

**Ofwat Price Determinations:
Response to the CMA's Provisional Findings by Energy Networks Association**

1 Introduction

- 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 The CMA's redetermination of PR19 price controls for the period 2020 to 2025 (**AMP7**) is likely to have implications beyond the water companies and the water sector in certain areas. Regulators are likely to refer to it when reaching their own decisions, including Ofgem for the imminent RIIO-2 price controls.
- 1.3 ENA considers it can assist the Competition and Markets Authority (**CMA**) in the present redetermination by efficiently and effectively providing submissions from the perspective of its electricity and gas transmission and distribution network operator members in a number of targeted areas where ENA or its members have relevant expertise or evidence. ENA expects that some of its members may additionally submit evidence to the CMA on aspects of the water price control redeterminations not covered by ENA's submission or where they have further, complementary, evidence to share with the CMA.
- 1.4 ENA is grateful that the CMA has considered and, in some cases, referred to the submissions which ENA has made to date.
- 1.5 In making this submission, ENA has confined its comments to the most material matters in the CMA's redetermination of PR19 price controls (**Provisional Findings**)² and sought to not duplicate detailed evidence that has been submitted previously. Instead, ENA has included cross-references in this submission to where that evidence can be located. The CMA should note that lack of any response on a topic in this submission should not be read as agreement to the CMA's approach by all or some of ENA's members.
- 1.6 The CMA has had a lot of evidence to consider, and there are strong signs in the Provisional Findings of it having given thorough and significant consideration to its approach in many aspects of its proposals.

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 ENA is available here: <http://www.energynetworks.org/>.

² The CMA, *Anglian Water Services Limited, Bristol Water plc, Northumbrian Water Limited and Yorkshire Water Services Limited price determinations - Provisional Findings*, 29 September 2020 available here: <https://www.gov.uk/cma-cases/ofwat-price-determinations>.

Contents

1 Introduction 1

2 The CMA’s proposed price control 2

3 Errors in the cost of equity 5

4 Significant errors remain in the CMA’s determination of TMR..... 5

5 The CMA’s RFR range is artificially skewed downwards..... 14

6 ENA welcomes the CMA’s approach to determining equity beta 15

7 The top end of the CMA’s debt beta range relies on a flawed analysis and is unjustified
16

8 Cost of debt..... 17

9 Selection of a point estimate within the WACC range 19

10 Financeability 23

11 ENA agrees with the removal of the Gearing Outperformance Sharing Mechanism 25

12 Cost assessment 25

13 Catch-up efficiency challenge..... 25

14 The CMA has made a number of errors in determining its frontier shift assumption 27

15 The effect of Covid-19 on frontier shift must be considered 32

16 Implications of the CMA’s PR19 redetermination for energy networks and other sectors
33

17 Summary of the CMA’s errors 34

2 The CMA’s proposed price control

(a) The CMA’s approach to balancing short-term bills and longer-term investment is in customers’ interests and is consistent with Ofwat’s statutory duties

- 2.1 ENA welcomes the CMA’s approach which has sought to balance the impact of the price control on short-term bills with incentivising investment. In balancing its consideration of its statutory duties, the CMA has had regard to long-term considerations including promoting continuing investment and ensuring investor confidence. We agree with the CMA that *‘[s]hould the cost of capital be set too low and this led to an exit of capital from the sector this would have an adverse effect on the sector’s longer-term attractiveness to investors’*.³
- 2.2 In contrast, Ofwat’s approach had inappropriately favoured short-term bill reductions, at the expense of incentivising investment and innovation, in a way that did not best serve the medium and long-term interests of customers. The negative reaction of the markets, analysts and rating agencies to Ofwat’s PR19 final determinations (**Ofwat’s FD**)⁴ is evidence of the real risk of capital exiting the sector if Ofwat’s decision had been allowed to stand. ENA has elected not to itemise the share price reactions for different companies, repeat analysts’ comments or summarise the various comments made by

³ Provisional Findings, para 9.667.

⁴ Ofwat, PR19 Final Determinations, 16 December 2019 available here: <https://www.ofwat.gov.uk/regulated-companies/price-review/2019-price-review/final-determinations/>.

rating agencies. This evidence is publicly available and demonstrates that the flight of capital is a real risk across regulatory sectors.

- 2.3 ENA agrees that the CMA's approach is more in line with customers' interests. As set out further below, this will deliver better services and lower costs for customers in the long run. Giving weight to medium and long-term investment incentives is consistent with, indeed required by, the statutory duties to which the CMA must have regard in this redetermination, including the primary duties to protect the interests of existing and future consumers and to secure that regulated companies are able to finance the proper carrying out of their functions. In this regard, the CMA is in a similar position to other UK sectoral regulators when discharging functions such as the determination of price controls.

(b) Promoting investment is both essential and in customers' interests

- 2.4 ENA understands that the relevant water companies have substantial programmes of work for the immediate price control period and beyond. Our members have direct experience of similar long-lived investments. For example, the scale of investment required for energy networks to underpin a Green Recovery, deliver the process to achieve net zero, and support future economic growth is greater than £50 billion over the next price control period – even more than the nearly £50 billion required over AMP7 in the water sector.
- 2.5 ENA understands from government sources that almost 50% of the £600 billion 10 year infrastructure pipeline is forecast to be financed and delivered by the private sector. The CMA's PR19 redetermination will have an influence on investment not only on the future water and wastewater system, but also other regulated sectors and the wider economy that the regulated industries serve.
- 2.6 ENA agrees with the CMA that *'There are well-established arguments that underinvestment caused by a cost of capital being set too low damages the overall welfare of consumers (and potentially the wider economy) materially more than the welfare lost through bills that may be slightly too high'* (emphasis added).⁵
- 2.7 Significant customer harm comes from failure to invest due to companies being unable to attract sufficient investment. Such circumstances would lead to lower levels of service and higher costs in the medium and longer-term. The ability to attract investors is therefore fundamentally aligned with customer interests.
- 2.8 ENA therefore agrees with the CMA that setting a cost of capital that is not too low is important to ensure that companies make the required investments, and to avoid a flight of capital. In addition to the points explicitly recognised by the CMA, it is also important to give incentives to the relevant companies to identify those investments that will deliver benefits to customers. Not all investments that are in customers' interests will always be visible to regulators, and therefore absent company proposals, regulators may be unaware of what requirements are in the customers' interests.

(c) Important errors remain

- 2.9 The CMA has made a number of important and essential corrections to Ofwat's FD. In doing so, it has confirmed ENA's view that the cost of capital and cost allowances

⁵ Provisional Findings, para 9.667.

determined in Ofwat's FD were materially too low and not in customers' interests. The relatively small increases to bills that result from the correction of Ofwat's decision are much smaller than the material customer detriment that would have likely arisen if Ofwat's decision had been allowed to stand.

- 2.10 However, the CMA has not identified and corrected all of the errors made by Ofwat, and has introduced a number of further errors in its Provisional Findings. The errors ENA has identified are considered in the remainder of this submission. The CMA must correct these errors prior to its final determination.

(d) The importance of aiming up on the cost of equity in order to determine the correct WACC

- 2.11 The Weighted Average Cost of Capital (**WACC**) is of crucial importance in driving the required incentives to invest in the context of a price control. As ENA has noted previously, *'while price controls are often multifaceted, the allowed rate of return is the single most important incentive to invest faced by a regulated entity.'*⁶ This is further endorsed by the CMA which recognises that *'WACC is the primary factor in the redetermination ensuring that an efficient firm can finance its functions'*.⁷
- 2.12 In determining the WACC, the CMA has opted to aim up on the cost of equity, choosing a point midway between the mid-point and the top of the range. ENA agrees that it is correct to aim up in determining the WACC. There are serious and considerable risks to incentives to invest associated with the WACC being set too low, which (as noted above, and recognised by the CMA) would be far from offset by the relatively small benefit in the form of slightly lower bills which would result from the WACC being set correspondingly too low.
- 2.13 Put simply, aiming up is essential in any regulated sector which requires ongoing investment to meet the needs of its customers. The imperative to aim up is driven by the risks to investment of failing to do so, as well as the inherent uncertainty in determining a single point value for the WACC from ranges estimated for each of its components.
- 2.14 There is then the question of the appropriate level to which to aim up. As ENA has previously submitted,⁸ modelling approaches enable quantification of the optimal level of aiming up that is required to avoid customer detriment. These models support higher levels of aiming up than the CMA adopted in its Provisional Findings, with the 75th percentile being the minimum that would be expected to take account of the need to promote investment – i.e. before any asymmetry in the price control or financeability concerns are taken into account in further uplifts.
- 2.15 These modelling approaches all rely on consideration of a balanced cost of equity range. The errors that the CMA has made in determining its cost of equity range have the effect of creating a range that is significantly skewed downwards. This, combined with the CMA's erroneous selection of the bottom of its cost of debt range, means that the CMA has not, in fact, aimed up in the way that it describes. Instead, it has proposed a WACC that is insufficient to protect companies' ability to attract investors.

⁶ ENA's 9 June 2020 submission to the CMA in respect of Ofwat's Final Determination (**ENA June Submission**), para 4.4. Provisional Findings, para 10.58.

⁷ See, e.g., section 4 of ENA June Submission, and the report of Frontier Economics referred to therein, and enclosed as Annex 6 to ENA June Submission.

- 2.16 Section 9 below sets out ENA's further submissions on the detail of aiming up in the context of determining the cost of equity (including further detail on the appropriate level to which to aim up; the relationship between aiming up and financeability; and the need to take account of asymmetric risk in a price control package). Sections 3 to 8 below address other issues concerning the CMA's approach to determining the WACC.

3 Errors in the cost of equity

- 3.1 The CMA has recognised and corrected a number of very material errors in Ofwat's approach to determining the cost of equity range and selecting a point within that range. ENA agrees with the CMA that those corrections needed to be made. However, the CMA has not identified all of the errors made by Ofwat, and has also introduced a small number of further errors in its Provisional Findings.
- 3.2 The ranges determined for a number of very important aspects of the cost of equity range have been incorrectly skewed by inclusion of demonstrably erroneous data points, and the exclusion of valid data points. The overall effect of the CMA's omissions and errors is to determine a cost of equity that is still materially too low.
- 3.3 ENA sets out details of those issues in the following sections. In summary:
- (a) significant errors remain in the CMA's determination of Total Market Returns (**TMR**) including inappropriately placing weight on inconsistent and unreliable CPI-stripped estimates of historical returns and errors made in averaging historical values (Section 4);
 - (b) the CMA's Risk Free Rate (**RFR**) range is artificially skewed downwards by continuing to use index-linked gilts to set the low end of the range (Section 5); and
 - (c) the top end of the CMA's debt beta range relies on a flawed analysis and is unjustified (Section 7).
- 3.4 ENA also asked Oxera to review the CMA's approach to determining the cost of capital for the relevant water companies. The output of Oxera's analysis (**Oxera WACC Report**) is appended in Annex 1.⁹
- 3.5 The Oxera WACC Report identifies a number of material errors in the CMA's determination of WACC.

4 Significant errors remain in the CMA's determination of TMR

- 4.1 The CMA has made a number of significant errors in determining its TMR range.
- 4.2 The CMA's real TMR range is artificially skewed downwards by the cumulative effect of errors in four aspects of the CMA's Provisional Findings:
- (a) errors in deflating nominal TMR;
 - (b) errors in averaging historical values;

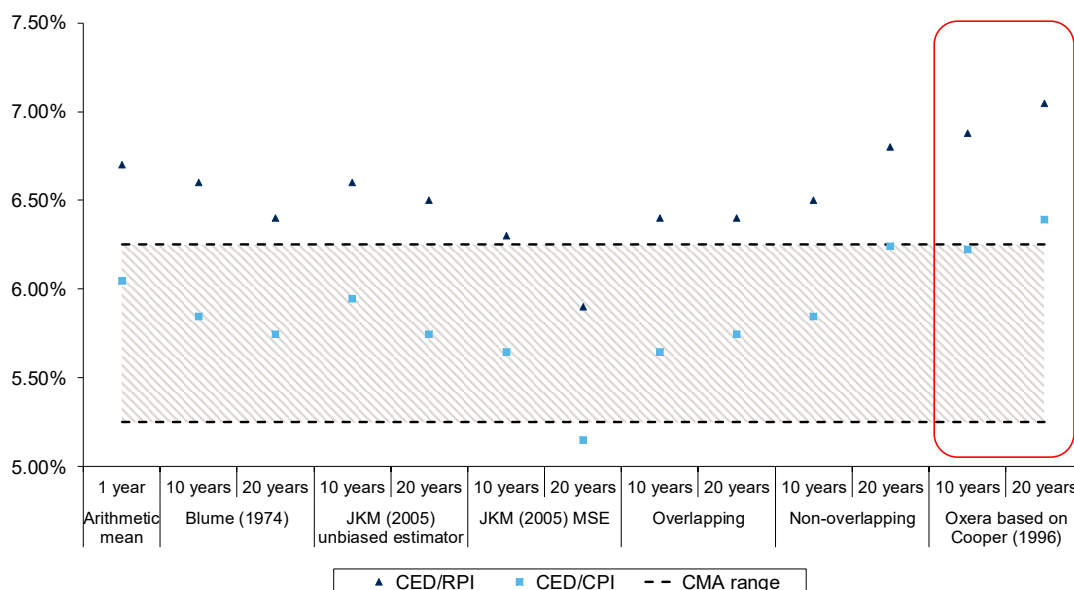
⁹ Oxera, *Review of the CMA PR19 Provisional Findings*, 26 October 2020, (**Oxera WACC Report**), Attached at Annex 1.

- (c) incorrectly dismissing the Bank of England's (**BoE**) dividend discount model (**DDM**) and survey evidence, both of which show that the range should be higher, whilst simultaneously placing weight on other (out of date) forward-looking evidence; and
 - (d) failing to consider evidence regarding historical TMR data sources being artificially reduced and biased downwards.
- 4.3 The cumulative effect of these errors is a real TMR range that is materially too low (that is, both the bottom and the top of the range are materially too low), resulting in a cost of equity that is too low.
- (a) Errors in the CMA's approach to deflating nominal TMR result in both the bottom and top of the CMA's TMR range being too low**
- 4.4 The choice of approach to deflating nominal TMR has a very material effect on the TMR range ultimately used by the CMA in its cost of equity calculation. The CMA's approach to deflating nominal TMR is insufficiently robust and results in a material under-estimate of its TMR range.
- 4.5 The CMA states that *'For the period from 1947 onwards, we have estimated historic returns using both the RPI and the CPI (actual plus 'backcast') inflation series. This reflects our provisional conclusion that both these data series have relevant strengths and weaknesses in the context of estimating real historic returns.'*¹⁰
- 4.6 ENA welcomes the CMA's decision to make use of estimates derived from the CED/RPI data series when deflating historical equity returns and its acknowledgement of the weaknesses of the CED/CPI data series. However, the CMA then declines to make use of the top end of the RPI range.¹¹ As is clearly illustrated by figure 1 below, the overall effect of the CMA's approach is to place negligible weight on the CED/RPI series.

¹⁰ Provisional Findings, para 9.160.

¹¹ Provisional Findings, para 9.161.

Figure 1 - CMA range for TMR compared to estimates implied by various ex-post estimators (RPI-real)



Source: Oxera WACC Report, figure 1.1

- 4.7 Instead of the balanced approach that it implies in its Provisional Findings, the practical effect of the CMA’s approach is to give greatest weight to the CED/CPI series. The CMA’s TMR range is therefore predominantly based on retrospective recalculations using incomplete data and opaque modelling approaches rather than contemporaneous calculations based on available data which were continually sense-checked at the time by the Office of National Statistics’ (ONS), BoE, and market participants.
- 4.8 The CMA makes three important errors in deciding its approach to deflating nominal TMR:
 - (a) it incorrectly ignores the top end of the CED/RPI distribution;
 - (b) it bases its decision to treat the consumption expenditure deflator (CED) equally in both CPI and RPI series on erroneous analysis, resulting in an artificial reduction to its CED/CPI-deflated TMR calculations; and
 - (c) it fails to take account of the unreliability of the 1950-1996 CPI series.
- 4.9 The CMA’s TMR range is skewed materially downwards as a consequence of these errors, resulting in a cost of equity range that is too low.
- 4.10 The following sections set out these specific issues with the CMA’s approach in further detail.

The CMA incorrectly ignores the top end of the CED/RPI distribution

- 4.11 The CMA declines to make use of the top end of the RPI range ‘*due to our concerns that, on balance, RPI-deflated returns are likely to overstate expected total market returns on an RPI-real basis going forward*’.¹²
- 4.12 The RPI data is official contemporaneous data that has been published, used for many purposes and subject to scrutiny over many years by academics and statisticians. It is also the measure of inflation that would have been available to investors to inform capital allocation decisions.
- 4.13 ENA has submitted significant evidence, based on analysis by Oxera, demonstrating that there is no basis for concluding that the historical RPI series systematically overstates expected RPI returns going forward:

‘This research concluded that the maximum upward adjustment that would be required to make the long-run average of historical RPI inflation consistent with how RPI is calculated today was 30bp. Moreover, under some specifications of the structural break test, the net effect of all the changes was zero, implying that no adjustment should be made to the long-run average of RPI inflation.’¹³

- 4.14 The CMA is wrong to dismiss Oxera’s evidence as not being strong evidence of the potential size of the formula effect over the whole period.¹⁴ As set out in the Oxera WACC Report, contrary to the CMA’s assertion, Oxera’s work does cover the full period from 1950 onwards.¹⁵ Oxera’s WACC Report also explains why the CMA’s second ground for rejecting the conclusions of Oxera’s analysis is invalid: it previously provided analysis that suggests that the upward trend in the formula effect over the period 1989–97 cannot be relied on and that estimates of the formula effect are likely to be underestimated for the period prior to 1997. However, the CMA has not responded to this analysis in its Provisional Findings.¹⁶ Oxera concludes that:

‘the CMA has provided insufficient justification for rejecting the finding that if the historical (1899–2019) RPI series was restated using today’s RPI calculation methodology, the long-run average of RPI inflation would be at most 30 bp higher than if based on the official RPI series published by the ONS.’¹⁷

- 4.15 Ultimately, the CMA’s proposed approach to deflating historical TMR is internally inconsistent and unreliable. It is not appropriate to rely on data that is of unknown accuracy (namely, the unreliable CPI back-cast data for 1950-1988) and that has ‘*well-documented shortcomings*’¹⁸ whilst, at the same time, dismiss the use of data that has been demonstrated by Oxera to be an appropriate representation of future inflation (namely the relevant RPI data). The CMA must reverse this to avoid introducing bias into its calculations.
- 4.16 The CMA must reinstate the top end of the RPI deflated data series in its final determination of its real TMR range.

¹² Provisional Findings, para 9.161.

¹³ Oxera, *Response to the CMA on estimating RPI-adjusted equity market returns*, 15 April 2020, section 3.

¹⁴ Provisional Findings, para 9.162.

¹⁵ Oxera WACC Report, appendix A1.2.

¹⁶ Oxera WACC Report, appendix A1.2.

¹⁷ Oxera WACC Report, appendix A1.2.

¹⁸ Oxera WACC Report, section 1.2.

The CMA bases its decision to treat CED equally in both CPI and RPI series on erroneous analysis, resulting in an artificial reduction to its CED/CPI-deflated TMR calculations

- 4.17 The CMA opts to use CED data for the period to 1947.¹⁹ The CMA combines the CED data series with both CPI and RPI data series, suggesting that ‘CED cannot be said to be more like RPI or more like CPI but that it is reasonable to combine CED data with both CPI and RPI’.²⁰
- 4.18 However, the CMA makes an error in the calculations that it relies on in reaching this conclusion. As set out in the Oxera WACC Report, the CMA makes an error by failing to use CED deflators after 1950 that are calculated in a manner consistent with the pre-1950 CED deflators.²¹ It therefore reaches an erroneous conclusion.
- 4.19 Oxera’s analysis confirms the results of the earlier analysis undertaken by National Grid that, contrary to the CMA’s conclusion, the CED is a closer proxy for RPI than CPI.²² The inclusion of the CED series within a ‘CPI’ series artificially increases the CPI inflation assumption and therefore artificially decreases the bottom of the CMA’s TMR range.

The CMA fails to take account of the unreliability of the 1950-1996 CPI series

- 4.20 The CPI data set for 1950-1996 is a recently modelled back-cast. It comprises:
 - (a) for the period 1998-1996 – retrospective recalculations based on incomplete data; and
 - (b) for the period 1950-1987 – an opaquely modelled back-cast based on a series of modelling assumptions.
- 4.21 ENA has previously provided the CMA with evidence outlining very significant shortcomings of both the 1950-1987 and 1988-1996 back-casts of CPI.²³
- 4.22 For the period 1988-1996, ENA cannot see evidence of the CMA having taken appropriate account of the evidence submitted in the form of an Oxera report concerning issues with the ONS 1988-1996 back-cast. That report concluded that:

‘The degree of confidence that can be placed on the O’Donoghue estimates of the formula effect must be tempered by the likelihood that the CPI estimates were not based on individual price quotes aggregated using the Jevons formula, but instead used adjusted RPI indices and therefore embed a degree of the formula effect in the back-cast of the CPI inflation for 1989–97. This conclusion is consistent with the observation that the increasing trend over time in the formula effect reported by O’Donoghue is largely eliminated if combined with the data on the modelling residual (‘other differences’).²⁴

¹⁹ Provisional Findings, para 9.159.

²⁰ Provisional Findings, para 9.168.

²¹ Oxera WACC Report, section 1.3 and appendix A1.1.

²² Oxera WACC Report, section 1.3 and appendix A1.1.

²³ See ENA June Submission, paras 2.6 – 2.16, Oxera, ‘The cost of equity for RIIO-2: Q4 2019 update’, prepared for ENA, 29 November 2019, enclosed as Annex 1 to ENA June Submission, 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.nationalgrid.com/planning-together-riio/our-riio-2-business-plan-2021-2026/finance>.

²⁴ Oxera, Estimating CPI: the 1988-96 ONS estimates, 28 July 2020, section 3.

- 4.23 This is very important evidence that the CMA must consider carefully.
- 4.24 As the modelled values for 1950-1987, in turn, rely on the ONS 1988-1996 back-cast, this provides yet more evidence that the CPI data series is unreliable. The shortcomings of the 1950-1987 data series include:
- (a) it is based on a ‘back-cast’ using an ARIMA²⁵ model. The authors of the ONS paper recognise that alternative back-cast models may produce contrasting results;²⁶
 - (b) it is 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. While the changes to the 1988 to 1996 data were small in quantum it is not the case that the resultant changes to the modelled 1950 to 1988 data will necessarily also be small in quantum; and
 - (c) it includes specific characteristics that cast further doubt on its reliability such as estimates of the RPI-CPI wedge that are surprisingly small and tend to zero as the back cast is extended further back in time.²⁷

This adds further weight to ENA’s position that the CPI data series is unreliable and must not be used to define the lower bound of the CMA’s real TMR range. The CMA itself acknowledges that *‘it is impossible to know how accurate the figures are’*.²⁸

The CED/CPI series cannot be relied upon to form the lower band of the CMA’s TMR range

- 4.25 The combination of the distortive effect of inclusion of CED with the unreliability of the modelled and ‘back-cast’ 1950-1996 CPI series mean that the CED/CPI data series is not sufficiently robust to be relied upon to form the lower bound of the CMA’s real TMR range.
- 4.26 The CMA’s approach to deflating TMR ultimately places most weight on the least reliable data sources. This is in direct contrast to the CMA’s stated position that its TMR estimate *‘should reflect the best available information, including on the actual real returns realised in the past’*.²⁹ The CMA’s proposal to give any weight to the CED/CPI range also marks a significant deviation from regulatory precedent. Such changes in methodological approach must be based on the most robust evidence available and introduced with caution. The weight of evidence casting doubt as to the validity of the CED/CPI evidence does not pass the threshold necessary to introduce such a material change in methodology. Ignoring such evidence undermines regulatory stability and the predictability required to retain and attract investment into the sector.
- 4.27 The CMA should attach no weight to the CED/CPI data set.

²⁵ Auto-regressive integrated moving average.

²⁶ 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’*, page 10. Available at: <https://www.nationalgridet.com/planning-together-riio/our-riio-2-business-plan-2021-2026/finance>.

²⁷ See Oxera WACC Report, section 1.3 (point 4).

²⁸ Provisional Findings, para 9.160(d).

²⁹ Provisional Findings, para 9.164.

(b) Errors in averaging historical TMR returns

- 4.28 The CMA's TMR is artificially skewed downwards due to its approach to averaging historical returns. It has incorrectly dismissed the use of the arithmetic average. Additionally, in its consideration of estimators, it has inappropriately had regard only to the downwards-biased JKM and Blume estimators, and taken no account of the Cooper estimator.
- 4.29 ENA has previously submitted substantial evidence to the CMA on this topic,³⁰ and provides further evidence and detail in section 1.4 of the Oxera WACC Report.

Inappropriate rejection of the arithmetic average

- 4.30 The Oxera WACC Report explains that, while there is a debate about the appropriate averaging method in any given context, in standard corporate finance textbooks the arithmetic average is generally adopted for estimating the equity risk premium (ERP) to use when computing required equity returns.³¹
- 4.31 The CMA's contention that the arithmetic average is upwards biased³² is wrong, and is predicated on a false dichotomy between an investor perspective and a capital budgeting perspective, as well as an incorrect conclusion that serial correlation is a reason for calling the use of the arithmetic mean into question.³³
- 4.32 In reaching this conclusion, the CMA appears to have misconstrued the analysis submitted by Professor Stephen Schaefer. Contrary to the CMA's suggestion that Prof Schaefer considered that *'the most weight should be given to the capital budgeting perspective'*,³⁴ Prof Schaefer noted that some weight should be given to this perspective (Cooper shows that discount rates have to be higher than the arithmetic average to avoid capital budgeting decisions being distorted, and the size of the upward adjustment increases with the investment horizon), and that at minimum this requires the use of the arithmetic average. The CMA in effect ignores the capital budgeting perspective altogether when it dismisses the arithmetic average.
- 4.33 As the Oxera WACC Report explains further,³⁵ Prof Schaefer has observed that considering the investor perspective as more relevant at the expense of taking account of the capital budgeting perspective prejudices the use to which the expected return is put, and will produce a present value that is biased and high (requiring the ERP to be adjusted up to offset the bias).
- 4.34 The role of Ofwat, and by extension the CMA, is to set prices by including an allowance for the rate of return. Investors can then use a discount rate that is either lower or higher than the arithmetic average according to whether they are estimating future or present values. The CMA's proposal to set cash flows by using a rate of return lower than the

³⁰ See ENA June Submission, paras 2.17 – 2.27, 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/icoooper/assets/documents/ArithmeticVersusGeometric.pdf> Professor Stephen M Schaefer, London Business School, *Comments on CMA views on Estimating Expected Returns*, 15 April 2020, enclosed at Annex 3 to ENA June Submission, Oxera, *'The cost of equity for RIIO-2: Q4 2019 update'*, prepared for ENA, 29 November 2019, enclosed as Annex 1 to ENA June Submission and Oxera, *Deriving unbiased discount rates from historical returns*, 14 February 2020 enclosed at Annex 4 to ENA June Submission.

³¹ Oxera WACC Report, section 1.4.

³² Provisional Findings, para 9.176.

³³ Oxera WACC Report, section 1.4.

³⁴ Provisional Findings, para 9.180.

³⁵ Oxera WACC Report, section 1.4.

arithmetic average has the result of embedding a downward bias to the value of the regulated business and under-compensating investors.

Use of only downwards-biased estimators and inappropriately excluding the Cooper estimator

4.35 Given the need to take account of the arithmetic average, if estimators are used, these should not all have a systematic bias in one direction away from that value. The CMA, however, has used only downwards-biased estimators (namely, the JKM and Blume estimators) and in doing so has wrongly excluded the Cooper estimator which applies an upward adjustment to the arithmetic mean (and thereby offsets the bias of the JKM and Blume estimators to some extent).

4.36 In order to correct the errors identified above which lead to a downward bias, the CMA should either include the Cooper estimator in the range of estimates for the same investment horizons that it has assumed for the JKM and Blume estimators or adopt the arithmetic average.

(c) Incorrect dismissing of the Bank of England’s DDM model and survey evidence, both of which show that the range should be higher, whilst simultaneously placing weight on other (out of date) forward-looking evidence

4.37 ENA agrees with the CMA that the most robust approach to estimating TMR is to use historical ex-post returns.³⁶ ENA also agrees that only limited weight should be applied to forward-looking evidence as the CMA states it has done.³⁷

4.38 However, ENA disagrees with two points that the CMA makes in relation to forward-looking evidence:

(a) The CMA wrongly dismisses the evidence that may be derived from the BoE’s DDM which suggests TMR figures higher than the CMA’s range. In doing so, the CMA relies on the argument that analyst forecasts are optimistic. ENA asked Oxera to review whether evidence exists of systematic analyst over-optimism. Oxera’s analysis shows that academic reviews of analyst forecasts have shown they can be equally over and under-optimistic with, if anything, potential to be biased downwards rather than being overly-optimistic. In practice, this must be the case given analysts provide guidance to investors – bias towards over-optimism would result in investors not using advice that would end up losing them money.³⁸

(b) The CMA states that ‘*all the survey / practitioner forecast evidence suggests that experienced investors are expecting returns towards the lower end of, or even below, the ranges estimated using historic data*’.³⁹ This statement is based on a limited view of out of date investor surveys and practitioner forecasts as well as incorrect comparison between geometric and arithmetic evidence. Specifically:

³⁶ Provisional Findings, para 9.216.

³⁷ Provisional Findings, para 9.212.

³⁸ Oxera WACC Report, section 1.5.1.

³⁹ Provisional Findings, para 9.215

- (i) Adjusting the survey data of returns expected on a portfolio of securities to represent an arithmetic average implies a higher TMR than suggested by the CMA, as noted by Oxera in its report;⁴⁰
- (ii) Further reading of the Fernandez et al. survey document⁴¹ shows that ‘*More than fifty respondents provided answers at the beginning of March and later, considering the coronavirus. Most of them increased MRP by 2%*’ meaning investor views could now be materially higher than they were at the time the survey began; and
- (iii) There are multiple practitioner forecasts from post-March 2020 which give forecasts higher than those referenced by Europe Economics which were based on 2019 data. This suggests much higher expected returns than included in the CMA’s TMR assumptions. Examples of this include JP Morgan at 9.06% arithmetic average⁴² and Invesco⁴³ at 8.4% arithmetic return for large cap and 10.1% for small cap.

4.39 These higher forecasts should be given some weight. Recognising the concerns with using forward-looking data, ENA considers that while they may not be included directly within the range, the existence of these forecasts that are higher than those in the CMA’s range should not be dismissed when considering the credibility of the top end of the CED/RPI TMR long-run averages.

(d) Failure to consider evidence regarding historical TMR data sources being artificially reduced and biased downwards

4.40 The CMA’s Provisional Findings do not consider evidence submitted by ENA that the data relied on in TMR calculations results in an artificially reduced and downwards biased TMR range.⁴⁴

- (a) 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;⁴⁵ and
- (b) The data set relied on by the CMA 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.⁴⁶

4.41 The CMA should correct for this downward bias in TMR range by increasing the bottom of its TMR range.

⁴⁰ Oxera WACC Report, section 1.5.2.

⁴¹ https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3560869.

⁴² <https://am.jpmorgan.com/blob-gim/1383647203392/83456/JPM52180%20LTCMA%202020%20MATRIX%20-%20GBP.pdf>.

⁴³ <https://www.invesco.com/us-rest/contentdetail?contentId=c821edac6426e610VgnVCM1000006e36b50aRCRD&audienceType=institution>^s

⁴⁴ ENA June Submission, paras 2.28 and 2.29.

⁴⁵ National Grid TMR Report, page 54.

⁴⁶ National Grid TMR Report, page 56.

5 The CMA’s RFR range is artificially skewed downwards

5.1 The CMA is correct to propose a substantial revision to the RFR proposed by Ofwat. Ofwat’s proposed RFR is demonstrably too low.

5.2 However, the CMA makes two errors in its determination of the RFR range:

- (a) the incorrect use of unadjusted government bond yields for the bottom end of the range; and
- (b) the unjustified decision to not apply a forward rate uplift to spot yields.

5.3 These errors artificially skew the CMA’s RFR range downwards and therefore incorrectly reduce the CMA’s proposed cost of equity.

(a) Incorrect inclusion of government bond yields as the low end of the RFR range

5.4 The CMA has correctly adopted the reasoning and evidence on RFR proposed by Oxera when determining the top of the RFR range. This correctly increases the CMA’s RFR range and, consequently, the CMA’s cost of capital range.

5.5 The CMA acknowledges that *‘analysis of the current and historic yields associated with these instruments demonstrates that the government can borrow at rates significantly lower than would be accessible by even the highest-rated private investor’* (emphasis added).⁴⁷ ENA agrees with this. Government bond yields cannot therefore meet the first requirement of the RFR as applied in the CAPM.

5.6 Given this, the CMA is incorrect to use unadjusted government bond yields for the bottom end of the range for the RFR. This artificially reduces the bottom of the range and therefore erroneously reduces the CMA’s cost of equity determination. Consistent with the academic evidence, there is a significant convenience (‘money-like’) premium in government bond yields that pushes down government yields relative to the RFR.⁴⁸ The Oxera WACC Report also explains that, while the CMA’s conclusion from the work of Berk and DeMarzo that the true RFR lies between different securities market lines (SMLs) is correct, this does not negate the fact that the required rate of return for a zero-beta asset is higher than the government borrowing rate (which is pushed downward by the convenience premium).⁴⁹

5.7 The Oxera WACC Report presents new empirical evidence that UK government bonds are not zero-beta assets and that the true lower bound for a CAPM RFR is higher than government bond yields. Oxera’s regression analysis empirically demonstrates that:

‘UK Gilts have for many years had a negative beta, which provides an additional reason why the true risk-free rate would be higher than the ILG yield.’⁵⁰

5.8 The results of this new analysis demonstrate that the CMA’s RFR range is artificially skewed downwards by the inclusion of government bond yields.

⁴⁷ Provisional Findings, para 9.130.
⁴⁸ Oxera WACC Report, section 2.2.
⁴⁹ Oxera WACC Report, section 2.2.
⁵⁰ Oxera WACC Report, section 2.2 and 2.3.

5.9 Accordingly, the CMA must add a convenience premium to the government index-linked gilt yields in determining to bottom of its RFR range. Oxera conservatively recommends that an uplift of 50 basis points would be appropriate.⁵¹

(b) Incorrect exclusion of forward rate adjustment

5.10 The CMA has justified its decision to not apply a forward rate adjustment to spot yields on the basis that it *‘did not receive representations on the use of this forward rate adjustment or on the accuracy of the mechanism’*.⁵²

5.11 The absence of specific representations on this topic is not a basis on which to reverse Ofwat’s decision, since Ofwat did use a forward rate adjustment in Ofwat’s FD.⁵³

5.12 The CMA’s ‘Approach to the redeterminations’ document made it clear that the CMA has only finite resources to undertake this redetermination and that it would prioritise issues raised by Main Parties and Third Parties in its redetermination. It is likely that the absence of representations received by the CMA on the application of forward rate adjustment reflects broad agreement with the approach taken in Ofwat’s FD, and cannot be used as a basis to reverse Ofwat’s decision.

5.13 The Oxera WACC Report notes that:

*‘The academic literature has long considered forward rates as unbiased predictors of future spot rates. The forward rate fully reflects available information about the exchange rate expectations and has been viewed as an unbiased predictor of the future spot rate since at least in the theoretical work of Siegel (1972) and the empirical work by Edwards (1982, 1983), Kohlhagen (1975), Longworth (1981), and Cornell (1977).’*⁵⁴

5.14 Oxera recommends that a forward rate uplift of 26 basis points should be applied to both the bottom and top ends of the RFR range.⁵⁵ The CMA should include this forward rate uplift in its final determination.

6 ENA welcomes the CMA’s approach to determining equity beta

6.1 The CMA’s approach to determining its asset beta range appears to be broadly balanced across timescales and comparators.

6.2 ENA agrees with the CMA that some of the monthly beta estimates are outliers and should be removed.⁵⁶ However, ENA notes that the short-term spot estimates of beta that ultimately form the bottom of the CMA’s beta range also look to be outliers⁵⁷; these should also be removed from the CMA’s range.

6.3 ENA notes that the CMA does not use energy comparators in determining its asset beta range. ENA agrees that the CMA’s approach here is appropriate given the lower systematic risks to which the relevant water companies are exposed.

⁵¹ Oxera WACC Report, section 2.5.
⁵² Provisional Findings, para 9.130.
⁵³ Provisional Findings, para 9.129.
⁵⁴ Oxera WACC Report, section 2.4.
⁵⁵ Oxera WACC Report, section 2.5.
⁵⁶ Provisional Findings, para 9.2790.
⁵⁷ Provisional Findings, table 9-6.

- 6.4 In its provisional findings in the NERL determination (**CMA NERL Provisional Findings**)⁵⁸ the CMA noted concerns that the standard approach used by regulators to ‘de-gear’ and ‘re-gear’ asset betas may lead to WACC increasing with gearing, although it continued to adopt a standard approach to re-gearing in its WACC estimation.⁵⁹
- 6.5 ENA submitted evidence demonstrating that these concerns arose due to the error in setting the RFR, and the inclusion of embedded debt when assessing the movement of WACC with gearing. ENA also provided evidence that the novel ‘alternative model’ proposed by the CMA,⁶⁰ which consisted of flexing asset betas to vary with gearing, was problematic as it is contrary to finance theory.⁶¹
- 6.6 ENA welcomes the traditional Harris-Pringle approach to de-gearing and re-gearing in the CMA’s PR19 Provisional Findings and notes that the CMA has not identified WACC increasing with gearing as a particular concern in its Provisional Findings.⁶²
- 6.7 ENA anticipates that, when combined with an appropriate approach to the RFR (using the approach we set out in Section 5), and excluding embedded debt, the relationship between gearing and WACC that was highlighted in the NERL Provisional Findings will not give rise to any concerns.

7 The top end of the CMA’s debt beta range relies on a flawed analysis and is unjustified

- 7.1 The CMA is correct to recognise that the debt beta assumption used by Ofwat was inappropriately high. ENA agrees that the CMA is correct to apply a lower value.
- 7.2 However, the top end of the CMA’s debt beta range is artificially increased by relying on the Europe Economics decomposition analysis. Its top-end estimate of 0.15 is too high, resulting in an artificially low cost of equity range.
- 7.3 The CMA has considered a wide range of methodologies in determining its debt beta range. The CMA is correct to have investigated a wide range of options, but must take account of the robustness and reliability of some of the methodologies it considered when deciding which methodologies ultimately form its debt beta range.
- 7.4 As the Oxera WACC Report explains, the top end of the CMA’s debt beta range is based on analysis by Europe Economics based on the decomposition approach. The decomposition approach is inferior to the regression and structural approaches and therefore should not attract the weight that CMA has placed on it when deriving the debt beta range.⁶³
- 7.5 Moreover, aside from the inherent lack of robustness in using a decomposition approach, the decomposition analysis undertaken used by Europe Economics is based on a

⁵⁸ Competition and Markets Authority (2020), ‘NATS (En Route) Plc /CAA Regulatory Appeal: Provisional findings report’, 24 March, Appendix D, para 4 (**CMA NERL Provisional Findings**).

⁵⁹ Competition and Markets Authority (2020), ‘NATS (En Route) Plc /CAA Regulatory Appeal: Final report’, 23 July, para 13.95.

⁶⁰ CMA NERL Provisional Findings, Appendix D.

⁶¹ See section 3 and Appendix 1 to ENA’s 25 May 2020 submission in respect of Ofwat’s Final Determination (**ENA May Submission**).

⁶² Provisional Findings, para 9.317.

⁶³ Oxera WACC Report, sections 3.1 and 3.2.

number of flawed assumptions which lead to an erroneous material over-estimate of debt beta. The Oxera WACC Report explains these errors and concludes that:

*'Correcting the various errors in EE's decomposition approach significantly reduces the debt beta obtained from the decomposition approach from 0.15 to 0.05.'*⁶⁴

- 7.6 The CMA must adjust the top of its debt beta range significantly downwards to take account of both the lower robustness and reliability of the decomposition approach and the errors identified in Europe Economics' analysis.
- 7.7 The Oxera WACC Report concludes that *'we see no evidence that supports a debt beta estimate greater than 0.05'*.⁶⁵

8 Cost of debt

- 8.1 The CMA has opted to use a 20 year average to set the cost of embedded debt on the following basis:

*'Given the average maturity of the benchmark indices (approximately 19.4 years when combined), as well as the long-term nature of debt financing within the water industry, we agree with Anglian's view that 20 years would be a more appropriate measurement period.'*⁶⁶

- 8.2 In considering the long-term nature of debt financing for regulated networks, for the purpose of the CMA's consideration of a lookback period, it is important to consider the tenor at issuance of their outstanding debt. Analysis by NERA commissioned by ENA as part of the ongoing energy price controls shows the weighted average tenor at issuance for the outstanding debt of Water Only Companies (**WoCs**) and Water And Sewerage Companies (**WaSCs**) to be above 20 years.

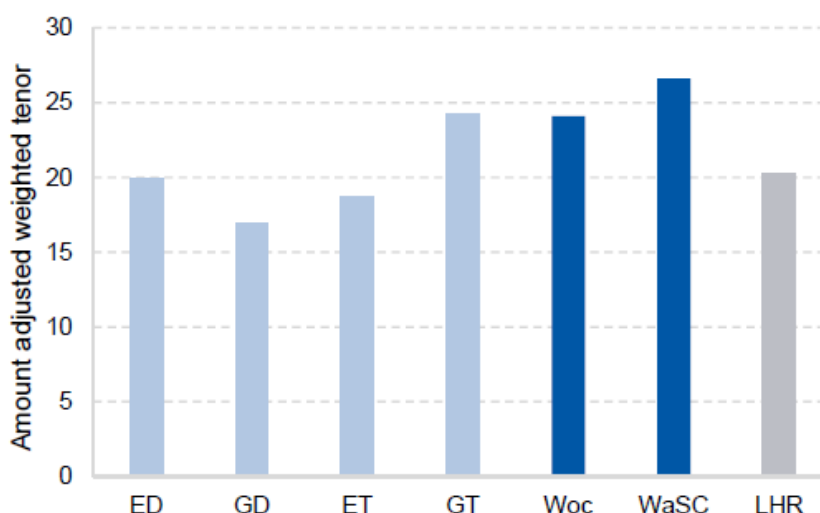
⁶⁴ Oxera WACC Report, section 3.2.

⁶⁵ Oxera WACC Report, section 3.4.

⁶⁶ Provisional Findings, para 9.356.

Figure 2 – NERA analysis of weighted average tenor at issuance by sector

UK energy and other regulated sectors tenors range from 17 (GDNs) to around 24 years (GT)



Note: Energy sector tenors calculated based on tenor at issuance weighted by outstanding amount in 2019. Water sector bonds and London Heathrow bonds based on publicly available data.

Source: NERA analysis

8.3 ENA therefore supports the CMA’s conclusion that allowances based on 10 or 15 years would be inappropriate.

8.4 The CMA also recognises that use of a shorter time period could provide perverse incentives on companies to shorten up tenor of debt in a way that would not be in customers’ interests:

‘the use of shorter lookbacks could provide an inappropriate signal to companies that the regulator is encouraging them to shorten the tenor of their debt in order to reduce costs, potentially trading lower short-term costs for increased financing risk.’⁶⁷

8.5 ENA agrees with the CMA that setting lower allowances based on shorter timescales would create a damaging incentive to issue short-term debt which is not in customers’ interests.

8.6 ENA agrees with the CMA’s conclusion that there is no evidence to support the application of an outperformance wedge (i.e. a ‘halo effect’ adjustment), once tenor and rating are adjusted for.⁶⁸

8.7 However, the CMA has made an error in calculating its cost of debt range. In adopting the 20-year trailing average on 31 July 2020, the CMA has introduced an overlap

⁶⁷ Provisional Findings, para 9.357.

⁶⁸ Provisional Findings, para 9.352.

between the period of the index used to ‘true-up’ the cost of new debt at the end of AMP7 and the period used to determine the cost of embedded debt.⁶⁹ Since embedded debt represents the existing debt portfolio of the water companies, the embedded debt allowance at the start of AMP7 should cover the period from April 2000 to March 2020, a 20-year period leading up to the start of the control period in 31 March 2020.

9 Selection of a point estimate within the WACC range

(a) Aiming up in the cost of capital is clearly demonstrated to be in customers’ interests

9.1 As noted in Section 2(d) above, the allowed WACC determination is of fundamental importance. ENA acknowledges the thorough and balanced consideration given by the CMA in assessing arguments and evidence submitted by all parties.

9.2 ENA notes the CMA’s comment that it is required to balance its statutory duties when picking point estimates for key components of WACC and the overall WACC estimate.⁷⁰ ENA also notes the CMA’s comment: *‘In our judgement, this approach acknowledges the varying potential for error in our estimates whilst also appropriately adjusting for any asymmetric risks to customers from underinvestment without being unnecessarily generous to shareholders.’*⁷¹

9.3 ENA supports the CMA’s decision to aim up in the WACC range. Such aiming up should occur before account is taken of asymmetry and financeability. ENA has previously submitted significant evidence supporting the CMA’s Provisional Findings to aim up and supports the following key elements of the CMA’s reasoning and conclusions:

*‘There are well-established arguments that underinvestment caused by a cost of capital being set too low damages the overall welfare of consumers (and potentially the wider economy) materially more than the welfare lost through bills that may be slightly too high.’*⁷²

*‘Should the cost of capital be set too low and this led to an exit of capital from the sector, this would have an adverse effect on the sector’s longer-term attractiveness to investors. This would, in practice, be likely to result in a higher medium-term cost of capital and/or a risk to availability of finance for future investment.’*⁷³

*‘There is significant investment required within the sector over AMP7 and beyond, in particular on projects that help to control and prevent the impacts of climate change. In that context we have provisionally decided that it is appropriate to reflect the risk of error in our cost of capital component metric estimates when choosing a point estimate for the WACC, given the potential costs of setting the cost of capital too low.’*⁷⁴

9.4 ENA supports the CMA’s rejection of Ofwat’s argument that setting a cost of capital above the mid-point of the range would somehow be inconsistent with its duties. Ofwat’s financing duty includes an obligation to secure a reasonable return on capital. The

⁶⁹ Oxera WACC Report, section 4.2.
⁷⁰ Provisional Findings, para 9.633.
⁷¹ Provisional Findings, para 9.675.
⁷² Provisional Findings, para 9.667.
⁷³ Provisional Findings, para 9.667.
⁷⁴ Provisional Findings, para 9.674.

question of what is reasonable must reflect the reality of uncertainty in the best estimates of key components to WACC, and the risk of error in selecting a point value from within that range. Taking account of those uncertainties does not set a WACC above what is reasonable; rather it is the process by which the reasonable return is determined. Moreover, the interests of consumers require that the WACC be set at a level that attracts adequate investment. Aiming up in order to recognise the risks faced by consumers and investors is demonstrably consistent with Ofwat’s duties.

(b) **Prior to aiming up, the CMA must make corrections to errors that currently distort its cost of equity range, such as data points resulting in the “lower bound” being impossibly low**

9.5 The CMA describes its logic for aiming up in its cost of equity range as:

‘[A] decision to aim up to the 75th percentile on cost of equity metrics in order to recognise the higher potential for error within our cost of equity assumption.’⁷⁵

9.6 ENA agrees that the CMA is correct to aim up to reflect uncertainty in the cost of equity range. However, the analysis demonstrating the logic of aiming up relies on consideration of a balanced cost of equity range. The CMA’s proposed cost of equity range does not yet meet this requirement.

9.7 The CMA is wrong when it concludes that its *‘estimates of the components of the WACC are reasonable’*.⁷⁶

9.8 In making this statement, the CMA fails to recognise that a number of the inputs to its range have impossibly low lower bounds. This includes, for example:

- (a) the incorrect use of the unreliable CED/CPI data series for the bottom end of the TMR range (see Section 4(a) above);
- (b) the incorrect use of unadjusted government bond yields for the bottom end of the RFR range (see Section 5(a) above); and
- (c) the incorrect use of the Europe Economics decomposition analysis for the top end of the debt beta range (see Section 7 above).

9.9 The CMA also fails to recognise that a number of the inputs to its range have artificially low upper bounds. This includes, for example:

- (a) the incorrect exclusion of the top end of CED/RPI range in establishing its TMR range (see Section 4(a) above); and
- (b) the incorrect exclusion of the Cooper estimator and the arithmetic average in establishing its TMR range (see Section 4(b) above);

9.10 The errors that the CMA has made in determining its cost of equity range have the effect of creating a range that is significantly skewed downwards.

9.11 The CMA must first make these important corrections to its cost of equity calculations to form a balanced range. It should then aim up within that range to recognise that even

⁷⁵ Provisional Findings, para 9.685.

⁷⁶ Provisional Findings, para 9.663.

within that balanced range uncertainty still exists about where the appropriate cost of equity lies.

(c) **The CMA should have aimed up to a greater extent than the 75th percentile**

9.12 The CMA suggests that the case for aiming up is “balanced”, noting that market-to-asset ratios (**MARs**) analysis suggests investors would continue to provide capital based on Ofwat’s WACC.⁷⁷ ENA disagrees for three reasons:

- (a) Evidence previously submitted by ENA maintains that aiming up is an optimal and indeed necessary regulatory response;
- (b) The appropriate level of aiming up that is required to avoid customer detriment has been modelled in evidence previously submitted by ENA.⁷⁸ These models support higher levels of aiming up than the CMA applied, with the 75th percentile being the minimum that would be expected to take account of the need to promote investment. Optimal levels of greater than 90% are commonly calculated⁷⁹; and
- (c) Given the fundamental importance of aiming up, the CMA should not take account of unreliable data to constrain the extent of aiming up. The CMA and Competition Commission (**CC**) precedents recognise significant uncertainties associated with interpreting MARs, given the amount of assumptions that are required.⁸⁰ As detailed by Oxera in its reports previously shared with the CMA,⁸¹ there are a number of important shortcomings in the MARs analysis the CMA refers to. For example, the MARs are based on the forward-looking assumptions for Severn Trent and United Utilities, and these two companies are not representative of the other 15 regulated water networks in the sector for a number of reasons, including their expected levels of outperformance and their significant non-regulated businesses.⁸² Departure from previous CC and CMA precedents cannot be justified based on this analysis.

9.13 Accordingly, in its final determination, the CMA should aim up towards the top of its cost of equity range to take account of the need to promote investment. This extent of aiming up is justified before any asymmetry in the price control or financeability concerns are taken into account in further uplifts.

(d) **ENA agrees that further aiming up is justified to reflect asymmetry and financeability**

9.14 With regard to asymmetry and financeability, ENA notes that the CMA has stated that: *‘We also consider that there are broader reasons for considering a WACC above the mid-point in this determination, relating to financeability and asymmetric risk’*⁸³ and *‘We also consider that there are reasons specific to this determination, related to asymmetry*

⁷⁷ As appears to be suggested at para 9.669 of the Provisional Findings.

⁷⁸ See, e.g., section 4 of ENA June Submission, and the report of Frontier Economics referred to therein. and enclosed as Annex 6 to ENA June Submission.

⁷⁹ See, e.g., UKRN (2018), *Estimating the cost of capital for implementation of price controls by UK regulators*, 6 March, Oxera, *Is aiming up on the WACC beneficial to consumers?* Prepared for Heathrow Airport Limited, 17 April 2020 Ian M Dobbs, *Modelling Welfare loss Asymmetries Arising from Uncertainty in the Regulatory Cost of Finance*, 2011.

⁸⁰ See section 2 of Annex 2 to ENA May Submission for a summary of relevant precedents.

⁸¹ See section 4 of ENA May Submission, and the accompanying report from Oxera enclosed as Annex 2 to that submission.

⁸² Oxera WACC Report, section 5.3.3.

⁸³ Provisional Findings, para 9.670.

and financeability, which justify a degree of caution against setting the cost of capital too low.⁸⁴

- 9.15 When considering the case to aim up to reflect asymmetry, ENA agrees that:
- (a) the CMA is correct to take account of the need for an adjustment in circumstances where (as is the case in the present redeterminations) there are downside-only risks to an otherwise balanced package of incentives, meaning that the expected return for an average investor will be slightly below the cost of capital; and
 - (b) making an upwards adjustment to reflect asymmetry in the price control package is aligned with the need to avoid the very damaging consequences for customers of ‘aiming down’ and setting a cost of capital that is too low.
 - (e) **The CMA is wrong to aim down on the cost of embedded debt**
- 9.16 The CMA is wrong to aim down on the cost of embedded debt:
- (a) Having more certainty of the cost of debt range would be justification to aim straight, not to aim down;
 - (b) In aiming down to the bottom of its range, the CMA is choosing to apply rates that are consistent with A rated debt. This is inconsistent with the CMA’s financeability tests; and
 - (c) Instead, the CMA should model the evolution of the cost of embedded debt through AMP7 to forecast what the cost of debt will be for each price control year by progressively changing the start date used to calculate the trailing average while keeping the end date fixed at 31 March 2020. Under this approach, the 20-year trailing average would become shorter trailing averages (16 to 19-year averages), with the older debt dropping out of the average as the price control progresses.
- 9.17 Oxera calculates that the corrected CPIH-real embedded debt cost is 2.67%–3.08%, and the ‘aim-straight’ point estimate of this range (i.e. the mid-point) is 2.88%. This is 12 basis points higher than the 2.76% point estimate that the CMA derives by ‘aiming down’.⁸⁵
- (f) **Overall, the CMA’s slight aiming up in the WACC range is too low**
- 9.18 ENA notes that the CMA’s point estimate of 3.50% is at the 58th percentile of its provisional WACC range of 2.82%-3.99%, just 9.5 basis points above the mid-point of 3.405%. In the context of an overall reduction to customer bills of 9.6%, had the mid-point been chosen, customer bills would have been further reduced by 0.5%.⁸⁶
- 9.19 ENA notes that the CMA considers its WACC range to be wide, reflecting the uncertainty involved and that the aiming up adjustment of 9.5 basis points is “slightly above” the mid-point.⁸⁷

⁸⁴ Provisional Findings, para 9.674.
⁸⁵ Oxera WACC Report, section 4.3.
⁸⁶ Provisional Findings, para 9.679.
⁸⁷ Provisional Findings, paras 9.632 and 9.676.

- 9.20 The CMA's slight aiming up in the WACC range of 9.5 basis points does not seem consistent with the strength of discussion on aiming up in the rest of the document and is too low for the following reasons:
- (a) the CMA should have aimed higher than the 75th percentile of the cost of equity range. Aiming up towards the top of the range would be justified even without taking account of asymmetry, financeability and known distortions to the low end of the CMA's cost of equity range; and
 - (b) the CMA should not have aimed down in estimating the cost of embedded debt. Instead, it should have modelled the evolution of the cost of embedded debt through AMP7 to forecast what the cost of debt will be for each price control year. Adjusting for this error would increase the cost of debt by a further 12 basis points.
- 9.21 ENA therefore believes the CMA should adopt a higher point estimate WACC from an appropriately calibrated WACC range i.e. after the errors identified in this submission have been corrected.

10 Financeability

- 10.1 ENA welcomes the CMA's focus on financeability from the perspective of equity investors and the importance of being able to attract and retain investors in the sector. This is fully aligned with customer interests, as set out in the following sections above:
- (a) Section 2(a) ('The CMA's approach to balancing short-term bills and longer-term investment is in customers' interests and is consistent with Ofwat's statutory duties');
 - (b) Section 2(b) ('Promoting investment is both essential and in customers' interests'); and
 - (c) Section 2(d) ('The importance of aiming up on the cost of equity in order to determine the correct WACC').

The CMA should include a margin above the minimum credit rating thresholds in its financeability assessment

- 10.2 The CMA has undertaken its financeability assessment against, inter alia, metrics that credit rating agencies use;⁸⁸ ENA agrees that the underlying definitions of ratios and the accounting conventions used to present inputs are important. ENA agrees that credit metrics are part of an overall assessment by the rating agencies, with caution required to avoid the value of a particular ratio being determinative of the conclusion on financeability.
- 10.3 However, ENA believes the CMA has not gone far enough in one respect: the assessment should provide for a margin above the bottom of the Baa1/BBB+ threshold. ENA has previously submitted evidence demonstrating the importance of this.⁸⁹ In summary, a margin above the minimum threshold is required to:

⁸⁸ Provisional Findings, paras 10.60.

⁸⁹ See, e.g., section 7(e) of ENA June Submission.

- (a) absorb any within price control tightening of credit rating agency thresholds, e.g. if other rating agencies downgrade the water sector in a similar way to Moody's in 2019; and
- (b) avoid downgrade due to relative small movement in costs and allowances, e.g. due to timing of expenditure and uncertainty mechanisms, and macro-economic impacts such as changes to inflation and economic disruption.

10.4 It is clear that three of the four relevant water companies have Adjusted Interest Cover Ratios (AICR) of just 1.5x in the CMA's central scenario.⁹⁰ This leaves no headroom to absorb any downside shocks, cash flow timing differences or within price control tightening of thresholds.

The CMA should consider the uncertainty in its inflation assumption in its financeability assessment

10.5 ENA agrees with the CMA that the decision on a point estimate of inflation is challenging in the current environment.⁹¹

10.6 In matching Ofwat's approach to estimating CPIH at 2.0%, the CMA noted '*As a result of the current uncertainty surrounding the impact of COVID-19 on economic metrics such as inflation, we do not think it would be appropriate to base our real cost of capital estimates for the entire price control on what could be temporarily distorted figures*'.⁹²

10.7 In considering the August 2020 HM Treasury forecast of 1.70%, the CMA noted that a '*policy response*' may lead to higher inflation than current forecasts.⁹³ ENA believes that the impact to inflation from any such policy response cannot be predicted reliably in terms of timing and quantum over AMP7 and that considerable uncertainty therefore remains.

10.8 The Oxera WACC Report considers the effect of adopting 1.70% instead of 2.0% to be an increase to CPI-real WACC of approximately 20 basis points.⁹⁴ This indicates that there is additional pressure on the financeability of water companies that has not been recognised in the determination of the parameters of the allowed rate of return. The CMA should consider inflation uncertainty as a key sensitivity in its financeability assessment and ensure that the relevant water companies have sufficient headroom to deal with the prospect of inflation being lower than the CMA's assumption.

Regulators must intervene in cases where an efficiently run company faces financeability constraints

10.9 ENA notes the CMA's statement that:

*'Companies have a licence condition to maintain an investment grade credit rating for their debt, and we consider that companies facing a financeability constraint have a responsibility to consider a range of mitigating actions to address impact, such as absorbing headroom in credit ratios, requiring a contribution from equity, eg to forego dividends or inject fresh capital.'*⁹⁵

⁹⁰ Provisional Findings, tables 10-3, 10-4, 10-5 and 10-6.

⁹¹ Provisional Findings, para 9.25.

⁹² Provisional Findings, para 9.27.

⁹³ Provisional Findings, para 9.25.

⁹⁴ Oxera WACC Report, section 6.

⁹⁵ Provisional Findings, para 10.92.

10.10 While this may be correct up to a point, it is important to recall that the regulator has a duty to secure that regulated companies are able to finance the proper carrying out of their functions and that this duty applies to the exercise of the regulator’s functions generally and not only in relation to the determination of periodic price controls. The regulator therefore has a responsibility to intervene in cases where an efficiently run company faces financeability constraints which threaten the maintenance of its investment grade credit rating.

11 ENA agrees with the removal of the Gearing Outperformance Sharing Mechanism

11.1 ENA shares the CMA’s concerns about the effectiveness and design of Ofwat’s Gearing Outperformance Mechanism (**GOSM**) and agrees with the CMA’s decision not to include it in the redetermined price control.⁹⁶

11.2 In particular, ENA agrees with the CMA that the GOSM would represent a significant break from a well-established regulatory approach and that it may be seen by investors as punishing companies for previously sanctioned capital structures without offering sufficient evidence, clarity of justification or time to make cost-effective adjustments.⁹⁷

11.3 ENA supports the CMA’s position that any alternative remedies should be subjected to full assessment of the benefits and costs of the different options for intervention.⁹⁸

12 Cost assessment

12.1 ENA’s members are not familiar with the detailed approach to all aspects of the cost assessment undertaken as part of the redetermination of PR19 price controls and therefore limit their comments to aspects of the CMA’s cost assessment approach that are of direct relevance to energy networks.

12.2 In addition to the specific points set out in the following sections, ENA notes that it is essential that all components of the CMA’s approach to cost assessment are internally consistent. In particular, the CMA must guard against the risk of setting an unachievable target from the effect of combining stretching targets on both catch up and frontier shift.

13 Catch-up efficiency challenge

13.1 ENA agrees with the CMA’s articulation of the task faced by the CMA (and by inference all regulators) in selecting a benchmark as:

‘setting a challenging benchmark while acknowledging the limitations of the econometric modelling (and the consequent risk that the company will have insufficient allowed revenue to ensure a base level of service).’⁹⁹

13.2 ENA welcomes the CMA’s acknowledgement of the principle that the choice of benchmark must be informed by the evidence of the quality of economic modelling.¹⁰⁰ Such evidence includes model fit, measures of model precision, the results of relevant econometric tests (e.g. the RESET test) and the incentives the model creates.

⁹⁶ Provisional Findings, para 9.629.
⁹⁷ Provisional Findings, para 9.628.
⁹⁸ Provisional Findings, para 9.630.
⁹⁹ Provisional Findings, para 4.296.
¹⁰⁰ Provisional Findings, para 4.294.

- 13.3 ENA supports the CMA's Provisional Findings that Ofwat's use of a benchmark beyond upper quartile cannot be justified, for the reasons set out at paragraphs 4.294 to 4.295 of the Provisional Findings.
- 13.4 There is extensive regulatory precedent in favour of a 75th percentile approach to setting an efficiency challenge, running well beyond the instances the CMA cites (including, for example, the fourth electricity distribution price control review, DPCR4¹⁰¹).
- 13.5 There are also examples of regulators using benchmarks that allow for greater recognition of imperfections in the data. For example, at the fifth electricity distribution price review (DPCR5) Ofgem set its benchmark for certain econometrically assessed costs at an upper third level.¹⁰² Indeed, both Ofwat and Ofgem chose an upper quartile benchmark in the previous price review and triangulated their views with the companies' (in the ratio 75:25) to reflect modelling limitations and additional informational imperfections. Such examples of triangulation exist outside of the UK as well.
- 13.6 The relatively limited data, small number of independent observations, and the set of techniques that could potentially be applied, has not changed in any practical sense over the intervening years. It is therefore unlikely that the uncertainty has reduced over whether any apparent inefficiency represents genuine inefficiency or modelling error.
- 13.7 The CMA is also correct to place "little or no weight" on Ofgem's use of an 85th percentile benchmark in its Draft Determinations for GD2.¹⁰³ As the CMA states the approach is provisional. It is also flawed. For instance, Ofgem attempts to justify it, in part, by citing outperformance relative to the RIIO-1 cost allowances. Yet:
- (a) this is an apples and pears comparison that does not justify benchmarks below the 75th percentile, since cost allowances at RIIO-1 were not set at 75th percentile benchmarks. Allowances for RIIO-1 were instead set (via Ofgem's Information Quality Incentive interpolation process) using a weighted average of company plans and 75th percentile benchmarks. For the majority of networks allowances were higher than upper quartile levels; and
 - (b) given different models are being applied to different data at GD2, it would not be reasonable for a regulator to make inferences about the challenge presented by GD2 benchmarks based on the 75th percentile using comparisons of the GD1 benchmarks with GD1 actual costs.
- 13.8 In setting allowances based on an upper quartile benchmark, the CMA has made a challenging set of proposals that will be difficult for the relevant water companies to achieve. It would be helpful to understand how the CMA has assured itself that the resulting allowances would be sufficient to ensure a base level of service. This is a necessary step if a regulator is to have some assurance that it is meeting its duties to finance the costs of the companies it is regulating.
- 13.9 The CMA should therefore articulate its logic assurance in this area more fully in its final determinations.

¹⁰¹ Ofgem, 2004, DPCR4 final proposals, para 7.24.

¹⁰² Ofgem, 2009, DPCR5 final proposals cost assessment document (ref 146 / 09), para 1.43.

¹⁰³ Provisional Findings, para 4.294.

14 The CMA has made a number of errors in determining its frontier shift assumption

14.1 The CMA has corrected a number of errors in Ofwat's approach to determining the frontier shift assumption to apply to the relevant water companies' cost bases, but has failed to correct some of Ofwat's errors and has also introduced some further errors in its own analysis.

14.2 ENA strongly believes that there is insufficient evidence to justify use of a frontier shift assumption as high as 1%. This statement is supported by a report by Oxera on behalf of ENA reviewing the CMA's approach to setting the frontier shift assumption (**Oxera Frontier Shift Report**). ENA shares this report with the CMA as an annex to this submission.¹⁰⁴

(a) The CMA has made errors when calculating its gross output frontier shift assumption, resulting in it being materially too high

The CMA has included data from an inappropriate sector in its calculations

14.3 ENA agrees with the CMA that gross output is the most applicable measure to consider in determining the frontier shift assumption to apply.¹⁰⁵ ENA also agrees that it is appropriate for the CMA to select comparators that form a 'reasonable approximation for the activities of the water sector'.¹⁰⁶

14.4 However, ENA believes that the inclusion of the 'Professional, scientific, technical, administrative and support service activities' sector is questionable. As acknowledged by Europe Economics,¹⁰⁷ this sector is more relevant for retail than wholesale activities. Oxera also supports the exclusion of this sector.¹⁰⁸

The CMA is wrong to use simple averaging to aggregate inputs and should take account of the composition of water company costs

14.5 The CMA's approach to aggregating the various inputs using a simple average is inappropriately simplistic.¹⁰⁹ The CMA should undertake a weighted aggregation based on the average proportions of company costs, especially as robust data is available to derive these.

14.6 Taking a weighted average approach would be consistent with regulatory precedent.¹¹⁰ It is also consistent with recent court decisions, including the decision by the Dutch Trade and Industry Tribunal (**CBb**), where the CBb highlighted the importance of aggregating the sectoral productivity estimates using a representative set of weights reflecting the relevance of the sector to the activities undertaken by network operators.¹¹¹

14.7 Oxera's analysis shows that the CMA's failure to aggregate on this basis is materially distortive.¹¹²

¹⁰⁴ Oxera, 'A review of the CMA's approach to assessing frontier shift in its provisional findings', 25 October 2020. Attached at Annex 2.
¹⁰⁵ Provisional Findings, para 4.334.
¹⁰⁶ Provisional Findings, para 4.323.
¹⁰⁷ Europe Economics (2020), 'Real Price Effects and Frontier Shift', 2 January 2018, p. 68.
¹⁰⁸ Oxera Frontier Shift Report, section 3.1.
¹⁰⁹ Provisional Findings, para 4.323.
¹¹⁰ See Oxera Frontier Shift Report, section 3.2 for details.
¹¹¹ ECLI:NL:CBB:2018:346 (GTS) en ECLI:NL:CBB:2018:347 (TenneT).
¹¹² Oxera Frontier Shift Report, section 3.2.

The CMA is wrong to ignore the trend in recent data

14.8 The CMA’s range is also distorted by its decision to only use data up to 2007.¹¹³ Whilst ENA recognises the pro-cyclic nature of this data, it is wrong to ignore entirely the most recent data. The selected time period needs to represent the economic outlook that is likely to prevail over the next price control period; ignoring the productivity trends of the last 13 years is unlikely to achieve this.

14.9 Oxera recommends using the data from 1996 to 2014.¹¹⁴ The period 1996–2014 covers a full business cycle and is a more appropriate reflection of the AMP7 period.

The combined effect of these errors is to materially overstate the CMA’s primary focus gross outputs frontier shift assumption

14.10 The Oxera Frontier Shift Report calculates the frontier shift assumption taking account of the composition of relevant water companies’ costs and more recent data. Oxera concludes that:

‘The evidence suggests that a more robust approach would lead to a materially lower ‘starting point’ of a base estimate of 0.2%–0.3%, compared to the CMA’s current estimate of 0.7% based on GO.’¹¹⁵

14.11 This is a material error; the CMA should adjust its starting point frontier shift assumption accordingly.

(b) The CMA’s adjustment to its gross output productivity assumption is too high and not supported by the evidence

14.12 The CMA ultimately opts to select a frontier shift assumption that is higher than its primary focus of gross outputs productivity assumption by considering a number of further factors ‘*in the round*’.¹¹⁶ The figure that it ultimately proposes (1% p.a.) is 0.3% p.a. higher than its gross outputs productivity assumption.¹¹⁷

14.13 For the reasons set out below, the factors considered by the CMA cannot be used to justify selecting a point value that is 0.3% p.a. above the gross output productivity measure. Nor can the factors justify the selection of an absolute value that is as high as 1% p.a.

There is no evidence to support an uplift to frontier shift for embodied technical change uplift

14.14 ENA believes that there is no basis to support the CMA’s view that an uplift to frontier shift assumption should be applied to take account of embodied technical change.¹¹⁸

¹¹³ Provisional Findings, para 4.324.
¹¹⁴ Oxera Frontier Shift Report, section 3.1.
¹¹⁵ Oxera Frontier Shift Report, section 3.2.
¹¹⁶ Provisional Findings, para 4.377.
¹¹⁷ Provisional Findings, para 4.377.
¹¹⁸ Provisional Findings, para 4.343.

- 14.15 Oxera has extensively reviewed this issue.¹¹⁹ Oxera concludes that there is ‘*no basis upon which to make a positive adjustment*’.¹²⁰
- 14.16 In contrast to the CMA’s conclusion, Oxera identifies that important 2020 empirical work undertaken by the consultant to the Netherlands Authority for Consumers and Markets (ACM) covering multiple European countries and similar EU KLEMS sectors showed that the impact of embodied technical change is negative and insignificant.¹²¹
- 14.17 Oxera concludes that:
- ‘A careful examination of the two academic papers used to support an uplift shows that there is no apparent bias (positive or negative) due to it. The need for an adjustment for embodied technical change requires robust quantitative evidence and cannot be hypothesised.’¹²²*
- ‘The CMA’s provisional conclusions instead appear to be based on a limited and erroneous review of the evidence presented and are unsupported by any conceptual or quantitative evidence.’¹²³*
- 14.18 Notwithstanding the lack of evidence of any bias in the data, the CMA appears to have made an implicit assumption that the relevant water companies invest more than other sectors on innovation, and thus can “outperform” the wider economy (or relevant benchmark sectors) in terms of productivity growth. It has no evidence to support this assumption, and it seems implausible. Analysis of research and development intensity shows the expenditure levels of water companies on innovation are not higher than the average seen in the wider economy.¹²⁴
- 14.19 The CMA should not apply an uplift to its frontier shift assumption for embodied technical change in its final determination.
- The CMA fails correctly to calculate the result if value added measures were included*
- 14.20 The CMA partly justifies selecting a high point in its range based on the fact that value added measures would give a higher result.¹²⁵ However, the CMA fails correctly to calculate the result if value added data were included.
- 14.21 Oxera calculates that value added productivity measures would result in frontier shift targets of 0.6% p.a. and 0.7% p.a. for water and wastewater, respectively.¹²⁶
- 14.22 Value added productivity measures isolate the ease with which a firm is able to transform intermediate inputs into a finished product or service. This is different to gross output measurement which considers the way in which a final output is produced out of the full range of capital, labour, energy, materials and services that an industry draws upon.

¹¹⁹ See Oxera Frontier Shift Report, section 4.1 for details.

¹²⁰ Oxera Frontier Shift Report, section 4.1.

¹²¹ Economic Insights (2020), ‘*Frontier Shift for Dutch Gas and Electricity TSOs*’, available here: <https://www.acm.nl/sites/default/files/documents/2020-06/reg2022-elfde-klankbordgroepbijeenkomst-rapport-economic-insights-frontier-shift.pdf>.

¹²² Oxera Frontier Shift Report, section 4.1.

¹²³ Oxera Frontier Shift Report, section 4.1.

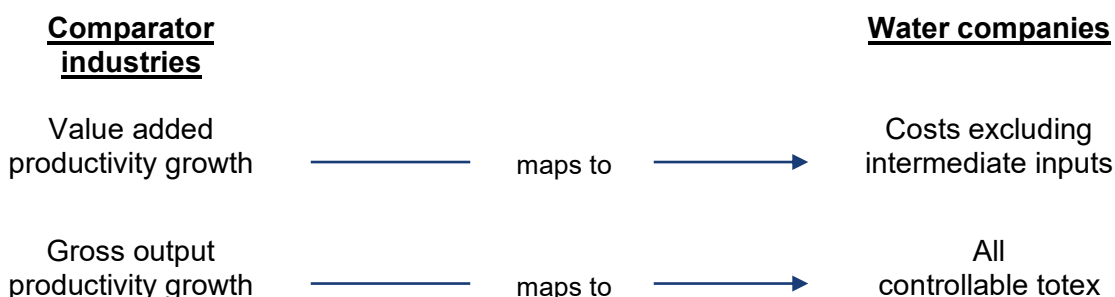
¹²⁴ See e.g. https://www.researchgate.net/figure/R-D-intensity-per-sector-Department-of-Innovation-Universities-and-Skills-2008_fig1_228391231.

¹²⁵ Provisional Findings, para 4.377.

¹²⁶ Oxera Frontier Shift Report, section 4.2.

- 14.23 Therefore, any assessment made using value added measures must be applied only to the costs of the business excluding intermediate inputs, for instance materials. That is, the value added assessment should be reduced by an appropriate amount to take account of the level of intermediary costs. This is essential to ensure internal consistency within the calculations.
- 14.24 The figure below illustrates the required relationship between each productivity measure and the associated cost base to which they can be applied.

Figure 3 – The relationship between productivity measures and associated cost base



- 14.25 ENA does not have the data to calculate the adjustment for relevant water companies, but for the purposes of illustration can share that it would be appropriate to include just 76% of gas distribution networks’ controllable totex in such a calculation.¹²⁷
- 14.26 If the CMA is to place ‘some weight’ on value added productivity measures, it must firstly calculate the appropriate value correctly and then adjust the relevant value downwards to take account of the smaller subset of costs to which it should be applied before considering what adjustment it is appropriate to make. The appropriate value would therefore be below the 0.6% and 0.7% p.a. values Oxera calculates (for water and wastewater).
- 14.27 Once the value added productivity measures are scaled back to take account of the difference in cost base, it would not be possible to justify a 0.3% uplift based on placing ‘some weighting’ on value added measures. It is also impossible to justify the CMA’s selection of an overall frontier shift value of 1% based on consideration of value added productivity measures.
- 14.28 Indeed, Oxera notes that ‘*even giving equal weight to the GO-based base estimates of 0.2%–0.3% and the unadjusted VA-based estimates of 0.6%–0.7%, the overall frontier estimate would only be around 0.4%–0.5%*’.¹²⁸ It further notes that an equal weighting cannot be justified as the gross output measure is the preferred measure at a firm level and in a totex context, and that the value added values it has estimated are unadjusted.

¹²⁷ Ofgem, RIIO-GD2 Draft Determination models – notional cost split, July 2020.
¹²⁸ Oxera Frontier Shift Report, section 5.

Other factors considered by the CMA also fail to justify selection of a 1% overall frontier shift assumption

- 14.29 It appears that the CMA’s selection of a point in the range may have been strongly influenced by the assumptions in companies’ plans,¹²⁹ but without a review of any elements of the catch-up requirement included within those plans.
- 14.30 The companies’ plans were produced and submitted as part of a competitive regulatory process. It is very probable that some aspects of those plans conflated catch up and frontier shift assumptions or were deliberately stretching in order to seek to gain favourable treatment of the overall plan by the regulator.
- 14.31 Whilst ENA is not familiar with the detailed content of relevant water companies’ plans, it is certainly the case that several energy companies that proposed higher frontier shift assumptions specifically caveated their plans to be clear that the assumption was only valid in the context of their overall plan and that econometric data supported much lower values. For example, in its business plan, Cadent targeted a 0.94% p.a. cost efficiency improvement but expressed noted that this was above its assessment of ongoing efficiency improvement of 0.53% p.a..¹³⁰
- 14.32 In any case, it is appropriate for the CMA to challenge whether the assumptions in those plans are correct – just as it would do if the companies’ plans proposed values that increase costs for customers – before using evidence from companies’ plans to influence its selection of a point in the range. Any approach that accepts companies’ assumptions when they drive lower bills and dismisses companies’ assumptions when they drive high bills would be inappropriate and ‘cherry-picking’.

The maximum uplift above gross outputs productivity assumption that can be justified is much smaller than the uplift proposed by the CMA

- 14.33 The CMA opted to select a point value of 1% p.a.. This value is 0.3% p.a. higher than its calculated gross outputs productivity assumption.¹³¹
- 14.34 An uplift of 0.3% p.a. cannot be justified using the evidence that the CMA relies on.

(c) The CMA’s frontier shift assumption is materially too high

- 14.35 Similarly, a frontier shift assumption as high as 1% p.a. cannot be justified from the available evidence. Oxera recommends that:

‘A robust frontier shift assessment would result in GO-based estimates of 0.2%–0.3% p.a. and unadjusted VO-based estimates of 0.6%–0.7% p.a..’¹³²

- 14.36 The errors that the CMA has made in calculating its gross output productivity assumption, and in making adjustments to that assumption to take account of other factors, cumulatively result in a frontier shift assumption that is materially too high.

¹²⁹ Provisional Findings, para 4.377.
¹³⁰ Cadent, *RIO-2 Business Plan*, December 2019, p135.
¹³¹ Provisional Findings, para 4.377.
¹³² Oxera Frontier Shift Report, section 5.

(d) The CMA’s error is compounded annually and results in very material errors in setting cost allowances

14.37 Frontier shift is applied to the relevant water companies’ allowed costs on a basis that is compounded annually. The CMA’s error in setting its frontier shift assumption too high is therefore also compounded annually.

14.38 Given the substantial size of the cost base to which it is appropriate to apply frontier shift assumptions, the cumulative effect of this over-estimate of frontier shift assumptions is very material. Oxera concludes that:

‘The frontier shift has a cumulative effect on the cost allowance. The CMA has applied its provisional target of 1% p.a. from 2019–20 onwards over six years. A 0.5% p.a. correction to its provisional target, i.e. from 1% p.a. to 0.5% p.a., which would still be higher than what the GO-based estimates can support, has a cumulative impact of approximately 2% on the overall cost allowance. This is clearly material.’¹³³

(e) The CMA is wrong to apply its frontier shift assumption to all costs

14.39 The CMA has also made an error in applying its frontier shift assumption to all costs including unmodelled costs.¹³⁴ Significant proportions of these costs are non-controllable e.g. business rates. It is inappropriate to apply frontier shift assumptions to non-controllable costs which cannot be recovered by productivity improvements. Regulatory precedent typically applies a frontier shift target to costs that are within management control.

14.40 The CMA must also take care to ensure that there is no double counting in its application of frontier shift in other cost areas.

14.41 The CMA should identify a more appropriate subset of costs to which to apply its frontier shift assumption should be applied.

15 The effect of Covid-19 on frontier shift must be considered

15.1 The CMA concludes that the evidence does not justify adjusting its frontier shift assumption to take account of the Covid-19 pandemic.¹³⁵ Instead, it proposes that Ofwat considers any effect on frontier shift alongside other effects of Covid-19.¹³⁶

15.2 ENA believes that there is growing evidence that shows that the effects of Covid-19 on productivity growth are considerable and adverse, for example:

(a) First Economics’ analysis of evidence available in August 2020 concludes that *‘it is not unreasonable to think that COVID-19 could ultimately impact network costs in an unfavourable way’*,¹³⁷

¹³³ Oxera Frontier Shift Report, section 5.

¹³⁴ Provisional Findings, para 4.386.

¹³⁵ Provisional Findings, para 4.362.

¹³⁶ Provisional Findings, para 4.363.

¹³⁷ First Economics, *‘Frontier Productivity Growth’*, August 2020, Section 2.4, available at <https://www.northerngasnetworks.co.uk/wp-content/uploads/2020/09/R110-2-frontier-productivity-growth-First-Economics.pdf>

- (b) ONS flash productivity data shows slight improvements in sectors that might have benefited from Covid-19 (e.g. the pharmaceutical sector) but a significant fall in labour productivity in most other sectors across the economy;¹³⁸ and
- (c) The BoE's most recent Monetary Policy Report shows that UK GDP is expected to be close to 30% lower in 2020 Q2 than it was at the end of 2019. Based on BoE's scenario analysis, UK GDP is expected to fall by 14% in 2020 as a whole. An average of independent forecasts suggests approximately a 6% GDP growth in 2021.¹³⁹

15.3 The effect of Covid-19 on productivity cannot be ignored. If the CMA opts to not take account of this in its final determination, it should assure itself that a process will be introduced by Ofwat to adequately compensate the relevant water companies for the impact of Covid-19 on productivity. In the absence of such assurances, the CMA's frontier shift assumption will further overstate the extent to which the relevant water companies can meet its challenging cost allowances.

16 Implications of the CMA's PR19 redetermination for energy networks and other sectors

16.1 ENA is grateful that the CMA has considered and, in some cases, referred to the submissions which ENA has made to date. As noted in Section 1 and in ENA's previous evidence to the CMA, the CMA's redetermination of PR19 price controls is likely to have implications beyond the water companies and the water sector in certain areas. Regulators are likely to refer to it when reaching their own decisions, including Ofgem for the imminent RIIO-2 price controls.

16.2 ENA has focussed its submissions and evidence on aspects of the Provisional Findings where it or its members have relevant expertise or evidence. While these areas may coincide with those that have the potential to set precedents for the energy sector price control review process, ENA has been careful to limit its comments to matters that are directly relevant to the PR19 redetermination.

16.3 ENA anticipates that the CMA will receive a range of representations from different parties in response to its Provisional Findings, some of which may seek to downplay the relevance of the PR19 redetermination to other sectors. In considering such representations, ENA submits that:

- (a) the CMA is right to focus, as it did in its Provisional Findings, on the need to ensure continuing investment in the water sector and the serious consequences of setting the cost of capital too low;
- (b) the same considerations apply with equal force in other sectors: we have already mentioned the need to attract more than £50 billion of investment in energy networks over the next five years;
- (c) significant parts of the CMA's analysis and approach with respect to determining the level of the cost of capital and frontier shift for PR19 are of direct application to the energy sector: ENA has highlighted a number of such areas in this submission;

¹³⁸ Available at <https://www.ons.gov.uk/economy/economicoutputandproductivity/productivitymeasures/datasets/flashproductivitybysection>.
¹³⁹ HM Treasury, 'Forecasts for the UK economy: a comparison of independent forecasts', No. 399, October 2020.

- (d) it would not be in the public interest for there to be a further round of appeals to the CMA on matters that have been investigated in detail for the purposes of the CMA's PR19 redetermination; and
- (e) the CMA should frame relevant sections of its final determination of PR19 price controls accordingly.

16.4 ENA anticipates that the CMA will not want to be addressed further in relation to such cross-sectoral matters by any party in respect of these redeterminations. If however, contrary to this expectation, the CMA seeks or entertains further such representations, ENA requests the opportunity to participate and present further submissions on these matters.

17 Summary of the CMA's errors

17.1 While the CMA has made a number of important and essential corrections to Ofwat's FD, it has not identified and corrected all of the errors made by Ofwat, and has introduced a number of further errors in its Provisional Findings. The errors ENA has identified above and in the evidence referred to are material to the redetermination of the PR19 price control, and ENA submits they must be corrected prior to the CMA's final determination. Specifically, the CMA:¹⁴⁰

- (a) makes three errors in **deflating notional TMR**; namely:¹⁴¹
 - (i) It incorrectly ignores the top end of the CED/RPI distribution, and this must be corrected by reinstating the top end of the RPI deflated data series;
 - (ii) It bases its decision to treat CED equally in both CPI and RPI series on erroneous analysis, resulting in artificial reduction to its CED/CPI-deflated TMR calculations; and
 - (iii) It fails to take account of the unreliability of the 1950-1996 CPI series.

Points (ii) and (iii) should be corrected by the CMA attaching no weight to the CED/CPI data series (relying instead on the CED/RPI series);

- (b) makes a number of errors in **averaging historical TMR**; namely by:¹⁴²
 - (i) incorrectly dismissing the use of an arithmetic average; and
 - (ii) inappropriately having regard only to the downwards-biased JKM and Blume estimators,

and the artificial downward bias in averaging historical returns caused by the above errors should be corrected by either including the Cooper estimator in the range of estimates for the same investment horizons that it has assumed for the JKM and Blume estimators or by adopting the arithmetic average;

¹⁴⁰ The preceding sections of this submission include the errors identified below, as well as various other observations on the CMA's Provisional Findings.

¹⁴¹ See section 4(a).

¹⁴² See section 4(b).

- (c) erroneously dismisses the **BoE’s DDM** and **survey evidence**, both of which show that the TMR range should be higher, whilst simultaneously placing weight on other (out of date) forward-looking evidence. Given the concerns with using forward-looking data, ENA considers that only limited weight should be applied to these in setting TMR, but the existence of these forecasts that are higher than those in the CMA’s range should not be dismissed when considering the credibility of the top end of the CED/RPI TMR long-run averages;¹⁴³
- (d) erroneously relies on data in TMR calculations that has resulted in an artificially **reduced and downwards biased TMR range**,¹⁴⁴ specifically by:
 - (i) using a starting point of 1900 which gives a downward bias (which would not be the case if an earlier or later starting point were used); and
 - (ii) using a data set for 1900-1950 which includes only FTSE 100 companies which tend to have lower returns than smaller companies,

and the downward bias caused by the above should be corrected by increasing the bottom of the TMR range;
- (e) in setting the **RFR** range:
 - (i) incorrectly uses unadjusted government bond yields for the bottom end of the range, and should correct this by applying a convenience premium of 50 basis points,¹⁴⁵ and
 - (ii) incorrectly excludes a forward rate adjustment to spot yields, and should correct this by applying a forward rate uplift of 26 basis points to both the bottom and top ends of the RFR range;¹⁴⁶
- (f) erroneously relies on a flawed and unreliable decomposition analysis from Europe Economics resulting in an inflated top end of the CMA’s **debt beta** range, and this should be corrected by (i) placing weight on regression and structural approaches in preference to a decomposition approach; and (ii) to the extent a decomposition analysis is used, correcting the errors identified by Oxera. Applying these corrections would result in a significant reduction of the top end of the CMA’s debt beta range, suggesting a debt beta of no more than 0.05;¹⁴⁷
- (g) incorrectly calculated its **cost of debt** allowance by adopting the 20-year trailing average on 31 July 2020. This should be corrected by selecting the index for the period from April 2000 to March 2020;¹⁴⁸
- (h) incorrectly constrained its consideration of the amount to which **to aim up in setting the cost of equity** by having undue regard to Ofwat’s flawed MARs analysis and, in any event, in aiming up to the 75th percentile did not do so to a sufficient extent. This should be corrected by aiming up for the cost of equity

143 See section 4(c).
 144 See section 4(d).
 145 See section 5(a).
 146 See section 5(b).
 147 See section 7.
 148 See section 8.

towards the top of its range (before any asymmetry in the price control or financeability concerns are taken into account in further uplifts);¹⁴⁹

- (i) incorrectly **aimed down in setting the cost of debt** by applying rates consistent with A-rated debt; and should correct this error by calculating the effect of rolling forward the index, which pursuant to analysis conducted by Oxera, would result in a value of 2.88%;¹⁵⁰
- (j) in **assessing financeability**:
 - (i) failed to provide for a margin above the bottom of the Baa1/BBB+ threshold, and should have allowed for a margin in order to absorb credit rating agency tightening of thresholds and rating downgrades due to small movement in costs and allowances;¹⁵¹ and
 - (ii) failed to consider inflation uncertainty as a key sensitivity in its financeability assessment, or to allow sufficient headroom to ensure that the relevant water companies are able to absorb outturn inflation being lower than the CMA's assumption;¹⁵² and
- (k) in determining its **frontier shift** assumption:
 - (i) makes errors in calculating its gross output frontier shift assumption, resulting in it being materially too high, and must correct these errors by excluding data from inappropriate sectors in its calculations, undertaking a weighted aggregation of inputs based on the average proportions of company costs and taking into account trends in recent data from 1996 to 2014;¹⁵³
 - (ii) erroneously determines an uplift to its base frontier shift assumption that is too high and not supported by the evidence;¹⁵⁴ and
 - (iii) incorrectly applies its frontier shift assumption to all costs including unmodelled costs, a significant proportion of which are non-controllable, and this should be corrected by applying its frontier shift assumption to a more appropriate subset of costs.¹⁵⁵

¹⁴⁹ See sections 9(c) and 9(f).

¹⁵⁰ See section 9(e).

¹⁵¹ See section 10.

¹⁵² See section 10.

¹⁵³ See section 14(a).

¹⁵⁴ See section 14(c).

¹⁵⁵ See section 14(e).