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Trust in water

Delivering Water 2020: Our final methodology for the 2019 price review Appendix 5: Water resources control

**Appendix to Chapter 6:
Targeted controls, markets
and innovation: wholesale
controls**

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1. Summary

1.1 Purpose and structure

This appendix sets out our final methodology for the water resources control in the 2019 price review (PR19). This methodology has been determined following full consideration of views expressed by respondents to our [draft methodology proposals](#), published in July of this year. This appendix supplements the information on the water resources control we set out in chapter 6 ('Targeted controls, markets and innovation: wholesale controls') of our [final methodology for PR19](#). This includes our overview of respondents' views and our responses, provided in appendix 15 ('[Responses to our draft methodology](#)').

The overall approach to water resources is based on the decisions made in our May 2016 decision document ('[Water 2020: Our regulatory approach for water and wastewater in England and Wales](#)') and the decisions taken as a result of our draft methodology proposals. This appendix draws these together to provide a composite overview. It is structured as follows.

- Section 1: a high-level summary.
- Section 2: our overall approach.
- Section 3: decisions taken as a result of our May 2016 decision document.
- Section 4: decisions based on our PR19 methodology consultation.

In this appendix we use the term incumbent to refer to the 17 largest water companies that we set the control for. This distinguishes them between other companies who can be involved in markets in water resources, who we refer to as third party providers. This category includes out-of-area of incumbents, who are potential suppliers in other incumbents' areas.

1.2 Context and summary of approach

Our final methodology for water resources is driven by the four key themes of PR19. It enables better targeted regulation and encourages markets to help address some of the challenges of how water resources are best used to ensure resilient and affordable water supplies, which are delivered in a sustainable manner. It also provides a framework to protect the interests of customers, and to enable greater collaboration between incumbents and third party providers. This will maximise the value of existing resources and incentivise the efficient development of new water resources.

Our approach also recognises the differences in the level of water scarcity across England and Wales and the different policy emphasis of Defra and the Welsh Government. This ensures that, while there is a consistent approach across incumbents at a high level, additional features of the control are targeted to need.

Our approach has four key strands:

- **Establishing a separate control:** A separate control for water resources enables better targeted regulation and will result in increased management focus on this key area of the value chain. The control will also facilitate the further development of markets for new water resources. The boundary of the control will be aligned with the definitions used in our regulatory accounts and will be confirmed with the final determinations, allowing some flexibility on the exact delineation between activities. We will allocate the pre-2020 RCV on an unfocused basis (meaning that the privatisation discount is spread across the controls), to represent the starting basis for the separate control. In setting up the control, we defined some of the key characteristics, including a five-year duration and the inclusion of annual adjustments which will be applied to reflect the relevant inflation index.
- **Managing the separate control:** The water resources control will be a total revenue control with an in-period adjustment. We are also maintaining the proven building-block approach. Present protections will be retained for the RCV allocated at 31 March 2020. Post 2020, new investments will retain a high degree of regulatory protection, but with the potential to adapt to future developments. We will use capacity, measured by water resources yield, to distinguish between pre-2020 and post-2020 investment. To ensure compliance with the control, we will require incumbents to provide a clear overview of the split of wholesale charges between water resources and network plus water. The revenue forecasting incentive will be used to allow incumbents to manage the under or over-recovery of revenues over 2020-25.
- **Encouraging markets:** Our approach supports the bidding market for water resources, demand management and leakage services. This enables third party providers to provide these services where it is more efficient for them to do so. To encourage water trading we are maintaining the incentives from the last control, recognising the long-term nature of trading as a solution. Within the control, provisions will be put in place to facilitate the English bilateral market during 2020-25. Our working assumption is that 2022 is a likely implementation date. Supporting this, we are setting out initial reporting requirements to ensure incumbents will start to prepare for this possibility. Sitting above these two markets, direct procurement will provide efficiency opportunities in the delivery of large projects. Overall, we expect enhanced markets to bring significant opportunities for innovation and efficiency.

- **Managing uncertainty and ensuring legitimacy:** water resources are long-lived assets and can come at a significant cost. It is important to incentivise long-term and effective planning, to secure the legitimacy of developments and ensure the impact of uncertainty is shared appropriately between incumbents and their customers. We expect incumbents to adopt collaborative approaches to ensure that scarce resources are managed appropriately. Incumbents should propose long-term risk sharing arrangements for major water resource developments. A mechanistic in-period adjustment will be applied to account for bilateral market entry during 2020-25. This will ensure that incumbents, not their customers, face the business risks from the opening of this market.

As the Welsh Government has decided not to expand business retail competition at this time, an extended Welsh bilateral market will not be introduced. This means that mechanisms to facilitate the bilateral market noted above – the in-period adjustment and access pricing arrangements – will not apply to incumbents whose areas are wholly or mainly in Wales.

We set out how our approach addresses two of our key priorities under Defra’s strategic policy statement (SPS) and the Welsh Government’s SPS, in the two tables below. We note that our overall approach to the control addresses many of these priorities, and these tables are limited to the specific water resources control.

Table 1 – Overview of how our approach helps us deliver the UK Government’s priorities

Priority / strand of control	Ofwat should challenge the water sector to plan, invest and operate to meet the needs of current and future customers, in a way which offers best value for money over the long term	Ofwat should promote markets to drive innovation and achieve efficiencies in a way that takes account of the need to further: (i) the long-term resilience of water and wastewater systems and services
Establishing a separate control	A separate control for water resources enables better targeted regulation and will result in increased management focus on this key area of the value chain to ensure value for money. The control will be 5 years (as is current practice) and retain annual adjustments to reflect the relevant inflation index.	The separate control will facilitate the further development of a range of different markets for new water resources. The boundary is set with reference to the regulatory accounts, but with flexibility to support innovation.

Priority / strand of control	Ofwat should challenge the water sector to plan, invest and operate to meet the needs of current and future customers, in a way which offers best value for money over the long term	Ofwat should promote markets to drive innovation and achieve efficiencies in a way that takes account of the need to further: (i) the long-term resilience of water and wastewater systems and services
Managing the separate control	<p>A building-block approach provides consistency, while allowing for evolution of approach for post-2020 investment.</p> <p>Pre-2020 investment will receive the same protection as now, to maintain consistency of regulatory approach with the approach at the time the investment decisions were made.</p> <p>Post-2020 investment will be added to a post-2020 RCV, with returns dictated, in part, by the incumbent's ability to manage uncertainty.</p> <p>Water resources yield, which is consistent with water resources planning, will be used to distinguish between pre- and post-2020 investment.</p> <p>To ensure compliance, incumbents will need to provide a clear overview of the split of charges between water resources and network plus water, increasing transparency.</p>	
Encouraging markets	<p>Markets encourage the effective use of existing water resources and efficient development of new resource options and should deliver the best value for customers.</p> <p>Direct procurement offers an alternative route to maximise efficiency in the delivery of large projects.</p>	<p>Recognising the long-term nature of water trading, water trading incentives are maintained.</p> <p>Bidding and, when introduced, bilateral markets will yield opportunities for innovation and efficiency.</p> <p>Access pricing reporting requirements will support future market development.</p>
Managing uncertainty and ensuring legitimacy	<p>There is uncertainty about future demand and supply. Related costs should not be fully borne by customers. Incumbents need to demonstrate ability to manage uncertainty.</p> <p>For major water resources developments, incumbents should propose a long-term risk sharing approach.</p> <p>The in-period adjustment will ensure that incumbents, not their customers, face the risks of the opening of the bilateral market.</p>	

Table 2 – Overview of how our approach helps us deliver the Welsh Government's priorities

Priority	How our methodology addresses the priority
Affordability	The separate control, supports better targeted regulation and management focus, to ensure value for money. This allows us to better understand costs and to more effectively challenge efficiency.

Priority	How our methodology addresses the priority
	Direct procurement encourages efficiency in the delivery of large projects, where appropriate.
Innovation	Separate control for water resources facilitates better understanding and more transparency around costs, so will facilitate innovation. The bidding market provides opportunities for innovation in water resources as well demand management and leakage services.
Long-term	The design of the control provides a high degree of regulatory certainty and so helps to facilitate investment and decision making for the long term. WRMPs support long-term planning and the control is designed to be compatible with water resources planning.
Markets and competition	The bidding market is supported in Wales offering scope for innovation and value for money. Features of the control linked to the bilateral market are not applied to incumbents wholly or mainly in Wales.
Resilience	Our approach should encourage greater resilience, both network based and through increased participation and diversity of options offered in the bidding market.
Strong customer focus	Long-term risk sharing approach, to ensure development risk is borne proportionately by incumbents and their customers.
Sustainable management of natural resources	The bidding market will encourage the optimisation of water resources over a wide range of options, including those linked to demand management and leakage services. More widely the success of incumbents in meeting this objective will be considered as part of the initial assessment of business plans.

1.3 Summary of our decisions for the water resources control

The table below summarises our decisions for the water resources control and provides references to where further detail can be found. All topics apply to incumbents whose areas are wholly or mainly in England. For incumbents whose areas are wholly and mainly in Wales all topics apply apart from those marked England only.

Table 3 – Summary of our decisions for the water resources control

Area	Topic	Final position	Further detail
Establishing a separate control	Separation of activities	To introduce a separate control for water resources activities.	Sections 2.1, 3.1.1 and 3.1.2
	Boundary of control	The focus of the water resources control will be abstraction licences and raw water abstraction activities.	Sections 2.1 and 3.1.5
	Pre-2020 RCV allocation	An unfocused approach to allocate the pre-2020 RCV value between network plus water and water resources.	Sections 2.1 and 3.1.6
	Length of control	Five years.	Section 2.1
	Inflation indexation	Annual adjustment to reflect any percentage change in the relevant inflation index.	See appendix 12 ('Aligning risk and return')
Managing the separate control	Type of control	A total revenue control with an in-period adjustment mechanism.	Sections 2.2 and 4.4.1
	Pre-2020 RCV	This will have the same type and degree of regulatory protection as at present.	Sections 2.2 and 3.2.1
	Post-2020 RCV and investment in new water resources	There will be a building-block approach for post-2020 investment, with new expenditure added to a post-2020 RCV.	Sections 2.2 and 4.2.1
	Capacity measure for the control	Water resources yield, which is a bespoke metric designed to be consistent with the control.	Sections 2.2 and 4.2.2
	Calculating water resources charges	For compliance incumbents will develop and publish a notional charging structure for its water resources activities to be charged to retailers.	Sections 2.2 and 4.2.3
	Managing under or over recovery of revenues	The adjustment mechanism for water resources will be the revenue forecasting incentive.	See appendix 7 ('Network plus water and wastewater controls')
Encouraging markets	Water trading incentives	Incentives to encourage new water trades will be maintained at the same level as PR14.	Sections 2.3 and 4.3.1
	Our approach to access pricing for the bilateral	Cost based charges for network plus services plus where applicable equalisation payments to ensure a	Sections 2.3 and 3.3.1

Area	Topic	Final position	Further detail
	market (England only)	level playing field for new water resources.	
	The links between the control and access pricing (England only)	Introduce an indirect link, key information linked to annualised unit costs to be submitted with business plans.	Sections 2.3, 3.3.1 and 4.3.2
Managing uncertainty and ensuring legitimacy	Implementing the in-period adjustment (England only)	Adjustment reflects the cost of water resources that has been displaced by bilateral market entry	Sections 2.4 and 4.4.1
	Long-term risk sharing	Incumbents proposing significant investment in new water resources should propose long-term risk sharing arrangements as part of their business plans, for us to review.	Sections 2.4 and 4.4.2

2. Overview of our approach

This section summarises our overall approach against the four key strands set out above:

- establishing a separate control;
- managing the separate control;
- encouraging markets; and
- managing uncertainty and ensuring legitimacy.

2.1 Establishing a separate control

A separate control for water resources enables better targeted regulation, resulting in increased management focus on this key area of the value chain. It will also increase the accuracy and consistency of cost reporting. This will help incumbents agree water trades, as these trades will need to reflect information about the cost of water resources.

This decision has been confirmed by a licence change to condition B, for the conditions of the appointment ('licence') of each of the 17 largest incumbents in England and Wales. The licence change defined some of the key characteristics of the control, including a five-year duration and the inclusion of annual adjustments, which will be applied to reflect the relevant inflation index. However, it does not specify the detailed form of the control. Instead, it allows us to work with stakeholders to develop and refine the more detailed aspects of the control through our methodology.

The potential boundary of the control is defined in condition B, which sets out an 'envelope' of activities that we may designate as 'water resources activities', for the purposes of the separate control. This envelope covers activities connected with "abstraction licences", "raw water abstractions", "raw water transport", "raw water storage" and ancillary activities. Many new options are likely to consist of investment across water resources and network plus water activities. Recognising this point, we have included the possibility of designating, at the margins, raw water transport or storage activities. We shall set out the final designations of these activities between the water resources and network plus water controls as part of the final determination process.

In order to calculate the revenue allowance for the water resources control, there needs to be an allocation of the pre-2020 wholesale water RCV to the control. We

have given each incumbent ownership and responsibility for how, using an unfocused approach, its legacy pre-2020 RCV will be allocated between water resources and network plus water, consistent with our guidance. We will confirm the allocation of RCV to the water resources control and network plus water control, when we publish our PR19 final determinations.

2.2 Managing the separate control

The water resources control will be a total revenue control with an in-period adjustment mechanism (see section 4.4.1). For the first year of the control, allowed revenues will be determined that meet the incumbent's revenue requirement. An incumbent will be allowed to increase revenues every year by the change in the relevant index and an adjustment factor known as K. The K factor is set so that annual allowed revenues meet the annual revenue requirements.

We are maintaining the traditional building-block approach to the control. For the RCV allocated to water resources at 31 March 2020, we will provide the same type and degree of regulatory protection as at present. The control will include revenue, to enable incumbents to recover the efficient costs of maintaining their pre-2020 capacity. For post-2020 investment, our building-block approach means that new investments will still retain a high degree of regulatory certainty. However, there will be some exposure to market developments for this investment, to ensure an appropriate allocation of risk between customers and incumbents (see section 2.4 'Managing uncertainty and ensuring legitimacy'). To further facilitate market development, the post-2020 RCV will be recovered as part of the water resources control, and will not have the backstop protection of network plus revenues, which is available for the RCV allocated to water resources at 31 March 2020.

We will use capacity, measured by water resources yield, to distinguish between pre-2020 and post-2020 investment. This captures the average volume of water available (dependent on the level of service and planning period) from the environment, and is constrained by water resources control assets. Water resources yield is defined by water resources control assets, sources and associated assumptions only. It is also only these components that will cause the measure to vary over time.

To ensure compliance with the control, we will require incumbents to provide a clear overview of the split of wholesale water charges between water resources and network plus water. This will increase transparency and help support future market development.

Consistent with our decision to adopt a binding control on total revenues, it is necessary to allow incumbents to adjust for under or over recovered revenues during 2020-25. This is to mitigate the risk of over or under recovery which could have adverse impacts on customers and incumbents. The adjustment mechanism for water resources will be the revenue forecasting incentive, consistent with the approach taken for network plus water and wastewater.

2.3 Encouraging markets

Markets for water resources are targeted at new rather than existing water resources. This is because the opportunities in water resources are greater for additional capacity than existing capacity. There are three broad areas of market development:

- the bidding market (including water trading);
- the English bilateral market; and
- direct procurement.

There are new requirements to ensure fairness, access and transparency in these markets.

In the bidding market, third party providers submit bids to an incumbent to provide solutions to help it meet its future needs, as set out in their water resources management plan (WRMP). Options provided by a third party, can either be supply side, such as a water trade, or demand side, such as a water efficiency scheme.

The bidding market is being supported by our market information requirements to increase the transparency of the opportunities available to third party providers. These have been introduced in a separate process to the PR19 methodology, and we confirmed our requirements, following consultation, in '[Water resources market information guidance](#)'. The first set of market information will be released in early 2018, aligned with the WRMP timetable. To complement our guidance, we are introducing a requirement for incumbents to produce a bid assessment framework. This is to create more clarity and confidence to third party providers that their supply and demand side options will be assessed fairly. The principles that incumbents need to follow in producing their frameworks are set out in appendix 8 ('[Company bid assessment frameworks – the principles](#)').

To support water trading, we intend to maintain the existing trading incentives at the same level as PR14. A key advantage of maintaining the incentives is ensuring consistency with the long-term nature of water trading as a solution to promote

operational and environmental resilience. The water trading incentives will encourage new water trades by increasing the financial rewards for exporters and lowering the cost of trading for importers.

The second area of development is the English bilateral market. This will not start until Defra bring into force the relevant provisions of the Water Act 2014. Our working assumption is that 2022 is a likely implementation date. The Welsh Government has decided not to establish a Welsh bilateral market at this time. In the bilateral market, third party providers (who can be independent or incumbents operating out of area) contract directly with retailers in the business market to supply them water resources. This will involve the payment of access prices to incumbents for use of their distribution system and, if needed, treatment facilities.

In May 2016, we set out key decisions on the structure of access pricing going forward, noting we would adopt the following structure:

- a set of separate cost-based charges for network plus water services and cost-based charges for water resources; and
- if applicable, an equalisation (formerly compensation) payment.

The cost-based charges will remunerate the incumbent for the costs of providing network plus water services. The equalisation payment will ensure that efficient third party providers, who are able to provide additional water resources at lower cost, are able to compete against incumbents in the bilateral market. To support the opening of the bilateral market in 2020-25, we want incumbents to provide indicative information on key features of access pricing, based on their business plans. This indirect link between the control and access pricing, will incentivise the provision of good quality information in business plans.

This bilateral market will generate efficiencies and benefits of its own; but critically the threat of entry via bilateral markets can be seen as a disciplining factor on incumbents. This would increase incumbents' incentives to adopt efficient solutions. That could be achieved through greater use of the bidding markets; for example resource providers that have not been successful in the bidding market may find subsequent opportunities in the bilateral market.

Alongside these two markets, we will incentivise incumbents to use direct procurement for customers for high-value capital projects. Direct procurement takes place when an incumbent procures services on behalf of customers, including the project's financing. This can generate savings from development, construction and operating costs; and through cheaper financing, which can be shared with customers. It can encourage incumbents to take a long-term view of projects, better

aligning to longer-term outcomes for customers and the environment. Further detail is set out in chapter 7 ('Targeted controls, markets and innovation: direct procurement for customers') and appendix 9 ('[Direct procurement for customers](#)').

2.4 Managing uncertainty and ensuring legitimacy

We identified two key sources of uncertainty affecting investment decisions in new post-2020 water resource capacity. These relate to the opening of the English bilateral market and the need for significant investment in new water resources.

For the bilateral market, greater market entry than anticipated could lead to incumbents' new capacity not being used as expected. Conversely, lower bilateral market entry than anticipated could mean new capacity is insufficient. Customers should not provide financial protection to incumbents against this business risk.

We will establish an automatic, in-period adjustment mechanism to ensure incumbents and not customers face the risk from bilateral market entry. We opted for an in-period rather than end-of-period adjustment to promote transparency, and to reduce regulatory uncertainty and the scope for disputes at the next price review. As the Welsh Government has decided not to expand business retail competition at this time, there will be no Welsh bilateral market and this will not be required for incumbents whose areas are wholly or mainly in Wales.

For significant investment in new water resources, there is, however, inherent uncertainty about the level of future need for these resources. This reflects uncertainty about factors such as: population growth, consumption, industrial demand, and climate and weather patterns. We aim to ensure these significant investments are legitimate, with an onus on incumbents to forecast as accurately as possible, alongside identifying optimal solutions and using innovative approaches, where appropriate. We want solutions to be delivered efficiently and effectively, and provide an appropriate risk/reward balance between providers and current and future customers.

Our view is that, for significant post-2020 investment in new water resources, there is a strong case for incumbents to take a long-term approach that considers the real option value of its decisions, and the associated long-term risks. This means making sure incumbents bear an appropriate balance of risk over the long term, to align their interests and the interests of customers. We expect incumbents proposing significant new investment to also propose long-term risk sharing arrangements as part of their business plans. This is a targeted and proportionate approach, and allows the arrangements to be tied to the nature of the investment, over the long term. As part

of the initial assessment of business plans, we will review proposed risk-sharing arrangements to assess their suitability and alignment with customers' interests.

Our approach set out above ensures that post-2020 investment is only exposed to targeted and proportionate risks, so efficiently incurred investment in new water resources can be recovered over the longer term.

3. Decisions taken as a result of our May 2016 decision document

In this section, we provide an overview of the decisions taken as a result of our May 2016 decision document, mapped against the four key strands of our approach. These decisions reflect the May decision document and the continued engagement held with incumbents, third party providers and wider stakeholders after this was published. We engaged through formal consultation and discussions in the water resources working group meetings, including a workshop on the form of control. Slides and minutes of the working group discussions are published on [our website](#).

3.1 Establishing a separate control

Applicability to England and Wales

This section applies **to both** incumbents whose areas are wholly or mainly in **England** and incumbents whose areas are wholly or mainly in **Wales**.



A key focus of the May 2016 decision document was establishing the rationale and framework for the separate control. Reflecting this in this section we discuss:

- the rationale for a separate control (see section 3.1.1);
- further considerations in applying the separate control to Wales (see section 3.1.2);
- our impact assessment to support the separate control (see section 3.1.3);
- the licence change to enable a separate control (see section 3.1.4);
- the activities in the control (see section 3.1.5); and
- allocating pre-2020 RCV to water resources (see section 3.1.6).

3.1.1 The rationale for a separate control

A separate control will help in developing better targeted regulatory incentives, and in increasing focus on the water resources element of the value chain (both within incumbents and within Ofwat). It will also increase the accuracy and consistency of cost reporting for different wholesale activities because the regulatory reporting and cost allocations will become more important. This will make it easier to undertake benchmarking and identify efficiencies between incumbents. This will also help

where incumbents want to agree voluntary water trades between each other, as these trades will need to reflect information about the cost of water resources. This will ensure that, for example, an exporting incumbent's customers benefit from the transaction.

Taking a step back, it is also important to highlight two limitations of the single total revenue wholesale water control (adopted for PR14), for water resources market development:

- It may provide opportunities for incumbents to engage in forms of cross-subsidy, which make it harder for third party providers to compete against them for new water resources, an area that has scope for markets. At the same time, incumbent providers could recover more revenue from other parts of the value chain, where their monopoly position was strongest (such as water distribution to existing customers).
- It can transfer the financial risks of markets away from the incumbents and towards customers, who effectively compensate incumbents financially for losses in market share. Therefore, as water resources markets develop, customers could fail to receive the benefits, or even be worse off.

These two issues are particularly important in light of the potential opening of the English bilateral market.

A separate control is a targeted and proportionate response to these issues. It allows the regulatory framework to be adapted to realise the greater opportunities from markets in this part of the value chain, while maintaining the existing framework for the other parts of the wholesale value chain (where there is less scope for markets at present). This is supported by the example of business retail competition in the water industry. At PR14, we adapted our regulatory framework to separate retail from wholesale controls, where retail controls operate differently, and are more compatible with market development.

3.1.2 Further considerations in applying the separate control to Wales

In our May 2016 decision document, we considered that, on balance, it would be beneficial to apply the separate control to all incumbents in England and Wales, even though the benefits are likely to be greater in England. This was for the following reasons:

- The separate control supports improved cost information, which:

- enables better targeted regulatory incentives;
 - helps to identify water trades that are beneficial to customers through the bidding market; and
 - enables the protection of customers through transfer pricing that reflects all costs.
- By applying a consistent price control methodology to all incumbents, regulatory processes are more transparent and it is easier to undertake benchmarking between incumbents, with the benefits this brings;
 - There are relatively limited benefits from exempting Welsh incumbents. Our analysis suggests that cost savings are likely to be modest. Incumbents already report water resources costs as part of regulatory accounting requirements. Having designed and implemented the separate control, the marginal costs to ourselves and the industry of extending the separate control to Wales are low.

3.1.3 Our impact assessment to support the separate control

Our decision to introduce a separate control for water resources was based on detailed analysis and an impact assessment of our final policy package, set out in appendix 3 ([‘Tackling water scarcity – further evidence and analysis’](#)) of our May 2016 decision document. This considered our proposals in terms of benefits and costs (quantified and non-quantified), risks and uncertainties and distributional impacts.

Our impact assessment concluded that our final policy package had significant net benefits, summarised below. Using mid-point figures, the total net benefits were estimated to be £802 million net present value (NPV) over 30 years. Quantified total benefits ranged from £597m to £1,254m, compared to estimated total costs of £23m to £42m. All numbers in this section are in 2015-16 prices. We also noted wider benefits through greater network resilience and potential reductions in unsustainable abstractions.

Where possible we assessed benefits and costs separately for England and Wales to reflect the different policy positions of the UK and Welsh governments. For England the total quantified benefits ranged from £588m to £1,232m compared to estimated total costs of £20m to £37m; for Wales the benefits ranged from £9m to £22m compared to costs of £3m to £5m. Our assessment reflected the current legal framework and the allocation of executive powers between the UK and Welsh governments on the basis of company boundaries rather than the border between England and Wales.

We identified four sources of benefits from our decisions:

- Increased water trading between incumbents yields savings through deferred or avoided investment. Comparing to costs in 2014 WRMPs, savings are estimated to be £532m over 30 years, and £810m over the lifetime of the assets.
- Efficiency gains in new incremental investment in water resources from increased use of markets in resource provision. Accounting for the effect of deferred or avoided investments due to water trading, potential savings range from £100m to £202m NPV over 30 years.
- Efficiency gains in the maintenance and operation of existing capacity, driven by markets in incremental capacity and separate controls. This leads to more transparent information, management focus and better targeted incentives. Potential savings range from £81m to £242m NPV over 30 years.
- Non-quantified benefits such as greater network resilience through increased interconnection, and potential reductions in unsustainable abstractions due to increased use of alternative resources, particularly in water scarce regions.

We identified the following costs of our decisions:

- Costs to incumbents relating to set-up and ongoing costs associated with information provision to support the market information platform and control separation. Potential costs ranged from £18m to £28m NPV over 30 years.
- Regulatory costs associated with policies to support the bidding market and the separate control. Given that the changes the Water Act 2014 will make, will require us to develop a new methodology to reflect the bilateral market, we have not included regulatory costs relating to access pricing in our final impact assessment. Potential costs therefore range from £4.4m to £14m NPV over 30 years.
- Financing costs are not considered to increase as a result of the separate control and policies to support the bidding market. Drawing from a report we commissioned from PwC on the [Balance of risk and reward across the water and sewerage value chain](#) and further analysis, we do not consider bilateral markets will increase the cost of capital in our base case.

We considered the following risks and uncertainties:

- Environmental risks should not be increased as our policies will operate within existing and future regulatory protections. Activity, both across and within incumbent areas, will have to operate within the existing environmental framework.
- Water quality risks should not be increased relative to current arrangements when raw water is treated in existing facilities. The DWI will continue to inspect

and regulate water quality where treated water is introduced. The legal framework is already in place because of previous water supply licensing arrangements.

- Short-term capacity issues from exit of third party providers would only be significant if third party providers in water resources become major providers, and can be mitigated through statutory special administration arrangements.

In terms of distributional impact, we do not expect any customer groups to be adversely affected by our policies, although some will benefit more than others, particularly where there is greater scope for increased water trading and where markets develop. Business customers who switch in the bilateral market are more likely to benefit, and residential customers are expected to share in efficiency savings from water resources markets.

In line with best regulatory practice, for the final methodology we have reviewed our impact assessment, summarised above. We consider that the benefits still remain within the range set out in our decision document. This reflects the continuation in approach from our decision document to the final methodology. It also highlights that additional changes in this document are small, relative to Water 2020 regulatory changes (for example the introduction of a separate control). We also do not have access to new data to assess whether our benefits analysis has changed, as this was based on 2014 WRMP (WRMP14) information. New information will only be available from January next year, when 2019 WRMPs (WRMP19) are released for public consultation.

Nevertheless, for the seven policy areas identified in our final methodology (set out in section 4 below) we have carried out a qualitative impact assessment. These are set out under 'Our review, analysis and final decision' for each policy area. For example, section 4.4.2 sets out our qualitative impact assessment of long-term risk sharing. This ensures that the impact of our decisions is incorporated in our decision-making. This assessment is carried out against the following criteria:

1. **Achieving our objectives:** does the proposed option meet our legal duties, is it consistent with the UK and Welsh Government strategic policy statements and our vision and strategy?
2. **How are objectives achieved:** is the proposed option consistent with our regulatory model?
3. **Practicality:** is the proposed option practical and implementable?

Further detail on our approach to impact assessments is set out in appendix 14 (['Approach to impact assessment'](#)).

3.1.4 The licence change to enable a separate control

All 17 incumbents agreed to the modification to introduce a separate control, and we have implemented the changes. The provision for a separate control is structured in a broadly similar way to that for the pre-existing retail price control which was introduced at PR14. The licence does not specify the detailed form of the control, but rather allows us to work with stakeholders to develop and refine the more detailed aspects of the control as we develop our price review methodology, and to confirm the form of controls in our final determinations. This approach avoids constraining what we and incumbents can do, which would be to the detriment of customers.

We are allowed by the licence to determine:

- the appropriate nature, form and level of the control (subject to the constraints set out below); and
- how the incumbent shall demonstrate compliance with the control.

The constraints set in the licence are that:

- we can only set one single control for water resources activities;
- the duration of the control is five years; and
- there is a requirement for an annual adjustment to reflect any percentage change in the relevant index.

In the first year of the control, allowed revenues will be determined that meet the incumbent's revenue requirement. An incumbent will be allowed to increase revenues every year by the change in the relevant index, and an adjustment factor known as K. The K factor is set such that annual allowed revenues meet the annual revenue requirements.

The licence also defines the activities that can be covered by the separate control. This is discussed below.

3.1.5 The activities in the control

In order to provide certainty and transparency, condition B sets out an 'envelope' of activities that we may designate as water resources activities for the purposes of the separate control. This envelope covers activities connected with "abstraction licences", "raw water abstractions", "raw water transport" and "raw water storage" and ancillary activities. "Water treatment" and "treated water distribution" are

activities that we cannot designate as water resources activities. They are, therefore, definitely excluded from the scope of the water resources control.

The terms used in the lists of activities above that can, and cannot, be designated, are assigned definitions in: '[Regulatory Accounting Guideline \(RAG\) 4.06 – Guideline for the table definitions in the annual performance report](#)', August 2016. Future changes to the RAGs will not change either the activities that will be designated for the purpose of the control or the activities that could be designated for the purposes of a future control. A further licence modification would be required to change the activities that could be designated.

The focus of the water resources control will be abstraction licences and raw water abstractions. At a high level, where an asset or an incurred cost provides a quantity of water available for transport, and ultimately treatment, then they will sit within water resources. Many new options are likely to consist of investment across water resources and network plus water activities.

For example:

- a new raw water reservoir (water resources) will need to be connected to a water treatment works. Here the connecting pipework element of the option will fall under raw water transport (network plus water);
- a large water trade, connecting a water resources asset of one incumbent (such as a raw water reservoir or river abstraction) to the water treatment works of another. This infrastructure will be primarily raw water transport (network plus water); or
- a catchment management programme supporting raw water abstraction activities, will primarily form part of water resources. Elements relating to improving raw water quality to reduce water treatment requirements, would be allocated to network plus water.

Recognising this point, we included the possibility of designating, at the margins, raw water transport or storage activities. This is because our work on the regulatory accounts has shown that the boundary between these activities has not always been clear or consistently applied. Having this safeguard in place reduces the risk of inadvertently having set the boundary in the wrong place. If this was the case, the benefits from a separate control would not be fully realised. Incumbents should prepare business plans on the basis that these boundaries will not change from the detailed definitions in RAG 4.06.

We shall set out the final designations of the activities between the water resources and the network plus water control, as part of the final determination process. This

approach makes it easier for us to address any practical issues or ambiguities that arise with the definition of the boundary. It will allow us to reflect any material new information that we find in the 2017-18 RAGs and business plans.

3.1.6 Allocating pre-2020 RCV to water resources

The RCV is used to assess the revenues that are required to provide a return on the capital invested in incumbents. In order to calculate the revenue allowance for the water resources control, there needs to be an allocation of the pre-2020 wholesale water RCV to the control.

In our May 2016 decision document, we explained that we will allocate a proportion of the RCV to the control on an unfocused basis. This is on the basis of: the proportion of the assets employed for water resources activities, relative to the total assets employed across wholesale water (water resources and network plus water). We gave each incumbent ownership and responsibility for how, using an unfocused approach, its legacy pre-2020 RCV will be allocated between water resources and network plus water. Company ownership of allocation will also help to avoid unintended and unnecessary impacts on wholesale tariffs, and strengthen incumbents' ownership of their wholesale tariff structure. We stated that this would be supported by our guidance.

In January 2017, we published [technical guidance on water resources pre-2020 RCV allocation at PR19](#). It set out a number of approaches that incumbents could consider, and a range of issues to consider in arriving at their RCV allocation approach. We then discussed the technical guidance at the water resources and the RAG working groups. We also held a series of individual meetings with incumbents in April and May 2017.

We will collect incumbents' proposed RCV allocations in January 2018, and publish the proposals as part of our feedback in April 2018. Our requirements for the January submission are set out in appendix 8 ('[Water resources legacy RCV allocation: initial submission](#)') of our PR19 draft methodology. We will confirm the allocation of RCV to the water resources control and network plus water control, when we publish our PR19 final determinations.

3.2 Managing the separate control

Applicability to England and Wales

This section applies **to both** incumbents whose areas are wholly or mainly in **England** and incumbents whose areas are wholly or mainly in **Wales**.



Our May 2016 decision document was focused on establishing the rationale and framework for the separate control. However, to reflect the importance of regulatory certainty, we confirmed our approach to pre-2020 RCV.

3.2.1 Our approach to pre-2020 RCV

Our price control framework for PR19 will provide the same type and degree of regulatory protection as at present, for the RCV allocated to water resources at 31 March 2020. This approach supports our view that opportunities are greater for additional, rather than existing, water resources.

Given the focus on new water resources, we said we do not need an explicit and mechanistic RCV ‘true-up’ mechanism as part of the overall RCV protection in water resources. Any mechanism would complicate the new regulatory arrangements for water resources, and could lead to market distortions and other unintended consequences. As an additional safeguard, incumbents will be able to propose revisions to the allocation of the RCV between network plus water and water resources, at the next price review. However, we would only accept revisions with compelling evidence of misallocation at PR19.

Going forward, the water resources pre-2020 RCV will decline as the RCV depreciates. No water resources expenditure will be added on to the existing pre-2020 RCV. This avoids giving incumbents different incentives to maintain pre- or post-2020 assets, which would distort decision making. It also reflects that the RCV is not directly linked to physical assets, but is a regulatory tool for ensuring sufficient financing for incumbents.

Expenditure to maintain pre-2020 capacity will have the same level of protection as it would have had prior to the changes to the regulatory framework, and it will not be exposed to any additional risk (either bilateral or relating to significant investment), during 2020-25. The control for water resources will include revenue to enable incumbents to recover the efficient costs of maintaining their pre-2020 capacity.

3.3 Encouraging markets

Applicability to England and Wales

This section **only applies** to incumbents whose areas are wholly or mainly in **England**.



Markets for new water resources are focused on the bidding, bilateral and direct procurement markets. In the May 2016 document we set out our decisions on the key features for access pricing for the English bilateral market.

3.3.1 Our approach to access pricing

In May 2016, we set out key decisions on the structure of access pricing going forward. We explained that at a water resource zone (WRZ) level we would adopt the following approach to access pricing:

- A set of separate cost-based notional charges for network plus water services and notional cost-based charges for water resources; and
- If applicable, an equalisation (formerly compensation) payment.

The cost-based charges will remunerate the incumbent for the costs of providing network plus water services. The equalisation payment will ensure that efficient third party providers, who are able to provide additional water resources at lower cost, are able to compete against incumbents in the bilateral market. Further detail on this is provided in the box below.

Box 1: How equalisation payments work for English incumbents

The equalisation payment is a discount on the common access price to enable third party providers to compete with incumbents on an equal footing in the bilateral market. It would apply to third party providers making water available in WRZs where the incumbent is proposing to build new water resource options. It will be set to reflect the difference between the average price of water resources and the cost of developing new water resources in each WRZ.

The payment is structured in this way as developing new water resources is typically considerably more costly than is suggested by the cost of existing water resources. This difference is, in part, due to the RCV privatisation discount, and, in

part, a natural consequence of incumbents developing the least cost water resource options first. Without the equalisation payment, it is unlikely that third party providers would be able to offer retailers a commercially attractive proposition. This is because, in order to match the incumbents' wholesale rates, they would only be able to charge retailers the incumbent's price of water resources, which would be insufficient to cover the higher cost of new water resources.

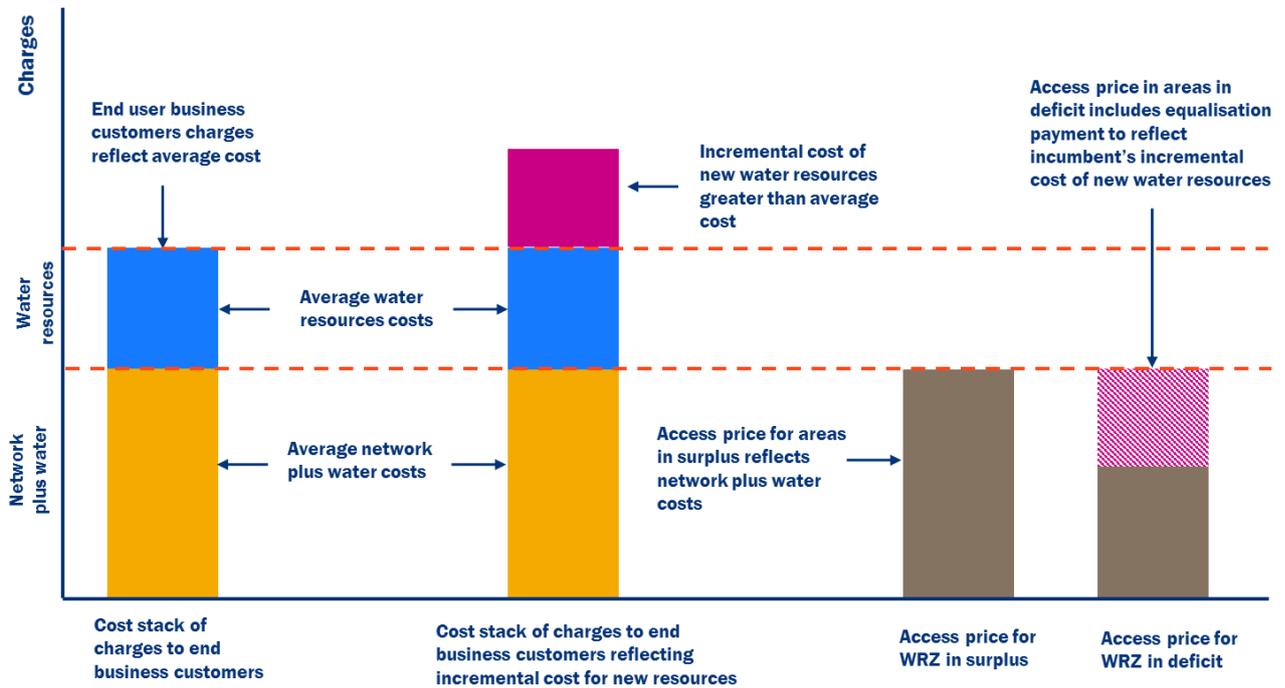
Once the bilateral market opens, and during 2020-25:

- for WRZs where there is no new capacity development beginning in the period, the equalisation payment would be zero.
- in all WRZs where an incumbent is proposing to begin work on a new option, whether or not the option will deliver new capacity in 2020-25, the equalisation payment would be set to reflect the difference between the average price of water resources and the cost of developing new water resources in each WRZ.

We plan to hold a consultation on how to take forward wholesale markets in early 2018, where we will discuss our approach to the equalisation payment further.

The figure below presents a stylised overview of our approach to access pricing for the English bilateral market. This shows how the equalisation payment is calculated and the differences between a WRZ in surplus and one in deficit.

Figure 1 – Our approach to access pricing for the bilateral market



3.4 Managing uncertainty and ensuring legitimacy

No measures were introduced as part of our May 2016 decisions to manage uncertainty and ensure legitimacy. However, these proposals were consulted on as part of the draft methodology and are discussed in section 4.4.

4. Decisions based on our PR19 methodology consultation

In this section, we set out our decisions based on our PR19 methodology consultation, mapped against the four key strands of our approach. For each policy decision, we set out:

- the issue we were seeking to address;
- our preferred option in the draft methodology;
- stakeholder responses;
- our review, analysis and final decision; and
- how our final decision will be applied.

Section 5 ('Wholesale controls') of [appendix 15](#) outlines respondents' views to the question we posed on the water resources control in our draft methodology consultation. In appendix 15 we provide or reference our response in more detail to the issues raised by respondents.

4.1 Establishing a separate control

The measures to establish the separate control in our May 2016 decision document were implemented following consultation. No new measures were proposed in the draft methodology.

4.2 Managing the separate control

In establishing a separate control for water resources, we set out an approach that will work with, develop and refine the more detailed aspects of the control through our price review methodology. In this section we discuss our approach to:

- post-2020 investment in new water resources (see section 4.2.1);
- the capacity measure for the control (see section 4.2.2); and
- calculating water resources charges (see section 4.2.3).

In the methodology, we also set out our approach to managing over or under recovery of revenues in water resources, through the revenue forecasting incentive. This is discussed in appendix 7 ('[Network plus water and wastewater controls](#)'), section 4.4, reflecting its use across the two network plus controls, alongside water resources.

4.2.1 Post-2020 investment in new water resources

Applicability to England and Wales

This section applies **to both** incumbents whose areas are wholly or mainly in **England** and incumbents whose areas are wholly or mainly in **Wales**.



The issue we were seeking to address

From 1 April 2020, investment in new water resources will not receive the same regulatory protection as the pre-2020 water resources RCV and investment in network plus water going forward. Post-2020 investment in new water resources will face two key sources of uncertainty, affecting investment decisions in new post-2020 water resource capacity. These relate to the opening of the English bilateral market and the need for significant investment in new water resources.

The change in regulatory protection cannot be introduced solely by making a financial distinction between pre- and post-2020 investment and expenditure. If we were to rollover the existing framework, customers would still be providing incumbents with full regulatory protection. For example, if an incumbent has a large water resources option approved in 2020-25, the efficient costs for it would be funded. However, if it is later discovered that the option is not fully required due to bilateral market entry, customers remaining with the incumbent would still face the full costs of the option. To compound this situation, as some customers shift to the third party provider, the prices for the customers left with the incumbent will increase.

This highlights the need to change the structure of the control to ensure that post-2020 investment in water resources does not receive the same level of regulatory protection as pre-2020 investment. The approach to pre-2020 capacity and the pre-2020 RCV is consistent with our traditional building-block approach to regulation and there is no change to the level of regulatory protection (see section 3.2).

Our preferred option in the draft methodology

The building-block approach with an adjustment mechanism was our preferred option for our regulatory approach to post-2020 investment. Under this option, we would retain the building-block approach that has been used at previous reviews, to include an allowance for PAYG expenditure, return on capital, tax and previous investments represented by the RCV. The costs not recovered during 2020-25, would be added to a post-2020 RCV, representing the store of capital invested in the

business. These would be recovered in future periods. This would operate in a similar way to the pre-2020 RCV, but with exposure to an in-period adjustment mechanism. The adjustment is in-period rather than end-of-period, to promote transparency and to reduce regulatory uncertainty and the scope for disputes at the next price review.

The adjustment mechanism will reflect the extent to which the post-2020 capacity is needed. For example, if in future periods, as a result of bilateral market entry, the incumbent's post-2020 capacity is not fully required, then a downward adjustment to an incumbent's maximum allowed revenue for water resources would be made. Uncertainty around the need for significant investment in new water resources would be implemented through long-term incentive sharing arrangements, set through the Outcome Delivery Incentive (ODI) framework.

As an alternative, we also considered implementing a unit cost allowance for post-2020 investment. This would mark a shift from the building-block approach, and there would be no post-2020 RCV. Instead, we would set a cost allowance per unit of post-2020 capacity. This would represent the annualised lifetime costs of water resources and would be intended to cover the development, maintenance, operational and financing costs of options. This would be consistent with the equalisation payment paid to third party providers through the access pricing framework, and would be paid when the capacity is delivered.

Going forward, the unit cost allowance would vary according to: the total supply of post-2020 capacity, across both incumbent and bilateral market third party providers, relative to the required level of post-2020 capacity. This would be complemented by a mechanism to limit demand variance to bilateral market entry only, which would mean that incumbents faced similar risk under both approaches. This would also enable uncertainty around the need for significant investment in new water resources, to be implemented through long-term incentive sharing arrangements, set through the ODI framework.

While the unit cost approach was not our preferred option, we asked for stakeholder views on it. We wanted to know in particular, whether we should develop a shadow unit cost allowance to learn how this control could operate in PR19.

Stakeholder responses

Eight respondents commented on our approach to post-2020 investment in water resources. Across all respondents, there was support for the use of the building-block approach with an adjustment mechanism, with a number of respondents strongly agreeing with this aspect of our proposals.

There was some disagreement on whether it was appropriate that the adjustment mechanism was in-period. This is discussed further under section 4.4.1. A respondent suggested that any change in the level of regulatory protection should be time limited to reflect uncertainty over future market entry after incumbents invest in long-life assets to meet supply-demand challenges.

In relation to the unit cost allowance and the potential for shadow reporting:

- two respondents noted that this approach has attractions and merits further analysis, though these views were in the minority. In contrast, the majority of respondents felt that it was too soon and disproportionate, given the likely pace and scale of bilateral market development, to move to a unit cost allowance and to require shadow reporting at this time; and
- one respondent noted that the unit cost approach may be appropriate as markets develop, but before a decision is made the benefits need to be understood due to the costs of such a step change.

Our review, analysis and final decision

Following our full consideration of views expressed by respondents, and the analysis carried out to support the draft methodology, we have made the decision to use a building-block approach combined with an adjustment mechanism. This:

- is in line with the existing approach for remuneration of pre-2020 capacity;
- is well understood; and
- provides regulatory predictability to incumbents.

In contrast, a unit cost allowance would see a significant change to the control framework for PR19. This is unlikely to be proportionate, as the English bilateral market is not expected to open until later in 2020-25. During this period, the market is expected to be small and nascent. However, we recognise that this approach could be appropriate in the longer term. This is because it is likely to better realise the benefits of the bilateral market, as the financial flows to incumbents would more closely resemble the flow of revenues to third-party providers.

A change to the unit cost allowance would also need careful consideration for incumbents wholly or mainly in Wales, as the Welsh Government has decided not to establish a Welsh bilateral market at this time. This would mean that the benefits offered by the unit cost approach would be more limited, and there would need to be a wider analysis of the costs and benefits for Wales.

In response to stakeholders' comments:

- we note the change in the level of regulatory protection for post-2020 investment is not designed to be time-limited. For example, the in-period adjustment set out in section 4.4.1 is designed to be rolled over to future controls. Specifying upfront how the change in regulatory protection is introduced helps provide regulatory predictability to incumbents. Time-limiting the change in regulatory protection would also move us further away from ensuring a level playing field between incumbents and third party providers in the future English bilateral market;
- we agree that the unit cost allowance would be disproportionate to introduce at this stage and that it would need careful analysis of the benefits and costs for both England and Wales. We also recognise that this needs to be considered in the context of the wider development of wholesale markets and we plan to hold a consultation on how to take forward wholesale markets in early 2018. It may be the case that this is an approach that is considered again for implementation at PR24; and
- reflecting the above, we are not planning to require shadow reporting on a unit cost allowance basis during this control period. That said, we have revised our access pricing reporting requirements to introduce greater clarity on the information incumbents should provide. This includes a focus on the calculation of annualised unit cost, which has links to the unit cost allowance approach – although we are not collecting this on a shadow basis. More detail on these revised requirements is set out in section 4.3.2.

The table below sets out our qualitative impact assessment of options for the approach to post-2020 investment, and further explains the rationale behind our final decision.

Table 4 – Final assessment of approaches to post-2020 investment

	Option 1 Building blocks with adjustment mechanism Final decision	Option 2 Unit cost allowance
Achieving our objectives	<p>This approach introduces bilateral market risk to post-2020 investment, while maintaining a familiar price control framework. It also ensures customers are not made worse off through market development</p> <p>✓ ✓</p>	<p>This approach introduces bilateral market risk to post-2020 investment. It also ensures that customers are not made worse off through market development. However, for Wales the benefits offered by the unit cost approach would be more limited and there would need to be a wider analysis of the costs and benefits of the change</p> <p>✓</p>
How our objectives are achieved	<p>The approach uses existing regulatory tools, but does not achieve a full level playing field. Instead, there is a reliance on adjustments after entry has occurred</p> <p>✓</p>	<p>This is the most pro-market approach, and would provide a more level playing field for incumbents and bilateral third party providers, which could help realise significant market benefits</p> <p>✓ ✓</p>
Practicality	<p>'Building blocks', is a well understood approach. Some complexity is introduced through the need to define the adjustment factor and apply it over the longer term. The approach is proportionate to the expected scope of the market during PR19</p> <p>✓</p>	<p>Significant change in regulatory approach, with potential disproportionate increase in uncertainty at early stage of market development</p> <p>✗</p>

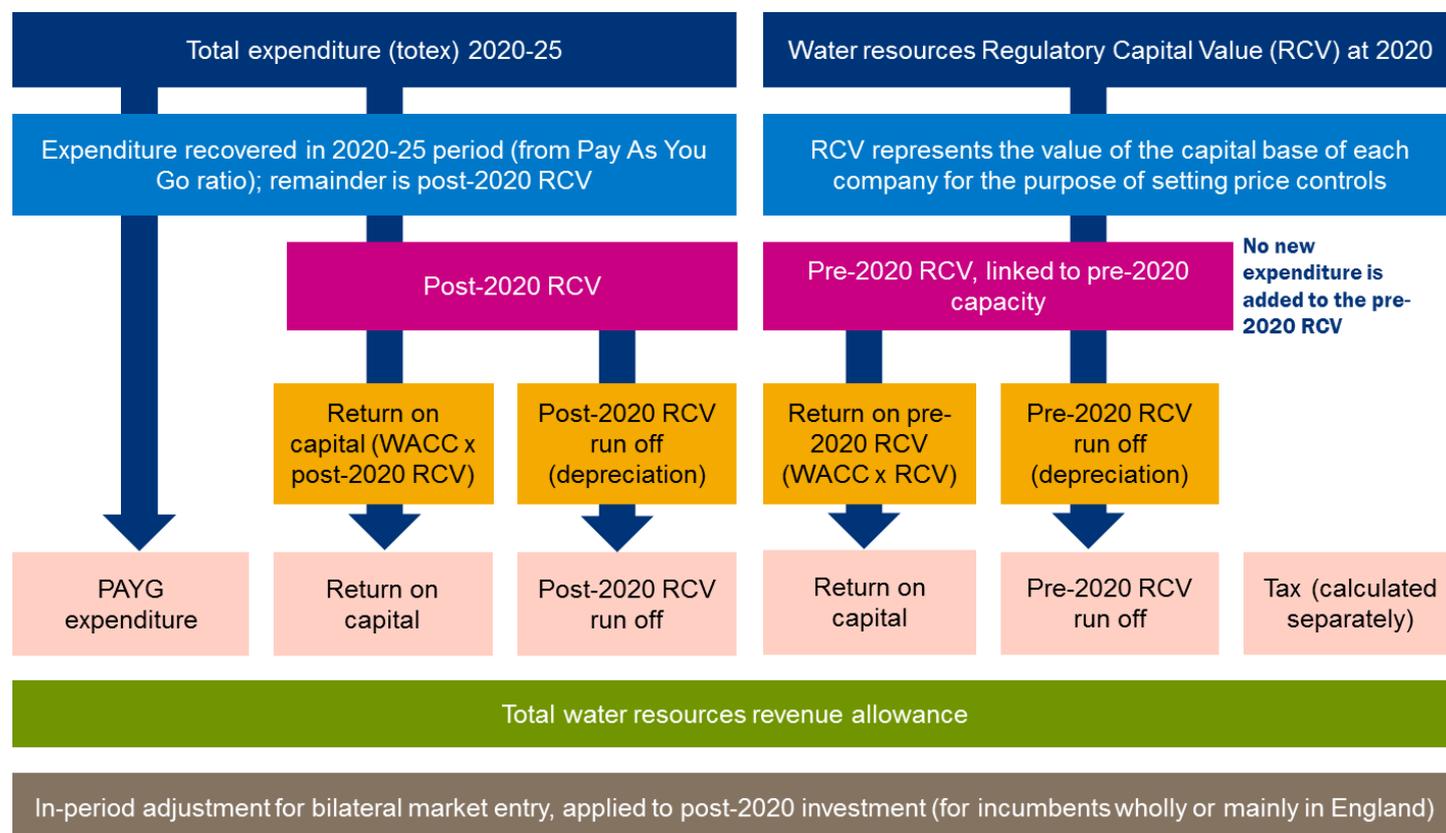
How our final decision will be applied

Post-2020 investment in water resources will be remunerated through a fixed allowed revenue for any additional capacity required from 1 April 2020. This will also be calculated on a building-block basis, with a post-2020 RCV. This will be combined with an in-period adjustment mechanism that depends on the scale of bilateral market entry. This adjustment will only apply to the allowed revenue for post-2020 investment. It will transfer uncertainty affecting investment decisions in new post-2020 water resource capacity (relating to the opening of the English bilateral market), to incumbents rather than their customers.

When combined with our approach to pre-2020 RCV, this results in a control with the following building blocks:

- Returns and depreciation to the pre-2020 water resources RCV
 - An assessment of:
 - efficient totex during the 2020-25 period; and
- funding expenditure to be recovered within the period (determined by the PAYG ratio);
- Expenditure recovered in future periods (return and depreciation on post-2020 RCV); and
- A tax allowance.

Figure 2 – The building blocks of the water resources total revenue control



For incumbents wholly or mainly in Wales, reflecting the Welsh Government’s decision not to introduce the bilateral market, there is no need to include the in-period adjustment mechanism to accommodate bilateral entry. Therefore, the form of control will be a pure total revenue control. This will be confirmed in the final determinations for these incumbents, set at PR19.

In the rest of this section, we set out an overview of how the form of control will work, with a focus on implementation, for example of the capacity measure and in-period adjustment. Discussion of the wider building blocks outlined above is covered in the following chapters of the methodology document:

- Chapter 9 (‘Securing cost efficiency’), sets out our approach to assessing the efficient costs for the wholesale controls;
- Chapter 10 (‘Aligning risk and return’), discusses how we will set an appropriate return for the wholesale controls, and our approach to tax; and
- Chapter 11 (‘Aligning risk and return: financeability’), sets out our approach to recovering costs, which determines the PAYG rates and RCV run-off for the wholesale controls.

4.2.2 The capacity measure for the control

Applicability to England and Wales

This section applies **to both** incumbents whose areas are wholly or mainly in **England** and incumbents whose areas are wholly or mainly in **Wales**.



The issue we were seeking to address

Our price control framework at PR19 will provide the same type and degree of regulatory protection as at present for the RCV allocated to water resources at 31 March 2020. However, investment in new water resources from 1 April 2020 will not receive the same regulatory protection, and revenues will need to be recovered on a standalone basis for water resource activities. A key design issue, is how we adapt the regulatory framework for water resources to accommodate this distinction.

To resolve this, we are introducing an element to the control framework, which will make the financial remuneration to the incumbent for post-2020 investment, dependent on the extent to which that investment provides a service that is needed. This element, is capacity. Our approach works by drawing a clean line between the capacity available from existing assets (as at 31 March 2020) and any subsequent capacity developed from 1 April 2020, including new capacity developed to replace pre-2020 capacity. This approach means that the change in the level of regulatory protection will only apply to post-2020 investment and the capacity it represents.

In order for this approach to be implemented, we need to define the capacity measure that will be used to calculate pre- and post-2020 capacity, and define how it will change through time. This is a new requirement for the 2020-25 period.

Our preferred option in the draft methodology

Water resources yield was our preferred option for the capacity measure. This captures the average volume of water available (dependent on the level of service and planning period) from the environment, and constrained by water resources control assets. The water resources yield will be constrained by the limiting component within the water resources control. This could be the abstracting asset capacity or, as in the example below (Figure 3), the abstraction licence quantity.

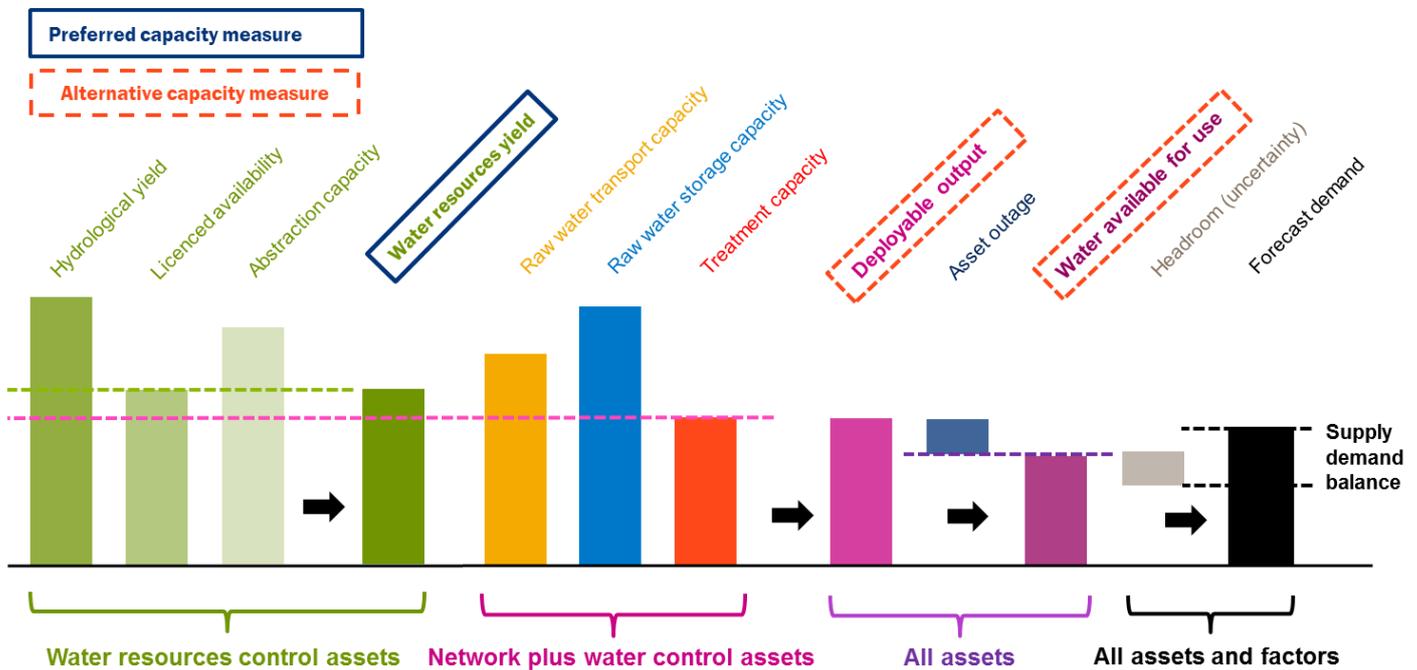
Water resources yield is defined by water resources control assets, sources and associated assumptions only. It is also only these components that will cause the measure to vary over time.

We also considered two other measures, which are already calculated and reported by incumbents as part of their WRMP submissions. These would be defined by both water resources and network plus assets:

- Deployable output – is the measure of the amount of available water (dependent on the level of service and planning period) from all assets and sources used between, and including, the point of first abstraction and the point at which the water first enters the distribution network; and
- Water available for use – is the measure of how much water is available on average (dependent on the level of service and planning period) from all available assets and sources for input into the distribution network. It represents the whole supply element of the supply demand balance, excluding any uncertainty (headroom). This is an extension of deployable output, which includes an allowance for outage accounting for assets not always being available.

Each of the three measures considered, is a sub-component of the supply-demand balance calculation used by English and Welsh incumbents for water resources planning. The calculation is based on all elements of forecast supply. This is then compared to the likely demand, and the result used to define the problem in terms of maintaining long-term supplies. A simplified example of the calculation, with the options, is shown in the figure below. The assets are mapped between water resources and network plus, in line with the definitions used in the regulatory accounts.

Figure 3 – A simplified representation of the supply-demand balance calculation



Stakeholder responses

Nine respondents commented on the capacity measure for the control. Water resources yield, was the preferred option to use. Across responses, there was wide support for the proposal. No respondents supported the alternative capacity options. For example, one respondent stated that water resources yield: “aligns most closely with the proposed boundary of the price control. It appears to be a logical capacity measure to use”.

There were a number of requests for clarification on the definition, calculation and application of capacity:

- Two respondents queried whether abstraction licence changes, including those implemented in-period and not previously forecast, should impact on the calculation of pre-2020 capacity;
- One respondent raised their concern about the significant effort required to calculate water resources yield, and the potential for inconsistent calculation between incumbents; and
- Three other respondents identified concerns around the potential variability in water resources yield, dependent on incumbent assumptions.

Our review, analysis and final decision

Following our full consideration of views expressed by respondents, and the analysis carried out to support the draft methodology, we have made the decision to use water resources yield as the capacity measure for the water resources control. The key advantage of this option is that it only captures capacity provided by assets and sources that are within the envelope of the separate water resources control. In contrast, in a number of scenarios, deployable output and water available for use, are likely to be constrained by assets performing activities outside the new water resources control.

For example, in a WRZ which is constrained by treatment works capacity, capacity as measured by deployable output and water available for use, would increase when this is upgraded, even with the underlying water resources remaining the same. This would see the 'new' capacity being recorded as post-2020 and facing a different level of protection. This is not in line with our policy commitments for water resources and network plus, and strengthens the case to develop water resources yield as a bespoke metric for the control.

In response to stakeholders' requests for clarification, we note:

- reductions in abstraction licence availability will reduce pre-2020 capacity, while any capacity developed to replace licence reductions from 1 April 2020 will form part of post-2020 capacity. An example of this situation is provided in box 2, below. Further clarity on this will be added to future guidance on the calculation of water resources yield, which will be released in the RAGs applicable to 2018-19 reporting (RAG 4.08);
- water resources yield is a sub-component of the supply and demand balance calculation, which is used for water resources planning. This should limit the extra work needed to calculate it. In designing our approach, we also worked closely with EA and NRW, and incumbents through our working group, to ensure consistency with water resources planning. For example, to meet WRMP requirements, incumbents already need to have developed extensive datasets and water resources models, which could form the basis of the calculation of yield. A number of respondents noted these useful links, and one stated that water resources yield will be relatively simple to report; and
- all measures used in water resources planning are subject to variability as they are based on forecasts of design events with a set of complex planning assumptions. That said, we expect incumbents to apply the same consistent planning assumptions to the calculation of yield as they do for their current WRMP. For example, the planning scenario and design drought severity (return period) should be the same for calculation. We also consulted on 10 pages of

calculation guidance as part of the draft methodology, to help ensure consistency. A revised version of this will be released with the next version of the RAGs (RAG 4.08). This will also enable the reporting of capacity prior to 2020-25, which will help early identification of any potential issues in implementation.

The table below sets out our qualitative impact assessment of options for the capacity measure, and further explains the rationale behind our final decision.

Table 5 – Final assessment of the options for the capacity measure.

	Option 1 Water resources yield Final decision	Option 2 Deployable output	Option 3 Water available for use
Achieving our objectives	Only captures capacity provided by assets (and sources) which will be within the envelope of the separate water resources control. ✓✓	Includes elements of network plus control (e.g. water treatment) in its calculation ✗	Includes elements of network plus control in its calculation (e.g. water treatment), plus asset outage allowance. ✗
How our objectives are achieved	Targeted at water resources and ensures we can meet our policy commitments. ✓✓	Not targeted at water resources and could result in unintended consequences in certain scenarios ✓	Not targeted at water resources and could result in unintended consequences in certain scenarios ✓
Practicality	Although a component of the supply demand balance calculation, this will require separate calculation and reporting. ✓	Deployable output is commonly calculated and understood. It is reported in WRMPs and WRMP annual reviews. ✓✓	Water available for use is commonly calculated and understood, reported in WRMPs and WRMP annual reviews. ✓✓

How our final decision will be applied

For business plans, our reporting requirements for water resources yield are set out in the business plan table: ‘Wr6 Water resources capacity forecasts’. In line with water resource planning, incumbents should calculate water resources yield on a WRZ level, and for the two main planning scenarios (Dry Year Annual Average and Dry Year Critical Period), as used for WRMP19. Dry Year Annual Average should be

reported for all WRZs, while Dry Year Critical Period should only be reported if it is an applicable scenario for incumbents and reported as such in their WRMP19.

For each WRZ and applicable planning scenario, incumbents should provide the:

- level of water resources yield available from existing water resources (sources/assets), as of 31 March 2020, and a forecast of this over 25 years, consistent with the minimum planning period for water resource planning; and
- forecast of additional water resources yield that will be provided by post-2020 investment in new incremental water resources funded through the water resources control. As above, this is required over 25 years.

Even where an incumbent is not planning any additional capacity (post-2020) over the planning period, they are still required to report forecasts for their pre-2020 capacity for whichever planning scenarios are relevant.

In calculating water resources yield, incumbents should refer to the guidance published as part of the RAGs applicable to 2018-19 reporting (RAG 4.08). This guidance will be a revised version of the guidance presented in annex 1 of appendix 5 of our draft methodology. The revisions will be minor and will reflect stakeholders' requests for clarification, noted above.

Box 2: Example reporting of capacity in business plans

An incumbent with one WRZ, forecasts a supply demand deficit in the 2020-25 period, as part of their WRMP19. This deficit is for both Dry Year Annual Average (DYAA) and Dry Year Critical Period (DYCP) planning scenarios.

The deficit is primarily driven by abstraction licence reductions at key sites in the incumbent's WRZ, to be implemented in the 2020-25 period. This reduces the available water resources yield and hence capacity at these sites. Due to these licence reductions, the pre-2020 capacity is forecast to reduce, and is reported as such.

As the WRZ is sensitive to both the DYAA and DYCP planning scenarios, the pre-2020 capacity forecasts are reported for both.

To resolve the forecast deficit, the incumbent proposes a range of supply and demand options in its WRMP. Demand options will not result in new capacity. The supply options will result in new capacity being delivered after 1 April 2020 and will be reported as forecast post-2020 capacity. The amount of post-2020 capacity

reported for each planning scenario, will be dependent on the benefit it provides the WRZ under each of those scenarios. The incumbent also forecasts that a small amount of third party bilateral entry will provide capacity to account for some of its forecast deficit. This is also reported.

Reflecting the above, the incumbent would report the following information for forecast capacity, in table Wr6:

- Pre-2020 capacity is reported as 25 year forecasts for DYAA and DYCP planning scenarios;
- Incumbent post-2020 capacity is reported as 25 year forecasts for DYAA and DYCP planning scenarios; and
- Bilateral entry capacity forecasts is reported as 25 year forecasts for DYAA and DYCP planning scenarios.

Outside of business plans, water resources yield will be tracked through annual performance report submissions. As noted above, we expect to collect the first set of information on water resources yield in 2018-19.

4.2.3 Calculating water resources charges

Applicability to England and Wales

This section applies **to both** incumbents whose areas are wholly or mainly in **England** and incumbents whose areas are wholly or mainly in **Wales**.



The issue we were seeking to address

PR19 is the first time we set separate binding controls for water resources and network plus water. There will be a separate allowed revenue set for each control. During 2020-25, to monitor compliance and to calculate over-or under-recovery as part of the revenue correction mechanism, each incumbent will need to identify separate revenues from water resources and network plus water. This can then be compared with the revenue allowed under each of the controls.

Condition B (Charges) of incumbent licences gives us the power to require the publication of: “charges fixed for the purposes of demonstrating compliance with the controls determined in respect of its water resources activities”, as well as its

network plus water activities. Reflecting this throughout this appendix, the use of the term charging relates to notional charges for water resources that the water undertaker will need to publish for price control compliance purposes.

These charges for raw water supplies will be notional in the sense that we will not be requiring incumbents to include them in their published wholesale charges schemes (wholesale tariff documents). However, we will require that the notional charges are set in a way that is consistent with the wholesale charges scheme, and that each incumbent can justify the relationship between the notional charges for raw water and the wholesale tariffs in its charges scheme. The implications of this and the links to the wholesale charges rules are discussed further below.

The charging structure will need to identify a charge for capacity supplied at the regulatory boundary between water resources and network plus water. The approach taken for charges will interact with:

- our wider approach to wholesale charging ([‘New wholesale charging rules: decision document’](#)). This sets out our expectations that retailers:
 - are clear about what they are paying for;
 - have access to a level playing field; and
 - help drive wholesalers to understand their costs and cost drivers;
- future market developments – as, for example, the charge for water resources will be part of the calculation of the value of the equalisation payment under our access pricing arrangements. There will also need to be charging rules put in place to support this market.

Our preferred option in the draft methodology

A requirement for incumbents to publish a notional charging structure for their water resources activities, which is to be charged to retailers (including the incumbents’ own retail businesses), was our preferred option in the draft methodology. The water resources control would restrict the price for retailers of raw water at the regulatory boundary between water resources and network plus water. The network plus water control would restrict the prices for retailers for the various network plus water services, which could be either bundled together or further decomposed. The revenue attributed to water resources for compliance purposes would then be calculated by reference to the charging structure and the output of the incumbent’s water resources activities. Under this approach, the incumbent’s water resources business could be seen to be supplying retailers directly.

We also considered an alternative approach where an incumbent would publish a notional charging structure for its water resources activities, which is to be charged to network plus water. The incumbent's water resources business would be seen as a supplier of raw water to its own network plus water business, and its network plus water business would then supply a bundled wholesale service, covering water abstraction, treatment, and distribution, to retailers (including the incumbents' own retail businesses). The revenue attributed to water resources for compliance purposes would then be calculated by reference to the charging structure and the output of the incumbent's water resources activities.

Stakeholder responses

Eight respondents commented directly on the proposed approach to charging for water resources and there were a number of other comments that relate to our wider approach to charging. The majority of respondents agreed with our proposed approach. Only one respondent favoured the alternative approach which would see incumbents publish a notional charging structure for the supply of raw water or raw water capacity to the network plus water business.

In support of the approach, respondents noted the importance of consistency across the sector. The wider lessons learned from the opening of the business market were also noted. That said, there were a number of requests for clarification:

- there was a desire to understand how our preferred approach would work in practice; this included understanding the links to the English bilateral market and how charging would reflect the control being based on capacity, as measured by water resources yield;
- there was concern expressed around the potential increase of complexity for retailers around settlements in the business market;
- one other respondent noted that the proposed changes will result in alterations to the wholesale charging rules and that this should be done in good time and in collaboration with incumbents.

The respondent who disagreed with our preferred approach noted that while it supported the desire for increased transparency in charging, it did not think that the proposed approach would provide any additional benefits in this regard. In particular, the respondent considered that the proposed approach to charging would not help support the future bilateral market.

In relation to wider comments on charging there was a call for greater transparency in wholesale controls, in particular between residential and business customers. This point was raised in the context of affordability, as wholesale charges represent a

significant proportion of a customer bill and there was a recognition that the wholesale controls help ensure that this non-competitive element of the bill continues to offer value for money for customers.

Our review, analysis and final decision

Following our full consideration of views expressed by respondents and the analysis carried out to support the draft methodology, we have made the decision to require incumbents, for the purposes of price control compliance, to publish a notional charging structure for the output of their water resources activities, which represent notional charges to retailers for water resources (or water resources capacity). The key advantage of this approach is transparency and alignment with potential future market developments.

In terms of transparency, our decision will also help retailers be clearer what they are paying for and drive wholesalers to better understand the relevant costs and cost drivers. This understanding better informs wholesale charges and strengthens incumbents' ownership of their wholesale tariff structures. This approach is also aligned with our market-based approach for water resources and in future will help support the development of the English bilateral market.

In contrast these benefits would be diluted in our alternative option whereby incumbents publish a notional charging structure for its water resources activities which is to be charged to network plus water. This would be less transparent and would not be as aligned with future market developments.

In response to stakeholders' comments we have given further thought to how an approach involving notional charges from water resources to retailers could be implemented in practice:

- we provide an example in box 4 in 'How our final decision will be applied' to help explain the key features of the approach, including the interaction between capacity and volumetric charges. Our view is that our approach is compatible with the wider features of the water resources control, for example it does not conflict with our approach to equalisation payments or the in-period adjustment;
- however, our further analysis identified the need to consider the treatment of losses of water, notably leakage, as part of the introduction of the separate water resources and network plus water controls. We summarise our proposed approach to this in box 3 below.

Box 3: how to account for losses

The volume of water crossing the regulatory boundary between water resources and network does not represent the actual consumption of water at a retail level due to elements such as:

- losses in the treatment process or distribution network (e.g. leakage);
- uncertainty in consumption (e.g. meter coverage and errors); and
- unauthorised water usage (e.g. water consumed by gap and void sites).

However these losses and uncertainties are all accounted for in the planned amount of water resource capacity provided with limited interaction to the actual provision of water at the water resources and network plus boundary. This raises the question of how this should be accounted for in notional charges for water resources and we identified two options:

- **Option 1: Charge network plus water for losses** – under this approach water resources would sell water to both retailers, for consumption by their customers, and to network plus to cover losses of water incurred before the supply to customers' premises. The charge to network plus for water would be based on the same notional price schedule as used for charges to retailers. The allowed revenue for water resources would be recovered based on the measured consumption of retailers' customers (with no mark up for losses) plus the revenue collected from network plus water.
- **Option 2: Charge retailers for losses** – under this approach there would be no payment from network plus to water resources for any losses before supply to customers' premises. Instead, the water resources business would include within its charges to retailers the costs of all the water it supplies at the boundary with network plus. For example this could be done through a mark-up on the charge per unit volume for the water consumed by retailers' customers to cover the costs of losses.

Our view is that option 1 is the superior approach as it recognises that the majority of losses represent a network plus water cost rather than a water resources or retail cost. In contrast adopting option 2 could send inappropriate signals about the responsibilities for addressing sources of losses such as leakage from distribution systems.

This option should also allow for a better allocation of the costs of losses between different customers or types of customer through the network plus water charges. As given that the majority of these costs are attributable to a network plus water activity (leakage management), it is appropriate for them to be included within the

network plus water control and recovered through the charging structure for network plus water services.

Under this approach the network plus water control will need an additional element within the aggregate revenue allowance to cover the payments required to water resources for water not supplied to customers' premises. This would be calculated as the difference between:

- the total raw water supplied at the boundary between water resources and network plus; and
- the estimated water consumption across all retailers' customers.

In response to wider stakeholders' concerns we note:

- that we recognise that there is potentially greater complexity in the near-term from incumbents needing to develop notional charges to retailers for raw water compared to the alternative approach. However this will not directly impact retailers, as the charges are required for compliance purposes and will not directly impact the business market;
- linked to this we consider that our approach of requiring incumbents to provide notional water resources charges for compliance purposes will help incumbents develop and prepare appropriate charges for water resources ahead of the opening of the bilateral market. It also provides time and opportunity for any practical issues or complexities to be worked through at the industry level. Supporting this any changes to the wholesale charging rules would be worked through collaboration with the industry and wider stakeholders.

Building on these points it remains our view that our approach will support the development of bilateral markets for water resources when it will open. Incumbents will need to develop and publish notional prices to retailers for raw water supplies, and these notional prices will need to be set in a way that is consistent with incumbents' formal wholesale charges. This puts incumbents on a more equal footing with potential third party providers in this market, who will need to market their water resources to retailers, offering retailers a price for water resources. Under the alternative option of a bundled service to retailers, there would potentially be greater asymmetry between the situation of the incumbent and that of new third party providers. This could increase risks that the incumbent's price structures preclude opportunities for efficient new providers to compete.

These benefits are most applicable to incumbents wholly or mainly in England, however we consider it appropriate to also apply this to incumbents wholly or mainly in Wales. Applying a consistent price control methodology to all incumbents will result in regulatory processes that are more transparent. We also consider that

greater transparency will help drive Welsh incumbents to better understand their wholesale costs and cost drivers. Alongside this the marginal costs to ourselves and the industry of our approach over the alternative are low and outweighed by the wider benefits of consistency.

The table below sets out our qualitative impact assessment of options for the charging for water resources and further explains the rationale behind our final decision.

Table 6 – Summary of final assessment of approaches to water resource charges

	Option 1 Notional charging of water resources to network plus water	Option 2 Notional charging of water resources to retailers Final decision
Achieving our objectives	Consistent with a separate binding control in having separate water resource charges but limited unbundling ✓	Consistent with a separate binding control and involves a greater degree of unbundling of charges between water resources and network plus ✓✓
How our objectives are achieved	Will provide transparency at the wholesaler level on water resources and network plus water charges (but not transparency at the retailer level) Not as pro-market as approaches involving unbundling ✓	Approach is pro-market, and will provide greater transparency on water resources and network plus water charges ✓✓
Practicality	Can be implemented alongside new water resources control framework and planned access pricing arrangements Represents an incremental change to the current framework and has less effect on the existing wholesale charging structure ✓✓	Can be implemented alongside new water resources control framework and planned access pricing arrangements Represents a more significant change to the current charging framework. Potential disruption to wholesale charging structures and implementation issues from April 2020, but partly mitigated by charges being notional only ✓

How our final decision will be applied

To implement this decision for 2020-25, incumbents will develop for compliance purposes a notional charging structure for their water resources activities which is to be charged to retailers. The notional charging structure for water resources should be compatible with the maximum revenue allowed under the water resources control, based on relevant demand forecasts. It would reflect the building blocks of the water resources control such as PAYG, RCV run-off and the allowed cost of capital across all capacity. The example box provides a high-level overview of how this work in practice.

The charges developed for water resources will be published during 2020-25 for the purposes of demonstrating compliance with the water resources control. The full details of our approach to compliance with the control will be defined in incumbent's final determinations.

Box 4: Overview of how notional charging of water resources to retailers charging works in practice

Scenario 1: A simple example

In this scenario the notional charging approach for water resources would be based on a volumetric charge, expressed in £/m³ of raw water supplied. This would be an average price, covering the costs allowed under the water resources control for both pre-2020 water resources capacity and post-2020 water resources capacity. The volumetric charge would be set by the incumbent as to comply with the aggregate revenue allowance for water resources, based on its forecasts of demand.

As now, since some customers (predominantly residential) do not have water meters, it would not be possible to only offer a volumetric charge based on actual consumption. For non-metered customers, charges could be set by determining an assumed relationship between the charging basis used for such customers (e.g. charges based on rateable value) and annual consumption. For example, a customer at premises with a rateable value of £X would be assumed to have an annual consumption of Y m³/year, and the charge for raw water supplied to that customer could then be calculated by applying the normal volumetric charge to the assumed annual consumption Y. This is a simple example and incumbents will need to consider whether more sophisticated structures are also appropriate, for example seasonal tariff structures. There is also the issue of losses which is discussed below.

Scenario 2: Extending the example to cover interaction with network plus water

Consistent with Box 3, we consider that losses should be considered as a cost incurred by network plus water. In practice this means that network plus needs to buy raw water from water resources to offset leakage and other losses. To implement this approach the revenue allowance for network plus would need to include an additional company-specific item to allow for the costs of buying water for losses from water resources. The revenue from these sales would also need to be included in the scope of the water resources total revenue control.

In the simple example below we assume that an incumbent:

- has an aggregate revenue allowance under the water resources control of £25 million (for capacity provision and meeting demand);
- forecasts a total demand of 200 million m³, this consists of total estimated water consumption at customers' premises and forecast losses; and
- sets a simple volumetric charge of £0.125/m³, based on its forecasts of total estimated water consumption at customers' premises and forecast losses. This notional charge would be faced by both retailers and network plus water.

At the end of the financial year:

- the estimated total consumption across all retailers' customers was 168 million m³.
- the estimate of total losses and under-recorded consumption was 32 million m³ (calculated as the total volume of raw water supplied at the boundary between water resources and network 200 million m³ minus the estimated supply to retailers' customers of 168 million m³).

This would result in:

- The notional revenue to water resources from notional sales of raw water to retailers would be £21 million (i.e. 168 million m³ at £0.125/m³).
- The notional revenue to water resources, from notional sales of raw water to network plus, to cover losses and under-recorded consumption, would be £4 million (i.e. 32 million m³ at £0.125/m³).

Therefore the total revenue from water resources will be equal to £25 million per year, obtained by the sum of (outturn) revenues from raw water sales to retailers (£21 million per year) and the compensation for under-recovery due to losses and under-recording (£4 million per year). The £4 million of sales of raw water to

network plus would be funded through the revenue allowance in the network plus water control.

4.3 Encouraging markets

Encouraging markets in new water resources is a key theme of our Water 2020 programme. In this section we discuss our approach to:

- water trading incentives (see section 4.3.1); and
- the links between the control and access pricing (see section 4.3.2).

These policies complement our wider work programme encouraging markets, which includes the introduction of market information requirements and company bid assessment frameworks.

4.3.1 Water trading incentives

Applicability to England and Wales

This section applies **to both** incumbents whose areas are wholly or mainly in **England** and incumbents whose areas are wholly or mainly in **Wales**.



The issue we were seeking to address

Water trading is where an incumbent responsible for supplying water in an area buys it from someone else (either another incumbent or third party provider) rather than developing its own water resources. Trades can be for either raw or treated water and are typically agreed as part of the water resources management plan (WRMP) process. Since privatisation, water trading has remained static at around 4 to 5% of distribution input (water into supply). At the same time incumbents have invested heavily in linking up their networks internally.

Increasing the level of water trading is a key theme of our Water 2020 proposals, as it can benefit both:

- the environment, by allowing scarce resources to be optimised between incumbent areas, as well as within them; and

- customers, as it can improve resilience of supply and allow more expensive investment in developing new resources within an incumbent's area to be deferred, reducing future upward pressures on bills.

In 2015, we commissioned Deloitte to assess the scope of further water trading. They found that the historically low levels of trading do not reflect economic fundamentals. The current level of trading is a reflection of the barriers to trading rather than the economics of trading. Supporting this, our analysis, carried out for our May 2016 decision document, identified potential savings of £810m NPV (2015-16 prices) from increased water trading between incumbents. Similarly, the Water UK water resources long-term planning framework study found that to meet future water resource needs inter-regional transfers will be required to carry water from the north and west across to the south and east of England

Our preferred option in the draft methodology

Maintaining the existing incentives set at PR14 for new water trades was our preferred option in the draft methodology. Under this approach, for all new qualifying trades in 2020-25, we would allow exporters to retain 50% of the lifetime economic profits (that is, the profits over and above the normal return on capital invested). Importers would benefit from an import incentive of 5% of the costs of water imported under new agreements during 2020-25.

To protect customers we would cap the incentives, both export (100% of the economic profit for the years the export operates in 2015-20) and import (0.1% of the importer's wholesale water turnover in each year of the control period). We would also maintain the requirement for incumbents to show that the trade complies with an Ofwat-approved trading and procurement code. This code ensures that only economically and environmentally beneficial trades will receive an incentive payment. This is assessed as part of our price review and reflecting this the payments would be made in subsequent review periods.

We also considered two further options:

- removing water trading incentives for 2020-25, with payments still made for qualifying trades in 2015-20 (subject to compliance with trading and procurement codes); and
- strengthening the incentive, through a potential combination of longer retention periods, a higher percentage of benefits able to be retained, or changes to caps.

We also asked for stakeholders' views on whether incumbents need further incentives to facilitate the development of water trades. This included whether to

allow cost recovery for development costs, regardless of whether a trade goes ahead.

Stakeholder responses

Ten respondents agreed with our approach. There was no support for removing or strengthening trading incentives at this time. There were no comments on whether further incentives were needed to encourage the development of water trades. Respondents noted that the incentives needed time to work and that the work of regional groups should identify more trades in the future. One respondent also noted that it had carried out a large trade in 2015-20 and would be claiming an incentive payment for this at PR19.

Alongside this, there were a number of requests for clarification around water trading incentives:

- one respondent asked for clarification on how to calculate lifetime economic profits and who pays the incentive;
- two respondents requested a rolling account of trades to understand the potential savings from trading and whether these were being achieved;
- a respondent queried how we would ensure our incentives do not encourage water trades that drive unsustainable abstraction; and
- linked to this, another respondent wanted to ensure incentives do not disincentivise incumbents from making essential investment in water resources, where this is the best value option.

Our review, analysis and final decision

Following our full consideration of the views expressed by respondents, and the analysis carried out to support the draft methodology, we have made the decision to maintain our water trading incentives for new trades agreed in 2020-25. This includes the cap on incentive payments and the requirement for incumbents to produce and comply with an Ofwat-approved trading and procurement code.

This approach is consistent with the long-term nature of water trading. Given that incentives for 2015-20 were confirmed after draft water resources management plans had been submitted, we judge that the incentives were unlikely to have significantly influenced incumbent plans. We therefore consider that maintaining existing water trading incentives will give them time to work and give us time to collect further evidence on their effectiveness.

From pre-consultation meetings on WRMP19s, we are also aware that a number of water trades are under consideration. Alongside this, we have already approved five trading and procurement codes, which are required to receive water trading incentives. These factors further suggest there is not a clear case for either removing or strengthening the incentives at this time.

In response to stakeholders' requests for clarification:

- Economic profit is the difference between revenue and costs, which include the return on capital invested. Lifetime economic profits are the sum of economic profit each year for the duration of the trade, discounted by the real cost of capital to reflect the time value of money. The reconciliation model used to claim the incentives is populated with an example that shows this. The incentive itself is paid through an uplift in allowed revenue in the next period, across the water resources and network plus controls. This is then collected from customers.
- Our bulk supply register provides information about the volumes and costs of water trades between incumbents. This is published annually on our website, with the most recent information [published in June 2017](#). To increase transparency for the next reporting year, we have revised the reporting template to provide further information and to make it easier to understand. An overview of these changes is set out in IN 17/09 (['Expectations, assurance and information requirements for water company charges for 2018-19'](#)).
- To ensure that the incentives do not encourage unsustainable abstraction, there is a requirement for incumbents to produce and comply with a trading and procurement code in order to obtain the incentives. The principles behind the code include a requirement that the incumbent should explain how it will ensure the protection of environmentally-sensitive abstraction sites. If an incumbent is unable to demonstrate this, the incentive would not be paid.
- Water trading incentives are intended to work alongside the WRMP process, which is where incumbents identify essential investment and possible trading options to balance demand and supply over the long term. We expect incumbents' WRMP19 plans to take into account water trading incentives as an encouragement to commit to a water trade where it is the best value option, rather than as a disincentive to invest in other options where they are identified as better value.

The table below sets out our qualitative impact assessment of options for the water trading incentives, and further explains the rationale behind our final decision.

Table 7 – Our assessment of water trading incentives options

	Option 1 No incentives for new water trades	Option 2 Maintain the existing incentives for new water trades Final decision	Option 3 Strengthen the incentives for new water trades
Achieving our objectives	Could reintroduce a barrier to trading and work against our objective of increasing levels of water trading. ✘	Recognises the long-term nature of trading and gives the existing incentives time to work. ✓✓	Sends strong signal to increase trading, but any change would not be confirmed in time to influence trades. ✓
How our objectives are achieved	Could discourage trading (where efficient) and result in the loss of wider benefits for customers and the environment. ✘	Focused on encouraging trading (where efficient) for the wider benefits, with a consistent regulatory approach. ✓✓	Could send strong signal to encourage trading, but would require a change to the regulatory approach. ✓
Practicality	Low regulatory burden, no special treatment of water trading revenues (avoiding any potential market distortions) and no requirement for trading and procurement codes. ✓✓	Simple to implement (subject to aligning to new controls) and represents continuation of regulatory approach. ✓✓	Any new incentives would need careful calibration and could create additional complexity. ✘

How our final decision will be applied

Water trading incentives will be available for new water trades agreed during 2020-25. The incentives will take the form of:

- Export incentive – for all new qualifying exports that start during 2020-25, we will allow exporters to retain 50% of the lifetime economic profits (that is, the profits over and above the normal return on capital invested). Incumbents will receive an export incentive payment at PR24. This will be equal to 50% of the full discounted economic profit for the forecast life of the export, with a cap of 100% of the

economic profit for the years the export operates in 2020-25. Any amount beyond the cap will be rolled forward to the following price control period.

- Import incentive – qualifying imports will benefit from an import incentive payment of 5% of the costs of water imported under new agreements. All import incentive payments will be subject to a cap of 0.1% of the importer's wholesale water turnover in each year of the control period. The import incentive payments are accrued annually during 2020-25, with the cap applying in each year. Incumbents will receive an import incentive payment at PR24.

The scope of the incentives is in line with our decision in the [Ofwat PR14 reconciliation rulebook](#). In order to qualify for the incentive, the incumbent must also show that its trade complies with an Ofwat-approved trading and procurement code. The current requirements for the code are set out in [appendix 3](#) of our final PR14 methodology statement. However, these principles do not account for the latest market and regulatory developments and are written with reference to 2015-20.

In light of this, we will be carrying out a targeted consultation to update the guidance in the first quarter of 2018. This consultation will:

- discuss potential changes required to the existing principles;
- set out how the existing approved codes should be updated; and
- discuss the approach for approval of future codes.

This review will result in a new guidance document, which will replace appendix 3 from PR14.

The incentive payments will need to be allocated between the water resources and network plus water controls. This is because trades will utilise assets across both controls. As part of their business plans, we expect incumbents to propose an indicative split for future incentive payments between these controls. This allocation will be revisited at PR24 to reflect the approach to regulation of wholesale water activities at that time. The box below provides an overview of the considerations incumbents should make in allocating the incentives between the controls.

Box 5 – The allocation of water trading incentives between the controls

Water trades utilise assets, incur costs and generate revenue across both the water resources and network plus water controls. As part of our regulatory accounting definitions the costs and revenues of existing trades should already be allocated between different price control units. In considering the allocation of the

incentive across the controls we have identified three high-level types of incumbent to incumbent water trades:

Trade type 1: Source to source

- Transfer of raw water between water resources assets of the exporter and importer;
- This trade may also include pre-treatment (to facilitate transport) resulting in partially treated water being transferred; and
- An example would be a transfer from an exporter's river abstraction source to importer's raw water reservoir source. The trade ends when it enters the importer's assets.

Trade type 2: Source to raw water distribution/storage

- Transfer of raw water between water resources assets of the exporter and raw water distribution or storage assets of the importer;
- Trade potentially utilises exporter's raw water transport and storage assets;
- This trade may also include pre-treatment (to facilitate transport) resulting in partially treated water being transferred; and
- An example would be a transfer from an exporter's borehole into an importer's raw water transport network.

Trade type 3: Treated to distribution network

- Transfer of potable water between network plus water assets of the exporter and importer;
- Production of the potable water will utilise the exporter's water resources assets as well as their treatment assets; and
- An example would include a transfer from an exporter's treatment works to an importer's distribution network.

Across these three types of trades we would expect to see the export incentive allocated based on the costs of making a trade. We would expect to see the import incentive allocated based on the charges paid for the trade:

- for a **type 1 trade**, both sets of incentives would be attributed entirely to the water resources control for the importer and exporter, as the trade begins in the water resources assets of the exporter and ends within the water resources assets of the importer. There are no network plus water costs.
- for a **type 2 trade**, the incentives would be attributed between the two controls for the importer and exporter. Typically, it would be expected that the majority of the incentives would be attributed to the water resources control. However,

this would depend on the extent to which raw water transport and storage assets in network plus water are utilised and who develops them.

- for a **type 3 trade**, the incentives would be attributed between the water resources and network plus water controls of the importer and exporter. Typically, it would be expected that the majority of the incentives would be attributed to the network plus water control, as the exporter's water treatment and distribution costs, and the related importer charges, would be greater than those attributed to the raw water abstraction activities.

We recognise that there are complexities and a number of possible variations to the high level types of trade identified above (for example, trades between incumbents and third party providers or trades involving effluent re-use).

Recognising this, we expect incumbents to provide justification for their proposed split between the controls with reference to the approach set out above.

To claim incentives for new water trades that begin in 2015-20, incumbents will have to submit their claim as part of their business plans for PR19. To submit a claim, incumbents will need to have a trading and procurement code approved before business plan submission. Incumbents should submit:

- the water trading reconciliation rulebook model – this has been updated and rereleased alongside the methodology to reflect the requirement for the incentive payments to be allocated between the water resources and network plus water control; and
- a short report setting out how the trades meet the criteria set out in their approved trading and procurement code. This should include an overview of the trade itself, which explains the assets used across the water resources and network plus water control. Justification should also be provided for the proposed split between the water resources and network plus water controls.

4.3.2 The links between the control and access pricing

Applicability to England and Wales

This section **only applies** to incumbents whose areas are wholly or mainly in **England**.



The issue we were seeking to address

In the bilateral market, third party providers (who can be independent or out-of-area incumbents) contract directly with retailers in the business market, to supply them with raw water (water resources). This will involve the payment of access prices to incumbents for use of their distribution system and, if needed, treatment facilities. The development of a new access pricing regime for English incumbents is required because of the changes made by the Water Act 2014.

The English bilateral market will not open until Defra bring into force the relevant provisions of the Water Act 2014. However, we want our approach to water resources to be compatible with the future opening of this market. This means that it is important that in readiness for a potential opening in 2020-25, we define the link between access pricing and the control, and consequently, what data should be reported as part of incumbents' business plans.

This section only applies to English incumbents as the Welsh Government has decided not to expand business retail competition at this time, and there will be no Welsh bilateral market. Reflecting this there is no requirement for incumbents wholly or mainly in Wales to supply information to support access pricing as part of their business plans.

Our preferred option in the draft methodology

An indirect link between the control and access pricing was our preferred option in the draft methodology. Under this approach, in business plans, incumbents would propose indicative equalisation payments for each WRZ that would apply during 2020-25. Alongside this, the incumbent would also provide information on how these proposed payments would be consistent with their proposals for the water resources control and their forecast costs for post-2020 incremental water resource capacity. These would, again, be provided on an individual WRZ basis.

Once the control has been set under this approach, if and when the market opens during 2020-25, incumbents would be responsible for updating and applying the equalisation payments, as there would not be an automatic link between the water resources control and equalisation payments. This update would take account of the final determination for the water resources control and the allowances determined for post-2020 capacity.

We also considered two further options:

- a structural link – under this approach there would be a direct mechanistic link between the water resources control allowances provided in respect of the incumbents post-2020 capacity, and the calculation of the equalisation payments under the access pricing arrangements. The same data would be collected as per the indirect link, but any changes in the control allowances for post-2020 capacity would result in automatic changes to equalisation payments.
- no link – under this approach equalisation payments would not be linked mechanistically to the water resources control allowances (structural link) nor would they feature in incumbents' business plans (indirect link). Instead they would be calculated through a separate process.

Stakeholder responses

Eleven respondents commented on our proposed indirect link between the control and access pricing. In general, respondents supported the indirect link, noting the benefits of taking a proportionate approach and that it should not be in conflict with incumbents owning and being responsible for their charges. There was no support for adopting a direct link. However, one respondent disagreed with the indirect link and preferred no link, with access pricing being managed through an alternative process that allows for a later submission. Supporting this, the respondent noted that the risks of delaying the submission appear very low because access pricing will only be needed once Defra puts the necessary legislation in place. The respondent suggested that this should provide sufficient lead time to develop the required data.

Alongside a discussion of the benefits of the links between the control and access pricing, we also received a number of broader comments on access pricing. These have links to the information requested as part of the business plan tables, and cover three key areas:

- The equalisation payment – four respondents provided comments on the equalisation payment. Respondents were keen to understand the interactions between the adjustment mechanism and equalisation payment. There were also a number of comments on how equalisation payments would function in practice. For example, whether the payments would be fixed and available on a first come, first served basis. Another respondent noted the scope for inconsistency between incumbents in the reporting of these unless there is a clear prescribed methodology.
- Annualised unit cost – a number of respondents noted the difference between our approach and the requirements of water resources planning, in particular the move from average incremental cost to annualised unit cost. It was noted that more work is required across the sector in understanding forward-looking, incremental water resource costs by resource zone.

- Our approach to assessing incumbent data – respondents noted that it is not clear how the data submitted as part of business plans will be assessed. This is important in the context of ensuring consistency between incumbents and in protecting customers in the design of the bilateral market.

Our review, analysis and final decision

Following our full consideration of views expressed by respondents, and the analysis carried out to support the draft methodology, we have decided to have an indirect link between the control and access pricing, at PR19. However, in response to stakeholder comments, we have refined the nature of the link and streamlined the scope of our data requirements. We are dropping the requirement to report indicative equalisation payments as part of business plans. This has resulted in the removal of data table 'Wr8 Water resources forecast charging and equalisation payments'.

Instead, the indirect link has been focused on the calculation of annualised unit costs. This will be used for the calculation of equalisation payments in the future and should be consistent with (though not mechanistically or structurally linked to) the control allowances for the incumbent's development of post-2020 water resource capacity. It is this that provides the basis for a link between the equalisation payment and the control. This revised focus also has benefits for the implementation of the in-period adjustment, the value of which is based on the annualised unit cost (see section 4.4.1). Further detail on our streamlined approach is set out below in: 'How our final decision will be applied'.

By streamlining the approach, we retain a link between the costs of post-2020 water resources that are forecast in incumbents' PR19 business plans and the costs of post-2020 water resources that are to be reflected in the calculation of equalisation payments in the future. However, by focusing on the annualised unit cost measures, rather than the equalisation payments, we can reduce the information requirements on incumbents in the near term. This avoids the need for the PR19 process to get involved in the finer details of the way that equalisation payments would be structured and calculated under future reforms to access pricing.

This ensures we have the flexibility to adapt our future approach in light of market developments, and incentivises good quality information in business plans for the costs of incremental capacity. It also ensures that incumbents have a financial incentive to avoid over-estimating the costs of their incremental capacity, as higher estimates would, in the future, tend to increase opportunities for bilateral entry.

We recognise that the benefits listed above, would be more effectively captured by a structural link, as this would provide less scope for discrepancy between the cost

allowances for new capacity and equalisation payments. However, this approach was not supported by respondents and would be a significant change to the regulatory framework. In contrast, these advantages would be lost if there was no link and we waited until the English bilateral market was in place. It would be a missed opportunity not to collect any data to support the future bilateral market at PR19. The upfront collection of key information now will help facilitate future market developments, reduce uncertainty and build confidence in the control.

In response to stakeholders' comments on the equalisation payment, we note:

- we have dropped the requirement to report indicative equalisation payments with business plans. This reflects that further work is required on the method of its calculation and operation. Instead, future equalisation payments and, more widely, network plus charges, will be assessed through a different means. However, the information we do collect on annualised unit cost will help our future assessment, as this forms part of the calculation of the equalisation payment.
- that to avoid a double counting of the equalisation payment and the bilateral entry adjustment (see section 4.4.1) which could both be applicable in a scenario with bilateral market entry, in the draft methodology we proposed that the equalisation payment be recovered on a cost pass through basis. This was opposed to netting it off the in-period adjustment. While this remains our preferred approach at present, we plan to consider this following further work on wholesale market architecture, given the interactions between the two.
- that wider questions on how the equalisation payment functions are outside the scope of the methodology and were not part of our consultation. This was reflected in the request for indicative equalisation payments in our original data tables. This is because these matters need to be considered in the wider context of market development. As the first step, we plan to hold a consultation on how to take forward wholesale markets in early 2018.

In response to stakeholders' comments on annualised unit cost, we note:

- that the requirement to submit annualised unit costs is new for PR19 and is a move away from the average incremental costs concept the incumbents report as part of WRMPs. This is a bespoke measure that has multiple links with the control, for example through access pricing and the in-period adjustment. This is a key area of importance at PR19 and is reflected in our focus on this information in our data requirements.
- to increase the understanding of annualised unit costs we commissioned economics consultants Reckon LLP to develop an illustrative model and explanatory note of how to calculate annualised unit costs. This provides further

guidance on this cost concept and an illustrative example of how it could be calculated.

- the revised data tables have been designed to be compatible with the illustrative model, focusing on key data relevant to the calculation of the annualised unit cost measure and dropping data that is not as useful for this approach. Further details on this are provided below in the section: ‘How our final decision will be applied’.

In response to stakeholders’ comments on our approach to assessing incumbents’ data:

- we agree that transparency on the tests that will be applied to data is important, to ensure confidence in the process and to encourage high quality data submissions. In box 7 (below) we set out an overview of the tests we will be carrying out as part of the initial assessment of business plans on the annualised unit cost data that incumbents submit; and
- as noted above, these tests are complemented by more detail on annualised unit cost calculation through the publication of an example and supporting explanatory note. This should help increase consistency in reporting approaches between incumbents.

The table below sets out our qualitative impact assessment of options for the link between access pricing and the control, and further explains the rationale behind our final decision.

Table 8 – Final assessment of approaches to the link between access pricing and the control

	Option 1 Structural link	Option 2 Indirect link Final decision	Option 3 No link
Achieving our objectives	Provides clarity to all parties and provides strong incentives for incumbents to submit accurate information ✓✓	Will help provide assurance about protection of a level-playing-field and certainty around cost recovery for incumbents – though not as effective as option 1 ✓	Increased uncertainty of approach will undermine confidence, both for incumbent and third party providers ✗
How our objectives are achieved	Will prove to be onerous (on both incumbents and	Will leverage information gathered for WRMPs and	Lowest burden, but could mean incumbents do not

	Option 1 Structural link	Option 2 Indirect link Final decision	Option 3 No link
	Ofwat) to develop and implement ahead of PR19 ✓	minimises the burden on incumbents in the lead up to submitting business plans ✓✓	plan for the bilateral market at PR19 ✓
Practicality	A structural link would be complex to implement in practice. x	An indirect link through the business plan is relatively simple to implement ✓✓	Least onerous option in the near term, but may lead to greater implementation issues in the future when it comes to market development ✓✓

How our final decision will be applied

Our requirements to implement the indirect link are set out in business plan table Wr7 ‘new water resources capacity – forecast cost of options beginning in 2020-25’. The lines for post-2020 capacity forecasts in table Wr6 ‘water resources capacity forecasts’ will also be relevant. The revisions to this table reflect the greater focus that will be applied to the annualised unit costs of post-2020 capacity which are a key component of equalisation payments and calculation of the bilateral market entry in-period adjustment.

The revised data table is compatible with an example model produced for us by Reckon ([‘Water resources annualised unit cost model’](#)) and explanatory note ([‘Water resources annualised unit cost model: explanatory note’](#)) of how to calculate annualised unit costs, prepared by Reckon and published alongside this final methodology. The Reckon annualised unit cost model:

- Produces an annualised unit cost for post-2020 water resource at WRZ level based upon the preferred options included within the incumbent’s WRMP for each year of the planning period.
- The model calculates the annualised cost based upon:
 - the sum of the annualised capital costs for each option utilising the individual option capital costs, the assumed asset lives, the capital cost spend profile and the pre-tax cost of capital; and
 - the sum of annual average operational costs for each option.

- The annualised unit cost at WRZ level is the total annualised costs for all options divided by the total post-2020 water resource capacity provided by all options (this is either calculated in £ per year of MI/d of dry year annual average capacity or £ per year of MI/d of capacity during the dry year critical period).

Reflecting this approach in table Wr7, for new water resources capacity with spend in 2020-25, we ask incumbents to report over a 25 year period (consistent with the minimum planning period used in WRMPs):

- At a company level:
 - assumed asset lives for different asset types (for example civils, telemetry)
 - nominal pre-tax cost of capital assumed
- At a WRZ level:
 - annualised unit cost of post-2020 capacity (as calculated by the incumbent)
- At a water resource option level:
 - water resources capacity provided;
 - breakdown of capital costs based on identified asset types; and
 - average annual operational costs.

The Reckon note and spreadsheet model provides additional information and detail. We recognise that the approach set out is a starting point for the calculation of annualised unit costs and not the final approach. For example the note identifies limitations with the illustrative model and further extensions which incumbents may want to take into account, for example the split between different drivers of capacity. We are keen incumbents take the opportunity to build on this note and further consider these issues.

For clarity the box below provides a stylised overview of the information we would expect to receive from an incumbent that has a supply-demand deficit and plans to resolve this with a water resource option with spend commencing in 2020-25. An incumbent with no supply-demand deficit or one that has a planning deficit but intends to resolve it entirely through demand reduction options only need to report their pre-2020 capacity forecasts in table Wr6. These incumbents would not need to enter data into Wr7. Information for table Wr7 is only required for new water resources capacity with planned spend in 2020-25.

Box 6 – Example requirements for access pricing data reporting

An incumbent has a deficit in its supply-demand balance early in its 25 year period (2020-25) reported for its WRMP19. In determining its best value plans for WRMP19 the deficit is to be resolved by a mixture of demand management options (network plus water costs) and new supply options (water resources and potentially network plus water costs). It therefore plans additional spend in water resources as part of the supply options for the next period (2020-25) to increase its current capacity (creating post-2020 capacity).

This incumbent should report its pre-2020 capacity forecasts and its post-2020 capacity forecasts (for its own capacity and any bilateral entry) in table Wr6.

The supply options that commence in the 2020-25 period and contribute to this additional capacity will need to have their costs reported which will include a breakdown of water resource costs (capex by asset type and opex). The incumbent's calculated annualised unit costs based on these water resource costs for the option should also be reported. This option cost data is reported in table Wr7.

This only applies if the water resources spend commences in the 2020-25 period.

Alongside revising our data requirements we have also further developed the tests that we will consider applying to this information (box 7 below). The aim of the tests is to support consistency between incumbents and to help encourage accurate reporting. A key link between the tests is consistency of assumptions and data where it is used in parallel processes such as WRMPs and other areas of business planning. This is supported by the close links between these processes, data requirements and assumptions.

Box 7 – Indicative tests that we will consider for annualised unit costs

Below we set out some example tests that we could apply to an incumbent's calculated annualised unit costs. This list is non-exhaustive and in completing table Wr7 incumbent's should have these tests in mind:

- How do the option costs reported in table Wr7 compare to the data presented in WRMP19 data tables? Can the differences be justified?
- How do the annualised unit costs compare across WRZs and across incumbents and do any differences make sense?

- Are the annualised unit cost figures justified with supporting information or calculations and, if so, do the methods and assumptions used look reasonable?
- Are the opex and capex figures used consistent with those elsewhere in the business plan?
- Are the asset life and/or depreciation assumptions used for different categories of capital expenditure in the annualised unit cost calculation reasonable?

4.4 Managing uncertainty and ensuring legitimacy

We identified two key sources of uncertainty affecting investment decisions in new post-2020 water resource capacity. These relate to the opening of the English bilateral market and the need for significant investment in new water resources. Reflecting these two uncertainties, in this section we discuss our approach to:

- implementing the in-period adjustment (see section 4.4.1); and
- long-term risk sharing (see section 4.4.2).

4.4.1 Implementing the in-period adjustment

Applicability to England and Wales

This section **only applies** to incumbents whose areas are wholly or mainly in **England**.



The issue we were seeking to address

Without an in-period adjustment, customers would still be providing incumbents with full regulatory protection where bilateral market entry occurs that results in post-2020 capacity not being used as expected. For example, with no adjustment, if it is later discovered that some post-2020 investment in new water resources is not fully required due to bilateral market entry, customers remaining with the incumbent would still face the full costs of the option. Compounding this situation, as some customers shift to the third party provider, the prices for the customers left with the incumbent will increase.

The implementation of the adjustment also needs to ensure that:

- the measurement of whether post-2020 capacity is being used as expected, is targeted, and does not introduce wider uncertainty into the form of control, for example around long-term risk sharing for large investments (see next section);
- the approach is transparent and consistent with water resources planning, to reduce regulatory uncertainty and the scope for disputes at the next price review; and
- it supports the development of the bilateral market, by providing a financial incentive for incumbents to anticipate bilateral market entry and to adjust their own plans for water resources capacity in light of the capacity available from other parties.

The adjustment only applies to English incumbents as the Welsh Government has decided not to expand business retail competition at this time, and there will be no Welsh bilateral market.

Our preferred option in the draft methodology

In our draft methodology, our preferred option was to base the implementation of the in-period adjustment on the capacity supplied by incumbents and bilateral market third party providers. The capacity supplied by third party providers will reflect their commercial success and contribution to the capacity needed to meet future demand for water. To be consistent, capacity would be measured as water resources yield, across both third party providers and incumbents. Using this measure, we set out the approach to calculating the adjustment, defining the formula to be used and showing how it would work in a hypothetical scenario.

We also considered an approach that would implement the in-period adjustment based on the extent to which bilateral market entry displaced the forecast market share of demand volume supplied by the incumbent. This approach would require forecasts and outturn information on the business market demand for the water supplied by the incumbent and bilateral market third party providers. It would also require information on peaking factors and headroom, to move between the capacity measure used for the water resources control, and volume/demand measures used in the market.

Stakeholder responses

Five respondents commented on the in-period adjustment for bilateral market entry. Across respondents, there was some support for the implementation of an in-period adjustment measured using capacity. For example, one respondent noted that they “*believe the proposed market entry adjustment mechanism is a logical approach to enabling policy decisions*”. This support recognised the difficulty in implementing an

adjustment based on demand displacement, given it would introduce wider uncertainty into the control. Reflecting this, there were no respondents that supported the alternative approach to implementation.

However, there were a number of concerns raised on the in-period adjustment:

- a number of respondents noted the uncertainties around bilateral market opening, and noted that it would be small and nascent during 2020-25. Within this context, some suggested that the development of a mechanism to facilitate this market should be delayed until the next price review;
- one respondent requested clarity on the scope of the adjustment, as it suggested that it should only apply to the proportion of capacity related to business customers who are in the bilateral market;
- the respondent also had concerns that the adjustment would apply on the basis of notional capacity being made available by third party providers and/or short-term variations in demand;
- there was some discussion over the interactions with the requirement for a supplier of last resort and interactions with the equalisation payment; and
- one respondent noted that the timing of the in-period adjustment may dissuade incumbents from investing in new resources to benefit customers and the wider environment.

We received no comments on the implementation of the calculation itself.

Our review, analysis and final decision

Following our full consideration of the views expressed by respondents to the draft methodology, we have made the decision to implement the in-period adjustment by using capacity to measure bilateral market entry. We note the overall support for this approach by consultation respondents.

This is consistent with water resources planning and our wider approach to capacity for the water resources control. This ensures incumbents plan for the long term, reflecting wider capacity in WRZs, and on the basis of available capacity, rather than prevailing contracts and supply.

The key advantage of this approach over demand-displacement is that it is targeted at bilateral market entry and does not expose the incumbent to wider uncertainties through the form of control. In contrast, if the adjustment was applied using the demand displacement approach, in a scenario where the total annual demand increases above what was forecast with the extra demand supplied by the third party

provider, the incumbent could face an adjustment, even though there is not excess supply.

In response to stakeholders' requests for clarification, we note:

- to delay the implementation of the adjustment until the next review could achieve a similar financial effect to our preferred approach. However, it would not reflect the wider policy changes in water resources and would not provide incumbents with regulatory certainty on our approach. Our approach has ensured that our development of the adjustment mechanism has been at the centre of our approach to the control. This means that the control will be compatible with potential market developments during 2020-25.
- our approach does not distinguish between capacity required for residential and business customers, as it would not be appropriate to make this distinction. Water resources are not planned on this basis, and while business demand may be a small proportion of total demand, it could be a significant proportion of the forecast deficit. Therefore, reducing the scope of the potential market would weaken the prospect of a level playing field between incumbents and third party providers, and the potential benefit of the bilateral market.
- the adjustment is designed to work in unison with our access pricing arrangements. The adjustment will not be triggered by notional capacity being made available and/or by short term variations in demand. Instead, as set out in the section below, the adjustment will be linked to the equalisation payment, as there will only be an adjustment made when the third-party provider contributes to the supply-demand balance and has contracted capacity in the market.
- in relation to the approach to the supplier of last resort, this ties into wider detailed design of the bilateral market and access pricing arrangements. We plan to hold a consultation on how to take forward wholesale markets in early 2018. The links between the in-period adjustment and the equalisation payment are discussed in section 4.3.2 above.
- we expect that the adjustment will help ensure better planning by incumbents to benefit customers and the wider environment. This is because it provides a financial incentive for incumbents to anticipate bilateral market entry. This means incumbents will adjust their own plans for water resources capacity, in light of the capacity available from other parties. For example, this should limit the potential scope for the over-development of resources. It also encourages the best value solutions to be chosen over the long term.

The table below sets out our qualitative impact assessment of implementation options for the in-period adjustment, and further explains the rationale behind our final decision.

Table 9 – Final assessment of approaches to the measure used for adjustment

	Option 1 Demand displacement	Option 2 Capacity measure Final decision
Achieving our objectives	Allows us to measure bilateral market entry, but would also expose the incumbent to risk from changes in the size of the market. ✓	Allows us to measure bilateral market entry without introducing market wide uncertainty into the form of control. ✓ ✓
How our objectives are achieved	Pro-market approach with alignment to the nature of the market (volume supplied) and existing tariff structures. ✓ ✓	Aligned with our form of control and long-term water resources planning, but not fully aligned with the nature of the market. ✓ ✓
Practicality	Demand data is readily available and understood, and will be aligned with the market, but additional information on peaking factors not readily available. ✓	Aligned with requirements for water resource planning and our delineation of pre- and post-2020 investment. Potential risk with comparability of data between market participants on capacity. ✓

How our final decision will be applied in practice

For incumbents wholly or mainly in England, their form of control will be a total revenue control with an in-period adjustment mechanism. This will be confirmed in the final determinations for these incumbents, set at PR19. The in-period adjustment will only apply after the English bilateral market, enabled by the Water Act 2014, opens.

The in-period adjustment will affect the remuneration of the incumbent's post-2020 capacity. It will take account of total capacity (incumbent and bilateral entry) available, relative to their forecast bilateral entry capacity. This approach requires the

incumbent and the bilateral market third party providers to supply forecasts and outturn information on the capacity (measured by water resources yield). The calculation of the adjustment is undertaken at a zonal level (see below), while the adjustment will be aggregated to apply at an incumbent level (where it comprises of more than one WRZ).

After the bilateral market opens, the bilateral entry adjustment for a WRZ in any year (t) will be calculated as follows:

$$BEA_t = ICC_t \times AUC_t \times BEF_t$$

Where:

BEA Bilateral entry adjustment. The bilateral entry in-period adjustment for a WRZ in any defined year.

ICC Incumbent cumulative capacity. The incumbent's cumulative post-2020 forecast capacity, as funded through the water resources control for a WRZ, in any defined year.

AUC Annualised unit cost. The incumbent's annualised unit cost of cumulative post-2020 capacity for a WRZ, in any defined year.

BEF Bilateral entry forecast factor. The bilateral entry forecast factor for a WRZ, in any defined year. This is calculated as the difference between: actual bilateral entry capacity compared to that forecast, as a proportion of total forecast post-2020 capacity (see equation below).

For incumbents that operate across more than one WRZ, any adjustments at the level of WRZs will be aggregated to provide an incumbent-level adjustment. The bilateral forecast factor for year t captures the extent to which forecast capacity is met by third party providers in the bilateral market rather than incumbents. This is calculated as:

$$BEF_t = \left(\frac{TCC_t}{ICC_t + BCC_t} \right) - 1$$

Where:

TCC Total cumulative capacity. The total forecast cumulative post-2020 capacity for a WRZ, in any defined year. This can include forecast bilateral entry capacity, where applicable. This will reflect the demand forecasts, headroom and a number of other factors managed through the water resources planning process.

BCC Bilateral cumulative capacity. Actual cumulative capacity in the bilateral market, supplied by third party providers for a WRZ, in any defined year. This will be linked to the payment of the equalisation payment, as there will only be an adjustment made when the third party provider contributes to the supply demand balance and has contracted capacity in the market.

The bilateral entry forecast factor would be capped at 0 (that is, it would be zero or a negative financial adjustment). This prevents the adjustment from providing additional revenue to the incumbent in circumstances where the total capacity provided is less than what was assumed to be required. For the purposes of this adjustment, the incumbent's post-2020 capacity would be recognised and measured once it has become operational.

As an additional safeguard, we recognise that the adjustment needs to be consistent with our approach to setting cost allowances and ODIs, in order to address the risk of non-delivery of new options/capacity. For example, the non-delivery of capacity may be linked to an ODI that deducts the totex funding allowed for the item, this would then need to be reconciled in the term above, for the incumbent's total cumulative post-2020 capacity.

The data requirements to implement the adjustment during 2020-25 are set out in data table Wr6 'water resources capacity forecasts' and Wr7 'new water resources capacity – forecast cost of options beginning in 2020-25'. Going forward, incumbents' forecast capacity by year, and actual capacity provided by third party providers, will be tracked in the annual performance report.

A worked example of the in-period adjustment mechanism is provided below.

Box 8 – In-period adjustment for bilateral entry (BEA) – worked example

Scenario assumed

An incumbent has a single WRZ in its area of appointment, and plans capacity in that zone on a dry year annual average basis. All capacity figures below, are made on a dry year annual average basis.

As part of its PR19 business plan, the incumbent forecasts a total requirement for an additional 10MI/d of post-2020 capacity in 2023-24 and 2024-25 (TCC). It proposes to meet the whole of this requirement through development of its own capacity (ICC). We set the PR19 water resources control on this basis.

The annualised unit cost (AUC) of the incumbent's additional post-2020 capacity is calculated at £60,000 per MI/d (this figure is consistent with the totex allowances for post-2020 capacity in the control). The incumbent then delivers its capacity as planned, from the start of 2023-24.

In 2024-25, a bilateral third party provider reaches agreement to supply a retailer operating in the same WRZ and provides 2MI/d of capacity in that year (BCC).

Calculations of adjustment for bilateral market entry

The bilateral entry forecast factor (BEF) for year t is calculated using the formula set out above (and capped at zero):

$$BEF_t = \left(\frac{TCC_t}{ICC_t + BCC_t} \right) - 1$$

The forecast factor for 2023-24 is $[10/(10+0)]-1 = 0$

The forecast factor for 2024-25 is $[10/(10+2)]-1 = -0.1667$

The in-period financial adjustment for bilateral entry (BEA) in year t is calculated as:

$$BEA_t = ICC_t \times AUC_t \times BEF_t$$

The in-period financial adjustment for bilateral entry (BEA) in 2023-24 will therefore be $[10 \times £60,000 \times 0] = 0$.

The in-period financial adjustment for bilateral entry (BEA) in 2024-25 will therefore be $[10 \times £60,000 \times (-0.1667)] = -£100,000$.

Where an incumbent has multiple WRZs the bilateral entry adjustment (BEA) would be aggregated.

While our focus in this document is the control for 2020-25, we would expect these arrangements to be carried forward into subsequent control periods. For example, using the approach set out above, there could be an in-period adjustment in 2025-30 for any of capacity built by an incumbent during 2020-25 not being used as planned due to unexpected bilateral market entry. These issues would be part of our considerations for the next price review.

To enable the implementation of the in-period adjustment the formula for the in-period adjustment will be specified in incumbents' final determinations. The adjustment will apply after the bilateral market opens.

4.4.2 Long-term risk sharing

Applicability to England and Wales

This section applies **to both** incumbents whose areas are wholly or mainly in **England** and incumbents whose areas are wholly or mainly in **Wales**.



The issue we were seeking to address

Water resources options are identified in WRMPs and funded through our price review. These are long-term plans (25 years at a minimum) that compare the supply and demand forecasts during droughts to make sure that incumbents can meet peak requirements. The forecasts incumbents use, are subject to significant uncertainty. However, it is customers that bear the risk of material errors in the forecasts. Large-scale under- or over-investment, could have significant consequences for customers. This could be driven by changes in population growth, consumption and climate change. Similarly, focusing on the five-yearly regulatory cycle may delay investment decisions, while increasing the long-term cost to customers.

Our outcome delivery framework provides a buffer against risks of under-investment, as there is a clear link between performance and payments/penalties. However, through our 5 year RCV based controls customers bear most, or all, of the risk resulting from over-investment. This is because, once an investment has been accepted at a price review, a proportion of totex related to the option (likely to be broadly equivalent to capex) is added to RCV and is not subject to further challenge. While new expenditure related to the option at subsequent reviews is challenged, the majority of the costs will already reside in the RCV.

The weak link between the remuneration of an option and the need for it significantly impacts the legitimacy of incumbents' investment decisions. This can undermine incentives to take account of uncertainty and to select options with increased flexibility. This issue is particularly acute for options which include a large fixed capital expenditure (capex) requirement which may mean that incumbents do not face appropriate incentives to choose between options with large fixed costs, and options with greater flexibility.

This issue was previously referred to in the draft methodology as utilisation risks relating to market-wide demand.

Our preferred option in the draft methodology

In our draft methodology, our preferred option was to introduce a requirement for incumbents to develop their own risk-sharing arrangements, where they are planning significant investment in new water resources. These would be submitted alongside their business plans and we would assess their suitability and alignment with customers' interests, as part of the initial assessment of business plans. We proposed giving incumbents significant scope to design their own approach and did not specify the risk-sharing mechanism, level of risk to share or timeframe for sharing. Instead, we provided a set of key principles that incumbents would follow in developing their risk-sharing arrangements.

We also considered two other options to introduce risk-sharing arrangements for planned significant investment in new water resources. These were:

- an Ofwat-mandated approach – where we would apply risk-sharing arrangements, designed by ourselves, where significant investment in new water resources is planned. This approach would share some risk of the market wide forecasts being materially incorrect (both down and upside) between incumbents and their customers; and
- incentives linked to WRMP forecasts – where we would apply risk-sharing arrangements across all incumbents. Under this option, we would set out an approach that would be applied across all incumbents through an adjustment in the form of control. This could involve a long-term forecasting incentive linked to WRMPs, for example, as WRMP forecasts are used to justify new water resources investments.

Stakeholder responses

Eight respondents commented on our proposal for risk-sharing arrangements: five incumbents and three other bodies. Across respondents, there was some support for the proposal for incumbents to develop their own risk-sharing arrangements in accordance with principles set by us. In support of this the importance of company ownership was noted alongside the rationale, which is that customers should not bear all the risk of resource development. No respondents supported the alternative risk-sharing development options.

However, there were a number of requests for clarification on the approach, definition, and application of the long-term risk sharing mechanism:

- four respondents raised broad concerns related to the lack of clarity on our ultimate policy intent and what services should be related to new risk-sharing

arrangements. This included the links to resilience and demand management expenditure;

- two respondents stated that any consideration of risks needs to be undertaken against the appropriate planning driver rather than year to year usage;
- two other respondents highlighted that there are costs to the under-development of capacity and more-than-planned use of demand restrictions, as well as costs of over-development of capacity; and
- one other respondent requested clarification on what proportion of the risk will be carried (and paid for) by water customers.

Our review, analysis and final decision

Following our full consideration of views expressed by respondents and the analysis carried out to support the draft methodology, we have made the decision to maintain the requirement for incumbents to develop their own risk-sharing arrangements for significant investment in new water resources. These should be designed in accordance with the principles we have set.

This is a targeted and proportionate approach and allows the arrangements to be tied to the risk profile of their chosen options. In particular, a key advantage is that it provides flexibility to tailor the arrangements and the freedom to innovate in their implementation. The sharing of long-term risk with customers will also enhance the legitimacy of incumbent business plans, as it ensures that incumbents have a shared interest in long-term outcomes.

These benefits would be lost with our alternative options, as an Ofwat mandated approach would limit company ownership, while adopting an industry wide approach would not target the problem we are trying to solve.

In response to stakeholders' requests for clarification, we note:

- that we have revised the positioning of our policy to provide clarity on its objectives. This is reflected in a move from the language of utilisation to a focus on long-term outcomes and ensuring legitimacy. The policy is focused on the development of new water resources assets within the water resources control. This reflects our wider policy commitments not to change the level of regulatory protection for network plus water or pre-2020 water resources (see section 3.2.1).
- that we recognise the importance of the twin track approach of both supply and demand solutions to meet future demand and supply challenges. One of our principles that incumbents should follow in designing their risk-sharing arrangements is that it should not distort the incentives to meet stretching performance targets for demand management.

- that we expect the risk-sharing arrangements to be calibrated against the appropriate planning scenario used in the design of the option. For example it would not be appropriate if the arrangements considered year to year demand fluctuations driven by weather conditions. Incumbent's arrangements should take this into account, and we would expect a different approach to be proposed for expenditure relating to an option that enhances resilience over an option that provides a baseline supply demand balance benefit.
- our outcome delivery framework provides a buffer against risks of under-investment, as there is a clear link between performance and payments/penalties. For example under-investment in leakage will be captured through our common leakage ODI; and
- that the aim of this policy is to reduce the current risk that customers face and ensure that incumbents take an appropriate share of the risk. The relative level of future risk-sharing will be dependent on the arrangement proposed by each incumbent. We will consider this in our initial assessment of business plans as we assess their suitability and alignment with customer interests.

The table below sets out our qualitative impact assessment of options for long-term risk sharing, and further explains the rationale behind our final decision.

Table 10 – Final assessment of options for long-term risk sharing

	Option 1 Incumbent specific approach Final decision	Option 2 Ofwat mandated approach	Option 3 Long-term incentive linked to WRMP forecasts
Achieving our objectives	Targeted at incumbents proposing large investment in new water resources ✓✓	Targeted at incumbents proposing large investment in new water resources ✓✓	Applied across all incumbents, even those without significant new water resources investment ✓
How our objectives are achieved	Incumbent led approach allows innovation and alignment to the risk profile of options ✓✓	Ofwat led approach, will be consistent across incumbents but does not allow risk sharing to be tailored to options ✓	Ofwat led approach, will be consistent across all incumbents but not aligned to investment needs or options ✓
Practicality	Information requirements will be specified by incumbent, assurance will be required and proposals assessed for suitability at PR19 ✓	Information requirements would be specified by Ofwat, assurance will be required ✓	Highly detailed information requirements, will require tracking of key data through time across the sector ✗

How our final decision will be applied in practice

To implement this policy as part of business plans, where significant investment in new water resources is planned, we will require incumbents to submit their own long-term risk sharing arrangements. As part of the initial assessment of business plans, we will review the proposed risk-sharing arrangements to assess their suitability and alignment with customer interests. Box 9 provides an overview of the implementation of the long-term risk sharing approach.

In designing their risk-sharing arrangements, incumbents should take into account the guidance around ODIs, discussed in chapter 4 ('Delivering outcomes for customers'). This includes the appropriate use of mechanisms, such as deadbands.

The arrangements should also be consistent with the following principles:

- The risk-sharing arrangements should be simple and easy to understand. In particular, they should use inputs and measures that are aligned with our form of control and water resources planning;
- The complexity of the arrangements, and the size of incentives should be proportionate and be reflective of the scale of new investments and uncertainties of forecasts over time. The incumbent's control over the driver of the need for the option should also be reflected.
- The arrangements should provide a good deal for customers, such that the scope for any outperformance (to be funded by customers) is proportionate to the risk that the incumbent bears from under-performance and benefits to customers from outperformance;
- The arrangements should be aligned with other incentive policies to avoid potential distortion of incentives or duplication of penalties. For example, bilateral market entry risk should be excluded; and
- The arrangements should not distort the incentives to meet stretching performance targets in terms of supply efficiency and demand management. They should also be in balance with the objective to further the long-term resilience of water systems.

These principles are consistent with what was set out in the draft methodology with one key build which is to recognise that the arrangements need to reflect the incumbent's control over the driver for the need for the option. For example, if an option was being developed to supply multiple parties, the risk-sharing arrangements should only apply to requirements driven by the incumbent itself.

As part of their business plans, incumbents should provide details of how their incentive approach will work. This should include:

- how it is measured;
- how it is recorded;
- the scale of incentives linked to it; and
- the reporting requirements.

How it achieves the objectives set out above should also be clearly explained. Information on any proposed cost of capital increment would also need to be

provided. As noted in chapter 10 ('Aligning risk and return'), we would expect very compelling evidence to accept this increment.

Box 9 – Overview of implementation of long-term risk sharing

An incumbent has a forecast supply demand deficit over their planning period as identified through the WRMP process.

A mix of supply and demand options are proposed to resolve this planning deficit. One of these supply options is for investment in a large new water resource asset (e.g. reservoir). This option will not deliver any benefits in terms of water resource capacity until the 2035-40 period, but investment will commence in the 2020-25 period.

The incumbent submits its risk-sharing arrangement proposal as part of its business plan. This takes account of our five principles for developing risk-sharing arrangements and that the option delivery will not be due until 2035-40.

We review the proposal as part of the initial assessment of business plans and make a judgement. If agreed, the arrangement will be implemented as part of the final determination.