

PR19 IAP cost assessment webinar

7 February 2019

ofwat

Introduction	1200 to 1210	Alison, Ynon
Base econometric models	1210 to 1225	Milton
Unmodelled costs	1225 to 1230	Paul
Enhancement costs	1230 to 1300	Alison, Sonia, Paul, Simon
Cost adjustment claims	1300 to 1305	Alison
Actions for companies	1305 to 1310	Alison
Q&A	1310 to 1330	All

Introduction

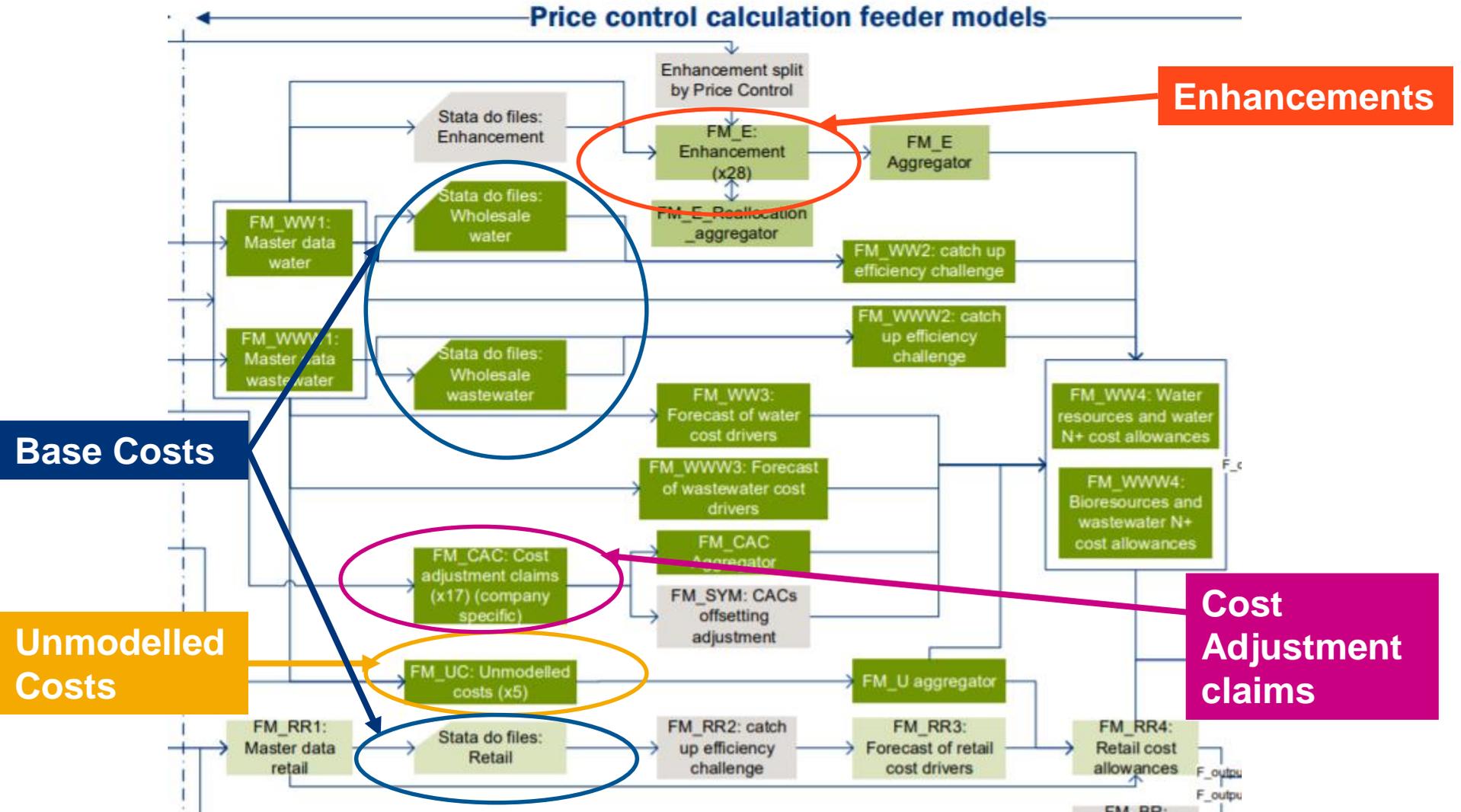
Building blocks of our totex assessments



Building block	Costs included	Assessment approach	Efficiency challenge
Modelled base costs	Opex (excluding costs included in unmodelled base costs) Capital maintenance	Econometric models using historical data and our own forecast of cost drivers for 2020-25	Wholesale: upper quartile plus 1.5% annual frontier shift Retail: forward looking upper quartile
Un-modelled base costs (wholesale services only)	<ul style="list-style-type: none"> •Business rates •Abstraction charges •Traffic Management Act costs •Wastewater Industrial Emissions Directive costs; •Etc. 	Various methods as appropriate	Bespoke through assessment of specific cost
Enhancement expenditure (wholesale services only)	Enhancement capex (and some opex)	Various methods as appropriate: <ul style="list-style-type: none"> •Benchmarking of historical data •Benchmarking of business plan data •Deep dive •Shallow dive 	Bespoke challenge depending on model quality or company efficiency in wider plan.
Adjustments	Cost adjustment claims submitted by companies	Gates approach (deep dive assessment of evidence provided in plans)	As appropriate

These building blocks come together to determine our view of efficient costs

<https://www.ofwat.gov.uk/wp-content/uploads/2019/01/Dataflow-of-models-PR19-IAP-flowchart.pdf>



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Markets

Water sector overview

Future markets

Regulating monopolies

Investigations

Price reviews

2019 price review

- [Initial assessment of plans](#)
- Business plans
- Framework and methodology
- Data tables and models
- PR19 useful documents
- Workshops and working groups
- Customer challenge groups
- Legacy issues and PR14 reconciliation

2018 non-household retail price review

2014 price review

Interim determinations

Previous price reviews

Substantial effect determinations

Resilience

Vulnerability

Initial assessment of plans

We set high expectations for water companies at PR19. We pushed them to go further than ever before, improving efficiency, customer service and resilience. We asked them to share financing gains with customers and to ensure that dividend and executive pay policy is aligned to delivering for customers. We asked them to look well beyond the five-year price review period to meet needs of future customers and protect and improve the natural environment.

Our initial assessment of water companies' business plans for 2020 – 2025 shows how the best companies across England and Wales are rising to these challenges.

Our decisions at a glance

Three companies – Severn Trent Water, South West Water and United Utilities – submitted plans that set a new standard for the sector. We have given these companies the green light, so they can get started on delivering their plans for customers.

We will be pushing the remaining companies to go further to achieve the new standard set by Severn Trent Water, South West Water and United Utilities.

Fast track	Severn Trent South West United Utilities	Plans ready to implement. Receive financial benefit, early decisions and early certainty.	
Slow track	Anglian Dŵr Cymru Northumbrian Wessex Yorkshire	Bristol Portsmouth South East South Staffs SES	Further work to do on plans.
Significant scrutiny	Affinity Hafren Dyfrdwy Southern Thames	Substantially rework and resubmit plans. Increased regulatory scrutiny.	

[PR19 Initial assessment of plans: Overview of company categorisation](#)

[PR19 Initial assessment of plans: Summary of test area assessment](#)

- [Technical appendix 1: Delivering outcomes for customers](#)
- [Technical appendix 2: Securing cost efficiency](#)
- [Supplementary technical appendix: Econometric approach \(to be published early February 2019\)](#)

Cost assessment models

[Find out more...](#)

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Initial assessment of business plans – cost assessment models

We use data models to calculate water companies' price controls – and certain information we need to set those controls.

The aim of cost assessment modelling suite is to assess companies' business plan costs and calculate an efficient total expenditure allowance.

We publish the following models.

1. Enhancement feeder models: the enhancement feeder models include our assessment of enhancement costs.
2. Cost adjustment claim feeder models: these models include our assessment of companies' cost adjustment claims. There is one model per company that submitted cost claims.
3. Unmodelled base costs and other costs feeder models: This is a suite of models that sets out our assessment and allowance for Abstraction charges, Business rates, Third party costs, Pension deficit recovery costs, Traffic management act costs.
4. Aggregator files: These are intermediary files and do not present assessment.
5. Reallocations aggregator: This file includes costs that we have reallocated from one enhancement line to another enhancement line or to base costs.
6. Thames Tideway separate control: Includes our assessment of costs submitted as part of the Thames tideway separate control for Thames Water.
7. We have a suite of four models for wholesale water, wholesale wastewater and residential retail.
 - FM_RR1, FM_VWV1 and FM_WWW1 are the master datasets.
 - FM_WW2 and FM_WWW2 calculate the catch up efficiency challenge.
 - FM_RR3, FM_WW3 and FM_WWW3 determine the forecast of our explanatory variables. We use them to set efficient costs from our econometric model.
 - FM_RR4, FM_WW4 and FM_WWW4 calculate efficient base costs and efficient totex per price control. We do this by adding together our efficient modelled costs, any enhancement costs, cost adjustment claims, unmodelled base costs. In retail we also calculate the forward looking catch up challenge.
 - Three do files that calculate the coefficients for our econometric models.

Enhancement feeder models

Water

Wholesale Water Supply-demand balance enhancement – feeder model
Wholesale Water Supply-demand balance enhancement – feeder model summary
Wholesale Water Enhancement feeder model: Drinking water protection
Wholesale Water Enhancement feeder model: Ecological improvements
Wholesale Water Enhancement feeder model: Eels regulations
Wholesale Water Enhancement feeder model: Freeform
Wholesale Water Enhancement feeder model: Growth
Wholesale Water Enhancement feeder model: Investigations
Wholesale Water Enhancement feeder model: Improvement to river flows

Base econometric models

High level summary of approach

- We use econometric models to produce parameters
 - We use a panel data structure
 - For wholesale we use seven years of historical data (2011-12 to 2017-18)
 - For retail we use five years of historical data (2013-14 to 2017-18)
 - In wholesale, we use Feeder model 1 which contains cost and driver data from companies' tables and external sources.
 - Companies can replicate those using our published Stata "do" files.
- In wholesale, we include our catch-up efficiency challenge (see feeder model 2)
- The following elements are used to determine our view of efficient modelled base costs (feeder model 4):
 - The parameters and catch up produced in feeder model 2;
 - Forecasts of costs drivers (produced in feeder model 3); and
 - frontier shift
- In **retail** we use forward looking efficiency challenge, as opposed to catch up efficiency challenge and frontier shift. Forward looking efficiency challenge is BP costs divided by our modelled costs.
- We apply an upper quartile efficiency challenge to adjust our econometric results from average to efficient. This means that we set the efficiency bar at the level that 25% of the companies have achieved (wholesale) or are forecasting to achieve (retail).
- Since we have more than one model in several business areas we triangulate the results to estimate our base costs allowance.
- In **wholesale**, our models don't align with price control levels. Hence, our allowance is apportioned into the different price controls. To determine control level cost allowances we apply the proportions of business plan base costs to our efficient wholesale modelled base costs



Unmodelled costs



High level summary of approach

- **Abstraction charges** – we undertook a qualitative approach based on each company’s circumstances
- **Business rates** – we performed our own calculations based on the 2017 revaluation and compared to company actual 2017-18 data. We made adjustments for companies that have not fully transitioned to the 2017 level yet and instead compared to the 2020-21 forecast data. We did not make adjustments for companies’ forecast changes due to revaluation or changes in asset stock.
- **Traffic Management Act costs** – we applied company specific efficiency from econometric models
- **Wastewater industrial emissions directive costs** – only applies to 3 companies
- **Third party/other costs** have allowed these and will reconcile to revenue for these costs
- **Pension deficit recovery costs** – we followed the PR09 and PR14 approach as set out in 2013 in an information notice: IN13/17

Enhancement costs



Reallocation

- We reallocate costs between company defined and standard categories, and between different standard categories to ensure we are assessing similar programmes across the industry.

We evaluate each category following four approaches

- Models
 - Deep dive
 - Shallow dive
 - Very low materiality items
-
- **Models**
 - Typically one or two variable regression models and mostly of business plan forecast data
 - Covering single or multiple enhancement categories as given in business plan tables WS2 and WWS2
 - **Deep Dive**
 - Bespoke challenge where data allows
 - Option selection challenge ~ 20% where we find little evidence of appropriate optioneering
 - Cost efficiency challenge ~ company specific assessment

Water enhancement – Ofwat view of capex (after reallocation) £4.5bn allowed of £6.8bn (34% efficiency challenge)

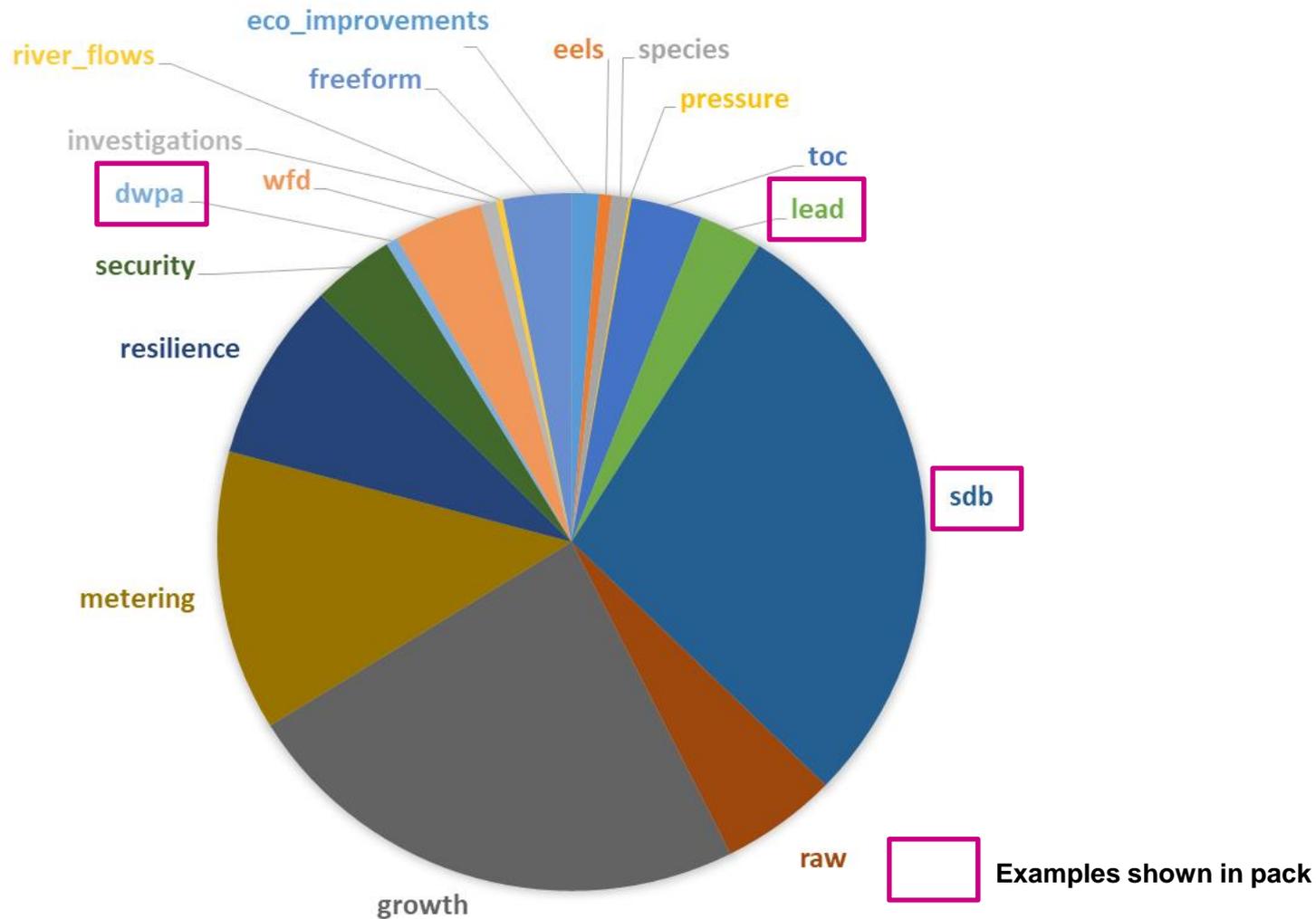
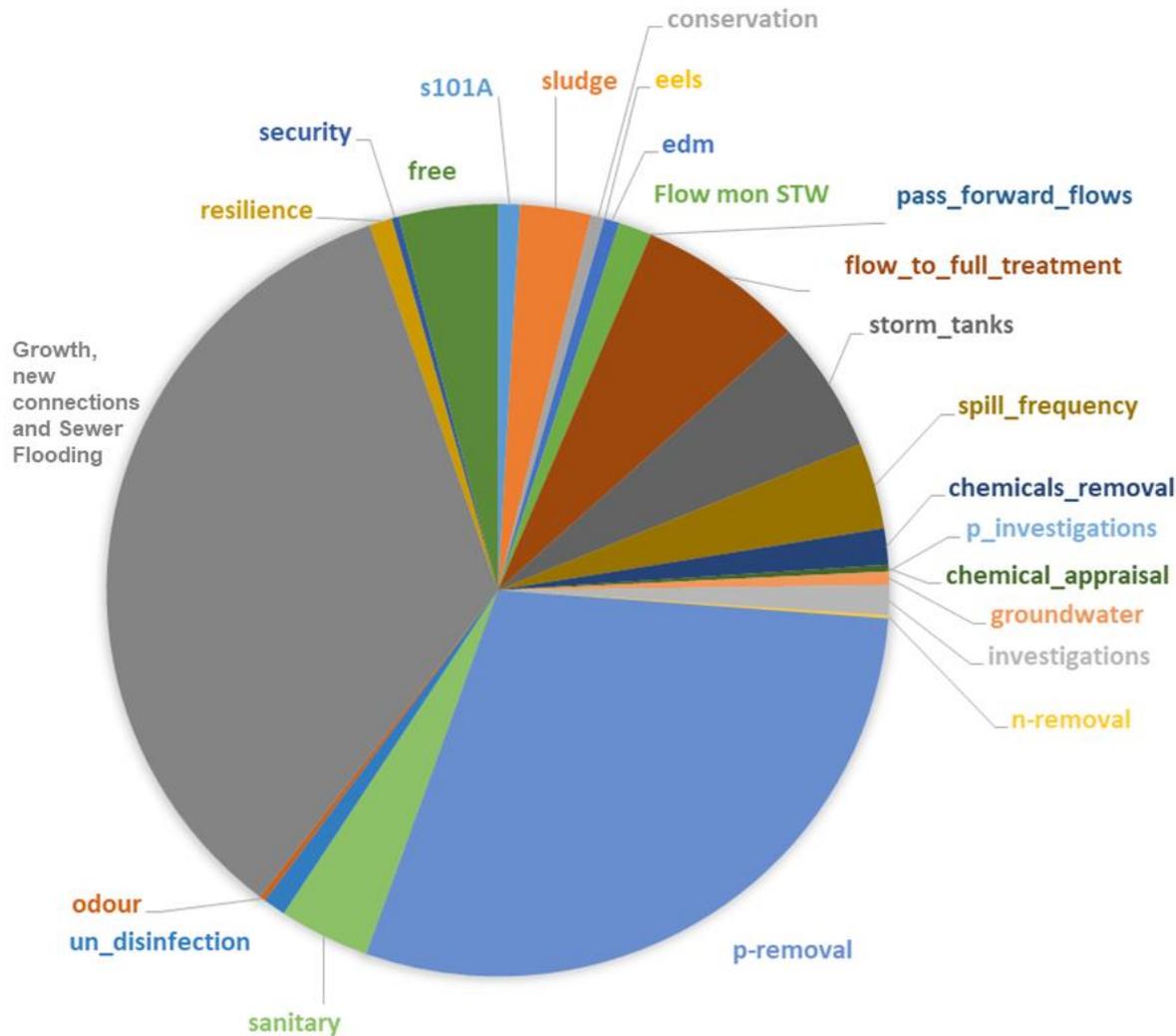


Figure: Ofwat view of requested enhancement capex – by enhancement category line

Wastewater – Ofwat view of capex £6.4bn allowed of £8.0bn (21% efficiency challenge)



Material enhancement categories are assessed through models include:

- Growth
- P-removal
- Storm tanks
- Spill frequency
- Sanitary parameters

Figure: Ofwat view of requested enhancement capex – by enhancement category line

Cover sheet

Meeting lead standards enhancement feeder model

Objective

To assess enhancement capex expenditure submitted by companies in their PR19 business plan submissions for meeting lead standards.

Approach

We assess the lead reduction costs using a panel data model where the cost drivers are the number of existing lead communication pipes and the number of lead communication pipes replaced for water quality. We triangulate our cost allowance across two models, one using historical data for the period 2011-12 to 2017-18 and other using forecast data for the period of 2020-21 to 2024-25. Both models are in levels and use smoothed data over a 3-year period. Where companies' forecasts are below our allowance, we allow the company's forecast. For companies whose submissions suggest unique and material costs not captured by our model, we carry out a deep dive using the information provided within the companies' submission.

https://www.ofwat.gov.uk/wp-content/uploads/2019/01/FM_E_WW_lead-standards_IAP.xlsx

Cover sheet

Drinking water protected area enhancement feeder model

Objective

To assess enhancement capex expenditure submitted by companies in their PR19 business plan submissions for drinking water protected areas schemes, Table WS2 line 17 Drinking Water Protected Areas (schemes)

Approach

Shallow or Deep dive assessments are carried out as no suitable cost driver could be identified for econometric modelling. We consider impacts of misallocation, double counting and regulatory support. We do not apply our company-specific efficiency challenge to the companies that we shallow dive and allow the costs in full, due to the low materiality of these proposals. For the deep-dive assessment, we consider the availability and quality of evidence provided. We also reconcile information that has been identified within the companies' submissions with the list of schemes in the EAs' WINEP3, March 2018.

https://www.ofwat.gov.uk/wp-content/uploads/2019/01/FM_E_WW_drinking-water-protection_IAP.xlsx

Cover sheet

Supply-demand balance enhancement feeder model

Objective

To assess enhancement expenditure submitted by companies in their PR19 business plan submissions as pre-defined enhancement lines, WS2 lines 7, 8, 9, 10, 46, 47, 48 and 49, WS4 lines 2,3, 4 and 5.

Approach

For our assessment we considered the totex expenditure for supply option expenditure (critical period and dry year annual average) and demand option expenditure (critical period and dry year annual average) as a combined supply demand-balance enhancement assessment.

For companies where this total did not represent a material amount we undertook a shallow dive approach applying the company efficiency, otherwise we completed a deep dive approach using the information provided within the companies' submission.

In the deep dive we disaggregated the totex expenditure into six supply-demand balance enhancement components which we assessed separately. These were:

- 2020-25 supply-demand enhancement
- Long-term supply-demand enhancement
- Leakage enhancement
- Regional strategic solution development
- Internal interconnections
- Investigations and future planning

[Wholesale Water Supply-demand balance enhancement – feeder model](#)

- Excel spreadsheet file containing the analysis by company

[Wholesale Water Supply-demand balance enhancement – feeder model summary](#)

- Presentation pdf file providing further detail of the approach and a summary of output by company

Components of assessment

- **2020-25 enhancement**
 - Includes new supply and water efficiency schemes delivering SDB benefits in the period 2020-25.
 - Assessed through a **unit cost** approach.
- **Leakage enhancement**
 - Expenditure allocated using forecast leakage change in 2020-25, adjusted to remove benefits resulting from metering (metering expenditure is assessed in a separate feeder model).
 - Assessed through a **unit cost** approach.
- **Long-term enhancement**
 - 'Local' supply schemes delivering SDB benefit (MI/d) beyond 2025.
 - Assessed through a **deep-dive** approach considering need, option selection, cost efficiency and customer protection.
- **Internal interconnections**
 - Includes network-improvement schemes providing SDB benefit to overcome localised deficits.
 - Assessed through a **deep-dive** approach considering need, option selection, cost efficiency and customer protection.
- **Investigations and future planning**
 - Activities and related costs are assumed to be part of the **base allowance**.
- **Strategic regional solution development**
 - An allowance for the consistent development of multiple strategic regional projects through the planning stage to determine the optimum long-term solution for the region.
 - Effectively assessed through a **deep-dive** approach considering need and option selection.

Structure of outputs

- The basic structure of the SDB feeder model is identical to those previously discussed with initial data sheets, followed by individual company analysis and an allowance sheet providing the output of the models.
- The following gives details of the common elements of each of the SDB enhancement **deep dive** tabs

			BP figures	Net reallocations	Assessed values	Validation	Comments
27	KEY METRICS from business plan						
28	Total SDB enhancement capex expenditure	£m				OK	See detail below for reallocation description
29	Total SDB enhancement opex expenditure	£m				OK	
30	Total SDB enhancement benefit	MI/d				OK	
31							
32	Total supply enhancement capex expenditure	£m				OK	
33	Total supply enhancement opex expenditure	£m				OK	
34	Total supply enhancement benefit	MI/d				OK	
35							
36	Total demand enhancement capex expenditure	£m				OK	
37	Total demand enhancement opex expenditure	£m				OK	
38	Total demand enhancement benefit	MI/d				OK	

- Rows 27 to 38 provide detail of the information submitted in the company business plan and detail of any line reallocation

Breakdown for enhancement cost analysis	Claimed benefit MI/d	Claimed expenditure £m	Allowed benefit MI/d	Allowed expenditure £m	Notes	Comments	References
2020-25 supply enhancement							
2020-25 demand (non-leakage) enhancement							
2020-25 SDB enhancement total							
2020-25 leakage enhancement							
Long-term enhancement							
Strategic regional solution development							
Internal interconnections							
Investigations and future planning							
TOTAL							

- Rows 41 to 48 contains both our breakdown of the company's proposed benefits and expenditure into the six assessment components, columns C and D (highlighted yellow above) and the results of our assessment of the individual components, columns E and F (highlighted blue above). Grey cells are not used in the assessment

Structure of outputs

	A	B	C	D	E	F	G
19							
20		Overall assessment result					
21							
22		Ofwat view of allowance for AMP7 (£m) excluding over allowance for developing strategic schemes		Assessed as totex due the significant opex included in demand side options			
23		Extra allowance for AMP7 to develop strategic regional schemes					
24							

- Cells C22 and C23 provide the total allowance following the assessment. The split is to identify clearly any additional allowance made beyond the company's requested expenditure for development of regional strategic options
- Key features specific to the SDB enhancement feeder model include the following sheets:
 - **Leakage enhancement assessment** – leakage assessment tests and results across all companies to determine the final allowance
 - **Strategic schemes**– derivation of the allowance for development of regional strategic schemes
 - **Unit costs** – derivation of the unit costs used for leakage and 2020-25 enhancements

[Wholesale Water Supply-demand balance enhancement – feeder model](#)

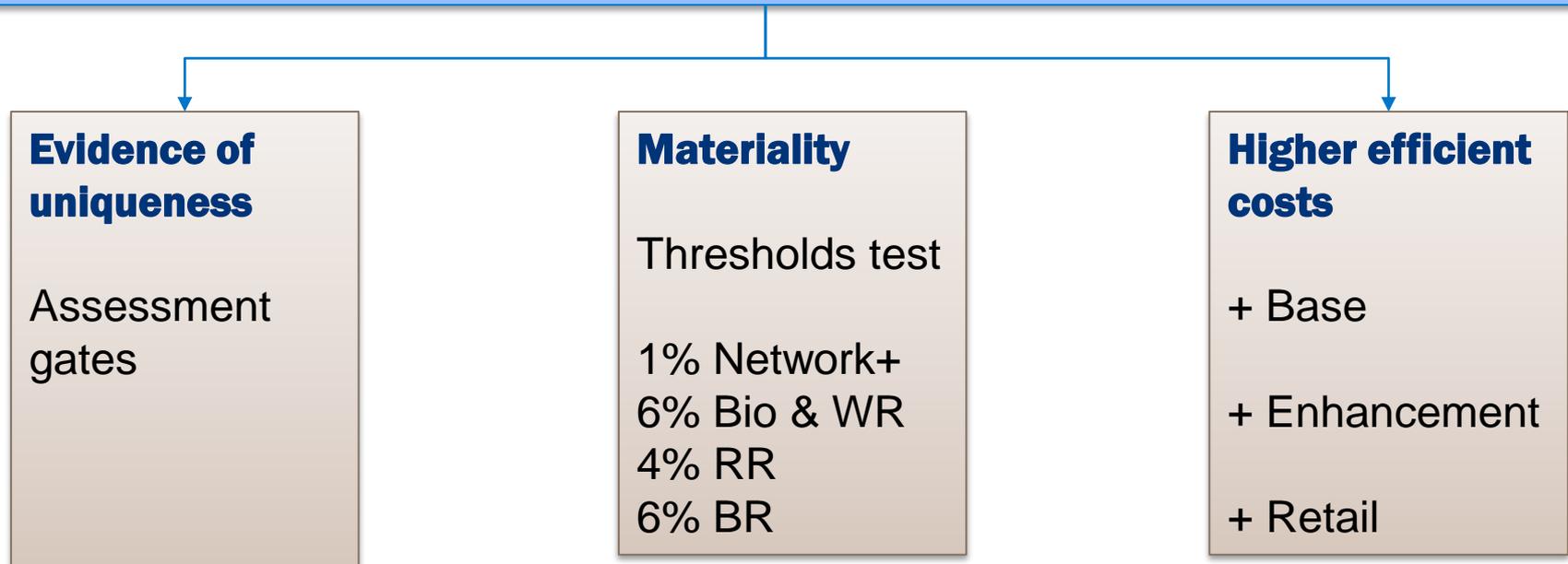
- The supporting information in the feeder model summary provides consistently presented company outputs for the SDB enhancement assessment:
 - Tables 1 and 2 – company presented costs and benefits
 - Table 3 – disaggregated costs and benefits into the six components
 - Table 4 – disaggregated IAP cost allocation presented for six components

[Wholesale Water Supply-demand balance enhancement – feeder model summary](#)

Cost adjustment claims



Cost adjustment claims are mechanisms for a company to present **evidence of unique** and **material** circumstances (operating, legal requirements or atypical expenditure) which drive **higher efficient costs** for the company relative to its peers.



1. 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?

2. Need for cost 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?

3. 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?

4. 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?

5. Robustness and efficiency of costs

- 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?

6. 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?

7. 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?

8. 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?

- For the IAP we assessed the quality of evidence
- The quality assessment is independent of whether we add to our view of costs. as a result of a claim.

- For some high quality claims we **add to our view of efficient costs**. We first take account of any implicit allowance from our modelling approaches.
- Where a claim is for standard enhancement investment we typically assess it as enhancement, rather than as a cost adjustment claim.

We have published a separate cost adjustment claim excel model for each company.

Actions for companies



- 1. Metaldehyde:** There may be significant impacts on investment required as a result of the metaldehyde ban. Companies should investigate and agree with the DWI the scale and timing of any potential changes compared to submitted plans. Significant changes and uncertainty may require an outcome delivery incentive to protect customers in the instance of expenditure not being required.
- 2. Strategic regional water supply solution development:** We make an allowance to six companies to work together and deliver consistent and transparent investigations, planning and development of strategic options with the overall aim of optimum solutions being 'construction-ready' by 2025. The company allocations are made on the basis of having clear deliverables and customer protection for the gated delivery of the development solutions. The following actions are required to ensure the efficient delivery of this development programme:
 - In conjunction with the other companies involved, jointly propose methods for collaborative working including setting up the joint working group for individual schemes, and how consistent assumptions and decisions will be made within these groups and between them.
 - Provide more detail on the gated process, the deliverables, timings and expenditure allocations at each gate.
 - Propose ODI-type mechanisms to allow allocated funding to be recovered by customers in the event of the scheme not progressing through each gate and for the non-delivery or late delivery of outputs.
- 3. WINEP unit cost adjustment mechanism:** Some companies need to provide additional information to confirm the suitability of their unit cost adjustment mechanisms in cases when the confirmed WINEP programme is different to that proposed in business plans.
- 4. Company specific actions:** To improve customer protection where we make cost allowances for particular activities



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