

Network Price Controls
Ofgem
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Date
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Contact / Extension
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Dear colleague,

RIIO-2 tools for cost assessment

Thank you for the opportunity to respond to this current consultation. SP Energy Networks (SPEN) owns and operates the electricity distribution networks in the Central Belt and South of Scotland (SP Distribution) which serves 2 million customers, and Merseyside and North Wales (SP Manweb) which serves 1.5 million customers. We also own and maintain the electricity transmission network in the Central Belt and South of Scotland (SP Transmission). We have recently submitted our first draft RIIO-T2 business plan¹, including data tables to the Challenge Group and we are due to submit our second draft of our T2 business plan on the 1st October.

The consultation seeks analysis and opinions from stakeholders on appropriate cost assessment methods. Ofgem also discusses regulatory precedent on performing benchmarking. It is our understanding that this consultation predominantly focusses on gas distribution companies given the limited scope for benchmarking in transmission. We appreciate this consultation is an initial step in this process, so no clear approach has yet been proposed. We hope to work with the Ofgem team to provide our detailed views on an appropriate cost assessment model as the ED2 price control develops. We do however wish to make the following observations which we hope are helpful:

Recognition of Regional Differences

Provided that we are now facing regional variations in terms of national and local carbon targets, this will likely result in differentiations between companies' business plan submissions given their differing geographic locations. We note that the Science and Technology Committee has in fact recently recognised that Local authorities have a vital role to play in the UK's decarbonisation². As a result, we believe Ofgem's cost assessment will require to become more sophisticated to

¹ https://www.spenergynetworks.co.uk/userfiles/file/SPEN-RIIO-T2_Business_Plan_July2019.pdf

² <https://www.parliament.uk/business/committees/committees-a-z/commons-select/science-and-technology-committee/news-parliament-2017/clean-growth-report-published-17-19/>

recognise such variations. Therefore, a significantly larger part of cost assessment will require to be qualitative as opposed to econometric.

Lessons to be learned from previous Ofgem benchmarking approaches

During ED1, the largest determinant of companies' modelled efficient costs in Ofgem's benchmarking was their size. Ofgem measured companies' scale using Composite Scale Variables (CSVs) and companies' Modern Equivalent Asset Value (MEAV). Also, the dependent variable in which Ofgem sought to explain variation across companies was expenditure over the modelling period.

The reliance on scale measures to explain expenditure over a small number of years meant that Ofgem's models had significant limitations. They could not explain differences in companies' network design or topography, and they did not capture differences in the scale of companies' investment programmes.

To some extent, Ofgem addresses these limitations by placing some weight on "disaggregated" modelling which (in part) used expert judgment and line-by-line analysis to identify efficient levels of workload, but this remedy was only partial. Because Ofgem places a 50% weight on the disaggregated and totex modelling, this (at most) addressed half of the problem. It also addressed some limitations of its modelling by using special factor adjustments for rurality (SSEH), London effects (LPN) and network design (SPMW). It also applied regional wage adjustments and took some categories of expenditure out of the modelling.

However, despite these adjustments to the modelling the cost assessment process did not capture differences in companies' investment programmes for other reasons. Notably, any investment motivated by meeting customers' needs (e.g. increasing reliability by improving asset health or connecting generation) would not be captured in the modelling.

We believe that Ofgem could take some of the lessons learned from the Bristol Water PR14 appeal, in which the CMA overwrote Ofwat's totex benchmarking with "botex"³ modelling that excluded "lumpy" enhancement projects because these costs were not possible to reliably explain in econometric modelling. Ofwat has also followed this approach at PR19.

Fundamentally, a key lesson learned for us in RIIO-ED1, was that many of our stakeholder endorsed costs were disallowed as part of the cost assessment process. As Ofgem is placing a more significant role on companies' TO User Groups and Customer Engagement Groups, Ofgem must consider how agreed upon business plans will not be adversely affected by a subsequent economic assessment. Our stakeholders must have a voice; otherwise our engagement activities are counterproductive.

Regulatory processes for addressing the limitations of benchmarking

Comparative benchmarking cannot capture all the drivers of companies' efficient costs, and it risks conflating inefficiency with data error and omitted factors. It is therefore extremely important (for protecting both investors and companies' ability to fund the investments demanded by customers) that the regulatory process acknowledges these limitations and has procedures in place to address their limitations. We recognise the need for Ofgem's cost assessment approach to allow meaningful comparisons between companies but to also support the necessary company and regional differences, including the differences between different customers' choices and

³ Botex is equal to opex plus maintenance expenditure. Totex also includes expenditure on enhancement projects

priorities. Clearly it is also important that companies are able to understand and scrutinise the methodology and models which Ofgem uses. We therefore wished to share our recommendations as follows:

1. Ofgem should recognise that no benchmarking models can capture all the drivers of companies' efficient costs, and risk conflating inefficiency with data error and omitted factors;
2. Companies can better help Ofgem manage this risk, if Ofgem **develops and publish benchmarking models before the start of the price control review**. This allows companies to check that Ofgem has all the technical and economic evidence that identifies what programmes to maintain or enhance outcomes are/not remunerated by these models in their business plan submissions.
3. Clearly defined model selection criteria will also be helpful in providing a structure to the cost assessment process, as it gives companies' an objective basis for testing whether models are reliable and address particular features of the industry.
4. While Ofgem expects companies to meet a "high bar" when providing evidence to justify special factor claims, it should recognise that the use of special factors are in the customer interest and should define (in advance) transparent, objective criteria for evaluating them:
 - Companies cannot be expected to deliver investments that, even when they are in the customer interest, are disallowed by overly simplistic comparative benchmarking models. In other words, the use of special factors helps companies to manage the risk of comparative benchmarking processes, which ultimately helps attract investment and/or reduces financing costs;
 - Any increase in overall allowances due to Ofgem awarding particular special factor claims is mitigated by the practice of shifting all companies' modelled costs to the upper quartile level of performance; and
 - As Ofgem itself acknowledges, companies all have an incentive to scrutinise other companies' special factor claims as they affect their relative performance. The Northern Power Grid appeal on regional labour costs is a notable example of this.
5. Expert judgment can capture things which relatively simplistic econometric models cannot. Ofgem has used expert judgment in past price reviews, but its past practice of mechanistically weighting together methods which can control for variation in companies' funding requirements (e.g. more disaggregated modelling, including expert analysis) with crude statistical models that do not (e.g. totex modelling) is still inadequate. It would be better to:
 - Define each company's modelled costs as the maximum of modelled costs across a disaggregated, and secondly, more aggregated totex methods to avoid individual models unreasonably affecting companies' allowances, and to do so before applying the upper quartile adjustment to prevent this approach from increasing customer bills;
 - Take some cost types out of the statistical benchmarking, as the CMA/Ofwat did for enhancement capex in water; or
 - Use outputs from disaggregated modelling (e.g. allowed volumes of work) as explanatory variables in totex modelling to correct for its limitations.

6. It's important that Ofgem defines how it will draw on historical and forecast data and modelling to set allowances. This transparency will allow companies to understand Ofgem's decisions and help them ensure Ofgem has the economic evidence that supports their business plans.
 - For instance, Ofwat's approach at PR19 differs in its wholesale and retail modelling. Its wholesale modelling uses econometric analysis to assess companies' efficiency in a historical reference year, and then extrapolates allowances based on forecast changes in drivers. By contrast, its retail modelling places some weight on companies' projections. This approach is selective opportunism, as some companies' business plans projected significant reductions in retail costs, and increases in wholesale costs. Prior commitment to a method to combining forecast and historical modelling can help mitigate this risk at RII02.

Finally, we have previously highlighted our concerns that the instability of the Business Plan Data Tables could lead to different companies taking different approaches to populating them. We understand that Ofgem's cost modelling will be based solely on the final versions of the Business Plans and associated Data Tables and assume that, similarly, companies' draft submissions will not inform its cost assessment, e.g. for the purposes of the Business Plan Incentive.

Comments on specific methodological choices

- **Modelling technique**

In recent price control reviews, Ofgem and Ofwat have primarily relied on Corrected Ordinary Least Squares methods, though Ofwat has switched to a slightly different method using Random Effects panel modelling at PR19 and Ofgem has also experimented with this approach in the past. Neither Ofwat nor Ofgem have made significant use of Stochastic Frontier Analysis (SFA) methods recently, given data limitations (small cross section of companies), and we agree with Ofgem's latest consultation which indicates this problem may continue to prevent SFA's use. SFA could, however, be useful as a cross-check. However, a major downside of SFA is the subjective judgment it requires is arguably greater than with OLS methods, as it requires assumptions on the statistical distribution and form of the inefficiency, data error and omitted factors. With small cross-sectional samples (i.e. 14 DNOs), the results can also be unstable and sensitive to methodological choices.

The other technique mooted by Ofgem, Data Envelopment Analysis (DEA) is problematic for other reasons. It entails subjective modelling assumptions on the form of "returns to scale". It is also a "black box" and does not allow any statistical testing of the model's validity.

Finally, Ofgem discusses other non-econometric techniques to benchmarking, such as expert judgment, extrapolating time trends, etc. These techniques are potentially more useful at identifying efficient expenditure in conditions where outcomes in companies' business plans differ or their costs / network conditions vary. The alternative of controlling mainly for differences in scale using econometric models would not address these factors.

- **Level of data aggregation**

Ofgem has considered a number of levels of cost aggregation. It is our view that the more disaggregated modelling approaches will tend to allow Ofgem to capture more differences between companies that affects costs than the more aggregated modelling that will predominantly capture differences in scale.

Regarding the use of disaggregated benchmarking, the consultation also explains that disaggregating costs to a very granular level could give misleading results, for instance because of in/outsourcing or cost allocation decisions. However, when aggregating across disaggregated models these factors will tend to “come out in the wash”. Moreover, despite suggestions from some stakeholders cited by Ofgem, disaggregated benchmarking does not result in infeasible targets, as long as the sum of modelled costs across all categories is shifted to achieve a target (e.g. upper quartile) level of performance when Ofgem sets allowances.

Ofgem, drawing on the ECA report, also discusses the choice between group and company-level benchmarking, especially for business support costs. Modelling this category of expenditure proved difficult for Ofgem at ED1, and it could not identify robust regression models.

- Functional form

Ofgem’s recent benchmarking modelling has mostly used Cobb-Douglas functional forms, which are equivalent to a “log linear” regression. As Ofgem acknowledges, Ofwat’s PR14 modelling was heavily criticised by the CMA because of its complex structure and counterintuitive coefficients. Hence, while this functional form has some theoretical advantages, as it allows more flexible interactions between drivers than Cobb-Douglas, it is probably not workable with the small datasets Ofgem has to work with.

It is sensible for Ofgem to keep under consideration the use of some limited number of quadratic terms or cross-product terms in its models. However, in practice its ability to model even these slightly more complex relationships may be limited because of very small datasets. Ofgem’s regressions have previously only considered (at most) 2-3 variables.

Ongoing Productivity and Real Price Effects

The consultation suggests that Ofgem may consider using historical cost data to set targets. This is problematic, as it will be difficult for Ofgem to differentiate historical “ongoing productivity” improvements from catch-up. Indeed, the rationale for excluding regulated industries from Total Factor Productivity analysis at past price reviews has been the inability to disentangle these effects. Also, the relatively short time horizons of data from the UK utility industry may not be sufficient to control for the significant data “noise” observed in historical productivity data.

As we have proposed in our RIIO-T2 Draft Business plan, we proposed that:

The relevant RPE indices used by Ofgem to set previous ex-ante RPE allowances do not necessarily capture accurately the input price pressures that transmission companies face within a price control period. They are imperfect proxies for regulated companies’ input price pressures, since they only capture broad categories of inputs rather than the exact inputs used by electricity transmission companies, and they are also extremely volatile from year-to-year, unlike network companies actual costs which typically involve companies signing long-term deals with contractors shortly after a price control settlement is agreed upon and reaching multi-year wage settlements for in-house labour.

Our long-term average RPE forecasts in RIIO-T2 show the systematic tendency for network companies’ input costs to rise faster than CPIH in the long-run.

Ofgem has acknowledged the links between ongoing efficiency and RPEs, and as such any assessment on RPEs needs to be taken alongside the assessment on ongoing efficiency so as to ensure that Ofgem’s allowances reflect the tendency for companies’ efficient costs to change over time. The previous approach at RIIO-1 addressed this link, basing both allowed RPEs and ongoing efficiency targets on long-term evidence. Long-run trends in productivity indices

represent the most robust estimate of the scope for productivity improvement, so there is no reason to think these estimates from past price reviews would be less appropriate for the RIIO-T2 period than in previous decisions and would be favourable over the use of historical cost data. Indeed for RIIO-2, Ofgem has proposed to continue to use the latest EU-KLEMS dataset to assess ongoing efficiency improvements, focusing on the productivity data from comparable industries.

Ofgem's recent decisions, as well as those of other regulators, demonstrate that ongoing efficiency assumptions are usually close to 1% improvement per year. We believe this 1% productivity assumption is likely to be over-estimated, however, in any case, this long-term productivity improvement estimate matches closely NERA's current forecasts for RPEs over the RIIO-T2 period, which suggests that these two determinants of transmission companies' costs will offset each other, leading to our recommendation of a zero RPEs allowance and a zero ongoing efficiency target for RIIO-T2.

Our recommended simplified approach that RPEs and ongoing efficiency offset each other is consistent with Ofgem's plan to use indexation, but adopts CPIH as the index to which expenditure allowances would be linked. It also recognises the close link between the regulatory treatment of ongoing productivity and input price inflation. This approach also has a number of other benefits that will benefit consumers. It would avoid volatility in customers' bills that would come as a result of an indexation approach, as some RPEs indices have been extremely volatile. Customers would instead be protected from unexpected increases in real input prices. This could be especially sensitive given unknown BREXIT impacts.

We finally wish to stress the need for consistency between the modelling of historical time trends in costs and forward-looking productivity targets and avoiding any duplication between the two.

Should you have any queries in relation to our response, please do not hesitate to contact me.

Yours faithfully,

A handwritten signature in cursive script that reads "S. Anderson".

Stephanie Anderson
Policy and Economics Manager
SP Energy Networks