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10 January 2014

Dear Hannah

Consultation on our methodology for assessing the equity market return for the purpose of setting RIIO price controls

Thank you for the opportunity to respond to your consultation. We recognise that the Competition Commission's (CC) draft decision for Northern Ireland Electricity could have implications for Ofgem's RIIO financeability principles if there were to be a challenge to a price control settlement by either a DNO or a third-party.

We respond reflecting the perspectives of both Electricity North West Limited and its shareholders, who are long-term investors in worldwide infrastructure.

We must initially set out our observations on the content of your Appendix 2 which, whilst we recognise does not technically form part of the consultation, raises very serious issues about due process.

Ofgem's principal objective is to protect the interests of existing and future consumers and Ofgem is clearly cognisant of its duty 'to have regard to the need to secure that licence holders are able to finance the activities which are the subject of obligations on them'. This means that efficient network companies should be able to secure financing in a timely way and at a reasonable cost in order to facilitate the delivery of their regulatory obligations and this is also in the interests of consumers.

To provide as much certainty as possible to investors, companies, ratings agencies and consumers, the RIIO model provided clear, ex ante rules and principles for various components of financeability. These principles were intended to improve the regulatory commitment to companies and their investors, to simplify the approach to financeability and to increase transparency. It is telling that on review we note that the very first financeability principle was to take a longer-term view.

In March 2013 the Ofgem Strategy decision set out a strong financial package, specifically design to allow efficient companies to finance their activities using equity and debt. It also ensured that the costs of investment were spread appropriately across existing and future consumers. A specific annex on financial issues set out the ex-ante rules and principles and was aimed at those seeking a detailed understanding of Ofgem's decisions. It was published over three months after the ONS decision and made no reference to this decision. This consultation indicates that many of the benefits for consumers that Ofgem was seeking to

achieve through the RIIO approach are already at significant risk. Firstly Ofgem is effectively consulting on whether to move away from a longer-term view. Secondly, the consultation contains evidence that Ofgem has already undermined the value of the regulatory commitment by failing to provide transparency and failing to remain consistent with its own ex ante rules and principles.

Specifically, Appendix 2 of the consultation indicates that in carrying out its fast track assessment Ofgem determined and utilised a new central reference point for testing DNO business plans that differed materially from the decisions published in March 2013 without any consultation with stakeholders and without disclosing this change in process to any stakeholders until after the analysis was complete. Any judgement that retail price index ("RPI") is an inappropriate measure without adjustment, has much broader implications for an RPI linked regulated business than the implied real cost of equity alone and so would need to be considered in a much broader context. There has been no such review.

We therefore conclude that irrespective of the relative arguments about whether there has indeed been any change and if so by what quantum, Ofgem has not followed due process in reaching this decision and this failure undermines the regulatory commitment with which the RIIO approach seeks to protect the interests of existing and future consumers.

Turning to the questions posed in the consultation:

Question 1. With regard to question 1 about the proposed direct translation of the CC's equity market return estimate to DNO cost of equity allowances, we do not believe that this direct translation can be made as stated with a comprehensive review of the entire approach to WACC and other components of the RIIO regime. We believe there are also a number of legitimate reasons why the methodology for setting returns may be different for Ofgem and the Competition Commission (especially in the case of the current review). We have identified a number of these reasons which should be considered carefully.

Firstly, because of the observed mean reversion, the CC draft decision for NIE may not be the most appropriate reference point for Ofgem to consider. Mean reversion is an established feature of financial markets indicating that short-term movements in financial markets tend to revert to the long-term averages over time. There is considerable market evidence that equity market returns and prices tend to mean revert. This implies that averages based on long term historical data provide potentially better estimates of the underlying market parameters, including expected returns, than short term data. As a consequence, the CC's focus on contemporary market evidence might not be a robust approach for estimating the equity market return over the eight year period of RIIO-ED1.

Secondly, Ofgem must consider whether the erosion of any equity buffer by the RIIO price control approach requires it to exercise more caution when estimating the cost of equity for DNOs than the CC has demonstrated to date for NIE. The proposed low level of WACC for RIIO-ED1 and the new approach to the cost of debt has already eroded part of the equity buffer present in past regulatory controls. With a reduced buffer DNOs are more susceptible to future shocks implying a higher risk to equity holders.

Thirdly, looking at the cost of equity in isolation from the cost of debt is unlikely to be a robust approach. The relationship between equity and debt implies that estimates of the cost of debt and the cost of equity as part of the overall WACC need to be considered jointly and estimates cannot be considered independently.

Fourthly, the CCs determination is only draft and there are a number of issues in it that may well be revised after further consideration of all the evidence related to the Risk free Rate, Equity Risk Premium and Equity Market Returns, some of which we highlight below.

Question 2: With regard to question 2 about the evidence on the impact of giving greater weight to contemporary market evidence on perceived systematic and regulatory risk we do not believe that short-term, contemporary market evidence can be used as the basis for the long-term cost of equity estimates for the duration of the RIIO-ED1 period.

If greater emphasis is given to short term data, accuracy and robustness of the estimates would be significantly reduced, given high uncertainty of any predictors using limited data. Estimates based on short-term data are likely to be highly uncertain and also strongly influenced by the specific definition of the data period, which can significantly affect the results.

Moreover, exceptional market movements and circumstances render short term estimates problematic. For example, if the level of the risk free rate were set eight years ago, consistent with the timeframe of the RIIO price control looking backwards, the yield on ten year index-linked gilts would be well above 2%. At that point in time it could not have been foreseen that within the space of eight years the rates would fall so significantly. The opposite can be true now depending on the speed of the recovery.

A short term approach might be more robust for considering financial parameters for a short-term investment outlook and in a stable, low volatility environment; it is not appropriate for longer periods of time, which are unlikely to reflect contemporary market phenomena or policy.

Question 3: With regard to the third question regarding potential impact of changes in Ofgem methodology for the equity market return on interest costs we believe that the changes in the methodology are not compatible with the approach to the cost of debt established under RIIO.

The cost of debt and cost of equity are closely related and must be jointly considered and estimated in a consistent manner when they are components of the same WACC: If the return on equity is reduced, the equity buffer will be reduced as well, which will lead to a higher cost of debt. An increased cost of debt will increase the overall WACC and could require additional capital to support. Reduced equity cushion is also likely to create or exaggerate financeability challenges, reduce appetite and ability to bear risk, change debt capacity and, as a result, affect the optimal financial structure. In some cases it could lead to costly financial restructurings if the overall financial package becomes unsustainable.

Question 4: With regard to the fourth question about how the potential impact of the choice of methodology for determining the appropriate equity market return might impact investment incentives we believe it would have significant negative impact on investment incentives for a number of reasons.

Firstly, using short term evidence is not an investor friendly approach: underlying risk of market movements sits with equity. Adopting a short-term approach and not recognizing this risk or compensating for it would imply increasing investors' exposure and reducing propensity to invest and appetite to commit capital.

Secondly, changing the methodology for determining the market returns, the cost of equity and hence the WACC by adopting the new methodology would be inconsistent with the approach established earlier and RIIO's principles thereby undermining investors' confidence to the overall regime.

Thirdly, using a different methodology would also imply that DNO's investments under ED1 become significantly less attractive compared to alternative investments in other market segments regulated under RIIO creating potential market distortions in capital allocations across different sectors and networks, where returns and investments do not reflect underlying fundamentals.

Question 5: With regard to the fifth question about the merits of alternative approaches to the assessment of the equity market under the eight-year RIIO control period we believe that the alternative methodology is not compatible with the longer RIIO price control for the reasons stated above and also in the Appendix below.

Appendix 1 to the response explores these issues in more detail.

In conclusion, we believe that Ofgem's long-term methodology for the assessment of equity market returns is appropriate for RIIO-ED1. We have identified a number of compelling reasons why the CC's draft decision for NIE is not an appropriate reference point for Ofgem's assessment of the cost of equity. Furthermore, it would be inappropriate to set the cost of equity until 2023 based on current short term performance (ignoring the likely return to long term mean reversion) whilst using a longer term metric for the cost of debt.

Please do not hesitate to contact me should you have any queries with any of the content of this response.

Yours sincerely

A handwritten signature in black ink, appearing to read 'PB', with a stylized flourish at the end.

Paul Bircham
Regulation Director

Appendix 1 – Detailed response to Ofgem’s Consultation on its methodology for assessing the equity market return for the purpose of setting RIIO price controls

1. Derivation of a central reference point for testing DNO business plans

Appendix 2 of the Consultation sets out the proposition that the ONS decision in January means that there is a 0.40% increase in the formula effect between CPI and RPI and then makes the leap that, as a result of a one day movement in 10-year break-even inflation of a similar quantum, we can infer: “Index-linked assets evidently became more attractive to investors”. The analysis concludes that “...it implies the need for equity return allowances has fallen by about 0.4%”.

There are a number of flaws in this proposition and the related arguments. Firstly the quantum of the increase in the formula effect at 0.4% is not certain and secondly, and more fundamentally, relating this to a one day movement to gilt rates and an impact on the long-run risk free rate is not proven as a causal link.

Appendix 2 of the consultation fails to fully recognise the dangers in giving undue weight to new evidence and fails to give due regard to the reasons why regulatory assessments over the years have generally been informed by longer-term perspectives. Whilst the ONS announcement on RPI methodology on January 10, 2013 made a significant impact on inflation rates in the very short-term, largely as a result of market expectations being un-wound, over a longer term it is clear that the 2013 average has not deviated significantly from the long-term average.

Break-even inflation is the difference between the nominal yield on a fixed-rate investment and the real yield (fixed spread) on an inflation-linked investment of similar maturity and credit quality. If inflation averages more than the break-even, the inflation-linked investment will outperform the fixed-rate. Conversely, if inflation averages below the break-even, the fixed-rate will outperform the inflation-linked. Break-even inflation is used extensively as a tool to forecast expected inflation.

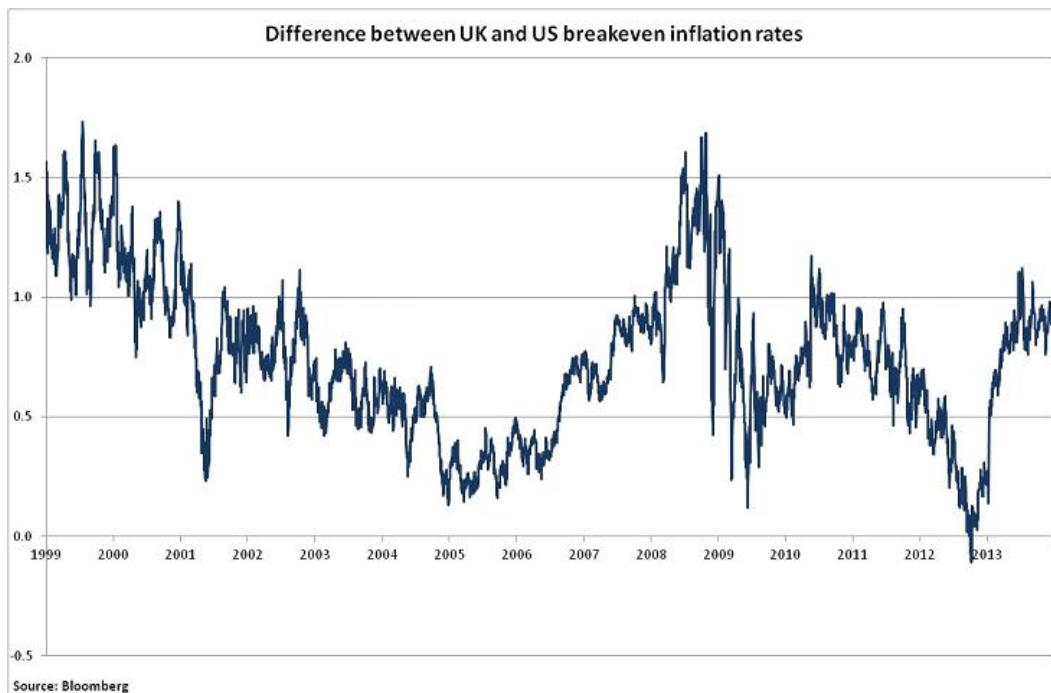
The average breakeven inflation in 2013 was 3.09% compared to the 20-year average of 3.01%. Even in the 1998-2007 period, where inflation expectations were low and stable, the 10-year breakeven rate averaged 2.82%; this is only 27 basis points lower than 2013 average.

It is inappropriate to attribute all of the difference between 2012 and 2013 inflation levels to the ONS announcement. It is important to note that the breakeven rates in 2011 and 2012 were the lowest since the recessionary years of 2001-2002 partially due to the weak economic growth rates in the UK and in all major trading partners.

The graph below shows that the change in inflation observed in 2013 was entirely consistent with previous movements and that therefore, taking a long term view, the change observed does not provide conclusive evidence of any significant or irreversible deviation from long-term averages or any systematic change in RPI as an effective measure of inflation.



In a related matter, the increase in the breakeven rates in early 2013 is not specific for the UK market, though the increase in the UK was more pronounced. 10-year breakeven rates rose 15 basis points in Germany and 12 basis points in the US in the first quarter of 2013. The comparison with US breakeven rates, which is a key factor for international investors choosing between investment choices in the index-linked space, also shows that the UK breakeven rate is close to its long term average. The difference between the 10-year breakeven rate in the UK and the corresponding rate in the US averaged 82 basis points in 2013 compared to 74 basis points in 1999-2013 period and 76 basis points in 2007-2013 period.



tend to change back to long-term averages over time, as shown for a range of asset categories.

2. Tendency of asset prices and returns to revert to long-term averages

Price control reviews require regulators to make judgments at a particular point in time that are expected to be durable over the full period of the price control. As such, regulators have tended to rely on long term-averages of market data for estimating forward-looking parameters making use of mean reversion in the return on assets. That is, the evidence that particular, short-term market conditions tend to change back to long-term averages over time, as shown for a range of asset categories.

Mean reversion implies that financial markets parameters such as asset prices and realised returns fluctuate over time, but sharp movements in a particular direction tend to mean revert to the long run average.

There is extensive body of literature supporting mean reversion in equity returns. For example, De Bondt and Thaler (1985) were one of the first studies to document tendency for mean reversion in equity returns. According to the authors, based on U.S. individual firm-level data they showed that equity prices do not follow a random walk, but contain strong mean reversion tendencies. Similarly Fama and French (1988) documented mean reversion in U.S. equity market using long-horizon regressions. Other studies such as Poterba and Summers (1988) present evidence for mean reversion in many different countries. This is also supported by research by Balvers, Wu, Gilliland (2000) who found strong evidence of mean reversion in relative stock index prices based on evidence from 18 countries over the period 1969-1996.

The 2013 edition of the DMS report, cited by the CC, also analyses the mean reversion phenomenon and states that there is tendency for mean reversion both in equity and bond markets, basing their analysis on the UK and US data.

The CC itself explicitly stated in paragraph 13.6 that 'asset prices and/or yields may have a tendency to revert to a longer-run mean value and if so past levels are relevant to estimating the expected level over the relevant period' [emphasis added].

The CC's NIE determination underlines the importance of recognising mean reversion stating in paragraph 13.6 that asset prices and/or yields may have a tendency to revert to a longer-run mean value and also recognises the judgement call on the potential evidence for a 'new' base level.

Historically, the CC has supported mean reversion and long-term approaches to calculating the WACC. In the 2007 Heathrow Airport determination the Competition Commission stated that "markets can be volatile and it would be unwise to place too much reliance on just the most recent figure. For example, BAA updated its estimate of the RFR during the course of the inquiry from 1.75–2.0 per cent to 2.6–3.0 per cent because of market movements". Furthermore the Commission noted that the period 2003-2006 was an "unusual period".

There is evidence of short term mean reversion as well as market cyclicity. Mean reversion is particularly significant over longer periods. This highlights the difficulty in forecasting equity market returns for a period so far into the future as RIIO ED1 (almost 10 years) based on contemporary market evidence.

In particular, the CC's determination for NIE relates to a price control period already in progress and soon to reach its mid point. This provides for greater certainty over the accuracy and relevance of contemporary market conditions applied over a short-term period. In contrast, RIIO-ED1 decision has to account for significantly more uncertainty without the benefit of observed data over the initial part of the control period. In this respect the CC's NIE judgment can be seen as fairly unique and therefore, not the best reference point for the RIIO ED1 price review.

For comparison with the RIIO-ED1 control period it is informative to look back at the fluctuations in equity market returns over the last 10 years: Since 2003, equity markets went from what Dimson Marsh and Staunton called 'one of the most savage bear markets in history', where UK equities halved in value compared to 2001, followed by the world markets hitting new highs by the end of 2007, before plunging into another bear market which bottomed out in 2009. After this markets have recovered to where they are today.

The significant volatility of contemporary market conditions coupled with the effect of mean reversion suggests that long term averages taken from historical data provide more robust estimates of expected returns over the longer term than short term data. Therefore the CC's focus on contemporary market evidence is not an appropriate approach to estimating required equity market returns for RIIO-ED1 price control period, which runs until mid 2023.

We note that the consultation document points out that adopting the CC's approach in the RIIO-ED1 price review "would have the effect of reducing allowances for the cost of equity". Setting the RIIO-ED1 parameters ahead of time and for a longer time horizon, during which returns are likely to revert to their mean values, means there is a potential downward bias if fixing the allowed equity market return on the current low level..

In paragraph 13.133 the CC state that their table 13.7 "suggests an average market return of around 6 to 7 per cent" and states that table 13.6 implies an ERP over treasury bills of around 5-6%, with a 95% confidence interval. However, the evidence in the table also supports higher estimates so the CC's conclusion from the evidence does not appear to capture the full extent of the presented evidence. Moreover, the CC document later argues against this analysis (in paragraph 13.144) by placing "greater reliance on forward-looking estimates which tend to support an upper limit of 6.5 per cent".

More generally, historical market performance indicates that forward-looking estimates based on short term evidence might not be robust, particularly given the market volatility seen in recent history. When the CC was making this decision that places "greater reliance on forward-looking estimates" that the CC was considering a far shorter time horizon than Ofgem are in RIIO ED1 and had the benefit of hindsight.

In paragraph 13.144 the CC itself observes that "interpretation of the evidence on market returns remains subject to considerable uncertainty", this suggests that it may be inappropriate to apply the CC used in the NIE determination which had a short time horizon to RIIO ED1 which has a much longer time horizon.

3. Equity Buffer

Financeability

Lower equity returns would have a considerable negative impact on financeability. In the city briefing Ofgem stated that credit metrics for DNOs were already 'close to the bone'. Further reductions in the cost of equity would have a significant impact on companies' financeability and Ofgem's statutory objective to ensure financeability and incentivise investments.

Under the current RIIO-ED1 proposals there is already limited headroom to ensure that companies meet debt covenants. This has several implications: Lower financial metrics are likely to drive up the cost of debt and limit availability of debt financing in the future on the same terms as before. They would also limit companies' ability to absorb shocks and hence, in turn, increase the costs of equity.

These effects are exacerbated by several factors:

- Companies have been forced to set totex rates, capex lives and other parameters at a low level in order to decrease, or maintain flat, customer bills. The results of this, together with the reduction in WACC, mean that companies are facing flat revenues and increasing costs, reducing financial liquidity and increasing risk. In other words, the potential reduction has to be viewed in the context of the reductions to date and the current position.
- The cost of debt allowance is set by reference to the IBoxx 10+ year non-financial index. When the index was adopted its level was higher than the rate at which companies, on average, have raised debt in the past. Subsequently the index has reduced which eroded the buffer that existed previously.

The CC's data on forward yield curves (Figure 3 in the price determination document) show an upward sloping profile for maturities up to 20 years. This implies that higher interest rates are assumed in the future.

Even under the indexation of the cost of debt, the risk associated with future market movements ultimately sits with equity holders. If markets move in the short term driving up the cost of debt then interest costs above the trailing average of the index and re-financing of existing debt must be paid out of equity returns by forgoing dividends or retaining equity and affecting liquidity.

Future investments

A substantial financing programme attached to a large capital expenditure programme will place further pressure on companies' financial metrics.

In RIIO-T1 document Ofgem acknowledged this issue and as one of the determinants of the cost of equity: "We regard the scale of investment as the most significant differentiator of risk affecting both the asset beta (and, therefore, the cost of equity) and the appropriate level of notional gearing."

There is a substantial difference in the scale of investment between the RIIO-ED1 plans and NIE. Using the CC NIE parameters to set the cost of equity for RIIO-ED1 would arguably not recognise this risk from proportionately higher capital programmes.

In paragraph 5.106 the CC observes that in the RIIO ED1 strategy document Ofgem proposed an efficiency incentive rate range of 50-70%. In contrast to this in paragraph 5.111 the CC recommend an efficiency incentive rate of 50% for NIE, which is at the very bottom of the Ofgem range. This implies that NIE has less value at risk than DNOs in RIIO ED1, which is a driver of

asset beta. This reinforces the view that DNOs should have a higher Cost of Equity than the CC recommended for NIE.

Risk compounded by the long term price control period

The period set for NIE is significantly shorter than that for RIIO and as such less equity buffer might be required in the NIE case assuming the same underlying level of risk exposure year on year in contrast to the compounding risk effect under RIIO.

The RIIO price control is set for an eight year period. In NIE the parameters have been set for remainder of the current price control (a three year period). The potential impact of market volatility compared with the regulatory settlement is therefore reduced in the NIE case relative to ED1.

There has been a recommendation by the ERC (European Research Council), a body established by the European Commission, that setting the WACC for a five year period given current volatility in markets is challenging and instead a three year period should be used.

There is risk that markets might move significantly during the period of the RIIO price control, particularly due to changes in temporary factors such as monetary policy which might not be reflected in the market prices at present. RIIO investors bear this risk for an eight year period, significantly longer than for NIE equity holders.

Market volatility

When markets are highly volatile future market conditions are harder to predict with any certainty.

The CC in their determination suggest that long-run averages are relevant only to the extent they inform cost of capital in the future over the period under consideration (para 13.6). The CC accepts that a view of what will happen throughout the duration of the price control is required and that current averages are not given.

The recent market movements display particularly high levels of volatility. Figure 1 presents historical market volatility for the S&P 500 index.



Source: S&P 500: Standard & Poor's.

High levels of equity market volatility are associated with the recent financial crisis and significant uncertainty about future market developments. Higher equity market volatility by definition implies a higher cost of equity, all other things being constant.

This is exacerbated by the uncertainty associated with the unwinding of some of the policy measures introduced during the financial crisis such as quantitative easing (QE). As a consequence debt markets have been also characterised by significant movements over the past eight years with yields reaching historically low levels and wide variations in risk premia.

4. Relationship between different components of the WACC

The cost of equity and the cost of debt are closely related and need to be treated consistently but there are important differences in the approach to estimating the cost of debt between the CC in the NIE case and RIIO-ED1.

In paragraph 13.103 the CC state “there is a possibility that any higher risk that bondholders bear (or perceive that they bear) might be offset by lower risk borne by equity holders”. Whilst this possibility may be introduced structurally or contractually, it seems unlikely to occur otherwise. If bondholders are subject to higher risk of default or non-payment this will be typically accompanied by a greater risk to equity given priority of claims. The CC’s suggestion of this possibility that increased bondholder risk reduces risk to equity does not appear to be justified by the CC.

The CC’s approach entails the mix of actual cost of debt and estimated cost of new debt, assuming 80% embedded and 20% new debt. The cost of new debt was estimated by adding the historical spread of NIE’s most recent bond issue over gilts to the current benchmark gilt yield, deducting inflation and adding issuance fees and cash costs. This provided a range of values with an average cost of new debt at 2.7%. Under RIIO-ED1 100% of the cost of debt is estimated by reference to the iBoxx non-financials 10 year trailing average. The cost of debt published in business plans at ED1 was at 2.92%, which corresponds to the 10 year average at 31 October 2012 adjusted for inflation, and is to be updated on annual basis. This has subsequently fallen to 2.72%

Ofgem’s approach to use a 10 year trailing average effectively assumes that companies can refinance 10% of their total debt annually. This implies that 80% of the total debt is assumed to be refinanced over the RIIO price control period at new rates that will be determined by developments in debt markets in the future.

This approach recognises and accommodates the possibility of a significant change in market conditions over the next control period but also implies additional uncertainty for the returns to equity.

In contrast, in the CC determination for NIE the allowed cost of debt is fixed for the entire control period and 80% based on the current cost of embedded debt. This implies that only 20% of the total debt is assumed to be refinanced over the next control period and further assumes that this will be done at the rate estimated by the CC now as the future cost of debt.

This approach does not accommodate the possibility of a significant change in future market conditions (given also its limited headroom) and assumes a fairly static market environment which might be consistent with the current estimates of the cost of equity, but can be reviewed in three years time.

In Paragraph 13.56 of their determination, CC specifically explains that they have not considered adopting a debt indexation approach as they considered that “it is a policy decision that requires pre-notification in order that the regulated company can make appropriate financing decisions”, which underlines the difference in risk profiles between the two regimes.

Moreover, both under RIIO-ED1 and the CC's NIE decision, equity providers face risk associated with the actual cost of debt varying from the value forecast as part of the price control, but the level of risk to be borne by equity investors might be lower under NIE as the estimates used are based on a more company specific approach.

Ofgem's proposed direct translation of CC's approach into RIIO-ED1 WACC affects only the cost of equity elements leaving cost of debt and gearing unchanged, but Ofgem raises the question of the potential impact of the change in the cost of equity methodology on the interest costs of the DNOs.

Additionally, any change in methodology, either by raising the regulatory risk and hence the cost of equity or by lowering the cash flows to equity, puts pressure on financeability metrics then the cost of debt will certainly rise. The overall riskiness of a business is determined by its capital structure. Instead of the absolute level of cost of capital, the difference between the cost of equity and the cost of debt need to be considered. If that difference is squeezed, then the risk profile changes. Over the longer run, lowering the return on equity may have the opposite impact on the cost of debt and the cost of service to end-users may not change materially or even increase in case of a rise in the perceived regulatory risk.

5. WACC components: risk free rate and equity risk premium

The CC provisionally adopted a range of 1.0% to 1.5% for the real RFR basing their decision on the current evidence from the gilt market - index-linked yield curve and nominal yield curve as well as long-run measures of realised returns.

In its report the CC explains that whilst historically it paid attention to possible distortions to the shape of the yield curves, eg monetary policies and pension fund dynamics, the emphasis on relatively short-term evidence in the provisional determination for NIE is based on the assumption that the above-mentioned effects are increasingly well understood by the market and thus already incorporated in the current bond market prices.

However, there is still significant uncertainty around the impact of past political interventions and the consequences of exceptional monetary policy measures adopted in the past on the level of the risk free rate. The unknown direction of how some of the policies will be unwound creates significant uncertainty. While the Federal Reserve in the United States has just set out its path for reducing quantitative easing, this was post the decisions on the cost of equity from both the CC and Ofgem. There has been no similar disclosure in Europe.

Secondly, there is a significant uncertainty about future monetary and fiscal policy in line with uncertainty about future economic prospects. It is possible that the Bank of England may not be able to enact policy in line with their stated intention. As the RIIO ED1 strategy decision document sets out: "*there has been no consensus in the debate about which of the arithmetic mean or geometric mean is more appropriate for the purpose of setting the cost of equity in a regulatory contract*".

This means that long-term, forward-looking estimates of the risk free rate are exceptionally difficult to make, as the CC recognizes, while past data indicates the levels of the risk free rate that could be significantly higher than currently observed. Even a return to the long-term average would imply almost doubling the CC's estimates. For example, Table 13.5. of the CC's draft determination shows that historical long-run realized returns for UK gilts are as high as 2.4% (based on the 1900-2012 arithmetic average).

With respect to the equity risk premium the CC provisionally adopted a range of 4.0% to 5.0% for the ERP, after deducting the assumed RFR of 1.0% to 1.5% from the estimated range of 5.0% to 6.5% for the equity market return. In their earlier regulatory decisions the CC derived an

ERP by subtracting RFR from a total market return that was assumed at the level of 5% to 7%. Earlier the CC assumed a total market return at a level near the top of the range and pointed out that the costs of setting it too low (lack of investment) would outweigh the benefits of setting it too high (higher charges). Relying on short term market data reflecting exceptionally low yields is more likely to set a WACC which is too low as opposed to being too high.

While current low interest rates are transparent, the current cost of equity capital is not readily observable from the market so there is significant uncertainty about the actual ERP. This implies significant uncertainty around what the actual cost of capital is today even in the short-term. Using longer-term averages could improve robustness of forward-looking estimates using more data points.

The evidence in Table 13.7 presents real equity market returns for the years 1900-2012, the average simple return on equity based on DMS data for different holding periods amounts to 6.8%, while other measures (Overlapping, Blume and JKM) lead to averages of 6.9%, 7.0% and 6.7% respectively. Therefore the Equity Market Return estimate of 5.0% to 6.5% does not seem to be supported by this data.

During financial crises, bonds might be seen as more attractive to investors than equity, due to lower volatility in pricing and yields. Dimson, Marsh and Staunton suggest that this might not impact the market return for equity, although an increase might be expected due to scarcity of equity capital. Even if the market returns remain unchanged, a reduction in the risk free rate should be offset by an increase in the equity risk premium to maintain the level of market return. This is not explicitly recognised in either Ofgem's approach or that adopted by the CC.

The CC determination quotes the Bank of England in 2010 to show an equity risk premium of circa 4%. However the CC do not quote and do not take into account the Bank of England's statement in late 2012 that the cost of capital for firms has risen by 200bp over the pre-crisis decade.

Whilst ERP may have been lower recently than it has been historically, it does not necessarily follow that this is a permanent reduction. It is suggested in a Bank of England working paper that while risk aversion increases as a result of a significant negative shock, the prospects of good times ahead make agents take on more risk and actually lead to a compression of premia. This implies that market risk premiums (and therefore ERP) maybe reduced in times of economic recovery (or stagnation) in anticipation of better economic times ahead.