

CMA Price Determinations

Comments from United Utilities Water Limited

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About United Utilities Water

United Utilities Water (UW) is the appointed water and wastewater provider for the North West of England. We serve more than three million homes and 200,000 business across a region that stretches from Carlisle in north Cumbria to Crewe in south Cheshire, whilst safeguarding 1,300km of coastline and 7,000km of rivers.

The North West is a diverse area with more than 7 million people living across both major metropolitan areas such as Greater Manchester and Merseyside as well as small rural villages in the heart of Cumbria. We are proud custodians of areas of outstanding natural beauty including the UNESCO World Heritage site of the Lake District National Park and the beaches of the Fylde Coast. To deliver our services to customers we manage hundreds of reservoirs, treatment works and pumping stations, more than 120,000 kilometres of water pipes and sewers and rely on a 5,000 strong workforce.

United Utilities and PR19

In the PR19 process, we were one of three fast-tracked companies. We consider that we submitted a plan that was stretching, ambitious and of high quality. Our approach was customer-centric, based on delivering “more for less” – ie: improved services for lower bills – and was founded on driving innovation and value through all aspects of the value chain.

Our plan set out a comprehensive approach to delivering resilient services for customers through an embedded culture of innovation. We proposed a plan that was more than £1billion lower than the amount spent in AMP5, with more than £400m of this saving resulting from innovations applied in AMP6 and planned for AMP7 through using our ‘Systems Thinking’ approach. A further £359m saving has been identified through the application of an industry leading market testing framework to 100% of our cost base by using new and better means of procuring products and services from the market. Our work with quality regulators ensured that the investment programme reflects only cost-beneficial requirements with an appropriate contribution from the water company. Our estimate is that this engagement has reduced expected costs by £110m.

Our plan also adopted the new Direct Procurement for Customers (DPC) approach as a means of seeking the best value solution to address the asset and resilience risk of one of our most critical pieces of infrastructure, the Haweswater Aqueduct, which provides clean drinking water to more than 2.5 million people across the North West.

As well as value, it was essential that the plan delivered affordability. In a region that is home to 41 of the 100 most deprived communities in England and Wales, we are focussed on ensuring that we provide service to customers at a price they can afford to pay, for the long term. On this basis, we have committed that shareholders will provide £71m of support over the AMP to over 152,000 customers a year through financial assistance schemes that will not be recovered through the price control. This contribution helps us deliver a comprehensive range of discounted tariffs, UU Trust Fund grants and a “Payment Match+” arrears allowance scheme for customers that have fallen into debt.

Affordability for our customers was also boosted by the proposed 10.5% (real) cut to average customer bills proposed in our business plan. This bill reduction was extended to a 13.8% reduction in Ofwat’s final determination.

Our CMA submission

As we are not an appellant to Ofwat’s determination, we have only an indirect interest in the outcome of these specific appeals. However, we do consider that it is important that the CMA recognises that the approach it takes to assessing efficient costs could have wider consequences for the rest of the industry, including United Utilities. We have confined our representation to deal with cost assessment matters and have not yet had the opportunity to fully review materials that were published on or after 4 May 2020.

We do not seek to opine on the merits or otherwise of the specific circumstances that individual companies may represent to the CMA or have represented previously to Ofwat. For the most part, our observations in this submission summarise long-held policy positions and evidence promoted by United Utilities before, during and subsequent to the PR19 process, including the period during which Ofwat engaged with the industry in the development of econometric models for use at PR19.

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The purpose of this representation is to support the CMA in its assessment of efficient cost, drawing on our approach to and experiences of cost assessment at PR19. In general, we find that Ofwat's underlying approach to cost assessment (framework and model development) could be considered broadly fit for purpose and should serve as a useful starting point for the CMA.

This remainder of this paper is structured as follows:

- **Section 1** provides some background to the area of cost assessment, specifically providing an articulation of our view on the purpose of regulatory cost assessment process as well as summarising the proposals that we have consistently made as part of our wider engagement on how model development should proceed for PR19.
- **Section 2** then reviews Ofwat's approach to cost assessment at PR19. In particular, it compares how the approach used by the regulator compares with the principles established in Section 1. This covers the broad framework adopted, the econometric models selected and the scope for companies to represent opposite the benchmarked view of cost.
- Finally, **Section 3** comments on some of the specific issues we have seen raised in relation to the application of the process considered in Section 2.

As noted above, the points made are generally a summarised version of the public positions previously set out by United Utilities before, during and after the PR19 process. We have provided extensive referencing to existing supporting documentation, which provides a more expansive view of our analysis. We would be pleased to provide any additional supplementary information or explanations that would assist the CMA with its deliberations.

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1. Background

1.1. The purpose of regulatory cost assessment

- 1.1.1. It is important at the outset to establish what the purpose of the cost assessment process is and how the approach to econometric modelling fits within that process.
- 1.1.2. In our view, the principal use of econometric modelling is for the regulator to derive an **independent view** of efficient cost that it can then use as a benchmark or yardstick for considering individual company plans. This independence of view is of the utmost importance due to the widely recognised problem of asymmetry in the information that exists between the company and the regulator. If independence is not maintained, it risks inefficient outcomes for customers.¹
- 1.1.3. The establishment of a benchmark for the industry is only one part of the cost assessment process as a whole. The cost assessment process as a whole should be aimed at providing a reasonable (although sufficiently stretching and challenging) cost estimate for each company individually. This means that in addition to setting the benchmark – which can be applied to the industry generally - the regulator needs to consider whether there are valid reasons why a reasonable cost assessment for any particular company should depart from such a benchmark. Otherwise, there is a risk that focusing on sector wide performance of (for example) econometric cost models might lead to inappropriate allocations to individual companies, to the detriment of some groups of customers, companies or other stakeholders.²
- 1.1.4. In making these decisions, cost assessment should also fairly recognise all services within a company's past and future operations and key operating and environmental differences. Cost assessment should not be a solely backwards looking assessment based on what has been delivered previously; it also needs to account for future exogenous changes to the market.³
- 1.1.5. The use of an independent benchmark to test the efficiency of a proposed business plan is an entirely legitimate part of a regulatory approach to cost assessment. The comparability of the benchmark with the company's business plan should not alone be a reason to invalidate the legitimacy of the benchmark. The benchmark should be stretching, but realistically achievable so that cost assessment can promote effective incentives for the company to deliver prospective future efficiency gains.⁴
- 1.1.6. Both companies and regulator alike need to be cognisant of the limitations of the applicability of an industry wide benchmark to a company specific cost assessment. Development of the benchmark requires trade-offs and simplifications given the limitations of the data and modelling approach that are utilised in establishing each baseline. The upsides and downsides that this implies cannot be assumed to simply "even themselves out" when an industry wide assessment is applied to an individual company. Further, refinement of the models to solve one issue may introduce problems elsewhere. Recognising this, both companies and the regulator need to identify the limitations inherent the modelling approach and actively provide and assess the evidence available that can overcome these shortcomings.⁵

1.2. United Utilities Water's approach to model development

- 1.2.1. U UW has actively engaged in the cost assessment process throughout PR19. As part of the wider industry engagement leading up to the price review, we commissioned Arup and Vivid Economics to undertake two pieces of work to examine and promote a robust cost modelling approach. The first was ['Understanding the exogenous drivers of wholesale wastewater costs in England and Wales'](#) and the second focussed on the ['Use of econometric models for cost assessment at PR19'](#). Both reports were

¹ See *United Utilities (2018a)*, section 1.1.

² See *United Utilities (2019a)*, section 1.1 and *United Utilities (2018b)*, section 7.6.5.

³ See *United Utilities (2018a)*, section 1.2.

⁴ See *United Utilities (2018a)*, section 1.6.2.2.

⁵ See *United Utilities (2018b)*, section 7.6.5.

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published into the public domain and were made widely available for scrutiny by all stakeholders, including through facilitated workshops.

- 1.2.2. Whilst these reports focussed on wastewater, the underlying approach that was taken supported the development of our own cost assessment proposal across the suite of wholesale (water and wastewater) and retail price controls.
- 1.2.3. Our extensive engagement with Ofwat, the industry and our economic advisors guided our approach and helped to develop the evidence for our main cost assessment submission document for PR19, '[S6002 Cost assessment proposal](#)'. The views expressed in the remainder of this section present a summarised view of key elements of this submission.
- 1.2.4. The development of econometric models for deriving efficient cost is often a key area of discussion amongst academics and industry protagonists. Our proposals in this area were based on a number of good practice principles that we believe should underpin any approach. These are:
- A. Engineering and economic rationale should guide the search for appropriate cost drivers, and in turn, there should be a clear *a priori* logic to explain the relationship between the chosen set of cost drivers and modelled cost.⁶
 - B. Cost drivers should be exogenous to company decision making.⁷
 - C. The modelled benchmark should have external validity, meaning it is able to forecast expenditure outside of the dataset (and points A and B above should facilitate this).⁸
 - D. External validity should be prioritised over statistical performance, and this should be explicit within the model assessment framework.⁹
 - E. A diverse model suite should be used, particularly where this allows for key relationships between cost and different drivers when using a small (relatively static) dataset across the entire value chain.^{10 11}
 - F. Inconsistent data will jeopardise the benchmark's independence. Where there are doubts about the consistency of the data underlying a cost driver, a valid alternative should be used.¹²
- 1.2.5. Adopting these principles provides the best opportunity for an appropriate, independent industry benchmark to be constructed. We have advocated that the use of targeted triangulation across a diverse model suite is an effective approach to balance alternative, and often opposing, cost drivers. This is the approach that we consider would facilitate the most appropriate outcome for all companies given the potential for differing cost drivers. That said, it is not the only approach that is available to the regulator and a different approach may be more viable if more bespoke adjustments on a single case basis to the baseline are expected i.e. company specific adjustments.¹³
- 1.2.6. We set out our model assessment framework on page 16 of '[S6002 Cost assessment proposal](#)', in which we test viable candidate models under three main headings:
- A. engineering and/or economic justification;
 - B. transparency and relevance; and, finally,
 - C. statistical validity.

⁶ See Arup and Vivid (2017), section 2.1

⁷ See Arup and Vivid (2017, 2018).

⁸ See United Utilities (2018a), section 1.2

⁹ See United Utilities (2018a), section 1.2.3

¹⁰ This is the case within the water and wastewater sectors. There are only 17 and 11 companies respectively and, at the final determination, the dataset only covered the most recent 8 years (2011/12 to 2018/19) for botex models.

¹¹ See United Utilities (2018a), section 1.2.2

¹² See United Utilities (2018a), section 1.3.1.6

¹³ See United Utilities (2018a), sections 1.2 and 1.6.1

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- 1.2.7. The hierarchy of these tests is intentional, prioritising engineering/economic justification over statistical validity. Statistical tests and criteria will by their very nature focus on the internal validity of the models rather than the external validity and if models are compared on statistical properties only (or first), then this will tend to place greater emphasis on overfitted models in isolation rather than facilitating the best possible suite of models for any given area.¹⁴
- 1.2.8. Again, we note that as independent benchmarks are likely to be imperfect, there must be a clear, consistent and objective framework providing stakeholders with the ability to represent on why the benchmark(s) might not be appropriate in their particular circumstances e.g. for atypical operating conditions.¹⁵

¹⁴ See *United Utilities (2018a)*, section 1.2.3.

¹⁵ See *United Utilities (2018b)*, section 7.6.5

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2. Ofwat's approach to PR19 cost assessment

2.1. Ofwat's framework for cost assessment

- 2.1.1. Within this section, we review Ofwat's approach to PR19 against the purpose of cost assessment and use the principles that we set out within Section 1 to make comparisons to our own proposals and models.
- 2.1.2. Ofwat developed models for cost assessment at PR19 having undertaken significant engagement with the industry through the use of industry working groups, consultations and the publication of its Price Review methodology in advance of company submissions.
- 2.1.3. This increased level of engagement was, in our view, a significant improvement from PR14 and gave all companies an opportunity to contribute to the development of the models for PR19, whilst simultaneously providing insight into the likely approach and drivers, enabling them to identify in advance if they were likely to be 'atypical' of the benchmark.
- 2.1.4. It would not be possible for Ofwat, despite its best efforts, to develop cost assessment models that could satisfactorily represent all the specific circumstances of each company in the industry. However, we believe that by promoting a reasonably transparent process of model development, supplemented with the ability to seek cost adjustment claims, Ofwat provided a framework in which companies could have expected to have the efficiency of their plans reasonably assessed.¹⁶

2.2. Econometric models

- 2.2.1. In its 2018 [consultation](#), Ofwat stated, "*Our emphasis is to develop models that are consistent with engineering, operational and economic understanding of cost drivers. We aim to develop models that are sensibly simple (without pursuing simplicity for its own sake)*" (p8). We highlight the importance of strong engineering and economics rationale in the selection of cost drivers within principle A of 1.2.4 above and so we support Ofwat's approach as being a reasonable method that a regulator should adopt to create models that are suitable for the industry.¹⁷
- 2.2.2. Ofwat has created its own model development and assessment criteria ([Ofwat 2018, p8](#)) building on the framework set out by CEPA ([CEPA 2018, p41](#)) and "*While there was no clear conclusion on the exact models to be used, the proposed cost drivers and arguments made by companies helped us develop our models further for PR19. There was wide support for our model selection approach.*" ([Ofwat IAP 2019, p10](#)). The fact that companies did not agree on the same models is not surprising as companies are not homogenous and each will naturally seek to reflect company specific circumstances within the base models.
- 2.2.3. Across its value chains, Ofwat settled on four key categories of cost drivers to be consistently important ([Ofwat 2018, p6](#)):
- A. **Scale variables**, to measure the size of the network and/or level of output. This is the primary cost driver in all PR19 models;
 - B. **Complexity variables**, to capture the complexity of required treatment or the complexity of the network;
 - C. **Topography variables**, to capture energy requirements for transporting or pumping water or wastewater; and,
 - D. **Density variables**, to capture economies of scale at the treatment level and costs resulting from operating in highly dense areas.
- 2.2.4. The studies undertaken on behalf of U UW also identified these four areas as being primary cost drivers, although we also included a fifth; network characteristics - specifically **drainage variables** for wastewater

¹⁶ See *United Utilities (2019a)*, section 1.1.

¹⁷ See *United Utilities (2018a)*, section 1.2.3.

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models that include sewerage collection (we note that this could be included within network complexity variables for simplicity).¹⁸

- 2.2.5. The investigations by Arup and Vivid Economics found that there is significant engineering and economic evidence to support using drainage (measured by annual urban runoff – rainfall falling on urban areas) as a primary cost driver. Additionally, the levels of rainfall and urbanisation are exogenous impacts to a company’s operations, which complies with Principle B of 1.2.4 above.
- 2.2.6. We continue to believe that the inclusion of a drainage variable (which we provided to Ofwat) would enhance the validity of Ofwat’s models. Unlike most other variables within the dataset, urban runoff is not constant over time, allowing for variations in annual expenditure due to rainfall to be reflected by changes in a cost driver and not solely attributed to (in)efficiency.¹⁹
- 2.2.7. However, we accepted that – for a variety of reasons – Ofwat might not chose to include a cost driver to represent drainage within industry models. This does not mean that it is not a significant cost driver for us (or that Ofwat isn’t accepting of the engineering narrative) but rather than seek to reflect the impact of drainage on our benchmark through changes to the models, we could use Ofwat’s framework and seek an adjustment to our baseline through a cost adjustment claim instead. Either approach should (in principle) result in the same outcome for the company.
- 2.2.8. Having selected its preferred granular models, Ofwat then aggregated the results to derive predictions for water and wastewater. ‘Catch up’ efficiency is calculated on the aggregated allowances rather than taking percentiles of each individual price control or modelled area (i.e. it does not calculate different efficiency adjustments for Bioresources and Network plus).
- 2.2.9. There had been concern that Ofwat may not adopt this approach and would instead use separate upper-quartile assessments that would ignore the substitution effects present across the value chains and create an unrealistic frontier. We highlighted the need to account for substitution effects and to set an aggregate ‘catch up’ efficiency challenge in our submission document ‘[S6002 Cost assessment proposal](#)’ (p65) as well as in our representations to the [slow track draft determinations](#) (p7). We were satisfied that Ofwat’s approach in the FD appropriately addressed these concerns.
- 2.2.10. The development of a clear and transparent process for developing cost assessment models - having taken into account the views of the industry through the consultations - and the publication of the final methodology gave companies significant insight into Ofwat’s expectations for PR19. This should have enabled companies to identify where there were likely to be assessments that were not capable of capturing their specific operating circumstances, which were atypical (compared to the industry benchmark.)

2.3. Cost adjustment claims

- 2.3.1. Accepting that modelled baselines can be imperfect and having developed “*sensibly simple*” models, Ofwat had a process that enabled companies to make representations opposite its view of efficient cost known as cost adjustment claims (previously ‘special factors’). Ofwat states “*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*” ([Ofwat 2019, p23](#)).
- 2.3.2. As companies submitted their claims in advance of seeing the models that Ofwat would use to derive its benchmarks, companies’ initial submissions would have been solely driven by where they knew of “*unique operating circumstances, legal requirements or atypical expenditure*” that affected the efficient cost in their plan, irrespective of model and variable selection. This can be viewed as an unbiased

¹⁸ See *United Utilities (2018a)*, section 1.4.1.5

¹⁹ See *United Utilities (2019b)*.

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assessment of the specific cost drivers that the company actually faces in relation to what may be modelled.

- 2.3.3. Whilst a company may seek for its atypical cost driver to also (or alternatively) be reflected in the models, in many cases these are better dealt with as a company specific cost adjustments.
- 2.3.4. For example, we support Ofwat's approach to reflect density as a primary cost driver. Anglian Water represents that Ofwat's models do not adequately reflect its circumstances in this regard.
- 2.3.5. Whilst we do not express a view about the validity of this claim, in the event that the CMA is minded to adjust allowances for Anglian Water based on its unusual degree of sparsity, then we consider that this would better be applied as a company specific adjustment (affecting only Anglian), and not as a change to the industry models (which would potentially impact the assessment for all companies).
- 2.3.6. Assessing such atypical and company specific issues as a potential specific cost adjustment – rather than attempting to remodel the baseline for the industry in order to reflect a particular company circumstance – would be fair and consistent with the approach that was taken with other companies during the price review process.
- 2.3.7. For example, in UU's case, recognising that the likely output of the models would not meet our unique circumstances we submitted cost adjustment claims for botex expenditure for the additional costs for drainage, retail bad debt, impounding reservoirs and the availability of landbank.²⁰
- 2.3.8. In our view, adopting a similar approach to assessing the unique company circumstances being flagged in these appeals would be a more proportionate and manageable approach for the CMA to take, rather than seeking to substantially set aside or alter a model suite that was developed after a very significant consultation exercise in advance of business plan submissions and which took account of a large number and wide range of key industry concerns in arriving at the baseline.
- 2.3.9. As we have set out in 2.1.4 above, it is not possible to develop a single set of models that reflect every unique company circumstance. We would urge the CMA to recognise that it would not be a productive exercise to attempt to do so. Furthermore, it would not be appropriate to redesign a model suite aimed at creating an industry baseline to overly reflect the circumstances of a single company. We therefore recommend that the CMA should approach claims about cost assessment on the basis that these should be a company specific adjustment.

²⁰ Although we had reasonable expectations that bad debt would be accounted for within Ofwat's modelled allowances (due to Ofwat's prior engagement) we nevertheless submitted the claim and supporting evidence, as this is a genuine driver of (higher) cost for UUW. In part, this was because we were concerned that the validity of an adjustment claim would likely be called into greater question if the issue was only introduced after the company had seen the draft allowances.

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3. Industry criticisms of the PR19 models/approach

In this section, we comment on a number of the observed criticisms of Ofwat’s approach to cost assessment that have been raised during PR19, some of which have been repeated in representations to the CMA.

3.1. Models predicting higher cost allowances for companies than their plans

3.1.1. One element of Anglian Water’s critique of Ofwat’s models and process relies on asserting that because in some instances Ofwat “*assesses some companies as requiring larger allowances than their own assessments [this is] is a clue that Ofwat’s modelling is not reliable*” (paragraph 556, Anglian SOC).

3.1.2. This observation would not be consistent with our view of an appropriate basis for cost assessment as set out in 1.1.2 and 1.1.5 above. Cost assessment baselines are an independent assessment of cost that Ofwat uses to test whether a company’s plan is efficient or not. This by very nature means that the resulting value can be higher if the company is putting forward an ambitious plan that is significantly more stretching than Ofwat’s assumptions. To remove the possibility for allowances to be higher than the business plan would in effect remove any incentive that the company has in submitting efficient costs in the first instance.

3.1.3. Indeed, in developing our own econometric models and proposals for cost assessment the initial indications were that we should expect the independent benchmark to be more than £400m above that of our business plan. The fact that the benchmark indicated by these models was higher than our business plan proposal was not an indication that the models were flawed; in our view it was a reflection of the level of ambition and improvement in efficiency that we had built into our AMP7 business plan submission.²¹

3.1.4. Whilst Ofwat has capped the allowance of Portsmouth Water, we do recognise that this is due to the inherent difficulties of modelling such a small company and not the inability of its models to make predictions for the rest of the industry.

3.2. Inclusion of service or performance variables within (botex) econometric models

3.2.1. Our second principle summarised within 1.2.4 above states that “*Cost drivers should be exogenous to company decision making*”. Performance levels are (at least to some extent) endogenous i.e. within company control, and we disagree that it is appropriate to include endogenous variables within an independent baseline. The inclusion of variables that are within management control would create perverse incentives for companies and any variable associated with performance will risk duplicating customer remuneration earned from ODI performance with customer remuneration via totex.

3.2.2. Additionally, future costs of managing performance may be significantly different due to innovations that may not be appropriately reflected by the more general efficiency adjustment.

3.2.3. For these reasons our understanding is that the cost assessment process demands that if a company believes that its service performance causes it to operate comparatively inefficiently without an adjustment, then it should seek that additional allowance through the submission of a well evidence cost adjustment claim. This was the approach that Anglian took for its final submission (for frontier leakage performance) and we support this as being the most appropriate method to address any additional requirements (if the CMA were to decide that such an adjustment is required).

3.3. Lack of diversity within the suite of models

3.3.1. Companies and academics have suggested that Ofwat’s suite of models lacks sufficient diversity to account for different drivers of cost. This is sometimes expressed as a concern that the models are “too parsimonious.”

²¹ See *United Utilities (2018b)*, section 7.6.1.

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- 3.3.2. Diversity can be achieved through using multiple models that account for different drivers (e.g. ground water sources versus surface water sources), or by modelling different aggregations of the dependent variable. Ofwat adopted the latter approach. We took both approaches to improving the diversity of our suite within our submission and we believe that the use of targeted triangulation across a diverse model suite is an effective approach to balance alternative, and often opposing, cost drivers.
- 3.3.3. However, as outlined in 2.3.7 above we did also recognise that Ofwat sought to develop “*sensibly simple*” models and so there needed to be an expectation that benchmarking models might not be fully reflective of some of the cost drivers in our region. This requires companies being able to evidence cost adjustment claims rather than seeking the adjustment to the benchmark through a modelled cost driver.
- 3.3.4. We consider that it is important to remember that the cost assessment process involves more than just the suite of econometric models: it is the entire framework that is provided in order to develop the independent benchmark and also (crucially) includes cost adjustment claims. As we note in 1.2.5, having a suite of models that has less diversity can still be appropriate if it is supplemented by a process that makes reasonable allowance for company specific adjustments.

3.4. The Water models suffer from multicollinearity

- 3.4.1. Anglian Water raises this issue when assessing Ofwat’s implementation of its modelling principles, citing “*Ofwat’s acceptance of high levels of multicollinearity in its models, contrary to its originally stated modelling principles*” (paragraph 570, Anglian SOC).
- 3.4.2. As stated in section 1.2, we consider that a sound principle when deriving models is to prioritise the engineering and economic logic for a driver over and above any statistical validity. As a result, under our framework, multicollinearity would be acceptable if appropriately justified. We therefore would not have any concerns with Ofwat’s deviation from its principles where it can be evidenced that a non-linear relationship is the most appropriate form for this variable.
- 3.4.3. Whilst we do agree with Anglian Water’s point that once principles are established, they should be adhered to, in this instance the divergence is clearly caused by the introduction of a squared term for density to represent a non-linear relationship. The apparent failing of the statistical test for multicollinearity (VIF) is therefore not surprising.
- 3.4.4. Removal of this squared term results in VIF scores of less than 2 for all models (under OLS) highlighting that the multicollinearity is solely confined to the U-shaped relationship for density and not the interactions with other variables in the model.

3.5. Using the ONS forecast of properties/new connections growth

- 3.5.1. As stated in principle F of 1.2.4 above, we consider that “*where there are doubts about the consistency of the data underlying a cost driver, a valid alternative should be used*”.
- 3.5.2. Companies have concerns where Ofwat has used the ONS forecast for household new connections when assessing growth requirements for PR19. Specifically, Anglian Water highlights that the “*Government’s own planning guidance says this is not the appropriate source for projections of new build housing*” (point 658, Anglian SOC).
- 3.5.3. We tend to agree that this is not the most appropriate assessment of future connection activity, but we would also caution against using raw local authority (LA) information in isolation in order to derive a baseline.
- 3.5.4. Although we use LA forecasts for longer term Water Resource Management Plan activity, before submitting our business plan we sought advice from the House Builders Federation (HBF) as well as Edge Analytics and CBRE Ltd intelligence as to the validity of the short term forecast (and the profile to deliver long term growth). This resulted in us reducing the assumption compared to the raw LA forecast (although it is still significantly higher than the ONS forecast.)

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- 3.5.5. In addition to Anglian Water’s comments, we would also raise the issue caused by using the ONS forecast as this is only a measure of net housing growth (i.e. it includes both new developments and reductions due to demolitions.) Areas that undergo significant redevelopment and regeneration (as occurs in the North West) will experience comparatively lower growth in the ONS forecast than the actual (gross) number of new connections required. This is because the “netting off” process removes a significant proportion of connections, causing the activity to look lower (even though it may be comparable). This effect also causes a much greater detriment in cost assessment in areas of relatively low net growth.
- 3.5.6. Whilst it is appropriate to use the net property value when assessing botex requirements (as it is ultimately the net value that is served), when assessing growth requirements it is the gross value that must be used as this corresponds to the actual activity that is being undertaken (and therefore recovered from developers).
- 3.5.7. With this in mind, when assessing developer growth requirements we would suggest that there would be merit in the CMA utilising a view of gross new connections based on LA forecasts but which has been sense-checked by an alternative source of data from a different organisation.

3.6. Choice of explanatory variable to represent scale

- 3.6.1. As stated in principle B of 1.2.4 above, we consider that the choice of cost driver (and therefore explanatory variable) should be exogenous to company decisions.
- 3.6.2. In its final determination, Ofwat has used either the number of properties or the lengths of main as its primary scale variable/drivers across its suite of Water models. This mirrors the approach that we adopted for our proposed models and so we agree with its decision.
- 3.6.3. In its SOC, Anglian Water proposes “*Further scale drivers in addition to Properties. In particular (water delivered, or Distribution Input – Leakage) has merit in that it both incorporates both the network deliverable, water, and the level of leakage*” (paragraph 563 (iii)). We disagree with this as being a suitable and credible explanatory variable to use within an econometric model. As we state in our original report we “*discounted the use of distribution input (DI) as a primary scale driver within any botex models during the first stage of the Model assessment framework and selection criteria as it creates perverse incentives due to the relationship that it has with leakage*”. We do not see any evidence within Anglian’s representation that would cause us to reassess our view on the use of this variable within an independent benchmark assessment.²²
- 3.6.4. Furthermore, we would be concerned that using DI as an explanatory variable would be inconsistent with the principle of total revenue controls. The underlying premise for using a total revenue control (as opposed to a price cap approach) has been established following the acceptance that company costs within the water industry are not directly variable due to changes in volumes, as costs are substantially fixed in nature. On this basis, we believe there would be a significant inconsistency in having cost assessment based on volumes when there is a clear principle underlying the regulatory framework that supports the application of overall revenue controls.

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²² See *United Utilities (2018a)*, section 1.3.1.1.

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4. Appendix

4.1. Our cost assessment publications

Our cost assessment publications are available on the public internet at the following locations or by email to the CMA upon request.

- 4.1.1. Arup and Vivid Economics (2017) “Understanding the exogenous drivers of wholesale wastewater costs in England and Wales” Available [here](#).
- 4.1.2. Arup and Vivid Economics (2018) “Use of econometric models for cost assessment at PR19” Available [here](#).
- 4.1.3. Economic Insight (2016) “Options for household retail cost assessment at PR19” A joint report with Northumbrian Water. Available [here](#).
- 4.1.4. Reckon (2017) “Capturing deprivation and arrears risk in household retail cost assessment” Available [here](#).
- 4.1.5. United Utilities (2018a) “Cost assessment proposal” Part of our PR19 business plan submission. Available [here](#).
- 4.1.6. United Utilities (2018b) “Securing cost efficiency” Chapter 7 of our business plan submission to Ofwat. Available [here](#).
- 4.1.7. United Utilities (2019a) “Representations: cost assessment” Our representation to Ofwat’s fast track Draft Determination, specifically on issues of cost assessment. We consider pages 25-28 to be of most relevance at this stage. Available [here](#).
- 4.1.8. United Utilities (2019b) “Update to claim – combination of exogenous factors impacting surface water run-off” Detailed representations in support of our drainage cost adjustment proposal. Available [here](#).