RIIO-ED1 risk assessment framework

Note prepared for
Energy Networks Association

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1 Executive summary

Oxera has been working with the Energy Networks Association on developing a comparative risk assessment framework for the next electricity distribution price control (RIIO-ED1).

The risk assessment framework presented in this note is intended to be used as a tool to assess the potential changes in asset risk in RIIO-ED1 relative to the last price control (DPCR5) and also to enable comparisons with other recent RIIO price control decisions for the transmission and gas distribution companies (RIIO-T1 and GD1 respectively) in a consistent manner.

Asset risk can be defined as the volatility of the return on assets. Asset risk relates to operational, rather than financial, drivers of a company's performance—ie, it is not affected by capital structure, and hence it is typically considered to be the most appropriate measure of business risk to be used as a basis for cost of capital estimation.

The framework presented in this note suggests that, broadly, the key risk factors affecting the change in asset risk in RIIO-ED1 can be categorised by consideration of two questions.

– Is the direction of change in asset risk in RIIO-ED1 from a given risk factor already reasonably clear at this stage of the process?

– Can the change in asset risk from this risk factor be quantified robustly?

Tables 1.1 and 1.2 below summarise the key risk drivers analysed, their relationship with asset risk, and, where possible, quantify the impact on the change in asset risk for RIIO-ED1.

The assessment suggests that, at an industry level, relative to DPCR5, the impact of quantifiable risk drivers where the direction of change is already known is not trivial and is positive, ie, asset risk is expected to be higher in RIIO-ED1. The increase in asset risk is estimated to be in the range of 5–20%. This increase in risk can be translated into:

– an equity beta range of ~0.95–1.20 at 65% gearing; or, equivalently,
– an equity beta range of ~0.90–1.10 at 60% gearing.

This compares with Ofgem's proposed range of 0.90–0.95 (without a specified gearing level). These ranges exclude the effect of the other risk drivers, where the direction of change is not yet known, or where the impact cannot be quantified. Some of the excluded factors such as the efficiency incentive rate and pension cost risk may be expected to increase risk further. It may be possible and more appropriate to reflect the impact of some of these additional factors in the notional gearing assumption.

A comparison with RIIO-T1 and GD1, using the same framework, suggests that RIIO-ED1 could be closest in risk exposure to NGET within the RIIO-T1 price control, and is likely to be riskier than the RIIO-GD1 control. The comparison across sectors has not considered the differences in asset risk that may arise due to differences in the nature of TOTEX and uncertainty mechanisms since these differences would be expected to be largely influenced by technical factors.

The combination of the cost of equity and notional gearing assumptions for RIIO-ED1 needs to reflect appropriately the changes in asset risk since DPCR5 and the relative comparison with RIIO-T1 and GD1.

Table 1.1 Change in asset risk in RIIO-ED1 compared with DPCR5

Risk factor	Relationship with asset risk	Change in asset risk
Scale of TOTEX	A higher ratio of costs to asset value increases potential deviation of average return on assets from forecast; total cash costs (ie, TOTEX) are what is important for determining asset risk; change in risk depends on unexpected changes in long-term expected ratio of costs to asset value	—
Nature of TOTEX	Changes in the nature of TOTEX could affect cost volatility, and, subsequently, asset risk; if forecasting TOTEX in RIIO-ED1 is more challenging (eg, due to uncertainty around the take-up of low-carbon technologies), this would increase potential deviation of costs from forecast	✓
Length of the price control	A longer price control increases potential deviation of average return on assets from forecast; timing of revenue adjustments and having fewer regulatory resets does not fully mitigate the increase in risk	5–15%
Efficiency incentive rate	A higher efficiency incentive rate increases potential deviation of average return on assets from forecast	Depends on company plans ~0.5–1% increase for every 1% proportionate increase[1]
Uncertainty mechanisms	Most mechanisms are similar to DPCR5; new mechanisms address new risks not present at DPCR5; some mechanisms are being removed	—
Cash-flow duration	Increase in regulatory asset lives increases the required rate of return	Up to ~5%[2]
Regulatory incentives	Some incentives are being removed (eg, losses incentives), while others are being introduced or strengthened. Total return exposure proposed to remain largely similar	—
Pensions	Transitioning fully to RIIO pension principles	✓✓
Total	**Asset risk is expected to go up**	**Total increase is in the range of 5–20%[3]**

Note: —, no material change; ✓, change is uncertain but likely to be positive; ✓✓, positive change but cannot be quantified. [1] The comparison should also take into account the change from a pre-tax to a post-tax application of the incentive rate. [2] The upper bound of 5% is before the effect of any transitional arrangements applied to new assets. [3] The range includes the impact of quantifiable factors only, and is before taking into account any changes in the efficiency incentive rate. The change in asset risk reflects the increase in the asset risk premium (difference between vanilla WACC and the risk-free rate) since DPCR5. Since the cost of debt in RIIO-ED1 will be indexed to a generic bond index, the increase in asset risk needs to be fully reflected in the equity beta. For more details, see Oxera (2012), 'Determining efficient financing costs for RIIO-ED1', September, Table 2.2.
Source: Oxera.

Table 2.1 Asset risk in RIIO-ED1 compared with RIIO-T1 and GD1

Risk factor	Comparison with RIIO-T1	RIIO-ED1 asset risk relative to RIIO-T1	Comparison with RIIO-GD1	RIIO-ED1 asset risk relative to RIIO-GD1
Scale of TOTEX	Could be closest in the risk exposure to NGET, assuming similar nature of TOTEX	Varies by transmission operator	Could be higher risk than the GDNs, assuming similar nature of TOTEX	✓✓
Length of the price control	Could be slightly higher due to different licence disapplication conditions	✓	Could be slightly higher due to different licence disapplication conditions	✓
Efficiency incentive rate	Depends on company plans: lower end of RIIO-ED1 proposed range comparable to T1 numbers	—	Depends on company plans: upper end of ED1 proposed range comparable to GD1 numbers	—
Uncertainty mechanisms	Not directly comparable	n/a	Not directly comparable	n/a
Regulatory incentives	Cash-flow volatility could be higher	✓	Cash-flow volatility could be higher	✓
Pensions	Higher	✓✓	Higher	✓✓
Total	**Could be closest in risk exposure to NGET, assuming similar nature of TOTEX**	**Varies by transmission operator**	**Likely to be higher risk than the GDNs, assuming similar nature of TOTEX**	✓✓

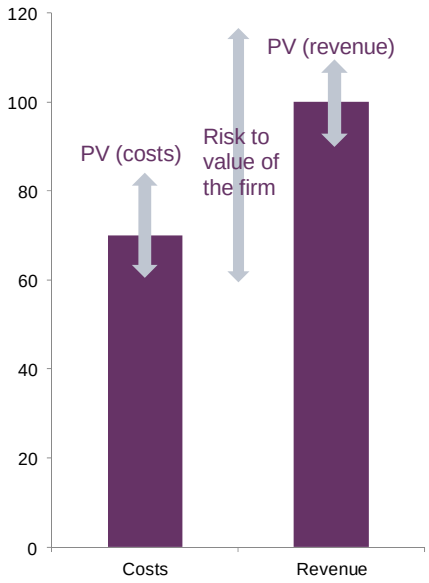
Note: —, unclear at this stage; ✓, uncertain but likely to be higher risk; ✓✓, likely to be higher risk but cannot be quantified. GDN, gas distribution network.
Source: Oxera.

2 Scale and nature of TOTEX

The value of the firm is simply the difference between the present value (PV) of revenues and costs.[1] This means that asset risk—defined as the volatility of the return on assets—is a function of both revenue and cost risk, and that the relative contribution of revenue and cost risk to total asset risk depends on the ratio of PV of revenues and costs to PV of assets respectively (Figure 2.1).

[1] Allen, F., Myers, S. and Brealey, R. (2008), *Principles of corporate finance*, McGraw-Hill, International Edition, Chapter 10.

Figure 2.1 Illustration of the relationship between revenue, costs and asset value



Source: Oxera.

In other words, there is a direct relationship between the proportion of costs to asset value and asset risk.

– A higher proportion of costs relative to asset value increases operational 'beta' leverage—ie, for any given change in PV of costs, the proportionate impact on the PV of assets is greater if the ratio of costs to asset value is bigger. This means that cost volatility has a greater impact on the volatility of asset returns for a company with a bigger ratio of costs to asset value, thus increasing asset risk and the asset beta (assuming some of the cost volatility is systematic).

– Since it is total cash costs that affect the relative PV of costs to PV of assets, this means that both CAPEX and OPEX matter.

– What matters for the rate of return on assets required by investors is the long-term expected ratio of PV of costs to PV of assets. The relationship between the long-term expected ratio of costs to asset value and asset risk is approximately linear.

– In a regulated setting, unless there are significant unexpected changes in the long-term ratio of costs to asset value, asset risk would not be expected to change materially between different price control periods.

Using the average TOTEX/RAV ratio over the price control period as a proxy for the long-term ratio of costs to asset value and the initial projections available for RIIO-ED1, the following observations can be made (Table 2.1).

– There is no evidence of a significant and unexpected step change in the long-term ratio of costs to asset value in the electricity distribution sector over time.

– On the scale of TOTEX factor alone, the electricity distribution sector in RIIO-ED1 appears to be similar risk to NGET, lower risk than SHETL and SPTL, and higher risk than the gas distribution networks (GDNs) and NGGT.

Table 2.1 Average TOTEX/RAV ratios over the price control period

	DPCR4	DCPR5	RIIO-ED1	RIIO-T1[1]				RIIO-GD1
				NGET	NGGT	SHETL	SPTL	
TOTEX/RAV (%)	15	16	16	16	11	35	23	12

Note: RIIO-ED1 projections are based on TOTEX estimates produced as part of the Cost Assessment Working Group in September 2012 and forecast closing RAV values for the end of the current regulatory period (DPCR5). Source: Ofgem (2004), 'Electricity Distribution Price Control Review Final Proposals', November; Ofgem (2009),'Electricity Distribution Price Control Review Final Proposals', December; Ofgem (2012), 'RIIO-T1: Final Proposals for SP Transmission Ltd and Scottish Hydro Electric Transmission Ltd', April; Ofgem (2012), 'RIIO-T1: Final Proposals for National Grid Electricity Transmission and National Grid Gas', December; Ofgem (2012), 'Cost Assessment Working Group', Meeting 7, September 18th. [1] For transmission companies, TOTEX is based on Ofgem's best view.

Nature of TOTEX

This comparison does not take into account the differences in the nature of OPEX and CAPEX between the different sectors (and the relative split of TOTEX between ex ante allowances and uncertainty mechanisms) as well as any changes to the nature of either OPEX or CAPEX across time within a given sector.

Put differently, the framework and analysis described above assumes that cost volatility remains constant across time. However, if there is evidence that cost volatility is changing in RIIO-ED1 relative to DPCR5, this could also affect asset risk, and would need to be factored into the risk assessment separately.

3 Length of the price control

Intuitively, a longer price control would be expected to increase cost risk because it is more likely that outturn costs will differ from regulatory allowances if the allowances have to be set for a longer time period. Although the average expected return on assets stays the same, the dispersion (standard deviation) around the mean would be expected to increase.

If cost risk increases, this would increase total risk, which in turn would be expected to increase systematic risk (asset beta). Unless all of the increase in risk relates to non-systematic (diversifiable) risk, an increase in total risk would imply an increase in systematic risk. A reasonable assumption is that the proportion of systematic risk to total risk would remain unchanged, which means that any change in asset risk can be directly translated into a change in systematic risk.

For the hypothesis that a longer price control increases asset risk not to hold, the following conditions would be expected to be met.

– None of the cost shocks carry over into the following years—ie, the level of costs in a particular year is completely independent of the level of costs in the previous year (following a cost shock in one year of the price control, costs fully mean revert to the forecast level in the following year). In this case, it is possible that extending the length of the price control does not increase the volatility of the return on assets.

– The increase in asset risk from a longer price control is fully offset by additional risk-sharing mechanisms in the regulatory framework.

Oxera has developed a stylised model to test the above propositions. The assumptions and the workings of the model have been developed following a number of interactions with Ofgem and the industry. The model estimates the difference in the volatility of the internal

rate of return (IRR) between a five- and an eight-year price control under a range of different assumptions and scenarios.

The modelling shows that—as intuitively expected—the degree of autocorrelation in costs is the key driver of the difference in risk between a five- and an eight-year price control (Table 3.1). In simple terms, the autocorrelation coefficient describes what proportion of any deviation of outturn costs from forecast in one year carries over into the following year. If there is at least some positive autocorrelation, Table 3.1 shows that an eight-year price control is riskier than a five-year price control. In the extreme scenario, which assumes that costs display zero autocorrelation, the risk of a five- and an eight-year price control is approximately the same.

Table 3.1 Change in asset risk

Autocorrelation coefficient	Standard deviation of IRR with five-year price control	Standard deviation of IRR with eight-year price control	Increase in risk from moving from five- to eight-year price control
0.0	0.05%	0.05%	2%
0.1	0.05%	0.06%	4%
0.2	0.06%	0.06%	7%
0.3	0.06%	0.07%	11%
0.4	0.07%	0.08%	15%
0.5	0.07%	0.09%	20%

Note: The model covers a 40-year period to ensure the IRR is measured over the same time period regardless of the length of the price control and includes a discrete number of full price control periods. The absolute value of the standard deviation of IRR produced by the model is quite small; this is largely a result of the IRR being measured over a 40-year period. The standard deviation of IRR measured over a single price control period is larger.
Source: Oxera.

Based on the results above, it seems plausible that the increase in risk from a longer price control could be of an order of magnitude of 10–20%. This range is based on an assumption that around 30–50% of any cost deviations carry forward into the following year, which seems reasonable. An autocorrelation coefficient of zero would be a very strong assumption to make.[2]

Further, the modelling tests the sensitivity of the results to a number of assumptions, taking into account the suggestions made to Oxera by Ofgem, specifically the following.

– **Timing of revenue adjustments**. Under the TOTEX incentive mechanism, the company recovers (shares) a proportion of cost under- (out-) performance with customers. Prior to RIIO-ED1, the revenue adjustment was carried out at the start of the next regulatory period. In RIIO-ED1, the adjustment will be carried out annually (with a two-year lag). Both adjustments are performed on an NPV-neutral basis. The model allows either type of adjustment to be applied. If the adjustment is done at the start of the next regulatory period with a five-year price control, and annually with an eight-year price control, then the increase in risk is partially mitigated by having annual adjustments in the eight-year price control. The range for the increase in risk is reduced to about 5–15% (based on an autocorrelation coefficient of 0.3–0.5). However, the change in risk remains positive, assuming some autocorrelation in costs.

[2] Appendix 1 shows the historic trends in key input prices affecting the DNOs. The cost trends indicate that the gaps between RPI and input price indices are not constant over time, and show some persistence over time.

– **Underlying trend in costs**. The model allows for different trajectories of the forecast level of costs to be modelled: constant (in real terms), upward trend, downward trend, or cyclical. The choice of the cost trajectory does not have a material impact on the change in risk shown in Table 3.1.

– **Reset of regulatory cost allowances**. The model allows for different methods to reset cost allowances at the start of each price control period that place different weights on the actual cost levels in the previous control period. The choice of the reset method does not have a material impact on the change in risk shown in Table 3.1.

– **Uncertainty around regulatory reset**. The model also allows for inclusion of some uncertainty around the regulatory cost allowances by introducing a random error into regulatory forecasts. This sensitivity was added to reflect the possibility of 'regulatory reset risk'. Introducing regulatory reset risk does appear to have some impact on the increase in risk from a longer price control; however, it does not necessarily act to reduce the increase in risk in all scenarios. Intuitively, it is not clear that having fewer regulatory resets should mitigate the increase in risk from a longer price control. On the one hand, with a longer price control the regulated company is exposed to fewer 'errors' in regulatory cost allowances which may reduce risk. On the other hand, with a longer price control the regulated company is exposed to the 'regulatory error' for longer which may increase risk. Which of the two effects is stronger appears to vary depending on the other modelling assumptions.

Overall, the analysis suggests that in most plausible scenarios asset risk is expected to go up from a longer price control, and the impact is non-trivial. A plausible range for the increase in risk could be around 5–15%, after taking into account the timing of revenue adjustments proposed for RIIO-ED1.

It is noted that this assessment does not fully align with the Moody's assessment of the impact of the length of the price control.

> A key change introduced for RIIO-GD1 is an extension of the price control period from five to eight years. However, we consider this change to be credit neutral overall. On the one hand, while there is the potential for companies having to wait longer for prices to be reset if specific costs increase, this risk is largely mitigated by the number of uncertainty mechanisms (such as true-ups and the move to a cost of debt index) included within the package.[3]

However, Moody's has not presented detailed analysis of this factor. Moreover, its assessment focuses on credit risk, and while the finding of higher asset risk under a longer price control does not necessarily translate directly into a potential downgrade for the networks, the higher asset risk still implies a higher cost of equity. Finally, its assessment is for RIIO-GD1 only, and so may not be directly applicable to RIIO-ED1, especially considering that the package of uncertainty mechanisms and the nature of TOTEX in RIIO-ED1 is likely to be different (eg, due to exposure to low-carbon connections) to RIIO-GD1.

The impact of uncertainty mechanisms, other than the TOTEX incentive mechanism, has not been explicitly modelled; however, the discussion in section 4 suggests that there is no clear evidence that other uncertainty mechanisms would be expected to mitigate the risk of a longer price control.

[3] Moody's (2013), 'Special Comment: UK Gas Distribution Networks: Transition to RIIO is Credit Neutral', March 8th, p. 4.

In addition, while there may be some scope for management action to make offsetting cost savings, the scope for such action is expected to be limited for an industry that has achieved significant cost reductions since privatisation. It is also possible to reflect some degree of management response in the choice of the cost autocorrelation coefficient.

Finally, compared with RIIO-T1 and GD1, the differences in the price control disapplication clauses between the DNOs and other networks suggest that it may be harder for the DNOs to re-open the price control relative to other energy networks. This emphasises the need to correctly take into account the increase in asset risk from a longer price control in RIIO-ED1.

4 Uncertainty mechanisms

Apart from the TOTEX incentive mechanism, which could be regarded as an uncertainty mechanism that mitigates the exposure to cost risk, the regulatory framework typically includes a number of additional uncertainty mechanisms that are intended to mitigate the impact of some revenue and cost risks. However, uncertainty mechanisms are a feature of both the current regulatory framework in DPCR5 and the proposed RIIO-ED1 framework. Therefore, to assess the change in asset risk between DPCR5 and RIIO-ED1 as a result of uncertainty mechanisms, it is important to assess the incremental changes in the proposed uncertainty mechanisms.

Based on the assessment presented in Table 4.1 below, it is not evident that the scope of uncertainty mechanisms proposed for RIIO-ED1 provides greater protection against risk than the current DPCR5 arrangements. Where new mechanisms have been introduced, these are generally to address new risks that were not present at DPCR5. It is also noted that the low-carbon volume driver originally proposed in the September consultation document will no longer be introduced in RIIO-ED1. This leaves the general load-related reopener as the only mechanism to address the uncertainty around the costs associated with the connection of low-carbon and clean energy devices—to what extent this mechanism is sufficient to address this new and potentially large source of uncertainty is unclear. In addition, some DPCR5 mechanisms are being removed (eg, the annual high-volume low-cost connections driver and the rising and lateral mains reopener).

At best, the assessment suggests that asset risk remains unchanged since DPCR5. Some factors, such as the fact that most of the reopener thresholds are assessed after the application of the efficiency incentive rate which is unlikely to decrease in RIIO-ED1 and in fact may increase, suggest that the risk mitigation offered by some of the mechanisms would be expected to be lower in RIIO-ED1 relative to DPCR5.

Overall, the proposed uncertainty mechanisms do not appear to provide greater risk mitigation relative to DPCR5, and therefore are not expected to mitigate the increase in asset risk resulting from a longer price control.

Table 4.1 Comparison of proposed RIIO-ED1 and DPCR5 mechanisms

Type	Area covered	Frequency of adjustment	Exists in DPCR5	Asset risk reduced relative to DPCR5?
Mechanistic				
Indexation	RPI indexation of revenues	Annual	✓	No, same mechanism
	Cost of debt	Annual	x	Addresses financing, not asset risk. Further, previous analysis has shown that financing risk may actually increase for some DNOs under debt indexation
Pass-through	Business rates	Annual	✓	No, same mechanism
	Ofgem licence fees	Annual	✓	No, same mechanism
	DCC fixed costs	Annual	x	Most likely no. Additional mechanism but addresses new risk largely not present at DPCR5
	Transmission connection point charges	Annual	✓	No, similar mechanism
Volume driver	Smart meter roll-out costs		x	Most likely no. Additional mechanism but addresses new risk largely not present at DPCR5
Assessed				
Reopener	Street works	Single window 2019	✓	No. Same number of re-opener windows and same threshold; subject to efficiency incentive rate, which may be higher in RIIO-ED1
	Enhanced physical site security	Single window 2019	✓	No. Same number of re-opener windows and same threshold; subject to efficiency incentive rate, which may be higher in RIIO-ED1
	High-value projects	Single window 2019	✓	No. Qualifying threshold increased from £15m to £25m; subject to efficiency incentive rate, which may be higher in RIIO-ED1
	Load-related expenditure	2017, 2020	✓	Most likely no. Same materiality threshold; subject to efficiency incentive rate which may be higher in ED1; two re-opener windows and covers more expenditure categories, but this is aimed at addressing new and increased uncertainty associated with connecting low-carbon technologies
	Innovation roll-out mechanism	2017, 2019	x	Most likely no. Additional mechanism but addresses new risk largely not present at DPCR5
	Pension deficit repair mechanism	2016, 2019, 2022	✓	Slightly. Frequency of allowance resets increased from five years (end of DPCR5) to every three years
Trigger	Tax	Any time	✓	No
Overall assessment				**At best, asset risk in RIIO-ED1 is unchanged**

Source: Ofgem (2013), 'Strategy decision for the RIIO-ED1 electricity distribution price control—Uncertainty mechanisms', March 4th.

5 Efficiency incentive rate

A higher efficiency incentive rate exposes the company to a greater share of any cost shock since a smaller proportion of any cost under- (out-) performance is shared with customers. This means that although the average expected return on assets stays the same, the dispersion (standard deviation) around the mean increases. An increase in cost risk, as explained in earlier sections, would increase total risk, which in turn would be expected to increase systematic risk (asset beta).

Intuitively, a 1% proportionate increase in the incentive rate translates into a 1% increase in the cost risk. The change in asset risk depends on the relative contribution of cost and revenue risk to asset risk. For example, if cost risk contributes at least 50% to total risk, the increase in asset risk would be at least 0.5% for every 1% proportionate increase in the incentive rate.[4]

This suggests that material changes in the incentive rate could have a significant impact on asset risk. Ofgem's intended incentive rate range for RIIO-ED1 is 45–65% with a rate of 70% for the fast-tracked DNOs.[5] The incentive rates in DPCR5 are in the 45–50% range.[6] At the very least, this suggests that a decrease in asset risk from a change in the incentive is very unlikely for any of the DNOs.

Furthermore, the incentive rates in RIIO-ED1 will be applied on a post- rather than the pre-tax basis used in DPCR5. This means that, on a like-for-like basis, the same headline incentive rate exposes the networks to greater cost risk in RIIO-ED1 relative to DPCR5. This change in the application of the incentive rate should be taken into account when comparing RIIO-ED1 with DPCR5.

Compared with RIIO-T1 and GD1, the incentive rates in RIIO-T1 (45–50%) are consistent with the lower end of the RIIO-ED1 proposed range, and the incentive rates in RIIO-GD1 (63–64%) are consistent with the upper end of the RIIO-ED1 proposed range. The final comparison with RIIO-T1 and GD1 will depend on individual company plans, but at this stage there is no evidence that RIIO-ED1 will be any less risky than RIIO-T1 and GD1 on the basis of the efficiency incentive rate.

The increase in strength of incentives from DPCR5 to RIIO-ED1 would appear to be consistent with the overarching principle of the RIIO framework. However, if the change in the RIIO-ED1 incentive rate is expected to be material, one option to mitigate the impact of this change on the required rate of return while preserving the strength of incentives might be to adopt a lower notional gearing assumption.

6 Other risk factors

There are also a number of other risk factors that need to be taken into account in the relative risk assessment. They include cash-flow duration, regulatory incentives, and pensions.

[4] For example, an increase in the incentive rate from 50% to 55% is equivalent to a 10% proportionate increase in the incentive rate, and hence a 10% increase in the cost risk. Assuming cost risk contributes at least 50% to total risk, the overall impact on asset risk is an increase of at least 5%.

[5] Ofgem (2013), 'Strategy decision for the RIIO-ED1 electricity distribution price control—Outputs, incentives, and innovation', March 4th.

[6] Ofgem (2009),'Electricity Distribution Price Control Review Final Proposals', December.

6.1 Cash-flow duration

Oxera has previously presented evidence that suggests that the increase in regulatory asset lives in electricity distribution will increase the cost of capital.[7] Following the publication of Ofgem's strategy decision, it remains difficult to see why the narrow body of evidence presented by Ofgem's advisers, based on a very small number of datapoints, is given greater weight by Ofgem than the substantial body of empirical evidence presented by Oxera.

It is recognised that the impact of the change in asset lives on the cost of capital may be mitigated by the fact that the longer asset lives will only apply to new assets and companies will be able to propose transitional arrangements. However, even after taking these factors into account, the fact remains that the impact on the cost of capital is not trivial. For example, based on the historical difference in returns on long-maturity compared to short-maturity bonds, the increase in the cost of capital was previously estimated by Oxera to be around 70bp (if the change were applied to all assets).[8] If real RAV growth is assumed to be zero over the eight-year period, then 40% of assets at the end of the period will be new assets—20% on average. The increase in the cost of capital could then be expected to be of a magnitude of ~15bp (before the application of transitional measures), which is equivalent to around a 5% increase in asset risk.[9]

6.2 Regulatory incentives

Based on the return on regulatory equity (RoRE) analysis produced by Ofgem in the strategy decision, the contribution of regulatory incentives to the potential to earn higher or lower returns in RIIO-ED1 is intended to be higher compared with RIIO-T1 and GD1.[10] This suggests that, all else equal, the DNOs could be exposed to slightly more revenue risk from regulatory incentives compared with RIIO-T1 and GD1 companies.

Relative to DPCR5, the financial exposure on a number of incentives[11] (eg, the Broad Measure of Customer Satisfaction, or BMCS), connections and reliability (eg, the interruption incentive scheme) is increasing. At the same time, some incentives are being removed, such as the losses incentive, which was a relatively important contributor to the width of the RoRE range in DPCR5. Overall, based on the RoRE chart produced by Ofgem in the strategy decision, the RoRE exposure to incentives for a fast-tracked DNO looks to be reasonably similar to DPCR5.

This suggests that there is no evidence that the contribution of regulatory incentives to total risk is decreasing in RIIO-ED1, and there is some evidence that this contribution is higher in electricity distribution compared with other energy networks. While it is unclear to what extent the regulatory incentives contribute to systematic risk, they are expected to affect cash-flow volatility and so may have some impact on the appropriate level of notional gearing.

6.3 Pensions

For RIIO-ED1 Ofgem will rely, with some refinements, on the pension principles that were agreed as part of the DPCR5 price control, the June 2010 Pension document, and the RIIO-

[7] For the most recent summary of key arguments, see Oxera (2012), 'RIIO-ED1 strategy consultation—financial issues', November 12th.

[8] Oxera (2012), op. cit.

[9] The change in asset risk is derived from the expected increase in the cost of capital.

[10] Ofgem (2013), Strategy decision for the RIIO-ED1 electricity distribution price control—Financial issues', March 4th, Figures 3.2 and 3.3.

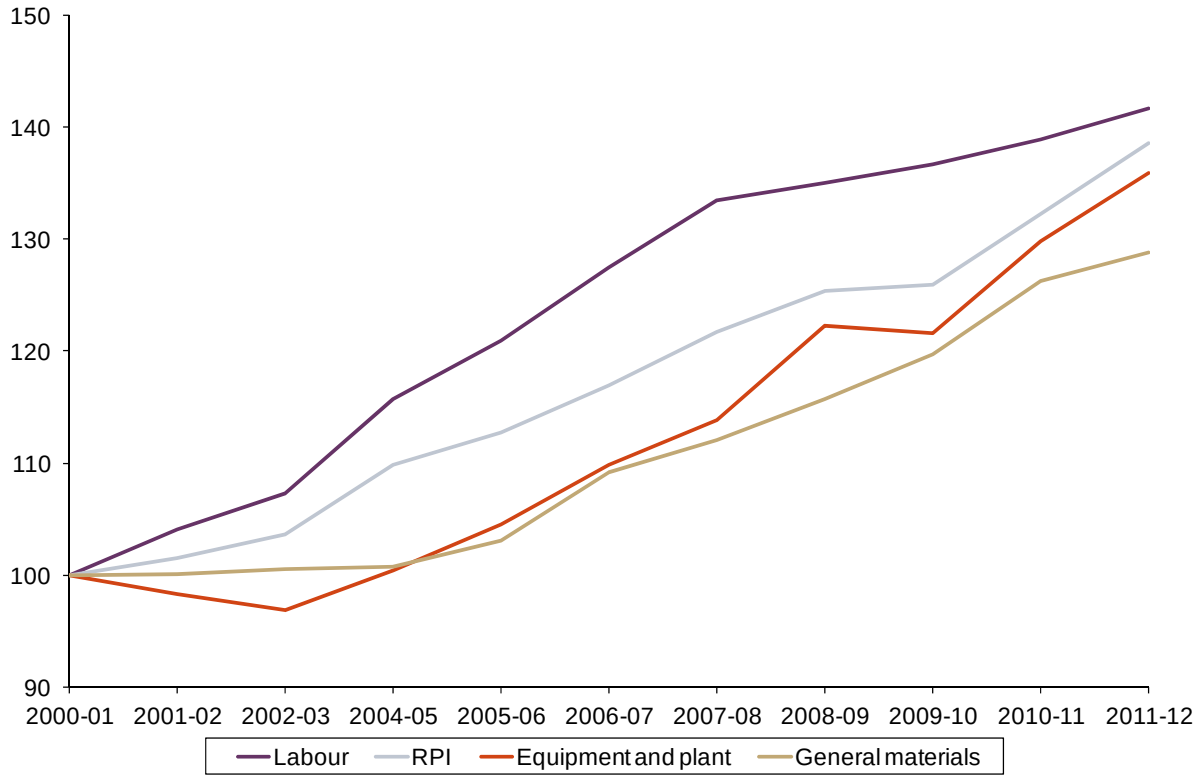
[11] As measured by possible upside and downside basis points of RoRE.

T1 and GD1 controls.[12] For the DNOs, the new pension methodology means that the incremental part of the deficit accrued beyond March 31st 2010 will be subject to an efficiency challenge as part of total employment costs. This compares to the cut-off date of March 31st 2012 for transmission networks and March 31st 2013 for GDNs. This suggests that, compared with RIIO-T1 and GD1, the DNOs are likely to be exposed to higher pension cost risk, and hence higher cost risk.

[12] Ofgem (2010), 'Price control treatment of network operator pension costs under regulatory principles', June 22nd.

Appendix 1

Figure A.1 Evolution of input prices over time



Source: ONS, BCIS, and Oxera. ONS indices shown are Private Sector Average Earnings index (including bonus), Retail Price Index, electrical machinery and apparatus, BCIS building costs materials index for labour, RPI, equipment and plant, and general materials, respectively.