

# **Northern Gas Networks – 23 August 2019**

## **RIO-2 Tools for Cost Assessment: Question Responses**

### **Approach to Econometric Analysis**

#### **Question 1: What model estimation options should be considered for our cost assessment and why?**

There is a long documented history of the consideration of the alternative approaches to cost estimation in assessing both comparative and absolute levels of efficiency in the utility sector in the UK. As such the relative 'pros and cons' of each approach are reasonably well understood and accepted.

All approaches face their own problems both on the theoretical and the practical side. This implies that the final efficiency estimates should not be interpreted as being definitive measures of inefficiency. By contrast, a range of efficiency scores may be developed and act as a signalling device rather than as a conclusive statement. The final efficiency scores are most likely to be sensitive to the methodology chosen. In particular, the mean of the SFA estimated efficiencies will always be larger than that of COLS or DEA efficiencies.

The preference for cost assessment based upon COLS is now viewed as a key element of the regulatory framework and is well understood and accepted. As such it provides a highly valuable level of stability to the framework and in a low risk and low return environment can be seen to be adding significantly to the strong incentive properties of the framework which will drive both short and long term value for customers. It must be considered if significant change to the cost assessment framework would negatively impact upon this element of the regulatory framework to customer's detriment.

We would support the continued use of COLS as the core approach to cost assessment for these reasons. It is not clear at this stage that a change to this approach would be more accurate, reliable over time or drive more long term value for customers.

#### **Question 2: Do you agree with our proposed criteria for developing potential cost pools? If not, what additional criteria do you propose and why?**

We believe the criteria outlined are appropriate and applying them correctly is key to understanding the true relative efficiency of the GDNs. We all deliver the same key services but over time since network sale have all moved at different speeds and in different directions to new business models to deliver these services. We all use pooled work forces to deliver different activities and do not account for them in exactly the same way as we report them to Ofgem.

Looking at the disaggregated historic benchmarking it is clear there are cost trade-offs and cost boundary complexity issues in particular which lead to variability in efficiency benchmarking. This suggests that disaggregating too far in fact provides less clarity. When setting allowances this could lead to cherry picking by creating a modelled perfect GDN that in reality would be unachievable.

We believe Ofgem should do more to understand how the GDNs pool their work forces to deliver our services which would help them decide the appropriate level of disaggregation. There will never be an exact match for all GDNs but it would be a step forward and deal with some of the historic model issues. For instance we all use our first call operatives and repair teams to deliver the emergency, repair and 'relay after escape' repress services activities, but looking at the costs and benchmarking historically it's likely we all allocate costs differently between these activities. These costs could be

pooled and a workload driver created from the existing ones, using relative cost over time to help weight the drivers.

**Question 3: Should we continue to use the Cobb-Douglas functional form? If not, why?**

We would support the use of the Cobb-Douglas functional form within the overall methodology. We recognise the theoretical limitations of this form, particularly with reference to economies of scale. However, there are a number of issues to consider when proposing any change.

Firstly it is not clear that economies of scale within the gas distribution networks are not linear over large ranges. Whilst there are differences in the 'size' of individual GDNs we would contend that these can be assumed to be broadly linear and accounted for by the specification of the appropriate cost drivers and the use of 'Log-Log models' already contained within the methodology.

Secondly, the current approach benefits from the relative simplicity of linear specification of models. Without any clear evidence to support the requirement to specify quadratic terms in the equations we would caution against additional complexity impacting upon the accessibility of the analysis.

Finally, we would contend that the current approach addresses the impact of lumpy investments adequately through the averaging of capital investments over an appropriate length of time to smooth out any effect of large on-off investments on the analysis.

**Question 4: Do you agree with the proposed model selection criteria and model development phases?**

Yes. We would support the broad approach set out for model development.

**Aggregated econometric analysis**

**Question 5: Should the cost driver of the totex regression model be determined by the cost drivers of the 'bottom-up' models, or should the totex regression model account for different explanatory variables? Why?**

We believe that the approach taken during RIIO-GD1 was a sound and robust basis for the Totex regression modelling. It is not obvious that there are alternative approaches that would improve the power of the models at a Totex level. On this basis we would continue to fully support the approach taken at RIIO-GD1.

**Question 6: What could be appropriate cost drivers in middle-up models for opex, capex and repex? Why?**

We would support a further review of middle up models broadly for the reasons outlined in response to Q2. The more disaggregated the model the more susceptible it is to cost trade-offs and cost boundary complexity issues, which can show one GDN as number 1 in one activity then number 8 in a linked area purely due to allocations and boundary issues. A more aggregated view, matching cost pools, will give a better view of real efficiency.

In terms of drivers most of those used in RIIO-1 are still appropriate but need updating (synthetic unit costs) and reweighting (which can only be done when the plans are submitted). Some need adding in – fuel poor volumes.

We do have concerns over the use of MEAV both for maintenance and Totex as it's based on replacement value which does not necessarily reflect the cost of managing and maintaining long term assets. In particular LTS pipelines are very expensive to replace but last a long time and are comparatively cheap to manage, and so may be weighted too heavily. In addition for RIIO-1 Offtakes and PRS replacement costs were adjusted to reflect their throughput relative to the industry average. This needs to be considered carefully as regardless of throughput the assets need to be managed and maintained in their current configuration.

Data in the RRP's could be used to analyse the relative cost of managing LTS compared to other assets and weightings could be carried out using this rather than replacement value. This applies in particular for routine maintenance – there is a detailed data set in the RRP table 3.8 and 6.1-6.6 which could be used rather than MEAV to create a driver – based on actual costs and asset counts.

**Question 7: For which opex activities are there trade-offs that support the rationale for testing 'totex and opex plus' modelling?**  
**and**

**Question 8: Are there other particular costs that we should aggregate and test in our analysis?**

Emergency, Repair and Operations Management have a strong correlation and trade offs within Opex, as well as clear issues with cost boundary complexities. Operations Management could be a substitute for Emergency and Repair – stronger management functions could lead to a reduced need for operational employees. There is also a clear link here through to Relays after Escape in Repex – which are part of the same emergency and repair end to end process and are in general carried out by repair teams, but are classed as Repex as they have replaced the service.

There are also trade offs between maintenance and capex, as well as cost boundary complexities. Increased routine maintenance could be a substitute for asset replacement – increasing maintenance frequencies can keep assets operating longer. Some GDNs may capitalise activities that other GDNs class as non routine maintenance. There are arguments therefore for looking at Maintenance as a whole or in part alongside Capex – by asset class.

### **Disaggregated econometric analysis**

**Question 9: Are there trade-offs between opex and capex activities that support the rationale for considering 'opex plus' modelling?**

As detailed under our response to Qs 7 and 8 there are trade offs between opex and capex in relation to maintenance activities which suggest they could be aggregated for further analysis / benchmarking. There would still remain an issue related to the 'lumpy' nature of capex spend – adding in maintenance smooths this to an extent. It does remove any issues with cost boundary complexity.

However this does not necessarily support the rationale for 'opex plus' modelling. It's not clear what this would bring that is better than the existing tool box approach ofgem used for RIIO-1, which could simply be refined to reflect the above.

**Question 10: Which cost areas should be assessed using workload drivers as opposed to other cost drivers? Why?**

We believe workload drivers are the most effective way to carry out cost efficiency benchmarking, supported by other scale variables and appropriate justification for variances in workload volumes where needed. This is in particular the case for areas where the activity is repeatable and predictable

over time, for instance replacement costs. If the regulator is concerned about inflated workload forecasts then this can be dealt with through the use of Price Control Deliverables and Volume Drivers. Whether the programme of work developed delivers the overall objective should be assessed outside of the efficiency benchmarking. Neither of these factors affect the underlying cost efficiency benchmarking.

We believe the current workload drivers used in the existing tool box approach are appropriate but need updating in some areas – repex synthetic unit costs – with some additions – fuel poor workload, repex other services. These are all available in the BPDTs and RRP.

**Question 11: Should repex (or some categories of repex) be excluded from our regression analysis and assessed using other techniques?**

Repex represents a basket of different types of assets and workloads and the mixture of these different categories will differ across GDNs. Those differences will be driven by both the overall composition of their network and the condition of those assets which will in turn be a function of the historic workloads in those areas. It is therefore critical that the modelling approach to Repex can account for these differences between these baskets of work.

Again the approach taken at RIIO-GD1 we believe was a sound and robust basis for this analysis. We would support the continuation of this approach at RIIO-GD1.

It is important however to ensure that there is consistency in the cost and workload categories included within the analysis. The primary outcome of the Repex programme is the permanent reduction in risk from the full abandonment of the metallic mains and services as defined by the HSE Enforcement Policy. For example, asset interventions and techniques that do not deliver this outcome should be excluded from the analysis.

There is genuine scope within the HSE policy to select baskets of work with differing profiles of assets over the period to 2032. Care must also be taken in ensuring that large differences in the types and volumes of work within the RIIO-GD2 period are accounted for appropriately in the analysis.

**Question 12: Are there other approaches to disaggregated benchmarking that we should consider?**

Generally we would support a move to a greater level of aggregation of costs bring together those activities that in practice form part of the same workflow. We have provided details of a more appropriate aggregation of costs to the CAWG.

We would disagree with the view presented by Cadent on the value of combining disaggregated activities. The further the disaggregation of costs, the scope for inconsistencies in reporting and allocation of costs between different elements of the same workflow grows significantly. This has significant potential to skew the results of the analysis in terms of efficiency. In this sense disaggregation beyond this level provides a highly spurious level of accuracy to the results. Furthermore, low level disaggregation of costs assumes that each element of the workflow is essentially homogenous across all companies and as such fails to recognise alternative operating models that are driven by companies' attempts to innovate and deliver efficiency.

We would strongly support the general approach put forward by CEPA for aggregating costs to a level that represents costs that are complementary, represent trade-offs within that workflow and as a result have a consistent set of cost drivers.

## **Non-econometric analysis**

**Question 13: Should we assess business support costs at a group level in order to address cost allocations across companies within groups?**

Yes Business Support costs should be addressed as a group level to not only address cost allocations but also to understand economies of scale for larger groups and make appropriate adjustments.

**Question 14: Which types of business support costs should be benchmarked, and how should they be benchmarked?**  
**and**

**Question 15: Which types of business support costs should be excluded from benchmarking?**

Two areas were not benchmarked in RIIO-1 – Insurance and Claims, and Procurement / Logistics. Insurance and claims were not benchmarked as costs for insurance are driven by the GDNs approach to managing risk which can't be assessed for efficiency. They also have trade offs with business efficiency elsewhere, which would be benchmarked. Claims are also very variable and difficult to assess for efficiency. Consequently we would support a separate assessment for these cost areas. Procurement and logistics weren't benchmarked due to variability in reporting across the GDNs and their low materiality. Again Ofgem will need to make similar judgements when they receive the BPDT cost forecasts.

It should be possible to benchmark the remaining business support costs, and a similar approach to RIIO-1 would seem appropriate, which benchmarked costs across the energy sector as well as outside of sector, using the Hackett Groups data and composite driver methodology.

Costs should be gross and at a group level as discussed above. They need to be gross to allow for allocation and accounting variations across the GDNs. This may be more difficult to achieve, in particular for those GDNs who operate partnership models for service delivery. Ofgem will need to carefully analyse the data and potentially use the SQ process to clarify what has been included.

Further normalisations would need to be made for costs relative to our industry when comparing outside of sector – notably for Regulation specific costs.

There is a potential option to combine the opex and capex elements of IS for benchmarking, especially given the continued developments in cloud computing and selling IT as a service. All GDNs are likely to be at different stages of this journey, so full efficiency benchmarking may not be appropriate. A separate assessment of strategy outside should be carried out as well.

## **Regional factors and company-specific effects**

### **Question 16: How should we estimate and model the impact of regional factors?**

We would agree with the position that there should be a high evidential bar for accepting any cost adjustment claims. Evidence presented in Business Plans and during the review and challenge process should be considered across all GDNs.

It is not clear that the use of Symmetrical Adjustments can be justified and as such presents a significant risk that these are arbitrary adjustments could skew the results and hence the integrity of the cost modelling.

### **Question 17: Do you agree with the proposed criteria for justifying regional cost factors that we have outlined?**

We do not have any issues with the proposed criteria for justifying company specific regional factors.

## **Real price effects and ongoing efficiency**

### **Question 18: What RPEs should we account for, how should we gauge materiality, and what criteria should we use for index selection?**

Clearly there should be a minimum bar below which no RPE adjustments should be made to minimise complexity. Also RPEs will not all move in the same way, providing an element of hedging, and the Totex incentive mechanism ensures the risks are shared between the GDNs and our customers. This bar should be set as a % of totex to make it relative, taking into account the likely impact on RORE.

When selecting an index the following criteria should be considered:

- It should represent efficient costs for the area of expenditure;
- It should include a wide variety of organisations - not dominated by any one group or size of organisation;
- It should be produced by a reputable body;
- It should be calculated in a consistent manner; and
- It should be readily available to be used in the annual iteration process

The major cost areas that are material and are likely to move independently remain the same as those allowed for in RIIO-1 – Contract Labour, Direct Labour, and Materials, most notably PE pipe.

### **Question 19: What common input and expenditure categories are appropriate for structuring RPEs?**

The input categories outlined would seem appropriate – direct labour, contract labour, materials, transport, plant and equipment, other. Key is having an appropriately detailed definition for each category to ensure consistency of reporting, and to challenge the results if they vary significantly. Also if the Other category is material, to understand what has been captured here.

In terms of expenditure categories there seems little reason to split repex into mains and services – the GDNs generally account for costs on a project basis and allocate costs between mains and services for reporting only.

**Question 20: How should we identify an appropriate ongoing efficiency assumption?  
and  
Question 21: How should we determine frontier shift?**

It is important that Ofgem are able to identify and fully justify any assumptions that are made about the potential for ongoing improvements in productivity and efficiency over the RIIO-GD2 period. The potential for further efficiencies will be linked to the overall potential for improvements in productivity in the wider economy but also an understanding of the potential for a mature industry to go beyond this level.

As with the wider economy, the key to improving productivity will be ensuring investment is available to underpin these sustainable changes. The framework has already clearly set out a number of changes that will impact the viability of this type of investment including:

- Halving the returns for cost efficiency
- Removing funding for high risk investment in R&D
- More than halving returns for equity investors
- Setting a significantly higher threshold for justifying any investment

All of these proposed changes are creating a similar environment to that which exists in the wider UK economy that is experiencing very low levels of investment and as a result, internationally very low and forecast levels of productivity. The challenge will be to justify the grounds upon which an assumption of increases in productivity over and above those that can be achieved by the wider economy and comparator industries over the same period particularly given the context of the wider regulatory framework that no longer supports investment in initiatives to deliver step changes in performance over the period.

## **Combining the elements of our cost assessment**

**Question 22: Should we set the efficiency benchmark at the upper quartile level?**

We would support the continued use of the Upper Quartile as the benchmark level of efficiency. The level of accuracy within the models is likely to severely limit the ability to reliably target the absolute frontier within the analysis.

However, we would fully support the proposal to remove any glide-path to achieve the UQ measure of the frontier and interpolation to derive final allowances. The opportunities granted by an eight year price control to address some of the fundamental structural constraints within our industry to improve productivity would suggest that this is no longer valid. We believe that the legitimacy of the framework requires that this one-step approach to the efficiency frontier be adopted. For companies who have the ambition to continue to push the frontier of performance a framework that continues to support an UQ measure of the frontier is a key element of the broader and longer term incentives within the framework.

It is important that the policy decision on the use of the benchmark measure is published as early as possible in the process and the links with the RIIO2 Business Plan Incentive are clear. The sector specific decision document presently sets out that frontier companies will only receive their actual costs with consideration of a financial reward (calculated as the difference between forecast and benchmark costs multiplied by the sharing factor). It is not clear that the discussion within this consultation is wholly consistent with the current proposals for that incentive.

We would agree that the approach for identifying the UQ from the combination of the Top Down and Bottom Up analysis needs to be re-examined. The approach taken during RIIO-ED1 certainly addressed some of the significant shortcomings of the RIIO-GD1 approach.

**Question 23: Are there types of expenditure that we should model using only historical or forecast data?**

In general benchmarking modelling should maintain a consistent sample period and should cover both historic and forecast information, in particular where unit costs are repeatable and predictable over time. If volume is the main variable that should cause no issues either so long as the underlying unit cost are predictable and consistent.

We would agree that where there is a structural break in either the unit cost or total cost for an activity which isn't directly driven by volume, it may be reasonable to consider using only one time period for the data. In general that should be the forecast data, where the break has clearly been explained and justified and the regulator has confidence in the information. This could apply to any activity. In general for all modelling we believe there should be a stronger emphasis on forecast data as this will likely identify and reward ambition.

To simplify the modelling and ensure consistency, in particular when comparing aggregated, disaggregated and mid level models, it should be possible to 'normalise' historic data based on future expectation's so that a consistent sample period is maintained. For instance if unit costs were expected to go up by 10% based on an external factor from 2021, such as streetworks, this could be applied retrospectively as well or removed from both periods.

**Question 24: If we use a combination of aggregated and disaggregated modelling approaches, how should we determine the weight we apply to each?**

We would support the view that the use of a broad toolkit that models at an aggregated and disaggregated level should be retained. However, as mentioned above, there is a clear case in gas distribution for more accurate and logical cost pools and associated models than those used during RIIO-GD1 that better represent the actual processes and workflows. We have presented our proposed cost pools and models at previous CAWG sessions and firmly support a change to better align the model in line with these proposals.

The level of disaggregation employed during RIIO-GD1 exposed the analysis to both theoretical and practical problems:

- The level of disaggregation assumed a significant level of homogeneity in the way that part of a process is delivered across the GDNs and in doing so failed to account for different approaches and operating models in delivering that single part of a wider function.
- Additionally it failed to account for genuine differences that existed and still exist in both the allocation of costs to these categories and the underlying workload drivers.
- In doing so created the position whereby a 'false' benchmark is identified and the accusation of cherry picking can undermine the validity of the analysis.

Adopting these changes would provide a case for increasing the weighting from what otherwise should be a relatively small percentage. In any case we believe that the greatest weight should be placed on the results of the top down analysis