RP7 - NIE Networks Price Control 2025-2031

Final Determination Annex C
Frontier Shift
30 October 2024
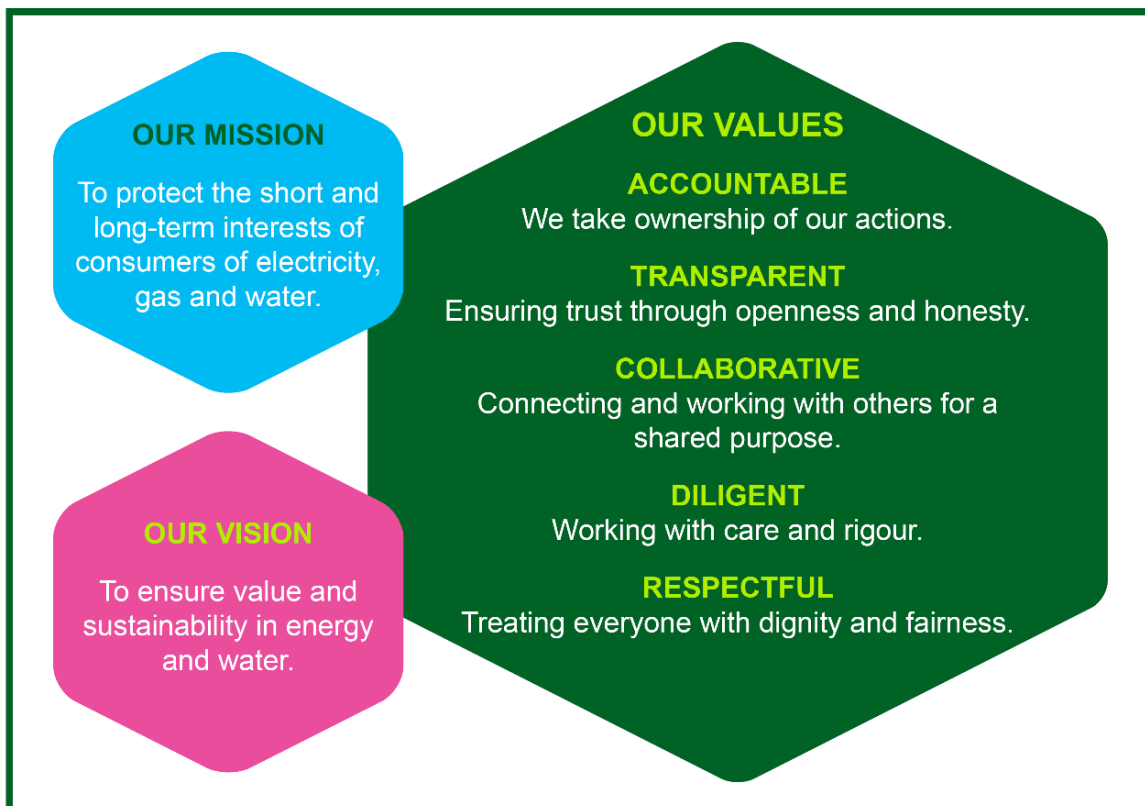
About the Utility Regulator

The Utility Regulator is the independent non-ministerial government department responsible for regulating Northern Ireland's electricity, gas, water and sewerage industries, to promote the short and long-term interests of consumers.

We are not a policy-making department of government, but we make sure that the energy and water utility industries in Northern Ireland are regulated and developed within ministerial policy as set out in our statutory duties.

We are governed by a Board of Directors and are accountable to the Northern Ireland Assembly through financial and annual reporting obligations.

We are based at Queens House in the centre of Belfast. The Chief Executive and two Executive Directors lead teams in each of the main functional areas in the organisation: CEO Office; Price Controls; Networks and Energy Futures; and Markets and Consumer Protection. The staff team includes economists, engineers, accountants, utility specialists, legal advisors and administration professionals.

OUR MISSION

To protect the short and long-term interests of consumers of electricity, gas and water.

OUR VISION

To ensure value and sustainability in energy and water.

OUR VALUES

ACCOUNTABLE
We take ownership of our actions.

TRANSPARENT
Ensuring trust through openness and honesty.

COLLABORATIVE
Connecting and working with others for a shared purpose.

DILIGENT
Working with care and rigour.

RESPECTFUL
Treating everyone with dignity and fairness.

Abstract

This annex forms part of the final determination for the NIE Networks RP7 Price Control. We determine frontier shift, or the addition to or subtraction from the amounts determined, for the NIE Networks operational and capital expenditure (Opex and Capex). Our calculations are based on the projected rate of electricity industry input costs compared to our assumptions for CPIH and productivity growth.

Audience

NIE Networks, consumers, consumer representatives, consumer groups, other regulated companies in the energy industry, government, and other bodies with an interest in the energy industry.

Consumer impact

The overall impact of our determined frontier shift across RP7, including the prior years from base year, is to reduce NIE Networks' operational expenditure (Opex) compared to what would otherwise have been the case absent of frontier shift. This is due in large part to our assumed 1% per annum productivity challenge.

For capital expenditure (Capex) the analysis also reduces costs compared to what would otherwise have been the case. This reduction is not as great as Opex, largely due to the impact of material costs which makes up a greater proportion of spend and is generally forecast to rise at a faster rate than inflation.

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Executive Summary

Our assessment of NIE Networks future costs for RP7 is developed in 2021/22 prices, determined from a combination of benchmarking, historical costs and bottom-up estimates.

During the price control, we use CPIH (Consumer Prices Index, including owner occupiers housing costs), as a general measure of inflation to convert determined values to nominal values. However, we recognise that the NIE Networks costs will not necessarily move in line with CPIH due to industry specific factors and we expect costs to reduce over time due to improved productivity in the wider economy. We reflect these changes by applying a frontier shift to our assessment of costs for RP7.

This annex to the RP7 Final Determination determines the addition to or subtraction from the amounts determined for NIE Networks' operational and capital expenditure (Opex and Capex) to account for frontier shift (FS).

This calculation is based on the projected rate of electricity industry input costs compared to general inflation movements, as measured by CPIH and the projected rate of productivity growth. The sum of these components can be a positive or a negative difference.

Frontier shift in real terms   =   input price increase minus

forecast CPIH (measured inflation) minus

productivity increase

(NB: Taken together, nominal input costs compared to general inflation are referred to as 'real price effects' or RPEs).

Within this annex, we have adopted a methodology similar to that which we first introduced at PC13 for NI Water. This aligns closely with the Competition Commission (CC) determination for Northern Ireland Electricity at RP5 and more recent Competition and Markets Authority (CMA) decisions.

The forecast for each of the components and the resulting frontier shift to be applied to RP7 Opex and Capex targets are given in Table 1 and Table 2 below.

Figures in % (excl. cost base impact)	RP6			RP7					
	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31
Weighted nominal input prices	7.50	5.37	1.90	2.01	2.40	2.69	1.39	2.98	2.98
CPIH Forecast	9.61	4.75	1.44	1.61	1.67	2.00	2.00	2.00	2.00
RPE (annual)	**-1.93**	**0.59**	**0.45**	**0.40**	**0.71**	**0.68**	**-0.60**	**0.97**	**0.97**
Productivity	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FS (annual)	**-2.91**	**-0.41**	**-0.56**	**-0.60**	**-0.30**	**-0.33**	**-1.59**	**-0.04**	**-0.04**
Cumulative FS	-2.91	-3.31	-3.85	-4.43	-4.71	-5.03	-6.54	-6.58	-6.62
Effect on cost base	**0.97**	**0.97**	**0.96**	**0.96**	**0.95**	**0.95**	**0.93**	**0.93**	**0.93**

Table 1: RP7 Opex frontier shift calculations

Figures in % (excl. cost base impact)	RP6			RP7					
	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31
Weighted nominal input prices	9.68	2.04	1.20	2.84	3.10	3.30	2.41	3.50	3.50
CPIH Forecast	9.61	4.75	1.44	1.61	1.67	2.00	2.00	2.00	2.00
RPE (annual)	**0.07**	**-2.58**	**-0.24**	**1.21**	**1.40**	**1.28**	**0.41**	**1.47**	**1.47**
Productivity	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FS (annual)	**-0.93**	**-3.56**	**-1.24**	**0.20**	**0.39**	**0.26**	**-0.60**	**0.46**	**0.46**
Cumulative FS	-0.93	-4.46	-5.64	-5.45	-5.09	-4.84	-5.41	-4.97	-4.54
Effect on cost base	**0.99**	**0.96**	**0.94**	**0.95**	**0.95**	**0.95**	**0.95**	**0.95**	**0.95**

Table 2: RP7 Capex frontier shift calculations

Further detail on the make-up of the frontier shift analysis is contained in the following chapters of this annex. It is important to note that whilst the numbers for this final determination have changed based on updated forecasts, the methodology is largely the same as at draft determination.

We have however considered the potential for a true-up mechanism should material price volatility be observed. This is not included in the RP7 framework as details are yet to be finalised. However, it should provide NIE Networks with assurance that the issue will be considered if external factors impact on performance.

1.   Introduction

1.1   This annex gives detail of our analysis and considerations around frontier shift assumptions for RP7. It includes representations by stakeholders and our response having considered the relevant issues.

1.2   Taken together, RPEs and productivity (or ongoing efficiency) when adjusted for general inflation gives the frontier shift. This can be represented as:

1.3   **Frontier shift in real terms**   = input price increase minus

                                            forecast CPIH (measured inflation) minus

                                            productivity increase

1.4   The various components of the calculations are assessed in turn in the following chapters before drawing final conclusions at the end of the paper.

1.5   This annex sets outs the NIE Networks' business plan proposals, our draft determination views, sensitivity analysis, stakeholder feedback, our response and final determination conclusions.

1.6   It is important to note that whilst the numbers for this final determination have changed based on updated forecasts, the methodology is largely the same as at draft determination stage.

2. Stakeholder Feedback

Background

2.1 The frontier shift methodology used at consultation stage is fully set out in Annex C[1] of the RP7 draft determination. The purpose of this chapter is to detail stakeholder feedback on key issues and our corresponding response.

2.2 This chapter also contains a section on the changes to the methodology as a result of consultation feedback. Further detail on our deliberations is also provided in the remaining chapters of the annex.

Response to consultation feedback

2.3 Some material concerns were raised by NIE Networks and other stakeholders with respect to the draft determination. Summary comments and our responses are detailed in Table 2.1 and Table 2.2 below.

2.4 The most material response was received by NIE Networks and its consultant in this area (E&Y). Its views and our responses are set out in Table 2.1 below. References relate to the NIE Networks' response as this repeats many of the arguments found in the E&Y submission.

	Consultation Response	UR Views & Action
1	UR's provisional decision not to distinguish between general and specialist electrical engineering labour would, if carried forward into the FD, prejudice NIE Networks' ability to fund its input costs for its regulated activities. **[NIEN Response, para 2.5, p156]**	We do not believe this to be the case. Our analysis uses OBR figures which capture changes in the average hourly earnings index. These are forecast to increase on average by 3.2% p.a. in nominal terms from the base year to the end of RP7. By contrast, the historic averages for civil and electrical engineering since 2010-11 have grown by around 3% p.a. This represents a slower growth rate than the ONS total economy average weekly earnings index of 3.1% and the OBR forecasts.

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[1] https://www.uregni.gov.uk/files/uregni/documents/2023-11/Annex%20C%20-%20Frontier%20Shift.pdf

		Consultation Response	UR Views & Action
2		Given specialist labour makes a significant proportion of NIE Networks labour, with labour costs accounting for 52.8% of NIE Networks' Capex costs and 77.3% of NIE Networks' Opex costs, the inclusion of the two specialist labour indices better reflects these costs to NIE Networks. **[NIEN Response, para 2.11, p157]**	We are not in a position to verify the exact proportion of specialist labour. However, there is little evidence to suggest that specialist indices would better reflect NIE Networks costs as historic growth rates are in line with total economy averages.
3		The cost categories selected by NIE Networks are in line with Ofgem's decision in RIIO-ED2. **[NIEN Response, para 2.11, p157]**	We accept this point. However, we would note that there is historical precedent for not adopting specialist labour indices.
4		Data on past pay increases for key occupations specific to NIE Networks growing below the OBR average hourly earnings index should not be a reason for excluding from future allowed costs labour indices that reflect the cost of NIE Networks or a notional company in the sector. **[NIEN Response, para 2.11, p157]**	If these costs track closely with whole economy weekly earnings averages, it seems reasonable to rely on this for forecasts rather than adopting specialist indices. Historic growth rates show we are not wrong to rely on whole economy figures or are introducing a bias which is detrimental to NIE Networks.
5		The indices chosen and their weightings should seek to closely match NIE Networks' cost profile. **[NIEN Response, para 2.11, p158]**	Whilst we agree with this sentiment, it does not appear that NIE Networks has adopted such an approach. The company chosen indices represent a simple average rather than a detailed assessment of the staff proportional split.
6		The draft determination notes that there is no agreed approach but does not address the different regulatory approaches that have been taken in respect of this issue, nor consider whether any particular previous approach might be more appropriate to follow in this case. **[NIEN Response, para 2.13, p158]**	In terms or regulatory precedent, specialist labour categories have not been adopted in the most recent decisions for NI Water (PC21), gas DNOs (GD23) or NIE Networks (RP6). Whilst Ofgem has adopted such an approach for its electricity and gas determinations, we note that in PR19 Europe Economics recommended that Ofwat adopt an ex-post true-up based on the ONS "Private sector" wage index or the ONS "Manufacturing" wage index.[2] Use of specialist water sector wages was rejected. This is discussed in more depth in the next chapter.

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[2] See Europe Economics PR19 report, p33.

	Consultation Response	UR Views & Action
7	GD23 should not be considered a relevant precedent for RP7 in the present context, because the GD23 price control is for gas rather than electricity and the skill sets are different across each industry. **[NIEN Response, para 2.15, p158]**	We disagree with this point. There will obviously be different skill sets and occupations but there will also be significant overlap in terms of construction activity, design, engineering, procurement, management etc. In this context, GD23 seems like a very relevant regulatory precedent. To illustrate this point, we note that the some of the specialist wage indices adopted by Ofgem are identical across both the gas and electricity price controls i.e. the Price Adjustment Formula Index (PAFI) for civil engineering labour.
8	UR should take into account Ofgem's recent RIIO-ED2 decision, in which Ofgem recognised the importance of the general / specialist labour split and applied the two specialised labour indices which NIE Networks proposed to the UR. **[NIEN Response, para 2.15, p158]**	Ofgem did recognise the importance of specialist labour. However, as noted in the draft determination, to focus on only some labour costs would be an asymmetric approach to the potential detriment of consumers. Other roles that may be pertinent to DNOs where there has been wage growth lower than the whole economy average would also need to be considered.[3] NIE Networks' response has failed to address this key issue. In the absence of such an analysis, we feel justified in retaining the current approach of using whole economy averages.
9	If a 'true-up' mechanism had been applied at RP6, the ex-post adjusted allowances would have been slightly higher for NIE Networks relative to the ex-ante approach used by the UR. **[NIEN Response, para 2.18, p159]**	It is not possible to exactly replicate the RP6 analysis as some of the indices are no longer published. However, when the analysis is re-run it is our view that NIE Networks has in fact been slightly overcompensated during RP6. This is somewhat due to 2022-23 where inflation was very high but nominal prices and labour costs did not keep pace resulting in a substantial negative RPE.

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[3] Europe Economics noted that some water companies did such a detailed analysis for PR19. (See PR19 report, p28).

	Consultation Response	UR Views & Action
10	Although the UR is correct that any adjustment will not be perfect given that indices are only a proxy for electricity industry costs, it is still important that the indices applied are as accurate and reflective of true short-term cost pressures as much as possible. **[NIEN Response, para 2.22, p159]**	This point is accepted, and we are generally in agreement with NIE Networks regarding the chosen RPE indices. However, in the context of a true-up mechanism, the issue remains that any automatic adjustment will be imperfect. It should also be noted that Ofgem are only proposing a true-up for certain costs and circumstances which meet particular materiality thresholds.[4] This is significantly different from the NIE Networks' proposal to adjust all RPEs. We are of the view that any true-up mechanism would need to be tailored and apply only if certain materiality thresholds are met as there is already significant protection in the price control.
11	Any additional burden that would arise from administering the mechanism, as the UR suggests, would be outweighed by the benefits of the true-up mechanism in mitigating any unexpected gains or losses. In any event, Ofgem appears to have resolved any concerns over unmanageable complexity. **[NIEN Response, para 2.23, p159-160]**	As noted at the draft determination, a 'true-up' device is a reasonable suggestion. We recognise there are benefits, in particular where there is a risk of a windfall gain or loss. However, there is no question that NIE Networks' proposals would add significant complication. This would require interaction with at least eight different indices. Each have different publication dates and processes (such as provisional figures) which may not be conducive to annual adjustments. Whilst Ofgem has committed to implementing a true-up, this is only for certain costs and where materiality thresholds are met.
12	The risk raised in the draft determination that some of the indices may become defunct can be managed through careful and thorough selection of the indices. **[NIEN Response, para 2.24, p160]**	We accept this point, though a risk remains. Indeed, the ONS producer price index (PPI) for machinery and equipment (K389) which operated in RP6 is no longer in use. This highlights the potential complexities of such a mechanism.

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[4] See Ofgem ED-2 Core Methodology, p354, para 7.621.

		Consultation Response	UR Views & Action
13		The "fair bet" principle allows an investor to earn returns above the cost of capital to compensate for the downside risks faced when the investment was made. Under an ex-ante regime, there is a possibility that NIE Networks is unable to recover efficiently incurred costs. **[NIEN Response, para 2.25, p160]**	NIE Networks is correct to highlight this risk. However, it is worth noting that the threat is significantly mitigated by the following: • Ex-ante allowances for RPEs. • 50:50 cost sharing mechanism. • Employee salary control and contractor management practices. • Provision of general inflationary uplifts. Furthermore, we do not consider that the "fair bet" principle is violated as NIE Networks is at least as likely to recover above the efficient cost threshold as to under recover.
14		The draft determination does not contain any discussion of regulatory precedent on this issue. No reasons are given in the draft determination for choosing to follow the approach in GD23 in preference to Ofgem's approach at RIIO-ED2 (or any other relevant regulatory precedent). **[NIEN Response, para 2.27, p160]**	In challenge to the NIE Networks' response, a variety of reasons were given as to why no true-up was proposed. Further discussion on the regulatory precedent is set out in the next chapter. However, a key point we raised was that departure from the current regulatory regime needs to be well justified. The onus for this justification is on NIE Networks. In our view, the justification provided was not sufficiently well evidenced to support the introduction of a true-up. This remains the case for the final determination.

	Consultation Response	UR Views & Action
15	UR has proposed to apply a two-year linear glide-path instead of the five-year glide-path. NIE Networks concurs with the view set out in the E&Y RPE and Productivity Report that if a shorter glide-path is applied in the final determination as set out in the draft determination, this should be supported with the inclusion of an ex-post true-up mechanism. **[NIEN Response, para 2.29, p161]**	It is our view that these are two separate issues which should be judged on their own merits. Since publication of the draft determination, actual values have become available for 2023-24. For the materials category there is a significant swing from a positive RPE in 2022-23 to a substantially large negative RPE in 2023-24. If the 5-year glidepath were implemented this would artificially depress the forecasts of material costs for a much longer period. We do not consider this to be a reasonable proposition, in the same way that the business plan overestimated forecasts for a longer timeframe. We are minded to retain the draft determination position that costs will return to long-run averages by 2025-26. This is in keeping with OBR forecasts for inflation and wage growth.
16	UR has materially underestimated the extent of the real input price pressures NIE Networks is likely to face over the course of the RP7 price control, and its proposals lead to an estimated shortfall of at least £61m. **[NIEN Response, para 2.34, p161]**	No matter the chosen methodology, RPE forecasts will always contain errors. However, given the change in real prices since the business plan submission, we do not consider the NIE Networks estimated shortfall to be credible given current projections. Using the company's own methodology but updating for latest OBR figures and long-term averages would result in a shortfall of c. £143m from the business plan submission (if all applicable costs were allowed).
17	The productivity target should be set at a level which reasonably allows NIE Networks to outperform. **[NIEN Response, para 3.4, p162]**	We are of the opinion that the 1% p.a. ongoing efficiency (OE) target is toward the top end of the range but still set at a level that can be outperformed, as evidenced by the long-term total factor productivity (TFP) trends.

	Consultation Response	UR Views & Action
18	Expanded comparator set for the TFP used in RIIO-ED2 includes high productivity industries (such as the Information and Communications sector), which is significantly different to the sector that NIE Networks operates in, leading to a higher upper bound of the range. **[NIEN Response, para 3.4, p162]**	This issue was raised during RIIO-ED2. The CEPA report for Ofgem stated that, *"we consider that the transformation of the electricity distribution sector means that there will be increasing investment in new activities and methods of managing the networks which bear some similarity to the Information and Communications sector".*[5] We agree with this conclusion. The scale of investment as set out in the NIE Networks' RP7 Digital and IT Business Plan provides further evidence of this increasing investment. Given this reality, the inclusion of this sector in the analysis seems justified.
19	Additional analysis conducted by CEPA that considers business cycles provides a more rounded view on historic productivity, as it assesses growth over a complete business cycle. **[NIEN Response, para 3.4, p162]**	This is not an unreasonable point. However, we have tended to review productivity over a longer time period. This avoids short-term fluctuations in productivity growth rates and helps limit bias in the TFP dataset. Our analysis also includes figures up to 2020 which was significantly impacted by the first COVID lockdown. These results will almost certainly result in underestimating the scale of what is achievable.
20	Given NIE Networks' existing levels of efficiency, the scope for NIE Networks to deliver further efficiency during RP7 to the extent required to meet a 1% productivity target is very limited. **[NIEN Response, para 3.5, p163]**	Whilst we welcome the results of NIE Networks' relative efficiency performance, the productivity challenge applies equally to all DNOs as it is unimpacted by catch-up efficiency assessments. This position is illustrated by Ofgem in the RIIO-ED2 summary which stated, *"An ongoing efficiency challenge of 1% per year, reflecting an overall increase in productivity that we expect even the most efficient companies to deliver."*[6] We agree with this position.

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[5] RIIO-ED2 Final [Determinations](): Frontier Shift methodology paper, p20.
[6] RIIO-ED2 Final Determinations Overview [document](), p12.

	Consultation Response	UR Views & Action
21	The expansion of the workforce is likely to dampen NIE Networks' productivity levels during RP7 as the new staff are incorporated into the workforce. **[NIEN Response, para 3.5, p163]**	It is not entirely clear why NIE Networks consider the staff expansion to be detrimental to productivity levels. OBR forecasts predict labour productivity per worker and per hour to be in the region of 0.8% p.a. from 2022-23 to 2028-29. NIE Networks should also be able to benefit from the increased IT investment and the innovation spend in both RP6 and RP7.

Table 2.1: NIE Networks and E&Y issues and UR response

2.5   A variety of other stakeholders made responses to the frontier shift framework. The main comments are listed in Table 2.2 below.

	Consultation Response	UR Views & Action
1	Materials and labour costs has increased significantly over the RP6 period. A.J. Watson Ltd would estimate that the pricing for RP7 will increase between 35% and 40% from the original pricing at tender stage of RP6 in March 2018. **[A. J. Watson Ltd Response, p2]**	We are not able to provide detailed commentary on individual NIE Network contracts. However, it is noteworthy that the nominal increases estimated by this contractor align with the RPI increase of c.38% over the same period from March 2018 to April 2024. This illustrates the protection afforded to NIE Networks by virtue of adjusting allowances by general inflation.
2	We note with disappointment, the Regulator's approach to FS and the impacts of Real Price Effects. The reality for Construction Industry supply chains is quite the opposite of that predicted and any expectations that efficiency savings over the period will or (can be) realised is questionable. We strongly urge that the draft determination is reviewed and updated so that NIE Networks is afforded sufficient financial resources (with a reasonable approach to Real Price Effects) to enable it to deliver on its plans. **[Adman Response, p5]**	We accept that there has been significant fluctuation and increases in construction and material costs throughout RP6. However, we would also note that inflation has risen sharply to afford NIE Networks revenue protection. Whilst forecasts will always be imperfect, we must utilise the relevant industry indices to make such predictions. This can be different from individual company circumstances. However, it largely reflects the agreed approach with Ofgem and NIE Networks' own proposals.

	Consultation Response	UR Views & Action
3	As a company we have been impacted by skilled labour shortages, rising fuel, plant/equipment and insurance costs. UR should take the above factors into account when considering RP7 price control. **[Cambell Contracts Response, p1]**	We believe that the RPE analysis adequately takes these issues into account.
4	During the RP6 period in particular, the RPI's were not truly reflective of the unprecedented increases due to COVID, Brexit and war and so left it a very challenging time for us. **[Fox Contracts Response, p1]**	We accept that RP6 has been a challenging period. However, general inflation has provided significant protection for NIE Networks and additional RPE allowance was provided during the RP6 extension year consultation to address the differentials.
5	If the RPI would be increased to a more realistic value it would allow us more flexibility in terms of rewarding the staff in money value to help retain and encourage new staff to come on board to these works and likewise suitable increase in line with material and other resource rises it would help a lot in a bid to continue to work on NIE Network sites. **[Fox Contracts Response, p1-2]**	There is no ability in this process to determine the general rate of inflation (which in RP7 will be CPIH) other than to pick a relevant measure. However, the RPE analysis attempts to set allowances based on the specific cost pressures of the electricity industry.
6	The global industry for electrical materials is under immense pressure, with demand growing from all quarters. **[Grid Services Team Response, p1]**	We appreciate this risk which is why the RPE analysis considers various indices covering aluminium, copper, steelwork, transformers and general infrastructure material costs.
7	Given the volatility of inflation and the uncertainty of this over the next five years, it is essential that review mechanism and reopeners allow for the timely review of inflation and unit prices without disproportionately adding regulatory burden and unintended consequences that could lead to negative consequences for customers from the price control design. **[Institute of Directors Response, p5]**	RP7 allowances are automatically uplifted by outturn CPIH inflation. As such, no re-opener is required to adjust for this inflation volatility. A review of unit prices would be similar to NIE Networks' suggestion of a true-up mechanism. We consider this could have negative consequences as it may blunt the incentive to control costs if unit rates are going to be uplifted via a re-opener mechanism. However, we are prepared to consider an end-of-period RPE true-up mechanism. This is discussed further in the following chapters.

	Consultation Response	UR Views & Action
8	Due to labour and material cost increases in the last 12 months, the total rate increase we are requesting at this moment in time is 10.7%. **[Circet NI Response, p1]**	We are not able to provide detailed commentary on individual NIE Network contracts. However, we are of the opinion that the RPE analysis adequately takes these issues into account on an overall basis.
9	We believe that the proposed 1% productivity improvement does not meet improvements seen elsewhere in the economy. It would be our view that the Regulator should insist on a more stretching productivity improvement by the company. **[Manufacturing NI Response, p22]**	It is true that other sectors of the economy have seen greater improvements, but this does not necessarily mean that such is applicable for an electricity DNO. Our view is that the 1.0% per annum target is reasonable being at the stretch end of the spectrum and is also consistent with the target set by Ofgem and in the recent Ofwat PR24 draft determination.
10	The competition in wages has made it increasingly challenging for us to attract and retain skilled individuals. Additionally, the rising costs of materials have further compounded our efforts. **[North West Forest Services Response, p1]**	We are not able to provide detailed commentary on individual NIE Network contracts or suppliers. However, we are of the opinion that the RPE analysis adequately takes these issues into account on an overall basis.
11	While the regulator cites analysis that salaries for key occupations are currently growing slower than the Office for Budget Responsibility (OBR) average hourly earnings index, this is not Prospect's experience for the electricity sector employees it represents, as salaries are currently increasing beyond inflation. **[Prospect Response, p1]**	We are unable to comment on specific union member salary growth. However, NIE Networks provided actual staff numbers and labour costs (excluding pensions) dating back to 2012-13. On an overall company basis, the cost per FTE up to the base year (2021-22) has remained stable in real terms at around £55k (using CPIH). This has not changed materially in the last 9 years with a real increase of c. 0.2% per annum. If using RPI, the unit costs would actually have fallen in real terms over the period. This analysis is not the complete picture as the figures may reflect the changing staff profile. It does however suggest that wages are just keeping pace with inflation, not rising faster.

	Consultation Response	UR Views & Action
12	Demand for specialist energy skills is going to increase in the coming years as the energy transition accelerates across the UK and Ireland. Employers in the energy and utilities industry already report significant problems filling vacancies and anticipate further issues to come. We strongly encourage the regulator to introduce a separate provision for specialist labour in line with best practice. **[Prospect Response, p1-2]**	Whilst this is a risk, we are of the view that such an approach would be asymmetric without consideration of all DNO staff roles. We would further note that NIE Networks is proposing significant efforts in upskilling new staff, which we are fully supportive of. Whilst the business plan forecasts significant labour and staff number increases in absolute terms, NIE Networks is indicating that the unit cost per FTE will actually fall in real terms in RP7.
13	In the current economic environment, we are operating in an industry that has real price effect or inflationary challenges, as demand for skilled resource exceeds inflation allowances due to the industry labour and skills shortages. This necessitates the requirement for investment in training and recruitment of both local and foreign resource. We would respectfully request that careful consideration is given to this when determining the final position on RP7. **[TLI Group Response, p2]**	We accept that labour supply will be a key issue in RP7 and are fully supportive of NIE Networks' training centre and plans to upskill new recruits.
14	Unite the union is very concerned that the proposed real price effects (RPEs) calculation ignores the requirement for specialist labour. For NIE Networks to meet the 2030 renewable targets being set by the Northern Ireland government it needs to be able to grow its skilled workforce by offering competitive salaries. NIE Networks can't do this without the provision for specialist labour within the RPE calculation. **[Unite Response, p9]**	See response to point 12 above.
15	Unite believes that a more realistic annual productivity target of 0.5% should be set for the RP7 period. This is being requested to reflect the annual price control inflation adjustment being reduced from RPI to CPIH during RP7. **[Unite Response, p10]**	Such a target would be at the low end of E&Y estimates and below that which NIE Networks itself believes it can achieve. We do not think such a target to be appropriate as it would most likely lead to higher consumer bills than ultimately necessary.

	Consultation Response	UR Views & Action
16	Unite also believes that the productivity target should be discontinued from the end of RP7. **[Unite Response, p10]**	We can see no justification for such a policy. It is certainly likely that expected productivity gains may change over time. However, it would not seem appropriate for monopoly service providers to retain all the financial benefit of productivity gains to the detriment of consumers.

Table 2.2: Frontier shift consultation feedback issues and UR response

Changes in methodology

2.6   Upon consideration of stakeholder feedback, we are minded to largely retain the proposed draft determination methodology. However, we have adopted a change to the calculation of long-term forecasts.

2.7   When using long-term averages as forecasts, we previously excluded 'atypical' years following the approach adopted by E&Y. In the final determination we have used all years including the 'atypical' years of the financial crash and latterly the COVID and Ukraine war price spikes.

2.8   Whilst this incorporates large increases, which perhaps skews the long-term average somewhat, it does avoid the perception of partiality in the analysis. It also provides some additional uplift which lowers the risk on NIE Networks.

2.9   Although, at the draft determination, we were minded to reject both specialist labour and a true-up mechanism, further consideration has been given to this issue. Although we do not include a mechanism in the RP7 framework, we intend to have a separate consultation on an RPE true-up modification.

2.10   Whilst the price control framework affords significant protections, we accept that there remains a risk of windfall gains or losses. However, we have not implemented a true-up mechanism for RPEs before and this could have implications for other price controls. Neither was a true-up consulted upon in the draft determination. Consequently, we propose to undertake a separate consultation on what form this mechanism should take.

3. Real Price Effects

Background

3.1 The cost of a company's inputs may vary over time. Price controls have usually been indexed by a measure of general inflation to account for broad changes in prices. Historically, the measure used by regulators has been the Retail Price Index (RPI).

3.2 More recently, this has been moving to newer measures such as the Consumer Prices Index (CPI) or Consumer Prices Index including owner occupied housing costs (CPIH). In our Approach to RP7, we set out our intention to move from RPI to CPIH as the general measure of inflation for the RP7 Price Control.

3.3 However, not all types of costs experienced by a network business will be reflected in the basket of prices used to calculate general inflation.

3.4 To account for this, it is common practice to calculate and adjust for the difference between particular input price changes for a company / industry and the general measure of inflation. This difference is described as the real price effects (RPEs).

Company business plan submission

3.5 NIE Networks provided a supplementary paper from its consultants (E&Y) to address real price effects within its business plan submission. As per the business plan guidance, the company assessed input costs against CPIH inflation.

3.6 The overall conclusion adopted by the company was that during the six-year period of RP7 in nominal terms;

a) Labour cost will increase on average by 1.4% above the general inflation (CPIH) each year.

b) Material cost is predicted to increase by 3.8% above the general inflation measure (CPIH) on average each year.

c) Plant and equipment cost is estimated to increase by 1.0% per annum above general inflation.

d) Other costs will typically follow the general trend of CPIH over the RP7 period. However, NIE Networks adopted later forecasts of inflation which resulted in an average RPE of 0.7% per annum.

3.7   The overall impact of its forecasts differs between Opex and Capex given the different weightings placed on the inputs. The real price effects as set out in the business plan are reproduced in Table 3.1.

	RP6			RP7					
	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31
Labour	3.3%	2.4%	2.4%	2.6%	2.7%	2.8%	2.8%	2.8%	2.8%
Materials	18.2%	11.2%	9.9%	8.0%	6.1%	4.1%	4.1%	4.1%	4.1%
Plant & Equipment	3.7%	3.4%	3.1%	2.8%	2.5%	2.2%	2.2%	2.2%	2.2%
Other	6.6%	3.5%	1.6%	1.9%	2.0%	2.0%	2.0%	2.0%	2.0%
CPIH Forecast	9.6%	3.8%	-0.1%	-1.3%	1.2%	1.9%	2.0%	2.0%	2.0%
Annual RPE (Opex)	-4.3%	-0.5%	3.0%	4.2%	1.6%	0.8%	0.7%	0.7%	0.7%
Annual RPE (Capex)	-1.3%	1.4%	4.8%	5.5%	2.3%	1.1%	1.0%	1.0%	1.0%

Table 3.1: RPE cost categories and forecasts from NIE Networks

3.8   The impact of the submission is an expectation that input costs will typically rise faster than inflation. The effect is more pronounced for capital costs given the larger weighting attributed to material costs.

Weights

3.9   To estimate RPEs we first separate a company's input costs into various components. This is a necessary step as the overall cost will be impacted by the proportion of different input factors.

3.10   Nominal price inflation for each category of cost is then calculated. Finally, accounting for general inflation (CPIH) and applying weights to each input category, an overall value or weighted average input cost is calculated.

3.11   NIE Networks' weights are based on the same input weights as used in RP6 which are summarised for Opex in Table 3.2 and for Capex in Table 3.3 below.

Cost Category	RP6 (Opex)	RP7 (Opex)
Labour	77.3%	77.3%
Materials	7.7%	7.7%
Plant and equipment	0.0%	0.0%
Other	15.0%	15.0%

Table 3.2: RPE cost categories and weights for Opex

Cost Category	RP6 (Capex)	RP7 (Capex)
Labour	52.8%	52.8%
Materials	30.2%	30.2%
Plant and equipment	5.9%	5.9%
Other	11.1%	11.1%

Table 3.3: RPE cost categories and weights for Capex

3.12   This approach differs from Ofgem who focus on total expenditure (or Totex). We queried the weightings with NIE Networks who stated that,

"we did a high-level assessment of what actual splits have been to date across Opex and Capex. We found the splits appeared to be broadly in line with those in the RP6 determination, and we concluded we would retain the splits used at RP6 for the RP7 plan…If the UR requires a full and detailed analysis, we could conduct an assessment for the period Oct-17 to Mar-23, but we would need around 3 weeks to carry out this exercise."[7]

3.13   At the draft determination, we were minded to accept the company weightings. No consultation responses on this issue were received. As a result, the weightings have been retained for the final determination.

Input indices

3.14   For each input cost category, we identified suitable indices for use in estimating prices. We reviewed the indices available, previously used in regulatory decisions and relevant to the cost categories being assessed.

3.15   The indices adopted by E&Y are closely associated with those used by Ofgem at the ED-2 price control. The indices they selected can be summarised as shown in Table 3.4.

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[7] NIE Networks response to UR-0020.

Indices	Weighting
Labour	
ONS EARN01 Average weekly earnings total pay, GB	33.3%
BCIS[8] 4/CE/01 Civil Engineering Labour	33.3%
BEAMA's[9] Electrical Engineering Labour	33.3%
Materials	
BCIS FOCOS Resource Cost Index of Infrastructure Materials	20%
BCIS 3/58 Pipes and Accessories: Copper	20%
BCIS 3/59 Pipes and Accessories: Aluminium	20%
BCIS 3/S3 Structural Steelwork Materials: Civil Engineering	20%
BEAMA's Distribution Transformers	20%
Plant and Equipment	
BCIS 90/2 Plant and Road Vehicles	50%
ONS Machinery & Equipment n.e.c. for domestic market (G6V6)	50%
Other	
General inflation (OBR – November 2022)	100%

Table 3.4: E&Y input indices and weightings

3.16   At the draft determination we largely adopted the same indices as the company. These have been subject to significant scrutiny by Ofgem. However, we made no separate provision for specialist labour. We have also updated 'other costs' for the latest estimates of inflation. The indices used in the draft determination are summarised in Table 3.5.

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[8] BCIS = Building Cost Information Service.
[9] BEAMA = British Electrotechnical & Allied Manufacturers Association.

Indices	Weighting
Labour	
OBR – Average Hourly Earnings Growth	100%
Materials	
BCIS FOCOS Resource Cost Index of Infrastructure Materials	20%
BCIS 3/58 Pipes and Accessories: Copper	20%
BCIS 3/59 Pipes and Accessories: Aluminium	20%
BCIS 3/S3 Structural Steelwork Materials: Civil Engineering	20%
BEAMA's Distribution Transformers	20%
Plant and Equipment	
BCIS 90/2 Plant and Road Vehicles	50%
ONS Machinery & Equipment n.e.c. for domestic market (G6V6)	50%
Other	
General inflation (OBR – April 2023)	100%

Table 3.5: UR input indices and weightings

3.17   No change is proposed to these indices for the final determination.

Input prices - labour

3.18   As the cost category of labour makes up over half of the costs, it is important that the figures used for these input prices are both fair and robust.

3.19   NIE Networks' business plan uses specialised engineering indices (electrical and civil) for a proportion of its labour costs. This is in line with Ofgem's approach at ED2. Thus, they have included both general and specialised indices and weighted them equally to generate a single labour cost index.

3.20   The three indices covered under the NIE Networks' methodology have identical weights. This results in providing specialist labour (66.7%), as defined by the civil and electrical engineering indices, a higher overall weight than general labour (33.3%).

3.21   For the draft determination estimation of labour RPEs, we considered continued use of Office of Budget Responsibility (OBR) forecasts of average hourly earnings to be most appropriate. This follows the approach adopted for gas companies in the recently completed GD23 price control.

3.22   Use of specialist labour is not unreasonable and some of the specialist labour indices may have grown at faster rates than general wage growth. However, it was our view that to focus on only some labour costs would be an asymmetric approach to the potential detriment of consumers.

3.23   Other roles that may be pertinent to DNOs where there has been wage growth lower than the whole economy average would also need to be considered. It would be asymmetric and improper to only consider specialist labour costs that are above the economy average.

3.24   As part of the query process, NIE Networks provided data on the breakdown of its staff by standard occupational classification (SOC). This detail was provided from the base year to the end of the RP7 period. The proportional split is summarised in Table 3.6.

SOC Category	Staff % Split	
	2021	2031
Managers, directors and senior officials	10.3%	6.5%
Professional occupations	30.0%	33.1%
Associate professional and technical occupations	1.6%	1.5%
Administrative and secretarial occupations	19.1%	15.8%
Skilled trades occupations	30.4%	36.4%
Caring, leisure and other service occupations	0.0%	0.0%
Sales and customer service occupations	6.8%	5.1%
Process, plant and machine operatives	0.8%	0.4%
Elementary occupations	1.1%	1.1%
All occupations	**100%**	**100%**

Table 3.6: Staff split by SOC code

3.25   Taking time-series data from the ASHE[10] for median hourly wages, we can see the changes in pay from 2011 to 2021.

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[10] ASHE = Annual Survey of Hours and Earnings.
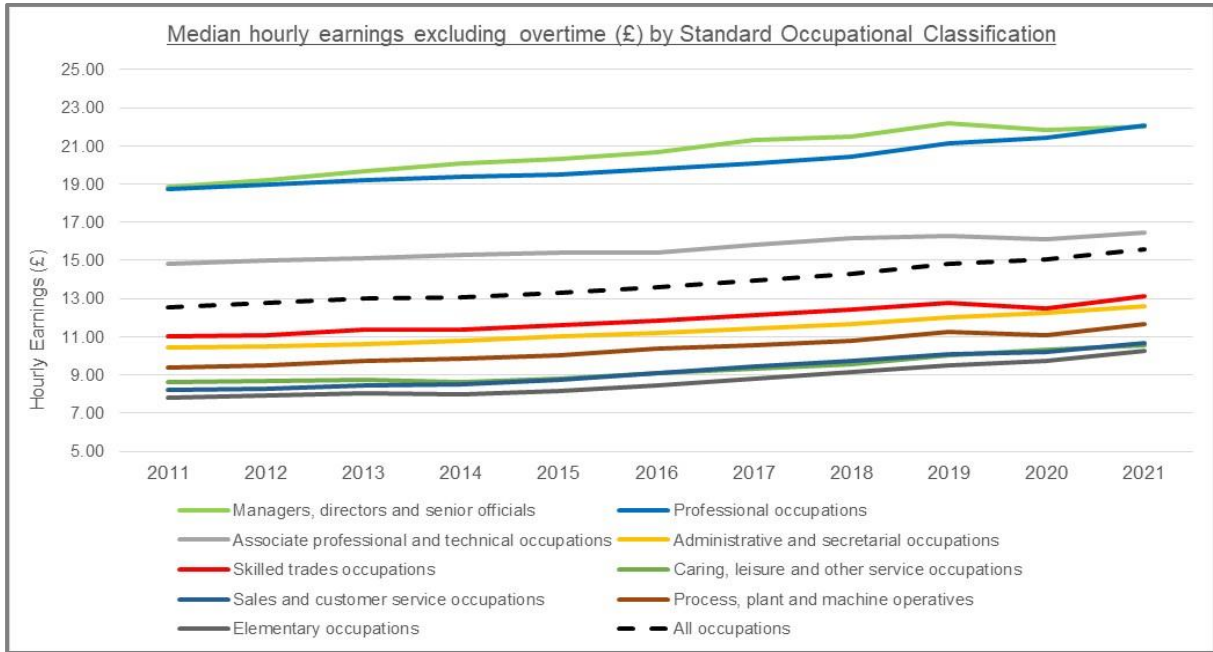
Figure 3.1: Changes in average hourly earnings by SOC code

3.26   From this high-level data, pay increases for key occupations specific to NIE
         Networks is not growing as fast as the overall average. This includes areas
         such as professional and technical jobs, skilled trades, administration, and
         management positions. The change in SOC pay rates is set out in Table 3.7
         below and compared to all occupations.

SOC Category	Median hourly earnings excluding overtime (£)		Median hourly earnings % increase	
	2011	**2021**	**10 Years**	**Annual Average**
Managers	£18.87	£22.01	16.6%	1.6%
Professional occupations	£18.73	£22.06	17.8%	1.6%
Professional and technical	£14.83	£16.44	10.9%	1.0%
Administrative	£10.42	£12.58	20.7%	1.9%
Skilled trades	£11.00	£13.13	19.4%	1.8%
Caring other services	£8.63	£10.57	22.5%	2.0%
Sales and customer service	£8.19	£10.66	30.2%	2.7%
Process, plant and machine	£9.40	£11.67	24.1%	2.2%
Elementary occupations	£7.79	£10.26	31.7%	2.8%
All occupations	**£12.56**	**£15.59**	**24.1%**	**2.2%**

Table 3.7: Changing rates of earnings by SOC

3.27   Given this detail, it was our draft determination view that average earnings
         forecasts will suffice for the purposes of estimating the company's labour

costs. This was because a significant proportion of NIE Networks professions are showing wage growth below the overall average.

3.28   Considerable feedback was received from a variety of stakeholder regarding the use of specialist labour. Most responses were supportive of their adoption. In particular, NIE Networks and its consultants made the following points:

- Specialist labour indices better reflect the costs to NIE Networks.

- Cost categories are in line with Ofgem's decision in RIIO-ED2.

- Data on past pay growing below the OBR average hourly earnings index should not be a reason for excluding specialist indices.

- The draft determination does not address the different regulatory approaches, nor consider whether any particular approach might be more appropriate.

3.29   Responses to the various specific points are detailed in the previous chapter. However, from our perspective the key points to note are as follows:

a)   Based on historic averages, use of OBR hourly earnings forecasts does not introduce any bias to the detriment of NIE Networks.

b)   NIE Networks has failed to address the key issue of asymmetric treatment or certain salaries rising slower than the average.

c)   We do not consider the NIE Networks' approach better reflects its costs. They have adopted a simple average whereas the SOC staff breakdown shows the issue to be more complex.

d)   Average earning indices already include specialist and technical staff so there would be limited need to make further provision for this.

3.30   In terms of regulatory precedent, specialist labour categories have not been adopted in our most recent decisions for NI Water (PC21), gas DNOs (GD23) or NIE Networks (RP6).

3.31   Whilst Ofgem has adopted such an approach for its electricity and gas determinations, we note that in PR19 Europe Economics recommended that Ofwat adopt an ex-post true-up based on the ONS "Private sector" wage index or the ONS "Manufacturing" wage index. Use of specialist water sector wages was rejected. The rationale was much the same as our approach i.e. if there is no obvious wedge there is no difference in non-adoption.

3.32   Looking back to RP5, the Competition Commission (CC) considered this issue closely. They stated that, "we did not find that the distinction between specialist and generalist labour was helpful."[11]

3.33   Their conclusion was that, *"any split between specialist and general labour categories was relatively arbitrary and was unlikely to introduce greater reliability into our estimate. We therefore decided that there was insufficient evidence to justify the use of a specialist labour premium above the level of general labour inflation contained in the OBR forecasts."*[12]

3.34   We agree with this conclusion, especially where the particular specialist labour costs are tracking closely with the economy average. We have retained the draft determination approach for the final determination. This relies solely on the OBR average hourly earnings index forecasts to 2028-29. Thereafter the historic average of 3% growth has been adopted for the last two years.

Input prices - materials

3.35   The next category we assess is materials, which make up around 30% of capital costs and almost 8% of operational costs. This is an important consideration and component of RPEs.

3.36   NIE Networks provided business plan forecasts for material prices that show high growth in the 2022-23 year followed by a relatively strong growth rate throughout the RP7 period thereafter.

3.37   Rather than using historic long-term averages for forecasts, NIE Networks has adopted a glidepath approach. This involves a uniform return to long-term averages over a 5-year period from 2022-23 to 2027-28. Historic long-term averages are used thereafter.

3.38   Whilst we did something similar in GD23, it was assumed that costs returned to normal in two years. In the draft determination we considered the NIE Networks' approach as somewhat problematic because:

- It ensures nominal forecasts above the long-term average for an extended period.

- Based on OBR forecasts, inflation is expected to return to below average levels by 2024-25. It would be inconsistent to treat input costs differently.

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[11] See Competition Commission RP5 Final Determination, p11-8, para 11.36.
[12] See Competition Commission RP5 Final Determination, p11-8, para 11.39.

3.39   Although we accepted NIE Networks' idea to utilise a glidepath for material indices, we did however disagree with its approach to use it for five years. Rather we recommended maintaining the GD23 approach which used a glidepath for two years. We assumed a return to the long-term average from year 2025-26.

3.40   In terms of the indices selected, we adopted those as suggested by E&Y, though there are a variety of alternatives that could be used. For the calculation of long-term averages, E&Y suggested the exclusion of certain atypical years i.e. financial crash and COVID years.

3.41   We accepted this approach in the draft determination. This excluded 2009-10, 2010-11 and the most recent years from 2020-21 onward, as these have been subject to substantial price fluctuations.

3.42   Limited feedback was received on materials as our approach closely reflected that of NIE Networks. The only significant issue was the glidepath. NIE Networks and E&Y argued that if a shorter glide-path is applied in the final determination, this should be supported with the inclusion of an ex-post true-up mechanism

3.43   It is our view that these are two separate issues which should be judged on their own merits. Since publication of the draft determination, actual values have become available for 2023-24. For the materials category there is a significant swing from a positive RPE in 2022-23 to a substantial negative RPE in 2023-24.

3.44   If the 5-year glidepath were implemented this would artificially depress the forecasts of material costs for a much longer period. We do not consider this to be a reasonable proposition, in the same way that the business plan overestimated forecasts for a longer timeframe.

3.45   We have decided to retain the draft determination position that materials cost will return to long-run averages by 2025-26. This is in keeping with OBR forecasts for inflation and wage growth.

3.46   For use of long-term averages, we have however amended our methodology slightly. Rather than exclude the 'atypical' years of the financial crash and latterly the Ukraine war price spikes, we have used all years to calculate the long-term average.

3.47   Whilst this incorporates fairly large price spikes (and falls) which perhaps skews the long-term average somewhat, it does avoid the perception of partiality in the analysis. It results in some additional uplift which lowers the risk on NIE Networks.

3.48   By way of comparison, excluding the 'atypical' years would result in a long-term materials average forecast of 3.5% per annum. By contrast, including all available year's results in an average of 5.2%.

Input prices – plant and equipment

3.49   In terms of impact, the plant and equipment (P&E) category has a relatively small weighting for both Opex and Capex (0.0% and 5.9% respectively). Nevertheless, it forms an integral part of the cost input base and so requires appropriate scrutiny.

3.50   We relied upon data from the Machinery & Equipment component (G6V6) of the Producer Prices Index (PPI) and the BCIS Plant and Road Vehicles (90/2) index. This mirrors the same indices as chosen by E&Y.

3.51   NIE Networks has used a similar approach as with 'materials' to calculate forecasted figures i.e. using glidepath approach for five years before returning to long-term averages in 2027-28.

3.52   We were content to utilise the glidepath for P&E indices. However, like materials, this only applied for two years before switching back to the long-term average in 2025–2026.

3.53   No responses were received with respect to the P&E indices. We have maintained a similar approach as at draft determination. However, we have updated the 2023-24 year for actual data. Like materials, we have used all years of available data to calculate the long-term P&E average.

Input prices – other

3.54   The E&Y approach assumes that all 'other' costs will rise in line with inflation. The NIE Networks' business plan has however used more recent inflation figures but retained the original forecast for 'other' costs. The result is a small RPE for this input category.

3.55   As was the case in our last price control review, for the 'other' cost category, it is assumed that these costs rise at the same nominal rate as general inflation. In this case, CPIH is the inflation rate used. This in effect leads to a nil RPE applying to 'other' costs, which seems appropriate in the absence of better information.

3.56   We have maintained this position for the final determination. The only change from draft determination relates to the updated forecasts for CPIH based on March 2024 OBR data.

Inflation projections

3.57   As the input prices indices are in nominal terms, it is necessary to apply an inflation discount in order to transform the calculated price effects into real terms.

3.58   We have moved to using CPIH as our inflation measure for RP7. In line with recent precedent, we have used actual CPIH figures up to 2023-24 (using October figures as per the NIE Networks' licence).

3.59   However, our inflation forecasts are based on CPI percentage estimates made by the OBR Economic and Fiscal Outlook. As per the NIE Networks' business plan approach, we have used the CPI Q4 forecasts as a proxy for October percentage increases.

3.60   This approach has been retained for the final determination. The latest OBR Economic and Fiscal Outlook (March 2024) estimates a much lower rate of inflationary growth this financial year (2024-25) of 1.4%, down from 4.7% in the previous year (2023-24).

3.61   Inflation is expected to show low rates of growth before returning to the 2% target rate by 2027-28. For the last three years of RP7 we have assumed inflation growth of 2% in line with national targets.

RPEs – Opex and Capex

3.62   Our Opex input price and inflation forecast decisions for RP7 are reflected in Table 3.8 below.

	RP6			RP7					
	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31
Labour	6.3%	6.8%	2.3%	1.8%	2.3%	2.6%	0.9%	3.0%	3.0%
Materials	15.5%	-7.8%	-1.3%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%
Plant & Equipment	10.5%	4.8%	3.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%
Other	9.6%	4.7%	1.4%	1.6%	1.7%	2.0%	2.0%	2.0%	2.0%
CPIH Forecast	9.6%	4.7%	1.4%	1.6%	1.7%	2.0%	2.0%	2.0%	2.0%
Annual RPE (Opex)	-1.9%	0.6%	0.4%	0.4%	0.7%	0.7%	-0.6%	1.0%	1.0%
Annual RPE (Capex)	0.1%	-2.6%	-0.2%	1.2%	1.4%	1.3%	0.4%	1.5%	1.5%

Table 3.8: RPE cost categories and UR forecasts

3.63   Over the nine-year period, the operational RPE cost is estimated at an average of +0.25% per annum. This is a downward shift from an average of +0.8% per annum submitted by NIE Networks in its business plan.

3.64   The methodology for Opex and Capex for the most part is very similar with a difference relating to cost category weightings. The capital RPE is estimated at an average of +0.5% per annum. This is below the average of +1.9% per annum in the NIE Networks' business plan.

3.65   The main differences from business plan to final determination can be summarised as follows:

- Use of the latest OBR inflation and labour forecasts.

- Use of actual data for 2023-24.

- No provision for specialist labour.

- Use of a shorter glidepath for returns to long-term averages.

3.66   Although the difference between our final determination figures and NIE Networks' business plan figures is significant, much of this reflects use of more recent data rather than differences in methodology. This is illustrated in Table 3.9 below.

RPE average estimates per annum	Opex	Capex
NIE Networks Methodology (Business Plan)	+0.79%	+1.89%
NIE Networks Methodology (using latest data)	+0.90%	+0.95%
Draft Determination	+0.53%	+1.48%
Final Determination	+0.25%	+0.50%

Table 3.9: RPE estimates at different time periods

3.67   Even adopting specialist labour, the NIE Networks' methodology gives a much lower RPE than at the business plan stage for capital costs. This is simply by virtue of data updates for 2023-24 and use of latest OBR, BCIS and BEAMA indices.

3.68   It should further be noted that the updated NIE Networks' figures in Table 3.9 above reflects our approach to the glidepath. If we were to strictly adopt the NIE Networks 5-year glidepath using the latest negative materials RPE, the result would be a much lower forecast.

Sensitivity analysis

3.69   As a sense check for input cost forecasts, we performed several sensitivity checks. These include the following:

- Historic real changes.

- Regression analysis.

- Correlation matrix.

Real change

3.70 Instead of forecasting nominal costs, we adjusted historic nominal indices by CPIH inflation to get real trends. We then used the long-term historical average real trend to forecast costs from 2024-25 onwards, with actuals being used for the first two years. The results of this analysis are summarised in Table 3.10.

Cost Category	Final determination methodology	Real Change Ave
Opex RPE	+0.25%	+0.41%
Capex RPE	+0.50%	+0.64%

Table 3.10: Sensitivity analysis results compared to base method

3.71 Whilst the RPEs would be higher using this method, the differential is relatively small. This check is perhaps less robust as it does not consider future forecasts. It does however indicate the reasonableness of the current methodology compared to historic outturns.

Regression analysis

3.72 The downside to the long-run trend approach is that it does not account for cyclicality in the data. In other words, the approach assumes that the data will revert to growing at its long-term average rate at the point at which outturn data ends.

3.73 Many indices experienced a downward shock during the COVID pandemic and, more recently, a large upward shock because of the increase in demand as restrictions were relaxed. Other factors such as Brexit and the war in Ukraine may have impacted these costs. Therefore, it is important to rely on an approach to forecasting that tries to account for the volatility seen in the market.

3.74 In the GD23 price control, one of the gas distribution companies argued that a more robust approach to input price forecasting is to rely on an alternate method that controls for the economic conditions predicted. They focused on estimating the historical link between real GDP and CPI and each nominal index, using OLS[13] regressions.

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[13] OLS = Ordinary Least Squares.

3.75   For the final determination, we have adopted a similar approach by way of a sensitivity check. This estimates the historical link between real GDP, inflation and each nominal material and plant index, using OLS regressions with recent data. We also use a time trend to capture the possibility that the indices may be growing or shrinking over time for reasons unrelated to GDP and CPI.

3.76   Two kinds of regression checks were performed on materials[14] and P&E indices:

- Method 1 is a regression as per the approach used in GD23 which utilises GDP, CPI and time as explanatory variables.

- Method 2 is a regression with GDP and time only.

3.77   We have used the OBR economic outlook forecasts for GDP and inflation. For the first method we estimate the regression as per the approach used in GD23. This adopts the following formula for each of the selected indices:

$$Ln(Nominal\ Index) = \alpha + \beta 1 \times ln(Real\ GDP) + \beta 2 \times ln(CPIH) + \beta 3 \times Time + \varepsilon$$

3.78   The econometric model is characterised by an intercept term (denoted by α) and the slope coefficients (β). The β coefficients describe how GDP and CPI affect the relevant index. The error term ε represents the variation in the dependent variable (the index) that occurs for reasons not captured by variation in the drivers.

3.79   The model is expressed in "log-log" terms, which is standard practice for a relationship based on growth rates. However, the regression methodology has drawbacks in that GDP and CPI are correlated to each other. Using both together as independent variables may lead to the issue of multi-collinearity, resulting in potential bias in the results.

3.80   To overcome the issue, we performed a separate regression on the indices by not taking logs and only using GDP and time as the explanatory variables. Thus, the regression equation was changed to:

$$Nominal\ Index = \alpha + \beta 1 \times Real\ GDP + \beta 2 \times Time + \varepsilon$$

3.81   The input price forecasted by the two regression approaches are set out in Table 3.11 below and compared with the base approach.

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[14] The distribution transformer index was excluded as BEAMA already produce forecasts for this input which were relied upon.

Cost Category	Final determination methodology	Method 1	Method 2
Opex RPE	+0.25%	+0.28%	+0.21%
Capex RPE	+0.50%	+0.56%	+0.31%

Table 3.11: Regression analysis results compared to base method

3.82   We did not adopt the regression approach for GD23 but used it as a sense check. The results for RP7 indicate that the use of long-term averages is in line with sensitivity analysis using regressions to predict materials and P&E costs. What this does indicate is the reasonableness of the final position given the best current forecasts of GDP and inflation.

Correlation matrix

3.83   Correlation between CPI and all individual indices selected under materials and plant / equipment was performed to sense check to what extent the two variables fluctuate in relation to each other. It a useful way of determining the degree to which the value of a particular index responds to inflation changes.

3.84   Three of the five material indices, as well as the P&E indices, revealed a very high positive correlation with the changing value of CPI. The correlation coefficient for each of these indices was more than 0.94.

3.85   For the remaining two material indices, correlation with CPI was still quite strong, with coefficients of 0.86 for the distribution transformer index and 0.78 for the steelworks index.
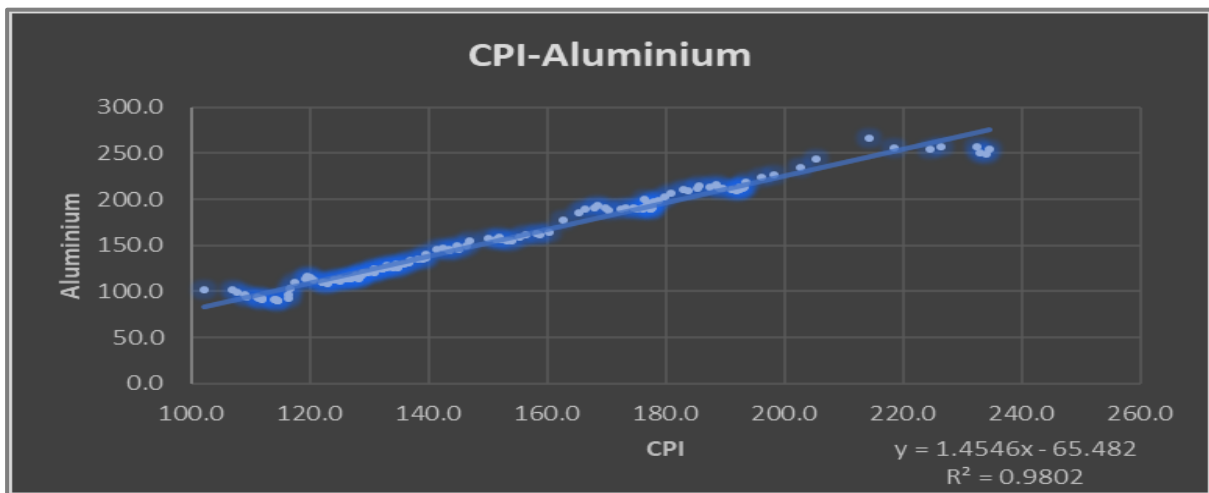
3.86   The correlation equation was then used to predict the values of all indices for the period of RP7 using OBR forecasts of inflation. The figures below show the correlation of all the indices with CPI.
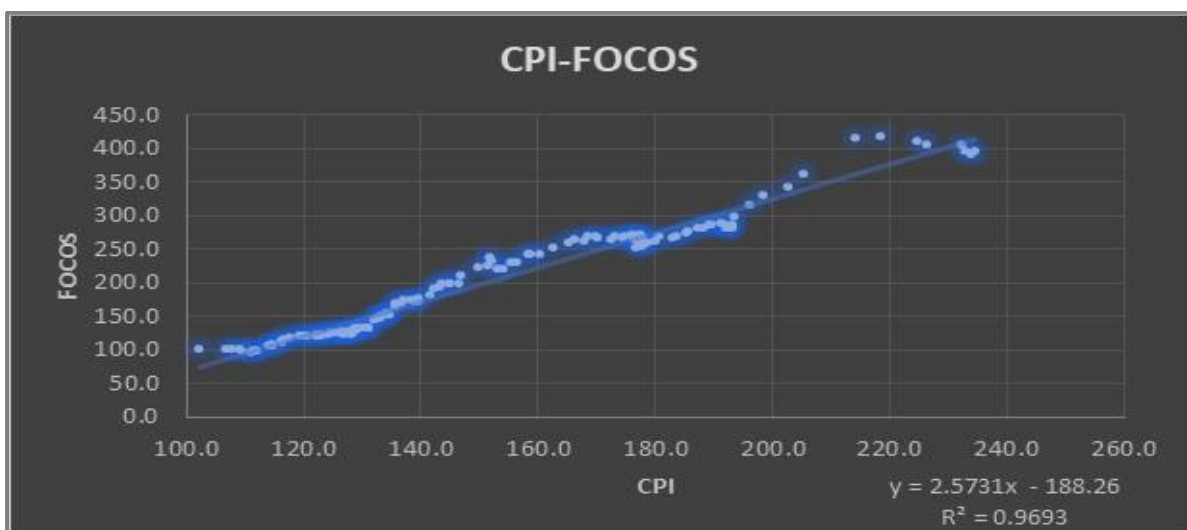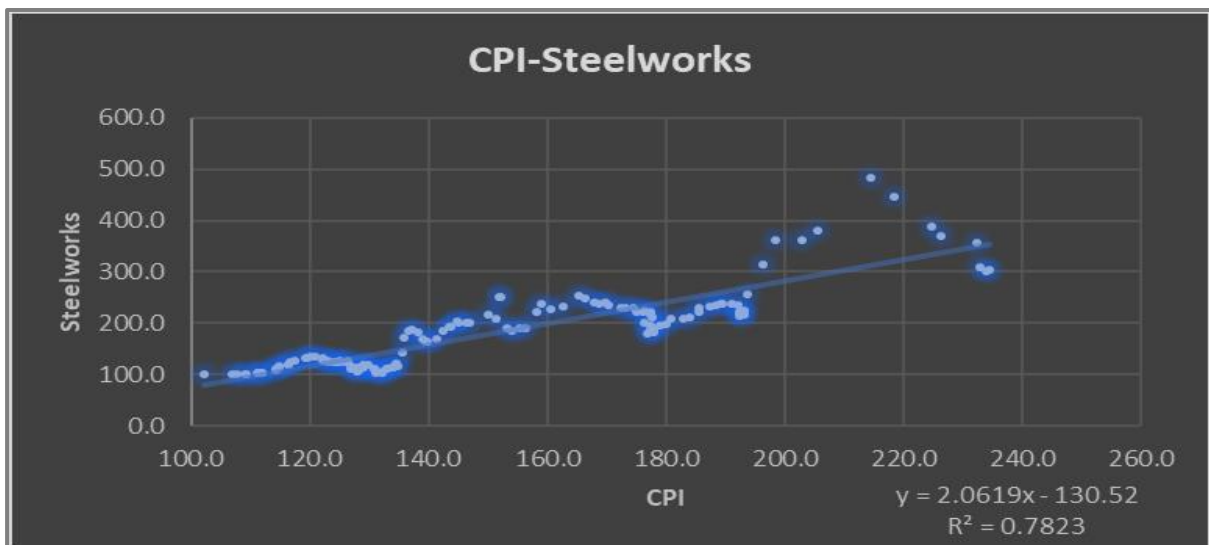

Figure 3.2: Correlation between FOCOS and CPI

CPI-Copper
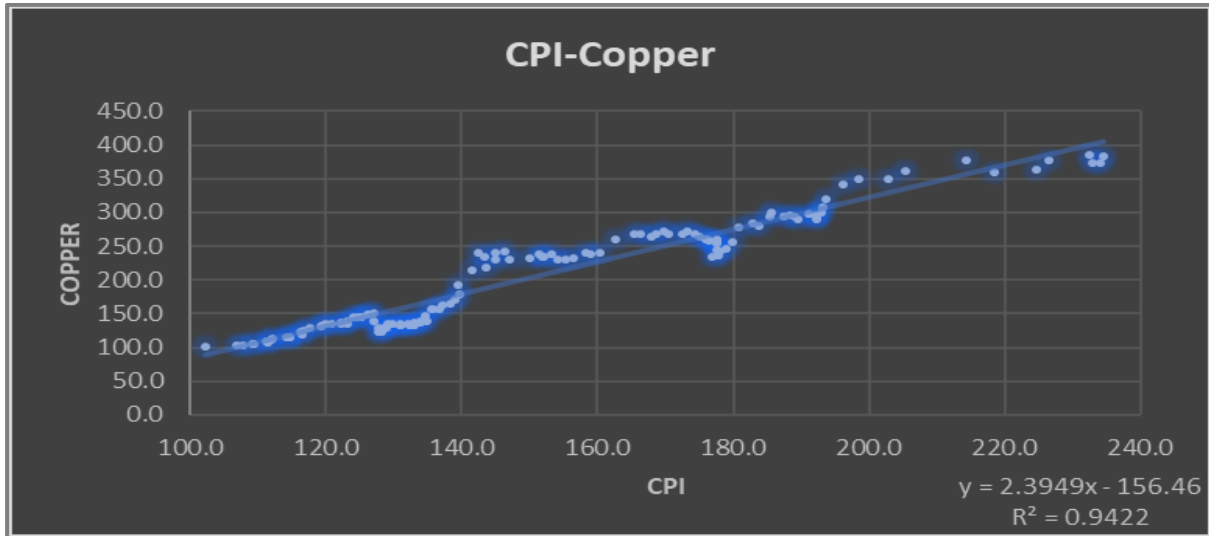
Figure 3.3: Correlation between Copper and CPI

CPI-Aluminium

Figure 3.4: Correlation between Aluminium and CPI

CPI-Steelworks

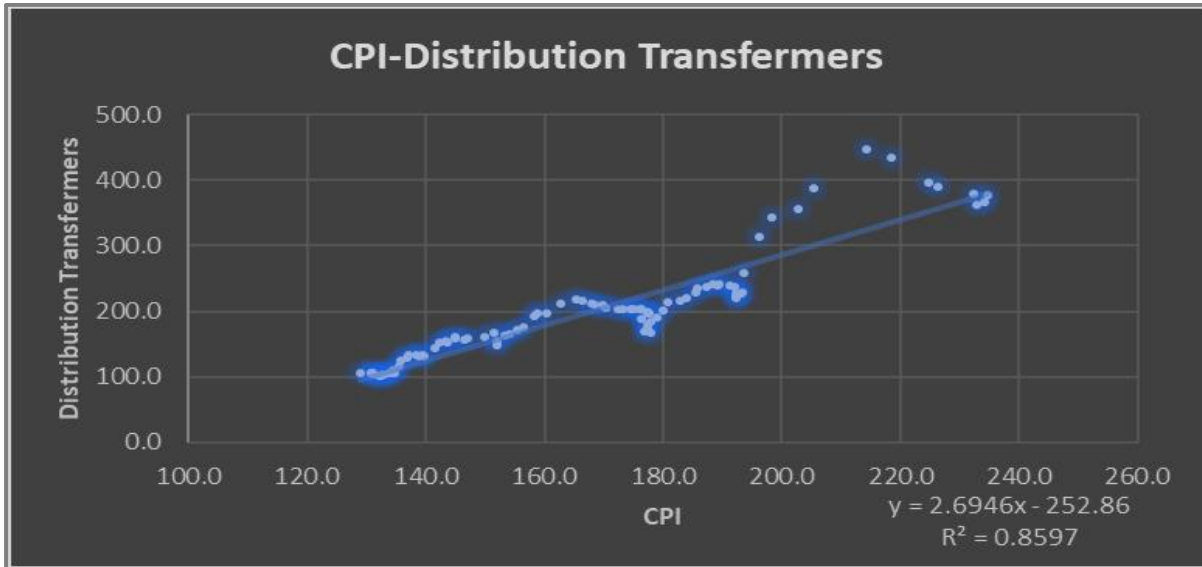Figure 3.5: Correlation between Structural Steelwork and CPI

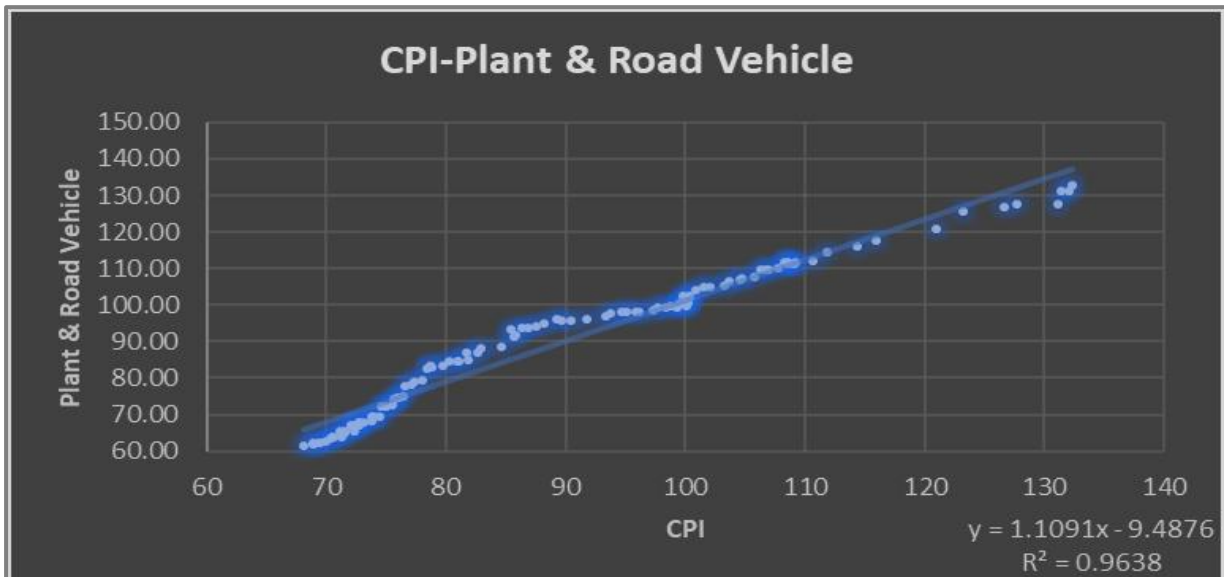**Figure 3.6: Correlation between Structural Steelwork and CPI**
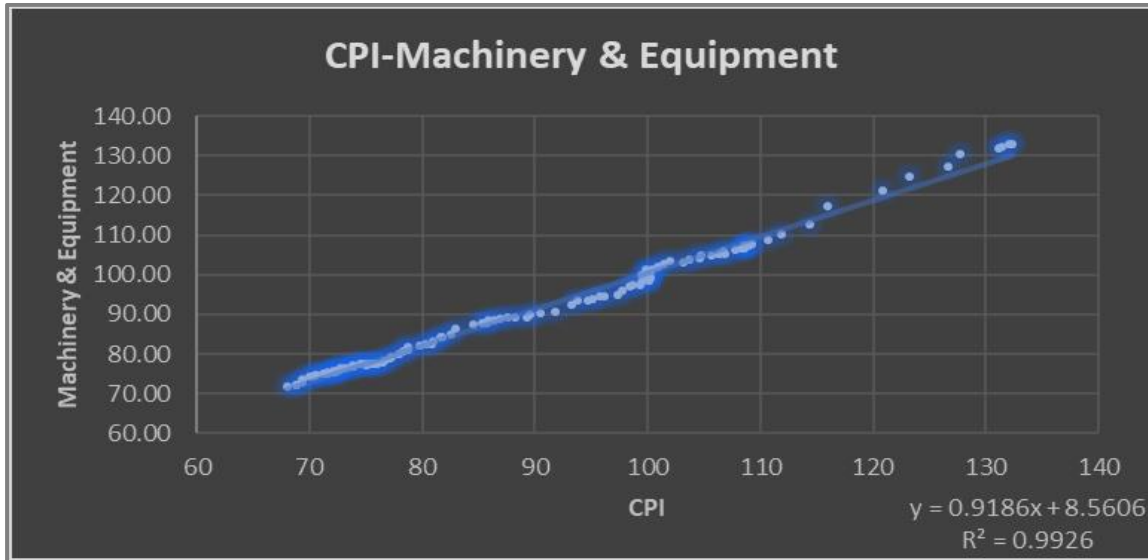

Figure 3.7: Correlation between Plant & Road Vehicles and CPI

Figure 3.8: Correlation between Machinery & Equipment and CPI

3.87 The Opex and Capex RPEs for the recommended approach and the inflation correlation method are compared in Table 3.12 below.

Cost Category	Final determination methodology	Correlation
Opex RPE	+0.25%	+0.23%
Capex RPE	+0.50%	+0.41%

Table 3.12: Correlation analysis results compared to base method

3.88 Like the other approaches, this method has flaws as we have seen with the recent supply side shocks which impacted producer prices a lot faster than general inflation. The low medium term inflation predictions are also holding down input price forecasts. Again, however, it serves as a useful check.

3.89 All the sense checks have predicted that average RPEs will be similar to or lower than our recommended approach during the RP7 period. Thus, our final determination approach appears reasonable, and robust and might provide some limited headroom for the company.

True-up mechanism

3.90 NIE Networks raised the issue of a 'true-up' mechanism for RPEs. They suggested following Ofgem precedent in this regard but applying no corresponding materiality thresholds. When asked via the query process how such a mechanism might work, NIE Networks stated:

"We suggest following Ofgem's precedent. Ofgem has indicated that there will be an annual true-up of the RPE allowances after the relevant

index/indices are published each year, and a final true-up will occur at the end of RIIO-2 as part of the close-out process.

To true-up the RPEs allowance, the Annex [for allowances] would need to contain a repeat of the above calculations but using actual data for the indices as opposed to forecasts. This will drive different catch-up efficiency / frontier shift factors and compound efficiency effect factors, which will in turn drive a different allowance for RPEs."[15]

3.91   As well as the RPE true-up mechanism, NIE Networks' consultation response also proposes a network direct investment unit cost midpoint reopener in respect of material costs.

3.92   A 'true-up' device is a reasonable suggestion. However, in the draft determination we followed the GD23 approach and did not adopt such a mechanism. We felt that such an approach had various flaws. For instance:

   a)   Given that the indices are a proxy for industry costs, any adjustment will not be perfect. The evidence presented on actual overhead line (OHL) contractor costs for the RP6 extension year highlights this issue as they were of a different magnitude to labour indices.

   b)   The mechanism as suggested by NIE Networks would add significant complication to the annual tariff process. Not only would it require interaction with at least eight different indices, but each have different publication dates and processes (such as provisional figures) which may not be conducive to annual adjustments.

   c)   In contrast to the NIE Networks' view, we would expect a significant regulatory burden. Annual reporting would have to be amended to accommodate such detail as the existing reports do not split costs in the same fashion as the RPE analysis.

   d)   Not being a national statistic, it is possible that some of the indices may become defunct.

3.93   Our view was that departure from the existing regulatory framework needs to be well justified. The onus for this justification is on NIE Networks. In our view, the justification provided did not sufficiently support the introduction of a true-up.

3.94   There is a risk to both NIE Networks and consumers in setting ex-ante allowances for RPEs. However, the existing ex-ante approach represents a 'fair-bet' that we consider to be justified.

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[15] Response to query UR-0018.

3.95   In their consultation response E&Y and NIE Networks made various representations on this issue. Their key points can be summarised as follows:

     a)   Outturn input prices for the first four years of RP6 materially differed from the UR's forecasts, with much greater volatility than anticipated.

     b)   Given the volatility, a true-up mechanism in line with that applied by Ofgem is a "safe hedge" for NIE Networks and its customers.

     c)   The draft determination did not include any discussion of regulatory precedent on this issue.

     d)   Ofgem applied a true-up mechanism in respect of RPEs.

     e)   No reasons are given in the draft determination for choosing to follow the approach in GD23 in preference to Ofgem's approach.

     f)   Risk of NIE Networks not being able to recover efficient costs.

     g)   Any additional burden that would arise from administering the mechanism would be outweighed by the benefits.

3.96   Responses to each of the individual points are provided in the previous chapter. In summary however, we consider that the regulatory framework already provides significant protection from price volatility by virtue of the following factors:

- Ex-ante allowances for RPEs.

- 50:50 cost sharing mechanism.

- Employee salary control and contractor management practices.

- Provision of general inflationary uplifts.

3.97   It is worthwhile noting that despite the significant cost variations in RP6, NIE Networks was largely protected by virtue of large rises in inflation. Whilst we predicted positive RPEs for the RP6 period, they actually out turned slightly negative when compared to RPI inflation. This is despite the fact that nominal input prices were much more volatile than expected.

3.98   We would also note that the true-up mechanism proposed is more burdensome than that adopted by Ofgem. In terms of precedent, regulators have adopted both approaches. We see merit in both.

3.99   There has been considerable feedback on both the issue of specialist labour and a true-up mechanism. At the draft determination, we were minded to

reject both on the grounds set out above. However, whilst the price control framework affords significant protections, we accept that there remains a risk of windfall gains or losses.

3.100 As a result, we are of the view that there may be some merit in considering an RPE re-opener mechanism via a separate consultation. However, we have not implemented a true-up mechanism for RPEs before and this could have implications for other price controls. Neither was a true-up consulted upon in the draft determination. Consequently, we propose to undertake a separate consultation on what form this mechanism should take.

3.101 In considering such a device, we think the following principles should apply and will likely form the basis of our consultation:

a) Only applicable to labour and material costs as the most significant expenditure areas (as per Ofgem approach).

b) To be undertaken at the end of the price control period when outturn values are known. This would ensure we are not taking regulatory action on annual changes which might be minimal or be reversed quickly in subsequent years.

c) Applicable only to price control allowances, not re-openers. We generally make our decisions on reopener allowances at a time when the costs are well established and real price effect adjustments no longer relevant. Detailed consideration will be necessary to ensure that the determined amounts are properly considered in the licence formula where they adjust for inflation and real price effects as the nominal revenues are calculated and Regulated Asset Base values maintained.

d) Can be both a positive and negative adjustment. The RPE reopener is a cost risk mitigation measure which should act symmetrically to protect both NIE Networks and consumers.

e) Only applicable in the event of certain materiality thresholds being breached (to be determined, taking account of the approach introduced by Ofgem).

f) True-up adjustment would be based on agreed/published indices and not NIE Networks own rates. We would continue to adopt the basket of indices used in the final determination unless we considered there was good reason to change them having also considered any representations from NIE Networks. Using a consistent set of established external indices maintains an appropriate efficiency challenge on NIW Networks.

g)   While we have excluded specialist labour from our determination of RPEs we may consider a specialist labour adjustment should it materially diverge from average economy rates. However, analysis of all roles would need to be undertaken to ensure a symmetrical approach.

3.102   Other issues would also need to be considered. For instance, should a true-up be applied via a 'cliff edge' or a 'trigger approach'. In the first instance only costs beyond the materiality threshold would get adjusted to protect the company/consumer from windfall gains/losses. For a 'trigger approach' breaching the materiality threshold would activate adjustment of the full differential between the forecast and actual RPE amount.

3.103   In the event of such a mechanism being advanced, there would be no requirement for a mid-point review of capital unit rates. To undertake both would run a significant risk of double counting which must be avoided.

3.104   We have not included an RPE re-opener mechanism in RP7 licence modifications as the details of such a mechanism would need to be the subject of a separate consultation. However, this general approach and statement of principles should provide NIE Networks with assurance that a mechanism will be introduced and the broad scope and principles of its workings. In the event of significant price volatility, we retain the right to adjust the framework to ensure appropriate cost recovery.

4. Productivity

Background

4.1 A company can become more efficient over time and so close the gap between its efficiency level and that of the frontier performer. Equally, the industry's overall efficiency or frontier can change over time. It is possible the most efficient company in an industry can find new or improved ways of using less input volumes to maintain current output levels.

Company business plan submissions

4.2 NIE Networks provided estimates of productivity improvement to apply in RP7. These proposals are shown in Table 4.1 below.

DNO	Opex	Capex
NIE Networks	0.80%	0.80%

Table 4.1: Annual efficiency improvements proposed by NIE Networks

4.3 The efficiency challenge is in line with the NIE Networks' consultants paper conclusions. They state, "we consider that an ongoing productivity assumption within the range of 0.5% - 1.0% would be a well evidenced, yet stretching, target for NIE." They further argue that a challenge beyond 1% p.a. would not be appropriate due to the following:

- CMA found that Ofgem's decision to add an innovation uplift was not sufficiently well evidenced.

- Innovation funding embedded in the Northern Ireland regulatory framework is not directly comparable to GB.

- Northern Ireland's labour productivity is 18% lower than the UK average. This indicates that the appropriate target for NIE Networks is likely to be well below the range supported by UK wide data.

4.4 Given the issues, NIE Networks has adopted a challenge of 0.8% per annum. This applies to both its operational and capital spend.

UR assessment

Benchmark industries

4.5 In its decision for ongoing efficiency for RIIO-ED2, Ofgem assessed the productivity that could be observed from comparator sectors to the GB DNOs

using EU KLEMS[16] data. This was one method in establishing the range of possible productivity improvement factors.

4.6 The ED2 analysis established a challenge range of 0.4% - 1.2% p.a. using the full time series dataset (1995-2016) depending on whether the value added (VA) or gross output (GO) approach is adopted. E&Y further noted the sensitivities around business cycle definitions, which could support an even wider range.

4.7 In the draft determination we considered different timespans, VA and GO estimates as well as labour productivity forecasts from the OBR. We looked at productivity against certain selected industries. Whilst the total factor productivity (TFP) using gross output is not published, it can be calculated using the following formula:[17]

$$gTFP_{GO} = gTFP_{VA} \times \frac{VA}{GO}$$

4.8 Our analysis considered estimates using certain industries considered the most applicable comparators. Selected industries include i.e. Construction (F), Wholesale & Retail Trade (G), Transportation & Storage (H) and Finance & Insurance (K).

4.9 We have further included two industries that Ofgem has incorporated into its ED-2 analysis. These include Info & Communication (J) and Professional, Scientific & Technical (M_N). The results for the 2019 data release as used by Ofgem is set out in Table 4.2 and Table 4.3.

	TFP Value Added (2019 Release)		
	(1997-2016)	(2006-2016)	All years (1995-2016)
Unweighted Average of Selected Industries	1.10%	0.17%	1.20%

Table 4.2: Productivity VA growth estimates by UR (2019 release)

	TFP Gross Output (2019 Release)		
	(1997-2016)	(2006-2016)	All years (1995-2016)
Unweighted Average of Selected Industries	0.61%	0.17%	0.65%

Table 4.3: Productivity GO growth estimates by UR (2019 release)

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[16] EU KLEMS is an industry level, growth and productivity research project. EU KLEMS stands for EU level analysis of capital (K), labour (L), energy (E), materials (M) and service (S) inputs. Source: https://euklems-intanprod-llee.luiss.it/

[17] See NERA Report: Real Price Effects and Ongoing Efficiency at GD23, p23.

4.10   When considering the most up to date 2023 data release, the productivity scope is not as great. This is evidenced in Table 4.4 and Table 4.5 below.

	TFP Value Added (2023 Release)		
	(1997-2020)	(2006-2020)	All years (1995-2020)
Unweighted Average of Selected Industries	0.62%	0.14%	0.46%

Table 4.4: Productivity VA growth estimates by UR (2023 release)

	TFP Gross Output (2023 Release)		
	(1997-2020)	(2006-2020)	All years (1995-2020)
Unweighted Average of Selected Industries	0.34%	0.12%	0.24%

Table 4.5: Productivity GO growth estimates by UR (2023 release)

4.11   However, the 2023 release provides data up to 2020 which was significantly impacted by the first COVID lockdown. The resultant downturn in activity is captured in these figures. Consequently, we place less reliance on their conclusions as the earlier figures.

4.12   Furthermore, as various commentators have noted, the EU KLEMS data does not account for "embodied technical change" (i.e. improvements in the quality of inputs rather than simply the management practices in using them). Consequently, the data may underestimate the true efficiency gains possible by an electricity DNO.

4.13   Use of this data and the six selected comparator industries suggested a potential improvement range from 0.12% to 1.20% per annum.

4.14   In its consultation response, NIE Networks queried the inclusion of high productivity industries (such as the Information and Communications sector). They argued that this industry is significantly different to the sector that NIE Networks operates in.

4.15   This issue was also raised during RIIO-ED2. The CEPA report for Ofgem stated that, "we consider that the transformation of the electricity distribution sector means that there will be increasing investment in new activities and methods of managing the networks which bear some similarity to the Information and Communications sector".

4.16   We agree with this conclusion. The scale of investment as set out in the NIE Networks' RP7 Digital and IT Business Plan provides further evidence of this increasing investment. Given this reality, the inclusion of this sector in the analysis seems justified.

4.17 The issue of business cycles was also raised. Our analysis has tended to review productivity over a longer time period. This avoids short-term fluctuations in productivity growth rates and helps limit bias in the TFP dataset. As a consequence, we are not disposed to materially adjust the approach adopted at the draft stage.

4.18 However, we did review the analysis excluding the COVID year and including the latest relevant business cycle post financial crash from 2009 to 2019. The results were as follows:

| | TFP Value Added (2023 Release) | | | |
	(1997-2029)	(2006-2019)	(2009-2019	All years (1995-2019)
Unweighted Average of Selected Industries	0.92%	0.61%	1.08%	0.73%

Table 4.6: Productivity VA growth estimates by UR (2023 release)

4.19 For the value added TFP growth analysis, the data suggests a plausible range of 0.6% - 1.1% ongoing efficiency growth. As previously stated, this excludes the potential for embodied technical change improvement which may underestimate the potential achievable gains.

Regulatory precedent

4.20 In the draft determination we also considered regulatory precedent and decisions made for other utilities, as summarised by Table 4.7 below.

Decision body	Year	Opex	Capex
Ofwat PR24 Draft Determination	2024	1.0%	
Ofgem RIIO-ED2 Final Determination	2022	1.0%	
CMA RIIO-T2/GD2	2021	1.05%	0.95%
UR NI Water PC21	2021	0.8%	0.6%
CMA PR19	2019	1.0%	
UR NIE Networks RP6	2017	1.0%	1.0%
UR Gas Distribution Networks GD17	2016	1.0%	1.0%
UR NI Water PC15	2014	0.9%	0.6%
Competition Commission – NIE RP5	2014	1.0%	1.0%
UR Gas Distribution Networks GD14	2013	1.0%	1.0%
Ofgem RIIO-T1/GD1	2012	1.0%	0.7%

Table 4.7: Recent regulatory decisions on annual productivity (%)

4.21 The most obvious comparator is that used by Ofgem in the recent ED2 final determination. This would indicate an equivalent challenge of 1.0% would be

appropriate for NIE Networks. Ofwat has also opted for a 1% challenge in their most recent draft determination for water companies in PR24.

4.22   NIE Networks made the point that the target should be set at a level which they can outperform. They further argued that its existing level of efficiency limited its ability to achieve the 1% proposal.

4.23   Whilst we welcome the results of NIE Networks' relative efficiency performance, the productivity challenge applies equally to all DNOs.

4.24   This position is illustrated by Ofgem in the RIIO-ED2 summary which stated, "An ongoing efficiency challenge of 1% per year, reflecting an overall increase in productivity that we expect even the most efficient companies to deliver."[18]

4.25   We agree with this position. We are also of the view that other factors may support outperformance such as innovation funding. Whilst we disagree with MNI's[19] suggestion to increase the productivity target, we do recognise its point about the DfE drive to close the productivity gap. Again, this suggests a greater scope for improvement in Northern Ireland compared to the UK as a whole.
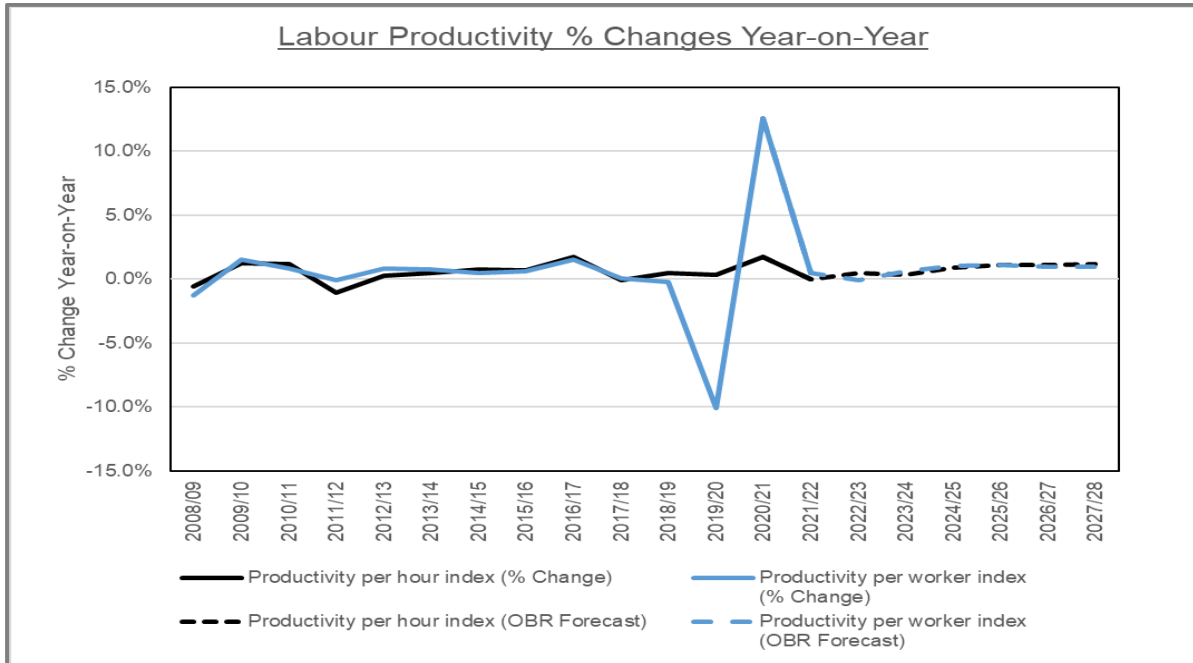
Labour and regional productivity

4.26   Consideration was further given to labour and regional productivity. This is appropriate given the integral role staff play in the DNO activities. Figures for labour productivity were taken from those as forecast by OBR.

[18] RIIO-ED2 Final Determinations Overview document, p12.
[19] Manufacturing NI.

Figure 4.1: OBR labour productivity, % change[20]

4.27   OBR is predicting labour productivity per hour to rise at an average of 0.86% per annum from 2022-23 to 2028-29.

4.28   NIE Networks' consultants referenced the fact that regional GVA output per hour worked indicates that local labour productivity is 18% lower than the UK average. Its conclusion is that an appropriate target for NIE Networks is likely to be well below the range supported by UK wide data.

4.29   It is true to state that productivity has long been lower in Northern Ireland than that achieved in the UK as a whole. However, this is not considered to be a good argument for reducing the efficiency challenge for NIE Networks. Given the lower starting point, a case could be made for a tougher target. The key issue however is the rate of change.

4.30   Whilst a material gap remains, local productivity has marginally caught up with the UK since 1998. Productivity has increased faster than either England, Wales or Scotland (as illustrated by the chart below). This suggests that the challenge applicable to GB DNOs should also be replicated in Northern Ireland or even increased.

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[20] Figures taken from Economic and Fiscal Outlook, March 2023, supplementary economy table 1.6.
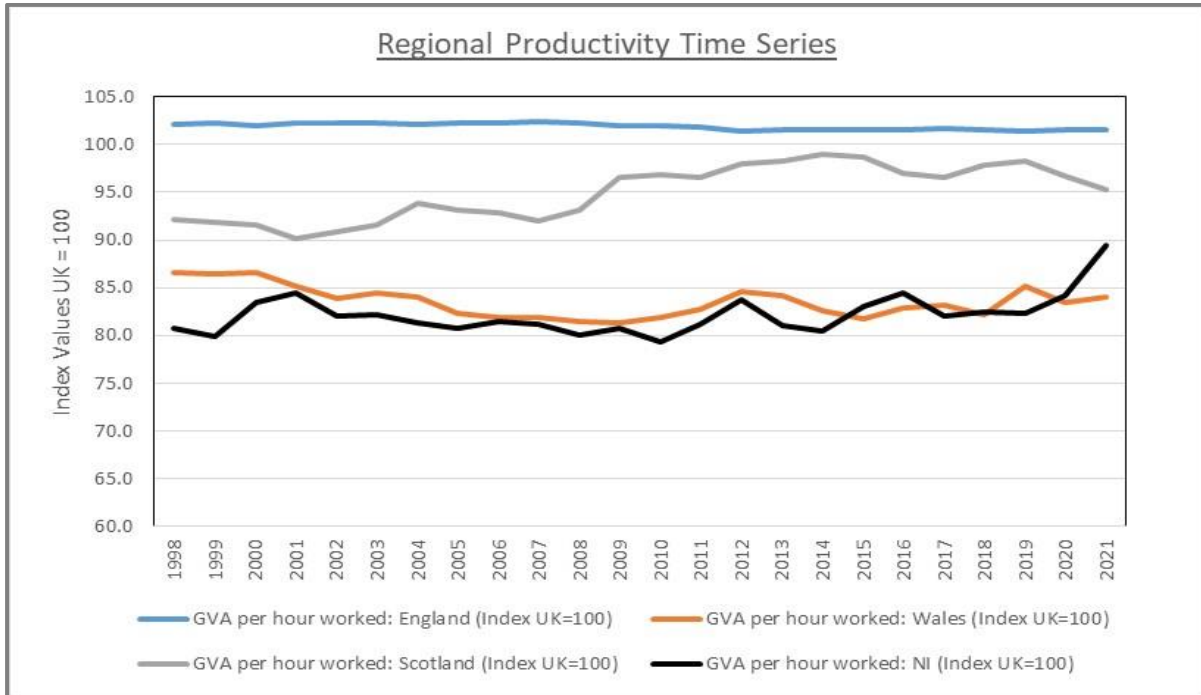
Figure 4.2: GVA per hour worked by region – ONS data[21]

4.31   NIE Networks suggested that expected staff growth may dampen productivity. However, we see no reason for this given the OBR forecasts for labour productivity. The commitment to the new training centre and development of staff should further enhance this output.

Productivity Conclusions

4.32   Given our analysis, review of NIE Networks' submission and consultation responses, we have decided to retain the 1% p.a. productivity target. This has been determined for both Opex and Capex.

	Opex	Capex
Productivity challenge	1.0%	1.0%

Table 4.8: RP7 productivity target (%) at final determination

4.33   It is our view that this target is supported by both the quantitative evidence and regulatory precedent. It is also at the top of the range suggested by NIE Networks own consultants.

4.34   We did not adopt the lower figure of 0.8% as set out in the NIE Networks' business plan. Other stakeholders have requested both higher and lower

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[21]Source:https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/labourproductivity/datasets/regionalproductivitytimeseries

productivity targets. We are of the view that the 1% target strikes the right balance between challenge and achievability.

4.35   We have not imposed any further challenge because of innovation funding. However, we would note that some of the innovation projects are expected to have impacts on working patterns and productivity. Given this separate allowance, it might be reasonable to expect NIE Networks' productivity to improve at a faster pace than the general economy.

4.36   It is also noteworthy that Europe Economics has produced a report[22] for Ofwat indicating that the factors contributing to the slowdown in economy-wide productivity growth since the mid-2000s would not be expected to affect productivity growth in the water sector. It is highly likely that some of these conclusions are also applicable to electricity networks.

4.37   Given these issues, we do not see a good rationale for amending the draft position of 1% per annum targets.

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[22] See Frontier Shift and Outcomes Stretch at PR24, p17-30, Europe Economics.

5. Frontier Shift Conclusions

5.1 The respective net impact of frontier shift for both Opex and Capex is shown in Table 5.1 and Table 5.2 below.

Figures in % (excl. cost base impact)	RP6			RP7					
	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31
Weighted nominal input prices	7.50	5.37	1.90	2.01	2.40	2.69	1.39	2.98	2.98
CPIH Forecast	9.61	4.75	1.44	1.61	1.67	2.00	2.00	2.00	2.00
RPE (annual)	**-1.93**	**0.59**	**0.45**	**0.40**	**0.71**	**0.68**	**-0.60**	**0.97**	**0.97**
Productivity	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FS (annual)	**-2.91**	**-0.41**	**-0.56**	**-0.60**	**-0.30**	**-0.33**	**-1.59**	**-0.04**	**-0.04**
Cumulative FS	-2.91	-3.31	-3.85	-4.43	-4.71	-5.03	-6.54	-6.58	-6.62
Effect on cost base	**0.97**	**0.97**	**0.96**	**0.96**	**0.95**	**0.95**	**0.93**	**0.93**	**0.93**

Table 5.1: Opex frontier shift calculations

Figures in % (excl. cost base impact)	RP6			RP7					
	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31
Weighted nominal input prices	9.68	2.04	1.20	2.84	3.10	3.30	2.41	3.50	3.50
CPIH Forecast	9.61	4.75	1.44	1.61	1.67	2.00	2.00	2.00	2.00
RPE (annual)	**0.07**	**-2.58**	**-0.24**	**1.21**	**1.40**	**1.28**	**0.41**	**1.47**	**1.47**
Productivity	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FS (annual)	**-0.93**	**-3.56**	**-1.24**	**0.20**	**0.39**	**0.26**	**-0.60**	**0.46**	**0.46**
Cumulative FS	-0.93	-4.46	-5.64	-5.45	-5.09	-4.84	-5.41	-4.97	-4.54
Effect on cost base	**0.99**	**0.96**	**0.94**	**0.95**	**0.95**	**0.95**	**0.95**	**0.95**	**0.95**

Table 5.2: Capex frontier shift calculations

5.2 The numbers for the final determination have changed resulting in lower RPEs and less allowance. However, it was noted in the draft determination that the numbers were subject to change for the final determination based on the latest data.

5.3 From a methodological perspective, the approach is similar to that which was previously consulted upon. We will continue engagement with NIE Networks and consult further on an RPE true-up mechanism for RP7.