

Wessex Water Services Ltd Response to Ofwat's PR19 Draft Determination – August 2019

Representation reference: Cost Assessment C18

Representation title: The move to base+ modelling

Summary of issue

We are concerned about the proposed move to base+ cost modelling. Our particular issues are:

1. Around the process and lack of transparency
2. With how it is undertaken (omission of key variables relating to elements of expenditure)
3. With its possible detrimental effect on the overall benchmarking (reduced intuitive understanding of models)

The changes you have made in our case entirely offset the justified inclusion of RPEs.

Due to the late inclusion of this change and the complexity involved in unravelling the impact we have a range of impact from -£22m to -£80m when comparing with the IAP on a like for like basis. Our best view is set out in Table 1-1.

Table 1-1 Our view of the impact of moving to base+ modelling

| | Supply | Waste | |
|---|--------------|---------------|---|
| DD Base + Costs | 550.3 | 971.4 | |
| Less: | | | |
| IA for new connections | 16.9 | 2.7 | From grants & contributions feeder model |
| IA for new development | 9.8 | 24.3 | From grants & contributions feeder model |
| IA for growth | n/a | 32.0 | From cost adjustment claim file |
| IA for flooding | n/a | 59.6 | From cost adjustment claim file |
| Less: | | | |
| Forecast variable impact | 15.3 | 1.3 | Inputting old forecasts into Ofwats DD spreadsheet |
| Labour RPE impact | 6.2 | 12.3 | Removing RPE uplift in Ofwats DD spreadsheet |
| DD Base Costs | 502.1 | 885.8 | Comparable to IAP 'base costs' |
| | | | |
| IAP Base costs | 521.8 | 885.8 | |
| Add: | | | |
| Forecast variable impact | 22.0 | 1.6 | Updating variables in IAP modelling spreadsheets |
| Adopting RPEs | 6.0 | 11.0 | Changing frontier shift in IAP modelling spreadsheets |
| Add: | | | |
| IA for new connections | 0.0 | 2.7 | From cost assessment models |
| IA for new development | 16.9 | 24.3 | From cost assessment models |
| IA for growth | n/a | 40.8 | From cost assessment models |
| IA for flooding | n/a | 54.3 | From cost assessment models |
| IAP Base + Costs | 566.7 | 1020.5 | Comparable to DD Base+ costs |
| | | | |
| | | | |
| Impact of modelling changes for Base costs | -19.7 | -49.6 | -c£66m attributable to change in modelling |
| Impact of modelling changes for Base+ costs | -16.4 | -49.1 | -c£65m attributable to change in modelling |

We note that, at an industry level, the changes to modelling approach have reduced the allowed expenditure by around £830m on a like for like basis with the IAP. This is calculated in the Reckon report that we have appended to this representation (Appendix C18.1). We view this as a conservative estimate.

Without including new connections as a cost driver and considering the marginal costs of an additional customer within the models (discussed in detail later in this representation), these models are not funding companies at their expected growth

rates. Instead, they fund all companies at the national average growth rate. This will lead to some companies being under-funded and others being over-funded.

This has resulted, for Wessex Water, in growth not being financeable - actively not supporting the government's agenda to encourage new development.

Change requested

The final suite of models used should correctly include cost drivers associated with new development, STW growth and flooding. They should maintain the engineering and economic sense of the base models and include variables that give a good intuitive understanding of the marginal costs.

They should be cross checked against pure base models to ensure that any differences are understood and can be attributed to the correct drivers.

If this is not possible then these cross checks can help inform adjustments to the base+ costs to better align the cost allowances to company connection / growth rates. This could result in negative adjustments for companies with below average growth and positive adjustments for those with above average growth.

For Wessex, we would expect the adjustments in table 1-2 to be made due to connection rates if no changes were made to the DD approach.

Table 1-2 Adjustments to connection rates required

| | Implicit allowance in DD base+ models (£m) | Historical industry-wide new connections rate (%) | Wessex BP forecast growth in connected properties | Adjustment to DD base+ allowances based on BP forecast growth rate (£m) |
|------------------------------|--|---|---|---|
| STW growth | 21 | 0.66% | 0.94% | 9 |
| New developments/connections | 27 | 0.66% | 0.94% | 12 |
| Flooding risk | 80 | 0.66% | 0.94% | 34 |

These figures differ from those quoted in the draft determination and are calculated by removing the historic costs for each activity in turn, re-running the models and comparing the outcomes.

This would assist in mitigating the need for cost adjustment claims and, in fact, would remove the need for our sewer flooding claim – although STW growth would still be material.

Additionally, the final determination should be based on our forecast of new connections.

Rationale (including any new evidence)Issues around process and transparency:

We engaged at length with Ofwat to inform a reasoned approach to modelling. Through this process we agreed considerable improvements to the PR14 approach, which were reflected in the base models at the IAP.

We are not aware of any stage in the process at which there was a serious suggestion from Ofwat of moving to base plus cost models which include the full scope of capital enhancement expenditure that Ofwat is now treating as growth-related.

We expressed concerns throughout the process about including enhancement expenditure due to its differing cost drivers and less predictable nature. The inclusion here comes as surprise.

It represents a major change in approach, adding significant complexity, and has left companies very little time to work through the details and understand the implications for growth allowances and the interaction with cost adjustment claims.

This added complexity and its late introduction into the process raises serious questions about whether it can be considered properly with sufficient discourse.

This complexity has also meant that we have been unable to properly assess the impact, resulting in our range set out in the summary. Additionally, it has meant that we are unable to provide as constructive feedback as we would like on how this can be improved and implemented successfully at this time.

Issues with how the modelling has been undertaken:

Enhancement expenditure relating to new development, STW growth, and sewer flooding has cost drivers that are very distinct to those that drive base costs and is less routine in nature.

For example, investment is required to address STW growth when the works are reaching capacity and will be made in step changes, rather than a gradual increase as each new house is connected to the works. It is therefore lumpy in nature.

Sewer flooding will be driven by improvements to the service provided rather than purely by the number of new connections. However, service levels are not included in setting base costs.

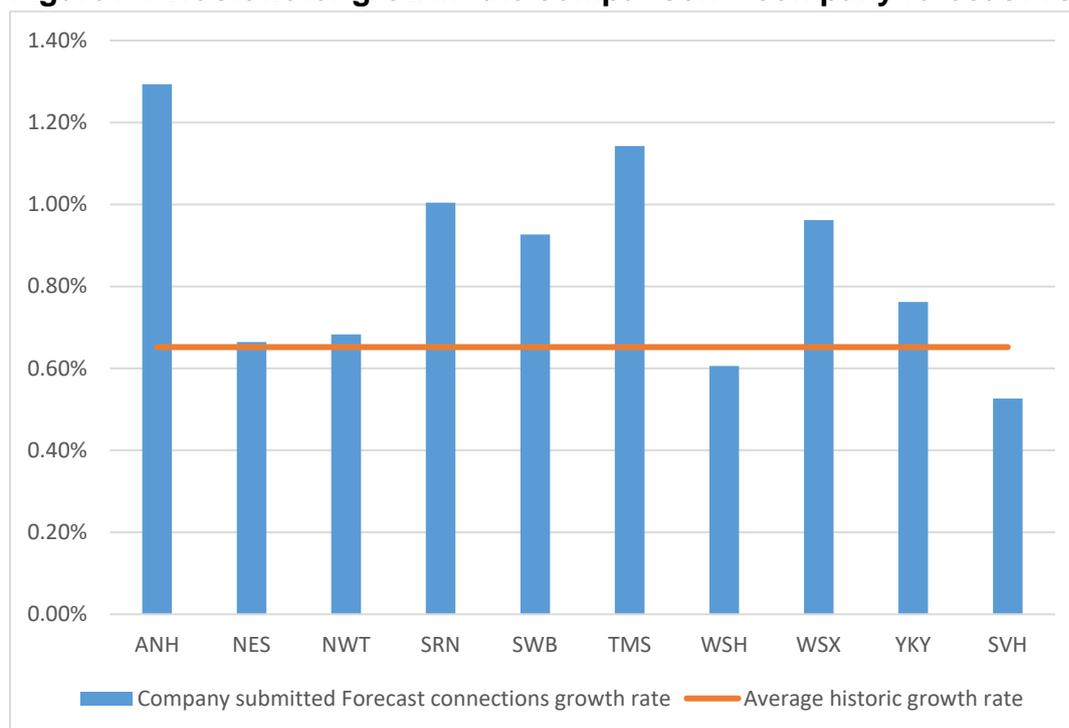
Looking at the marginal cost of a single additional property in the models, which is set out in table 5 of the appended Reckon report, it is clear that the current model specifications do not capture the full marginal costs of growth against this cost driver.

As the models are not correctly 'allocating' expenditure to the change in these variables, the exclusion of any additional variable capturing new connections results in the models only funding an industry average level of new connections. Where companies expect to see a higher new connection rate than the industry average, this approach will underfund them and, conversely, if companies expect a lower rate, it will overfund them.

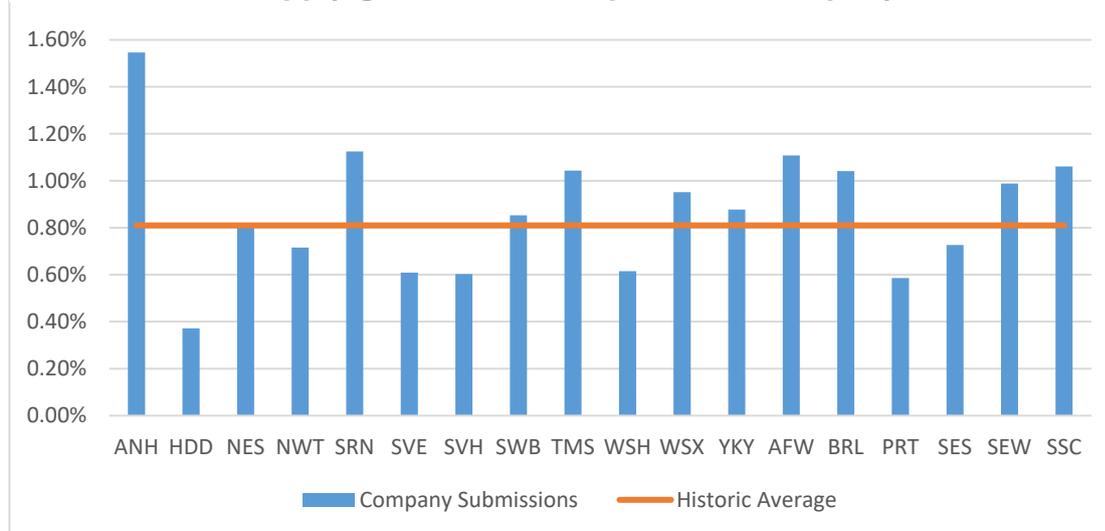
Wessex Water is disproportionately impacted by this on both supply and waste.

On wastewater, the modelled rate of 0.65% per annum is significantly lower than our forecast rate of 0.94% and will result in underfunding our growth totex by c.43%.

Figure1-1 Wastewater growth rate comparison – company forecast vs. model



On water supply, the modelled rate of 0.81% per annum is below our forecast rate of 0.95% per annum and will result in underfunding our growth totex by c.17%.

Figure 1-2 Water supply growth rate comparison – company forecast vs. model

We discuss further, in our cost adjustment claims on STW growth and sewer flooding, why the variables included here do not fully capture what is driving our submitted costs. Some of the key issues are summarised here:

- The models cannot capture the specifics of where we need to invest. We need to invest in multiple small sites in this price control period and that means we cannot benefit from the economies of scale of growth at larger works. We note that the density variable does not account for this as it cannot pick up the fact that we are having to do more work at small sites than our proportion of small sites would suggest.
- The models cannot pick up work on new obligations, such as the drainage area management plans.
- The models include no drivers relating to the service either customers or the environment receive. We are amongst the industry leaders in terms of sewer flooding and treatment work compliance, this leads to additional costs as the models will only fund these to average levels. This is discussed in detail in our appendix to representation C11, which sets out the rationale for this.

Issues with the accuracy of the new models

In Ofwat's consultation on econometric modelling (March 2018) it set out its principles for model selection as shown in Figure 1-3.

Figure 1-3 Ofwat principles for model selection**Model development and assessment criteria**

Our approach to model development and assessment is as follows:

1. Use **engineering, operational and economic understanding** to specify an econometric model, and form expectations about the relationship between cost and cost drivers in the model.
2. Assess whether the **estimated coefficients are of the right sign and of plausible magnitude**.
3. Consider if the **estimated coefficients are robust**. For example, are they stable and consistent across different specifications? Are the estimated coefficients statistically significant?
4. Assess the consequences of **cost drivers under management controls**, in particular, the risk of any perverse incentive.
5. Consider the **statistical validity** of the model more widely – does the model perform well in terms of statistical tests and diagnostics?
6. Consider the appropriate **estimation method**.

The first two points relate to the engineering sense that can be interpreted from the models. Statistical validity of these models should not be put ahead of these in model selection and should not be used to justify a change in approach when the key sense tests are worsened.

The move to base+ modelling has resulted in worse performance on these key tests. Below are a few examples:

- The coefficient of main scale variable in wholesale water models is now >1 , whereas previously it was less than 1. This suggests diseconomies of scale. Although the change isn't large, it does create an understanding that is contrary to what we would expect from the engineering reality of the industry. In fact, across all models, we have seen an increase in the coefficient of the key scale variables, suggesting that the models are picking up less economies of scale by including growth, which is counter-intuitive.
- The models suggest some very questionable marginal costs – out of sync with what is proposed through the DSRA. This not only highlights that the revised econometric modelling is not assigning the costs to the correct drivers, but also that this approach is at a higher risk of creating perverse incentives.

Table 1-3 Comparison of marginal allowances for forecast connections against other metrics

| All companies | Marginal allowances for new connections under DD approach (for a connection at the midpoint of the AMP7 period) | Marginal allowances for new connections enhancement capex using IAP figures | Historical industry-average growth-related enhancement capex per new connection (2012-13 to 2017-18) |
|---------------|---|---|--|
| Water | £139-£584 | £1,126 | £1,128 |
| Wastewater | £189-£376 | £1,644*-£2,026* | £1,939 |

Ensuring that the correct drivers are in the suite of models used and that the models make engineering sense will help resolve these issues.

This will also ensure that the developer income assumptions are consistent with developer costs allowed – another key consideration.

Included as Appendix C18.1 to this representation is a report by Reckon, in which they provide further details on the key points highlighted here.

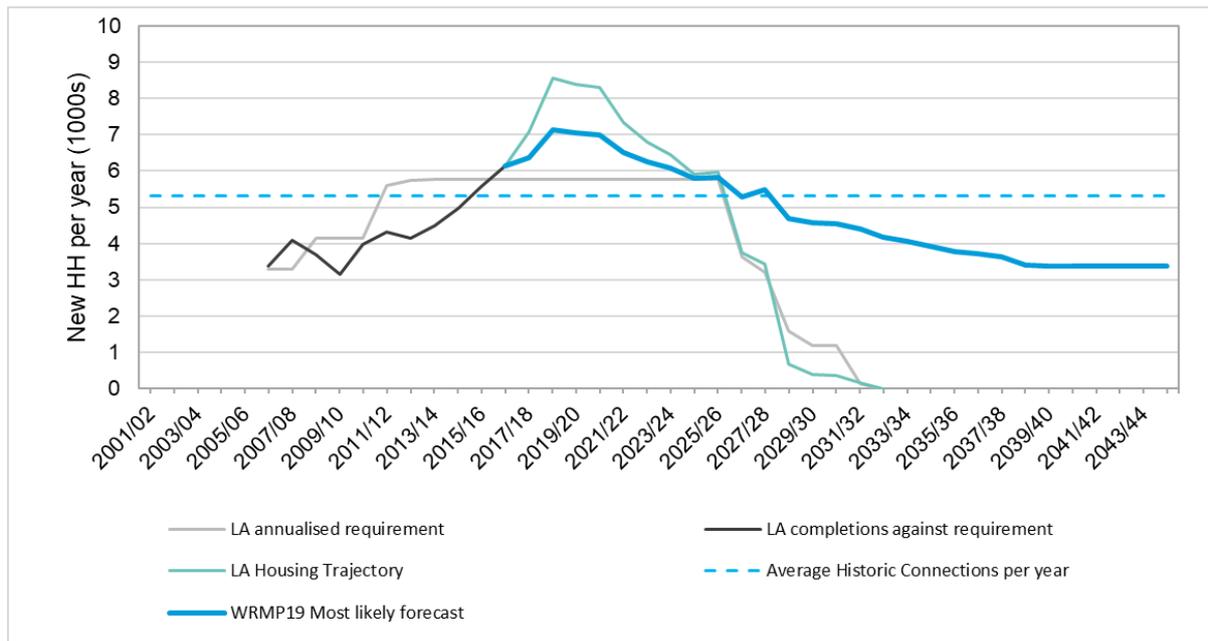
Issues with the forecasts of new connections

The draft determination bases its allowed costs on Ofwat's own view of the growth in new connections in the region. This increases the risk that the final cost allowances will be out of sync with how the DSRA will be set, and that cost allowances will not be capturing differences in efficient costs but in quanta of work.

With the additional protection to customers provided by the DSRA, there is little risk in adopting company forecasts of new connections.

Our forecast of new connections is a key assumption of our water resource management plan, which has been agreed with Defra and the Secretary of State, so we see no rationale for diverging from these agreed upon forecasts.

Our forecasts have been developed from Local Authorities' plans that are wholly or partly within our water supply area. After analysis of the sum of the Local Authority (LA) plans and the most recent DCLG household growth projection we have created a smoothed approach that fits between the DCLG forecast and the LA forecast as the LA housing trajectory does not represent an appropriate central estimate of new housing connections. The graph of the LA (turquoise line), DCLG (red line) and our proposed plan forecast (thick blue line) is displayed below in Figure 1-4.

Figure 1-4 Inputs to forecast growth rates

Why the change is in customers' interests

It is in customers' interests to ensure that companies are funded the correct amount to operate efficiently. If not, either more pressure will be put on environmental / service performance or long-term health and resilience will suffer due to a lack of investment.

Links to relevant evidence already provided or elsewhere in the representation document

Appendix C18.1 – Reckon growth