in which companies, and their investors, believe that their plans will be adopted providing that they are based on good engagement with customers combined with endorsement from independent Customer Challenge Groups. In our view, therefore, the more Ofwat does to give companies this confidence, the better.

Since the water industry is inherently long term, it is also important for the regulatory framework to create clear and effective incentives on companies to make decisions that best reflect customers’ long term interests. To do this naturally requires the creation of long term incentives. Longer price control periods can provide some greater certainty here, although in practice they can never be long enough to span the duration of many investment decisions. In our view, it is by making stronger and clearer commitments to its approach to future price control reviews – not just PR19, but also for PR24 and beyond – that Ofwat could achieve the certainty and stability necessary to create incentives to drive good long-term decision making. Thus, if Ofwat wishes to rely on incentive-based regulation to achieve good long term outcomes, the more it does to strengthen its commitment to maintaining a stable, enduring and clear approach to regulation, the better.

We trust all readers will find this report a useful contribution to the development of Water 2020 and I thank KPMG for their work in preparing it.

**Nick Fincham**  
**Director, Strategy & Regulation, Thames Water**  
**October 2015**

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# 1 Summary and conclusions

## 1.1 Scope of this report

Water 2020 is the programme created by Ofwat to develop the regulatory framework for the next price review and beyond.

As part of Water 2020, Ofwat has asked companies for support in the development of its approach to answering the 'big questions' the sector faces when developing the regulatory framework for PR19.

KPMG has been engaged by Thames Water to evaluate potential options for two of the 'big questions' regarding the future regulatory framework:

1. What should the nature of Ofwat's regulatory interventions during the price review be?  
and
2. What should the length of the regulatory period be?

Economic regulation is focussed on setting appropriate prices for monopoly services or monopolistic parts of the value chain. The absence of competitive markets means that monopoly service providers can charge prices above what would result in a competitive market. This results in consumers of the service paying too much for that service and/or receiving poorer services. In effect, the monopolist will appropriate consumer surplus either as profit above the normal rate of return or through lower efficiency levels than a company operating competitively might incur. Economic regulators therefore use a range of interventions to reduce the potential negative impacts of monopoly behaviour on consumers. They achieve this by:

- Setting the prices a regulated monopolist can charge;
- Assessing the efficient level of investment, operating and financial cost the business should achieve;
- Specifying the quality of service customers should expect from the company; and
- Identifying those services where these parameters could be determined by competitive forces.

In this context it becomes clear that, in selecting regulatory interventions, a regulator needs to be comfortable the intervention will give a benefit compared with the monopoly situation. Therefore, intervention should reduce prices, promote efficiency or improve service for customers.

Similarly the length of the regulatory period, or the time between regulatory resets, is one of the factors in determining when the benefits of regulation are transferred to customers. The timing of benefit sharing between regulated companies and customers can also be driven by the nature of the regulatory intervention<sup>1</sup>. When considering the length of the regulatory period, other regulators have considered it as part of a package. That package includes the

<sup>1</sup> For example in previous price reviews, Ofwat and Ofgem have made use of Po adjustments towards the start of price review period to bring benefit sharing with customers forward in the regulatory period (when compared to a more traditional glide path approach.)

allocation of the risk of significant deviation from the assumptions set at the start of the regulatory period, adjustment mechanisms the regulator wishes to use, within period sharing mechanisms or reopeners that are also being considered as part of the regulatory package.

## 1.2 Our approach

Our approach to assessing potential answers to these questions has been to consider the methodologies and tools used by other regulators in Great Britain. We have considered the approaches taken by the relevant GB regulators for the following sectors:

- Gas and electricity (Ofgem);
- Airports (CAA);
- Rail (ORR);
- Telecoms (Ofcom); and
- Post (Ofcom).

We have assessed public domain documents concerning each of these regulators and the findings presented in this report are based upon that review.

For each of the two big questions from Ofwat that Thames Water has agreed to consider, we have assessed the potential implications for PR19 against Ofwat's duties and requirements of good regulation to develop our conclusions. These are listed in Sections 1.3, 1.4 and 1.5 below<sup>2</sup>.

## 1.3 Overall conclusions

We have identified a number of areas that Ofwat should consider regarding the nature of the regulatory interventions and length of the regulatory period prior to finalising a methodology for PR19. A number of these issues have been considered by Ofwat and other regulators in the past but merit consideration again in the context of market and regulatory changes in the water sector.

The summary points from our analysis are:

**The potential fragmentation of the value chain as competition or greater regulatory transparency is introduced (or evolves) should result in Ofwat using different regulatory interventions for different parts of the value chain. This approach will allow Ofwat to achieve its customer and resilience objectives, promote competition where appropriate and ensure that regulation remains proportionate.** Specifically:

- In preparation for potential market opening, the approach to regulating networks separately from other upstream activities of the company should be considered. These different regulatory interventions (and period) will need to take into account a range of factors associated with that market opening including, for example:
  - The risk to those water and wastewater assets of stranding as a result of competition which is highly likely to have a cost of capital impact when compared with a network. The greater separation of price controls gives Ofwat the opportunity to consider the risk profiles and impact on the cost of capital for different activities and potentially different

<sup>2</sup> Our assessment of how our conclusions could be assessed against Ofwat's duties is show in Table 1.3.

regulated companies<sup>3</sup>. The critical point is this may lead to unintended consequences in terms of financeability. Therefore, proposals in this area will need to be evaluated carefully by Ofwat to ensure that investors remain interested in the sector. It will be important for Ofwat to perform their assessment in the context of its duty to ensure that companies are able to finance their functions. A key aspect of the financeability assessment will be the approach to any allocation of regulatory capital value between networks and upstream; and

- The timing of the introduction of competition. The length of the regulatory period should accommodate the timetable for market opening. Further, in parts of the value chain where competition may be introduced, if it is in customers' interest, Ofwat should consider reducing or removing ex-ante regulation and make greater use of its competition powers. In these parts of the value chain, Ofwat could apply Significant Market Power tests to identify whether ex-ante regulation is appropriate.
- **For competitive retail activities, Ofwat should consider the speed and extent to which tariff regulation should be removed. Regulation could be based potentially on alternative approaches** for example, use of competition law powers (if there were regulatory issues to be addressed). This approach would support Ofwat in its objectives of supporting competition, where appropriate<sup>4</sup>.
- For the monopoly networks, ex-ante price controls based on a price review are consistent with the approach used for energy networks. For networks, Ofwat will need to consider **for PR19 the scope for incentivising companies to drive innovation for long term cost reduction as well as a diverse range of approaches to cost assessment**. An approach to regulation that includes incentives for long term cost efficiency has been considered by Ofgem as part of RIIO for the gas and electricity networks<sup>5</sup>. This would support Ofwat in carrying out its duties to secure the long term resilience of networks as well as protecting the interests of current and future customers<sup>6</sup>.

<sup>3</sup> The unbundling of the regulation of the water services value chain could justify reassessment of the cost of capital for each part of the value chain as different risks apply to different activities undertaken along the value chain. It is also important to consider the cost of capital impacts of unbundling on different regulated companies as they have different upstream and network portfolios with potentially different exposures to competition and asset stranding in their businesses which is likely to drive differing costs of capital between companies.

<sup>4</sup> For regulated retail activities, Ofwat may wish to consider a range of approaches to cost assessment in setting retail controls rather than the average cost to serve, given our assertion that for other parts of the value chain cost assessment based on a range of approaches is a way of developing more robust regulatory determinations.

<sup>5</sup> It is relatively early in Ofgem's RIIO process to assess the success of innovation funding and incentivisation on long term cost reduction. However there have been examples where projects undertaken under innovation incentives are starting to deliver benefits, including for example - the smart islands scheme in Orkney where electricity generation investments was avoided by network reconfiguration delivering a net benefit. Other companies are in the process of sharing the findings from smart technology trials across the sector with their implications for long term network costs.

<sup>6</sup> It should be noted that these points regarding incentivisation for innovation to achieve longer term cost reductions and the use of a range of cost assessment tools would apply to the regulation of other parts of the value chain to the extent that cost assessment is part of the regulatory interventions in the value chain.



## 1.4 Conclusions: nature of regulatory interventions

Ofwat's review of new regulatory models comes at a time when many jurisdictions are doing the same thing. A common theme is that regulators and politicians are wanting to address the extent to which the new RIIO model can be adapted or fine-tuned to their needs:

- The water sector in Victoria, Australia is looking at adoption of RIIO apart from the 8 year concept, there is a special focus on innovation within RIIO;
- Power companies are urging the AER in Australia to take aspects of RIIO, notably the incentives;
- Both New York and California are looking to cannibalise it for local solutions, and sustainability; and
- Hong Kong is looking at incentives, notably environmental incentives.

Interestingly, in Australia, both water and power have turned their faces against longer term time frames.

- In water, policy makers have been concerned regarding the impact of locking in particular regulatory outcomes without allowing flexibility for customers;
- Power: there are real concerns about achieving good forecasting, miscasting the base year and not being able to re-open the control in the absence of clearly defined re-openers.

It is fair to suggest that the levels of trust between regulated and regulator are not at the levels in Australia that Ofgem enjoyed at the time of RIIO.

The real focus around the globe and the appeal of RIIO, are not fast track or 8 years but rather:

- Innovation; and
- Incentive management.

Ofwat may want to ask Thames Water and KPMG to review innovation in a holistic and detailed way to ensure that PR19 takes full account of developments in other regulatory regimes and provides the right framework to encourage innovation.

### 1.4.1 Scope and process of regulatory intervention

The nature of regulatory intervention is driven by a regulator's interpretation of how best to perform its duties.

There is a wide range of tools that regulators have available to support them in achieving those duties. These tools include, but are not limited to, exerting controls over the prices regulated companies can charge, performing market investigations and putting in place behavioural regulatory regimes.

One consideration of regulation is whether the regulatory interventions are undertaken on an *ex-ante* or *ex-post* basis. In other words, whether the regulator is setting forward looking targets and incentives for the regulated companies in advance or it performs investigations after the event and, where appropriate, seeks remedy/redress. Typically, heavy infrastructure/asset regulation in GB has been performed on an *ex-ante* basis<sup>7</sup>. However, as

<sup>7</sup> The *ex-ante* approach has been considered useful for supporting Ofwat's (and Ofgem's) financeability objective as *ex-ante* approaches provide some transparency regarding revenues and cashflows for the regulated entity over of the regulatory period which gives some of the stability/predictability that providers of funds to the sector regard as important. The *ex-post* regime can

parts of the value chain in some sectors are being opened to competition, there is a greater role for ex post regulation.

Parts of the water and wastewater value chain will open to competition in AMP7. Therefore, Ofwat will need to assess whether its duties are best served by continuing to regulate those parts of the value chain and/or use an ex-post regulatory model. Given the general experience of infrastructure regulation in Great Britain, it seems unlikely that an ex-post approach would be considered for the entirety of water regulation in AMP7. However, it will be valid for Ofwat to assess the extent to which ex-post regulatory interventions could be deployed and the impact that would have on risk and financeability of the sector.

#### 1.4.1.1 Long term outcomes

Most regulators have a duty to promote the interests of customers today and into the future. Our review suggests that other regulators have focussed less on long term outcomes than Ofwat.

There is, however, potential for additional reinforcement of the long term focus. For example, Ofwat could consider whether long term targets should be set for the different outcomes companies currently face.

One tool Ofgem has used in its RIIO approach for the gas and electricity networks is to provide innovation funding for the regulated infrastructure companies to compete for during the regulatory period. Funding innovation is a way to invest in long term outcomes for future water customers (either through direct incentivisation or cost performance efficiencies). Consideration of how best to promote innovation in general and innovation funding models for PR19 in particular is a valid consideration for Ofwat because it:

- Supports improved outcomes for future customers in the context of Ofwat's duties to promote the interests of existing and future customers;
- Is consistent with Ofwat's focus on resilience and longer term outcomes; and
- Has a precedent in existing regulatory models in gas and electricity.

#### 1.4.1.2 Separate, binding controls for wholesale water, wholesale wastewater, household retail, and non-household retail

Different regulatory approaches should be given serious consideration for different parts of the value chain as they unbundle. This will allow Ofwat to deliver its duties to protect consumers while ensuring that companies can finance their activities.

It will be important for Ofwat to consider how to adapt its regulatory approach in order to ensure a targeted, proportionate and focussed intervention. This requires Ofwat to consider whether it should:

- Make use of transitional price controls that can be removed as competition emerges. This was deployed by Ofcom as the telecoms market opened to competition and by Ofgem between 1998 and 2000 when retail price controls were in place in the initial phase of market opening; and

provide some uncertainty as it is not clear costs may be funded through the ex-post regulatory review however they have already been spent by the regulated company.

- Apply different tools at different parts of the value chain (e.g. retail controls have tended to focus on default tariffs or margin allowances, whereas infrastructure business controls tend to be more price cap based).

The potential for upstream market opening means that Ofwat will need to consider the separation of the wholesale business controls between the networks activities and those where competition could be introduced. Competition for upstream activities will impact the risk of those activities and regulatory interventions. The allocation of regulatory capital value, cost of capital and the period of the control will need to reflect those issues to ensure companies can continue to finance their activities.

#### 1.4.1.3 Focus on ongoing customer engagement (two way)

There is also potential for Ofwat to consider further how to align customer preferences and priorities with outcomes. Equally, it would also need to consider the role that companies should take in engaging with customers, understanding their preferences and priorities and using these when developing their business plans. Regulators in the UK (including Ofwat) increasingly focus on this process. Ofwat may wish to consider how it will incentivise and reward companies to keep improving this engagement going forward.

#### 1.4.1.4 Risk based approach to business plan assessment, and use of 'enhanced status'

Based on experience and lessons learnt by Ofgem, Ofwat should consider the costs and benefits of the future application of 'enhanced status' and whether a financial and/or reputational reward is appropriate. As part of that analysis, Ofwat will also need to consider whether this incentive will ensure that companies submit a good business plan that Ofwat can use.

#### 1.4.1.5 Dealing with change within the regulatory period

There are opportunities for Ofwat to consider an expanded role for proportionate regulation.

Ofwat has made use of proportionate regulation through the use of graded business plan assessment and the use of 'enhanced status' where plans submitted by the companies that were assessed as "good" are subjected to lower levels of regulatory scrutiny.

The use of proportionate regulation has been deployed in airports regulation to drive assessments of whether regulation is required. If an airport is able to demonstrate that it does not exert Significant Market Power (SMP) it can be removed from regulatory control. An approach such as this could be considered by Ofwat for sectors of the market where competition is to be introduced during AMP7. Given the uncertainty regarding the level of penetration of competition in upstream parts of the value chain for example it may be appropriate to consider a price control model until the market takes off. However, companies can, in the long run, then apply for removal from the price control once they can demonstrate they do not retain market power.

### 1.4.2 Cost assessment methodology

The operation of competitive markets results in inefficient service providers being unable to make their required level of profitability given prevailing market prices and so those providers leave the market.

For monopolies there are not the same pressures for efficiency either at the current time or in the long term. An inefficient monopolistic provider can pass inefficiency on to its customers as high prices or reduced quality of service.

The regulators we have considered have a duty to protect customers. Part of putting this duty into action requires setting prices at a level which an efficient company can provide the service required by customers. Regulators have typically used two tools to fulfil this duty:

- The first is to set prices using an assessment of efficient costs using cost assessment techniques; and
- The second is to provide incentives to meet or beat those cost targets.

This section focuses on the first of these tools while the second will be discussed as part of our general discussion on incentives.

The challenge with cost assessment is that there is an informational asymmetry between the regulated company and the regulator regarding the efficient costs of providing a service. The usual approach to addressing that asymmetry is by the regulator using comparative or benchmarking techniques using available data to identify what the efficient costs might be.

Our work demonstrates that there is a number of aspects of cost assessment that Ofwat could consider addressing for PR19:

- **Use of top-down models supported by bottom-up tools.** As part of their cost assessment approach, most regulators try to introduce cross-checks using alternative methodologies. The recent preliminary findings published by the CMA as part of its price determination assessment for Bristol Water made use of a disaggregated analysis in addition to totex models. This presented a different approach to cost assessment for the company compared to Ofwat's PR14 Final Determination. Ofgem makes use of econometric totex models but it combines them with estimation of totex developed using disaggregated cost modelling. When developing the cost assessment methodology for each one of the different controls, Ofwat may find it useful to consider the broader range of techniques used by other regulators and the appropriate weighting of the totex assessment to improve the robustness of cost assessment for PR19. By considering cost efficiency based on a number of approaches, Ofwat would be better able to balance its duties to customers and to ensure that companies can finance their activities in a sustainable manner. However, Ofwat may want to retain the onus on companies to demonstrate why they have any special or specific costs, and to justify the need for any special allowances or adjustments.
- **Conduct an investigation of the data and approaches required for cost assessment of a disaggregated water services value chain for PR19.** There is an opportunity at this stage of the regulatory cycle to investigate the appropriate cost drivers for the different parts of the water value chain that could have different controls in PR19. This would allow Ofwat to ensure that the appropriate data is collected by companies, both in support of future business plans but also to support bottom up and top down econometric assessments in the future.

### 1.4.3 Financial cost assessment

The cost of finance is a major cost factor for regulated infrastructure businesses.

A key challenge for regulators is to calculate ex ante how to set prices in a way that ensures an efficiently financed company can continue its activities. Regulated companies tend to have

informational advantages over regulators with regards to the cost of finance as they are in the markets, sourcing debt and equity as necessary.

The typical regulatory response to this informational asymmetry is to develop benchmarks for the cost of finance and then incentives for companies to outperform those benchmarks.

The financial benchmarking approach typically is based on a Weighted Average Cost of Capital (WACC), either for the industry or the specific company concerned.

Key issues in setting the WACC and financial cost benchmarking include:

- The selection of appropriate benchmarks;
- The choice of methodology for calculation of the WACC;
- Approaches to estimating the cost of equity;
- The assumptions to be made for each component of the WACC calculation; and
- The time period to be used for component data for the calculation of the benchmark.

It is worth noting that while the water sector is undergoing market reform not all parts of the regulated value chain will be dominated by infrastructure asset portfolios where the WACC x Regulatory Capital Value (RCV) approach can be applied. Three main developments to financial cost benchmarking will require consideration of:

- The appropriate finance cost benchmark for asset light businesses;
- How the risks and dynamics of competition change the risk profile of some assets. As competition arises in some parts of the value chain, Ofwat could need to consider the effect of these changes in the risk profile of the assets and whether it is appropriate to maintain a cost of capital for the whole value chain; and
- The extent to which it is necessary and what methodology should be used to split the RCV between upstream businesses to support further separation of price controls.

As a result, different financial benchmarks will need to be considered for the regulation of different parts of the value chain. Therefore we recommend that Ofwat may wish to consider:

- The extent to which the WACC x RCV approach applies to parts of the value chain that do not have significant asset bases. As it is already the case in Ofwat's approach to retail, Ofwat may also need to consider the implications of this for some other parts of the value chain in the water and wastewater sector; and
- The risk profiles of different parts of the value chain. The unbundling process for the water sector will also unbundle the risk by part of the value chain. Consideration should be given to the extent to which the potential for competition changes the risk profile of different parts of the value chain as well.

As different potential business models for market participation emerge, Ofwat may need to identify the appropriate financial benchmarks for different parts of the value chain. Ofwat will also need to consider whether there should be differences between companies. Ofwat has previously determined that there is not sufficient difference between water companies in the assumptions used to calculate benchmark returns given the different parts of the value chain they participate in to justify different WACC assumptions.

Further, if Ofwat were to introduce a regulatory framework where companies achieve their overall WACC through a combination of a lower allowed return but with a focus on Outcome Delivery Incentives (ODIs), this would need to be carefully evaluated to ensure that there are

not increases in the perceived risk on the returns to investors. If, for example, Ofwat were to reduce the WACC then investors perception of the risk associated with ODIs for the company which could trigger an increase in the required cost of capital.

If Ofwat does not assess the impact of each of these issues it faces the risk of failing in its duties to ensure the financial reliability of the companies as well as reducing the ability of efficient providers to finance their activities.

#### 1.4.4 Incentives

Incentivisation is an important economic/regulatory tool for securing outcomes that benefit customers from a regulated company. A well designed incentive scheme should ensure:

- What is incentivised is within the regulated companies' ability to achieve;
- Customers should value what is being incentivised, and the cost of the incentive should be less than the benefit customers will receive from the incentivised behaviour being achieved;
- The cost of achieving the incentive is not prohibitive;
- The reward for performing well on the incentive is not disproportionate, as this would have the impact of reducing the benefit achieved for customers; and
- Incentive schemes should not provide conflicting incentives for companies.

In this report the incentives we consider are the ones used to incentivise service performance and quality of outcomes for customers as well as incentivisation around costs. Further, this report also considers the 'Enhanced Status' business planning incentives, menus and innovation funds to deliver longer term cost reduction.

PR19 presents Ofwat with an opportunity to consider the use of increased incentivisation in two important respects:

- To support the achievement of longer term efficient costs in the water sector (i.e. promote dynamic efficiency). Active consideration of innovation incentives in the water services sector, which drive the potential for long term cost reduction or changes in service improvement, should be considered (Ofgem has adopted this approach for the energy networks<sup>8</sup>). The use of innovation incentives is highly supportive of many of Ofwat's objectives, in terms of promoting the interests of customers today and in the future. Further, the use of innovation mechanisms could also allow Ofwat to better meet its new resilience duty as it could provide companies with the revenues and incentives to identify/develop new technologies, i.e. they can use it to develop a more resilient network for the future.
- To expand the use of incentivisation regarding the achievement of longer term outcomes identified by customers and Ofwat. This could be achieved by, for example, extending the duration of some of the ODIs or their supportive Performance Commitments to cut across more than one price review. This, however, would need to be balanced against the possibility of forecasting the relevant commitments going forward.

<sup>8</sup> It is relatively early in Ofgem's RIIO process to assess the success of innovation funding and incentivisation on long term cost reduction. However there have been examples where projects undertaken under innovation incentives are starting to deliver benefits, including for example - the smart islands scheme in Orkney where electricity generation investment was avoided by network reconfiguration delivering a net benefit. Other companies are in the process of sharing the findings from smart technology trials across the sector with their implications for long term network costs.

In addition to taking these two opportunities, Ofwat should consider the operation of its existing incentive arrangements in the light of provisional CMA reports regarding the Bristol Water case and the Ofgem RIIO-ED1 referral. In particular, the approach to menu regulation attracted some commentary in the CMA’s provisional findings for Bristol Water. The CMA has indicated it found the PR14 approach was too complex and did not meet its aim of incentivising accurate forecasts.

Finally the portfolio of incentives should be subject to greater scrutiny to assess the overall balance of risk and reward in its regulatory intervention, particularly following the publication of the CMA views for Bristol Water, and ensure that incentives are focussed on those areas where improvement is possible and desirable. An incentive will only be effective if a company sees the potential to deliver against it. The introduction of incentives by definition encourages companies to focus on specific areas in order to improve. Ofwat may want to consider how it aligns these priorities with customers’ preferences, and how it updates these on a regular basis.

## 1.5 Conclusions: length of regulatory period

For the purpose of this report, the length of the regulatory period refers to price control periods (i.e. the time between a price control becoming effective and when the period is complete – currently 1 April in one year to 31 March five years later in water.)

The period between regulatory reviews is important to determining the timescales for sharing benefits between customers and the regulated companies. However, it is not the only factor as, for example, regulators could pass part of these benefits on during the regulatory period. This would be equivalent to reducing the length of the regulatory period for that specific aspect of the regulatory package but without affecting the overall duration of the price review. For example, companies are allowed to obtain some of Ofgem’s incentives two years after they deliver the performance. Therefore, for these incentives the reward is balanced between customers and the company every two years.

The table below presents a summary of the key considerations for a longer or shorter regulatory period.

Table 1.1 Typical considerations in the length of the regulatory period

Factors in favour of longer periods	Factors in favour of shorter periods
<ul style="list-style-type: none"> <li>■ Greater stability for investment planning (reducing the impact of capex cycles).</li> <li>■ Stability could imply less risk so lower cost of capital.</li> <li>■ Reduced regulatory burden (fewer regulatory reviews).</li> <li>■ Encourages long term behaviour.</li> <li>■ Regulatory period closer aligned to asset planning cycles (for longer lived assets).</li> <li>■ Facilitate the delivery of larger projects by covering them all under one regulatory period.</li> </ul>	<ul style="list-style-type: none"> <li>■ Potential for full return of benefits to customers earlier.</li> <li>■ Less risk of outcome being different to regulatory settlement.</li> <li>■ Company potentially faces less risk as regulatory adjustments are more frequent.</li> <li>■ Customer may benefit from more frequent, smaller adjustments leading to lower volatility in prices.</li> <li>■ Greater flexibility to changes in the industry environment.</li> <li>■ Better management of the limitations of forecasting.</li> </ul>

A number of regulators (ORR, Ofgem, Ofwat) have considered the length of the regulatory period in the recent years and at the introduction to this section we summarised some of the recent international considerations in the length of the regulatory period. While Ofgem moved to a longer price review, most regulators covering large infrastructure (ORR, Ofwat and CAA) keep using a regulatory period in the region of five years. Therefore, five years appears to be a good starting position when Ofwat considers the length of the regulatory period for some of the infrastructure part of the value chain. Yet, given the pros and cons, it will be key for Ofwat to aim to quantify the effects in order to identify the relative size of benefits versus costs for changing the duration of control periods. As part of that analysis, Ofwat could need to evaluate that different controls could require different lengths as the underpinning activities are significantly different. This will allow Ofwat to better tailor its regulation to the relevant activities in order to achieve the best outcome for consumers.

The decision over the length of the regulatory period is, in part, conditional on circumstances: sectors expected to face a period of stability are better fitted for the introduction of longer regulatory periods than those that are likely to face significant changes in the medium term. Even in these cases, the regulatory preference seems to be for temporary modifications to address the anticipated change rather than a move to a shorter regulatory period on an enduring basis (e.g. Ofwat has modified its standard five year review to accommodate expected changes in the non-household retail services).

As part of RIIO, Ofgem lengthened the regulatory period to eight years. One of the key factors in the lengthening of the period was to allow stability to support the large amount of investment that was planned for the energy networks. As part of introducing the eight-year package, however, Ofgem did bring in some significant risk management protections for the companies in the form of a reopener at year four and cost risk management tools. This appears to indicate that a longer period for water infrastructure would need to be accompanied by some changes to regulatory risk management tools. An important point from this example is that with longer regulatory period the relevance of re-openers, such as the IDoK process, would increase. They would need to give confidence to companies and financial markets that there is a suitable within period adjustment tool for managing regulatory risk. Additionally, one could also adjust some of the regulatory tools to address uncertainty. For example, in RIIO ED1, Ofgem introduced a 'trombone' mechanism for cost of debt for slow track DNOs. As summarised in Section 5.3.4.3 this extends by one year each year from a 10-year to a 20-year trailing average over the regulatory period.

Further, the length of the regulatory period can be different for different parts of the value chain. Between 1998 and 2000 Ofgem had a five year network price control running alongside a two years retail price control. The telecoms sector is another example where the length of controls depends on the part of the value chain.

Given the assessment of the nature of the water sector regulation and the experience of other regulators a case could be made for the following:

- **The period between price reviews for water and wastewater activities could remain at five years.** This is consistent with the current regulatory practice and has been found by most regulators to give a balance between incentives for efficiency improvement and returning the benefits to customers. A longer period between reviews will probably require the application of a larger number of within period risk management and adjustment factors. Given that the structure of certain parts of the value chain is expected to undergo significant changes in the coming years, it is more difficult to predict the evolution of the different parts of the value chain. The risk of forecasting error in an opening market (and



potentially with the current macro-economic climate) could be considered an important factor against extending the five year regulatory period substantially;

- An argument can be made, however, that it may be worth **considering whether assets that will not be open to competition** (e.g. water and wastewater networks) **should have a longer regulatory period combined**. A longer regulatory period reflects the long life of these assets. However, the evidence from UK and international experience can be used to suggest that five years may not be unreasonable.

Table 1.2 Summary of lengths of regulatory periods in selected GB regulatory regimes

		Upstream/infra	Retail
<b>Ofwat</b>	Current	Five years	Two years for non-household services <sup>9</sup> Five years for domestic
	Considered	Wide range up to 10 years Rolling adoption of capex.	Five years
<b>Ofgem</b>	Current	Eight years (networks) 20 years interconnectors	No price controls on retail
	Considered	Wide range up to 10 years Rolling adoption of capex	Two years or triggers approach during market opening
<b>CAA</b>	Current	Market reviews every Five years (can impose licence periods of different lengths)	n/a
	Considered	n/a	n/a
<b>ORR</b>	Current	Five years	n/a
	Considered	If longer: 7 to 10 years If shorter: Three years	n/a
<b>Telecoms</b>	Current	Varies by service Needs to follow EU directives which require a three-year horizon for market reviews.	
	Considered	n/a	
<b>Post</b>	Current	No explicit review period	No explicit review period
	Considered	n/a	n/a

- **For those activities that could, if it is in customers' interest, be opened to competition (e.g. water resources), there should be a more tailored approach regulation with the option of these activities being taken out of the regulatory regime should competition emerge** For upstream assets there is likely to be a requirement for flexibility over regulatory treatment, reflecting the fact that these assets may be subject to market competition in future years. Effective competition should limit

<sup>9</sup> Ofwat has introduced a 5 year price control with a mid-period (after 2 years) option to review the cost allocation for non-household activities to allow companies to align their price review with the opening of the new competitive market. However, this mid-period review will not constitute a full price review for these activities.

the need for regulation. This approach would have some similarities to the Significant Market Power (SMP) tests applied in airport regulation (and in some parts in telecoms regulation as well). If there was competition for upstream assets then the competitive contracts for services could be applied for longer periods (i.e. in the context of competition for the market<sup>10</sup>.)

- **The review of the non-household retail price control period after two years is consistent with being able to manage the potential change in the retail market.** This period should be kept under review once the competitive market is established.
- With significant market change due in the water sector in AMP7 and potentially beyond, there will be a **greater need for tailored approaches to the regulatory model**. However, as commentaries from the ratings agencies show<sup>11</sup>, flexibility without clarity over how flexibility will be deployed can increase perceived regulatory risk which can impact the cost of capital. Therefore, as part of PR19, clear ground rules for the application of flexibility and timing of potential changes to regulatory periods is critical. The main options for tailoring the regulatory approach are:
  - Timetabled reductions in or withdrawals of regulation laid out in advance. This would be dependent on a degree of predictability in order to set out the expected timetable for the review and the regulatory change that is expected to be appropriate at that time;
  - Agreement to review the level of regulation at an agreed point in time or when a threshold for market opening is reached. This could vary by company depending on levels of market power; and/or
  - A mechanism where companies can disapply from regulation at the appropriate time (either individually or together). This, again, would require companies to have evidence to justify a reduction in the degree of regulatory intervention and could result in different regulatory periods and interventions applying to different companies.

The merits of each of these tailored approaches should be considered and evaluated in the context of other proposals for PR19.

One final consideration regarding the length of the price review should be for Ofwat working with companies to assess the extent to which the level of capital expenditure required for AMP7 will require any additional regulatory management. Ofwat has made use of the Early Start programme in previous price reviews and Ofgem has its approach to Strategic Wider Works (SWW) for major projects. The benefits of additional regulatory provision for these projects – e.g. early granting of permission, agreed additions to the regulatory capital value, pre funding etc. should be assessed versus the costs associated with the risk of delivery on these projects.

<sup>10</sup> It may be the case for some upstream assets that once competed they should be operated under a long term contract to provide the financial stability to support market entry.

<sup>11</sup> See Moody's Global Infrastructure Finance Rating Methodology for Global regulated water utilities, December 2009 or Standard & Poor's "Are UK utilities the safe haven in Europe?"

## 1.6 How our conclusions support Ofwat meeting its duties

In the table below we present the issues that Ofwat should consider during PR19 using a summary of our key conclusions with a commentary as to how our conclusions would support Ofwat in the execution of its duties.

Table 1.3 How our conclusions would support Ofwat in performing its duties

KPMG conclusion	Effect on Ofwat's regulatory duties
<b>Nature of the regulatory intervention</b>	
<p>Ofwat to review the potential to substitute ex-ante regulation by non-regulation or ex-post regulation for those parts of the value chain that will be open to competition.</p> <p>As part of this review, Ofwat would need to consider whether companies could apply for the removal of regulation if they can show they do not exert Significant Market Power in those parts of the value chain.</p>	<p>This will allow Ofwat to protect the interests of consumers by promoting competition by:</p> <ul style="list-style-type: none"> <li>■ Reducing the regulatory burden of those parts of the value chain; and</li> <li>■ Allowing market forces to deliver the services required by consumers instead of the services being defined by the regulator.</li> </ul>
<p>Ofwat to consider whether longer term targets could be developed to facilitate long term planning.</p>	<p>This would allow Ofwat to protect the interests of consumers by ensuring that companies provide the long term targets required by consumers.</p> <p>Additionally, it would provide companies with the certainty that allows them to commit to longer term plans improving their capacity to secure finance as well as the resilience of their network.</p>
<p>Ofwat to consider how best to introduce innovation in general by, potentially, introducing innovation funding models for PR19.</p>	<p>This would allow Ofwat to protect the interests of consumers by facilitating that companies develop new technologies that will either increase the efficiencies that can be passed to consumers or deliver new services that fit better the needs of consumers.</p> <p>Further, companies could also use these incentives to develop new technologies that increase the resilience of the network.</p> <p>Additionally, the introduction of these incentives would facilitate that the company can finance its activities.</p>
<p>Ofwat to consider how to adapt its regulatory approach (cost assessment, financial cost assessment, incentives and duration) in order to ensure a targeted, proportionate and focussed intervention in each part of the value chain.</p>	<p>Ofwat would be able to set frameworks that are more likely to deliver customers' requirements as it is able to develop incentives that are better tailor to the characteristics of these services.</p> <p>Further, it will be also be in a better position to ensure that companies are resilient and able to finance its activities as it will be able to use tools that are more activity specific.</p>
<b>Cost assessment</b>	

KPMG conclusion	Effect on Ofwat's regulatory duties
<p>Ofwat to consider the introduction of a combination of top-down and bottom-up approaches when assessing the costs of the companies.</p>	<p>In some instances the addition of bottom-up information will allow Ofwat to obtain an estimation of the cost of the company that is independent from the information provided by the company. At the same time, this would minimise the potential errors arising from each cost assessment methodology used in isolation.</p> <p>These estimates would allow Ofwat to protect customers as it minimises the risk that customers are paying for inefficiencies in the companies.</p> <p>Equally, it allows Ofwat to understand the costs allowance companies are required to operate going forward. This facilitates that the companies can finance those activities.</p>
<p>Ofwat to investigate the data and approaches required for cost assessment of a disaggregated water services value chain.</p>	<p>By developing cost assessment methodologies from 'first principles' Ofwat can develop robust methodologies. These methodologies would reduce the risk of using the wrong driver at the same time that they account for the characteristics of the activities.</p> <p>As above, a robust estimate of the costs allows Ofwat to better discharge its customer and financeability duties.</p>
<p>Ofwat to retain the onus on companies to demonstrate why they have any special or specific costs, and to justify the need for any special allowances or adjustments.</p>	<p>This protects consumers as companies need to be able to show that special or specific costs are not caused by inefficiencies.</p> <p>This approach can also facilitate the access to funds by the companies as they would receive adjustments for those characteristics that they cannot hedge.</p>
Financial cost assessment	
<p>Ofwat to consider the possibility of unbundling the current cost of capital into the different parts of the value chain.</p> <p>Allocation of RCV supporting separated price controls will also be required.</p>	<p>This would allow Ofwat to better tailor its price review to the characteristics of each one of the parts of the value chain. Therefore, Ofwat will be in a better position to discharge its duties and protect consumers.</p> <p>Additionally, this could allow Ofwat to facilitate competition. Ofwat could use this tool to make sure that the cost structure of the incumbent is more similar to the one of the new entrants.</p> <p>Further, it will be also be in a better position to ensure that companies are resilient and able to finance its activities as financial costs are linked to the actual assets they are funding.</p>
Incentives	
<p>Ofwat to evaluate the portfolio of incentives to assess the overall balance of risk and reward in its regulatory intervention and ensure that incentives are focussed on those areas where</p>	<p>The main aim of introducing incentives is to ensure that companies deliver on the obligations put in place by Ofwat in the process of discharging its duties. Therefore, Ofwat needs to keeps its incentives under review to ensure they are delivering as Ofwat expects.</p>

KPMG conclusion	Effect on Ofwat's regulatory duties
<p>improvements are possible and desirable.</p>	<p>A crucial component of the incentive package is the balance between risk and rewards. A package that provides too large rewards with little risk would be unlikely to protect consumers as they would be facing most of the risk but they would still be paying for the rewards. Conversely, a package setting too much risk on the companies with little reward is likely to make it more difficult for them to finance its activities. Therefore, the review of this balance, in the round, will be a crucial component of the review of the incentive package.</p>
<p>Ofwat to consider how it can continue to incentivise companies to provide good business plans and cost forecasts. This includes the review of:</p> <ul style="list-style-type: none"> <li>■ the costs and benefits of the future application of 'enhanced status' to ensure it provides incentives to deliver good business plans;</li> <li>■ its current approach to the application of menus to ensure they incentivise companies to provide the most robust estimate of costs in their business plan.</li> </ul>	<p>Both the enhanced status and menus aim to provide companies with incentives to submit their best business plans, including the best estimate of their costs for the next regulatory period.</p> <p>Ofwat would use that information to protect consumers as it can use it to challenge the business plans of other companies.</p> <p>Further, menus also partially hedge companies against unexpected increase in risks. This would support Ofwat in discharging its financeability obligation.</p>
<p>Ofwat to consider additional measures to ensure a further alignment of the companies' performance with customers preferences</p>	<p>One of the ways that Ofwat can protect customers is by ensuring that companies deliver what customers need at each point in time.</p> <p>By reinforcing the current customer engagement process Ofwat would be ensuring an even higher degree of protection to consumers.</p>
Length of the regulatory period	
<p>Ofwat to consider whether the regulatory period should be extended for the core parts of the network (infrastructure assets).</p>	<p>As part of the tailoring of the regulatory framework to the characteristics of network parts of the value chain, Ofwat could discharge its duties more efficiently if, as discussed above, a longer period allowed better planning for the company.</p>
<p>Ofwat to consider whether there is a rationale for moving away from the five years between price reviews for the parts of the value chain that will be open to competition (i.e. mainly non-infrastructure assets and retail).</p> <p>When competition is being introduced between price controls, Ofwat to consider whether it should use transitional price controls that can be</p>	<p>This would allow Ofwat to discharge its obligation to protect consumers by promoting competition when possible with the effects described.</p>

KPMG conclusion	Effect on Ofwat's regulatory duties
removed once competition emerges.	
Ofwat to consider the role of re-openers (including IDoK) to reduce uncertainty between price reviews.	<p>Re-openers and similar tools that allow a more flexible allocation of risks and rewards between companies and consumers will allow Ofwat to discharge its customers protection and financeability duties.</p> <p>By allowing the introduction of changes to the determination during the period, re-openers allow Ofwat to ensure that customers receive the outcomes they require at the same time that companies can manage their risks to facilitate their financeability.</p>
Ofwat to consider the benefits of additional regulatory provisions for projects that represent a significant share of the investment plant of the company.	Could support financeability duty and also promote the interests of customers.

## 1.7 Dependencies on other issues in Water 2020

KPMG's review of the work of other regulators also demonstrates the importance of considering regulatory reform as a whole. Any changes to water sector regulation for PR19 will need to be considered in the context of its linkages with other parts of the regulatory package, for example:

- The length of the regulatory period and the nature of any within period adjustments is important – some of the risks of a longer regulatory period can be mitigated through adjustment factors or indexation for costs or by the use of reopeners;
- The length of the regulatory period can link to the cost of capital through the impact on perceived risk to the regulated company. Similarly, any increase in the need for investment may be facilitated by a longer regulatory period as it provides greater regulatory certainty; and
- If Ofwat retains a five year regulatory period then, in recognition of its new resilience duty and in line with other regulatory practice, it may want to consider the potential for companies to be funded for some projects for future delivery (beyond the current regulatory period) which would encourage a longer term focus by companies. Ofwat may also consider the potential for certain projects to be funded outside of the standard regulatory framework, such as utilised through Ofgem's SWW process, where significant investment projects (that have a high degree of uncertainty) are dealt with on a case by case basis. This reduces the risk to both customer and companies, in line with Ofwat's duties to protect consumers but also to focus on long term service delivery.

## 1.8 Status of this document

This report is an independent review based on KPMG's understanding of the relevant policy documents and KPMG's relevant experience and knowledge. We have not sought to audit or verify the reliability or accuracy of any information obtained in the course of our work. We have indicated within this report the sources of the information provided. This report has been prepared from publicly available documentation, such as internet sources and regulatory

submissions. All the documents which have been relied upon in preparing this report are referenced in this report.

## 2 Introduction

### 2.1 The issue

Water 2020 is the programme created by Ofwat to develop the regulatory framework for the next price review and beyond. As part of Water 2020, Ofwat has asked companies for support in the development of their approach to answering the 'big questions' the sector faces when developing the regulatory framework for PR19.

KPMG has been engaged by Thames Water to evaluate the potential options for two of the 'big questions' regarding the future regulatory framework:

1. What should the nature of Ofwat's regulatory interventions during the price review be; and
2. What should the length of the regulatory period be?

Ex-ante economic regulation is focussed on setting appropriate forward looking prices for monopoly services or monopolistic parts of the value chain.<sup>12</sup> The absence of competitive markets means that monopolist could charge prices above what would result in a competitive market. This means that consumers of the service pay too much for that service. In effect, the monopolist will appropriate consumer surplus either as profit above the normal rate of return or through inefficiency and incurring greater costs than a company operating competitively might incur. Economic regulators therefore use a range of interventions to reduce the negative impacts of monopoly behaviour on consumers. They achieve this by:

- Setting limits to the prices a regulated monopolist can charge;
- Assessing the efficient level of investment, operating and financial cost the business should incur;
- Specifying the quality of service customers should expect from the company; and
- Identifying where competition could be encouraged.

In this context, it becomes clear that, in selecting regulatory interventions, a regulator needs to be comfortable the intervention will generate a better outcome for customers than a situation where the monopolist is unregulated. The intervention the regulator makes can reduce prices or promote efficiency or improved service for customers. Similarly, the length of the regulatory period, or the time between regulatory resets is a factor in the timing of when the benefits of regulation are allocated to customers from the regulated company.

### 2.2 Our approach

Our approach to considering possible answers to these two questions has been to consider the experience of other regulated sectors in Great Britain and consider how they have addressed these two issues and then to consider how the experience from those sectors may transfer to water. In Table 1.3 above, we demonstrate how our conclusions could support Ofwat in performing its regulatory duties.

<sup>12</sup> A description of the approach to the increasing ex-post regulation in the industry is considered outside of the scope of this report. The analysis presented in this report should be understood as a discussion on ex-ante regulation and any reference to ex-post regulation will be clearly specified.



The sectors (and regulators) we have considered are:

- Gas and electricity (Ofgem);
- Airports (CAA);
- Rail (ORR);
- Telecoms (Ofcom); and
- Post (Ofcom).

In assessing the transferability of regulatory models to water is it important to understand whether those tools will support Ofwat in delivering its regulatory duties. This is discussed in more detail in Section 2.3 below.

The question of the nature of regulatory intervention is a broad subject. We have focussed our research on four key parts of the nature of regulatory interventions, namely:

- The scope and nature of regulation;
- Cost assessment;
- Financial cost assessment; and
- Incentives.

Each of these is discussed in a separate section of report below.

Regarding the second 'big question' of the length of the regulatory period, we have focused again on Ofwat's aims when discharging its duties. We have structured our research around the issues Ofwat could need to balance when determining the length of the controls (which are shown in Table 7.1). We have then considered evidence from other sectors on the potential for different lengths of control, the specific considerations required within each market, and how regulators can retain flexibility within the price control period.

Finally, we have considered the potential options for Ofwat in answering each of the two 'big questions' set, as well as the potential interdependencies between them – the nature of the regulatory intervention will influence the potential length of the regulatory period, and vice versa. Our findings on this are set out at a high level at the end of the relevant section for the issue being considered.

## **2.3 Water 2020: achieving good regulatory outcomes**

### **2.3.1 Defining good regulatory outcomes**

A critical part of assessing what might be reasonable options for Ofwat, is to have identified a clear set of purposes or evaluation criteria against which the options can be assessed.

As a basis for these criteria it is appropriate to consider Ofwat's statutory duties as a regulator<sup>13</sup>. Any change to the approach to regulation should be to support the delivery of those objectives. We also consider the Government's guidelines to economic regulation as described below.

<sup>13</sup> The assessment of our conclusions against Ofwat's duties is shown in Table 1.3 above.

### 2.3.2 Ofwat's duties

Ofwat's main duties are focussed on protection of consumers, promotion of effective competition (where appropriate), ensuring that companies carry out their functions and that efficient companies are able to secure a reasonable return.

Specifically, Ofwat's duties are to:

- Further the consumer objective to protect the interests of consumers, wherever appropriate by promoting effective competition;
- Secure that the functions of each undertaker (that is, water company) are properly carried out and that they are able to finance their functions, in particular by securing reasonable returns on their capital; and
- Secure that companies with water supply licences (those selling water to large business customers) properly carry out their functions.

More recently Ofwat's duties have been extended to include specific requirements to secure the long term resilience of water companies to continue to deliver the water services required in the long term.

Ofwat's recent publications on Water 2020 state that building trust and confidence among customers is a key aspect of its actions and decisions, and that this is achieved by ensuring a safe, reliable service at the best possible price. Ofwat's aim is to continue to drive value for customers and ensure that it is able to deliver the Water Act 2014 reforms.

Although Ofwat is seeking views on its approach to PR19, it has stated that it is keen to build on its previous work, and specifically key elements of the PR14 price control review<sup>14</sup>. It aims to:

- Continue to place customers at the heart of price controls by encouraging companies to understand what their customers want and need in both the short term and through an ongoing dialogue beyond the current price control period;
- To make better use of clearer, simpler, more effective incentives which drive allocative, dynamic and productive efficiency; and
- To reduce and remove regulatory intervention in the management of water businesses where this is unnecessary.

Ofwat has the following requirements, subject to its main duties:

- Promote economy and efficiency by companies in their work;
- Secure that no undue preference or discrimination is shown by companies in fixing charges;
- Secure that no undue preference or discrimination is shown by companies in relation to the provision of services by themselves or other regulated companies;
- Secure that consumers' interests are protected where companies sell land;
- Ensure that consumers' interests are protected in relation to any unregulated activities of companies;

<sup>14</sup> Towards Water 2020 – meeting the challenges for water and wastewater services in England and Wales. July 2015. [http://www.ofwat.gov.uk/pricereview/water2020/pap\\_tec201507challenges.pdf?download=Download#](http://www.ofwat.gov.uk/pricereview/water2020/pap_tec201507challenges.pdf?download=Download#)

- Contribute to the achievement of sustainable development; and
- Have regard to the principles of best regulatory practice.

### 2.3.3 Principles of economic regulation

In 2010, the National Infrastructure Plan announced the Government's desire to initiate a debate about the high-level design and operation of the frameworks of economic regulation. The Government's aim was to establish a set of cross-sector Principles for Economic Regulation<sup>15</sup>, these are presented in the table below.

Table 2.1 Principles for Economic Regulation

Principles	
<b>Accountability</b>	<p>Independent regulation needs to take place within a framework of duties and policies set by a democratically accountable Parliament and Government. Roles and responsibilities between Government and economic regulators should be allocated in such a way as to ensure that regulatory decisions are taken by the body that has the legitimacy, expertise and capability to arbitrate between the required trade-offs.</p> <p>Decision-making powers of regulators should be, within the constraints imposed by the need to preserve commercial confidentiality, exercised transparently and subject to appropriate scrutiny and challenge.</p>
<b>Focus</b>	<p>The role of economic regulators should be concentrated on protecting the interests of end users of infrastructure services. Economic regulators should have clearly defined, articulated and prioritised statutory responsibilities focussed on outcomes rather than specified inputs or tools by ensuring the operation of well-functioning and contestable markets where appropriate or by designing a system of incentives and penalties that replicate as far as possible the outcomes of competitive markets.</p>
<b>Predictability</b>	<p>The framework for economic regulation should provide a stable and objective environment enabling all those affected to anticipate the context for future decisions and to make long term investment decisions with confidence.</p> <p>The framework of economic regulation should not unreasonably unravel past decisions, and should allow efficient and necessary investments to receive a reasonable return, subject to the normal risks inherent in markets.</p>
<b>Coherence</b>	<p>Regulatory frameworks should form a logical part of the Government's broader policy context, consistent with established priorities.</p> <p>Regulatory frameworks should enable cross-sector delivery of policy goals where appropriate.</p>
<b>Adaptability</b>	<p>The framework of economic regulation needs capacity to evolve to respond to changing circumstances and continue to be relevant and effective over time.</p>
<b>Efficiency</b>	<p>Policy interventions must be proportionate and cost-effective while decision making should be timely, and robust.</p>

Source: Principles for Economic Regulation. Department for Business Innovation and Skills. April 2011. [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/31623/11-795-principles-for-economic-regulation.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/31623/11-795-principles-for-economic-regulation.pdf).

<sup>15</sup> Principles for economic regulation. Summary of responses to the call for evidence. [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/197953/11-796-principles-economic-regulation-summary-of-responses.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/197953/11-796-principles-economic-regulation-summary-of-responses.pdf)

A sound regulatory framework should be based on these six principles and should strike a balance between protecting the interests of end users and providing the regulatory stability necessary for efficient companies to attract investment from competitive financial markets.

## **2.4 Summary of comparator regulators and their approach to regulation**

Table 2.2 summarises the duties of those regulators listed.<sup>16</sup> To understand the applicability of the relevant tools of each of these regulators to the water sector, it will be important to consider the duties they are aiming to discharge.

All the regulators considered in this report have a duty to protect the users of the services they regulate. Therefore, any of the tools they introduce are aimed to protect consumers. However, Ofcom, for example, does not have a duty to ensure that companies are financeable. This would mean that one needs to consider carefully the potential effect on financeability when evaluating any of the tools used by this regulator.

Equally, the new resilience duty is specific to Ofwat and, as such, any new policy would need to be evaluated against this new criterion.

<sup>16</sup> A more detailed list of each regulators' duties is included in the Appendices to this report. Further information on the detailed approaches and tools used by each regulator is provided in the relevant chapters of this report.

Table 2.2 Duties of a sample of UK regulators

Regulator	High level summary of Duties
<b>Ofwat</b>	<p>Consumer objective – protect the interest of consumers by promoting competition where appropriate.</p> <p>Secure that the functions of each undertaker (that is, water company) are properly carried out and they are able to finance their functions, including reasonable returns on capital.</p> <p>Secure that licensed water suppliers properly carry out their functions.</p> <p>Further the resilience objective to secure the long-term resilience of water supply and wastewater systems and meet long term needs.</p>
<b>Ofgem<sup>17</sup> (GEMA)</b>	<p>Consumer objective – protect the interests of existing and future consumers.</p> <p>Carry out functions in the manner that best further the principal objective, by promoting competition where appropriate.</p>
<b>CAA<sup>18</sup></b>	<p>Further the interests of users of air transport services;</p> <p>Promote competition in the provision of airport operation services;</p> <p>Have regard to the need to:</p> <ol style="list-style-type: none"> <li>I. secure that licensees can finance provision of airport operation services in its designated area,</li> <li>II. meet all reasonable demands for airport operation services,</li> <li>III. promote economy and efficiency on the part of each holder of a licence, in its provision of airport operation services,</li> <li>IV. secure that each holder of a licence is able to take reasonable measures to reduce, control or mitigate the adverse environmental effects of the airport, facilities used or intended to be used in connection with that airport, and aircraft using that airport,</li> <li>V. consider any guidance issued by the Secretary of State,</li> <li>VI. consider any international obligation of the United Kingdom notified to the CAA by the Secretary of State, and</li> <li>VII. meet the principles of ensuring that: regulatory activities should be transparent, accountable, proportionate and consistent, and regulatory activities should be targeted only at cases in which action is needed.</li> </ol> <p>Not to impose or maintain unnecessary burdens while performing its regulatory functions.</p>
<b>ORR</b>	<p>To promote improvements in railway service performance.</p> <p>To protect the interests of users of railway services.</p> <p>Promote the use of the railway network in GB.</p> <p>Contribute to development of an integrated system of transport of passengers and goods.</p> <p>Contribute to achievement of sustainable development.</p> <p>Promote efficiency and economy.</p> <p>Promote competition for the benefit of users.</p> <p>Promote measures to facilitate use of the services of more than one passenger service operator.</p> <p>Impose minimum restrictions on performance.</p>

<sup>17</sup> Power and duties of GEMA. 19<sup>th</sup> July 2013. <https://www.ofgem.gov.uk/publications-and-updates/powers-and-duties-gema>

<sup>18</sup> Civil Aviation Act 2012. <http://www.legislation.gov.uk/ukpga/2012/19/section/1/enacted>

Regulator	High level summary of Duties
Ofcom	<p>Enable persons providing railway services to plan the future of their businesses with a reasonable degree of assurance.</p> <p>Ensure that the UK has a wide range of electronic communications services.</p> <p>Ensure a wide range of high-quality television and radio programmes are provided, appealing to a range of tastes and interests.</p> <p>Ensure a range of different providers.</p> <p>Protect people who watch television and listen to the radio from harmful or offensive material.</p> <p>Protect people from being treated unfairly in television and radio programmes, and from having their privacy invaded.</p> <p>Ensure a universal postal service is provided in the UK</p>

## 2.5 The structure of this document

This document has five further sections:

- **Sections 3 to 6** present a discussion around the nature of regulatory intervention. They focus, respectively, on the scope and nature of intervention, cost assessment, financial cost assessment and incentives. All four sections relate to Ofwat's duties and evaluate the potential approaches that could be adopted by Ofwat for PR19, drawing on practice and experience from other regulated sectors.
- **Section 7** discusses the length of the regulatory period for each control. The assessment criteria are presented, followed by a discussion on the potential for different lengths for different controls. The impact of market considerations and the flexibility of the price review are also evaluated.

## 3 Scope and nature of regulatory interventions

### 3.1 Basis in economics

The nature of regulatory intervention is driven by a regulator's interpretation of how best to perform its duties. The aim of each regulatory intervention should be to improve the discharge of the regulator's duties.

There is a wide range of tools that regulators have available to support them in achieving those duties including, but not limited to, exerting controls over the prices regulated companies can charge, performing market investigations and putting in place behavioural regulatory regimes.

A key aspect of regulation is whether the regulatory interventions are undertaken on an *ex-ante* or *ex-post* basis, i.e. the regulator is setting forward looking targets and incentives for the regulated companies in advance or performing investigations after the event and seeking remedy/redress following the event. Typically infrastructure regulation in GB has been performed on an *ex-ante* basis. However, increasingly as parts of the value chain in some sectors have been opened to competition so there is a great role for *ex post* regulation, e.g. in retail markets in energy, telecoms and also to some degree in airports.

As the market for parts of the water service value chain open to competition in AMP7 so Ofwat will need to assess whether its duties are best served by continuing to regulate those parts of the value chain at all and/or the *ex-post* regulatory model is more applicable.

Given the general experience of infrastructure regulation in Great Britain it seems unlikely that an *ex-post* would be considered for the entirety of water regulation in AMP7.

As described in Section 2, Ofwat's duties are established. However, the scope of the control(s) of the regulatory framework is adaptable to changing circumstances. A clear issue will be the scope of the controls and which parts of the value chain they are applied to. For the purpose of this report we will assume that Ofwat could consider using some form of price controls for:

- Upstream and resources related activities;
- Infrastructure (i.e. networks); and
- Retail activities.

### 3.2 What we cover, and why

In the remainder of this section we describe how other regulators have defined the scope and nature of their regulatory intervention. We have structured this around the key areas that Ofwat have indicated that they are keen to retain for the PR19 review, as outlined below.

1. Focus on long-term outcomes (not outputs);
2. Separate binding controls across the value chain;
3. Focus on ongoing customer engagements;
4. Risk-based approach to business plan assessment and use of 'enhanced' status; and

## 5. Dealing with change within the regulatory period.

### 3.3 What others do that is relevant for water

When developing its approach to discharging its duties, Ofwat can consider approaches used by other regulators with similar duties. This section identifies some of the areas where this learning could take place and how these tools could support Ofwat in discharging its duties.

#### 3.3.1 Focus on long term outcomes (not outputs), with the aim of improving service and reducing costs

Our analysis suggests that the major regulators in the UK have an obligation to protect present and future consumers which requires that they focus not only on the short-term challenges faced in the industry but also on the long-term ones. However, the extent to which regulators have put this into practice varies widely and possibly is most advanced in the water and energy sectors, although rail and road regulation also has similar tools to promote a long term focus.

Table 3.1 presents a summary of how the regulators' duties compare regarding a focus on longer term outcomes.

Ofwat has shown leadership in terms of the use of terminology regarding outcomes rather than outputs. Longer term planning in the form of the Water Resources Management Plans with a 25 year horizon finds parallels in the ORR's approach to focus on anticipating opportunities and challenges over the next two decades. By focusing on the long term delivery of outcomes Ofwat aims to deliver a resilient network that provides the services required by consumers.

Ofgem has tended to focus more on KPI style outputs for its RIIO settlements. However, the use of the network innovation competitions<sup>19</sup> also provide electricity and gas network companies with the incentive to invest today to drive innovation and customer benefits in the longer term. This may be a tool Ofwat wants to consider for promoting a greater focus by water companies on longer term outcomes which would facilitate that they deliver a resilient network.

Table 3.1 Regulators' duties

	Duties that support a focus on long term outcomes	Tools used by the regulators to promote a long term focus on outcomes
<b>Ofwat</b>	Government's recent amendment of Ofwat's statutory obligations to include a new resilience duty reflects an increasing focus on long-term outcomes.	Incentive based ex-ante price controls with five year control periods. Long term water resources management plans. Regulatory regime based on using explicit outcomes based incentives.

<sup>19</sup> The Retail Market Review – RMR Domestic Proposals: Consultation and Decision. <https://www.ofgem.gov.uk/publications-and-updates/retail-market-review-rmr-domestic-proposals-consultation-and-decision>



Duties that support a focus on long term outcomes	Tools used by the regulators to promote a long term focus on outcomes
<p><b>Ofgem</b> The focus on long-term outcomes is also embedded in the Gas and Electricity Markets Authority (GEMA), whose main objective is to protect the interests of existing and future consumers in relation to gas conveyed through pipes and electricity conveyed by distribution or transmission systems and must have regard to the need to contribute to the achievement of sustainable development<sup>20</sup>, amongst other things.</p>	<p>Incentive based ex-ante price controls with eight year control periods for networks.  Introduction of asset health indices for longer term investment planning.  Information Quality Incentive used to promote good quality longer term plans.  Use of outputs in the regulatory package but near term and operational key performance indicator focussed.  Companies required to produce business plans as part of the regulatory process (view over two regulatory periods).  For interconnector assets, willing to consider fixed term revenue packages with incentivisation around availability and other outcomes based incentives.  Explicit funding for innovation during the regulatory period.</p>
<p><b>CAA</b> The Civil Aviation Authority (CAA) has a primary duty focused on the interests of passengers and those with rights in cargo.</p>	<p>Passenger-focused economic regulation:</p> <ul style="list-style-type: none"> <li>■ Improving outcomes for passengers, which is the CAA’s core remit.</li> <li>■ Developing an understanding of whether the market furthers passenger outcomes.</li> <li>■ Developing clear evidence-based understanding of what matters to passengers.</li> <li>■ Developing a regulatory toolkit to remedy key passenger risks.</li> </ul>
<p><b>ORR</b> The Office of Rail and Road (ORR) has a duty to protect the interests of users of railway services<sup>21</sup>. Additionally, it has a duty to contribute to the achievement of sustainable development and promote efficiency and economy on the part of persons providing railway services. The focus on long-term outcomes is also discharged through its duty to enable persons providing railway services to plan the future of their businesses with a reasonable degree of assurance.</p>	<p>Long Term Regulatory Statement as the basis of long-term outcomes:</p> <ul style="list-style-type: none"> <li>■ Rail’s contribution to economic growth;</li> <li>■ Growth in customer satisfaction and safety and joined-up health and safety regulation;</li> <li>■ Contribution to Britain’s environmental performance;</li> <li>■ Structure and incentives in Network Rail; and</li> <li>■ Benefits and consequences of the funding framework.</li> </ul>

<sup>20</sup> Power and duties of GEMA. 19<sup>th</sup> July 2013. <https://www.ofgem.gov.uk/publications-and-updates/powers-and-duties-gema>

<sup>21</sup> ORR ‘Our duties’. <http://orr.gov.uk/about-orr/what-we-do/the-law/our-duties>

Duties that support a focus on long term outcomes	Tools used by the regulators to promote a long term focus on outcomes
<p><b>Ofcom</b> Under the Communications Act 2003, in carrying out its functions, Ofcom’s role is to further the interests of citizens in relation to communications matters and to further the interests of consumers in relevant markets, where appropriate by promoting competition<sup>22</sup>.</p> <p>Duties regarding postal services is to maintain the universal service obligation.</p>	<p>Limited evidence of the explicit focus on long-term outcomes due to SMP regulation in relevant markets.</p> <p>No explicit reference to sustainability of services over time.</p>

Source: KPMG analysis, regulatory publications.

### 3.3.2 Separate, binding controls for wholesale water, wholesale wastewater, household retail, and non-household retail

The use of separate controls can allow a regulator to tailor its regulatory framework to the different challenges, opportunities and risks facing different parts of the regulated value chain. This is particularly the case where the degree of competition varies between the parts of the value chain. Separate controls can allow a more targeted regulatory analysis, and a more focussed set of incentives and performance targets to be determined. This will be a key consideration in the introduction of separate controls for upstream activities versus the networks parts of the water value chain. The potential introduction of competition in upstream will mean Ofwat having to consider, the nature and extent of regulation for that part of the business and the approach to reducing/removing regulation as competition develops. However, separate controls can increase the regulatory burden. As a result the balance of regulatory burden versus the benefits to customers will need to be evaluated.

The approach taken by other regulators tends to reflect the level of market power held by particular companies, and/or overall levels of competition in the market. Ofgem, ORR, CAA and Ofcom all regulate through price controls for those sectors of the market not open to competition. They all retain step in and/or enforcement powers for those sectors not subject to price control regulation.

As non-household retail markets in water are opened to competition, Ofwat may have regard to the transitional price caps utilised by the energy regulator at market opening from 1998 to 2000. This would allow Ofwat to keep protecting consumers while ensuring that an efficient company will be able to perform these activities.

The use of behavioural regulation in the competitive retail segment of the energy sector where Ofgem has not set price controls for retail activities may be of interest to Ofwat. Ofgem has sought to limit the behaviour of the companies with regards to the selling and the mis-selling to customers. It may also have regard to Ofgem’s recent concerns around customer service and levels of competition in the energy retail market, particularly on the domestic and microbusiness sectors.

Ofgem implemented significant interventions in the retail market, including the introduction of the retail market review (RMR) package which placed binding requirements on energy suppliers in the competitive retail market, with most measures applying to all energy suppliers

<sup>22</sup> Ofcom Statutory Duties and Regulatory Principles. <http://www.ofcom.org.uk/about/what-is-ofcom/statutory-duties-and-regulatory-principles/>

in the domestic sector<sup>23</sup>. The CMA's recent provisional findings identified one of these measures, the restriction on the number and format of tariffs, to be a potential adverse effect on competition in itself, and has proposed its removal<sup>24</sup>.

The CAA focus on tailoring its regulatory approach to the level of market power held by specific parties, with greater scrutiny of Heathrow, and with no economic regulation for Stansted as examples<sup>25</sup>. This may be a useful flexible tool to assist with managing the transition from regulation to competition in some parts of the water value chain during AMP7. Ofwat may want to consider how it would assess market power within the competitive water market, and particularly how this could be measured and monitored over time and used to influence ongoing development of the regulatory framework. Similarly, Ofcom determine its regulatory approach based on market power, with three year controls set where significant market power is present and lesser regulation where competition is present.

Situation dependent application of price controls and other regulatory tools is common in other sectors and has assisted regulators where they have had duties to protect customers and promote competition. Situation dependent price controls could be a key opportunity for tailored price regulation in PR19 to manage the transition to competition in some parts of the market.

### 3.3.3 Focus on ongoing customer engagement

Customer protection is the core duty for regulators in the UK. Customer engagement has increasingly become a key focus for both regulators and regulated companies, and links with the move towards an outcome based model. Learning from experience during the price reviews, regulators, such as Ofwat and Ofgem have indicated that customer engagement should be ongoing throughout a price control period, in order to ensure that a track record of performance and delivery is maintained.

To refine the customer engagement requirements to better deliver present and future customers, Ofwat could develop the equivalent to Ofgem's nine principles for effective enhanced engagement and have required companies to focus on both existing and future consumers, in line with Ofgem's duties<sup>26</sup>. Ofgem set financial incentives which are assessed based on absolute and relative (to peers) performance. They also set requirements for companies to publish an annual report on stakeholder engagement and for companies to present their stakeholder strategy to an independent panel made up of Ofgem, Government, charities, customers and other stakeholders.

### 3.3.4 Risk based approach to business plan assessment, and use of 'enhanced' status

Regulators are increasingly adopting a risk based approach to business plan assessment, which is in line with Government's push toward better and more proportionate regulation. Companies can aim to minimise the level of regulatory scrutiny that they are subject to, and

<sup>23</sup> Ofgem. The Retail Market Review – RMR Domestic Proposals: Consultation and Decision.

<https://www.ofgem.gov.uk/publications-and-updates/retail-market-review-rmr-domestic-proposals-consultation-and-decision>

<sup>24</sup> CMA. Energy market investigation. Provisional findings report. 7 July 2015. [https://assets.digital.cabinet-office.gov.uk/media/559fc933ed915d1592000050/EMI\\_provisional\\_findings\\_report.pdf](https://assets.digital.cabinet-office.gov.uk/media/559fc933ed915d1592000050/EMI_provisional_findings_report.pdf)

<sup>25</sup> CAA. Airport market power assessments. <http://www.caa.co.uk/default.aspx?catid=78&pageid=12275>

<sup>26</sup> Ofgem. Handbook for implementing the RIIO model. 4<sup>th</sup> October 2010. <https://www.ofgem.gov.uk/ofgem-publications/51871/riiohandbook.pdf>

reduce the risk of the regulator making significant changes to their proposals, by producing a high quality, well evidenced business plan.

Ofwat has an 'enhanced status' approach to business plan assessment. Ofgem's RIIO approach requires companies to provide a 'well justified business plan'<sup>27</sup>. As with Ofwat, Ofgem set out guidance that they would expect a company to follow, and this includes areas such as a focus on outputs, clear evidence of long term value and long term efficient delivery. Companies are generally required to submit two iterations of their business plan, both of which are subject to significant regulatory scrutiny and assessment. The exception is for a company awarded fast track status. Successful companies have to deliver a 'well justified' business plan, that demonstrably meets customer and stakeholder needs. The rewards for fast track from Ofgem have been considered generous to companies when compared to water sector regulation. Ofgem, like Ofwat, has a 'no worse off' provision for 'fast track' companies<sup>28</sup>. Three companies have been 'fast tracked' to date under RIIO, SP and SSE under RIIO-T1 and WPD under RIIO-ED1. The most recent decision on WPD has been subject to significant scrutiny and external debate, particularly regarding whether the rewards for fast tracking were too great. It is possible that Ofgem may review its 'fast tracking' process, and the associated rewards, ahead of the next round of RIIO price control reviews.

To ensure that it delivers the best outcome for present and future consumers, Ofwat would wish to assess the Ofgem experience when designing rewards and processes to determine 'enhanced status'.

### 3.3.5 Dealing with change within the regulatory period

Regulatory approaches need to have mechanisms to deal with uncertainty about the future. Change may be initiated by the regulators themselves, by the Government, by industry players or by the environment in which they operate.

There is a range of mechanisms for dealing with change in the regulated sectors, these are explored in particular by regulators when 1) assessing the length of the regulatory period, 2) managing the transition from regulation to competition in some parts of the value chain and 3) seeking to manage regulatory risk for cost of capital reasons.

Key tools for managing change include:

- A tailored approach to the application of regulation to those parts of the value chain subject to regulation (e.g. willingness to evaluate when price controls should be rolled back);
- Indexation in the price controls;
- Cost pass-through for some items; and
- The use of scheduled reopeners of the price control either for specific parts of the price control or for particular trigger events.

<sup>27</sup> Ofgem. Handbook for implementing the RIIO model. 4<sup>th</sup> October 2010. <https://www.ofgem.gov.uk/ofgem-publications/51871/riiohandbook.pdf>

<sup>28</sup> Strategy decision for the RIIO-ED1 electricity distribution price control. 4<sup>th</sup> March 2013. <https://www.ofgem.gov.uk/ofgem-publications/47067/riioed1decoverview.pdf>

### 3.4 Implications for PR19

Based on analysis above there are some clear opportunities for the development of the scope and nature of regulatory interventions at PR19, in particular:

- The move to market opening for non-household retail may still require ongoing regulatory intervention possibly for the incumbent if market power remains. Ofwat should consider when it should deploy removal of regulation or ex-post regulatory approaches to support the execution of its duties, and the benefits of so doing.
- A clearer focus on innovation as a way of delivering long term outcomes for customers. Incentivising innovation and supporting initiatives for longer term cost reduction will support Ofwat's duties for delivering good long term outcomes for future customers as well as promoting the sustainability duty. One aspect of promoting innovation might be innovation funding competitions that have been used by Ofgem in RIIO. However, the drive for innovation should be based on a number of interventions including the use of longer term cost assessment techniques and defining longer term outcomes.
- Ofwat should consider the costs and benefits of the future application of the 'enhanced status' and whether a financial and/or reputational reward is appropriate and how this can be used to drive further long term efficiency.
- Ofwat will need to consider how flexible it wants the regulatory regime to be to future change. As discussed in Section 5 capital markets assess the risk of funding companies in different regulatory regimes based on the nature of regulatory stability. The water sector is likely to face significant change with market opening. However, outlining some key principles for how different types of within period developments or uncertainties will be dealt with is critical for supporting the long term financeability of the sector.

## 4 Cost assessment

### 4.1 Basis in economics

The operation of competitive markets results in inefficient service providers being unable to make their required level of profitability given reigning market prices and so those providers leave the market.

For monopolies there are not the same pressures for efficiency, either at the current time or in the long term. A higher cost, inefficient monopolistic provider can pass inefficiency on to its customers as high prices.

The regulators we have considered have a duty to protect customers and part of putting this duty into action requires setting prices at a level which an efficient company can provide the service required by customers. Regulators have typically used two tools to fulfil this duty: the first is to set prices using an assessment of efficient costs using cost assessment techniques, the second is to provide incentives to meet or beat those cost targets.

The challenge with cost assessment is that the regulator may believe there is an informational asymmetry between the regulated company and the regulator regarding the efficient costs of providing a service. The usual approach to addressing that asymmetry is by the regulator using comparative or benchmarking techniques using available data to identify what the efficient costs might be.

### 4.2 What we cover, and why

In the remainder of this section we describe how other regulators undertake cost assessment and how they apply their approaches. Our findings identify a number of key developments in cost assessment that Ofwat should investigate for PR19.

### 4.3 What others do that is relevant for water

There is a number of ways that cost assessment exercises have been carried out by regulators.

#### 4.3.1 Assessment of cost efficiency

Regulators broadly tackle the issue of efficiency assessment in one of two ways:

- **Top-down:** such reviews will consider most or all of a firm's costs, with views informed on a similar basis from either: firms in the same industry, or firms in other regulated industries, and competitive sectors; and
- **Bottom-up:** such reviews will consider the efficiency of specific activities. These reviews typically consider the target firm in relation to other firms in the same industry (especially those demonstrating good practices against a number of criteria developed by the relevant regulator), or other similar-sized companies (for generic functions such as HR and IT), and can identify specific changes that could be made to improve efficiency.

The implementation of these two high level approaches can be done in a number of ways that includes:

- Using a **previous base period** for total expenditure and applying one industry specific target. Ofwat could roll forward expenditure from previous periods and apply a single target to all companies. There is a number of ways that a sector-wide target could be derived. These include a high-level target combining both frontier shift and catch-up using an index-based approach or just applying a frontier shift.
- Total costs could be derived by building these up from simple **unit costs**. The challenge with this approach is dealing with differences between companies operating environments or scale or other factors that drive cost;
- **Econometric modelling** could be used either to assess efficient expenditure or to derive catch-up efficiency targets. Using this approach builds on the totex approach used during PR14. This would allow Ofwat to adjust for the heterogeneity within the water and sewerage sectors. Potential difficulties with this approach relate largely to the assessment of the capital spending requirements to be included in the totex to feed into the modelling.
- **Bottom-up modelling** can be used to establish efficient total costs and/or assess relative efficiency. The advantages of this approach are that it can be based on a hypothetically efficient company, thus breaking the link with actual costs. This could incentivise innovation. There are potential difficulties with modelling industry heterogeneity and the approach is likely to be data intensive and expensive.

Table 4.1 summarises the types of cost assessment approaches deployed by other regulators. The main point of note that emerges from this table is the limited number of approaches currently used in water compared with other sectors.

Table 4.1 Cost efficiency assessment across UK regulators

	Airports	Air traffic control	Energy	Rail	Telecoms	Water
Cross-section – International		✓		✓	✓	
Cross-section – Other UK			✓			✓
Cross-section – Internal benchmarking						
Function benchmarking	✓	✓	✓	✓	✓	
Time series – International comparators						
Time series – Other UK regulated				✓		
Time series – Regulated firm	✓				✓	✓
TFP growth – Comparators sectors			✓			
Expert review – Business plan			✓	✓	✓	✓
Expert review – Regulated firm activities			✓	✓		
Process benchmarking	✓					

Source: NERA report for Ofcom. Approaches to Measuring the Efficiency of Postal Operators. <http://stakeholders.ofcom.org.uk/binaries/post/postal-efficiency/nera.pdf> updated by KPMG for water.

A key issue from our review is that, generally, regulators have been less able to look at approaches to measuring and incentivising dynamic cost efficiency, i.e. regulated companies delivering longer term cost reduction benefits through activities today (such as innovation).

Ofgem has made some progress in this area, with RIIO focussed on encouraging investment in innovation through the introduction of the network innovation competitions (NIC), where

DNOs compete for funding of particular innovative projects, and through the network innovation allowance (NIA), a pot of money made available for smaller scale innovative projects on a 'use it or lose it' basis.

There is a number of tools associated with cost assessment that are currently used by regulators to ensure the cost assessment methodology supports the regulator in executing their duties, including:

- Approaches to differentiation for example include differences in assessed costs for companies based on the specific cost drivers for a company or group of companies (e.g. regional wage allowances). These approaches are important for making the cost assessment reflect the underlying cost drivers for the regulated company concerned;
- Incentivisation of "honesty" in costs forecasts in business plans. These approaches support the regulator in identifying efficient costs;
- Focusing on whole life costs rather than costs within a price control period to ensure the interests of current and future customers are protected; and
- Managing cost uncertainty through the regulatory period, to protect customers and ensure regulated companies are able to finance their activities.

#### 4.3.1.1 Approaches to differentiation

Cost assessment of regulated companies broadly focuses on making comparisons between companies in order to identify and drive efficient costs. To account for differences in cost structures between companies where there are valid company specific cost drivers, it is important to recognise a degree of differentiation when assessing their costs. Regulators therefore need to consider how to accommodate this within their cost assessment. Ofwat has used this approach as part of PR14 for its cost assessment of wholesale activities.

Ofgem, under RIIO, have made allowances for regional and company specific factors. The onus under RIIO is for companies to provide evidence of the difference, and of the efforts that the company has made to minimise the effects of this difference. Ofgem has advised that specific factors will usually necessitate a longer cost assessment process, and this can have an impact on companies seeking a 'fast track' outcome (see Section 3).

#### 4.3.1.2 Incentivising accuracy and honesty in cost forecasts

Regulators are reliant on company forecasts for price setting over the forthcoming regulatory period. Companies will be aware that the regulator will seek to ensure that these costs are efficient. Theoretically, there is an incentive for companies to over-estimate cost forecasts, in anticipation of the regulator seeking to reduce these costs through cost assessment. Regulators have therefore taken a variety of measures that seek to incentivise honesty and accuracy in cost forecasts.

Ofwat has made use of its menu regulation approach to address this issue and it is used in the network regulation approaches used by Ofgem. Ofgem introduced the information quality incentive (IQI) in DPCR4, with the aim of incentivising the accurate forecasting of expenditure by network companies<sup>29</sup>. The IQI has been developed, and retained, under RIIO. The IQI provides additional income for those companies whose submitted forecast costs are closely aligned to Ofgem's assessment of efficient costs. The incentive also penalises those

<sup>29</sup> Ofgem. Decision to fast-track Western Power Distribution. 28<sup>th</sup> February 2014. <https://www.ofgem.gov.uk/ofgem-publications/86375/fast-trackdecisionletter.pdf>



companies who submit a high forecast, relative to Ofgem's assessment. This also derives the sharing factor for under/overspend during the regulatory period, with different companies able to recover, or required to fund, a share of any underspend/overspend with customers. This provides for greater risk sharing between companies and their customers.

Menu regulation has been deployed in a number of price reviews by Ofgem, most recently in RIIO ED1. The IQI was one of the factors identified as a point of challenge in the recent CMA referral of the RIIO ED1 price control review. For PR19 Ofwat may want to reconsider its application and calibration of menus to include potential challenges coming from the CMA review of the menus and IQI currently underway as part of the RIIO-ED1 referral and Bristol Water price determination.

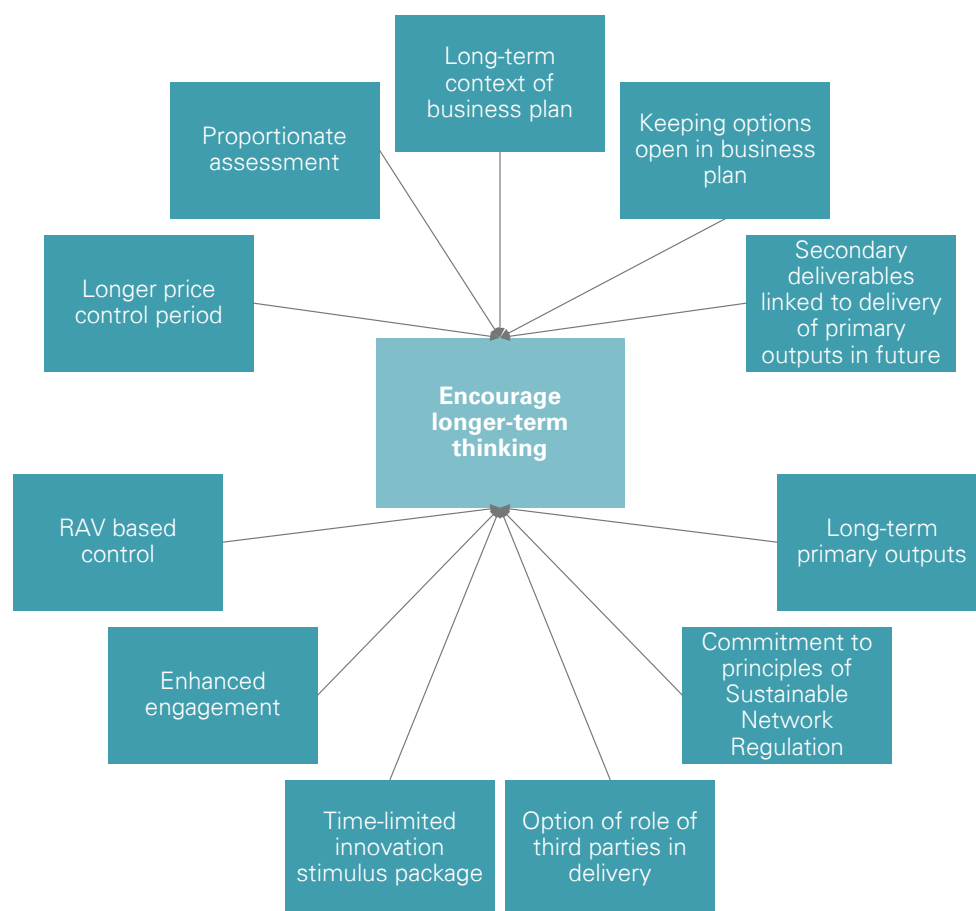
#### 4.3.1.3 Focusing on whole life costs, rather than costs within a price control period

A regulatory price control will limit the amount of revenue that a company can collect from its customers within a defined period. The use of a fixed period control can lead companies to focus their business plans, and investment commitments, around the regulatory period rather than focussing on the most appropriate long term, efficient operation of their business and provision of services to customers.

Ofgem's RIIO approach explicitly focuses on encouraging longer term (beyond the current price control) thinking and delivering value for money, with the aim of avoiding companies focussing on minimising costs over the price control period<sup>30</sup>. Ofgem has identified a range of tools that it uses to focus on the longer term. These are outlined in Figure 4.1 below.

<sup>30</sup> It should be noted however that with the first RIIO settlements (Transmission and Gas Distribution) only in the early stages of the RIIO period it is difficult to evaluate the success of the introduction of long term thinking as yet.

Figure 4.1 Ofgem's RIIO approach to encouraging long term thinking



Source: Ofgem. Handbook for implementing the RIIO model. 4<sup>th</sup> October 2010. <https://www.ofgem.gov.uk/ofgem-publications/51871/riiohandbook.pdf>

Ofgem specifically requires companies to demonstrate their consideration of different delivery options in their business plans. Ofgem also allows companies to be funded within a price control period, for delivery in future periods, with allowed revenue linked to future delivery of outputs. Ofwat may wish to consider which of these elements could be usefully incorporated into the PR19 approach, and particularly which of them may be appropriate if they decided not to amend the length of the regulatory period (see Section 7 below).

#### 4.3.1.4 Managing uncertainty

An ex ante price control has to make a number of assumptions about what will happen within the regulatory period. In order to maintain regulatory certainty, proportionate regulation and so increase investor confidence, regulators can make use of uncertainty mechanisms which allow for adjustment of key elements of the control within the regulatory period. These are usually limited to those circumstances outside of the company's control.

Ofgem, under RIIO, have set out specific criteria for uncertainty mechanisms, and have stressed that, 'network companies should manage the uncertainty they face'<sup>31</sup>. Ofgem has identified a number of potential disadvantages to introducing uncertainty mechanisms, including that it can undermine efficiency incentives, can create price volatility, can introduce complexity, increase resource costs and introduce unintended consequences. Ofgem has set

<sup>31</sup> Ofgem. Handbook for implementing the RIIO model. 4<sup>th</sup> October 2010. <https://www.ofgem.gov.uk/ofgem-publications/51871/riiohandbook.pdf>

out three potential reasons for allowing uncertainty mechanisms. These are summarised below:

- Reduce the cost of capital – with recognition that this should then result in lower prices for customer;
- Reduce financeability concerns – to minimise the risk of Ofgem having to reopen the price control with the period; and
- Reduce consumers’ exposure to uncertainty – to allow for scrutiny of information only available in the future, in order to minimise exposure to windfall gains/losses.

Ofcom’s cost assessment for Openreach’s 2010-2014 price control identified two areas of concern around uncertainty: disruption costs and price predictability; and maintaining a normal competitive environment. The regulator acknowledges historic costs, but place a greater emphasis on forward looking costs.

Ofwat may want to consider how it manages uncertainty over the next regulatory period, and may want to focus on forward looking costs, in line with Ofgem and Ofcom, but with specific recognition that there is potential benefit for review of some aspects of the price control within the period, where there is a demonstrable benefit for consumers.

#### 4.3.2 A total expenditure (totex) approach

Ofwat has signalled its intention to retain a totex based approach for the wholesale businesses for PR19. Both Ofgem and Ofwat have moved to a totex approach in their most recent regulatory controls. The main advantage identified by the regulators for a totex assessment approach is that it is better able to address the issue of trade-offs between specific activities and differences in reporting methodologies. A totex approach also avoids the potential for companies to “cherry pick” between different cost assessment models. On this basis regulators have asserted that totex analysis encourages the deployment of lowest cost solutions from regulated companies.

The CMA’s provisional findings report for Bristol Water<sup>32</sup> published in July 2015, included a review of Ofwat’s cost assessment approach and the use of totex. The CMA’s provisional findings identified concerns with the emphasis that Ofwat had placed on its high level totex benchmarking models. Specifically, it raised a concern that the special cost factor, ‘was not sufficient to fully mitigate the limitations in its [Ofwat’s] benchmarking analysis’<sup>33</sup>. The CMA’s provisional findings build on Ofwat’s cost assessment approach, to set out revised totex allowances for Bristol Water. The CMA recognised that Ofwat’s totex benchmarking approach was a useful starter point for cost assessment, but that there was a need to recognise other information and specific adjustments, when considering its application<sup>34</sup>. Ofwat will consider whether it regards the CMA’s final assessment of totex and whether it should address the potential limitations in a totex focussed approach, by considering the weighting of this type of cost assessment, and the additional assessment techniques and comparator information that could be used to strengthen its overall cost assessment.

<sup>32</sup> CMA. Bristol Water plc price determination. Provisional findings. 10<sup>th</sup> July 2015. [https://assets.digital.cabinet-office.gov.uk/media/559fd021ed915d1595000046/Bristol\\_Water\\_plc\\_price\\_determination\\_-\\_provisional\\_findings.pdf](https://assets.digital.cabinet-office.gov.uk/media/559fd021ed915d1595000046/Bristol_Water_plc_price_determination_-_provisional_findings.pdf)

<sup>33</sup> CMA. Bristol Water plc price determination. Provisional findings. 10<sup>th</sup> July 2015. p. 14, point 23. [https://assets.digital.cabinet-office.gov.uk/media/559fd021ed915d1595000046/Bristol\\_Water\\_plc\\_price\\_determination\\_-\\_provisional\\_findings.pdf](https://assets.digital.cabinet-office.gov.uk/media/559fd021ed915d1595000046/Bristol_Water_plc_price_determination_-_provisional_findings.pdf)

<sup>34</sup> CMA. Bristol Water plc price determination. Provisional findings. 10<sup>th</sup> July 2015. p. 18, point 3. [https://assets.digital.cabinet-office.gov.uk/media/559fd021ed915d1595000046/Bristol\\_Water\\_plc\\_price\\_determination\\_-\\_provisional\\_findings.pdf](https://assets.digital.cabinet-office.gov.uk/media/559fd021ed915d1595000046/Bristol_Water_plc_price_determination_-_provisional_findings.pdf)

## 4.4 Implications for PR19

There is a number of aspects of cost assessment that Ofwat should consider addressing for PR19:

- **Use of totex analysis supported by other tools.** There is little evidence of other regulators using totex modelling without undertaking benchmarking using other techniques to corroborate findings (e.g. using bottom up techniques.) The recent preliminary findings report by the CMA in its price determination for Bristol Water made use of a disaggregated analysis in addition to totex which resulted in a different cost assessment methodology for the company compared to Ofwat's PR14 Final Proposals. The other main regulator that makes use of totex analysis (Ofgem) also performs disaggregated cost modelling, the findings from other approaches are weighted and considered as part of the regulatory cost assessment. Considering cost efficiency based on a number of approaches is highly likely to make Ofwat better able to balance its duties to customers and also ensure that companies can finance their activities in a sustainable manner. As part of this analysis, however, Ofwat may want to retain the onus on companies to demonstrate why they have any special or specific costs, and to justify the need for any special allowances or adjustments.
- **Conduct an investigation of the data and approaches required for cost assessment of a disaggregated water services value chain for PR19.** There is an opportunity at this stage of the regulatory cycle to undertake an investigation into the appropriate cost drivers for the different parts of the water value chain that will be subject to PR19 to ensure that the appropriate data is collected by companies, both in support of future business plans but also to support bottom-up and top-down econometric assessments in the future.
- **Incentivisation for long term cost efficiency is an opportunity for Ofwat at PR19.** Generally regulatory cost assessment tools do not provide for the delivery of dynamic cost efficiency over time. Ofgem started to address this issue in RIIO through the incentivisation and funding of innovation. To the extent that innovation can drive medium term cost reduction, it can deliver dynamic efficiency. The role of incentivisation to drive longer term cost efficiency is an area not extensively explored by Ofwat as yet and linked to a long term outcomes focus could deliver benefits for current and future customers in terms of cost reductions that would not be achieved through a traditional cross sectional benchmarking approach. An important aspect of considering this approach will be to ensure that if our recommendation in Section 3.4 regarding the use of incentivisation of innovation for cost reduction in the longer term were to be adopted then the cost assessment methodology will need to consider those cost reduction benefits being taken into account. The focus will be to maintain pressure for frontier shift through cost assessment and its interaction with the regulatory period. This will also need to be balanced with the fact that not all funded innovation may bring benefits (some innovations fail) and therefore the timing of when benefits are taken into account is critical.)
- It may also be prudent for Ofwat to consider how it can continue **to incentivise companies to be honest in their business plans and cost forecasts**, particularly if there are any points to be learned from the CMA reviews of Ofwat's menus for Bristol Water and the application of IQI for the electricity distribution network operators.

# 5 Financial cost assessment

## 5.1 Basis in economics

The cost of finance is a major cost factor for regulated infrastructure business.

A key challenge for regulators is: how to set prices in a way that ensures an efficiently financed company can continue its activities. Regulated companies tend to have informational advantages over regulators with regards to the cost of finance as they are in the markets, sourcing debt and equity as necessary.

The typical regulatory response to this informational asymmetry is to develop benchmarks for the cost of finance and then incentives for companies to outperform those benchmarks.

The financial assessment approach typically is based on a weighted average cost of capital, either for the industry or the specific company concerned.

Key issues in setting the WACC and financial cost benchmarking include:

- The selection of appropriate benchmark;
- The choice of methodology for calculation of the WACC;
- Approaches to estimating the cost of equity;
- The assumptions to be made for each component of the WACC calculation; and
- The time period to be used for component data for the calculation of the benchmark.

Each of these is discussed in this section.

It is worth noting that while the water sector is undergoing market reform not all parts of the regulated value chain will be dominated by infrastructure asset portfolios where the WACC x RCV approach can be applied. Two main developments to financial cost benchmarking will require consideration:

- Asset light businesses e.g. retail, what is an appropriate finance cost benchmarks for those businesses; and
- Do the risks and dynamics of competition change the risk profile of some assets, either the risk of asset stranding becomes an issue in the competitive market or competition gives rise to specialist provision in parts of the value chain where a WACC which is in effect bundled across a range of activities will need to be unbundled as the portfolio benefits are lost.

As a result, different financial benchmarks will need to be considered for the regulation of different parts of the value chain.

## 5.2 What we cover, and why

In this section we describe how other regulators undertake financial cost assessment. We consider the duties of each regulator regarding financeability, and the different tools and processes used by each regulator to complete its financial assessments. We have identified the potential areas that Ofwat may want to consider as it develops its own approach for PR19.

## 5.3 What others do that is relevant for water

### 5.3.1 Financial cost benchmarking and statutory obligations

Ofwat, Ofgem, CAA and ORR all have a specific financing duty. All four regulators use a notional capital structure to set allowed returns. This assumes that the actual financing is matter for the company and users should not be expected to pay for an inefficient finance structure.

Ofcom does not have a financing duty towards the companies it regulates. Nevertheless it has in the past also set allowed returns using a notional capital structure. It has now changed its approach and uses actual capital structures.

### 5.3.2 Comparison of approaches

We have summarised Ofwat’s approach, and the approaches taken by other regulators below, with a focus on those areas with potential relevance to the water sector. Table 5.1 below summarises the current approach adopted by other regulators in the UK in undertaking financial cost benchmarking.

### 5.3.3 Regulatory Capital Value (RCV)

The existence of a regulatory capital value for the regulation of infrastructure is common in the regulated sectors.

RCV effectively provides a regulatory measure of companies’ expenditure on long-lived assets, with companies able to earn a regulated return on their RCV. RCV is also used by investors to determine the value of the regulated business, allowing them to look at the level of borrowings that the companies take on. Investors can also judge a company’s profitability by looking at the ‘returns’ on the RCV.

A key issue regarding the RCV for PR19 will be if there were to be a separation of price controls between networks and upstream activities what would be a reasonable approach to the allocation of RCV between business units, in particular given the importance of the RCV for securing the financeability of the sector.

Table 5.1 Summary of financial cost benchmarking tools across regulated sectors in the UK<sup>35</sup>

	Financial cost benchmarking tool(s)	How tools are used and assumptions
Ofwat	<b>Wholesale controls</b> WACC.	Gearing: notional industry-level gearing (assumption between 60-70%). Cost of debt: forward-looking fixed cost of debt for PR14. Cost of equity: CAPM and cross-checks to other approaches such as the dividend growth model. Beta: 0.4.
	<b>Retail controls</b> Retail net margins in conjunction with actual costs	Remunerating retails risks and the cost of capital employed. Assessed on a pre-tax basis (EBIT).

<sup>35</sup> It is important to note that this table contains a mix of asset and equity betas and so they cannot be directly compared.

Financial cost benchmarking tool(s)		How tools are used and assumptions
	as the basis for allowed costs.	
<b>Ofgem</b>	<b>Transmission (gas and electricity)</b> WACC.	<p>Gearing: notional gearing using a principles based approach. Between 55% and 62.5% for T1, depending on the TO. Ratio is reflective of risk profile of company's assets and combines cash flow volatility, cost of equity, equity injections, uncertainty and transition arrangements.</p> <p>Cost of debt: updated annually and linked to the trailing average of sterling denominated bonds.</p> <p>Cost of equity: CAPM. Indicative cost of equity range of 6.0-7.0% (post-tax real).</p> <p>Beta: relative volatility of equity prices in the energy industry relative to the whole economy. Between 0.91 and 0.95 for T1. Contributes to the assessment of cash flow risk in the WACC calculation.</p>
	<b>Distribution (gas and electricity)</b> WACC.	<p>Gearing: notional gearing using a principles based approach. 65% for GD1. Ratio is reflective of risk profile of company's assets and combines cash flow volatility, cost of equity, equity injections, uncertainty and transition arrangements. A different notional gearing is assumed for gas and electricity distributors and energy transmission operators, reflecting differences in cash flow risk between different price reviews.</p> <p>Cost of debt: updated annually and linked to the trailing average of sterling denominated bonds.</p> <p>Cost of equity: CAPM. Indicative cost of equity range of 6.0-7.2% (post-tax real). 6.8% for gas distribution.</p> <p>Beta: relative volatility of equity prices in the energy industry relative to the whole economy. 0.9 for GD1. Contributes to the assessment of cash flow risk in the WACC calculation.</p>
<b>CAA</b>	<b>Heathrow and Gatwick</b> WACC.	<p>Gearing: notional, similar approach to other regulators</p> <p>Cost of debt: weighted average of the cost of new debt (30% weighting) and the historical fixed rate (70% weighting), plus borrowing fees.</p> <p>Cost of equity: CAPM.</p> <p>Beta: different equity values for Heathrow and Gatwick.</p>
<b>ORR</b>	<b>Network Rail</b> Adjusted WACC, calculated by subtracting the equity surplus, as the regulated entity, Network Rail, cannot issue equity.	<p>Gearing: Gearing is technically 100% since the company does not issue equity.</p> <p>Cost of debt: The regulated entity's debt is indemnified by the UK government, so this cost is linked to the rate on UK government bonds.</p> <p>Cost of equity: The regulated entity cannot issue equity.</p> <p>Beta: We have not found evidence of significant emphasis being placed on the beta value by ORR. This is consistent with ORR's prediction that Network Rail is unlikely to issue equity or unsupported debt in the current regulatory period.</p>

Financial cost benchmarking tool(s)		How tools are used and assumptions
<b>Ofcom</b>	<b>Telecoms</b> Nominal WACC.	Gearing: actual company gearing. CoD: historical and current data on five-year UK gilts, adjusted to reflect a judgement on present market conditions. CoE: CAPM. Beta: Around 0.5 <sup>36</sup> . Reduced for BT Openreach to take into account the fact that it has the nature of a utility.
<b>Ofcom</b>	<b>Postal services</b> EBIT margin (retail margin).	Benchmarking against profits earned by private European universal service providers.

Source: KPMG compilation of various regulatory documents.

### 5.3.4 Cost of capital

The cost of capital is the required rate of return from an investor perspective. It is made up of three main components:

- Gearing: the ratio of a company's debt (loan capital) to the value of its equity (ordinary share);
- Cost of equity: using the capital asset pricing model (CAPM) to estimate the cost of equity based on the real risk-free rate, the asset beta and the expected market return; and
- Cost of debt: based on forward-looking expectations.

As shown in the table the weighted average cost of capital (WACC) is a commonly used approach. CAPM is typically used to estimate the cost of equity, supported by other approaches such as the dividend growth model, transaction evidence and comparison with other regulated sectors. Each regulator, except for Ofcom, express WACC in real terms which is applied for price control purposes to a real RAV.

The risk-free rate and market risk premium used in the CAPM approach are general non-company specific market factors. Despite different risk-free values used by regulators, a degree of consistency is still observed as all of the regulators except Ofcom use index linked gilts. Since Ofcom's price control period is generally shorter than in other sectors, it puts greater emphasis on shorter term averages and forward rates.

The regulators' approach to market risk premium is based on their discretion as there is no academic consistency on the appropriate values.

The CAA calculates the WACC for each airport separately. For Q6, the CAA has decided that Heathrow Airport uses a pre-tax real WACC of 5.35%, and for Gatwick 5.7%<sup>37</sup>. For Gatwick, this equates to a vanilla WACC of 4.9%<sup>38</sup>. These WACCs for the current period are both lower

<sup>36</sup> Ofgem. Joint Regulators Group (JRG). Cost of Capital and Financeability. March 2013. p. 24.

<https://www.ofgem.gov.uk/ofgem-publications/37070/jrg-report-cost-capital-and-financeability-final-march-2013.pdf>, p24

<sup>37</sup> ORR. Estimating the cost of capital: technical appendix for the economic regulation of Heathrow and Gatwick from April 2014: Notices granting the licences. <http://www.caa.co.uk/docs/33/CAP1155.pdf>

<sup>38</sup> Economic regulation at Gatwick from April 2014: Notice granting the licence. <http://www.caa.co.uk/docs/33/CAP1152LGW.pdf>



than those for the previous period. This is mainly because of reductions in corporate tax, the cost of debt and total market return<sup>39</sup>.

The ORR uses the adjusted WACC approach to decide the allowed revenue for Network Rail. The reason for this is that it is consistent with the company being unlikely to issue unsupported debt, which is a result of increased uncertainty in financial markets. Network Rail is financed entirely by debt – it cannot issue equity. The debt is indemnified by the UK government, which carries the risk of default. This results in Network Rail's cost of capital significantly exceeding its efficient financing costs. The adjusted WACC approach is appropriate for such a situation, i.e. the cost of capital is adjusted by subtracting the equity surplus, since the company does not issue equity<sup>40</sup>.

The ORR recognise that using the adjusted WACC to determine revenue significantly reduces the revenue allowed. This could cause financial sustainability problems for the company. For this reason, they include an amortisation financial sustainability adjustment whereby the amortisation charge is increased. Another advantage of using the adjusted WACC is that it does not prevent Network Rail from issuing unsupported debt, should this option become available. The ORR expresses a desire for such an issuance to remain possible because it considers that introducing risk capital and unsupported debt would create positive incentives for the management of Network Rail<sup>41</sup>.

Ofcom is of the opinion that a RAB/WACC approach to setting the allowed returns does not provide sufficient incentives to third parties to invest in Royal Mail. This is because Royal Mail operates in an asset light business with high operational gearing, significant volatility in revenue and operates in a declining market. Additionally, the traditional regulatory approach of calculating a WACC for the business and applying this to its regulatory asset base does not deliver the profit levels required to ensure the universal service can earn a reasonable commercial rate of return<sup>42</sup>.

#### 5.3.4.1 Gearing

The use of a notional gearing approach is widely used across sectors. The advantage of this approach is that regulated companies retain the responsibility for managing finance risk. Further, it fits with Ofwat's duties to protect consumers (as they would not face additional financial costs) as well as resilience (as it incentivises companies to introduce a level gearing Ofwat considers sustainable in the longer term.) This is also supported by the argument that risks across the water industry are not sufficiently different to require a different notional capital structure across the value chain.

It is worth noting that Ofgem has a different approach to gearing across the value chain. Ofgem assumes different notional gearing levels for gas and electricity transmission operators to those assumed for distributors. This consideration is important in the context of

<sup>39</sup> ORR. Estimating the cost of capital: technical appendix for the economic regulation of Heathrow and Gatwick from April 2014: Notices granting the licences. <http://www.caa.co.uk/docs/33/CAP1155.pdf>

<sup>40</sup> ORR. Final determination of Network Rail's outputs and funding for 2014-19. Financial framework. October 2013. p. 35-36. [http://orr.gov.uk/\\_\\_data/assets/pdf\\_file/0011/506/fd-chapters-12-14.pdf](http://orr.gov.uk/__data/assets/pdf_file/0011/506/fd-chapters-12-14.pdf)

<sup>41</sup> ORR. Final determination of Network Rail's outputs and funding for 2014-19. Financial framework. October 2013. [http://orr.gov.uk/\\_\\_data/assets/pdf\\_file/0011/506/fd-chapters-12-14.pdf](http://orr.gov.uk/__data/assets/pdf_file/0011/506/fd-chapters-12-14.pdf)

<sup>42</sup> Royal Mail. Commercial rate of return assessment based on EBIT margin. p. 1 [http://stakeholders.ofcom.org.uk/binaries/consultations/securing-the-postal-service/royalmail/Commercial\\_rate\\_of\\_return.pdf](http://stakeholders.ofcom.org.uk/binaries/consultations/securing-the-postal-service/royalmail/Commercial_rate_of_return.pdf)

the separation of regulation of upstream price controls. In Section 3 above we identified that the risk profiles of different parts of the water services value chain may vary as competition is introduced and this is likely to have an impact on the ability of different parts of the value chain to access debt financing which should be considered in any regulatory notional gearing assessment

### 5.3.4.2 Cost of Equity

Ofwat's approach in PR14 was based on the capital asset pricing model (CAPM), in combination with cross checks to other approaches, such as the dividend growth model, and informed by Ofwat's analysis of the impact of its proposed incentive package on RORE using scenarios. This approach is consistent with Ofgem in the energy sector. In Ofgem's final determinations for ED1, a table compiling the regulatory precedents on the cost of equity was provided. The table is inserted below.

Table 5.2 Regulatory precedents on the cost of equity

Determination	Year	RFR	ERP	Equity beta	Cost of equity
RIIO-GD1	2012	2.0%	5.25%	0.90	6.7%
RIIO-T1 Gas	2012	2.0%	5.25%	0.91	6.8%
RIIO-T1 Electricity	2012	2.0%	5.25%	0.95	7.0%
RIIO-ED1 (Slow Track) <sup>43</sup>	2014	1.25%	4.75%	0.90	6.0%
Ofcom BT Openreach	2011	1.4%	5.00%	0.91	6.0%
Competition commission Bristol Water	2010	2.0%	5.00%	0.92	6.6%
Ofwat PR14 <sup>44</sup>	2014	1.25%	5.5%	0.8	5.75%
ORR CP5 (PR13) <sup>45</sup>	2013	1.75%	5.5%	0.95	6.50%
CAA Heathrow <sup>46</sup>	2007	1.0%	5.75%	1.10	7.33%
CAA Gatwick <sup>47</sup>		1.0%	5.75%	1.12	7.44%

Source: Ofgem. Strategy decision for the RIIO-ED1 electricity distribution price control. Financial issues. Supplementary annex to RIIO-ED1 overview paper. p.19 <https://www.ofgem.gov.uk/ofgem-publications/47071/riioed1decfinancialissues.pdf>

### 5.3.4.3 Cost of Debt

Ofwat's approach in PR14 is based on forward-looking expectations, and uses a fixed cost of debt from 2015-20. This is on the basis that Ofwat considers that it would be inappropriate to change from its existing approach when prevailing debt costs are very low. Historically, Ofwat

<sup>43</sup> Ofgem, 'Decision on our methodology for assessing the equity market return for the purpose of setting RIIO-ED1 price controls, February 2014 Appendix 1, Table 1 BP assessment baseline adjusted <https://www.ofgem.gov.uk/ofgem-publications/86366/decisiononequitymarketreturnmethodology.pdf>

<sup>44</sup> Ofwat Investor meetings [http://www.ofwat.gov.uk/pricereview/pr14/pr14publications/prs\\_pre20140129pr14investor.pdf](http://www.ofwat.gov.uk/pricereview/pr14/pr14publications/prs_pre20140129pr14investor.pdf)

<sup>45</sup> Final determination of Network Rail's outputs and funding for 2014-19 p491 [http://orr.gov.uk/\\_\\_data/assets/pdf\\_file/0011/506/fd-chapters-12-14.pdf](http://orr.gov.uk/__data/assets/pdf_file/0011/506/fd-chapters-12-14.pdf)

<sup>46</sup> Estimating the cost of capital: a technical appendix to the CAA's Final Proposal for economic regulation of Heathrow and Gatwick after April 2014 p60 'final proposals' <http://www.caa.co.uk/docs/33/CAP1115.pdf>

<sup>47</sup> Estimating the cost of capital: a technical appendix to the CAA's Final Proposal for economic regulation of Heathrow and Gatwick after April 2014 p60 'final proposals' <http://www.caa.co.uk/docs/33/CAP1115.pdf>

has set a fixed cost of debt for each price control period which has 'lagged' compared to actual market rates.

In RIIO-ED1 final determinations for the slow-track electricity distribution companies, Ofgem described the cost of debt as 'trombone-like', i.e.:

'The allowance for the cost of debt will be calculated using a trailing average of bond market indicators (using daily data for the unweighted average of iBoxx nonfinancial corporate 10+ year bond yields, deflated by forward inflation implied in gilt yields). This will extend by one year each year from a 10-year to a 20-year trailing average. The averaging period starts on 1 November 2004 and ends on 31 October 2014 for 2015-16 (10 years) and the end of the period will advance by a year each year, trombone-like, until the period length reaches 20 years. For 2025-26, the averaging period will start on 1 November 2004 and end on 31 October 2024 (20 years)<sup>48</sup>.

Ofgem's rationale to 'tromboning' is based on the fact that extending the trailing average period better protects DNOs from exposure to market interest rate uncertainty. The use of a 10 to 20-year specification (index) provides a reasonable match with interest costs across the sector. This index also provides appropriate WACC allowances overall<sup>49</sup>.

A key consideration as well in assessing the cost of debt will be the assumptions used by the regulator regarding the entity raising the debt i.e. whether the cost of debt will be considered on a value chain segment basis or on a corporate basis if the corporate is involved in different parts of the value chain.

#### 5.3.4.4 Retail margin

Given that retail activities do not require extensive capital investment, it would be inappropriate to assess retailers' cost of financing and expected returns based on a cost of capital approach. Instead, Ofwat remunerates retail risks and the cost of capital employed (if required given the basis for allowed costs) using retail net margins (on a pre-tax basis, EBIT). Retail margin based returns are set by taking into consideration payment terms between retailers and wholesalers because the terms affect the cash flow and the costs of working capital of wholesale and non-household retail. In setting retail margins, the regulator has to consider whether the returns assumed provide rewards to both the companies and investors that are appropriate to the capital employed and risks the company is bearing.

The retail sector for both electricity and gas is open to competition. Therefore Ofgem does not set retail based margins for energy suppliers. In recent years, Ofgem required the vertically integrated energy companies, known as the Big 6, to report their wholesale and retail accounts separately. According to Oxera, retail energy suppliers have achieved a return between 2% to 4%<sup>50</sup>.

<sup>48</sup> Ofgem. RIIO-ED1: Final determinations for the slow-track electricity distribution companies. Overview. Final decision. p. 41. [https://www.ofgem.gov.uk/sites/default/files/docs/2014/11/riio-ed1\\_final\\_determination\\_overview\\_-\\_updated\\_front\\_cover\\_0.pdf](https://www.ofgem.gov.uk/sites/default/files/docs/2014/11/riio-ed1_final_determination_overview_-_updated_front_cover_0.pdf)

<sup>49</sup> Ibid.

<sup>50</sup> Oxera. Agenda. Something for nothing? Returns in low-asset industries. March 2014. p.8. <http://www.oxera.com/Latest-Thinking/Agenda/2014/Something-for-nothing>Returns-in-low-asset-industr.aspx>

A recent publication by Oxera entitled “*Something for nothing? Returns in low-asset industries*” provides an interesting perspective on low-asset industries such as retail water for both household and non-household, electricity retail in Northern Ireland, Royal Mail and High Speed 1.

Table 5.3 Precedent for regulation of asset-light profit margins

	Regulator	Margin	Rationale
<b>Low-risk (limited input risk)</b>			
<b>Household UK water</b>	Ofwat, 2014	1%	Benchmarking with return on capital cross-check
<b>Northern Ireland retail electricity</b>	Uregni, 2011	1.7%	Sufficient to cover retail risks: wholesale risks largely passed through to customers
<b>Medium-risk (pass-through of majority of input costs, competition and/or input price risk)</b>			
<b>Non-household UK water</b>	Ofwat 2014	2.5%	As household, with additional benchmarking against unregulated sectors
<b>High-risk (significant volume/competition risk and/or input price volatility)</b>			
<b>Royal Mail</b>	Ofcom, 2012	5-10%	High demand risk and precedent of significant volatility
<b>Network Rail High Speed</b>	ORR, 2014	7.3%	Long-term fixed-price contract with high operational risk

Source: Oxera. Agenda. Something for nothing? Returns in low-asset industries. March 2014. <http://www.oxera.com/Latest-Thinking/Agenda/2014/Something-for-nothing>Returns-in-low-asset-industr.aspx>

Oxera performed a statistical analysis of Bloomberg data for FTSE 100 in 2012 where the capital intensity of companies was compared to their respective average operating margins. They found that companies near the “intercept” – i.e. the predicted level of profit as assets fall towards zero – has been significantly different from zero<sup>51</sup> which is confirmed by the fact that ‘a typical FTSE 100 company with no assets would still be expected to earn a profit margin of at least 5%’<sup>51</sup>. In other words, this demonstrates that for asset-light companies, the WACC may not be sufficient to predict a required level of operating margin for investors.

For retailers in the water sector, Ofwat recognised the above mentioned argument and implemented different retail controls for PR14. Ofwat should bear in mind that profits in current and future periods will be driven by the level and effectiveness of investment made in prior periods – for asset-light water retailers, an example of this could be ongoing outstanding customer service.

Another aspect to bear in mind is that if a vertically integrated company is separated into an asset-light retailer and an asset-heavy wholesaler – similar to the water and energy sectors – the risk associated with the assets within the wholesaler will fall as this risk will have transferred to the retailer<sup>52</sup>.

<sup>51</sup> Ibid. p. 3

<sup>52</sup> Oxera. Agenda. Something for nothing? Returns in low-asset industries. March 2014. p.5. <http://www.oxera.com/Latest-Thinking/Agenda/2014/Something-for-nothing>Returns-in-low-asset-industr.aspx>

Ofcom implemented a retail margin for Royal Mail's universal service, but this is featured under a monitoring regime rather than a regulatory framework since the market was reformed in 2012<sup>53</sup>.

Oxera notes that the main approaches to assessing retail margins would be<sup>54</sup>:

- **Comparator analysis**, where other asset-light businesses are used as a source of margin comparison, potentially with adjustment for different levels of operational risk and/or input cost risk;
- **Short-term asset analysis**, where assets and liabilities such as working capital are treated as the relevant asset base;
- **Intangible asset analysis**, where operating expenses are capitalised as intangible assets to augment the tangible asset base; and
- **Risk analysis**, where liabilities associated with the risks of operating the business are reflected in the margin analysis, consistent with the assessment of contingent liabilities discussed above.

For PR19, Ofwat should be aware of Ofcom's approach to retail margins and the debate around the return granted to Royal Mail, which was between 5% and 10%.

### 5.3.5 Financeability measures and risk based test

All regulators except Ofcom have a duty to consider the need of licence holders to be able to finance their licenced activities. They have regard to the ability of efficient companies to secure financing in a timely fashion and at a reasonable cost.

All regulators except Ofcom assess the financeability of the companies in line with their duties and undertake analysis analogous to that undertaken by the rating agencies, such as S&P's, Fitch and Moody's. The financeability assessment undertaken by regulators look at the following credit ratios:

- FFO/Interest;
- PMICR;
- FFO/net debt;
- RCF/net debt;
- RCF/capex; and
- Net debt/RAV (or RAB or RCV).

The credit agencies have their own rating methodologies to rate companies in different sectors.

<sup>53</sup> More reforms might happen much earlier than initially planned. It is worth noting that on 16 June 2014 Ofcom announced a fundamental review of the regulation of Royal Mail. Ofcom wants to ensure regulation remains appropriate and sufficient to secure the efficient and financially sustainable provision of the universal postal service. The review will incorporate Ofcom's existing work to assess Royal Mail's efficiency, consider its position within the parcels sector, and assess the company's potential ability to set wholesale prices in a way that might harm competition. In addition, the review will address the implications of Whistl's withdrawal, which represents a significant change in the potential level of competition for end-to-end letter delivery. For more details, see <http://stakeholders.ofcom.org.uk/consultations/royal-mail-regulation-review/>

<sup>54</sup> Ibid. p.6.

'The financeability of each notionally-financed company is typically tested under both the 'base' scenario (allowed revenue set at the beginning of the price control) and also stress tested against a number of other scenarios or events (depending on the sector under review). Such stress tests also take into account the risk sharing mechanisms or mitigations within the price control framework as well as the possibility of mitigating management action'<sup>55</sup>.

Ofcom does have a requirement to have regard to the need for the universal service provider to earn a 'reasonable commercial rate of return'. Whilst the Act does not provide further guidance on what is meant by a reasonable commercial rate of return, Ofcom draws on significant regulatory precedent in allowing regulated companies to earn and retain a profit (variously described as the allowed profit or allowed return)<sup>56</sup>.

Ofcom considered what might be a 'reasonable' commercial rate of return and how its assumptions could change in relation to the risks facing Royal Mail. Ofcom took four aspects into account:

- The level of return under different approaches to measuring financeability;
- Market evidence as to the returns achieved by comparable companies (being other European privatised postal operators);
- The risks and uncertainties about both Royal Mail's plans for modernisation and restructuring in the context of a declining market; and
- The impact of the government's intention to privatise Royal Mail.

After analysing these four aspects, Ofcom concluded that a return on sales approach is more relevant than a return on capital, given Royal Mail's universal service network is intangible and based around people rather than on tangible assets. Similarly, Ofwat decided that an EBIT operating margin is an appropriate proxy for operating cash generation, as the operating cash flow and EBIT are projected to become broadly comparable towards the end of Royal Mail's plan. Finally, Ofcom concluded that a range of 5% to 10% EBIT margin might represent a reasonable commercial rate of return for Royal Mail. This was consistent with Ofcom's advisers, Cambridge Economics Policy Associates (CEPA)<sup>57</sup>.

### 5.3.5.1 Financial ratios

Similar to Ofgem's approach, Ofwat also considers three equity ratios which provide an indication of companies' long-term ability to generate equity returns. Despite considering them as part of its overall financeability assessment, Ofwat does not set specific target levels or ranges for equity ratios. These ratios are<sup>58</sup>:

- Dividend cover;
- Regulatory equity over regulatory earnings for the regulated company; and
- RCV/EBITDA.

<sup>55</sup> Ofgem. Joint Regulators Group (JRG). Cost of capital and financeability. March 2013. p. 11 <https://www.ofgem.gov.uk/ofgem-publications/37070/jrg-report-cost-capital-and-financeability-final-march-2013.pdf>

<sup>56</sup> Ofcom. Securing the Universal Postal Service. Decision on the new regulatory framework. p. 46 <http://stakeholders.ofcom.org.uk/binaries/consultations/review-of-regulatory-conditions/statement/statement.pdf>

<sup>57</sup> Ibid. p. 47.

<sup>58</sup> Ofwat. Setting price controls for 2015-20 – final methodology and expectations for companies' business plans. July 2013. p.145 [http://www.ofwat.gov.uk/pricereview/pr14/pap\\_pos201307finalapproach.pdf](http://www.ofwat.gov.uk/pricereview/pr14/pap_pos201307finalapproach.pdf)

Dividend cover is a company's profit after tax over dividends paid. It provides a measure of a company's the long-term ability to pay dividends. Ofwat do not intervene with companies policies on dividend cover.

Regulatory equity over regulatory earnings for the regulated company is a ratio that provides a measure of the value of the equity component of the RCV relative to the level of companies' earnings. This ratio is also used in the energy industry by Ofgem. It is used to provide an indication of whether earnings are likely to be consistent with providing acceptable returns to equity prevailing regulatory equity values. Regulatory earnings are calculated by debt interest and tax expenses from EBIT and regulatory equity is calculated as the RCV multiplied by the equity proportion in the notional capital structure.

Finally the RCV/EBITDA ratio provides information on the operating cost structure that allows comparison of the sustainability and trend of earnings across companies.

### 5.3.5.2 Financeability and incentives

If Ofwat were to introduce a regulatory framework where companies achieve their overall WACC through a combination of a lower allowed return but larger ODIs outperformance, this would need to be carefully evaluated to ensure that there are no increases in the perceived risk on the returns to investors.

If, for example, Ofwat were to reduce the WACC and, at the same time introduce ODIs with potential for large negative payments, companies could perceive an increase in the risk of the company which could trigger an increase in the WACC. Ofwat will need to assess the impact of each of these issues it faces the risk of failing in its duties to ensure the financial reliability of the companies as well as reducing the ability of efficient providers to finance their activities.

## 5.4 Implications for PR19

Different financial benchmarks will need to be considered for the regulation of different parts of the value chain at PR19. This would allow Ofwat to adapt the financial benchmarking to both the characteristics of the activities being regulated and the expected changes for the relevant parts of the value chain. Therefore we recommend that Ofwat may need to consider:

- The extent to which financial benchmarking applies to parts of the value chain that do not have significant asset bases. In particular retail where default tariff, fixed margin and other models have been deployed. Both Ofwat in PR14 and Ofcom's approach to Royal Mail recognises the need to adjust this approach for businesses that are asset-light and where a different level of profit is required to provide the required service. Ofwat could want to keep this approach under review based on the outcome of the opening of the competitive market; and
- The risk profiles of different parts of the value chain either as the unbundling process for the water sector also unbundles the risk by part of the value chain but also the extent to which the potential for competition changes the risk profile of different parts of the value chain as well.

As the introduction of more competition and different potential business models for market participation emerge, Ofwat will need to consider what the appropriate financial benchmarks are for different parts of the value chain and also whether there should be differences between companies. Ofwat has previously determined that there is not sufficient difference between water companies in the assumptions used to calculate benchmark returns given the different parts of the value chain they participate in, this could change with market opening.

Ofwat will also need to consider approaches to allocating the RCV between wholesale business units, if the price control is to be separated. This exercise will need to be undertaken in the context of the importance of the RCV to the financial sustainability of the sector.

Ofwat could introduce a regulatory framework where companies achieve their overall return through a combination of a lower WACC and larger ODIs outperformance. This would need to be carefully evaluated to ensure that there are not increases in the perceived risk on the returns to investors which could trigger an increase in the WACC. If Ofwat does not assess the impact of each of these issues, it faces the risk of failing in its duties to ensure the financial resilience of the companies as well as reducing the ability of efficient providers to finance their activities.

If Ofwat does not assess the impact of each of these issues it faces the risk of not promoting the long term sustainability of the sector as well as allowing efficient providers to fund their activities.



## 6 Incentives

### 6.1 Basis in economics

Incentives focus on ensuring that companies deliver in areas such as:

- Cost efficiency; and
- Quality of service to customers.

In this section we consider both types of incentive. In the water sector for PR14 the primary focus of incentives has been output delivery. However, the menu regulation approach has acted as a cost related incentive. Given the experience of other sectors and Ofwat's desire to achieve longer term outcomes for customers, incentivisation around innovation to deliver longer term cost reduction and further improvements to customer outcomes should be considered.

Incentives can be financial and/or reputational and can be symmetrical (penalty/reward) or asymmetrical. The role of incentivisation in regulation has grown in recent years in particular with a focus on the incentivisation of companies to deliver efficiently the outcomes that customers want.

In designing appropriate incentives, a regulator should ensure:

- What is incentivised is within the regulated companies' ability to achieve;
- Customers should value what is being incentivised, and the cost of the incentive should be less than the benefit customers will receive from the incentivised behaviour being achieved;
- The cost of achieving the incentive is not prohibitive;
- The reward for performing well on the incentive is not disproportionate, as this would have the impact of reducing the benefit achieved for customers; and
- Incentive schemes should not provide conflicting incentives for companies.

In assessing whether to target a particular incentive, market participants will weight the costs and benefits of achieving that incentive – this balance should be well understood as part of the incentive design.

Ofwat has outlined its aim to make better use of clearer, simpler, more effective incentives which drive allocative, dynamic and productive efficiency.

### 6.2 What we cover, and why

PR14 introduced a range of incentives for water and wastewater companies including:

- Menus; and
- Outcome delivery incentives (ODIs) including SIM.

Ofwat has suggested in its Water 2020 documents that it will retain an incentives-approach as part of its regulatory intervention, and that this will include:

- Incentives to reveal the efficient cost of services; and
- Incentives to improve service and reduce costs, through new ways to deliver outcomes.

In this chapter we set out the approaches other regulators take to addressing each one of these issues and evaluate the potential lessons Ofwat could consider when developing or refining its current incentives to reveal efficient costs (e.g. enhanced status and menus) as well as those aimed to improve services and costs (e.g. ODIs).

### 6.3 What others do that is relevant for water

Regulators use a range of incentives as part of their regulatory intervention in order to drive behaviours from the regulated companies. A summary of the broad approach taken by each regulator is set out in Table 6.1 below. Similar to Ofwat, incentives are part of the regulatory toolkit used by Ofgem, CAA and ORR. Ofcom uses a general licence authorisation approach, with no explicit incentives, but with the potential for penalties to be imposed for compliance failures.

Table 6.1 Summary of incentive regimes across different regulatory sector

Brief description	Types of incentives
<p><b>Ofgem</b></p> <p>Ofgem has two forms of regulation for the different sectors of the energy market, direct price control regulation for networks and indirect regulation in retail and generation which are open to competition.</p> <p>Ofgem’s new RIIO model of regulation has introduced or built upon a wide range of individual incentives covering almost all the different output categories these range from the significant (2.5% of allowed revenue) to reputational only. As you would expect the greater the financial incentive on an output the more importance and effort a network company places on it. But even a reputational incentive (such as a league table comparing companies’ performance in reducing their carbon footprint) does have some effect.</p> <p>In energy retail and supply lack of a price control means there is not a direct incentive regime. Retail energy companies do have licence conditions and they can be penalised for failing to comply. Under heavy criticism about the state of the retail energy market, Ofgem has recently significantly stepped up enforcement and has levelled some heavy penalties. In 2014 it also introduced tariff reforms to try and encourage greater competition in the energy sector.</p> <p>Supply is the nearest to a fully functioning free market that there is in energy and therefore economic regulation (and incentives) are limited. There are some examples of Government schemes such as the contract for difference and RFI scheme that could loosely be considered a form of incentive.</p>	<p>Symmetrical (upside and downside)</p> <p>Asymmetrical (Reward or penalty only)</p> <p>Reputational only</p>
<p><b>CAA</b></p> <p>The CAA provides operating licences for both Heathrow and Gatwick. Heathrow is given the opportunity to obtain bonuses where certain elements outperform the CAA’s targets or rebates for failing to achieve standards.</p> <p>For Gatwick, there is no bonus for outperformance but rebates on passenger-facing measures are capped at 2.85% of charges.</p>	<p>Upside and downside</p> <p>Licence conditions</p>
<p><b>ORR</b></p> <p>The ORR has introduced several financial incentives and compensation regime to encourage Network Rail to reduce costs, become more efficient and improve innovation.</p>	<p>Upside and downside</p> <p>Licence conditions</p>

	Brief description	Types of incentives
<b>Ofcom (telecoms)</b>	<p>There is not a direct incentive regime for telecoms. Instead Ofcom impose penalties for failure to comply with its conditions. This reflects the fact that for telecoms, Ofcom is focused on promoting completion and protecting against anti-competitive behaviour.</p> <p>It has set standards or procedures for customer service, to handle complaints and resolve disputes between them and their domestic and small business customers<sup>59</sup>.</p>	<p>Downside only</p> <p>General authorisation regime</p>
<b>Ofcom (postal services)</b>	<p>Ofcom is responsible for safeguarding the universal postal service. Ofcom has powers to impose several types of regulatory conditions under the Postal Services Act 2011. Breach of these conditions or the competition law will result in a penalty imposed by Ofcom<sup>60</sup>.</p>	<p>Downside only</p> <p>General authorisation regime</p>

Source: KPMG compilation of various regulatory reports.

### 6.3.1 Incentives to reveal the efficient cost of services

Regulators are reliant on companies to provide forecasts of the costs that they expect to incur. The regulator performs a cost assessment on these forecasts, in order to assess them for cost efficiency and value for money. The companies have a greater level of information than the regulator, and so the regulator has to rely on companies to provide submission to them, usually through business plans. The cost assessment approaches taken by the different regulators is set out above. Cost assessment is not the only tool that regulators can use in order to encourage companies to provide an honest forecast of costs, or to drive companies to become more efficient. Regulators use a range of incentives in order to promote this behaviour. Ofgem refers to these types of incentive as cost-based incentives, with the intention being that customers pay for a company's efficient costs associated with a particular outcome. If that outcome is not delivered then an amount at least equal to the cost should, in Ofgem's view, be returned to customers<sup>61</sup>.

#### 6.3.1.1 Menu approach

Ofwat uses a menu approach in PR14 to address the issue of asymmetric information between regulators and companies, and to incentivise companies to provide an honest and efficient cost forecast. Ofgem also use a menu approach, known as the information quality incentive (IQI). Ofgem introduced the IQI to address concerns that network companies had an incentive to inflate its forecasts to maximise their scope for outperformance. The IQI is designed to incentivise the network companies to provide accurate cost forecasts in their business plans and drive efficient expenditure. The main elements of the IQI are:

- Network companies receive an up-front financial reward or penalty depending on their forecast relative to Ofgem's assessment of efficient expenditure;

<sup>59</sup> Ofcom. Customer Codes of Practice for handling complaints and resolving disputes. <http://stakeholders.ofcom.org.uk/telecoms/ga-scheme/general-conditions/customer-code-practice/>

<sup>60</sup> Ofcom. Enforcement guidelines. Ofcom's guidelines for the handling of competition complaints and complaints concerning regulatory rules. p 14. [http://stakeholders.ofcom.org.uk/binaries/consultations/draft-enforcement-guidelines/annexes/Enforcement\\_guidelines.pdf](http://stakeholders.ofcom.org.uk/binaries/consultations/draft-enforcement-guidelines/annexes/Enforcement_guidelines.pdf)

<sup>61</sup> Ofwat. Consultation on wholesale incentives for the 2014 price review. Appendix 1: Outcome delivery incentives. [http://www.ofwat.gov.uk/pricereview/pr14/pap\\_con120824wholesalepriceapp1.pdf](http://www.ofwat.gov.uk/pricereview/pr14/pap_con120824wholesalepriceapp1.pdf)

- Network companies that submit better forecasts (i.e. closer to Ofgem’s view of efficient cost) receive a higher efficiency incentive rate; and
- Allowed expenditure is based 75% on Ofgem’s benchmark view and 25% on the Network Companies’ forecasts.

In the CMA’s preliminary findings of Bristol Water’s Price Determination it was found that:

- The way Ofwat had implemented the scheme meant that it was unlikely to meet its intended objective of providing financial incentives to companies to provide more accurate expenditure forecasts in their price control review business plans;
- The design of the menu scheme did not allow companies the flexibility to make choices particularly over the level of costs sharing incentive that each company faces as it was intended to do; and
- Did not consider that one of Ofwat’s stated benefits – that the menu scheme would provide useful information for Ofwat’s PR19 review, was strong enough reason for the CMA to include in its determination.

Because of this, the CMA has provisionally decided not to include the menu scheme in its final determination. The CMA’s challenge, however, appears to focus on the approach and calibration Ofwat has done of menus but not of the actual tool in itself. Therefore, Ofwat could need to reconsider the calibration of this incentive to ensure it delivers the right goals going forward.

For PR19 Ofwat may want to reconsider its application and calibration of menus to include potential challenges coming from the CMA review of the menus and IQI currently underway as part of the RIIO-ED1 referral and Bristol Water price determination.

### 6.3.1.2 Addressing the potential for gaming

When setting these incentives regulators need to evaluate the potential on each one of the incentives. Gaming of the incentives is a concern for regulators, particularly under a direct incentives regime where a company can potentially earn large sums of money. Once an incentive is set, it is difficult to remove it until the next price control period. There is always a risk of unintended consequences where companies stand to gain (or lose) what is deemed excessive amounts of money compared to the benefits of higher performance.

### 6.3.1.3 Assessing incentives for effectiveness, and for unintended consequences

Regulatory good practice has tended to lead to regulators modelling the impact of incentive packages to identify whether the operation of the proposed incentives will give the desired regulatory outcomes.

As part of its price control process, Ofgem reviews its regulatory incentives and decide whether they are having enough impact or if they are too generous. For example in RIIO-ED1, Ofgem decided to require DNOs to go further than T1 and GD1 in targets for customer service and stakeholder engagement. It decided to increase the overall maximum revenue exposure applied to the Broad Measure of Customer Service (BMCS) from +/- 1 per cent to +/- 1.5 per cent of base revenues. To incentivise wider engagement Ofgem increased the Stakeholder Engagement incentive (within the BMCS) from +0.2 to +0.5 per cent of base revenue in RIIO-ED1.

### 6.3.2 Incentives to improve service and reduce costs, through new ways to deliver outcomes

In addition to incentives focused on driving companies to an efficient level of costs, regulators have increasingly focussed on incentives aimed at improving customer service and increasing innovation. This is particularly important where Ofwat has resilience duties as new technologies could be key to the development of cheaper and more resilient networks.

In PR14 Ofwat introduced changes to remove barriers to innovate (e.g. totex). However, the risk of the innovation has remained with the companies as:

- Research and development (R&D) costs are not explicitly included in the final determination, i.e. they need to be financed by shareholders; and
- If the innovative solution does not deliver the relevant output, companies would be penalised through the ODIs or they will need to face part of the cost of the introduction of alternative solutions (part of the costs would be recovered through menus).

To account for its resilience duties and to facilitate a more dynamic technology management, in PR19 Ofwat would need to revise its current approach.

#### 6.3.2.1 Incentives to encourage service improvement

As outlined in Section 2, most regulators have a specific duty to have regard to and protect the interests of consumers. In practice, this means more than delivering at a cost efficient level. It means providing a level of service to customers that is acceptable. Customers, and customer representatives, are increasingly taking on a formal role in regulation in influencing the priorities and activities delivered by the regulated companies. Ofwat has clarified that it expects customers to remain at the heart of price controls in the future. Other regulators have made varying use of incentives in order to ensure that companies provide an improved level of service to customers.

Under RIIO, Ofgem uses a range of incentives, including financial incentives, penalties and reputational incentives to encourage changes and improvements in behaviour. This includes financial incentives (penalty/reward) to reduce the number and duration of interruptions to supply and financial penalties (paid directly to affected consumers) for failing to meet required standards of service related to connections. Ofgem has also introduced the balanced measure of customer service (BMCS) which provides a financial reward or penalty to companies based on how effectively they engage with their customers, and measured through a customer satisfaction survey, complaints metrics and stakeholder engagement activity. Ofgem makes specific pots of money available on a 'use it or lose it' basis for activities such as undergrounding of assets in areas of outstanding natural beauty, and for improving service for those customers who experience particularly poor levels of service in terms of interruptions. Ofgem also makes use of reputational incentives, such as publishing an annual league table showing each company's business carbon footprint.

#### 6.3.2.2 Incentives to encourage innovation

A key element of Ofgem's RIIO approach, is to encourage companies to deliver through innovative approaches. Ofgem has focussed on incentivising companies to trial new innovative approaches, through reducing the risks of doing so. It has also moved, more recently, to requiring companies to adopt innovative approaches in their future delivery.

In DPCR5, Ofgem introduced the Low Carbon Networks (LCN) Fund. This provided a pot of money for all DNOs to spend on a 'use it or lose it' basis for innovative projects, and

introduced a competition between network companies, to compete for funding of innovative projects from a centrally funded allowance. Under RIIO, Ofgem built on the LCN fund and introduced the Network Innovation Competition (NIC). This is an annual competition for funding larger-scale innovative projects, particularly focused on, but not necessarily limited to, projects that deliver low carbon and environmental benefits. Funding is paid for by all customers, and network companies submit bids to receive a share in order to fund their projects. The companies are expected to provide some funding of their own (at least 10%) and are encouraged to work with partner organisations who provide some funding and/or expertise. Partner organisations can include academic institutions, local government, third sector and other non-network companies.

Decision making for funding lies with an Ofgem convened (but independent) expert panel. A set amount of funding can be awarded each year but it does not have to all be used, and the panel will only accept bids that are truly innovative (i.e. not merely replicating business as usual) which it thinks could deliver long term benefits to customers of electricity networks.

A key aspect of the NIC is that companies are required to share their learning with other networks and more widely. This is not just about publishing information on a website but running workshops and seminars to disseminate information on the project. As the risk is shared by all customer, Ofgem expects that the benefits should also be shared. Companies cannot retain any innovative learning to gain an advantage over other companies.

A wide range of projects have been awarded funding under the NIC and the LCN fund. Both were designed to pool risk, granting funding to riskier projects that would otherwise not be undertaken by the risk averse network companies. There is an acceptance from Ofgem that some projects may not be successful but even unsuccessful projects may contribute some learning that can be used to benefit network customers in the long run. In general financial gain is not the primary reason network companies submit NIC bids, rather they do so for all the other benefits including the positive reputational benefit within Ofgem and amongst its wider shareholders.

In addition to the NIC, Ofgem also has a network innovation allowance (NIA), which is effectively a pot of money made available to network companies on a 'use it or lose it' basis, in order to fund smaller scale innovative projects on their own networks. Similarly, the ORR has established a matched-funding financial incentive to boost innovation in the rail industry, following concerns about the low levels of R&D and innovation in the sector. ORR acknowledges that benefits from innovation are accrued over the long term while the costs are short term. Therefore Network Rail might not have strong incentive to invest in R&D. For that reason, ORR has made provision for up to £50 million to Network Rail of matched-funding for R&D and innovation. This funding is intended to incentivise and help kick-start higher levels of innovation and will not be left open-ended. The ORR matched part of the fund will be financed by the RAB and Network Rail will need to identify its side of the funding – whether sourced through outperformance or third party funding.

There is a case that can be made for Ofwat considering the use of innovative funding tools and incentives for the water companies as part of PR19. Cost benchmarking and menu regulation has done much to improve sector efficiency since privatisation. However, longer term efficiency goals may be achieved by providing a suitable environment for companies to invest in innovations that will deliver longer term cost reductions (this is starting to be evidenced from Ofgem's approach to innovation funding) and will allow Ofwat to continue in its duties of protecting customer's interests today and into the future.

## 6.4 Implications for PR19

PR19 presents Ofwat with an opportunity to consider the use of incentivisation in two important respects:

- The first is to **consider the use of incentives to support the achievement of longer term efficient costs in the water sector** (i.e. promote dynamic efficiency.) Active consideration of innovation incentives in the water services sector, which drive the potential for long term cost reduction or changes in service improvement should be considered. Ofgem has adopted this approach for the energy networks. The use of innovation incentives is highly supportive of many of Ofwat's objectives, in terms of promoting the interests of customers today and in the future and supporting the long term resilience of water services. The use of a network innovation competition, similar to the one used by Ofgem, could also allow Ofwat to better meet its new resilience duty, by focussing companies, even more, on longer term issues.
- The second is to **expand the use of incentivisation regarding the achievement of longer term outcomes identified by customers and Ofwat.**

In addition to taking these two opportunities, Ofwat may wish to consider the operation of its existing incentive arrangements in the light of final CMA reports regarding the Bristol Water case and the Ofgem RIIO-ED1 referral. In particular the approach to menu regulation which attracted some commentary in the CMA's provisional findings for Bristol Water. The CMA found that the PR14 approach was too complex and did not meet its aim of incentivising accurate forecasts. Ofwat may want to look to review its approach to menus to address these issues.

Given the role that competition could play in some markets in the water sector during AMP7 Ofwat may want to consider some of the approaches that have been taken elsewhere to incentivise/promote competition in other markets, e.g. the use of favourable margins, the introduction of regulator supported competition for specific activities or parts of the value chain.

Finally the portfolio of incentives should be subject to great scrutiny to assess the overall balance of risk and reward in its regulatory intervention, particularly following the CMA final views for Bristol Water, and ensure that incentives are focussed on those areas where improvement is possible and desirable. An incentive will only be effective if a company sees the potential to deliver against them. The introduction of incentives by definition encourages companies to focus on specific areas in order to improve. Ofwat may want to consider, together with the companies, how it design its incentives package to ensure it aligns these priorities with customers' preferences, and how it updates these on a regular basis.

# 7 Length of the regulatory period

## 7.1 Basis in economics

For the purpose of this report the length of the regulatory period refers to the time between the determination of the objectives companies need to deliver and the point the customers receive any benefits from improvements in efficiency or improved.

The period between regulatory reviews is important to determine the length of the regulatory period. However, it is not the only factor as, for example, regulators could pass part of these benefits on during the regulatory period. This would be equivalent to reducing the length of the regulatory period for that specific incentive but without affecting the overall duration of the price review. For example, companies are allowed to obtain some of Ofgem’s incentives two years after they deliver the performance. Therefore, for these incentives the reward is balanced every two years.

The length of the regulatory period has an impact on all other aspects of the regulatory intervention. At a high level, a longer period provides greater certainty for companies, customers and investors, but also requires the regulator to account for change within the period and any uncertainties. A shorter period minimises uncertainties, but could increase the regulatory burden and increase costs for companies in engaging with the regulatory process and delivering required services to customers.

Many of the incentive properties of an RPI-X price control stem from using a defined regulatory period, within which the companies enjoy the benefits of any outperformance against the control, and bear the risk associated with underperformance.

The length of regulatory period is an issue that has been considered by the different regulators, and this section sets out their current views and the issues that they have taken into account. In Table 7.1 below we lay out some of the key arguments that have been made for longer or shorter regulatory periods in principle.

Table 7.1 Typical considerations in the length of the regulatory period

Factors in favour of longer periods	Factors in favour of shorter periods
Greater stability for investment planning (reducing the impact of capex cycles). Stability could imply less risk so lower cost of capital. Reduced regulatory burden (fewer regulatory reviews). Encourages long term behaviour. Regulatory period closer aligned to asset planning cycles (for longer lived assets). Facilitate the delivery of large projects by covering them all under one regulatory period	Potential for full return of benefits to customers earlier. Less risk of outcome being different to regulatory settlement. Company potentially faces less risk as regulatory adjustments are more frequent Customer may benefit from more frequent, smaller adjustments leading to lower volatility in prices. Greater flexibility to changes in the industry environment. Better management of the limitations of forecasting.

Source: KPMG



## 7.2 What we cover, and why

In this section we consider the length of the regulatory period. This is an issue that has been considered by Ofwat and other regulators. A reasonable assessment of the appropriateness of the regulatory period can be based on the following:

- **The criteria for assessing whether a longer or shorter control period is preferable.** The criteria for making this assessment should be consistent with the statutory duties of the regulator and to promote customer benefits. It may be that the implicit weighting of assessment criteria varies between the different parts of the value chain;
- **Which parts of the value chain (or the regulated companies' activities) are subject to the control.** It may be reasonable for different parts of the value chain to have different regulatory periods, reflecting or example the fundamental characteristics of those businesses, infrastructure based parts of the value chain may be better served;
- **Other changes to the markets.** If significant change is expected in the way that the companies operate, such as the introduction of competition, then this may affect the appropriate length of the regulatory period; and
- **The other regulatory tools and interventions being used as part of the proposed regulatory package.** As has been demonstrated earlier in this report there is a wide range of regulatory interventions that can be used within a regulatory period to provide flexibility to the price control or manage some of the risk within a regulatory period. Arguably the more risks that are managed effectively the longer a regulatory period can be.

As with the nature of regulatory intervention, the decision about the length of the regulatory period needs to be based on the statutory obligations that Ofwat faces. Historically Ofwat's regulatory framework has adopted an ex-ante approach to setting price controls, and used incentive based regulation models. Following privatisation, the regulatory period for price controls of water and sewerage companies (following privatisation) in England and Wales was set at ten years. Prices were reviewed after the first five years, and the regulatory period has remained at five years since then.

In preparation for PR09, Ofwat released a consultation document considering the approach that should be taken for PR09 and future price controls<sup>62</sup>. The overwhelming response to this consultation was that the regulatory period should remain at five years.

As part of Ofwat's work in consideration of the duration of the price control period<sup>63</sup>, and in the context of addressing views that a longer price control period could improve certainty beyond the price control, Ofwat considered a number of options as outlined below:

- **Indicative price limits:** It was suggested that in order to avoid supply chain issues, Ofwat should set indicative price limits for years five to ten, with companies producing a rolling business plan (to be submitted annually with their regulatory submissions). Reference was made to the Civil Aviation Authority (CAA) judgement that set price limits for five years and indicative price limits for the following five years.
- **Staggering price reviews:** It was suggested that staggering the period between price reviews for different companies, however concerns were raised that this approach could make it difficult to make comparisons across companies. It was also considered that this

<sup>62</sup> Ofwat – A sustainable water industry – To PR09 and beyond:

[https://www.ofwat.gov.uk/pricereview/pr09phase1/res\\_stk\\_susdevconsresp.pdf](https://www.ofwat.gov.uk/pricereview/pr09phase1/res_stk_susdevconsresp.pdf)

<sup>63</sup> Ibid.

could lead to Ofwat involvement in price reviews for longer periods and could potentially introduce uncertainty.

- **Early start programme:** Having been introduced during PR04 the early start programme was identified as needing development. It was considered that a greater proportion of investment and incentives to use the early start programme should be included at PR09.
- **Projects that span more than one price review period:** It was suggested that at the next review there should be greater certainty for capital projects that extend beyond a single price review period, with a commitment to allowing an agreed amount for work spanning more than one price review in a company's regulatory capital value. It was noted that the fixed price control period, encouraged a tendency to focus on the finite five-year 'package', and potentially this could lead to sub-optimal outcomes.
- **Accounting for risk:** It was considered that companies need to build on customers' understanding and acceptance of the allocation of risk in setting price limits. If projects fail, companies should bear the cost, but if they succeed there should be a reward for the risk taken.
- **Water Framework Directive (WFD):** It was noted that the WFD potentially could require high levels of capital investment and give rise to financeability issues. Ofwat considered aligning the price control process with the WFD regime, however this would suggest that the industry bears the heaviest responsibility for delivering its objectives.
- **Roller-coaster price limits:** Linked to views about the early start programme, it was suggested that the investment profile should be smoothed to avoid the investment dip between price reviews.
- **Mechanisms to increase certainty:** There were suggestions that Ofwat's approach should be evolutionary rather than focusing on the introduction of further mechanisms. It was suggested that one approach could be to establish a longer term position on capital maintenance, looking ahead at the next 20 years or so.

When determining the length of the regulatory period Ofwat needs to balance a number of short and long term effects as indicated in Table 7.1. This balance can be affected by changes in other parts of the regulatory framework. This report therefore also consider the potential impacts between changes in the nature of regulatory intervention and the length of the regulatory period.

## 7.3 What others do that is relevant for water

### 7.3.1 Summary

Table 7.2 summarises the length of regulatory period by part of the value chain for the GB regulators we have considered.

Table 7.2 Summary of lengths of regulatory periods in selected GB regulatory regimes

Regulatory periods		Upstream/infra	Retail
<b>Ofwat</b>	Current	Five years	Two years for non-household services <sup>64</sup> Five years for domestic
	Considered	Range up to 10 years Rolling adoption of capex	Five years
<b>Ofgem</b>	Current	Eight years (networks) 20 years interconnectors	No price controls on retail
	Considered	Wide range up to 10 years Rolling adoption of capex	Two years or triggers approach during market opening
<b>CAA</b>	Current	Market reviews every Five years (can impose licence periods of different lengths)	n/a
	Considered		
<b>ORR</b>	Current	Five years	n/a
	Considered	If longer 7 to 10 years If shorter Three years	n/a
<b>Telecoms</b>	Current	Varies by service	
	Considered		
<b>Post</b>	Current	No explicit review period	No explicit review period
	Considered	n/a	n/a

Source: KPMG compilation of various regulatory reports.

### 7.3.2 Assessment criteria

Regulators have reviewed the issue of price control length and considered a number of different options. This section considers a number of these approaches and looks to highlight some potential options for the water sector.

One of the core aspects of Ofgem's RPI-X@20 review was the length of the regulatory period. Ofgem's concern was that comprehensive price control reviews every five years may not achieve value for money, especially in the long term. Some of the main elements considered in Ofgem's review of the price control length are outlined below:

- **Administrative burden:** Ofgem considered that longer-term price controls could reduce the administrative burden of the price control regime. Less work may be required overall if price control reviews are carried out less frequently, although under a longer control the work at each review may be more intensive. Longer term price controls may also need to be accompanied by regular monitoring of companies' performance between price control reviews.

<sup>64</sup> Ofwat has introduced a 2 years review of the cost allocation for non-household activities to allow companies to align their price review with the opening of the new competitive market. However, this review will not constitute a full price review for these activities.

- **Encouraging long-term behaviour:** Ofgem’s view was that a commitment to longer term price controls would give network companies a clear financial stake in controlling their costs over a longer time horizon. This could change the way that the companies plan their activities, anticipate customer needs and innovate. This, in turn, could help the companies to reduce and restrain their costs over the longer term and thereby improve value for money for consumers.
- **Forecasting issues:** The uncertainty faced when forecasting costs over a longer timeframe might increase the risks that network companies find themselves unable to finance their activities; it might also increase the risks that network companies earn what could be perceived as ‘windfall profits’.
- **Credibility:** For the benefits of a longer-term price control to be realised, it needs to be credible, particularly to network companies and investors. These drawbacks pose some risks to the credibility of a ten-year price control – it might be re-opened before planned.
- **Flexibility:** The regulatory regime is likely to be less adaptable. It would be more difficult to make changes to what network companies are required to deliver and to improve the regulatory arrangements over time.

The economic regulation of airports is assessed on a case by case basis where airports are subject to market power tests (SMP). Since 2014, Stansted airport is no longer subject to economic regulation as CAA concluded it did not have Significant Market Power (SMP). Heathrow and Gatwick still meet the CAA’s SMP test– the former to a larger extent than the latter.

In Q5, the price control period for Heathrow Gatwick and Stansted was defined as five years, however a one year extension was granted to account for the introduction of the Civil Aviation Act, which enabled the CAA to modify the form of regulation for the airports. Both Heathrow and Gatwick requested amendments to the length of their price control with Gatwick requesting a seven year review and Heathrow requesting that their first relevant year should be nine months to enable them to harmonise their statutory and regulatory accounting periods. Heathrow made its request in order to have a year end of 31 December for the control period. However, the CAA’s initial view was that it would not be appropriate to extend Q6 to five years and nine months because the nine month period after April 2019 has not been subject to a constructive engagement process nor included in submissions to the CAA. The CAA noted that, to set a control on a four years and nine month basis, it would require all further submissions that include estimates of building blocks to be both on a nine month and four year basis and on a five year basis.<sup>65</sup>

The CAA agreed that a control coinciding with Heathrow’s financial year could present benefits in transparency and in facilitating regulatory calculations, and subsequently agreed to change the duration of the price control between the final proposals and the implementation of the price control on 1 April 2014. For Heathrow the licence period will last until 31 March 2019, and for Gatwick it will last until 31 March 2021. After the end of the licence period the test will be applied again<sup>66</sup>.

In the process for setting the price control for CP5, the ORR considered the length of the control period, highlighting the need to balance the provision of appropriate incentives on

<sup>65</sup> CAA – Economic regulation at Heathrow from April 2014: final proposals. <http://www.caa.co.uk/docs/33/CAP%201103.pdf>

<sup>66</sup> CAA. Price controls. <http://www.caa.co.uk/default.aspx?catid=78&pagetype=90&pageid=67>

National Rail to operate and invest efficiently, with the increased uncertainty involved in forecasting output requirements and costs further into the future<sup>67</sup>.

The ORR considered lengthening the regulatory period, noting that this would better align with long term industry planning and capital investment, providing greater certainty to Network Rail's suppliers, thus reducing the possibility of peaks and troughs in work, which could otherwise lead to inefficient procurement. The ORR also recognised the long lead time for some investment types, noting that the periodic review process may disrupt planning to the extent that there is uncertainty about the level of funding in the run up to the final determination. This has the potential to reduce the efficiency of investment. The ORR noted that this issue could be addressed by providing early conclusions for some types of expenditure, once they have a clearer idea of the capital investment that will be included in the control period (as happened in PR08 under the ORR's 'early-start' policy).

The ORR considered that the most likely alternative in lengthening the duration of Network Rail's price control would be a duration of 7-10 years. The ORR also considered shortening the control period, noting that such an approach would allow for a greater emphasis on Network Rail achieving specific short term outputs, would align better with Network Rail's planning of renewals workbanks and would allow a closer alignment of the regulatory review to the government spending review. It also noted that a shorter regulatory period could increase the regulatory risk and the level of uncertainty the industry faces and become obstructive to the longer term planning and incentives that the industry requires. Shorter control periods would make it easier to accurately forecast traffic volumes and Network Rail's costs. A shorter control period would also mean that any unforeseen issues would have less time to 'play out' before they can be taken into account by ORR at the next control period<sup>68</sup>.

The ORR considered that a duration of Three years for Network Rail's price control, would be the most likely alternative. The ORR ultimately decided to maintain the control period at five years to maintain an appropriate balance between planning, uncertainty, incentives and risk, noting that there is no objectively 'right' answer. Five years was considered to be appropriate in reflecting the difficulties in forecasting costs and revenues over long time horizons, giving Network Rail an appropriate amount of time to plan and deliver its outputs. It was considered that five years would also provide effective incentives and not expose Network Rail to financial risk for a prolonged period and provide sufficient certainty for suppliers, customers and funders.

### 7.3.3 Potential for different lengths for different controls

Ofgem considered a number of options when considering the length of the price control period in RPI-X@20<sup>69</sup>:

- **Ten-year price control with review after five years on request by company or Ofgem.**  
This is similar to the approach taken towards the start of the regulatory regime for the

<sup>67</sup> ORR – Periodic review 2013. First consultation – annexes. [http://orr.gov.uk/\\_\\_data/assets/pdf\\_file/0012/1740/PR13-first-consultation-annexes.pdf](http://orr.gov.uk/__data/assets/pdf_file/0012/1740/PR13-first-consultation-annexes.pdf)

<sup>68</sup> Network Rail – ORR's Periodic Review 2013: First Consultation – Network Rail's response. [http://www.networkrail.co.uk/uploadedFiles/networkrailcouk/Contents/Publications/Delivery\\_Plans/Control\\_Period\\_5\\_delivery\\_plan/Planning\\_for\\_CP5/ORRFirstPR13ConsultationFull.pdf](http://www.networkrail.co.uk/uploadedFiles/networkrailcouk/Contents/Publications/Delivery_Plans/Control_Period_5_delivery_plan/Planning_for_CP5/ORRFirstPR13ConsultationFull.pdf)

<sup>69</sup> Reckon – Longer-term price controls: paper prepared for Ofgem's RPI-X@20 review. <https://www.ofgem.gov.uk/ofgem-publications/52025/reckon-lt-controls.pdf>

water and sewerage industries in England and Wales. There was a concern that companies might not fully deliver unless the interim review was carried out.

- **Ten-year price control with review after five years subject to specified upper and lower cost thresholds.** This would provide network companies and consumers some protection against forecasting risks and some benefits of longer-term controls could be delivered, provided that thresholds are not met too frequently. The potential drawbacks are that an overspending company could focus on triggering a review and seeking an adjustment, or that an underspending company could be spending excessively to avoid triggering a review.
- **Ten-year price control with cost review after five years (with proportionate cost forecast update) for the remaining period.** This option would provide some protection against potential forecasting inaccuracies without introducing the problems of the costs threshold approach. Ofgem recognised that consideration would need to be given to the communication and process of partially revising price controls without being placed under pressure to fully revise them.
- **Ten-year price control with potential review after five years (with price control adjustments justified by changes in outputs).** This would introduce a longer period between price control, but reduce the potential for adaptation of the regime over time outside of the output led mid-period review. There are some similarities with Ofwat's IDOK process. Ofwat's price controls include provisions for interim adjustments to a company's price control where there has been a 'relevant change of circumstance' (e.g. new or changed legal requirements) for which the impact on costs is above a specified threshold.
- **Rolling price control.** This would involve an initial price control being set, and then an annual review which would extend the price control by an extra year so that there was a continual five year rolling price control period. This could contribute to long term efficiency and would remove the 'periodicity' of price controls and reduce the short term focus of companies to the current regulatory period. The annual process could place a strain on resources at both regulator and company. Ofgem also recognised that rolling price controls would suffer from less adaptability than under current arrangements, and perhaps less than under a ten-year price control, and incremental changes would be difficult without a defined end point.

Both Heathrow and Gatwick requested amendments from the CAA to the length of their price control at the Q6 price control review. Gatwick requested a seven year review and Heathrow requested that its first relevant year should be nine months. Gatwick's request was denied as the CAA considered the five year period to be consistent with:

- The approach used to date in airport price settlements;
- The proposed form of control in the initial proposals; and
- The approach used in other regulated sectors<sup>70</sup>.

For Heathrow, the CAA's initial view was that it would not be appropriate to extend Q6 to five years and nine months because the nine month period after April 2019 has not been subject to a constructive engagement process nor included in submissions to the CAA. The CAA noted that, to set a control on a four years and nine month basis, it would require all further

<sup>70</sup> CAA – Economic regulation at Gatwick from April 2014: final proposals: <http://www.caa.co.uk/docs/33/CAP1102.pdf>

submissions that include estimates of building blocks to be both on a nine month and four year basis and on a five year basis<sup>71</sup>.

The CAA agreed that a control coinciding with Heathrow's financial year could present benefits in transparency and in facilitating regulatory calculations, and subsequently agreed to change the duration of the price control between the final proposals and the implementation of the price control on 1 April 2014, provided that the required financial modelling and licence changes can be implemented in time. If this is not possible, it will implement these changes during the first year of Q6. However, such a change is exceptional, and the CAA does not envisage changing the financial year again during Q6.

Ofcom's price control of Openreach's wholesale telecoms service was set for a period of one year for wholesale line rental (WLR), two years for local loop unbundling (LLU) services and a four year period for all other services. Ofcom observed that the previous process had led to substantial under-recovery of costs across a wide range of Openreach's critical copper-based product set and that this was 'particularly extreme' in the case of MPF. Openreach considered that if the level of charges was not addressed there could be serious consequences. It said it would have no incentive to invest and that would lead to a significant degradation of customer service.

In its last review, Ofcom decided to move away from a four year framework. Openreach considered that to be consistent with this approach, there should be an immediate adjustment of charges. It was considered that there was a strong case for setting charges in 2009/10 and 2010/11, based on a glide path approach. Glide paths were preferred because they give greater stability and predictability and give stronger cost efficiency incentives. Using a glide path for the MPF charge would also be consistent with usual practice, and as such should give all parties confidence in the predictability of the regulatory regime. It was considered that a four year glide path was appropriate, though it was noted that for MPF using a two year glide path would result in a fairly similar result given the final CCA FAC estimates<sup>72</sup>.

Another useful consideration is the regulatory regime for offshore electricity transmission. This involves competitive tenders to appoint a network operator which is then entitled to a revenue stream over a 20 year period, determined by its bid during the tender process. There are some adjustments built into the revenue stream (e.g. performance incentives) but no periodic reviews during the 20 years.

London Underground public-private partnership (PPP) agreements uses an alternative approach. The London Underground Office of the PPP Arbiter (OPPPA) approach focuses only on incremental capex and opex at each review, with the reviews every seven and a half years. PPP Arbiter may be asked to determine the price at which an infrastructure company delivers the agreed service for the next period of seven and a half years. This is done only if the parties fail to agree and one or both parties request a decision by the Arbiter.

<sup>71</sup> CAA – Economic regulation at Heathrow from April 2014: final proposals: <http://www.caa.co.uk/docs/33/CAP%201103.pdf>

<sup>72</sup> Ofcom – A new pricing framework for Openreach: Annexes.

<http://stakeholders.ofcom.org.uk/binaries/consultations/openreachframework/statement/annexes.pdf>

### 7.3.4 Impact of market considerations

Since the privatisation of the sector and the subsequent removal of the retail price control, there have been a number of regulatory interventions into the retail energy market from Ofgem. These include:

- **Energy Supply Probe:** In 2008 Ofgem launched the Energy Supply Probe, focussed on households and small businesses and following increasing consumer and public concern about the operation of the market<sup>73</sup>. Ofgem took the decision not to refer the market to the Competition Commission<sup>74</sup>, but did implement remedies including a licence condition focussed on addressing unjustified price differentials, and obligations on suppliers to promote customer engagement and competition.
- **Ofgem then launched its retail market review (RMR)** in 2010 following concerns that the energy market was not working effectively for consumers<sup>75</sup>. Ofgem proposed a number of interventions which were implemented from 2013 onwards. These included licence obligations on suppliers based on the number of tariffs they could offer, tariff structures and information remedies.

In November 2013 Ofgem agreed to work with the Office of Fair Trading (OFT) and the Competition and Markets Authority (CMA) to produce an assessment of how well competition in the energy retail market is serving the interests of households and small business in Great Britain. Following publication, **Ofgem referred the retail energy market to the CMA for a full market investigation**. The CMA has published its provisional findings and is due to publish its final decision by 24th December 2015

Although formal price controls have been removed from the energy retail segment of the market, the regulator has intervened on a number of occasions, imposing remedies in order to alter the behaviour of market participants and protect consumers – which is aligned to its primary duties. Ofwat may want to consider the potential lessons to be learnt from both Ofgem and the CMA, when considering the length of the regulatory period for markets that have been newly opened to competition.

ORR noted that in the context of Network Rail devolution and as it makes more of its value chain contestable, there could be a case for longer control periods in order to provide more opportunity for the industry to act in a more commercial manner<sup>76</sup>. A longer control period could mean, however, that it would be more difficult to accurately forecast traffic volumes and Network Rail's costs and revenues. In addition, it would also mean that any unforeseen issues will stay in effect for longer, before they can be taken into account by ORR at the next control period<sup>77</sup>.

<sup>73</sup> Ofgem – Energy Supply Markets Probe – Call for Evidence.

<https://www.ofgem.gov.uk/sites/default/files/docs/2008/03/energy-supply-markets-probe---call-for-evidence.pdf>

<sup>74</sup> Ofgem – Implementation of the Energy Supply Probe Retail Market Remedies.

<https://www.ofgem.gov.uk/sites/default/files/docs/2009/10/implementation-of-the-energy-supply-probe-retail-markets.pdf>

<sup>75</sup> Ofgem. Retail Market Review. <https://www.ofgem.gov.uk/electricity/retail-market/market-review-and-reform/retail-market-review>

<sup>76</sup> ORR – Periodic review 2013. First consultation – annexes. [http://orr.gov.uk/\\_\\_data/assets/pdf\\_file/0012/1740/PR13-first-consultation-annexes.pdf](http://orr.gov.uk/__data/assets/pdf_file/0012/1740/PR13-first-consultation-annexes.pdf)

<sup>77</sup> Network Rail – ORR's Periodic Review 2013: First Consultation – Network Rail's response.

[http://www.networkrail.co.uk/uploadedFiles/networkrailcouk/Contents/Publications/Delivery\\_Plans/Control\\_Period\\_5\\_delivery\\_p lan/Planning\\_for\\_CP5/ORRFirstPR13ConsultationFull.pdf](http://www.networkrail.co.uk/uploadedFiles/networkrailcouk/Contents/Publications/Delivery_Plans/Control_Period_5_delivery_plan/Planning_for_CP5/ORRFirstPR13ConsultationFull.pdf)



### 7.3.5 Flexibility of the price review

Ofwat has previously considered for PR09 how it would deal with uncertainty between price reviews<sup>78</sup>. A number of points are presented below:

- It was viewed that there was scope to 'temper' the current rules with common sense, in particular in instances where additional costs were imposed by external agencies, during the course of a company doing the 'right thing' from an overall public interest point of view. Additionally it was noted that a change was required to the process whereby expenditure that is in customers' interest or as a result of extreme weather would not be recompensed in the event that this was above the service cap. This provides companies with **little incentive to overspend** even when it is in the customers' interest.
- Questions were raised about the standard IDoK process, with views that PR09 would benefit from **earlier exposure** in the consultation process of how **IDoKs** are intended to **operate**, with a greater understanding needed by stakeholders. It was noted that an early review of the IDoK process would be beneficial.

It was suggested that there should be a review of the **mechanisms for allowing risks between companies and customers**. The review should focus on the size of risks, the degree of symmetry, and controllability by management. It was also suggested that Ofwat considers alternative methods of allowing risk, such as error correction mechanisms or provision for contingencies. As part of this work, it was suggested that consideration be given to how risks might have changed for PR09.

Under its RIIO framework Ofgem has decided that its network price controls will last for eight years with a narrow mid-term review after four years to adjust outputs where there has been a material change in what is required of network companies. The rationale for this change was to encourage longer term thinking, underpinning some other changes proposed in the RIIO document including a focus on outputs. It is also aimed at discouraging companies from going for short-term efficiency savings at the expense of long-term efficiency and outputs.

Ofgem considered it appropriate to treat high value projects that relate to delivery of outputs in future price control periods differently. Linking expenditure in the current period to delivery in future periods, is achieved through the use of secondary deliverables. When designing incentive mechanisms and uncertainty mechanisms at price control reviews Ofgem will consider whether and how to allow some incentive mechanisms to span price control periods to encourage high value long term projects to be delivered at long-term value for money. Ofgem also advised that the eight-year price control period should be reviewed at future price control reviews<sup>79</sup>.

One of the key issues for the CAA to consider within the aviation sector is the need to finance large lumpy investments. This has led to a focus on investment issues, including pre-payment for new assets through the inclusion of assets in the course of construction in the regulatory asset base. Where assets have long construction periods – such as new terminals – this can mean that consumers start to pay for the asset in a price control period prior to the one in which the asset actually becomes available for operations.

<sup>78</sup> Ofwat – A sustainable water industry – To PR09 and beyond.

[https://www.ofwat.gov.uk/pricereview/pr09phase1/res\\_stk\\_susdevconsresp.pdf](https://www.ofwat.gov.uk/pricereview/pr09phase1/res_stk_susdevconsresp.pdf)

<sup>79</sup> Ofgem. Handbook for implementing the RIIO model. 4<sup>th</sup> October 2014. <https://www.ofgem.gov.uk/ofgem-publications/51871/riiohandbook.pdf>

Another issue that affects airport investments (possibly more than other regulated infrastructure providers) is environmental and planning consents. For example, when the five year price control was being established it was expected that Terminal five would be given planning consent in 1997 and that construction would begin in 1998. However, delays in the planning consent meant that when the price control was being developed the dates had to be significantly changed – planning consent was only finally given in 2001 and so construction began in 2002. This concern about the impact of external factors and the subsequent impact on costs has forced the regulator to consider ways of handling this to protect consumers against further possible delays in investments that were being pre-charged in the price control. The CAA has introduced a negative, trigger approach, meaning that allowed revenue is reduced where work is not delivered<sup>80</sup>.

## 7.4 Implications for PR19

It can be argued that in capital intensive regulated sectors a longer term period for a price control can increase the incentives for achieving efficiency savings, not least because there is greater scope to plan investment over the longer term. Ofwat considered the main obstacle to a longer price control period to be the uncertainty and risk in relation to opex and capex over a 10 year period, it was also considered that the information needed to reduce this risk was not sufficiently robust.

The high demand for investment over the next few years in the UK energy sector provided an incentive for Ofgem to set longer price controls than five years given that the absolute value of efficiency savings and any reduction in the cost of capital increases with the size of the capex programme. Another approach would be to explore options that involve splitting the price determination into different elements and considering each of these at different times. This could involve efficiency reviews every five years, capex incentives for greater than five years and new capex reviews every three years (or as needed)<sup>81</sup>. Ofwat may want to consider the investment required in the water sector over the next few years, and whether this is sufficiently material to trigger an amendment to the regulatory period.

Given the above, Ofwat may want to consider whether a longer regulatory period is appropriate, particularly for those part of the value chain where the regulatory regime is reasonably certain. This could allow them to focus on a different regulatory period for the newly opened markets, in order to address issues around uncertainty and to minimise the regulatory burden on companies and the regulator itself.

Given the assessment of the nature of the water sector regulation and the experience of other regulators a case could be made for the following:

- The regulatory period for water and wastewater wholesale assets remaining at five years. This is consistent with regulatory practice and has been found by some regulators to give a balance between incentives for efficiency improvement and returning the benefits to customers. A longer period will probably require the application of a larger number of within period risk management and adjustment factors and given the sector is expected to undergo significant change in the coming years it is difficult to predict what the relevant adjustment factors should be. The risk of forecasting error in an opening market (and

<sup>80</sup> Alexander, I., and Harris, C. (2005) – The Regulation of Investment in Utilities: Concepts and Applications

<sup>81</sup> CEPA – Ofgem: The use of rpi-x by other network industry regulators: [www.ofgem.gov.uk%2Fofgem-publications%2F51984%2Fsupporting-paper-history-energy-network-regulation-final.pdf](http://www.ofgem.gov.uk%2Fofgem-publications%2F51984%2Fsupporting-paper-history-energy-network-regulation-final.pdf)

potentially with the current macro-economic climate) could be considered an important factor in not extending the five year regulatory period substantially;

- An argument can be made that it may be worth considering whether upstream assets and resources assets should have a longer regulatory period combined with flexibility for those resources to be taken out of the regulatory regime should competition emerge. A longer regulatory period reflects the long life of these assets for those assets that have been procured through competition. This model would have some parallels with the fact that in some cases existing assets of this type have been procured on multi-year design, build and operate contracts (in some cases of 15 to 25 years). However, for upstream assets there is likely to be a requirement for a tailored regulatory treatment, reflecting the fact that these assets may, subject to it being in the customer interest, be subject to market competition in future years. Effective competition should limit the need for regulation. This approach would have some similarities to the Significant Market Power (SMP) tests applied in airport regulation (and in some parts in telecoms regulation as well.)
- The non-household retail price control period of five years with a review after two years is consistent with being able to manage the potential change in this retail market. This period should be kept under review however as it may be retail household price controls could be set for longer periods once the regime is established, thereby reducing the regulatory burden.
- With significant market change due in the water sector in AMP7 and potentially beyond, there will be a greater need for a tailored approach to the regulatory model. However, as the commentaries from the ratings agencies show, tailored regulation without clarity over how the regulatory approach will change can increase perceived regulatory risk. Therefore are part of PR19, clear ground rules for the application of flexibility and when regulatory periods might change is critical. The main options for a tailored approach are:
  - Timetabled reductions in or withdrawals of regulation laid out in advance, although this would be dependent on a degree of predictability in order to set out the expected timetable for the review and the regulatory change that is expected to be appropriate at that time;
  - Agreement to review the level of regulation at an agreed point in time or when a threshold for market opening is reached, which could vary by company depending on levels of market power; and/or
  - A mechanism where companies can disapply from regulation at the appropriate time (either individually or together, again this would require companies to have evidence to justify a reduction in the degree of regulatory intervention and could result in different regulatory periods and interventions applying to different companies.
- The merits of each of these tailored approaches should be considered and evaluated in the context of other proposals for PR19.
- One final consideration regarding the length of the price review should be for Ofwat working with companies to assess the extent to which the level of capital expenditure required for AMP7 will require any additional regulatory management. Ofwat has made use of the Early Start programme in previous price reviews and Ofgem has its approach to Strategic Wider Works (SWW) for major projects. The benefits of additional regulatory provision for these projects – e.g. early granting of permission, agreed additions to the regulatory capital value should be assessed versus the costs.

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