PR24 Cost Assessment Working Group
Base modelling additional data collection

Draft for discussion

16 March 2022

Ofwat

Agenda

(1) Welcome and housekeeping (10:00 to 10:05)

(2) PR24 cost drivers and cost claims
- Introduction, Ofwat (10:05 to 10:15)
- Data request for PR24, Ofwat (10:15 to 10:35)
- UV treatment, South West Water (10:35 to 10:50)
- Breakout session (10:50 to 11:30)

(3) Residential retail COVID bad debt, Ofwat (11:30 to 11:40)
- Breakout session (11:40 to 11:55)

(4) Closing remarks (11:55 to 12:00)

Introduction

- Our December 2021 'Assessing base costs at PR24' consultation stated:
  - The PR19 wholesale base cost drivers and explanatory variables provide a good starting point for PR24 as they are aligned with our cost assessment principles (eg consistent with engineering, operational and economic rationale; exogenous) and were validated by the CMA.
  - But we are open to considering additional or alternative cost drivers and explanatory variables that will improve our econometric models at PR24.

- We asked stakeholders to comment on alternative / additional explanatory variables previously discussed at the CAWG:
  - Average Pumping Head
  - Replace existing 'load treated in size band 6' with 'load treated in size band 8 above' in the wholesale wastewater base cost models to better capture economies of scale at sewage treatment works

- We also asked stakeholders to provide in consultation responses:
  - Detailed proposals for any additional / alternative cost drivers / explanatory variables we should consider at PR24, including growth cost drivers / explanatory variables.
  - Clearly defined data requirements that would need to be collected from companies to facilitate testing of such cost drivers / explanatory variables in econometric cost models or support the submission of symmetrical cost adjustment claims.

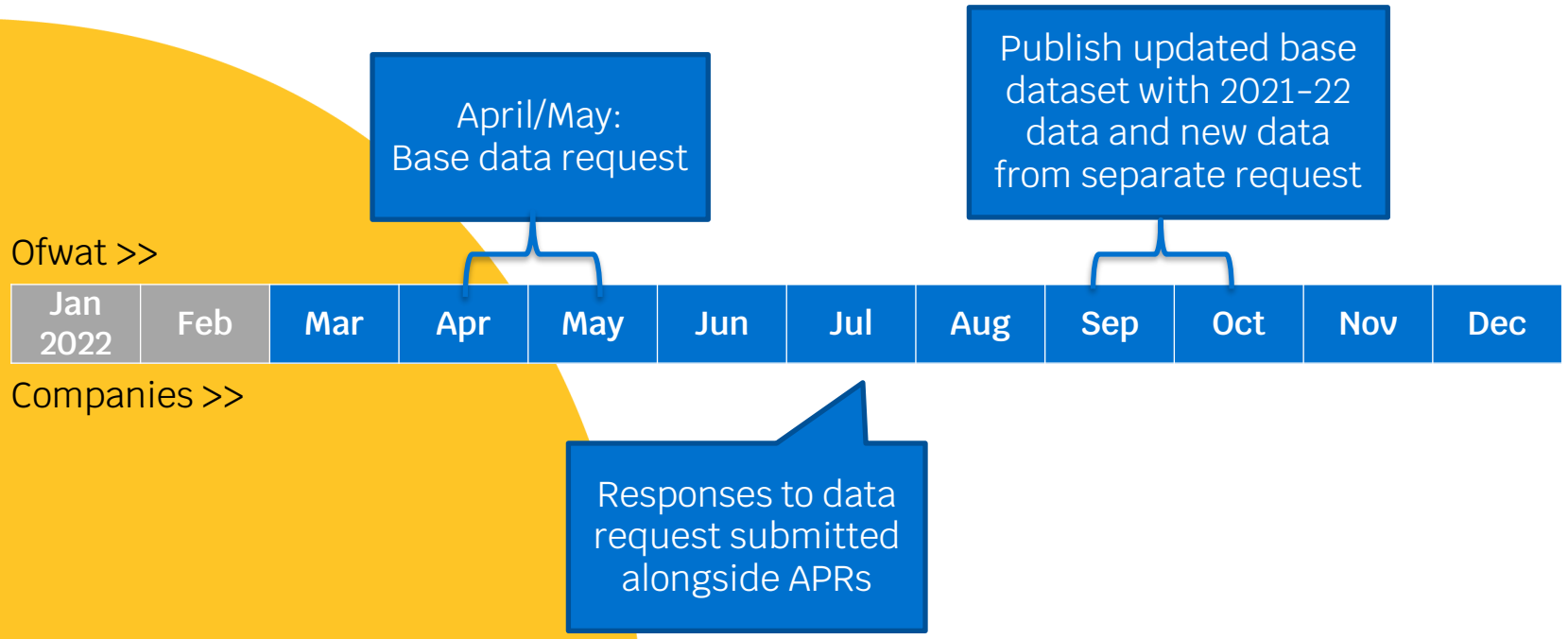
Aim of this CAWG is to explore additional data collection that could improve our assessment of base costs at PR24

- We want to use this CAWG to **explore the additional data collection suggestions** raised by stakeholders in response to our base cost consultation, for the purpose of supporting companies in the development of symmetrical cost adjustment claims / models with additional cross-sector data
- The focus is on **cost drivers / explanatory variables** that could be used directly in the cost models or to inform cost adjustment claims – although no inference should be made that the additional data collected will result in an additional cost driver or in a successful cost adjustment claim
- We are seeking feedback from companies on **which data items should be explored further** (eg definition development) and which data items should not be explored further
- We will prepare a data request following today's workshop, reflective of the comments received, and will work alongside companies to develop robust definitions for each data item
- We aim to submit the data request to companies in April/May 2022, and will ask companies to submit the data alongside the 2021-22 APR in July. We expect data to be provided back to 2011-12 where possible
- We are conscious of the amount of data companies are being asked to provide, and are **keen to keep this data request as focused as possible** (between 5 and 10 top priority areas, depending on companies' feedback) given the PR19 base cost models provide a good starting point for PR24
- We plan to discuss growth related data suggestions at another working group

Provisional base cost assessment timeline 2022-23

- **April/May 2022:** Sector-wide additional data request covering new data requirements identified by companies
- **Autumn 2022:** Publication of updated dataset including 2021-22 outturn data and the new data collected through the separate data request
- **Autumn 2022 – Early 2023**: Model testing and development

- **Would companies welcome the opportunity to submit potential cost models in late 2022?**



Summary of base consultation responses relating to cost drivers / explanatory variables, Ofwat

Recapping the PR24 cost adjustment claim process

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’ gate**.
- Where the company considers the claim to be an exception to the symmetry principle, it should clearly demonstrate why this is the case (eg forward-looking cost pressures).

Change in circumstances

- We expect to receive **substantial new evidence for cost adjustment claims that were rejected at PR19**.
- Otherwise the ‘need for adjustment’ gate would likely fail.

Data requirements

- We asked each company to set out any **additional data requirements in response to the December base cost consultation** if it expects to submit a base cost adjustment claim.
- Failure to do so may **limit the company’s ability to submit a robust and high-quality cost claim**.
- Any cost claims that are ultimately submitted but were not included in a company’s response to the December 2021 base cost consultation will be **treated with caution** as there will be **less opportunity to consult with other companies**. This is important for symmetrical cost claims.

‘Assessing base costs at PR24’ consultation responses – cost adjustment claims

In the consultation we:

- asked if stakeholder would support a separate process for base and enhancement cost claims;
- indicated an ambition to set more ‘symmetrical’ claims at PR24 where they relate to base;
- asked what claims companies would consider submitting at PR24 and what additional data would need to be collected to enable this, to be collected as part of the new data request; and
- whether stakeholders would support an early cost claim submission in 2023.

What stakeholders said:

- **Support for splitting the process between base and enhancement claims**, as long as there was clarity over what costs will be assessed as part of the base models (eg growth).
- **Guidance for claims appears to be generally well understood**, but additional guidance requested for symmetrical cost adjustment claims, implicit allowance calculations, and clarifying what gates will be applied.
- Symmetrical claims:
  - Several stakeholders **agreed that symmetrical cost adjustment claims are generally appropriate for base costs**, although it was noted that they may not always be appropriate (ie where costs have not been incurred in the past).
  - Few companies concerned about additional complexity of symmetrical claims and ability to calculate robust symmetrical adjustments.
  - Some companies asked for opportunity to **comment on** other companies’ proposed symmetrical adjustments.
- All but two companies gave an early indication of areas they are considering for claims at PR24, with some indicating additional data for collection (discussed below).
- Support for **early cost claim submission**, as long as accompanied by engagement from Ofwat on the claims and early visibility of base models.

Clarifications on the purpose / use of symmetrical cost adjustment claims

The rationale for requiring companies to submit symmetrical base cost adjustment claims at PR24 is to ensure the cost adjustment claim process is less one-sided and fairer to customers.

The purpose is not to bypass the modelling route.

- "Ideally, **the goal should be not to have any symmetrical adjustments in the first place**, because by their nature symmetrical adjustments reflect industry wide cost driver differences and therefore ideally should be included as a variable in the base model suite after proper consultation" (South Staffs, 'Assessing base costs at PR24 response', p. 7).
- **We expect companies to engage on any proposed areas for symmetrical claims through the modelling process**. We will consider any candidates for model improvements where appropriate.
- We invite companies to **start considering** any additional / alternative base cost models based on existing published data (eg published CMA dataset including 2019-20 data; APR data). Subsequent results can potentially be discussed through bilateral discussions and/or the CAWG.
- We acknowledge that in some exceptional circumstances post-modelling symmetrical adjustments may be needed (eg PR19 growth adjustment). However following the model testing process, we expect that the majority of remaining factors will either be explained by the base cost model explanatory variables or be non-material.
- **Any further adjustments will be exceptional and focussed.**

‘Assessing base costs at PR24’ consultation responses – Data for cost drivers and explanatory variables (i)

Overview of stakeholders responses:

- Companies put forward a range of different cost drivers, explanatory variables and data relating to CACs to be explored. We found that a number of suggestions do not require any new data to be collected.

(i) Suggestions that **do not require additional data** collection and may be reassessed for PR24:

- **Economies of scale at treatment works**:
  - Water – Size of water treatment works, weighted average band size of treatment works
  - Wastewater – Disaggregating size band 6 into further bands (but would require missing years to be filled in)
- **Drainage:**
  - Wastewater – % combined sewers
  - Wastewater – Urban runoff (available from 3rd party data)
- **Water resources drivers**
  - Type of source eg groundwater and surface water (eg % of distribution input from different sources) - Water
  - Average size of source (eg distribution input per source) - Water
- **Treatment complexity**
  - Water - % water treated in bands 4-6 or 5-6
  - Wastewater - Phosphorus consents (either proxied through ‘load with p-consent below 0.5mg/l’ or ‘p removal enhancement costs’)
- **Capital maintenance activity levels:**
  - Mains age cohorts pre 1940s vs pre 1980s - Water
  - Mains / sewer renewals – Both
- **Input price differentials:**
  - Regional wages - Both

‘Assessing base costs at PR24’ consultation responses – Data for cost drivers and explanatory variables (ii)

Suggestions are further explored in slides 14-20.

(ii) Suggestions that **may require additional data** collection:

- **Density:**
  - Density driver using more granular data (postcode level) – Both
- **Topography / geography:**
  - Average pumping head – Water
  - Additional pumping costs associated with coastal works – Wastewater
  - Diameter of sewers incl. within 3km of the coast (CAC) – Wastewater
  - Soil type – Both
- **Wastewater treatment complexity:**
  - UV treatment consents – Wastewater
  - Tighter consent requirements for ammonia/UV/ phosphorus – Wastewater
- **Seasonality drivers:**
  - Peak seasonal demand – Both
  - Extreme temperatures eg Summer/Winter – Both
- **Drainage and sewer flooding:**
  - % sewage flowing through combined sewers – Wastewater
  - Internal sewer flooding caused by severe weather (CAC) – Wastewater
  - Cellared properties (CAC) – Wastewater
- **System characteristics:**
  - Total number of civil assets and mechanical assets – Water
  - Length of mains by material or pressure (CAC) – Water
  - Clean water mains (CAC) – Water
  - Trunk mains (CAC) – Water
  - Reservoir data (number and type of large reservoir base costs, number of impounding reservoirs, age of reservoir fleets) (CAC) – Water

‘Assessing base costs at PR24’ consultation responses – Companies’ initial view of PR24 wholesale base and residential retail cost claims

ANH: 1) APH; 2) frontier leakage costs; 3) STW economies of scale; 4) growth; 5) climate vulnerable water mains replacement; 6) WTW unplanned outage risk; 7) handling enhancement opex between AMPs.	**SRN:** 1) STW economies of scale; 2) coastal STW impact; 3) frontier leakage costs; 4) metering replacement of near universal stock of smart meters; 5) growth; 6) infrastructure resilience and water resource zone network interconnectivity; 7) upstream surface water separation to reduce pollutions (if not allowed for in enhancement)	**BRL**: 1) Canal and Rivers Trust; 2) leakage performance.
WSH: 1) Residential retail deprivation (if required).	**TMS**: 1) Replacement of distribution mains; 2) trunk mains network maintenance costs; 3) Operational Technology; 4) maintenance of large reservoir assets (e.g., Queen Mother); 5) renewal of long-life assets never replaced before (e.g., civils); 6) maintenance and safe operation of wastewater network; 7) regional wages; 8) TMS Tideway ongoing costs.	**PRT**: 1) Residential retail claim on bill size; 2) increased resilience (compliance) in water production/abstraction facilities (upgrading / replacing more mature IT/OT systems).
NES: Not indicated.	**UUW**: 1) Large reservoir fleet maintenance; 2) high urban surface water run-off; 3) Farming Rules for Water; 4) additional maintenance from unusually large WINEP programme in AMP8 (Manchester Ship Canal); 5) large coastal sewers; 6) deprivation in residential retail (if needed); 7) ensuring cost recovery of HS2 diversions.	**SES**: 1) Power costs for water abstraction from ground; 2) frontier leakage costs; 3) water softening; 4) WOC costs in residential retail.
HDD: 1) Density; 2) APH/pumping stations; 3) water resources costs; 4) future opex and maintenance of prior enhan’mt (eg WINEP).	**WSX**: Not indicated.	**SEW**: 1) Growth.
SVE: 1) Density; 2) water resources assets (ground/surface water); 3) APH/pumping stations; 4) future opex and maintenance of prior enhan’mt (eg WINEP); 5) Tighter p consent; 6) biodiversity net gain.	**YKY**: 1) AMP7 p removal ongoing costs; 2) % cellared properties; 3) network age/material (iron mains); 4) variations in company assets and/or climate and ground conditions impacting on CSO spill frequency.	**SSC**: 1) APH; 2) capital maintenance drivers, particularly in relation to infrastructure renewals and above ground assets.
SWB: 1) UV treatment; 2) seasonality; 3) growth; 4) STW economies of scale	**AFW**: 1) Soil type; 2) regional wage.	

PR24 data request, Ofwat

PR24 data request

- The 'Assessing base costs at PR24' consultation responses provided suggestions for additional data collection to facilitate PR24 base cost assessment. There were data proposals for:

  - additional / alternative cost drivers in the base cost models; and
  - the cost adjustment claims process (if the driver cannot be captured in the models).

- The following slides set out the additional data that has been proposed by companies. That includes the company rationale and our initial questions to assist companies on whether it might be a priority to collect the data assessed against the following criteria:

  - Does the data suggestion align with our cost assessment principles (eg exogenous; clear engineering / economic rationale)?
  - Is the cost driver explained by existing explanatory variables?
  - Is the cost driver likely to be material?
  - Is data readily available? Can data be provided back to 2011-12 if requested?
  - Do you foresee any quality issues with collecting/providing the data?
  - Can a reliable forecast be developed for PR24?

- To reiterate, **we expect companies to engage on any proposed areas for symmetrical claims through the modelling process. Any adjustments to the base cost models results will be exceptional and focused.**

Water cost driver data

	Item	Units	Company rationale	Ofwat's initial questions
1	**Average aggressivity of soil types in operating area (AFW)**		Different soils are differently aggressive to cast iron mains which could drive differences in reactive and planned maintenance activity. Overall levels or average aggressivity of soils in a company's operating area can capture the impact of aggressive soils on mains.	• Are there any third party data sources that could be used? • Is it challenging to define a 'soil type' explanatory variable in a meaningful / useful way?
2	**Seasonality - ratio of peak to average water demand volume (SWB)**	ratio	Base models data is based on annual average of water demand. This data does not capture variability across the year. The variability could be driven by regional-specific factors such as population movements or weather.	• How does seasonality affect overall base expenditure in any given year? • Will demand peaks be offset by demand lows? • Are there potential endogeneity issues? (eg peak could be influenced by leakage performance)?
3	**Average summer temperature, Average winter temperature – water and wastewater (TMS)**	Degrees Celsius	Winter temperatures put more pressure on water companies than temperatures in other parts of the year. Extreme weather conditions can influence costs in specific parts of the year, and may affect companies differently.	• Are there any third party data sources that could be used? • Is there substantial regional variation between companies? • We note that using a large historical sample captures the impact of past extreme events (e.g. 2018 Beast from the East).
4	**Water Resources costs - expanding the information previously reported at PR19 in Wr2 to account for capex. (SVE/HDD)**		The type, location and size of water resources assets impact on the costs that companies incur in both the water resources and water network plus price control (through the knock-on impact on treatment complexity). These are controlled largely by the geography and geology of the company rather than scale or population density.	• Unclear how additional capex data split by water resources is useful for cost modelling given endogeneity concerns? • Was the suggestion to do more disaggregated water resources cost modelling (eg by source) or to inform potential CACs? • Could be disproportionate?

Additional cost drivers suggested were economies of scale of WTW, which we already collect data for in APRs; average pumping head, where work is ongoing; and density data at postcode level, where SVE's work is ongoing.

Wastewater cost driver data (1)

	Item	Units	Company rationale	Ofwat's initial questions
5	**Disaggregated band size 6 into 5 new size bands (extension of table 7D in the APR) for load and number of STWs (ANH)**	kg BOD5/day & nr	To better take account of economies of scale in sewage treatment at large STWs given the wide range of STWs sizes in band 6.	• How should we determine the most appropriate band thresholds? • How easy will it be to provide the missing data (2013-14, 2014-15 and 2015-16)?
6	**Load and number of STWs subject to a UV treatment consent (table 7D extension) – breakdown by categories of permit (SWB, SRN)**	mW/s/cm2	To capture additional wastewater treatment complexity associated with UV treatment at STWs. Could capture a potential increase in UV treatment requirements to respond to environmental expectations for inland bathing water quality compared to historical costs incurred by the industry.	• Are UV consents a material cost driver? • Is there a substantial regional variation between companies? • How easy would it be to collect historical information on 'load subject to UV consent' and 'number of STWs subject to UV consent'?
7	**Percentage of load treated at coastal STWs (SRN)**	%	Increased wastewater costs due to operating near coasts. The energy usage and maintenance of pumps and offshore structures is materially different to a gravity discharge into a river adjacent to a works. In addition, wastewater treatment complexity could be higher when discharging to sensitive coastal areas.	• Would UV treatment complexity account for the coastal impact? • Is there a substantial regional variation between companies (most wastewater companies operate on a coastline)? • SVE claimed at PR19 that its STWs collectively have the tightest consent in the industry due to the absence of coastline and need for discharge into small receiving waters. What does this mean for the SRN claim?
8	**Seasonality - ratio of peak to average waste load volumes (SWB)**	%	See item 2	• How does seasonality affect overall base expenditure in any given year? Will demand peaks be offset by demand lows?

Wastewater cost driver data (2)

	Item	Units	Company rationale	Ofwat's initial questions
9	**Average summer temperature, Average winter temperature – water and wastewater (TMS)**	Degrees Celsius	See item 3	• Are there any third party data sources that could be used? • Is there substantial regional variation between companies? • We note that using a large historical sample captures the impact of past extreme events.
10	**Total number of mechanical assets (Sewage Collection) (TMS)**	nr	Because these are assets that have a long life, the expenditure related to them is not included in PR19 base models. Companies should have a good idea of how many assets of each of these types they have held historically.	• Could this driver capture endogenous management decisions on the design of the wastewater network? • Would we expect high correlation with scale cost drivers? • Is the suggestion too specific? • Would we face definitional issues?
11	**Total number of civil assets (Concrete and GRP) (Sewage Treatment) (TMS)**	nr	No rationale provided.	• As above.
12	**Proportion of sewage that flows through combined sewers**	%	This proportion would influence cost as the sewage which flows through combined sewers would lead to greater sewage collection pumping costs per population served, as well as a greater utilisation of storm tanks. This can also increase the likelihood of storm discharges. This will be increasingly important if we are looking at partially treating all sewage. Collecting this data can support industry goal of reducing sewage spills.	• Is this highly correlated with the % combined sewers by length?; • Is there readily available information to estimate load passing through combined sewers?

Additional drivers suggested were:

- % combined sewers by length, which we collect data for in APRs (data quality needs to be reviewed)
- Urban runoff, which can be collected from third party sources

Cost adjustment claim data (1)

	Item	Units	Company rationale	Ofwat's initial questions
13	**Whole-life cost information relating to incurred enhancement costs expenditure (SVE/HDD)**	£m	Historical costs will not account for the future operation or maintenance of enhancement activity implemented in the previous period (e.g. WINEP driven activity). The future impacts of enhancement interventions are unlikely to be strongly sensitive to model scale drivers.	• Are there endogeneity concerns? • Is the suggestion proportionate? • Can the suggestion be made more focused? • What are the proposed drivers? • Is there a potential overlap with the claims below?
14	**Base totex by size band and phosphorus consent level (SVE)**	£m	Operating and maintaining STWs with tight P consents will have different cost characteristics than seen historically. There are also likely to be material knock-on impacts to bioresources costs. Therefore, backwards looking models are not likely to adequately reflect these costs.	• How readily available is this information? • Would it pose a disproportionate burden on companies?
15	**Operating and capital maintenance information by water treatment works (or assemblages of works). Analogous to Large STW table (SVE)**		Water treatment costs are driven by whether the source is ground or surface water and the processes that are installed at those sites. Our analysis suggests that the current water treatment complexity data may not adequately reflect these drivers of cost.	• Do you agree that the current water treatment complexity explanatory variables can be improved? • How readily available is this information? • Would it pose a disproportionate burden on companies?
16	**Biodiversity net gain – activities delivered and totex (SVE)**		The Environmental Act sets out a future requirement to deliver a 10% biodiversity net gain when planning permission is required. This will create a new cost pressure when delivering major capital maintenance projects.	• Is this likely to be a material cost driver? For example, how often is planning permission required?

Cost adjustment claim data (2)

	Item	Units	Company rationale	Ofwat's initial questions
17	**Lengths of trunk main by diameter (18"; 24"; 36"; 42+"). (TMS)**	km	Trunk mains are a source of significant maintenance cost. The collection of this data would show the extent of their impact on cost and enable calculation of a symmetrical adjustment, if required.	• Are there endogeneity concerns? • How readily available is this data? • Are there definitional issues (eg defining trunk mains; diameter splits)?
18	**Base totex to maintain trunk mains by diameter (TMS)**	£/km		
19	**Number of customers connected by diameter of trunk main (TMS)**	nr		
20	**Number of large reservoir assets by type (TMS)**	nr	Costs associated with maintenance of large reservoir assets may be adversely affecting the ability to create reliable water resources models. Number and type of large reservoir assets and the costs associated with maintenance of these assets would be useful to either improve water resources or enable a symmetrical adjustment to be estimated.	• Is the engineering rationale clear? • Is large reservoir cost and volume data readily available?
21	**Base totex to maintain large reservoir assets (TMS)**	£m		
22	**Total number of impounding reservoirs with each impounding reservoir within a chain counted separately (UUW)**	nr	Ofwat's line definition counts a chain of impounding reservoirs as one impounding reservoir. However, engineering rationale dictates that each individual reservoir is the cost driver of interest. Sitting within a chain does not influence the operational and maintenance requirements of that individual reservoir.	• Is the engineering rationale clear? • Does item 5A.18 in the APR (Total number of water reservoirs) include the number of individual impounding reservoirs separately?
23	**Average age of the reservoir fleet, measured from first construction (UUW)**	years	Companies with large fleets of older reservoirs face more expensive maintenance requirements relative to companies without such assets. The use of an unweighted average is appropriate as maintenance requirements are more closely associated with the overall number and age of reservoirs, rather than the size or storage volume.	• Is the engineering rationale clear? • Are there endogeneity concerns?

Cost adjustment claim data (3)

	Item	Units	Company rationale	Ofwat's initial questions
24	**Internal sewer flooding events caused by severe weather (UUW)**	nr	Splitting out the reporting of internal sewer flooding into those events recorded during periods of severe weather and all other events would allow understanding of the impact of extreme weather events on the sector.	• We expect this data is readily available given previous reporting. Is that correct? • Are there endogeneity concerns? • Are there more suitable exogenous weather related variables available (eg rainfall)?
25	**Sewers with diameter between 925mm and 1500mm and above 1500mm (UUW)**	km	Engineering rationale suggests that large diameter sewers drive higher costs than smaller sewers, all else equal. In addition, sewers adjacent to the coast are associated with additional costs relative to large sewers away from coastal areas – they are harder to inspect and more susceptible to filling with sand.	• Is the engineering rationale clear? • Would there be challenging definition issues to overcome? • Would it pose a disproportionate burden on companies?
26	**Sewers with diameter between 925mm and 1500mm and above 1500mm within 3km of coast (UUW)**	km		
27	**Proportion of connected properties with a cellar (YKY)**	%	If the presence of cellars leads to internal flooding that would not otherwise occur then companies with a high proportion of cellars are limited in their ability to achieve the common internal flooding targets (or achieving them becomes more costly).	• Is the data readily available? • Would it pose a disproportionate burden on companies? • Is there alternative data available that captures similar information (eg proxy)?
28	**Proportion of flooding events that occur in cellared properties (YKY)**	%		
29	**Lengths of main by age, material (YKY) and pressure, material (WSH)**	%	Water main burst rates are influenced by the water main pressure and asset material (e.g. cast iron). In addition, older mains are significantly more likely to burst on average.	• Is the engineering rational clear? • Are there endogeneity concerns? • Is the data readily available? • Would it pose a disproportionate burden on companies?
30	**Mains bursts per km by age, material of main (YKY) and pressure, material of main (WSH)**	nr/km		

South West Water wastewater treatment complexity claim

Cost assessment working group

Judith Corbyn
Alan Horncastle

16 March 2022

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Strictly confidential

Context

- SWW made an unsuccessful cost adjustment claim at PR19 for base costs relating to UV treatment, and raised the issue again in response to the PR24 base cost consultation
- if this cost driver could be adequately accounted for in the base models, this would be a simpler solution which would
  - remove the need for off-model consideration of symmetrical impact of claim
  - provide a more flexible solution where UV is relevant to other companies' costs
- a more generic wastewater treatment complexity cost driver could help better build more robust models overall and provide a more future proofed solution as treatment complexity continues to develop across the industry—although would require additional industry-wide data
- if a robust base model solution can't be found, guidance on how the approach anticipated for assessing this and similar cost adjustment claims would be helpful

Context: UV treatment

- **one third** of the designated bathing beaches in England and Wales are within the South West Water's (SWW) catchment, along with sensitive habitats and shellfish waters
- major population centres also predominantly coastal
- the Environment Agency require SWW to operate UV plants **all year round**, due to shellfish waters and high recreational water use year round
- this is in contrast with other companies, where it has been possible to negotiate seasonal UV in a number of locations
- the result is higher sewage treatment operating costs due to the higher standards of treatment required
- majority of the associated additional opex is power costs

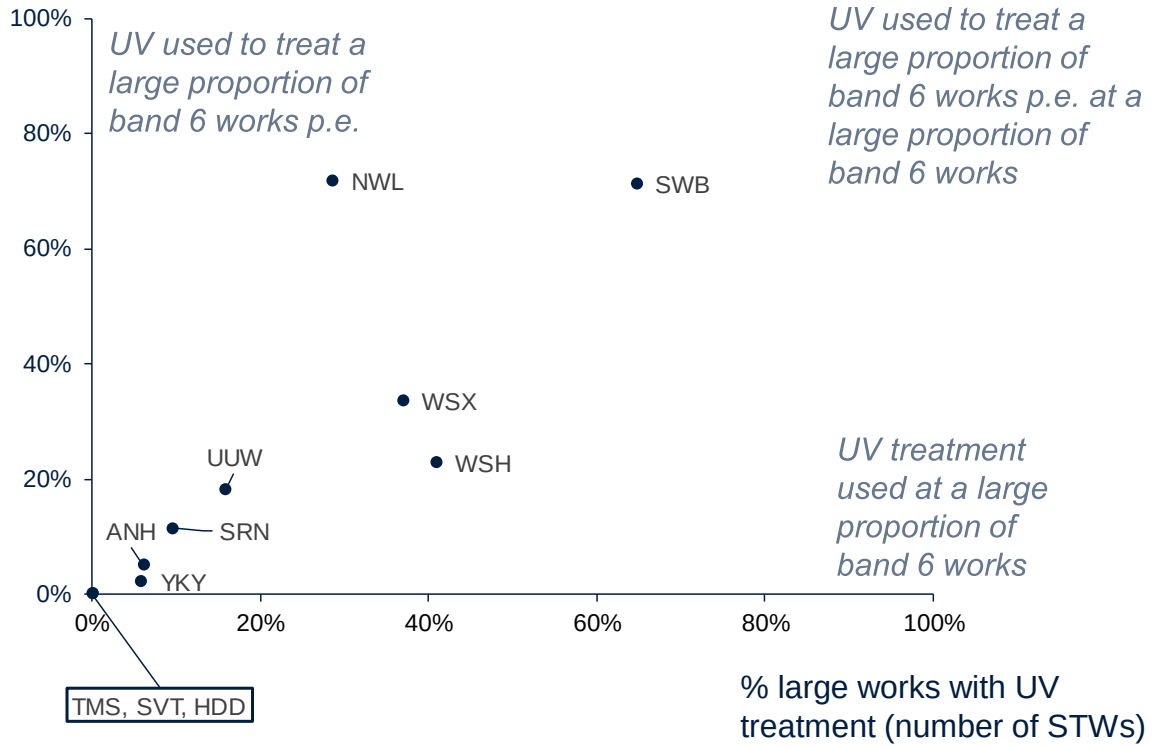
Estimate of UV treatment by company based on large works (> band 5) data from 2020/21 APRs

	Proportion of large works with UV treatment	Proportion of large works p.e. served by works with UV treatment
Anglian	6.1%	5.1%
Northumbrian	28.6%	71.8%
Southern	9.5%	11.4%
Severn Trent	0.0%	0.0%
South West	64.7%	71.2%
Thames	0.0%	0.0%
United Utilities	15.9%	18.2%
Dŵr Cymru	40.9%	22.8%
Wessex	37.0%	33.7%
Yorkshire	5.7%	2.2%
Industry Average	20.8%	23.6%

Context: UV treatment

- although based on large works data only (> band 5), this chart illustrates the large proportion of SWW's UV treatment
- along with NWL, WSX and WSH
- expanding the industry data to encompass smaller works may increase the extent to which SWB is an outlier
- as the only measure of treatment complexity used in the PR19 base models related to ammonia consents, any incremental treatment costs (such as UV treatment or P removal) may not be appropriately accounted for
- Ofwat's approach to estimating efficient expenditure at PR19 included both sewage treatment and bioresources+ (treatment + bioresources) models, which would be affected by UV treatment

Estimate of UV treatment by company based on large works (> band 5) data from 2020/21 APRs

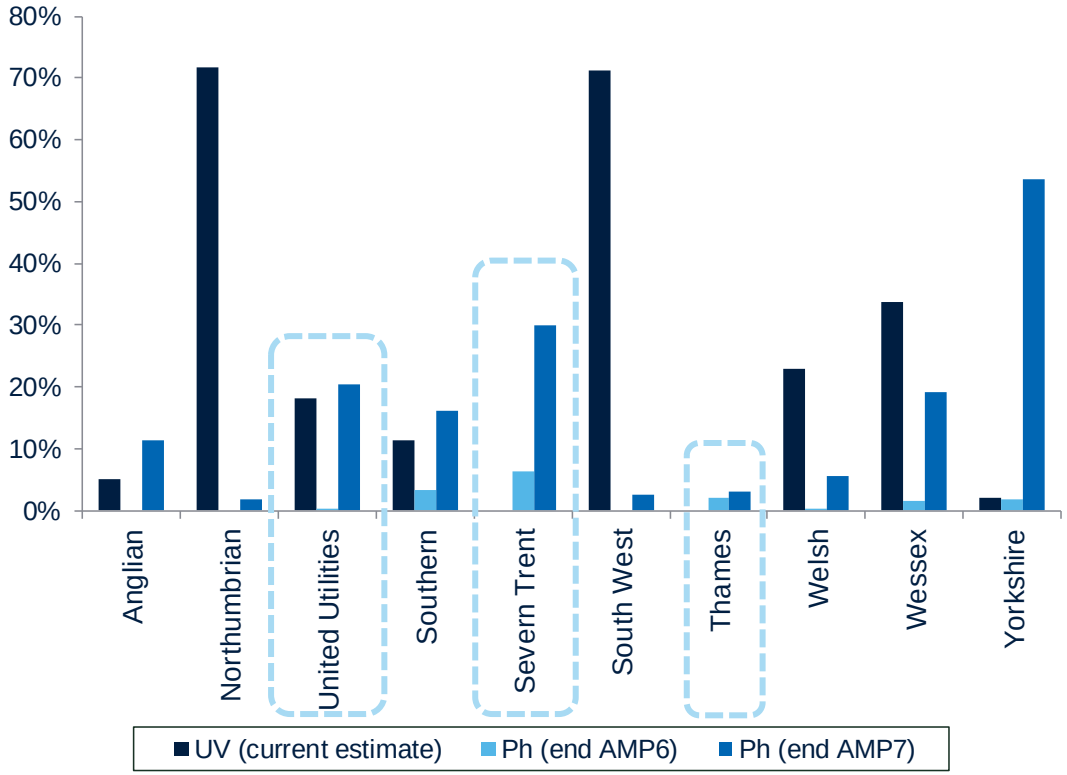


Changes since PR19
Complexity of treatment

- given the amount of enhancement required to meet obligations brought in by the WFD/UWWTD to introduce or tighten P removal constraints over AMP7, the proportion of load treated under tighter phosphorus constraints is likely to be considerably higher
- thus, in addition to UV treatment, there are now at least three methods of complex treatment that could materially affect companies' treatment costs from AMP8 onwards as a result
- if Ofwat's base cost models continue to only control for ammonia, there may be a number of cost adjustment claims required to ensure that treatment complexity is being accounted for symmetrically in efficient cost allowances
- in addition, given energy price increases, the scope for increasing levels of UV treatment and forecast tighter P removal consents, historical costs may not be a good indicator of future costs

Changes since PR19
Complexity of treatment

Proportion of UV and phosphorus treatment at the end of AMP6 and forecast for the end of AMP7 (large works, > band 5)



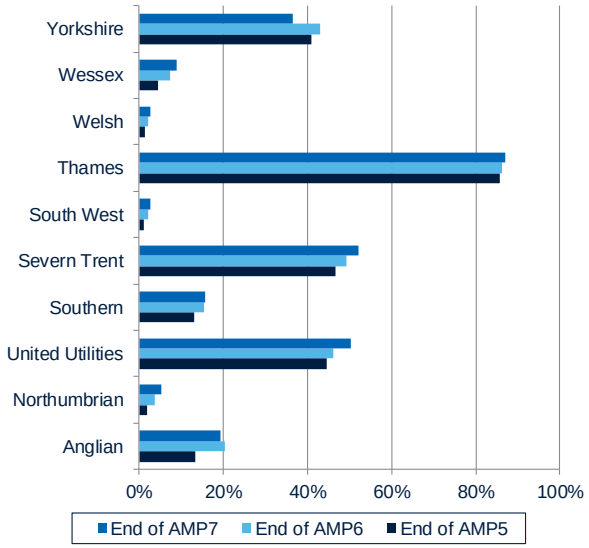
- across UV and anticipated P removal by the end of AMP7, at PR24 controlling only for ammonia constraints may not comprehensively capture variation in complexity across companies
- companies that are more extreme on proportion of tight ammonia consents do not map to other dimensions of complexity

companies with most tight ammonia consents

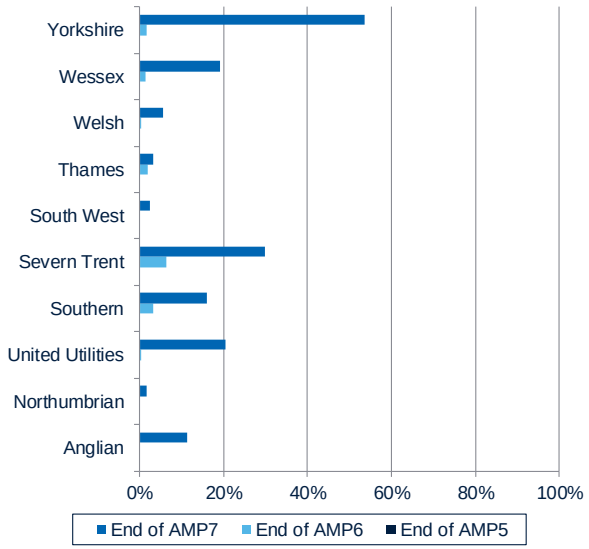
Changes since PR19

Complexity of treatment in the round

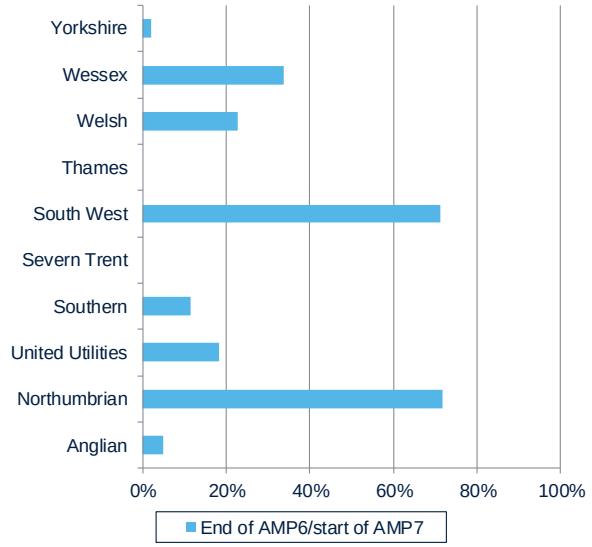
Tight ammonia consents(<3mg/l)



Tight P consents(<0.5mg/l)



UV treatment (based on large works)



- an ‘in the round’ approach to treatment complexity would need to account for companies’ extreme positions across different measures—controlling for the differing costs of treatment across dimensions (e.g. number and size of STWs affected)
- different treatment types will vary in relative costs which should be reflected if considering a single composite measure

Suggested approach to UV at PR24

- control for multiple treatment complexity drivers using one summary measure—analogous to the weighted average complexity water treatment driver used in the PR19 water base cost models
  - ammonia, phosphorous and UV could be weighted based on the relative cost of treatment (based on industry average (or other benchmark) costs or econometric modelling of large sewage treatment works (> band 5) from APR table 7B, similar to pre-PR14 models)
- this could be used in conjunction with proposed additional data from 7D (works by band size)
- extrapolation of base cost predictions may better account for further required increases in treatment complexity mitigating the issue that historical costs may not be a good indicator of future costs
- **benefits** of suggested approach:
  - avoids concerns around an asymmetric claim
  - may provide more certainty for companies that their allowance for treatment complexity is appropriate, without the need to develop cost adjustment claims
  - Ofwat may have fewer cost adjustment claims to consider
- **challenges** of suggested approach:
  - identifying an appropriate single composite measure of relative treatment complexity
  - how best to capture potential variation in costs by works size

Suggested data collection

- extend table **7D** to include UV permit data might be a more proportionate approach than modelling at a works-level through extending table 7B to include bands 1–5 and capital maintenance
- binary data in **7D** (UV permit / UV no permit) may be sufficient, however it would be useful to collect an exploratory dataset by threshold to confirm this
- table **7B** currently includes absolute levels of permits by large works (> band 5) – an additional row indicating the number of months per year the permit applies is also relevant
- trade-off between **burden of data collection** and **value to the ongoing regulatory regime** should be considered – an initial data collection would allow for investigation into the potential value of additional data

Suggested data collection

7B – large works, > band 5

Wastewater network+ - Large sewage treatment works for the 12 months ended 31 March 20xx

	Units	Large STW1	Large STW2	Large STW3	::::::::::	Large STW80
Sewage treatment works - Explanatory variables						
Works name	text	I	I	I	::::::::::	I
Classification of treatment works	text	I	I	I	::::::::::	I
Population equivalent of total load received	000	I	I	I	::::::::::	I
Suspended solids consent	mg/l	I	I	I	::::::::::	I
BOD_5 consent	mg/l	I	I	I	::::::::::	I
Ammonia consent	mg/l	I	I	I	::::::::::	I
Phosphorus consent	mg/l	I	I	I	::::::::::	I
UV consent	$mW/s/cm^2$	I	I	I	::::::::::	I
Period UV consent applies in year	months	I	I	I	::::::::::	I
Load received by STW	$kgBOD_5/d$	C	C	C	::::::::::	
Flow passed to full treatment	m^3/d	I	I	I	::::::::::	I

7D – all works

Wastewater network+ - Sewage treatment works data for the 12 months ended 31st March 20xx

	Units	UV			
		>1 - 30 mW/s/cm2	>30 mw/s/cm2	No permit	Total
Load received at sewage treatment works					
Load received by STWs in size band 1	$kg\ BOD_5/day$	I	I	I	C
Load received by STWs in size band 2	$kg\ BOD_5/day$	I	I	I	C
Load received by STWs in size band 3	$kg\ BOD_5/day$	I	I	I	C
Load received by STWs in size band 4	$kg\ BOD_5/day$	I	I	I	C
Load received by STWs in size band 5	$kg\ BOD_5/day$	I	I	I	C
Load received by STWs above size band 5	$kg\ BOD_5/day$	I	I	I	C
Total load received	$kg\ BOD_5/day$	C	C	C	C
Load received from trade effluent customers at treatment works	$kg\ BOD_5/day$				
Number of sewage treatment works					
STWs in size band 1	nr	I	I	I	C
STWs in size band 2	nr	I	I	I	C
STWs in size band 3	nr	I	I	I	C
STWs in size band 4	nr	I	I	I	C
STWs in size band 5	nr	I	I	I	C
STWs above size band 5	nr	I	I	I	C
Total number of works	nr	C	C	C	C

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Breakout room questions

Breakout room questions

1. Which items should we prioritise for data collection to support:

    1) Wholesale water cost drivers;
    2) Wholesale wastewater cost drivers; and
    3) Cost adjustment claims.

    Can you please rank the items by priority with the top 3 items per area? Do you have any initial comments on your ability to back-cast this data to 2011-12? Do you have any concerns about the quality of company information available to support this process?

2. Do you have any comments about the proposed cost assessment timeline? Would you welcome the opportunity to submit potential cost models in late 2022?

3. What are your views on UV treatment as a driver of wastewater treatment complexity as presented in South West Water's slides? Do you have any suggestions for the definition of a threshold (eg permit and no permit; 10-20mW/s/cm2 and >20mW/s/cm2; 1-30mW/s/cm2 and >30mW/s/cm2)? Can a weighted average wastewater treatment complexity variable for UV, P and ammonia be developed?

Residential retail COVID bad debt, Ofwat

Residential retail – Covid-19: retrospective adjustments to bad debt provisions

Alex Whitmarsh, Gayle Webb
16 March 2022

Ofwat

Issue

Our analysis shows that:

- the change in the bad debt charge* in 2019-20 compared to the previous years varies from around 0% to 250%;
- all but one company increased its reported bad debt charge in 2019-20 and over half of these companies then reported lower bad debt charges in 2020-21; and
- the one company which reported a lower bad debt charge in 2019-20 accounted for the potential impact of Covid-19 on bad debt as negative operating income – so it is not included in table 2C.

Together with companies' consultation responses, this indicates that companies took very different views on the potential scale and reporting of Covid-19 impacts on bad debt.

Our econometric models aim to establish a link between cost drivers and companies' costs. So excessive variation could weaken the models.

**In this presentation, 'bad debt charge', 'change in bad debt provision' and 'doubtful debts' all refer to the 'doubtful debts' data provided by companies in table 2C*

Figure 1: Bad debt expenditure data, industry totals (£m)

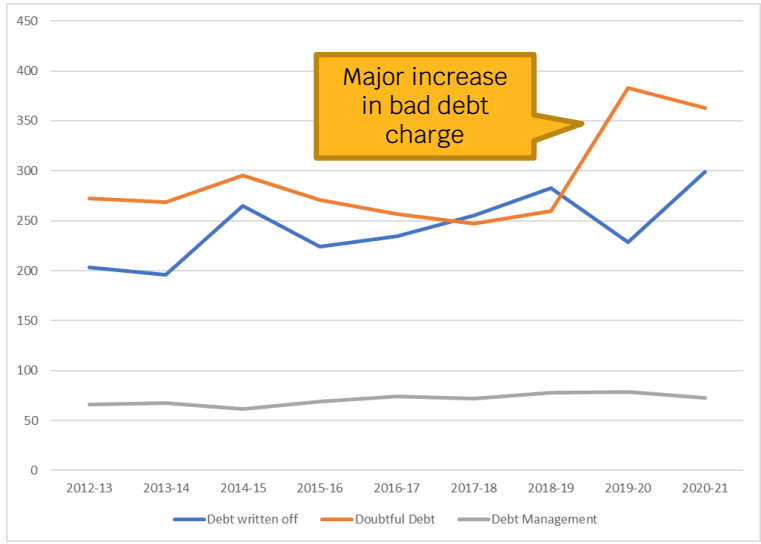
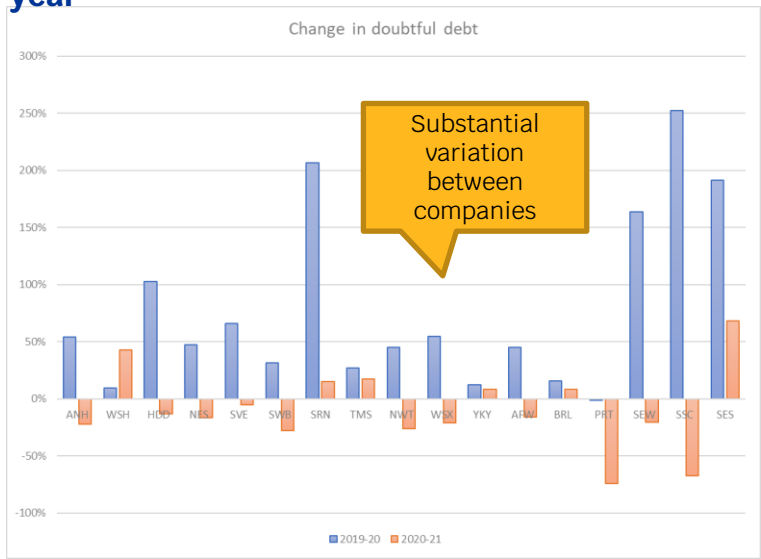


Figure 2: Change in 'doubtful debt' on previous year



Our proposed approach

In our recent consultation, we proposed that companies separate out the part of their provision of bad debt costs to do with Covid-19 that was made outside of their standard methodology. The intention would be to make a more informed decision about whether, for example, to:

- reprofile companies' costs based on this supplementary data;
- use smoothed data; or
- make no adjustment.

Almost all companies agreed with this approach in principle, although there was significant discussion about how this might be done in practice. We agree that providing a standardised approach to reporting this data would be challenging.

After considering responses, we now propose:

1. **ensuring all companies have captured the impact of bad debt related to Covid-19 within table 2C** and correcting APR reported data where required;

2. as part of our data request in the spring, **companies to provide 'adjusted' doubtful debt data** – this is discussed in more detail the following slide; and

3. as part of our data request in the spring, **companies to separately identify the element of the bad debt provision and bad debt charge that relates to COVID-19 and to provide additional narrative explaining how these were estimated and any assurance processes**. This will allow us to understand the difference between companies' approaches better and whether further action is required.

The data requested in the spring would be provided by companies alongside their 2021-22 APR. Collecting it at this stage (rather than waiting until business plan submissions) would allow us, and the rest of the sector, to understand the potential impact of this data on our residential retail models sooner.

Adjusted doubtful debt data

Company A

This company increased its bad debt provision significantly in 2019-20. This was an 'atypical' provision but continues to consider that the approach is reasonable as the full impacts of covid are unclear. It does not intend to unwind this provision at this stage and anticipates any future adjustments to be minor.

The company would therefore make no adjustment.

Company B

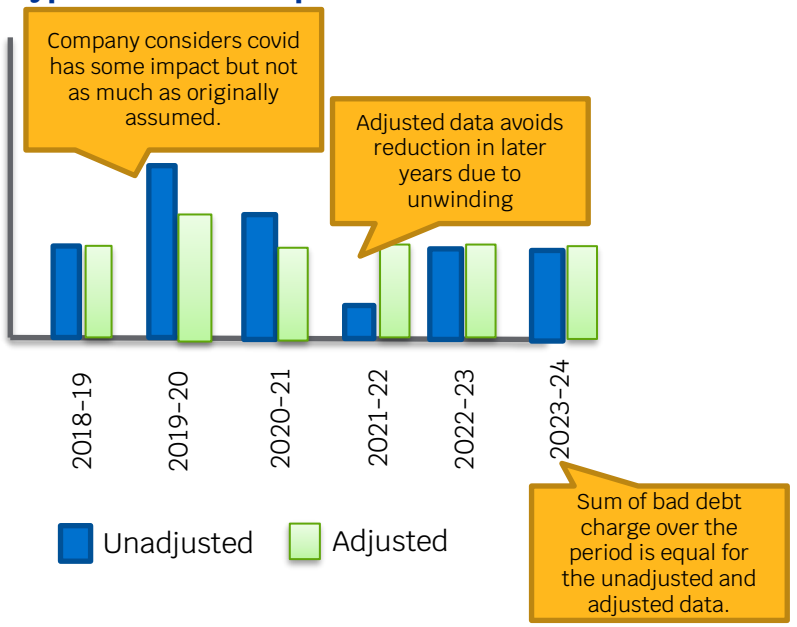
This company increased its bad debt provision significantly in 2019-20. With the benefit of hindsight, it now considers that the impact of covid may not be as significant as initially provided for. It released part of the provision in 2020-21 and expects to release more in subsequent years.

The company would therefore make an adjustment.

We propose that:

- 'atypical' covid adjustments do not need to be corrected where these still appear to be reasonable;
- companies make an adjustment where, with the benefit of hindsight, they consider that they over provided for the impact of covid / anticipate releasing some of the provision; and
- the adjusted and unadjusted bad debt charge should be equal over the period up to and including 2023-24 – this will ensure that the models will capture the same amount of cost in the historical period at PR24.

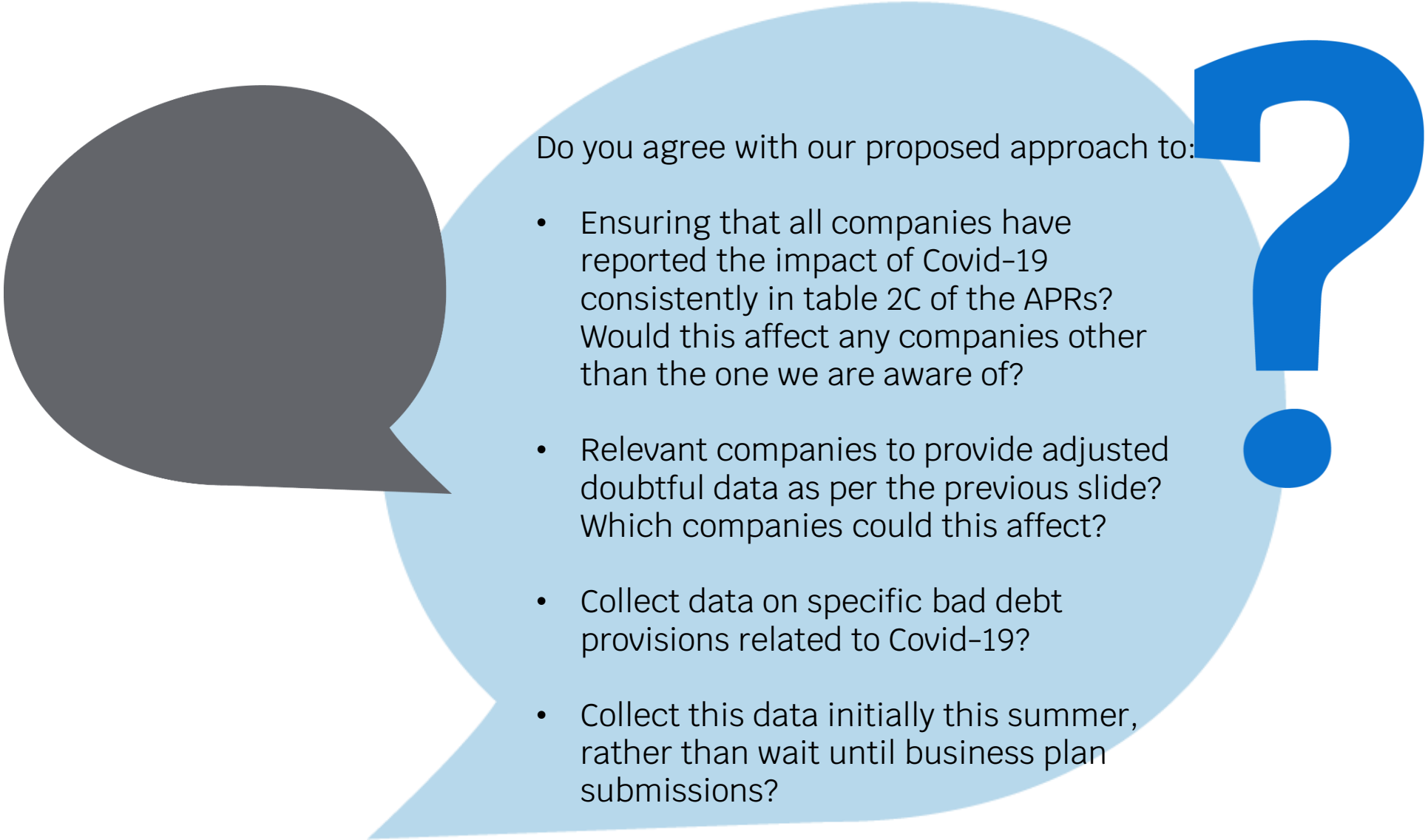
Figure 3: Pre- and post-adjusted bad debt charge – hypothetical example



Improvin

Do you agree? Is more detailed guidance required?

Breakout questions



Do you agree with our proposed approach to:

- Ensuring that all companies have reported the impact of Covid-19 consistently in table 2C of the APRs? Would this affect any companies other than the one we are aware of?
- Relevant companies to provide adjusted doubtful data as per the previous slide? Which companies could this affect?
- Collect data on specific bad debt provisions related to Covid-19?
- Collect this data initially this summer, rather than wait until business plan submissions?

Closing remarks

Closing remarks

- We are currently preparing a data request containing the additional data lines discussed today. We plan to issue the data request in April/May with responses due alongside the APR submission in July.

- We welcome further written feedback in relation to the data request. To facilitate this, we have prepared a standard pro-forma based on the tables discussed today. This includes additional columns for:

  - definitions of the data lines;
  - any additional comments company views on the data line;
  - RAG ratings on each data line to assess all aspects of proposed data lines – materiality, availability, data quality, etc.

- We have only included new data requirements in scope of the pro-forma. We expect your responses by **COP 23 March**.

- We would also consider the best way to follow-up on the data request on receipt of your feedback.

- There is a provisional CAWG planned for 30 March. We welcome any suggestions of topics to cover at that workshop. We may not proceed with this CAWG meeting if there is nothing useful to discuss at the time of the meeting.

Appendix – initial table formats for selected items suggested by companies

Disaggregating band 6 (item 5) and UV treatment complexity (item 6)

Line description	Units	DPs	Treatment categories								Treatment works consents																				RAG 4 reference
				Secondary		Tertiary					Phosphorus					BOD_5						Ammonia						UV treatment				
			Primary	Activated Sludge	Biological	A1	A2	B1	B2	Total	<=0.5mg/l	>0.5 to <=1mg/l	>1mg/l	No permit	Total	<=7mg/l	>7 to <=10mg/l	>10 to <=20mg/l	>20mg/l	No permit	Total	<=1mg/l	>1 to <=3mg/l	>3 to <=10mg/l	>10mg/l	No permit	Total	>1-30mW/s/cm2	>30mW/s/cm2	No permit	Total	
Load received at large sewage treatment works																																
Load received by STWs in size band 1	kg BOD5/day	0								0					0						0						0				0	
Load received by STWs in size band 2	kg BOD_5/day	0								0					0						0						0				0	
Load received by STWs in size band 3	kg BOD_5/day	0								0					0						0						0				0	
Load received by STWs in size band 4	kg BOD_5/day	0								0					0						0						0				0	
Load received by STWs in size band 5	kg BOD_5/day	0								0					0						0						0				0	
Load received by STWs in size band 6	kg BOD_5/day	0								0					0						0						0				0	7D.6
Load received by STWs in size band 7	kg BOD_5/day	0								0					0						0						0				0	7D.6
Load received by STWs in size band 8	kg BOD_5/day	0								0					0						0						0				0	7D.6
Load received by STWs in size band 9	kg BOD_5/day	0								0					0						0						0				0	7D.6
Load received by STWs in size band 10	kg BOD_5/day	0								0					0						0						0				0	7D.6
Total load received	kg BOD_5/day	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Load received at large sewage treatment works																																
STWs in size band 1	nr	0								0					0						0						0				0	
STWs in size band 2	nr	0								0					0						0						0				0	
STWs in size band 3	nr	0								0					0						0						0				0	
STWs in size band 4	nr	0								0					0						0						0				0	
STWs in size band 5	nr	0								0					0						0						0				0	
STWs in size band 6	nr	0								0					0						0						0				0	7D.14
STWs in size band 7	nr	0								0					0						0						0				0	7D.14
STWs in size band 8	nr	0								0					0						0						0				0	7D.14
STWs in size band 9	nr	0								0					0						0						0				0	7D.14
STWs in size band 10	nr	0								0					0						0						0				0	7D.14
Total number of works	nr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Base totex by size band and phosphorus consent level (item 13)

Line description	Units	DPs	Phosphorus				
			<=0.5mg/l	>0.5 to <=1mg/l	>1mg/l	No permit	Total
Base totex by size band and phosphorus consent level							
Base totex for STWs in size band 1	£m	0					0
Base totex for STWs in size band 2	£m	0					0
Base totex for STWs in size band 3	£m	0					0
Base totex for STWs in size band 4	£m	0					0
Base totex for STWs in size band 5	£m	0					0
Base totex for STWs in size band 6	£m	0					0
Base totex for STWs in size band 7	£m	0					0
Base totex for STWs in size band 8	£m	0					0
Base totex for STWs in size band 9	£m	0					0
Base totex for STWs in size band 10	£m	0					0
Total base totex	£m	0	0	0	0	0	0

Lengths of main by age, material and pressure (items 28–29)

				Material 1				Material 2				Material 3				Pressure		
Line description	Units	DPs	Age	Age band 1	Age band 2	Age band 3	Age band 4	Age band 1	Age band 2	Age band 3	Age band 4	Age band 1	Age band 2	Age band 3	Age band 4	0-5 bars	5-10 bars	> 10 bars
Potable water mains	%	2																
Average burst rate per km	nr/km	2																