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Dear Ynon

PR19 econometric cost modelling

Thank you for the opportunity to comment on your latest view on the likely approach you will take to econometric cost modelling at the PR19 price control review and to provide feedback on the models you have produced to date. We welcome the consultation and the clear and accessible way in which you have shared the results from both your own models and other companies'.

We fully support the approach you and your team has followed in getting to this position. While we have not always agreed with the outcomes reached we do appreciate the collaborative way Ofwat set out to build up the data required for populating the models and the way the industry has been able to contribute to the development of appropriate models.

In appendix 1 we provide some comments on the choice of dependant variable, explanatory variables and on the availability of data that may be required for modelling. We have also included a summary of this information in the consultation response format requested.

We are also again raising our concerns around how a final determination reached through a cost modelling approach can adequately reflect the different levels of service delivered in the past, and planned to be delivered over 2020-25, without adversely affecting those companies that have responded to the clear message to set stretching service targets. We are concerned in particular that the approach to cost modelling could inadequately fund service improvements by companies that provide industry leading performance. We raised this in response to the PR19 methodology consultation.[1] However, the final PR19 methodology appears to continue to treat cost assessment modelling and performance commitment assessment as two separate and isolated elements of the price control framework.

It is becoming evident through the information some companies have put in the public domain that levels of service will continue to diverge across the industry. This makes the point we have been raising even more pertinent now than it was at previous price control reviews. For a company like ourselves, already operating well within the upper quartile on a number of service levels, the approach to cost assessment makes us appear inefficient in the majority of the published models because no account is taken of the service levels we are achieving for our customers.

[1] SES response to Ofwat's PR19 methodology, page 2 '*Interactions between totex allowances and outcome delivery'.*

Key to reassuring us and the wider industry on this point is an explanation of how expenditure related to enhanced service levels will be assessed. There is no reference to this in the current consultation where enhancement modelling is only discussed in relation to changes in the external environment (for lead standards and housing growth). Reference is made to some elements of enhancement expenditure being included with base costs in the models. If this is the case for enhanced operational service, as measured through performance commitments, then companies operating beyond the upper quartile (on the basis that in effect companies are funded to operate at the upper quartile) may not be adequately funded for delivery.

We would urge you to consider this point in more detail and provide a response.

Yours sincerely

John Chadwick
Finance and Regulation Director

Appendix 1 – review of econometric cost models

Calculation of the dependent variables

- We welcome the exclusion of totex related to softening – as submitted through the cost assessment process – from the dependent variables used in the models. This reflects our unique position of having statutory obligations to soften a proportion of our water. The information submitted to you in recent years covered only the additional opex related to meeting our statutory obligation. In our cost adjustment claim, submitted on 3 May, we have provided information on historical and forecast totex costs of softening and consider both opex and capex should be excluded from the dependent variable in all wholesale totex models that cover treatment. This is consistent with the approach adopted at PR14 (when costs assessment was first undertaken on a totex basis), and as you'd expect, alters our position in terms of the efficiency ranking in the models you have shared.

- We agree with the exclusion of traffic management costs from the dependent variable. We assume you intend to assess these costs separately and apply a post-modelling adjustment. There continues to be uncertainty on the scale at which traffic management legislation will be applied in our area and across the country. We will work with local highways authorities to provide as robust a view as possible in our business plan on both the cost and scale of activity we expect to face over the 2020-25 period so that the robustness of our cost forecasts can be assessed and included as a post-modelling adjustment. Additional advice on what costs to record as "associated with traffic management" would be helpful in order to minimise variance in interpretation between companies. The costs we have reported in for prior years represent payments to highways authorities to operate in the road. They do not include the additional costs of operating under increasingly restrictive legislation, e.g. to change working practices to avoid lane rental costs. Other companies may have interpreted this differently.

- We do not agree with the conclusion CEPA reaches in its report that no adjustment should be made for regional labour. There is robust and independent evidence that labour costs vary across regions. We find it unsurprising that applying a regional labour explanatory variable was not statistically significant, given the 'noise' in the models. However, we do consider that there is a strong case that the inherent regional variation in cost is uncontrollable and should therefore be excluded from the dependent variable prior to modelling and included as an adjustment post modelling.

Assessment of the proposed explanatory variables for wholesale

- Your models use either number of connections or total water treated as scale variables for water resources and water treatment. We do not consistently perform better or worse with either variable but consider that total water treated is a more robust explanatory factor. The CEPA report indicates that the number of connections is more consistent with Ofwat's incentive for companies to abstract less water by controlling leakage and demand management. We agree with the incentive and we are responding to it through our proposals that will help our customers reduce their usage and our proposed stretching leakage reductions (relative to our current strong performance in this area). However, there is evidence (related to property type and relative deprivation) that customers in our area will continue to use more water than the average household in England and Wales. We are currently working with consultants to enhance the evidence that already exists. Based on this evidence, and the fact that the scale of some costs faced is directly linked to the amount of water abstracted and treated, we consider that a scale variable that reflects volume of water is a more suitable explanatory factor. It does not diminish the incentive on us to reduce the volume of water abstracted because:

- Our forecasted volume of water to be treated (which will be used to set future costs) will be subject to challenge by yourselves and will reflect reductions in consumption and leakage in line with the stretching targets we will set.
- The performance commitment framework incentivises us to reduce leakage and consumption, where supported by customers
- Other elements of the price control framework, including the cost sharing incentive and opportunity to have a plan classified as exceptional, provide an overarching incentive to minimise costs.

In addition, total connected properties includes void properties. Void properties are properties not being billed and therefore assumed to be using no water. Therefore these properties should not be driving any water resource or water treatment costs. Including a scale variable that includes these properties will therefore disadvantage companies with lower voids as a proportion of total connected properties.

- We do not agree with the point raised in the CEPA report that "reservoirs were expected to have higher costs" due to the need to maintain an actual reservoir. Reservoir maintenance costs are significantly lower the cost of maintaining and operating boreholes and have significantly longer asset lives than boreholes.

- In the water treatment models each model contains either % DI from boreholes (negative relationship) or % of water from WTW class 3 to 6 (positive relationship). As a company with above average DI from boreholes but all class 3 to 6 WTW we, unsurprisingly, perform significantly better in models containing the latter. We agree that raw water quality should be taken into account in the models as it directly impacts cost. We consider that the complexity of the WTW that we have had to put in place to treat the water is a better proxy than assuming all water from boreholes requires lower levels of treatment than surface water. We can provide evidence that we do not abstract water that is of a good enough quality to need only disinfection and even our smallest works require more complex treatment to ensure the quality standards expected by the DWI and our customers are met.

- Power is a significant proportion of costs for all water companies. While the cost is within management control, the volume required is not. As a company that extracts most of its water from boreholes (which requires pumping water from deep underground), requires pumping for the remaining proportion of the water it supplies, and operates in an area bisected by a significant range of hills, we consider that a proxy for the additional electricity required is necessary to reflect differences between companies' power consumption that are outside of our control. We therefore fully support the inclusion of average pumping head in the models where it is currently applied and consider that it should feature in all models. We have analysed companies' data on pumping head and provide this analysis below under 'Ensuring the data tables provide you with the information you need'.

- We do not support the inclusion of weighted average population density as an explanatory variable in models containing water treatment. The explanation for its inclusion is that the denser the population the greater capacity there is to have larger and fewer treatment works which are lower cost. We do not think this explanation has any basis in fact – current population density is not a driver of the decisions we have made in the past in relation to number and location of sources/treatment works. Our treatment works locations were decided many decades ago, when density in the area may have been materially different to how it is now, and it is unclear that the density of the area would have played a part in the decisions made at the time. The major factors influencing treatment works locations are location of source water and availability of land. We might expect the opposite relationship between costs and this variable to be true – the denser the area the more difficult and costly it is to find land that would allow for a larger treatment works to be built.

- We agree that density has a positive relationship with costs related to treated water distribution. Even with the exclusion of Traffic Management Act related costs, there are additional costs of operating in areas with greater density of roads and congestion. A measure of population density acts as a proxy for this but there may be other relevant information available on vehicle traffic on roads. The real driver of additional cost is road congestion and the working practices we have to operate under in order to minimise disruption. This includes increased planning and coordination costs and more stringent working practices resulting in increased out of normal hours working requirements.

- You would expect the level of metering in an area to have a positive relationship with treated water distribution costs but it is not included in any models. We have not tested the impact and therefore it may have been tested and excluded for not being material. If it has not been tested we suggest that it should.

- To a degree there is an engineering choice between inclusion of a booster pumping station or a service reservoir/water tower on the network, as they are all assets there to ensure adequate supplies to our customers, and therefore a variable that includes all these assets makes more engineering sense than a variable that covers a subset. However, we do not think that the quantity of these assets is a significant driver of costs. The variables may in fact be picking up power consumption, on the basis that more booster pumping stations may infer more power use. We propose that average pumping head is included instead of these variables.

Level of aggregation in the wholesale models

- The objective should be to model costs at the level of aggregation of the price control and there should therefore be a model for water resource costs only. However, the two proposed water resource models are currently failing to fully reflect the differences in companies' assets and the resulting replacement, maintenance and operational costs. If this cannot be resolved then we suggest that water resource costs are assessed in a different way.

- We do not agree with modelling water resources plus. Treatment and resources are often co-located but there are different drivers of cost. The only reason to model them together would be to address any concerns you have on cost allocation. But as the results will then need to be split between the water resources price control and network plus price control we see no benefit to using these models.

- We support continuing to investigate the validity of separate models for treatment and treated water distribution (with raw water distribution added to one if it cannot be modelled alone) because the drivers are quite different. But we recognise the benefits of assessing the results of disaggregated models with the results of a water network plus model.

- We also do not support modelling wholesale water, again because the results would have to be unpicked between the two wholesale price controls and because the drivers of costs for the different parts of the value chain are quite different.

Assessment of the proposed retail models

- The low R^2 on the retail totex excluding bad debt models and the retail totex models suggest that there are important missing variables. We agree with your statement that an average cost to serve approach may be more appropriate if a better fitting model cannot be developed. But, how to reflect the significant economies of scope available for WASCs that provide a dual service needs to be addressed.

- We would expect % of metered customers to be a significant explanatory factor as there are additional retail costs in reading meters and processing metered bills. Metered customers also generate more contact than unmetered customers. We would therefore expect any model considering these costs to include a variable to address meter penetration variances across companies.

- The majority of retail costs relate to people. We recognise the difficulty of including variables related to level of contact, which directly drives the number of people you need to have available, as it is partially within our control as it can relate to the quality of service received, i.e. poorer service drives more contact. However, there are external factors that drive contact (other than the proportion of customers that are metered which is discussed above), e.g. property sales, access to and preference for use of the internet, level of tenancy vs home ownership. We suggest that number of contacts (or a proxy such as property sales or level of tenancy) should be included as an explanatory factor. The models could then generate a cost per contact that could be applied to company forecasts of contacts which were independently assessed by Ofwat to ensure they accounted for uncontrollable impacts on the number of contacts and not service quality.

- As noted above, the majority of retail costs relate to people and therefore we consider that the approach to modelling, whether it be inclusion within models or an adjustment to modelling results, needs to account for wage inflation.

Ensuring the data tables provide you with the information you need

- Tables WS1 and WS2 align with the way we have reported the cost assessment data in recent years, with the exception of the breakdown of enhancement operating expenditure now required in table WS2. We agree with this addition as some enhancements to current service will have an impact on opex as well as capex, e.g. increased activity on active leakage control. We are flagging that there is currently no way of isolating enhancement opex from the data in table WS1 in the same way as there is capex and therefore botex dependent variables include both base and enhancement opex. This is an issue if companies are funding different levels of improvement in service this AMP and funding this through opex.

- There may have been a difference in interpretation by companies when completing the data request for ‘number of sources’. We counted the number of borehole sites but it looks like other companies (particularly Wessex Water) may have counted the number of individual boreholes. Some companies have significantly greater numbers of sources per property.

- Despite Ofwat and the industry’s attempts to ensure consistency in the measurement of average pumping head (APH) some of the data still looks like different approaches are being taken. In the table below we provide results for water resources APH and % of distribution input (DI) from the source types that consume the most power. You would expect that companies with the highest proportion of DI from more energy intensive source would have the highest pumping head. This is the case for some companies but there are outliers, which may be explainable but based on the information we have do not look sensible. An explanation from each company, or those that appear to be outliers, on the relationship between pumping head and water resource source may be helpful to allow confirmation that the data is accurate.

	APH resources	% DI from boreholes	% DI from pumped storage	Sum
ANH	43	52%	39%	91%
NES	46	6%	27%	33%
NWT	18	4%	0%	4%
SRN	27	66%	2%	68%
SVT	13	29%	14%	43%
SWT	34	7%	0%	7%
SWB	36	8%	0%	8%
TMS	23	23%	69%	92%
WSH	38	4%	29%	32%
WSX	35	76%	3%	79%
YKY	5	20%	0%	20%
AFW	17	64%	1%	64%
BRL	29	17%	60%	76%
SBW	21	15%	0%	15%
DVW	57	6%	51%	57%
PRT	28	90%	0%	90%
SES	43	84%	15%	98%
SEW	41	73%	6%	79%
SSC	28	58%	28%	86%
Average	**31**	**37%**	**18%**	**55%**