



Response to RIIO-ED2 Draft Determination on Real Price Effects

Prepared for the Energy Networks Association (ENA)

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Executive Summary

NERA Economic Consulting (NERA) was commissioned by the Energy Networks Association (ENA) to respond to Ofgem's Draft Determinations (DDs) on Real Price Effects (RPEs) at RIIO-ED2. NERA was asked to review documents released by Ofgem as well as supporting analysis prepared by Ofgem's consultants, CEPA, and Ofgem's response to a Supplementary Question (SQ) posed by the ENA.

Ofgem will set allowances for Distribution Network Operators (DNOs) in constant prices (i.e. in "real terms") at the beginning of the RIIO-ED2 price control. Ofgem will index allowances for DNO costs in each year of the price control to changes in general inflation, measured by the Consumer Price Index including owner occupiers' housing costs (CPIH). It will index allowances for certain input cost categories to a set of benchmark indices, that Ofgem anticipates will reflect the evolution of DNOs' costs in those categories more closely than does CPIH. The difference between the benchmark index growth and CPIH growth is known as a Real Price Effect (RPE).

In its Draft Determination, Ofgem has put forward its selection of benchmark indices and the resulting RPE allowance.¹ Ofgem's decision adopts the recommendations put forward by its consultants, CEPA, wholesale.² Flaws in CEPA's recommendations may lead the RPE allowance to differ from the input cost growth that would be experienced by an efficient DNO: an RPE allowance based on CEPA's recommendation risks undercompensating DNOs for their efficient costs as required by Ofgem's statutory duties.³

The specific flaws in CEPA's analysis are that:

- CEPA unjustifiably applies an RPE allowance of zero to cost categories that it deems to be low materiality and to the Other cost category. Input prices for cost categories of allegedly "low materiality" have historically grown more quickly than CPIH. CEPA's recommendation is therefore likely to under remunerate efficient costs for these cost categories by around 0.03 per cent of totex (£6.88-£8.30 million across RIIO-ED2).
- CEPA's process for selecting benchmark indices fails to discriminate effectively between benchmark indices. In practice, CEPA relies primarily on regulatory precedent to select benchmark indices, which may or may not accurately reflect the evolution of DNOs' costs at ED2.
- Ofgem and CEPA do not update the notional cost structure to reflect the DD allowances, instead relying on a cost structure derived from DNO business plans. By failing to update the notional cost structure to reflect the cost category composition of DD allowances, Ofgem and CEPA risk miscalculating the totex RPE and therefore not allowing DNOs to fully recover efficient costs.
- CEPA combines the Specialist and General Labour cost categories into a single category that represents 63 per cent of totex for the notional efficient DNO. This leads CEPA to

¹ Ofgem (29 June 2022), RIIO-ED2 Draft Determinations – Core Methodology Document, p. 361-363.

² CEPA (17 June 2022), RIIO-ED2: Cost Assessment – Frontier Shift methodology paper.

³ Electricity Act 1989, Part I Electricity Supply, Section 3A The principal objective and general duties of the Secretary of State and the Authority, Articles 2(b) and 5(a). Link: <https://www.legislation.gov.uk/ukpga/1989/29/section/3A>

over-weight the indices it selects for Specialist Labour, which have lower forecast growth than the indices CEPA selects for General Labour.

We discuss each of the above flaws in turn below. In addition, we could not reproduce CEPA's RPE forecasts using its method as described using the data available. As a result, the initial allowance Ofgem provides for RPEs may be inaccurate or is at least unevidenced.

Although the impact of each of these flaws is small relative to the overall RPE allowances, failing to correct these flaws may lead Ofgem to underestimate efficient DNO costs by millions of pounds over RIIO-ED2. We constructed different forecasts of totex RPE allowances in which we made adjustments to correct various combinations of the flaws identified above. The difference between the minimum and the maximum forecast was eight basis points. Each basis point is worth £2.1-£2.5 million pounds across the sector over RIIO-ED2.⁴

The impact of the above-mentioned flaws cannot be known precisely in advance because Ofgem intends to index allowances using outturn values of each index relative to CPIH. For example, CEPA's approach of combining labour cost categories reduces the forecast totex RPE allowance (which is based on a long-run average over the past twenty years, excluding years that may have been affected by the financial crisis and Covid-19). However using an alternative sample period since 2011, combining labour cost categories would increase the overall totex RPE allowance.

Ofgem's failure to apply an RPE to the cost categories that it deems to be low materiality (i.e. Plant and Equipment (P&E) and Transport) has the clearest directional impact. Failing to set an RPE for P&E and Transport cost would have led to an understatement of the totex RPE allowance over any of the historical periods we considered. The forecast difference in allowed costs between setting no RPE and setting an RPE using the index "BCIS PAFI plant and road vehicles (90/2)" is between £6.88 million and £8.30 million over the course of RIIO-ED2.

CEPA Unjustifiably Applies an RPE of Zero to Some Cost Categories

The first flaw is that CEPA applies an RPE allowance of zero to cost categories that it deems to be low materiality and to the Other cost category. This means that DNOs will only be compensated for input cost growth up to the growth rate of CPIH for these cost categories. CEPA deems that the P&E and Transport cost categories have low materiality, because each constitutes less than 5 per cent of the totex of a notional efficient DNO.

There is evidence that DNOs' cost growth for the allegedly low materiality and Other cost categories differs from the growth rate of CPIH. The growth rate of CPIH depends substantially on changes in cost for a range of items that bear no relation to DNOs' purchases. Looking at the basket of goods that make up CPIH, 32 per cent of the growth rate comes from "Housing and household services" costs, which includes (among other things) the cost of holiday accommodation, local authority rent, and council tax. A further 11 per cent comes from "Recreation and culture", and 4 per cent from "Alcohol and tobacco". This suggests that CPIH is not a good proxy for DNO costs.

⁴ We calculate this as $0.01\% \times \text{totex}$. DNOs' proposed totex for RIIO-ED2 totalled £25,244 million and Ofgem has proposed to allow totex of £20,939 million across the sector. See Ofgem (29 June 2022), RIIO-ED2 Draft Determinations – Overview Document, p. 30

Other indices are likely to reflect the growth rate of DNO costs more closely than does CPIH. Ofgem previously associated the P&E cost category with the third-party index “BCIS PAFI plant and road vehicles (90/2).”⁵ This index could also be reasonably expected to reflect external cost pressures in the Transport cost category better than CPIH. For the Other cost category, alternatives to CPIH include using the weighted average RPE calculated for the named cost categories or the output producer price index (PPI) produced by the ONS.⁶ Either of these may reflect the cost pressures DNOs face more closely than does CPIH.

In total, the affected cost categories constitute 12 per cent of totex for a notional efficient DNO. By CEPA’s own assessment criteria, this is a material share of DNO costs for which Ofgem is not setting any RPE allowance for these cost categories and thereby failing to reflect DNO efficient costs.

To resolve this problem, we recommend that Ofgem combine Transport and P&E into a single cost category (which, by our calculations, would constitute 5.01 per cent of totex and therefore exceeds CEPA’s materiality threshold) and set an RPE for that cost category using index “BCIS PAFI plant and road vehicles (90/2)”. We also recommend that Ofgem select an appropriate RPE for the Other cost category.

We understand that Ofgem wants to limit the complexity of the RPE indexation mechanism. However, having examined the workbook that Ofgem used to implement the RPE indexation mechanism at the 2021 Annual Iteration Process for GD2 and T2,⁷ it is clear that there is very little additional cost to including one or two additional indices, applied to cost categories for which Ofgem already has totex share data from the DNOs’ business plans.

Ofgem explicitly references this trade-off in its discussion of materiality in the Sector Methodology Decision. Nonetheless, CEPA fails to address the trade-off between limiting the complexity of the RPE indexation mechanism and ensuring that Ofgem meets its statutory duty of allowing DNOs to recover efficient costs. Instead, CEPA’s bases its approach to assessing materiality on arbitrary thresholds for cost category size and the value of RPEs that do not withstand scrutiny. CEPA’s thresholds are cumulative and material: In theory, they could allow the denial of recovery of in excess of £100 million across the ED2 period.⁸

CEPA’s Index Selection Process is Over-Reliant on Precedent

The second flaw in CEPA’s recommendation is its index selection process. Although CEPA describes its index selection process as following a sequential framework for index selection with a series of high-level and detailed criteria, in practice its actual process is heavily reliant on regulatory precedent. In fact, the final set of indices CEPA selects is identical to the set of

⁵ This index was used to set an RPE allowance for the P&E cost category at ED1. See Ofgem (28 November 2014), RIIO-ED1: Final determinations for the slow-track electricity distribution companies – Business plan expenditure assessment, p. 151

⁶ This index is Output PPI: ONS Manufactured Products for Domestic Market, Excl. Duty (GB7S), also known as the “factory gate” price index.

⁷ Ofgem (30 November 2021), RIIO-2 RPE Workbook – AIP 2021, Link: <https://www.ofgem.gov.uk/publications/riio-2-annual-iteration-process-2021-transmission-gas-distribution-and-electricity-system-operator>

⁸ To allocate an RPE for cost categories between 5 and 10 per cent of totex, CEPA requires that the value of the RPE allowance for that cost category exceed 0.5 per cent of totex; 0.5 per cent of totex across RIIO-ED2 is in excess of £100 million. See Section 3.2 for further discussion.

indices used to set RPEs at ED1, except that CEPA does not set an RPE for the P&E cost category.

Most of the criteria CEPA establishes are redundant, in that CEPA argues that all indices perform equally well on them. CEPA therefore ultimately ends up relying on just two sub-criteria – whether the index reflects DNO costs (accuracy), and whether the index has known statistical or methodological flaws (credibility). Even these criteria have limited utility, in part because CEPA opts not to make use of any of the data we and the ENA provided on DNO unit costs and so is reliant on high-level information to assess accuracy (for example, that DNO labour costs are not limited by public sector pay restraints). CEPA is rarely able to discriminate between indices on the basis of such high-level descriptive information and therefore ends up using regulatory precedent as a final arbiter between indices.

Relying so heavily on regulatory precedent risks producing an RPE allowance that fails to account for changes in DNO cost pressures over time.

Ofgem and CEPA do not Update the Notional Cost Structure

The third flaw is that for both materiality assessments and calculation of the totex RPE allowance, CEPA and Ofgem rely on a notional cost structure that is derived from the cost category allocations submitted by DNOs as part of their business plans. In its DD, Ofgem has disallowed costs from specific cost categories rather than disallowing the same percentage of costs from each cost category. Therefore, the DNO cost structures implied by the DD can be expected to differ from the cost structures submitted as part of DNO business plans. To ensure that the totex RPE allowance accurately reflects an efficient DNO cost structure, Ofgem would need to offer DNOs the opportunity to submit revised cost structures and recalculate the notional cost structure using this updated information.

CEPA Combines all Labour Costs into a Single Cost Category

The fourth flaw is that CEPA combines the general and specialist labour cost categories into a single cost category for indexation purposes. This means that 63 per cent of DNOs' total costs are being treated as a single, homogenous cost category that faces common external price pressures.⁹

It is not obvious that all of these costs grow at the same rate. For example, the growth rate of specialist labour costs specific to DNOs may be more affected by shocks to the energy sector and less affected by broader macroeconomic shocks than the growth rate of general labour costs. By failing to separately account for the different labour cost categories, Ofgem increases the risk that it may fail in its statutory duty to allow DNOs to fully recover their efficient costs.

We understand that CEPA combined categories because it was concerned about inconsistencies in the share of costs allocated to general and specialist labour across DNOs. However, CEPA exaggerates the scale of the problem. While some DNOs were outliers in the reported split of costs across general and specialist labour, the majority of DNOs reported

⁹ CEPA (17 June 2022), RIIO-ED2: Cost Assessment – Frontier Shift methodology paper, p. 46

costs in a similar range (40-45 per cent of total labour costs allocated to general labour) and the calculated notional cost structure was close to this range (39 per cent general labour).

Combining cost categories is not a solution to the problem of inconsistency in how DNOs allocate costs across cost categories. Combining cost categories in this way simply masks the underlying problem, which is that Ofgem has not provided clear guidance to DNOs on how to allocate costs across categories, despite requests from DNOs for such guidance.

We Cannot Reproduce CEPA's RPE Forecasts

Finally, we have not been able to reproduce CEPA's forecasts of RPEs for individual benchmark indices or for cost categories.¹⁰ Ultimately, the final RPE allowance will be set on the basis of the outturn values of the benchmark indices through the Annual Iteration Process, so forecasts do not affect the final RPE allowance. However, DNOs will get an upfront RPE allowance based on the forecast and so ensuring the forecasts are replicable may be important for DNOs' accounting and financeability.

¹⁰ CEPA (17 June 2022), RIIO-ED2: Cost Assessment – Frontier Shift methodology paper, p. 56

1. Introduction

NERA Economic Consulting (NERA) was commissioned by the Energy Networks Association (ENA) to provide support in responding to Ofgem's Draft Determinations (DDs) on Real Price Effects (RPEs) at RIIO-ED2.

In preparing our response, we have reviewed documents released by Ofgem as well as supporting analysis prepared by Ofgem's consultants, CEPA and Ofgem's response to a Supplementary Question (SQ) posed by the ENA following the DDs.

We respond to CEPA's analysis and recommendations on RPEs, and Ofgem's subsequent decision to adopt CEPA's recommendations in their entirety, as follows:

- Chapter 2 describes CEPA's analysis of RPEs;
- Chapter 3 provides a critique of CEPA's approach to assessing materiality;
- Chapter 4 provides a critique of CEPA's approach to index selection;
- Chapter 5 highlights a number of further flaws in CEPA's approach to RPEs.

We present our overall conclusions in the Executive Summary to this report.

2. Outline of CEPA's Process for Setting the RPE Allowance

CEPA adopts a three-step process to setting the RPE allowance, as summarised below:

1. **Materiality test:** CEPA applies a materiality test to decide whether a cost category should be subject to an RPE allowance. This materiality test involves looking at the share of a given cost category in totex. CEPA concludes that Ofgem should apply an RPE allowance to labour costs and material costs, but not to P&E or Transport costs.
2. **Index selection:** CEPA selects benchmark indices that it recommends Ofgem should use to set the RPE allowances for labour and materials cost categories. CEPA sets out a sequential process for index selection, where indices are first assessed on a pass-fail basis against high-level criteria (accuracy, simplicity, and independence) and then assessed against more detailed criteria (simplicity, credibility, accuracy, transparency, and timeliness).
3. **Forecasting:** Ultimately, Ofgem will set the RPE allowance ex-post by indexation to the outturn values of the benchmark indices. However, Ofgem will make an ex-ante allowance for RPEs based on forecasts. CEPA puts forward forecasts that it suggests Ofgem should use to set the ex-ante allowance.

The remainder of this section sets out key details of CEPA's approach at each of these three steps.

2.1. Materiality Test

In the RIIO-ED2 Sector Methodology Decision, Ofgem indicated that it would “*set a high materiality threshold and a high evidence bar for RPEs*” and that in assessing materiality it would consider “*the size of the cost categories subject to input price variations and the impact of these variations on DNOs' total costs*”.¹¹

CEPA builds its assessment of materiality around the cost categories defined in the input cost structure that Ofgem set out for DNOs in the Business Plan Data Templates, whereby DNOs were asked to report the share of costs in each of six input cost categories:¹²

- General labour (split into capex and opex)
- Specialist labour (split into capex and opex)
- Materials (split into capex and opex)
- Plant & Equipment (P&E)
- Transport
- Other

¹¹ Ofgem (17 December 2020), RIIO-ED2 Sector Methodology Decision: Annex 2 Keeping bills low for consumers, p. 29

¹² CEPA (17 June 2022), RIIO-ED2: Cost Assessment – Frontier Shift methodology paper, p. 44

CEPA consolidates the general and specialist labour cost categories into a single labour cost category, because of variation in the share of costs attributed to each cost category across DNOs. CEPA also treats materials as a single cost category, rather than splitting it between capex and opex; CEPA does not explain this choice, even though it deviates from Ofgem's approach at ED1.¹³ We discuss this consolidation of cost categories further in Section 5.3.1.

CEPA claims that it applies a two-step test to each cost category to decide whether that cost category is material. The two steps are:

1. **Size of the cost category:** In the first step, CEPA assesses the size of the cost category, defined as the share of totex of a “notional efficient DNO”. CEPA calculates the cost structure of the notional efficient DNO as the average of the reported cost structure of all DNOs. If the cost category exceeds 10 per cent of the notional cost structure, CEPA deems it material; if the cost category is below 5 per cent of the notional cost structure, CEPA deems it low materiality; and if the cost category is between 5 and 10 per cent of the notional cost structure, CEPA proceeds to the second step.
2. **Value of RPE allowance:** For cost categories that are between 5 and 10 per cent of the notional cost structure, CEPA calculates the value of the RPE allowance over the RIIO-ED1 period, had RPEs been set by indexation. It does this by looking at the outturn RPE for the cost category, using the indices applied at ED1 but applying the indexation methodology developed for RIIO-2. If the value of the RPE exceeds 0.5 per cent of totex over RIIO-2, then CEPA deems the cost category to be material.

In practice, CEPA only uses the first test. The labour and materials cost categories both exceed 10 per cent of the notional cost structure, while P&E and Transport are each below 5 per cent. The only cost category that falls between 5 and 10 per cent is the Other cost category. CEPA says that since no index was used to set an RPE allowance for that cost category at ED1, it cannot apply the second test to the Other cost category, and therefore assumes that CPIH is an appropriate proxy for the cost category (i.e. effectively assumes it is low materiality).

2.2. Index Selection

For cost categories that it identifies as having low materiality, CEPA assumes that CPIH is an appropriate proxy for the cost category and does not select indices to set an RPE allowance.

For cost categories that pass the materiality test (i.e. labour and materials), CEPA sets out a sequential process for index selection, where indices are first assessed on a pass-fail basis against high-level criteria (accuracy, simplicity, and independence) and then assessed against more detailed criteria (simplicity, credibility, accuracy, transparency, and timeliness). In practice, it is not clear that CEPA follows the process as described.

¹³ Ofgem (28 November 2014), RIIO-ED1: Final determinations for the slow-track electricity distribution companies – Business plan expenditure assessment, p. 151

CEPA develops a longlist of indices for consideration “*drawing from the indices used in RIIO-ED1, network company submissions (based on NERA’s assessment) and our own review of publicly available series from the ONS and BCIS*”.¹⁴

The first stage that CEPA describes in its index selection process is a pass-fail assessment against three criteria:

1. **Simplicity:** The index must represent a material cost, and movements in the index must be likely to have a material impact on totex. In practice, CEPA applies this criterion to cost categories rather than indices and it is simply the materiality test, repeated.
2. **Accuracy:** The index must reflect movements in the input cost category (or a distinct portion thereof) for a notional efficient company.
3. **Independence:** Companies in the sector should not be able to manipulate the index.

All of the indices CEPA considers pass the simplicity and independence criteria, with the exception of one series which has been discontinued.¹⁵

CEPA reports that six indices failed the accuracy criterion (one labour index and five materials indices). However, for three of these indices CEPA does not show that the index fails to reflect movements in the input cost category; the reported explanation is that another index exists which CEPA believes to be “more reflective” of DNO costs, although CEPA does not provide evidence to support this position.¹⁶

After the first stage, there are eleven labour indices and twelve materials indices still in consideration.¹⁷

CEPA then moves on to the second assessment stage, involving five more detailed criteria:

1. **Simplicity:** Yes/no assessment of whether the “*series does not capture ongoing efficiency*”.¹⁸ It is unclear why CEPA considers that ongoing efficiency is relevant to selection of benchmark indices for RPEs, but since all indices perform equally well on this criterion we do not interrogate the criterion further.
2. **Credibility:** There are three sub-components to this criterion:
 - A. The series is produced by an established data provider.
 - B. Red-Amber-Green (RAG) assessment of whether the series has “*known statistical or methodological flaws*”.¹⁹

¹⁴ CEPA (17 June 2022), RIIO-ED2: Cost Assessment – Frontier Shift methodology paper, p. 46

¹⁵ CEPA reports this index as having failed all three of the high-level criteria, even though it would likely pass several of these criteria if it had not been discontinued. See CEPA (17 June 2022), RIIO-ED2: Cost Assessment – Frontier Shift methodology paper, p. 70

¹⁶ None of these indices is one that we recommended in our previous work for the ENA.

¹⁷ CEPA (17 June 2022), RIIO-ED2: Cost Assessment – Frontier Shift methodology paper, p. 70

¹⁸ CEPA (17 June 2022), RIIO-ED2: Cost Assessment – Frontier Shift methodology paper, p. 72

¹⁹ CEPA (17 June 2022), RIIO-ED2: Cost Assessment – Frontier Shift methodology paper, p. 72

- C. Number of years of data available (CEPA does not set a minimum number here).
3. **Accuracy:** There are two sub-components of this criterion:
- RAG assessment of confidence that “*the index will provide a more accurate reflection than the default approach to RPEs (CPIH or other existing index in use)*” – presumably of DNO costs.²⁰
 - RAG assessment of whether large historical movements in the index can be explained (CEPA does not specify by whom or how, but since all indices perform equally well on this criterion this lack of clarity has no material impact).
4. **Transparency:** Yes/no assessment of whether the series, and forecasts of the series, are publicly available.
5. **Timeliness:** Time lag for series values to be published, in weeks (CEPA does not set a minimum number here).

In practice, CEPA’s documentation shows that it regarded all the indices it considered as having performed well on the simplicity, transparency, and timeliness criteria. Therefore, CEPA relied exclusively on its credibility and accuracy criteria to select between indices. Within these criteria, CEPA relied on just two sub-criteria: sub-criterion 2B (credibility) and 3A (accuracy). The remaining criteria did not discriminate between indices (i.e. CEPA assessed that all the indices under consideration passed all criteria).

We summarise CEPA’s application of its index selection procedure in Table 2.1. In applying its index selection procedure, CEPA sort indices within cost categories into thematic groups which appear to be largely based on the index names. The following rules of thumb recur in CEPA’s application of its index selection procedure, which do not form part of the selection procedure as originally described:

- CEPA selects only one index per thematic group to avoid duplication and keep the RPE mechanism simple;²¹
- CEPA gives precedence to indices that have regulatory precedent;
- CEPA rejects BCIS Series 2 indices because have “*generally been superseded by new indices, from Series 3 or Series 4*”. CEPA says this is a failure of criterion 2B (flaws in methodology) although CEPA does not provide any documentation from BCIS to suggest that the Series 2 indices are flawed (and indeed, the fact that BCIS continues to publish Series 2 indices suggests that it does not believe they are flawed).

²⁰ CEPA (17 June 2022), RIIO-ED2: Cost Assessment – Frontier Shift methodology paper, p. 72

²¹ CEPA (17 June 2022), RIIO-ED2: Cost Assessment – Frontier Shift methodology paper, p. 74

Table 2.1: Summary of CEPA's Assessment of Indices Against its Criteria

Cost category	Thematic Group	Indices Rejected	Indices Selected	Explanation
General labour costs		ASHE; other versions of AWE private Sector (seasonally adjusted vs. non seasonally adjusted, regular pay vs. total pay, including vs. excluding arrears)	AWE Private Sector: Seasonally Adjusted Total Pay Excluding Arrears (K54V)	CEPA assesses that AWE Private Sector indices perform better on reflecting DNO costs (criterion 3A) than ASHE; it grades ASHE as amber ²² on this criterion whereas it grades K54V as green. CEPA assesses that of the AWE Private Sector indices, K54V <i>"most accurately"</i> reflects company cost pressures and grades the remaining AWE Private Sector indices amber. CEPA also notes that K54V has regulatory precedent.
Specialist labour costs	Civil engineering labour	BCIS Labour and Supervision in Civil Engineering (70/1)	BCIS Civil Engineering Labour (4/CE/01)	4/CE/01 has regulatory precedent.
Specialist labour costs	Electrical engineering labour	BCIS Electrical Installations – cost of labour (2/E1); BCIS Electrical Engineering Labour (4/CE/EL/01); BCIS PAFI Electrical – Labour (3/E1)	BEAMA Electrical Engineering Labour (BEL)	2/E1 is BCIS Series 2. BEL has regulatory precedent.
Materials	Aluminium	BCIS Aluminium Products (4/CE/25)	BCIS Pipes and Accessories: Aluminium (3/59)	CEPA assesses that 3/59 performs better on reflecting DNO costs (criterion 3A) than 4/CE/25 because 3/59 is the less volatile index, although CEPA does not report any evidence that low volatility is reflective of DNO input costs.
Materials	Copper	BCIS Copper Tubes, Fittings and Cylinders (2/33)	BCIS Pipes and Accessories: Copper (3/58)	2/33 is BCIS Series 2.
Materials	Steel	BCIS Steelwork (2/27); BCIS Steelwork – Cost of Materials (2/S2); BCIS Structural Steelwork Materials (4/CE/ST/02)	BCIS Structural Steelwork Materials: Civil Engineering Work (3/S3)	2/27 and 2/S2 are BCIS Series 2. 3/S3 has regulatory precedent.

²² CEPA gave ASHE an amber score because it includes public sector as well as private sector pay and public sector pay restraints do not apply to DNOs.

Cost category	Thematic Group	Indices Rejected	Indices Selected	Explanation
Materials	Other	N/A	BCIS Resource Cost Index of Infrastructure : Materials (FOCOS)	CEPA assesses that FOCOS performs well against all of its criteria and has regulatory precedent.

Source: NERA analysis of CEPA report for Ofgem²³

2.3. Forecasting

For most benchmark indices, CEPA asserts that it forecasts RPEs using the long-run historical average in the same way that we forecast RPEs in the November addendum to our report on RPEs for the ENA. CEPA writes “*we forecast RPEs based on the long term historical average RPE (2000-2020), in line with the approach proposed by NERA*”.²⁴

CEPA provides a formula²⁵ for the calculation of the RPE for a single benchmark index:

$$RPE_i = \frac{1}{N_T} \sum_{t \in T} \left(\frac{1 + IPI_{it}}{1 + CPIH_t} - 1 \right)$$

IPI_{it} = the annual percentage growth in index i for year t ;

$CPIH_t$ = the annual percentage growth in CPIH for year t ;

RPE_i = the long-run average RPE for the benchmark index i ;

N_T = the number of years in the set T .²⁶

As CEPA writes, this “*results in an RPE forecast that is constant across the RIIO-ED2 period*”.²⁷

CEPA adopts a different approach to that set out above for one benchmark index, “AWE Private Sector (K54V)”. For this index, CEPA sets the forecast RPE equal to “*the difference between the OBR’s average earnings growth forecast and its forecast of CPI*” up to 2026, using data from the March 2022 OBR forecast.²⁸ After 2026, CEPA uses the same approach as it does for other benchmark indices, i.e. setting the forecast RPE equal to the long-run historical average RPE.

²³ CEPA (17 June 2022), RIIO-ED2: Cost Assessment – Frontier Shift methodology paper, Appendix B

²⁴ CEPA (17 June 2022), RIIO-ED2: Cost Assessment – Frontier Shift methodology paper, p. 55; see also NERA (29 November 2021), Price Effects for the RIIO-ED2 Price Control Review – Addendum, p. 7

²⁵ CEPA (17 June 2022), RIIO-ED2: Cost Assessment – Frontier Shift methodology paper, p. 53

²⁶ Here T is the set of years used for forecasting (i.e. financial years 2000-2020, excluding 2010 and 2011 due to potential distortions from the financial crisis).

²⁷ CEPA (17 June 2022), RIIO-ED2: Cost Assessment – Frontier Shift methodology paper, p. 55

²⁸ CEPA (17 June 2022), RIIO-ED2: Cost Assessment – Frontier Shift methodology paper, p. 55

To get the forecast RPE for each cost category, CEPA applies an unweighted average to the RPE forecasts for the indices in that cost category. To get the forecast RPE for totex, CEPA calculates a weighted average of cost category forecast, using weights based on the notional DNO cost structure.

CEPA reports its final forecasts for each index, cost category, and totex in Tables 5.8 and 5.9 of its report. Ofgem incorporates these forecasts directly into its Draft Determinations.²⁹ We have not been able to reproduce these forecasts, as explained in Appendix A. As a result, the initial allowance Ofgem provides for RPEs may be inaccurate or is at least unevidenced.

²⁹ Ofgem (29 June 2022), RIIO-ED2 Draft Determinations – Core Methodology Document, p. 363

3. Ofgem and CEPA's Approach to Assessing Materiality

In the RIIO-ED2 Sector Methodology Decision, Ofgem indicated that it would “*set a high materiality threshold and a high evidence bar for RPEs*” and that in assessing materiality it would consider “*the size of the cost categories subject to input price variations and the impact of these variations on DNOs' total costs*”.³⁰

Ofgem has subsequently endorsed CEPA’s proposed interpretation of this high materiality threshold, described above in Section 2.³¹ In this section, we critique two aspects of this interpretation of the high materiality threshold:

- CEPA’s interpretation incorrectly presumes that Ofgem can set no RPE for cost categories that it deems to have low materiality; and
- The manner in which CEPA assesses materiality is inconsistent with Ofgem’s rationale for introducing a materiality threshold and with regulatory precedent.

3.1. Setting No RPE for Low Materiality Cost Categories

Ofgem is wrong to argue that cost categories with low materiality do not warrant an RPE. Ofgem could reasonably argue that in order to limit the complexity of the price control, cost categories with low materiality should be combined for the purposes of assessing RPEs. However, it is in contravention of Ofgem’s statutory duties, and logically erroneous, to simply apply an RPE of zero to cost categories which may be individually of “low materiality”. In so doing Ofgem fails to meet two of its statutory duties as set out in legislation and is guilty of a fundamental error of logic.

3.1.1. Duties to allow recovery of efficient costs

Ofgem fails to meet its statutory duty to ensure that DNOs can recover efficient costs by not setting RPEs where input price inflation exceeds CPIH. This duty is set out in the Electricity Act, which requires Ofgem to “*secure that licence holders are able to finance the activities which are the subject of obligations*”³². There is no materiality threshold in the Act as expressed as a proportion of DNO costs, still less one of 10 per cent of totex: Even a small under-recovery that was systematic could prevent licensees from financing their activities and therefore be in contravention of Ofgem’s statutory duties.

Input price inflation for at least some of these “low materiality” cost categories is systematically above CPIH, such that a positive RPE would be necessary to achieve efficient cost recovery. We examined a third-party price index, “BCIS PAFI Plant and Road Vehicles (90/2)”, that provides a credible proxy for efficient DNO unit input cost growth for the Transport and P&E cost categories, insofar as it reflects market-wide cost pressures that are

³⁰ Ofgem (17 December 2020), RIIO-ED2 Sector Methodology Decision: Annex 2 Keeping bills low for consumers, p. 29

³¹ Ofgem (29 June 2022), RIIO-ED2 Draft Determinations – Core Methodology Document, p. 361-363

³² Electricity Act 1989, Part I Electricity Supply, Section 3A The principal objective and general duties of the Secretary of State and the Authority, Article 2(b). Link: <https://www.legislation.gov.uk/ukpga/1989/29/section/3A>

outside the control of the DNOs. We found that the long-run mean growth of this index is statistically significantly above that of CPIH.³³

Cost categories that are individually immaterial (by Ofgem's standards) may be material in combination. The cost categories that CEPA deems to be low materiality are P&E, Transport, and Other. Together, these cost categories constitute 12 per cent of the notional DNO cost structure that CEPA uses as a proxy for the cost structure of an efficient DNO. Therefore if Ofgem fails to allow for recovery of efficient costs in these categories, it will be failing to adequately finance a portion of totex that is material by CEPA's own 10 per cent threshold.

3.1.2. Duties to promote efficiency and economy

Ofgem fails to meet its statutory duty to “*promote efficiency and economy on the part of persons authorised by licences or exemptions to distribute, supply or participate in the transmission of electricity*”³⁴. Setting an RPE of zero for low materiality cost categories fails to promote efficiency because it distorts the incentives provided to companies for efficient expenditure and for accurate reporting of their cost allocations.

By systematically under-compensating DNOs for efficient costs in the Transport and P&E cost categories, DNOs have a clear incentive to limit their expenditure in those cost categories. Companies may respond to this incentive by prioritising solutions that draw more heavily on other cost categories that do get an RPE, even if those are not the most efficient solutions overall.

Moreover, DNOs have an incentive to classify costs into the cost categories that do earn an RPE. For example, at the time of drafting our original report, there was some uncertainty among DNOs as to whether certain network components should be classified as materials or as P&E (Ofgem does not provide clear guidance on this subject). If the materials cost category gets an RPE but the P&E cost category does not, then there is a clear incentive to classify these network components as materials at future reviews. In the long-term, this has the effect of reducing the quality of information that Ofgem collects from DNOs.

3.1.3. Errors in logic

It is illogical to apply an RPE of zero to all low materiality cost categories because this approach implies that the very existence of an RPE allowance (rather than, for example, the value of the allowance) depends on how costs are categorised. This is a problem because costs could be categorised in any number of ways, using more or fewer categories. It would therefore be possible to define cost categories such that no category meets the materiality threshold, for any given approach to setting the materiality threshold.

For example, consider CEPA's two-step approach to setting the materiality threshold. The first step considers size alone: any category that constitutes less than 5 per cent of totex is not material. Therefore, if DNO costs were split into 21 categories, each less than 5 per cent of totex, no cost category would be material and so no RPE would be set.

³³ NERA (8 June 2021), Price Effects for the RIIO-ED2 Price Control Review – Prepared for the ENA, p. 41 and p. 45

³⁴ Electricity Act 1989, Part I Electricity Supply, Section 3A The principal objective and general duties of the Secretary of State and the Authority, Article 5(a). Link: <https://www.legislation.gov.uk/ukpga/1989/29/section/3A>

In practice, DNO costs are not split into 21 small categories, because Ofgem chooses to combine similar types of DNO costs into relatively large categories. For example, rather than defining small categories for cables, transformers, and poles, Ofgem proposes a single category: materials.

Ofgem should adopt the same approach that it has already applied to materials costs for the remaining small cost categories (P&E, Transport, and Other). That is, Ofgem should consider how these cost categories might be combined to meet a materiality threshold. For example, a combined Transport/P&E cost category would exceed CEPA's 5 per cent materiality threshold.

Combining small cost categories is a logically consistent approach to the problem of low materiality cost categories. Ofgem itself seems to recognise this in the SMD where it writes "*to test the materiality, we will consider the appropriate aggregation of the cost categories*".³⁵

3.2. Using Arbitrary Thresholds to Assess Materiality

CEPA's proposed approach to assessing materiality is based on arbitrarily selected rules and thresholds that are not reflective of Ofgem's stated rationale for introducing a materiality threshold.

Ofgem's rationale for introducing a materiality threshold is to set "*an RPE indexation mechanism that balances accuracy in reflecting DNO cost pressures with simplicity of application*".³⁶ This suggests that any materiality assessment should explicitly consider whether the benefit of including a cost category (in terms of accurate reflection of DNO cost pressures) exceeds the cost (in terms of resource required to account for any additional complexity).

In setting out its approach to materiality, CEPA fails to consider the balance between accuracy and simplicity, assessing only simplicity. CEPA suggests that "*applying RPE indexation to each cost category... would result in a more complex indexation mechanism that would substantially increase the resource required when compared to the indexation approaches Ofgem adopted for RIIO-GD2 and T2*".³⁷

Our analysis shows that the benefit of setting RPEs for the low materiality cost categories (P&E and Transport) exceeds the costs.

The benefit to setting an RPE for these cost categories is that Ofgem accurately reflects the cost pressures DNOs face by allowing them to fully recover efficient costs. If Ofgem does

³⁵ Ofgem (17 December 2020), RIIO-ED2 Sector Methodology Decision: Annex 2 – Keeping bills low for consumers, p. 32

³⁶ Ofgem (29 June 2022), RIIO-ED2 Draft Determinations – Core Methodology Document, p. 362

³⁷ CEPA (17 June 2022), RIIO-ED2: Cost Assessment – Frontier Shift methodology paper, p. 44

not set an RPE for P&E and transport, DNOs are forecast to under-recover between £6.88 million and £8.30 million of efficient costs over the course of RIIO-ED2.³⁸

The cost to setting an RPE is trivial, as is evident from an examination of the RIIO-2 RPE workbook for GD2 and T2 that Ofgem released as part of the 2021 Annual Iteration Process.³⁹ That workbook contains pre-set formulae linking the raw index data to pre-set weights for each index, based on a notional cost structure that is held constant across the regulatory period. In order to apply the indexation in each year, Ofgem simply has to input the updated raw index data as described on the tab “Sources”. The additional cost of setting this workbook up to include a slightly larger number of pre-set weights is trivial, as is the cost of downloading a few extra indices from the ONS, BCIS, and BEAMA once a year.

CEPA’s approach to assessing materiality is also inconsistent with regulatory precedent. At ED1, Ofgem did apply an RPE to the P&E cost category and used two indices to set the RPE.⁴⁰ P&E was 6 per cent of totex in Ofgem’s notional cost structure. Ofgem also set an RPE for cost categories with a smaller share of totex: materials (opex) was 4 per cent of totex in Ofgem’s notional cost structure, and Ofgem set an RPE based on a single index for that cost category.⁴¹

The arbitrariness of CEPA’s thresholds is particularly evident from consideration of CEPA’s second criterion, relating to the value of the RPE allowance. CEPA sets a rule that for cost categories that constitute between 5 and 10 per cent of totex, it will only allow an RPE if the RPE allowance for the cost category exceeds 0.5 per cent of totex. This threshold is unreasonably high. It implies that Ofgem could in principle deny DNOs recovery of efficient costs of over £100 million over the course of RIIO-ED2.⁴² It also exceeds the forecast value of the RPE allowance for the materials cost category,⁴³ which CEPA agrees should be awarded an RPE.

³⁸ We calculate this as *forecast RPE × share of notional cost structure × totex*. The forecast RPE for the index BCIS PAFI Plant and Road Vehicles (90/2), which we recommend Ofgem use to set the RPE for Transport and P&E and which was used to set an RPE for P&E at ED1, is 0.66 per cent. Transport and P&E together constitute 5.01 per cent of totex for a notional efficient DNO. DNOs’ proposed totex for RIIO-ED2 totalled £25,244 million and Ofgem has proposed to allow totex of £20,939 million across the sector. See Ofgem (29 June 2022), RIIO-ED2 Draft Determinations – Overview Document, p. 30

³⁹ Ofgem (30 November 2021), RIIO-2 RPE Workbook – AIP 2021, Link: <https://www.ofgem.gov.uk/publications/riio-2-annual-iteration-process-2021-transmission-gas-distribution-and-electricity-system-operator>

⁴⁰ Ofgem (28 November 2014), RIIO-ED1: Final determinations for the slow-track electricity distribution companies – Business plan expenditure assessment, p. 151-152

⁴¹ Index: FOCOS RCI infrastructure: materials (BCIS)

⁴² 0.49 per cent of totex would be £123.7 million using DNOs’ proposed totex for RIIO-ED2 and £102.60 million using Ofgem’s proposed allowed totex for RIIO-ED2.

⁴³ CEPA’s RPE allowance for materials is 1.80 per cent, and materials makes up 25.07 per cent of the notional cost structure, so $1.80\% \times 25.07\% = 0.45\%$ i.e. 0.45 per cent of totex, which is less than 0.5 per cent of totex.

4. Ofgem and CEPA's Approach to Index Selection

CEPA's approach to selecting indices is intrinsically flawed. Although it is presented as a sequential framework with assessment against a series of seemingly relevant criteria, in reality the driving force behind the index selection is regulatory precedent and so it is unsurprising that the recommended indices are the exact same indices as were used at ED1.

In this section we discuss a number of specific flaws with the approach, including:

- The approach does not effectively discriminate between indices;
- Although the framework CEPA developed offers an opportunity to make use of evidence on DNOs' actual costs, in practice, CEPA does not make use of any such evidence;
- The approach relies heavily on regulatory precedent, even though regulatory precedent does not feature in the definition of the framework;
- CEPA adopts an inconsistent approach to different BCIS series;
- CEPA makes use of different thematic groups of costs within cost categories but does not consider how those groups should be weighted; and
- The approach is poorly documented and therefore lacks transparency.

The above list includes the most obvious flaws with the approach but is by no means intended to be comprehensive.

First, the approach does not effectively discriminate between indices. This is clear from the discussion in Section 2.2. CEPA's index selection framework leaves it with multiple viable indices for both of the specialist labour groups that it defines and two of the materials groups that it defines. In each of these groups, CEPA is forced to introduce additional considerations (such as regulatory precedent) to make a final decision.

The essential problem is that most of the criteria CEPA establishes are redundant, in that all indices perform equally well on them. CEPA therefore ultimately ends up relying on just two sub-criteria – whether the index reflects DNO costs (accuracy), and whether the index has known statistical or methodological flaws (credibility). It then tries to fit a range of different concepts within these two sub-criteria, so that the sub-criteria begin to lose their meaning. For example, CEPA expands the definition of accuracy to include the volatility of an index, and the definition of credibility to include whether the index is of a recent vintage.

Second, CEPA opts not to make use of any actual evidence on DNO costs, even though its own framework provides a clear opportunity to do so through the accuracy criterion. CEPA's accuracy criterion explicitly asks whether the indices reflect movements in the input costs of a notional efficient DNO.

In evaluating its accuracy criterion, CEPA only uses high-level descriptive information (for example, that DNO labour costs are not limited by public sector pay restraints). This limits the ability of the accuracy criterion to discriminate between indices. For example, all specialist labour indices performed equally well on CEPA's accuracy criterion.

CEPA had access to data on movements in actual DNO input costs from the reports we prepared for the ENA, which it could have used to inform its assessment of the accuracy criterion. In the case of the specialist labour indices, the deviation statistic we used in our report would have provided a clear ranking of the indices in terms of accuracy.

Third, CEPA ends up relying heavily on regulatory precedent to make its final index selection. As mentioned above, for both of the specialist labour groups and two of the materials groups that CEPA defines, regulatory precedent is the final arbiter between indices.

If CEPA and Ofgem consistently rely on regulatory precedent to select indices, they risk producing an RPE allowance that fails to account for changes in DNO cost pressures over time, for example as DNOs incorporate efficiency improvements into their expenditure and adopt additional DSO functions.

Fourth, CEPA adopts an inconsistent approach to different series of BCIS indices. It frequently rejects BCIS Series 2 indices on the basis that Series 2 indices have been superseded by Series 3 and 4 indices. By this logic it should favour Series 4 indices over Series 3 indices. However, in practice CEPA has selected Series 3 indices over Series 4 indices (for example, it selects “BCIS Structural Steelwork – Materials: Civil Engineering Work (3/S3)” over “BCIS Structural Steelwork Materials (4/CE/ST/02)”).

The inconsistency is driven by a failure to explicitly consider the relative importance of regulatory precedent and vintage of the index. CEPA takes the existence of a similar index in a new series as evidence that there were statistical flaws with the index in the older series, which it treats as sufficiently serious as to warrant a “red” grade on the credibility criterion. It therefore seems that vintage should take priority over regulatory precedent, even though currently CEPA adopts the opposite convention.

Fifth, CEPA’s approach involves creating thematic groups of indices within cost categories and selecting one index from each thematic group, but it does not consider how these thematic groups should be weighted. For example, CEPA defines two thematic groups within the specialist labour cost category: civil engineering and electrical engineering. In selecting one index from each it effectively assumes that civil and electrical engineering labour each constitute half of total specialist labour costs. It has no evidence from actual DNO cost data to support this assumption.

Finally, CEPA’s approach is poorly documented and therefore lacks transparency. Many of the aspects of CEPA’s actual decision-making process (the use of regulatory precedent as a final arbiter, rules around precedence of BCIS Series, and the use of thematic groups) are only clear from reading the report’s appendix and are not mentioned in the body of the report. There are also inconsistencies between the body of the report and the appendix: in the appendix, “BCIS Electrical Engineering Materials (4/CE/EL/02)” was selected as the representative index of the electrical engineering materials category. In the body of the report, the final index selection does not include any representative of the electrical engineering materials category, and 4/CE/EL/02 was rejected because it failed the accuracy criterion.⁴⁴

⁴⁴ CEPA (17 June 2022), RIIO-ED2: Cost Assessment – Frontier Shift methodology paper, p. 51

5. Further Flaws in CEPA's Approach to Setting RPEs

This chapter sets out a number of additional flaws in CEPA's approach to setting RPEs.

- Section 5.1 explains that, by failing to update the notional cost structure to reflect the cost category composition of DD allowances, Ofgem and CEPA risk miscalculating the totex RPE and therefore not allowing DNOs to fully recover efficient costs.
- Section 5.2 explains that Ofgem's choice to set an RPE of zero for the Other cost category implicitly and incorrectly assumes that CPIH is the best available proxy for general DNO costs.
- Section 5.3 shows that CEPA's choice to combine the general and specialist labour cost categories risks mechanically undercompensating DNOs by placing excess weight on the benchmark indices CEPA has selected to capture specialist labour costs.

5.1. CEPA Fails to Consider the Impact of DD Allowances on the Notional Cost Structure

For both the assessment of the materiality of different cost categories and the calculation of the totex RPE allowance, CEPA and Ofgem rely on a notional cost structure that is derived from the cost category allocations submitted by DNOs as part of their business plans. We understand from Ofgem's response to our SQ that it does not plan to update this notional cost structure, even though the allowances in its DD differs from DNOs' business plan proposals.

By assuming the notional cost structure from the DNO business plans is applicable to the totex allowance under the Draft Determinations, Ofgem risks incorrectly applying its own preferred materiality assessments and miscalculating the totex RPE.

Applying the same notional cost structure would only be correct if Ofgem had applied the same percentage reduction to all costs in the DNOs' business plans. We understand from DNOs that this is not what Ofgem has done. Instead, Ofgem has disallowed costs in some cost categories but not in others, and this has the effect of changing the share of costs in each cost category for each DNO.

In order to ensure that the totex RPE accurately reflects the relative weight of different cost categories in DD allowances and therefore allows DNOs to recover efficient costs, Ofgem would need to offer DNOs the opportunity to submit revised cost structures that reflect the allocation of allowed totex across cost categories.

5.2. CEPA Unjustifiably Sets an RPE of Zero for Some Cost Categories

At RIIO-ED1, Ofgem set an RPE of zero for the Other cost category. We adopted the same approach in our report for DNOs ahead of ED2, as CEPA notes in its report for Ofgem. However, we noted that this was a conservative approach, which we adopted due to the lack of unit cost data for the Other cost category.⁴⁵

⁴⁵ NERA (8 June 2021), Price Effects for the RIIO-ED2 Price Control Review – Prepared for the ENA, p. 45

For RIIO-ED2, Ofgem and CEPA propose to set an RPE of zero for the cost category Other as well as cost categories they deem to be immaterial (P&E and Transport). As discussed above in Section 2.3, this means that Ofgem and CEPA have set an RPE of zero for 12 per cent of totex using the cost structure of a notional efficient DNO.

Setting an RPE of zero is not a neutral or default position. Rather, it implies an assumption that growth in CPIH is a good proxy for growth in DNO input costs not included within the categories to which an RPE is assigned. We are not aware of any analysis by CEPA or Ofgem that tests the validity of that assumption.

In this section, we provide evidence that CPIH is not a good proxy for DNO unit costs. In light of this evidence, we recommend that Ofgem consider alternatives to set an RPE allowance for the Other cost category. If Ofgem is determined to neither set cost category specific RPEs for cost categories that it deems to have low materiality, nor combine low materiality cost categories as we propose in Section 2.3, then it should adopt the same approach that we propose for the Other cost category to set the RPE for these cost categories.

This recommendation to consider alternatives to CPIH for the Other cost category constitutes a revision of our position relative to the reports we prepared for the ENA in June and November of last year. This revision of position is prompted by the substantial increase in the share of totex to which the zero RPE applies (from 5 per cent in our previous analysis to 12 per cent in Ofgem's draft determination). It is further prompted by the broader inflationary environment: since some sectors are experiencing exceptionally high inflation while others are not, it is particularly important that we adopt a general price index that weights different sectors in a manner reflective of DNO cost structures.

In this report, based on CEPA's feedback on the analysis we previously prepared for the ENA and direction from ENA members, we are not proposing mean adjustments. In that context, it is particularly important that all cost categories receive an RPE that reflects the likely evolution of those costs: RPE allowances without mean adjustments pose a high risk of under-compensation based on historical evidence.

5.2.1. CPIH is not a Good Proxy for DNO Costs

CPIH tracks the evolution of the price of a specific basket of goods, selected by the Office for National Statistics to be representative of the costs faced by consumers (including owner-occupied housing costs, a feature which distinguishes CPIH from CPI).

In order for CPIH growth to be a reasonable proxy for the growth of Other costs faced by DNOs, the specific basket of goods would need to be representative of the costs faced by DNOs. A closer examination of the constituent components of the basket of goods used to calculate CPIH (listed in Table 5.1) shows that this is not the case.

Further detail on the specific goods and services used within each component are available from the ONS.⁴⁶ For example:

⁴⁶ ONS (14 March 2022), Consumer price inflation basket of goods and services: 2022, Annex A. Link: <https://www.ons.gov.uk/economy/inflationandpriceindices/articles/ukconsumerpriceinflationbasketofgoodsandservices/2022> (last accessed 11 August 2022)

- Housing and household services includes (among other things) the cost of holiday accommodation, local authority rent, maintenance costs, energy and water tariffs, and council tax.
- Transport includes rail, bus, and air fares, but does not include the cost of petrol.
- Recreation and culture includes gym membership, football tickets, and on-demand TV subscription services.

Table 5.1: Components of CPIH in 2022

Component	CPIH weight, February 2022 (per cent)
1 Food & non-alcoholic beverages	9.3
2 Alcohol & tobacco	3.9
3 Clothing & footwear	4.9
4 Housing & household services	31.4
5 Furniture & household goods	6.3
6 Health	1.8
7 Transport	11.1
8 Communication	1.9
9 Recreation & culture	10.5
10 Education	2.6
11 Restaurants & hotels	9.0
12 Miscellaneous goods & services	7.3

Source: ONS⁴⁷

Clearly, these are not things that DNOs need to purchase. The CPIH index is constructed to be representative of *consumer* costs, rather than the costs of a large-scale energy utility company. Even if DNOs do purchase items that bear some similarity to the items households purchase (e.g. protective clothing and footwear for operational employees), the weights on these components are likely to be quite different to the weights in a typical consumer basket.

5.2.2. Ofgem should consider alternatives to CPIH

ONS publishes a number of general producer price indices (PPIs) that may provide a better proxy for DNO unit costs than CPIH.⁴⁸ One example is the output PPI, which is the longest-running general PPI. Informally known as the “factory gate price” PPI, it captures the price of goods produced by UK manufacturers and sold within the UK market.⁴⁹

⁴⁷ ONS (14 March 2022), Consumer price inflation basket of goods and services: 2022, Table 1. Link: <https://www.ons.gov.uk/economy/inflationandpriceindices/articles/ukconsumerpriceinflationbasketofgoodsandservices/2022> (last accessed 11 August 2022)

⁴⁸ ONS (20 July 2022), Producer price inflation, UK: June 2022 including services, April to June 2022. Link: <https://www.ons.gov.uk/economy/inflationandpriceindices/bulletins/producerpriceinflation/june2022includingservicesapriltojune2022>

⁴⁹ Specifically, this index is “Manufactured exports for domestic market, without duty (GB7S)” and has been collected since 1974

The output PPI may be a reasonable proxy for DNO unit costs insofar as the cost pressures that lead UK manufacturers to increase their factory gate prices may also act on DNOs. This would include, for example, the costs of renting office space in the UK, costs for property services such as water and energy, the costs of office supplies, insurance costs, and IT costs.

Ofgem could alternatively consider using the BCIS FOCOS index to replace CPIH for its Other cost category. FOCOS is a composite index reflecting the cost of a range of inputs to infrastructure development, and therefore has clear relevance to the costs of an energy utility. It also has regulatory precedent: Ofgem used it at ED1 to set an RPE for the materials (opex) cost category.⁵⁰

As a third option, rather than selecting a specific alternative index for the Other cost category, Ofgem could use a weighted average of the indices selected for all other named cost categories.

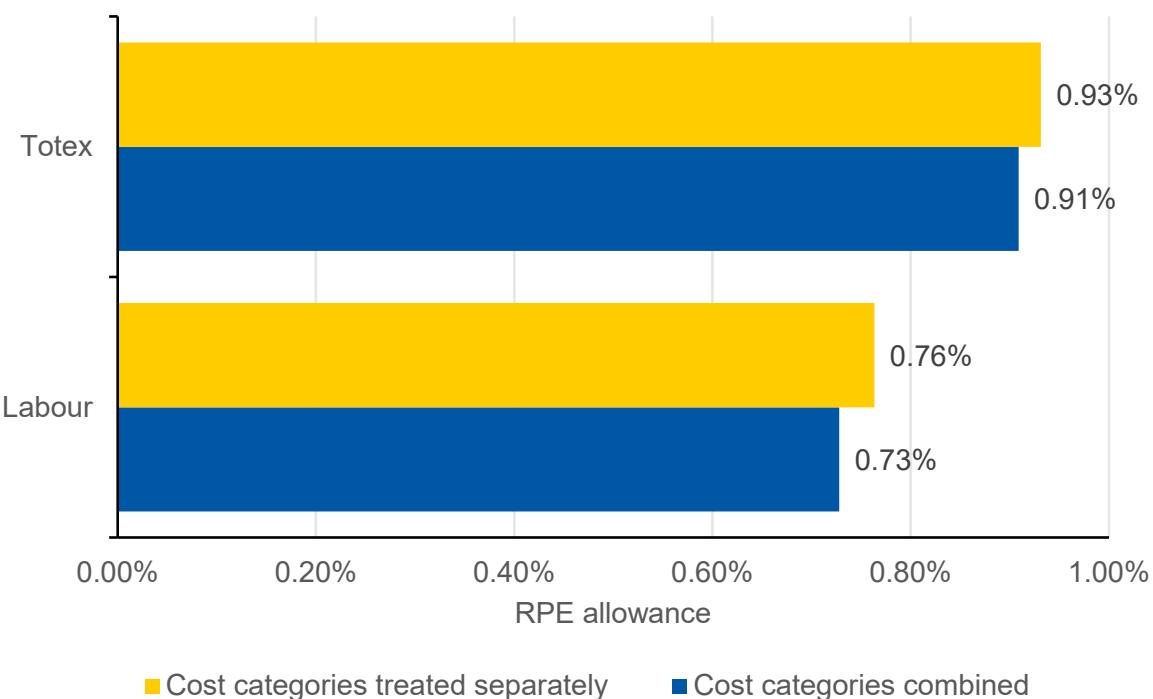
5.3. CEPA Combines Cost Categories

CEPA combines the specialist and general labour cost categories into a single “labour” cost category for indexation and combines the materials (opex) and materials (capex) cost categories into a single “materials” cost category for indexation. For labour costs, this approach is with CEPA’s approach to index selection and with regulatory precedent. For materials costs, it is a deviation from regulatory precedent. CEPA does not explain why it combines materials cost categories but one possible explanation, which would be consistent with CEPA’s general approach to materiality, is the small size of the materials (opex) cost category in the notional cost structure.

While combining labour cost categories is conceptually unjustified, the directional effect of doing so on the RPE allowance is uncertain. Given the specific indices CEPA has selected for each cost category, combining cost categories mechanically reduces the forecast RPE allowance afforded to DNOs, as shown in Figure 5.1. However, looking at data since 2011 only, had RPE allowances been based on CEPA’s index selection then using combined labour and materials categories would have resulted in higher totex RPE allowances, as shown in Figure 5.2.

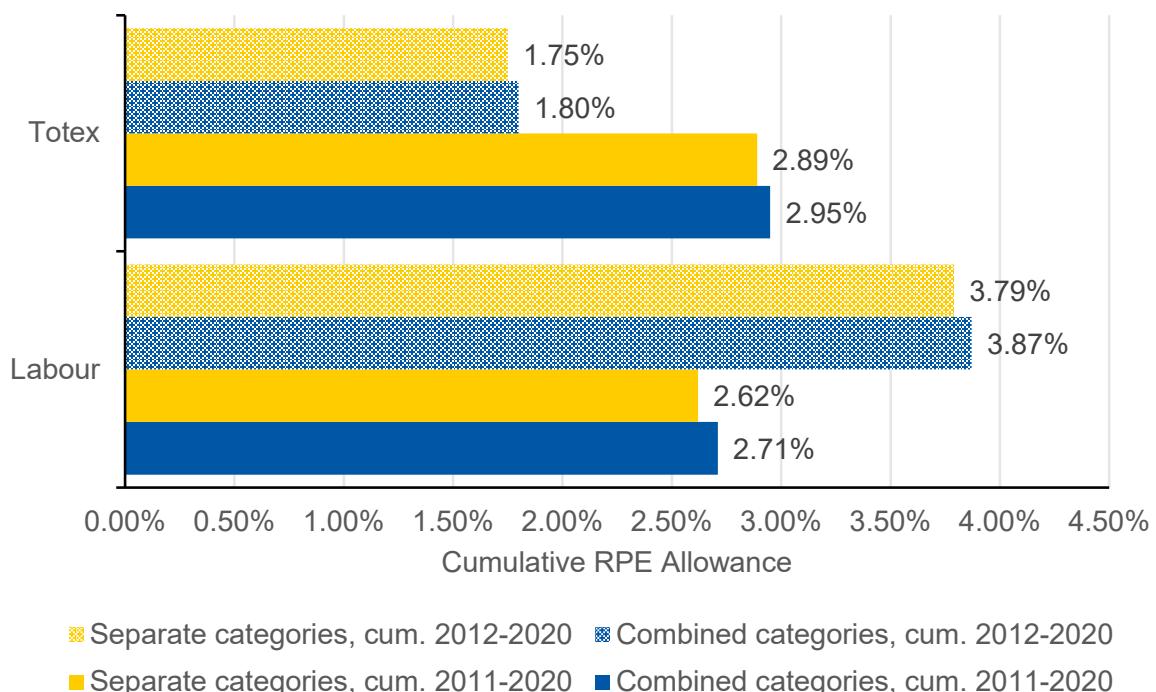
⁵⁰ Ofgem (28 November 2014), RIIO-ED1: Final determinations for the slow-track electricity distribution companies – Business plan expenditure assessment, p. 151

Figure 5.1: By Combining Labour Cost Categories CEPA Mechanically Reduces the Forecast RPE Allowance



Source: NERA analysis

Figure 5.2: On a Cumulative Basis since 2011, Combined Labour Cost Categories Produced a Higher RPE Allowance



Source: NERA analysis

5.3.1. CEPA Creates a Single Labour Cost Category

For labour, CEPA uses the original cost categories of general labour and specialist labour for index selection.⁵¹ It then takes an unweighted average of the selected indices across both general and specialist labour and uses this average to set the RPE for all labour costs.⁵²

This approach is inconsistent with regulatory precedent for electricity distribution. At ED1, Ofgem set separate RPE allowances for general and specialist labour.⁵³ Although Ofgem combined general and specialist labour into a single cost category at RIIO-GD2/T2, it provides no clear justification for doing so.⁵⁴

This approach also means that 63 per cent of DNOs' total costs are being treated as a single, homogenous cost category that can be expected to face common external price pressures.⁵⁵ It is not obvious that all of these costs grow at the same rate. By failing to separately account for the different labour cost categories, Ofgem increases the risk that it may fail in its statutory duty to allow DNOs to fully recover their efficient costs.

CEPA explains its choice to combine the labour cost categories by pointing out that there is “*significant variation across the industry with respect to the split between general and specialist labour costs*”, citing the difference between ENWL’s allocation and WPD’s allocation as an example.⁵⁶ CEPA suggests that this variation may be driven by DNOs not be allocating costs across labour cost categories in a consistent way.

CEPA exaggerates the degree of variation across industry. While it is true that ENWL and WPD have quite different allocations between general and specialist labour, these two DNO groups are the two extremes. NPG, UKPN, SSE, and SPEN all have broadly consistent allocations with 40-45 per cent of total labour costs allocated to general labour, as shown in Figure 5.3. The notional cost structure allocates 39 per cent of total labour costs to general labour, just outside the 40-45 per cent range (see Figure 5.3, below).⁵⁷

CEPA makes no effort to engage with DNOs to understand whether the difference could be driven by underlying structural differences, rather than reporting inconsistencies. One potential consideration is that WPD is the largest DNO group, whereas ENWL is the smallest. It is therefore plausible that WPD has the most ability to spread overhead costs (typically general labour) across its DNOs, reducing the share of general labour costs in total labour costs for each DNO, whereas ENWL has the least ability to do this.

⁵¹ CEPA (17 June 2022), RIIO-ED2: Cost Assessment – Frontier Shift methodology paper, Appendix B3 p. 72-76

⁵² CEPA (17 June 2022), RIIO-ED2: Cost Assessment – Frontier Shift methodology paper, p. 45

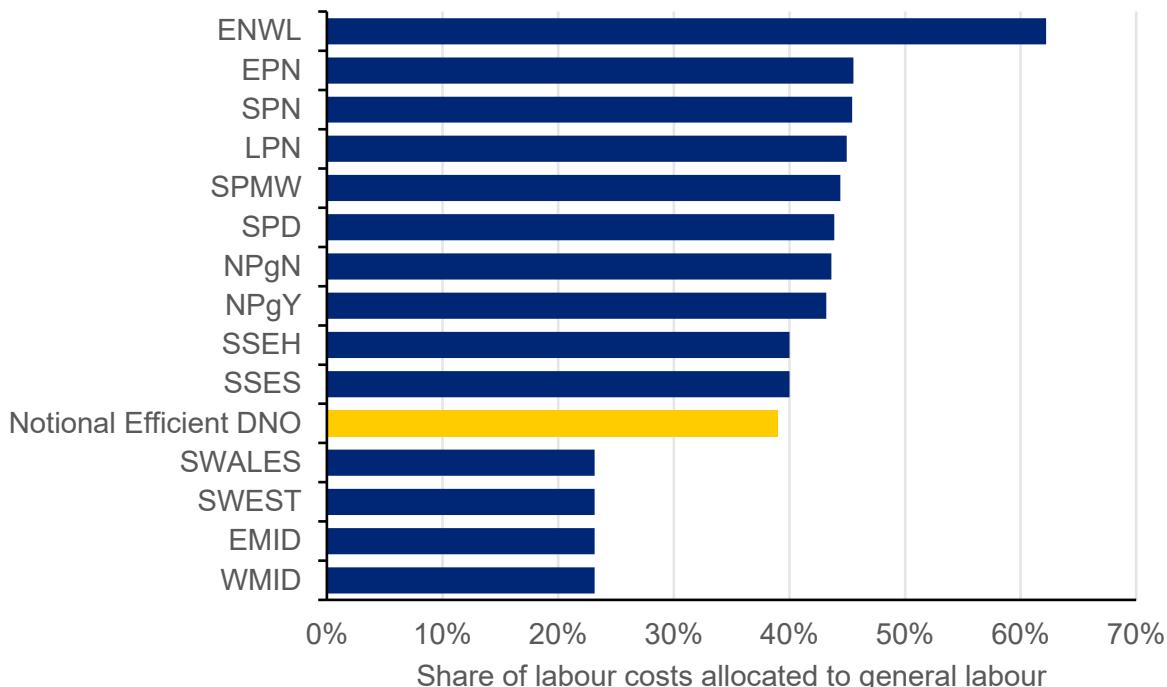
⁵³ Ofgem (28 November 2014), RIIO-ED1: Final determinations for the slow-track electricity distribution companies – Business plan expenditure assessment, p. 151

⁵⁴ Ofgem (3 February 2021), RIIO-2 Final Determinations, p. 66

⁵⁵ CEPA (17 June 2022), RIIO-ED2: Cost Assessment – Frontier Shift methodology paper, p. 46

⁵⁶ CEPA (17 June 2022), RIIO-ED2: Cost Assessment – Frontier Shift methodology paper, p. 45

⁵⁷ NERA analysis of CEPA’s notional cost structure calculation file.

Figure 5.3: Most DNOs Allocate a Similar Share of Labour Costs to General Labour

Source: NERA analysis

Even if the difference were due to reporting inconsistencies, it is also not the case that combining cost categories is a solution to the problem of inconsistency in how DNOs allocate costs across cost categories. Combining cost categories in this way simply masks the underlying problem.

If there is inconsistency in the classification of labour costs between general and specialist across DNOs, the problem is that there is insufficient guidance from Ofgem. There are no RIGs definitions for the RPE categories and so DNOs are effectively required to classify all costs with no guidance beyond the names of the cost categories. We understand that DNOs have previously raised concern about this lack of guidance to Ofgem. The obvious solution to variation in reported cost structures across DNOs due to insufficient guidance is for Ofgem to provide clearer guidance.

Combining labour cost categories into a single category mechanically reduces the forecast labour RPE allowance given the indices that CEPA selects. Using our estimates of long-run historical RPEs, a combined labour cost category results in a forecast labour RPE allowance of 0.73 per cent.⁵⁸ If we use CEPA's same indices but maintain separate treatment of the two labour cost categories, this results in a forecast labour RPE allowance of 0.76 per cent.

The reason that combining general and specialist labour mechanically reduces the forecast labour RPE allowance is that it assigns too little weight to general labour costs, which – at

⁵⁸ We were not able to reproduce CEPA's forecasts of the RPE for individual benchmark indices and so we have used our own, as explained in Appendix A.

least based on the selected benchmark indices – grow at a faster rate than specialist labour costs. This is illustrated in Table 5.2.

Table 5.2: By Combining Labour Cost Categories, CEPA Places Too Little Weight on General Labour Costs

Index	Weight if labour categories combined	Weight if labour categories separate	Forecast growth
ONS Private Sector AWE (K54V)	20.98% = 1/3 of combined labour share of notional cost structure	24.62% = 100% of general labour share of notional cost structure	1.14%
BCIS PAFI civil engineering (4/CE/01)	20.98% = 1/3 of combined labour share of notional cost structure	19.17% = 50% of specialist labour share of notional cost structure	0.63%
BEAMA Electrical Engineering Labour (BEL)	20.98% = 1/3 of combined labour share of notional cost structure	19.17% = 50% of specialist labour share of notional cost structure	0.42%

Source: NERA analysis

5.3.2. CEPA Creates a Single Materials Cost Category

For materials, CEPA does not use the original cost categories of materials (capex) and materials (opex) for index selection. Instead, it uses three thematic groups of materials costs: cables, transformers, and other materials.⁵⁹ It then takes an unweighted average of the selected indices across all three groups and uses this average to set the RPE for all materials costs.⁶⁰

The choice to combine materials (opex) with materials (capex) likely reflects the low materiality of the materials (opex) cost category.⁶¹ Materials (opex) constitutes 2.7 per cent of the notional cost structure calculated by CEPA. It can therefore be effectively subsumed into the “other” group of materials costs that CEPA considers when conducting index selection.

The approach CEPA adopts for materials (opex), of subsuming it into a large cost category, is a logically consistent approach to dealing with low materiality cost categories. It does not have the logical flaw of CEPA’s proposed approach of setting a zero RPE for low materiality cost categories that one could in principle divide totex into sufficiently few cost categories that there would be a zero RPE for totex. It maintains a reasonable balance between Ofgem’s statutory duty to allow DNOs to recover efficient cost growth for materials (opex) that is above growth in CPIH and the practical need to avoid an unduly complex RPE mechanism.

We recommend that CEPA adopt the approach it has taken for materials (opex) as a model for how to deal with other low materiality cost categories, such as P&E and Transport. We discuss this recommendation further in Section 2.3.

⁵⁹ CEPA (17 June 2022), RIIO-ED2: Cost Assessment – Frontier Shift methodology paper, Appendix B3 p. 76-81

⁶⁰ CEPA (17 June 2022), RIIO-ED2: Cost Assessment – Frontier Shift methodology paper, p. 56

⁶¹ CEPA does not itself offer any explanation for its choice to combine the materials (capex) and materials (opex) cost categories.

Appendix A. Discrepancy Between CEPA and NERA Index Forecasts

As discussed in Section 2.3, CEPA asserts that it uses the same approach to forecasting RPEs that we recommended in our November addendum, with the exception of one labour index. However, CEPA's reported RPE forecasts for individual benchmark indices do not match our forecasts, as shown in Table 5.3. We have not been able to reproduce CEPA's reported RPE values for individual benchmark indices, and therefore for the cost categories and for totex.

Table 5.3: Forecasts of Individual Benchmark Indices

Index Name	CEPA	NERA
BCIS PAFI civil engineering (4/CE/01)	0.6%	0.63%
BEAMA Electrical Engineering Labour (BEL)	1.3%	0.42%
BCIS PAFI Pipes and Accessories: Aluminium (3/59)	0.3%	1.00%
BCIS PAFI Pipes and Accessories: Copper (3/58)	2.5%	1.87%
BCIS PAFI Structural Steelwork - Materials: Civil Engineering Work (3/S3)	1.9%	2.14%
BCIS RCI Infrastructure Materials (FOCOS)	1.8%	2.18%

Source: NERA analysis and CEPA report⁶²

As we only have CEPA forecasts for some benchmark indices, we relied on our own forecasts to produce the analysis described in this report. We set out our approach to forecasting in detail below.

We calculate historical annual RPEs for individual indices and cost categories as set out below. This approach is consistent with the approach adopted by Ofgem in the RPE workbook it produced for the 2021 AIP for GD2 and T2.⁶³

1. We collect raw index data in levels. This is typically reported monthly, although sometimes is reported quarterly (e.g. FOCOS) or annually (e.g. ASHE).
2. We convert monthly or quarterly data to annual data in levels, using financial years. We take an average of values within the financial year.
3. We calculate the annual growth rate for each index using the annual data in levels.
4. We calculate the yearly RPE for each index by taking the Fisher difference between the annual growth rate for the index and the annual growth rate for CPIH.
5. We calculate the yearly historical RPE for each cost category as a weighted average of the historical RPEs for individual indices.

To calculate the forecast annual RPE for individual indices and cost categories, we adopt the following approach. This is the approach as described in our November addendum.

⁶² CEPA (17 June 2022), RIIO-ED2: Cost Assessment – Frontier Shift methodology paper, p. 56

⁶³ Ofgem (30 November 2021), RIIO-2 RPE Workbook – AIP 2021, Link: <https://www.ofgem.gov.uk/publications/riio-2-annual-iteration-process-2021-transmission-gas-distribution-and-electricity-system-operator>

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1. We take as input data the historical yearly RPEs from step (4) above for financial years ending 2000 through 2020, excluding financial years ending 2010 and 2011.
2. We set the forecast RPE for each index equal to the average of the historical yearly RPEs for that index.

We calculate the forecast RPE for each cost category as a weighted average of the forecast RPEs for individual indices.

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