Ofgem Strategy Consultation for the RIIO-ED1 Electricity Distribution Price Control
Issued 28th September 2012 (Ref 122/12)
SP Energy Networks Response to Annex – Tools for Cost Assessment

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Tools for Cost Assessment

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OVERVIEW

We welcome the consultative approach of the Cost Assessment Working Group and the stated objective that the RIIO-ED1 cost assessment, and allowance setting, is determined in a transparent way. We strongly support the approach to developing alternative models to determine appropriate allowances and the inclusion of forecasts data rather than over reliance on historic data. Comparison of the disaggregated approach to the middle and totex models will facilitate important testing to ensure the calculated allowances are valid and reasonable.

We believe median would be the appropriate efficient frontier for allowance setting and encourage Ofgem to also consider this approach. The inherent data consistency issue in disaggregated benchmarking across the 14 DNOs is too great to support upper quartile as valid or equitable for modelling the efficiency frontier modelling. If the output from cost assessment is to feed directly into the Ofgem View in the IQI Mechanism, the benchmarking must be relative to the mean (the regression line), rather than the quartile.

For a predictable outcome across cost assessment and IQI, a mean benchmark is essential to inform the Ofgem view and the overall RORE impact should be calibrated via the IQI additional income term. Use of a quartile benchmark to form the Ofgem view in the IQI process leads to a double penalty for the average DNO via the benchmark shortfall and via IQI. To do otherwise, with the proposed IQI matrix, will result in the majority of DNOs (who finish behind the quartile) earning much less than their allowed return on equity even if they spend to allowance.

An area of the modelling that we will work to develop is the determination and exclusion from the modelling of A-typical costs and non modelled costs. It is crucial to the modelling that as far as is practical the DNO costs are presented on the same basis and regional or other factors are appropriately adjusted for in the modelling. Consistent with DPC5 we will present SP Manweb's integrated network configuration as a company specific adjustment.

Only when the application of the overall approach, and how the output, and findings of the three proposed models are brought together will we be able to develop an informed opinion on the appropriateness of the cost assessment being developed for RIIO-ED1.
Late May is the advised timeline for the final cost assessment models / approach to be shared with the DNOs. We expect to work closely and constructively with Ofgem towards late May sharing views and interpretations of each models outputs at the regular CAWGs that are planned in late 2011 and 2012.

We believe that there is a clear hierarchy of robustness in the levels at which quantitative benchmarking can be carried out. Given this hierarchy we do not believe that an unweighted average of the output of aggregated and disaggregated models is justifiable.

Totex benchmarking at a whole group or whole DNO level is likely to give the most reliable quantitative estimate of realistic efficiency for actual businesses, immune to cherry-picking, cost allocation inconsistency and insourcing/outsourcing choices. This is the preferred level.

Disaggregation at an intermediate level provides a valuable check on the highest level assessment. There is greater sensitivity to normalisations and insourcing/outsourcing choices. Drivers tend to have poorer statistical properties, and the greater dispersion of DNOs around the benchmark in individual cost categories makes regression (with a maximum of 14 units, even if pooled over several years) much more sensitive to the position of individual DNOs. This is a particular problem where DNOs at extremes of size lie any distance from the regression line.

Extreme disaggregation exacerbates the problems present at the intermediate level. It becomes harder to find a complete set of drivers across all cost categories which are statistically useful predictors of cost. While very low level drivers may offer intuitive comfort, they are unable to capture

the intrinsic (non-efficiency) differences between networks. Many candidate drivers vary materially from year to year and are under the control or influence of the DNO.

For these reasons we believe that by far the greatest weight must attach to benchmarking at the highest level, and would suggest a minimum ratio of 4:2:1 in weightings between Total:Intermediate:Low Level models.

QUESTIONS RESPONSE

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1.   **CHAPTER ONE – INTRODUCTION**

2.   **CHAPTER TWO – COST ASSESSMENT OVERVIEW**

2.1   *Question 1: Do you consider our overall approach to cost assessment appropriate and what changes, if any, would you propose?*

We welcome the consultative approach of the Cost Assessment Working Groups (CAWGs) and the stated objective that the ED-1 cost assessment, and allowance setting, is determined in a transparent way.

In our view, the DPCR5 equivalent modelling was insufficiently transparent and not easily replicable, as demonstrated by the fact that it required forensic economic analysis of multiple files shared by Ofgem to understand how it functioned, This meant that it was insufficiently quality assured by the industry, and it contained a number of unresolved and unexplained issues. We are comforted by the Ofgem CAWG team's commitment to providing genuinely transparent modelling, and believe that the test of this will be whether it is readily understandable, whether results can be replicated and whether an appropriate level of QA can be applied.

We strongly support the approach to developing alternative models to determine appropriate allowances and the inclusion of forecast data rather than over reliance on historic data. Comparison of the disaggregated approach to the middle and totex models will facilitate important testing to ensure the calculated allowances are valid and reasonable.

We believe median would be the appropriate efficient frontier for allowance setting and encourage Ofgem to also consider this approach. The inherent data consistency issue in disaggregated benchmarking across the 14 DNOs is too great to support upper quartile as valid or equitable for modelling the efficiency frontier modelling. If the output from cost assessment is to feed directly into the Ofgem View in the IQI Mechanism, the benchmarking must be relative to the mean (the regression line), rather than the quartile.

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We believe that there is a clear hierarchy of robustness in the levels at which quantitative benchmarking can be carried out. Given this hierarchy we do not believe that an unweighted average of the output of aggregated and disaggregated models is justifiable.

Totex benchmarking at a whole group or whole DNO level is likely to give the most reliable quantitative estimate of realistic efficiency for actual businesses, immune to cherry-picking, cost allocation inconsistency and insourcing/outsourcing choices. This is the preferred level.

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Extreme disaggregation exacerbates the problems present at the intermediate level. It becomes harder to find a complete set of drivers across all cost categories which are statistically useful predictors of cost. While very low level drivers may offer intuitive comfort, they are unable to capture the intrinsic (non-efficiency) differences between networks. Many candidate drivers vary materially from year to year and are under the control or influence of the DNO.

For these reasons we believe that by far the greatest weight must attach to benchmarking at the highest level, and would suggest a minimum ratio of 4:2:1 in weightings between Total:Intermediate:Low Level models.

2.2   **Question 2:** *Do you think Ofgem should take into account poor historical performance in its assessment of business plans, and if so, how?*

Historical performance can only give a qualitative indication of a company's potential ability to perform during the ED1. It can be used as a justification for an additional level of challenge, much in the same way as a company bidding materially below an Ofgem benchmark should expect to be subject to greater scrutiny. However, performance in previous price controls has been rewarded in those previous price controls through IQI, ERI and other incentives.

Therefore, the primary assessment of companies ED1 plans should be an assessment of those plans themselves and the level of supporting evidence provided, including stakeholder support, particularly where there are areas of activity that will be step-changing from DPCR5 to ED1.

3.   CHAPTER THREE – TOTAL EXPENDITURE ANALYSIS AND MIDDLE-UP MODEL

3.1   **Question 1:** *Do you agree with the use of totex benchmarking for RIIO-ED1 and what are your reasons?*

We agree that totex benchmarking is an important tool for cost assessment in RIIO-ED1.

Totex benchmarking assesses the cost of delivering outputs regardless of how this cost is allocated. This is consistent with the RIIO framework where DNOs are incentivised to forecast costs accurately and funded to deliver outputs in the most efficient manner. It is immune to issues of insourcing and outsourcing.

The Totex approach at a licence/whole business level assesses real companies against one another rather than against a synthetic business operating at the chosen frontier across a number of disaggregated cost categories.

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Totex benchmarking allows for the use of easily validated high level drivers. These may well be a proxy for network scale/complexity rather than direct causal drivers of costs (but this is likely true even for more disaggregated drivers). This is a virtue rather than a disadvantage.

3.2   Question 2: *Do you agree with the use of a capital expenditure as opposed to capital consumption approach for measuring total costs?*

We agree that capital expenditure as opposed to capital consumption is the most practical approach to measuring total costs.

Capital consumption has some theoretical appeal, but limited consistent historic data is available to construct a measure which might be used reliably.

Capital expenditure may be to some extent determined by historic factors, but will in general be determined by present expectations of the future and by the recent past. It is reliable to determine and easily understood.

3.3   Question 3: *Do you agree with using a similar approach to the top-down model used in RIIO-GD1, considering the adjustment for regional factors, the use of a composite cost driver, and the use of the upper quartile (UQ) to determine efficient costs?*

We believe that the RIIO-GD1 approach can be built on and improved in RIIO-ED1 to provide a more robust assessment. We will welcome the opportunity to do this through the CAWG.

All evidence suggests that GB Distribution Licensees cannot be considered to operate in a homogenous environment. Each licence area exhibits differences in urban/rural mix, technical evolution of the network, geography, tree cover, accessibility and other factors. In the absence of any control data for comparison, adjustments should ideally be made for regional factors wherever practicable. In practice, the limited degrees of freedom allowed by the size of the dataset limit the capacity to do this.

Where there is a clear case for adjustment, this can be performed as an ex-ante adjustment to cost. This is inevitably subject to some uncertainty, and will affect the outcome of the statistical benchmarking for all DNOs to some extent.

One of the great strengths of the top-level benchmarking is that it tends to use high level drivers (such as customer numbers or peak demand). These are stable over time, and the evidence is that they are a good proxy for the overall network complexity which drives total cost. This benefit is largely lost in disaggregation.

The Cobb-Douglas functional form is well recognised. It is likely to well-describe the relationship between simple inputs and simple outputs where there are economies of scale. It should always be borne in mind, however, that for a more complex business, the chosen driver(s) may already embody some of the non-linearity in scale. It would be prudent in all cases to assess the Cobb-Douglas functional form against at least a linear alternative model.

As a matter of principle, no prior assumptions should be made about weighting of the regression variables. Weights should be determined via regression coefficients. Proportions of cost should not be used as weights unless linear independence can be demonstrated.

For transparency, composite drivers should be avoided. The multivariate regression output for all variables can be published (there may be justification in constructing a composite variable using

regression-derived weights solely to present analysis graphically). This has the advantage of making obvious any collinearity in the driver constituents.

Where regression is carried out on a relatively small dataset (the 14 ED DNOs form such a small set), there is a considerable amount of uncertainty in the position of the regression line. Uncertainty is likely to affect all of the regression coefficients. This means that it will not affect all DNOs uniformly. Bootstrapping/simulation and other regression techniques (robust/quantile regression) should be employed to check the robustness of the OLS benchmarking. Overall accuracy of the benchmark should be considered explicitly where it will be used to derive an allowance.

We welcome Ofgem's acknowledgement of the uncertainty in evaluating the benchmark through their intention to use cluster standard errors around their point estimates. We would welcome clarification about how best to apply these standard errors in the cost assessment process. It would be appropriate for the CAWG to consider this.

3.4   **Question 4:** *Do you believe it is appropriate to use a middle-up totex model and if so, do you agree with following the principles of the GD1 approach?*

A well-identified middle-up totex model can add understanding to the highest level model. However we believe that where there is any inconsistency, the results of the middle-up model are likely to be less reliable than the highest level model.

3.5   **Question 5:** *What level of disaggregation do you believe is appropriate for the middle-up model to provide a useful comparator to the top-down totex model?*

When costs are disaggregated there will be at least three significant effects which reduce the value of any benchmarking exercise relying on regression residuals to identify possible inefficiency:

- The impact of inconsistency in reporting boundaries will proportionately increase
- A larger proportion of the residual will be due to irreducible network heterogeneity rather than "(in)efficiency" – for instance relatively small differences in the balance of urban/rural customers between DNOs which may not otherwise be deemed sufficient for a specific cost adjustment may affect position relative to the benchmark.
- The benefit of specific DNO choices in cost allocation (for instance reducing future I&M by spending more on network design) is lost – disaggregating is "cherry-picking"

For these reasons we believe that beyond the level indicated on Para. 3.24 of the 28th Sept Tools for Cost Assessment Document the benefit of additional understanding gained from disaggregation relative to complexity of process and volume of analysis diminishes rapidly

3.6   **Question 6:** *How do you believe lumpy expenditure should be treated in totex modelling?*

Categories of cost which are lumpy should be subject to smoothing over a limited time period. Analysis will be required to identify the optimum smoothing period. This is probably best addressed via the CAWG.

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4. CHAPTER FOUR – DISAGGREGATED MODEL

4.1 **Question 1:** *Do you believe it is appropriate to use a bottom-up, disaggregated model to compare with the totex model results?*

A well-identified bottom-up totex model may add understanding of the higher level model. For reasons discussed earlier in our response, where there is any inconsistency, the results of the bottom-up model are likely to be much less reliable than both the middle-up and highest level models.

The unit cost model developed by WPD and recently shared via the CAWG demonstrates that such a model is feasible in principle and could be modified for more general benchmarking. If suitably developed it could well form the basis of an enhanced model supporting the ED1 cost assessment.

Any uncertainty in ex-ante adjustments of cost is likely to distort the results from a bottom-up process much more than at higher levels. For this reason any pre-benchmarking adjustment or normalisation must be transparent and well-justified.

4.2 **Question 2:** *Do you agree with our approach to the disaggregated, bottom-up model?*

The success of a bottom-up model depends critically on the ability to identify statistically useful drivers across all cost categories. It is unlikely that single-driver regressions will capture fully intrinsic network differences – 'fixed' costs may then simply be functions of omitted drivers.

In short, the approach (as for the other models) should be to produce a statistically robust model which explains as much of the cost variance as is achievable. There will then be a correspondingly greater degree of confidence that significant proportions of the residuals are correlated with the cost efficiency of individual DNOs. It is not useful to produce a model based on no more than the intuitive 'feel' of drivers, and to assume that any variance from this can be interpreted as (in)efficiency. If, for instance, a given cost depends only 50% on a "common-sense" cost driver (and perhaps that not even linearly), that driver will be a very poor predictor of efficient cost.

It's important to note (reserving judgement on their relative merits) that the implicit functional form in the unit cost bottom-up model is NOT CONSISTENT with the Cobb Douglas function chosen by Ofgem for the remainder of their econometric analysis. Use of the fixed/variable (unit) cost approach implicitly assumes a linear relationship between cost and driver.

Where drivers are within the control of DNOs, steps should be taken to smooth the drivers over time. For example, where volume of work is a driver, it may be presumed that DNOs will as a matter of course pay to maintain the capacity to deliver some expected level of activity, however the actual activity level varies from year to year (e.g. LV faults vs. fault volumes). It would be better to use some medium to long term driver (say an average over a complete regulatory cycle) rather than fluctuating annual values.

5. CHAPTER FIVE – NETWORK INVESTMENT – LOAD RELATED EXPENDITURE

5.1 **Question 1:** *Do you agree with our proposed approach to how the specific building blocks that make up load related expenditure interact as well as which categories are proposed to be included in a load related reopener?*

- Yes, we agree with the proposals outlined by Ofgem and those categories which form the load related reopener.

5.2   Question 2: *Which of the three options set out for assessing connection-related costs within the price control do you feel is the most appropriate and why? Please reference the following in your answer:*

a) the gross cost assessment adjusted for net-to-gross ratio or just on the Distribution Use of system (DUoS) funded reinforcement costs

b) the most appropriate cost driver for connection reinforcement costs: Meter Point Administration Numbers (MPANs) or number of connection projects

c) the most appropriate approach for assessing cost of low volume high cost (LVHC) connections.

Of the three options set out within the consultation document our preference is for Option 3, as it uses an established process to be used for LVHC projects, whilst allowing a mechanism to be able to adjust for the significant volumes of connections which could materialise depending which variation of the DECC scenarios transpires.

The costs should be assessed against the DuoS funded reinforcement costs.

We believe the most appropriate drivers for connection reinforcements is on the number of connection projects rather than on the number of MPANs, for the reasons outlined in the consultation – it may be possible to connect a large number of MPANs for very little reinforcement but conversely if a few LCTs are clustered in a small area of network then a significant amount of reinforcement could be triggered or the reinforcement drivers may be changes to demand / generation at existing MPANs.

For LVHC connections our preference would be to use a similar method as adopted for general reinforcement, as many of the connection solutions will be similar in nature. However, it is important to realise that the driver for undertaking connection projects involving primary network reinforcement is subtlety different from general reinforcement solutions as customers due to the nature of their load or security requirements or indeed geographical location may require certain amounts of infrastructure to be installed and hence may have a different £/MVA compared to general reinforcement.

5.3   Question 3: *Which of the three options set out for assessing wayleaves and diversionary-related costs within the price control do you feel is the most appropriate and why?*

We support Ofgem's proposal to adopt Option 2. (ex-ante allowance based on historical cost data and forecast for RIIO-ED1). The other two proposals rely heavily on unit cost data and in our experience, the variation in these activities is such that unit cost is not an effective measure of efficient expenditure.

5.4   Question 4: *For all general reinforcement, is it feasible for the DNOs to provide specific scheme lists based on commonly agreed demand scenarios in RIIO-ED1?*

We believe it to be feasible for DNOs to produce a list of likely schemes for General Reinforcement at EHV and 132kV. Due to the uncertainty surrounding the timing uptake of low carbon technologies and the clustering effects which may result we do not believe that a list of schemes can be derived with any degree of accuracy for the HV/LV network.

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It is important to understand that the degree of certainty for EHV schemes reduces further out into the RIIO-ED1 period, again this is influenced by the uptake of certain low carbon technologies and the rapid increase in uptake forecast towards the back end of the decade.

We do not believe that there have been consistent demand movements across DNOs, for example, the proportion of renewable generation connecting to SPEN's networks is greater than average (>30% of GB). However, it is reasonable for Ofgem to propose a baseline assumption from which baseline general load requirements could be established, so long as this is supported by an effective revenue driver.

Further, our stakeholders have told us that there are distinct differences in what DNOs deem to be customer-driven versus general triggered reinforcement. The proposal to standardise the load index also provides an opportunity to more accurately assess these differences historically, and allows Ofgem to set out a common (GB wide) definition for general reinforcement. This would then allow all companies' plans to be considered on a consistent basis.

5.5   Question 5: *For all general reinforcement, do you think that reinforcement specifically relating to generation should be separately assessed from demand-related reinforcement?*

Yes, we believe that reinforcement schemes specifically associated with generation should be assessed separately from demand related reinforcement. This will ensure that the real originator of the costs is identified and customers can have full transparency of the costs for the connection of generation.

There is also a generation-unique reinforcement requirement where aged primary transformer tap changers have no reverse power flow capability. Given the uncertainty of location and uptake of DG, we believe the DPCR5 DG mechanism should be retained for ED1.

5.6   Question 6: *Do you agree with our proposed modelling approach to cost assessment of n-1 reinforcement schemes, specifically in relation to the two proposals for the Load Index (LI) delivery as outlined in Chapter 4 in the 'Supplementary annex – Reliability and Safety'?*

Of the two options described within consultation document our preference would be for Option 2. This is based on a bandwidth around a target level and would cater for factors outside the reasonable control of the DNO. Such factors could include large demand customers ceasing operation or a significant cluster of low carbon technologies appearing. Whilst a DNO should be planning their network to cater for demand, the timing of the network reinforcement may be delayed by planning or network access considerations.

5.7   Question 7: *Do you agree that expenditure on secondary network reinforcement is no longer highly correlated with localised economic growth?*

At the current time we do not think that the link between level of expenditure and localised economic growth has disappeared, although the strength of the corollary may have weakened slightly. However, as the impact of low carbon technologies begin to take effect then, it is likely that these, due to their clustering impacts, will begin to dominate the expenditure levels on the secondary network.

5.8 *Question 8: Do you believe that it is feasible and appropriate to set definitions and unit cost(s) for the following:*

a) the conversion of wayleaves to easements and injurious affection payments;

b) load related interventions on the secondary network; and

c) fault level reinforcement?

We believe that it is feasible and appropriate to set definitions for such activities, however, the variation in costs across the voltages makes unit cost an inaccurate indictor of efficient investment.

We have discussed item a) in our previous response. The solutions for item c) tend to range from a change in operational practice (very low cost) to the complete replacement of a 33kV switchboard. Again the use of unit costs is not an indicator of efficient investment.

In terms of load related investment on the secondary network, it is possible to use the unit costs agreed as part of the non load related investment programmes on each solution. SPEN believe that these should form the basis of the low carbon revenue driver.

5.9 *Question 9: What is the most appropriate funding mechanism for load related expenditure on the secondary network?*

The most appropriate form of funding for load related expenditure on the secondary network is an ex-ante allowance based on a forecast number of intervention required. This would be backed up by a volume driver should there be material changes (i.e. the uptake of low carbon technologies happens more rapidly than forecast.) This change could be driven by Government subsidies for example as we have experienced with PV generation.

Chapter 5: Other areas for consultation - Transmission Connection Points- We are strongly opposed to- and are of the view it would not be proportionate to proceed with- option 2 detailed in paragraph 5.100.

We agree with the proposal that transmission exit charges should not be subject to an incentive mechanism as at DPCR5, as this has simply been an incentive that has rewarded higher forecasting.

We believe that the relationship between DNOs and the TSO, and the price-controlled nature of the Transmission Network Owners, means that there is a strong efficiency challenge to the provision of new Grid Supply Points. In addition, the biggest risks in relation to transmission exit charges relate to:
- National Grid charging methodologies; and
- The age of connections that we are being charged for.

In the case of SPD and SPM, when National Grid changed to a shallow charging methodology, our combined exit charges dropped from around £100m p.a. to c£20m p.a.,

It would seem entirely disproportionate to expose DNOs to such a change or to a windfall gain if National Grid reduced its charges to DNOs.

Secondly, the majority of the boundary points between National Grid and DNOs utilise assets that are over 40 years old, meaning that the DNOs are only paying Operation and Maintenance charges for these sites and are not paying capital return or depreciation charges. However, if connection assets

fail, or need replaced based upon condition then the associated charges faced by the DNO will be significantly higher.

This is a risk that is disproportionately higher for SPD relative to other DNOs, due to the 132kV boundaries in Scotland. For example, SPD has 83 GSPs whereas SPM has only 18. It would seem unreasonable to introduce a mechanism that disproportionately impacted one industry party.

We believe that as many aspects of these charges are outside the control of a DNO this should return to being a pass-through charge, and that the current pass-through treatment for wheeling charges between DNOs should be extended to transmission exit charges.

6.   CHAPTER SIX – NETWORK INVESTMENT – NON-LOAD RELATED EXPENDITURE

6.1   Question 1: *Do you agree with our approach for assessing NLRE in the companies' business plans?*

We broadly agree with the principles set out for assessing NLRE provided there are a number of safety nets built into the process.

The proposed modelling must be developed in conjunction with companies, be fully transparent and published with the Policy Decision consultation planned for February 2013.

We welcome Ofgem's recognition that there are reasons why company's need to address issues with assets which will be at higher volumes than the modelled outputs, subject to companies demonstrating this need, this is particularly important given that one conclusion of using implied asset lives is that it can drive the benchmark volumes towards extreme highs or lows, which are unrepresentative of the actual requirements. An example of this from DPCR5 was primary transformers with poor dissolved gas analysis where Ofgem recognised a need greater than the modelled requirement. In this context, we are concerned at the statement in section 6.7, which sets out that Ofgem expects:
- 'volumes from the age based-modelling multiplied by the benchmark replacement unit costs to set the outer limit of expenditure related to asset intervention' and
- 'forecast expenditure on asset intervention should be much lower'

We would expect that Ofgem could draw any conclusion on the range of expenditure only when it has seen DNOs plans and the supporting evidence. We do agree that there are alternatives open to DNOs other than like-for-like replacement. Refurbishment can provide a useful means of extending asset lives but the lifetime cost benefit needs to be demonstrated, also there will be a number of situations where the replacement unit costs will be higher, for example storm resilient overhead lines specifications in known severe weather areas.

We need clarity from Ofgem of the split in unit costs between a 'vanilla' asset and a low loss or future proofed asset in order that we can appropriately categorise our costs in our plans. For example, at DPCR5 there was no clarity of primary transformer specifications to ensure that the benchmarking was being performed on a like for like basis. Therefore, companies who purchase transformers with specifications optimised to minimise lifetime operating losses balanced with capital costs may have been deemed to be less efficient than other companies simply purchasing the lowest cost transformer. This is particularly important if benchmarked costs are at the UQ.

We have set out in our executive summary and in the annex relating to incentives that we are concerned that there is a significantly stronger incentive for companies to embed greater risk into plans and bid more aggressively, to the detriment of the industry and our stakeholders, resulting from:
- Higher up front rewards (IQI incentive and relative allowance) for underbidding;
- Higher efficiency incentive rates for underbidding;

- Lower regulatory scrutiny for fast tracked companies.

We are concerned that this is further compounded with the approach set out in section 6.17, if it was to be applied again at RIOED1, specifically 'A unit cost adjustment was also made for those DNOs whose forecasts were based on unit costs that were better than UQ unit cost for the majority of asset categories (on the basis that they would otherwise have potential difficulties in outperforming the benchmark)'. We believe the unanswered question is how the risk of underbidding will be dealt with by the ED1 settlement, for example being subject to similar levels of scrutiny as over bidding, and whether this will need to extend to ex post recalibration of companies settlements if the outcome is that the benchmarks have been set by a company setting out unrealistic plans.

6.2 Question 2: *In light of our proposals, do you agree with our selection of risk removed as the primary output of the mains replacement programme?*

We would seek further clarification on what the term mains replacement refers to as it is not clear from the question. If it refers to our main asset replacement programme then we agree with utilising risk as the primary output on the other hand if pertains to Rising & Lateral Mains replacement we would require further consideration of how we would apply criticality and risk to the Rising Mains asset base.

6.3 Question 3: *Do you agree with our approach to remove non-modelled costs in RIIO-ED1?*

We believe it is now possible to develop a volume and unit cost benchmarking for the pilot cable asset replacement that SPD and SPM included under non modelled cost in DPCR5.

However, other DNO may have areas that cost are significantly variable on a case by case basis and non-modelling would still be the most appropriate treatment.

6.4 Question 4: *Do you agree with our proposed approach for assessing the DNOs' plans for expenditure on Legal and Safety? If not, what changes would you propose?*

We agree that Legal and Safety expenditure allowances should be based on our forecasts subject to sufficient evidence being submitted. Benchmarking of unit costs for Site Security should take into account regional variations and should be based on a like for like specification of requirements for different voltages.

6.5 Question 5: *Do you agree with our proposed approach for assessing the DNOs' plans for expenditure on ESQCR? If not, what changes would you propose?*

We agree that our expenditure on ESQCR will reduce during RIIO-ED1 but is still a significant programme. We are supportive of providing Ofgem with additional information from the LV OHL surveys carried out within DPCR5 as an additional output measure for benchmarking the approach across all the DNOs.

Some of our stakeholders have raised concerns that there are inconsistencies in DNOs approach to ensuring their compliance with mandatory requirements.

6.6 Question 6: *Do you agree with our proposed approach for assessing the DNOs' plans for expenditure on flooding? If not, what changes would you propose?*

Flood protection measures required within RIIO-ED1 will be focussed around completing our programme at primary substations. The mitigation measures proposed will vary from site to site

subject to the surveys undertaken. We also believe that both Opex and Capex solutions will be required, as flash flood affected sites cannot always be predicted, particularly at secondary substations. We support benchmarking at the industry average and consideration of life time costs provided the assumptions are comparable across all DNOs. We anticipate that the likelihood and sporadic nature of the risk of flooding will increase within RIIO-ED1.

6.7   Question 7: *Do you agree with our proposed approach not to fund Quality of Service (QoS) improvements during RIIO-ED1?*

We agree with this approach generally as the QoS incentives provide a mechanism to fund these in a manner that has been historically tested by Ofgem for customer willingness to pay.

We disagree with the application of the efficiency incentive as we believe that at a general level IIS incentive works. Applying the efficiency incentive is likely to result in a much weaker incentive arrangement.

However, we envisage that a special case may need to be made in relation to the GS2 move from 18 hours to 12 hours due to the penalty-only nature of guaranteed standards.

6.8   Question 8: *Do you agree with our proposed approach to change Black Start and Rising and Lateral Mains (RLM) from reopener mechanisms to ex ante allowances?*

We agree that the RLM should be changed to an ex-ante allowance, however, industry / DECC discussions about the necessary requirements - particularly for resilient communications – are currently ongoing. It is unlikely that these discussions will conclude prior to July 2013, so we believe that a reopener should be retained for ED1.

6.9   Question 9: *Do you agree with our approach to assessing enhanced physical site security costs?*

We agree that enhanced site security costs should be funded via an ex-ante allowance with a reopener for sites where the scope of works and costs is uncertain.

7.   CHAPTER SEVEN – NETWORK OPERATING COSTS

7.1   Question 1: *Do you think that our proposals for the Trouble Call are proportional given the materiality of the area and do you have any preference between the options? Please separate your response by the following categories: low and high voltage overhead faults; low and high voltage underground faults; EHV and 132kV faults; ONIs (formerly non-QoS faults); third party cable damage recovery; pressure assisted cables; and submarine cables.*

Low and high voltage overhead faults:

- Option 1: We are supportive of considering the categories at the detailed level defined in the RIGs but given the range of unit costs reported DPCR5 to date we have concerns about being benchmarked at UQ. The quality of data and the consistency of how DNOs have allocated costs against the detailed categories raises an issue with using UQ performance costs.

- Option 2: We have identified areas where historical volumes have not been reported consistently across DNOs e.g fault repairs with no customers interrupted have previously been reported in ONIs (previously Non-QoS) which we clarified at the recent Ofgem RRP visit and within our RRP narrative. Historic cost/volume comparisons will need to take account of any such inconsistencies.

- Option 3: We need further clarity on how efficient unit costs will be calculated and there is also a question over the consistency of the IIS fault rate or secondary deliverables in how they will be applied.

Preferred Option: Continue using the new RIGs at the most detailed level, determine consistent reporting and cost allocation, remove outliers which affect UQ unit costs. This consistency issue could be resolved through more regular reporting to Ofgem which we would support during DPCR5 to inform RIIO-ED1 and consideration given to challenging the outliers.

Low and high voltage underground faults:

- As above.

EHV and 132kV faults

- For 132kV the volumes are too low for a meaningful comparison and the repair costs are variable and unique to the individual circumstance. We would support the use of historical volumes and unit cost data applied to our forecast volumes.

- We would suggest an alternative approach to 132kV for 33kV where our preferred option detailed in LV and HV overhead faults above applies.

7.2 Question 2: *Do you agree with our approach to assessing Severe Weather 1 in 20 Events and do you have any preference between the options?*

We have concerns around the definition of what qualifies as a Severe Weather 1 in 20 event, as a company not investing in storm resilient networks could qualify for funding more easily, but agree that the DPCR5 mechanism was a reasonable approach to setting allowances.

7.3 Question 3: *Do you agree with our proposed approach for assessing the DNOs' plans for expenditure on Inspection and Maintenance (I&M)? If not, what changes would you propose?*

We support Ofgem's proposal to review the frequencies of I&M to ensure consistency and appropriateness. When such an exercise has been completed, we believe that using unit costs and volumes can be used as an indicator of efficient investment.

It is important when considering I&M costs to note that Ofgem recognises that companies take different approaches to managing their compliance with mandatory obligations and public and staff safety.

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Any proposed cost assessment for I&M must ensure that it does not drive the industry towards lower volumes or less comprehensive activities, effectively dictating that companies are funded on the basis of accepting higher levels of risk.

Benchmarking in this area should be based around industry medians unless there is clear evidence supporting a diversion from this approach.

7.4   Question 4: *Do you agree with our proposed approach for assessing the DNOs' plans for expenditure on Tree Cutting? If not, what changes would you propose?*

We support Ofgem's proposal for assessing expenditure on Tree Cutting.

7.5   Question 5: *Do you agree with our approach to assessing NOCs Other and do you have any preference between the options? Please separate your response by the following categories: dismantlement, remote location generation, and substation electricity.*

We agree with the approaches proposed on dismantlement and remote location generation.

We believe that the proposed approach to benchmarking substation electricity is inappropriate for the following reasons:

- Historically, DNOs have been able to adopt a number of different technical solutions to maintaining suitable operating conditions for their equipment. This approach has evolved due to the different weather conditions faced by DNOs and in our case, accounts for significant differences in approach between SP Distribution (SPD) and SP Manweb (SPM) areas.

- Due to the varying weather patterns faced by DNOs, the energy requirements of companies in the coldest areas (North) will be much higher than in the warmest areas (South). This is evidenced by the c. 30% additional consumption by customers in SPD's area compared with national averages quoted by Ofgem.

- There are significant differences in energy prices across the UK and this challenges the approach to benchmarking. We propose that allowances (units & £) are based on companies' own historic performance and an efficiency measure.

8.   CHAPTER EIGHT – CLOSELY ASSOCIATED INDIRECT COSTS

8.1   Question 1: *Do you agree with our proposed approach to assess CAIs? In particular, do you agree with our groupings of activities?*

We note that there is still work to be done identifying cost drivers for the assessment process. We welcome caution in this area and will work via the CAWG to develop the approach for CAIs. This is an area where comparison of analysis by group and DNO is likely to be useful.

Upper Quartile benchmarking conflicts with the IQI process as noted earlier in our response. The mean should be used as a benchmark.

8.2   *Question 2: Are there any views as to which cost drivers would be most appropriate?*

Without fully available data, it is not possible to identify the most appropriate drivers. These can only be identified by analysis. We will be happy to support the CAWG in this.

It is, however, possible to identify the desirable characteristics of the cost drivers:

- A driver should have good power to predict efficient costs. The poorer the correlation between driver and cost, the less reasonable it is to assume that all or most of the unexplained variance is simply due to DNO (in)efficiency.

- There should be reason to believe that there is some link (whether causal or proxy) between drivers and cost.

- Drivers should ideally be relatively stable with time, and not within the control or influence of the DNO. Volume of an activity, for instance, may exhibit much greater variation than the capacity that the DNO must maintain to carry out a long-run expected level of that activity. Where such drivers are unavoidable, time averages should probably replace the volatile annual values.

- Drivers should not be strongly correlated with one another (collinear).

8.3   *Question 3: Do you believe our approach to assessing Workforce Renewal is appropriate? In particular, do you believe it is appropriate to consider Workforce Renewal allowances both in isolation and also as part of wider training and do you believe Workforce Renewal should include or exclude the training of contractors?*

We support the move to include Workforce renewal in the overall training costs assessment. We further support the work with EU skills and the requirement for detailed analysis.
We do, however, disagree with the approach to disallow contractor costs from Workforce renewal. Such an approach disadvantages those DNOs who outsource elements of their investment programmes. Using the same metrics (recruitment of apprentices and graduates) we believe that workforce renewal funding should be extended to contractors who employ those trades that are exclusively used in the DNOs (jointers, fitters, linesmen and engineers).

The exclusion of workforce renewal costs at DPCR5 is an example of how disaggregated benchmarking can lead to cherry-picking across this category of costs and unit costs for asset replacement.

9.   CHAPTER NINE – BUSINESS SUPPORT COSTS

9.1   *Question 1: Do you agree with our general approach to assessing BSCs? If you disagree with any particular areas can you please specify what these are and your reasons?*

We note that there is still work to be done identifying cost drivers for the assessment process. We welcome caution in this area and will work via the CAWG to develop the approach for CAIs. This is an area where comparison of analysis by group and DNO is likely to be useful.

Again, Upper Quartile benchmarking conflicts with the IQI process. The mean should be used as a benchmark.

9.2   *Question 2: With regards to the non-fast-track benchmarking, for those DNOs that report lower than the benchmark costs which of the three options for setting cost allowances to you think is most appropriate and why? The options are: increasing allowances to the benchmark level of costs, giving the DNO their submitted level of costs, and taking an average between the benchmark and the submitted costs.*

Whether fast-tracked or not, the cost allowance must be set consistently for all DNOs whether above or below the benchmark. The benchmark level of cost must be fed into the Ofgem view in IQI, where that and the DNO's submitted level of cost will determine the final allowance. To do otherwise leads to excessive reward or penalty via the IQI mechanism.

9.3   *Question 3: Do you agree with the cost drivers set out for each of the categories of Business Support Costs? If not, can you please suggest an alternative?*

Without fully analysing the data, it is not possible to identify the most appropriate drivers. These can only be identified by analysis. We will be happy to support the CAWG in this.

It is, however, possible to identify the desirable characteristics of the cost drivers:

- A driver should have good power to predict efficient costs. The poorer the correlation between driver and cost, the less reasonable it is to assume that all or most of the unexplained variance is simply due to DNO (in)efficiency.

- There should be reason to believe that there is some link (whether causal or proxy) between drivers and cost.

- Drivers should ideally be relatively stable with time, and not within the control or influence of the DNO. Volume of an activity, for instance, may exhibit much greater variation than the capacity that the DNO must maintain to carry out a long-run expected level of that activity. Where such drivers are unavoidable, time averages should probably replace the volatile annual values.

- Drivers should not be strongly correlated with one another (collinear).

9.4   *Question 4: Do you agree with the proposed use of expert review to assess IT&T and property costs?*

We believe that this approach worked well at DPCR5, however, new costs, such as those associated with IT for the rollout of Smart Metering will need to be given careful consideration and may require a reopener once the costs are understood.

As IT & telecommunication costs account for a large proportion of business support costs it is understandable that Ofgem wish to engage specialist consultants for this area.

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10.   CHAPTER TEN – REGIONAL AND COMPANY SPECIFIC ADJUSTMENTS

10.1   Question 1: *Do you agree with our approach to regional and company specific adjustments?*

We broadly agree with Ofgem's approach to regional and company specific adjustments. It seems reasonable to look critically at past adjustments for company specific effects. Continuation or modification of such adjustments should clearly be well justified. However it is also quite clear that the UK's distribution networks are not homogenous. Where this heterogeneity cannot be dealt with via ex-ante adjustment, econometric analysis should be undertaken.

Costs should be tested against regional variables (labour cost, contractor rate, sparsity, urbanity etc. as appropriate), and where any of these are statistically significant, consideration should be given to adding them as explanatory variables in the econometric model(s).

The practical limitation is the size of the group under analysis. Too many explanatory variables will lead to over-fitting. Any econometric model should consider both the significance and the strength of effects when trading off model complexity and explanatory power. (Data availability for all DNOs may also be a constraint).

Where neither ex-ante nor econometric corrections can be applied, it should be allowed that some of the variance from benchmark for individual DNOs will be due to simple underlying network heterogeneity. This should be built into the way the benchmark is adjusted to allow for uncertainty. A simple assumption that (say) 20% of variance arises from heterogeneity might be a starting point.

10.2   Question 2: *Which regional and company specific adjustments do you think we should consider in RIIO-ED1? Please give a rationale for your suggestions.*

For robustness, the broadest range of plausible regional differences should be considered. It is likely that most (if not all) of these will prove to be statistically insignificant in the econometric analysis.

Some company-specific differences between DNOs are well understood. It is generally accepted that SPM's interconnected network imposes additional cost. Likewise, LPN's predominantly underground network may justify some adjustment.

Wages also vary across the UK. In principle this should be taken into consideration, but this requires a clear understanding of how more general wage trends map onto the specific groups employed in electricity distribution.

Our own analysis and recent work on Totex benchmarking by Frontier suggest that introduction of a Population Density variable to the analysis can explain a significant amount of residual variance, even where the measure has not been optimised. There may be a similar measure of sparsity which could further improve the modelling.

11.   CHAPTER ELEVEN – RPES AND ONGOING EFFICIENCY

11.1   Question 1: *Are there any additional analytical techniques that we should consider beyond those we have used at past price control reviews to assess RPEs and ongoing efficiency?*

Historical trend analysis will not be sufficient for RIIO-ED1 as there are clear breaks in the time series:

- The ONS is consulting[1] on changes to the construction of the RPI against which the real price effects (RPEs) are measured.

- The pre-recession trend in productivity has clearly broken.

The ONS is consulting on changes to the construction of the RPI (Retail Prices Index), which would reduce the so-called "formula effect" by between 25 to 100bps, depending on the extent of the change. As RPEs have been calculated by comparison with the existing RPI measure, the proposed changes to the RPI would add a corresponding number of basis points to forward looking RPEs.

Since the onset of the recession, there has been a widespread break in the trend in productivity which commentators refer to as the "productivity puzzle". Output per worker is 14% below the pre-recession trend.

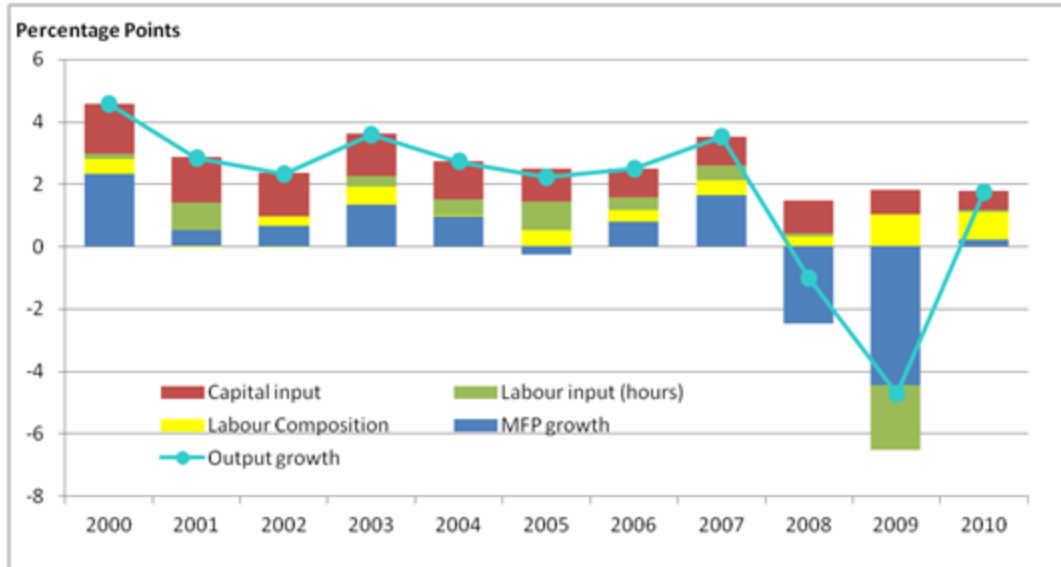**Figure 1: UK: Output per worker**
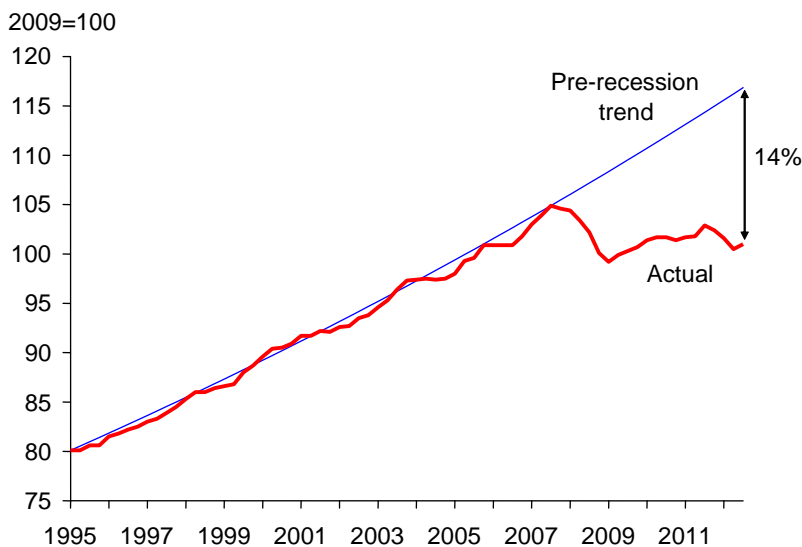
Source: Haver Analytics / Oxford Economics
Many commentators believe that there has been a permanent reduction in total factor productivity (TFP), also known as multi-factor productivity (MFP).

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[1] ONS (2012), National Statistician's Consultation on options for improving the Retail Prices Index, October
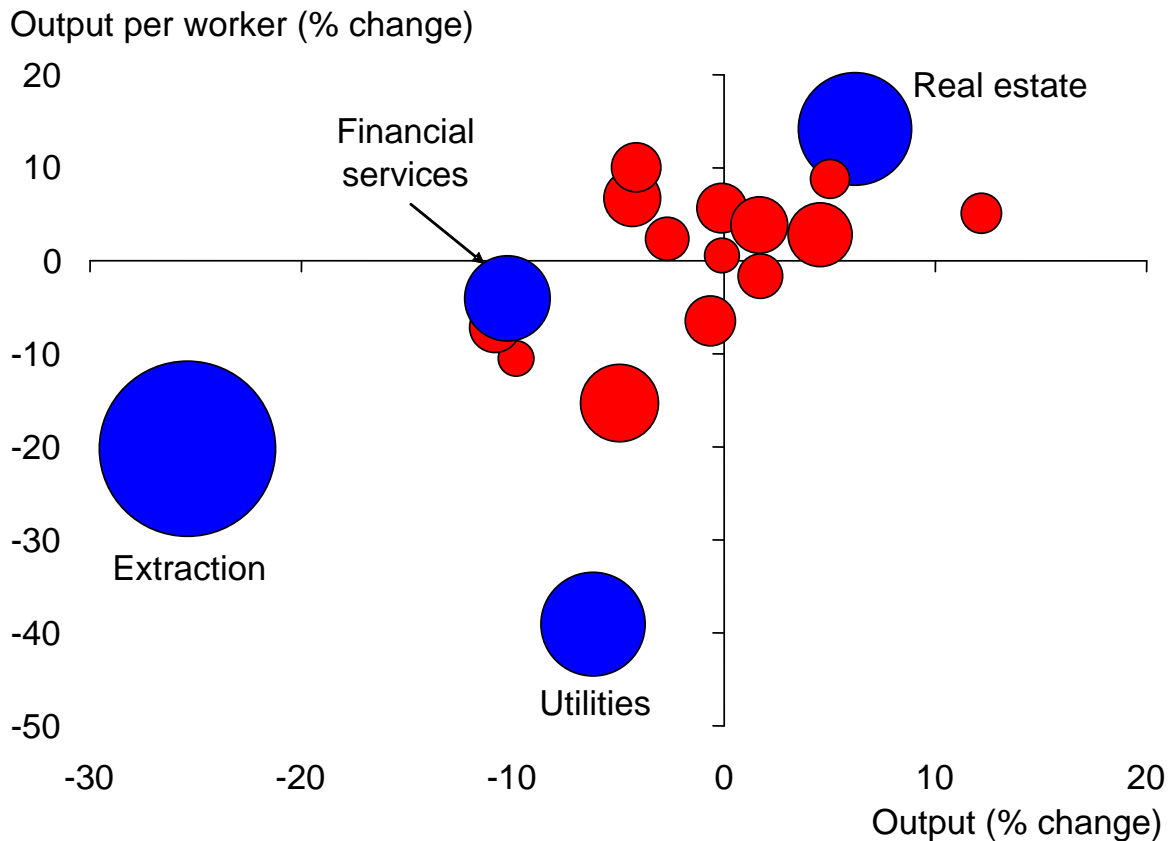
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Figure 2: Whole economy: Decomposition of annual output growth

Source: ONS

The fall in output per worker is especially marked in the utilities sector, where it has been exacerbated by reductions in output.

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Figure 3: UK: Output per worker by sector (2008-11)

Source: Haver Analytics / Oxford Economics

The impact of the recession and the continuing stagnation are not reflected in the EU KLEMS data-set which ends in 2007. It is essential that more recent data is used for the analysis, as the pre-recession trend has clearly broken.

Furthermore, recent analysis has provided evidence that apparent historic productivity improvements may have been overstated, as:

- Investments in information technology and communications (ICT) have become much more important as enablers of productivity improvements but these are much more difficult to measure accurately. Consequently, productivity improvements have been overstated, as ICT inputs have been underestimated.

- Estimates of quality adjusted labour inputs, which allow for an increase in the quality of the labour, in terms of the skill composition of the work force, reduce residual MFP.

- It has been suggested that the output of the UK's financial sector was overstated in the years leading up to the financial crisis, which again suggests that historic productivity improvements were overstated.

The choice of sectors for use as comparators should be based on formal statistical analysis, such as cluster analysis, which is a statistical technique that quantifies the degree of similarity between variables, in an objective manner.

Reckon's report[2] for Ofwat PR09 price review concludes:

"The main thing we take from the cluster analysis is the view that, of the 30 industries examined in this section, none of them are particularly similar to water or sewerage."

We have undertaken our own cluster analysis on the EU KLEMS data-set and similarly conclude that none of the industries are similar to electricity DNOs. As illustrated in the dendrogram, the "Electricity, Gas and Water Supply" sector appears in cluster group 5, alongside "Coke, Refined Petroleum and Nuclear Fuel", which reflects the association of fuels with generation rather than distribution. None of the other sectors are similar to electricity.

Figure 4: Dendrogram : Electricity, Gas and Water Supply
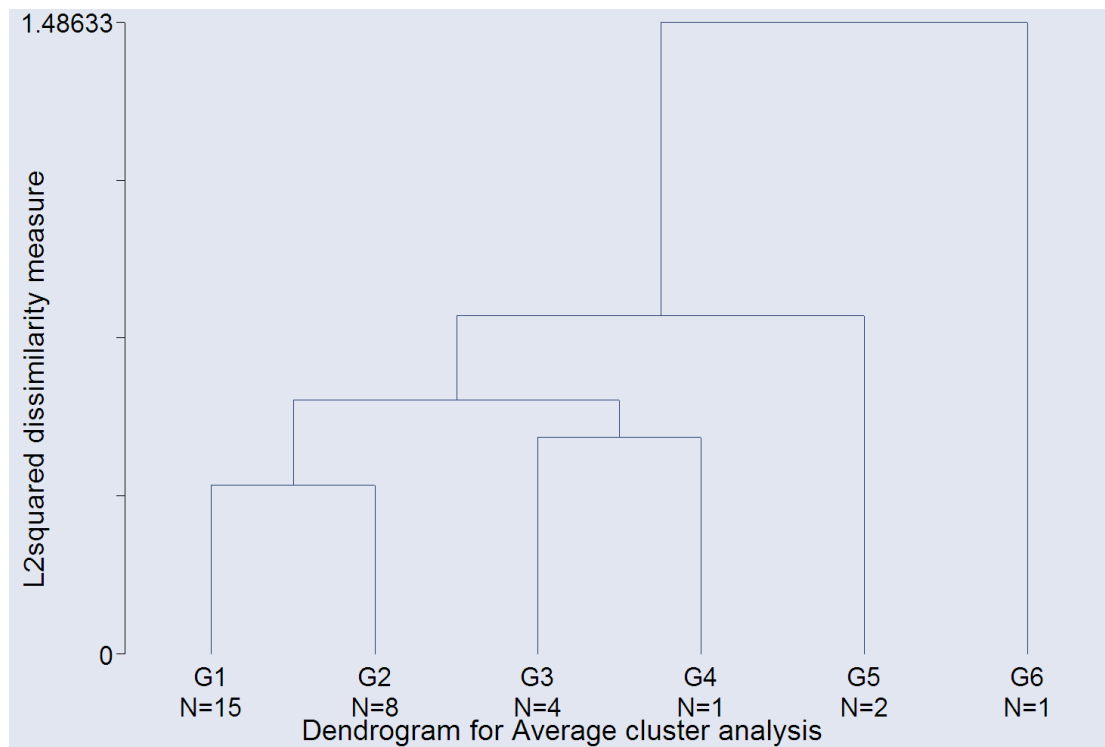
Source: SPEN 2012

Furthermore, care has to be taken not to double count the cost savings from wider productivity improvements in the economy, as these are already reflected in the input prices which DNOs pay for materials and equipment.

Similarly, the "catch-up" component of efficiency improvements must be distinguished from "frontier shift".

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[2] Reckon (2008) "PR09 Scope for efficiency studies", Final Report for Ofwat, 17 October, p88, paragraph 4.132

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11.2   Question 2: *Are there any additional data sources that we should be aware of to assist with our analysis of RPEs and ongoing efficiency? Are there some that you think we should rely more on than others?*

There are a number of commodity (e.g. metals, including aluminium, copper and specialised steels) price and cost indices available which can be used to cross-check the higher level cost indices, which Ofgem propose to use.

In principle, we would distinguish between short, medium and long term projections. In the short term, say, up to 2 years, there are likely to be a number of detailed independent forecasts available for a variety of indices. However, in practice, these may only go as far as the beginning of the RIIO-ED1 period. For the medium term, say, up to five years, generally there are fewer forecasts available and these are more readily available for economy wide, rather than sector specific, indices. Beyond, say, five years, it is increasingly necessary to rely on long term trend analysis. Although we would prefer to use forecasts which are made closer to the beginning of RIIO-ED1, it will be necessary for us to use forecasts and projections which are available in time for our business plan submission.

12.   CHAPTER TWELVE – DATA ASSURANCE AND COMPLIANCE

We fully support Ofgem's proposals in respect to data assurance and compliance and we will continue to put the necessary business controls, governance and assurance frameworks in place to submit an accurate business plan. We are actively involved in the DPCR5 data assurance trial and we are working to ensure that the key principles are applied across our business.