Appendix

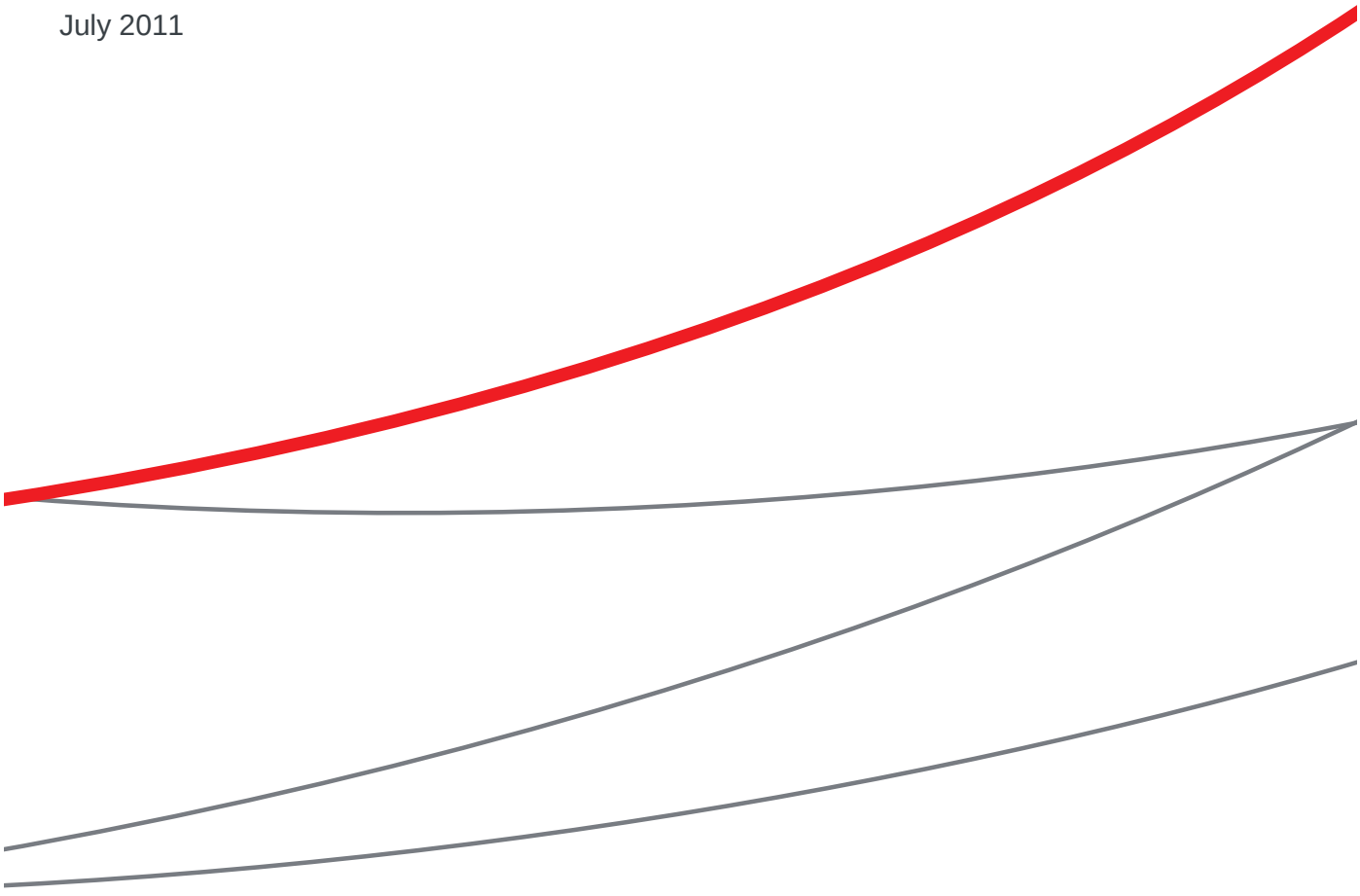
A6

EC Harris Report on Real Price Effects

Northern Gas networks

RIIO GD1 - RPE Assessment

July 2011



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	Rev 1	3 June 2011		WIP for comment	SDR
	Rev 2	13 June 2011		General changes and responses to comments	SDR
	Rev 3	8 July 2011		Changes in response to final NGN comments Section on COPI added Final issue to client	SDR

Contents

1 Executive Summary

This study, prepared by Built Asset Consultants EC Harris on behalf of Northern Gas Networks sets out allowances for Real Price Effects for the 2013/2021 price control period.

The analysis has been prepared in line with Ofgem recommendations with regards to methodology and data sources. Our assessment of both labour and materials RPEs are based on time series spanning from the mid-1970s to 2008 – covering three full business cycles.

For the price control period, recommendations have been made for composite RPEs which combine economy-wide trends, and RPE premiums for specialist contract resources.

Separate RPEs have been prepared for the 2011 to 2012 period based on readily available data from the market or consensus forecasts.

Recommended Total RPEs are set out in Table 1.1.

Table 1.1 Recommended Total RPEs

Spend Category	2011	2012	2013-2021
	% change pa	% change pa	% change pa
Contract Labour (industrial)	0	-0.2	2.0
Contract Labour (IT)	0	-0.2	1.7
Direct Labour[1]	0	-0.2	1.5
Materials (PE Pipe)	0.1	0.1	0.3
Materials (Steel)	0.1	0.1	0.4
Plant	0.1	0.1	-0.3
Fuel	2.5	2.5	2.5

Sources: EC Harris LLP, ONS, HM Treasury

Further detail of RPEs calculated for 2013 to 2021, including the breakdown into spend categories for Capex, Repex and Opex, is detailed in section 2.3.1

Section 3 of the report discusses the methodology developed to calculate the RPEs, together with the sources of data used. We refer to precedent from previous price control assessments and demonstrate compliance with Ofgem recommendations.

Section 4 presents the detailed analysis of National RPEs for labour and materials – demonstrating the detailed consideration that we have made of RPEs over different study periods.

Section 5 deals with the premium costs of employing specialist contract labour – in this case examining construction and IT specialist contract labour.

Section 6 discusses the detailed implementation of regional factors proposed by Ofgem. In our critical analysis, we recommend that the range of data used to calculate adjustment factors is expanded – in terms of the number of sources and also the time period over which the data is derived.

In section 7, we discuss additional Uncertainty Mechanisms. We recommend that NGN should investigate the potential for pass-through mechanisms for raw material costs associated with PE pipe supply and fuel.

[1] NGN's current wage settlement, concluded in 2010, incorporates a mechanism to ensure that earnings increase in line with RPI. From 2012 onwards the direct labour RPE is based on forecasts and does not reflect current NGN remuneration policy.

2 Results of the RPE Assessment

This section of the report sets out the overall findings of the RPE assessment, together with forecasts for cost escalation in 2012 and 2013.

The RPE forecasts for 2013 to 2021 have been calculated using Ofgem's preferred correlation mechanism – based on a time series calculated over the period 1976 to 2008, which spans three economic cycles.

2.1 Summary analysis of NGN expenditure

In the GDPCR1 price determination, RPE adjustment factors were set for contract labour, direct labour and materials, focused particularly on price movements affecting PE pipe. Ofgem's requirement for the separate consideration of Capex, Opex and Repex expenditure trends under the RIIO GD1 methodology necessitates the consideration of a wider range of cost centres.

Our assessment of the basket of items used for the calculation of RPEs is based on data derived from NGN's 2009/2010 Regulatory Reporting Pack. No adjustments have been made to the data in anticipation of changes in workload that might result from the review of Repex priorities.

The selection has been made through the application of the 80:20 principle. We are able to demonstrate that we have identified and can track inflation trends affecting all significant expenditure on materials.

Table 2.1 Summary Total Expenditure

NGN - Annual Expenditure Summary	Capex (£m)	Repex (£m)	Opex (£m)	Total (£m)
Contract labour	12.7	64.6	6.2	83.5
Direct labour	6.5	13.6	11.0	31.1
Direct labour - industral related			19.0	19.0
Materials metal valves, fittings	2.4	0.3	3.3	6.0
Materials - PE pipe		6.2		6.2
Reinstatement - Specialist contractors	1.6	1.5	4.3	7.4
Operational costs - vehicles and IT	11.2			11.2
Operational costs - Specialist IT	11.0			11.0
Transport and plant			2.4	2.4
Balance of Expenditure	2.7	5.7	7.5	6.8
Total	**£48.1**	**£91.9**	**£53.7**	**£193.7**

Source: NGN regulatory reporting pack 2009/2010

Note: Opex costs associated with NSA and billing services are included in the Balance of Expenditure figure.

Our analysis shows that the bulk of NGN expenditure is focused on a range of labour grades, the bulk of which are engaged in construction industry related activity. There are also substantial consultant costs related to specialist IT. In section 5 we consider the specialist contractor premium RPE related to IT consultancy.

Our methodology focuses most effort on identifying a time period appropriate for calculating a representative economy-wide labour RPE. The time period over which the National Labour RPE is calculated is then used as the basis for calculating RPI correlations for other areas of expenditure.

Materials costs, which were subject to a significant premium in the 2007 GDPCR1 assessment, are a small proportion of overall expenditure – 5 to 6% of the total. With the potential for different cost trends affecting metals such as metals and PE pipes, we have recommended the compilation of a small number of trade specific RPE indices.

There are also substantial expenditure associated with vehicles, IT, NSAs and billing services. NGN have prepared a separate assessment of the efficiencies that will be secured on these heads of expenditure using industry specific data. We have not undertaken any further analysis of these heads of expenditure.

2.2 Forecasts for 2011/2012

The RIIO GD1 methodology requires the forecasting of RPEs ahead of the Price Control period in 2013.

The precedents available for producing these forecasts include current NGN-specific market-derived data that relates directly to the forecast period, together with HM Treasury sourced consensus data sources referenced in previous price control periods – e.g. DPCR5. Table 2.2 summarises our forecasts for the period:

Table 2.2- RPE forecasts 2011/2012

NGN – RPE Forecasts (%/pa)		
	2011	**2012**
Labour	0%	-0.2%
Materials	0.1%	0.1%
Transport (fuel costs only)	2.5%	2.5%

Sources: NGN, HM Treasury, EC Harris

Actual and forecast cost data are described in section 3.4, which deals with methodology and data sources. The assessment for fuel costs is based in the RPE calculated in section 4.2 for the 2013 to 2021 period.

The 0% allowance for labour in 2011 is informed by NGN's current wage settlement, finalised in 2010, which has a direct link to RPI.

Looking beyond NGN's direct labour, we have taken the view that the short-term forecast should not allow for construction industry wage premiums in the period to 2012. Based on construction industry workload forecasts, we do not anticipate that scarcity factors that drive the long term construction industry earnings premium will apply during the period immediately prior to the price control period.

2.3 Real Price Effects 2013 to 2021

This section summarises the assessment of RPEs for the main heads of expenditure described in section 2.1.

Our assessment of Real Price Effects includes two components:

- *National RPEs* which are inflation trends which apply across all sectors of the economy. Our focus here is on long-term correlations between wage and material price inflation and RPI.
- *Specialist Contractor RPEs* which describe earnings premiums associated with the construction industry and IT specialist contracting. The precedent for a specialist contractor premium was established in GDPCR1. In that regulatory review, the premium was applied to both contractor and directly employed labour.

Table 2.3 sets out our aggregate RPE assessment, including the mid-point recommendation for the composite value of the RPE, taking into account National and Specialist Contractor RPE trends.

Table 2.3. Summary of RPEs – 2013 to 2021

Spend Category	National RPE	Specialist Contractor Premium RPE	Likely range of RPE outcomes	RPE proposed for NGN
	% change pa	% change pa	% change pa	% change pa
Contract Labour (industrial)	1.64	0.57	1.80 – 2.21	**2.0**
Contract Labour (IT)	1.64	0.19	1.60 – 1.83	**1.7**
Direct Labour	1.64	n/a	1.30 – 1.64	**1.5**
Materials (PE Pipe)	0.3	n/a	n/a	**0.3**
Materials (Steel)	0.4	n/a	n/a	**0.4**
Plant	-0.3	n/a	n/a	**-0.3**
Fuel	2.5	n/a	n/a	**2.5**

Sources: EC Harris LLP

Table 2.3 sets out RPEs calculated using the methodology described in detail in section 3.0. In view of the range of labour RPE outcomes associated with the selection of the start and end date, NGN requested EC Harris to recommend a range of outcomes – using the aggregate value of the National and Specialist Contractor RPEs as the top end of the range. The proposed RPE for labour is based on a conservative assumption proposed by ECH, based on the mid-point of the range.

Whereas in GDPCR1, GDNs were able to reference current market conditions in their submissions for RPEs, the combination of the extended price control period and current severely depressed construction market make it difficult to use current market conditions as a guide to future trends.

This challenge was also faced in DPCR5.

Accordingly whilst NGN's current cost base can be used as the start point for the calculation of expenditure profiles in the business plan, current market conditions clearly cannot be extrapolated as the basis for a long term RPE trend.

The principal methodology utilised to establish RPEs is the **correlation method** described in Ofgem's DPCR5 final determination, and recommended in Ofgem's paper, *RIIO GD1, Tools for Cost Assessment,* published in March 2011. The background to this methodology is set out in greater detail in section 3.2. The principal benefit of the approach is that it is based on empirical data. The main challenge to the validity of the approach is the assumption that historic relationships between different cost drivers will be repeated in the future, and the sensitivity of the correlation to the study period over which it is calculated.

Correlation calculations prepared for DPCR5 were based on a range of time periods – many of which were relatively short. Given current economic conditions and the extended duration of the RIIO GD1 price control period, our view is that the use of data taken from incomplete business cycles characterised by stable, low inflation would not provide a secure basis on which to calculate the appropriate correlation. Furthermore, use of data derived from the period described the Ofgem's consultant as the 'great moderation' would be unlikely to be appropriate, particularly as a number of new inflationary forces are emerging in the UK, including:

- The reversal of the trend of *imported deflation* as a result of domestic inflation in emerging markets and commodity price inflation
- *Potential for above trend wage growth* from 2015 onwards driven by recovery from the deepest reduction in real earnings in the UK since the 1920s. Recent projections of the slow recovery of consumer demand prior to 2015 by the Office of Budgetary Responsibility point to the likelihood of an earnings rebound during the price control period.

The study period selected for the calculation of RPEs is the period 1976 to 2008. This spans three complete business cycles. The basis for the selection of the study period and data sources used is described in section 4.1.

2.3.1 National RPEs

Economy-wide RPEs for labour, materials, plant, fuel and other inputs are set out in table 2.4

Table 2.4 National RPE factors

NGN – National RPE factors (2013 to 2021)			
	Repex	**Opex**	**Capex**
Contract labour	1.64%	1.64%	1.64%
Direct labour	1.64%	1.64%	1.64%
Materials (PE pipe)	0.30%		
Materials (Metals and engineering)		0.40%	0.40%
Other inputs - plant		-0.30%	
Other inputs - Fuel		2.50%	

Sources: EC Harris LLP, ONS

Full details of the assessment are detailed in section 4 of this report

2.3.2 RPE Premiums

We have calculated RPE premiums for specialist contract labour for construction and IT consulting. This analysis is detailed in section 5.

In the current price control formula, GDPCR1, GDNs successfully argued that direct labour force costs, particularly those related to 'industrial' activities were also affected by high inflation affecting construction labour markets. We have considered whether a similar claim should be made for the 2013 to 2021 period. Direct industrial labour totalled £19.1m in 2010 – 40% of the total costs of the direct labour force.

Empirical evidence from NGN wage settlements indicates that the company has been successful in applying company-wide wage settlements – a considerable achievement given pressure on industrial wages prior to the slump in 2008. On this basis, we do not believe that it is appropriate to make a claim for an industrial premium related to construction.

As described below, AWE data does indicate that there has been a construction earnings premium recorded since 2000, even though NGN have been successful in controlling their cost base. This supports our view that the 1.64% national earnings RPE proposed is a conservative assessment of likely pressures affecting wage settlements over the 2013 to 2021 period.

RPE premiums are set out in table 2.5

Table 2.5. Specialist Contractor RPE premiums

	Annual earnings premium
Specialist Contracting - Industrial	0.57%
Specialist Contracting - IT	0.19%

Source: EC Harris LLP

The case for specialist contract premiums was established in GDPCR1. However, due to current market conditions, it is not currently possible to capture consistent empirical data on which to base the premium calculation. Data used to calculate the premium has been sourced from the ONS Average Weekly Earnings series (AWE).

Additional evidence supporting the case for the Specialist Contractor Premium is set out in section 5.3.

Given the size of the specialist contractor premium discussed in this section, and by discounting the likelihood that Direct Labour earnings might be affected by wider industry trends, NGN have introduced a conservative bias to the overall labour RPE assessment.

2.3.3 Comparison of the results of the assessment with other inflation metrics

This section of the report briefly compares the result of NGN's assessment with an alternative measure of inflation, COPI.

COPI – now known as the Output Price Index for New Construction – is used by other regulatory bodies such as Ofwat – as the regulatory inflation proxy. It is a price index and accordingly takes into account efficiency improvements as well as increases in inflation. As a result, COPI cannot be compared directly to the RPEs set out in this report, which need to be discounted for the efficiency gains proposed by NGN as follows:

- Repex – 0.6% pa
- Capex – 0.5% pa

COPI is a composite index of construction work. In order to compare the NGN RPEs with COPI, it is necessary to calculate a weighted annual RPE percentage based on the current NGN expenditure profile for Capex and Repex, and also to calculate the compound annual average COPI inflation percentage, based on a comparable study period.

The weighted RPE percentage for Repex and Capex only is 1.22%. The details of the calculation are set out in table 2.6 below.

Table 2.6 Weighted RPE Factors for COPI comparison

NGN – National RPE factors (2013 to 2021)						
	RPE	**Efficiency Factor**	**Net RPE**	**Value**	**Weight**	**Weighted Net RPE**
Repex						
Contract labour – (Industrial)	2	0.6	**1.4**	66.1	**54.9**	0.77
Direct labour	1.5	0.6	**0.9**	13.6	**11.3**	0.10
Materials (PE pipe)	0.3	0.6	**-0.3**	6.2	**5.1**	-0.02
Materials (Metals and engineering)	0.4	0.6	**-0.2**	0.3	**0.2**	-
Capex						
Contract labour – (Industrial)	2	0.5	**1.5**	14.3	**12.0**	0.18
Contract labour – (IT)	2	0.5	**1.5**	11.0	**9.1**	0.14
Direct labour	1.5	0.5	**1.0**	6.5	**5.4**	0.05
Materials (PE pipe)	0.3	0.5	**-0.2**	n/a		
Materials (Metals and engineering)	0.4	0.5	**-0.1**	2.4	**2.0**	-
Total				120.4	**100**	**1.22**

COPI data is available for the period 1995 to present. In line with the methodology used in this study, we have used data up to the end of 2008. Between 1995 and 2008, the value of the COPI index increased by 83%. Price and cost movements over the period are summarised in table 2.7 below.

Table 2.7 COPI and RPI movements 1995 to 2008

Inflation index	Annual Compound Inflation (%)
COPI	4.40
RPI	2.70
Real COPI	1.70

This assessment shows that the COPI equivalent of the RPEs calculated for NGN has been running at a premium of 0.48% per annum over the period 1995 to 2008. This is further evidence of the conservative nature of the RPE assessments put forward by NGN, although it also has to be acknowledged that there are differences between COPI and the RPEs used by Ofgem which partially explain this differential.

One difference is that COPI is a measure of contractor's tendered prices for construction work. COPI does not include the costs of direct labour or directly procured plant and materials that are included within the NGN RPEs. Other factors include:

- COPI is a price index, taking into account the contractor's profit and overhead as well as the resources tracked by the NGN RPEs
- COPI data is secured mostly from competitively tendered projects, which exhibit a different inflation dynamic to long-term frameworks.
- COPI data is sourced from all construction sectors, some of which have experienced higher levels of demand than the gas distribution sector over the study period

3 Methodology and review of precedent

3.1 Overview of methodology

This section of the paper sets out key methodological issues associated with the forecasting of labour and material RPEs over the period 2013 to 2021. The review includes a summary of recent Ofgem guidance with regards to RIIO GD1, including directions on data sources. We also include a review of recent price control decisions and set out the precedents established by these decisions.

3.1.1 The challenge of the RIIO GD1 RPE methodology

Ofgem's March 2011 Paper, RIIO GD1, Tools for Cost Assessment sets out the framework for the assessment of RPEs for the 2013 to 2021 Price Control Period. The key issues set out by Ofgem are:

- *The RPE allowance is an ex-ante forecast of inflation affecting labour and materials.* This means that the forecasting risk sits with GDNs, as there will be no opportunity to adjust revenues in line with actual price inflation. As a result, our view is that the forecast source data should cover a broad range of outcomes so that GDN risk exposure is properly covered. We address this issue through the use of an extended study period.
- *The forecast is to be based on an analysis of historic trends of relevant indices, relative to RPI.* This is the correlation mechanism described by CEPA on behalf of Ofgem in the preparation of final proposals for GDPCR1 in 2007. The key issues for NGN are the definition of 'relevant indices' and the duration of the study period. These issues are discussed at greater length in sections 3.3 and 4.1. The correlation technique adopted in this study is the comparison of compound annual average inflation over the study period. More sophisticated approaches based on regression techniques cannot be used because there is not a dependent relationship between GDP and the inflationary metrics compared in the analysis.
- *Available forecasts of RPI and other economic indicators are to be used as the basis of forward RPE projections.* Forecasts collated and published by HM Treasury are available for 2011 and 2012 and are used to support our pre-price control period forecasts. Beyond 2013, sources of longer term forecast data are required and we have adopted the correlation method as proposed by Ofgem.
- *Scope for the proposal of additional uncertainty mechanisms.* We note Ofgem's acknowledgement that additional uncertainty mechanisms may need to be considered as part of the RPE setting process. In section 7 we set out the case for uncertainty mechanisms associated with PE pipe and fuel costs, both which are closely correlated to fuel costs which are in turn only partly correlated to RPI trends.
- *Defined information sources.* Ofgem set out recommended index series in RIIO GD1, Tools for Cost Assessment. These include the following series:
    - *ONS Average Weekly Earnings (AWE)*
    - *ONS Annual Survey of Hours and Earnings (ASHE)*
    - *ONS Producer Price Indices (PPI)*
    - *JIB Labour Costs*
    - *BCIS Construction Industry Indices*
    - *Bloomberg commodity prices*
    - *RICS commercial rent forecasts*

  The sources identified by Ofgem provide a comprehensive coverage of cost drivers, but do not necessarily provide continuous data over an extended period appropriate for the calculation of a robust correlation. In section 3.3.1 we discuss the wider range of source data necessary to establish a broadly based correlation model.

3.1.2 Review of precedent

This section of the paper summarises precedent from two recent price control decisions alongside latest guidance from Ofgem related to RIIO GD1.

The key findings of this section are:

- Correlation-based forecasting is well suited to dealing with long price control periods but needs to be based on data sourced from an extended time-series;
- The selection of the time series is critical in determining the representativeness and effectiveness of the uncertainty mechanism.
- Economic uncertainty is a key consideration in this RPE assessment**. All of the key indicators used in the assessment, RPI, earnings and commodities are currently diverging from their expected trend.** According to data from the Bank of England for example, average earnings have recently fallen in real terms to levels last seen in 2005 – the deepest drop seen since the 1920s. Simultaneously, commodity indices have been increasing at rates well above trend, and RPI is currently around 2% above levels implied by the Bank of England's 2% CPI target.

  Previous RPE assessments have included risk-based assessments of inflation based on empirical data. **If this method were applied to the RIIO GD1 assessment, it is likely that the analysis would yield results which are not likely to reflect the long term trends affecting the price control period**. Given the ex-ante assessment of RPE required under RIIO GD1, this approach is not appropriate. Our proposed solution is to use an extended time series as the basis for the calculation of correlation.

  Our view is that the extended series is more likely to have captured the range of potential inflation scenarios than recent data derived from the recent period of 'great moderation'.
- The application of earnings RPE differentials for specialist contractors should continue in RIIO GD1
- Disproportionate exposure of some areas of expenditure to energy and oil cost fluctuations lead us to propose the selective use of additional uncertainty mechanisms for PE pipe and fuel only, described in section 7.

3.1.3 Ofgem proposals for GDPCR1 (December 2007)

GDPCR1 is the current price control regime for gas distribution.

Table 3.1 details the RPEs awarded to GDNs in 2008.

Table 3.1 GDPCR1 RPE awards

	2006/7 – 2009/10	2010/11 – 2011/12
Contract Labour	3%	2%
Direct Labour	2%	1%
Materials	3%	3%

There are a number of key features from the 2007 review that inform NGN's approach to RIIO GD1:

- *Variable inflation over the study period.* The analysis for GDPCR1 was carried out in a period of high demand for construction which is reflected in the award. The final award reflected an expectation that demand would slacken over the price control period. **Over the 2013 to 2021 period, we expect that a similar pattern will be repeated and have based our selection of correlation study periods on full business cycles, so that inflationary and deflationary cycles are both accounted for.**
- *Premium cost of contract labour.* GDPCR1 acknowledges that there is a premium cost for contract labour. This conclusion was drawn at a period of high demand for construction resources, but anticipated that even though demand would slacken during the control period, a differential between contract labour and direct labour would be sustained. This is shown in table 3.1 which illustrates the build-up to the average award.
- *Effect of premium cost of contract labour on Direct Labour.* In the GDPCR1 decision, Ofgem accepted the principle that cost premiums associated with Contract Labour contributed to an inflationary environment affecting Direct Labour. This is an important consideration in setting earnings RPEs over the extended RIIO GD1 period.

- *Data sources.* The GDPCR1 labour cost assessment was based on recent tender price data and construction index series. Since the assessment was completed, the construction industry has been subjected to significant downward adjustments in prices and earnings secured by contract labour. Recent data does not reflect the trends which are likely to affect the industry in the RIIO GD1 price control period. The current, depressed market cost levels establish the cost baseline for the 2013 – 2021 price control period. Moving forward, the time series analysis we propose is based on a comparison of complete cycles – in this case 1976 to 2008 – anticipating a recovery in earnings.
- *Impact of high materials cost inflation.* The 3% pa RPE for materials is 10 times higher than the long term price trend and is an explicit recognition of the effect of short-term materials price fluctuation caused by energy costs etc that took place in 2007-2008. Alternative measures which allow for pass through of energy cost risks built into material price RPEs are discussed in section 7and should result in a better outcome for customers.

3.1.4 Input price inflation forecasts for DPCR5

Ofgem's assessment for the power distribution industry was prepared by Cambridge Economic Policy Associates (CEPA). DPRC5 requires a forward projection to 2015. It was carried out in 2009 in a period of high economic uncertainty.

- *Data sources used.* CEPA refer to a wide range of data sources in their assessment – including sources not identified by Ofgem in RIIO GD1, Tools for Cost Assessment such as the Average Earnings Index. In our view CEPA's work establishes a precedent for using data for forward projections derived from an extended historic dataset.

  CEPA's review of data sources describes data taken from the period 2000 to 2009 as being 'not representative' – reflecting the trends applicable to the 2003 to 2008 economic cycle described as 'the great moderation'. The identification of representative data series is the key aspect of the RIIO GD1 assessment – discussed at greater length in section 3.3.'
- *Reference to consensus forecasts.* CEPA utilised HM Treasury published forecasts of GDP and earnings growth in support of their short term analysis. **We have used this data as part of our forward projection to 2013 only.**
- *Adoption of the correlation methodology.* CEPA use the correlation methodology recommended by Ofgem.
- *Detailed analysis of a wider range of cost drivers* than GDPCR1. CEPA's analysis includes specialised labour and materials, together with equipment and plant. **We have adopted a similar approach of drilling down into a more detailed analysis where the category is materially significant, and where the cost driver differs substantially from the general trend.**

3.2 Implications for the RIIO – GD1 Assessment

3.2.1 Selection of the time series

As described in 3.1, Ofgem's DPCR5 assessment for the electricity transmission industry referred to labour cost data from a range of periods dating back to 1991. Ofgem have also recommended the use of extended data series, such as the EU – KLEMS data going back to 1970, used for productivity analysis.

The benefits of using an extended dataset are discussed in section 3.1.1 above.

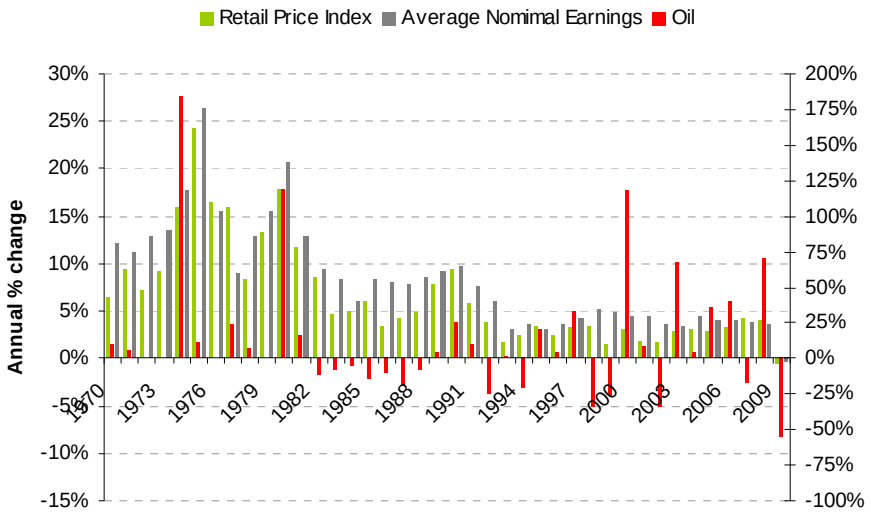
This requirement for the use of an extended dataset presents methodological and data availability challenges. However, in our view, the case for the adoption of data taken from multiple business cycles outweighs these disadvantages. Specifically, the use of an extended dataset addresses the following issues:

- *Data representativeness.* The correlation methodology relies on the assumption that previous patterns of inflation will be repeated during the price control period. However, the recent economic conditions to which current data series relate are unlikely to be repeated – see the discussion in 3.1.4.
- *Data covering the full business cycle*. The typical duration of a business cycle is 7 to 8 years. The unprecedented duration of the 1993 to 2008 cycle means that it is necessary to obtain data from multiple earnings data series to provide full coverage of even one complete cycle.

- *Increased volatility during the RIIO GD1 price control period*. We argue that a number of factors that could potentially affect RPI during the 2013 – 21 period did not apply during the 1993 to 2008 cycle. These include:
  - the extended period of public spending constraint expected for 2011 to 2016,
  - the withdrawal of stimulus via monetary policy - likely to commence in 2011,
  - global competition for natural resources by consumers and investors,
  - sustained, accelerated growth of emerging economies
  - continuing instability in developed world economic blocs such as the Euro Zone.

  Our analysis demonstrates that the variance between RPI and factors such as earnings and key material inputs fluctuates more widely during periods of instability and we argue that an extended time-series will capture the potential for this instability more effectively (e.g. previous bouts of high inflation or above trend interest rates). This will produce a correlation assessment that is more representative and resilient. Figure 3.1, presenting annual % change data for RPI, earnings and oil commodity prices since 1970 illustrates the relative stability in prices that has been experienced since the early 1990s, supporting our argument that a wider range of data is necessary to capture potential inflation outcomes. The continuing fluctuation in oil price during the last decade – albeit sometimes from a very low base – illustrates that drivers of instability and inflation present in the 1970s still have the potential to impact on the cost base.

Figure 3.1 Patterns of price and earnings fluctuation 1970 to 2008



As illustrated by Figure 3.1, EC Harris have examined UK-wide earnings RPEs over a number of periods between 1970 and 2010, during which there were bouts of high inflation, spending cuts, rapid economic growth and recession. Our initial analysis covered four full economic cycles. Although conditions in the early 1970s are unlikely to be replicated, the analysis demonstrates that there is a significant variance in earnings RPEs which is most effectively smoothed by use of extended time series. The detailed analysis is set out in section 4.1 below.

3.2.2 The structure of the assessment - National RPEs and Specialist Contractor RPEs

The majority of RPEs used in this assessment are National RPEs. By this we mean that the trends identified are applicable to the UK economy as a whole rather than a specific sector or location. In our view national RPEs are based on the most representative data and are hence likely to provide the most reliable, long term basis for correlation with RPI.

Furthermore, as the trends can be demonstrated to be economy-wide, it cannot be argued that, in terms of a high proportion of expenditure, that NGN is making a special case for itself in terms of an above trend RPE recovery.

Sector specific earnings data is available, but only over a shorter duration. For example, Average Weekly Earnings data from 2000 to 2010 illustrates a significant premium to average earnings for construction and services. Accordingly we make a limited claim for premium RPEs for Specialist Contractors – in this case Construction and IT specialists. Furthermore, the final RPE proposal set out in table 1.1 is a mid point assessment of national and specialist contractor RPE factors.

Ofgem should note that the premium calculation is based on national earnings data rather than empirical data sourced from NGN. This approach is consistent with Ofgem's correlation methodology.

3.2.3 Calculation of NGN's proposed RPE factors

The correlation method proposed benefits from a high degree of transparency, but there are inevitably issues of the representativeness of the data – particularly related to start and end date bias. These issues are considered in detail in section 4.1.

Whilst the assessment delivers a precise numerical output, NGN recognise that it is more appropriate to consider future RPEs as a range of potential outcomes.

EC Harris were asked to produce an assessment of the potential range of outcomes, with the outputs from the models used to define the top end of the range. This assessment is included in table 2.3. In order to present a conservative RPE assessment to Ofgem, we have used the mid-point of the RPE assessment in the Business Plan submission.

3.3 Sources of data

The main issue in identifying appropriate sources of data for RPI correlations has been the identification of consistently based data over an extended period. As explained in Section 2.3, we have opted to identify the RPI correlation over an extended period, 1977 to 2008. We have taken cues from Ofgem's preference for the use of the extended KLEMs data set for productivity comparison and have also built a case against using data derived from current data series alone.

3.3.1 Earnings.

National Earnings RPEs

No single set of earnings data is available to cover even the full 1993 to 2008 business cycle. The current survey – Average Weekly Earnings (AWE) – goes back to 2000. The previous series, the Average Earnings Index (AEI), goes back to the mid 1990s and was discontinued in 2000. New Earnings Survey (NES) data covers the period 1975 to 2004 but is not available as a consolidated online source.

ONS do not provide a single, consolidated earnings times series.

To address the absence of a single, consistent source of data on UK GDP, Nominal Earnings and Real Earnings for this analysis, we have used a single time series obtained from the academic resource MeasuringWorth.com.

Measuring Worth is an initiative run out of the University of Illinois. Its objective is to produce historical data focused on nominal measures of the highest quality and reliability. Series published by Measuring Worth are subject to review by independent referees.

The series used brings together AWE, AEI, NES and prior series into single national earnings and inflation indices. This source is appropriate for the calculation of the National Earnings RPE, but cannot be used to project premiums associated with specialist contractors.

The methodology used by MeasuringWorth and key sources of data are described in the paper, '*What were the UK earnings rate and consumer price index then? – a data study*', published by Laurence H Officer of the University of Illinois. The paper describes the main challenges which involve the construction of a data set dating from 1264 to the present day. The paper sets out sources and linking years used for data up to the current series, which for earnings commenced in 2002. The technique used to construct the composite index is known as ratio linking. The paper can be accessed from http://www.measuringworth.com/datasets/ukearncpi/earnstudy.pdf

There are significant advantages from the use of a single consolidated data series that covers one or more business cycles. Furthermore, there is no value to be gained in replicating the consolidation of the MeasuringWorth data from its original sources.

Specialist contractor earnings

Data on the premium associated with specialist contractor earnings is taken from the Average Weekly Earnings series from its inception in 2000 to 2008. This is consistent with the approach taken with national earnings data. Reductions in real earnings in construction since 2008 have been particularly marked and are unlikely to reflect the likely long-term pattern of earnings over the RIIO GD1 period. Furthermore, the 2000 to 2008 period does not pick up significant earnings inflation that took place in construction during the first half of the 1993 to 2008 business cycle.

The series referred are construction and services, which is the closest match in the SIC 2007 classification to IT consulting employment.

The series used are the seasonally adjusted regular pay indices. These series exclude bonus pay. Services earnings include a very large bonus pay component, presumably related to the financial services sector. Accordingly, we have excluded this series so as to avoid overstating the premium associated with the services sector.

3.3.2 Materials and other inputs

Ofgem identify Producer Price Indices as the preferred source of material cost data for use in the calculation of RPEs. Producer Price Index Series are available as a consolidated time series from 1996 onwards. In common with labour data, this does not cover a full business cycle. Given the likelihood of resource cost challenges during the RIIO GD1 price control period, we argue that reference to extended data series for key material inputs is appropriate.

Price Adjustment Formula Indices used for adjustment of fluctuating price contracts in construction can be used as a proxy source of Producer Price Indices. This data is available to cover our selected study period. These indices, alternatively known as NEDO or Baxter Indices are based on a combination of Producer Price Index data and national construction wage awards. The basket of goods for each index has remained constant over time, and as a result, it is possible to extract the inflation element related to labour. This approach has been adopted for PE Pipe, Steel Fittings and Plant as follows:

- PE Pipe – index series 2/32 Plastic Pipes and Fittings.
- Steel Fittings – index series 2/34 Mild Steel Pipes, Fittings and Tanks
- Plant – index series 70/2 Plant and Vehicles

We have also compiled an index for Fuel based exclusively on PPI data. Readily available data extends from 1996 to 2010. See section 4.1.2 for a discussion on end-date bias.

3.4 2011/2012 labour and material forecasts

Forecasts for the 2011 to 2012 period are required to allow for adjustments in business plan costs prior to the commencement of the price control period. The methodology used to calculate RPEs for the price control period is specifically designed to relate to the extended duration used under RIIO - GD1. We could use these RPEs to calculate the 2011/12 forecast, but the mismatch between current market conditions and the long-term RPEs is such that we do not believe that this approach is appropriate or fair to the consumer.

The approach we have adopted to prepare these forecasts has been to blend a number of sources of known and near-term forecast information to produce specific year on year forecasts. The precedent for this approach is Ofgem's final assessment for DPCR5 which includes an element of short term RPE assessment. The DPCR5 assessment used inflation and earnings forecasts published in HM Treasury's *Forecasts of the UK Economy*. This data is available for 2011 and 2012.

As described elsewhere in this report, where we have actual data for NGN wage deals we have also incorporated these into the assessment. The current settlement for NGN Direct Labour is linked directly to RPI and will not result in an RPE during 2011.

Unfortunately forecasts for construction materials or factory gate inflation are not available, so our materials RPE for 2011/12 is based on current data. Factory gate inflation is currently running at 5.4% per annum in the year to April 2011, whilst construction inflation is currently running at 9.3% per annum.

As construction material cost inflation is not currently being passed through the supply chain due to conditions in the wider industry, our view is that the RPEs derived from construction materials PPIs overstate likely inflation over the period 2011 to 2012. Accordingly, we propose that materials inflation should be calculated on the basis of current RPI and manufacturing output prices – an RPE of 0.1% per annum.

Table 3.2. Source data for RPE forecasts 2011/2012

Historical and forecast inflation data (%/pa)					
	2008	**2009**	**2010**	**2011**	**2012**
RPI	0%	3.6%	2.7%	4.7%	3.3%
Manufacturing Output Prices	3.5%	3.5%	6.9%	n/a	n/a
Average earnings	n/a	n/a	n/a	2.8%	3.1%
NGN earnings	4.3% (1 July)	1% (1 Feb)	2.5% (1 Feb)	n/a	n/a
		Earnings RPE		0%	-0.2%
		Materials RPE		0.1%	0.1%

Sources: NGN, HM Treasury, ONS

4 National RPE Assessment

This section of the report sets out sources of data used to establish the basis of correlation and the calculation of the factors themselves, focused on the labour and material baskets identified in section 2.1.

So far as is possible, National RPEs are calculated using non-construction specific data. Industry premiums are addressed in section 5.

4.1 Analysis – earnings

The selection of the appropriate time series and correlation for the National Earnings RPE is the keystone of NGN's RPE assessment. Labour constitutes over 75% of expenditure, and whilst premiums associated with specialist contractors are a very important element of the assessment, it is the core rate of underlying earnings inflation which represents NGN's greatest source of uncertainty. Looking forward to the RIIO GD1 price control period, our analysis aims to build a correlation model that is as representative as possible of future conditions.

As described in the section addressing methodology, we have adopted the simplifying assumption that the 2013 – 2021 price control period is more likely than not to encompass a full business cycle – with periods of expansion and contraction in the growth of the economy and earnings. Accordingly, we have selected study periods which equate to different combinations of full business cycles. Business cycles have been set using full year GDP data, with the start of the cycle coinciding with the first positive year of growth following a downturn. We have used 2008 as the cut off point of the 1993 to 2008 cycle. The study periods examined are as follows:

- 1970 to 2008 – Four complete business cycles, including extreme fluctuations in resource inflation and negative wage growth during the 1970s
- 1977 to 2008 – Three cycles including public spending restraint in the early 1980s and the Lawson boom
- 1983 to 2008 – Two cycles, focused on the Lawson boom and the most recent extended cycle to 2008;
- 1993 to 2008 – One cycle characterised by the effects of globalisation and the 'great moderation'.

In completing our analysis, we have also examined RPEs associated with the 1997 to 2007 period as well as individual cycles in the 1980s.

The analysis is based on compound annual average change – the implications of start and end date bias are considered for the chosen period 1977 to 2008 in section 4.1.1 below:

Results of the analysis are set out in table 4.1

Table 4.1. Summary RPE comparison for business cycles 1970 to 2008

	RPIs	Nominal Earnings	Real Earnings
1970 to 2008	6.48%	8.11%	1.53%
1977 to 2008	4.92%	6.64%	1.64%
1983 to 2008	3.63%	5.17%	1.49%
1993 to 2008	2.68%	3.83%	1.18%
1977 to 1983	9.11%	11.25%	1.96%
1983 to 1993	4.69%	6.74%	1.96%
1997 to 2007	2.50%	3.83%	1.30%

Sources: MeasuringWorth, EC Harris LLP

The analysis shows that there is significant variation related the selection of the cycle used as the basis of the correlation and that the most recent cycle – 1993 to 2008 – did see significantly lower RPEs than any period since 1970 – 1.18% per annum.

We argue that specific conditions including steady sustained economic growth, low borrowing costs and imported deflation resulted in an RPE related to earnings that is significantly below the long term trend.

Going into the RIIO GD1 price control period, we do not anticipate that this pattern will be repeated, particularly as, by the time that recovery is established, real earnings will have fallen for the longest period since the 1920s.

The analysis also shows that in the two previous cycles, one characterised by deficit reduction and inflationary pressure and the other by faster economic growth, the earnings RPE was 1.96% per annum – representing a 0.72% per annum premium on the 'great moderation'.

Our view is that an analysis over an extended timescale provides the best estimate of the potential exposure of NGN to earnings RPEs. We acknowledge that the inclusion of more business cycles in the analysis increases the impact of economic instability and rising costs experienced during the 1970s and 1980s. However, we believe that there is a good case to argue that there is currently substantial potential for upward pressure on costs in the UK – particularly in connection with earnings which have been suppressed since 2008.

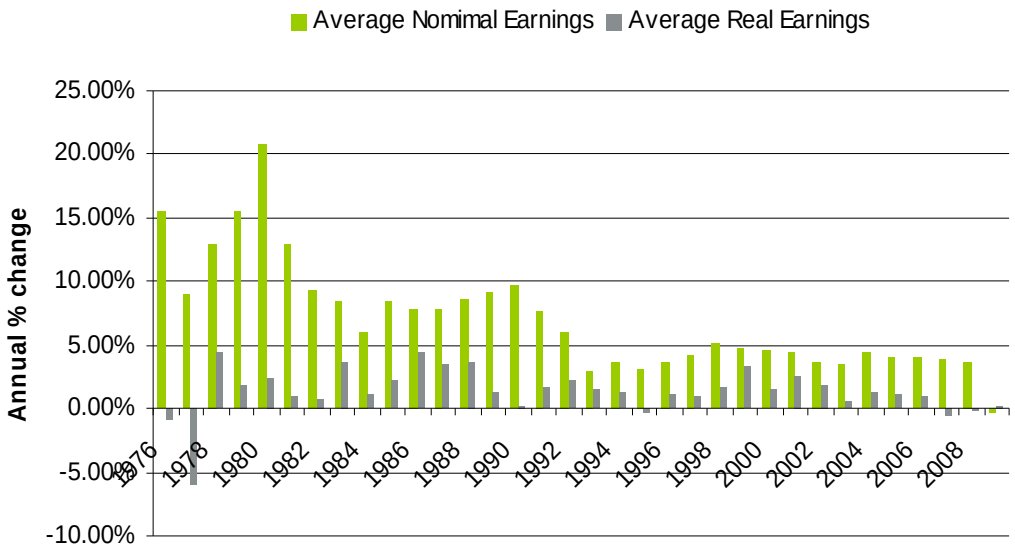
On this basis, we have adopted as the basis of our assessment a National Earnings RPE based on the period 1977 to 2008 totalling **1.64% per annum**. We have not adopted the RPE for the full 4 cycle period because of the particularly extreme conditions during that cycle, including the combination of hyper-inflation and high levels of real wage deflation.

The National Earnings RPE is the only inflation factor that is applied to the direct labour force. This approach contrasts with the current price control formula, GDPCR1, where a 1% market premium was applied, based on evidence taken from the market place. We have considered whether a similar claim should be made for the 2013 to 2021 period – the case is discussed in more detail in section 2.3.2.

Empirical evidence from NGN wage settlements indicates that the company has been successful in applying company-wide wage settlements across all grades – a considerable achievement given pressure on industrial wages prior to the slump in 2008. On this basis, we do not believe that it is appropriate to make a claim for an industrial premium related to construction.

By not applying an industry premium to direct labour costs, the overall labour RPE has been set at a relatively conservative level.

Figure 4.1 – Real Price Effects – Earnings (1977 to 2008)



Source: Measuring Worth, EC Harris LLP

4.1.1 Considerations of start and end date bias.

The RPE calculation used is the annual average compound change in earnings. This is a transparent calculation method but is subject to potential bias associated with the selection of the start and end dates. The start date for each cycle has been selected using the first full year of economic growth as the selection criteria. The end date was set by the commencement of the current recession – 3rd quarter 2008. In order to demonstrate that the proposed RPE is robust, table 4.2 includes a sensitivity analysis involving a variation of start and end dates by one year from that determined by our positive GDP growth criteria. This analysis has been carried out for Real Earnings only.

Table 4.2. Sensitivity analysis – earnings RPE

	1976	1977	1978
2007	1.45%	1.70%	1.61%
2008	1.40%	1.64%	1.55%
2009	1.36%	1.59%	1.51%

Sources: MeasuringWorth, EC Harris LLP

This analysis shows that if the earnings RPE is calculated using a 1976 start year, then there is a high degree of variation from the proposed RPE value of 1.64% pa – equivalent to a reduction of 0.15% per annum. This large variation is caused by the unprecedented real earnings reduction of 5.98% that took place in 1977. Real earnings growth was re-established from 1978.

Our analysis shows that there is less sensitivity to end date – the variation within the shaded area of the table, which excludes data related to a 1976 start date is +/- 6%.

This analysis acknowledges that there is some sensitivity in the RPE related to the start and end date of a cycle. We can also show that the selection of study periods is based on robust and consistently applied criteria – a change to positive GDP growth. We can also show that the variation in results related to the selection of the start and end dates of the study period is relatively small.

4.1.2 Setting of study period dates for materials

As discussed in the methodology, as the bulk of NGN expenditure is related to labour costs, we have referred to the study period selected for earnings RPEs (1977 to 2008) as the basis for calculating materials RPEs for PE Pipe, Steel Fittings and Plant. The exception to this approach is fuel, where we have used ONS PPI data, which is only readily available for the period 1996 to 2008. As a result in the following section, we summarise results and plot cost trends only.

Greater sensitivity to start date is shown in materials, with high RPI in 1977 (16%) having an impact on the steel RPE throughout the study period. As material prices do not respond to RPI increases as directly as labour, our view is that this start date bias related to an extreme inflation should be corrected. Accordingly, the materials RPE assessment has been based on the period 1977 to 2008.

A similar pattern of end-date bias can be seen in fuel RPE, which is calculated using data from the period 1996 to 2010. The data is plotted in figure 4.1. The end of the business cycle in 2008 coincided with a record peak in oil prices which has a significant distorting effect on the value of the fuel RPE. Whilst energy costs are expected to remain high, our view is that it is inappropriate to base the RPE on peak costs and have extended the analysis to 2010 – this yields a fuel RPE of 2.5% per annum. In view of the high volatility and low level of correlation with RPI, we have proposed that fuel costs could also be subject to an additional uncertainty mechanism.

4.2 Analysis – materials and other inputs

RPEs for materials have been calculated on the same basis as earnings, using data sourced mostly from Price Adjustment Formula Indices. Results are summarised in Table 4.3.

Table 4.3. Summary – materials RPE

	RPE
RPI	
PE Pipe	0.4%
Steel fittings	0.3%
Plant	-0.3%
Fuel	2.5%

Sources: BIS, ONS, EC Harris LLP

Figure 4.2. Relative Price Movement – PE pipe and Steel Fittings

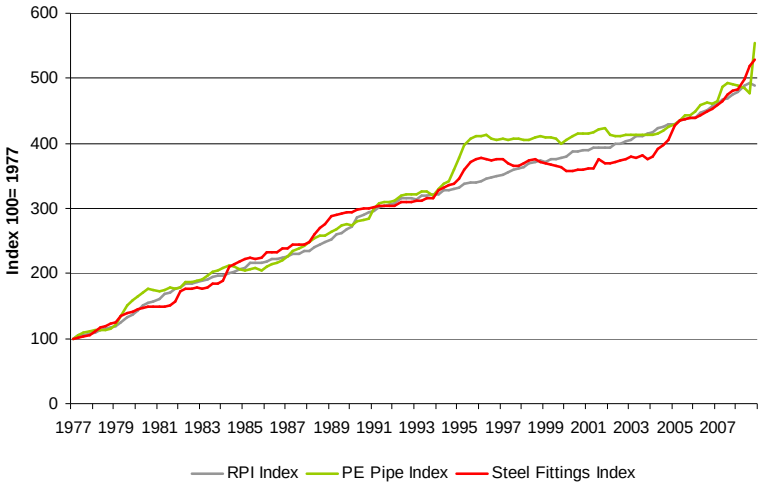


Figure 4.2 demonstrates that material prices for both steel and PE pipe have fluctuated broadly around the RPI trend over the study period – here 1977 to 2008. The major cost increase affecting PE pipe in the Mid 1990s cannot be correlated to movement in oil prices but there is a closer relation during 2007 to 2008. Steel prices fluctuated sharply in 2007 and 2008 and have recovered strongly during 2010/11 on the back of strong commodity prices. Recent upward trends in steel prices support the award of a small positive RPE.

Source: BIS, ONS EC Harris LLP

The rapid increase in PE prices during 2007/8 was recognised by a 3% RPE award for materials in GDPCR1. Whilst there is currently no evidence of rapid movement of PE pipe prices in the current market, there is evidence of above trend inflation over most of the study period together with a sustained period of above trend price escalation from 1994 onwards. This forms the case for the additional uncertainty mechanism associated with PE pipe described in section 7.

Figure 4.3 Relative Price Increases - Fuel

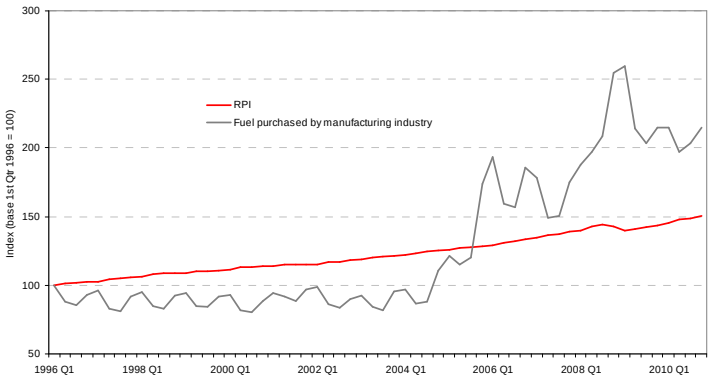


Figure 4.3 plots a general fuel cost PPI against RPI. As described in section 3.3.2, readily available PPI data is available from 1996 onwards. Oil prices peaked in 2008 after a period of extended below RPI price escalation. The RPE is accordingly calculated using a time series from 1996 to 2010 to reduce the impact of the peak price event.

The chart indicates a very significant above RPI increase in Fuel Costs after 2005 after a prolonged period of price stagnation. This is partially picked up in the RPE, but indicates scope for high fuel cost variability.

Source: ONS, EC Harris LLP

5 Specialist Contractor Premiums

5.1 The case for specialist contractor premiums

The precedent for specialist contractor premiums was established in GDPCR1. In 2008, the case for GDNs was based on empirical data obtained from a highly active construction market. Despite access to a wider labour pool after 2005, when migrant European labour became a more significant factor in the dynamics of the UK construction market, specialist contractors continued to need to pay premium wages and were able to secure premium prices from clients.

Supporting evidence for these trends include an above trend increase in tender price inflation during 2005 to 2008 and anecdotal evidence of increased day rates paid to self-employed sub-contractors.

Some of these pressures have been internalised through NGN's direct labour force which includes significant skilled resources. As set out in section 2.3.2, we have not chosen to make the case for an additional direct labour premium for direct labour, as both industrial and non-industrial staff at NGN are subject to a common wage settlement – currently based on an RPI escalator. The securing of cross-grade wage agreements, which avoid the risk of costs being driven-up by sector specific pressures has been a significant achievement by NGN.

Looking forward to the price control period covered by RIIO GD1, it is likely that there will be periods of above average demand for construction, but the timing and impact of this is very difficult to predict. We also believe that similar trends will affect IT system implementation specialists, although these premium costs are also difficult to isolate. On this basis, and as described in section 3.3.1, we have used sector data related to construction and services as an analogue to identify a premium relative to average earnings. The data used is sourced from the AWE series over the period 2000 to 2010.

5.2 Proposed specialist contractor premiums

The premiums are calculated on a compound annual average basis. Sector specific premiums for construction and services, which we take as a proxy for the specialist contractor premium, are set out in table 5.1 below.

Table 5.1 Specialist Contractor Premiums

	Annual Average earnings	Average earnings	Annual earnings premium
Construction	4.37%	3.80%	0.57%
Services	3.98%	3.80%	0.19%

5.3 Supporting evidence for the Specialist Contractor Premium

The case for a specialist contractor premium is focused on the construction sector.

In line with the correlation methodology, evidence either has to be based on extended time series or based on robust forecasts.

5.3.1 Forecast demand for construction labour

Construction Skills Network's Spring 2011 Employment Forecast, prepared by Experian, anticipates that construction employment will fall until 2012 and thereafter will recover at an average rate of 7.8% over the 2011 to 2015 period

Employment growth is expected to be greater than output growth due to a shift towards repair and maintenance workload, which is more labour intensive. This trend will be accelerated when the Green Deal decarbonation programme comes on stream from 2012 onwards.

Employment growth in the North East is forecast to rise at 8.9% per annum between 2011 and 2015 – well above the national average and bettered only by forecast growth in East Anglia. Growth in the Yorkshire Humberside region will be closer to the National Average.

Greater investment in energy infrastructure and renewables is very likely to disproportionately affect workload in the NGN region post 2015 through development of Carbon Capture technology and the expansion of off-shore wind turbine manufacturing capacity in the North East.

Continuing growth in construction employment and a sectoral shift to energy and infrastructure support the case that conditions that have applied in the industry over the period 2000 to 2008 are likely to be repeated during the price control period and that employment levels will be recovering by 2013 when RIIO GD1 commences.

5.3.2 Incidence of above average tender price inflation

The precedent for a specialist contractor premium was established in the 2008 review, in the midst of an upswing in industry activity. We have argued that the extended RIIO GD1 period is likely to see a cyclical pattern of demand for construction. Price trends are likely to be more cyclical over the extended period 2013 – 2021 but a specialist contracting labour premium is likely to apply at points during the price control period. However, it is difficult to predict when these shortages might occur.

Based on an analysis of the BCIS tender price index from 1976 to 2008, we can demonstrate that the likelihood of above average tender price inflation taking place is 0.55. If this likelihood is applied as a weighting factor to the 1% specialist contractor premium awarded by Ofgem in the GDPCR1 settlement, the resulting weighted premium – 0.55% is the same as the result from our analysis of AWE data.

This analysis approaches the specialist contractor premium problem from an alternative angle – applying existing precedent from Ofgem to a historic model of cyclical demand in the construction industry. Whilst the premium has been calculated using a completely different data set and methodology, we argue that it represents the same specialist contractor premium trend – supporting the claimed specialist labour RPE of 0.57.

5.3.3 Evidence of above trend wage increases for construction labour

EC Harris produces a quarterly survey of contractor's pricing based on a survey of 50-60 specialist estimators. The survey has been undertaken on a quarterly basis since 2000. An extract of the results setting out national and regional labour rates is set out in Figure 5.1 below.

As the survey is based on the rates which contractors use to prepare their tenders, it gives a clearer picture of the wage pressures for construction outside of national wage awards. A large proportion of construction labour is not directly employed by contractors, so this is an important element of cost premium.

The survey indicates much greater variability in labour rates than suggested by nationally agreed wage rates. This is show clearly in figure 5.1, where the 6 – 8% labour premium for skilled site labour, plotted in green, is compared to the RPI trend, plotted in red.

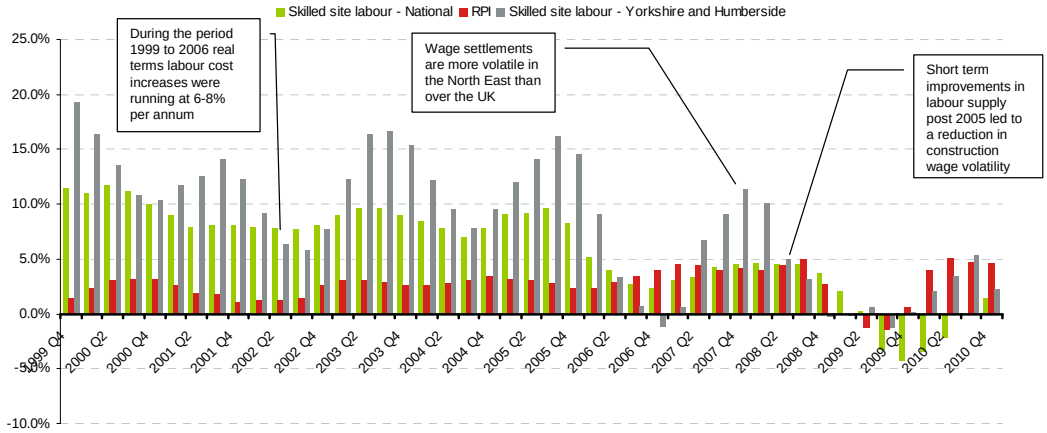
The data also indicates that there is a greater volatility in construction wages in the North than across the UK – with higher labour rate increases being recorded in the Yorkshire and Humberside Region during 2008 and 2010. This is shown in Figure 5.1 with the grey and green bars representing regional and national trends respectively.

The data suggests that wage inflation moderated after 2005 – but the short term factors related to the availability of low-cost labour from Eastern European markets may not be sustained over the period to 2021.

The date provides further support to the case for a 0.57% RPE premium to allow for greater variability in specialist contractor wage rates over the price control period.

The results of the EC Harris survey also show that over an extended period, both the 1% specialist contractor premium allowed by Ofgem in GDPCR1, and the 0.57% premium recommended by EC Harris are relatively conservative allowances.

Figure 5.1. Contractor's estimating rates - Regional wages and RPI – 2000 to 2010.



Source: EC Harris LLP

6 Regional Location Factors

The location factor methodology used in RIIO-GD1 is focused on the calculation of premium costs based on operations taking place in London and the South East. All other locations are deemed to have a similar cost base.

Details of this were included in the Ofgem discussion document, Costs and Outputs, issued on 2nd March 2011.

Location data analysed by the Building Cost Information Service supports the view that there are premium costs associated with operations in London and the South East, and also that cost variations apply in other regions also. During the period 2000 to 2008, there was a significant variation in the differential between the North East and London – illustrating the fact that regional variation is a dynamic factor – the cost differential has returned to the long term trend since 2007.

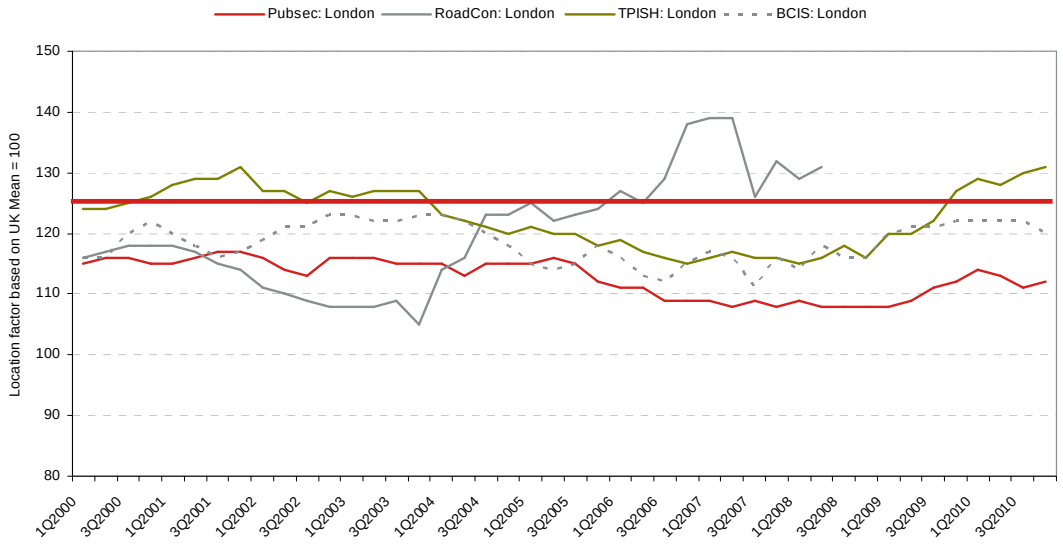
We acknowledge that the calculation methodology developed by Ofgem for RIIO GD1 is an appropriate means of dealing with the premium costs of workload that can only be delivered in-situ.

However, in the view of NGN, sample calculations prepared by Ofgem are based on a selective sample of indices that in some cases are based on inappropriate workload. Furthermore, index values used do not appear to reflect long term trends. Collectively the indices used result in unnecessarily high location premiums for London and the South East.

Our analysis presents alternative data to support this view as follows:

- Index values used in the assessment have escalated significantly since 2008. Examination of extended data from the index series used by Ofgem indicates that the values used in the assessment represent a premium to the historic trend
- Inclusion of alternative, more widely based index series (BIS Pubsec and BCIS) into the analysis results in the calculation of smaller location factor differentials than those assessed by Ofgem. Figure 6.1 below shows that the two most widely based regional index series – PUBSEC London and BCIS London indicate premium trends well below the OFGEM calculated factor of 1.25. There is no differential for the South East.

Figure 6.1 Comparison of Regional Factors – 2000 to 2010



Source: BIS, BCIS

Table 6.1 Alternative Location Factors

	Ofgem location factors	ECH location factors
London	1.25	1.19
South-East	1.08	1.09

Based on this assessment, our calculation of the London Index, following the Ofgem methodology is as follows:

Table 6.2 London Regional Factor Calculation

	Factor	Weighting	Index
London Region Index	1.18	1.19 x 0.56	0.67
South East Region Index	1.08	1.08 x 0.16	0.17
Elsewhere Index	1.00	1.00 x 0.27	0.27
London GDN Index			**1.11**

This assessment compares to the Ofgem calculation of the LDN index of 1.15.

We do not have details of the build up to the calculation for South East, but it is possible that this index will also need reweighting. This in turn will result in a recalculation of all Standardised RF indexes.

7 The case for uncertainty mechanisms for PE pipe and fuel costs

In addition to the RPEs identified in this report, we also argue that there is a case for the application of an additional uncertainty mechanism related to some material and other input costs – specifically PE pipe and fuel for vehicles.

The main reason for suggesting the use of an additional uncertainty mechanism is the pricing risk exposure associated with fossil fuel costs, which do not correlate fully with RPI. Fuel cost fluctuation is included within the RPI index, but this component represents fuel costs affecting consumers will not be sufficient to track the impact of fuel on some material cost inputs. The reasons for this weak correlation include:

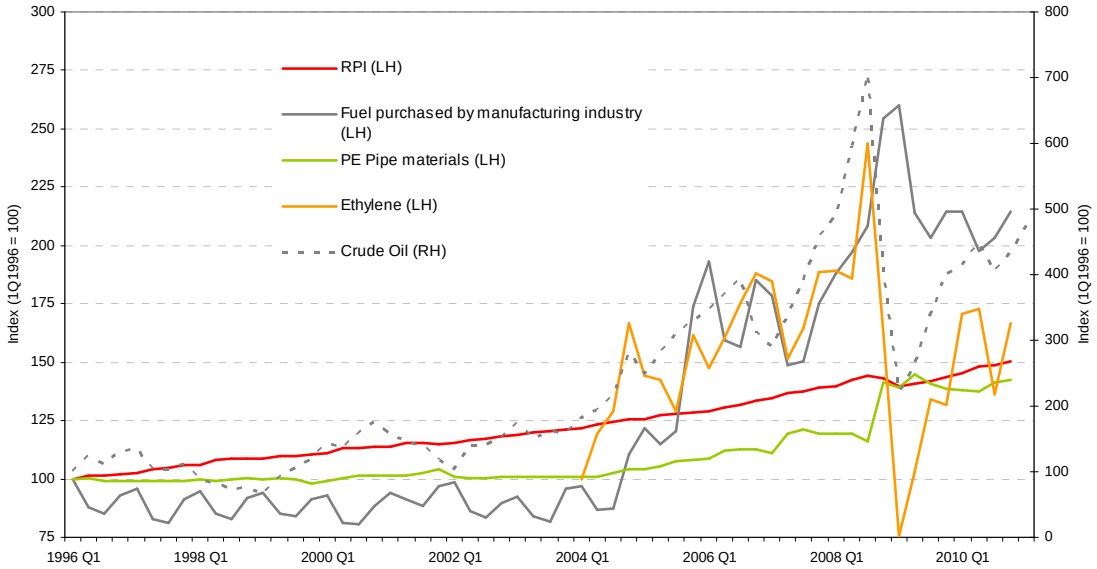
- RPI tracks a domestic cost basket – which differs from the patterns of costs faced by manufacturers or distributors;
- Relatively low and stable oil costs over much of the study period used for this assessment that are not expected to be repeated over the period to 2021 – the potential for escalation is significantly understated when using the correlation methodology adopted elsewhere;

Fuel costs are expected to fluctuate significantly, with some forecasters including Barclays Capital speculating that prices might reach $150 - $180/barrel over the price control period. Without an additional uncertainty mechanism, under the ex-ante RPE forecast methodology adopted by Ofgem, GDNs will have to allow for this cost escalation risk in their business plans. This may result in additional costs being passed to consumers.

Based on the analysis of historic time series data for RPE calculation, it can be demonstrated that both PE pipe costs and fuel costs are subject to a significant, but unpredictable variation in cost that is not picked up by RPI. Figure 7.1 below sets out RPI, fuel and ethylene prices over the period 1996 to 2010. RPI, plotted in red, has the least fluctuation. Changes in crude oil values over the period are plotted on a separate right hand axis.

The RPEs calculated for PE pipe and fuel over the period are 0.3% and 2.5% pa respectively. Clearly, the RPE premium does not pick up the potential for short or medium term price fluctuation which could have a significant impact for NGN.

Figure 7.1. Comparison of PE Pipe and Fuel costs with RPI



Source: ONS, BIS, World Bank

PE pipe and fuel costs account for 3.6% of total NGN expenditure – two of the largest non-labour cost centres. By introducing an uncertainty mechanism that allows costs related to oil price fluctuation to pass through, customers will only pay for price movement if and when it occurs. The mechanism will need to be designed to ensure that there is no double counting of inflation through conventional RPEs and the oil price mechanism. This could be achieved by setting a collar below which the mechanism does not apply.

Based on the criteria established by Ofgem in the December 2010 consultation, the outline of the case for the introduction of an additional uncertainty mechanism is as follows:

Table 7.1 Outline Case for an additional Uncertainty Mechanism

Issue	Outline response
Risk addressed by the uncertainty mechanism	Oil price fluctuations affecting PE pipe and fuel costs that are not correlated with the RPI+ uncertainty mechanism and for which NGN will have to include additional risk allowances in the business plan
Proposed mechanism	A pass through of the crude oil price risk, based on an agreed proportion of expenditure on PE pipe and fuel – potentially subject to a minimum threshold representing the risk that NGN should allow for.
Justifications for the mechanism	PE pipe and fuel costs account for 3.6% of total NGN expenditure. Given that over 75% of expenditure is on labour, fuel price exposure is a substantial variable. By introducing a pass through mechanism, NGN will not be required to include a risk allowance in their pricing to cover fuel cost escalation risk over the price control period. Consumers will only pay for fuel price escalation if it occurs.
Drawbacks from the proposed mechanism	Complexity of application
Opportunities to reduce the drawbacks	Adjustments could be carried out on a periodic (annual) basis to minimise administrative overhead
Does the mechanism deliver value for money	Energy costs will be a significant source of cost risk which is only partially covered by the RPI+ mechanism. The advantage of the second uncertainty mechanism is that the consumer only pays for increased energy costs as they occur. Furthermore, by mitigating energy cost risk which is not correlated with general inflation, the effectiveness of the RPI+ uncertainty mechanism will be increased.

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