December 2015

Trust in water

Water 2020: Regulatory framework for wholesale markets and the 2019 price review

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About this consultation

This consultation sets out our preferred options in relation to the design of the future regulatory framework for the industry addressing both the role of markets and the role of regulation.

We are seeking the views of all interested parties to share, and gather feedback on, our preferred approach to regulatory design. We further intend this consultation to help promote a shared understanding of the potential design options that are available; and the implications, and pros and cons, associated with them.

We will set out our finalised proposals in a decision document, which we intend to publish in May 2016.

We propose to consult, during 2016, on further outstanding policy issues with regards to the role of markets and the regulatory framework for the 2019 price review.

Responding to this consultation

We welcome your responses to this consultation by close of business on **10 February 2016**.

You can email your responses to water2020@ofwat.gsi.gov.uk. You can submit your responses by post to:

Water 2020
Ofwat
21 Bloomsbury Street
London WC1B 3HF.

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Executive summary

This explanatory document is part of our consultation, which sets out our preferred approach to the design of the future regulatory framework for the industry, addressing both the role of markets and the continuing role of regulation.

Customers rightly expect water and wastewater companies to provide high-quality services and to listen carefully, and respond, to their needs, priorities and concerns. In meeting these expectations, the sector faces a wide range of challenges – not least those related to water scarcity and the environment. The combination of climate change and population growth means that these challenges are likely to increase over time, and must be met alongside the continuing challenge of affordability in the sector. Put simply, the sector needs to do more for less, and in particular, it must find ways of making the best use of the resources available to it, and discover new and better ways of delivering its services.

To address the challenges, we have developed our strategy: 'Trust in water', which is about a shared vision for the water sector in England and Wales, where customers and wider society have trust and confidence in vital public water and wastewater services. Our strategy reflects our statutory duties and relevant functions. **The goal of our regulatory approach is to implement our strategy** and so move us closer to delivering against our vision of trust and confidence.

The challenges suggest that if we do not change, then there is an increasing risk that the future could be one that is characterised by low levels of legitimacy and disengaged customers; where precious water resources are not used as efficiently as they might be – putting greater pressure on the environment; and where opportunities to tackle affordability and deliver more for less are not seized, resulting in higher bills for customers than they otherwise could have been. We consider that by introducing a targeted package of reforms to the regulatory framework that enable and incentivise companies and other stakeholders to tackle these issues we can increase levels of trust and confidence in the sector.

In July, we published our discussion document: 'Towards Water 2020', which set out our initial thinking as to how our approach might evolve to help meet the known challenges faced by the sector. Key themes contained in that document were:

- our views that markets have a greater role to play in the sector;
- the implications for the way we regulate;
- the need to manage any transition to a new approach in a way that secures trust and confidence, particularly in relation to investors; and
- how our approach to customers and outcomes might unlock additional benefits by driving a more long-term focus.

Over the past year, we have engaged extensively with parties across the sector to help inform our thinking and gather evidence. Working with Water UK, **we established the 'market place of ideas'**, where stakeholders could develop and contribute their own thinking, relating to how our regulatory approach might evolve and the scope for more effective use of markets in the sector – and we were pleased to see a number of companies participating in this. A large number of parties have also submitted responses to the questions raised in our July discussion document, and our consultation on resilience. The recommendations and analysis of the independent Task and Finish Group on resilience have also shaped our thinking. Through this broad engagement, a range of views have been expressed, which we have carefully considered. Generally, while there was acceptance and understanding of the need for reform, views on the shape and extent of that reform understandably varied.

A key part of our proposals is to **strengthen our approach to outcomes and customer engagement**. Here, one of the key themes of our approach is to help **drive a focus on customers over the longer term** – which we will link to our risk-based review approach. We also want to see companies making much more extensive and effective use of their understanding of customers' priorities from their day-to-day interactions with them, to inform their business planning. Further, we are keen to see companies coming forward at the 2019 price review (PR19) with solutions developed in conjunction with their customers. Building on the step change achieved at the 2014 price review (PR14), this requires companies to go significantly further now in readiness for PR19.

Our analysis suggests that, consistent with our views set out in July, **there is most scope to make a greater use of markets in relation to sludge and water resources to help us deliver more for less**. We also see scope to make greater use of market forces more widely – in relation to the procurement of large-scale investment on behalf of customers.

Our judgement is that there are benefits to customers, investors and the environment that could be unlocked by our proposed approach. In relation to sludge, evidence suggests that there is scope for increased optimisation of activities across the companies – and, looking further ahead, greater participation from firms operating in wider waste markets. In relation to water resources, trading is below its optimal level, and taking steps to mitigate identified barriers to this could result in benefits of up to £1 billion for customers. Again, looking further ahead, there is also scope for third party participation, whereby wholesale providers of resource negotiate directly with water retailers as the retail non-household market develops in line with the Water Act 2014.

We also expect these reforms to help reveal new and better information that would help us to regulate the sector more effectively for customers, the environment and wider society. For example, revealing costs and other new information on company performance in specific services or activities might provide greater focus of companies' management teams on those services and allow us to challenge that performance more effectively on behalf of customers – as it did for retail services during PR14. It may also reveal better information – for example, on what people are willing to pay for a given volume of sludge as a real market price rather than a proposed efficient cost derived from a complex econometric model, which might enable us to be more effective in regulating companies on behalf of customers.

Too deliver the potential benefits of markets, we need to put in place a set of measures that will best facilitate them. But we are trying to achieve different things in respect of water resources and sludge and this means we are proposing to take slightly different approaches to their future regulation. In water resources, **we need to make the most efficient use of existing resources** and ensure that new investment occurs in the right place at the right time. In sludge, we see scope for, and benefits from, things being done differently, including by different companies using different assets. The key elements of our proposals include the following.

- **Separate binding price controls for both sludge and water resources for PR19.** This will help better facilitate an effective market by revealing improved information that will help us set more targeted incentives; supporting company decision-making; mitigating cross-subsidy concerns and helping to foster a more commercial culture and focus within companies in relation to these activities, where our experience in relation to retail suggests this could be of material benefit.

- **In relation to sludge, we are proposing the introduction of an information platform.** We want information to be made available that will enable others to offer services if they can do them cheaper or better than the existing companies. That information may contain, for example, data on things like capacity, treatment costs, transport costs and site locations at an individual site level but we may also want to consider moving to publishing price information.

- **In relation to water resources, we are similarly proposing an information database** and a framework that would allow for the 'bidding in' of resource options by third parties on an ongoing and fair basis that provides a level playing field between participants.

- **For water resources, we are proposing to implement access pricing.** As third party providers of water resources require access to incumbents' networks to supply water, they will need to pay an access price to those incumbents. For access to incumbents' networks whose area is wholly or mainly in England, this access price will be based on the costs we allow in our water network plus price control. In addition, we will allow third party providers to recover the difference between the (higher) incremental cost of providing new resource and the (lower) average cost of existing resource to ensure we promote efficient entry signals. For access to incumbents' networks whose area is wholly or mainly in Wales, consistent with Welsh Government's guidance, the access price will continue to be based on the cost principle.

Price control regulation will continue to apply to the wholesale parts of the value chain. Indeed, for both sludge and water resources where we cannot be certain about how far or how quickly markets could develop, **price regulation will remain an essential part of our approach, at least over the near term**.

We recognise the important role that the RCV has played and continues to play – especially as a mechanism for delivering regulatory predictability, acting as the primary means through which investors recover costs in future periods and enabling costs to be smoothed over time and financed more efficiently, benefitting customers. We have previously set out a policy of providing protection to historical (efficiently incurred) investment up to 31 March 2015 as part of our wholesale controls. Under our proposals, **we will extend this protection so that water companies will always be able to recover the value of efficiently incurred investments included in the 31 March 2020 RCV, regardless of the impact of our reforms. This will ensure that no investments made prior to our reforms will be subject to any change in risk profile.** We see this additional RCV protection as being part of the integrated package we are proposing. In relation to investments made post-2020:

- for sludge, these will be subject to market risk (our future regulatory approach will pass on volume risk to companies). However, we consider stranded asset risk to be modest, if any, prior to 2025; and, we anticipate, will be primarily limited to sludge treatment; and
- for water resources, our approach would mean that a market will apply for the incremental investment itself, at the point of procurement, with no volume risk in the price control.

By limiting the impact of a greater use of markets to new investment, we expect to **mitigate materially any potentially adverse impacts on financing costs in the sector**.

We are also proposing to change our approach to allowing for inflation in cost recovery. In particular, we will use CPI, rather than RPI, for indexing both the RCV and revenues (and therefore prices). To help companies manage this change, at the start of the next control period we will apply a transition mechanism that ensures that half of the RCV continues to be indexed by RPI for PR19. Under our notional capital structure, this is equivalent to indexing all existing embedded debt by RPI with the remaining RCV accounted for by new debt and equity. This will provide time for existing RPI linked debt to unwind.

We welcome all responses to this consultation, which we propose to be followed by a decision document in May next year. **We recognise that this represents the start of a process** – and that more detailed work, by us, companies and other parties, will be required to refine our proposals and design their application in practice.

We also recognise that **changes to the companies' instruments of appointment** (referred to in this document as 'licences') **will be required to support our proposals**. So we intend to engage early with all relevant stakeholders as part of this process. We therefore look forward to further constructive engagement as we continue this journey together.

1. Introduction

This consultation sets out our preferred approach to the design of the future regulatory framework for the industry. This has two key dimensions:

- where and how markets might be developed; and
- the role of regulation.

The design of future regulation and markets is a key part of our Water 2020 programme, which is intended to ensure that, as the industry's independent economic regulator in England and Wales, we challenge ourselves to identify how our approach to regulating water and wastewater services can deliver better outcomes. This is consistent with our strategy of promoting trust and confidence in the sector and with fulfilling our statutory duties.

We recognise that the long-term nature of the challenges faced by the sector means that we need to consider design options in the context of the longer-term evolution of regulation required to help meet those challenges. While the regulatory and market design options presented here primarily focus on the development of markets from 2020 and the PR19 price control, they also help frame our approach over the longer term.

The purpose of this consultation is to present our preferred approach to the design of the market and regulatory framework and to gather the views of all interested parties on our proposals. Accordingly, this document identifies a range of questions, structured under the following headings.

- What are we trying to achieve with our approach to market and regulatory design?
- What are the key issues we need to consider in setting our design?
- How will we promote markets to deliver benefits?
- How will we apply effective regulation where it remains?
- How will our proposals impact the level and balance of risk?
- How will we approach outcomes and customer engagement?
- Bringing it together: a summary of our proposed regulatory design.
- What are the next steps?

Further to this main consultation, separate appendices outline:

- our assessment of the scope to make greater use of markets in relation to sludge, including supporting evidence;
- our assessment of the scope to make greater use of markets in relation to water resources, including supporting evidence;
- our proposals in relation to access pricing;
- our views in relation to the potential for direct procurement for customers, particularly in relation to large-scale investments;
- our proposals in relation to system operation; and
- a draft impact assessment of our preferred regulatory design.

The questions on which we are seeking views go to two key issues that we are considering in detail.

- Where can (and should) markets play a greater role to deliver benefits to customers, investors and the environment?
- How can we ensure that, during any transition to new arrangements, we maintain the confidence of stakeholders, including when we consider our approach to both historical and future investment and the role of the regulatory capital value (RCV)?

Accordingly, a further aim of this consultation is to provide clarity on a range of important issues – not least matters that are central to regulatory predictability and the need to amend company licences.

2. What are we trying to achieve with our approach to market and regulatory design?

Our **statutory duties** provide the starting point for everything we do[1]. We exercise our relevant functions in the manner we consider is best calculated to:

- further the consumer objective to protect the interests of consumers, wherever appropriate by promoting effective competition;
- secure that the companies and licensed water suppliers properly carry out their activities and functions;
- secure that the companies can (in particular through securing reasonable returns on their capital) finance the proper carrying out of their functions; and
- further the resilience objective to secure the long-term resilience of companies' systems and services to consumers. Alongside this consultation, we have published a separate document – 'Towards resilience', which sets out how we will embed resilience in our strategy[2].

We also carry out our functions in accordance with the statements of strategic priorities and objectives we receive from the UK and Welsh governments as well as other guidance on specific issues such as charging.

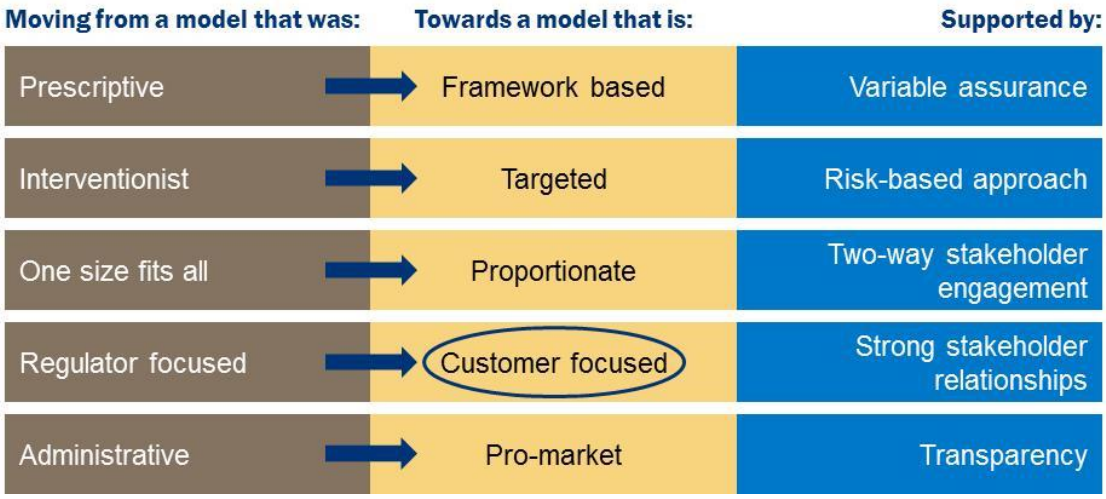
2.1 Defining our aims and objectives

In January 2015, we set out our strategy – 'Trust In water', which is about a shared vision for the water sector in England and Wales, where customers and wider society have trust and confidence in vital public water and wastewater services. Importantly, **our strategy is the means through which we will fulfil our duties as we look to the future**. In developing our strategy, we have also developed our regulatory model, which sets out the sort of regulator we want to be, as illustrated below. Our market and regulatory design will move us towards this model of regulation and help to address the many challenges facing the sector in the

[1] The statutory framework for these duties is set out in full in the Water Industry Act 1991 (as amended) (WIA91) – see http://www.legislation.gov.uk.
[2] These duties are set out in section 2(2A) WIA91. There are further duties set out in WIA91. Section 2(3) sets out some further duties, which are subject to the duties in section 2(2A). One such further duty is to contribute to the achievement of sustainable development. The Welsh Government has announced an intention to elevate the status of this duty to a section 2(2A) duty in relation to its jurisdiction in Wales. When developing policy we are mindful that this change may occur, but we will make decisions in line with the statutory duties and powers that apply to us at the relevant time.

future and protect the interests of customers, investors, the environment and wider society in doing so.

Figure 1: Journey towards a new regulatory model



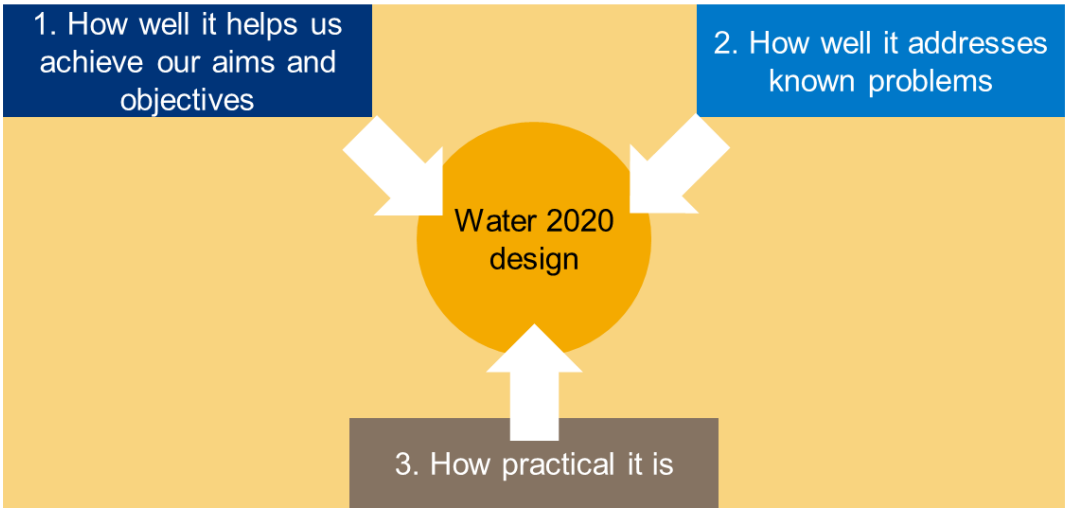
We also want to ensure that any new approach we take is consistent with our **enduring price control principles**, as applied at PR14[3] and confirmed in our July discussion document. Here we are particularly mindful of the need to ensure that our future approach is transparent and predictable. We acknowledge the importance of clarity regarding the future treatment of the regulatory capital value (RCV), which is the historical basis on which we have set returns.

To develop our proposed new regulatory approach, we started by asking what we wanted to achieve with our reforms. We evaluated the available options against three key criteria:

- helping us attain our aims and objectives (including our strategy and our enduring price control principles, set against our duties, including resilience, and the statements of strategic priorities and objectives we receive from the UK and Welsh governments) and address the challenges facing the sector;
- ensuring that we are addressing identified problems; and
- ensuring that our proposals are practical and workable.

[3] 'Future Price Limits – statement of principles', Ofwat.

Figure 2: Framework for determining our approach to regulatory design



2.2 Addressing known problems

In addition to meeting our own aims, it is vital that our new approach addresses well-defined problems – such as the current and future challenges facing the water sector. Put simply, to help build trust and confidence, we recognise that stakeholders must be able to understand how what we are proposing addresses issues that have been identified and evidenced. We discussed these challenges in detail within our July discussion document. Furthermore, companies have considered these challenges in reports submitted as part of our Market Place of Ideas[4]. In summary, they include the following.

- **Environmental challenges**, most particularly, water scarcity and environmental quality. In relation to scarcity, we recognise that both climate change and population growth will increase the extent of the problem going forward. Similarly, the uneven distribution of water resources and population across England and Wales mean that there is a regional dimension to this issue.

[4] Anglian Water, United Utilities and Yorkshire Water have considered the major long-term challenges and uncertainties facing the water sector and their implications for the future of the sector. Anglian Water has also considered future environmental and regulatory pressures the industry may face and how these could inform a broader strategic review of industry needs for the future.

- **Developing and maintaining resilience of systems and services**, so that the sector can cope with, and recover from, disruption, and anticipate trends and variability, to maintain services for customers and protect the natural environment now and in the future. Our 'Towards resilience' document provides details of how we intend to embed resilience within our broader work (including setting out how we will respond to the recommendations of the resilience task and finish group). It has also been a key consideration in the development of our future regulatory approach (as set out here). Indeed, we have explicitly considered the resilience impact of our proposals, as reflected in our draft impact assessment contained in appendix 6. Resilience will also be a consideration as we move towards finalising our proposals, subsequent to this consultation.

- **Customer bills and affordability:** Our final determinations for PR14 resulted in water and wastewater bills being 5% lower on average in real terms in 2019-20, compared with 2014-15. However, affordability remains an issue for many customers. This was highlighted by our recent report on affordability and debt, which states that 11% of households in England spend more than 5% of their income on water, while this proportion is 15% for customers of companies whose area is wholly or mainly in Wales.

The above challenges also present **important opportunities**. Some parts of the water and wastewater supply chain have benefitted from significant technological change. These changes have helped to involve customers more deeply in service delivery (through the development of apps and electronic interfaces with customers), but also helped address environmental challenges – as seen through the huge increase in the efficiency of transforming sludge into energy over recent years. Elsewhere, we have seen big changes in the capability and cost effectiveness of sensing equipment, so that service providers are better able to monitor what is going on across their networks and optimise more effectively.

When one considers these challenges, without greater optimisation of key activities and resources outside of traditional company boundaries, it is hard to see how they could be properly addressed over the long term. This is a challenge not only about doing things at lower cost, but about making the best overall use of resources and about finding new and different ways of doing things. Markets can inform, enable and incentivise such efficiencies. Therefore, while the refinements to our regulatory approach as part of PR14 provided clear benefits, **there is a compelling and clear case for further regulatory reform** to address the challenges facing the sector and deliver a new frontier of efficiencies.

2.3 Ensuring our approach is practical and workable

Finally, we recognise that it is essential that any approach we adopt is practical, workable and proportionate. We understand that the impact of any reforms we make will be shared across stakeholders and customers. Therefore, it is essential that we take explicit account of these as we develop and evaluate our options – which we have done.

We are also mindful of the respective priorities of the UK and Welsh governments. We have therefore considered and taken account of these where relevant in developing our proposals. We are also conscious of recommendations made by the Silk Commission regarding the devolution of powers in relation to water and wastewater. If these recommendations are implemented, the jurisdiction of Defra and the Welsh Government in relation to water and wastewater would be realigned to match national, rather than company, boundaries[5]. Such a change would not alter what we are trying to achieve or the principles that we apply. However, in the event of such a change, it would be necessary for us to consider how we implement our proposals while maintaining the integrity of the PR19 timetable.

[5] Currently jurisdiction for the Welsh Government operates on the basis of whether a company's area is wholly or mainly in Wales.

3. What are the key issues we need to consider in setting our design?

When evaluating regulatory options against our criteria (as described in the previous chapter) it is essential to do so in a way that reflects the specific features and characteristics of the water industry. This is because these features underpin the economics of the value chain – and consequently, the relative benefits and costs associated with alternative regulatory and market models. The key features and issues we consider most relevant are:

- the fact that **the characteristics of the supply of water and wastewater vary considerably within and across the value chain**;
- **the need to drive a longer-term approach,** to ensure that companies optimise over the longer term and reduce their focus on the five yearly price control cycle as they look more to their customers than the regulator. A longer-term approach can also ensure that the costs and benefits associated with supplying water and wastewater are appropriately shared across generations of customers;
- the **scope for increased efficiencies and innovation to be unlocked**, which is closely linked to the potential for a greater use of markets to deliver gains;
- the **lack of a price for water resources** and therefore an absence of signals to facilitate optimisation across company boundaries or to reflect relative scarcity;
- the **role of the RCV** in water regulation;
- the **RCV discount relative to the modern equivalent asset value** in the industry, driven by the initial privatisation enterprise value; and
- the complex interaction of co-dependent multiple stakeholders and decision-making that occurs, when one considers the sector in a broader context. Therefore, the need to consider how **issues of system co-ordination** can be best managed.

In the following section, we summarise these features and explain how they might impact the relative benefits and costs of future regulatory approaches.

3.1 Varying characteristics across the value chain

It is clear that the characteristics of water and wastewater vary significantly across the value chain; yet historically, the industry has been regulated as an integrated whole. This matters because there are specific elements that are contestable (such as non-household retail, sludge and water resources), and so could, in principle, be provided by competing suppliers. Consequently, it seems likely that this historical approach to regulation, which does not fully reflect these differences, is unlikely to be optimal – creating a strong case for reform.

Following from the above, these differing characteristics also means that there is a need to prioritise the development of markets on parts of the value chain where the potential benefits are most likely to exceed the costs. Recognising that the extent (and speed) to which competition develops is uncertain, it is important to consider the benefits that can be realised without the development of widespread competition. This is why we think a broader focus on 'markets' is particularly important.

We recognise that the costs of supplying water and wastewater services differ materially by geography, topography and raw water quality. For example, the location of rivers, reservoirs and productive aquifers, determine abstraction points. Similarly, as surface water is generally more expensive to treat than other sources, companies that are more dependent on these will tend to face higher treatment costs. Likewise, the nature of the terrain in each company's area will in part drive their transportation costs, particularly in relation to the pumping of water around systems as well as pumping from groundwater at depth. Importantly, cost differences by geography will both drive the development of markets at the wholesale level and limit their scope.

Finally, the water industry is characterised by relatively long-lived assets. For example, in relation to infrastructure assets such as reservoirs, groundwater abstraction boreholes, aqueducts and mains sewers, water company accounts show that these can be up to 250 years. This matters because, in the event of assets being displaced by third party provision, the costs of these assets will persist for a long period of time. This gives rise to stranded asset costs, which might ultimately be borne by customers. The issues associated with this are accentuated by the legacy privatisation discount in the sector, which we discuss further subsequently.

3.2 The need to drive a longer-term approach

Given the long-term nature of the assets (described above), but also the inherent long term nature of water and environmental resources, decisions made today – by companies, customers, and by us as the regulator – can have implications that last well beyond the length of price control periods. The water industry is therefore characterised by a need to optimise over long periods of time. We want to encourage such long-term optimisation and reduce companies' focus on the five yearly price control cycle so that they look more to their customers than the regulator. We therefore need to ensure that encouraging a longer-term approach is at the heart of any new regulatory design.

3.3 The scope for increased efficiencies to be unlocked

When considering the extent and nature of benefits that regulatory reform could deliver, we are primarily interested in efficiency gains.

- **Allocative efficiency** – refers to efficiency gains associated with a more optimised allocation of resources.
- **Productive efficiency** – is about efficiency gains delivered through minimising production costs and maximising output.
- **Dynamic efficiency** – relates to shifting down production costs dynamically over time, as new processes and technologies are utilised.

It is clear to see that, in principle, reforms that allow for a greater use of markets could drive substantial efficiency gains. For example, to the extent that one considers that water resources are not currently optimised (because there has historically been a 'within company' focus, since privatisation, and a focus on supply side solutions over demand side ones), where any new regulatory approach encourages a broader perspective, there could be a material upside to customers. This could arise from companies utilising their assets better, deferring or avoiding sub-optimal investments, or through companies building in greater resilience to external shocks. Furthermore, we note that, by taking an approach that enables markets to develop and promote efficiency, the downside to companies should be minimal. This is because companies will have more options available to them and will only choose new and different options to the extent that they are beneficial. **Ultimately, all of this means lower prices, better service and improved environmental outcomes.**

Similarly, in sludge, where technological progress has helped to develop new uses for what was once primarily a by-product, reforms that help create the right incentives for innovation over time could deliver important gains in dynamic efficiency that benefit customers.

In developing our proposals, we have paid close attention to the likely scope for achieving benefits through improvements in efficiency.

3.4 The role of the RCV

In determining our proposed approach, it is important to take account of the role that the regulatory capital value (RCV) has played in the regulation of the sector to date. The RCV is not linked to any specific assets. It is a device used to allow companies to raise finance and smooth the cost recovery of capital investments over time, including allowing for a reasonable rate of return to investors, as determined by us when setting price limits (this return makes up around a quarter of the total bill paid by customers). Together with independent economic regulation, the RCV has provided a signal of regulatory commitment

to cost recovery and stability over time. This has underpinned investor confidence in the broader regulatory framework, reducing risk and enabling investment to be provided with a lower cost of capital and lower customer bills than would otherwise be the case. By the same token the RCV might also protect companies from a degree of market risk – which is not necessarily beneficial from a customer's perspective, although this turns on which party (companies or customers) is best placed to manage the particular risks in question.

In light of the above, we are extremely mindful of how any reforms we propose could impact the risk profile associated with historical and future investment in the sector. In line with our statutory duties, our approach to the RCV and the required return, which we set out below, is best achieved by the following.

- Water companies and their investors should receive a return related to the risk involved.
- We should provide reasonable notice of our proposed approach and regulate prospectively rather than retrospectively.
- Where we make changes these should be incremental and with appropriate transition mechanisms where we are satisfied that they deliver benefits for customers.

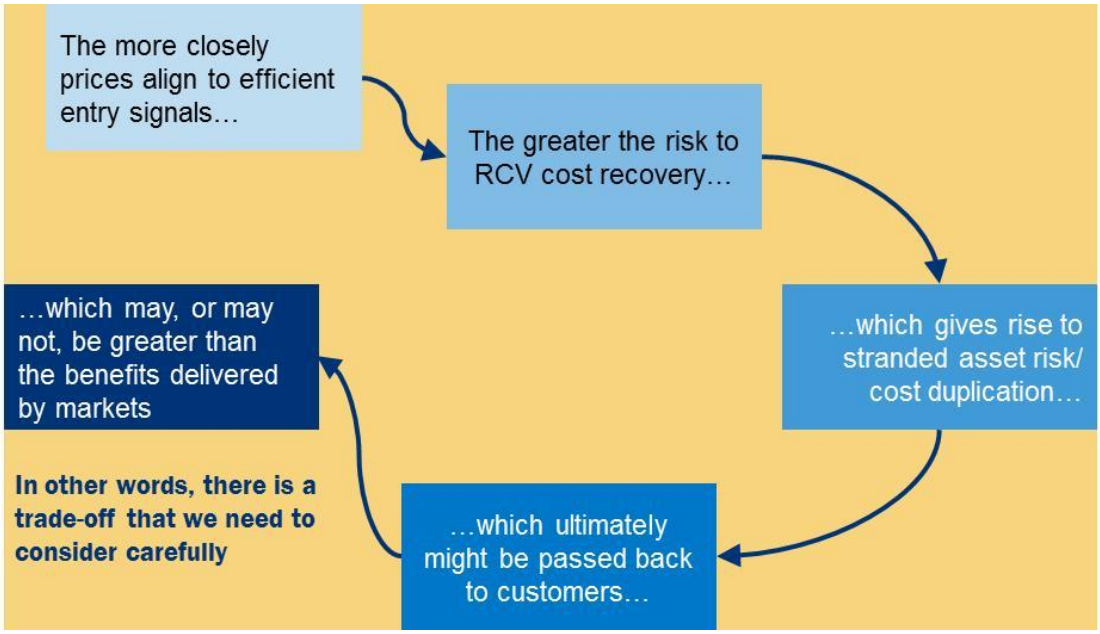
3.5 The RCV discount relative to modern equivalent asset values

The RCV is the basis on which we have set allowed returns to date and the prevailing prices paid by customers reflect this value. A key issue relevant to our proposed approach is the RCV privatisation discount.

The cost of replacing water industry assets with those of similar capabilities – as measured in modern equivalent asset value (MEAV) terms – is materially higher than the RCV. Indeed, company RCVs are around 12% of the value of total net MEAV (that is the RCV discount is around 88%). This is because, when the industry was privatised in 1989, the RCV was set based on the companies' market capitalisation after 200 days.

The extent to which this matters depends on what we are trying to achieve. If we are trying to promote efficient new entry into markets, then prices that reflect the existing RCVs will be too low, and prices based on MEAVs would be needed. If we are less interested in promoting entry, the RCV discount matters less. This ultimately gives rise to a trade-off at the heart of any regulatory design, as illustrated in the following figure.

Figure 3: Illustrating the trade-off between efficient entry signals and stranded asset risk



In relation to the above, 'stranded asset' risk refers to the possibility of a company's assets being displaced by an entrant or rival before its value has been recovered in full. This is a particular issue in the water sector, due to the relatively long asset lives referred to earlier. The standing of assets may also result in duplicated costs. These duplicated costs will be passed back onto customers where we choose to provide 'protection' in relation to historical investments, meaning that (under any eventuality) companies would be able to recover their costs. The stranding of assets associated with future investment also carries a cost to the extent that it is associated with a changed risk profile on a forward-looking basis.

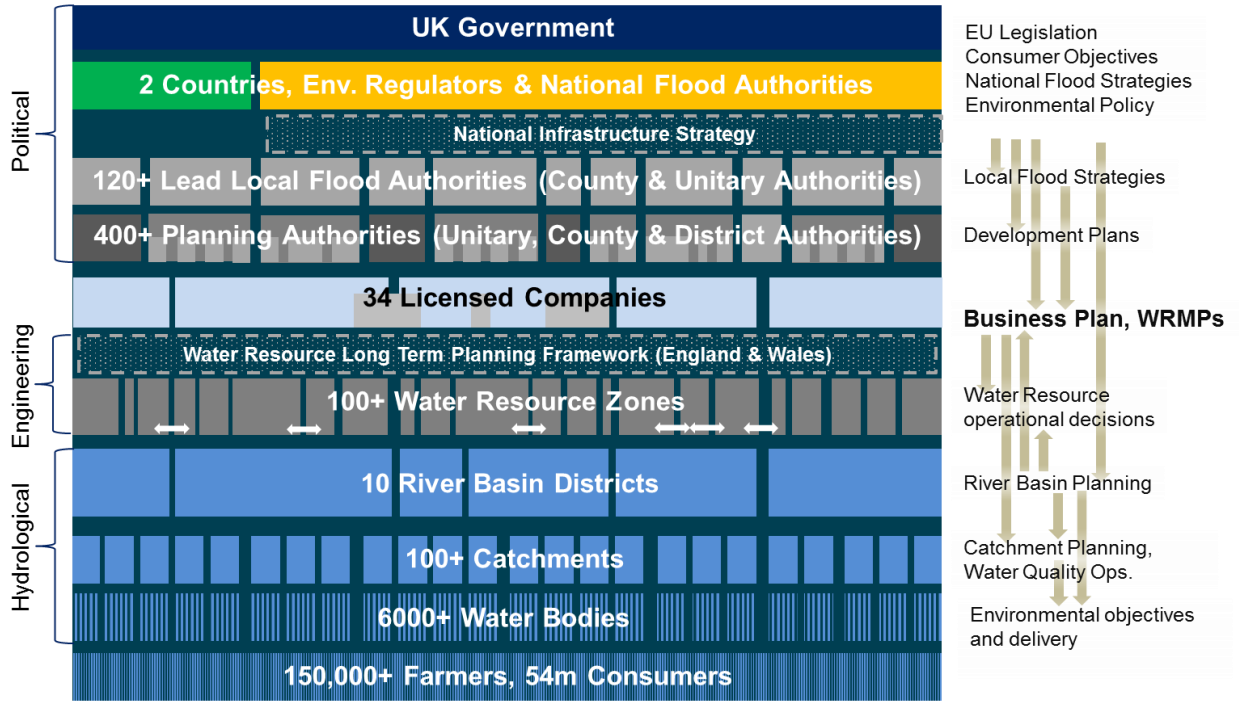
The existence of the above costs does not necessarily imply that any possibility of asset stranding is undesirable. In particular, **we see a clear distinction between historical and future investment in this regard.** However, the above tension does mean that there is a need to take care to ensure that the associated benefits are likely to be sufficient to offset the costs. Accordingly, our view is that this trade-off is most pronounced where:

- asset lives are longest;
- investment is sunk (that is a significant amount of the cost cannot be recovered through the sale or deployment of the asset); and
- the potential benefits delivered by regulatory reform are smallest.

3.6 Managing co-ordination issues and challenges

When considering an appropriate future regulatory framework, it is vital to consider the water sector from a broader perspective. Beyond the interactions between Ofwat and companies, there are many other stakeholders (including businesses, farmers, householders, developers, central government, local government, risk management authorities, NGOs and different regulators) that exert an influence over the water environment and make demands on the water industry. Many of these are subject to planning frameworks and strategies that operate at a range of scales and timetables that reflect differing jurisdictions of interest and/or legal obligations, as illustrated in the figure below.

Figure 4: Illustration of water sector planning and regulatory processes and interactions



High quality decision making will require the right information to be available at the right time to the right body with incentives aligned to customers and citizens to make the right decisions. Inadequate co-ordination across these multiple planning frameworks raises risks and limits opportunities to maximise benefits.

One response might be to seek structural or policy reforms to harmonise decision making across the board. However, integrating such a broad range of plans and strategies falls outside of Ofwat's remit. It may also not be feasible or desirable given the information required and available. For example, Ofwat would not want a water company's relationship with its customers replaced by a third party planning process. And there can be value in different parties airing their views in a transparent way and coming to a transparent and openly reasoned agreement rather than internalising decision-making in a single entity.

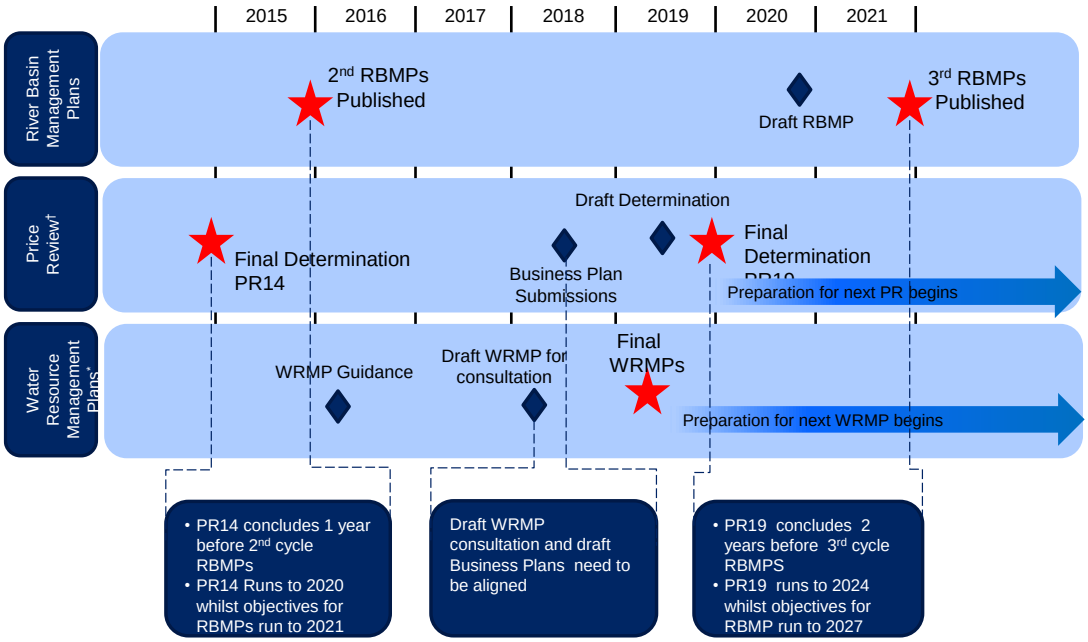
However, we think better co-ordination through engagement, partnerships, collaboration and markets could help to:

- develop a coherent conversation with customers, the wider public and other stakeholders about the provision of water and wastewater services across the suite of water and environmental planning processes such as water resource management plans (WRMPs), river basin management plans (RBMPs), drainage strategies and flood strategies;
- reveal information that signposts opportunities for market entrants or help Ofwat shape incentives and penalties for persistent monopolies;
- protect consumer interests by ensuring decisions made outside of Ofwat / company ownership do not undermine deliverability or affordability of water and wastewater services;
- identify opportunities for cost-sharing and optimisation across a range of services provided for in a catchment; and
- improve the water sector's resilience by enabling water companies and others to take better-informed long-term decisions.

This is not a new idea. Water companies are already playing a role in co-ordinating activity at a range of scales including catchment management, cross-boundary water resource planning and the Water Resources Long-Term Planning Framework, which is developing a national, long-term water resource plan for England and Wales. But we recognise our Water 2020 proposals could play a role in encouraging companies to seek more opportunities to reduce costs and deliver better outcomes for their customers through co-ordination within and across company boundaries (as shown in chapter 4).This builds on our approach at PR14, on outcomes and totex.

We also recognise that Ofwat has a role in laying the foundations for better co-ordination at a national scale. In particular, we have identified a risk that the misalignment between timetables for PR19, RBMPs and WRMPs (illustrated in the following figure) could create uncertainty for the sector and result in higher costs to customers and sub-optimal outcomes.

Figure 5: River Basin management and WRMP timetables



† As proposed in Ofwat's July paper
* Based on timeline from previous WRMP methodology

The process for developing the technical and policy framework for the next round of WRMPs is well under way. We have been working with Defra, the Welsh Government, the Environment Agency and Natural Resources Wales, to develop a draft guideline, which is currently out for consultation. Publication of the draft guidance was accompanied by a joint letter, setting our expectation that the companies should integrate the development of their WRMPs into their mainstream business planning. To support this, Government and the regulators, have committed to working together to improve the planning processes and to streamline their alignment.

Figure 6: Defra, Welsh Government, the Environment Agency and Natural Resources Wales expectations for WRMPs

Extract from the joint letter to water companies accompanying draft Water Resource Management Plan guidance (November 2015):

We expect you to set out clearly in your plan the outcomes you intend to deliver for your customers, including the resilience of your supply, the risks to delivery of those outcomes and evidence that you have considered the full range of options for mitigating those risks. We are particularly keen to see that you have considered whether optimal solutions can be found through taking a strategic, regional, view across company boundaries, across sectors and considering third party options, alongside demand side measures, tackling leakage and water efficiency. For companies wholly or mainly in Wales this means taking a more integrated approach following the principles of natural resource management, including tackling leakage and water efficiency.

We also want to see evidence that you have fully considered the needs of customers now and in the future. This will include a strong and effective public consultation supported by extensive engagement with customers, with assurance from your Price Review customer challenge group on the quality of your customer engagement. It also means assurance from your Board that the plan represents the most cost effective and sustainable long-term solution.

Opportunities for aligning the statutory RBMP process with the price review appear more limited. We recognise that the timing of RBMPs (due December 2021) will create significant uncertainty about the scale of environmental investment required over the PR19 period. However, we do not think the potential benefits of shifting the price review to match RBMPs outweigh the costs, not least because:

- this takes the price review out of step with WRMPs; and
- there is no certainty as to what will replace RBMPs after 2027.

Instead, we will work closely with the Environment Agency, Natural Resources Wales and water companies to ensure companies have the best possible estimates of the scale of environmental investment likely to be incurred during the PR19 period.

Having set out above our objectives, and the issues we have considered, in the remainder of this document we put forward our proposals. In doing so, we explain the underlying rationale and evidence we have relied upon.

4. How will we promote markets to deliver benefits?

In our July discussion document, we outlined how the promotion of markets can play an important part in helping to address the challenges and issues faced by the sector. It is also a key part of our strategy – and the aim of our Water2020 programme, which is to help to create and allocate value appropriately. In this chapter, we therefore describe how we propose to promote markets, in the wholesale parts of the value chain, as part of our evolving regulatory framework. This chapter is structured as follows.

- A summary of our approach to promoting markets.
- A brief recap of our initial views as to where we could make a greater use of markets, as set out in our July discussion document.
- A summary of stakeholder responses to our July discussion document.
- Based on further work undertaken by us since July, our assessment of where in the wholesale part of the value chain we propose to prioritise making a greater use of markets.
- For those areas where we plan to promote markets, what our proposed market models look like.
- How we envisage the key enabling mechanisms will function – including discussion of our approach to the RCV and access pricing.

While the focus of this consultation is the wholesale parts of the value chain, we acknowledge the publication of the UK Government's recent document 'A Better Deal: boosting competition to bring down bills for families and firms'. The UK Government has asked us to provide an assessment, by summer 2016, of the costs and benefits of extending retail competition in England to household customers.

We note that the decision on whether, in what form and on what timeline the household retail market in England will be opened to competition is a matter for the UK Government. Our role is to provide a robust, evidence based, assessment that will enable that decision to be made. In undertaking this assessment, we will follow an open and transparent process, seeking evidence and ideas from those in the sector and beyond.

4.1 Our approach to promoting markets

4.1.1 What we mean by promoting markets

When markets function effectively, they can help to allocate resources efficiently, so that customers receive the goods and services they demand at an efficient price. They can also deliver dynamic efficiencies over time, through innovation and technological change. In practice, however, there are a range of issues that can impede the functioning of markets. Promoting markets is therefore about taking steps to help reduce any such impediments, where we consider the gains from doing so outweigh the costs.

As we described in our July discussion document, promoting markets is not the same as promoting competition. And the benefits for customers of developing markets – and improving the way in which they function – are not contingent on having fully competitive markets. In summary, our approach to promoting markets has three main elements.

- **Promoting markets is a broad concept –** broader than the notion of promoting competition. It is about the steps we can take to help markets deliver their potential benefits by mitigating identifiable factors that can impede their functioning. These steps include creating markets in the first place where they are missing; helping to reveal information; reducing transaction costs; and helping to ensure that the wider costs and benefits associated with activities in the water sector – including their environmental impacts – are factored into decision-making. While promoting markets can also include promoting competition, our view is that competition does not necessarily need to be extensive in order for markets to deliver benefits. This is an important consideration, given the characteristics of the water industry.

- **Promoting markets is about making incremental improvements,** rather than aiming for a stylised notion of a perfect market. We see this as an evolutionary approach, where the reforms and framework we put in place now may help to unlock additional benefits in the future. This is important where the extent and nature of future market development is uncertain – and is consistent with us seeking to drive a focus on the longer-term.

- **Promoting markets means developing tailored regulatory solutions** that are matched to identified issues and problems that would otherwise reduce the benefits that markets deliver.

4.1.2 Promoting markets in England and Wales

In considering the future role of markets in the sector, we are mindful of the differences in the objectives between Defra and the Welsh Government. Both governments support the use of markets (as we have defined this above) in the wholesale part of the value chain to achieve the best outcomes for customers, investors and the environment.

The Welsh Government, however, has chosen neither to extend retail competition to all non-household customers, nor to implement the wholesale reforms set out in the Water Act 2014 at this time. The Welsh Government's policy instead focuses on a natural resource management approach. This includes in particular payment for ecosystem services (PES). Our proposals, therefore, are reflective of these differences. Our policy is intended to support water companies in engaging in PES where this leads to efficient outcomes and is supported by customers.

We will take into account the timing of Defra's commencement of the parts of the Water Act 2014 relating to reform of the wholesale parts of the value chain in England in considering when and how to implement our proposed changes. We further recognise the need to develop a manageable timetable for implementing our proposals. We would support a timetable that includes commencement of those parts of the Act that would enable us to proceed with licence changes in a timely manner for the 2019 price review.

We consider that our proposed approach will make a positive contribution to promoting markets in England and Wales, and will support markets in parts of the wholesale value chain, both with, and without, the changes brought about by the implementation of the Water Act 2014.

For companies whose area is wholly or mainly in Wales, we note that sludge could be treated by other incumbent WaSCs under the existing legislative framework. Where our proposals relate specifically to supporting the development of the bilateral markets as envisaged by the Water Act 2014 (and are therefore not relevant to customers of companies whose area is wholly or mainly in Wales) we make this clear.

We are also conscious of the recommendations made by the Silk Commission in relation to the devolution of powers in relation to water and sewerage. If these recommendations are implemented, the jurisdiction of Defra and the Welsh Government in relation to water and

sewerage would be realigned to match national, rather than company, boundaries[6]. In the event of such a change, it would be necessary for us to reconsider how we implement our proposals while maintaining the integrity of the PR19 timetable.

We consider that the most appropriate means of addressing the above is to ensure that our approach is as consistent as possible between England and Wales, where this is in line with achieving the objectives of both governments. This will minimise any potential adverse impacts on customers and the environment, should devolution of powers in relation to water and sewerage occur in the next price control period. We will continue to take this potential change into account as part of our ongoing policy development.

4.2 Our views as set out in the July discussion document

In our July discussion document, we set out our view of the scope for developing markets in relation to the wholesale parts of the value chain. Our assessment was that, at present, the wholesale parts of the value chain where the introduction of markets is likely to yield the greatest benefits are:

- sludge treatment, transport and disposal; and
- water resources.

We summarise our rationale in the following sections.

4.2.1 Sludge treatment and disposal – our views as set out in July

In July, we noted that sludge is not just a by-product of the sewage treatment process, but has a value to water and sewerage companies (WaSCs). For example, it can be used to generate energy and also as a fertiliser. Consequently, we asked whether markets might help create incentives for value maximisation and innovation. We further noted that, under the status quo, sludge activities are captured within the broader wastewater wholesale price control – which might tend to result in companies focusing on cost minimisation within their own areas, rather than considering the opportunities available to them more widely.

[6] Currently jurisdiction for the Welsh Government operates on the basis of whether a company's area is wholly or mainly in Wales.

In addition to the above, we noted that there may be scope for increased optimisation of sludge treatment, transport and disposal across the existing WaSCs, reflecting differences in their costs as evidenced by the OFT's 2011 market study. We noted, however, that the scope for such optimisation is likely to be localised, due in part to transport costs.

4.2.2 Water resources – our views as set out in July

In relation to water resources, our July discussion document focused on the issue of water trading – the physical trading of water between companies – rather than the trading of abstraction licences. Here our primary rationale was that the existing evidence seems to suggest that water trading is not yet reaching its potential. We also note that Defra's and the Welsh Government's separate abstraction reforms would complement the development of wholesale markets for water resources.

We noted that, while companies have made investments in integrating their own water supply networks within their own boundaries, the volume of water traded between companies has remained broadly flat, at 4% to 5% of the total supplied. We also noted evidence suggesting that there are material unrealised benefits associated with increased trading.

- Our March 2010 analysis suggested there could be around £1 billion of savings in England and Wales arising from increased trading (relative to proposals in companies' draft WRMPs).
- In May 2010 the Environment Agency published analysis by the Water Resources in the South East Group, which identified £500 million of potential savings from increased resource sharing in south-east England.

Finally, we noted that at PR14 companies proposed only a small increase in the number of trades. This, coupled with continued differentials in water scarcity and water development costs by locality, indicates that substantial unrealised benefits are likely to remain.

4.3 Responses to our July discussion document

Generally. stakeholders supported our proposals to make a greater use of markets in relation to sludge and water resources. There was recognition that, in these areas, markets could bring a range of benefits to customers, companies and the environment. There were, however, some concerns around the additional complexity and costs that could arise from promoting markets in some parts of the value chain. Because of this, several respondents stated that careful consideration of the options (including cost benefit analysis where possible) is needed to identify where and how a greater use of markets can best add value.

There was also a desire among respondents for early clarity on cost allocation between business units, particularly among companies.

For sludge, respondents generally supported a greater use of markets, but some expressed reservations around the medium term opportunities for the development of the market. Respondents noted that opportunities across the country will vary, depending on the capacity and location of sites that deal with sludge, and the associated transportation costs.

On water resources, respondents noted that there are a number of barriers to trading, such as high connection costs and uncertainty over future abstraction rights. Suggestions for reducing barriers included:

- creating a central registry or information exchange;
- expanding the WRMP process to cover existing assets as well as new resources; and
- publication of draft WRMPs on a market-testing basis.

Further to the above, South East Water specifically noted that it is only companies with supply/demand deficits who need to consider new demand/supply options, yet companies in surplus areas may have access to lower cost new supplies than companies in deficit areas - and hence trades could be viable. However, under current arrangements, such options may never be developed.

Respondents also stated that the water trading incentive introduced in PR14 has not yet had time to bed in; and so it is too early to judge its success in promoting water trading.

In relation to access pricing, there were mixed views on whether the RCV needs to be allocated between business units. This could be an effective way of implementing access prices, but respondents noted that alternatives exist.

4.4 Our views on the scope to promote markets

Since the July discussion document, we have taken forward a range of work to further inform our understanding of the scope to make use of markets in relation to the wholesale parts of the value chain. The details of this are set out in full within appendix 1 (on sludge) and appendix 2 (on water resources), but it includes the following.

- Updating elements of the OFT's 2011 sludge market study, including: (i) assessing the scope for localised trades between companies; and (ii) assessing economies of scale in relation to sludge treatment.

- Further quantitative and qualitative analysis of the characteristics of the markets for sludge treatment, transport and disposal, including: (i) assessing likely entry costs; and (ii) comparative analysis of the other organic waste market, to inform our views on entry costs and economies of scale.

- A mini-survey of firms operating in the wider waste space, to ascertain their views on the scope for, and potential barriers to, the development of markets in the sludge treatment, transport and disposal parts of the wholesale value chain.

- A qualitative survey of WaSCs regarding: (i) how sludge treatment, transport and disposal activities are currently undertaken – including the role of third parties; (ii) whether they have plans to change their approach to undertaking these activities; (iii) the scope for increased trading of sludge between WaSCs and/or participation in wider waste markets; and (iv) potential impediments and related solutions to increase trading/participation in wider markets.

- Updating our 2010 analysis of the potential benefits associated with increased water trading arising from further interconnectivity.

- A consultancy study by Deloitte in relation to both the scope for increased water trading and options for helping to realise those benefits.

- Structured qualitative interviews with potential providers of water resources.

In addition to the above evidence, we have undertaken extensive wider engagement in relation to our Water 2020 programme. This has included hosting a series of sector-wide workshops; meeting with key stakeholders including government departments, agencies and other relevant regulators; and inviting parties to contribute to the debate through our Market Place of Ideas, as hosted by Water UK. We thank all parties for their engagement to date.

Based on the additional evidence we have developed, and the views and input from stakeholders, **we remain of the view that sludge treatment, transport and disposal; and water resources are the parts of the wholesale value chain where it is appropriate to prioritise making a greater use of markets**. This does not, however, preclude the possibility of us making a greater use of markets elsewhere in the future. We also remain of the view that there is scope to make more use of markets in relation to large-scale investments more widely.

In the following sections, we set out our proposed market models, and a summary of the key evidence on which we have relied. More detailed supporting analysis is set out in appendix 1 and appendix 2.

4.5 Our proposed market design in relation to sludge treatment, transport and disposal

Our market model for sludge will inform how we develop our regulatory framework. We expect the proposals that we set out here to be a first step in making better use of market mechanisms and that our approach will evolve. Here we provide:

- a summary of the key evidence and considerations that we have taken into account;
- the resultant implications for our design of market models; and
- our preferred market design.

4.5.1 Key evidence

First, and as we noted in July, sludge is not only a by-product of sewerage activities, but it also has a value to WaSCs – primarily through:

- the sale of it as a source of fuel (biogas) or conversion into electricity;
- associated income from Renewable Obligation Certificates (ROCs); and
- the sale of biosolids to farmers as an alternative to manufactured fertiliser.

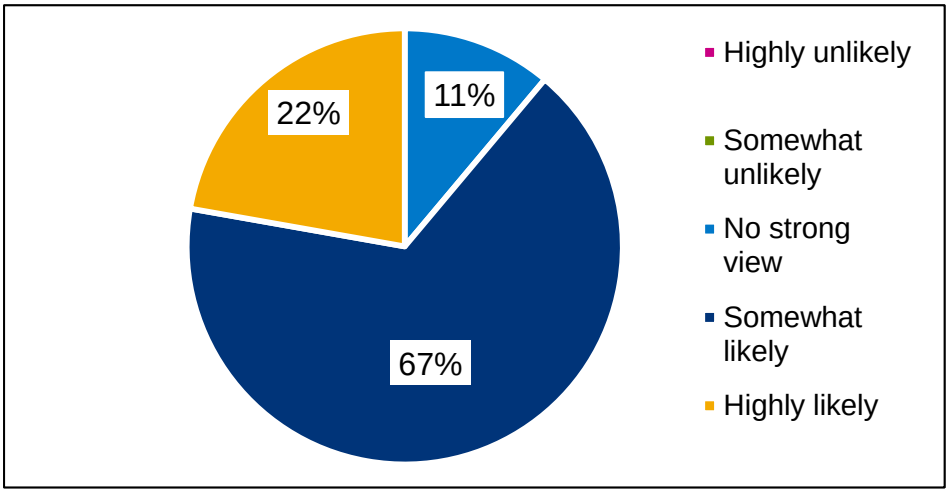
While sludge treatment, transport and disposal may, in some cases, still represent a net cost to WaSCs, the fact that it has a value implies that markets, rather than regulation, may result in sludge being used and treated more effectively.

Related to the above, we have analysed data from Defra[7] on the pattern of sludge use over time. This reveals material changes in the use to which sludge is put, with quantities disposed by landfill falling by 93% and the amount being re-used for soil and agriculture increasing by 154% from 1992 to 2010. Although there were external factors driving these changes, such as the 1998 banning of disposal to sea, and the steep increase in landfill tax, this pace of change suggests that there is potential for the value of sludge to evolve similarly over time. Importantly, it is also symptomatic of a high rate of technological development, consistent with there being scope for dynamic efficiency gains. Importantly, increases in demand over time might also increase the scope for entry.

[7] Data sourced from 'Waste water treatment in the United Kingdom – 2012.' Defra (2012).

While we cannot be certain as to how the value of sludge might develop, there are reasons to suppose that the upward trend will continue. For example, in our survey of WaSCs in relation to sludge, 89% of respondents indicated that it was 'somewhat' or 'highly' likely that the value of sludge would continue to increase, underpinned by technological change and new uses being identified.

Figure 7: WaSC responses to question regarding whether they considered it likely that the upward trend in sludge values would persist over the medium-term



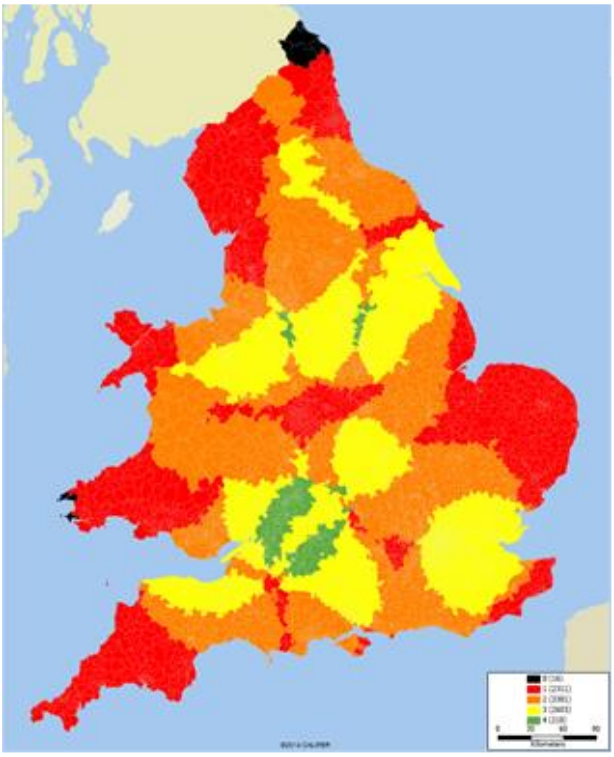
Source: Ofwat analysis of responses to survey of WaSCs.

Second, there is evidence of there being scope for trading of sludge between the WaSCs to help further optimise treatment, transport and disposal activities. In particular, we have updated the OFT's 2011 analysis of the geographic overlap of existing WaSC sludge treatment facilities. Our analysis paints a very similar picture to that contained in the OFT report – and thus further confirms the OFT's findings regarding the potential for trades. In principle, trades between companies should be beneficial where the cost differential in treatment is sufficient so that the gain from outsourcing treatment to another company offsets the cost of transporting sludge. In practice, determining this is not straightforward – primarily because of a lack of robust data relating to transport costs. However, using the OFT's assumption that trades could be economic up to a distance of 50km, analysis suggests that up to 42% of sludge treatment centres are sufficiently close to at least one rival facility such that trades could be viable. In practice, the commercial viability of trades also depends on the relative capacity at respective facilities, and relative efficiency – which might not be reflected in unit costs – and so this represents an upper bound. In addition, the volume of sludge that could be traded may be lower than the proportion of sites (this will depend on how sludge volumes are distributed across sites).

Importantly, our analysis shows that the potential for these trades is highly localised: in some localities there are no, or very few, sludge treatment centres (STCs) sufficiently close to other facilities to make trades possible – whereas in other areas there are multiple facilities close by. This is summarised in the following map, which is an updated version of that produced by the OFT in 2011.

Related to this, in our survey of WaSCs, while respondents identified barriers and limits to inter-company trades, **seven out of nine respondents said that there was "some" or "significant" scope for such sludge trading to occur**. No respondents indicated that there was "zero" scope.

Figure 8: Extent of 'overlap' of sludge treatment facilities across WaSCs

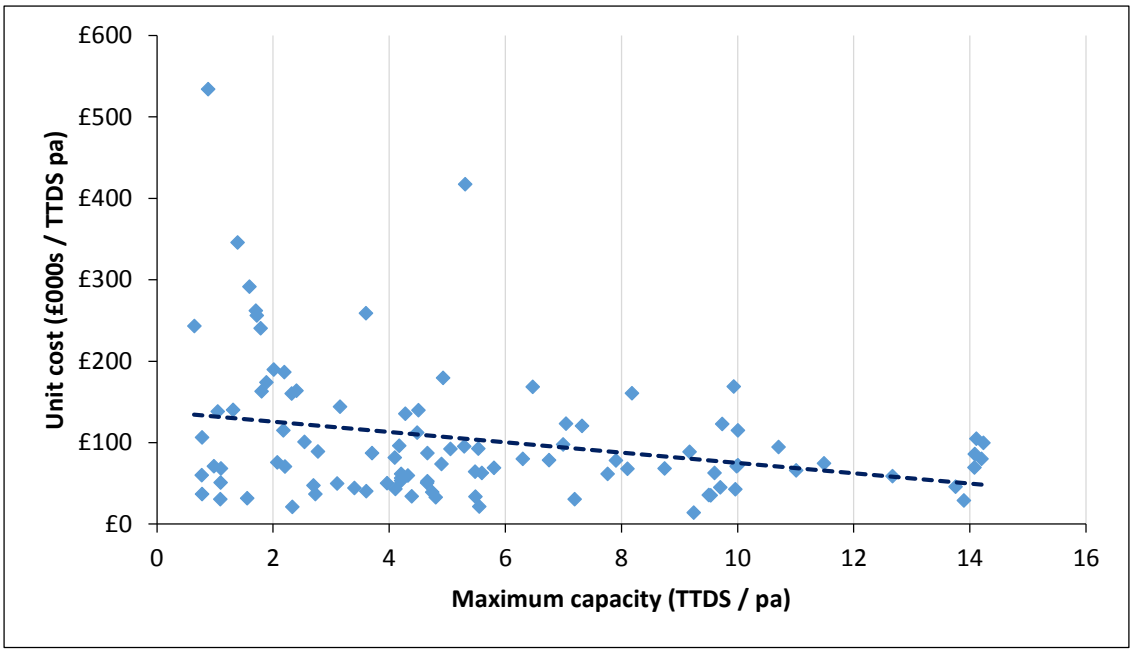


The map shows wards across England and Wales. These are colour coded to indicate the number of WaSCs operating STCs within a 50km radius. Colour coding as shown below.

Coloured wards	Number of WaSCs operating STCs within a 50km radius
	Only 1 WaSC
	2 different WaSCs
	3 WaSCs
	4 WaSCs
	No STCs

Third, a range of evidence indicates that there are economies of scale in relation to sludge treatment, including the OFT's 2011 market study. We have examined the relationship between sludge treatment unit costs and plant size (capacity and throughput). Consistent with the existing evidence, unit costs tend to fall with increased size, indicating economies of scale, as illustrated in the following chart (for details, see appendix 1).

Figure 9: Scatterplot of sludge treatment centre capacity and unit opex



Source: Ofwat analysis of OFT data.

The above may have some implications for the extent and form of entry. In particular, to the extent that (for the reasons outlined above) the scope for trading is likely to be highly localised, this might imply that as the market for trading evolves, one might see:

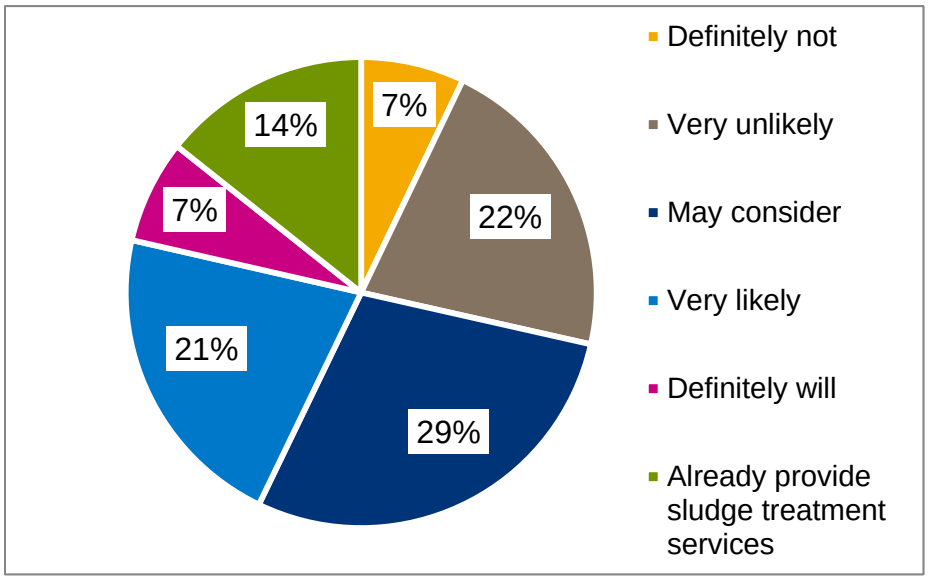
- entry take the form of relatively large scale sites that are sufficiently close to existing sewage treatment works (STWs) to make trades economic; and/or
- consolidation across existing facilities (for example, closure of small scale STCs to realise efficiency savings).

Fourth, we consider that making a greater use of markets could strengthen the resilience of the sludge treatment sector. The resilience of the system to shocks – such as the fire in the control centre of one of Yorkshire Water's incinerators in 2011 that knocked out a treatment centre at no notice – would be improved by more ready access to alternative treatment centres to deal with emergencies. The longer-term resilience of the system to technological change could also be better ensured through the use of markets than regulation. Markets are an excellent mechanism for revealing information about alternative solutions and uses of materials.

Fifth, in addition to trading between the WaSCs, evidence suggests that there may be some scope for entry and expansion from firms operating in other organic waste (OOW) into sludge treatment and disposal (or indeed, vice versa from the perspective of the WaSCs). This is because the skills and activities required to treat and dispose of OOW are similar to those for sludge. Here, by OOW, we are referring to all other organic matters that are treated and disposed of in wider waste markets, such as food and organic materials.

The scope for competitive entry from OOW is difficult to determine precisely. This is partly because of the impact of various environmental regulations that restrict the ability to co-treat sludge and OOW, and the respective locations of OOW facilities relative to existing sludge treatment facilities. However, there is a range of evidence to suggest that it is at least plausible. For example, and as shown in the following figure, our mini-survey of firms operating in wider waste markets found that 28% of respondents were 'very likely' or 'definitely' planning to enter the market for sludge treatment in the next five years, although the small sample size of 14 means that caution should be attached to the findings.

Figure 10: Responses by wider waste firms as to how likely they are to enter the market for sludge treatment in the next five years



Source: Ofwat analysis of responses to survey of potential sludge market entrants.

The above is further supported by the existence of **some firms already undertaking activities across both the sludge, and wider waste, treatment and disposal markets**. For example, in 2009, Wessex Water established GENeco (now a functionally separated division of Wessex Water Services Limited) to undertake its sludge treatment services. Today GENeco provides services relating to food and liquid waste treatment and recycling through to the composting of difficult to treat biodegradable material.

That there may be scope for entry to / from wider waste markets implies that the total benefits associated with an increased use of markets in relation to sludge may be greater than implied by the value of the sludge supply chain in isolation. In particular, we note that while total regulated revenues associated with sludge treatment, transport and disposal are around £900 million per annum[8] (assuming a focused RCV allocation – average over 2015-20), the wider waste and recycling sector in the UK has a turnover of £18.3 billion per annum and a gross value added (GVA) of £5.5 billion. Consequently, to the extent that the development of markets for sludge may indirectly help to drive value and efficiency in wider waste markets, the benefits of this could be considerable over the longer term. We also note that wider waste markets appear to be growing over time. For example, we have seen a large increase in the number of anaerobic digestion plants over the last five years, treating food waste and slurries.

Finally, our analysis suggests that asset lives in relation to sludge treatment, transport and disposal are relatively short (and are shorter than for water resources – discussed subsequently). In particular, based on 2013-14 data, we find that average asset lives are 13 years (excluding Thames Water and Wessex Water, who are significant outliers) for sludge disposal and 30 years for sludge treatment. This is important because the tension between realising the benefits from the use of markets and stranded asset risk is reduced where asset lives are shorter – implying that there is perhaps more scope to make use of markets in relation to sludge.

With regards to capital intensity, sludge disposal is particularly investment light, with a capex to opex ratio of around 12%. Sludge treatment is more capital intensive, with a capex to opex ratio of 115%. Generally speaking, the need to invest capital to enter a market is not, in and of itself, a barrier to entry. However, it can give rise to barriers where:

- the investment is sunk (that is not recoverable on exit), as existing players are committed to remaining in the market;
- where there may be issues of access to finance; or
- where incumbents have some form of inherent advantage in relation to financing costs.

[8] The sludge regulated revenues have been estimated by segmenting the PR14 business plan allowed revenues, based on the sludge historical weighted average share of opex and capex and using a focused approach for allocation of the RCV.

4.5.2 Key implications for our future regulatory and market design

The evidence summarised above (and set out in more detail in appendix 1 points to there being scope to make greater use of markets in relation to sludge treatment, transport and disposal. The key implications are as follows.

First, evidence shows that there is some scope for increased trading and optimisation between the WaSCs and entry into/from OOW. Therefore, **the fact that there are unrealised optimisation opportunities at present would seem to indicate that there are market failures or barriers that are impeding this**. The available evidence would tend to suggest that the most likely barriers include the following.

- **Missing information.** While there are some price signals in the marketplace already (for example, pertaining to the end use of sludge as a commodity, such as ROCs, biofuels and fertiliser) these are limited and the current low levels of trade mean that price signals relating to sludge as an input are minimal. Consequently, it would be challenging for incumbents and potential entrants (both out of area WaSCs and firms in wider waste markets) to identify profitable trades or optimisation opportunities. Without the ability to identify such opportunities, the scope for any markets to develop would seem minimal. Consequently, regulatory design options that address these informational issues (by providing information on issues such as cost, capacity, quality and location – prior to pricing signals developing) are likely to be of merit.

- **Cultural issues.** The OFT noted that there may be cultural issues associated with the behaviour of companies, which might deter them from outsourcing activities in these markets. This might be consistent with a wider 'within supply area' focus or culture – as we described earlier. Given the scope for innovation, technological change and the ability to generate value from sludge, we should consider how our design might help support cultures most consistent with realising the benefits associated with this, where our experience in retail indicates that a greater focus on specific activities can help foster wider benefits.

- **Regulatory incentives.** Here a concern could be whether WaSCs and investors might consider 'own and build' to be subject to less regulatory uncertainty than contracting arrangements. This might be because their perception is that, as regulatory approaches evolve over time, all else equal, regulation will deliver greater certainty with regards to the funding of assets than contractual arrangements with third parties. However, this would seem to be less of a concern for sludge than for water resources, given the shorter asset lives. A specific concern in relation to sludge is how any additional revenues companies generate (either out of area or in wider waste markets) might be treated. To date, with respect to revenues generated within the regulatory ring-fence, these have been treated as a 'negative cost', and so companies retain 50% of the benefit of any out-performance (under our cost sharing framework).

- **Environmental regulations.** We recognise that the current arrangements relating to environmental regulation would seem to make co-digestion of sludge and OOW difficult or expensive – and that this may limit the ability of firms in the OOW market to enter sludge treatment, transport and disposal. However, as the optimal mix of microbes used to digest sludge and OOW can differ, this constraint may not be as large an impediment as it may seem, as separate digestion may be more efficient. Synergies can still be gained from colocation, for example, through co-treatment of the biogas produced through digestion. Clearly, to the extent that environmental regulations are a barrier, it is not something that we can directly address within our own regulatory framework. However, to the extent that our reforms create more visibility regarding the value of sludge, this in turn may influence environmental policymakers over time.

Second, with regards to sludge having a value through being a source of income – and noting the fast change in usage patterns – it is important to consider how any design might:

- better reveal what that value is; and
- help best foster and incentivise innovation and value maximisation.

We must be mindful not to unintentionally dampen firms' incentives to undertake value-adding activities in these markets.

Third, there is a closely related market (OOW), where in principle:

- WaSCs may be able to increasingly participate (through utilising existing assets, or developing new assets for that purpose); and/or
- OOW firms may similarly be able to participate in sludge treatment, transport and disposal.

We therefore need to consider how our regulatory regime affects the related markets for OOW. In particular, we should consider the extent to which there could be cross subsidisation between the markets in a way that ultimately might be detrimental to wastewater customers.

Fourth, the relatively shorter asset lives in relation to sludge treatment, transport and disposal – coupled with the scope for dynamic efficiency gains – would suggest that **stranded asset risk should be a less material concern in this area** from a regulatory design perspective (although clearly we are still mindful of this).

Finally, we recognise that, while there appears to be some scope for trading between WaSCs – and potentially wider interplay with the OOW space – the extent of this is difficult to ascertain definitively. It is clear that the scope for such trades will be localised – and further, we cannot accurately predict how quickly the market might evolve. From a regulatory design perspective, this would imply that **a path towards full market deregulation, or uniform backstop price regulation, would not be appropriate at this time**. It would also seem to imply that **information to support markets would need to be localised**.

4.5.3 Our preferred market design

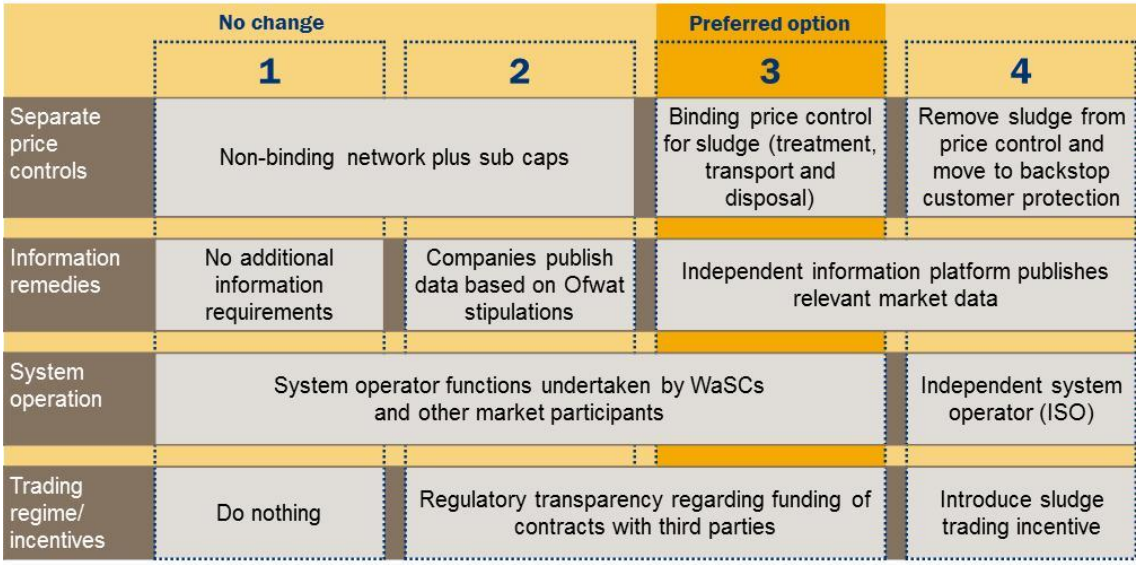
Reflecting the above, we considered a range of market design options that could address the issues we identified. We have assessed these design options in terms of four key dimensions:

- price controls;
- informational remedies;
- system operation; and
- trading incentives.

In addition to these, our market design also incorporates an approach to RCV allocation. We discuss this further at the end of this section.

The following figure summarises the options we considered, and highlights our preferred option. Below we summarise the key elements of our preferred option and our rationale for selecting it. A more detailed description of our preferred model – and our evaluation of it, is set out in appendix 1.

Figure 11: Preferred market design option for sludge



In relation to price controls, our preferred option is to have a separate binding control for sludge treatment, transport and disposal. Our rationale for this is that there appears to be some scope for third party provision in the market, which we think would be better facilitated by an approach that more clearly delineates the associated costs and revenues of these activities. In addition, the potential overlap with the wider OOW markets means that cross subsidisation across the OOW and sludge markets is a particular concern as we look further ahead. It is important to note here that we are equally concerned with ensuring that WaSCs have the right incentives to explore, and benefit from, value adding commercial opportunities.

Clearly, the extent and speed at which any markets might develop is uncertain, and we recognise that it will most likely be limited to certain localities due to transport costs. However, we think that having a separate control could also address the cultural issues identified by the OFT. Indeed, our experience of setting separate retail controls at PR14 indicates that having a separate sludge control might help foster an increased commercial focus in this area. We think this may be a particular benefit, given that sludge has a value, but also given the rate of technological change and therefore the potential for future opportunities and uses to evolve rapidly. We note that in its report on the commercialisation of sludge markets, Wessex Water advocated the introduction of a separate price control in relation to sludge, albeit potentially based around 'sites', rather than 'activities', where (and as highlighted in its case study of GENeco) the benefits of a tighter management focus that assists in identifying revenue opportunities is an important consideration. A separate control might also increase our ability to align regulatory incentives to the characteristics of sludge markets – in particular, by refining and honing our approach to cost assessment and efficiency incentives.

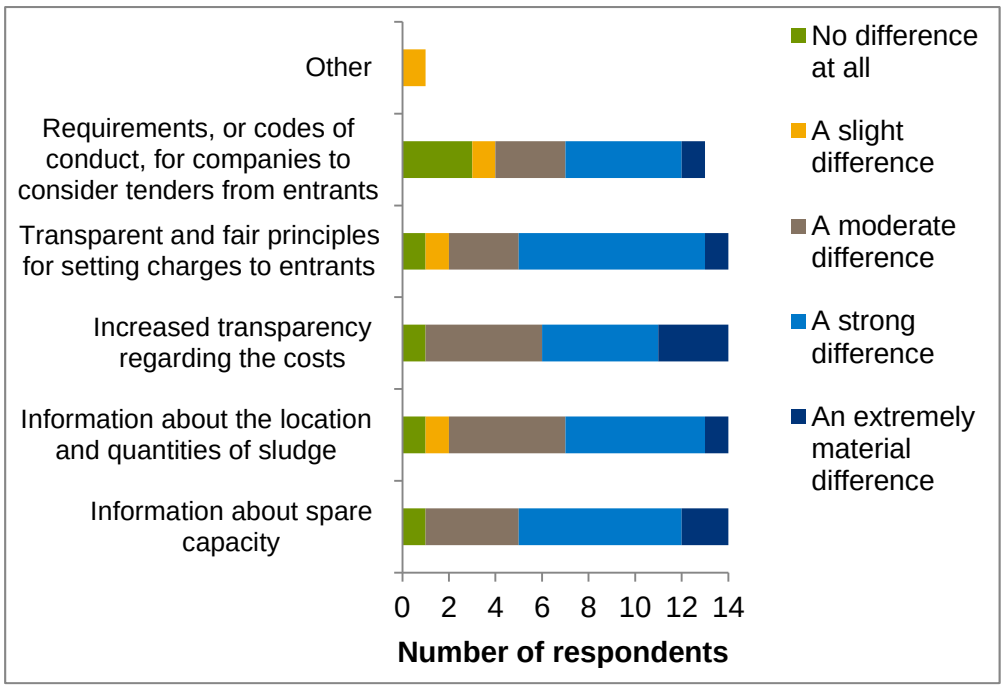
The evidence we have reviewed suggests that **informational solutions should form a central part of our market design for sludge treatment, transport and disposal**. In particular, prior to the development of strong price signals, players in the market are unlikely to be able to identify profitable trades and optimisation opportunities. We further found, given the likely localised nature of markets, local level information is also likely to be important. Accordingly, **we are proposing to ensure that a range of information is made available to help support the development and functioning of markets for sludge treatment, transport and disposal**.

This primarily concerns making data available on a range of metrics at an individual site level. At present, we propose that this data would be collated and published on an **annual basis** and would include:

- location of sites;
- capacity;
- sludge quality, including organic content and water content; and
- treatment and transport costs or prices (£s per tonne of dry solids).

We welcome views as to the scope and frequency of data, which is described in more detail (including illustrative data tables) at the end of this section. As shown in the next chart, our survey of potential entrants into sludge markets indicated that increased information transparency on the above issues would increase their likelihood of entering.

Figure 12: Respondents' views on mechanisms for increasing the likelihood of entry into sludge



Source: Ofwat analysis of responses to survey of potential sludge market entrants.

This type of information could be collected and disseminated in a number of ways. For example, it could be collected and **published by WaSCs individually on their websites**. Alternatively, there may be merit in establishing a more centralised **information platform** (which could be managed by an independent third party entity). We are minded to prefer the establishment of some form of platform for this purpose – as this will help to reduce the cost and effort incurred by market participants in seeking out information from a variety of sources. It should also better help promote consistency of information. We will work with the Environment Agency and companies to ensure that our proposals recognise environmental and public health issues and do not place an undue burden on the parties involved.

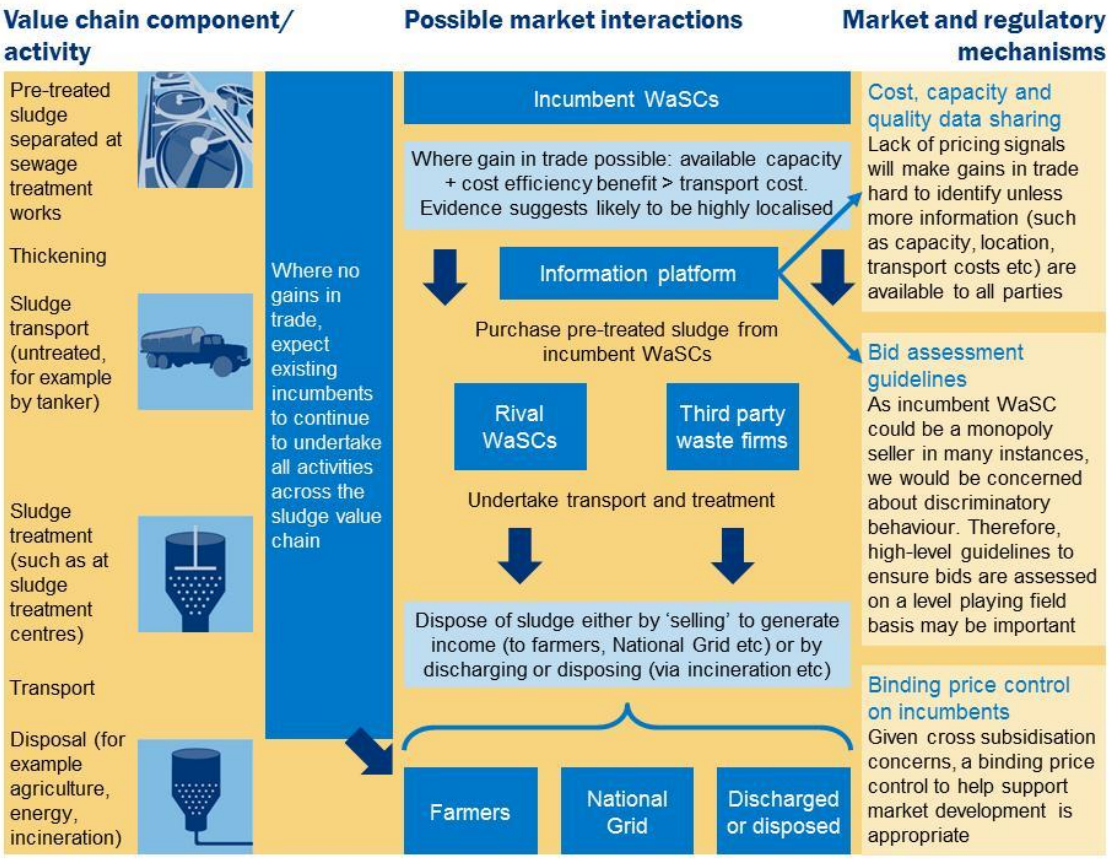
Further to the above, we think that informational solutions may need to be supported by us providing **high-level guidelines setting out the basis on which bids from rival firms should be assessed**. This is because in many instances the incumbent WaSCs would be the monopoly 'seller' of untreated sludge to rival out-of-area WaSCs and OOW firms. Consequently, some kind of (high level) guidance that helps ensure that 'bids' from rivals to undertake sludge treatment, transport and disposal activities are assessed on a level-playing field basis may be beneficial. We would also wish companies to **record instances of third parties bidding** to undertake these activities and reasons for accepting/rejecting those bids.

In relation to system operation, our view is that such activities in sludge are somewhat limited in nature and, furthermore, do not need to be centralised. As such, they most likely best sit with the incumbent WaSCs (and, as appropriate as and when new firms enter the markets, with those firms). Therefore, **we are not proposing any change from the status quo regarding system operation** (in a functional sense).

Finally, in relation to trading, at this time **we do not think it appropriate to set specific financial incentives for sludge**. This is because, as set out above, the evidence points more to factors relating to information asymmetry (and a lack of pricing signals) as being the primary issue that might explain why there has not been increased trading between WaSCs and / or third parties to date. However, as under the current arrangements, **to the extent that WaSCs are able to generate revenues from participating in wider waste markets through their non-appointed business or a related company they would be able to retain a significant proportion of the upside value potential of this.** We consider this to be an important feature of allowing markets to develop. As now, customers would benefit from this as the use of the appointed business's assets by the non-appointed business or related company would be subject to appropriate transfer pricing, thus reducing the appointed business's costs.

The following diagram provides an illustration of how we envisage the market might function under our proposed package.

Figure 13: Sludge treatment, transport and disposal market model



Because the market we envisage developing, at least initially, is for incumbent WaSCs to act as the buyer of sludge treatment, transport and disposal services from each other or third parties, we see this model applying equally in England and Wales. It could be that, as the non-household retail market develops for customers of companies whose area is wholly or mainly in England, retailers could also act independently as the buyers of sludge treatment, transport and disposal services. The proposals we are making here would also support the development of such a bilateral market, but are not dependent on its existence.

To implement the above market model in practice, key issues we need to address include:

- our treatment of the RCV – that is, whether we are specifically allocating RCV to sludge and, if so, how; and what role the RCV will play in the future;
- our approach to pricing and charging; and
- our approach to RCV protection (addressing stranded asset risk).

We set out our position on these issues at the end of this section. Below, we set out further details of the information we anticipate being provided to the market before setting out questions for consultation.

4.5.4 Potential information requirements for sludge

As outlined in the preceding text, we see informational solutions as a key part of our model for sludge.

As it stands, there is no visibility of a market price for providing sludge services. Given the absence of such price information, our proposal for producing information includes cost information as a substitute for price. The cost information will be used to reveal the opportunities available to those wishing to explore providing new sludge services. We recognise that there are risks associated with publishing detailed cost information, and so we will consider developing alternatives, such as collating 'price to beat' information, if it can be transparently and consistently calculated. Information is needed at two specific points in the value chain to promote markets in sludge.

- First, information relating to **the production of sludge at sewage treatment works** (STWs). In particular, how much sludge is produced, in what location and of what quality.

- Second, information regarding the **cost of treating sludge at sludge treatment centres** (STCs) – and, importantly, the costs and revenues associated with its transport and subsequent disposal. Information on available and used capacity at STCs, and the location of these sites, is also important.

The combination of the above two types of information will **allow market participants to infer the implied 'gate price' for sludge at STWs**. That is, they can estimate the price that would be paid by the incumbent operator of an STW to another firm, to take sludge away for subsequent treatment and disposal at STCs. This gate price, in principle, could be either positive or negative, depending on whether any revenues generated from the treatment or disposal of sludge offset the associated costs (if the value of sludge was greater than the costs of its treatment and disposal, the third party provider would pay the incumbent). This, in turn, will depend on factors such as:

- the extent to which the sludge can be re-used for the purpose of energy generation and/or used as a fertiliser; and
- the characteristics of the sludge itself (such as its calorific content; and whether it is primary sludge or activated sludge).

The above information could help to facilitate the development of markets both for potential 'buyers' and 'sellers' of sludge.

- For third party providers (either out of area WaSCs, or firms in wider waste markets) it would allow them better to identify opportunities where they might be able to undertake sludge treatment, transport and disposal more cost effectively than incumbents (or where they could realise additional value).

- For incumbents, it would assist them in identifying situations where, due to issues of capacity constraints and/or cost efficiency, they might be better off seeking to out-source these activities.

The information will need to be presented in such a way that **reflects the quality of sludge**. This could include, for example, data on the proportions of sludge being treated by 'type', where possible splits could include: activated/primary; and/or splits based on calorific value.

The following two tables set out the type of information we envisage asking companies to provide. The first of these sets out the required information in relation to STCs. Here, in instances where STCs are co-located with STWs (which can often be the case) **the implied transport costs would be zero**.

Table 1: Illustration of information to be collected and published for a sludge treatment centre

Data type	Average	Min	Max
Total treatment capacity (tds/month)	150	80	160
Capacity used (tds/month)	100	75	120
Available capacity (tds/month)	50	0	85
Average treatment costs (£/tds)	50	50	50
Dry solids as proportion of input sludge (%)	15	5	20
Primary sludge as a proportion of input sludge (%)	60	50	62
Activated sludge as a proportion of input sludge (%)	40	38	50
Average transports costs - in from STWs (£s/tds)	5	5	5
Average disposal costs – including any income generated (£/tds)	10	10	10
Location of sludge treatment centre (address)			

Note: tds = tonnes of dry solids

All figures are illustrative and do not reflect actual data.

To infer or derive gate prices at STWs, information regarding sludge production at these sites would also be required. The next table sets out the type of information we envisage for STWs.

Table 2: Illustration of information to be collected and published for a sewage treatment works

Data type	Average	Min	Max
Total sludge produced (tds/month)	80	70	85
Total capacity (tds/month)	90	90	90
Dry solids as proportion of sludge produced (%)	15	12	18
Primary sludge as a proportion of sludge produced (%)	60	59	61
Activated sludge as a proportion of sludge produced (%)	40	39	41
Location of sewage treatment works (address)			

Note: tds = tonnes of dry solids

All figures are illustrative and do not reflect actual data.

Note: in relation to the above, we are not proposing that companies provide information on costs and capacity cross-tabulated by specific combinations of STCs and STWs. This is for reasons of proportionality and because we think that the combination of average costs, capacity and site location information should be sufficient to provide appropriate pricing signals to the market. **The information should help market participants to identify circumstances under which a trade might be profitable, which would then form a start point for commercial negotiations**.

We recognise that further work is required to consider the precise format and frequency of data and its means of collection and dissemination. We therefore welcome views on these matters from respondents. As indicated previously, we are currently proposing that this information should be updated annually and see merit in the data being stored and published through some form of **centralised information platform,** available to all market participants and potential entrants. In the near term, **we would propose to partner with companies to trial the development of the above data and broader approach in sludge** – and would similarly welcome views on this.

Our questions for consultation in relation to our proposal for sludge are set out below.

Consultation questions: sludge treatment, transport and disposal market design

Q1 Do you agree with our proposal to have one separate binding price control for sludge treatment, transport and disposal?

Q2 Do you agree with our proposal to make a range of cost, price, capacity and location information available to facilitate the identification of trades? Do you agree that the data should be published on a STC and STW site level? Do you agree that the data should be published annually? Do you agree with the categories of data that we are proposing are necessary and appropriate, as illustrated in the tables? Are any missing?

Q3 Do you agree that the information should also contain details of 'bids' in from third party providers, and that there should be guidelines for ensuring that such bids are assessed on a level playing field basis?

Q4 Do you agree that the data should be made available centrally through some form of information platform? Do you have any views as to how this might best be managed?

Q5 Do you agree with our proposals not to make any changes to the status quo in relation to system operation activities?

Q6 Do you agree with our proposals not to have any specific financial incentives to support trading in relation to sludge at this time?

4.6 Our proposed market design in relation to water resources

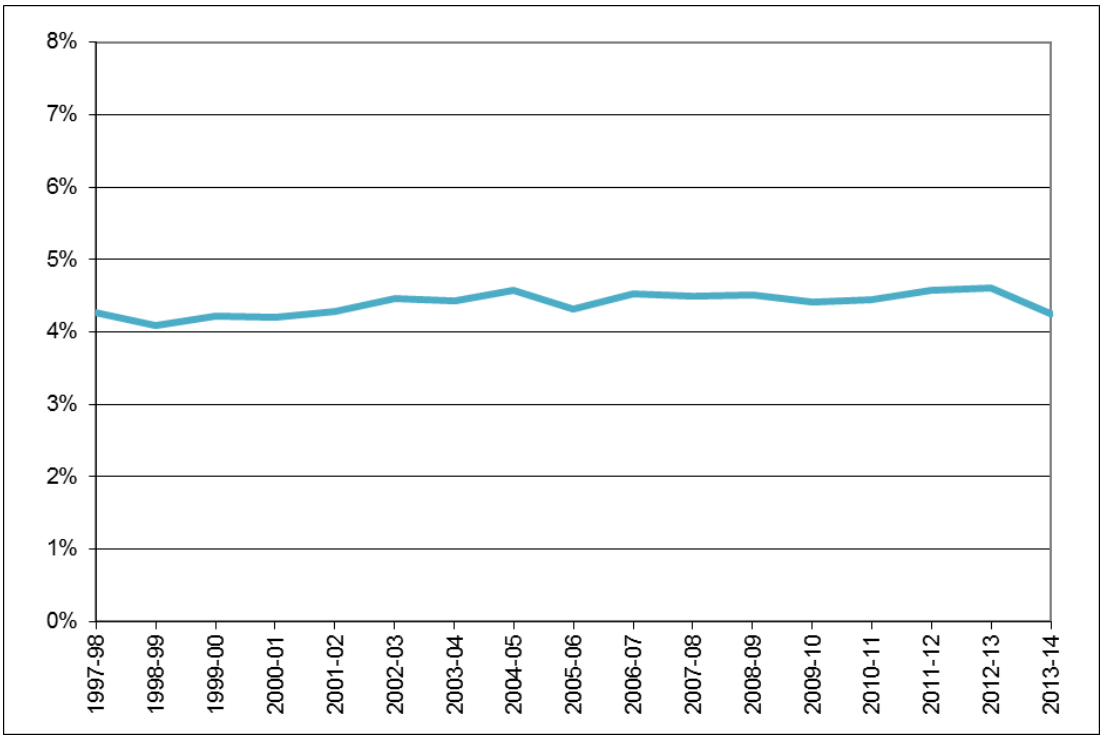
Our market design for water resources will inform how we develop our regulatory framework. We expect the proposals that we set out here to be a first step in making better use of market mechanisms and that our approach will evolve. In turn in this section, we discuss:

- a summary of the key evidence and considerations that we have taken into account;
- the resultant implications for our market design; and
- our preferred option.

4.6.1 Key evidence

We have examined the latest data available from the bulk supply registers (for 2013-14) on current levels of water trading between regulated companies. The total volume of water exported in 2013-14 was 619 Ml/d, and the revenue earned from these exports was just under £34m. The figure below confirms that, as we noted in the July discussion document, the volumes of water exported have not changed significantly over time and the 2013-14 figure is similar to previous years.

Figure 14: Bulk Supply Exports as Percentage of Total Distribution Input



Source: Ofwat analysis of bulk supply registers.

The distribution of water trading volumes is heavily skewed, with a small number of trades accounting for the vast majority of water traded. Out of a total of 140 reported trades in 2013-14, the 9 largest accounted for over 90% of traded volume while the largest trade accounted for almost 50% alone. The majority of water traded is non-potable (raw) water, which accounted for 76% of exports by volume in 2013-14. Potable (treated) water accounted for 24%. However, it is worth noting that the majority of individual trades were actually of potable water, but these trades were much smaller on average. We also examined the date on which bulk supply trades were first agreed; and specifically, whether the agreements were already in place prior to privatisation of the industry in 1989. **Contracts agreed prior to privatisation were found to account for the majority of water volumes traded** (94% of the total volume in 2013-14, versus 6% of volume under contracts agreed after privatisation).[9]

[9] We recognise that this data is influenced by the ownership of the water resource assets. For example, Dŵr Cymru's Elan Valley transfer to Severn Trent Water is counted as a water trade in the Bulk Supply Register because it is between Dŵr Cymru and Severn Trent Water. In contrast, the Lake Vyrnwy transfer from Wales to Manchester is owned in part by United Utilities and so does not feature as a water trade in the data. This

In appendix 2, we have considered the factors required for markets to develop. Our analysis suggests that geographic markets for water resources are likely to be relatively small and related to topography and river systems. This means that the location of a resource as well as its cost of abstraction will be important. It also suggests that a number of related trades between adjacent areas may be required to fully realise the potential of the opportunities or that trading of abstraction rights rather than physically transporting water will be beneficial. For example, additional resource at one location (A) may be able to be transferred to a second location (B), which in turn allows resource to be shifted from the second location to a third location (C). In effect, water has been transferred from location A to C, although there is no direct transfer between A and C. It is also true that in some cases, water is currently transported significant distances in the sector, and where a third party provider has a water resource close to a demand centre and distribution, it may be well placed to enter the market.

The interaction of these factors and the relatively high cost of new resources compared to existing resources, along with slow volume growth, means that it is unlikely that opening resource markets to new entry would be sufficient to constrain prices of water resources to competitive levels. However, these issues apply to both incumbent appointees and third party providers for new resources, and so suggest that markets are best focused on the supply of new resources.

We have also updated our quantitative analysis of the potential savings available from water trading in England and Wales (originally carried out in 2010). The analysis suggests that the potential gains in relation to water trading between incumbents still appear to be substantial. In our base case we estimate the scale of potential cost savings available from greater interconnection is around £914m (2012-13 prices) over the lifetime of the assets compared to the cost of the schemes proposed in water companies' 2014 WRMPs. Across all the scenarios tested, the cost savings (in 2012-13 prices) from greater interconnection ranged from £754 million to £1,077 million. A full description of the modelling can be found in annex 2 of appendix 2.

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indicates that companies move larger volumes of water between appointed areas when such transfers are internal to the company, compared to the volume of water that they trade at arm's length.

We have also considered the potential impact of increased water trading on resilience. We consider that increasing water trading will improve the resilience of the sector as a whole. Promoting water trading will likely lead to increased interconnection – this will increase the flexibility of the water supply system as a whole, which will enable it to better respond to shocks. As water trades will only be agreed with the Environment Agency if they are environmentally sound, this increased interconnection should not reduce the resilience of the environment. Indeed, by allowing more water to be moved from areas of lower water stress to higher water stress water trading is likely to improve environmental resilience.

An argument could be made that if water is being exported from an area on a 'firm' or guaranteed basis, then that must reduce the resilience of the exporting area to shocks. While this could be true, the extent to which resilience is affected must be considered. When a new export is agreed, it must be the case that the water company in the exporting region will be able to continue to provide resilient supplies without the exported water, and this would be reflected in their arrangements for ensuring security of supply. Any water exported would therefore is taking into account when assessing resilience in the exporting region.

Finally, we also consider that promoting markets for new water resources will better ensure the longer-term resilience of the water supply system than regulation alone, as markets are effective mechanisms for identifying and realising the benefits of new and innovative ideas. Markets also give existing water companies a wider range of options of supply, and encourage companies to develop the relationships and skills to manage that wider range of options, which must improve resilience overall.

As well as carrying out internal analysis of the scope for water trading, we commissioned Deloitte LLP to undertake a study on 'Water trading – scope, benefits and options'. A key issue examined by Deloitte is whether the historically low levels of trading reflect economic fundamentals (such as the cost of transporting water) or other barriers and market failures. This is critical because, if it is primarily the former, then this would indicate that there are no regulatory reform options that would materially increase trading in future. However, if it is the latter, then, in principle, we should be able to identify specific issues and problems that we can target with our regulatory approach. In their study, Deloitte identified a number of barriers to trading, which include, among others, the following.

- **Security of supply obligations** – regulatory obligations and incentives regarding security of supply may encourage companies to favour their own water supplies.

- **Information asymmetry** – namely, that information required to identify trading opportunities (such as supply and demand forecasts, water scarcity and cost information) may not be sufficiently transparent.

- **Regulatory and policy barriers** – including uncertainty over the future abstraction regime and insufficient guidance regarding pricing rules in relation to third parties.

- **Non-marginal pricing** – bulk supply prices and revenues have typically been set in relation to average supply costs, rather than marginal costs.

To address the barriers described above, the report set out a range of potential options for mitigation, which we have incorporated into our discussion of preferred market design options below.

We also engaged with stakeholders who are currently, or have the potential to, participate in water trading and/or in the provision of water resources. Details of this are contained in annex 1 of appendix 2, and the key themes included:

- there is appetite for greater participation in water trading;
- barriers to this include a lack of awareness and information; and
- fundamentals, including water transport costs and capital investment requirements, also limit the scope for increased trading.

More generally, and consistent with the feedback we got from stakeholders, we recognise that while there is some scope for third party provision in relation to the provision, or sharing, of resource itself (say from farmers and brewers) the extent to which this could emerge is likely to be more limited than for sludge. This is further consistent with the facts that water resources are characterised by long-lived assets and that the majority of that investment is likely to be sunk. It also reflects that, unlike for sludge where demand and value could increase materially over time as new uses and technologies emerge (thus creating more opportunities for third party provision), **demand for water resource is generally linked to population growth and consumption**.

An important consideration in relation to the scope to use markets in water resources in areas served by water companies whose area is wholly or mainly in England, is how future 'bilateral' markets (as envisaged in the Act) might develop. As the Welsh Government does not currently intend to bring the relevant parts of the Water Act 2014 into force, bilateral markets will not be in effect in areas served by water companies that are wholly or mainly in Wales.

By 'bilateral' markets we mean wholesalers, which could be entrants or incumbents, (licensed under the Act) contracting directly with retailers in relation to the provision of new water resources. Bilateral markets will provide information not only about doing things at lower cost, but about making the best overall use of resources and about finding new and different ways of doing things, this can provide benefits to both customers and the environment. An issue that arises here is that, to incentivise efficient entry, those wholesale entrants will need to recover the long-run incremental cost (LRIC) of any new resource they develop. However, incumbents price existing water resources based on their average costs. Here, if we assume that any RCV allocation to water resources is on an unfocused basis (which we think would be appropriate, as discussed subsequently) the average price

charged by incumbents would be materially below the LRIC for new resources. Put simply, one would not, therefore, expect efficient entry to occur – or at least, entry could only occur where an entrant could compete against the average price, which would include the embedded RCV discount. This issue is explored in United Utilities' paper on pricing for the wholesale parts of the value chain.

It is important to understand that, in relation to the above issue, **any package of regulatory design needs to be considered holistically**.

- Under a regulatory approach that sets a binding separate price control for water resources (and water network plus), and so also formally allocates a proportion of the RCV to these areas, the above issues can be addressed by allowing for a compensation payment that allows entrants to recover the higher incremental cost of new resource while ensuring that customers do not pay for the cost of existing resources.

- Alternatively, under a regulatory approach that does not include separate formal price controls or RCV allocation, a 'wholesale minus LRIC' approach to access pricing (using the existing water wholesale price control) would similarly allow entrants to recover incremental costs, while preserving average cost based pricing.

Here, the key point to note is that **both approaches in principle deliver exactly the same incentives for entry – and so, from a value perspective – are equivalent**. Therefore, the choice between them turns on a consideration of the overall package (one cannot assess access pricing approaches in isolation). Here, and as described previously, **we consider there to be important benefits associated with having a separate control** (including the fact that it sets a clear boundary between networks and resources, facilitates transparent reporting of cost information and reduces the risk of cross-subsidy between networks and water resources). **Accordingly, we prefer the first approach to the second.**

As noted above, as the Welsh Government does not currently intend to bring the relevant parts of the Water Act 2014 into force, bilateral markets will not be in effect in areas served by water companies whose area is wholly or mainly in Wales. However, we consider that there is a strong case for promoting a wholesale water trading market in water resources in areas served by water companies whose area is wholly or mainly in Wales. For example, an increased focus on water trading will benefit water companies whose area is wholly or mainly in Wales, and their customers, as these companies are well placed to take advantage of new water trading opportunities.

Indeed, Dŵr Cymru was the first water company to propose a water trading and procurement code, which was published for consultation on the 24 November 2015 (Water trading incentives: Dŵr Cymru trading and procurement code). Having a water trading and procurement code is a necessary step for a water company to be rewarded through the water trading incentives under the 2014 price review. Customers will benefit, sharing in the benefits of earnings from water exports, reducing their bills as well as greater assurance around the costs associated with water resources and other activities.

4.6.2 Key implications for our future regulatory and market design

The evidence summarised above (and set out in more detail in appendix 2) points to there being scope to make greater use of markets in relation to water resources. It also has implications for our future regulatory approach, which include the following.

- Trading levels have remained persistently low over time, and a range of evidence suggests that this cannot be entirely explained by economic fundamentals but, rather, is due to the presence of various barriers to trading. Our own analysis suggests that there are material unrealised benefits from increased trading. Consequently, from a design perspective, this suggests that **we should consider what steps we can take to help mitigate and reduce these barriers, so as to further promote efficient trading**.

- Evidence points to the most important barriers to increased trading being: concerns around security of supply obligations (including counterparty risk), information asymmetries, insufficient financial incentives for trading and/or interconnector development, water quality issues, pricing issues (the lack of a robust marginal price methodology that accurately reflects water scarcity), and potential uncertainty relating to abstraction reform. Vertical integration may also create incentives and opportunities for incumbents to discriminate against third party suppliers. **We consider that the evidence is most supportive of focusing on the issues of information asymmetry and incentives** when considering how best to promote trading.

- Companies may perceive that contracting/third party options are subject to more regulatory uncertainty than in-house options that are incorporated within the RCV. Again, the characteristics of water resources mean that this might be more relevant here than for sludge.

- Longer asset lives (large infrastructure assets can have asset lives of up to 250 years), combined with the sunk nature of investment, means that, if all else is equal, **stranded asset risk would be more of a concern in relation to water resources**. We therefore need to consider how best to address this.

- When we consider the likely path for market development, and the scope for benefits, **increased trading between the incumbent companies is likely to be the initial area of development**. We note that abstraction reform is expected to be implemented within the next price review period. This will provide benefits: abstraction trading would complement water trading and, for companies whose area is wholly or mainly in England, would also complement the 2014 Water Act reforms as well as better reflecting the environmental value of water.

- Further to the above, when we consider more fundamental bilateral market models between licensed wholesalers (who contract directly with retailers) as envisaged by the Act, **we need to consider how to address the average cost / LRIC differential described earlier**.

4.6.3 Our preferred market design

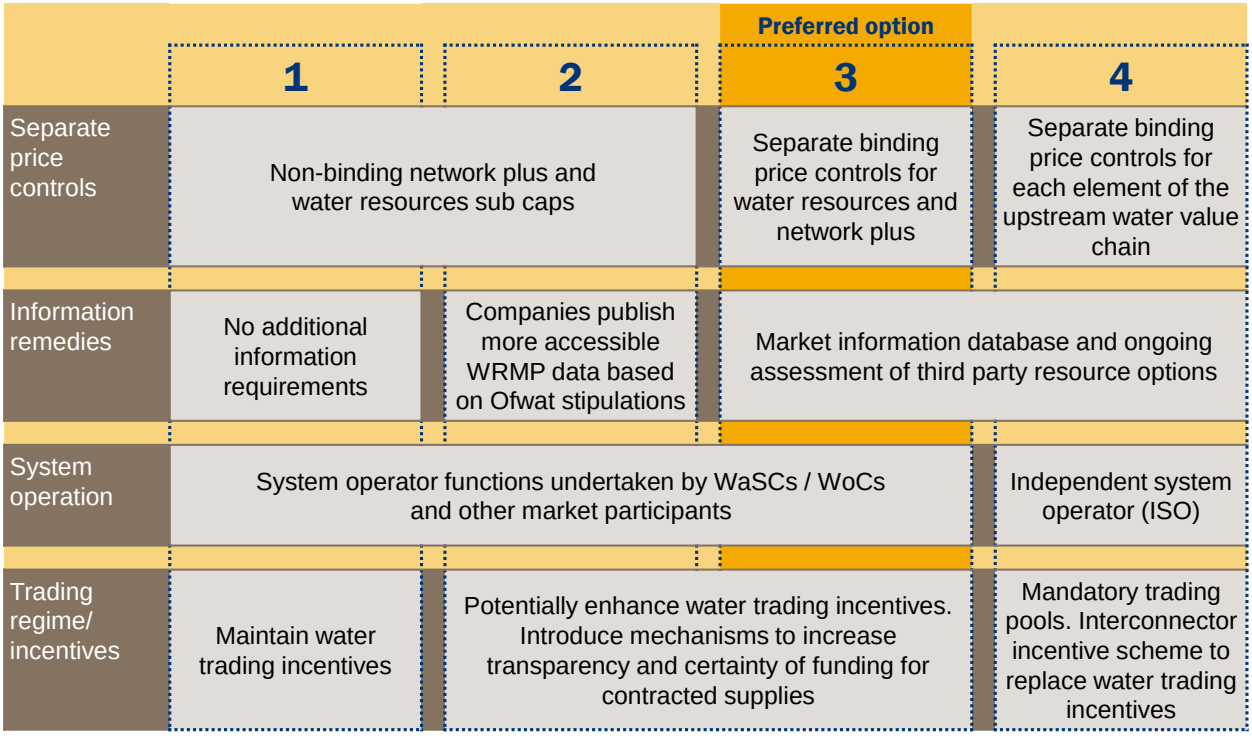
We have considered a range of options to address the barriers to the development of markets in water resources discussed above. As with sludge, these options have been considered in four key dimensions:

- price controls;
- informational remedies;
- system operation; and
- trading incentives.

Access pricing and our approach to the RCV are discussed further at the end of this section.

The figure below summarises the key options we considered, and highlights our current preferred option. Below, we discuss each dimension of our preferred option, including our rationale for selecting it. More detail on our preferred model and the evaluation of it is set out in appendix 2.

Figure 15: Preferred market design for water resources



In relation to price controls, we are proposing to introduce a separate binding price control for water resources. While we consider that the scope for the development of well-functioning markets for the provision of resource itself may be more limited than for sludge, our view is that the benefits of further separation of price controls extend well beyond market facilitation. Specifically, we think that separate controls are likely to assist in the setting of more targeted regulatory incentives, and in increasing focus (both within companies and the regulator) on specific parts of the value chain. Over time, this could help to unlock further efficiency gains, which benefit customers, investors and the environment. Further, setting price controls and allocating the RCV will provide clear price signals and transparency around the cost of existing resources. **We therefore consider the case for a separate water resources price control to be compelling.**

Following from the above, we further **propose to introduce a mechanism to offset the difference between LRIC and average costs**, so that entrants can recover an appropriate amount of cost for their new resource, to incentivise efficient entry, while preserving average cost recovery. We discuss this further in our approach to access pricing for water resources (see later).

As with sludge, the evidence suggests that **informational remedies** should play an important part of our market design for water resources. In particular, mechanisms that help address a lack of information and/or uncertainty regarding issues such as the marginal value of water, the location, reliability and cost of potential water resources, are likely to be of benefit. We are therefore proposing a package of measures, consistent with Deloitte's report, that include the following.

The creation of a **market information database**. Submission of information would be mandatory for licence holders (as previously defined), but other participants may also contribute information on a voluntary basis. The type of information required would likely need to include technical criteria, water source and quality, environmental and security of supply impacts, and an overall cost-benefit assessment. We will work with the Environment Agency, the DWI and companies to ensure that our proposals recognise relevant environmental and public health issues, are consistent with WRMP processes and do not place an undue burden on the parties involved. Linked to the above, a **platform to facilitate the assessment of bids** from third party resource providers. To support a dynamic market, we think it is important that **bids are assessed on an ongoing/real time basis** to help build on, and complement, the WRMP process. We consider that companies recording and publishing information about third party bids and reasons for accepting or rejecting those bids could help support future decisions by market participants and reduce overall search costs. The disclosure of bids will be mandatory.

A **principles-based approach for bid assessment**, where we propose to set out the basis on which bids should be evaluated to help ensure a level playing field is in place. This could also include a route of recourse to Ofwat (as proposed in Deloitte's report) should participants think that a bid has not been evaluated in line with these principles; or alternatively, bid assessment behaviour could be taken account of by us at subsequent price controls. We will look to further develop this mechanism as part of the Water 2020 work programme.

The overall rationale for the above is **to encourage third party provision in the market for new water resources**, which we consider is appropriate, given the characteristics of this part of the value chain. We are interested in views on how best to achieve this, including what information would be required to support an effective market.

In relation to system operation, at present we are not minded to recommend any change to the status quo (in terms of parties who are responsible for decision making) and so system operation decisions will continue to reside with incumbent companies and the Environment Agency. Here our reasoning is that our proposals in relation to increased 'bidding in' of third party resource options in real time will help to facilitate a wider, out of area, approach to optimisation. In addition, collectively **our proposals are intended to promote more optimised decision-making over the longer term**. In the future, we may further consider the effectiveness and future evolution of system operation arrangements

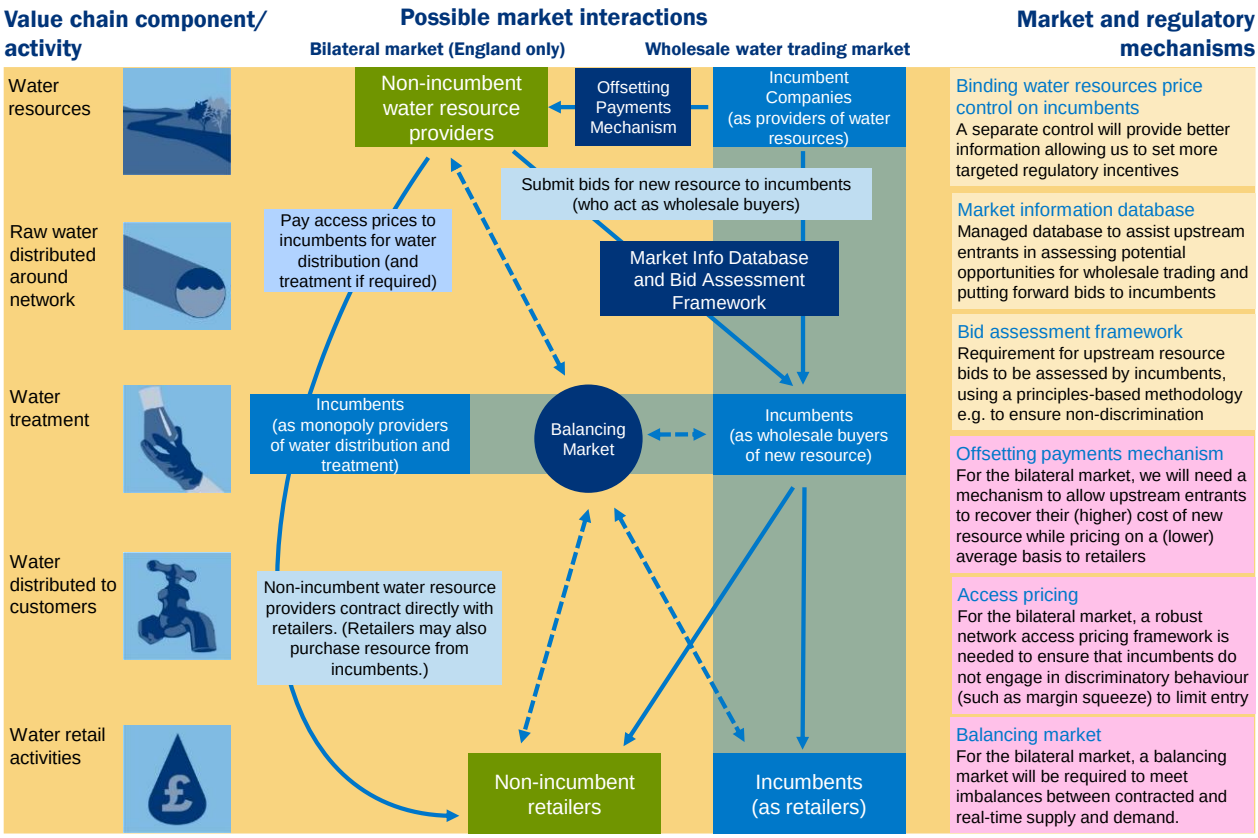
depending on the results of the emerging water resources market over the next period and evidence of issues with co-ordination of the system. We are interested in respondents' views on our proposed approach to system operation for water resources.

We envisage that **a third party organisation may be best placed to manage the information database** as described (and the bid assessment framework). Depending on how any payment mechanisms are implemented to offset the LRIC / average cost differential, the associated payment flows could also be managed by a third party organisation. However, we are interested in obtaining respondents' views on this matter.

In relation to the **trading regime**, we propose that the existing water trading incentives agreed under PR14 should be maintained and potentially enhanced to encourage additional water trading. For example, the length of time during which benefits of water trading are retained by companies could be extended. Any changes to the water trading incentives would need to strike a balance between providing adequate returns to companies (particularly at the early stages of market development, to encourage development of a 'culture' of trading) and ensuring that customers also benefit, that is returns to companies are capped.

Our proposed market model for water resources is summarised in the following figure.

Figure 16: Water resources market model



As with sludge, our proposals are focused on promoting trading where the incumbent wholesalers act as the buyers. We therefore see this model applying equally in England and Wales. It could be that, as the non-household retail market develops for customers, of companies whose area is wholly or mainly in England, retailers could also act independently as the buyers of water resources. The proposals we are making here would also support the development of such a bilateral market (but are not dependent on its existence to create value).

We also consider that a range of mechanisms could be introduced to increase the transparency and certainty of contracting for traded water, and to overcome the perception of the security of supply obligation as a barrier to trading. While the specific design features of these mechanisms require further consideration, options could include:

- reducing transaction costs by having a standardised contract template to support water trading;
- developing mechanisms to help fund interconnector schemes;
- developing clearer, non-discriminatory rules for supply curtailment, particularly where this affects cross-border supply; and
- encouraging smarter contracting and hedging, for example through the publication of case studies and worked examples.

We will work with the Drinking Water Inspectorate (DWI) to ensure any changes will not put drinking water quality at risk. It is essential that information is available for risk assessments for drinking water quality (required under legislation) including that samples are taken for this purpose at potential new sources. The risk of water not meeting drinking water standards at consumers' taps must continue to be reduced to a minimum, or indeed eliminated, as required by legislation.[10]

A number of companies contributed papers to our market place of ideas that are relevant to our proposed market model for water resources. For example, South East Water jointly produced a paper with Frontier Economics in relation to promoting a greater role for third parties in resource planning. Here, one of their proposals included considering information exchanges along the lines of those we are recommending. A case study of South East's proposals is summarised below.

[10] Section 68 of the Water Industry Act 1991 and Water Supply (Water Quality) Regulations 2000 or the Water Supply (Water Quality) Regulations 2010.

Southern Water submitted a paper examining how innovation and competition could be enhanced, where some of the issues raised were the benefits associated with keeping third party resource options 'live' for longer and how to pro-actively invite third party bids, which is also reflected in our proposals.

Case study: South East Water's proposals regarding water resource planning and the role of third parties

South East Water's paper examines the potential benefits associated with greater third party involvement in water resource planning – and considers how water resources planning processes could be adapted to facilitate this.

The paper identifies a number of barriers that may have restricted third party involvement to date – and the issues are consistent with those raised here in our document. South East Water's paper suggests three broad tools could be used to help address these issues, which are:

- **review of regulatory methodology** to examine whether the 'build versus buy' bias has been addressed by reforms already made;
- **WRMP methodology and guidelines,** where South East Water recommend amending the guidance to include consideration of replacing existing schemes with third party options, offering best practice guidance on contracting and guidance regarding the form of information required to promote third party involvement; and
- **creating an information exchange.**

South East Water's proposals align to some key elements of our preferred market model. In particular, in relation to the information exchange, where South East Water state:

"Third party entry may be facilitated by understanding the scale of potential demand, both locally and at the national level. **A possible solution would be to consider creation of an information exchange or marketplace where entrants can access information about demand and other requirements by water companies in the short and longer term,** and where companies can identify potential schemes or innovative water demand management options."

As for sludge, we recognise that further work will be required to finalise the nature of the data to be collated in any market information database, and to work up the practicalities of implementing the 'bidding in' process. Again, therefore, **we intend to work with companies to trial these arrangements**.

Finally, the following table sets out our questions for consultation regarding our proposals for water resources.

Consultation questions: water resources market design

Q7 Do you agree with our proposal to have a separate binding price control for water resources?

Q8 Do you agree with our proposal to implement an offset mechanism to ensure that entrants can recover the cost of new resources appropriately, while also ensuring that prices reflect average costs?

Q9 Do you agree with our proposals to create a market information database and bid assessment framework to allow for the 'bidding in' of third party resource options on an ongoing basis – as set out in the Deloitte report?

Q10 Do you agree that a third party organisation may be best placed to manage the information database?

Q11 Do you agree that measures should be introduced to increase transparency and certainty around security of supply for water trading? How can this objective best be achieved?

4.6.4 Network management incentives

In our July 2013 document, 'Setting price controls for 2015-20 – final methodology and expectations for companies' business plans', we set out our expectations towards improving network management over PR14. This included the phased introduction of network reporting between 2015 and 2020, with the possibility of trailing a network management incentive later on during the PR14 period.

Although we remain of the view that network management is an integral part of company operations, we do not consider that it would be appropriate to introduce specific network management incentives during PR19. There are already a number of incentives (such as the service incentive mechanism, totex and ODIs) that encourage network management performance in the short-term. In addition, and as outlined previously in this chapter, we are now proposing a set of measures (as part of the market mechanisms for sludge and water resources), which should reveal further information to inform both short-term network performance, but also longer-term network development. Nonetheless, we remain open minded on the issue of network management incentivisation and reporting, and so welcome any stakeholder views on this.

4.7 Our approach to RCV allocation, RCV protection and access pricing and how it relates to separate controls

A number of companies contributed papers to our Market Place of Ideas that are relevant to our proposals for RCV allocation and protection.

- Severn Trent Water commissioned a report from Oxera to consider options for the future treatment of the RCV in terms of cost recovery and remunerating new investment.
- South West Water commissioned Frontier Economics to undertake a study to examine the potential options for RCV allocation.
- Yorkshire Water has considered the future of the RCV.

4.7.1 Our proposed approach to RCV allocation to new controls

As set out above, we propose to establish separate controls for water resource, water network plus, wholesale wastewater network plus and sludge. This split raises the question of whether, and how, to allocate the legacy regulatory capital value (RCV) – which here we are defining as the RCV at 2020 – to the new controls. In principle, there are a range of potential options. These include, at one end of the spectrum, not allocating any of the RCV to the new control areas (and so leaving 100% of the legacy RCV within the network plus areas); and at the other end of the spectrum, allocating all of the RCV to the new control areas. In addition, if the legacy RCV is to be allocated in some part, this raises the question as to how it should be allocated. Before setting out the key considerations relating to this, we briefly summarise the relevant historical context regarding the role of the RCV in price setting.

Historically in the water sector, a company's RCV has been used as the capital base in setting price limits and we expect the RCV to continue to play an important role in setting price limits in the future. The RCV represents the notional value of companies (based on their market capitalisation 200 days after privatisation) adjusted for capital investments, RPI measured inflation and asset depreciation since that date. Due to the way that it is calculated, the RCV does not relate to any specific assets and, as discussed previously, reflects a considerable discount on the replacement value of assets (as measured in modern equivalent asset value – MEAV – terms). Currently the RCV is around 12% of the MEAV.

We have previously set separate **indicative** price controls on water and wastewater activities – and these price controls have been based on the original split of privatisation asset values between water and wastewater. In PR14, when we set binding price controls for wholesale water and wastewater, we left it to companies to propose any change in the allocation of RCV to correct any misallocation at privatisation. We acknowledged that any change to the split could have significantly impacted bills for some customers. At PR14, we used these separate RCVs as a basis for setting **separate binding price limits for wholesale water and wastewater.** We considered that separate binding price limits would improve incentives, as the relevant costs would be recovered only from the associated revenues.

In our July discussion document, we recognised that RCV allocation is not essential to facilitate market entry. Specifically, we noted that entry would depend on our approach to implementing access prices and that in this regard, there were a range of options open to us, not all of which necessitate a formal separation and allocation of the RCV. For example, we could implement access prices based on a forward-looking long run incremental cost (LRIC), or current cost including return on the MEAV. We could then set a separate overall revenue cap encompassing some or all of these parts of the value chain (and including monopolistic elements) based on a return on the RCV. This would allow cost reflective charges for contestable parts of the value chain, but ensure that customers were appropriately protected.

While, under certain approaches, formal allocation of the RCV is not required, there are a number of reasons why an allocation may be beneficial. These include:

- level playing field concerns within water and wastewater markets;
- level playing field concerns regarding wider markets;
- the treatment of potential for gains from asset sale/purchase; and
- issues relating to the consistency between charges and cost recovery.

We discuss each of these in more detail below.

- **Level playing field concerns within water and wastewater markets.** It is important for third party service providers to have clarity and confidence that they are participating in the market on a level playing field with incumbent monopoly network providers. Of relevance to our proposals, this relates both to (i) the access prices charged in relation to the distribution of water under our water resources market model; and (ii) the implied gate prices for sludge in relation to our sludge treatment, transport and disposal market model. Relating to both of these, the allocation of the RCV between the monopoly and potentially competitive elements allows visibility around the recovery of the RCV. Specifically, it prevents ‘double recovery’ of the RCV by incumbents, and so supports a level playing field between all service providers. We acknowledge that this double recovery risk could be mitigated under approaches that leave 100% of the RCV allocated to the monopoly network, but provide some negative offsetting revenue allowance mechanism, but such approaches would tend to be less transparent. These methods also tend to require an ‘implicit’ or ‘shadow’ RCV allocation to determine whether double recovery has occurred (and any revenue transfers between the separate controls are likely to need to be regulated to ensure a level playing field). Consequently, although not allocating the RCV may appear superficially attractive, it still requires the same issues to be addressed to ensure that customers are protected from over recovery of the RCV.

- **Level playing field concerns in relation to wider markets.** There is a related level playing field concern where there is potential for incumbent water and wastewater companies to utilise legacy assets to offer services, and generate revenues, outside of the regulatory ring fence. We consider this potential arises in relation to sludge

treatment, transport and disposal, where evidence suggests that firms may choose to offer related services across these and wider waste markets (and may be able to make use of legacy assets for this purpose). It could also arise in the provision of water resources outside public water supply. A particular concern would be, given our desire to allow incumbent companies to retain a significant proportion of the upside of any such revenues generated in wider markets; that **in the absence of allocating the legacy RCV, the implementation of any offsetting mechanism to prevent over recovery would be challenging**. In particular, it might imply us having to monitor, at a relatively detailed level, how assets are being utilised by companies between the various markets so that we could determine whether there was any over recovery and so impose a countervailing downward adjustment within the regulatory ring fence (where appropriate).

- **Gains of asset sale/purchase.** To the extent that incumbent firms may choose to outsource certain functions (and 'sell' their related legacy assets), or that new firms may enter such markets (and could 'buy' legacy assets from incumbents) we might be concerned about the potential for the proceeds of such transactions to lead to over recovery of the cost, leading to consumer harm. For example, if none of the historical RCV has been allocated to the area in question then, without regulatory intervention an incumbent firm might be able to benefit from selling its assets to a third party provider, while still earning a return on the associated legacy RCV left within the monopoly network area (resulting in customers over-paying). In such circumstances, we could address this by 'transferring out' an appropriate amount of value from the legacy RCV to reflect the sale of related assets. However, this in effect would require us to allocate the RCV in any case. Furthermore, **to the extent that the purchase of legacy assets might be an efficient entry model, we can see that absent any formal RCV allocation, such entry might be deterred – also resulting in consumer harm**. We recognise that this is more likely to be relevant to sludge, treatment and disposal than for water resources.

- **Consistency between charges and cost recovery.** The RCV feeds through to customer bills (charges) through both: (i) the setting of an allowed rate of return on the RCV (set with reference to a WACC); and (ii) a depreciation charge. While the RCV is not associated with any specific assets, in our view there are some advantages in maintaining transparency and consistency between 'charges' and the recovery of the RCV. Without some form of RCV allocation, the link between RCV recovery and specific charges is lost.

Given the above considerations, our view is that, in relation to the package of proposals we are putting forward, **an allocation of the RCV to sludge treatment transport and disposal, and water resources, is required**.

There are two broad approaches to allocating or attributing the RCV.

- **A focused approach** – where the allocation of the RCV to part of the value chain is based on the economic value of the assets employed, which might be represented by the net MEAV of the assets. We recognise there are alternative approaches to estimate the allocation of the RCV with a focused approach, such as net capex spend over a relevant period of time.

- **An unfocused approach** – where the allocation of the RCV to part of the value chain is based on the proportion of the assets employed in the business relative to the total assets of the business[11].

When considering the most appropriate basis for allocating the RCV, we need to take into account:

- **The RCV discount.** How to allocate the substantial RCV discount.

- **Impact on customers.** The allocation of the RCV has the potential to impact **directly** on customer bills. For example, if customers use different proportions of each regulated business - such as sludge versus sewage collection and distribution. It could also impact **indirectly** if it affects the potential for alternative service providers to enter the market, or if it increases regulatory risk.

- **Importance of RCV valuation to setting appropriate price signals.** If the RCV is below the market value of the assets employed, then the regulated firm will have a cost advantage over other firms competing in the same market (in relation to services supplied through the use of those assets). This could distort the operation of markets.

- **Robustness of basis for allocation.** At PR09, we raised concerns with some companies' MEAVs. We recognise that companies (and Ofwat) may need to undertake further work to ensure that the MEAV values are robust to support any allocation (particularly where a focused approach using MEAVs is used). As part of our finance and governance work programme, we are undertaking a targeted review of cost allocation in sludge and water resource areas, which is intended to provide greater understanding of potential issues.

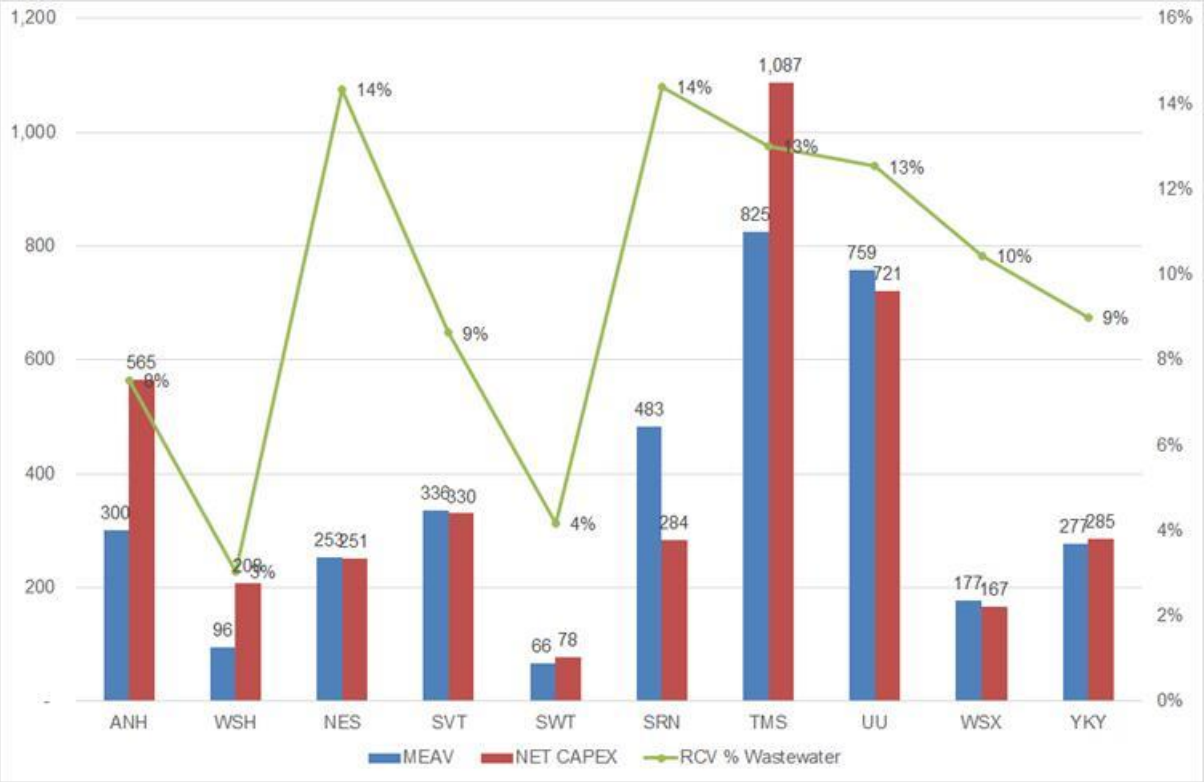
[11] An unfocused approach has been used in the past by the MMC (now the CMA) to split Transco, from BG's exploration and production arm and by Ofgem when NGC was preparing to dispose of its telecoms subsidiary, Energis

4.7.1.1 Sludge

We consider that **a focused approach to allocating the RCV is the most appropriate for sludge**, as it allows the RCV allocation (and therefore the separate price or revenue controls) to reflect the economic value of the assets. As we are proposing that there could be third party provision, this will ensure that capital costs can be reflected in sludge charges, providing appropriate price signals to third party suppliers and ensure that competition in wider waste markets is not distorted. It also helps to ensure that wastewater customers retain the benefits of the privatisation discount and that this benefit is not transferred to customers outside the sector, for example by appointees offering below cost services in the wider organic waste market. There is some evidence that MEAVs are reasonable, as they are similar to net capex on sludge since privatisation (this gives us some confidence that the **estimated** replacement value of historical assets is in-line with their **actual** replacement costs). Notwithstanding this, we expect that companies will need to undertake further work to ensure that their MEAVs are robust, particularly to understand differences between companies. The following chart compares the RCV allocations for sludge, by company, using a focused MEAV approach, with the net sludge capex between 1995-6 and 2013-14[12].

[12] This has been calculated as capital expenditure on sludge minus depreciation based on the estimated asset lives using 2013-14 MEAVs and current cost depreciation figures. These figures should be regarded as approximate as the capital expenditure for the period 1995-6 to 2010-11 includes grants and contributions receivables.

Figure 17: Sludge 2015-16 RCV allocation, based on a focused 2013---14 £m MEAV basis compared to sludge net capex (1995-6 to 2013-14)

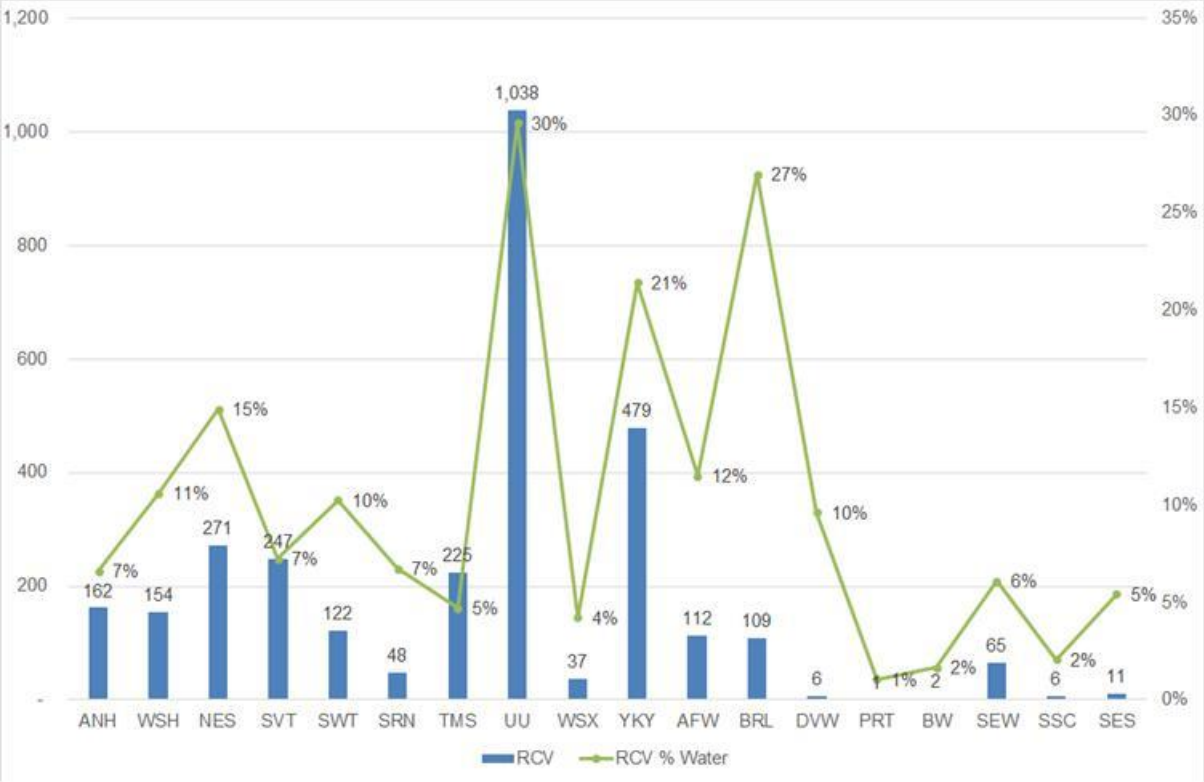


4.7.1.2 Water resources

We consider that **an unfocused approach to RCV allocation is the most appropriate methodology for water resources**. Given the long life of water resource assets, the slow pace of technical change and the high cost of water transport (particularly for new capacity), we do not consider that developed and extensive markets for existing resources are likely to be feasible in the immediate future. Furthermore, the RCV discount, and the variation in MEAVs between companies, means that a focused approach would result in all of the water RCV being allocated to water resources for some companies, and in some cases, this still would be insufficient to set value to MEAV. We therefore consider that an unfocused allocation of RCV is appropriate for water resources. We further consider that more work is required to ensure that the split of the MEAVs between water resources and other elements of the water value chain is robust.

The following figure shows the implied RCV allocations for water resources by company, using an unfocused MEAV allocation method.

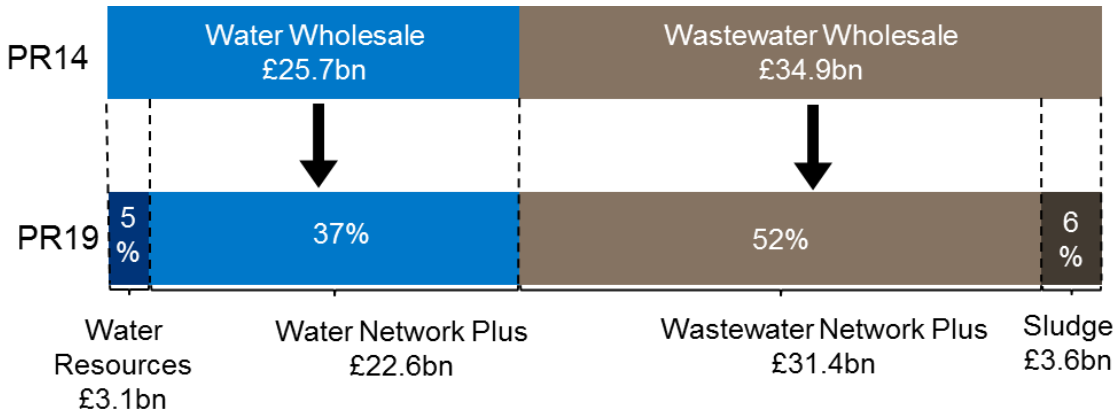
Figure 18: Water resources 2015-16 RCV allocation, based on an unfocused 2013-14 £m MEAV basis



As outlined above, we understand that stakeholders may be concerned regarding any risk (primarily market risk) that RCV we allocate to contestable areas is exposed to. Accordingly, in the next section we consider whether and how we should provide protection to the RCV. Again, and as outlined above, we recognise that one of the options we have to protect historical investment is to not formally split the legacy RCV at all. Again as noted previously, were we to do this, our view is that some form of implicit / shadow RCV would still need to be allocated to sludge treatment, transport and disposal; and water resources (to mitigate the risk of double recovery). In this eventuality, our preferred method of allocation would remain as described above (that is focused for sludge treatment, transport and disposal, and unfocused for water resources).

In total, our proposed approach would result in 11% of the total industry RCV being allocated to sludge and water resources, as shown in the following figure. However, this does not imply that this value is at risk because of our proposals in relation to protecting historical investments. The overall impact of our proposals on the level and balance of risk are considered further in chapter 6.

Figure 19: 2015-16 RCV allocation



Key questions regarding allocation of the RCV

Q12 Do you agree with our rationale for allocating the RCV?

Q13 Do you agree with our proposed approach for allocating the RCV for sludge?

Q14 Do you agree with our proposed approach for allocating the RCV for water resources?

4.7.2 Protection and treatment of the RCV: managing transition and our approach to new investment

4.7.2.1 Ofwat's policy

In implementing our proposed reforms, we need to carefully consider our broader approach to the RCV, given the important role it has played in the sector historically – and specifically, **how we manage this in the context of transitioning to any new regulatory model**. This is a central issue that we need to address in our proposals, as it has important implications for companies, investors and customers.

When considering RCV treatment, it is helpful to distinguish between historical investments and future investments. This is because historical investment will have reflected a prevailing regulatory approach and an associated risk and reward balance. This will have determined both the returns investors expected to earn, **but also, critically, the risks and upsides to customers**. For these reasons, revising the risk and reward balance for historical investment could give rise to adverse outcomes, for example, if it led to higher financing costs, this could lead to an increase in customer bills. On the other hand, this same concern does not apply with future investment, where any change in risk profile associated with reform, if appropriately signalled, can be priced without any such adverse implications for the rest of the RCV. **For these reasons, Ofwat has previously made a specific commitment to**

protect the RCV at 31 March 2015 (that is, historical investment). We further re-stated this commitment in our July discussion document and also committed to providing clarity as to how we would secure this historical RCV protection in practice. Related to this, **the issue of 'transition' arises, in part, because the precise definition of when investment should be considered to be 'historical' in the context of implementing regulatory reform is not necessarily straightforward**. In our case, an obvious area of focus is how we should consider investments made since the last price control (post 2015) but prior to when our reforms will take effect (2020).

In the context of our proposed reforms, market related risks may be an important consideration. From an investor's perspective, the extent of this risk might depend on the degree to which we allocate a proportion of the RCV to contestable parts of the value chain. While the RCV itself is not linked to specific assets, in principle, competitors in contestable parts of the value chain could displace some of the value associated with the allocated RCV of incumbent companies. This could inhibit incumbents' (and their investors') abilities to recover fully the costs of any investments that they have made in relation to that allocated RCV. If these costs cannot be recovered in some other way (say through the sale or redeployment of any assets implicitly linked to that value) then they might be considered to be 'stranded'. The issue of stranded asset risks is a particular concern in the water sector because of the relatively long assets lives (in certain parts of the value chain) and the sunk (non-recoverable) nature of some investment.

A number of respondents to our July discussion document raised the issue of stranded costs. For example, Kelda Investor Group argued that existing assets should not be stranded, as existing assets were funded on the basis that the capital would be remunerated over its full useful life. In addition, while most companies who commented welcomed Ofwat's reaffirmation of its intention to protect the 2015 RCV, some were disappointed that we had made no such commitment to protecting post-2015 efficiently incurred investment.

We recognise the importance of providing clarity on our approach to the RCV. We therefore set out below our position on RCV protection across the four separate RCV based controls (water network plus, wastewater network plus, sludge and water resources) and therefore investment:

- incurred before 31 March 2015 (and specifically, how we will fulfil the commitment we have already made);
- incurred between April 2015 and 31 March 2020 (that is investments made since PR14 but before PR19 – the date at which our new proposals would take effect); and
- incurred from 1 April 2020 (that is investments made post reform being implemented).

Before setting out our position on these matters, we should highlight that we consider the risks of stranding to be limited as:

- bilateral water resource markets are limited to non-household customers; and
- in sludge, the scope for markets appears to be naturally limited to certain geographies.

4.7.2.2 Investments made prior to 31 March 2015

In relation to investments incurred prior to March 31st 2015, we consider that companies should be able to recover the full value of costs that were efficiently incurred in the monopoly context. This is for the reasons set out above (namely, that we would not wish to change the risk profile of historical investment). In addition, given our existing commitment to the 2015 RCV, any change at this time would risk undermining the credibility of any future such statements. Since the RCV is a financial concept, we are not proposing to protect individual assets, but rather the overall return on, and depreciation of, the capital costs incurred up to this date. **Ofwat's protection of the pre-2015 RCV, therefore, is financial, not operational.**

4.7.2.3 Investments made between 31 March 2015 and 31 March 2020

In relation to investments made between 2015 and 2020, the arguments are more finely balanced. To date, Ofwat has made no explicit guarantee to protect these costs, and so companies have made these investments in the knowledge that regulatory reform is likely to occur. Nonetheless, we also recognise that there is some ambiguity as to how investors may have perceived the risk profile of these investments, given that:

- at the time they were made there was a prevailing regulatory regime established at PR14, with its own associated risk and reward balance; and
- the nature and scope of any future reform was unknown.

Given this, **we are proposing to extend our protection of historical, efficiently incurred investments included in the RCV, up to 31 March 2020**. By doing this we draw a clear line between historical investments (made prior to any reforms being implemented) and future investments (made after the implementation of the reforms). By protecting the efficient investment included in the RCV, we will ensure that water companies will – irrespective of our reforms – be able to recover the costs of this investment. We anticipate that this approach will **materially mitigate any potential adverse impact on financing costs associated with our proposals**. Our proposed approach to operationalising this protection is set out in section 4.7.2.6 below.

4.7.2.4 Investments made from 1 April 2020

Consistent with the above, Ofwat considers that post-2020 costs in water resources and sludge should be incurred 'at risk'. That is, that we should extend no guarantee to costs incurred on or after 1 April 2020, from other parts of the wholesale value chain. Ofwat considers that extending protection to costs incurred after our reforms are implemented could blunt the incentive on incumbent companies to incur only expenditure that is efficient. In addition, it could give those companies a significant competitive advantage compared to third party providers, whose expenditure is not protected in that way. We are not proposing to introduce markets into the wholesale water and wastewater network plus businesses in PR19 and so investments included in the RCV would not be put at risk of stranding.

Further to the above, in relation to sludge, we specifically propose that the form of regulation we put in place exposes companies to market related volume risk – and this is discussed further in chapter 5 of this consultation (that is, future sludge investments could, in principle, become stranded beyond 2025). We also note that beyond PR19, we will need to consider whether and how we set price controls for sludge and that if controls are set, they may not be set on an RCV based approach but on gate price.

In contrast, water resource controls will not be exposed to volume risk during PR19 and we consider that it is likely that future controls beyond PR19 may still be set on an RCV basis. There may be scope to develop markets based on long-term contracts as proposed by United Utilities, which could be a substitute for additions to the RCV for new investment. In the absence of long-term contracts, an RCV based approach to setting price controls will be required and therefore, the characteristics of the market seem more suited to third party provision occurring at the point at which incremental investment is procured, and that once those investments are made, cost recovery should not necessarily be at risk. Therefore, while markets will develop, our regulatory approach to water resources will mean that (in line with the PAYG rate) a proportion of company totex will continue to be added to the RCV, without any volume risk.

In relation to sludge, we should emphasise that the scope for markets will be localised. In summary, therefore, Ofwat considers that the risks to costs incurred under our proposals will be limited, particularly in the early stages of market development.

4.7.2.5 Summary of our policy on RCV protection

Following from the above, a summary of our policy in relation to RCV protection is shown in the figure below. We subsequently describe how we will implement this protection in practice. As we will be protecting the RCV net of RCV run-off, the absolute level of protection will diminish over time. The network business will not be at risk of stranding and so the RCV in the water and wastewater network plus businesses would not be at risk.

Figure 20: RCV protection in water resources and sludge

	Water resources	Sludge treatment
Pre-2015	Efficiently incurred costs protected.	Efficiently incurred costs protected.
2015-20	Efficiently incurred costs protected.	Efficiently incurred costs protected.
Post-2020	Post-2020 incremental investment subject to development of markets at point of procurement. Potential for development of long-term contracts.	Post-2020 expenditure incurred at risk.

4.7.2.6 Implementation

We consider that any potential risk of stranded assets is very low from our proposed regulatory changes, given our proposed commitment to protect efficiently incurred investment up to 31 March 2020. Further, in the area that is most exposed, sludge, as set out in chapter 5, we do not consider there is any prospect of stranded assets in the 2020-25 period, as allowed revenues are still determined through a regulated allowance for efficient costs. Companies enter into trades only where it is efficient for them to do so, but need not engage in trading, should they choose to do so. We accept there may be scope for stranding beyond 2025, if regulation evolves to market based pricing or regulated returns are adjusted on evidence from the market. However, at this point, we do not perceive a prospect of asset stranding relating to changes in the regulatory framework in PR19.

Despite there being no risk of stranding, given the sensitivity of the issue and potential scope for risk of stranding beyond 2025, we consider that it is prudent to engage in early consideration of any regulatory mechanism that might be required to enable companies to recover any associated stranded costs. This would enable us to deliver on our commitment to protect pre 2020 investment in the RCV that is, where returns fall below the level of the cost of capital for the pre 2020 RCV. **This mechanism will be important to provide companies and their investors with certainty that they can recover these costs going forwards.**

Our proposed approach to protection against risk of stranding**: guarantee of recovery of RCV for sludge and water resources from respective network plus controls.** This option would involve Ofwat identifying and guaranteeing an appropriate level of revenue for companies based on the costs protected. Any shortfall in the revenue recovered could be addressed through a true-up mechanism at the next periodic review. We consider that it is desirable that such a process should be mechanistic, simple and transparent. One potential way of implementing this could be to set an ex ante revenue guarantee based on a fixed element (based on the 2020 RCV and related return and run-off) and a volume related

element. If outturn revenues do not reach this revenue allowance then the shortfall could be recovered through the network plus control. We acknowledge that there may be other approaches that could be preferable.

This approach would guarantee an overall level of income. **This would provide investors with certainty that they will be able to recover their investment.** In addition, the 'true-up' mechanism at the end of the price control period could be used to adjust for any changes in the level of stranded costs, and the guarantee could be designed as part of the periodic review process.

Consultation questions

Q15 Do you agree with our proposal to address stranded asset risks by extending our commitment to protect efficient investment included in the RCV to 31 March 2020?

Q16 Do you agree with our assessment that there is no prospect for stranded assets due to the proposed form of control for sludge and water resources for the 2020-25 period?

Q17 Do you agree with our proposed approach of an income guarantee recovered through the network plus control for protection against the risk of stranding, if a mechanism is required? How do you consider that such a mechanism could be designed to provide a simple, transparent, largely ex ante mechanism that preserves incentives for efficiency?

4.7.3 Our approach to access pricing

Third parties considering whether to enter markets for sludge or water resources will have to consider carefully the benefits from supplying new water resources or treating and/or disposing of sludge. Access prices are the charges that third parties pay to, or are paid by, an incumbent to access their network for the purpose of supplying services. They are, therefore, a key element in any firm's decision to enter. In the context of market entry, access prices need to meet two objectives, which are closely related to our approach to the RCV. They should:

- provide entry signals (to incentivise efficient entry they should be based on forward looking costs); and
- compensate incumbents for efficiently incurred costs.

In our July discussion document, we recognised that for both of these functions access prices are vital to the overall success of well-functioning markets. Price signals that reflect incumbents' forward-looking incremental costs enable firms to enter where they will lower overall costs and, hence, the bills customers pay. Ensuring that incumbents are properly compensated for efficiently incurred total historical costs protects the financial viability of the sector.

Where historical costs are similar to forward-looking costs, setting access prices will not create a tension between the two above main aims. However, and as set out previously in this document, in the water sector there are material differences between historical and future costs (linked in part to the RCV privatisation discount) and so this needs to be managed carefully in any approach to access price design.

In our July discussion document, we noted that there are several issues we need to consider in designing any framework for access pricing:

- **Possible approaches to pricing:** an important distinction is between the broad approaches that exist for setting access prices, which include: (i) setting prices on some form of avoided costs (typically referred to as 'retail minus', but relating to the wholesale parts of the value chain, 'wholesale minus'); (ii) setting access prices based on the costs of providing the service (for example, the long run incremental costs of the infrastructure provided, plus a share of shared costs – known as 'cost plus'); and (iii) setting access prices based on some form of 'market mechanism' where the provision of service is typically auctioned off.

- **Which costs to consider:** whether prices are based on avoided costs, or on the costs incurred in providing the service, we need to consider an appropriate **concept of cost** for the development of effective access prices. For a discussion of this, see our 2013 discussion paper 'Future access pricing in the water sector'.

- **Reflecting localised costs:** we will also have to consider the extent to which access pricing reflects localised costs. Cost reflectivity is an important principle of efficient pricing. Cost reflective prices provide signals that allow competitors to make efficient entry decisions. Given the localised nature of costs in water and wastewater networks, it is likely that efficient access prices will have to reflect the efficient localised costs of providing services in a particular area. This would incentivise entry at the most efficient locations for the system. It is important to note that cost reflective pricing requires sufficient understanding of costs and cost drivers, which requires further work in this sector. Further, it is important to note that cost reflective access prices need not result in the regional de-averaging of end-customer bills. This is because companies' end household charges will still be regulated and services to households will still be provided by a monopoly, so that we can ensure that averaging of customer bills remains in place.

- **Interaction with the approach to the RCV:** as discussed below, there is a link between our approach to access pricing and whether to allocate the RCV to specific wholesale services. We will need to consider this link when developing our charging rules.

- **Level of prescription within rules:** it will also be necessary for us to consider how prescriptive our access pricing rules should be.

4.7.3.1 Responses to our July discussion document

Responses to our July discussion document recognised the tensions that exist in setting access prices. There was agreement that the objectives of access prices should be to send efficient price signals, while ensuring that efficiently incurred incumbent costs can be recovered. Most respondents did not comment on access pricing in detail. Those that did suggested various approaches, including basing access prices on long run incremental costs (LRIC) or long run average costs (LRAC). Respondents primarily favoured the application of these on the basis of a wholesale minus avoided costs approach.

Some respondents advocated a consistent approach to access pricing across all parts of the value chain to maintain investor confidence. Others suggested that the different conditions across the value chain, in particular the difference in the size of the RCV discount, could warrant the use of a range of approaches to access pricing. There was not a consensus of opinion on whether the RCV needs to be allocated to achieve effective access prices.

A number of companies contributed papers to our market place of ideas that are relevant to our proposals for access pricing.

- Anglian Water has considered principles for a future access pricing regime in the UK water sector, including accounting for different stakeholder views and setting out some alternatives for allocation of the RCV within an access pricing framework.

- Severn Trent Water, working with Oxera, has put forward proposals for reform to access pricing.

- United Utilities has produced a paper setting out its views on the best approaches to pricing for the wholesale parts of the value chain.

4.7.3.2 Development of an access pricing framework

Access prices will not be required in the event of water trading between water companies. However, market participants in England that enter into bilateral contracts (as envisaged by the Water Act 2014) for the supply **of water resources** will only be able to 'sell' their resource by virtue of having access to the incumbent's water distribution network (which sits between the resource and retail elements of the value chain). It will therefore be necessary for those incumbents to set 'access prices' in relation to their network activities. In the case of **sludge**, however, the contestable activities relate to treatment, transport and disposal, which sit at the 'end' of the value chain. Therefore, entrants do not need to 'pay' incumbents for network activities in the same way. Therefore, for sludge it may not be a question of access pricing per se, but rather, whether the prices paid to/from the incumbent to any entrant in relation to treatment, transport and disposal services are non-discriminatory. The underlying issues and considerations across water resources and sludge are, however, similar (in essence we are concerned with the creation of a level playing field between incumbents and entrants).

While the in principle considerations may be common, the characteristics of the supply of water resources and sludge differ considerably. Asset lives in water resources are typically longer than in sludge (and can be up to 250 years). In addition, scarcity of supply is relevant for water resources, but is less important for sludge. It is likely incumbents will have exploited lowest cost water resources already, so forward-looking incremental costs will exceed average costs. Conversely, technological change in sludge treatment might mean new entrants place a greater value on sludge than incumbents' average value. Consequently, while the overall aims associated with the development of any pricing framework might be the same for both areas, the actual approach will have to be tailored to suit the conditions in each market. We therefore set out our approach to each in turn below.

4.7.3.3 Access prices for water resources

There are already some access prices for water resources in the form of commercial agreements for bulk supplies. However, it is not clear that such agreements would be informative in setting access prices for alternative retailers that self-source some, or all, of the water resources they require for supplying customers.

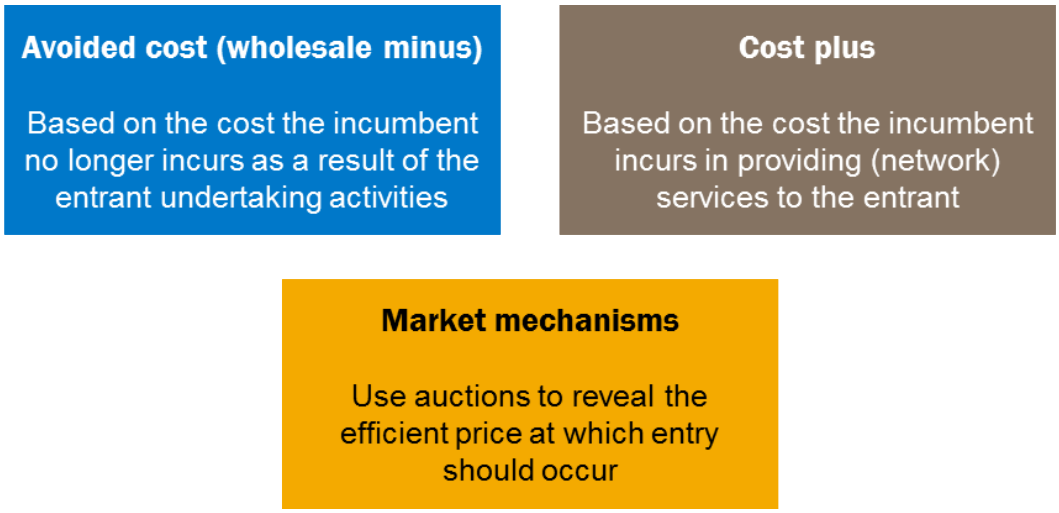
As we set out at our sector-wide workshop in September, there are broadly three methods for setting access prices:

- **Wholesale-minus.** The access price is set as a discount to the wholesale price retailers pay, where the discount reflects the water resource costs avoided because the retailer has sourced water directly from an alternative provider.

- **Cost-plus.** The access price is based on the incumbent's costs of providing services to the new entrant. In the context of water resources, this would be the cost of providing and operating the network, pumping costs and treatment costs incurred by the incumbent.

- **Market mechanisms.** Rather than basing access prices on estimates of costs, markets for access are developed. For example, incumbents may run auctions for all or new water resources. Further work would be required to consider whether this option would be consistent with the Water Act 2014.

Figure 21: Possible access pricing approaches



4.7.3.4 How access prices could be implemented for water resources

Consistent with our proposals to implement a separate binding price control for water resources (and accordingly, therefore, for water network plus), there are two key elements of our approach to access pricing.

The first element is to allow incumbents to recover network distribution costs by **basing the access price on the prices implied by the water network plus control in the 2019 price review**. Here, to promote transparency, we would expect companies to split out the 'network distribution' and 'treatment' elements of the charge, supported by accounting separation data. We would expect the access price to be calculated and presented on a volumetric basis.

Under our proposals, we would also have to address the fact that entrants would need to recover the (higher) incremental cost of new resource, while incumbents would be selling resource at the existing (average) cost. Therefore, and as described previously, under a bilateral market model (as envisaged by the Water Act 2014) without addressing this, one

would not expect efficient entry to occur – and so the benefits to customers associated with water resource markets would be lost. In light of this, **we also propose to allow for a compensation payment that offsets the difference between the incremental cost of new resources and incumbents' average costs**. This is the second element of our overall approach to access pricing.

Here there are two key dimensions to the compensation payment – namely:

- what the cost measure should be; and
- how the payment should be implemented.

In relation to the former, our view is that (consistent with the preferred approach generally taken by competition authorities where possible) **long run incremental costs (LRIC) would be the ideal measure**. We are further of the view that the LRIC/average cost differential payment should be set **in relation to the incumbent's average cost and LRIC** (rather than the entrant's LRIC) as this allows for a stronger incentive for entry.

In relation to the second issue (that is, how the payment could function in practice), there are a number of options.

- It could flow to/from the wholesale entrant depending on whether the initial contract is based on the (higher) LRIC or (lower) average cost.
- It could flow directly between the wholesale entrant and the incumbent, or could be made via an independent third party entity, such as a market operator.
- It could, alternatively, be embedded within the access price (this is our preferred approach).
- It could be implemented through a contract for difference approach, reflecting both the commodity and capacity costs of resources, or alternatively through a 'split contracting' approach where the commodity and capacity are priced separately to offset the LRIC/average cost differential.

Related to this, we note that United Utilities advocated a particular version of the above in their paper on access pricing concepts. In particular, they endorsed a 'contracts for difference' (CFD) approach, as summarised in the following case study.

Case study: United Utilities CFD approach

United Utilities' (UU) paper starts from recognising the desire to balance a range of regulatory objectives, such as protecting customers, while also ensuring that any approach to pricing also complies with competition law.

The paper recognises the potential tension between existing resources being priced on an 'average cost' basis, but where entrants need to recover the higher LRIC of new resource. The differential, and its impact, turns in part on how (and if) the RCV is allocated. The paper highlights the fact that, if an unfocused allocation is applied, the LRIC faced by entrants would typically be above the prevailing average price for resource, meaning that: **"entry by an equally efficient competitor would not, in general, be possible."** While UU identify a number of potential options for addressing the challenge, they favour the use of a contract for difference (CFD). Under this approach:

- both existing (incumbent companies) and new providers of resource would 'sell' to retailers at the higher LRIC cost (assuming a bilateral model);
- as the incumbents only need to recover their average cost, they have been over-compensated, and so they 'pay in' an amount of money equal to the difference between their average cost and their LRIC. In UU's model, there is assumed to be a market operator that facilitates this payment;
- In turn, because retailers have over-paid in relation to the incumbents' resource, they then receive a rebate from the market operator; and
- The net result is that: (i) end prices remain based on average costs; but (ii) entrants are able to recover the LRIC, and so there are efficient price signals.

UU concludes that: **"the approach using contracts for difference is the preferred solution, as it provides greatest transparency for potential entrants and enables price limits to be set for each component of the upstream value chain."**

We recognise that it may take time to develop robust LRIC data to move to the approach we envisage. It may be, therefore, that in the first instance, companies could make use of average incremental cost (AIC) data, as contained in their WRMPs.

Similarly, we recognise that there are a range of options with regards to the precise means of practical implementation, as listed previously (that is, whether the offsetting payment is to / from retailers, whether it is via a third party, or embedded in access prices). We will, therefore, give this matter further consideration – and welcome stakeholder views on this. We do, however, **see some advantages in embedding the differential payment within the access price – and so this is our preferred approach**.

Companies whose area is wholly or mainly in England **will be required to publish their access prices** including any pricing adjustments for raw water quality. Further to the above, to reflect regional differences, we would expect companies to publish access prices **for each water resource zone**. In addition, to reflect different water qualities that impact the cost of treatment, adjustments can be made to the access price to allow for different quality provided by third parties (and as noted previously, we expect companies to split out the treatment and network distribution elements of the charge).

We consider that access prices are only informative within the context of the associated non-price terms, which companies will also be required to publish alongside their access prices. Note: under these proposals **we are not envisaging Ofwat setting access prices themselves**. Rather, compliance with charging rules and the maintenance, accuracy and publication of access prices will be the responsibility of companies. We will pursue non-compliance through our enforcement work and we will continuously review market developments to inform future policy.

Our proposed approach to setting access prices is set out in greater detail in appendix 3, which includes some worked examples demonstrating how access prices could be set in practice.

4.7.3.5 Pricing and charging framework for sludge

As described previously, in the case of sludge there is not an issue of 'access pricing' per se. However, we are concerned with whether the prices charged by incumbents to entrants in relation to the outsourcing of sludge treatment, transport and disposal, are non-discriminatory (which we refer to as the 'gate price').

As we have set out previously, evidence suggests that there are currently unrealised benefits associated with a greater optimisation of sludge treatment, transport and disposal activities. Our view that this in part reflects a lack of pricing signals, which means that providers are unable to identify where they can profitably enter the market.

We are therefore proposing to require companies to collate and publish a range of information to assist providers (both rival WaSCs and third parties) in spotting opportunities where they can provide services at lower cost (or higher value), so delivering better outcomes for the sector. Collectively, the information we are proposing to be made available should implicitly allow players in the market to infer the likely 'gate price' for collecting sludge from incumbent STWs (to subsequently treat and dispose of it). Our intention is that:

- the price signals provided by the information should be **sufficient for operators to identify likely opportunities**; but
- we would then anticipate **there being commercial negotiations between parties to enter into an agreement.**

We are not, therefore, proposing to set gate prices ourselves at STWs. In particular, we recognise that it is important for sludge producers (firms operating STWs) and sludge treatment providers (STCs) to be free to enter into commercial agreements that specify more than the access price. This is because a number of non-price factors, such as where, when and how sludge is to be collected, treated and disposed of could vary considerably from case to case. Similarly, given the scope for technological change in sludge, we are concerned that an overly prescriptive approach may dampen the incentives for firms to offer

innovative services. For example, our approach also better accommodates any potential need for contracting in relation to the emergency treatment of sludge – such as to cover maintenance outages. As described previously, however, in lieu of formalised gate prices, we are intending to develop high-level guidance setting out the basis on which we expect incumbents to evaluate any offers from rivals. We expect this guidance to include information relating to the price and non-price terms that we would wish to be considered, reflecting the non-homogenous nature of sludge.

Finally, we have also considered whether access prices are needed for the treatment of sludge liquors. Sludge liquor is a waste liquid that is produced from the treatment of sludge. Currently, sludge liquors are often treated by the sewage treatment works that are co-located with sludge treatment centres. We do not think that separate access charges or cost information are necessary for the treatment of this liquor as it could be effectively priced as a trade effluent using the Mogden formula. However, we consider that it is important to ensure that pricing in this way is applied consistently across WaSCs and third parties. The latest version of the RAGs (RAGs 4.05) intends to increase transparency around these costs and so specifically identifies liquor treated at STWs – this will allow entrants to see the costs at STWs that have facilities to treat liquor. We also consider that it would be important for companies to publish information on the volume and composition of sludge liquors so that potential entrants would have sufficient information to inform their view of their likely treatment costs. This will ensure that WaSCs and potential entrants face a level playing field for the cost of treating the liquor.

The following table sets out our consultation questions in relation to access pricing.

Consultation questions

Q18 In relation to water resources, do you agree with our proposals to implement an approach based on the average cost of providing 'network plus' activities?

Q19 In relation to access prices for water resources, do you agree with our proposal that companies should be responsible for calculating and publishing these? Do you agree they should be published by water resource zone, with network distribution and treatment costs separately identified?

Q20 In relation to water resources, do you agree with our proposals to implement a mechanism that offsets the difference between the LRIC (or potentially the AIC in the absence of LRIC data) of new resource and the prevailing average cost of resource?

Q21 Do you further agree that it is the incumbent's, rather than the entrant's LRIC, that should form the basis of the payment, to provide a stronger incentive for entry?

Q22 In relation to sludge, do you agree that price and non-price terms should be the outcome of commercial negotiation, supported by the cost or price and capacity information previously set out?

Q23 Do you support our proposals to develop high-level guidelines as to how rival offers in relation to sludge treatment, transport and disposal should be evaluated?

4.7.4 Making greater use of direct procurement for customers

We continue to see merit in exploring ways of making a greater use of tools that enable direct procurement of services on behalf of customers (that is that utilise **'competition for the market'**) to ensure that customers pay no more than they ought to and receive the best possible service. For example, the Thames Tideway scheme demonstrates the potential benefits of procuring independent providers, as does the application of similar models across a range of other regulators, including Ofgem.

Of relevance to this, Anglian Water commissioned a report on the financing of multi sector water supply assets. The report considers a range of options for financing assets, including through third party and joint ventures between water companies and other water users. This identified a range of barriers that needed to be addressed by Defra, the Environment Agency and Ofwat to enable more innovative financing solutions, and we are considering the findings and conclusions set out in the report. We consider this report makes a valuable contribution by identifying the potential scope for third party provision of water supply assets and illustrates the need for our regulatory approach to provide sufficient flexibility to enable such possibilities. A short case study of Anglian Water's report is provided below.

Case study: Anglian Water multi-sector financing approach

The report recognises that the planning of water resources by water companies and other parties (including farmers) for water supply purposes has not been well integrated, and this may not have led to optimal outcomes. The report suggests that joint collaboration between different water users may be more effective and efficient.

The report suggests that options involving corporate financing by statutory water companies – single water company and water company joint ventures, benefit from risk transfer to customers and therefore may provide the lowest costs of funding, but do not necessarily maximise benefits to customers. The report also highlights that **other financing options, which bring in wider groups of stakeholders (including other third parties) could give rise to additional benefits** compared to water company only options. These benefits include:

- greater ability to allocate risks and co-ordinate water resource planning between the different stakeholders/third parties; and
- better alignment of incentives and interests.

Anglian Water's report also makes recommendations for securing value for money for customers as follows.

- **Incentivising efficient costs** – appropriately share unanticipated cost savings between contractors, investors and customers, using contracts and/or regulatory arrangements.
- **Facilitate water rights trading** – amend the abstraction licensing regime to make it clearer what rules apply in what situations, minimising restrictions on trading within multi sector water supply assets.
- **Debt covenants might restrict investment** for some statutory water companies – therefore, explore whether it would be possible to deliver unregulated activities within the ring-fence, or at

least some related activities – for example, pre-construction work relating to multi sector water supply assets.

While the Anglian Water report is primarily focused on financing options in the context of water resources, the issues it raises – particularly in relation to the role of third parties – have wider relevance. In particular, we consider that the report **further reinforces the potential benefits to be gained by examining innovative ways of bringing third party providers into service provision across the value chain**.

In appendix 4, we provide further information regarding how we envisage direct procurement for customers being used. However, in summary our proposals are as follows.

- To continue to **examine how direct procurement on behalf of customers could be more widely** applied across the water and wastewater sector – in particular, to identify where the gains from this might be greatest.

- To set our expectation, for PR19 , that **all companies should consider direct procurement for all discrete large scale enhancement projects** (excluding sludge, where our approach is primarily based on development of a market for third party provision).

- To further set an expectation that **direct procurement from independent providers should occur in relation to any discrete project with a value of over £100 million**. We will take account of companies' approach to procurement: (i) when considering the extent to which they are demonstrating efficiency; and (ii) as part of our risk-based review process. We note that at PR14, six enhancement schemes were above this threshold. We consider the £100 million threshold provides a proportionate basis for identifying where direct procurement has the most benefits, although this can be reviewed as experience with the approach develops.

The following table contains our consultation questions relating to the potential for direct procurement for customers.

Consultation questions

Q24 Do you agree with our proposals relating to the use of direct procurement on behalf of customers?

Q25 Do you have any views on our specific proposal to set a £100 million threshold above which point we would expect companies to procure at market on a standalone basis?

5. How will we apply effective regulation?

Under the reforms set out in this document, it is clear that there will be a continued need to apply forms of price regulation across the value chain. Accordingly, in this section we set out our proposals for the use of regulation at the next price review (PR19). The focus of this chapter is on the wholesale parts of the value chain (that is all the segments shown in the figure below, other than retail). The regulatory framework in relation to retail is being addressed through separate processes – which include our recent consultation regarding our review of non-household retail price controls.

Figure 22: Value chain segments

The UK Government has recently asked us to provide an assessment, by summer 2016, of the costs and benefits of extending retail competition in England to household customers. We note that the decision on whether, in what form and on what timeline the household retail market in England will be opened to competition is a matter for the UK Government. Depending on the outcome of the review and the Government's policy decisions in regard to retail household competition, there may be implications for the way we regulate retail household services. We propose to take account of any changes to the role of competition in the retail household market arising from Government decisions, in the development of our price review methodology in 2017.

The remainder of this chapter is structured as follows.

- Elements of the PR14 regulatory framework that we propose to retain.
- The implications of making more use of markets.
- Incentivising monopolies to discover and reveal information on efficient costs.
- Assessing cost efficiency.
- Encouraging a longer-term approach.
- A more responsive regulatory framework.
- The indexation of future price controls.

We consider the balance of risk separately in chapter 6.

5.1 Elements of PR14 that we propose to retain

As part of PR14, we introduced a new methodology, designed to put customers – and not the regulator – at the heart of the business planning process. To ensure that we can build upon these positive changes, we launched a project to reflect on the price review and to understand what went well and what could be improved. The outcome of this project was the Reflections on PR14 document we published in July, which reflected on learnings from PR14 – both where it had worked well, and areas that could be developed for PR19.

As a result, **our approach to PR19 will retain, and build upon, the key innovations and successes of PR14** listed below.

- **Customer engagement:** placing the responsibility on companies to engage with their customers (considered further in chapter 7).

- **Focus on outcomes:** reflecting customers' priorities, as identified through the engagement process (considered further in chapter 7).

- **Enhanced companies and risk-based review:** incentivising companies to deliver high-quality business plans and allowing us to focus on issues that will have the biggest impact upon customers.

- **Totex approach:** continuing to consider total expenditure (rather than considering, and incentivising, operating expenditure and capital expenditure separately).

- **Balanced package of risk and reward:** which aligns the interests of company management and investors with those of customers by allocating risks to those best able to manage them, with meaningful outcome delivery incentives.

5.2 The implications of making more use of markets

As part of our July discussion document, we published a policy paper on regulating monopolies. In this paper, we noted that greater use of markets would have implications for the regulatory framework put in place at PR19. For example, the PR19 regulatory framework will need to:

- improve the quality of information to facilitate clear and coherent market signals and access prices;
- address how we can reduce the burden of regulation by using well-functioning markets to protect customers;

- incentivise service providers to optimise across a mix of inputs and alternative solutions, regardless of whether that solution is provided by a third party, or by the providers themselves;
- accommodate regional differences in the development of markets; and
- protect customers of companies whose area is wholly or mainly in Wales, for whom many of the market reforms envisaged by the Water Act 2014 are not expected to apply.

We also noted that further separation of the wholesale price controls may be appropriate to facilitate the development of markets and provide additional benefits by improving transparency, ensuring a greater understanding of efficient costs, and enabling better price signals. We acknowledged that separation of controls could range from fully binding, separate controls, through to non-binding or indicative separation. We also recognised that an intermediate option might allow some degree of revenue or cost transfer between the controls. In the medium term, there may be some scope to target, relax or remove controls as well-functioning markets develop.

5.2.1 Responses to our July discussion document

A number of companies expressed concern regarding the additional complexity and regulatory burden associated with greater disaggregation of price controls. Companies also noted the importance of cost allocation consistency and accuracy in implementing separate controls, and the challenges associated with this. United Utilities stated that if early development of better cost separation was not achieved, it may be preferable to implement indicative non-binding price controls in the first instance for PR19.

Southern Water said that additional discrete, binding price controls could act as a barrier to finding the right overall solutions for customers and the environment, as companies would no longer have the ability to move funding from one segment of the value chain to another. United Utilities also expressed concern regarding the potential to lose the co-ordination benefits of integrated planning, such as the ability for companies to trade-off between water resource development and metering, or catchment solutions for water quality and end-of-pipe treatment.

Wessex Water submitted a report on the potential commercialisation of the sludge sector as part of our market place of ideas. This report stated that:

> "Ofwat should mandate a degree of functional or legal separation of sludge services to allow for separate price controls to be set in 2020."

5.2.2 Our views, given our markets proposals

As stated in chapter 4, **we propose to implement separate binding price controls for sludge treatment, transport and disposal; and water resources** to facilitate the development of markets in these areas and provide additional benefits.

Despite the potential for market development, price controls remain necessary for PR19 for these value chain segments to protect the interests of customers and prevent excessive pricing by incumbents. This is because both the timing and extent (both nationally and regionally) of such market development is uncertain. **As well-functioning markets develop, we will seek to remove or reduce regulation.** In addition, high quality cost information can provide a number of wider benefits – as described below.

Improving cost information

To implement our reforms we will need robust cost data, to:

- implement the new binding controls for sludge and water resources;
- shine a light on costs across the value chain – among other things this can help to inform access prices and drive efficiency; and
- improve our ability to better target incentives in future.

This means companies will need to, for example:

- provide disaggregated information on modern equivalent asset values (MEAVs) across all the wholesale segments; and
- demonstrate that costs are appropriately recognised, for instance on either side of the boundaries between appointed and non-appointed sludge activities where assets are shared.

We will continue to work with companies to progress this. For several years under the Accounting Separation project, we collected disaggregated business unit cost data. More recently, we requested pilot data for wholesale services, including unit costs. We have incorporated much of this work into the RAGs for the 2015-16 reporting year. However, we recognise there is still work to do – particularly with respect to the way in which companies allocate costs that cannot be attributed directly to a wholesale service. We recently sent a questionnaire to companies to gain a better understanding of the relationship between appointed water resource and sludge activities and those of associates, third parties and non-appointed businesses. We are also seeking to understand more fully the income streams in areas such as sludge sales for fertiliser, which will have an impact on prices for customers. We are proposing to undertake a targeted review in this area and make changes to the RAGs in 2016-17 where necessary. Looking forward to PR19 this information will allow us to set business plan reporting requirements, which will ensure consistency of data from companies.

In creating these controls, the residual water and wastewater wholesale functions will remain separate. **There will therefore be a total of four binding wholesale controls:**

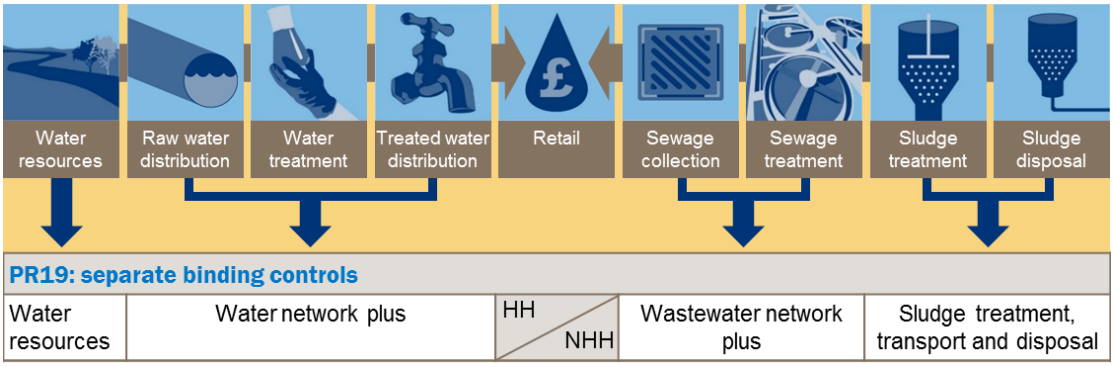
- **water resources**;
- **sludge treatment, transport and disposal**;
- **water network plus** (including raw water distribution, water treatment and treated water distribution); and
- **wastewater network plus** (where applicable, including sewage collection and sewage treatment).

Each of these four controls will be binding, in that they will be established within the drafting of Condition B of each company's licence (where applicable) and will limit the change in charges levied by, or revenue allowed to, each company as determined by Ofwat at PR19.

It is our proposal that these new wholesale price controls should apply to all companies in England and Wales, even though companies whose area is wholly or mainly in Wales will not be subject to the market reforms reflected in the Water Act 2014. Introducing separate price controls will benefit the customers of companies whose area is wholly or mainly in Wales, as separate controls will allow us to regulate better by providing greater transparency, the set more targeted incentives and facilitate greater efficiency. We think that this is appropriate to ensure the comparability of data across all companies, and to allow us to protect the interests of customers in Wales by comparative regulation. While not subject to the provisions of the Water Act 2014, companies whose area is wholly or mainly in Wales are already free to enter into arrangements with other water companies with respect to water resources and sludge treatment, transport and disposal. Consequently, companies whose area is wholly or mainly in Wales could also benefit from the development of markets in these areas.

Also, and as noted in chapter 4, we are proposing mechanisms to recover the costs associated with any stranded assets relating to historical investment (defined as being those investments made prior to 31 March 2020). Depending on the extent to which any stranding of historical assets arises, and the precise form of the mechanisms we use to compensate companies for this, there could be impacts on the network plus revenues allowed at subsequent price reviews. The diagram below summarises our proposed price control structure for PR19.

Figure 23: Our initial view of the appropriate price control structure for PR19



Our proposals for separate price controls for sludge and water resources have a number of practical implications.

- Incumbent water and sewerage companies will need to start collecting and recording data on sludge volumes in and out of their sludge facilities at an individual site level.

- Incumbents will need to improve their recording of costs associated with their sludge and water resources businesses building on the work that our accounting separation (AS) project started in 2008. From 2015-16 these costs will be reported in the new Annual Performance Report. To allow meaningful cross-company comparisons to be made across the industry, companies will need to be able to identify direct costs for these businesses or, where there are shared costs across businesses, apply cost allocation principles that are appropriate and consistent.

- The new price control structure outlined, with separate controls for sludge and water resources, will require modification of condition B of companies' licences.

5.2.3 Form of controls

For PR14, our final determination for each company had two binding price controls for wholesale water and wholesale wastewater (where applicable). In considering the appropriate form of our future wholesale controls (of which there will now be four, as outlined above) we propose to retain many of the overarching aspects that were considered to work well at PR14. This should help to provide further certainty and stability for companies and their investors, as they will be familiar with the core features of our approach. Key elements in relation to the 'form' of our wholesale controls that will continue to apply at PR19 include the following.

- We will continue to allow companies to earn a regulated return on their regulatory capital value (RCV), and this return will continue to be set with reference to a weighted average cost of capital (WACC).

- We will continue to index controls by a measure of inflation and will therefore retain the principle that general inflation risk is borne by customers (the issue of what index of inflation we should apply is discussed later in this chapter).

At PR14, both of the wholesale price controls were total revenue controls. That is, they limited total wholesale revenues associated with the relevant water and wastewater activities for the period from 2015 to 2020. Under such a framework, changes in demand and volumes flow through to prices, to ensure that the regulated companies can generate the total amount of revenue allowed for[13] (although companies are still exposed to volume risk to the extent that changes in volume might impact their costs).

For PR19, it will be necessary to consider the appropriate form of control for the new price control structure proposed. **It is our view that total revenue controls remain appropriate for the water network plus, wastewater network plus and water resources controls.** Indeed, for both the water and wastewater network plus controls we envisage broad consistency with our PR14 approach (with the exception of the inflation index applied). Below we provide further details of the form of control for each of the new wholesale areas: water resources and sludge treatment, transport and disposal.

5.2.3.1 Water resources

It is our initial view that a separate water resources control should not embody volume risk, as fluctuations in volumes are more likely to be driven by factors other than gains and losses in market share, such as the impact of weather patterns on demand and supply. In addition, given the long asset lives associated with water resources, we anticipate that markets will most likely develop when new resource capacity is procured – and so ex post variations in volumes may not be associated with market share movements. Furthermore, given the impact of water abstraction on the environment and our resilience objective, we do not think that incentivising a greater throughput of water would be appropriate. Therefore, **we are proposing to apply a total revenue control supplemented by water trading incentives** (as discussed below). We will keep under review whether it will be appropriate to introduce incentives to make sure water resource providers properly forecast demand.

[13] At PR14, we also introduced the 'wholesale revenue forecasting incentive mechanism' (WRFIM) to incentivise companies to accurately forecast actual annual revenues for the 2015-20 period.

Water trading incentives for both new water exports and new water imports were introduced in PR14. For example, for all new qualifying exports, we allow exporters to retain 50% of the lifetime economic profits (over and above the normal return on capital invested). We will review the performance of these incentives in the current regulatory period and look to maintain and / or enhance them if they prove to be effective. The separate price control for water resources will enhance the visibility of these incentives.

The water resources total revenue control will retain a return on RCV approach, set with reference to a WACC. We are proposing that this approach applies both in relation to the legacy RCV (up until 31 March 2020) but also for new investments (determined through the pay-as-you-go rate) made during the course of the PR19 control period (after 1 April 2020 and up until 31 March 2025). This is because it is likely that future price controls, beyond PR19, will require some form of RCV based regulation, for both new and existing resources. The potential exception to this approach is the use of long-term contracts for difference for access pricing proposed by United Utilities, which would use long term contracts in place of an RCV based approach for incumbents as well as third party providers.

The potential role of the RCV for new resources reflects the fact that there is uncertainty as to the extent and speed at which bilateral markets, supported by long-term contracts, could develop. Therefore, while we wish to put in place the means by which such bilateral markets could occur, we do not view it as a substitute for a return on RCV approach at this time. This is something that we could review in the future, depending on the evolution of markets for water resources.

A potential concern of retaining the above approach is whether it advantages incumbent providers of water resources over new third party providers, who will not benefit from an RCV based return. However, long-term contracting can also provide a high degree of certainty to investors, and so this may not be a material impediment. In particular, while incumbent water companies would not be exposed to volume related revenue risks under the forward-looking application of a return on RCV approach, nor necessarily would entrants signing long-term contracts. Furthermore, we consider that our proposals in relation to access pricing should help to ensure that markets develop on a level playing field. However, this is a complex area and we welcome respondents' views.

5.2.3.2 Sludge treatment, transport and disposal

In the case of the control for sludge treatment, transport and disposal, **we think that it is appropriate for companies to be exposed to volume risk associated with gains or losses in market share** (in relation to new investment, noting that we will put in place protection relating to historical investment). As such, we do not think that a pure total revenue control would be appropriate. Instead, it is our initial view that the control for sludge treatment, transport and disposal should include a volume element, through either:

- a volume adjustment factor applied to a total revenue control (as with the PR14 household retail control);
- an average revenue control; or
- a price cap.

Under such controls, companies would face volume risk if actual demand differed from that expected, and there would therefore be a clear upside and downside associated with processing more or less sludge. Such a framework should encourage greater market participation and incentivise greater efficiency and innovation among the companies. There is also question about how benefits are shared with customers.

However, to the extent that there might also be volume variation unrelated to market shares, we would need to consider: (i) whether that is separately identifiable; and (ii) the desirability, practicality and cost of treating that differently to volume changes resulting directly from market performance. **We therefore welcome your views on which approach would be appropriate** for the sludge treatment, transport and disposal control.

Under any of the above approaches (all of which expose companies to volume risk on a forward-looking basis), we would need to determine how we set the allowed revenues or prices. In considering this, we note that while sludge disposal is relatively asset light, sludge treatment requires material capital investment – albeit, this is not characterised by the very long-lived asset lives seen in parts of water resources. We therefore consider that, for PR19, a **return (WACC) on RCV approach to setting allowed revenues (or prices) for sludge treatment, transport and disposal is likely to be appropriate**. As noted in chapter 4, we have committed to protecting investment up to 31 March 2020 through an income guarantee approach. It will therefore be necessary to separately identify additions to the RCV that are incurred after 31 March 2020. Importantly, and as noted above, even if new investments post 31 March 2020 are added to a sludge RCV, incumbents would face volume related risks on a forward-looking basis (unlike our proposals in relation to water resources).

Looking further ahead, it is possible that as the market develops, we could instead use observed market prices (on a cost per tonne basis) as a means of limiting prices / revenues in areas where markets have not evolved. However, at this time such an approach cannot be considered because:

- there are no competitive market prices as such to observe; and
- it is not yet clear to what extent simple unit price/cost metrics could be applied across sites, companies and regions to determine allowed revenues and prices.

We will work to gain a greater understanding in this area to facilitate a transition to more market based pricing in the future.

To facilitate the development of markets, the PR19 regulatory framework will need to incentivise companies to maximise the value that companies can generate from alternative sources of income and reassure companies that long-term contracting solutions will receive the same degree of certainty as investments. We will also work to ensure that the benefits of integrated planning are retained under a structure of separate price controls.

Consultation questions

Q26 Do you agree that our proposal for four binding wholesale price controls should apply to companies whose area is wholly or mainly in Wales, as well as to companies whose area is wholly or mainly in England?

Q27 Do you agree with our initial view that the network plus controls for water and wastewater and the water resources controls should be total revenue controls?

Q28 Do you agree that future investment in relation to sludge treatment, transport and disposal should be exposed to volume risk and, accordingly, what are your views regarding the appropriate form of control in this area?

Q29 In your view, how should new investments be remunerated in the sludge and water resources controls from 2020?

Q30 How can we best ensure that long-term contracting arrangements are not dis-incentivised – and that any continued application of a return on RCV approach for incumbents is on a level playing field with third party providers?

5.3 Incentivising monopolies to discover and reveal information on efficient costs

At PR14, we applied two mechanisms to encourage companies to submit realistic, high quality business plans that did not over-inflate their estimates of costs:

- **our risk-based review (RBR) of company business plans** and subsequent categorisation of companies as ‘enhanced’ or ‘non-enhanced’ (with rewards for enhanced companies); and
- **totex menus**, where companies would receive the greatest return if they selected a point on the menu that reflected the costs they expected to incur.

The PR14 RBR allowed us to focus our attention where it was most needed, tailoring our approach to scrutinising and challenging companies according to our assessment of the quality of the elements of companies’ business plans. In this section, we consider the extent to which we should continue to adopt a risk-based review approach for PR19.

We welcome the contributions that have been made on the extent to which totex menus should form part of the PR19 framework by respondents to our July discussion document. We also note that Anglian Water has contributed to the debate as part of our 'market place of ideas'. Furthermore, the CMA considered the role of menus as part of its redetermination of Bristol Water's PR14 Final Determination. We will reflect on these contributions and engage with stakeholders in 2016 on these issues.

5.3.1 Risk-based review at PR14

In our final methodology statement for PR14, published in July 2013, we said that our risk-based review (RBR) would:

- assign **each element** of each company's business plan to one of three processes (enhanced, standard or resubmission) which would determine the likely level of scrutiny and challenge of that element; and
- assign **each company** to one of those same three categories, which determined procedural, reputational and financial benefits.

All companies delivered business plans that showed a step change in focus and approach; and two companies (Affinity Water and South West Water) achieved enhanced status. These enhanced companies benefitted from financial, reputational and process incentives. For example, in addition to the reputational benefits of enhanced status, South West Water received:

- an additional 0.5% of allowed revenues across its four controls;
- the application of the 'do no harm' rule, which ultimately meant that the company did not face a lower cost of capital at its final determination (equivalent to an additional benefit of £14 million, or 0.6% of allowed revenues); and
- the procedural benefit of having certainty about the key components nine months early, and therefore having more time to identify opportunities for outperformance.

However, following our RBR assessment, we decided not to apply the resubmission categorisation.

In our reflections on PR14 document, we said that we would consider the design of the RBR for the next price review, including whether we can make better use of reputational and procedural benefits along with the size of the financial reward. We also stated that we would ensure that any 'enhanced' status in PR19 reflects not only the quality of company business plans, but also their performance during the control period, including whether they delivered on their promises to customers.

5.3.2 Responses to our July discussion document and reflections on PR14 document

In general, companies responding to our July discussion document were supportive of the RBR approach adopted at PR14. However, the consensus was that guidelines and expectations for the RBR, the criteria for assessment and the associated financial benefits of enhanced status, should all be clear from the outset.

Views were mixed regarding whether RBR incentives needed to be strengthened. Some companies (such as United Utilities and Thames Water) were against the reinstatement of the 'resubmission' category.

A few companies suggested a number of criteria for RBR assessment, including current performance. The Environment Agency supported taking account of how well companies meet their PR14 commitments. Thames Water stated that the approach should be carefully designed so as not to reduce the incentive for high quality plans (for example, if poor performance at the beginning of a price control prevents enhanced status regardless of their plan quality). It was suggested we could compare performance against PR14 business plans and take account of the quality of information that companies provide to CCGs about the causes of underlying performance and plans for improving performance.

We received suggestions for how to improve the assessment process. For example, considering the views of customers and the CCGs; demonstrating a long-term focus; recognising solutions to reduce whole-life costs; a separate assessment for each price control; and taking more account of textual evidence. Thames Water also stated that high quality business plans with major enhancement projects should also have the opportunity to be enhanced even if it is not possible to fast track the price control.

Anglian Water's report on the future use of menus (submitted as part of the 'market place of ideas') concluded that:

> "the enhanced business plan incentive…at PR14 was powerful in producing good quality plans" and "all companies admit to have been strongly motivated by it".

They noted that companies had been disappointed that the range of "exceptional practices" and innovative offerings in companies' plans, while acknowledged, were overlooked, as was evidence of past performance and track record.

5.3.3 Our views

We will retain the RBR for PR19 and, as stated in our reflections on PR14 document, company performance during the control period - including whether they delivered on their promises to customers - will form part of the assessment. We will consider CCGs' role in evaluating current performance further, but outline our initial thoughts in chapter 7.

We agree that our RBR assessment should take account of companies' long term planning of both water and wastewater services and the extent to which business plans are part of a coherent longer-term plan. We discuss how we can encourage longer term thinking more generally subsequently. We will consider further the level and structure of financial and reputational incentives and whether there should be further categorisation of 'non-enhanced' companies, as part of our consultation on the methodology in 2017.

Consultation questions

Q31 Do you agree with our proposal to retain our RBR approach for PR19?

Q32 Do you agree with our proposal to reflect current performance in our RBR assessment (and for CCGs to consider this as part of their report?)

Q33 Do you agree that the RBR assessment should consider the extent to which the business plans are part of a longer term plan?

5.4 Assessing cost efficiency

At PR14, our approach to the assessment of wholesale costs was to focus on the benchmarking of wholesale costs to encourage efficiency over the medium and longer term. We developed high level benchmarking models to assist in this process, but also recognised that benchmarking models will not necessarily capture all the factors driving projections of efficient costs and so allowed for a focused assessment of special cost factor claims to take account of factors not properly allowed for in the benchmarking models.

In our July discussion document, we asked whether companies thought that the same broad approach remained appropriate for PR19 and how best we should develop an approach based around the benchmarking of costs. The issues around developing and implementing our approach to benchmarking included the following.

- **Benchmarking models.** Could our benchmarking models be improved? Should we consider models specific to different segments of the value chain? Can we improve our modelling of enhancement expenditure?

- **Special cost factor claims.** Can we improve the process for considering special cost factor claims?

- **Efficiency targets.** Does an upper quartile efficiency target remain appropriate? Should we also incorporate a dynamic efficiency target (that is ongoing productivity gains)?

- **Integration with outcomes work.** Can we better integrate our work on cost assessment with that of outcomes and quality of service?

- **Use of additional comparators.** Is there scope for a broader set of comparators to be applied, beyond water companies in England and Wales?

- **Market testing.** Could market testing be used to provide evidence of assurance of costs?

In our reflections on PR14 document, we noted that opportunities to improve how wholesale costs are determined included:

- developing robust data sets early in the control period so that we can refine and improve the modelling of costs;
- considering whether the models are sufficiently challenging, including whether efficiency targets should reflect an element of dynamic efficiency, as well as historical upper quartile efficiency; and
- encouraging companies to improve the quality of analysis and evidence that underpins their special cost factor claims.

5.4.1 Responses to our July discussion document and reflections on PR14 document

In general, respondents were supportive of the overall approach adopted at PR14, which involved the benchmarking of costs to encourage overall efficiency, and allowed for a focused assessment of special factor claims to capture issues not properly dealt with by the benchmarking.

Nonetheless, a number of companies made comments on the detail of the approach to benchmarking and special cost factor claims. Some companies stated that econometric models should be supplemented or crosschecked with other methods, such as bottom-up engineering reviews, modelling of specific costs (such as power, chemicals and business rates) and / or market testing. South Staffordshire Water stated that the models applied at PR14 were opaque, making it difficult for companies to articulate the case for special cost factor claims for expenditure not captured by our models.

There was also a general consensus that the benchmarking models should be created, tested and shared earlier in the process, with a number of companies asking for the models to be published before business plan submission (although South West Water stated that final cost models should only be published after companies have submitted their plans). Below we provide further details of company responses to key relevant issues.

- **Modelling enhancement expenditure:** A number of companies agreed that the modelling of enhancement expenditure should be reviewed, with some, including Anglian Water, stating that econometric modelling of enhancement expenditure was not appropriate, and should be confined to base expenditure.

- **Special cost factor claims:** Most companies agreed that special cost factor claims were a necessary part of the broader approach, but that the process for assessing them could be improved. It was noted that earlier clarity and visibility of the benchmarking models and the use of more disaggregated models could reduce the need for special factor claims. Severn Trent Water suggested that, to reduce the number of special factor claims, we could require any claim to have an associated outcome delivery incentive (ODI) and the number of claims could be considered as part of the RBR assessment. Thames Water also noted that Ofwat could, in the light of successful special cost factor claims for upward cost factors, consider whether there were equivalent downward cost factors for other companies not captured by the modelling.

- **Models specific to the segments of the value-chain:** Some companies (such as Yorkshire Water, Southern Water and Portsmouth Water) stated that modelling specific elements of the value chains would increase complexity and ignore interdependencies between the different segments of the sectors' value chains. However, other companies (such as Wessex Water) supported the use of disaggregated models. But companies also noted the challenge of ensuring robust data for disaggregated models, requesting that common rules for the separation of costs are provided at an early stage to give time to resolve consistency issues across companies; and that Ofwat should work with the industry to ensure data quality.

- **Efficiency targets:** There was a general consensus among those who expressed a view that upper quartile efficiency targets remained appropriate for PR19. Northumbrian Water and United Utilities noted that care should be taken if combining disaggregated models that the resulting efficiency target remains appropriate, reflecting a real, rather than a notional, efficient company.

- **Integration with outcomes work:** A number of companies (including Wessex Water, South Staffordshire and Severn Trent Water) stated that there should be greater integration with service levels, as a company with low cost but poor service outcomes did not necessarily imply efficiency.

- **Use of additional comparators:** Thames Water noted that for international comparators, the robustness of benchmarks would be limited where factors specific to that region are not fully taken into account.

- **Market testing:** Yorkshire Water and Bournemouth Water questioned the benefits of further market testing, while Southern Water agreed that market testing evidence should be used, particularly for large capital schemes. Other companies noted that market testing could be costly and is solution specific – pre-supposing the appropriate delivery method and therefore could discourage innovation. United Utilities also noted that the PR19 timetable might make market testing difficult and that initial tender price information is not always representative of a project's final cost.

Thames Water also stated that Ofwat should seek to avoid using arbitrary caps on totex outperformance (as employed at PR14) as this can harm customers by skewing incentives away from submitting challenging business plans.

A report prepared by KPMG for Thames Water states that Ofwat may find it useful to consider the broader range of cost assessment techniques used by other regulators but may want to retain the onus on companies to demonstrate why they have any special or specific costs. The report also notes the opportunity, at this stage of the regulatory cycle, to investigate the appropriate cost drivers for the different parts of the water and wastewater value chain that could have different controls in PR19.

Anglian Water has also contributed a report that reviews the PR14 cost assessment methodology and considers the future application of totex assessments.

5.4.2 CMA views

In its Final Determination with respect to Bristol Water, the Competition and Markets Authority (CMA) identified a number of high-level concerns with Ofwat's benchmarking models for wholesale water in PR14, including the following.

- **No disaggregation below wholesale water:** a focus on aggregated models could give insufficient weight to the benefits of more disaggregated models, which could allow more accurate estimation and a greater number of cost drivers to be taken into consideration.

- **Timing of investment needs:** the CMA considered that benchmarking models may not sufficiently reflect differences in the timing of companies' investment needs, particularly in relation to enhancement expenditure.

- **Totex models that include enhancements:** the CMA considered that the totex models we used in PR14 had limited ability to take account of different enhancement requirements between companies - the CMA focused on benchmarking analysis of base expenditure rather than totex.

- **The complexity of the approach to modelling:** in particular relating to the use of trans-log econometric models and econometric models with a relatively large number of explanatory variables/cost drivers.

5.4.3 Our views/next steps

Building on the responses to our July discussion document, our reflections on PR14 and the CMA's comments in its final determination, we consider that an approach to cost assessment that focuses on benchmarking remains an appropriate way forward. This provides strong incentives for companies to seek out efficiency savings, which can be shared with customers over time. Nonetheless, we also recognise the comments and suggestions we have received in relation to developing and improving the implementation of our approach to cost assessment at PR19. We will continue to develop our approach to cost assessment and will discuss this further with stakeholders in 2016 and provide more detail in our methodology consultation.

The approach to cost assessment at PR14 involved using a suite of econometric models alongside a focused assessment of special cost factor claims. We continue to think that econometric models have a role to play in determining appropriate benchmarks. However, **we will also consider the merits of alternative approaches, including to supplement and crosscheck our analysis**. We acknowledge the concerns expressed regarding the use of top-down models in relation to enhancement expenditure and will further consider the best way forward on this matter. We will also continue to consider ways in which the process for special factor claims can be improved. Nonetheless, as a minimum we would expect, as part of any special cost factor claims for major capital programmes to include:

- customer engagement, including in relation to the customer benefits associated with the programme and the range of plausible options that might be deployed to address the underlying programme need;
- how water resources have been considered in the broadest and most strategic way;
- a long-term strategic approach to wastewater planning and service provision; and
- cost efficiency, including (but not limited to) evidence on benchmarking and market testing.

Given the comments made by the CMA and our proposal to have four separate binding wholesale controls in PR19 - sludge treatment, transport and disposal; wastewater network plus; water resources; and water network plus, we will pursue the development of more disaggregated models to reflect this new structure. We recognise that in setting efficiency targets at a disaggregated level, it is necessary to ensure that, when aggregated, such targets remain robust and credible.

Our ability to develop cost models that can effectively capture the relative efficiencies of individual value chain segments (such as sludge) will depend on the availability of robust and reliable data that reflects the consistent allocation of common and shared costs across activities. We note the challenges that were faced by the industry in allocating costs across wholesale and retail activities for PR14. We recognise that cost allocation across wholesale activities can pose an even greater challenge, given the co-location of activities such as sludge and sewage treatment. It is our view that, to achieve the required consistency of data, we will need to develop working closely with the industry, detailed guidance on cost allocation for all companies to apply. **We therefore propose to work with the industry during 2016 to progress the work on cost assessment, including accounting separation, cost modelling and the refinement of data.** This work will provide benefits under various possible approaches and does not pre-judge our decisions.

We also recognise the points made by Thames Water on the advantages of avoiding arbitrary caps to the results of cost assessment and modelling and will seek to ensure that our approach to cost assessment is sufficiently robust so we can avoid the capping of model results.

Consultation questions

Q34 Do you agree that the consideration of disaggregated cost models is appropriate given the price control structure proposed?

Q35 Do you agree that the development of detailed cost allocation guidelines is appropriate?

5.5 Encouraging a longer-term approach

The water sector is a long-term business. Decisions made today (for example, around capital enhancements and maintenance; or whether to develop innovative solutions) can have impacts well beyond a five-year price control. So we want to ensure that the way in which we regulate, in accordance with our duties, encourages companies to take ownership of their long-term future and manage risks, rather than focus unduly on the five-year price control cycle.

This is particularly important given our resilience objective. As set out in our resilience consultation, we understand the importance of incentivising quality long-term planning, appropriate investment and helping to ensure coherent links between our price reviews and other planning frameworks. In our resilience document, we look in more detail at how we have, and intend to, embed resilience in the way we develop policy, and our response to the resilience group's recommendations.

5.5.1 Potential issues with current arrangements

Our approach to regulating companies has a number of advantages, although the five-year price control process - which forms one element of our overall approach – has been linked to a number of potential issues in recent years, including:

- undue focus on short-term deliverables and efficiencies;
- historically, a stop-go approach to capital investment - although more recently the profile of capital investment has been flatter (see the figure below);
- periodicity of allowed revenues and charges – companies and customers frequently experience a step changes every five years; and
- a peak in resources and management effort, focused on the price control cycle, reducing the capacity to focus on delivering outcomes for customers.

Measures we introduced as part of PR14 bring a range of benefits, including helping to mitigate some of the issues linked to the five-year control period.

- Our totex approach has reduced the focus on capital investment over operating solutions and our outcomes approach has reduced attention on specific capital schemes.

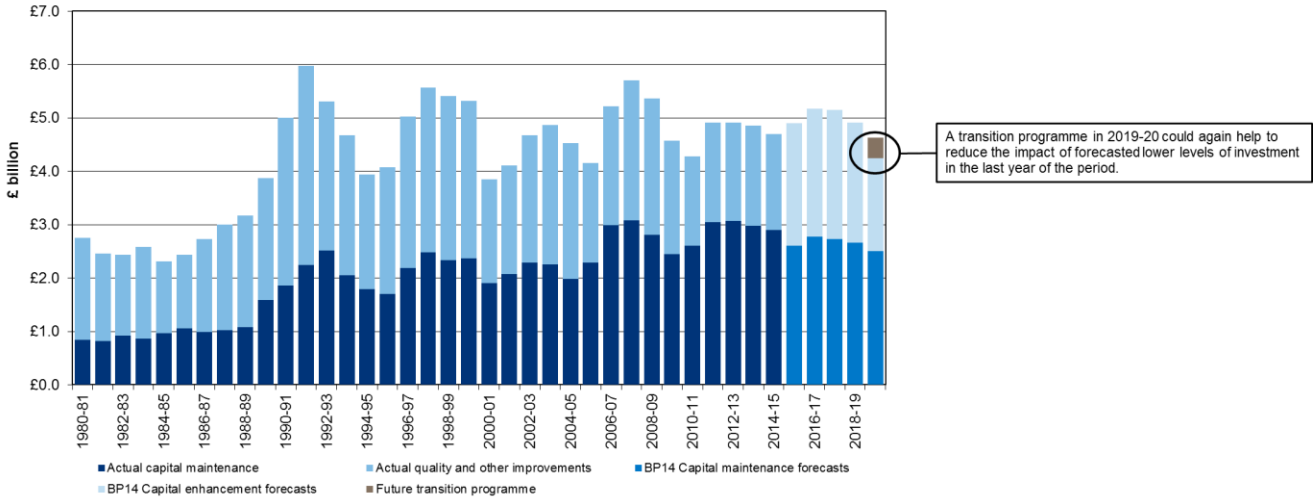
- We allowed companies to bring about £380 million[14] of transitional expenditure forward from the forthcoming price control period to 2014-15 to smooth the profile of investments.

- We allowed the draft determinations of a number of companies to be fast-tracked to give earlier clarity and certainty to companies regarding their expected price control allowances.

[14] 2014-15 prices.

- Financial levers (specifically the RCV run-off and pay-as-you-go ratios) helped companies to manage financeability and affordability across price controls, reducing the periodicity of revenues and charges.

Figure 24: Historic cyclicality in the water sector, capital investment



Notes: i) figures are presented in 2014-15 prices (using RPI average indices), ii) capex is net of grants and contributions, iii) excludes Thames Tideway expenditure, iv) overlap programme expenditure is removed from AMP6 business plan forecasts, v) AMP6 figures are based on companies' projections at PR14.

While recognising the potential benefits of our reforms, we think we can go further to encourage a long-term approach. For example, in our July document we invited views on the right length of the regulatory cycle, smoothing the transition between price control periods, and reducing workloads for companies, ourselves and other stakeholders.

5.5.2 Responses to our July discussion document

Some companies thought that the length of the control period does not prevent a long-term approach. For example, Anglian Water used its Strategic Direction Statements to frame its work in the current price control period within a long-term perspective.

A report prepared by KPMG for Thames Water states that Ofwat has focused on the long-term more than other regulators, but that we could further reinforce a long-term focus. It finds a case for:

- the price control duration remaining at five years, noting forecasting error risk, given the opening market and the current macroeconomic climate, as a potential issue;
- considering whether assets not open to market development (such as networks) should have longer control price controls; that said, they found evidence from UK and international experience suggesting five year controls are reasonable.

Several companies and CCWater supported five-year controls. Several other companies were cautious of increasing duration, for example, noting:

- the downsides and risks that - if unmitigated - might ultimately increase the cost of capital;
- that mitigation mechanisms would be important; and
- that we could consider other options – for example:
    - setting longer term outcomes;
    - requiring long-term planning;
    - introducing in-period commitments or greater flexibility to change plans; building on the transitional expenditure approach; and
    - streamlining the price review process.

The Environment Agency and a few companies supported better alignment with other processes, such as water resource management plans (WRMPs) and river basin management plans (RBMPs). The latter could be achieved – as proposed by a couple of companies – by moving to a six-year review. Dŵr Cymru supported rolling reviews, which would allow controls to be updated annually and has published a discussion paper setting out the case for this.

Severn Trent Water and Portsmouth Water supported staggering retail and wholesale controls while Yorkshire Water supported the staggering of water and wastewater wholesale controls. However, United Utilities, and Sutton and East Surrey Water were against staggering controls, arguing that economies of scope could be lost.

A few companies supported significantly longer durations for wholesale controls, alongside introducing other measures to manage uncertainty. Northumbrian Water's paper on the duration of price controls suggests that debt indexation may help to mitigate some of the risks faced by investors and avoid step changes in the allowed cost of capital at price control reviews. The paper also states that separating out and staggering price reviews for different segments of the value chain could allow the sector to spread the workload of setting price controls.

5.5.3 Our views

We have considered a number of policy measures that could further encourage a long-term approach, including:

- longer wholesale price controls;
- alignment of price controls with other planning processes;
- staggering price controls;
- greater emphasis on long-term planning in our RBR assessment and CCG engagement; and
- in-period adjustments.

5.5.3.1 Longer wholesale price controls

We recognise there are a number of factors for and against lengthening price control durations, as noted above and in our July document. Given our proposals for market development and the uncertainty regarding the future evolution of these markets, we consider there to be a material benefit to retaining a degree of flexibility during this transition that would be reduced under a longer control duration. On balance, we therefore propose to encourage a longer-term view by other means, as discussed below.

In relation to sludge treatment, transport and disposal – and water resources – there are some arguments to support control durations of less than five years to allow us to adapt our approach in response to market developments. However, we are concerned that the shortening of these controls may increase the regulatory burden on companies. We therefore propose to **retain five-year control periods for all four binding wholesale controls at this time**.

5.5.3.2 Alignment of price controls with other planning processes

We do not propose to adjust the timings of our price controls to align with other industry planning cycles for PR19. As noted in chapter 3, this is due to the impossibility of aligning the multiple different planning periods for water and wastewater. Were the relevant factors to change, this is something we could reconsider in future. However, while we do not propose to shift the timing of our regulatory determinations, we will work closely with Defra, the Environment Agency, Natural Resources Wales and companies to align our price control processes in the run up to such reviews with other planning cycles and ensure that companies have the greatest clarity possible.

5.5.3.3 Staggering water and wastewater price controls

Staggering of water and wastewater wholesale controls could help to spread the peak workload associated with the price review process for both companies and Ofwat. However, there are some economies of scope in managing the two processes together and staggering of controls would lead to duplication of workload. There are also benefits in considering the company as a whole at one time. **We are therefore not proposing to stagger wholesale price controls at this time,** although it will be something to consider in the future, as our approach to retail controls evolves and the wholesale controls separated as proposed in this document.

5.5.3.4 Greater emphasis on long-term planning in RBR and CCG assessment

As noted above, we agree that our PR19 RBR assessment should assess the extent to which business plans are part of a coherent longer term plan for both water and wastewater services. Furthermore, as we note in chapter 7, we consider that, when reporting to Ofwat, CCGs should consider the extent to which the company has effectively engaged with its customers on longer term issues, including impacts on future bills, long-term affordability and resilience.

In chapter 7, we also invite views as to whether we should encourage, or even mandate that certain performance measures, such as asset health, should span more than one regulatory period to encourage companies to take a longer term view.

5.5.3.5 In-period adjustments

We also note that more responsive licences that allow in-period adjustments to allowed revenues could help to smooth allowed revenues and bills and reduce the step changes that could otherwise result at each price review. This is considered further in the next section.

Consultation questions

Q36 Do you agree with our proposal to retain the current timings of our price controls – that is, **not** change the duration of wholesale price controls, **not** to stagger wholesale water and wastewater price controls and **not** seek to further align the timing of controls with other planning processes?

Q37 Are there any other measures, not considered above that could help to encourage a longer-term approach?

5.6 A more responsive regulatory framework

At present, the wholesale controls, with some limited exceptions, are fixed for five years apart from adjustments for changes in RPI and pre-set k factors. This means that, apart from the three companies that elected to take in period outcome delivery incentives, all incentive payments and true-ups are delayed until the end of the price control. This has four drawbacks.

- It can reduce the power of incentives, as companies have to wait a number of years before they impact on revenues, reducing the link between performance and prices for both companies and customers.

- Companies may need to take out additional funding to pay for costs that would be reimbursed at the next price review.

- It can lead to uncertainty on how incentives will apply when they are set (for example, in terms of tax or time value of money treatment) which require clarification during the price control period.

- It can lead to large adjustments to revenues and household bills being made during price control reviews.

Other regulators do not have this issue, with most incentives and true-ups being set out in the relevant licences (or track access agreements in the case of ORR) and made during the price control based on a two-year lag. For example, for Ofgem these adjustments are set out in the relevant licence and implemented by re-running the financial model each year.

We therefore consider that **there is merit in considering whether we should move towards a regulatory regime, where incentive payments and true-ups are made during the price control**. This could be done by amending the licence to include an adjustment factor, which would amend the revenues in each year based on the performance in previous years[15]. Such an adjustment could encompass:

- outcome delivery incentives;
- wholesale revenue forecasting incentives;
- cost sharing incentives; and
- any other true-ups or incentives set during the next price control.

We acknowledge that such a change would require a licence modification and so we would be interested in views from companies and customers.

Consultation questions

Q38 Do you agree that we should amend the licence to allow for in period adjustments for some or all of the following: outcome delivery incentives, revenues and cost sharing?

5.7 The indexation of future price controls (RPI versus CPI)

A key part of our future regulatory approach includes determining where and how we allow for inflation (indexation) when setting price limits. In this section, we set out our proposals regarding this. In turn, we provide:

- an overview of the issues;
- a re-cap of our views set out in our July discussion document;
- a summary of respondents' views on our July discussion document;
- an outline of our thinking since July; and
- our options and proposals for consultation.

5.7.1 Overview of the issues

Compensation for inflation in some form has been an important part of most economic regulatory frameworks since the 1980s. While the RPI-X model has evolved considerably, compensation for inflationary pressure remains a key component of price controls across a range of sectors. It has also been, and remains, a core part of Ofwat's approach where (in relation to our wholesale controls) we currently allow for inflation as follows.

- We index the wholesale revenue controls by inflation in each year.
- We index the nominal value of the RCV by inflation in each year.
- We embed a view of inflation when determining the weighted average cost of capital (WACC) in real terms (which is used to set allowed returns).

To date, the inflation measure we have applied is the retail price index (RPI).

In the UK, the robustness of the RPI has been called into question over recent years and its use by Government and regulators has reduced. In particular, since 2003, the Monetary Policy Committee has used the consumer price index (CPI) in place of RPI for the purpose of targeting inflation when setting interest rates. Furthermore, and reflecting various concerns regarding the validity of RPI, since March 2013 it has no longer been classified as an official government statistic. In 2013, the UK Statistics Authority (UKSA) launched a review of the production of consumer price statistics. The results of this review, led by Paul Johnson, were published in January 2015. Johnson's report stated that:

> "RPI is a flawed statistical measure of inflation" and that "taxes, benefits and regulated prices should not be linked to the RPI".

The report further recommended that:

> "Government and regulators should work towards ending the use of the RPI as soon as practicable."

In its place, the report suggested the use of CPI or CPIH (which includes housing costs). Following the publication of the Johnson report, the UKSA opened a further consultation, which closed on 15 September 2015. The UKSA is expected to publish its final recommendations regarding consumer inflation measures in the first half of 2016[16].

The Johnson review recommendation was based on a number of deficiencies with RPI. These include:

- RPI is an upwardly biased measure of inflation due to the way that changes in price movements are calculated;
- RPI is not calculated according to international standards and national statistical institutes around the world reject the approach used in the calculation of RPI to estimate price changes;
- the RPI calculation methodology has basic statistical flaws;
- issues with the weights of data sources, population coverage and treatment of some goods make the RPI less suitable as a measure of overall inflation; and
- the RPI methodology will not be updated like CPI to reflect changes in how price information is collected and compared and therefore there is scope for sudden changes in the difference or wedge between RPI and CPI.

[16] Summary of responses: Measuring Consumer Prices: options for change, November 2015, UKSA.

In light of the above, it is clear that we must consider the issue of indexation for PR19. Specifically, we need to determine whether we should change our inflation measure and, if so, how. In doing so, we must also carefully consider the fact that any change in measure may create transitional challenges for both customers and companies. In particular, due to the way in which inflation is allowed for in our controls, any change in measure could impact on the profile of customer bills over time (that is there could be short-term increases in customer bills, followed by reductions in the longer term). In addition, as companies have significant amounts of existing debt linked to RPI, any change could result in them having to incur costs associated with 'hedging' the difference between RPI and whatever inflation measure we use in its place.

5.7.2 Our views in July

In our July discussion document, we noted that we needed to consider the appropriate price index for our future regulatory approach (focusing in particular on the indexation of the RCV). We asked whether different indices should apply to different parts of the water and wastewater value chains and, if we no longer use RPI, whether CPI or CPIH would be the better measure.

In the document, we made clear that any move to an alternative index would raise a number of important transition issues that would need to be carefully managed. We highlighted both the need to smooth any impact on customer bills in the short to medium term, and the need to consider the impact upon company financing – and any costs associated with making changes to their existing financing arrangements (arising from water companies having long-dated RPI-linked debt). We also stated that the choice of indexation method should not impact on the total (nominal) level of returns earned by investors. We also noted that, at present, the use of RPI indexation is specified in company licences, so any change in indexation would require an associated change to licences.

5.7.3 Responses to our July discussion document

Respondents to our July discussion document on the whole recognised the validity of our concerns about the continued use of RPI as a method of indexation, and that, to a large extent, the drivers for the decision on which index to be used falls beyond the water industry. There was some recognition that, as well as statistical concerns, there were issues regarding how customers might perceive a continuation of RPI based controls. For example, Wessex Water stated that:

> "the RPI measure of inflation is becoming increasingly less legitimate in customers' eyes" when explaining why their bills change each year.

However, respondents expressed strong views that any move should be on a gradual basis, particularly to address concerns regarding bill impacts and existing financial instruments. They pointed to the significant amount of long dated RPI debt that companies hold as a barrier to any transition. Companies also challenged our PR14 assumed level of RPI linked debt for a notional company of 33%, and argued that a higher figure would be more reflective of the actual positions they face and would help to dampen the impact on customer bills associated with any change. There was also a common concern that, at present, there was no real market for hedging CPI or CPIH assets; and that this would result in additional costs.

A common theme was that the speed of transition should be consistent with debt issued by HM Government and purchased by investors. Respondents highlighted that the UK Government currently issues a proportion of debt indexed on an RPI basis. In addition, some respondents suggested that we should not consider the issue further until the UKSA publishes its final recommendations (which, as noted above, are not due until the first half of 2016). There was also a request for Ofwat to confirm that any move away from RPI would only apply to future price reviews, and that there is no intention to implicitly re-open previous reviews by applying a different inflation measure to investments already incurred by the companies.

Respondents, including an investor, stressed the need to ensure that any switch to a new inflation index should be value neutral in the long term and not only the short term. This point was made on the basis that investment decisions were made on an expected level of RPI-based nominal returns.

Two companies contributed papers to our market place of ideas that are relevant to the issue of indexation.

- Anglian Water has considered potential approaches towards the transition from the use of RPI to CPI as the method of indexation for water sector.

- Severn Trent Water has commissioned First Economics to consider the implications of alternatives to RPI indexation for the water sector.

First Economics' analysis of moving from RPI to CPI for Severn Trent Water

Severn Trent Water commissioned First Economics (FE) to examine recent developments in RPI indexation and to assess the pros and cons of potential alternatives to RPI indexation if changes were to be implemented.

The report examined a range of options for transitioning from RPI to CPI against a set of criteria. FE considered that moving to CPI indexation would provide advantages in terms of statistical validity, as RPI is a flawed measure of inflation and greater customer legitimacy, as CPI is the main inflation measure. However FE also raised a number of concerns relating to CPI indexation in terms of the short term bill impacts, the impact on financeability (where a move to CPI might provide insufficient

coverage for index linked debt); and concerns from the perspective of investors that any transition from RPI to CPI would not be undertaken in a revenue neutral way.

Based on this assessment, FE proposed that the price control should be linked to CPI, but the cost of capital and RCV should continue to be linked to RPI. FE acknowledged that this is simply a repackaging of normal price review calculations, as companies would still expect to receive the revenues that would accrue under conventional RPI indexation and does not provide a transition to CPI. If a change is required, then FE considered there are a range of ways to make a gradual transition, including using CPI indexation for RCV additions, or using a declining weighted average of RPI and CPI indexation, so that RPI is phased out over ten years. FE noted that it might be possible to move to full CPI indexation and neutralise the bill impact by alternating the proportions of fast and slow money, although they acknowledged that this was unlikely to be costless, and that investor and rating agency reactions would need to be understood.

5.7.4 Our thinking since July

Since publishing our July discussion document, we have given this issue careful consideration and have reflected on the views and evidence put to us by respondents. In particular, we have examined closely the approach being adopted by regulators more widely – which continues to show a shift away from RPI towards CPI, as set out below. We have also considered the potential impact on customers and companies. Reflecting on all of these, we developed a series of options, which we evaluated, to determine our preferred approach. In the following, we briefly address these matters.

5.7.5 RPI is a flawed measure of inflation

In March 2013, the Office of National Statistics (ONS) cancelled the designation of RPI as a national statistic. This means that RPI statistics are no longer provided alongside other measures of inflation and the lack of designation of RPI is made clear.

The ONS cancelled the designation of RPI as a national statistic for two reasons.

- The calculation method for RPI was not consistent with international best practice.
- The approach used to calculate RPI was frozen[17].

[17] Assessment of compliance with the Code of Practice for Official Statistics, The retail price index, UK Statistics Authority, March 2013.

The ONS's concerns with RPI reflect differences between RPI and CPI (and other inflation measures) in the formulae to calculate a price change. Specifically, RPI is primarily calculated using an arithmetic mean, whereas CPI and other measures of inflation are based on a geometric mean. This difference implies that, using the same items and weightings, RPI will almost always be higher than CPI, as illustrated in the worked example below. The difference between RPI and CPI increases when there is bigger variation in the size of the inputs. Consequently, **RPI will overstate inflation[18] and be more volatile than CPI** (as we demonstrate subsequently).

Figure 25: Simple numerical example: RPI versus CPI

Assume price changes for four items are covered by both CPI and RPI.

RPI = (5% + 2% + 3% + 1%) / 4 = 2.75%

CPI = (5% * 2% * 3% * 1%) ^ (1/4) = 2.34%

If the first price change was 8%, not 5%, then the difference between RPI and CPI would more than double.

The NAO also criticised the use of RPI in its report on economic regulation of the water sector, noting that RPI was an upwardly biased and unreliable measure of consumer price inflation. They also noted that the more volatile nature of RPI made forecasting more difficult and exposed consumers to risks of unexpected gains or losses.

5.7.6 Evidence on the approach used by other regulators

Over recent years, a number of regulators have adopted CPI (often in place of RPI) for the purpose of setting certain price controls. We have discussed this with fellow members of the UK Regulators Network. We recognise that the details of how indexation is applied, including the adoption of CPI, vary from case-to-case. It is therefore important to understand these differences to assess their relevance to the issues we face in the water sector. We therefore contacted other sectoral regulators to gain a wider perspective on their approaches to indexation of price controls. In the following, we summarise some of the key information provided to us in response – and we would like to thank the regulators who engaged with us on this matter.

[18] History of and differences between consumer price index and retail price index, ONS, July 2011.

5.7.6.1 CAA NATS En Route Limited – 2010 and 2014

In 2010, a European directive required that providers of air navigation services link their prices to the index of inflation recorded by Eurostat; in other words, prices had to be linked to CPI and not RPI. This led the Civil Aviation Authority (CAA) to become the first UK regulator to move from RPI to a CPI-linked price control in its regulation of NATS En-Route Limited (NERL) for the 2011-14 period. The process used for this transition began by calculating NERL's real revenue requirement assuming RPI inflation. Then, the CAA converted this real revenue requirement to a nominal/out-turn equivalent using forecasts of RPI. Finally, the CAA deflated the calculated nominal revenue requirement using forecasts of CPI, thereby giving a real revenue requirement in CPI-stripped terms and a CPI-X% price control formula. In essence, however, as the CAA forecast revenues in RPI terms and then deflated by CPI, the control continued to be determined on an RPI basis, albeit with prices presented on a CPI basis.

In 2014, the CAA set the price control for NERL for the 2015-19 period[19]. This included some developments from the previous price control in that NERL provided a business plan based on CPI (rather than RPI) inflation and did not include an allowance for hedging costs between forecast and outturn RPI. The RCV, and consequently the return and depreciation, are still linked to RPI, although the company does not receive a true up for differences between RPI and CPI[20]. From the perspective of the water industry, where RPI index-linked debt is prevalent among companies, it is important to recognise that NATS has a stock of RPI index-linked debt.

5.7.6.2 The Water Industry Commission for Scotland

The Water Industry Commission for Scotland (WICS) moved from RPI to CPI indexation of its price controls in its 2014 determination of Scottish Water's price controls to better reflect customers' requirements, who would more easily understand CPI indexation as this was the headline inflation measure reported in the media[21].

Rather than calculate a revenue requirement based on standard regulatory building blocks, WICS decided to calculate revenues based on balancing cash requirements. This reflected the limits on government borrowing as Scottish Water was a government owned corporation. WICS calculations involved balancing of:

[19] This was part of the wider UK-Ireland Functional Airspace Block RP2 performance plan, which also covered terminal and en-route air navigation services in Ireland and terminal air navigation services in the UK.
[20] UK-Ireland FAB RP2 Performance Plan, CAA and IAAS, June 2014.
[21] WICS (2014) The Strategic Review of Charges 2015-21: final determination

- cash outflows in terms of operating and capital expenditure, interest and tax payments; and
- cash inflows in terms of customer revenue and agreed new borrowing.

Consequently, there was no need to calculate a cost of capital or an RCV and determine whether these were based on RPI or CPI. This was a substantial change of approach from previous price controls. The resulting price controls for household and non-household charges were both indexed by CPI.

5.7.6.3 Ofcom

In the 2014, Fixed Asset Market Reviews, Ofcom set out a framework for the consideration of the appropriate inflation index for a charge control.[22] The following factors were included.

- Official status of the index – is the index compiled by a recognised independent body?
- Cost causality – to what extent do the costs of the regulated firm move with the index in question?
- Exogeneity – is the index beyond the control of the regulated firm?
- Availability of independent forecasts – since charge controls are set over a period of a few years, are independent forecasts available for that period?
- Regulatory predictability – is the choice of index clearly reasoned?

Ofcom found that RPI and CPI were of similar quality when judged against all of these factors, apart from the official status of the index, where Ofcom found that as CPI was recognised as a national statistic, it should be considered to be superior to RPI. Accordingly, Ofcom chose to adopt a CPI-X control.[23]

Ofcom currently uses CPI to index wholesale broadband access, mobile call termination and fixed access markets. In addition, Ofcom is intending to apply a CPI approach to the setting of annual licence fees (ALFs) in relation to 900 and 1800 MHz spectrum used to provide 2G and 3G services, including voice calls, and some for 4G mobile services.

[22] Paragraphs 3.155 to 3.191 of Fixed asset market reviews: approach to setting LLU and WLR charge controls, Ofcom, July 2013 (updated August 2013). This document can be accessed at: http://stakeholders.ofcom.org.uk/binaries/consultations/llu-wlr-cc-13/summary/LLU_WLR_CC_2014.pdf

[23] Paragraph 3.116 to 3.164. Fixed asset market reviews: wholesale local access, wholesale fixed analogue exchange lines, ISDN2 and ISDN30 – volume 2 LLU and WLR charge controls, Ofcom, June 2014. This document can be accessed at: http://stakeholders.ofcom.org.uk/binaries/telecoms/ga/fixed-access-market-reviews-2014/statement-june-2014/volume2.pdf

5.7.6.4 Ofgem

On 14 October 2015, Ofgem published an open letter, which sought views from interested parties on moving from RPI to CPI applicable to future Offshore Transmission Owners (OFTOs) and interconnector licences. Ofgem confirmed that it was not reviewing indexation policy on any existing revenue arrangements (such as their current electricity distribution price control RIIO-1) at that time. However, Ofgem stated that it did anticipate considering indexation as part of its strategy for future price controls, RIIO-2, at the relevant time and welcomed stakeholders' views on its approach to indexation for RIIO on a forward-looking basis.

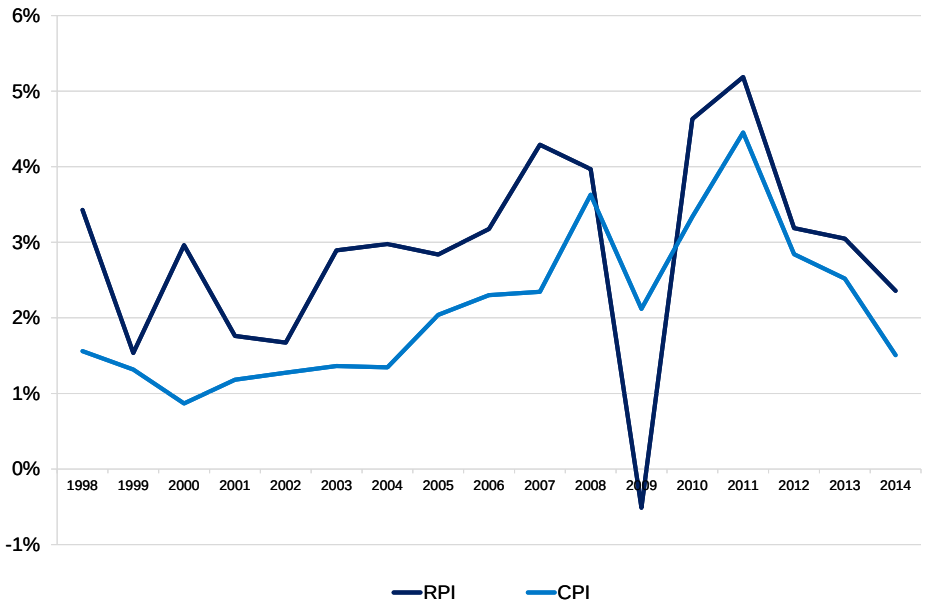
5.7.6.5 Our views on other regulators' experience of indexation

In the context of indexation, the above evidence shows parallels between other industries and the water industry. While we recognise differences in both the approach taken by regulators, and in the characteristics of the industries in question, it is clear that other regulators have successfully changed the basis for indexing price controls from RPI to CPI. We would also like to highlight the framework used by Ofcom, as summarised above, which we consider to be relevant.

5.7.8 Impact on customers and companies

When considering the potential impact of any change on customers, a key point to note is that CPI is less volatile than RPI. Over the period January 1998 to September 2015, the standard deviation for CPI has been 1.1 percentage points compared to 1.4 percentage points for RPI. As inflation costs are borne by customers under our approach, a more stable measure of inflation may result in less volatile customer bills. The difference in volatility in the two indices is illustrated in the following chart.

Figure 25: Relative volatility of RPI and CPI



In addition to the above, we recognise that, from the perspective of customers, CPI is now the commonly used measure of inflation in society. Not only used by Government to communicate and target inflation, but also often in communicating and setting wages and prices across industries more widely. We therefore consider CPI to be viewed as more 'legitimate' by customers, as well as potentially being better understood relative to RPI.

Notwithstanding the above, we are concerned that any move to CPI from RPI could impact on customer bill profiles over time – specifically resulting in short term customer bill increases, and longer-term reductions.

- As described previously, inflation feeds into our price controls through two mechanisms: (i) the nominal RCV is indexed by inflation in each year; and (ii) the allowed return companies can earn (the WACC) is set on a real basis, deflated by inflation.

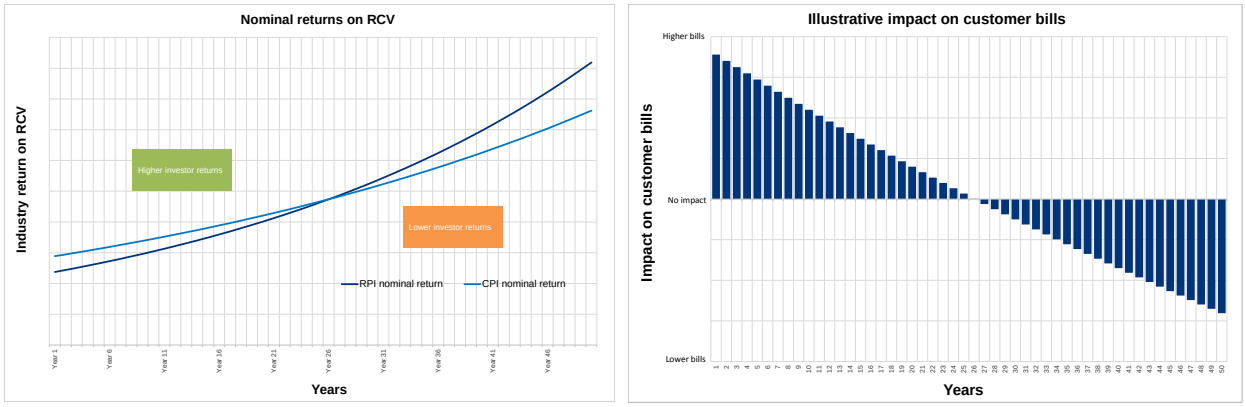
- If we were to use an alternative to RPI, such as CPI, so long as we assumed the same level of inflation in both components, then the impact on customer bills (and nominal company returns) would be neutral in in the long run (assessed in present value terms).

- However, the impact on revenues and prices is more immediate through the WACC mechanism (the real WACC would be higher on a CPI basis) than through the indexation of the RCV (which would rise more slowly over time under CPI relative to RPI).

- This therefore means that, in the absence of the use of pay as you go (PAYG) levers, **a move to CPI could result in higher customer bills and company revenues in the short term followed by lower customer bills (and company revenues) in the longer term** – as illustrated in the following figure.

While it is important to have a long-term perspective, we are also mindful of any large short-run incidence effects on customer bills. There are therefore strong grounds to consider forms of transition to any change in inflation measure.

Figure 26: Illustration of impact on customer bills and nominal returns



We are also conscious that any move from RPI to CPI will mean that companies will bear the risk that revenues change at a different rate to their debt costs, which would expose them to additional risk (noting that risk may be reduced for other reasons, such as the lower volatility of CPI compared to RPI). While companies may be able to hedge this risk, this is likely to carry a cost. It is necessary to consider how large this additional cost might be, and how it should be recovered.

We note that hedging costs could be mitigated to the extent that companies are able to raise new CPI-linked debt. There have been three CPI-linked sterling issuances in 2015 that we are aware of, namely:

- £200 million issued by the Greater London Authority over 25 years in May 2015;
- £150 million issued by Warrington Borough Council over 40 years in August 2015; and
- £100 million issued by the Church of England over 33 years in August 2015.

We do, however, recognise that the CPI market is still emerging. We therefore consider that the potential impacts on companies provide further grounds for transition mechanisms to be put in place.

The move from RPI to CPI could also impact on the cost of equity. As set out above, RPI is a flawed measure and is likely to overstate inflation in the general economy. Moving to CPI indexation may therefore be a better reflection of water company costs and so reduce the volatility of returns and therefore the cost of equity. The scale of benefits would be dependent on the degree to which CPI is a better measure of water company costs than RPI. We also acknowledge there may be increased risk arising from debt financing linked to RPI, when the RCV is linked to CPI indexation. The extent to which this is the case will depend on the transition mechanism, for example if we continue to index part of the RCV by RPI, which we set out below, then the risks may be partially or fully mitigated. Overall, the net impact will depend on the particular nature of the proposals that we make and the relationship between company costs (including index linked debt) and RPI or CPI. Based on our proposed approach and available evidence, we do not expect the change to increase the cost of equity and note potential scope for downward pressure on the cost of equity.

5.7.9 Options for our future approach to indexation

There are a number of decisions we need to take to determine our future approach to indexation.

- Whether we should change our inflation measure at all. That is, whether we should migrate from RPI to CPI (or an alternative measure, such as CPIH).

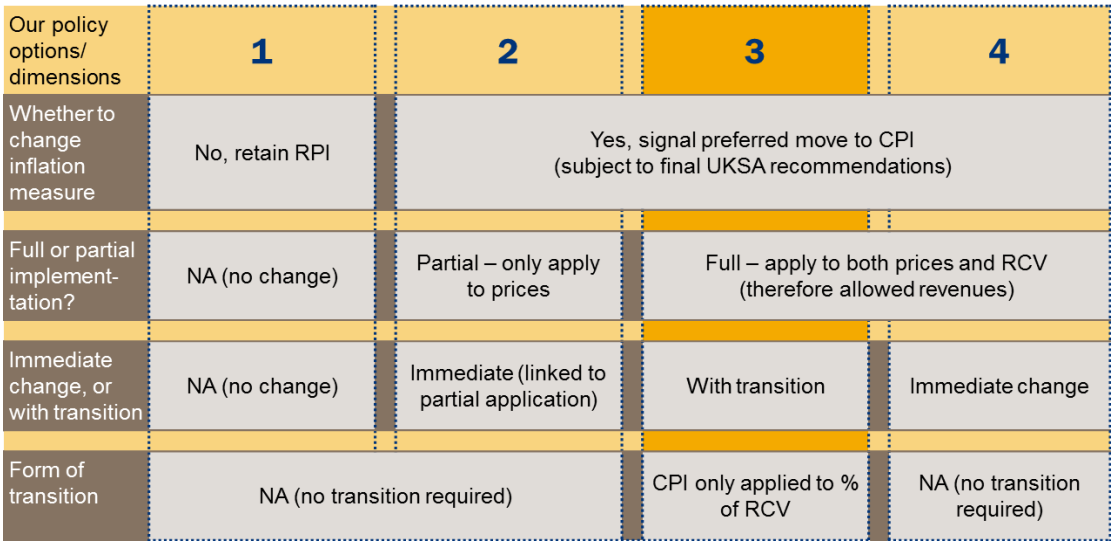
- If we are to change, whether the application of the change should be ‘full’ that is, affecting both price and the RCV (and therefore allowed revenues), or ‘partial’ (where it would only impact how we express prices).

- Whether the change should be immediate, or whether transition mechanisms should be used.

- If we are to transition, on what basis will we implement this?

The following figure illustrates our policy options and preferred option (noting that option 1 relates to ‘no change’). We subsequently discuss our rationale for this.

Figure 27: Our preferred option



5.7.9.1 Whether to change our inflation measure

In our view, there are compelling reasons for us to signal a move away from RPI.

- The Johnson report categorically recommended that RPI should no longer be used for setting regulated prices.
- RPI is no longer a national statistic[24].
- RPI is an upwardly biased measure of inflation.
- RPI is more volatile than CPI.
- There appears to be an emerging wider regulatory trend away from the use of RPI.
- CPI is more widely used in society and would be regarded as being more legitimate by customers (due to its wider use and the problem with RPI being upwardly biased and more volatile).
- Due to the issues highlighted above, a move away from RPI to CPI (or some variant) seems to be inevitable at some point in the future.

However, we recognise that there are potential risks of a move from RPI to CPI, for example around the impact on water company debt costs and transitional impact on customer bills. In

[24] As RPI is no longer a national statistic – RPI statistics are no longer provided alongside other measures of inflation and the lesser status of the RPI measure is made clear. It should also be noted that the methods used to calculate RPI are frozen and RPI is only updated for routine changes. RPI is likely to get less accurate over time. A UK Statistics Authority report provides further information.

addition, we recognise that the UKSA has yet to publish its final recommendations. Therefore, **our preferred position for consultation is that we propose to move away from RPI to CPI pending the finalised outcome of UKSA's review.** We acknowledge that any such move is likely to have costs as well as benefits and so attach importance to the introduction of appropriate transitional mechanisms (which we set out below).

5.7.9.2 Moving towards implementation of CPI

Given that we are minded to move to CPI (or possibly CPIH), we need to consider whether to only apply CPI to the revenue/price control and continue to index the RCV by RPI (partial implementation), or to apply CPI to both revenues (prices) and the RCV (full implementation).

One approach, which falls short of either partial or full implementation, would be that allowed revenues would still be calculated using RPI, but having calculated them, prices would be expressed in CPI terms. This is a largely presentational solution (as noted by First Economics in their paper for Severn Trent Water) – but it could be argued to address some of the issues associated with the lack of legitimacy of RPI and would mean that customers have bills presented to them on a more familiar CPI basis. It would also address the transitional issues associated with short-term bill impacts and the need for companies to hedge the difference between RPI and CPI. This implementation approach was favoured by a number of respondents to our July discussion document. There is also some precedent for this approach. In particular, when setting the NERL 2011-14 price control, this was the approach adopted by the CAA when it first applied CPI, however we note that it has now progressed from this approach and non-RCV related elements of the control are now forecast using CPI rather than RPI.

The main drawback of this approach is that the price controls would effectively remain RPI based, and so the problems and wider policy context associated with RPI would remain embedded in our approach. The longer-term benefit arising from reduced price volatility would also be lost and the customer legitimacy concerns would be only partly addressed, as there would be pressure to correct for any differences between the forecast and actual difference between RPI and CPI, effectively meaning that prices would grow by RPI over the longer term. It would also not transition to CPI based indexation, as the underlying calculations would still be RPI based.

A partial implementation of indexing revenue controls to CPI while indexing the RCV to RPI would avoid the potential impact on existing financing of the RCV, while providing some measured transition to CPI. However, this approach does not appear to be a sustainable long-term view, as it applies different forms of indexation to the price control on an enduring basis. The issues around the financing of the current RCV are best addressed as a transition issue, which we discuss below.

In light of these factors, our view is that **we should move towards implementation of CPI, applying it to both prices and the RCV, but with careful regard to transitional issues**. We think that it is important to set the right level of ambition for the industry and that continuing to use a measure that has been found to be statistically flawed, and is being increasingly rejected across the wider regulatory community and economy, would undermine trust and confidence.

Here we should also emphasise that in implementing a CPI based approach, **we will commit to ensuring that the impact of this is neutral to both company (nominal) revenues and customer bills in net present value terms**. We will ensure that the assumptions we make regarding CPI and RPI are symmetrical when we apply inflation to both the RCV and WACC in determining prices. We see this commitment as being a critical part of our package and understand its importance. We therefore welcome views as to how we can best support the credibility of this commitment. In particular, it would seem helpful to publish both an RPI and CPI stripped real WACC at PR19, demonstrating the assumed differential between the two indices and that nominal returns are, therefore, unchanged.

5.7.9.3 Timing – should we switch fully now to CPI or allow for transition?

Having determined that we think implementation of CPI is appropriate (subject to the UKSA's final recommendations) we need to consider whether any change should be made 'immediately,' or with transition.

5.7.9.4 The form of transition

There is a continuum of options for transition from RPI to CPI that include the following.

1. Continuing to apply RPI to the existing RCV, and apply CPI only to new investments made from the start of PR19.

2. Applying RPI to a proportion of the existing RCV and applying CPI to the remaining proportion (or applying a weighted average RPI/CPI WACC to the whole RCV). The proportion could be calculated to take account of the use of RPI linked debt to finance the RCV.

3. Applying CPI to all of the RCV, with any transition limited to adjustments to cash flows to mitigate impact on companies and customers.

For the reasons set out previously in this section, we consider some form of transition by applying CPI to part of the existing RCV to be appropriate and therefore propose to rule out option 3. This is because, without any transition mechanism, companies would be exposed to increased risks around financing the existing RCV. They could manage these risks by hedging the differential between RPI and CPI, however, this would increase costs. If the risks were not hedged, then the increase in risk may have some impact on the cost of equity (without considering any offsetting impacts). Therefore, **we propose to phase in CPI indexation**. **This will assist both customers and companies, by allowing the price control to reflect, in part, the unwinding of embedded RPI backed debt over time.**

We consider that the second option of applying CPI to only a proportion of the RCV for PR19 is the most appropriate. Depending on how the proportions are determined (which we discuss below) this option would allow existing RPI linked debt to unwind, while also creating incentives to help the industry migrate to CPI. Our concern with the first approach (only applying CPI to new investment) is that this would take a long time to transition to CPI and therefore the downsides associated with an RPI approach persist for longer. It would also be inconsistent with our notional approach to the cost of capital, where only part of the RCV is funded with debt, with the remainder funded through equity. Therefore, **our preferred model of transition is to continue to apply RPI to a proportion of the RCV and apply CPI to the remainder**. For consistency, we would apply a real WACC on a RPI basis to the RPI element of the RCV, and a CPI real WACC to the CPI element. Both would be calculated from the same nominal WACC start point. This will ensure that nominal returns and bills are neutral over time. (As noted above, to implement this we could calculate a weighted average RPI/CPI WACC, based on assumed proportions of the RCV, which would be indexed by RPI and CPI).

5.7.9.5 What proportion of the RCV to link to RPI

One of the main constraints on moving to CPI is the level of RPI linked debt held by the water companies. We have therefore examined both the assumed level of RPI linked debt in PR14 and the actual level of index-linked debt held by water companies.

We use a notional approach to calculate the cost of capital. At PR14, we calculated the cost of capital based on notional gearing of 62.5%, meaning that 62.5% of the RCV was funded through debt, with 37.5% of the RCV funded through equity. In the calculation of the cost of debt, we assumed that 75% of debt was embedded debt and 25% was new debt[25], and 33% of debt was funded through RPI linked debt. On this basis we could set the proportion of the RCV to be RPI linked to be 15%, (62.5% notional gearing multiplied by 75% embedded debt and by 33% of index linked debt - this assumes that new debt is not RPI linked)[26].

We have also examined the existing proportion of the linked debt in the sector. In 2015[27]:

- the average percentage of index linked debt is 46%;
- the average proportion of the RCV financed from index linked debt is 35%;
- for water only companies (WoCs), this is materially higher at 65% of debt and 52% of the RCV; and
- for water and sewerage companies (WaSCs), the proportion is lower at 45% of debt and 34% of the RCV.

We acknowledge that there is some variation around these figures with some companies such as Portsmouth Water and Dee Valley Water having all or nearly all debt RPI linked.

Table 3: Sector-wide proportions of index linked debt

Sector weighted average calculations (£m unless %)	2014	2015
Fixed Rate Debt	20648	20660
Floating Rate debt	5228	6012
Index Linked Debt	21497	22472
Total fixed, floating and index linked	47374	49143
Total of all net debt	45375	46863
% of index linked of fixed, floating and index linked debt	45%	46%
% index linked debt as proportion of the RCV	34%	35%

[25] Final price control determination notice: policy chapter A7 – risk and reward, Ofwat, 2014.
[26] This is the average position over the current price control. By March 2020, based on PR14 assumptions we would expect 50% of debt to have been embedded from before the start of the price control, with the remainder new debt. If this new debt is not index linked then based on our notional assumption only 10% of RCV could be attributed to index linked debt (62.5% gearing, 50% embedded debt and 33% index linked debt)
[27] Water company regulatory accounts. Index linked proportions based on the % of fixed, floating and index linked debt.

Consistent with the approach we have taken at PR14 and in previous reviews, we consider that the level of gearing within a water company is a matter for its management and investors. We are, however, conscious that water companies have taken out RPI index linked debt on the basis that the RCV has, historically, been indexed by RPI. We therefore consider that there is a case for treating all embedded debt as though it has been RPI indexed. We do not consider that we should treat new debt from PR19 in the same way as companies can choose whether and how to index new debt.

Based on the above **we consider that 50% of the RCV should be indexed to RPI and 50% indexed to CPI from the start of the next control period**. This is based on our PR14 assumption of embedded debt and gearing, (50% (rounded) is 62.5% gearing multiplied by 75% embedded debt). The same proportion of RPI and CPI indexation would apply to all companies, so that actual financing decisions do not impact on the proportion of debt that is indexed to RPI. We note that by only indexing half of the RCV to CPI this will halve the potential impact on bills of a move to CPI.

We note that the proposed 50% linked to RPI is well in excess of the sector average of 35% of the RCV financed by index linked debt and is broadly consistent with the average for the WoCs and therefore our approach appears broadly consistent with actual financing practice in the sector, while leaving the risks of financing decisions to individual companies.

Finally, for the purposes of implementing this approach in PR19, we are minded not to split the RCV into RPI and CPI elements, but instead **apply a single real WACC to the RCV throughout the next control period** (where this WACC would be a weighted average of a RPI and CPI real WACC).

Going forwards, our intention is to reduce the RPI indexation of the RCV (from the 50/50 RPI/CPI split in 2020-25) in subsequent control periods, as the proportion of existing embedded debt reduces over time and taking account of the development of CPI linked debt markets. We note that, by setting out our proposed transition mechanism now, we are allowing the companies time to alter their debt structure in advance of the proposed introduction of CPI indexation at the start of the next control period.

We welcome views from stakeholders on our approach.

5.7.9.6 Calculation of the indexation of the revenue/price control

Given our proposed approach of indexing 50% of the RCV to RPI and 50% to CPI, there is a question as to how this should be calculated. We propose to calculate revenues and controls on the basis of CPI, but that we forecast the growth of the RPI linked proportion of the RCV, based on the forecast of RPI. This will mean that while some parts of the RCV will be assumed to grow with RPI, overall revenues/prices will be linked to CPI. Consequently, water companies (and Ofwat) will need to make an assumption of the forecast difference

between RPI and CPI over the control period for the proportion of the RCV linked to RPI. Consistent with our approach to manage a smooth transition to CPI, **we propose to provide a true up to correct for any deviation of the actual RPI/CPI differential from that forecast at the start of the regulatory period (for the RPI linked part of the RCV)**. This has the effect of ensuring that a proportion of the RCV is linked to RPI and that customers, not companies, bear the risk of any deviation of the actual RPI/CPI differential from that forecast at the start of the regulatory period.

We welcome views on whether we should look to link the RCV based price controls to CPI and whether we should protect companies from changes in the difference between RPI and CPI during the control period.

5.7.9.7 Further smoothing of customer bills

While our proposal to transition to full CPI implementation will naturally mitigate short run customer bill impacts, we recognise that companies may wish to take further steps to address this. We are not proposing to mandate the use of any other tools (including the use of PAYG tools or the RCV run off rate) to address this. However, as part of developing their business plans, **we expect companies to engage with their customers on the use of PAYG tools to smooth the impact of moving to CPI indexation**, and to suggest the use of such tools if supported by customers. The use of such tools could entirely remove the impact on bills of a move to CPI. Where companies intend to use PAYG tools, to support transparency and our commitment to ensuring that any change is value neutral, companies would need to separately identify the element of any such adjustments that is specifically associated with managing the transition to CPI.

5.7.9.8 Overview of our proposals

In summary our proposals for moving towards CPI indexation are:

- indexing the price/revenue control for the RCV based controls by CPI;
- indexing 50% of the RCV to RPI, with 50% of the RCV indexed to CPI;
- applying a single real weighted average cost of capital to the RCV throughout the next control period (where this WACC would be a weighted average of a RPI and CPI real WACC);
- providing a true-up for outturn differences between RPI and CPI (for the RPI related elements of the control); and
- allowing water companies, if supported by customers, to propose the use of pay as you go and RCV run-off to smooth the impact on customer bills of a move to CPI indexation.

We consider that our proposals offer a balanced package of measures to facilitate the transition towards CPI indexation, and are comparable to those put forward by other regulators, for example compared to the CAA we propose to index half rather than all of the RCV by RPI but provide a true-up for differences between RPI and CPI which the CAA's NERL control does not.

We acknowledge the importance of obtaining a thorough understanding of the costs and benefits before making a final decision on moving from RPI to CPI indexation. We intend to undertake further work and stakeholder engagement on the costs and benefits of moving from RPI to CPI. This will include an assessment of the relationship between water company costs and RPI and CPI, the impact of a change in volatility on water company costs and the cost of equity and the impact of a move on water company debt and hedging costs.

Our consultation questions relating to indexation are set out in the following table.

Consultation questions

Q39 Do you agree with our proposal to move to CPI (subject to the UKSA's final recommendations)?

Q40 Do you agree with our proposal to implement a CPI based approach, for both revenues (prices) and the RCV, subject to a transition process?

Q41 Do you agree with our proposal to transition to CPI over time, both in terms of the overall method and the specific proportions of the RCV we are suggesting would remain indexed by RPI?

Q42 Do you agree with our commitment to ensuring that any such change is value and bill neutral in NPV terms over time in nominal terms? What steps could be taken to make this commitment as credible as possible?

Q43 Do you agree that we should calculate the RPI linked element of the RCV based on forecast RPI with a true up at the end of the period to protect companies from changes in the difference between RPI and CPI over the control period?

6 How will our proposals impact the level and balance of risk?

An important aspect of our approach to Water 2020 is ensuring that we set an appropriate balance of risk and reward between customers, companies, their investors and the environment. A critical dimension of this is how our regulatory design might affect the overall level and balance of risk. Drawing on the proposed reforms set out in the previous chapters of this consultation, here we identify and evaluate the potential impact of our proposals. In turn, we set out:

- our view on risk and reward, as presented in our July discussion document;
- stakeholder responses to our July discussion document;
- the key factors that we consider collectively determine the current risk exposure in the water sector;
- our assessment of the likely impact of our proposed reforms on the balance of risk; and
- other potential changes to the balance of risk and reward.

To support our assessment, we asked PwC to formulate an independent view of the current balance of risk and reward, and to provide a preliminary assessment of the potential impact on the balance of risk of our proposed regulatory reforms[28].

6.1 Risk and reward as set out in the July discussion document

In our July discussion document, we considered a range of issues relating to the balance of risk and reward and also reiterated the importance of out-performance incentives as a tool to incentivise companies to improve operational performance, rather than outperform through financial engineering. We further considered the main components of the overall balance of risk and reward and set out the key questions that we would need to address looking forward to PR19. For example:

- What is the level of return required to facilitate investment and company financeability, given the high levels of risk protection embedded within the wholesale price control (such as indexation of the RCV)?

[28] This document will be published later at http://www.ofwat.gov.uk/consultation/water-2020-consultation/

- Is the current balance of risk and rewards appropriate? For example, should Ofwat allow greater upside potential for performance and delivering for customers, while reducing the base level of allowed return for companies?

- How can we properly incentivise innovation and ensure that companies that deliver benefits through innovating get appropriate rewards?

- What are the ways of allocating risks so that they are better aligned to the party best able to control them?

- What is the impact of market development on financial sustainability at different levels of the value chain (noting that our financeability duty applies at the appointee level)?

6.2 Stakeholder responses to our July discussion document

In response to our July discussion document, stakeholders contributed their thoughts on two main issues.

- **Financial outperformance.** Stakeholders highlighted the trade-off between incentivising companies to outperform and protecting investors and companies from risks to the detriment of customers. Many companies considered that there is scope for Ofwat to offer greater incentives for companies to outperform. In addition, companies stated that incentives and the criteria for enhanced status may need to be explained in more detail.

- **Regulatory uncertainty.** Stakeholders emphasised that it was important for Ofwat to provide regulatory certainty to sustain long-term investment in the sector. Stakeholders stated that retrospective changes to the terms on which previous investments were made would be detrimental to long term investment, and that any regulatory changes should have a low impact on the investment risk profile of the sector.

6.3 Key factors determining the current balance of risk

To better understand the implications of promoting markets, we have examined the relative risk of each element of the water and sewerage value chain, with a particular focus on the areas that we consider have the greatest scope for the use of markets: water resources and sludge. If different parts of the value chain have different risk profiles, then this could mean that required returns should also vary across the value chain irrespective of the greater use of markets.

We commissioned PwC to provide advice on how risks are spread across the value chain. PwC identified two broad forms of risks.

- **Granular business risks:** these are specific operational risks that companies will seek to control such as water contamination and sewer flooding.

- **Out-turn risks:** these are financial outturns of risks by examining industry cost data and include the impact of operational risks and financial risks such as labour, power and material costs.

The outturn risk approach provides a better reflection of overall value chain risks (although it is not without its limitations due to the short time period of the analysis). To give an overall indication of cost volatility the out-turn risk has been compared to the proportion of the modern equivalent asset value (MEAV) to give the overall value at risk. This provides an indication of the relative riskiness of individual parts of the value chain, and reflects both systematic and specific risks. The table below sets out the relative riskiness of different parts of the value chain, ranking them from highest riskiness (1) to lowest riskiness (7).

Table 4: How the risks of water and wastewater businesses compare

Rank	Granular business risk	Outturn cost risk	Value at risk
1	Sewage collection	Water resources	Sludge
2	Treated water distribution	Water treatment	Water treatment
3	Sewerage treatment	Sludge	Raw water distribution
4	Water resources	Raw water distribution	Sewage treatment
5	Sludge	Sewage treatment	Water resources
6	Raw water distribution	Sewage collection	Treated water distribution
7	Water treatment	Treated water distribution	Sewage collection

6.3.1 The impact of risks across the value chain on the cost of capital

When considering the impact of risks on the cost of capital, it is important to consider the different providers of finance to the water sector. At a simple level, providers of finance in the England and Wales water sector can be categorised into equity holders (which consist mainly of large institutional investors, such as pension funds, sovereign wealth funds and infrastructure funds) and debt providers (bond holders and providers of short and medium term bank debt).

When selecting an investment, these stakeholders consider both specific and systematic risks. Specific risks are those that affect a company individually. For example, a cost overrun on a capital expenditure project; whereas systematic risks affect all companies (but not equally), such as the risk to demand from changes in economic growth. At a high level, equity investors are concerned with systematic risks, which drive the volatility of returns and cannot be diversified across a portfolio. Debt holders are concerned with the debt issuers' ability to service the interest payments on a bond and repay the principal amount at maturity[29]. Debt holders will therefore be concerned with both the systematic and specific risks of a company. Systematic risks are reflected in a company's asset beta, and consequently, its cost of equity. Specific risks are reflected in a company's gearing and its cost of debt. The cost of capital is a combination of the cost of equity and cost of debt weighted by the gearing. It should be noted that under the capital asset pricing model (CAPM) a change in gearing will have a minimal impact on the cost of capital.

Based on an assessment of current risks across the value chain, PwC assessed how these risks might impact on the cost of capital in particular by separately identifying systematic risks which affect the asset beta and total risks (as identified above) which affect gearing. PwC identified that the key systematic risks that were likely to affect the asset beta to varying degrees across the value chain, were:

- **power costs** – where the asset beta is likely to be higher in the more power intensive parts of the value chain (including raw water distribution, water treatment and sludge) as power costs are likely to affect returns across the market (albeit to a varying degree); and
- **operational leverage**, which reflects the degree to which costs are fixed, with water resources and sludge having a higher potential volatility in costs.

PwC do not consider that other factors that might impact on systematic risk such as financing costs and bad debt, would necessarily vary across the value chain. PwC benchmarked the resulting beta and gearing estimates against comparators from the water and utility sectors, which resulted in the following assessment of the potential variations in the cost of capital across the value chain.

29 Returns on debt are generally more fixed in nature and have a higher priority of claim than equity returns. Due to this, debt investors will be more concerned with the financial stability of the bond issuer, which will determine its ability to fulfil the interest and principal commitments of the debt instrument.

Table 5: The potential impact of risks upon the cost of capital

Value chain element	Value chain beta	Value chain gearing
Company level (wholesale)	0.28	62.5%
Water resources	↑	-
Raw water distribution	↑	-
Water treatment	↑	↓
Treated water distribution	-	↑
Sewage collection	↓	↑
Sewage treatment	-	-
Sludge	↑	↓

6.4 Potential impact of our policy position on the balance of risk

6.4.1 Proposed reform

We have considered the impact of each of our key proposed reforms separately.

- The creation of separate price controls for water resources and sludge.
- RCV allocation and protection.
- Access pricing.
- RCV indexation.

6.4.2 Creation of separate water resources and sludge price controls

As explained in chapter 4, we are proposing to introduce separate binding controls for both sludge and water resources for PR19. This would mean that there would be separate price controls for sludge, water resources, wholesale water network plus, and wholesale wastewater network plus.

Creating **separate price controls** under the same ownership should not lead to a discernible change in the cost of capital as long as the overall risk does not change and incentives are consistent across price controls. This was the case for PR14 with the creation of separate price controls across wholesale water, wholesale wastewater and household and non-household retail, and was supported by the CMA in the Bristol Water appeal. The CMA stated that:

> "financial theory would indicate that dividing a company into parts (retained under the same ownership) should not affect either its profitability or the returns it generates. Therefore, we were not convinced that the implementation of separate controls should in itself require any increased returns"[30].

The introduction of additional price controls could impact on the cost of capital if it changes the **intensity of regulation**. We are proposing a revenue control for water resources and the network parts of the value chain. This is the same form of regulation as used in PR14 and so should not change the balance of risk or cost of capital. For the sludge price control, we are proposing to introduce a price control with volume risk. This is likely to increase risks to water companies (excluding the impact of market development) and reduce risks to customers, as companies will be exposed to some of the same systematic demand risks as the rest of the economy (although sludge demand is relatively inelastic). Overall, based on the work undertaken by PwC, we consider that the introduction of volume risk in sludge controls could result in a small increase in the asset beta (of up to 0.04) and reduction in gearing (of around 2.5% points) for the sludge market. We do not consider that there will be any change in risk for the water resources control.

6.4.3 RCV allocation and protection

6.4.3.1 Our proposed reforms

As explained in chapter 4, in part to facilitate the creation of separate price controls, we are intending to allocate the regulatory capital value (RCV) across the four wholesale controls. For sludge, we are intending to use a focused approach to RCV allocation (and so the value of the assets reflects the modern equivalent asset value (MEAV) of sludge assets in **absolute** terms). For water resources, we are intending to use an unfocused approach (where the allocation reflects the **proportion** of the value of assets in water resources compared to the rest of the water value chain).

We are further proposing to **extend our protection of the RCV to include efficient investment made prior to 31 March 2020**.In relation to sludge, our approach explicitly includes exposing new investment to (market related) volume risk; whereas for water resources, we are not proposing any such mechanism, although new investment will be exposed to the potential for third party provision at the time at which it is procured.

[30] Competition and Markets Authority (2015), Bristol Water plc: a reference under section 12(3)(1) of the Water Industry Act 1991', para 10.218.

6.4.3.2 Impact of our proposed reforms

The allocation of the RCV across different parts of the value chain may not, on its own, increase **overall risks** to investors, as long as the overall risk does not change.

The impact of RCV allocation on the **spread of risk** across the value chain will depend, to some extent, on the method of allocation. Our analysis of the current balance of risk across the value chain assumes that the RCV is allocated on an unfocused approach (as it is unclear whether the RCV discount varies across the value chain). Consequently, we would not expect an unfocused allocation of the RCV, as we are proposing for water resources, to impact on the balance of risk and cost of capital across the value chain.

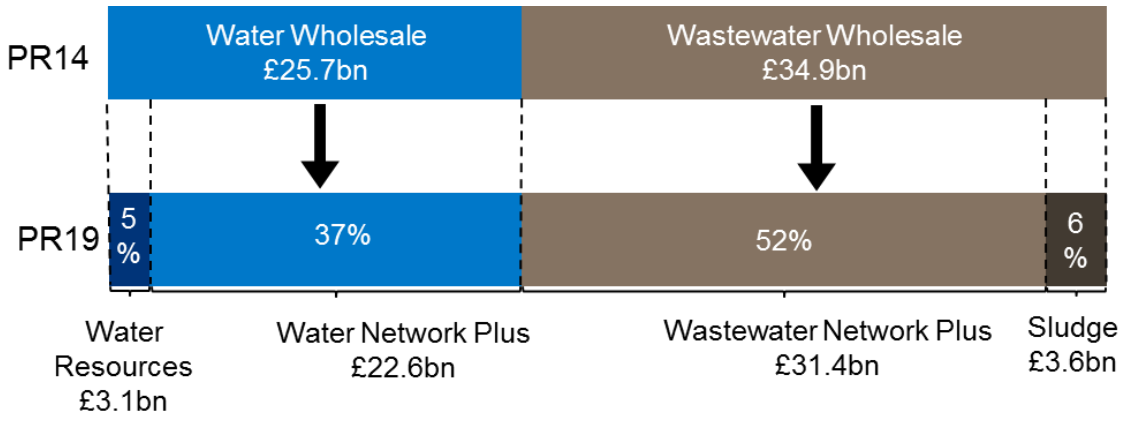
If, however, a focused approach is used, as proposed for sludge, then this could impact the balance of risk across the value chain (as the capital intensity of different parts of the value chain would change). It could also impact the overall level of risk, if a significant part of the RCV is allocated to an area where returns are more variable. For sludge we consider that using a focused approach to RCV allocation is likely to increase the capital intensity of sludge, reducing the asset beta and the cost of equity for sludge and marginally increasing it for the wholesale part of the value chain (with no overall impact). This would make the relative cost variability of sludge similar to the rest of the value chain, and so we would not expect the allocation of the RCV to impact on gearing or the cost of debt.

For water resources, we are not proposing to put the existing RCV at risk. Our overall approach means that the possibility of third party provision in relation to historical investment would be unlikely in any event. Due to the RCV discount and unfocused approach to RCV allocation – existing assets are likely to be considerably cheaper than new provision. In addition, we have extended our RCV protection to 31 March 2020, and we are not proposing to expose the water resources control to volume risk so that – regardless of market development – investors will recover related RCV costs. Consequently, RCV allocation should not affect the cost of capital.

For sludge, we are proposing to protect all existing investment up to 2020 but to explicitly put new investment at risk (that is companies will face market related volume risk). This is likely to moderate the impact on investors, as companies are only likely to invest where they consider that there is a reasonable chance of making a return. Further, sludge allowed revenues will be determined from conventional regulatory building blocks including RCV and therefore, the detrimental impact of markets on revenue would not occur within the 2020-25 period. We would not expect the introduction of markets for sludge provision to increase systematic risks as this risk is diversifiable. The introduction of markets for the provision for new assets is likely to put some downward pressure on gearing.

The following figure shows our proposed allocation of the RCV across the various components of the wholesale value chain. We acknowledge that some water companies could have covenants on their debt that relate to the RCV (although we note that these relate to water companies' actual rather than notional financial structure). The RCV allocations to the potentially contestable market segments of both sludge and water resources are material. However, any investor concerns should be reduced by the protections to the existing RCV and the limited scope for third party provision, particularly for water resources.

Figure 28: Proposed RCV allocation between controls



6.4.4 Access prices

6.4.4.1 Our proposed reforms

Our access pricing reforms are set out in chapter 4. For water resources, we are proposing that the access charge should be based on the water network plus control we set (that is the average cost of providing network plus services). This will be supplemented by a further payment that offsets the difference between the incumbent's long-run incremental cost (LRIC) and the average cost of providing water resource, to ensure that the right incentives for efficient entry are created, without unwinding the overall averaging of prices. For sludge, there are no access prices per se, but rather, we intend to achieve a level playing field by adopting a focused approach to the RCV allocation, and we are proposing to introduce volume risk to provide an incentive for companies to compete.

6.4.4.2 Impact of our proposed reforms

We would not expect the charging reforms to impact on the proposed water network plus control as water companies will still be able to recover their costs. The access pricing regime itself should not increase the risk to investors. This is because our approach means that they will always be able to recover their costs for the wholesale part of the network. Further, in

relation to water resources, our approach means that companies will be able to continue to recover their average cost of resource, and so it is most similar to risks around a retail minus approach rather than LRIC costing. The impact of any variability and uncertainty of LRICs should also be mitigated by this approach. In addition, we note that some regulatory experience suggests that risks should not necessarily increase, for example BT's gearing has not moved substantially with the transition from retail price controls to an access pricing regime. Finally, our commitment to protect the existing RCV means that the access regime should not increase risks elsewhere in the value chain.

In relation to sludge, as noted above, there are no access prices per se. Here the potential impact associated with our approach to the RCV is addressed above.

6.4.5 Overall impact of our proposed reforms for sludge and water resources

As set out above for **water resources** we are proposing to protect the 2020 RCV, not expose companies to volume risk and the development of markets will be focused on new resources. We do not consider that the introduction of markets would change the balance of systematic risks and so would not expect the cost of capital to change. We also do not consider that there should be a change in the cost of capital for existing assets as markets will be focused on the provision of new capacity and we have committed to protecting existing investment from asset stranding.

For **sludge,** we are proposing to allocate more of the RCV to the sludge control (as we are proposing a focused approach) and to protect the 2020 RCV. Water companies will also be subject to volume risk. Over the long term, we do not expect the introduction of competition to have an impact on systematic risk as the risk is diversifiable, although we might expect a small reduction in gearing. In the short term, there is a question as to whether a transitional premium to the cost of capital might be required. If upstream reforms are perceived to introduce asymmetric risks for investors and expected cash flows, then the value to the business will change and so there could need to be an offsetting adjustment to the cost of capital. Note this requires the assumption of both asymmetric impact and a level of fixed operating costs.

In terms of potential asymmetry, we note that WaSCs have opportunities to enter arrangements to trade sludge with each other when they would benefit from doing so, that is where it would be lower than their own costs of processing. Similarly, potential scope for contracting with wider organic waste providers would only take place where this enabled the WaSC to lower costs/earn additional revenue. We do not therefore consider that within the 2020-25 period there will be scope for asymmetric losses against their allowed revenues. We acknowledge that the reset of controls at PR24 or evolution to market pricing may potentially introduce scope for asymmetric risk, but also note that this provides considerable time for the

WaSC to make the required adjustments to its sludge business. We would need to consider the impact of such changes on the cost of capital when we resetting controls in PR24.

6.4.6 RCV indexation

6.4.6.1 Our proposed reforms

Compensation for inflation represents a core part of our approach to regulation and encompasses setting out a nominal RCV, indexed for inflation and a real terms weighted average cost of capital (WACC), together with a nominal price/revenue control indexed for inflation (for wholesale services). To date we have used RPI to index for inflation, however as set out in section 5.7, we are proposing to transition to using CPI. Key features of our proposal are set out below.

- Indexing 50% of the 2020 RCV by RPI, with the remainder indexed by CPI, to allow existing RPI linked debt to unwind, and so assisting both customers and companies in the transition.

- Starting from the same nominal WACC, applying an RPI reduced real WACC to the proportion of the RCV still indexed by RPI and a CPI reduced real WACC to the remainder.

- Ensuring that the implementation of the above approach is symmetrical (that is the same inflation assumptions are used in both the WACC and RCV elements) so that nominal returns are left unchanged over time.

- When setting RCV based controls, using CPI based indexation and compensating companies for any differences between the forecast and actual difference between RPI and CPI (on the RPI linked element of the RCV).

- To allow companies the flexibility to make use of other existing tools (such as PAYG) to further smooth bill impacts, if they so choose.

6.4.6.2 Impact of our proposed reforms

Given our commitment to maintain the same nominal WACC, we do not consider that the move from RPI to CPI indexation should change risks to investors, as this change should be net present value neutral over time. The change should also not affect the overall level of return that we provide as we have allowed companies to smooth bills impacts over time.

The move from RPI to CPI indexation may also create benefits to investors (and customers) as it is less volatile, and should in theory be a better reflection of company cost inflation (although we will undertake further work to identify whether this is the case in practice). This should mean that companies will need to price less risk into their business plans going forwards, reducing costs to customers.

We acknowledge that a large part of companies' existing debt portfolios is index linked to RPI. Consequently moving from RPI to CPI indexation could have a material impact on future financial ratios if revenues (linked to CPI) change at a different rate to liabilities (indexed to RPI). We therefore propose to index 50% of the existing RCV to RPI. This is equivalent to assuming that all embedded debt is RPI linked. As on average around half of water company debt is RPI linked we consider that, based on a notional financial structure, this should not create issues for companies going forwards. We propose to index the remainder of the RCV to CPI. While we acknowledge that the CPI debt market is in its infancy, a number of debt providers appear to be keen to take CPI linked debt as this better matches their future liabilities and three tranches of index linked debt have recently been issued[31], with competitive rates achieved (at least on the most standard of these bonds)[32]. We also note that we are intending to provide companies with protection by correcting for any deviation of the actual RPI / CPI differential from that forecast at the start of the regulatory period (for the RPI linked part of the RCV). Consequently, we do not consider that the move to CPI indexation should necessarily increase risks or the cost of capital (based on our notional capital structure).

In summary, we consider that the move to CPI indexation should provide benefits to customers (and companies) in that CPI is a statistically valid measure of inflation (unlike RPI) and is less volatile than RPI. We consider that risks to investors from transferring to CPI indexation should be mitigated by the transition mechanisms that we propose: continuing to index 50% of the RCV with RPI, using the same nominal cost of capital to calculate the real CPI and RPI based return, and adjusting for the forecast and outturn differences between RPI and CPI.

[31] £200m issued by the Greater London Authority over 25 years in May 2015; £150m issued by Warrington Borough Council over 40 years in August 2015; £100m issued by the Church of England over 33 years in August 2015

[32] The GLA bond was the first-ever sterling CPI issue and provided very competitive financing: the implied AA spread over RPI at the time was 1.6% less a long-term implied RPI-CPI wedge of 1.0%, which implied a 0.6% CPI real interest rate, compared to the actual coupon of 0.34%. This implies that it was efficient and there was good demand. Although we note that the market is relatively illiquid. http://www.oxera.com/Latest-Thinking/Agenda/2015/Index-linked-bonds-2-0-introducing-CPI-linked-secu.aspx

6.5 Other potential changes to the balance of risk and reward

In October 2015, the National Audit Office (NAO) published a report into the economic regulation of the water sector[33]. In this review, the NAO highlighted that in 2009 we had assumed higher borrowing costs for companies than occurred in 2010-15 as interest rates had been lower than we expected. The NAO stated that, had we used a cost of debt tracker, as adopted by Ofgem in 2013-14, where companies' allowed cost of debt is adjusted based on the borrowing costs of similar companies, then customer bills would have been £840 million lower between 2010 and 2015. The NAO noted that customers' bills would have been higher if interest rates had risen above their long-term average. The NAO recommended that we should look to increase the pass-through to customers of costs or benefits that are outside companies' control such as general movements in taxation or borrowing costs. This should include a full assessment of the likely impacts including potential gains to customers through lower prices and to companies through reduced risk.

A cost of debt tracker as used by Ofgem is only one element in setting the cost of debt in cost of capital calculations. Other important factors include the degree to which companies have, and are likely to in the future, out- or under-perform cost of debt benchmarks, the assumed proportions of new and embedded debt, the time period for embedded debt calculations and assumptions on inflation and the mix of debt. We propose to examine whether to introduce a cost of debt tracker within an overall assessment of our approach to the calculation of the cost of debt. This will consider the factors set out above together with a wider review of how we set the cost of debt including approach and scope for outperformance compared to outperformance for ODIs and totex and how to improve our view of the forward-looking cost of debt.

In addition to considering how better to reflect water companies' cost of debt going forwards we intend to consider a number of other areas which might impact on the balance of risk and reward. For example, we will consider:

- the impact of current incentive mechanisms on water company incentives and whether these are operating in customers' interests;
- how we can better incentivise companies to outperform where it is in customers' interests; and
- how the balance of risk and reward can be used to acknowledge and reward innovative solutions in the interests of customers.

[33] NAO (2015) The economic regulation of the water sector. This document can be accessed at: https://www.nao.org.uk/wp-content/uploads/2014/07/The-economic-regulation-of-the-water-sector.pdf

6.6 Impact of the balance of risk and reward on the cost of capital

As part of PR19, we will assess the risk and reward profile of each of the separate binding wholesale controls and determine the appropriate cost of capital accordingly. The cost of capital applied to each control may, therefore, vary to reflect the risk profile of that business. When considering the cost of capital we will need to take account of the underlying risk profile of that part of the business and the impact of our proposed market and incentive reforms on the balance of risks and opportunities. Consequently it will be necessary to consider the risks and opportunities faced by those companies whose area is wholly or mainly in Wales relative to those in England, given that the provisions of the Water Act 2014 that relate to market reform will not apply to companies whose area is wholly or mainly in Wales.

Consultation questions

Q44 To what extent does the current balance of risk and opportunities vary across the proposed wholesale controls and how does this impact on the cost of capital?

Q45 To what extent would our proposed market and incentive reforms impact on the balance of risk and opportunities and the cost of capital and would this vary across the proposed wholesale controls?

7 Proposed approach to customer engagement and outcomes

In July, we confirmed the importance of customer engagement and outcomes at PR19. This chapter set outs our proposals, building on PR14, to put customers at the heart of the way in which water companies run their businesses. On customer engagement, we recap the key points raised in our July discussion document; summarise stakeholder responses; and then describe the role companies need to play in delivering good quality customer engagement that drives decision-making. We subsequently describe our proposals on the roles that Customer Challenge Groups (CCGs) and Ofwat could play to enable, encourage and incentivise good quality customer engagement. In relation to outcomes, we describe how our approach could be refined to deliver a longer-term approach and better align the interests of customers (including the environment), companies and shareholders.

We are grateful to the companies (Wessex Water, Yorkshire Water, Southern Water and Northumbrian Water) and organisations (the Consumer Council for Water, UKWIR[34]) who have published reports on the roles that customer engagement and outcomes could play in the future regulatory framework. We have considered these reports and they have informed our consultation proposals, which are set out below.

7.1 Customer engagement

Successful businesses operating in well-functioning markets genuinely understand, and continuously respond to, the needs and requirements of their customers. While the context of water and wastewater service delivery is different, in that customers cannot always switch provider, good quality customer engagement remains an absolutely crucial part of running any business that meets the needs of its customers.

PR14 enabled and required an improvement in the quality of customer engagement, which led to business plans and final determinations that better reflected customers' views. All stakeholders in the sector – including us – now need to build on the successes and reflect on the lessons from PR14 to deliver good quality customer engagement that drives decision making with a longer-term focus. This is critical to our broader strategy of building trust and confidence, as research shows a link between customer satisfaction levels and trust.

[34] "The Future role of customer and stakeholder engagement in the water industry", Harry Bush and John Earwaker, available at https://www.ukwir.org/doc/143212

7.1.1 Summary of key points in the July discussion document

In our July discussion document, we emphasised the importance of customer engagement, including why it matters in the face of change. The document raised important issues that will be pivotal to delivering an improvement in the way companies engage their customers throughout the remainder of this price control period and for the next price review, which include the following.

- **Exploring alternatives to stated preference willingness to pay (WTP) surveys.** All companies carried out stated preference WTP surveys for PR14. However, there were marked differences in the implied customer valuations across firms and regions. It is not clear whether these reflected genuine differences in customer needs and requirements, or issues associated with stated preference survey design and methods. In July, we emphasised that, as well as considering ways in which stated preference surveys could be made more robust, it would be important to reflect on the scope for using alternative approaches to stated preference research, such as revealed preference research (for example, field research techniques that allow customer preferences to be explored in more real world settings than the traditional survey approach). The document also noted the importance of looking at how digital technology could provide ways to better understand customers' views.

- **The approach to current and future customers.** We highlighted significant issues of intergenerational fairness that must be tackled if we are to continue to build levels of trust and confidence in the sector. While some companies told us that it can be more challenging to engage customers on long-term issues, there are examples where companies have done this successfully, and this is an area that needs to be built on for PR19.

- **The role of CCGs.** CCGs played an important role during PR14, providing challenge and assurance on customer engagement in company business plans. In PR19, we will continue to put the onus on companies to own the relationship with their customers and to inform their business plans through good customer engagement. However, it will be important to consider the future role that CCGs could play to incentivise, encourage and enable good customer engagement, building on the success and learning the lessons from PR14.

- **Customer representation and the role of the customer advisory panel (CAP).** In July, we noted the role played by the CAP in PR14 and sought views on how we could obtain independent customer views and expertise to effectively influence the next price review. We also highlighted the Wales Water Forum as a successful means of engaging a range of stakeholders on water issues in Wales, and sought views on the role that this forum could play in PR19; and whether there are useful lessons to learn that could be applied in England.

7.1.2 Responses to our July discussion document

Respondents supported our proposal to retain the focus on customer engagement. Many respondents raised the issue of stated preference WTP techniques. They said that the use of stated preference WTP surveys and assessments as a means of estimating customer valuations has limitations, or is flawed. Many thought that stated preference WTP should be supported by a range of complementary techniques that may be more frontier shifting. For example, choice experiments, as suggested by Natural England.

Respondents agreed it was important for companies to understand the long-term strategic needs of their customers and suggested that CCGs could play a key role in this. Some companies stated that they already engage with customers on their long-term goals, although they are continuing to look at ways of improving how they do this. Thames Water said for long-term planning customer engagement should be balanced with a robust bottom-up process for assessing long-term solutions, based on best available information and risk assessment

Stakeholders supported the continuation of independent CCGs with non-affiliated chairs. Most felt that CCGs are important in holding companies to account in the delivery of their plans. Some respondents did not support a shift in CCGs being customer representative bodies, and preferred them to maintain an assurance role. There was support for CCGs playing a more important role in the price setting process.

Most respondents thought that CCGs should have access to more tools to strengthen their challenge to companies such as:

- clear and early guidance on their role and on the information they should provide to Ofwat, so that they can focus on matters that they can influence;
- early information on costs, cost of capital, the return on regulated equity (RoRE) range and outcome comparators;
- the use of CCG chair workshops and discussion forums to help CCGs perform their roles effectively; and
- feedback about how their input has been used and the impact it has had on Ofwat's decisions.

Responses on the membership of CCGs suggested that members should be representative of the water company's demographic characteristics, and that they should include an appropriate mix of customer and stakeholder representation for the region. Most respondents said that membership should be refreshed periodically. Some debated whether statutory regulators should sit outside the CCG. South Staffordshire Water did not want to see prescriptive guidance on how CCGs are formed and their remit. On remuneration for CCG members, suggestions included reimbursement for members from the charity sector.

Some respondents (such as the Consumer Council for Water) suggested the use of a funding pool.

A few respondents raised the issue of negotiated settlements. Some recommended that Ofwat explore the use of these in future price reviews, but realised that the next price review, PR19, would be too soon for implementation. Wessex Water suggested that negotiated settlements could be limited to companies who can show how their plans have been shaped by continuous engagement and negotiated with a truly independent customer body, and limited in scope to outcomes and the costs associated with them.

Some respondents felt that Ofwat itself should have some sort of customer challenge and assurance. Anglian Water said it was important that the CAP's scope should be clear and avoid any overlap with the CCGs' role. Some suggested the panel could facilitate learning and the transfer of best practice across CCGs. Northumbrian Water did not agree with the need for a central customer advisory panel, on the grounds that its remit could be in conflict with those of the CCGs and the Consumer Council for Water. We did not receive any responses on the Wales Water Forum.

7.1.3 Our consultation proposals

This section sets out our proposals for consultation on customer engagement. Here it is important to note that our proposals are not so much about specific actions or initiatives. Rather, our function is very much about setting **expectations** regarding what we think good quality customer engagement looks like and the contribution that key stakeholders should play in delivering that. This also reflects our view that our role should not be to insert ourselves between companies and customers or to prescribe detailed approaches to engagement. Instead, our aspiration is to help facilitate and incentivise good practice customer engagement across the industry in a way that delivers the best possible outcomes. In the following sections, we also set out our expectations in relation to companies and CCGs.

The National Audit Office (NAO) report on the economic regulation of the water sector asked us to provide greater clarity on how we will use customer research alongside comparative information to challenge companies' proposals. We welcome the NAO's recommendation and think that our proposals on the role of that companies, CCGs and Ofwat should play in delivering good quality customer engagement and our commitment to consult on comparative information in November 2016 are consistent with this recommendation.

7.1.4 Role of companies

Companies will continue to be responsible for engaging with their customers as they are best placed to develop a genuine understanding of their needs and requirements and to use this information to drive decision making. This section describes a number of principles that we consider are pivotal to delivering an improvement in customer engagement.

At PR14, a number of companies relied heavily on survey-based approaches to engage large numbers of customers in the run-up to their regulatory submission. Many of the surveys used in PR14 focused on stated preference Willingness to Pay (WTP) techniques, where customers state – directly or indirectly - 'how much' they would be willing to pay to receive different service levels. As summarised above, we have concerns regarding the robustness of those stated preference surveys, in particular the wide variation in customer valuations across the companies implied by the results.

While stated preference approaches can be informative, if used appropriately, **we would like to see a reduction in the reliance on stated preference survey-based approaches and more emphasis on a richer set of evidence to genuinely understand customers' needs and requirements**. This will involve companies using alternative sources of evidence to cross check their findings, rather than solely relying on the results from a stated preference survey. Companies might also consider exploring how and why their results differ to those obtained by other companies. Companies will engage with their customers for a variety of different reasons, and the nature of the engagement and research needs to reflect the context in which the findings will be used.

We would therefore like to see companies consider how stated preference WTP approaches could be improved and we would also like companies to fully explore the alternative and complementary tools that may be available to them to understand their customers' needs and requirements. This includes making more use of evidence obtained through their day-to-day contact with customers (such as complaints data, queries and tweets). It also includes thinking about more radical, frontier-shifting, approaches to engaging with customers, such as using revealed preference research and choice experiments. We know this is ambitious, but we think companies can step up to the challenge and develop a rich evidence base that provides a deep and meaningful understanding of their customers' needs and requirements. We expect to say more on this in May 2016. Ahead of then, and to stimulate and influence the debate, we encourage and invite stakeholder contributions on this important issue via the marketplace of ideas early in 2016.

Good quality customer engagement also involves understanding and responding to the distinct needs and requirements of **different types of customers**, including (but not limited to) customers in vulnerable circumstances. Our 'Affordability and debt 2014-15' report cites evidence that the availability and quality of financial and non-financial assistance offered to customers in vulnerable circumstances varies significantly at present. This implies that companies need to consider and learn from each other about the best methods to inform and engage the more hard to reach customers, who may be struggling to pay their bills and could benefit from a social tariff or the installation of a water meter. We understand that some companies are using innovative approaches, such as using pharmacists to provide customers receiving financial assistance with leaflets on social tariffs. We would encourage companies to continue to think creatively about how to engage the more hard to reach customers, including by working in partnership with other organisations.

Customers should not be viewed as passive receivers of a service, but rather as partners who drive decision-making on an on-going basis. **The commitment to informing and educating, as well as engaging, customers and allowing them to drive business decisions, needs to be evident across the entire business** – particularly at Board level. If customers are going to engage effectively with their water company, they need to be informed. During PR14, companies made a concerted effort to elicit feedback from their customers and they need to ensure that the dialogue is **two-way**. The key to this is transparency. Stakeholders in the water sector agree that comparative information has an important role to play in empowering the consumer voice. We agree that companies should be transparent with their customers about their performance and how this compares to other companies, so customers can make more informed decisions about what they are willing to pay for and how satisfied they are with their supplier.

Resilience, security of services and long-term affordability of bills, are issues that matter to consumers and society as a whole. Good quality customer engagement will involve informing and engaging customers on **longer-term issues**. We acknowledge that this can be challenging, but agree with companies that it is possible and necessary to engage customers on longer-term issues, including the resilience of their systems and processes. How we embed resilience in our work is addressed in our resilience document, which we have published alongside this consultation.

Customer engagement should be a **continual and ongoing** process of learning and responding that affects decision making at all levels of the business - including decisions made by customer service personnel when responding to customer queries and also including decisions taken by a company's Board for example on the future strategy of the business. The best companies will have clear customer engagement strategies and secure buy-in to these from staff at all levels of the business. The clear desire to inform and engage customers should also be complemented by a desire to let customers play a bigger role in decision-making. This will involve companies relinquishing some control to customers. For example, by consulting on options before the company has agreed on its preferred approach

to address a particular challenge. However, we also acknowledge that in some cases, customer engagement will not provide the 'answer'; instead it will provide information on different types of customers' needs and requirements that the company will need to translate into decisions about investment or service quality for example.

If we are going to achieve the above then we think companies need to think carefully about how they could **involve customers in service delivery**. For example, in PR14 Affinity Water's customers expressed their preference for demand management as a solution to the company's demand-supply imbalance. Another example is Anglian Water using interactive software as a means for its customers to report sewer flooding and leaks. There are also some interesting lessons from the energy sector on how companies could draw on behavioural insights to influence customer behaviour on demand-management. Finally, we also encourage companies to consider the scope for more community-based approaches to decision-making and service delivery, where this is appropriate and efficient.

7.1.5 Role of CCGs

The customer challenge groups (CCGs) played a key role in PR14 by challenging the companies and providing assurance on: the quality of companies' customer engagement; and the degree to which the results of this engagement were accurately reflected in plans. The CCGs were crucial in achieving an improvement in the quality of customer engagement and the challenge they provided directly influenced companies to produce business plans that better reflected customer priorities. All of the companies have decided to continue with their groups, many of which are now focused on challenging and assuring companies' performance against their PR14 commitments.

We think that the CCGs have an important role to play in the PR19 price review and we are keen to build on the approach used in PR14 to reflect the lessons learned by us, the Consumer Council for Water and in the recent UKWIR study on customer engagement. **We propose that the role of CCGs is to challenge the company and provide assurance on the quality of a company's customer engagement; and the extent to which the results of this engagement are driving decision making and are reflected in the company's plan.** We do not think that CCGs should act as a substitute for a company engaging with its actual customers or substitute its views for those of customers. However, we will expect the CCG to draw on the results of a companies' customer engagement and challenge the company if its plan does not reflect this. The section above explains that customer engagement should be a continual, two-way process. As a result, we think CCGs should be actively challenging the companies on the development and execution of their customer engagement strategies from this point forwards.

We note that some stakeholders are advocating a move towards greater negotiation between customer representatives and companies. We have carefully considered the points made by stakeholders on this – in particular, Wessex Water's report – and we do not propose tasking CCGs with the remit of representing customers or negotiating all or part of the regulatory settlement with the company. This is because we do not think it would be consistent with our ambition to put the direct relationship between customers and companies at the heart of how companies run their businesses. That said, we do not see there being a large difference between a negotiated settlement on the one hand and a process where we commit to accept high quality business plans in the round. Many of our proposals are aimed at providing companies with the incentives, tools and information they need to engage with their customers and develop high quality plans that we could accept in the round. However, we retain the right to intervene to protect customers, if we need to do so, in line with our statutory duties.

7.1.5.1 Timetable

We propose that CCGs provide a report to Ofwat at the same time as companies submit their business plans in 2018. This report will influence our assessment of business plan quality in the risk-based review (RBR).

For those companies not achieving enhanced status in the RBR, we will provide companies with feedback on their plans, including the results of any comparative analysis that we may need to carry out. Companies who are not enhanced will need to continue engaging with their customers and CCGs to ensure any changes they make to their plans before draft determinations reflect their customers' needs and requirements. For these companies we propose that CCGs submit a second report when companies resubmit their business plans, which focuses on the changes companies have made to their plans. We will use this information to inform the company's draft determination.

7.1.5.2 Scope of CCG remit

We acknowledge that during PR14 uncertainty arose about the scope of the CCG remit and the specific areas of the plan the CCG was expected to challenge and assure. For the purpose of PR19, we agree with stakeholders' views that it is important to clarify the scope of the CCG remit so the groups can focus their challenge and assurance on those aspects of the plan where they can add the most value.

The quality of a company's customer engagement is clearly an area where CCGs can provide very effective challenge and assurance. In relation to this, we propose that CCGs could address the following questions in their reports to Ofwat.

- Has the company developed a genuine understanding of its customers' priorities, needs and requirements, making use of an appropriate range of techniques and information to verify its conclusions? Has the company engaged with customers on the issues that really matter to them?

- Has customer engagement been an on-going and two-way process, where companies are informing as well as soliciting feedback from their customers? (And if yes, how was this feedback used?)

- Has the company effectively engaged with and understood the needs and requirements of different types of customers? Has the company considered the most effective methods for engaging different types of customers?

- Has the company effectively engaged with its customers on longer term issues, including impacts on future bills, resilience and longer-term affordability? Where appropriate, has the company engaged with its customers on the resilience of its systems and processes?

- Has the company effectively informed and engaged with customers on its current levels of performance and how this compares to other companies in a way that customers could be reasonably expected to understand? For example, where companies have underperformed against relevant PR14 commitments, have they engaged and, if appropriate, compensated customers, and effectively dealt with underlying issues?

- Where appropriate, has the company engaged with its customers on a range of options? In relation to a need to rebalance supply and demand this might include increasing its own capacity, purchasing water from another company or demand management options, for example.

- Are customers' needs and requirements driving decision making at all levels of the business, including Board? What are the outcomes arising from these decisions and what are the implications for customers?

We do not propose to limit the scope of issues that CCGs might want to cover in assessing the quality of the company's customer engagement and the degree to which this is reflected in a company's plan, as they should have the flexibility to focus on those issues they think are most important. We propose to link the quality of a company's customer engagement directly to our assessment of business plan quality in the risk-based review (the RBR), so it would be helpful if the reports include clear evidence to support the findings.

We expect CCGs to challenge and provide assurance on whether the companies' proposed outcomes, performance commitments and outcome delivery incentives (ODIs) accurately reflect the results of its customer engagement.

We would also expect CCGs to challenge and provide assurance that companies have engaged with (and responded to) their customers about the affordability of the proposed bill impacts, including any arising from the profiling of expenditure over time. CCG challenge should include reviewing evidence that shows how companies have engaged and responded to customers. At PR14, we assessed affordability as part of our RBR. We plan to provide further information on our approach to assessing affordability in the methodology consultation document in 2017.

We would not expect CCGs to challenge or assure costs (including operating costs, financing costs or whether the costs associated with new schemes are efficient). These are technical issues that are best challenged on a national basis by the economic regulator. As a result, it is not possible - nor do we expect - for CCGs to 'approve' or ‘endorse’ a company's overall plan.

It is also worth noting that companies may not always respond to their CCGs’ challenges in all cases. CCGs should clearly and robustly challenge the companies, including at Board level, but it is by no means a failure on the part of the CCG if the company does not change its plans as a result. Understanding the extent of challenge (for example, in the form of a challenge log) and any unresolved differences in view between CCGs and the companies (for example in relation to the interpretation of customer research or dealing with trade-offs) is extremely useful to the regulator as it helps us to understand where we need to focus our scrutiny. Indeed, we might find it rather surprising if there were no outstanding areas of disagreement between a company and its CCG.

7.1.5.3 Membership

A key benefit of CCGs at PR14 is that they allowed for better integration of different stakeholders including (but not limited to) the environmental and quality regulators and customer representative groups. This integration meant that companies’ plans were generally more rounded and captured the different trade-offs associated with their decisions.

We do not propose specifying a list of organisations that must be represented on the CCGs. We think individual companies should consider the appropriate membership of their CCG, having regard to the demographic of their local supply area and the specific challenges they face. That said we encourage companies to ensure that the Consumer Council for Water is represented on their groups. We also think companies should consider whether it would be possible and appropriate to include a debt advisory body.

The Environment Agency in England, Natural Resources Wales in Wales and the Drinking Water Inspectorate all provided an extremely valuable contribution, via the CCGs, to the PR14 determinations. In our lessons learned, we noted that some smaller organisations – such as the Drinking Water Inspectorate - found the time commitments of being a full-time member of a CCG challenging and we encourage companies and the CCG Chairs to consider how some of these challenges might be overcome without placing undue burdens on such organisations.

Building on the success at PR14, we propose that the CCG report should include a section setting out whether the environmental regulators think the plan is likely to comply with a company's environmental legislative commitments. We propose to engage further with the Environment Agency and Natural Resources Wales before making firmer commitments on how this could work in May.

Many companies are appointing Chairs that are not affiliated with a particular organisation. We support the appointment of unaffiliated Chairs because it allows the relevant CCG members to more effectively convey their challenges if they are not also focused on chairing the group. We encourage companies to provide their CCGs, in particular the Chair, with clear and regular access to their Boards.

7.1.5.4 Transparency

To build trust and legitimacy with customers we propose that companies are completely transparent about all the funding and governance arrangements for their CCGs. We also encourage CCGs to publish notes of their meetings. Companies should also consider whether it would be appropriate to publish the information that they share with their CCG.

7.1.5.6 More CCG collaboration

One of the lessons learned from PR14 was whether we could do more to help bolster the independence of the CCGs, given that they are largely reliant on the companies for information and guidance. We propose to seek greater assurance from the companies on the measures they have taken to preserve the independence of the CCGs and expect to say more on this in May 2016. Another way in which this independence could be bolstered is via greater collaboration between CCG Chairs. We welcome CCGs developing ways to collaborate effectively with each other and are pleased that the Chairs have now decided to meet on a regular basis. At PR14, the Chairs of CCGs in the south east of England met on a regular basis to share lessons and information. We encourage Chairs to continue to collaborate on a regional basis if they think this is appropriate.

We consider that Ofwat also has a role to play, and we propose to host regular workshops with CCG Chairs to facilitate the sharing of information, knowledge and good practice. We hosted a workshop in October of this year to seek views from CCG Chairs on what good customer engagement looks like, and the role that both CCGs and Ofwat could play to incentivise, encourage and enable good customer engagement. We propose to host another workshop in February 2016 to discuss our consultation proposals, with workshops taking place approximately 3 to 4 times a year going forwards. During PR14, we hosted some roundtable sessions with CCG Chairs to keep them informed about price control developments once business plans had been submitted. Reflecting the lessons learned from PR14, we are proposing to facilitate CCG Chair sessions earlier on in the price review process than at PR14, which focus more on encouraging greater collaboration, information sharing and challenge, rather than just to inform CCG Chairs of our processes and timetable.

We are very aware that CCGs must act independently of Ofwat as well as the companies, so the purpose of these meetings would be to encourage the Chairs to share information and practice. It is also an opportunity for us to share publicly available information and to stimulate thinking – including from independent customer experts. To ensure transparency, we propose to publish the papers used for these meetings on our website.

7.1.5.7 Publishing information

Another lesson learned from PR14 is whether there are any opportunities to empower the customer voice by sharing information when it becomes available. If provided at the right time, this information could allow for stronger challenge to be applied (for example, in relation to service levels). As part of their annual performance reporting companies are planning to publish their performance against PR14 targets, including whether they are earning rewards or incurring penalties. As part of our company performance reporting work, **we will be publishing a single table setting out how each company is performing against each one of its commitments** and this will be updated on a yearly basis. This will ensure that all the publicly available information on company performance against the PR14 performance commitments and associated rewards and penalties is easily accessible in one place. We do note, however, that not all of this information will be readily comparable as many performance commitments are specific to each company. We say more on the role that comparative information could play in PR19 in the section on outcomes below.

As mentioned above, some stakeholders are advocating that we publish some information – for example on the weighted average cost of capital (WACC), the cost assessment totex thresholds or the return on regulated equity (RoRE) ranges - before business plans are submitted. The recent UKWIR report on customer engagement highlights potential advantages and disadvantages associated with this approach. On one hand, early publication of this information could facilitate more effective customer engagement, as company proposals would be more likely to reflect our views (reflecting the fact that a 0.5% increase in allowed WACC can increase annual bills by around £10[35]). On the other hand, early publication of such information could also undermine the incentives for companies to make proposals that would benefit customers (for example, if they challenge themselves and propose a lower WACC than that proposed by Ofwat) and also undermine ownership of their plans as they look to the regulator for guidance. The PR14 experience suggests that companies are more likely to propose costs that fall – sometimes significantly – below our totex thresholds than a WACC that is lower than ours. We have not yet confirmed our detailed approach to cost assessment at PR19 but we do note that company special factor claims in PR14 affected our view of what costs should be efficiently incurred, but this was not clear until after business plans had been submitted. Finally, it is also worth noting that the earlier we publish information, the more likely it is that it might have to change to reflect market developments.

Having considered the arguments carefully **we aspire to publish early indications on the WACC and outcome RoRE ranges before business plans are submitted**, but not in relation to our view on totex. If we do publish information early, this could be in the form of a range and would be updated to reflect market developments during the determination process.

7.1.5.8 Independent customer expertise

During PR14, there was a customer advisory panel (CAP) that advised us on the development of the PR14 methodology. We found it useful to seek challenge from this group and have been thinking about the most appropriate way to seek additional challenge on customer issues for PR19. During PR14, it was sometimes difficult to reconcile the deadlines and milestones for the price control with the timetable of meetings for the CAP.

[35] Setting price controls for 2015-20 – risk and reward guidance, Ofwat, January 2014.

One way of overcoming this challenge might be to set up a more flexible type of arrangement such as a 'call-off contract' or virtual group. The aim would be to seek challenge on a more flexible basis so that customers' views are incorporated more effectively into the development and application of our methodology. This would complement the valuable contributions from our expert advisory panel and our membership of the New-Pin[36], both of which have a customer perspective. We are still considering whether challenge should be sought from customer experts, representatives or a combination of the two.

Consultation questions – customer engagement

Q46 What does good customer engagement look like? What are your views on the principles outlined above? How could companies draw on good practice from within and outside the sector? How can companies make use of revealed preference techniques and information obtained in their day-to-day interactions with customers to develop a richer set of evidence of customers' needs and requirements?

Q47 What are your views in relation to our proposals on future CCG remit; scope; timetable; governance arrangements; and membership? In relation to the quality of a company's customer engagement, do you agree with the above list of issues that should be covered by the CCG report? What are your views on the division of responsibilities between CCGs and Ofwat?

Q48 What are your views on our proposal to facilitate more collaboration between CCGs? What are your views on our aspiration to publish information on the WACC and outcome RoRE ranges early? Without inserting ourselves between companies and their customers, what else could we do to incentivise and encourage good quality customer engagement?

7.2 Outcomes

PR14 was the first time we had encouraged an outcomes-based approach. This step change in the regulatory framework resulted in companies:

- focusing on the delivery of customer priorities;
- taking ownership of their business plan commitments; and
- being held to those commitments through financial and reputational incentives.

[36] In July 2015, Sustainability First launched the New Energy and Water Public Interest Network (New-Pin). Further information on this group is available on Sustainability First's website http://www.sustainabilityfirst.org.uk/

We would like to build on the successes as well as learn the lessons from PR14, so that companies are focused on delivering outcomes that truly matter to customers, targets are stretching and rewards and penalties align incentives between customers (including the environment), companies and shareholders. Below we set out:

- a summary of issues addressed in our July discussion document;
- a summary of stakeholder responses to our July discussion document; and
- our proposals for consultation.

7.2.1 Summary of issues included in our July discussion document

In our July discussion document, we described how our approach to outcomes might need to evolve, given the learnings from PR14 and the experience we will gain over the next five years. The July discussion document particularly addressed the following.

- **Focusing on the longer-term.** We recognised the importance of our regulatory framework enabling and incentivising companies to consider outcomes beyond the existing regulatory cycle, given the long-lived nature of assets in the water sector, the sector's intrinsic link to ecosystems and the need to provide resilient services now and in the future. We considered whether we should require or encourage companies to commit to outcomes and/or financial incentives for a period longer than five years.

- **Striking a balance between common and bespoke outcomes.** Comparative information is extremely valuable for customers and CCGs to understand the relative performance of their company, and how stretching the proposed performance commitments are. We considered the relative merits of comparative performance commitments versus those tailored to local customer preferences.

- **The strength and structure of outcome delivery incentives.** We recognised that the flexibility of the PR14 outcomes methodology resulted in substantial variation across companies, with some companies having more significant financial reward opportunities than others. It will be informative to observe the results of these different arrangements and the effect they have on the outcomes for customers.

- **Delivery outcomes across disaggregated controls.** We considered possible further separation of price controls in the future and whether and how outcomes and incentives might need to adapt to such a development.

7.2.2 Responses to our July discussion document

In their responses to the July discussion document, most respondents welcomed Ofwat's intention to allow companies to take ownership of their customer engagement and outcome delivery. There was general agreement that this should be an ongoing feature of price reviews.

Most respondents supported a framework that allowed for longer-term outcomes and performance commitments. For example, long-term targets for areas such as water quality, supply interruptions and security of supply. Thames Water said that longer-term outcomes would provide customer protection and greater certainty for expenditure that covers multiple price control periods. However, several respondents considered that setting long-term rewards and penalties was more problematic, particularly as customers' preferences can change. Several respondents commented that the outcomes framework needs to be compatible with other planning frameworks, such as River Basin Management Plans and strategic drainage plan.

Most stakeholders supported the use of bespoke, customer-focused commitments, alongside limited common measures. Some stakeholders thought introducing more comparable measures would allow more effective challenges to companies to help drive service improvements. Others supported the use of common performance commitments, but not necessarily the use of common performance targets. A number of stakeholders commented that a longer glide path for reaching the comparative performance commitments would be more efficient. Northumbrian Water said that comparative customer service data needs to be consistent and reliable across companies to allow informed decisions by customers.

There were mixed views on whether performance commitments should be dynamic. Some stakeholders questioned whether setting dynamic upper quartile targets would result in greater uncertainty and reduce the incentive for outperformance. South East Water considered that customer satisfaction should be the fundamental goal for companies, and that targeting satisfaction is dynamic, as expectations change over time.

Many respondents suggested that Ofwat should provide information on a range of outcomes issues earlier in the PR19 process than in the PR14 process. The issues mentioned were:

- which performance commitments will be covered by comparative assessments and their definitions; and
- the possible RoRE range for ODIs and what proportion should be allocated to the comparative assessments.

Some respondents questioned the benefit of detailed interventions on specific ODIs at PR14, preferring the focus to be on the overall package of risk and reward. Some stakeholders suggested that symmetry, or near symmetry, between penalties and rewards would be welcome, with the magnitude of both being set by customers. United Utilities suggested that the overall scope for rewards and penalties should reflect customer priorities for improvements, rather than aiming to achieve a pre-determined level.

Some representations raised the issue of rewards. For example, the Consumer Council for Water said it understood the regulatory rationale for making incentives stronger to improve service, but said that there is evidence that customers do not support potential bill increases from rewards for 'doing the day job'.

7.2.3 Our consultation proposals

We want companies to continue to focus on the delivery of their customers' priorities. We therefore want outcomes, performance commitments and outcome delivery incentives to be informed by good quality customer engagement, with challenge and assurance provided by CCGs (as described in the previous section of this chapter).

7.2.3.1 Encouraging a longer-term approach

In the PR14 risk-based review (RBR), we required companies to justify all their targets against a test relating to whether they had provided sufficient evidence that they were consistent with the long-term interests of customers and the environment. In addition, all companies submitted commitments focusing on monitoring the long-term health of a company's assets. Reflecting our new resilience objective, our existing duty to protect future and current customers and building on the outcomes-based approach, we are considering what more we can do to incentivise, encourage and enable companies to focus on longer-term issues.

In the section on customer engagement above, we propose that CCGs report on how effectively companies engaged with their customers on longer-term issues and that CCG chairs share best practice, facilitated by Ofwat workshops. We would welcome stakeholder views on **whether we should go even further, by encouraging or even mandating, that certain measures - for example asset health – span more than a single regulatory control period (five years).** We do not think that a licence modification is required for companies to propose outcomes, commitments or even rewards and penalties that span more than one price control period. At subsequent price controls, we would clearly need to review any prior commitments to ascertain whether material changes in circumstances (such as changes in customer preferences or costs) require changes to targets or incentives. However, in the absence of evidence on material changes in circumstances, we would intend to leave any prior commitments in place. On the other hand, making a modification to

company licences to provide for outcomes, commitments or even rewards that span more than one price control could provide companies with more clarity and certainty, which could encourage a greater focus on longer term planning. We would be interested in stakeholder views on the most appropriate approach.

7.2.3.2 Striking a balance between common and bespoke measures

We want companies to retain scope to innovate in their proposed outcomes, performance commitments and ODIs. This allows companies to reflect their local customers' requirements and issues specific to the company or region in their proposed outcomes as well as the ability to come up with innovative measures. On the other hand, some comparability provides customers and CCGs with more information with which to challenge companies to set truly stretching performance commitments, or to understand where a commitment is not stretching, but costs will be lower because of this.

The balance between bespoke and comparable performance commitments is something we want to explore with stakeholders in the future. We therefore **propose a separate consultation on the balance between bespoke and common outcomes in November 2016.** In considering what the appropriate balance should be, we will need to have regard to our statutory duties, including our duty on resilience. Our November consultation will therefore also consider how resilience should be captured in the incentives and performance commitments against which companies are held to account and we are encouraging stakeholders to contribute their ideas on this, via the marketplace of ideas by early 2016. The consultation will also consider the role that comparative information (which is not limited to common performance commitments) could play to support challenge by customers and on behalf of customers, and the role of comparative assessments.

Our consumer and resilience duties mean that we cannot rule out intervening on companies' proposed targets if it is necessary to protect customers or to further resilience. For example, we might need to intervene if a company had not made appropriate use of comparative information or because new information became available to us, for example, through our review of all companies' business plans. That said, our proposals for the price review as a whole are designed to provide companies with the tools and information they need to work with their customers and CCGs and develop high quality plans. If we carry out comparative assessments of the coverage and stretch of performance commitments at PR19, we propose that we begin our assessment of these during the RBR. This timing would mean that companies could review the results, engage with customers and CCGs and make changes to their business plans before draft determinations. We note there still may be valuable comparative information to be considered at the draft determination, but engagement in the RBR should enable issues to be addressed earlier in the process.

We want customers to be able to trust the definition of performance commitments, and be able to rely on them being fair to customers. We therefore **propose that there is likely to be value in companies submitting the definitions – but not the targets or any associated incentives - for their performance commitments in early 2018 before they submit their business plans** to enable early comparison and clarity on definitions.

Leakage and the Service Incentive Mechanism (SIM) were common commitments for all companies at PR14 and the Abstraction Incentive Mechanism (AIM) was intended to be a common incentive as well. The leakage incentives and the revised version of the SIM started in April this year and the AIM is due to start on 1 April 2016 as a reputational incentive. By PR19, the SIM would have been in place for two control periods. We note the review of scope for household competition, but would have in any case proposed to review the effectiveness of this incentive mechanism and whether it should be retained, modified or replaced in PR19. We plan to consider our approach to leakage for PR19 learning from experience with the existing incentives in this price control period. As described in our consultation on the AIM[37] we have an aspiration for the AIM to become financial at PR19 to drive increased benefits for the environment, but we want to learn from the experience of the reputational version of the AIM in this price control period.

7.2.3.3 Better incentives

Financial rewards and penalties are intended to align the incentives of customers (including the environment) with companies and shareholders. As set out in section 5.6, to sharpen incentives in PR19, we would like to link companies' performance and their reward or penalty more closely in time. To facilitate the more timely payment of rewards and penalties at PR19, we therefore propose a licence modification for all companies that facilitates the payment of rewards and penalties in period.

In the July discussion document, we noted our intention to revisit the aggregate cap and collar on ODIs at PR14. They provided protection to customers and investors in case rewards or penalties were unexpectedly high. However, the aggregate cap and collar could also dampen incentives for companies to improve their performance, as they near either the cap or the collar. We will need to consider whether this is an issue in practice during the current price control period. **We propose to bring forward options for consultation on the aggregate cap and collar in the methodology consultation document in 2017.**

[37] http://www.ofwat.gov.uk/wp-content/uploads/2015/11/pap_con20151126aim.pdf

We will also need to consider whether the approaches we recommended for calculating rewards and penalties at PR14 and the approach companies and we took to dead-bands, caps, collars and averaging performance continue to be consistent with a framework aimed at encouraging a longer term approach and better aligning the interests of customers (including the environment) with companies and shareholders.

We would like performance commitments to focus on the issues that matter to customers and not on the specific schemes that deliver the outcomes. We would like to move away from the commitments related to specific schemes, which we had to apply at PR14 to protect customers. Companies should be able to link their proposed schemes to outcomes that reflect customers' preferences, as some companies did in PR14. **We propose to look at options for encouraging and facilitating a move away from scheme-specific performance commitments at PR19**.

7.3 Customer engagement and outcomes in the face of change

The Water Act 2014 will result in retail market opening in April 2017, so that all non-household customers of companies whose area is wholly or mainly in England will have choice over their supplier. Non-household customers of companies whose area is wholly or mainly in Wales (and England) that use more than 50Ml per year already have choice over their supplier. In addition to this the Government has recently announced that it wants us to review by summer 2016 the benefits and costs of extending competition for water services to household customers in England. Our approach to the non-household and household retail price controls in PR19, including the role that customer engagement plays, will need to be mindful of the way in which competition in this part of the sector is developing or likely to develop. Regardless of the way in which retail competition is developing, it will be important not to lose the link between end customers and wholesale monopoly service providers, as this could damage customer trust and confidence in these arrangements.

In other sections of this consultation document, we are proposing separate binding controls for sludge and water resources. If we take these proposals forward, there could be effects on outcomes. In particular, as a sector we will **need to consider the relative merits of performance commitments that relate to specific price controls**. We propose to revisit this issue in the future, as our approach to the sludge and water resource controls develops.

Our consultation questions relating to outcomes are set out below.

Consultation questions – outcomes

Q49 How can the outcomes framework encourage a longer-term approach? Should we encourage, or even mandate, that certain measures - for example asset health – span more than a single regulatory control period?

Q50 What are your views on the proposed contents of our November 2016 consultation on outcomes (balance of bespoke versus comparative measures, and role of comparative information)?

Q51 What are your views on our proposal that companies submit the definitions – but not the targets or any associated incentives - for their performance commitments to us in early 2018 before they submit their business plans?

Q52 What are your views on our proposal for a licence modification to allow for the in-period payment of outcome delivery rewards and penalties?

8 Bringing it together: summary of our proposed regulatory design

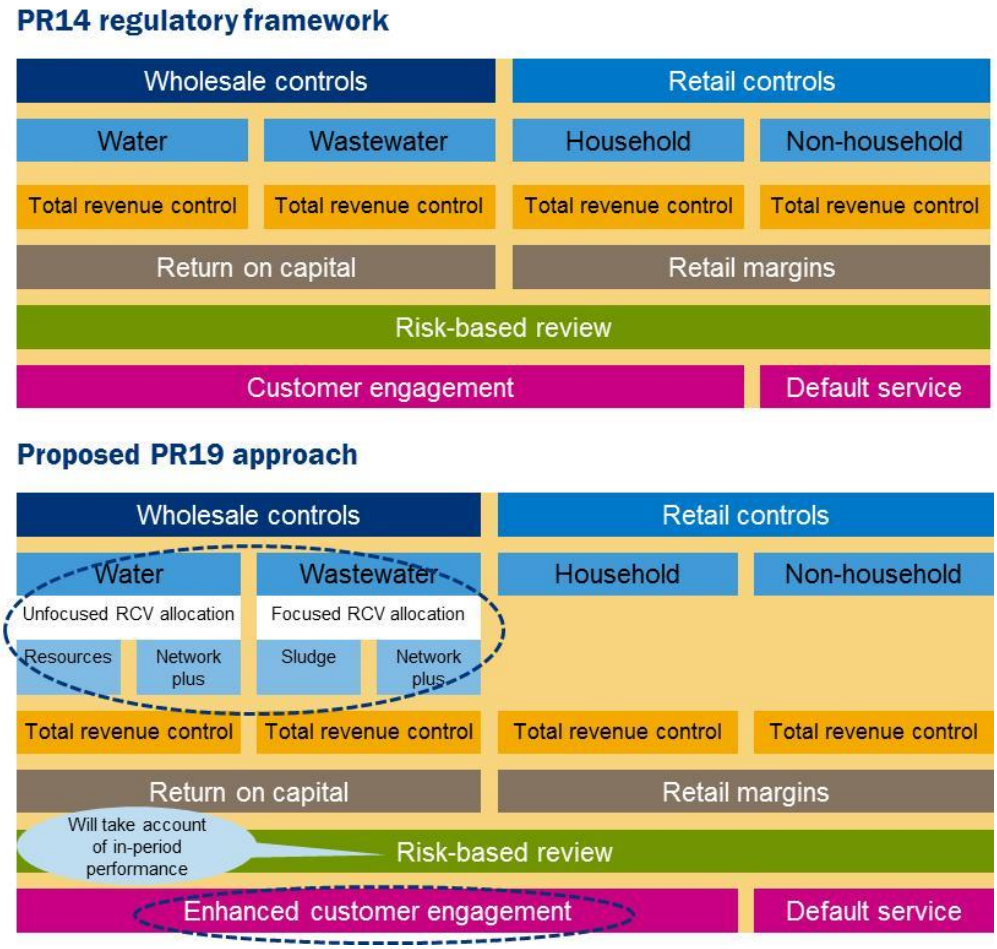
In this chapter, we provide a summary of our proposed new regulatory approach, drawing together the key individual elements set out in the preceding chapters of this consultation. The primary objective of this is to provide parties with an 'at a glance' representation of our approach – and in particular, to provide clarity on the key features that we have retained or modified, relative to the approach at PR14. In turn, we set out:

- an overview of the scope of markets and price controls under our proposed approach, and how this differs relative to PR14;
- a summary of the broader regulatory changes and constants across PR14 and PR19;
- a summary of our approach to the RCV, including RCV allocation and RCV protection;
- a recap of how we will allow for general inflation costs; and
- consistent with us driving a longer-term focus on customers, our approach to outcomes and customer engagement.

8.1 Overview of scope of markets and price controls

First, we are proposing to make greater use of markets in relation to sludge treatment, transport and disposal; and water resources. Accordingly, in part to facilitate this, we will introduce two additional binding price controls for these areas – as illustrated in the diagram below.

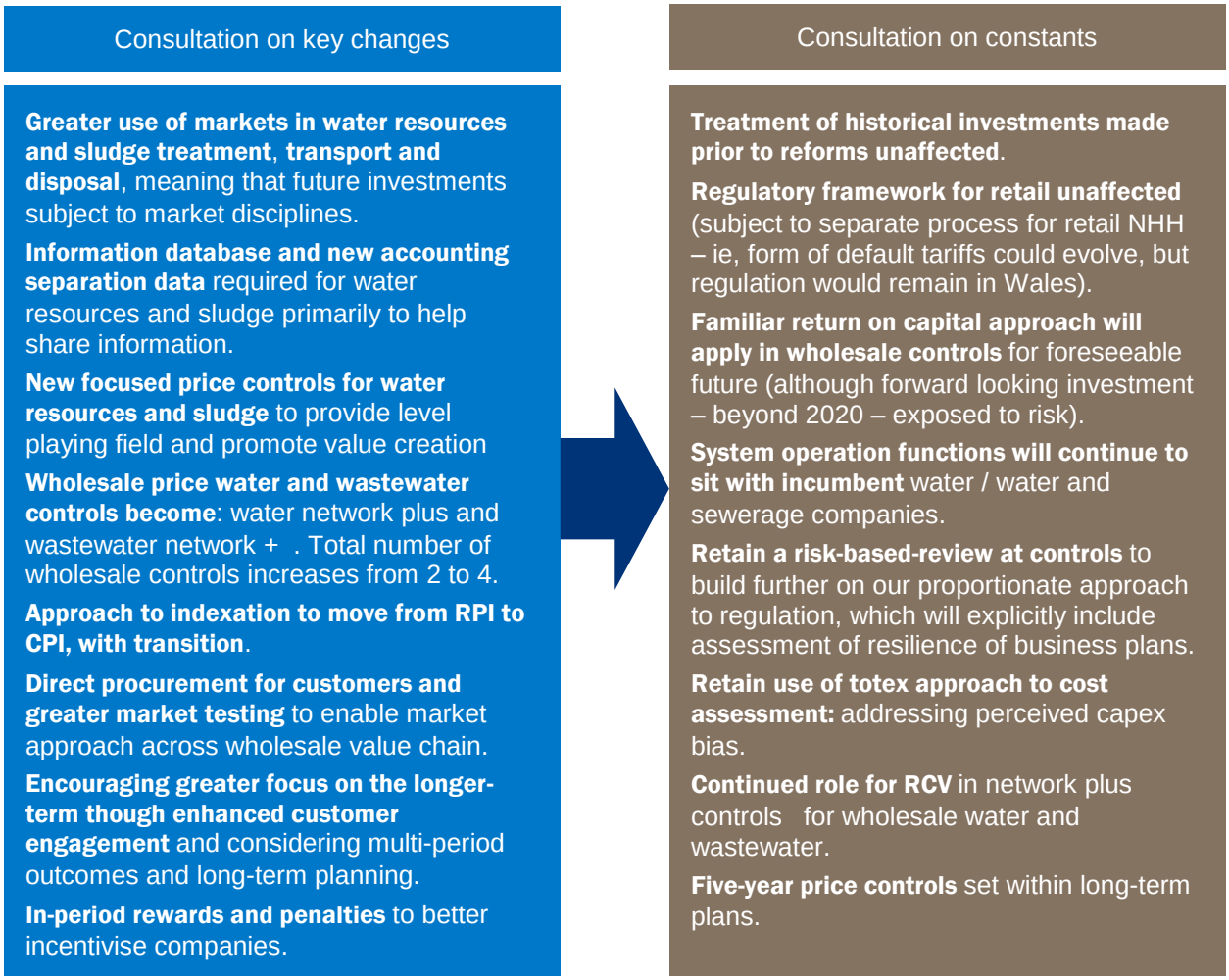
Figure 29: Comparison of PR19 price control framework with PR14



8.2 Summary of key changes and constants between PR14 and PR19

While our proposed package contains a number of important changes relative to PR14, there are also a significant number of factors that will remain constant. This reflects the fact that we see our approach to PR19 as being a continuation of the evolutionary journey we embarked on at the last control. The following figure highlights the key changes and constants.

Figure 30: Highlighting key changes and constants



8.3 Allocation and role of the RCV

We will allocate a proportion of the legacy RCV to sludge treatment, transport and disposal and water resources. Recognising the important role the RCV has played as a regulatory commitment tool, we will extend our protection of the historical RCV to include all efficiently incurred investments made up to 31 March 2020. This will ensure that no investments made prior to our reforms will be subject to a change in risk profile. Our RCV approach is summarised in the next figure.

Figure 31: Summary of our approach to RCV allocation and protection

	Water resources	Sludge
RCV allocation method		
	Unfocused (so that the allocated RCV is equal to the proportion of the modern equivalent value of assets for water resources).	**Focused** (so that allocated value of RCV is equal to the modern equivalent replacement cost of assets).
RCV protection		
Pre - 2015	Efficiently incurred costs protected.	Efficiently incurred costs protected.
2015 - 2020	Efficiently incurred costs protected.	Efficiently incurred costs protected.
Post - 2020	Post-2020 incremental investment subject to market process at point of procurement.	Post-2020 expenditure incurred at risk.

8.4 Our approach to inflation

Compensation for general inflation risk has been a core part of our historical regulatory approach. We remain committed to allowing for general inflation risk in price setting. However, the measure we have used to date (the RPI) is no longer an official government statistic and earlier this year the Johnson report recommended that all regulators cease using it for the purpose of setting prices. Consequently, we intend to use CPI (the consumer price index) in its place – subject to the outcome of the National Statistics Authority's consultation on this matter. To assist companies in migrating to this approach, we will employ a transition mechanism that ensures that a reasonable proportion of their assets will continue to be remunerated on an RPI basis, while legacy (RPI backed) debt unwinds.

While our proposal to transition to CPI implementation will naturally mitigate short run customer bill impacts, we recognise that companies may wish to take further steps to address this. We are not proposing to mandate the use of any other tools (including the use of pay as you go or the RCV run off rate) to address this. However, as part of developing their business plans, we would expect companies to engage with their customers on this matter, and so to suggest the use of such tools, if supported by customers.

8.5 Outcomes and customer engagement

Finally, a key part of our proposals is to **take forward a strengthened approach to outcomes and customer engagement**. Here the key theme of our approach is to help drive a focus on customers over the longer-term – which we will link to our risk-based review approach.

9 Implementing our proposals: licensing and next steps

We are interested in stakeholder responses to this consultation. We expect to set out **our final proposals in a decision document in late May 2016,** after which we will begin to take forward the implementation of our proposed reforms ahead of the **methodology statement in the autumn of 2017**.

Many of the proposals set out in this document can be implemented effectively through the existing regulatory framework governing appointed companies. However, it is clear that some of the proposed reforms will require some significant changes to the regulatory framework, including:

- changes to the existing licences (as defined previously); in particular, changes to licence condition B, which governs the price setting framework; and
- changes to the information requirements that we impose on companies through our regulatory reporting regime.

In addition to the changes to incumbent companies, implementing markets in sludge and water resources will require the implementation of the relevant elements of the Water Act 2014, including, for example, the creation of new licences and associated codes or rules governing access. The implementation of the arrangements governing new entrants will depend on the approach and timescales adopted by the UK and Welsh Governments to the implementation of that new legislation. We will work closely with both Governments on their approaches to this.

9.1 Licence reform

A number of our proposals, if implemented, are likely to require changes to the existing licences; and in particular, condition B that governs the setting of price limits. A summary of the proposed changes that we consider are likely to require a licence change (and the existing licence conditions that would be affected) are set out in the table below.

Table 6: Summary of proposed Water 2020 changes that may require licence reform

W2020 Proposals	Changes for the licence (Instrument of Appointment)
Sludge reforms	A separate binding price control for sludge as per the proposals we set out in chapter 4 would require a change to current wholesale control, as set out in licence Condition B.
Water resources reforms	A separate binding price control for water resources as per the proposals we set out in chapter 4 would require a change to current wholesale control, as set out in licence Condition B.
Changes to the index applied to price limits	Any change to the indexation of price limits such as the move from the Retail Price Index to the Consumer Price Index as set out in chapter 5 would require a change to the index referred to in licence condition B. Any transition mechanism needed to support the change we think could be included in the methodology statement rather than a further licence modification.
Creating a market information database to support sludge and water resource markets	To support the sludge and water resource reforms set out in chapter 4 we have set out proposals for a market information database (that could be created and potentially administered by a third party). A new licence condition may be required to give effect to these new arrangements, for example through a new access code.
Changes to condition B to remove or substantially reduce the need for end of period wash-ups or reconciliations	We set out in chapters 5, 6 and 7 various proposals that would allow for a range of in-period adjustments that would remove, or substantially reduce, the need for end of period wash-ups or reconciliations and the associated work and uncertainty that these can create by defining the reconciliation formula in licence condition B. These changes could require reform of licence condition B, potentially to include an adjustment factor that would amend the revenues in each year based on the performance in previous years. Such an approach could allow for in period automatic adjustments for things like: • outcome delivery incentives; • cost sharing; • revenue forecasting incentives/true-ups; and • any debt indexation (policy work on setting cost of debt will be set out in mid-2016, as discussed in chapter 6).

We recognise the significance of changes to the licence and the regulatory, legal and financial implications of these changes. We propose to work with all stakeholders to ensure there is a clear understanding of what changes need to be made.

Where possible we want to ensure this is undertaken in a collaborative way and would expect companies to use all reasonable endeavours to work with us to help deliver necessary change. We will engage as part of this consultation, but would expect to undertake further specific consultation in light of our final decision on the framework. We will seek to have any changes to the licence in place ahead of issuing of the methodology statement in December 2017.

As we move forward, we will need to consider how best to instigate changes. The options are:

- Through formal consultation and agreement under section 13 of the WIA91 with companies.
- Through referral of the proposed changes to the Competition and Markets Authority under section 14 of the WIA91.
- Some of our proposed changes, including in particular those relating to the expansion of opportunities for greater market development in sludge and water resources, may be seen as necessary or expedient in consequence of provisions made by or under Part 1 of the Water Act 2014. Depending on the UK and Welsh Government's proposed approaches to the implementation of the relevant elements of the new legislation, we may therefore be able to implement these changes under section 55 of that Act after consultation with the companies concerned and other appropriate persons.

We want to seek consensus in the first instance before commencing formal routes to deliver the necessary change.

9.2 Information requirements: next steps

Implementing our proposals effectively is also likely to require some new and different information to be collected from incumbent companies, both to support the 2019 price setting process effectively and to enable the effective and efficient development of markets. Some of the important aspects of this are likely to include:

- further changes to the accounting separation information that we collect from companies; and
- a potential need to revalue relevant assets ahead of the 2019 price review.

We will be conducting a targeted review in the first quarter of 2016 looking at costs and assets of the water resources and sludge business units. This may lead to revisions to the RAGs for the 2016-17 reporting year. We will also consider modern equivalent asset valuations (MEAVs) – with a view to the proposed focused RCV allocation (for sludge) and unfocused RCV allocation (for water resources). This will consider any issues with consistency of approach between companies. MEAVs are not included in the annual performance report but we will be requiring companies to submit MEAVs in their PR19 business plans. Our proposed approach is to issue guidance on MEAV valuations later in 2016. Companies will value assets in 2017, and assurance will be provided by specialist auditors. Companies will submit the results of the exercise in the business plan submission in 2018.

There is also likely to be other information that we need to collect, for example in relation to cost assessment at PR19, which we will consider in 2016.

9.3 Timescales for Water 2020

In our July discussion document, provided early clarity on timescales for implementing the next price control. These proposals included bring forward our methodology statement forward by six months, allowing business plans to be bought forward by around four months and a 17 to 18 month period for the business plan review process. This reflected our experience and feedback on the 2014 price review process, comparison with earlier price controls and other sectors, and the common suggestion that further time would have been helpful to complete that process more effectively. This timetable also includes several stages of consultation to move towards our 2019 price review methodology. We consider this to be important, as there is considerable further work to do to address all of the issues and challenges that we have identified. There was broad support from the industry for our proposed timetable. Respondents felt that having more time for conducting our review would result in a more effective process, and allowing more time between the final methodology statement and business plan submissions would result in better plans being submitted. But there were a number of key concerns, including:

- a small number of companies suggested that bringing forward the submission of business plans relative to the 2014 price review would require extending forecasting of plans further into the future, which could impact on the quality of those plans;
- some stakeholders also commented that bringing business plan submission forward would reduce the amount of time for customer engagement, which could be detrimental to business plans; and
- some companies and other regulators raised concerns around the potential misalignment of the Water Resource Management Planning process and the National Environment Plan with this longer timeline.

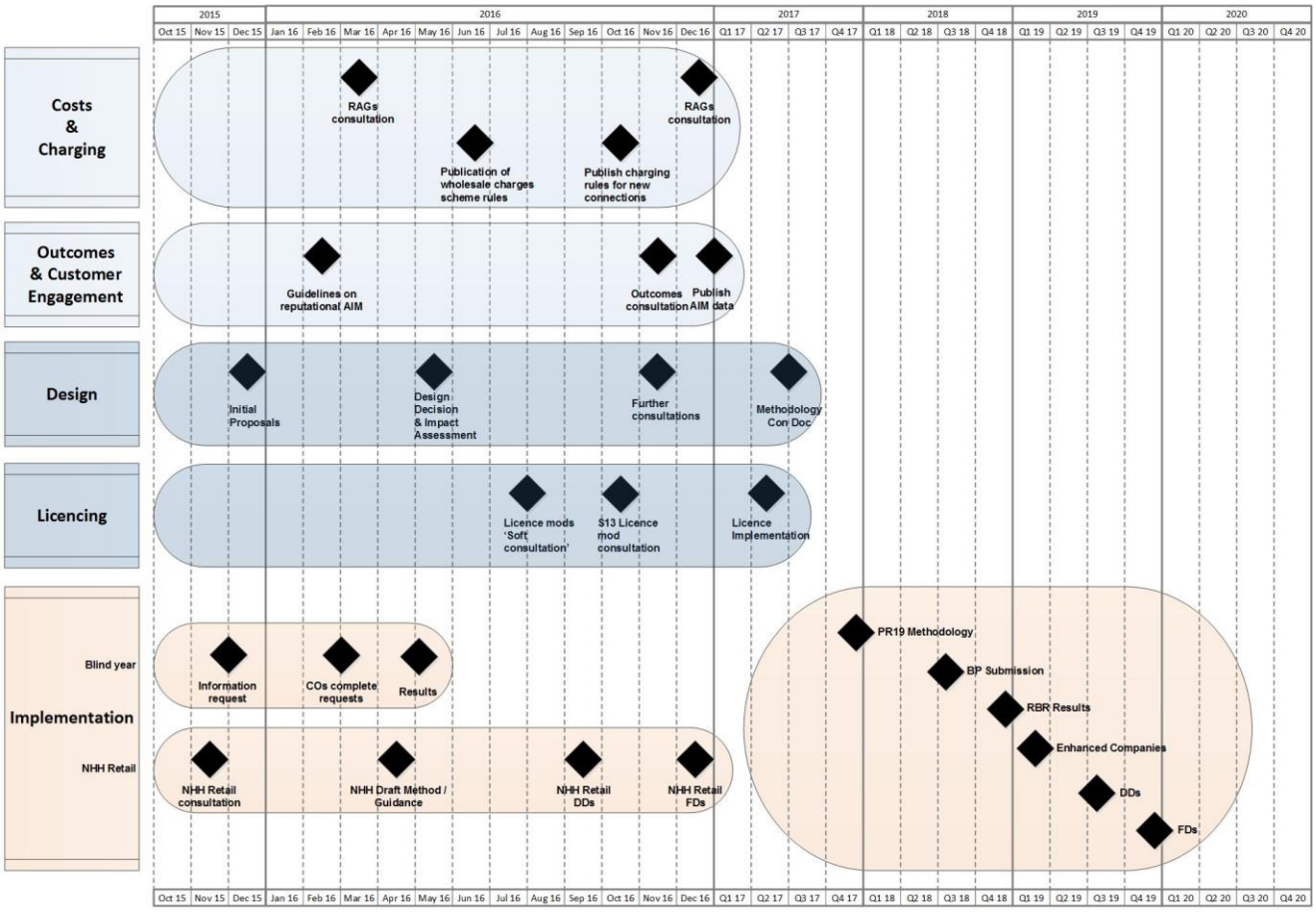
Taking these concerns into account, on balance, we still consider that bring forward our methodology statement and allowing for earlier submission of business plans and more time for delivery phase of the risk-based review and determinations relative to the 2014 price review would be beneficial. In particular, we consider there should be sufficient time for companies to effectively engage with their customers on their business plans following the risk-based review.

We are still in discussion with other regulators around the potential timescales of the 2019 price review and the interactions with other important timelines, such as for the WRMPs, the NEP and the Natural Resources Policy Framework in Wales, and expect to be able to conclude those discussions in time for the May decision document.

An overall indicative timetable for the Water 2020 programme, including the 2019 price review process and other timelines is set out below.

As this timetable shows, we will set out a decision document covering the issues discussed in this consultation in May 2016. We also propose to engage with stakeholders and consult further on a range of regulatory issues in 2016 including, for example, outcomes, our approach to cost assessment and the approach to setting the cost of debt.

Figure 32: Proposed timescales for the Water 2020 programme



Consultation questions

Q53 Do you agree with our summary of potential licence changes and the process for achieving these outlined in section 9.1 above?

Q54 Do you agree with the next steps for establishing the necessary data for the 2019 price review outlined in section 9.2?

Q55 Do you agree with our indicative timetable for the Water 2020 programme?

Ofwat (The Water Services Regulation Authority) is a non-ministerial government department. We regulate the water sector in England and Wales. Our vision is to be a trusted and respected regulator, working at the leading edge, challenging ourselves and others to build trust and confidence in water.

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Printed on 75% minimum de-inked post-consumer waste paper.
December 2015

ISBN 978-1-910739-28-0

This document is also available from our website at www.ofwat.gov.uk.

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