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Dear Hannah

Reference – RPI-X@20: The future role of benchmarking in regulatory reviews

National Grid owns and operates the high voltage electricity transmission system in England and Wales and as National Electricity Transmission System Operator (NETSO) operates the Scottish high voltage and Offshore transmission systems. National Grid also own and operate the gas transmission system throughout Great Britain and through our gas distribution business distribute gas in the heart of England to approximately 11 million homes, offices and schools. The issues raised in the report by Frontier Economics directly affect National Grid and the opportunity has been taken to provide views on the report.

The response is in three parts, this first section sets out National Grid's high level view of the document covering views which affect all licensees, the following two sections outline views specific to the proposals for Gas Distribution and Transmission respectively.

Overall we welcome the pragmatic work by Frontier Economics in relation to benchmarking and generally agree with many of the observations; however reservations exist regarding the proposals for both Gas Distribution and Transmission. Broadly the concerns are in relation to:

- the ability to identify and normalise the impact of differing cost drivers and outputs across companies, especially if data is sourced from publicly available data;
- the small size of the samples proposed by Frontier Economics not allowing for meaningful comparison or the impact of outliers; and
- ensuring there is sufficient time built into future price control reviews for the proposed iterations in business plans outputs and costs to occur allowing sufficient time to re-engage stakeholders, amend proposed outputs, update activity and cost data and finally to challenge and review.

From a wider perspective we agree with the recommendation to reduce the emphasis on ex post benchmarking of historical costs. In this time of significant change this seems both practical and sensible. Innovation and responsible risk-taking are likely to be beneficial for consumers in this uncertain environment and so should be encouraged. However National Grid does believe that historical benchmarking still needs to play a part in future reviews, as the link between past and future spend remains an important element within the regulatory approach.

Another area of agreement relates to Frontier Economics' recommendation that ex ante benchmarking forms a part of the regulatory review although we believe that this should influence the determination rather than be a backbone for the allowances. With business plans increasingly based on stakeholder engagement and incentivisation linked to output measures, there are other important elements that need to be considered in a price control review. Benchmarking is a valuable long-term tool for learning and improvement but there are significant limitations for use in the medium to short-term, such as the comparability between peers and size of benchmarking population. Total cost benchmarking is not currently mature enough to be used as the main tool from a regulatory perspective.

National Grid support taking into account more business plan information in benchmarking and total cost benchmarking playing a role in the regulatory approach, but share Frontier Economics' concerns regarding the distortion of totex benchmarking by the 'lumpy' nature of Capex. This has been the experience in current totex benchmarking initiatives with which National Grid is involved, where it has been very difficult to adjust for the underlying timing differences of when capital programmes are implemented. This has led to a reduction in transparency and strength of the benchmarking results, especially when different asset ages and therefore asset replacement timings are involved. By itself, investment spend over a five year period is unlikely to provide a robust measure of the ongoing level of spend so a longer term view may need to be taken into consideration.

Gas Distribution:
From a more detailed Gas Distribution perspective Frontier Economics' proposals are summarised below:

Issue	**Frontier recommendation for Gas Distribution**
Cost	Total cost being 1) Planned Opex plus depreciation plus return on planned Capex: 2) Planned total spend: both supported by historical cost benchmarking focussing on Opex
Cost Drivers	Explanatory factors guided by empirical analysis Include outputs where possible
Sample	Future costs from eight Gas Distribution Network (GDN) Business Plans supported by historical costs
Technique	Regression analysis

National Grid generally agree with this approach but has a number of concerns which mean that caution needs to be exercised in progressing such a study.

We believe that it is right for there to be a robust examination of the outputs, activities and associated costs proposed by companies over the period of the business plan. Given the uncertain environment facing network utilities at present, historic outputs and costs cannot merely be assumed to continue at the same level. However, the future cannot be considered in isolation. The past forms a base against which future predicted changes can be measured. A plan in which there is a disconnect between future costs and past costs, with inadequate explanation would not constitute a credible business plan or a credible benchmark against which to measure others.

National Grid also supports, in principle, a total cost approach, because this should deliver the outputs desired by consumers at the lowest cost. At the last Gas Distribution Price Control Review (GDPCR) National Grid was pleased that Ofgem made explicit adjustments in respect of the Capex / Opex trade-off, recognising the fact that a high Opex / low Capex approach could represent best value for consumers.

Turning to the recommended methods of total cost analysis, these are both entirely future looking, the first approach using planned Opex plus planned Capex, the second approach using planned Opex plus depreciation and return on planned Capex. National Grid believe that both these approaches need to take account of a significant period of historical data for investment.

Using depreciation and return based on the RAV may not be a robust approach given the RAV 'sculpting' (transfer) that occurred with effect from 2002 to support the creation of eight separate GDNs.

The total cost approaches are also new and untried, and it is not clear how it will be possible to make them statistically robust. There are only eight GDNs upon which to base statistical analysis, and in respect of indirect costs, only four independent observations – although these concerns also apply to any other approach.

Given all the above concerns, National Grid believe that the results of the total cost analysis are unlikely to be sufficiently robust, at least initially, to determine the future level of spend for the price control period, but rather should be able to influence it – a point made by Frontier Economics in their report: "The benchmarking will not be used to directly determine allowances. It would form a body of evidence on which Ofgem would engage with the operators, supporting a process through which the individual operator plans are agreed".

The Frontier Economics report states that cost drivers should be supported by empirical analysis at each review, including outputs where possible. National Grid believe that understanding how activities and outputs drive costs is a pre-requisite to successful benchmarking. If the links are not well understood then no method of benchmarking is likely to produce a robust result.

For Gas Distribution, National Grid is concerned that benchmarking might take place with limited understanding of cost drivers. The Frontier Economics report lists a small number of drivers taken from DPCR5 but none are included from Gas Distribution, even pipe replacement activity, which is a very substantial driver of cost (Repex) and is driven largely by safety considerations. This is quite different from most Electricity Distribution activity.

At GDPCR1 National Grid did not believe that all the cost drivers used accurately reflected the true drivers of cost in Gas Distribution businesses. To improve understanding National Grid has begun a programme of work targeting cost drivers associated with the various processes within Gas Distribution, including:

- the identification of activity drivers e.g. maintenance requirements for different types of asset;
- the calculation of appropriate weightings for each activity driver; and
- exogenous regional variations, such as the level of water and sewerage charges – where the level of cost can vary by a factor of three depending on the water company.

We look forward to sharing our results with Ofgem, and working together to better understand Gas Distribution cost drivers.

There is also a comment included in the report to which National Grid would add a note of caution from a statistical standpoint. The comment from Frontier Economics is that "In the case of the distribution networks, it is clearly better to include all operators in the survey and to make use of data for as many years as available (i.e. to run analysis with a panel)". While it is clearly sensible to use as many years' data as possible, it should be remembered that these do not reflect additional independent data points, there are still only eight GDNs, and four ownership groups.

Transmission:
The main recommendations for Transmission in the Frontier Economics report are summarised below:

Area	**Frontier recommendations for Transmission**
Cost	Total cost, making use of a standardised measure of capital consumption
Cost Drivers	Guided by data that is publicly available
Sample	The Great Britain (GB) operator(s) supplemented by a number of operators from other countries (e.g. four to six others)
Technique	Data envelopment analysis (DEA)

It is also recommended that benchmarking is used as a basis for constructive dialogue with the operators throughout the price control process but that such benchmarking is unlikely to provide definitive results. National Grid agrees with the recommendation for benchmarking not to form the main backbone of a regulatory review, but highlights four aspects to this proposal which require careful consideration and currently cause concern. These are the:

- ability to identify and normalise the impact of differing cost drivers and outputs across companies, especially if data is sourced from publicly available data;
- selection of Transmission System Operators (TSOs) to be used as European peers;
- nature of the 'high level DEA benchmark' and;
- utilisation of lessons learnt from past studies

National Grid is active in international Transmission benchmarking and was instrumental in establishing the International Transmission Operations and Maintenance Study (ITOMS) for electricity in 1993, the Gas Transmission Benchmarking Initiative (GTBI) in 2004 and the International Comparison of Transmission System Operators (ICTSO) in 1995. Participation in these studies is used by National Grid to share knowledge across TSOs to identify and learn from best practices. These studies are 'partial' benchmarking studies with a primary focus on Opex-related costs and asset performance. Through experiences with these studies and other ad-hoc exercises, National Grid is acutely aware of the challenges associated with making reliable, systematic and meaningful comparison of TSOs.

An example of this is that even within Europe there can be significant differences between electricity transmission grids - both in terms of purpose and installed assets. The purpose can range from the role of a 'transport' grid transmitting power long distances from hydroelectric generation to load centres (e.g. Scandinavia) to a highly meshed grid as in the UK. In many parts of Europe assets down to 30kV are classed as transmission, whereas they would be sub-transmission DNO assets in the UK.

Similar differences exist between European gas TSOs, with some acting as simple transport grids in which relatively small compression capacity can operate close to peak efficiency, in contrast to the highly interconnected UK network which has a more challenging operating regime resulting from the multiple supply and demand points and market arrangements. Some of the larger gas TSOs also do not separate out their regional transmission operations, which comprise assets which would be classed as distribution in the UK.

For these reasons and others it has taken several years for participants in the studies to develop agreed adjustment factors to enable inter-TSO benchmarking and it would be reasonable to expect similar timescales to apply for any new benchmarking initiative. Such differences would not obviously be picked up by reviewing publicly-available data so National Grid is concerned about how the difficulties in relation to identifying and normalising for different cost drivers and outputs would be overcome by the high level review proposed by Frontier Economics.

Another limitation identified by Frontier Economics was data availability. This was recognised by a group of European regulators (Austria, Denmark, Finland, the Netherlands, Norway and Sweden) who collaborated in the development of an international electricity transmission DEA benchmarking model by Sumicsid - Efficiency of Construction, Operation, and Maintenance (ECOM+).

ECOM+ has since evolved into the e3Grid benchmarking model and, in 2008, the Council of European Energy Regulators (CEER) initiated an e3Grid study of 22 European electricity TSOs, including the three GB TSOs. Following this study, to aid data submission in a further study, specific e3Grid Opex tables were introduced into the Regulatory Reporting Packs of the GB TSOs.

It is understood that CEER has proposed to run another e3Grid study in 2012, reporting in 2013, and that this has already received support from the majority of European regulators. National Grid appreciates that this will take place in a timescale which will not provide Ofgem with results for Transmission Price Control Review 5 (TPCR5) but it would be a concern if Ofgem were to initiate a

new DEA study for electricity transmission which did not take account of the findings and lessons learnt from the e3Grid study[1].

The e3Grid report contains some important findings to consider in the benchmarking of electricity (and potentially also gas) TSOs. For example, Sumicsid note that the collection of detailed data from the TSOs in the study (via the national regulators) was a major effort and to the best of Sumicsid's knowledge, is the largest ever European collection of standardised data for the sector. This level of data was required to develop the grid assets comparability metric within the study and such detail will not be readily acquired via publicly-available sources. It is difficult to see how effective the 'high level DEA benchmark' proposed by Frontier Economics could be without being able to adequately address such a significant factor.

Sumicsid also considered a population of 22 TSOs to be a small number for the DEA techniques used and identified that outliers were a particularly 'delicate problem'. The impact of outliers meant that a single outlier was able to influence the evaluation of many TSOs in a simple model with few cost drivers. For example when just two identified outliers in one analysis were eliminated, it resulted in average efficiency doubling[2]. If, in the suggested *'high level DEA benchmark'*, the *'small number of European peers'* is less than that in the e3Grid study, these problems would be compounded, particularly if the publicly available data used in the benchmarking did not enable adequate identification of differences to determine whether TSOs are comparable peers.

The e3Grid model is comprehensive (in terms of the number of participants, and the scope and level of disaggregating of collected data), but also complex which, combined with the arrangements for confidentiality, reduces its transparency. Within the constrained timescales of the project for the e3Grid benchmarking study no GB stakeholder developed a full understanding of the operation of the model or the DEA based results. National Grid has therefore been undertaking further work with Sumicsid to better understand both aspects. We expect to be able to share the results of this more specific report with Ofgem in the Autumn, and will welcome full discussion of all aspects, facilitated by Sumicsid.

With respect to gas transmission, National Grid is not aware of any comprehensive DEA benchmarking studies for European gas TSOs, although there was some work undertaken by Cambridge University on behalf of CEER in this arena. If Ofgem should decide to initiate a DEA based study, we request that National Grid has the opportunity to comment on the proposed methodology and selected peers so that experiences in relation to e3Grid and other studies can be incorporated.

Conclusions:
In summary National Grid welcome the thoughtful work by Frontier Economics but hold reservations about the proposals for both Gas Distribution and Transmission. We believe that benchmarking should form part of the regulatory approach but hope that the observations outlined above are considered in defining this role. We look forward to further discussions in this area and would welcome dialogue in relation to any of the points made in this response.

Yours sincerely

[By e-mail]

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[1] International Benchmarking of Electricity Transmission System Operators e3GRID Project – Final Report, Per Agrell & Peter Bogetoft, 2009-03-09

[2] From 0.32 to 0.64