PR24 Cost Assessment Working Group
Cost adjustment claims

Draft for discussion

11th November 2021

Ofwat

Agenda

(1) Welcome and housekeeping (11:00 to 11:05)

(2) Background on PR19 cost adjustment claims and looking ahead, Ofwat (11:05 to 11:20)

(3) Cost adjustment claims, Severn Trent (11:20 to 11:40)
Band 6 sewage treatment works disaggregation, Anglian Water (11:40 to 11:55)
Breakout sessions (11:55 to 12:25)

(4) Closing remarks (12:25 to 12:30)

PR19 background and looking ahead, Ofwat

PR19 approach overview

- Our main tool to determine efficient base cost allowances is through econometric modelling. This approach uses statistical methods to benchmark companies' costs whilst taking into account exogenous factors that drive differences in efficient costs between companies (i.e., cost drivers).
- The use of benchmarking models helps us to overcome information asymmetry between companies and ourselves.
- But we recognise that econometric models are not perfect and may not explain all variations in efficient base costs between companies and over time. We therefore **complement econometric analysis with cost adjustment claims**.
- Cost adjustment claims are mechanisms for a company to **present evidence of unique operating circumstances, legal requirements or atypical expenditure which drive higher efficient costs for the company relative to its peers**.
- The cost adjustment claims we received at PR19 included a mix of base and enhancement claims.
- We set a **high evidential bar** for accepting cost adjustment claims given the one-sided nature of the process and because it reintroduces information asymmetry.
- Cost adjustment claims were assessed through a gated process (detailed in the next slide).
- Companies submitted an **early view of cost adjustment claims in May 2018**. Companies indicated the early feedback received was generally helpful to refine the claims that were later submitted in business plans.

Assessment gates (I)

Gates	Description of the gate and relevant questions
Need for investment	• What incremental improvement would the proposal deliver? • Is there persuasive evidence that an investment is required? • Where appropriate, is there evidence – assured by the customer challenge group (CCG) – that customers support the project?
Need for adjustment	• Is there persuasive evidence that the cost claim is not included (or, if the models are not known, would be unlikely to be included) in our modelled baseline? • Is it clear the allowances would, in the round, be insufficient to accommodate special factors without a claim?

- The 'need for adjustment' gate is particularly important for a base cost adjustment claim.
- We expect companies to **explain why our models do not adequately capture their unique circumstances**.
- We also expect companies to demonstrate that **the modelled base cost allowance would be insufficient to accommodate the special factor without the claim**. For example, is the claim material after deducting the implicit allowance.
- Where this gate is failed, we **reject the cost claim**.

Source: PR19 Final methodology, Appendix 11 – Securing cost efficiency, Chapter 4

Assessment gates (II)

Gates	Description of the gate and relevant questions
Robustness and efficiency of the cost	• Is there persuasive evidence that the cost estimates are robust and efficient? • Is there high quality third party assurance for the robustness of the cost estimates?
Management control	• Is the cost driven by factors beyond management control? • Is there persuasive evidence that the company has taken all reasonable steps to control the cost?
Best option for customers	• Does the proposal deliver outcomes that reflect customers' priorities, identified through customer engagement? Is there CCG assurance that the company has engaged with customers on the project and this engagement been taken account of? • Did the company consider an appropriate range of options with a robust cost– benefit analysis before concluding that the proposed option should be pursued? • Is there persuasive evidence that the proposed solution represents the best value for customers in the long term, including evidence from customer engagement? • Has risk been assessed? Have flexible, lower risk solutions been assessed? • Has the impact on natural capital and the environment been considered?
Customer protection	• Are customers protected if the investment is cancelled, delayed or reduced in scope? • Are the customer benefits that relate to the claim linked to outcomes and to a suitable incentive in the company's business plan?
Affordability	• Has the impact on affordability been considered? • For large investment schemes in particular, is there persuasive evidence that the investment does not raise bills higher than what is affordable?
Board assurance	• Does the company's Board provide assurance that investment proposals are robust and deliverable, that a proper appraisal of options has taken place and that the option proposed is the best one for customers?

Source: PR19 Final methodology, Appendix 11 – Securing cost efficiency, Chapter 4

Materiality thresholds

Control	Materiality threshold*
Water network plus	1%
Wastewater network plus	1%
Water resources	6%
Bioresources	6%
Residential retail	4%
Business retail	6%
* As a percentage of business plan (5-year) totex in the respective control.	

- The PR19 thresholds were higher than those used at PR14 and were revised based on examination of PR14 cost claim rejection rates.
- The higher thresholds ensure customers are better protected from an adjustment process which is largely one-sided, and ensure a more proportionate process to allow us to focus attention on important adjustments to modelled costs.
- The higher thresholds in the retail and water resources controls reflect the smaller overall value out of the appointed company business.

Implicit allowance

- The materiality of cost adjustment claims is assessed after the deduction of the 'implicit allowance'. This approach was set out in our PR19 methodology.
- The implicit allowance is an allowance for the claim which is already included in the modelled cost allowance.
- If costs related to the claim have been incurred historically and are captured in base costs, then the implicit allowance will always be greater than zero.
- There is not a perfect approach to estimating the implicit allowance, and different approaches may be more or less appropriate in different scenarios. It may be appropriate to consider a range of approaches to come to an estimate of the implicit allowance.
- Approaches that were taken to estimate an implicit allowance at PR19 included:
  - The removal / inclusion of related cost drivers / explanatory variables from the base cost models;
  - The removal of relevant expenditure from the base cost models;
  - Assessing industry average unit costs associated with the factor the claim relates to.

One-sided nature of the process

- The cost adjustment claim process is **one-sided by its nature**. Over the PR19 process, **companies submitted over 60 cost adjustment claims, for a total of over £4 billion of upward adjustments to our cost allowances**, while no cost claim was submitted for a negative adjustment to our cost baselines ('PR19 final determination: Securing cost efficiency technical appendix', Annex 5).

- CMA Final determination: "[…] we note that the Disputing Companies are more likely to make cost adjustment claims where their characteristics lead to an underestimation of costs (and not an overestimation of costs). Therefore, it is reasonable to expect the Disputing Companies to provide compelling evidence for these cost adjustments." (para 4.968)

- If the process is one-sided, **customers may not be adequately protected in cases where the models overestimate companies' expenditure requirements**.

- In our PR19 final methodology, we set out the **intention to make the process more symmetrical** for factors that are 'persistent' cost adjustment claims (such as regional factors). Such costs are likely to be included in our benchmarking analysis, in which case they will be reflected in all companies' cost baselines.

- However, **at PR19 we generally did not implement symmetrical adjustments**, with the exception of the growth unit cost adjustment, where we applied a 50% cut to the negative adjustment. The CMA supported our approach to the adjustment and applied a 100% downward adjustment to the disputing companies.

Summary of PR19 claims – base cost adjustment claims (excluding growth)

- We have carried out an ex-post review of cost adjustment claims and categorised them by area.
- On **wholesale base costs** (excluding growth), we found that claims generally related to:
  - Regional wage
  - Treatment complexity
  - Density
  - Economies of scale
  - Capital maintenance and reservoir safety
  - Sludge transport and disposal
  - Energy price and consumption
  - Leakage and other SDB activities (assessed in SDB where appropriate)
  - Sewer flooding and other DWMP activities
  - Other (BRL Canal and River Trust, SWB Isle of Scilly, NWT Manchester and Pennine DPC, SES water softening).
- Claims that were accepted were **mostly driven by new legal requirements** (e.g., reservoir new legal requirements, water softening, supply to the Isle of Scilly). Main exception to this was SES's allowance for energy requirements.
- A few claims were submitted on **residential retail**. Some of these claims related to factors which were later included in our residential retail models (e.g., transience and deprivation), thereby removing the need for an additional cost adjustment.

Most wholesale base claims do not to relate to factors that are 'unique' to the company. These areas would lend themselves well to symmetrical cost adjustments.

Summary of PR19 claims – growth and enhancement

- A number of claims were submitted on growth-related expenditure. We found that claims generally related to:
  - Higher on-site and off-site costs
  - Network capacity
  - STW growth
  - Non-section 185 diversions

- Enhancement expenditure claims were submitted on a variety of areas, including:
  - WINEP
  - SDB
  - Security
  - Resilience
  - Lead reduction
  - Water treatment work upgrades driven by DWI notices.

- Where appropriate, enhancement claims were reallocated to the relevant enhancement area.

Submission of future enhancement claims to the relevant enhancement area would aid consistent assessment across companies. The same applies to growth-related cost claims / deep dives should growth expenditure be assessed outside of base costs at PR24.

Looking ahead to PR24 – initial considerations on cost claim process (I)

Scope of cost claims

- We propose **cost adjustment claims should be narrowed in scope to cover base-related costs only**.
- **Enhancement claims should be submitted to the relevant enhancement area at PR24**. This would facilitate the assessment by area and minimise the need for reallocations.

Symmetrical adjustments

- The majority of base cost claims at PR19 did not relate to factors that are 'unique' to the company.
- At PR24, **we therefore expect most base claims to be symmetrical, and expect companies to indicate in their submissions how an adjustment would impact the rest of the industry**.
- **The lack of this evidence would likely lead to rejection of the 'need for adjustment'**.
- Where the company considers the claim to be an exception to the symmetry principle, it should clearly demonstrate why this is the case (e.g., the costs are truly atypical and unique to the company).

Data requirements

- To enable assessment of cross-sector impacts of the claim, we note that **new data collection requirements will need to be considered early in the process**.
- If companies expect to submit a base cost claim, companies should set out any additional data requirements **in response to the December base cost consultation**. Failure to do so may limit the company's ability to submit a robust and high-quality cost claim later in the process.

Looking ahead to PR24 – initial considerations on cost claim process (II)

Change in circumstances

- For claims which were either not submitted or rejected at PR19, we expect to receive **evidence of a material change in circumstances since the PR19 business plan submissions**. In the absence of new evidence / information, cost claims would likely fail the 'need for adjustment' gate.

Quality of claims

- We note that some of the claims that were submitted at PR19 were driven by the lack of sight over our cost assessment approach (in particular, our base econometric models).
- **Knowledge of the PR19 base econometric models should refine the number and quality of the claims submitted at PR24, alongside the early steer we will provide in our December base cost paper.** We also will aim to improve the clarity of our guidance where appropriate.
- We expect to consider the quality of claims submitted as part of our assessment of PR24 business plans.

Implicit allowance

- There may be **scope to improve visibility of the implicit allowance.** For example, a separate assessment gate distinct from the need for adjustment gate. The latter could focus on qualitative arguments over the unique circumstances and atypicality of the expenditure.
- We will expect companies to **set out the value of the claim before and after the deduction of the implicit allowance**. Details of the approach taken to estimate the implicit allowance and the impact of the claim on other company base cost allowances (i.e., symmetrical adjustment) should also be provided.

Cost adjustment claims, Severn Trent

COST ADJUSTMENT CLAIMS

Discussion for CAWG
November 2021

CONTENT

Approach and basis for adjustments (CACs and deep dives)

Premise for Implicit Allowance calculations

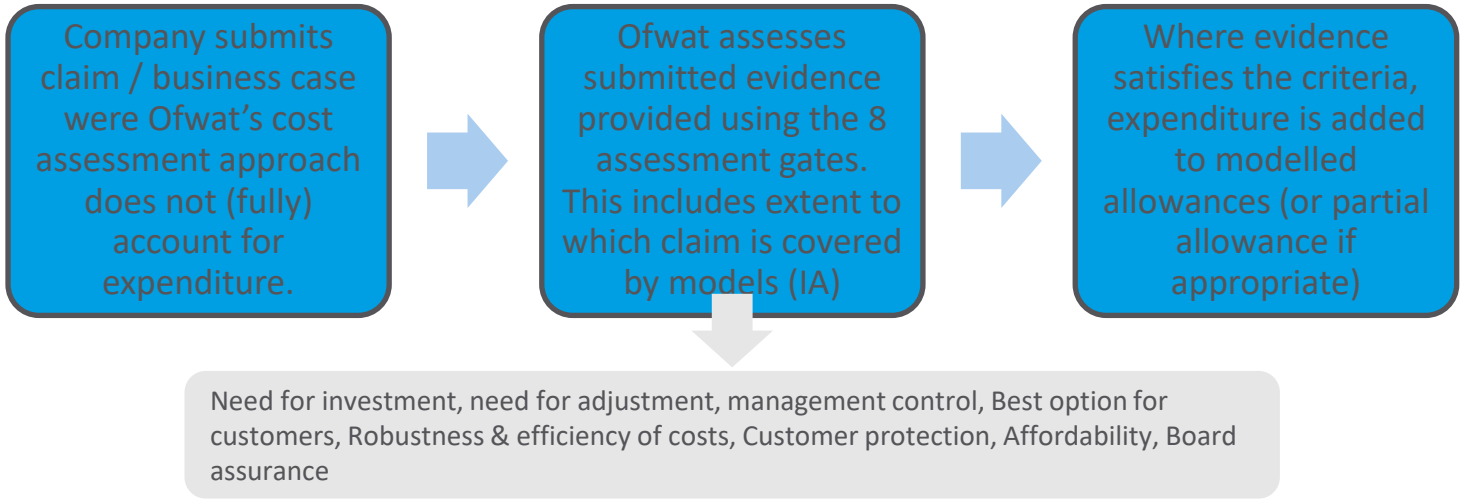
Opportunities to improve clarity of the adjustment process and IA calculation?

Opportunities for a common evidence base?

THE APPROACH AND BASIS FOR ADJUSTMENTS

High level approach to adjustments
Currently, base cost adjustment claims and unmodelled enhancement expenditure (including deep dives) are considered through a roughly analogous approach (right)

Basis for adjustments
Clarity on basis for adjustments (modelling cost adjustment claims and enhancement deep dives) is critical for the development of sensible claims (below)



Base adjustment claims are required where:

- Models do not/cannot account for significant cost drivers at an industry scale (i.e. typical material costs that cannot be modelled e.g. due to data issues, degrees of freedom in model)
- Models do not account of costs that are not significant at an industry level, but material to a particular company due to its specific circumstances (i.e. atypical material costs).

Enhancement adjustment claims are similar but with some differences. They require a business case to justify all or some of the investment. Business cases are required where:

- Ofwat's enhancement models are not reflective of true costs (e.g. SDB costs are greater than £1.2m/MLD due to local circumstances) – Adjustment for marginal costs (over and above model)
- Ofwat cannot model enhancement costs using a model – Adjustment for total cost (because there is no model)

IMPROVING CLARITY OF CLAIM PROCESS

Acknowledging the different bases for claims should improve quality and coherence of claims
A well functioning adjustment process is critical to maintaining confidence that the cost assessment method will identify efficient costs. It will relieve pressure on the need for models to be perfectly specified (models will never be able to perfectly reflect all the complexities of all the companies). Therefore, it should allow simpler and more intuitive models

Should the assessment approaches for each claim basis be made more explicit for each type to avoid confusion?

Base cost adjustment claims (atypical base costs that are material only to specific companies)

- Not appropriate for modelling fix as not a material driver of cost at a sector level

Base model adjustment claims (base costs material to sector but cannot be accurately reflected in models)

- Could be delivered by bespoke of common adj (e.g. growth post modelling adj)
- At PR19 many claims rejected because costs not atypical. Typical costs not captured in models still require adjustment.

Enhancement deep dives (total cost of delivering identified enhancement)

- No model available E.g. approach to resilience costs at PR19
- Review of business case needs to determine efficient

Enhancement model adj. claim (marginal cost of delivering enhancement relative to model assumption)

- E.g. case for SDB costs being atypical relative to model due to specific geographical circumstance

Providing earlier model visibility and setting expectations of submitted claims should improve quality and coherence of claims
Visibility of models allows more accurate calculation of IA ahead of submission.

- This will reduce the number of claims that need to be developed and assessed
- Focus business cases for enhancement deep dives where models cannot be constructed

Setting clear expectations of submitted claims will encourage consistency

- Claim expenditure net or gross of company assumption of IA?
- Worked examples of calculated IAs made available. Requirement for clear description of approach used (claims & assessments)
- Validation expectations

PREMISE OF IAS AND PR19 EXAMPLES

Assumed premise of different Implicit allowances:

0% IA
Relevant model/s takes no account of identified claim costs

Need for full adjustment (assuming business case is robust)

Partial IA (between 0-100%)
Relevant model/s takes some but not full account of identified claim costs

Need for some adjustment (Claim – IA, assuming business case is robust)

100% IA
Relevant model/s takes full account of identified claim costs

No need for adjustment (irrespective of robustness of business case)

PR19 examples of usage and calculation:

Determined based on:
- Atypical interventions (base)
  - SSC invasive mains cleaning
  - SES water softening
- New requirements (enhancement)
  - HDD lead supply pipes / res. safety
  - SWB Isles of Scilly
- Projects already started (enh)
  - WSX North Bristol Sewerage

Calculated based on:
- Model outputs prorated for a geographical area.
  - SRN Thanet sewers
  - YKY Hull flooding
- Claimed costs divided into those in and out of model scope.
  - SEW Intra zonal reinforcement
- Impact of enhancement claims on modelled base
  - SSC WTW enhancement claim

Justified by:
- Claim assumptions no longer valid
  - SVE enhancement IAs based on PR14 approach to enhancement and historic outturn costs
  - TMS productivity after separate treatment of TMA
- Inclusion of new drivers in models
  - WSX WNI complexity covered by quadratic density drivers
  - TMS complexity claims would be covered by density drivers

IMPROVING COHERENCE OF IAS

Ensuring transparency and repeatability of IAs

Partial IAs are likely to require some form of calculation. These should be transparent and repeatable.

- It is hard to replicate calculated IAs from information provided in published cost adjustment model spreadsheets
  - E.g. How are different components of Botex+ forecasts identified? (company splits? Disaggregated models? Industry averages?)
  - Unclear what quantified ranges account for and how they have been derived.
- Where information is available, range of different approaches appear to have been used – likely creating inconsistency.
  - Actual costs that input into models (i.e. pre-efficiency)
  - Company cost forecasts (potentially pre or post efficiency)
  - Modelled costs (i.e. post-efficiency)

A need to better assess partial IAs for base claims

Base partial IAs appear to be limited to cost pressures that affect a limited geographical area only. There are few/no examples of partial base IAs that relate to costs across the company area. Most examples are given a 0% or 100% IA. This is surprising given that Botex+ models account for all base costs incurred (excluding unmodelled costs). Therefore, any atypical costs should be contributing to model coefficients and error terms in at least a small way.

Clarifying the scope of the 'Need for Adjustment' assessment gate

- We consider IA identifies if there is a need for an adjustment (claims not material after IA do not need an adjustment).
- At PR19, the 'Need for Adjustment' gate also appears to consider if costs are unique or exceptional relative to the rest of the sector. However, as above, we consider atypicality is not necessarily relevant to all claims.
- Should there be a more explicit link between the assessment gate and IA? Or review IA separately in its own gate?

OPPORTUNITIES FOR A COMMON EVIDENCE BASE?

- Where companies are concerned that likely botex model specifications will not account for material costs (be they typical or atypical), they will need comparative information to develop and evidence claims.

- Equally, Ofwat requires comparative information to assess the extent to which claims are required.

- Where there are common areas of model specification concern across the sector, collecting proportionate information in advance could be desirable and may lead to a more robust process of making and assessing adjustments.

- Information could then be used to:
  - Improve models (where the costs are typical across the sector and an improvement to models is available given the additional data available)
  - Undertake a post modelling adjustment for all companies (where costs are typical across the sector but a modelling fix is not possible)
  - Agree / challenge a bespoke cost adjustment.

- The December model consultation document might be an appropriate opportunity for companies to signal areas of concern so that a focused/proportionate evidence base can be developed? We share our initial thinking of potential areas of botex model specification weakness on the next slide.

BOTEX MODEL SPECIFICATION: AREAS FOR CONSIDERATION

Identified material drivers of SVE base cost	Potential reasons for poor specification in botex econometric models	SVE specific or generic?	Need for new or improved data?
Complexity of water treatment processes	Current available data on treatment complexity bands might not accurately represent water treatment cost pressures	Generic	Improved
Specification of water network complexity	Existing data (e.g. boosters/length and APH) may not be of appropriate quality and might not account for both opex and capex drivers of efficient cost	Generic	Improved
Water resources configuration	WR+ models include very little explanatory power for water resources cost drivers	Generic	New
Increasing external cost pressures through time (time trend)	No change in operational complexity assumed in data panel. RPE considers unit productivity but not growing operational complexity.	Generic	Existing data
Sparsity and interaction with average density.	Drivers reflect how costs can be driven at both extremes of sparsity and density, but they assume an average density across a company.	Potentially specific	New / improved
Scale effects across the full range of STW size bands	Assumes limited opportunities for economies of scale at medium and large-scale STWs	Generic	Improved
Operating STWs with very tight consents	Limited historic costs in data panel but future cost pressures	Specific	Improved

SUMMARY CONSIDERATIONS

- Looking back at PR19 reveals a level of ambiguity surrounding the basis for claims. This increases pressure on model specification and increases the risk that efficient costs are not revealed.

- Assessment approaches for different types of claim should be more explicit and clear expectations of how claims should be submitted should be set out. This would allow claims to be more focused and assessments less ambiguous. Earlier sight of models will support this.

- The cost adjustment process should allow for the consideration of typical base costs that are demonstrably not fully accounted for in model specifications. This should enable the used of simpler and more intuitive models. Such claims might be best addressed using common (post modelling) adjustments.

- Transparency and repeatability of implicit allowances is important. This is particularly the case for Base partial IAs. The scope of the 'Need of Adjustment' assessment gate may require review. Should this be more explicitly linked to IA? Or IA be considered through a separate assessment gate?

- There is a case for reviewing evidence and data for areas that appear to be weaknesses in current model specification. This could be used to improve models or allow for effective common / bespoke adjustments where a modelled solution is not feasible or desirable.

Band 6 sewage treatment works disaggregation, Anglian Water

Cost modelling advantage of Band 6 WRC disaggregation

Proposed CAWG presentation by Anglian Water

November 2021

Purpose

- To demonstrate the economies of scale in Water Recycling Treatment
- To illustrate the impact of not having very large WRCs on measured Water Recycling Efficiency Treatment
- To propose a more effective mechanism for capturing this exogenously driven control factor

Available data

Available for	Source
Up to 2011	June Return Table 17B
2012	PR14 Data submission Table 6
2013	
2017	PR19 Information Request Table 11
2018	PR19 Business Plans Table WWn2
2019	2019 Annual Data Return Table 4O
2020	2020 Annual Data Return Table 4O
2021	2021 Annual Data Return Table 7B

Financial data	Measure
Service charges	£000
Estimated terminal pumping expenditure	£000
Other direct expenditure	£000
Total direct expenditure	£000
General and support expenditure	£000

Operational data	Measure
Works name	Text
Classification of treatment works	e.g. SAS
Population equivalent of total load received	000s
Suspended solids consent	mg/l
BOD_5 consent	mg/l
Ammonia consent	mg/l
Phosphorus consent	mg/l
UV consent	$mW/s/cm^2$
Load received by STW	$kgBOD_5/d$
Flow passed to full treatment	m^3/d

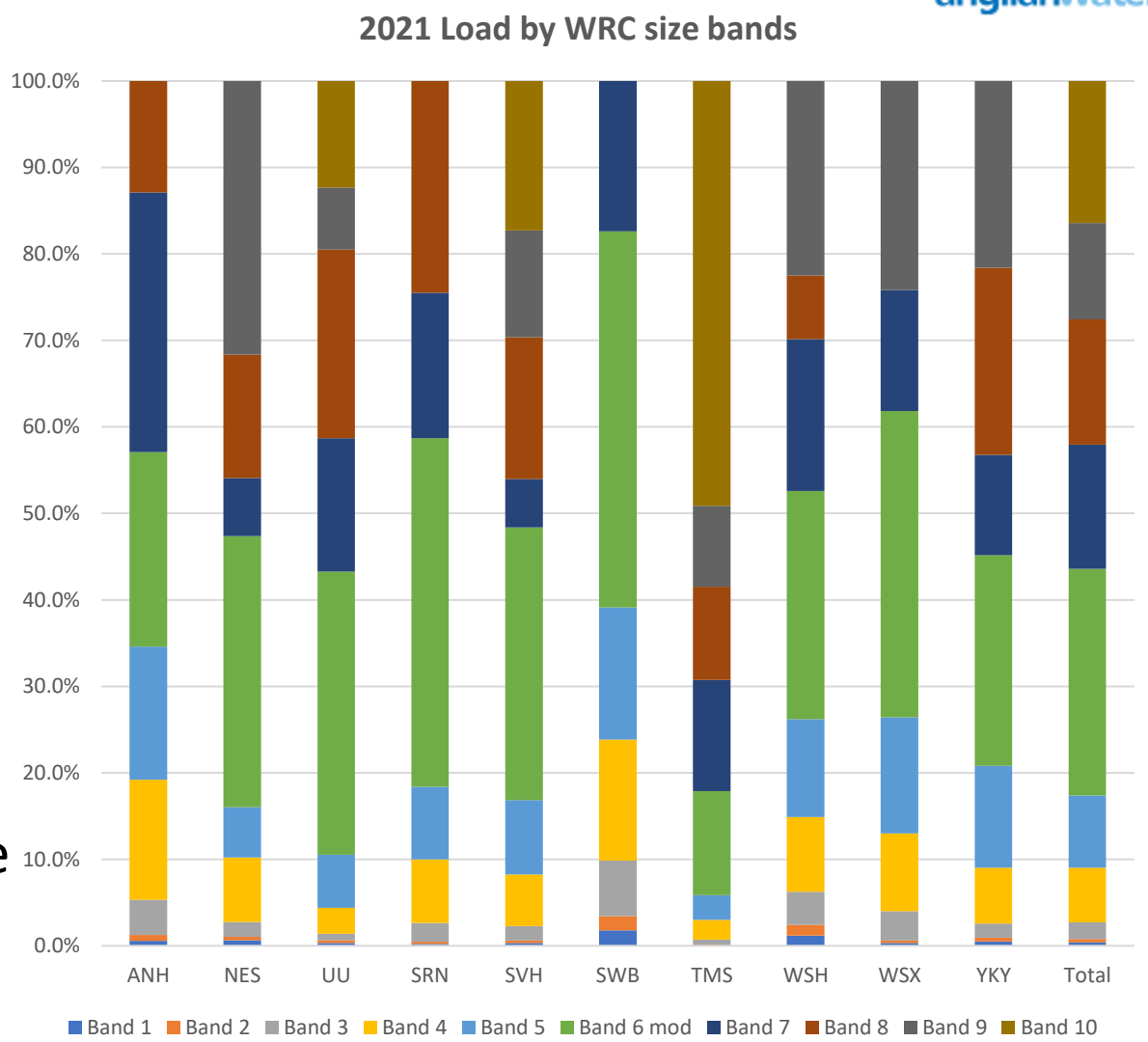
By the time BPs are submitted in Autumn 2023, there will be a seven year continuous series of data from 2017, with a further continuous series running from the late 1990s up to 2013.

Approach

- The approach harks back to the opex models used by Ofwat up to 2011
- Existing Band 6 is split into 5 new Bands:

Band	p.e. x000	# WRC in 2021	% total load
6 (Revised)	25 – 125	295	26.1%
7	125 – 250	56	14.3%
8	250 – 500	28	14.5%
9	500 – 1,000	11	11.2%
10	> 1,000	5	16.4%

- Existing Band 6 (Green and above) accounts for 61% (SWB) - 94% (TMS) load per company – details on next slide
- Revised Band 6 is a lot bigger than the others: maybe a case for a further split?



Shares of load for each Band

% Load 2021	Band 1	Band 2	Band 3	Band 4	Band 5	Band 6 mod	Band 7	Band 8	Band 9	Band 10	Total	Ofwat Band 6	Bands 8-10
ANH	0.6%	0.7%	4.1%	13.9%	15.4%	22.5%	30.0%	12.9%	0.0%	0.0%	100.0%	65.4%	12.9%
NES	0.7%	0.4%	1.7%	7.5%	5.8%	31.3%	6.7%	14.3%	31.6%	0.0%	100.0%	84.0%	45.9%
UU	0.3%	0.3%	0.7%	3.0%	6.1%	32.7%	15.4%	21.8%	7.2%	12.3%	100.0%	89.5%	41.3%
SRN	0.2%	0.3%	2.2%	7.3%	8.4%	40.3%	16.8%	24.5%	0.0%	0.0%	100.0%	81.6%	24.5%
SVH	0.3%	0.3%	1.8%	6.0%	8.8%	31.2%	5.6%	16.4%	12.3%	17.3%	100.0%	82.7%	45.9%
SWB	1.8%	1.6%	6.4%	14.0%	15.3%	43.5%	17.4%	0.0%	0.0%	0.0%	100.0%	60.9%	0.0%
TMS	0.1%	0.1%	0.6%	2.3%	2.9%	12.0%	12.8%	10.8%	9.4%	49.1%	100.0%	94.2%	69.3%
WSH	1.2%	1.3%	3.8%	8.6%	11.3%	26.4%	17.6%	7.3%	22.5%	0.0%	100.0%	73.8%	29.8%
WSX	0.3%	0.3%	3.4%	9.0%	13.4%	35.4%	14.0%	0.0%	24.2%	0.0%	100.0%	73.6%	24.2%
YKY	0.5%	0.4%	1.6%	6.5%	11.8%	24.3%	11.6%	21.7%	21.6%	0.0%	100.0%	79.2%	43.2%
Total	0.4%	0.4%	1.9%	6.3%	8.4%	26.1%	14.3%	14.5%	11.2%	16.4%	100.0%	82.5%	42.1%

- The range on Band 8 & above is more than double that of the existing Band 6 => much greater discrimination:
  - The range on Ofwat Band 6 is 33% (61% SWB; 94% TMS)
  - The range for Band 8 & above is 69% (0% SWB; 69% TMS)

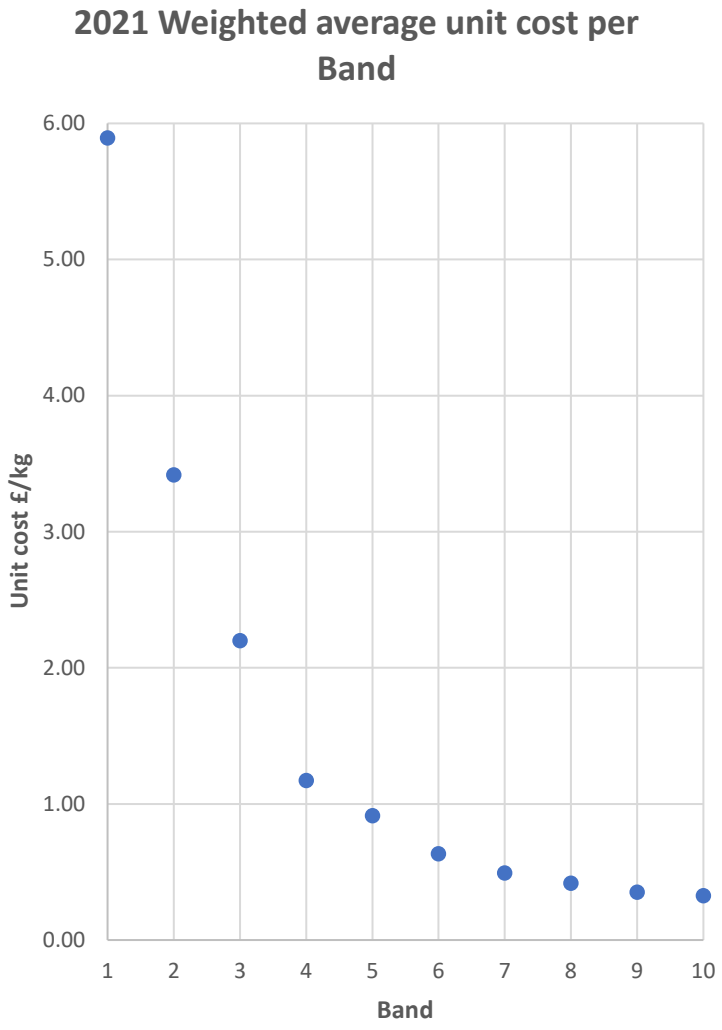
Results

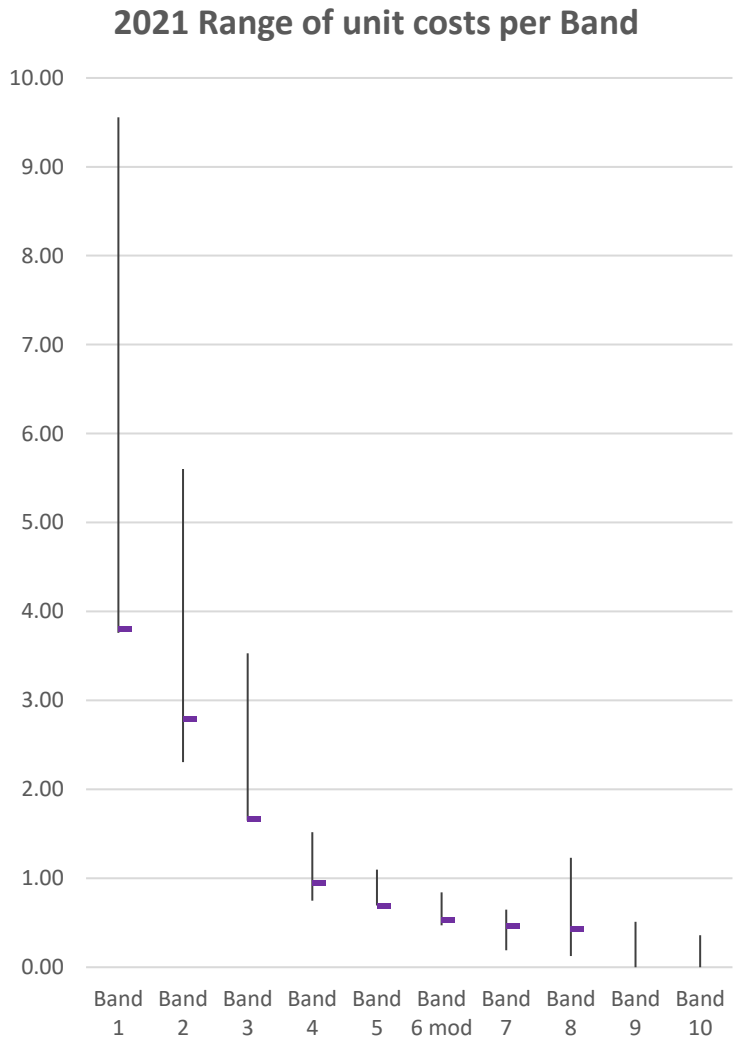
- Unit costs using BOD_5 mass as the denominator are calculated for all Bands & for all companies
- This allows benchmarking of companies against each other
- Time series show companies' benchmarks are stable over time

Unit costs 2021 £/kg	Band 1	Band 2	Band 3	Band 4	Band 5	Band 6 mod	Band 7	Band 8	Band 9	Band 10	Total	Ofwat B6
p.e. in Band	<250	250-500	500-2,000	2k - 10k	10k - 25k	25k - 125k	125k-250k	250k-500k	500k - 1m	>1m		> 25k
ANH	3.81	2.80	1.67	0.95	0.69	0.54	0.47	0.44			0.67	0.49
NES	3.76	2.87	1.65	0.99	0.90	0.60	0.49	1.23	0.51		0.75	0.62
UU	9.56	5.60	3.53	1.43	1.02	0.72	0.46	0.36	0.48	0.30	0.63	0.48
SRN	9.18	4.29	2.99	1.40	1.04	0.65	0.42	0.33			0.70	0.50
SVT	6.75	3.78	2.48	1.33	1.05	0.49	0.44	0.32	0.26	0.21	0.54	0.36
SWB	4.39	3.97	2.33	1.52	1.10	0.84	0.19				1.07	0.67
TMS	5.61	3.53	2.02	1.18	0.93	0.72	0.65	0.38	0.32	0.36	0.49	0.43
WSH	7.04	2.31	1.82	1.25	0.90	0.47	0.52	0.13	0.31		0.69	0.38
WSX	6.43	4.71	2.32	1.29	1.07	0.82	0.55		0.32		0.82	0.69
YKY	4.31	2.69	2.15	0.75	0.76	0.64	0.39	0.57	0.37		0.61	0.50
Total	5.90	3.42	2.20	1.17	0.91	0.63	0.49	0.42	0.35	0.33	0.62	0.46
UQ	4.33	2.81	1.87	1.04	0.90	0.55	0.42	0.33	0.31	0.26	0.62	0.44

- All costs in 2017/18 Price Base
- Band Frontier highlighted in green
- Total unit costs: a monotonic declining series
- Economies of scale illustrated graphically on next slide

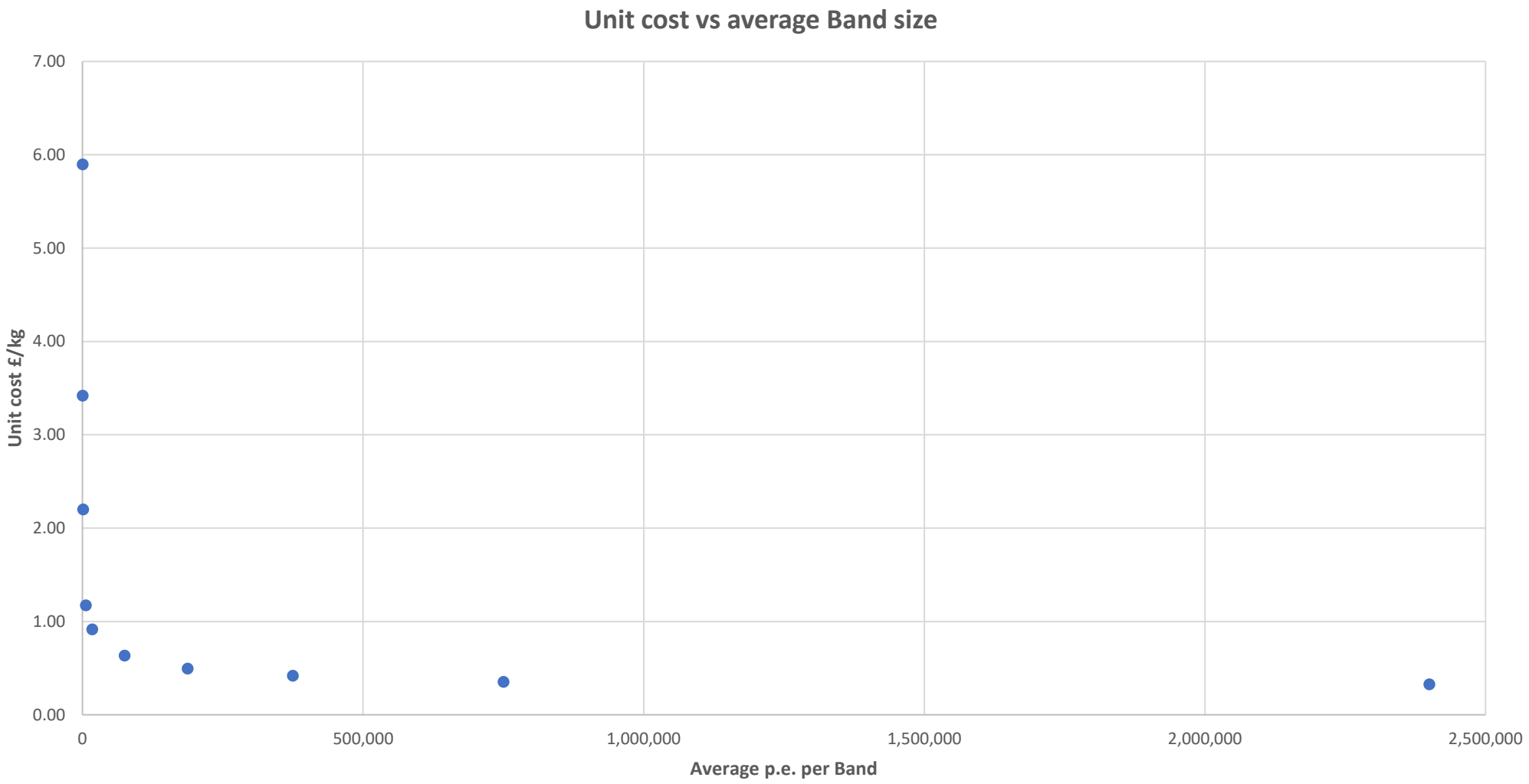
Economies of scale in Treatment (1 of 2)





- The left hand graph illustrates the 17:1 ratio between Band 1 & Band 10 unit costs
- The unit cost decline is even more pronounced when seen in terms of p.e. per Band (see next slide)
- The right hand graph shows the ranges of each Band, along with Anglian's position in the Band (the purple rectangles)

Economies of scale in Treatment (2 of 2)



Implications

- Companies without very large works have poor measured efficiency for Water Recycling generally and for Sewage Treatment & Bioresources Plus specifically
- Two possible ways of addressing this exogenous factor for cost assessment:
  - Use % load in Bands 8 & above in place of the existing % load in (existing) Band 6 used in SWT2 & BRP2
  - Compare actual costs incurred with costs based on assumption that all companies have the industry average shares of load in each Band (basis for the CAC submitted to the CMA)
- Not doing so puts companies without very large works at a disadvantage, making them appear less efficient than they are in fact.
- The disadvantage suffered by Anglian through failure to address this is £53m over the AMP. This is clearly consequential. The approach could be generalised to compute adjustments for all companies

Breakout room questions

1. Do you agree that cost adjustment claims should focus on base costs at PR24?

2. Assuming the PR19 wholesale base cost models are used to assess efficient base costs at PR24:
   - What cost adjustment claims would you consider submitting?

3. What additional industry data would need to be collected to support the submission of well evidenced cost claims and allow companies and Ofwat to assess cross-sector impacts of any adjustment?

4. Do you consider there is a case for breaking down band 6 sewage treatment works along the lines suggested by Anglian Water? Could this be implemented as a symmetrical adjustment?

5. What modifications/clarifications to guidance and approach would help you to improve the quality and reduce the number of cost adjustment claims submitted?

Closing remarks

Closing remarks

- No further workshops planned for this year. Future sessions could be planned in the new year.

- Previous poll indicated there are additional areas that companies would like to discuss (we note some of these areas have already been covered in a previous working group):

  - Average pumping head as a power cost driver
  - Disaggregation of large treatment works
  - Enhancement modelling (WINEP)
  - Forecasts of cost drivers
  - Calculation of the catch-up efficiency challenge
  - Econometric cost assessment methodologies – dynamic panels
  - Bioresources cost assessment
  - Productivity assumptions (frontier shift)
  - A meeting for Ofwat to present key points from the December consultation, perhaps with responses from companies on specific points
  - Splitting out water complexity bands
  - Water resources cost assessment and allocation.

- We would expect **future workshops to be driven by companies' work on a specific area, the benefits of a group discussion and the level of engagement of companies in the discussions**. Please let us know if there are any areas where you would like to present on at a future workshop.