



## REAL PRICE EFFECTS AND ONGOING EFFICIENCY

Real price effects (RPEs) are when prices of particular inputs vary by more (or less) than the general measure of inflation that our cost allowances are linked to<sup>1</sup>. One of the clearest examples of a real price effect comes from real terms pay growth, which is consistently observed in market economies and which reflects productivity growth across the economy (and rising living standards). Labour is our biggest input.

The flip side of real price effects is ongoing efficiency – those cost reductions that technological change, or newer and better ways of working, can help bring about.

Real price effects and ongoing efficiency estimation are both economically complex subjects and so, alongside other distribution network operators (DNOs), we commissioned economic experts NERA to evaluate the evidence and develop an approach to real price effect indexation that is supported by that evidence; and also to undertake a comprehensive evaluation of the evidence on ongoing efficiency.

This annex acts as a bridge between our plan and those expert reports. It is intended primarily for stakeholders that need this information, such as our regulator Ofgem, although it may provide some information that other stakeholders could be interested in.

It is set out in two sub-sections:

- RPEs; then
- ongoing efficiency.

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<sup>1</sup> Inflation measured using the consumer prices index including owner occupiers' housing costs, CPIH

## Real Price Effects

RPE indexation is the only option that our regulator has provided for incorporating the costs associated with RPEs into allowable revenues, and it will set the final RPE indexation used over 2023-28. We will continue to work with our regulator, to develop an appropriate approach, and in this section we describe our proposal.

Given the complexity of this issue, we commissioned NERA to develop a report evaluating the evidence in this area and to propose relevant indices. Our proposals are based on the findings of the [NERA report on real price effects](#) and its [associated addendum](#).

The costs set out in our plan apply our forecasts for these RPEs, again taken from the evidence base set out in NERA's report. But this does not mean that our allowances will necessarily reflect these forecasts – the whole purpose of RPE indexation is that the eventual cost allowances will depend on what the indices actually do. If the indices run at lower levels than NERA's current forecasts, then we would receive lower allowances (and vice versa).

### We have taken an evidence based approach to RPEs

Table 1 is reproduced from the costs section of our business plan, and summarises the justification, share of sector costs (based on NERA's report), and indices we propose based on the NERA report.

| Cost area                  | Justification  | Share of sector costs | Proposed index  |
|----------------------------|--|-----------------------|---|
| <b>General labour</b>      | Across the economy there is indisputable evidence that wages tend to grow faster than CPIH inflation   | <b>30%</b>            | Indexed using: <ul style="list-style-type: none"> <li>— ONS private sector weekly earnings</li> <li>— ONS annual survey for hours and earnings median hourly earnings</li> </ul>  |
| <b>Specialist labour</b>   | As with general labour, the evidence of labour RPEs is indisputable. In this category the benchmarks are tailored towards electrical and civil engineering   | <b>36%</b>            | NERA index based on: <ul style="list-style-type: none"> <li>— BEAMA electrical engineering labour</li> <li>— BCIS PAFI civil engineering<sup>A</sup></li> <li>— BCIS electrical installations – cost of labour</li> <li>— BCIS PAFI electrical engineering</li> </ul>   |
| <b>Materials (capex)</b>   | Electricity distributors use specialist components that become part of their networks like cable and transformers and wood poles. Prices depend heavily on commodity prices, which can be volatile | <b>18%</b>            | NERA index based on: <ul style="list-style-type: none"> <li>— ONS wood, sawn and planed for domestic market</li> <li>— BCIS PAFI pipes and accessories, aluminium</li> <li>— BCIS PAFI pipes and accessories, copper</li> <li>— BCIS electrical materials</li> <li>— BCIS RCI infrastructure materials (FOCOS)<sup>B</sup></li> </ul> |
| <b>Materials (opex)</b>    | Similar to capex materials, but with indices tailored towards a lower weight on major network components   | <b>3%</b>             | NERA index based on: <ul style="list-style-type: none"> <li>— BCIS RCI infrastructure materials (FOCOS)</li> </ul>  |
| <b>Plant and equipment</b> | As well as components that become part of the network (materials), DNOs use various items of plant, such as generators, tools and road transport   | <b>7%</b>             | NERA index based on: <ul style="list-style-type: none"> <li>— BCIS PAFI plant and road vehicles</li> </ul>  |

<sup>A</sup> BCIS – the Building Cost Information Service (BCIS) of the Royal Institution of Chartered Surveyors (RICS); PAFI – the BCIS price adjustment formulae indices  
<sup>B</sup> RCI – the BCIS resource cost indices; FOCOS – the BCIS infrastructure resource cost indices

**Table 1: summary of our proposed approach to RPE indexation and justification**

The NERA report provides a comprehensive evidence base to support our proposed RPE indexation. In Table 2 we provide a mapping of information contained in the NERA report, and how it meets the specific requirements of our regulator in this area.<sup>2</sup>

<sup>2</sup> This mapping is not intended to be exhaustive but instead to point to key pieces of information – for those requiring a detailed understanding of all aspects of NERA's methodology the full report provides the appropriate reference point.

| Issue   | Our summary of NERA's approach   | Key page references  |
|---|--|----------------------|
| <b>Justification for departures from CPIH</b> | NERA has integrated the justification for departures from CPIH into the objective criteria used to test CPIH relative to other potential indices. If CPIH performed "best" against these objective criteria, then NERA's approach would have returned CPIH as the proposed index; but it does not.   | Roman "x" & 34-36    |
| <b>Evidence for index selection</b>           | The indices have been selected by applying objective criteria to historical evidence. The historical evidence comes primarily from comparisons of DNO actual cost data, where available, with the potential index data series. The criteria focus on minimising mean squared deviation but also testing correlation. Where actual DNO data is not available, evidence includes factors such as regulatory precedent instead. | 34-47 & addendum 4-6 |
| <b>Practicality and materiality</b>           | NERA has ensured practicality through its feasibility criterion, including by focussing on those indices that appear most relevant (as opposed to an unmanageable list). Materiality is ensured since the focus is only on material categories of cost, and by the evidence provided of long-term departures from CPIH.  | 37<br>29             |
| <b>Derivation of forecasts</b>                | Forecasts have been derived for each index based on the average historical RPE of the index. This forecasting method means that the forecast RPE is constant over the forecast horizon.  | Addendum 7-11        |

*Table 2: mapping of information contained in NERA's report*

### Our proposals (and cost forecasts) include NERA's bespoke indices for most categories, but we use a more basic specification for general labour

For the purpose of this plan, we used NERA's recommended bespoke index approach for most categories of cost. We have, however, not used it for the general labour category of costs. As NERA acknowledges, there are some complex dynamics in developing an index of the general labour category:

- Two indices have been identified as having a closer fit to the evolution of DNO costs, over the course of an extended period, than CPIH, on the mean squared deviation measure.
- These indices actually appear to have negative correlation with DNO costs year to year, so although they provide objective demonstration that RPEs can be expected in this category, they may introduce additional risk.
- CPIH itself has positive correlation with DNO general labour costs (but obviously would not be expected to cover the associated RPEs relative to CPIH).

To try to resolve these issues, NERA developed a bespoke index for general labour, which uses CPIH as its starting point. Rather than applying this approach, we have taken a simpler alternative approach that NERA has included within its report, using the average of two economy wide labour cost indices.

We have chosen this approach because it is more closely aligned with the available regulatory precedent. Since it generates a lower forecast RPE, it could also be interpreted as a potential additional unit-cost efficiency challenge above and beyond the RPE indexation approach that NERA has found the data best supports – although of course whether it is (or not) will only be known for certain once RPE forecasts have been replaced with actual RPE allowances based on the evolution of the indices.

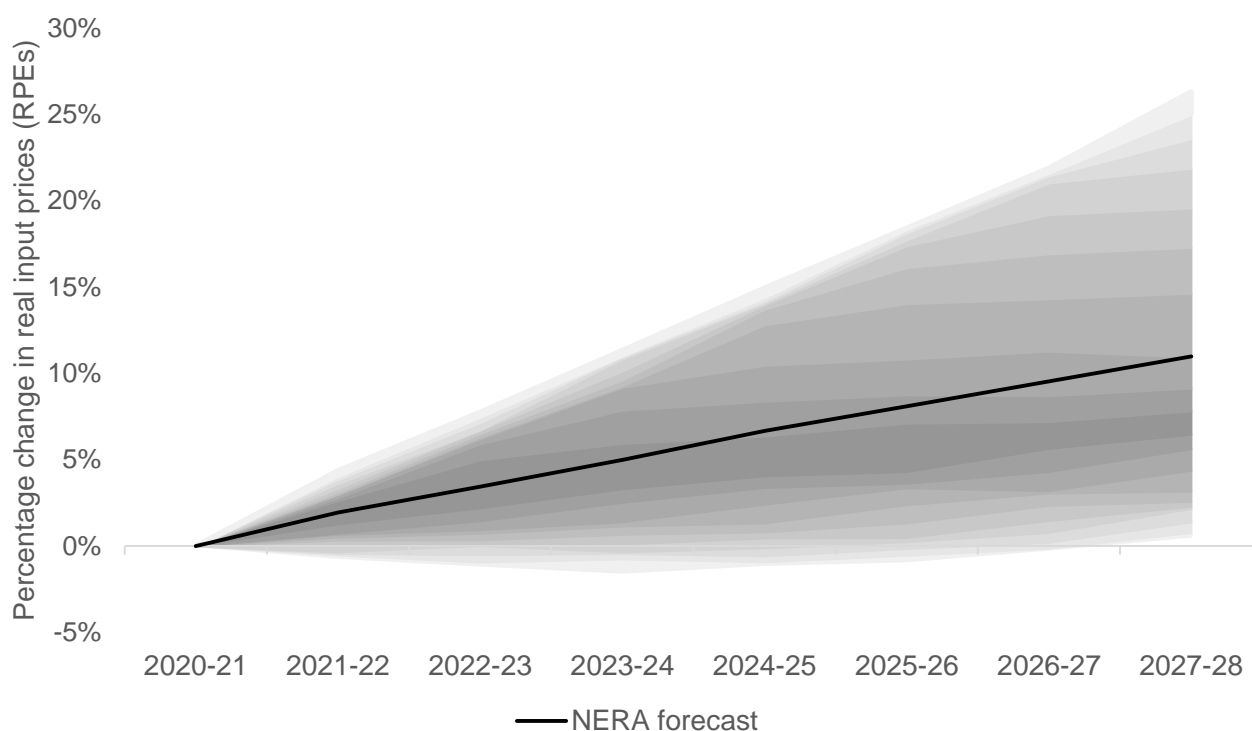
NERA provided us with a set of forecasts for the individual input categories, based on our proposed approach, and we have included these forecast RPEs in our plan. We expect to work with our regulator through its process of determinations to confirm the final approach in this area.

### There is uncertainty over the eventual level of real price effect cost allowances

The RPE allowances we are proposing will depend on what happens to the individual indices.

There is uncertainty over how these RPE indices will evolve. To help understand the plausible range of uncertainty, we asked NERA to calculate what would happen with our proposed indices if history repeated, by using all the seven-year periods since the year 2000 as scenarios for the seven-year period that is just starting.

The chart below shows NERA's forecast for RPEs relative to the range calculated using these scenarios, with each shade of grey representing 10% (i.e. +/-5%) of the scenario distribution for each year.



*Figure 1: NERA's RPE forecast compared to what could happen if history repeats*

### For the purposes of applying the RPE indexation we are proposing to use sector average data

Data on the shares of each input, relative to total expenditure, is needed to apply RPE indexation.

At the review to set prices over 2015-23, our regulator used an average of the cost shares of several electricity distribution companies to set our RPE allowances. We support this approach, since all the companies are undertaking broadly the same activities and since using an average means the RPE allowances granted will not be affected by:

- the business model of individual companies; or
- different estimation methodologies for the cost shares.

This approach is also in line with the approach our regulator used in setting RPE indexation at the price review for gas distribution over 2021-26, where a common approach to RPE indexation has been taken across the relevant companies.

For the purposes of this plan, we have therefore used the sector average for the share of each input cost shares in each expenditure category set out in the NERA report. We do not yet know the eventual share of sector total costs that each expenditure category will account for, therefore the RPE costs in our plan use our own expenditure category shares (in line with Ofgem's template for these calculations).

We expect our regulator will set a common index for the whole sector, and therefore the share of sector costs that each expenditure category accounts for will need to be updated based on final business plan submissions and Ofgem's determinations based upon these.

## Ongoing efficiency

Ongoing efficiency is the process of finding ways to reduce costs over time through better ways of working and technological improvements – our regulator explains it as finding ways to produce the same outputs with a lower volume of inputs.

Assessing ongoing efficiency is an economically complex subject and therefore, like RPEs, we have engaged economic experts NERA to assess the evidence.

**Our plan uses the most challenging efficiency assumption possible that is consistent with the evidence, of 0.5% per annum**

[NERA's report on ongoing efficiency](#) concludes that the range for efficiency of 0.1 per cent to 0.5 per cent '*defines the widest range of assumptions that could reasonably be derived from the evidence.*' For the purposes of this business plan, we have adopted the most challenging assumption within this reasonable range of 0.5 per cent.

NERA triangulated four sources of evidence to develop its range. The table below summarises NERA's estimates of ongoing efficiency based on each of the analysis techniques it has used.

| Evidence source   | Our summary of NERA's approach  | Efficiency estimate |
|---|---|---------------------|
| <b>EU KLEMS data</b>  | NERA has developed efficiency estimates based on relevant sectors using the EU KLEMS dataset, which is widely acknowledged in regulatory settlements as being a relevant data source. NERA has used estimates based on the gross output measure of efficiency, since this is consistent with the totex measure that productivity is applied to. It has not used the value added measure (which has previously been erroneously used by some regulators, but which no longer represents regulatory best-practice).                             | 0.5%                |
| <b>Actual electricity distribution productivity growth, 2010-20</b> | NERA has used data on the costs of DNOs and outputs delivered, using "Törnqvist" estimation to directly estimate the ongoing efficiency actually achieved by the sector. This direct new evidence has not previously been considered and is a category of evidence that our regulator said it would consider. Since all of the DNOs have faced strong efficiency incentives to improve productivity, this analysis gives a robust indication of what is possible, including the effect of contemporaneous factors such as innovation funding. | 0.2%                |
| <b>Economy wide productivity growth</b>                             | NERA develop two estimates based on estimates of economy wide productivity growth from estimates developed by institutional sources. One involves long term estimates, and gives a 0.4% estimate. Another uses a post global-financial-crisis (GFC) time period, and gives only a 0.2% estimate. We have combined these two data points here for convenience, although NERA present them separately as they provide different information.  | 0.2%-0.4%           |
| <b>Forecasts of productivity growth</b>                             | NERA has compiled forecasts for productivity growth from the Bank of England and the Office for Budget Responsibility.  | 0.1%                |

**Table 3: summary of the evidence used by NERA to triangulate its ongoing efficiency range**

Stakeholders who want a fuller understanding of NERA's approach than is presented here can find it in the [NERA report](#).

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