New Appointments and Variations Bulk Supply Pricing

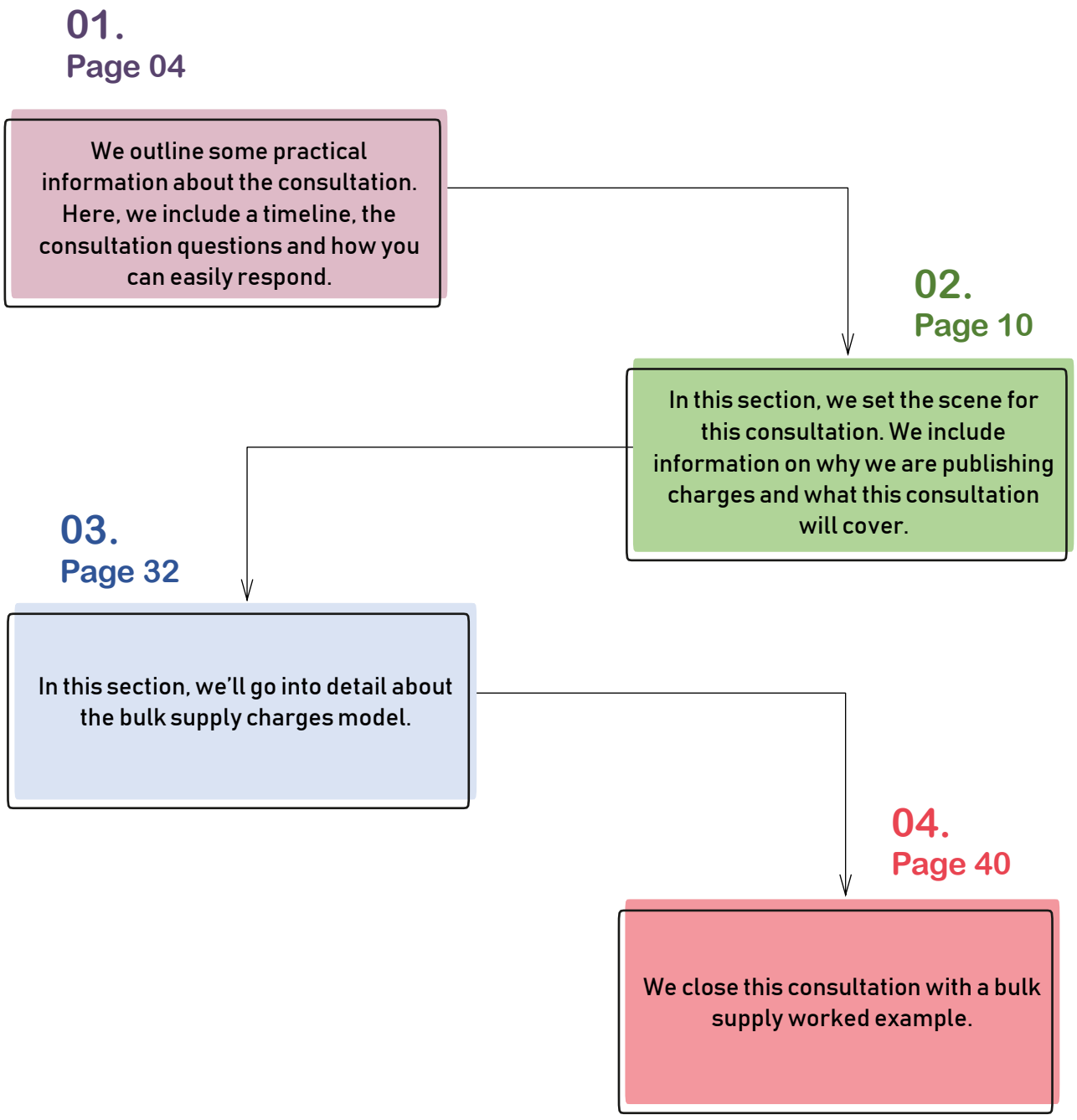
February 2019

YorkshireWater

About this consultation

We are committed in making our publications easy to read and navigate through.

Below is a flow chart of the journey you will go through when reading this bulk supply pricing consultation.



Contents

1. Introduction

1.1. The New Appointments and Variations (NAVs) market supports new entrants into the wholesale water and sewerage sector and also allows incumbent water and/or sewerage companies to expand into other geographic areas.

In order to operate within the incumbent's region a NAV may choose to procure a bulk supply of water and/or wastewater services from the incumbent and the incumbent will levy bulk charges for such services. A bulk supply is the supply of water and/or sewerage services from one appointed company to another.

1.2. In May 2018 Ofwat published final guidance on bulk charges for NAVs (see Bulk charges for NAVs: final guidance, Ofwat, May 2018). Whilst this guidance did not take the form of charging rules Ofwat stated it "*currently anticipate incorporating a significant proportion of the relevant elements of this guidance into future charging rules*".

Ofwat further noted that "*... we expect incumbent water companies to adopt best practice and consider publishing bulk charges to provide as much information as early as possible from the date of publication of this guidance*".

1.3. This consultation document sets out the updated Yorkshire Water bulk supply charging policy and how it aligns with the regulatory Guidance and the wider context set by Government.

The bulk charges covered by this consultation only relate to bulk supplies from Yorkshire Water to a NAV.

1.4. To provide the expected charging transparency to NAVs and other stakeholders we also provide details our proposed bulk supply pricing methodology.

The consultation document is therefore split into two parts:

- the first part addresses the broader regulatory context, and;
- the second part provides the technical detail of our bulk supply charging proposals.

We seek your views on our proposals within both these sections.

1.5. Alongside this document detailing our proposed approach to bulk supply charging for NAVs, we have published a bulk charges model to be used by NAVs to determine indicative bulk charges to enable NAVs to bid for relevant development opportunities.

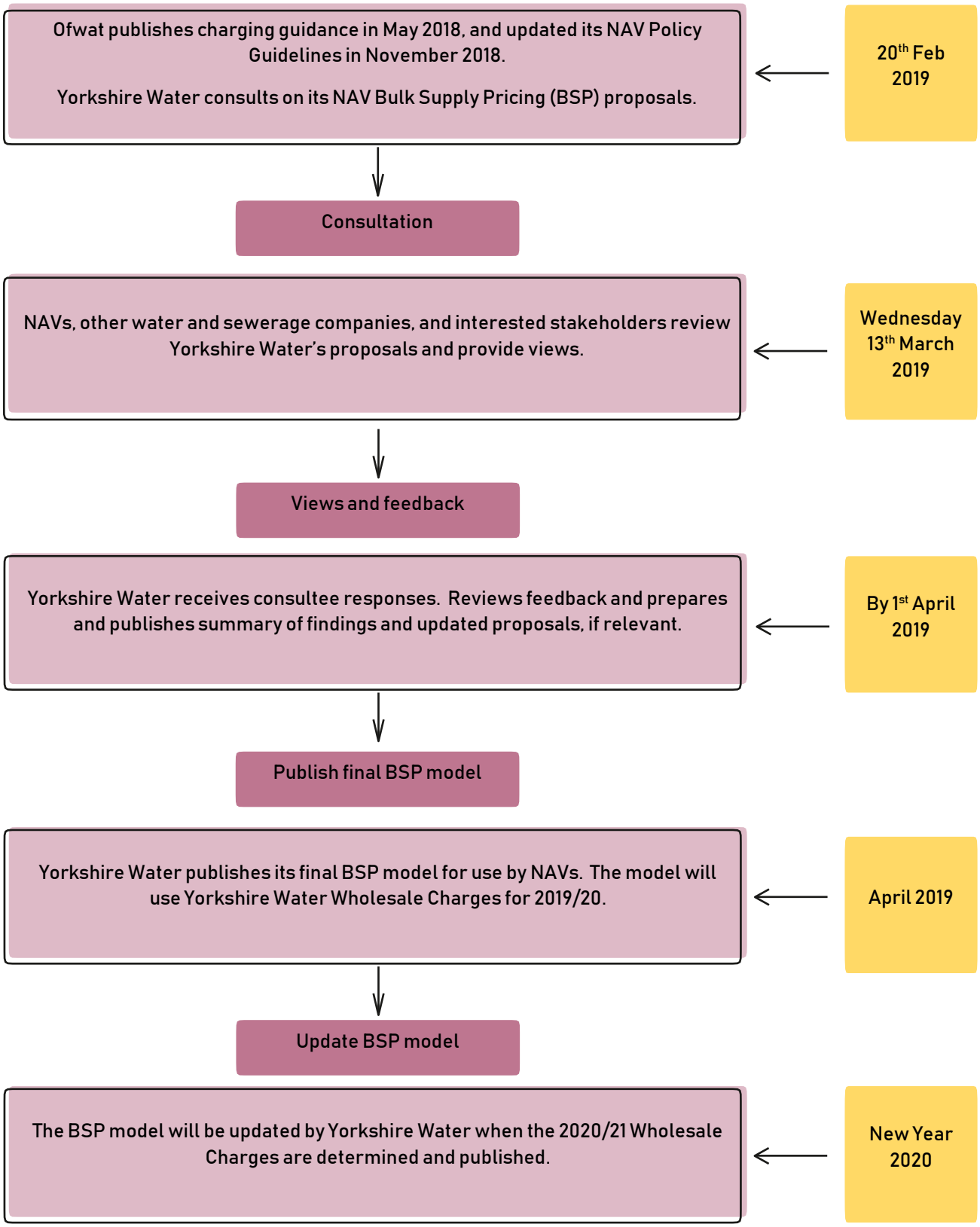
We welcome your views on our bulk charges model on how easy you find it to use and the value of the information presented. We will update the model where required following this consultation.

1.1 Consultation questions

Number	Question
Q1	Do you agree with the list of potentially avoidable activities and associated cost drivers? In particular, do you think any material activity, and associated avoidable cost, is missing from our list?
Q2	Do you agree that the equivalent (annual) annuity (EAA) is the best means of scaling and smoothing the different minus components in the wholesale-minus construct? If not, what other financial techniques would you suggest as alternatives and why?
Q3	Do you agree that the lifetime of the relevant asset should be used in determining the annuity, or should the timescale be limited to the duration of the bulk supply contract between Yorkshire Water and the NAV, say at 25 years?
Q4	Please provide your views to the reasonableness of our reservations about the risks of adopting historic company average costs as the primary method of estimating the long run avoidable replacement costs on a new development site?
Q5	Do you agree that the discount rate should always be equated to the company WACC, irrespective of which company's WACC is ultimately selected (the incumbent or the NAV)?
Q6	Do you think we should follow the proposed regulatory guidance on the WACC (4.74%) to set the discount rate for avoided costs? If not, what alternative cost of capital rates should we consider using?
Q7	Do you recognise the above variability in water network asset and surface water drainage asset intensity and how should this be dealt with in bulk charges?
Q8	What are your views on whether local authority rates are an avoidable cost relevant to a NAV and how they could be dealt with in bulk charges?

Q9	Do you agree with the need to reflect the key cost characteristics of each site in the minus calculation to widen the NAV market to costlier low density sites?
Q10	Are there any major disadvantages to providing greater cost reflectivity in the minus by reflecting relative network characteristics, such as network lengths, etc?
Q11	What are you views on our proposal that only the on-site operating costs and the LRACs will be deducted from the starting point?
Q12	Do you agree with our proposal to convert our water fixed charges into volumetric tariff for the calculation of the starting point? If not, what would be the reasons to provide them separately?
Q13	How do you think we should levy charges for surface water, where a NAV requires the use of our network to carry surface water from the development, and why?
Q14	Do you support our idea that the incumbent's costs should be combined with the NAV's characteristics to provide a fair estimation of the avoidable costs?
Q15	Do you support our proposal to apply estimated network losses as a percentage reduction on the overall weighted wholesale tariff which will depend on the total length of water mains at a NAV site? If not, can you please provide alternatives?
Q16	Do you think that the business overhead discount is relevant to a NAV? If yes, do you support our approach to use our retail overhead level as a proxy for a NAV overhead level?

1.2 Timeline


Ofwat publishes charging guidance in May 2018, and updated its NAV Policy Guidelines in November 2018.
Yorkshire Water consults on its NAV Bulk Supply Pricing (BSP) proposals.
20th Feb 2019
Consultation
NAVs, other water and sewerage companies, and interested stakeholders review Yorkshire Water's proposals and provide views.
Wednesday 13th March 2019
Views and feedback
Yorkshire Water receives consultee responses. Reviews feedback and prepares and publishes summary of findings and updated proposals, if relevant.
By 1st April 2019
Publish final BSP model
Yorkshire Water publishes its final BSP model for use by NAVs. The model will use Yorkshire Water Wholesale Charges for 2019/20.
April 2019
Update BSP model
The BSP model will be updated by Yorkshire Water when the 2020/21 Wholesale Charges are determined and published.
New Year 2020

Responding to this consultation

If you would like to respond to this consultation, please follow this link.

You will be directed to an online form where you can provide a response to the consultation questions.

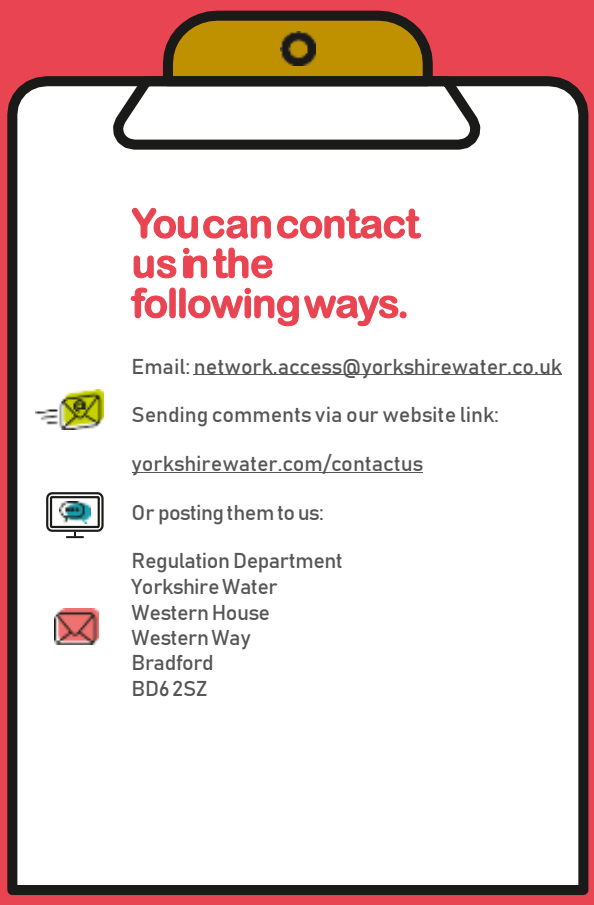
The closing date for this consultation is Wednesday 13th March 2019 at 17:00.

We will publish our response to your feedback on our New Appointments and Variations (NAVs) webpage at:

https://www.yorkshirewater.com/developers/new-appointments-and-variations/

If you would prefer your response not to be published, please indicate on the online form.

If you would like to email your feedback on the information published in this document, you can use the contact details provided on this page.



You can contact us in the following ways.

Email: network.access@yorkshirewater.co.uk

Sending comments via our website link:

yorkshirewater.com/contactus

Or posting them to us:

Regulation Department
Yorkshire Water
Western House
Western Way
Bradford
BD6 2SZ

Our policy on bulk charges for NAVs

2. Executive summary

2.1. This document details our proposed policy in constructing bulk charges for NAVs who wish to operate within the Yorkshire Water region and procure water and/or sewerage services from us. The approach we have taken is aligned to the charging guidance published by both Defra and by Ofwat.

2.2. In summary, we support:

2.1.1. Government Guidance emphasis on the importance of both consumer protection and level playing fields.

2.1.2. The specific approach to setting of bulk charges, namely the incumbent's weighted average wholesale price minus the incumbent's long run avoidable costs (LRAC).

2.1.3. The exclusion from bulk supply charging considerations of all upfront costs that are funded by the developer.

2.1.4. The need to mirror the future regulatory treatment of future expenditures in the assessment of long run avoidable costs, namely as to whether these expenditures accrue to the RCV or not, and how existing tariff differentials are managed.

2.1.5. The need to consider the level, timing and profile of all the costs incurred over the lifetime of the relevant assets and estimate an equivalent annuity.

2.1.6. The need to use site-specific avoidable costs to manage the risk of asymmetric market concentration i.e. the approach would base the bulk supply charge on the price of wholesale water charged to retailers and then deduct the cost of serving the sites. These deductions should vary based on the cost of serving the sites.

2.3. We have some reservations about:

2.3.1 Whether incumbent historical costs could be a reasonable and practical proxy for estimating the ongoing maintenance costs. Our reasons are fourfold – technology shifts, planning shifts, mixed asset types, and the need to incorporate the time value of money. With caution, average company costs may be suitable for cross-checking purposes.

2.3.2 Whether incumbent water company WACC should be adjusted. If taken as the discount rate an increase in the WACC could be to the NAV's disadvantage. This is because the NAV is effectively being funded in advance of its future costs, such as meter replacement expenditures. Furthermore, we consider the price links at the retail/wholesale levels and the proposed bulk supply indexation method will shield the NAV from the demand risks identified by the regulator. Despite these reservations, we will use the WACC proposed in the Guidance as the annuity discount rate.

2.4. We propose to estimate the long run avoidable cost of the meter and the meter space in the same manner as we estimate these same costs in the measured/unmeasured tariff differential.

2.5. We consider there is sufficient enough evidence through both asset base/cost variability and published commercial strategy that the presence of asymmetric market concentration remains a potential risk for the industry. We think this risk will need to be addressed by a more localised avoidable cost approach to bulk supply charging, rather than through standardised single bulk tariffs for NAVs for water and sewerage services.

3. Policy Context

3.1 Government and Regulatory Guidance

3.1.1 In April 2018 Defra published Guidance [1] to Ofwat about water bulk supply and discharge charges.

3.1.2 In terms of providing a level playing field the Government stated: "*NAVs should be able to have access to transparent, stable and predictable charges which allow them to carry out their activities when they can do so more efficiently than incumbent water companies. This includes transparency in publications and consultations".* This document aims to provide such a transparent consultation process.

3.1.3 The Government's guidance also highlighted the importance of *c*onsumer protection issues in addition to the level playing field ones emphasised by Ofwat in its subsequent industry guidance.

3.1.4 Where not in conflict with competition law the Government requires that there is:

- No cross-subsidisation from one customer group to another as a result of the undertaker receiving supplies of water or wastewater services from a NAV.
- No category of customer should be unfairly disadvantaged by the impact of certain market reforms on water charges.
- There must be a fair distribution of costs between customers. This extends to ensuring that charges are fair to future customers as well as current customers.
- Charges will evolve over time to better reflect the costs of the provision of water in the competitive market. However, this should occur without any deaveraging of network costs.

3.1.5 We agree with the emphasis placed by Government on charging fairness and the need to treat all customers equitably. This consumer protection objective forms an important part of our proposed bulk charging methodology.

3.2 The Markets

3.2.1 The aim of Ofwat's final guidance on bulk charges for NAVs "is to contribute to the creation of a level playing field in the provision of developer services and the provision of water services to the end-customers in new developments".

3.2.2 In developing our broader charging policy framework, we have endeavoured to instigate separate, clearly delineated, pricing regimes for our developers and our end-customers.

[1] Guidance to Ofwat for water bulk supply and discharge charges, Defra, April 2018

3.2.3 In our opinion there are two separate markets that involve two different customer groups – our developers and our end-customers. They typically involve different supplier types e.g. contractors/self-lay operators vs monopoly water service providers.

3.2.4 We therefore consider it appropriate, from a Competition Act 1998 (CA98) pricing perspective, to keep the costs and associated charges in these two distinct markets separate. As part of the recent 2018 developer charging reforms, to help provide for this pricing separation, we removed the income offset and the associated asset payment. We could do this because, historically, developer-sourced revenues and developer-driven costs were already in balance; a pre-requirement from the associated developer charging rules.

3.2.5 Developers continue to only pay for the installation of the onsite assets (and developer driven upstream network reinforcement across our region), whereas end-customers continue to pay for the operation and the ongoing repair and replacement of these same onsite assets (as well as all associated bulk supply of service costs).

3.2.6 This demarcation of cost and associated payment responsibility has simplified our proposed bulk supply pricing framework. We consider that such a clear cost/pricing demarcation also helps us to better create a level playing field in the provision of developer services and the provision of water services to the end-customers in new developments, which is the primary aim of Ofwat's final guidance in this area.

3.2.7 Ofwat's final guidance states "*we have decided that incumbent water companies should include the payment of the "income offset" in their new bulk agreements from 1 April 2018 to 31 March 2020".* As noted above, to help limit cross subsidisation, we no longer provide for an income offset (or asset payment) to developers, NAVs or self-lay providers. This part of Ofwat's guidance on bulk supply charging does not apply within our region.

3.3 The Wholesale-Minus Construct

3.3.1 Ofwat's guidance provides a clear regulatory view on what its approach would be if it is called upon to determine bulk charges. Ofwat has stated that in the case of determining a pricing dispute:

"we *will apply a wholesale-minus approach. This approach starts from the relevant wholesale tariffs and deducts costs the incumbent water company would no longer incur if a NAV supplied the new development instead*"

namely the avoided costs of the incumbent water company.

3.3.2 We have adopted this generic charging approach in bulk supply price negotiations in recent years. We will continue to use the general wholesale-minus construct to set bulk supply prices going forwards.

3.3.3 Ofwat has also indicated that avoided costs need to be considered in the long term. For example, Ofwat stated "*as a general principle it would be inappropriate to assume that the new assets, such as the on-site infrastructure for a new development, will have very low*

maintenance costs simply because they would be newer than any of the assets currently in the ground".

3.3.4 We agree with this principle.

3.3.5 The bulk supply price (BSP) differential (i.e. equivalent to the minus component in the above wholesale-minus construct) should be based on the incumbent's *long run* avoidable costs (LRAC). Our BSP differentials should then correspond to the time profile of operating, repair and replacement costs that we would avoid over the long term if we did not provide this final part of the wholesale service on a given new development where a NAV undertook this role.

3.3.6 However, in developing such an avoidable cost profile we still need to recognise that the operation, repair and replacement costs of long-lived infrastructure assets do tend to be lower in the early periods than in latter periods. And that for such long lived assets such "early periods" can be measured in decades rather than years. We discuss this critical long run avoidable cost issue, and the timing profile of anticipated expenditures, below.

3.4 Identification of Avoidable Costs

3.4.1 Ofwat has produced two new development graphics (see below) – one for water and one for sewerage.

3.4.2 In terms of wholesale activities, the NAV will take over the responsibility for the operation, maintenance and replacement of the new assets contained within area shaded green. This geographic area typically includes: various infrastructure items (e.g. new communication pipes and new smaller diameter mains, sewers and storm drains) and two non-infrastructure items (i.e. the new property meter and the associated meter space).

3.4.3 The NAV will therefore operate, maintain and then replace the last few metres of pipe of the water distribution and foul sewage/surface water collection network to each property on the new development. The exact length of pipe to be managed on each network will vary from site to site. Upon failure or at a defined renewal time the NAV will also replace the customer meter and the associated meter chamber and take over some additional responsibilities beyond the stop tap boundary (e.g. measuring water quality at the tap, replacing household supply pipes for free, managing customer communication at loss of supply events).

Figure 1. Scope of New Developments (Water)

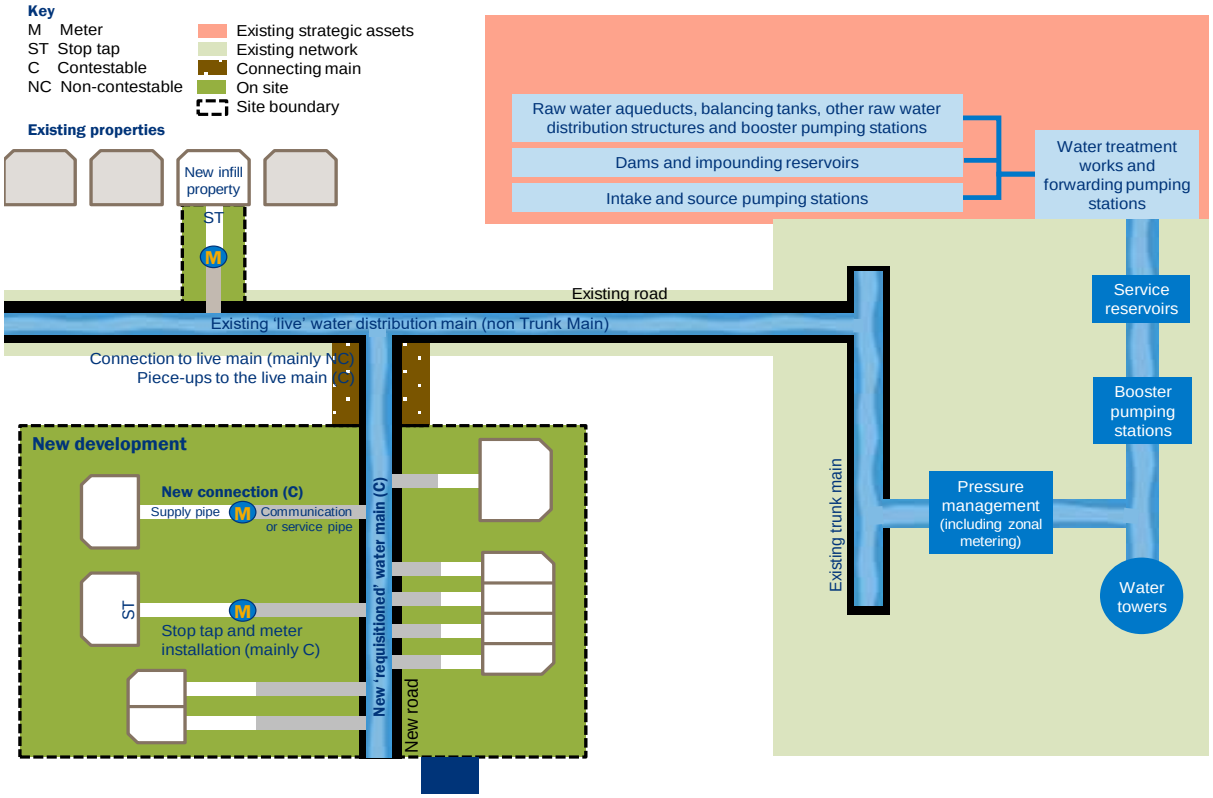
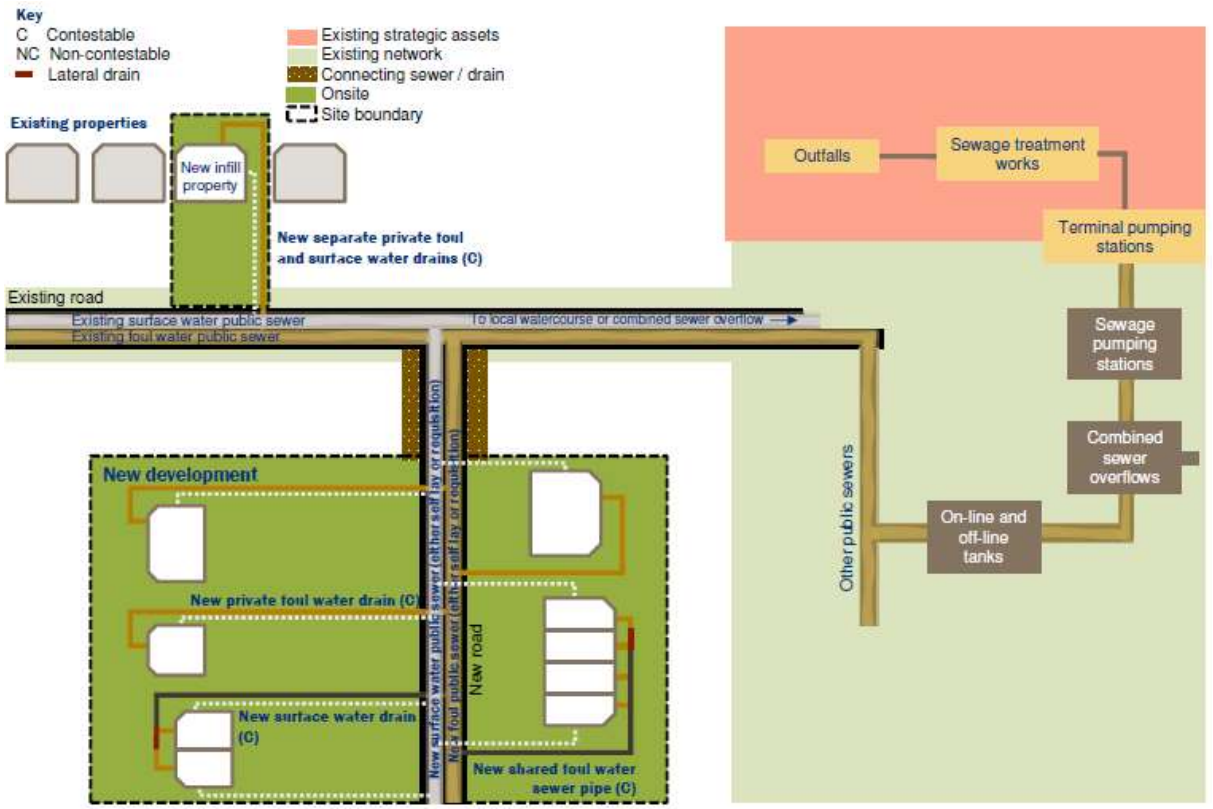


Figure 2. Scope of New Developments (Sewerage)



3.4.4 Based on historic Regulatory Accounting Guidelines (RAGs) and internal company reviews we have identified the following more detailed list (see Table 1a and Table 1b) of potentially avoidable activities/costs. To identify these individual avoidable activities, we have moved back up the value chain from the customer's tap (for water supply) and the discharge point (for foul sewage and drainage water) to the potential bulk supply boundary of the new development, i.e. the dotted line in the graphics in Fig 1 and Fig 2.

3.4.5 We have considered the long run avoidable costs for three distinct services – water supply, foul sewage and property drainage. As shown above each service will have a distinct network on the new development site. And each service also has a distinct set of wholesale charges, from which the proposed "minus" is to be subtracted.

Table 1a. Avoidable Activity/Costs – Treated Water Distribution

Asset	Avoidable Activity/Cost	Key Charging Cost Driver
Scientific and regulatory services *	Sampling at customer taps Byelaw inspections	Property numbers
Strategic management. *	Drinking Water Safety Plans	Property numbers
Supply Pipe (customer owned)	Repair & replace (free option to households)	Property numbers
Emergency support	Alternative water and support at loss of supply events	Property numbers
Meter & stop cocks	Replace	Meter size per property
Meter space / chamber	Repair & replace	Meter size per property (location dependent)
Communication Pipe	Repair & replace	Length of pipe per property
Distribution Main	Repair & replace	Length of main per property
Network Furniture	Repair & replace	Length of main per property
Network Operations	Leakage detection, valve management and main cleaning	Length of main & comm. pipe per property
Pumps, water towers and service reservoirs.	Operation. Repairs and replace	Not normally required. Subject to bespoke pricing
Treatment Works	Operation. Repairs and replace	Not normally required. Subject to bespoke pricing

Table 1b. Avoidable Activity/Costs – Foul Sewage Collection and Drainage

Asset	Avoidable Activity/Cost	Key Charging Cost Driver
Scientific and regulatory services	Sewer records Sewer adoptions	Property numbers
Private Sewers -Foul/Surface Water	Repair & replace	Length of private sewer per property Length of private drain per property

Meter and Meter Space	Repair & replace (see also water supply, shared asset)	Meters per property
Public Sewers – Foul/Surface Water	Repair & replace	Length of public sewer per property Length of public drain per property
Attenuation Storage	Operations (e.g. desilt) Repair & replace	Impermeable area per property Intensity of rainfall and planning requirements
Network Operations	Foul/Surface Water sewer inspections, cleaning blockages and desilting.	Length of sewer per property (public & private if adopted) Length of drain per property (public & private if adopted)
Network Furniture	Repair and replace	Length of sewer per property (public & private) Length of drain per property (public & private if adopted)
Pumps, outfalls and CSOs.	Operation. Repair and replace	Not normally required. Subject to bespoke pricing
Treatment Works	Operation. Repair and replace	Not normally required. Subject to bespoke pricing

* Note: The DWI states that – "*Each new appointment (or variation) should be regarded as a discrete water supply zone(s) and regulatory water quality monitoring undertaken at consumers' taps or supply points (as appropriate) by the appointed companies on the basis of the estimated number of consumers or volumes of water supplied by each appointment (or variation), respectively*".

3.4.6 We have also identified the key cost driver for charging purposes, noting that the exact costs on each individual site will be driven by a number of other site-specific factors. The cost drivers are: i) the length of pipes to be managed by the NAV; and ii) the number and location of meters at properties to be managed and replaced by the NAV.

Question 1: Do you agree with the list of potentially avoidable activities and associated cost drivers? In particular, do you think any material activity, and associated avoidable cost, is missing from our list?

3.5 The Nature of Avoidable Costs

3.5.1 Ofwat has provided further important detail on the potential general nature of the incumbent's relevant avoidable costs to be deducted from the relevant starting point. These fall into two main categories, on-site ongoing costs and the WACC.

3.5.2 Ofwat identified three potential sub-categories of avoidable costs that might be deducted from the incumbent's wholesale price:

- Ongoing costs of operating and maintaining the on-site assets, noting these costs should be those of the incumbent water company.

- WACC for on-site assets: To the extent that the incumbent water company accrued the on-site assets to its RCV, if it undertook the development instead of a NAV, the WACC should be applied to the same type and value of assets.
- Depreciation (of on-site assets): To the extent that the incumbent water company accrued the on-site assets to its RCV, if it undertook the development instead of a NAV, depreciation of onsite assets should be included in the costs to be deducted.

3.5.3 Although in some circumstances either not all costs mentioned above may be relevant or it may be necessary to deduct additional costs.

3.5.4 Ofwat recognised the importance of excluding upfront installation costs from the method of setting NAV bulk charges. These installation costs have already been fully recovered from developers via associated developer charges, which for our region contain no cross subsidy from end-customers.

3.5.5 By definition, the upfront developer-funded capital costs will not accrue to the incumbent's Regulatory Capital Value (RCV) and hence then be recovered from our end-users. As such, upfront costs already recovered from developers, should not be considered for the purpose of setting bulk charges.

3.5.6 The following table summarises our proposed regulatory position on potential avoidable capital expenditures.

Table 2. Proposed Regulatory Position on Potential Avoidable Capital Expenditures

Asset Type	Regulatory Treatment	Asset Example	Ofwat Cost Category
Upfront Capital	Not accrued to RCV	All initial on-site capital expenditures	Excluded from bulk charges as paid for by developers
Infrastructure (Renewal)	Not accrued to RCV	Comm. Pipes Water Mains Foul Sewers SW Sewers Furniture	On-site ongoing costs (aka operation, maintenance and replacement). Smoothed via annuity calculation
Non-infrastructure (Replacement)	Accrued to RCV	Meters Meter space Pumps* Service Reservoirs* Treatment works*	WACC (and depreciation) for on-site assets not paid for by developers. Scaled via an annuity calculation

*not included in our proposed charging methodology. Will be managed on site by site basis.

3.5.7 In estimating our long-run avoidable costs (LRACs) we therefore propose to only focus on future (and potentially avoidable) on-site expenditures – namely for operations, repairs and eventual asset replacements. These will generally be incurred only once the development site is occupied by end-customers.

3.5.8 How these future avoidable costs are estimated numerically will depend on whether they would have accrued to the incumbent's RCV, or not. When assets would have been accrued to the RCV we propose to use an annuity to provide for the equivalent return on, and depreciation of, capital. Annuities will also be used to smooth temporally uneven ongoing costs.

3.5.9 The use of this financial technique is summarised in Table 2 above and discussed further below.

3.6 Estimation of Avoidable Costs

3.6.1 In relation to dealing with potential avoidable cost changes over an extended asset life period Ofwat's final guidance provides important industry clarity.

"*Conceptually one should consider the level, timing and profile of all the costs incurred over the lifetime of the asset and estimate an equivalent annuity*".

3.6.2 The equivalent (annual) annuity (EAA) is a well-known financial technique. It presents the net present value of a series of future potentially uneven costs as a series of equal costs over the lifetime of the investment.

3.6.3 The EAA approach will then yield a stable wholesale margin/minus over an extended period. The ability to construct a set of equal annual avoidable costs on a present value (PV) neutral basis provides an important tariff benefit. This fixed margin provides for both charging stability and charging predictability; key regulatory guideline requirements.

3.6.4 Once set, the minus and the associated bulk supply price, will then simply move in line with wholesale charges. Given the service seen by end-customers remains the same over this extended period such an EAA approach to long run avoidable costs we perceive to be fair.

3.6.5 The EAA approach therefore provides three important pricing benefits:

- Greater fairness – both intergenerational and between customer classes;
- Improved stability and predictability in the bulk supply charging system; and
- Simplicity for the incumbent, re bulk supply price differential management.

3.6.6 We therefore propose to continue to use EAA to both:

- Smooth operating costs that may vary over time as infrastructure renewals and operational and maintenance requirements change as underground assets deteriorate with age; and
- Provide for a return on, and (annuity) depreciation of, those replacement capital costs that would, over time, be accrued to the incumbent's RCV (e.g. the second, third, etc, round of meter and meter chamber replacements).

3.6.7 To summarise, we propose to smooth costs via the EAA approach for both our avoided network operating/PAYG infrastructure costs and our avoided non-infrastructure costs. We have used the expected lifetime of the asset, as suggested by Ofwat, to develop our asset specific annuity factors.

3.6.8 We note there is also an argument to favour the lifetime of the bulk supply contract as the relevant period for annuity assessment, as our cost avoided may be time-limited. This typically could be 25 years. Should the contract be extended, this would be taken into account based on a revised annuity calculation of projected avoided costs (with some assets already being 25 years old).

3.6.9 In our opinion the regulatory support for an EAA approach to scaling long run avoidable costs is the critical part of Ofwat's current regulatory guidance. Such an approach ensures regulatory consistency with other tariff differentials and the proposed management of our financial levers.

Question 2: Do you agree that the equivalent (annual) annuity (EAA) is the best means of scaling and smoothing the different minus components in the wholesale-minus construct? If not, what other financial techniques would you suggest as alternatives and why?

Question 3: Do you agree that the lifetime of the relevant asset should be used in determining the annuity, or should the timescale be limited to the duration of the bulk supply contract between Yorkshire Water and the NAV, say at 25 years?

3.7 Source of Avoidable Costs

3.7.1 Ofwat states:

"*the incumbent's historical costs could be a reasonable and practical proxy for estimating the ongoing maintenance costs. These costs will cover infrastructure built at different historical times and thus the average maintenance costs could be a reasonable proxy for the lifetime on-site maintenance costs of newly-built assets…*

However, we would be prepared to consider substantial reliable and robust evidence that new technology would require lower maintenance costs over the lifetime of the assets compared to the existing set of assets".

3.7.2 We have used our historical replacement costs in our bulk supply charging methodology - but only to cross check our individual, bottom up, EAA cost calculations.

3.7.3 Our reasons for caution in giving too much weight to historic company average maintenance costs are four-fold.

- Technology Shifts. Historic incumbent costs do not solely relate to the latest technology being installed/required by the incumbent on the new development site; on new developments we install/require external AMR meters and polyethylene pipes (PE100/80) for water supply. Historical incumbent average costs will include costs for more expensive domestic internal and large non-household meter replacements and pipes made of different materials, such as cast iron, that are more susceptible to failure and hence are more expensive to manage over the long term.

These historic incumbent average costs may also include historic early replacement expenditures that are driven by water quality considerations (e.g. early replacement of lead communication pipes and iron mains, averted in the move to HDPE/MDPE pipes). Incumbent company average costs can also be distorted by programming periods for example for early meter replacements or upgrade programmes.

- Mixed Asset Base. Some larger bulk supply pipes that are not typically laid on-site may also be deemed critical and are subject to more costly preventative repairs and replacement activity. The feeder/bulk supply pipes and combined sewers are also larger and more expensive to repair and replace. Hence, we consider a simple length pro-rata of pipe management costs between upper and lower level networks is not appropriate.

  For the purpose of estimating avoidable costs key measures such as meter size and location, pipe length-diameter could be used to inform the likely avoidable cost on each new part of the network system. Using company average costs will make such site cost differentiation difficult as these top down estimates will include a mixture of different cost types.

- Time Value of Money. Incumbent average costs reflect the management costs of assets of different technology types that are of different ages. For example, our water network is predominantly cast iron with an average age of around 60 years. The average age of our sewerage network is around 80 years. As noted above, this is not the case on a new development where new infrastructure assets will be made of polyethylene and will tend to follow a traditional S-curve survival path, with lower annual costs at the beginning and higher costs at the middle of the investment's long life.

  Using company average maintenance costs for aged assets will then essentially ignore the time value of money, noting its inclusion is the key rationale for adopting an EAA approach. When adopting simple unadjusted company average costs, a NAV may gain more financially by receiving a margin greater than initial actual maintenance costs early in the new networks life than it loses (by the reverse inequality) many decades into the future.

- Planning Shifts. Planning changes have meant that surface water drainage assets have become larger and more complex on new developments. To provide flow attenuation drainage pipes are now of a larger diameter. Furthermore, on larger developments there may be a need for storage tanks or other flow attenuation devices.

  This will mean that historic company cost averages may not fully reflect the additional costs of providing flow attenuation on new developments. In addition, older housing stock on the incumbents' network will be served by combined public sewers (and not separated systems as now required on new developments). This will have a further distorting impact on the applicability of historic company average maintenance costs for the sewerage service.

3.7.4 As noted below we have used historic average company replacement cost rates in our methodology, but only to sense check the results of our EAA approach for these specific assets. We have used historic average company asset replacement expenditures for the following asset categories:

- Meters and the meter chamber replacement.
- Communication pipe and stop tap replacements.

3.7.5 We have also assessed our average historic level of infrastructure renewals expenditure to ensure our bottom up approach is providing realistic avoidable cost estimates.

3.7.6 However, some cost manipulation - de-averaging by technology type, network location and/or time - is typically required to sensibly provide the required top down cost cross-checks on each item. Only then could the incumbent's historical costs be a reasonable and practical proxy for estimating the ongoing maintenance costs.

Question 4: Please provide your views to the reasonableness of our reservations about the risks of adopting historic company average costs as the primary method of estimating the long run avoidable replacement costs on a new development site?

3.8 Flexible to Different NAV Approaches

3.8.1 Ofwat states that "*NAVs must be free to choose which services they wish to purchase from the local incumbent water company. Therefore, bulk charges, should be flexible and relate solely to the services a NAV requests from incumbent water company*".

3.8.2 A new entrant's solution may have important cost consequences for the bulk supply service actually supplied by the incumbent (i.e. the costs of the bulk supply service could be different – higher or lower - from that associated with our own site-specific designs).

3.8.3 This is particularly true for the drainage service where a variety of SuDs options are possible, with each treatment train potentially impacting on the actual bulk drainage service requirement. Under these circumstances there might then be a need to fine tune the bulk supply price calculated with a supplementary upward/downward supplementary adjustment to reflect any possible additional upstream savings/costs that result from such innovative new entry. Avoiding such bulk supply pricing bespokeness on the drainage service is particularly difficult to envisage, unless the new entrant is simply offering "standard" piped solutions.

3.8.4 Any adjustment to the bulk supply price will have to be done post competition in the Developer Services contracting market. This could create competition concerns if the adjustment is materially upwards (i.e. to supply the bulk supply service to integrate with a NAV's innovative design our upstream costs are actually higher than our own site-specific designs would determine).

3.8.5 We would not expect to see this supplementary bulk supply price adjustment frequently on the water supply or foul sewage service. However, the drainage service is certainly a service area where the incumbent and the New Entrant Site-Specific designs could be very different and therefore have quite different bulk supply cost impacts.

3.8.6 If the NAV does not require a full bulk supply service – for example it may only require back-up to its own water supply or it may only produce higher strength black water, say as a result of a decision to install grey water recycling, then a more bespoke non-standard bulk supply price will have to be developed. In the case of the second example it is likely that we will use the wholesale Mogden formula to account for the reduced volumes of higher strength foul sewage. We are open to working with NAVs on more bespoke solutions and the related charges.

3.9 Discount Rates (to Assess Avoidable Costs)

3.9.1 To apply the EAA factor to assess the scale of long run avoidable costs an appropriate discount rate needs to be selected.

3.9.2 The discount rate should be set to reflect the riskiness of the avoidable costs being considered. This is typically equated to a company's weighted average cost of capital.

3.9.3 The selection of the discount rate is important. The impact of the discount rate on the scale of the avoidable cost will depend on whether costs are incurred upfront and/or in the future.

3.9.4 A higher discount rate will increase the annuity result when avoidable costs are incurred upfront. But when the avoidable costs are incurred in the distant future a higher discount rate could reduce the annuity result. This is an extremely important feature of discounting, and then annualising, future cash outflows. And this is discussed in more detail below, with an example to highlight the potential impact of cash flow timing.

3.9.5 Under the EAA approach, with first round expenditures being wholly funded by the developer, NAVs will be typically disadvantaged by a higher cost of capital and associated discount rate. Clearly if NAVs were being remunerated for upfront first round capital costs, as well as all the subsequent replacement costs, the reverse would be true I.e. as the cost of capital increases, so would the discount rate, and so would the EAA result and the associated wholesale margin.

Question 5: Do you agree that the discount rate should always be equated to the company WACC, irrespective of which company's WACC is ultimately selected (the incumbent or the NAV)?

3.10 Weighted Average Cost of Capital (WACC)

3.10.1 To the extent assets will be normally accrued to the RCV, Ofwat now considers "*incumbent water companies WACC should be adjusted*" to reflect two features:

- Incumbent water companies enjoy a degree of regulatory protection which is not available to a NAV.
- The risk of the relevant on-site activities, which it believes may be different from the risk of the incumbent water companies' overall business.

3.10.2 Only the first factor has been explicitly considered by the Regulator. In annex 2 of its guidance the vanilla/pre-tax WACC has been increased from 3.74%/3.97% for incumbents (as published at PR14) to 4.39%/4.74% for NAVs.

3.10.3 Ofwat states that:

> "*we consider that the value estimated and reported in Annex 2 is an appropriate estimate for the incumbent water companies to set bulk supply charges for the remaining period of PR14. As with all aspects of this guidance, in the case of a dispute brought to us we would need to assess any evidence that is brought to us including any alternative estimates for the appropriate WACC*" and "*On the basis of our calculations in Table A2 we consider that the appropriate central estimate for an adjusted WACC relevant to bulk supply agreements is 4.74%*".

3.10.4 We have reservations with the proposed weighted average cost of capital (WACC) adjustment, especially if the WACC is to be used as the discount rate in scaling equivalent (annual) annuities for the key on-site avoidable capital expenditures which are generally located in the distant future.

3.10.5 The extent to which NAVs are indirectly shielded from demand risks by the explicit retail/wholesale price link to incumbents will ultimately depend on the indexation approach selected for the bulk supply price.

3.10.6 At the moment we consider bulk supply prices should simply mirror changes in wholesale prices. The initial site margin (i.e. the minus element) will then change in line with wholesale/bulk supply price changes. These price and associated margin changes will be informed by the incumbent's revenue cap mechanism, including the wholesale revenue forecasting incentive mechanism (WFRIM). We think in our region with our proposed indexation approach these additional demand risks are not present, and that through various price linking NAVs will enjoy regulatory protections consistent with those of the incumbent.

3.10.7 Despite our reservations, to follow published Guidance that is likely to become part of charging rules, we propose to use a discount rate of 4.74% - equivalent to the WACC proposed by Ofwat. However, we welcome views on this technical matter.

Question 6: Do you think we should follow the proposed regulatory guidance on the WACC (4.74%) to set the discount rate for avoided costs? If not, what alternative cost of capital rates should we consider using?

3.11 Accounting for Site Cost Variations

3.11.1 Ofwat recognises and states: "*The type and scope of bulk services a NAV needs to purchase from the incumbent water company may vary depending on the approach the NAV adopts on the site and the local circumstances. Therefore, potentially each site could have its own bespoke bulk charges. The latter have the potential to cater for the exact needs of each site*".

3.11.2 This had been our historic bulk supply charging position. To ensure full compliance with our CA98 duties, prior to the issuance of the Guidance, we had intended to only offer bespoke bulk supply charges. These bulk charges would then have been based on a detailed assessment of the long run avoidable costs of each individual development site under NAV consideration.

3.11.3 To illustrate these potential site by site avoidable cost differences we consider two issues:

- Variability in the length of water main per property.
- Variability in the length of surface water drains per property and the associated storage requirements.

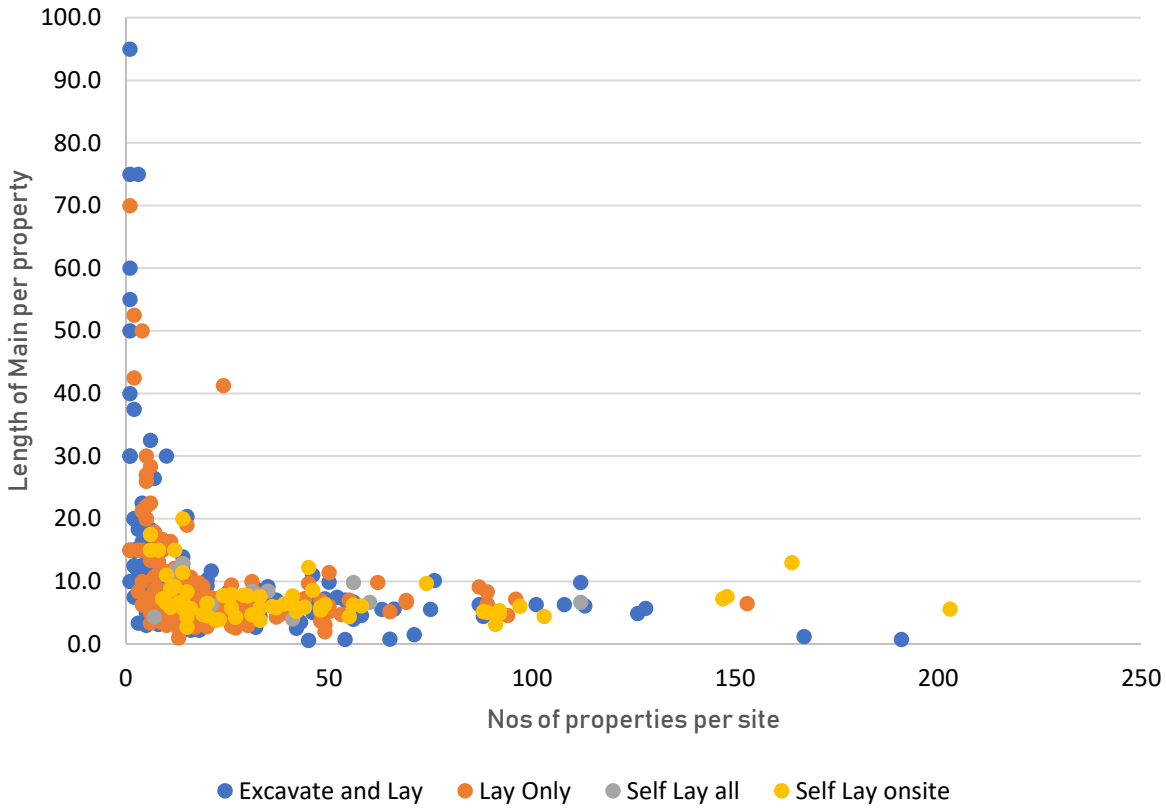
3.11.4 The associated cost variations informed our historic preference for bespoke bulk supply pricing arrangements, managed via special agreements, at each individual NAV site.

Water Main Lengths

3.11.5 The following simple graphic (Fig 2) highlights the variability in the length of water main per property on recent new property developments across our region. This variability in infrastructure intensity will then flow into possible site differences in future water network operating, repair and replacement expenditures. This variability will also impact on site leakage rates.

3.11.6 The graphic illustrates a key tension in the potential use of company cost averages. If the wholesale minus is based on the company new development site average of around 6.8 metres of main per property then new development sites above the average (e.g. > 10 metres per property served) may be unfairly excluded from the NAV market and with a concentration of the NAV market focused on development sites below the company average (e.g. < 2.5 metres per property served), with supra-normal profits to follow. These developments with low infrastructure intensity, such as apartment blocks and flats commonly feature in current insets appointments.

Figure 3. Length of water main per property on new developments in Yorkshire Water



Surface Water Management

3.11.7 The local authority is able to impose restrictions on how the surface water discharge is to be managed on a new development.

3.11.8 The surface drainage decisions of any given local authority on any given site will impact on the developers design for surface water management and hence the potential avoidable cost base at that particular site. The bulk supply price for the surface water drainage service will be strongly influenced by the assumptions made on the need for long term on-site storage for extreme storm events and the associated storage desiltation provisions. This is a critical design assumption as the capital/operating cost consequences of installing over-sized pipes and/or culverts (or geocellular tanks?) to provide underground surface water storage for a traditional piped solution are extremely important.

3.11.9 Even with identical surface water management planning requirements, surface water drainage designs can also vary according to the size/nature of the development site. If there is cost variability, then this can only be managed by more complicated bulk tariffing arrangements.

Question 7: Do you recognise the above variability in water network asset and surface water drainage asset intensity and how should this be dealt with in bulk charges?

3.11 Are Local Authority Rates Avoidable?

3.12.1 It may be reasonable to consider the possible inclusion of local authority rates as a long run avoidable cost as it is quite a substantial element of the final customer water bill.

3.11.10 We read Anglian Water's recent consultation on bulk charging for NAVs and its subsequent conclusion with interest. We think it adds much value to the industry debate on bulk supply pricing.

3.11.11 As explained by Anglian Water local authority rates are a pseudo tax on profits and hence the incumbent's RCV. In its consultation Anglian Water went onto explain:

- *"If a new development has no effect on a water undertakers RCV, it will have no effect on profitability, and no effect on the rates bill"*
- *"For wastewater no rates are payable on sewers…There are therefore no rates costs that we avoid as a result of not serving a site, and no element needs to be allowed for in the NAV tariffs for wastewater."*
- *"As and when on-site assets were replaced by AWS, future increments to RCV would have occurred and a return earned."*

3.11.12 We broadly agree on the points of principle above.

3.11.13 As an incumbent we will not have our rates reassessed until 2021, therefore in the short term we will not avoid any rates upon a NAV adopting and managing a network within our region as opposed to it being adopted and managed by ourselves.

3.11.14 At this time, we are unsure when the local authority rates will be assessed and applied to the NAV in respect of a new development within the Yorkshire Water region. Importantly we need to consider when assets would have accrued to the RCV of the NAV and the consequential rates payable.

3.11.15 We therefore welcome views on how we could approach rates as an avoidable cost category and whether we could make a small explicit adjustment for future avoidable local authority rates as part of our bulk charging methodology, set against the period of the bulk supply agreement between ourselves and the NAV in question.

Question 8: What are your views on whether local authority rates are an avoidable cost relevant to a NAV and how they could be dealt with in bulk charges?

3.12 Asymmetric Market Risk

3.13.1 In Guidance Ofwat expressed some concern about bespoke pricing: "*setting tariffs on a site-by-site basis would be complex, time consuming and provide no or limited information to NAVs. As a result, in the largest majority of cases incumbent water companies should publish tariff information. It is possible though that, in some (rare) cases, some elements of the charge in relation to a particular site may need to reflect the sites features and/or circumstances and may therefore need to be customised or bespoke*".

3.13.2 In a subsequent publication - Revisions to NAV Policy Guidelines, November 2018[2] - Ofwat also identified "*cherry-picking*" as an important longer-term issue. This can happen where tariffs are geographically averaged but where "*the cost of serving sites may vary geographically*". In these circumstances NAVs "*may have an incentive to serve low-cost sites, with the greatest margin, leaving incumbents to serve high-cost sites*".

3.13.3 We think there is anecdotal evidence for the existence of asymmetric market incentives. One leading NAV has stated in its published accounts that "*the company is seeking new business, in particular high-density developments representing lower capital costs per customer*". This logical business decision is another reason why we had preferred to rely on bespoke bulk supply pricing arrangements; to limit such potentially inefficient pricing arbitrage.

3.13.4 To reduce the risk of such asymmetric market concentration by NAVs, Ofwat has now suggested their "*approach would base bulk supply charge on the price of wholesale water charged to retailers and then deduct the cost of serving the sites. These deductions should vary based on the cost of serving the sites. "*

And *"Our revised bulk supply charging guidance adopts this approach and consequently we consider this helps address any concern that NAVs might cherry-pick sites.*"

3.13.5 Given our CA98 duties we have considered how we can comply with regulatory Guidance and the associated revisions. Namely that the minus should vary according to local avoidable costs on the site, but that incumbents should publish tariff information. Only in rare cases should the incumbent use bespoke charging arrangements.

3.13.6 The physical site layout of the site (and not the volume delivered to the site boundary of the site) is likely to be the more important cost driver for new local networks management. These same network cost drivers are highlighted in explanatory factors (e.g. the network length and

[2] https://www.ofwat.gov.uk/consultation/revision-to-nav-policy-guidelines/

property density) within Ofwat's proposed econometric models for water distribution and sewage collection.

3.13.7 Whilst we support the wholesale-minus construct now required by Ofwat in its updated bulk charges Guidance. We consider the "minus" should continue to be in a more localised format – i.e. based on physical measure(s) of the actual assets to be installed (and hence managed) on any given new development site.

3.13.8 Given the site variability, we propose to reflect the key cost characteristics of the site. Most notably the number and nature of the water meters and communication pipes installed, the length of the on-site pipe networks and the need for surface water attenuation storage, in a published "bulk charging methodology".

Question 9: Do you agree with the need to reflect the key cost characteristics of each site in the minus calculation to widen the NAV market to costlier low density sites?

Question 10: Are there any major disadvantages to providing greater cost reflectivity in the minus by reflecting relative network characteristics, such as network lengths, etc?

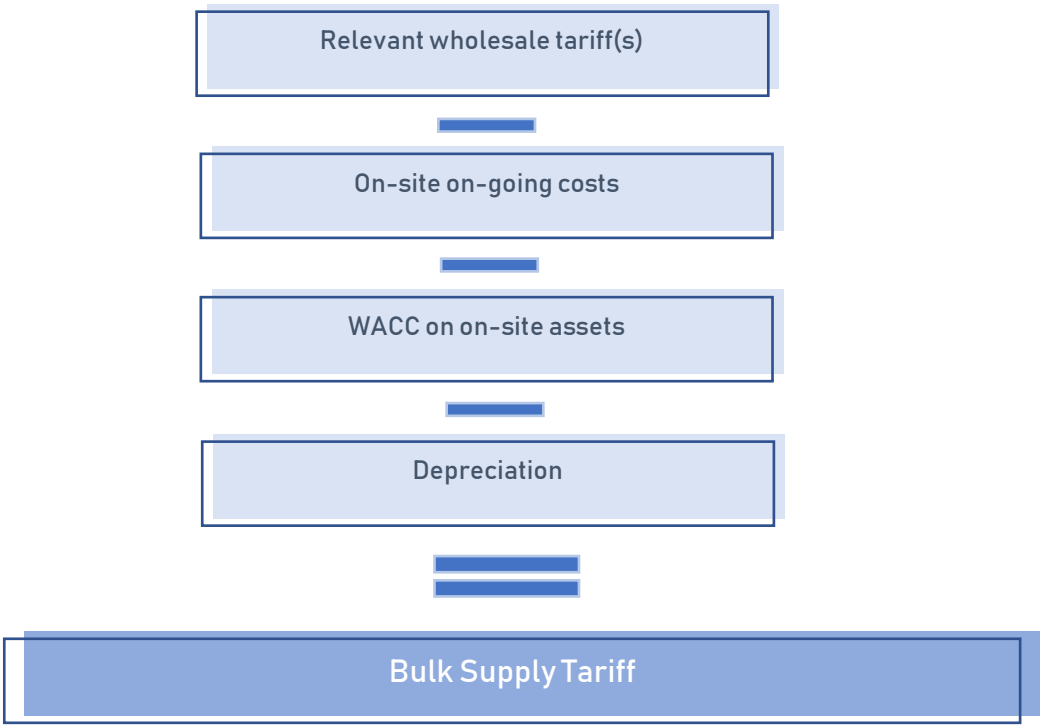
How does the Bulk Supply Pricing model work?

4. Wholesale Minus Approach

4.1Guidance requirement

4.1.1 Following Ofwat's guidance, we adopt the "wholesale-minus approach" to produce a Bulk Supply Pricing (BSP) model for NAVs. The first step is to define the relevant starting wholesale tariff and later to deduct a group of costs that the incumbent water company has identified it would incur if had supplied the new development.

4.1.2 Ofwat has identified four important components in this approach which are depicted graphically below:



Ofwat's methodology identifies three potential categories for the avoidable costs:

- The on-going costs of operating and maintaining the on-site assets
- WACC on the on-site assets
- Depreciation on the on-site assets

4.1.3 Moreover, Ofwat's statement, "*In some circumstances either not all costs mentioned may be relevant or it may be necessary to deduct additional costs*", offers flexibility to the incumbent to select the most appropriate set of avoidable costs.

4.1.4 Therefore, our proposed approach is to exclude WACC and depreciation from the starting point because all costs for assumed new asset growth have been funded by contributions from developers and as a result there is not a value increase to the RCV (of the incumbent or the NAV).

4.1.5 Ofwat has also indicated, that avoidable costs need to be considered in the long term. For the long-term calculations, the focus is on the future on-site expenditures, namely for operations, repairs and replacement, incurred once the development site is occupied by end-customers.

"*as a general principle it would be inappropriate to assume that the new assets, such as the on-site infrastructure for a new development, will have very low maintenance costs simply because they would be newer than any of the assets currently in the ground".*

4.1.6 After careful consideration, we propose that the BSP model should be determined by the following two groups of costs:

- The costs for operating and maintaining the on-site assets
- The long-term replacement costs for the on-site assets (Long Run Avoidable Costs)

4.1.7 Further details on our proposed approach on the calculation of the avoidable costs, can be found on the chapter 3.

Question 11: What are you views on our proposal that only the on-site operating costs and the LRACs will be deducted from the starting point?

4.2 Wholesale tariffs – The starting point

4.2.1 According to the methodology:

"*the relevant starting point is the set of the incumbent water company's wholesale tariff that reflects the NAV's potential end-customer base. This requires creating an "overall weighted average" tariff (or providing all the tariff elements for a NAV to construct it) that would reflect the combined wholesale charges of all the NAV's customers*"

4.2.2 To achieve that, two sources of information are needed; Yorkshire Water's wholesale charges for the financial year 2018/19[3] and information on the composition of the NAV's end-customer premises and forecast usage. The wholesale charges published on 10th of January 2018 are set in accordance with Ofwat's Wholesale Charging Rules[4] issued on 24th of November 2016.

4.2.3 Wholesale charges are reviewed every year therefore, bulk supply tariffs provided to NAVs will be updated annually recognising the revised weighted average wholesale tariff starting point.

[3] See: https://www.yorkshirewater.com/media/1236/720521_yw_wholesale_charges_2018_19.pdf
[4] See: https://www.ofwat.gov.uk/publication/wholesale-charging-rules-information-requirements/

4.2.4 In cases where the new developments adopted by a NAV are within the defined geographical area for York Waterworks, then the starting point will be the York Waterworks wholesale tariffs (water services only).

4.2.5 The characteristics of each site, such as the number of household and non-household premises, are the second source of information that will define the starting wholesale tariff. Following the guidance, the proposed formula for the calculation of the weighted average wholesale tariff is:

$$Wholesale\ tariff = \frac{F_{HH}N_{HH} * 100}{N_{HH}C_{HH} + N_{NH}C_{NH}} + \frac{N_{HH}C_{HH}Tariff_{HH} + N_{NH}C_{NH}Tariff_{NH}}{N_{HH}C_{HH} + N_{NH}C_{NH}} \quad (1)$$

4.2.6 where N_{HH}, N_{NH}: number of household and non-household properties, C_{HH}, C_{NH}: household and non-household annual demand (m^3), F_{HH}: fixed charges for household properties (£), $Tariff_{HH}, Tariff_{NH}$: tariffs for household and non-household properties (p/m3).

4.2.7 Yorkshire Water applies fixed charges for household water usage only. For simplicity, the household fixed charge for water services is converted into an equivalent p/m^3 and in effect combined to produce the volumetric based tariff. The formula depends on the composition of the site and calculates a weighted average wholesale tariff.

4.2.8 Formula 1 calculates the overall weighted tariff separately, for both water and wastewater services. Our standard 95% of water volume "return to sewers" rate is applied for the site. For further details, chapter 6 provides a worked example.

4.2.9 For sewerage services, our surface water fixed charges are left outside this tariff calculation. If the development is to be connected to Yorkshire Water's network for surface water, we propose to charge the NAV the surface water fixed charges (as published in our Wholesale Charges) based on the property mix and numbers on a per annum basis. We envisage many NAVs will not connect developments to Yorkshire Water's network for surface water, but link directly to a local water course.

Question 12: Do you agree with our proposal to convert our water fixed charges into volumetric tariff for the calculation of the starting point? If not, what would be the reasons to provide them separately?

Question 13: How do you think we should levy charges for surface water, where a NAV requires the use of our network to carry surface water from the development, and why?

4.3 Avoidable costs

4.3.1 Ofwat recognised:

> "*The type and scope of bulk services a NAV needs to purchase from the incumbent water company may vary depending on the approach the NAV adopts on the site and the local circumstances. Therefore, potentially each site could have its own bespoke bulk charges. The latter have the potential to cater for the exact needs of each site*"

4.3.2 For example, network operational costs will depend on many site-specific factors such as local network design characteristics (i.e. length of mains/sewers). To capture these site-to-site cost differences we propose the following: two rates are used to estimate the avoidable costs first, a cost per metre (£/m) for Yorkshire Water is estimated based on the source data and second, a metre (of mains or sewers) per property (m/prop) is estimated for the NAVs. These two rates are multiplied together, to provide the final cost per property rate (£/property).

$$Cost\ per\ property\ per\ year(£/prop/yr) = \frac{YW(£)}{YW\ (metre)} * \frac{NAV\ (metre)}{NAV\ (property)} \qquad (2)$$

4.3.3 The idea is that we should first calculate the costs per metre for Yorkshire Water and later raise them to reflect the NAV's characteristics or else the site density. The NAV can then use the expected average site density (i.e. metres/property, metres pipe/property etc.) and the expected average property demand (m^3/ property/year) to estimate the final tariff based on the "wholesale minus approach".

4.3.4 Formulas 1 and 2 are the main drivers of the BSP model. Formula 1 calculates the starting point, and formula 2 estimates the avoidable costs for the activities we have identified in tables 1a and 1b.

4.3.5 The definition of operating costs from the Annual Performance Report (APR) for 2017/18 [5], aligns with the definition provided by Ofwat *"These are the payments for the day to day operations of our business, such as operating and maintaining our network and treatment works, paying our staff and energy bills."*

4.3.6 The general approach to calculate the costs, as mentioned earlier, is to estimate the cost for Yorkshire Water as £/metre and to multiply it with the density characteristics of the site, as meter/property. For the calculations of the on-going costs, we applied to formula 2, source data from 2017/18 and earlier (or in some cases the most up-to-date available) and the site's expected characteristics. The result is a catalogue of the on-going avoidable costs expressed as £/property/year.

[5] See: https://www.yorkshirewater.com/sites/default/files/Yorkshire-water-annual-performance-report-apr-July-2018-min.pdf

Table 3: List of the on-going avoidable costs for water and wastewater services

On-going avoidable costs	
Water	Wastewater
Water operational costs	Sewerage operational costs
Leakage management costs	
Scientific services (sampling costs)	

Question 14: Do you support our idea that the incumbent's costs should be combined with the NAV's characteristics to provide a fair estimation of the avoidable costs? Please provide comments or alternative suggestions.

4.4 Water and sewerage operational costs

4.4.1 A NAV is responsible for operating and maintaining the on-site infrastructure therefore, the costs for the activities that a NAV is expected to perform on their site are deducted from the wholesale tariff.

4.4.2 For the water network, one predominant cleaning method is currently used by Yorkshire Water, flushing. The cleaning technique is employed on the distribution network rather than trunk main network. For the sewerage network, operational costs cover activities such as jetting and CCTV. The costs of supporting customers during emergencies, such as significant loss of supplies is also covered in operational costs.

4.5 Leakage management and allowance

4.5.1 Leakage related costs are captured in two ways within the BSP model. Firstly, as active leakage management expenditure. Business experts have estimated the average cost for detecting and repairing leakage in new builds.

4.5.2 Secondly, a percentage allowance is estimated to discount for distribution losses in the network. Losses on the distribution network depend on factors such as pipe age, pipe material and diameter, soil type, topography and even proper pipe fitting.

4.5.3 However, to achieve transparency and simplicity, the proposed method for calculating the percentage of leakage allowance is using the APR data. For 2017/18 the distribution losses are 219,210 m^3/d and total length of mains is 31,693km which equates to 2.52 m^3 of water lost per metre of mains per year. This estimated rate of losses for Yorkshire Water and the length of mains for the NAV site are multiplied to provide the annual losses as m^3/year.

4.5.4 The NAV's density characteristics and the previously estimated annual losses are used to convert the value into a percentage allowance for leakage. The final % discount is applied to the overall weighted wholesale tariff after the deduction of the on-site avoidable costs, to avoid double counting.

4.5.5 To support our calculations and assumptions we sought out evidence from the Water Resources Management Plans (WRMPs) published by NAVs. SSE Water estimates "*average distribution leakage rate of 3.5%*"[6], IWNL estimates that for "*for new, water efficient and metered*" properties a rate of 4.5% is expected[7], Albion Water uses a rate of 4%[8] and ICOSA has agreed target rates for "unaccounted water" of 5-10% of distribution input[9].

Question 15: Do you support our proposal to apply estimated network losses as a percentage reduction on the overall weighted wholesale tariff which will depend on the total length of water mains at a NAV site? If not, can you please provide alternatives?

4.6 Scientific costs

4.6.1 NAVs are responsible for their drinking water quality of their sites and are required to comply with DWI's guidance[10] which states that:

"*Each new appointment (or variation) should be regarded as a discrete water supply zone(s) and regulatory water quality monitoring undertaken at consumers' taps or supply points (as appropriate) by the appointed companies on the basis of the estimated number of consumers or volumes of water supplied by each appointment (or variation), respectively*"

4.6.2 We propose that any costs typically faced by the incumbent for collection, analysis, monitoring and reporting per year is avoided in case of a NAV being appointed to a site, as the NAV has water quality obligations to comply with.

4.7 Long-Run Avoidable Costs

4.7.1 For the calculation of the Long-Run Avoidable Costs we used the equivalent (annual) annuity (EAA) approach. It is a well-known financial technique. It presents the net present value of a series of future potentially uneven costs as a series of equal costs over the lifetime of the investment. Further details in chapter 3.

[6] SSE Water, Water Resources Management Plan 2019-2044, page 9
[7] IWNL, Draft Water Resources Management Plan 2019, December 2017, page 14
[8] Albion Water, Draft Water Resources Management Plan, April 2018,
[9] ICOSA water services limited, Water Resources Management Plan, December 2017, page 20
[10] See: http://www.dwi.gov.uk/stakeholders/guidance-and-codes-of-practice/inset.pdf

4.8 Discount rate

4.8.1 As explained in chapter 3.9, for out calculation of LRACs, we need to select an appropriate discount rate. In annex 2 of the guidance the vanilla/pre-tax WACC has been increased from 3.74%/3.97% for incumbents (as published at PR14) to 4.39%/4.74% for NAVs. It is our priority to comply with the guidance therefore, we adopt the discount rate of 4.74% as proposed by Ofwat for our LRACs calculations.

4.9 Business overhead

4.9.1 Business overhead discount is based on the idea that some of the incumbent's household retail activities will notionally extend to cover the local network management or operations on the new developments. We have estimated that the allowance for the associated household retail business costs is around 10% and it will be applied on the total avoidable costs.

Question 16: Do you think that the business overhead discount is relevant to a NAV? If yes, do you support our approach to use our retail overhead level as a proxy for a NAV overhead level?

Bulk supply worked example

5. An illustrative example of how to calculate the tariff

5.1 This chapter provides a worked example to demonstrate our proposed "wholesale-minus approach" described in the previous chapters.

5.2 We consider a NAV site with 800 household properties and 2 non-household properties. Both water and wastewater services are required. The annual water demand has been provided by the NAV; 93m^3 for the household properties and 4,000m^3 for the non-household properties. A rate of 95% "return to sewers", is used to estimate the wastewater demand. The total length of mains is 6km and the total length of sewers network is 5.5km. Both numbers are provided by the NAV.

Table 4: List with all the critical NAV characteristics

NAV characteristics	Values
Total length of mains (km)	6
Total length of sewers (km)	5.5
Nr of HH	800
Nr of NH	2
Annual HH water demand per property (m^3/yr)	93
Annual NH water demand per property (m^3/yr)	4,000
Annual HH wastewater demand per property (m^3/yr) (95% return-to-sewer)	88.35
Annual NH wastewater demand per property (m^3/yr) (95% return-to-sewer)	3,800

5.3 Based on the NAV characteristics provided, we estimate the wholesale charges for water and wastewater.

Table 5: Wholesale charges for water and wastewater based on the NAV characteristics

Wholesale charges	Values
Water	
Fixed HH charge	£9.57
Volumetric HH charge	£134.80
Volumetric NH charge	£131.65
Wastewater	
Fixed HH charge	£0.00
Volumetric HH charge	£167.18
Volumetric NH charge	£159.25

5.4 Formula 1 is used to calculate the starting point according to the "wholesale-minus" approach. The resulting values are 143.79 p/m^3 for water services and 166.41 p/m^3 for wastewater services.

5.5 Formula 2 is used to estimate the avoidable costs in most cases. Both on-going and long-run avoidable costs are shown in the two following tables, for water and wastewater services separately.

Table 6a: Total avoidable costs for water services

Avoidable costs	Values
On-site avoidable costs	
Scientific services (sampling costs)	£0.42
Water operational costs	£1.06
Leakage management costs	£4.00
Long-run avoidable costs	
Communication pipes renewal/replacement	£0.10
Meter and meter/chamber renewal/replacement	£4.89

Stop taps renewal/replacement	£0.62
Street furniture renewal/replacement	£0.26
Water mains renewal/replacement	£3.61
Emergency services	£0.86
Business overhead	£1.64

Table 6b: Total avoidable costs for wastewater services

Avoidable costs	Values
On-site avoidable costs	
Sewerage operational costs	£4.78
Long-run avoidable costs	
Meter and meter/chamber renewal/replacement	£1.76
Street furniture renewal/replacement	£0.27
Sewers renewal/replacement	£0.97
Business overhead	£1.29

5.6 From the tables 6a and 6b, the total water avoidable costs are £16.60, and the total wastewater avoidable costs are £13.74 per property per year. Based on the density characteristics of the site, leakage allowance is estimated to be 5.80% for water and wastewater services; which means that the final tariffs for a NAV are:

Table 7: Final tariffs for water and wastewater services

Tariffs	WA Wholesale Starting Point	Final Tariff Values
Water services tariff (p/m^3)	143.79	120.99
Wastewater services tariff (p/m^3)	166.41	145.08

yorkshirewater.com
Yorkshire Water Services Limited, Western House, Halifax Road,

YorkshireWater