Ofwat Price Determinations:
Further submission by Energy Networks Association

1 Overview

1.1 Energy Networks Association (**ENA**) is the voice of the networks, representing the 'wires and pipes' transmission and distribution network operators for gas and electricity in the UK and Ireland. Our members control and maintain the critical national infrastructure that delivers these vital services into homes and businesses.[1] ENA's overriding goals are to promote the UK and Ireland energy networks, ensuring our networks are the safest, most reliable, most efficient and sustainable in the world. The combined regulated asset value of our members totals £66 billion.

1.2 ENA considers it can assist the Competition and Markets Authority (**CMA**) in the present redetermination by efficiently and effectively providing submissions in a number of targeted areas from the perspective of its electricity and gas transmission and distribution network operator members.

1.3 ENA submits that Ofwat has made a number of material errors in its PR19 determination of price controls (**Final Determination**)[2] for the period 2020 to 2025 (**AMP7**) that should be corrected by the CMA.

1.4 ENA provided evidence to the CMA in respect of Ofwat's Final Determination on 25 May 2020. This submission provides additional evidence that it asks the CMA to consider carefully and take into account prior to making its PR19 redetermination. For the sake of brevity, it does not repeat the evidence submitted on 25 May.

1.5 This submission covers the following errors in Ofwat's approach in its Final Determination:

- Ofwat has made errors in estimating the Total Market Returns (**TMR**) that result in the cost of equity being materially too low:
    - Ofwat's approach relies on the adoption of an alternative Consumer Price Index (**CPI**) inflation series which the Office for National Statistics (**ONS**) considers to be unreliable and is consequently developing a new set of modelled indices;
    - Ofwat has failed to recognise that investors will use a discount rate at least as high as the historical arithmetic average when taking capital budgeting decisions;
    - Ofwat has relied on historical TMR data sources that result in the TMR range being artificially reduced and biased downwards; and
    - Ofwat's decision contradicts evidence from dividend discount models that suggests the expected TMR has not decreased.

[1] This submission is on behalf of the following ENA members: Cadent, Electricity North West, National Grid, Northern Gas Networks, Northern Powergrid, Scottish & Southern Electricity Networks, SGN, SP Energy Networks, Wales & West Utilities, Western Power Distribution and UK Power Networks. More information on the ENA is available here: http://www.energynetworks.org/.

[2] Ofwat, PR19 Final Determinations, 16 December 2019 available here: https://www.ofwat.gov.uk/regulated-companies/price-review/2019-price-review/final-determinations/.

- Ofwat has used a debt beta that is too high.
- Ofwat was wrong to have selected a value in the middle of the cost of equity range and should have 'aimed-up'.
- Ofwat's Gearing Outperformance Mechanism (**GOM**) is flawed and should be rejected.
- Ofwat has made errors in its determination of allowed cost of debt resulting in allowances being materially too low:
    - Ofwat has made an error in its calculation of the 'outperformance wedge' which leads to allowances for debt costs being incorrectly reduced; and
    - Ofwat has failed to provide a necessary allowance for the additional cost of hedging under CPI indexation.
- Ofwat's approach to assessing financeability is inadequate, with several corrections required:
    - It is essential that errors made in Ofwat's calculation of Weighted Average Cost of Capital (**WACC**) are corrected prior to financeability assessments;
    - Financeability assessment must consider beyond the AMP7 and 2025 to 2030 (**AMP8**) periods as well as the short-term;
    - Financeability must be assessed using current rating agency methodologies including their focus on core financial metrics;
    - The financeability assessment should test for consistency of the credit rating between the allowed debt funding and credit metrics; and
    - A margin above the minimum credit rating thresholds should be included in the financeability assessment.
- The CMA should consider carefully whether Ofwat's Final Determination adequately serves the long-term interests of consumers.

1.6 The CMA's PR19 redetermination is likely to set a precedent which regulators will refer to when reaching their own decisions, including Ofgem for the RIIO-2 price controls. It is therefore essential that, when faced with choices regarding methodology and data sources, the CMA proceeds with appropriate caution to minimise the risk of error by fully considering the strength and robustness of the data on which it intends to rely.

2 Ofwat has made errors in estimating TMR that result in the cost of equity being materially too low

2.1 In estimating TMR of 6.50% CPIH real for AMP7 Ofwat has made a number of material errors.

2.2 Many of these errors were also made by Civil Aviation Authority (**CAA**) in its proposals for the TMR for NATS En-route plc (**NERL**), and consequently by the CMA in its

Provisional Findings for the same (**NERL redetermination**)[3]. ENA has previously submitted considerable evidence on these matters to CMA as part of its NERL redetermination, and repeats that evidence here to allow CMA to consider it as part of this redetermination.

2.3 The errors are as follows.

- **Use of unreliable alternative inflation data series**- Ofwat has failed to acknowledge a number of key shortcomings of its alternative data series, which is based on back-cast data. ONS considers the back-cast data to be unreliable and is consequently developing a new set of modelled indices, which are expected by the end of 2020.[4] In these circumstances, Ofwat cannot be sufficiently confident of the quality of the alternative inflation series to be able to rely on it.

  Furthermore Ofwat has failed to recognise a number of key strengths of the RPI data series over CPI as a historical inflation measure, or to consider a number of alternative, and superior, approaches to estimating the historical inflation rate.

- **Incorrect approach to establishing discount rate**- Ofwat's approach fails to recognise that investors will use a discount rate at least as high as the historical arithmetic average when taking capital budgeting decisions, which results in an incorrect downward biased estimate of the cost of equity.

- **Reliance on limited TMR data sources unduly restricts and biases the TMR range**- Ofwat has relied on TMR data sources that result in the TMR range being artificially reduced and biased downwards.

- **Contradiction of evidence from dividend discount models**- Ofwat's TMR determination contradicts evidence from dividend discount models that suggests the expected TMR has not decreased

2.4 As a result of these errors, the TMR has been significantly underestimated by Ofwat resulting in the cost of equity being set too low.

2.5 ENA sets out further details of these errors below.

(a) Use of unreliable alternative inflation data series

2.6 Ofwat's TMR estimate is based on a calculation of the historical TMR using a CPI series that overstates historical CPI inflation and therefore understates the CPI-deflated equity market return. Ofwat has overestimated the effect of inflation, deflating historical market returns using the unofficial Bank of England's historical CPI series based on estimated data before 1989. This results in Ofwat's CPI-deflated return being materially understated.

2.7 In its Final Determination, Ofwat stated that its choice of CPI index instead of RPI index was based on '*the greater consistency of the Bank's CPI series over time compared to RPI*' and '*RPI data not being available prior to 1947*'.[5] In its reply to the relevant water

[3] Competition and Markets Authority (2020), '*NATS (En Route) Plc /CAA Regulatory Appeal: Provisional findings report*', 24 March (**CMA NERL Provisional Findings**).

[4] ONS, Developing CPIH and CPI historical estimates between 1947 and 1987, 10 October 2019. Available at: https://www.ons.gov.uk/news/statementsandletters/developingcpihandcpihistoricalestimatesbetween1947and1987.

[5] Final Determination – Allowed return on capital technical appendix, page 45.

companies' statements of case, Ofwat stated that it based its choice of deflation series on '*an issue with the comparability of RPI over time*' and '*the structurally higher formula effect present in latter-day RPI*'.[6]

2.8 In reaching this conclusion, Ofwat has also failed to acknowledge a number of key shortcomings of the CPI back-cast data set and a number of key strengths of the RPI data set.

2.9 The same error was made by CAA in its determination of TMR for NERL and consequently by the CMA in its Provisional Findings for NERL. ENA has previously provided significant evidence to the CMA in its NERL redetermination process, which sets out the shortcomings of the CPI back-cast data. This is set out in a report prepared by Oxera[7] and the National Grid TMR Report.[8] ENA provides that evidence again in the context of the present PR19 determination to enable it to also be considered as part of this process; in particular, as explained in further detail below:

(a) Ofwat has failed to acknowledge key shortcomings of the CPI back-cast data set:

(i) for the period prior to 1947; and

(ii) for the period 1950-1988.

(b) Ofwat has failed to recognise a number of key strengths of the RPI data series over CPI as a historical inflation measure.

(c) There are alternative, and superior, approaches to estimating the historical inflation rate.

(d) The CMA's Provisional Findings in the NERL redetermination failed to consider the full range of datasets.

Ofwat has failed to acknowledge key shortcomings of the CPI back-cast data set

2.10 Ofwat's critique of the CPI data series is a cursory and materially incomplete assessment of the flaws in the back-cast data set being used. Key shortcomings of the CPI back-cast data include the following:

<u>For the period prior to 1947</u>

(a) The CPI is based on the Consumption Expenditure Deflator (**CED**) series and would therefore include at least some of the upward biases from the RPI 'formula effect'. The Office for National Statistics (**ONS**) agreed with this interpretation.[9]

(b) Analysis by National Grid demonstrates that, for the period for which all data series are available, CEDs show greater alignment to RPI than CPI.[10] This analysis also

6 Ofwat 'Risk and return – response to common issues in companies' statements of case', May 2020 (**Ofwat response – risk and return common issues**), para 3.16.

7 Oxera, '*The cost of equity for RIIO-2: Q4 2019 update*', prepared for ENA, 29 November 2019 (**Oxera 2019 Report**). Enclosed as **Annex 1**.

8 National Grid, '*Total Market Return, The consistency of long-run CPI and RPI inflation series in the UK, and their relative suitability for use in calculating the actual historic long-run average equity market return in the UK on a 'real' basis*' (**National Grid TMR Report**). Available at: https://www.nationalgridet.com/planning-together-riio/our-riio-2-business-plan-2021-2026/finance.

9 Oxera 2019 Report, page 16.

10 National Grid TMR Report, page 11.

demonstrates that the average differential between CED and RPI is relatively small for the full period that both data sets are available. It is therefore likely that the CED series has been constructed using a methodology comparable to RPI and thus includes an element of the formula effect. The use of CED in a 'CPI' series can therefore be expected to overstate CPI data for the years 1900 to 1947, and hence artificially reduce estimated CPI real returns.

For the period 1950-1988[11]

(c) The authors who constructed the 1950-1988 ONS data have expressed why this data cannot be relied upon.[12] Instead they note the value of RPI as a long run historical measure of inflation.[13]

(d) The CPI is based on a 'back-cast' using an ARIMA[14] model of the RPI formula effect to calculate estimates of CPI relative to the RPI series, given that the latter series has been published since 1947. The authors of the ONS's paper recognise that alternative back-cast models may produce contrasting results.[15] This undermines the reliability of the ARIMA model.

(e) In contrast to the observed average difference of 0.84% between RPI and CPI inflation since CPI was first published in 1997,[16] the modelled formula effect (and hence difference between RPI and CPI) of 0.29% on average for the 1950–1988 period is surprisingly small, appears to tend towards zero and becomes noticeably less volatile as the back-cast horizon is extended. The differential arrived at through use of the CPI back-cast is not credible. Furthermore, Ofwat has not presented any economic reasoning to justify these features of the back-cast, which suggests that the estimated formula effect may be driven by the ARIMA modelling specification, particularly as the back-cast horizon is extended.

(f) The modelled CPI estimates for the period from 1950 to 1987 are based on data that has since been superseded. The estimates for 1950 to 1987 are calculated from CPI data for years between 1988 and 1996 that were acknowledged by ONS to be erroneous and have since been corrected. The estimates for 1950 to 1987 have not yet been updated to reflect the new CPI values for the period 1988 to 1996, and therefore cannot be considered reliable for policy making. Indeed in October 2019, the ONS expressly stated that these CPI values were not intended for official uses and that it plans to produce new indicative estimates[17] for the CPI between 1950 and 1987 alongside the planned CPIH estimates, based on the corrected CPI data.[18, 19]

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11 For the period 1947 to 1950 the CPI back-cast is the same as the long-run RPI data set.

12 National Grid TMR Report, see pages 6–9 for a summary of the ONS's views on why the CPI back series data cannot be relied upon.

13 O'Neill, Ralph and Smith, '*Inflation History and Measurement*', 2017, ISBN 978-3-319-64124-9, published by Palgrave Macmillan.

14 Auto-regressive integrated moving average.

15 National Grid TMR Report, page 10.

16 Calculated for the 1997–2016 period using data from the Millennium Databook.

17 It is not clear whether these revised estimates of CPI, or the estimates of CPIH, will be sufficiently reliable to be used, nor indeed whether there would be any reason to consider them more reliable than the actual historic RPI values in these years, nor whether they would be more comparable to CED values in earlier years so could be used to construct a broadly comparable inflation series from 1900 to 2018.

18 National Grid TMR Report, page 33.

19 ENA notes that Ofwat has highlighted that the changes made to date by ONS have been small in quantum. However, it does not necessarily follow that the consequential changes to the modelled back-cast data will also be small.

Ofwat has failed to recognise a number of key strengths of the RPI data series over CPI as a historical inflation measure

2.11 Ofwat notes a number of shortcomings of the RPI data series. However, the historical RPI series has a number of key strengths relative to the CPI back-cast for the period 1947 to 1988 which have not been acknowledged by Ofwat, including the following:

(i) RPI was a National Statistic during this period whereas CPI was not. The RPI data is therefore official contemporaneous data that has been published, used for many purposes and subject to scrutiny over many years by academics and statisticians. By contrast the CPI data set is a recently modelled back-cast which has not had the same level of scrutiny and in any event is due to be superseded later this year.

(ii) The ONS has questioned RPI being used as a forward looking index but has not questioned its use for backward looking purposes which is the situation that applies here. This is reinforced by the Bank of England using the RPI back series in its historical inflation calculator,[20] the ONS preferring to use RPI for comparing the purchasing power of the pound over period of 1947 to 1988[21] and the close comparison of CEDs used in the UK's Blue Book National Accounts over 1947 to 1988 to the RPI series.[22]

2.12 Ofwat's contention that the RPI series should be discounted due to '*the structurally higher formula effect present in latter-day RPI*'[23] can be addressed by following the approach taken by the CMA in its Provisional Findings in the NERL redetermination to account for the increase in the formula effect in 2010 (once the error in the CMA's calculation identified by ENA has been corrected[24]).

There are alternative, and superior, approaches to estimating the historical inflation rate

2.13 Oxera, in its 2019 report, considered three alternative approaches to estimating the inflation rate:

- First, using a similar approach to the above, but correcting for the anomalous features of the back-cast identified above, Oxera estimated that the historical average CPI inflation rate is of the order of 0.45% lower than Ofwat's estimate, and the arithmetic average CPI-deflated return on UK equities is 7.4% for the period 1899–2018.[25] This is 90bps higher than the point estimate of 6.5% in the Ofwat Final Determination.[26]

- Second, an alternative approach is to make use of the longer time series of published data that exists for the RPI, with actual data published since 1947 and estimates for the period 1870–1947 based on the 1947 definition of the RPI.[27] An Oxera report for Heathrow Airport identified possible structural breaks in the historical RPI series due

20 https://www.bankofengland.co.uk/monetary-policy/inflation/inflation-calculator.
21 National Grid TMR Report, page 8.
22 National Grid TMR Report, page 11.
23 Ofwat response – risk and return common issues, para 3.16.
24 Energy Networks Association, Response to CMA's Provisional Findings for NERL, 15 April 2020. Enclosed at **Annex 2**. Para 3.8.
25 Oxera 2019 Report, page 17.
26 Ofwat Final Determination, 'Allowed return on capital appendix' (FD – Allowed return on capital), December 2019, table 1.1.
27 Oxera 2019 Report, page 15.

to changes in the methodology for calculating RPI.[28] The report investigated the impact on the historical average RPI-deflated equity return of restating the historical RPI to be consistent with how RPI is calculated today. The analysis indicated that on this basis the arithmetic average of the historical annual real equity market return for the period 1899–2016 would be between 6.4% and 6.8% (RPI-real). This is 93–133bps higher than the point estimate of 5.47% in the Ofwat Final Determination.

- A third method would be to deflate historical nominal returns by a forecast of RPI inflation. This method is less conventional than the other two approaches as it combines historical information with forecast data. However, in light of the significant uncertainty over the reliability of the historical inflation data, deflating historical nominal returns by forecast inflation provides an alternative to adjusting historical inflation data for biases. Assuming an RPI inflation forecast of 3% gives an RPI-real arithmetic average return of 7.8% based on a nominal arithmetic average historical return of 11%. This is 233bps higher than the point estimate of 5.47% in the Ofwat Final Determination.

2.14 The Oxera 2019 Report recommended using the second of these methods – deflating historical nominal returns by a historical RPI series adjusted to be consistent with how RPI is calculated today.[29] Oxera has previously provided the CMA with the data supporting its adjustments. If the CMA requires this data to be resubmitted in order for it to be considered in the PR19 review, Oxera will do so.

2.15 Oxera has since updated its analysis for Heathrow Airport and this has been provided to the CMA.[30] Oxera's report concludes that:

> *'The updated analysis suggests that there are likely to have been significant methodological changes in the RPI series other than just the 2010 change. Making a selective upward adjustment to the long-run average of RPI inflation based on just the 2010 change ignores these other changes and is therefore not robust and is likely to bias the estimate of long-run RPI upwards.*
>
> *If, for example, the changes in the early 1990s are also accounted for, it would be appropriate to deflate the long-run average equity return using the published RPI data without making any further adjustments for the forecast wedge between RPI and CPI inflation.'*[31]

The CMA's Provisional Findings in the NERL redetermination failed to consider the full range of datasets

2.16 In its Provisional Findings in the NERL redetermination, the CMA recognised that there are a number of inflation datasets and that it must choose the most robust inflation measures.[32] ENA agrees that the CMA must choose the most robust inflation measures. In making this decision, the CMA must consider the full range of evidence regarding the

28 Oxera, *Estimating RPI-adjusted equity market returns*, prepared for Heathrow Airport, 2 August 2019 (originally provided to the CMA in the NERL redetermination and re-submitted by Heathrow Airport Limited to the CMA in the present PR19 redetermination on 11 May 2020).

29 Oxera 2019 Report, page 18.

30 Oxera, *Response to the CMA on estimating RPI-adjusted equity market returns*, prepared for Heathrow Airport, 15 April 2020 (originally provided to the CMA in the NERL redetermination in response to the CMA's Provisional Findings, and re-submitted to the CMA by Heathrow Airport Limited in the present PR19 redetermination on 11 May 2020) (**Oxera 2020 Response on estimating RPI-adjusted equity market returns**).

31 Oxera 2020 Response on estimating RPI-adjusted equity market returns, page 6.

32 CMA NERL Provisional Findings, para 12.188.

strengths and shortcomings of the various datasets. ENA has previously provided evidence to the CMA regarding factors that it failed to consider in its Provisional Findings for NERL, which we provide as an annex to this submission.[33]

(b) Incorrect approach to establishing discount rate

2.17 Ofwat has failed to recognise that investors will use a discount rate at least as high as the historical arithmetic average when taking capital budgeting decisions.

2.18 Ofwat's primary approach has been to use the JKM estimator for averaging historic returns.[34] Ofwat justifies its approach by reference to papers by Blume (1979), Indro & Lee (1997), and Jacquier, Kane and Marcus (2005).[35]

2.19 However, this approach to averaging the historical returns addresses the wrong question, resulting in an incorrect downward biased estimate of the cost of equity. Ofwat implicitly defines the question as 'what return do investors require for investing in equities?' The JKM and Blume estimators used by the CMA can be used to answer this question, and correctly provide estimates that are slightly lower than the arithmetic average. However, the relevant question for setting a price control is 'what rate do investors use to discount future cash flows?' Using the JKM and Blume estimators to answer this question results in estimates that are more biased than simply using the arithmetic average, because the JKM and Blume estimators adjust in the wrong direction (i.e. down).

2.20 Cooper (1996)[36] demonstrated that the discount rate investors should use to give an unbiased estimate of the present value of future cash flows, will assume a TMR at least as high as the arithmetic average of historical returns. As the horizon for investment appraisal extends, the TMR must be further increased above the arithmetic average.

2.21 Professor Stephen Schaefer set out his reflections on the CMA's approach to establishing expected returns in its NERL Provisional Findings in a report previously provided to the CMA in the NERL redetermination process and annexed to this submission.[37] Professor Schaefer observes that:

> '*estimation error in the expected return will produce a positive bias in both the expected future value of an investment portfolio and in the present value of a future cash flow. Since future value increases with the expected return, adjusting for a positive bias in the case of compounding means using a lower expected return. However, since present value decreases with the expected return, adjusting for a positive bias in the case of discounting means using a higher expected return*', and
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> '*To allow both discounters and compounders to make consistent, unbiased estimates, all the CMA needs to do is to provide an unbiased estimate of the arithmetic return*'.

33 Energy Networks Association, Response to CMA's Provisional Findings for NERL, 15 April 2020, paras 3.1 – 3.10.
34 Ofwat response – risk and return common issues, para 3.25.
35 Ofwat response – risk and return common issues, para 3.27.
36 Cooper, I., *Arithmetic versus geometric mean estimators: Setting discount rates for capital budgeting*, European Financial Management, 2:2, 1996, pages 156–67. Available here: http://faculty.london.edu/icooper/assets/documents/ArithmeticVersusGeometric.pdf.
37 Professor Stephen M Schaefer, London Business School, *Comments on CMA views on Estimating Expected Returns*, 15 April 2020. Enclosed at **Annex 3.**

2.22 The Oxera 2019 Report explains that the source of the bias is the convexity of the function used to estimate the arithmetic and geometric average discount factors, which results in the estimated expected value of the discount factor being higher than the true expected value.[38] As the discount rate is the inverse of the discount factor, the bias is inverted and the estimated value of the discount rate will be lower than the true expected value.

2.23 Oxera's work shows a further shortfall for the difference between the correct value and the arithmetic average of 18bps at a ten-year investment horizon and 35bps at a twenty-year investment horizon. The number continues to increase for investment horizons longer than 20 years.[39]

2.24 Ofwat's analysis[40] shows the difference between the JKM methodology and arithmetic average to be 24bps at a ten-year investment horizon and 78bps at a twenty-year investment horizon. The overall result is that Ofwat's TMR proposal is some 113bps lower than the correct value.

2.25 This is considered further in a follow-on paper by Oxera and Professor Schaefer.[41] The main conclusion of the paper is that '*the discount rate that is required to give an unbiased estimate of the discount factor (i.e. of present value), for use in capital budgeting, will be at least as high as the arithmetic average of historical returns. It is this value that regulators must estimate in setting an allowed return on the RAV. As the investment horizon extends, the discount rate must be further increased above the arithmetic average*'.

2.26 The effect of the use of the JKM estimator reduces the TMR very significantly relative to the value that investors will use to make capital budgeting decisions (and therefore should be used for setting the allowed cost of equity). This will produce a downward biased estimate of the discount rate that investors will apply to discount future cash flows. Setting the allowed equity return at this level will generate a stream of future cash flows for relevant water companies that have a present value lower than the equity proportion of their Regulatory Capital Values (**RCVs**). In other words, investment would have a negative net present value and would be heavily disincentivised.

2.27 ENA considers that if the data were available, this error could be corrected by the CMA by using the correct formula to calculate the discount rate, namely:[42]

$$m_N^* = \left(m + \frac{1}{2}\sigma^2 + \frac{1}{2}\frac{\sigma^2}{T}N\right)$$

Where:

m* is the correct discount rate
m is the historical arithmetic mean return
σ is the volatility of annual returns
T is the number of years of observations
N is the number of periods that are being discounted

38 Oxera 2019 Report, page 18.
39 Oxera 2019 Report, table 2.3.
40 Ofwat response – risk and return common issues, table 3.3.
41 Oxera, *Deriving unbiased discount rates from historical returns*, 14 February 2020. Enclosed at **Annex 4**.
42 Oxera, 'Deriving unbiased discount rates from historical returns', 14 February 2020, para 30.

(c) Reliance on limited historical TMR data sources unduly restricts and biases the TMR range

2.28 National Grid's report provides further evidence that the TMR data relied on by Ofwat results in an artificially reduced and downwards biased TMR range, including:

(i) The underlying nominal TMR data uses a starting point of 1900. There is nothing special about 1900 other than this has traditionally been the starting point for data used in the Credit Suisse Global Investment Returns Yearbook by Elroy Dimson, Paul Marsh and Mike Staunton. The use of 1900 as a starting point gives a downward bias, as the use of an earlier or later starting date generally leads to higher values of realised average (real) return.[43]

(ii) The data set relied on by Ofwat for the period 1900-1950 is based on the returns for only the 100 largest companies each year (FTSE 100). This will underestimate the average realised return for the UK equity market (TMR) as larger companies tend to have lower returns than small companies.[44]

2.29 The CMA should correct for this downward bias in TMR range by selecting a point estimate towards the upper end of the range, once that range is corrected for the other issues ENA has noted in this submission.

(d) Ofwat's TMR determination contradicts evidence from dividend discount models

2.30 Ofwat's Final Determination contradicts evidence from dividend discount models (**DDMs**) that suggests the expected TMR has not decreased.

2.31 In its Provisional Findings in the NERL redetermination the CMA expressed concern that forward-looking approaches to determining TMR are largely assumption driven.[45] ENA recognises this concern and agrees that less weight should be placed on forward-looking models, however it considers that such models can nonetheless act as a useful cross check.

2.32 A model developed by the Bank of England over several years provides such a cross-check in the present context. The model is designed to extract expected equity market risk premiums and returns from market data.[46] The Bank of England uses this model to monitor equity prices and support its monetary and financial stability objectives. The model accounts for share buybacks, the full profile of risk-free rates across different maturities, and detailed modelling of dividend growth forecasts for the FTSE All-Share.

2.33 The Oxera 2019 Report presents updated estimates of the equity market discount rate implied by a DDM based on the Bank of England methodology.[47] The estimate is in line

43 National Grid TMR Report, page 54.
44 National Grid TMR Report, page 56.
45 CMA NERL Provisional Findings, para 12.166.
46 The Bank of England regularly publishes equity risk premium (**ERP**) estimates in its Financial Stability Reports based on the DDM outlined in Inkinen, M., Stringa, M. and Voutsinou, K. (2010), *Interpreting equity price movements since the start of the financial crisis*, Bank of England Quarterly Bulletin, 50:1, pages 24–33. This model has recently been improved in Dison, W. and Rattan, A., *An improved model for understanding equity prices*, Quarterly Bulletin 2017 Q2 (**Dison 2017**).
47 Oxera 2019 Report, pages 19–21.

with averages over the past ten and fifteen years, suggesting that there has been no decrease in the expected TMR over this period.

2.34 This is directly contrary to the inference from the Ofwat Final Determination that the RPI-deflated TMR has reduced by nearly 100bps between 2015 and 2020.

(e) Our conclusion is that, in combination, these issues very significantly underestimate the TMR and cost of equity

2.35 As set out above, Ofwat has made significant errors in applying changes to its methodology and selecting and deploying datasets underpinning its Final Determination in relation to TMR. The cumulative effect of these errors is a TMR estimate that is wrong and biased significantly downwards.

2.36 In summary, to correct these errors, the CMA should:

(i) correct Ofwat's approach to deflating the nominal TMR by using Oxera's restated historical RPI series;

(ii) correct the approach to averaging historical returns by using the correct formula to calculate the discount rate;

(iii) make upwards adjustments to the TMR range to reflect (i) evidence of the downwards bias in Ofwat's historical TMR data sources as set out in section 2(c) above and (ii) evidence suggesting that there has been no material decrease in the expected TMR since the last periodic review as set out in section 2(d) above; and

(iv) even if a change in methodology and dataset were supported by the most robust evidence, it should not be implemented over a single price control period. Ofwat's proposed change in the approach to estimating TMR is material, and applying it within a single price control period would ignore the time horizons for the underlying investments of regulated companies which stretch over multiple price control periods. The CMA should consider the long asset lives of regulated assets when determining the period over which any such change is to be implemented.

3 Further evidence that Ofwat has used a debt beta that is too high

3.1 In its 25 May submission to the CMA, ENA provided evidence from Oxera that Ofwat's proposed debt beta of 0.125 is set at a level that is too high. Since this submission, conscious that Oxera's work pre-dated a report by CEPA for the UK Regulators Network (**UKRN**) on the same topics[48] as well as Ofwat's analysis (supported by Europe Economics), ENA commissioned Oxera to review and develop the work undertaken by CEPA and to consider the approach taken by Ofwat.

3.2 The resulting report is provided as an Annex to this submission.[49] The report considers in further detail four potential approaches that could be used to estimate debt beta that are posited in the CEPA report, and reaches four clear conclusions:

[48] CEPA (2019), *Considerations for UK regulators setting the value of debt beta*, 2 December 2019.

[49] Oxera, *Estimating debt beta for regulated entities*, prepared for ENA, 8 June 2020 (**Oxera Debt Beta Report**). Enclosed as **Annex 5**.

(i) *'First, methods based on regressions (the direct and indirect methods) and structural models have the advantage of measuring the systematic exposure of debt to market risk. In contrast, the spread decomposition method lacks robust theoretical support and depends on multiple uncertain parameters. The degree of uncertainty over the assumptions required by the spread decomposition approach suggest that it provides little or no incremental evidential value relative to the other approaches. Therefore, regulators should rely on regression-based and structural methods when setting debt beta for a price control.*

(ii) *Second, methods based on regressions must follow best econometric practice in terms of data inspection and cleaning, model specification, diagnostic testing, and interpretation of results. This is particularly important when working with bond return data, which presents additional challenges compared to equity return data (e.g. heterogenous securities and infrequent trading).*

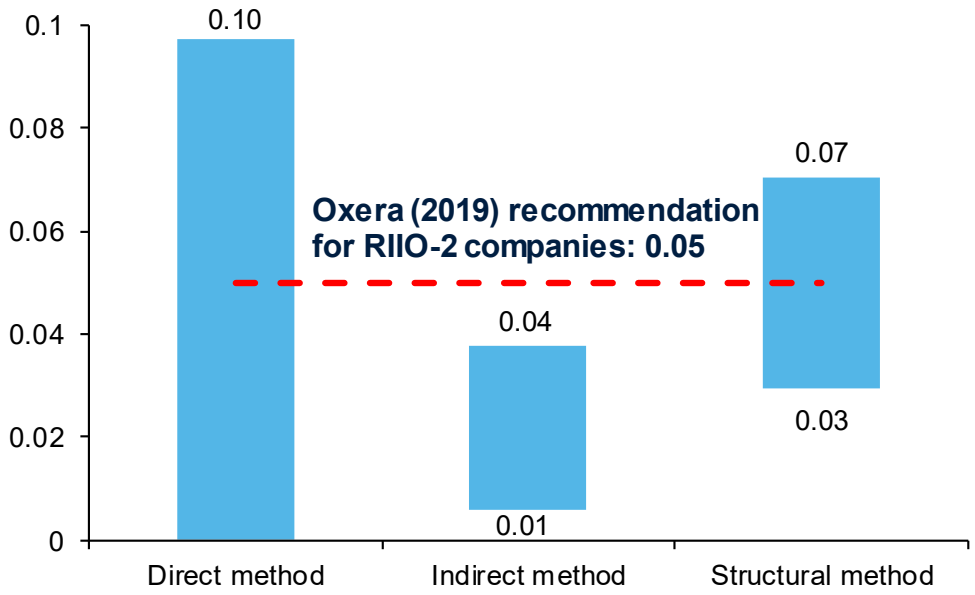
(iii) *Third, controlling for interest rate risk is important when estimating debt beta using a regression-based method. Otherwise, the resulting debt beta estimate will capture risks over and above credit risk, resulting in a biased estimate. This was not reflected by CEPA when they compared the methodology used by Schaefer and Strebulaev (2008) i.e. the indirect regression-based approach to the direct regression-based methodology used by PwC and Europe Economics.* [50]

(iv) *Finally, based on the estimates from the direct and indirect regressions with the corrected version of CEPA's structural method a debt beta assumption of 0.05 for regulated industries would be appropriate'.*[51]

3.3 Estimates of debt beta from Oxera's report using the direct and indirect regression-based methods as well as the structural method are summarised in the chart below. Oxera's analysis continues to show 0.05 to be an appropriate debt beta.

[50] CEPA (2019), *Considerations for UK regulators setting the value of debt beta*, 2 December 2019, pages 7-10.
[51] Oxera Debt Beta Report, page 1.

Figure 1 - Summary of Oxera's evidence on debt beta



Note: The ranges of estimates for the direct method and the indirect method are set out in Figure 2.1 and Figure 2.2 of the Oxera Debt Beta Report. Those for the structured method are set out in Figure 2.6. The red dashed line represents Oxera's estimate of the appropriate debt beta assumption for RIIO-2 (0.05), which was set out in Oxera's 2019 reports on (i) asset risk premium, debt risk premium and debt betas dated 23 January 2019 and (ii) beta and gearing dated 20 March 2019. The lower bound of the direct method is set to 0, excluding one marginally negative estimate from United Utilities.

Source: Oxera analysis

4 Ofwat was wrong to have selected a value in the middle of the cost of equity range and should have 'aimed-up'

4.1 ENA notes Ofwat's comments on the need to make judgements under conditions of uncertainty in the context of allowed returns and concludes that it is appropriate to adopt a middle of the range point estimate for equity[52]. ENA submits that making judgements under conditions of uncertainty is a feature of all regulatory determinations and not unique to AMP7. The presence of uncertainty does not therefore justify a change from regulatory practice. ENA notes that Ofwat aimed up in setting its TMR and Risk Free Rate (**RFR**) in its PR14 determination.

4.2 Ofwat refers to listed share prices following Final Determination as support for its case that it has set an appropriate level of return and in fact indicates that the return may have been set too high.[53] ENA strongly disagrees with Ofwat's analysis and it provided substantial evidence supporting this in its submission to the CMA of 25 May.

4.3 A number of the relevant water companies describe the importance of ensuring that the allowed rate of return for its regulated activities is set at risk reflective level, in order to ensure that there is an appropriate incentive to invest. For example:

> '*If the A-WACC is set too high, then there is a welfare loss as customers pay an excessive amount for their bills. However, if the cost of capital is set too low,*

[52] Ofwat response – risk and return common issues, paras 1.18-1.20.
[53] Ofwat response – risk and return common issues, para 1.20.

there is a welfare loss in terms of longer-term loss of investor confidence, distorted decision-making and underinvestment, or in extremis, financial distress or the non-operation of the regulated company.'[54]

'*Due to the asymmetric consequences of underestimating the cost of capital compared to overestimating it, the point estimate should be drawn from the higher end of the range. Ofwat should have had regard to the asymmetric risks and the cost of under-estimating the cost of capital. While over-estimating the cost of capital will result in customers paying more for their bills, under-estimating will lead to underinvestment in the infrastructure. Given the importance of water as a utility, underinvestment can lead to harm to customers and the wider economy that is more material than the modest harm arising from higher bills.*'[55]

4.4 While price controls are often multifaceted, the allowed rate of return is the single most important incentive to invest faced by a regulated entity. It follows immediately that setting the headline allowed rate of return too low can be expected to give rise to a material risk of underinvestment leading to both short and long run detriment for users of the infrastructure and the wider economy. A report published by the UKRN[56] has recognised that, set against this risk, the reduction in consumer surplus from setting a higher price is relatively small.[57] All of the authors of that report for UKRN agree that there is a legitimate case for 'aiming up'.[58] In the light of this risk of underinvestment and long run detriment, ENA submits that regulators and authorities, including the CMA, should rationally choose to aim up when setting point estimates, as this approach will maximise expected social welfare.

4.5 Ofwat has, instead, opted to use a value from the middle of its cost of equity range. It justifies its approach as follows:

'We consider that this approach is in the best interests of customers and companies alike, as the legitimacy of the regulatory regime is undermined if customers and other stakeholders perceive the regulatory framework as consistently overcompensating companies relative to the best evidence on their actual costs.[59]

4.6 Ofwat is incorrect to dismiss the option to aim up based on a perception. It would be far more appropriate for a regulator to consider and appropriately weight the evidence regarding the societal risk of setting the cost of equity too low or too high and make a decision accordingly. Failure to do so could undermine the legitimacy that Ofwat seeks to protect.

4.7 Ofwat is also incorrect to conclude that the middle of the range necessarily represents the '*best evidence*' on which to base a decision. When faced with choice about where in a range to locate a point estimate, a regulator must consider the evidence related to risks associated with selecting a point that is too low or a point that is too high.

54 Northumbrian Water, Statement of Case (**NWL SoC**), April 2020, para 887.
55 Anglian Water, Statement of Case (**AW SoC**), April 2020, para 1215.
56 UKRN (2018), *Estimating the cost of capital for implementation of price controls by UK regulators*, 6 March.
57 See, further, para 4.17 below.
58 UKRN (2018), *Estimating the cost of capital for implementation of price controls by UK regulators*, 6 March, page 15.
59 Ofwat, Response to NW SoC, para 6.20.

4.8 Annexed to this response is an independent report on this topic, prepared by Frontier Economics.[60] This report sets out a clear analytical framework to which regulators should have regard when choosing where to locate their point estimates.[61] The key elements of that framework are as follows.

(i) The required rate of return for a future price control period cannot be observed, but only estimated with uncertainty.

(ii) To address this uncertainty, UK regulators typically develop a range of allowed returns by identifying a range of possible values for each component of the allowed return – e.g. the risk-free rate, the beta, the equity risk premium. These ranges for each component are then combined to produce a reasonable range for required returns.

(iii) However, regulators will ultimately need to select a point estimate from within this range in the presence of this uncertainty.

(iv) Two risks arise as a result – that the chosen point estimate may prove to be too high, or that it may prove to be too low.

(v) If allowed returns are above the required rate, then there will be a transfer from consumers to the regulated company as customers will pay more for regulated infrastructure than is necessary and investors will earn higher returns than are necessary.

(vi) If allowed returns are below the true required rate of return, then investors will be unwilling to invest in the asset, and incentives would be undermined and distorted. Underinvestment can lead to a deterioration of operational performance with material detriments to users and the wider economy over time.

(vii) Regulatory best practice is to take explicit account of the likelihood of making either of these errors and the consequences of each.

(viii) Aiming up is justified. It recognises that setting allowed returns too low results in underinvestment in core infrastructure. This leads to harm to users and the wider economy that is more material than outweighs the modest harm that arises from setting the number too high.

4.9 As the Frontier Report documents, the logic embodied in this theoretical framework has underpinned numerous regulatory decisions in the UK across a range of infrastructure sectors. This includes multiple decisions taken by the CMA where precisely the logic set out above has been used to justify selecting a point estimate for the allowed rate of return at or towards the top of the range identified for the allowed rate of return.[62]

4.10 ENA therefore considers that the practice of aiming up is strongly supported as regulatory best practice.

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60 Frontier Economics, *Adjusting Baseline Returns for Anticipated Outperformance*, 12 March 2019 (the **Frontier Report**). Enclosed at **Annex 6**.

61 Frontier Report, section 2.1, pages 15-16.

62 Frontier Report, section 2.2.1, pages 12–16.

4.11 The CMA accepted this argument in principle in its Provisional Findings in its NERL redetermination:

> *'We accept that there may be an argument that, in the long-run, customers' interests are served by a small premium to the cost of capital, particularly if that helps avoid an 'opex bias', where companies have the incentive in their business plans to run down the existing capital assets for as long as possible.'*[63]
>
> *'If there are positive externalities and longer-term benefits to consumers from identifying and investing in new capital projects, then we agree that there could be a case for a long-term premium on the cost of capital'.*[64]

4.12 The relevant water companies are capital intensive, manage very long-term assets and plan significant investment programmes during the AMP7 period. They would meet the CMA's description of circumstances where a premium to the cost of equity would be justified.

4.13 In its Provisional Findings for NERL, the CMA proposes that '*given that the premium would apply to assets already in place as well as promoting new investments, it might only need to be small to be effective*'.[65] An equivalent approach is also suggested in the paper published by the UKRN.[66] ENA believes that, in reaching this conclusion, the CMA and the authors of the UKRN paper fail to recognise that if investors learn that the regulator intends to aim up during the first regulatory period only, they will expect lower cash flows over the lifetime of the project. This, in turn, decreases the attractiveness of the project and could in some cases jeopardise its economic viability.

4.14 Evidence demonstrates that the optimal extent of aiming up would lead regulators to choose point values towards the top of the cost of equity range.

4.15 The Frontier Report provides a review of the academic literature on aiming up. The report finds that this literature follows the theoretical framework set out above, although the small number of contributions to the academic debate apply the framework with varying degrees of rigour and completeness.

4.16 Frontier concludes that Dobbs (2011) provides the most thorough application of the framework.[67] A range of modelled results are presented by Dobbs and these generally support aiming up to at least the 75th percentile. Based on its review of the assumptions that support these calculations, Frontier concludes that Dobbs's findings on the optimal extent of aiming up appear to be conservative.

4.17 In another example, the paper published by the UKRN on the estimation of the cost of capital for the purposes of price controls in the UK concluded that

> '*with relatively low elasticities, the reduction in consumer surplus from setting a higher price is relatively small. In contrast, the welfare loss from setting the price*

63 CMA NERL Provisional Findings, para 12.228.
64 CMA NERL Provisional Findings, para 12.229.
65 CMA NERL Provisional Findings, para 12.289.
66 UKRN (2018), *Estimating the cost of capital for implementation of price controls by UK regulators*, 6 March, page 72.
67 Ian M Dobbs, *Modelling Welfare loss Asymmetries Arising from Uncertainty in the Regulatory Cost of Finance*, 2011; Frontier Report, page 25.

> *too low (i.e. setting too low a RAR) is relatively large. This leads to considerable aiming up, as the optimal choice by the regulator.*'[68]

4.18 Likewise, in a recent report for Heathrow Airports Limited which has already been provided separately to the CMA,[69] Oxera took the analytical framework in the appendix of the UKRN report (March 2018) and relaxed the authors' assumption that 100% of investment would be lost if the allowed rate of return is mistakenly set below the true WACC. Even relaxing this assumption still leads to the selection of a value towards the top end of the range.

4.19 Oxera's report also finds that '*the lower the price elasticity of demand, the higher the 'safety cushion' between the allowed return and the central estimate of WACC should be*'.[70]

4.20 The essential nature of the monopoly services provided by the relevant water companies leads to significant price inelasticity, further reinforcing the need to aim up within the cost of capital range to avoid the consumer and societal harm that will arise from setting the cost of equity too low. ENA agrees with NWL's statement that

> '*Given that demand for most regulated services is inelastic, because these services are essential in nature, the welfare loss from under investment or longer-term deterioration in investor confidence is large*'.[71]

4.21 In summary, ENA considers that there is a robust theoretical framework to support aiming up when setting allowed returns, as the harm that arises from setting the allowed rate too low is much greater than the harm that arises from setting it too high. This framework has been explicitly recognised by the CMA and embodied in its determinations, as it has by a range of other regulators. It also has clear support in the UKRN report and from academic literature.

4.22 In light of this evidence, the CMA should select a point estimate at or towards the top of its cost of equity range.

5 Ofwat's Gearing Outperformance Mechanism (GOM) is flawed and should be rejected

5.1 Ofwat's Final Determination implements the GOM in order to address high gearing that it contends has the potential to misalign interests between consumers and investors. ENA notes that no such mechanism exists nor has been proposed by Ofgem for RIIO-2.

5.2 In accordance with principles of best regulatory practice, the CMA should consider very carefully any new regulatory measure that (i) has the potential to affect revenues, (ii) constitutes a departure from established CMA precedent, (iii) is entirely formulaic leading to mechanistic outcomes, and (iv) may penalise past decisions on capital structure taken in good faith.

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68 UKRN (2018), *Estimating the cost of capital for implementation of price controls by UK regulators*, 6 March, page 163.

69 Oxera, *Is aiming up on the WACC beneficial to consumers?* Prepared for Heathrow Airport Limited, 17 April 2020 (originally provided to the CMA in the NERL redetermination in response to the CMA's Provisional Findings, and re-submitted to the CMA by Heathrow Airport Limited in the present PR19 redetermination on 11 May 2020).

70 Oxera, *Is aiming up on the WACC beneficial to consumers?* Prepared for Heathrow Airport Limited, 17 April 2020, page 2.

71 NWL SoC, para 888.

5.3 The extent and quality of evidence for risk dispersion across stakeholders under conditions of high and varying gearing levels is not adequately observable from market conditions or from other sources. This undermines the design of quantitative tools such as Ofwat's GOM and, notwithstanding consultation, has led inevitably to an arbitrarily determined level of prescribed gearing levels and allocation of supposed benefit. These are serious flaws, as they arbitrarily misallocate risk and return across stakeholders, and create a pretence that consumers are further protected.

5.4 ENA therefore submits that the CMA should reject the GOM in its redetermination.

5.5 ENA notes that Ofwat has been developing its financial monitoring in recent years and Ofwat has acknowledged that certain water companies have undertaken commitments to improve financial resilience.[72] ENA's view is that it is more appropriate to focus on such financial resilience measures rather than introducing a flawed new policy tool.

6 Ofwat has made errors in its determination of the allowed cost of debt resulting in allowances being materially too low

6.1 Ofwat has made two material errors in determining its allowed cost of debt:

- an error in its calculation of the 'outperformance wedge' which leads to allowances for debt costs being incorrectly reduced; and
- a failure to provide a necessary allowance for the additional cost of hedging under CPI indexation.

6.2 ENA sets out further details of these errors below.

(a) Ofwat has made an error in its calculation of the 'outperformance wedge' which leads to allowances for debt costs being incorrectly reduced

6.3 ENA disagrees with Ofwat's assertion that it does not need to control for rating and tenor differences in assessing the outperformance wedge.[73] The cost of debt allowance should reflect the average rating and average tenor of bonds within any index to be used because this is consistent with the notional company basis. Ofwat's evidence base does not demonstrate any outperformance once rating and tenor differences are controlled for in a comparison of water company bonds and the iBoxx A/BBB index.[74]

6.4 The additional evidence from the three issuances presented by Ofwat is selective[75] and is contrary to the findings of more objective and comprehensive studies which show that on average companies issue debt in line (or indeed at a premium) relative to the iBoxx A/BBB indices used to set debt allowances. The ENA commissioned a study to examine performance of regulated network bond issues against the same iBoxx A/BBB rated indices[76], as Ofgem has proposed using the same indices to set the cost of debt allowances for energy networks at RIIO-2 and it will also consider the issue of

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72 Ofwat, *Putting the sector in balance: position statement on PR19 business plans*, July 2018, para 3.2.1.
73 Ofwat response – risk and returns common issues, paras 3.111–3.113.
74 NERA, *A Response to Ofwat's Halo Effect for PR19*, A Report for Anglian Water, July 2018
75 For example, two of the three bond issuances Ofwat presents have a substantially shorter tenor of 6 and 13 years compared to the iBoxx benchmark of around 20 years, with tenor differences being the key driver of the alleged outperformance.
76 NERA, *The Halo Effect and Additional Costs of Borrowing at RIIO-2*, a report for the Energy Networks Association, September 2019 (**NERA Report**). Enclosed at **Annex 7.**.

outperformance.[77] Consistent with the relevant water companies, ENA finds no evidence that regulated energy networks outperform the benchmark indices once tenor and rating are controlled. Indeed, the study finds evidence that energy networks yield-at-issuance is at a small premium to the benchmark indices.[78] The study also notes that one would not expect there to be any outperformance, given that rating agencies take into account the credit support offered by the regulatory framework in their assessment of the issuers' bond rating, and therefore any benefits from the regulatory framework will be fully reflected in the rating (in other words, the effect of the regulatory framework on credit quality is 'fully priced in'), a point also made by the relevant water companies.[79,80]

(b) Ofwat has failed to provide a necessary allowance for the additional cost of hedging under CPI indexation

6.5 In its Final Determination, Ofwat has determined an allowance for issuance and liquidity costs of 10 bps.[81] ENA considers that the allowance is insufficient because it does not cover costs for the switch to CPI indexation.

6.6 The mis-match between existing RPI index linked debt (**ILD**) and CPI(H) linked RCV creates basis risk which would need to be hedged to ensure alignment with the price control settlement, e.g. through a CPI(H)-RPI swap or issuing CPI(H) ILD that is relatively low-volume and illiquid compared to RPI ILD.

6.7 At the start of RIIO-2, Ofgem intends to implement the switch from RPI to CPI indexation in full.[82] During the course of RIIO-2 consultations, ENA commissioned a study on the additional costs of borrowing, including the costs associated with hedging under CPI indexation.[83] The study explains that a CPI(H) corporate ILD market is unlikely to develop absent a decision by the Government's Debt Management Office to develop a CPI(H) ILD gilt market, given the central role of sovereign debt in creating liquidity and a pricing benchmark. The development of a CPI(H) ILD gilt market is unlikely to proceed before there is evidence of substantive demand for CPI(H) related products, and resolution of risks around fragmentation of RPI and CPI(H) markets which could lead to increase in costs for both products.

6.8 The report presents evidence on RPI and CPI inflation swaps that suggests a premium of around 15 bps for CPI, based on the relatively higher bid-ask spreads for CPI products. Evidence from the RPI ILD market shows that the illiquidity premium increased to around 80 bps during the financial crisis (when market liquidity declined), which may be reflective of a premium for an illiquid CPI(H) ILD market. Taking the approximate mid-point of these two estimates (of 50 bps), and reflecting the relevant percentage of debt that is index-linked, the evidence supports a material addition to the cost of debt allowance[84] in both water and energy price controls.

6.9 The additional CPI costs identified by NERA in its report can be cross checked through reference to two recent market data points:

77 Ofgem, *Decision - RIIO-2 Sector Specific Methodology* – Core document, May 2019, para 12.17.
78 NERA Report finds a new issue premium (NIP) of 13 bps.
79 NERA Report, slide 11.
80 NWL SoC, section 8.11, para 878, page 161.
81 Final Determination – Allowed return on capital, section 6.4, pages 92–93.
82 Ofgem, *RIIO-2 Sector Specific Methodology – Core document*, 24 May 2019, page 132.
83 NERA Report, slides 17–18.
84 NERA Report, slides 17–18.

- Uncollateralised swap prices, which include credit risk, making them relevant comparator to bond prices. Indicative pricing level of uncollateralised nominal to CPI swaps, from a UK corporate bank, is 46 bps and 58 bps for 15 and 20 years, respectively. Note some issuers' financing documentation requires derivative transactions to be collateralised by bank counterparties and where that is the case the indicative pricing is likely to be higher.

- Orsted simultaneously issued a 14 year nominal and 15 year CPI linked bond at UKT+128 bps and ILG+238 bps, respectively. The 110 bps difference reflects two elements, the RPI-CPI wedge (as CPI bonds are quoted versus index linked Gilts which are indexed to RPI) and a further premium for the bond being linked to CPI versus a nominal bond, the 'CPI structure premium'. The CPI structure premium has traded up to 70 bps, outside of a short period in the immediate market response to COVID-19, when considering that the bps of credit spread on a CPI bond is effectively higher than that on a nominal bond.

7 Ofwat's financeability assessment is inadequate, with several corrections required

7.1 ENA has several significant concerns with respect to Ofwat's financeability assessment in the Final Determination.

7.2 ENA does not comment on the situation of individual water companies. Instead, ENA focusses on a small number of material issues with the overall assessment, where ENA member companies' experience is relevant.

7.3 ENA notes that it is essential that errors made in Ofwat's calculation of WACC, as set out in this and our earlier submission, are corrected prior to the financeability assessment being undertaken and any adjustments being made to address financeability issues.

7.4 Additionally, several corrections are required:

- Financeability assessment must consider beyond the AMP7 and AMP8 periods as well as the short-term;

- Financeability must be assessed using current rating agency methodologies including their focus on core financial metrics;

- The financeability assessment should test for consistency of the credit rating between the allowed debt funding and credit metrics; and

- A margin above the minimum credit rating thresholds should be included in the financeability assessment.

(a) It is essential that errors made in Ofwat's calculation of WACC are corrected prior to financeability assessments

7.5 Ofwat found that financeability adjustments were required for 12 of 17 companies.[85] This may indicate a fundamental problem with how Ofwat has determined key building blocks in the price control. For example, by correcting the material errors in the WACC identified by ENA (in this submission and in its 25 May submission), the CMA would improve the

[85] Final Determination – Aligning risk and return technical appendix, table 6.4.

relevant financeability metrics and obviate or substantially reduce the need for financeability adjustments.

(b) The financeability assessment must look beyond the AMP7 and AMP8 periods

7.6 The financeability of regulated companies should be evaluated over the long term as well as the short term. Regulated infrastructure assets often have lives of over 40 years and the financing of such assets should be evaluated by reference to a similar time horizon. Failure to do so risks harming consumers through deferred or avoided investment.

7.7 Ofwat itself has acknowledged that financeability is '*particularly acute at PR19*'.[86] A number of key changes have occurred since Ofwat's PR14 review which contribute to this, including that:

(i) the credit profile of the entire sector has weakened;

(ii) WACC returns are highly likely to be lower than for PR14;

(iii) a significant change of inflationary index has been implemented; and

(iv) in contrast to earlier price control reviews, Ofwat has ceased to aim up when setting the cost of equity.

7.8 These are significant developments. They point to the need for the CMA to take a cautious approach to financeability, including modelling beyond AMP7 and AMP8 to discern whether core credit metrics can be sustained under reasonable assumptions.

7.9 Despite this, the PWC report for Ofwat considered credit metrics in the AMP7 and AMP8 periods but not beyond, as '*regulatory approaches and methodologies evolve over time and [it] is out of scope for this analysis*'.[87] This does not represent an adequate assessment of long-term financeability as it does not cover the life of many infrastructure assets that will be funded during AMP7, or the average length of debt in the sector. Whether or not the time horizon was "out of scope" may say more about Ofwat's terms of reference for the study than PWC's considered view of the relevant horizon.

7.10 Should any financeability adjustments be required once the WACC is properly calibrated, the effect of such adjustments should be assessed for the desired effect in the long term in order to avoid consumer detriment.

7.11 Any levers which accelerate cashflows with a view to mitigating an adverse impact on debt financeability in AMP7 could lead to financeability issues in future periods. It is established practice that rating agencies, under certain circumstances, neutralise the effect of such adjustments in certain core credit metrics. Such adjustments could adversely affect equity financeability and therefore risk adversely impacting investment to the detriment of consumers.

[86] Ofwat response – risk and return common issues, page 116.
[87] PWC, *Long-term financeability trends in the UK water sector*, May 2020, section 1.

(c) Financeability must be assessed using current rating agency methodologies including their focus on core financial metrics

7.12 Ofwat's credit metric assessment does not exactly follow any rating agency methodology.[88] This approach risks creating gaps between the regulator's assessment and those of the rating agencies, thereby risking a plan deemed financeable by the regulator but not in fact consistent with the implicit credit level within that assessment from the viewpoint of the rating agencies. Consumer and investor interests are aligned here and the detriment is clear: at the very least confusion would arise as to why there is such a gap, and, at worst, ultimately the actual cost of capital would be higher than allowed, with consumers in either case exposed to the consequential investment deferral that would arise.

7.13 In previous investigations, the CMA has noted that when *'assessing financeability, it is good regulatory practice to consider the views of the credit rating agencies, and by implication, the financial ratios they partially base their views on*'.[89] ENA concurs with this view.

7.14 Ofwat asserts that it is not required to follow any rating agency methodology because: (1) methodologies vary between rating agencies;[90] (2) rating agency methodologies vary over time;[91] and (3) rating agencies should not influence the regulatory outcome and therefore costs to consumers.[92]

7.15 ENA submits that Ofwat is wrong to cite these factors in favour of not following current credit agency methodologies:

(i) ENA acknowledges that different rating agencies take slightly different approaches to assessing financeability. However, the key point here is that the assessment of all rating agencies is relevant to whether a company is able to maintain investment grade credit rating. Ofwat should therefore have tested financeability by reference to all relevant rating agency methodologies.

(ii) Whilst rating agency methodologies do evolve over time, they do not change frequently and when they do changes are clearly signalled to the markets. This is essential to maintaining and improving credit assessment standards. In any event, there is no reason why the current methodologies at the time of the price control determination cannot be used to assess financeability to ensure there is no expectation gap at least at the start of the price control period. This approach would bolster the financeability assessment by giving it a greater grounding in reality and thereby more credibility.

(iii) The rating agencies are independent bodies who assess the credit worthiness of companies across the world and, unlike many market participants, have unique access to forward-looking information from companies. Their assessments are essential to the proper functioning of debt markets, as they provide an independent benchmark for the purposes of pricing issuances. These attributes suggest that there is nothing untoward in rating agency assessments having an influence on the

88 Ofwat, *Reference of the determination of price controls for the period from 1 April 2020: Cross cutting issues*, March 2020, para 6.39.
89 Competition and Markets Authority, *Bristol Water determination 2015*, Final Report, 6 October 2015, para 11.24.
90 Ofwat, *Reference of the PR19 final determinations: Risk and return – response to common issues in companies' statements of case* (**Ofwat response – risk and return common issues**), paras 4.55 to 4.57.
91 Ofwat response – risk and return common issues, paras 4.58.
92 Ofwat response – risk and return common issues, para 4.64.

price control process. This is particularly the case if the proposed outcome is otherwise likely to reduce the financial resilience of a regulated industry to the detriment of debt investors and, in turn, consumers whose interests require companies to be able to efficiently raise debt over time.

7.16 Ofwat's treatment of rating agency methodologies is also inconsistent. Ofwat relies on rating agency guidance, and therefore the core metrics therein, in the context of financial resilience due to the licence obligation requiring water companies to maintain an investment grade credit rating (minimum BBB-/ Baa3). Ofwat should therefore use the same rating agency methodologies when assessing financeability. Further, rating agency guidance clearly influences debt and equity investor expectations. The regulatory process should be aligned to this, by, *inter alia*, using consistent credit metrics.

7.17 A key part of rating agencies' methodologies is their focus on key metrics. For Moody's the focus is on Adjusted Interest Cover Ratio (**AICR**), for Standard and Poors the focus is on Funds From Operations (**FFO**) / net debt and for Fitch its focus is the two Post Maintenance Interest Cover (**PMICR**) ratios. All three main rating agencies consider net debt / RAV to be a key metric. ENA therefore submits that the CMA should apply the same core metrics used by the rating agencies in its financeability assessments and apply the same weighting to these metrics as the rating agencies do.

(d) The financeability assessment should test for consistency of the credit rating between the allowed debt funding and credit metrics

7.18 In its Final Determination, Ofwat determined the cost of new debt allowance based on iBoxx A/BBB indices, less 15 bps for assumed outperformance of the index.[93,94] To ensure the internal consistency of the price control, this requires that companies' expected financial ratios on a notional gearing basis must be consistent with, or even better than, an average A/BBB credit rating, such that they can issue debt at a cost consistent with the allowed return.

7.19 The relevant water companies have raised concerns that the financial ratios are not in line with (and are certainly not better than) an average of A/BBB rating that underlies the cost of debt allowance.[95] In its response to the relevant water companies, Ofwat has not directly addressed the relevant water companies' claim that is has failed to ensure the internal logic of the price controls.

7.20 As set out above, rating agencies give particular weight to the key financial ratios (AICR / PMICR / FFO/net debt).[96] The notional financial ratios therefore must be consistent with the ratings assumed in calculating cost of debt allowances as a matter of internal logic of the price control, and Ofwat is wrong to downplay the significance of these ratios in the context of determining the credit rating as a whole.[97] Where the outturn credit metrics are not consistent with the assumed credit rating, the cost of capital parameters should first be revisited and corrected (e.g. to align cost of debt with a credit rating consistent with the financial metrics) rather than adopting short-term financeability fixes (such as

93 Final Determination – Allowed return on capital technical appendix, page 84.
94 ENA sets out why Ofwat is wrong to apply 15 bps outperformance wedge at paragraphs 6.3 and 6.4 above.
95 See: AW SoC, paragraphs 1211 and 1288; NWL SoC, paragraph 987, Yorkshire Water Statement of Case (YW SoC), paragraph 235.
96 Paragraph 7.17.
97 Ofwat response – risk and return common issues, para 3.87, first bullet.

changes to capitalisation rates) which would not be consistent with rating agencies' methodologies.[98, 99, 100]

(e) A margin above the minimum credit rating thresholds should be included in the financeability assessment

7.21 Whilst Ofwat's credit metric assessment does not mirror any rating agency approach, the acceleration of Pay As You Go (**PAYG**) revenue targeted 1.5x AICR; the minimum threshold for this metric for both Fitch and Moody's at the Baa1 / BBB+ level.

7.22 Even on this basis, cashflows for the notional water company would have no margin above the BBB+ minimum threshold on a core metric upon which two of the three rating agencies place weight in rating assessments. The result of setting a price control with notional cashflows that only just reach this threshold is that it increases the risk that rating agencies could place the company on negative watch or downgrade it.

7.23 There are several practical reasons why a margin above minimum thresholds is required:

(i) The stability and predictability of regulatory regimes has decreased in the current round of price control reviews, caused by factors such as political risk and fundamental changes to many long established methodologies in determining price control parameters. There is no capacity to absorb within price control tightening in the rating agency qualitative factors. As Ofwat states, these factors can and do change with risk of change in period being held by the water companies. There must therefore be capacity to tolerate changes to credit rating agency thresholds, e.g. such as Fitch and Moody's increase in minimum AICR thresholds to 1.5x for the water sector in 2018.

(ii) Furthermore, it is important that the assessment of financeability relating to core credit metrics falls comfortably within a rating notch score band. If this were not the case, a company would risk a rating downgrade from relatively small movements in the following factors (versus the price control determination assumptions):

- Cashflows can vary as totex will not turn out exactly as predicted (due to timing rather than any performance against regulatory targets) which means cashflows will vary around the average figures projected from the outset, and

98 For example '*Regulators may provide options for companies to choose a different allocation of fast and slow money to address financeability issues if they are persuaded it would aid the financeability of the notional company. This means that companies can, with the regulator's consent, advance an element of future revenue to receive more cash in a given regulatory period, but this cash will no longer be available in future periods. We (Moody's) aim to disregard these individual adjustments for the purpose of calculating our AICR metrics*.' Moody's, '*Rock of Low returns Meets hard place of Covenants*', October 2019.

99 For example '*we view that the alternative capitalisation or depreciation rates would not help PMICRs and therefore financeability*' Fitch, '*Ofgem's Credit-Enhancing Mechanisms Unlikely to Benefit Ratings*', February 2019.

100 For example '*[using]…accelerated depreciation of assets…[to distort profit margins]…might not be sustainable in the long-run*' Standard & Poors, '*Key Credit Factors for the Regulated Utilities'*, November 2013.

therefore could go below the minimum thresholds for more than a temporary period;

- Regulatory funding, particularly of items subject to uncertainty mechanisms, often produces delay between cash outflow and cash inflow; or
- Macro-economic impacts such as changes to inflation and economic disruption can create variability in net debt to RAV and cash flows from those forecast and take averages below the minimum thresholds.

7.24 Ofwat states '…*generally its only where the financial ratio is consistently below guidance that a company's credit rating will be downgraded*'.[101] However, if the financeability assessment is based on the minimum threshold, it does not need a significant downward movement in any of the factors highlighted above to cause financial ratios to be consistently below guidance across a price control, thereby producing a credit rating downgrade. There is less tolerance for a projected or actual shortfall in any one core metric against a background of little or no headroom across other core ratios. The regulator's approach must set revenues from the outset of the next control to enable these core metrics to be comfortably within the rating band.

8 The CMA should consider whether Ofwat's Final Determination adequately serves the long-term interests of consumers

8.1 Ofwat (and on redetermination the CMA) must design a price control which strikes an appropriate balance between each of Ofwat's general duties set out in s.2(2A)(a) – (e) Water Industry Act 1991. Doing so will produce a price control which best serves the interests of consumers, both in the short-term (i.e. over the price control period) and in the medium to long-term (having regard to the long life-cycle of the assets in question and the need to secure a continuous stream of efficient investment). Viewed in this context, the interests of consumers are consistent with the interests of companies and investors. Setting price controls on this basis involves both: (1) making robust, evidence based decisions on each component of the price control; and (2) a holistic assessment of how those decisions impact each of Ofwat's general duties, so as to ensure that the interests of current and future consumers are appropriately balanced. Central to this assessment, is the question of whether the Final Determination serves the long-term interests of consumers.

8.2 Elsewhere in this submission and in its earlier submission (dated 25 May) ENA has provided evidence of various components of Ofwat's price control which are erroneous. The CMA should correct these in its determination. Moreover, ENA submits that in its overall assessment of Ofwat's PR19 price control the CMA should examine whether it strikes the required balance between short-term and long-term considerations, including whether the balance struck by Ofwat is supported by the available evidence. ENA is concerned that Ofwat's Final Determination appears to be imbalanced in favour of short-term considerations, which risks producing adverse consequences for consumers and other stakeholders in the future.

[101] Ofwat response – risk and returns common issues, para 4.78.

(a) Ofwat's Final Determination appears to be imbalanced in favour of short-term bill reductions at the expense of consumer interests in the medium and long-term

8.3 ENA understands that in its Final Determination, Ofwat made a number of significant downward adjustments to the price control. ENA is concerned that these adjustments appear to have the effect of producing short-term (i.e. in-AMP) bill reductions, at the expense of incentivising investment and innovation. Such an approach would not best serve the medium and long-term interests of consumers. It is not clear to ENA whether the evidence base to support such decisions is sufficiently robust to justify Ofwat's approach. By way of illustration, ENA understands that Ofwat has made downward adjustments in respect of:

(i) the use of asymmetric cost sharing factors, with companies bearing a greater proportion of cost over-spend whilst customers receive a greater proportion of under-spend;

(ii) the adoption of Outcome Delivery Incentives (**ODIs**) with asymmetric downside risk (i.e. the financial penalty companies face for failure to achieve targets is greater than the potential reward for exceeding targets); and

(iii) the frontier shift, by ignoring reduced productivity trends which have persisted since the financial crisis (instead placing more emphasis on long-term data to move towards the top end of the range estimated by Europe Economics from EU KLEMS), and factoring in weak evidence on the perceived impact of the 'totex and outcomes' regime.

8.4 Against this background, there are a number of important matters that require careful consideration by the CMA:

(i) **Ofwat's PR19 price control contains a number of material deviations from regulatory precedent: the CMA should examine whether they are adequately founded on a robust evidence base.** ENA has set out elsewhere in its submissions specific areas where Ofwat has deviated from established methodologies in a manner not supported by available evidence.[102] The application of robust and well evidenced assessment tools can lower costs (and therefore customer bills) whilst simultaneously driving service quality improvements and enhanced efficiency and innovation. However, departing from established precedent and adopting new methodologies in setting a price control without an adequate evidence base risks undermining the predictability and stability of the regulatory regime, thereby creating a chilling effect on investment contrary to Ofwat's general duties. In particular, a predictable approach to setting the allowed return is key to maintaining investor confidence and ensuring that companies are able to continue to invest. In addition, a predictable approach to measuring and rewarding performance is key to stimulating enhanced efficiency and performance improvements. ENA submits that, before deciding whether to endorse Ofwat's approach at the Final Determination, the CMA should examine closely whether the changes in methodological approach adopted by Ofwat are supported by the available evidence.

[102] See further sections 2 and 5.

(ii) **Ofwat's PR19 price control may fail to deliver incentive regulation essential to delivering performance improvements in areas that consumers value.** Incentive-based regulation has long been accepted as the best framework for delivering sustained improvements to customer service, efficiency and resilience. It has delivered billions of pounds of customer benefit over multiple price control periods. However, incorrectly calibrated incentive mechanisms may not deliver the performance improvements they are intended to secure. The overall risk reward balance should be designed so that it maintains this incentive effect and in turn delivers greater benefits for consumers over the longer term. In this regard, ENA has previously commissioned Frontier Economics to consider the implications of a price control approach which decreases allowance in anticipation of future outperformance. The Frontier Report sets out the customer detriment that would result from such an approach.[103]

(iii) **Ofwat's PR19 price control is internally inconsistent.** Ofwat's PR19 price control is internally inconsistent in two key aspects. First, in setting the cost of debt Ofwat makes assumptions with respect to credit ratings and key financial metrics informing the same (e.g. interest coverage ratios) that cannot be attained by the notional company given the significant financeability challenges in the price control package.[104] Second, Ofwat has set a stretching package of performance commitments whilst also setting cost allowances to include a stringent efficiency challenge. This may produce the result that companies have inadequate funds to deliver the performance improvements that are required to protect the consumer interest and ensure resilience.

(iv) **Ofwat's Final Determination does not explicitly demonstrate how evidence of customer feedback has been weighed.** ENA understands that the various water companies have undertaken extensive customer and stakeholder engagement on their PR19 business plans. Evidence of stakeholder (including customer) views is an important aspect of the price control process and should be weighed appropriately by the regulator when assessing business plans. ENA would have expected Ofwat to reflect in particular customer feedback more explicitly in its Final Determination, and submits that the CMA should examine this evidence closely in its redetermination.

(b) The consequences of an imbalanced approach for consumers and other stakeholders

8.5 A price control which does not strike the required balance between short-term and long-term considerations is not consistent with Ofwat's statutory general duties. Those duties, including the furtherance of the consumer objective, are not best served by short-term bill reductions alone. Consumers require resilient and high quality water supply and wastewater systems in both the short and long-term. The ability to attract and service efficiently-raised finance is essential to delivering on long-term consumer interests, including resilience. The risk of consumer welfare loss resulting from underinvestment in essential infrastructure far outweighs the consumer benefit from short-term bill reductions.

8.6 In making its determination, the CMA should ensure that the price control taken as a whole strikes the correct balance between current and future consumers, and that the

[103] Frontier Report, Part B, section 4.
[104] See further sections 6 and 7.

methodologies adopted by Ofwat are supported by and consistent with the available evidence.

9 Conclusion

9.1 This submission, along with ENA's submission of 25 May, and the evidence to which these submissions refer highlight a number of material errors in Ofwat's Final Determination, with the result that the determinations are not compatible with Ofwat's general duties under Part I of the Water Industry Act. Accordingly, and noting that the CMA is subject to the same general duties as Ofwat in redetermining the price controls, ENA submits that the CMA must correct these errors, specifically by:

(i) correcting for Ofwat's errors in determining TMR[105] by:

- using Oxera's restated historical RPI series to deflate nominal TMR;
- using the correct formula to calculate the discount rate; and
- making upwards adjustments to the TMR range to reflect (i) evidence of the downwards bias in Ofwat's TMR data sources and (ii) evidence suggesting that there has been no material decrease in the expected TMR since the last periodic review;

(ii) increasing the RFR by uplifting the spot rate for ILGs by 50-100bps (thereby also resolving the issue identified by the CMA in the NERL Provisional Findings regarding the relationship between WACC and gearing);[106]

(iii) correcting the identified errors in Ofwat's calculation of asset, equity and debt betas;[107]

(iv) selecting a point estimate at or towards the top of its cost of equity range;[108]

(v) not adopting Ofwat's MARs analysis as a cross-check in setting the cost of equity;[109]

(vi) rejecting Ofwat's GOM;[110]

(vii) correcting Ofwat's allowed cost of debt[111] by:

- reversing Ofwat's 'outperformance wedge' adjustment; and
- providing a necessary allowance for the additional cost of hedging under CPI indexation;

(viii) undertaking its financeability assessment[112] in a manner that:

105 See section 2.
106 See evidence provided to CMA by ENA on 25 May section 2.
107 See evidence provided to CMA by ENA on 25 May section 5, also section 3 of this submission.
108 See section 4.
109 See evidence provided to CMA by ENA on 25 May section 4.
110 See section 5.
111 See section 6.
112 See section 7.

- corrects errors made in Ofwat's calculation of WACC prior to undertaking financeability assessments;
- assesses financeability beyond the AMP8 period as well as the short-term;
- assesses financeability using current rating agency methodologies;
- tests for consistency between the allowed debt funding and credit metrics; and
- includes a margin above the minimum credit rating thresholds; and

(ix) considering whether the price control taken as a whole adequately serves the long-term interests of consumers.[113]

9.2 ENA would be willing to explain its evidence further at a hearing.

[113] See section 8.