A review of Ofgem's RIIO-2 ongoing efficiency analysis

Prepared for Wales & West Utilities Limited

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Final

1 Introduction

Wales & West Utilities (WWU) has asked Oxera to assess the ongoing efficiency analysis undertaken by CEPA for Ofgem. This note also discusses the link between ongoing efficiency and real price effects (RPEs).

In this note, we discuss and highlight our critique of the approaches used by CEPA, which arrives at the following ranges for ongoing efficiency for all network companies:[1]

- 0.5% to 1.2% for the ongoing efficiency challenge for CAPEX and REPEX;
- 0.5% to 1.4% for the ongoing efficiency challenge for OPEX.

CEPA's analysis and a number of Ofgem's decisions, which result in it selecting the upper bound from CEPA's range of estimates, include a number of issues:

- disregarding CEPA's advice and relying on only the value added (VA) productivity measure and overlooking the gross output (GO) measure;
- using labour productivity for OPEX, instead of total factor productivity (TFP);
- relying on only the weighted all-industries average with an unsuitable weighting approach and overlooking CEPA's unweighted approach;
- choosing an inappropriate time period and not considering forward-looking uncertainty;
- applying an inappropriate further uplift for innovation funding.

[1] CEPA (2020), 'RIIO-GD2 and T2: Cost Assessment – Frontier shift methodology paper', May, p. 37.

These decisions lead to a much higher ongoing efficiency challenge compared with our recommendation for WWU of 0.4–0.8% for TOTEX.[2]

We discuss these issues, as well as the link with RPEs, in turn in the following sections.

2 Total factor productivity measures: gross output versus value added

CEPA undertakes and presents analysis to establish an ongoing efficiency benchmark based on both GO and VA measures. CEPA also describes how both approaches have pros and cons and the results from both should be considered. *However*, Ofgem has chosen not to take its consultant's advice and based its ongoing efficiency challenge purely on the VA measures and disregarded the GO-based results provided by CEPA.

GO has the advantage that it is the more natural measure of output in a competitive industry as it accounts for the contribution of all inputs to output, including intermediate inputs. The inclusion of all inputs can avoid biases in the VA measure when the mix of inputs used in the production process changes. Furthermore, the GO measure is closely related to the decisions made by companies, as it assumes that all inputs in the production process are controllable. In fact, **the OECD concluded in 2001 that the VA-based measure is 'not a good measure of technology shifts at the industry or firm level**'.[3]

Indeed, **in work for the Dutch regulator, CEPA itself stated that the GO-based measure was preferred for setting cost allowances**.[4]

One key drawback with the GO measure of output is data uncertainty. The standard approach is, therefore, to approximate the GO measure from the VA measure, which CEPA follows and presents in its analysis. This has been used in numerous regulatory jurisdictions, including Ofwat in the UK and the Netherlands Authority for Consumers and Markets (ACM), as well as in many Oxera's reports.

For example, for PR19, Ofwat used GO-based measures to set the feasible range of frontier shift estimates and Ofwat's consultant, Europe Economics, stated in its frontier shift analysis:

> We believe TFP growth measured in *gross output terms is a more accurate measure of frontier shift if applied to botex or totex* (which includes spending on intermediate inputs), but nevertheless that *some lesser weight should also be placed on TFP growth in value added terms*.[5] [emphasis added]

As CEPA acknowledges in its report for Ofgem, considering both GO and VA measures would be consistent with Ofgem's approach in RIIO-1, where Ofgem itself recognised the limitations of VA measures:

> The VA measure of productivity only allows us to evaluate the impact of the use of labour and capital on outputs, thus *limiting the costs that this can be applied to*. Therefore to fully evaluate the productivity improvements that a network company can make would

[2] Oxera (2019), 'Establishing an appropriate efficiency challenge', 29 November.
[3] OECD (2001), 'Measuring Productivity OECD Manual Measurement of Aggregate And Industry-level Productivity Growth', p. 16.
[4] CEPA (2012), 'Ongoing efficiency in new method decisions for Dutch electricity and gas network operators', November, pp. 43–44.
[5] Europe Economics (2018), 'Real Price Effects and Frontier Shift', January, p. 6.

require making additional assumptions about the use of intermediate inputs.[6] [emphasis added]

This is consistent with the approach used in our report for WWU, where we provided a range for an appropriate ongoing efficiency assumption where the lower bound is drawn from a GO-based TFP growth benchmark and the upper bound from a VA-based TFP growth benchmark (0.4–0.8% for TOTEX).[7]

Regulators in other European countries, including the Dutch and Belgian regulators, have in fact focused on GO-based TFP measures. This is because in a TOTEX context at the firm level, which includes intermediate inputs, GO measures are preferred.[8]

Ofgem has chosen to disregard the GO-based measure due to 'practical difficulties'.[9] This runs counter to regulatory precedent and overlooks the fact that the GO-based measure has often been approximated from VA, following the methodology set out by the OECD in 2001[10] and presented in CEPA's analysis.

Because there are limitations to *both* measures, the recommended approach is to consider both in regulatory settings.

Ofgem's decision to focus solely on the VA-based measure is inconsistent with regulatory precedent and leads to an ongoing efficiency estimate that is double that if the estimate based on the GO measure.

3 Use of partial factor productivity

While CEPA uses TFP for CAPEX and REPEX, its approach focuses on labour productivity for OPEX. It argues that network companies' OPEX activities are labour-intensive, hence labour productivity would be more relevant to set an efficiency target for OPEX.

Partial productivity measures such as labour productivity do not take into account (the contribution of) all inputs used in the production process. Examples of partial productivity measures, as highlighted in our report for the ACM.[11] They are not comprehensive measures of productivity. In particular, the productivity of any one input depends on the utilisation of other inputs, which implies that **partial measures are not likely to truly reflect the productivity of a particular input set**. The technique of holding capital constant, as suggested by CEPA, does not address this drawback of partial factor productivity (PFP).

The methodology for setting the ongoing efficiency challenge for OPEX should follow TFP, using a similar comparator set as for CAPEX and REPEX but potentially amended to the extent that activities may differ. **The impact on the ongoing efficiency challenge for OPEX would then depend on the exact comparator set and weights used, compared with the estimate presented by CEPA.**

[6] Ofgem (2012), 'RIIO-T1/GD1: Initial Proposals – Real price effects and ongoing efficiency appendix', July.
[7] Oxera (2019), 'Establishing an appropriate efficiency challenge', 29 November.
[8] See, for example, ECLI:NL:CBB:2018:346 (GTS) en ECLI:NL:CBB:2018:347 (TenneT). Oxera advised the Netherlands Authority for Consumers and Markets (ACM), see Oxera (2016), 'Study on ongoing efficiency for Dutch gas and electricity TSOs', January.
[9] Ofgem (2020), 'RIIO-2 Draft Determinations - Core Document', July, pp. 48–49.
[10] OECD (2001), 'Measuring Productivity OECD Manual Measurement of Aggregate And Industry-level Productivity Growth'.
[11] Oxera (2016), 'Study on ongoing efficiency for Dutch gas and electricity TSOs', January, p. 12.

4 Comparator set and weighting approach

CEPA sets out four different samples of comparator sectors in the analysis of the EU KLEMS database, based on different considerations of selected sub-industries.

- **Construction only**.
- **Selected industries**, including: (i) manufacturing with the following selected sub-industries: chemicals and chemical products; computer, electronic and optical products; electrical equipment; and transport equipment; (ii) construction; (iii) wholesale and retail trade, repair of motor vehicles and motorcycles; (iv) transportation and storage; and (v) financial and insurance activities.
- **Selected industries (excluding manufacturing)**,defined as above, but excluding the manufacturing sub-industries.
- **All industries**, incorporating all sectors of the UK economy, excluding real estate, public admin, education, health and social services.

CEPA considers both an unweighted approach—whereby each sector's productivity estimate has equal weight in the aggregation process—and a weighted average approach to aggregate the all-industries comparator set, where the weights are based on the relative contribution of each sector to the wider UK economy.

As Ofgem focuses on the upper bound of the range presented by CEPA to set its ongoing efficiency challenge, it relies *exclusively* on the **weighted average** TFP growth of the **all-industries** set. Ofgem makes two errors in adopting this approach (discussed in turn in sections 4.1 and 4.2).

4.1 Focus on all industries

We understand that looking at productivity growth across all industries is effectively aimed at estimating an economy-wide benchmark. However, Ofgem does not explain why relying solely on such an approach is appropriate in this context. While CEPA's comparator sector still requires justifications as to why the sectors included are appropriate for the energy sectors,[12] it is important that the TFP analysis is applied to a comparator set that is deemed to carry out similar activities to those of the company in question. In using only CEPA's all-industries based benchmark, Ofgem's approach goes *counter* to the logic of formulating a comparator set and is *inconsistent* with the use of a growth accounting methodology in regulation.

While the all-industries comparator set can provide a useful estimate of economy-wide productivity growth—which would in any case be captured in the CPIH to which revenues are indexed[13]—it contains a number of sectors that are unrelated to the activities conducted by GDNs, such as 'Agriculture, forestry and fishing' and 'Accommodation and food service activities'. These sectors are likely to use a different mix of inputs to GDNs (and certainly

[12] See our recommended comparators to each expenditure category by matching them to corresponding activities in the gas distribution sector. Oxera (2019), 'Establishing an appropriate efficiency challenge', 29 November, Table 4.2.

[13] Note that CPIH, as a consumer price index, captures the net effect of economy-wide productivity growth and economy-wide changes in input prices. As revenues of the companies are indexed to it, there is a need to ensure that there is no double counting of productivity gains by using the all-industries set to determine ongoing efficiency. In this regard, the inconsistency with the treatment of RPEs by indexing costs to input-specific price indices also requires examination.

produce very different outputs), and technological advances in these sectors are therefore unlikely to be representative of the scope for productivity improvements in the gas distribution sector. Therefore, Ofgem's sole use of an economy-wide benchmark is inappropriate for constructing a benchmark for the GDNs that should account for their mix of activities. As noted in the section below, such approach might end up giving significant weight to sectors that are not at all representative of the activities undertaken by GDNs.

4.2 Weighting approach

In CEPA's analysis, the weighting approach—based on the relative contribution of the sectors in the economy—does not account for the industry-specific cost structure of network companies. This is inconsistent with regulatory precedent, which overall suggests that both *activity*-based weighted and unweighted averages of comparator sectors are appropriate, and, more importantly, that weights should be based on the representativity of comparator sectors for the activity undertaken by the GDN.

For example, based on CEPA's approach, the 'Professional, scientific, technical, administrative and support service activities' sector, which is not considered as a relevant sector for the energy networks by CEPA, is given the largest weight (18.2%); while 'Transportation and storage', a sector that CEPA deems to be relevant to energy networks, is only given a 6.4% weight.[14] These bear no relation to the importance of a GDN's activities and the same benchmark would be determined for the digital sector or telecoms sector as has been determined for GDNs. Therefore, Ofgem's aggregation approach is inappropriate for constructing a benchmark for the GDNs.

CEPA itself supported an activity-based weighting approach based on TSOs' cost structure in a report for a Dutch regulator in 2012. CEPA cited data limitations as the reason for not performing this analysis and eventually considered a combination of TFP (weighted and unweighted averages)[15] as well as output price indices and unit cost analysis.[16]

Importantly, in a recent court decision by the Dutch Trade and Industry Tribunal (CBb) on this issue,[17] the CBb explicitly 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.[18] Similarly, Ofwat's consultants used a weighted average approach in *all* price reviews before PR19 where ongoing efficiency was estimated, including PR99, PR04 and PR09.[19]

Ofgem only focuses on the all-industries weighted average approach—which informs the upper bound of CEPA's range—and disregards the

[14] CEPA (2020), 'RIIO-GD2 and T2: Cost Assessment – Frontier shift methodology paper', May, p. 58, Table A5.
[15] The weighting approach eventually adopted was based on the contribution of each sector to the overall economy.
[16] CEPA (2012), 'Ongoing efficiency in new method decisions for Dutch electricity and gas network operators', November, p. 45.
[17] ECLI:NL:CBB:2018:346 (GTS) en ECLI:NL:CBB:2018:347 (TenneT).
[18] Oxera advised the ACM on this issue and, while our study noted the importance of weighted aggregation based on the mapping of operator activities to sectors, we had to rely on an unweighted (i.e. simple) average of sectoral performance due to a lack of granular data from the network operators. In the appeal by the network operators against the decision, the CBb concluded that the ACM must also consider information from weighted aggregation to inform the decision on the productivity factor, which the ACM subsequently did.
[19] Europe Economics (1998), 'Water and Sewerage Industries General Efficiency and Potential for Improvement', final report by Europe Economics and Professor Nick Crafts for Ofwat, October; Europe Economics (2003), 'Scope for Efficiency Improvement in the Water and Sewerage Industries', final report; and Reckon (2008), 'PR09 Scope for efficiency studies', final report, 17 October.

unweighted average and the use of a comparator set as the lower bound of the range presented by CEPA.

As currently applied by CEPA, the weighting approach leads to **an upward bias in the estimates of around 0.3–1%**. This is in addition to the point that using all industries as the comparator sector is unsuitable in the first place.

5 Time period of analysis

CEPA considers two time periods of analysis: 1997–2016 and 2006–16. According to CEPA, the former represents two complete business cycles. The latter represents the most-recent business cycle only, which CEPA notes as being consistent with Oxera's recommendation on the definition of a business cycle as beginning and ending after a period of below- and above-trend output growth.

The reference range set out by CEPA relies on the longer time period, with the argument that using a longer time period would reduce sensitivity to measurement error and outlier years, as well as avoiding the need to arbitrarily determine cut-off points for a shorter time period. Ofgem agrees with CEPA's recommendation and proposes to focus solely on this period.

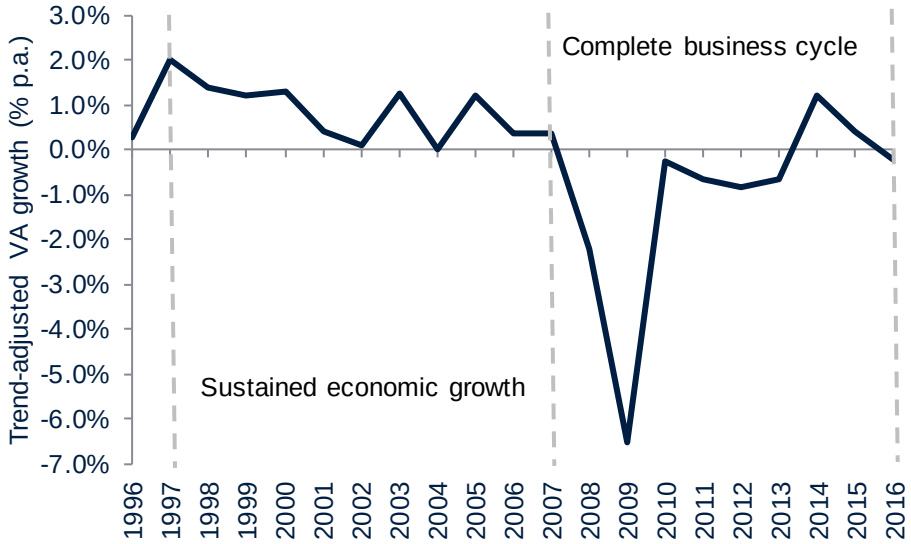
Although we would, in principle, agree with the position that more data points generally tend to lead to a more reliable estimate, it is not sufficient to justify the choice of a particular time period.

First, we critique the fact that CEPA relies on Office for Budget Responsibility (OBR) data to determine the time period while using EU KLEMS data to estimate productivity growth. CEPA does not perform any primary analysis to support its choice of time period, but references two publications from the OBR. The data used by these papers is outdated and might have been subject to material revisions that would affect the position of the business cycle. In addition, the OBR references several methods of decomposing output growth into business cycles, and it is not clear exactly which method CEPA uses to identify its business cycles.

Second, our analysis of the EU KLEMS dataset[20] (which CEPA uses to estimate TFP growth) illustrates a potential drawback of using this longer time period. Assuming a business cycle begins and ends with a 0% output gap,[21] i.e. after a period of below- and above-trend output growth, there was only one business cycle in the period 2007–16. Instead, 1997–2006 is a period of sustained, above-average growth, as demonstrated in Figure 5.1 below, which shows the trend-adjusted growth in VA over the whole period (i.e. the deviation of VA from its long-term average).

[20] We have not had enough time to examine the implication of applying the OBR's approaches to the EU KLEMS data, but will examine this post submission.
[21] The output gap is defined as the difference between the actual output growth and the 'potential' output growth of an economy. Potential output growth is usually estimated as the long-run average output growth of the economy.

Figure 5.1 Business cycle analysis



Source: Oxera analysis of EU KLEMS data.

As productivity change is cyclical and fluctuates around its long-run growth average, TFP forecasts should be based on a timeframe that includes both below and above long-run average TFP change, to ensure that it captures the full variation in TFP change over a period. Ofgem, in fact, acknowledges this point and concludes that choosing a timeframe with incomplete business cycles could bias estimates of historical productivity gains.[22]

The impact of this issue could be significant, but requires further analysis. **CEPA's analysis indicates that productivity growth in its comparator sectors is 0.3–0.6% p.a. lower in the most-recent business cycle compared with the full dataset**.[23]

6 Addressing forward-looking uncertainty

CEPA recommends that Ofgem place some weight on the OBR and Bank of England (BoE) forecasts of productivity growth to adjust the ongoing efficiency target.[24] However, Ofgem rejects its adviser's advice on the grounds that (i) the sectors are protected from short-term macroeconomic shocks, and (ii) these short-term forecasts are not relevant in the context of rising long-term productivity forecasts.[25]

While the gas distribution sector may be less exposed to macroeconomic shocks than other sectors, it is unlikely that the GDNs are completely insulated from significant economic downturns. In fact, existing evidence shows that over the past 15 years, VA growth in 'Electricity, gas, steam and air conditioning supply' has experienced more pronounced contractions than the overall economy compared with the long-term trend.[26] Moreover, the next five years are expected to be highly uncertain due to the UK's exit from the European

[22] Ofgem (2020), 'RIIO-ED2 Sector Methodology Consultation: Annex 2. Keeping bills low for consumers', 30 July, para. 6.33.
[23] Note that CEPA's most-recent business cycle is the period 2006–16. See CEPA (2020), 'RIIO-GD2 and T2: Cost Assessment – Frontier shift methodology paper', May, Table 3.2.
[24] CEPA (2020), 'RIIO-GD2 and T2: Cost Assessment – Frontier shift methodology paper', May, p. 36.
[25] Ofgem (2020), 'RIIO-2 Draft Determinations - Core Document', July, para. 5.39.
[26] Based on Oxera analysis of EU KLEMS data.

Union and the COVID-19 crisis, and Ofgem should exercise caution when setting the target.[27]

Furthermore, this is particularly important in light of the productivity slowdown experienced in the UK in recent years,[28] which is in contrast to the 'rising long-term productivity forecasts' stated by Ofgem. In fact, this productivity slowdown is expected to persist, at least in the medium term, and is likely to be worse than the forecast of annual TFP growth of 0.1% between 2020 and the first quarter of 2023—referred to by CEPA, based on the BoE's January 2020 Monetary Policy Report.[29]

Ofgem's approach overlooks such downward risk when focusing on the upper bound of CEPA's range. Oxera's recommended time period of 2007–16 better reflects the recent trend and therefore better represents the economic outlook that is likely to prevail over the next price control period (as was anticipated before COVID-19).

Moreover, Ofgem is conceptually inconsistent in its position:

- on the one hand, Ofgem uses the economy as a benchmark (upwardly biased from the period of analysis being heavily influenced by a growth period) and overlooks a more activity-based (i.e. GDN-specific) benchmark;
- on the other hand, Ofgem considers that the energy sector is less affected by economy-wide recession, and therefore considers that there is no need to adjust for macroeconomic effects.

If economy-wide productivity provides an appropriate benchmark for GDNs, then the benchmark should be adjusted to account for the impact of likely macroeconomic effects as economy-wide productivity will be affected. If GDNs are less affected by macroeconomic effects than the economy as a whole, then the productivity benchmark should be based on a GDN-activity-specific benchmark.

Significant uncertainty about the next five years in RIIO-2 will affect the estimation of both ongoing efficiency and RPEs. The impact of these uncertainties can be mitigated by using the true-up approach for both ongoing efficiency and RPEs. We discuss the inconsistency in CEPA and Ofgem's proposal in setting ongoing efficiency allowances while following the true-up approach for RPEs in section 8.

7 Uplift for innovation funding

The innovation fund provided by Ofgem during RIIO-1 is around £330m, for which CEPA arrives at a 0.2% annual improvement in ongoing efficiency during RIIO-2, based on the following assumptions.

[27] Economic activity has fallen significantly as a result of COVID-19 and the measures implemented to contain it. While there are wide bands of uncertainty around any estimates of activity at present, 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 the BoE's scenario analysis, UK GDP is expected to fall by 14% in 2020 as a whole. Activity is expected to pick up in the latter part of 2020 and into 2021 after social distancing measures are relaxed, although it is not expected to reach its pre-COVID level until the second half of 2021. In 2022, GDP growth is forecast to be around 3%. See Bank of England (2020), 'Monetary Policy Report: May 2020'.
[28] Crafts, N. (2018), 'The productivity slowdown: is it the "new normal"?', *Oxford Review of Economic Policy*, **34**:3, p. 443.
[29] Bank of England (2020), 'Monetary Policy Report', January.

Table 7.1 CEPA's assumptions in its innovation funding uplift

Element	Assumption
Return of investment on the innovation funding provided in RIIO-1	4.2%
Ongoing annual efficiency improvement in the absence of innovation funding	1%
Duration of benefits from innovation	20 years
Other assumptions	• The only benefits accounted for are cost savings and no considerations for other benefits such as environmental benefits and quality of service • None of the efficiency derived from projects funded by Ofgem's various innovation mechanisms during RIIO-1 has been accounted for in the baseline efficiency target

Source: Oxera based on CEPA (2020), 'RIIO-GD2 and T2: Cost Assessment – Frontier shift methodology paper', May, p. 25.

7.1 Double count in applying an uplift for innovation funding

Applying an uplift for innovation funding to ongoing efficiency is methodologically flawed as funding for innovation projects, whether from shareholders or consumers, has already been considered in the cost assessment.

Therefore, CEPA's assumption that none of the efficiency benefits from innovation funding during RIIO-1 have been accounted for in network companies' estimates and business plans is rather simplistic and potentially misleading.

Moreover, CEPA argues that innovation funding provided by Ofgem is not available for industries in competitive markets considered in the EU KLEMS analysis, and thus it would be justifiable to include additional efficiency benefits from Ofgem's various innovation mechanisms on top of the baseline ongoing efficiency target estimate. However, innovation (that results in cost reduction or quality improvements or both) is the driver of productivity growth observed in the energy sectors, as well as the comparator sectors used to estimate ongoing efficiency. Therefore, productivity growth from innovation, funded either publicly or privately, has already been captured in the EU KLEMS dataset.

While acknowledging this point in its report,[30] CEPA does not make any adjustment for this double count. In considering the R&D spend of the comparator sectors,[31] this double count implies that no overlay should be applied.

To impose an incremental efficiency challenge on top of the TFP estimates amounts to a double counting of the impact of innovation funding on productivity growth.

7.2 Issues in calculation

Even if we assume that adding an uplift for innovation funding on top of the productivity growth estimate is appropriate (which we argue above it is not),

[30] CEPA (2020), 'RIIO-GD2 and T2: Cost Assessment – Frontier shift methodology paper', May, p. 22.
[31] See House of Commons Library (2020), 'Research & Development spending', Briefing paper, number SN04223, 17 June, p. 14, https://commonslibrary.parliament.uk/research-briefings/sn04223/

there are still issues with how CEPA arrives at this estimate. As CEPA's approach is simplistic, it is important to note two drawbacks of its analysis.

Innovation funding does not solely result in cost reductions

First, assuming all innovation funding in RIIO-1 would go into cost reduction for customers is highly unrealistic and results in a much higher estimate of efficiency improvement. Indeed, CEPA acknowledges this simplistic assumption and recommends that Ofgem take this into account when deciding on the innovation funding uplift.

As set out by Ofgem, cost savings is only one of several criteria for a project to receive funding from either the Network Innovation Competition (NIC) or the Network Innovation Allowance (NIA). Indeed, our review of the innovation projects funded by Ofgem in the last five to ten years has shown that the majority of these projects delivered non-financial benefits to consumers, (including environmental benefits and employees' health and wellbeing) rather than cost reduction.

Second, the assumption on the duration of benefit from innovation can have a significant impact on the efficiency improvement estimate. CEPA uses 20 years in its main scenario to arrive at the 0.2% annual improvement and 4.2% return.

CEPA acknowledges in its report that projects, both large and small in size, can take a long time and require multiple price controls to realise their full benefits. However, it does not substantiate its choice of a 20-year duration with evidence to explain why this duration is appropriate. The lifetime of the asset, for instance, may serve as a good starting point in considering the appropriate duration of benefits. In addition, there are potentially even longer-term benefits as newer technology which is built on the innovation happening today would deliver further benefits even when the innovation itself becomes obsolete. .

The duration of 20 years, therefore, is likely to be too short. Instead, it is more appropriate to consider a duration that is in line with average asset life, for example around 45 years for GDNs.

8 Link with RPEs

Our main critique here is the inconsistency in Ofgem's treatment of ongoing efficiency and RPEs. While the ongoing efficiency target is set on an ex ante basis, RPEs are indexed with an annual true-up for all transmission and distribution networks. In doing so, Ofgem overlooks the links between the two and the need to ensure consistency.

In the long run, at the economy-wide level, the growth in real wages equals labour productivity,[32] so one approach would be to set a consistent target for both. For example, if a relatively high rate of ongoing efficiency is assumed, then the real wage growth assumption in the RPE should be commensurately high. Equally, if RPEs are based on an indexation approach with true-ups, there may be a need to reconsider the ongoing efficiency assumption at the same time as the RPE true-ups.[33]

[32] The International Labour Organization suggests that the relationship between the growth in real wages and growth in productivity in the UK was quite close to being 1:1 over the 1999–2013 period. See ILO Global Wage Report 2014/15, p. 10. More research is required to examine this issue at the sectoral level.
[33] It is important to note that an annual true-up of RPEs would require data from companies that are subject to a significant time lag. Therefore, Ofgem should consider and design its RPE true-up process to reflect this practicality.

Moreover, significant uncertainty about the next five years in RIIO-2 (as discussed in section 6) will affect both ongoing efficiency and RPE estimates. The uncertainty relating to RPEs could be addressed through the true-up process. However, the uncertainty relating to ongoing efficiency is currently not addressed in Ofgem's framework. Given the link between RPEs and ongoing efficiency, this inconsistent application of true-up mechanisms places unnecessary risk on companies.