Response to the Ofgem consultation on Real Price Effects for RIIO ED1

Report prepared for British Gas[1]

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Summary

We have been commissioned by British Gas to provide support in their response to Ofgem on the RIIO ED1 draft determinations. This short paper focuses upon Real Price Effects (RPEs). The key messages contained within this report are as follows:

- Ofgem's current RPE forecasting methodology and approach is inadequate because of the apparent difficulty in forecasting the RPE index eight years out and the lack of recourse in case the forecast turns out to be significantly different from actual input price growth.
- We propose three alternatives to the current ex-ante approach: Option 1 (ex-ante RPE allowance based on a long-term forecast with a deadband); Option 2 (RPE indexation similar to RPI indexation); and Option 3 (RPE allowance based on a short-term forecast with a deadband).
- We have considered whether Ofgem should abandon the ex-ante approach and not replace it with a new mechanism. However, this option is inappropriate as it would more fully expose the distribution network operators (DNOs) to RPE risk.
- We recommend replacing the current ex-ante, fixed RPE allowance mechanism, but costs and benefits of the current approach and detailed designs of alternatives should be carefully weighed before any changes are made to the regulatory framework.
- At this stage our preference is for either Option 1 or Option 3, but both would warrant further investigation before they are implemented. Option 1 would be relatively easy to implement, while Option 3 would require a more thorough review.
- Ofgem should clarify whether its approach to the IQI already allows for any RPEs and how any proposed RPE mechanism will interact with the IQI and existing incentives.

[1] This note has been commissioned by British Gas. However, the views expressed are those of CEPA alone. CEPA accepts no liability for use of this note or any information contained therein by any third party.

1.1. Ex-ante forecasting

1.1.1. Current Ofgem approach

Under its current approach, Ofgem gives an ex-ante allowance to the DNOs for forecasted RPEs. Although it has not made its detailed RPE calculations public, based on general descriptions of its forecasting methodology, Ofgem's RPE forecasts are based on a long-term[2] average of annual real growth rates of the relevant input price indices (labour, materials, equipment/plant, transport, and other).[3] An RPE index is derived separately for each input type (i.e., labour, materials, equipment/plant, transport, and other) by calculating the unweighted average of multiple, publicly available price indices within each type of input. For example, the labour RPE is derived as the unweighted average of long-term growth rates of the four constituent labour cost indices (ONS average weekly earnings in the private sector, construction, and transport and storage; and BCIS PAFI civil engineering index). A composite RPE index is derived separately for opex, capex, and totex using a weighted average of the RPEs derived for each type of input. Ofgem uses a notional structure of regulated company costs as weights for this purpose. Labour costs receive the highest weight in the composite RPE index.[4]

1.1.2. Assessment of Ofgem approach

A key assumption behind Ofgem's forecasting method is that there is a stable and predictable long-term relationship between general inflation (RPI) and input prices, such that real input prices evolve in a predictable manner. If this assumption is not valid (e.g., real price growth exhibits structural changes), then the forecasts may be significantly biased. In fact, it has been observed that real labour costs, the largest component of the RPE index, have grown at different rates in the course of several decades, reflecting structural changes in the economy.[5]

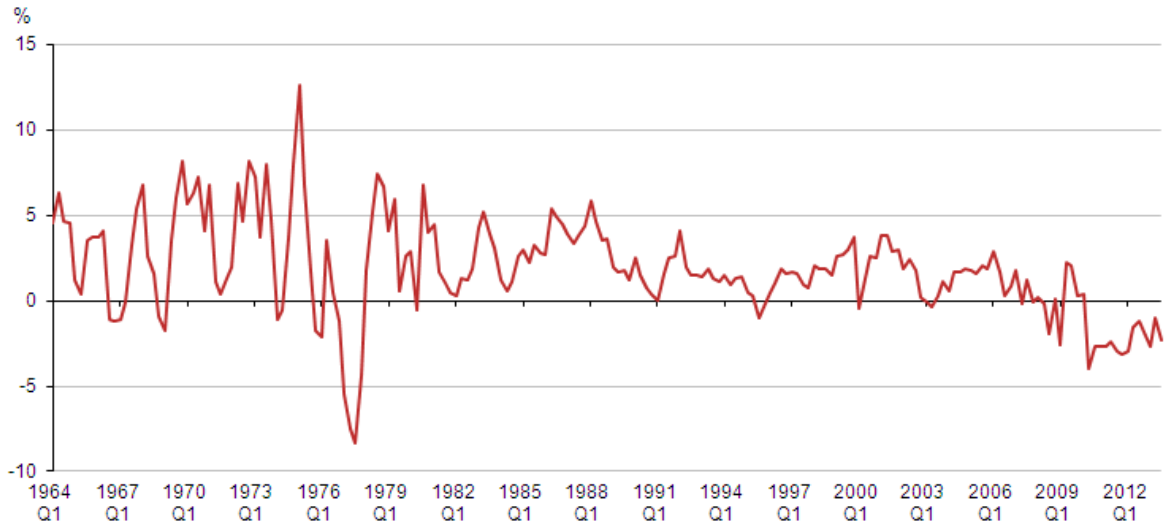
[2] Ofgem stated that for the RIIO-T1/GD1 price control reviews the RPEs were based on approximately 20 years of data.

[3] Except the first three years for which Ofgem uses actual values or short-term forecasts from external sources. For example, in the RIIO-T1/GD1 price control review, actual real wage growth was used for 2011/12; HMT consensus forecast of economy-wide real wages was used for 2012/13 and 2013/14; long-term average growth rate was used for 2014/15 through 2020/21.

[4] For example, in RIIO-GD1, overall labour costs were 52%, 56%, and 77% of the Opex, Capex, and Repex RPEs, respectively.

[5] An Examination of Falling Real Wages, 2010 - 2013, Ciaren Taylor, Andrew Jowett and Michael Hardie, Office for National Statistics, http://www.ons.gov.uk/ons/dcp171766_351467.pdf.

Figure 1: Real wage growth since Q1 1964, Average Weekly Earnings deflated by RPI, per cent change on the same quarter a year ago



Real wage growth in the UK has been negative since 2008/09. Although a fall in real wages for such an extended period is unusual from a historical perspective, real wage growth has not been stable over time: in the 1970s real wage growth was very volatile; since then volatility fell, and real wages broadly followed a downward trend, averaging 2.9% in the 1970s and 1980s, 1.5% in the 1990s, 1.2% in the 2000s, and -2.2% between Q1 2010 and Q2 2013. This suggests that real wages do not grow at a constant rate, but reflect structural changes in the economy. Structural changes, such as the global financial crisis, are difficult to predict, and therefore accurately forecasting long-term real wage growth for an extended period such as the eight-year price control period is difficult.

Since RPE is a composite index, the accuracy of the overall RPE forecast depends on how well one can estimate its individual components. A good forecast requires a thorough understanding of changes in fundamentals, but these may be difficult to identify even after the fact. For example, according to the Office for National Statistics, falling working hours, changes in workforce composition, and increases in non-wage costs at the time of the economic downturn in 2008 and 2009 may also have acted to reduce real wage growth. However, these same factors do not appear to explain the continuing decline in real earnings since 2010. In general, causal relationships between wages and prices are difficult to identify.[6] Other components of RPE are generally more volatile (both in real and nominal terms) than labour costs, and therefore they are even more difficult to forecast. Ofgem could possibly make marginal improvements to its forecasting methodology, however the fundamental difficulty of forecasting potential structural changes over an eight-year control period would remain.

[6] https://www.clevelandfed.org/inflation-central/201414-cmty-wages-prices-economic-activity.cfm

Since forecasting most RPE components is difficult, using an ex-ante approach to set fixed RPE allowances for an eight-year period appears to be problematic.[7] However, before one explores alternative approaches, it is useful to review the advantages and disadvantages of the current approach. One of the main advantages is that customers are protected from any unexpected increases in real input prices since allowances are set ex ante, based on the RPE forecast, and no adjustments are made within the price control period. This leaves the risk of unexpected real cost increases with companies and generates strong incentives for them to manage those costs as efficiently as possible. On the other hand if the regulator's RPE forecast overestimates actual real price growth, the regulated companies may receive a windfall. For example, British Gas estimated that the difference between the allowances given for labour costs increasing above inflation and the actual Average Weekly Earnings were in the region of £1.5bn (or over £35 per customer) from April 2008 to the end of 2013.[8]

There are two possible alternatives to the current approach: (1) a form of uncertainty mechanism with RPE indexation (as proposed by Ofgem); or (2) abandoning ex-ante RPE allowances and leaving the risk of real input price changes to the companies.

When evaluating the latter option, one should consider the 'sharing' effect of menu regulation where costs over allowances as well as savings are shared with consumers. Furthermore, if the companies are responsible for a larger share of the costs, they will have a stronger incentive to manage them. Consumers would not face unpredictability, and thus benefit. Companies would face more uncertainty, but could also potentially benefit from windfalls if real input prices unexpectedly decline. On balance though, we consider this option likely to be inappropriate as it would fully expose DNOs to RPE risk.

1.2. Uncertainty mechanisms

1.2.1. Use of uncertainty mechanisms

Uncertainty mechanisms are an alternative to the ex-ante fixed allowance approach. They represent an ex-post approach to RPE adjustments during the control period. The rationale for introducing indexation is that it may enable the regulator to reduce the risk of forecast errors in those instances when revenues allowed for RPE significantly differ from actual cost. A well-designed uncertainty mechanism would retain strong incentives for regulated companies to finance their businesses efficiently. The key issue is whether a robust mechanism can be devised that will, in practice, deliver the theoretical benefits. Therefore, before introducing an uncertainty mechanism with indexation one must assess the expected

[7] We have reviewed the RPE forecasting method used by the NI Competition Commission in the recent Northern Ireland Electricity Limited price determination, but due to differences in circumstances (i.e., shorter forecasting period), we do not believe that those lessons are relevant for Ofgem.

[8] http://data.parliament.uk/writtenevidence/committeeevidence.svc/evidencedocument/energy-and-climate-change-committee/network-costs/written/8309.html

benefits, costs and risks to customers/users, as well as the potential change in incentives of the regulated companies.

The regulatory burden is also an important consideration when evaluating changes to the regulatory framework. Regulators need to take into account the cost of increasing the regulatory burden on themselves and on operating companies. We see no major difficulties in designing indexation arrangements which impose an acceptable regulatory burden on regulators and companies.

1.2.2. Criteria for evaluating uncertainty mechanisms

When choosing among different options for uncertainty mechanisms, Ofgem's criteria should be used for evaluation:

- **Exposure to risk**

  We agree with the statement that any changes to the mechanism and risk allocation should feed through into an assessment of the package as a whole. If risk is moved from companies to customers, this should be considered in setting the allowed cost of capital.

- **Impact on incentives**

  The introduction of an uncertainty mechanism should depend on whether the costs are controllable and predictable. If the company exhibits control over costs then it is not reasonable that the company should face no risk over these costs. Ofgem has typically adopted higher powered incentive regimes where the forecasting of costs is more certain, most recently through the IQI mechanism. The interaction between any uncertainty mechanism for RPEs and the IQI mechanism must be clarified by Ofgem.

- **Volatility and predictability of network charges**

  We agree that volatility in network charges is not desired and that predictability alleviates some of the impacts of volatility. With the broad reaching effects of RPEs on the totex base, the extent to which the introduction of the uncertainty mechanism impacts volatility and predictability of network charges will depend on the precise calibration of the scheme.

- **Balance of charges between current and future customers**

  We would not expect an uncertainty mechanism to negatively change the balance of charges between current and future customers, unless it introduces a true-up with a long lag. There is also a trade-off with predictability here. The cost of debt indexation mechanism uses the benchmark figure taken from the preceding October, giving some notice of a change in network charges and not significantly impacting on the

balance of charges. Our view is that adjustments should be made as part of an annual iteration process rather than simply at the end of a price control.

- **Complexity and unintended consequences**

  Any uncertainty mechanism should ideally reduce discretion and be applied mechanistically. The degree of complexity should be linked to the materiality of the cost item. At this stage of the process, any mechanism introduced would need to be a relatively established mechanism and the interaction with other mechanisms, such as the IQI mechanism made clear.

- **Resource costs to manage the mechanism**

  We do not foresee the introduction of an uncertainty mechanism leading to significant costs and the process is something which we would expect is conducted by Ofgem internally.

1.2.3. Elements of uncertainty mechanisms

The assessment of the benefits and costs of indexation mechanisms is dependent on the precise specification of the indexation mechanics. Elements to consider include: (1) choice of an index; (2) approach on timing; (3) cost components; (4) breadth of adjustment; and (4) use of thresholds and deadbands.

Choice of an index

The principles that should inform the selection of the appropriate index are:

- **Non-controllability**: the index clearly must not be subject to influence by the regulated businesses. There is likely to be some trade-off between non-controllability and cost-reflectivity of indices, since more specialised indices are usually based on data from a smaller number of respondents, and potentially they are more controllable. Ofgem should periodically review how the chosen indices are constructed to ensure that they are non-controllable by the DNOs.
- **Transparency**: the indices must be transparent, their basis of computation easily understood and the source information should be prepared and published by a recognised independent, authority, e.g. ONS. Transparency is important to ensure that changes in network charges are predictable.
- **Correlation**: movements in the indices should be well correlated with changes in real input price changes of an efficient notional regulated company.
- **Diversification**: the components of the composite RPE index should be well diversified to avoid a situation where an anomaly in a single component of the index could result in inappropriate change in the overall index value.

Use of thresholds and tolerance bands

An indexation mechanism should be symmetric and should allow for limited adjustments to the allowed revenues for RPE. There should be a tolerance band, such that if changes to the RPE index are within the tolerance band there would be no adjustment to the allowed revenues. There could also be provisions to ensure that only sustained changes in the RPE index would result in an adjustment to the allowed revenues. For example, it could be stipulated that only if the value of the index fell above or below the tolerance-band for a defined period, say, six consecutive months, then an adjustment to the allowed revenues would be triggered.

Approach on timing

We agree with Ofgem that input price changes should be reflected in network charges as soon as possible. These adjustments are usually limited by the availability of sufficient data on input price changes. Uncertainty mechanisms with relatively short true-up lags are likely to improve the balance between current and future consumers since they to tend to adjust network charges in response to input price changes more frequently than the current ex-ante approach.

Cost components

Indices used in forecasts and uncertainty mechanisms should be reflective of the input prices that the network companies pay. We do not have a preference for any one index, but recommend that Ofgem periodically review the validity of the used indices.

Deadbands

Deadbands are an important element of price control mechanisms because they support the efficiency incentives already incorporated into the RIIO framework. The key parameters to consider include the: (1) width of the deadband; (2) length of time the deadband would have to be exceeded before an adjustment is triggered; and (3) value the allowance is reset to after an adjustment is triggered. The width of the tolerance band should be carefully chosen to ensure that network charge volatility and other unintended consequences are not exacerbated. Before a trigger mechanism with a deadband is implemented, hypothetical impacts DNO cash flows and on network charge volatility should be investigated first. These impacts will ultimately depend on the indices used for the uncertainty mechanism.

1.3. Recommendations

We recommend revising or replacing the current ex-ante, fixed RPE allowance mechanism because of the apparent difficulty in forecasting the RPE index eight years out and the lack of recourse in case the forecast turns out to be significantly different from actual input price

growth. Whenever Ofgem's RPE forecast significantly diverges from the actual path of real input prices, the current mechanism is likely to generate network charges that are unfair and inefficient. The risk of this outcome is fairly high in light of the recent evolution of labour and other costs.

We recommend three options for consideration and outline the advantages and disadvantages of each option. We do not believe that dropping the current mechanism and not replacing it with any other alternative would be an appropriate choice because it would expose the companies to the risk of input price growth diverging from RPI, with the companies having a limited ability to control or predict many of those input costs. This conclusion rests on the assumption that Ofgem's current modelling framework does not account for any RPEs. If for example, the totex model implicitly includes some RPEs[9], then this option should still be considered, because an explicit RPE allowance could then result in double-counting. Ofgem should clarify its approach here.

OPTION 1: Ex-ante RPE allowance with improved RPE forecasting and a deadband around the forecasted RPE.

This option largely retains the existing ex-ante RPE forecasting approach, with the following modifications:

- **Improve RPE forecasting**: Explore alternative RPE forecasting methodologies that better anticipate changes in the trend of real input price growth and/or respond appropriately once a change in the long-term trend can be discerned. The forecasting methodology should also incorporate any behaviour of input prices suggested by economic theory. For example, nominal wages tend to exhibit downward rigidity (i.e. nominal wages tend not to fall), which places a limit on real wage declines. While the current forecasting method only considers the historical trend (including the recent negative growth) to forecast future real wage growth, an improved method would more accurately predict when real wage growth is likely to return to positive territory. We realise that improving the current RPE forecasting methodology may require some time, and thus will not likely be available prior to the final determinations, given how late in the process the RPE consultation is being run. In the interim, the current approach could be used with a deadband around the forecast, and ex-post true-ups, as discussed below.
- **Introduce a deadband around the RPE forecast, and apply a true-up when the actual RPE index values occur outside the deadband**: The deadband would recognise the fact that no RPE forecast is likely to be accurate ex-post, while at the same time, provide protection to the consumers and the network companies against

[9] For example, Ofwat does not explicitly account for RPEs, however its totex model includes a time trend which implicitly captures some of the RPEs; see answer to Q6 on p. 68: http://www.ofwat.gov.uk/pricereview/pr14/prs_web20140416wholesalepr14.pdf

significant forecast errors. Should the actual RPE index value exceed the thresholds of the deadband, a true-up would be applied. The deadband should be carefully chosen, as discussed above. Furthermore, Ofgem should consider whether cumulative deviations, as opposed to one-time deviations, from the thresholds would be more appropriate.

The main advantage of Option 1 is that it is relatively simple since it builds on the current approach. Introducing a deadband preserves the companies' efficiency incentives and the true-up protects against significant forecast errors. The main disadvantage of Option 1 is that by potentially adjusting network charges within the price control period, it introduces additional volatility.

OPTION 2: RPE indexation similar to RPI indexation.

Under this option, there would be no ex-ante allowance. Instead, base revenue allowances would be adjusted annually in a similar manner as RPI adjustments are currently done based on a short-term RPI forecast The rationale is that by indexing for RPE, there would be a protection not just against economy-wide inflation, but also against input price inflation. As part of RPE indexation, a short-term RPE forecast would be developed prior to each year within the control period, and base allowances would be adjusted annually, at the same time as the RPI adjustments are made. A true-up, without a deadband, would be applied with a 2-year lag (due to data availability), just as is the case with RPI true-ups.

The main advantage of this approach is that it avoids the need for forecasting RPEs for the entire eight-year price control period. It is also consistent with the current practice of RPI indexation. Furthermore, a two-year true-up protects both consumers and network companies against RPE forecast errors. Some of these advantages rest on the assumption that short-term RPE forecasts would be better than the current long-term forecasts. It is possible that when input prices are very volatile, short-term forecasts could still be fairly inaccurate. As a result, excess volatility could be introduced to network charges.[10]

The main disadvantage of this option is that network charges would be more volatile than under both the current approach and Option 1 because indexation would be automatic and applied without deadband. Furthermore, introducing RPE indexation constitutes a new uncertainty mechanism and thus would add further complexity to the RIIO framework.

[10] For example, the Irish Commission for Energy Regulation introduced forward-looking correction factors that anticipated next year changes in its transmission and distribution price controls for the 2001-2005 period (Price Review 1). These correction factors turned out to be quite inaccurate, and as a result, significant price volatility was introduced. This volatility was perceived to be higher than it would have been if the rates were based on a long-term forecast.

OPTION 3: A modified version of Ofgem's Option B[11] (ex-ante allowance with annual indexation and two-year lagged true-ups) with a deadband

Ofgem prepares a short-term RPE forecast prior to each year in the price control period, and an ex-ante RPE allowance is provided based on that forecast. The allowances is trued up (with a 2-year) lag, but *only if* the outturn RPE index values are outside the deadband established for the RPE forecast. Therefore under this option, true-ups do not automatically occur in each year.

The advantage of this option is that parts of the current approach could be maintained, while the introduction of ex-post true-ups would still provide a protection against forecast errors. The main disadvantage is that it would introduce further volatility into network charges.

Table 1 below summarises, at a high level, the advantages and disadvantages of the current approach and the proposed options. The relative importance of the various risks and impacts has not been assessed in detail. Although the current approach ranks as relatively low-risk on several dimensions, we believe that the impact of RPE forecasting errors and associated costs are likely to be very significant.

Table 1: Advantages and disadvantages of the proposed options

Risk/Impact	Current approach	Option 1 Ex-ante RPE allowance based on long-term forecast with a deadband	Option 2 RPE indexation similar to RPI indexation	Option 3 RPE allowance based on short-term forecast
Risk of forecasting errors and consequent windfalls/penalties	High	Medium/High	Low*	Low*
Negative impact on incentives	Low	Medium/High	High	Medium
Volatility of network charges	Low	Medium	High	Medium/High
Unpredictable network charges	Low	Low/Medium	High	Medium/High
Imbalance between current and future consumers	High	Medium	Low	Low
Complexity and risk of unintended consequences	Low**	Low/Medium	Medium	Medium/High

* Assuming short-term forecasts are more accurate than long-term forecasts.

[11] See Table 2 in Ofgem's "Consultation on the treatment of real price effects for RIIO-ED1 slow-track electricity distribution network operators", 28 August 2014, https://www.ofgem.gov.uk/ofgem-publications/89566/riioed1rpeconsultation280814.pdf

We believe that Option 1 and Option 3 strike the best balance across all relevant criteria; however before settling on and implementing any new mechanism, Ofgem should clarify the following:

- Interactions between any uncertainty mechanism for RPEs and the IQI mechanism.
- Whether Ofgem's current modelling framework implicitly accounts for any RPEs (e.g. through the inclusion of a time trend).