Your ref

Our ref

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22 April 2003

Dear Martin

Distributed Generation - Business Planning Questionnaire (DG-BPQ)

Thank you for your letter of 21 March 2003 sharing your initial thoughts on the structure and content of the DG-BPQ. I am writing on behalf of Northern Electric Distribution Limited (NEDL) and Yorkshire Electricity Distribution plc (YEDL). We welcome the opportunity to participate in and contribute to the development of the thinking in this area.

We support Ofgem's objectives for collecting from the DNOs information pertinent to their recent activities and future business plans in relation to distributed generation. Furthermore, we believe that the proposed BPQ goes a long way towards meeting the objectives stated for the questionnaire in your letter. We also believe that, with certain changes of emphasis, it could be even more effective.

In the interests of establishing a still more effective data set we are proposing some relatively minor changes, specifically focussing on:

- Enabling inclusion, where necessary, of information on an aggregated basis – we believe that this will facilitate more robust and more valuable returns;
- The identification of generator type or size as the fundamental cost drivers to be used for aggregation purposes; and
- More clearly defining the data collection requirements relating to forward activity.

The Structure of the DG-BPQ

While the content of the BPQ supports the stated aims of the consultation, we believe that the current structure could be improved. We have two specific high-level observations:

- Firstly we feel that Table 3, known post-2005 projects, will not generally contain meaningful data due to lack of forward enquiries from the generator developers; and
- Secondly we feel that the current structure of the BPQ may give rise to data quality issues. While most of the data requested relating to past generation connections is available per project, there is some which will be difficult to source and provision of a facility to include aggregated data would promote a more consistent dataset.

With regard to the proposals for handling future generation connections, we believe that, for the returns from YEDL and NEDL, predictive forecasts (Table 4) have merit, while returns on known future projects (Table 3) may not add any value. The is because at present there are no firm proposals, nor even any firm requests, for connections in either NEDL or YEDL intended to be commissioned post-2005 and we would not expect any to come to light prior to this BPQ return being submitted.

This is not unusual and reflects the timescales associated with connections to the distribution system, typically 12-18 months from first enquiry to commissioning. Conversely we do have information available that could be used to populate Table 4, the predictive forecasts.

With regard to data quality there are three main issues. The first issue is that, while most of the data requested is available, the quality of this data varies, as would be expected for a data set that has not been consistently and clearly specified. In particular data relevant to smaller and non-exporting generators may not be of the same quality as that relating to larger, exporting generators. A second data quality issue arises from the lack of enquiries for the period post 2005 which means that, as the BPQ stands, the past/present and future data sets will not have a common format. Finally, assuming that one of the prime reasons for gathering historical data is to aggregate it to produce typical costs for forward estimating, it would seem reasonable that this aggregation is done from an informed position in full light of any background factors. This is most easily done by DNO staff with knowledge of the connections.

Thus, it may be useful at this stage to examine an alternative method of returning the data that would address each of these quality issues. In this respect, we would make the following suggestion:

It would be possible to present each of the tables, past, present and future, in a multi-level format. The lower of these levels would be similar to the per project format currently proposed. This would provide “hard” actual data. The higher level would consist of data aggregated by some relevant factor, probably generator capacity or generator fuel / technology and this might vary by sub-table. Our initial analysis indicates, for example, that there is generally a stronger correlation between connection costs and generator capacity than between connection costs and generator fuel / technology. Conversely, we find that the correlation between connection timescales and generator fuel / technology is noticeable. We would therefore propose that table 1.1a on historical connection project timescales could be usefully aggregated to gather data at fuel type level, whilst table 1.1b could be aggregated by capacity.

In this scenario two levels of data could be used to complement each other. The lower-level data would offer a degree of comfort that the returns were based on fact. The higher-level aggregated data would allow the transparent presentation of estimated data where actual data is not available; provide a common base for the past, present and future data tables; and allow aggregation to be done by informed staff without hiding the original data.

The returns would be both transparent, in terms of the use of estimated data and the link between aggregated and per project data, and consistent in their projection from past to future.

An added advantage would be that aggregation of this type would also allow returns to be made for the potential historical costs for areas where enquiries were made in this period but no connections have resulted. For example, we have had offshore wind enquiries relevant to all three time-periods but there are currently no planned connections.

This comment on aggregation applies throughout the questionnaire’s requests for information on past or current generation connections (Tables 1 and 2).

Appropriateness of the areas of information identified

There are, however, a number of minor areas where we do not believe that the information is relevant. We do not anticipate that a loss of these attributes from the data set would compromise the effectiveness at all, and therefore suggest that they be removed. Detailed comments on these items are presented in Appendix 1.

Availability and quality of information in your company for the areas identified

Traditionally both YEDL and NEDL have designed connections so as to minimise the interference between existing and new customers. This is as true for generator connections as for load. This approach minimises both the operating costs and the impact on other customers’ quality of supply and maximises the generator’s operational flexibility.

While this approach has benefits to DNOs, existing customers and generators, it tends to mean that certain data is not required after the connection is made. As a result, information that was received at the time of connection will have been archived in the working files associated with the

design and offer of connection, rather than being stored in live information systems. It will be necessary, though possible, to acquire the data from those sources.

As discussed earlier when commenting on the structure of the BPQ, we feel that adopting a multi-level format for the return would mitigate these data issues allowing actual data to be used where it exists and estimated data where actual data does not exist, while providing a clear distinction between the two.

Again we have a number of comments on the individual tables and fields, which can be found in Appendix 2.

Number and Total Capacity Of DG Connections Since 1995

We believe that the level of DG connections activity since 1995 is approximately as indicated in the table below. This is based on the best information currently available, and is subject to confirmation, particularly with regard to the split between pre- and post-2000 commissioning dates. Although we have not traditionally kept a separate record of the commissioning dates of generators, we shall be able to extract the data from existing sources over the next few weeks. It is our intention to return higher-quality data as it becomes available during the consultation.

	NEDL		YEDL	
	April 1995 - March 2000	April 2000 - March 2003	April 1995 - March 2000	April 2000 - March 2003
Capacity (MW)	610	293	630	124
Number of connections	70	34	131	13

Identification of other areas of information that you believe should be added

We believe that the current scope of the BPQ encompasses all the relevant factors. That said, this whole area is one in which we are building our capability and experience from a relatively low historical level. Therefore we are mindful that, as we work with Ofgem, we may learn of areas where changes are required. If this transpires as our analysis continues, we shall seek to identify this at the earliest, practical opportunity.

DG capacity headroom

With regard to the production of headroom information and connection costs we would not support production of information beyond the level of the Long Term Development Statement (LC25). This is for both practical and philosophical reasons.

Firstly, we do not believe it is appropriate to make available information to prospective generator developers beyond what is made available to load customers and developers. This would leave us open to accusations of discrimination against load customers.

Secondly, the connections costs for either load or generation at any given location on the network are specific to that location, to a particular point in time and to a particular size of connection. They may vary widely due to minor changes in network, location or machine characteristics. For this reason, they would be difficult to produce comprehensively and might be seen to mislead developers.

We believe that the Long Term Development Statement has established a justifiable and achievable standard for disclosure of planning information and that there is no requirement for additional information in the foreseeable future.

Appropriate scenarios

We need to strike a balance between consistency across companies and reflecting local factors. The overall penetration of distributed generation will be affected by national factors such as the planning guidance and incentive regimes and a level of consistency needs to be imposed on the process to reflect this. However, the natural and infrastructure resources and social geography of

a region will dominate the particular mix of generation in any given DNO's areaFor example, the wind resources available in each DNO's area will affect the mix of renewable generation likely to arise.

We therefore suggest that Ofgem define:

- 'Low' and 'High' scenarios for total generation embedded in each licensee's system (for example, a low case of current levels of activity and a high case of meeting the relevant proportion of Government 2010 targets, as attributed by the regional Government Offices); and
- An indication of the impact of the overall planning/incentive regime, e.g. whether CHP or offshore wind will dominate.

The DNO would then be responsible for predicting the mix of generation in its own distribution services area.

Summary

In summary I would like to reiterate our appreciation of the opportunity to contribute to the thinking on distributed generation and assure you of our commitment to making the development process successful. We believe that the comments made and the changes proposed in this response will go some way to ensuring this success. We would be happy to discuss any of our proposals in more detail.

Yours sincerely

Kirsty McHugh

Director Regulatory Affairs

Appendix 1 - Appropriateness of the areas of information identified

Table 1.1a Historical DG Information – Generation

Should the term 'project' be used, then a clear definition is required. Only by doing this will consistency of data be achieved, as different DNOs will draw the boundaries of individual projects differently dependent upon their specific connection policies and the particular nature of the project concerned. In essence it should address all works without which a given generator connection would not be able to operate at agreed full capacity. Consideration must be given, however, to situations where load and generation connections are made as one request.

Also, given that various parts of the connection project may proceed in parallel, it may be that an application to connection timescale would be more meaningful than simply the project milestone dates.

Overall we regard this table as essential and we would recommend rationalisation of the specific data requested to improve the consistency and relevance of the information.

Table 1.1b Historical DG Information - Connection Work & Costs

In considering this table our only concern is that we cannot understand the relevance of requesting the "Identity of Primary S/S". This would appear to have no relevance in any form of analysis and, as such, we would appreciate clarification of the intended purpose to understand if an alternative data field may be of more relevance.

Table 1.1c Historical DG Information - Operational & Contractual Arrangements

Parts of this table appear somewhat inappropriate to distributed generation connections, as they simply do not apply to distributed generation connections that have been made to the distribution system to date.

In particular, constraints and ancillary services have not been part of the contractual arrangements between NEDL or YEDL and generator developers, which have generally addressed issues such as standby supplies to the generator and connection size. Similarly, connection payments in both NEDL and YEDL have been required around the time of commissioning. Unless the situation is substantially different in other DNOs, we would propose that these fields are removed from the BPQ.

With regard to the other fields in this table, while the information regarding total cost and quality of supply is appropriate, the distribution loss factor requires some thought. If this is being used simply as a contractual parameter to understand the economics of generation it has some merit, but little relevance to a review of DNO practice, costs and prices. Furthermore, if it is being used to understand real losses it may well be misleading, since these factors are assumed as opposed to being calculated. The actual real values will vary depending on location, generator power factor and where the demand is at any given time. Although the location is constant, both the power factor and the load centres will move during any given time period (say a day). This variation makes calculation of the actual loss factors unreasonably difficult.

In summary we recommend that consideration be given to the typical content of distributed generation connection agreements and connections contracts and that the use of the distribution loss factor be considered and clarified.

Table 1.2a Historical DG Information - Work & Costs Required on Shared Assets

We feel that clarification of the "Reason for requiring work" field would be useful. We believe that this field could be interpreted as either a short single-phrase description (e.g. "fault level management") or a lengthy technical discussion (e.g. discussion of the specific fault level, where the fault level contributions arise from, the percentage of the year during which these fault levels prevail and the various technical constraints and mitigating actions considered).

Additionally, we do not understand the questions regarding asset refurbishment and again seek clarification. If by 'refurbishment' the questionnaire intends to ascertain what second-hand equipment has been installed or which assets have been up-rated to allow connection of generators, then this is entirely reasonable. However, pure refurbishment would only prolong the life of an asset, not change its function to allow the connection of generation, and we have therefore not undertaken refurbishment as part of a generation connection. We would appreciate some clarification in this area. It seems that a simple clarification of the definition of 'refurbishment' would be appropriate.

Table 1.2b Historical DG Information - Work & Costs Avoided on Shared Assets

We regard this information as appropriate as it indicates the extent to which DNOs have benefited from the connection of embedded generation, and the manner in which the DNO recognised that contribution.

Table 1.3 Historical DG Information - Strategic and Overall DG-Related Costs

We believe this table is appropriate in its entirety as it covers the general costs associated with having the capability to connect generation. It would be expected that these would rise significantly as penetration levels increase and it would be useful to define a baseline now.

Tables 2.1a – 2.3 Interim Period Forecast DG Information

For tables 2.1a through to 2.3 the comments above associated with tables 1.1a to 1.3 apply to the relevant table.

Table 3.1a – 3.3 Future Baseline DG Information

For tables 3.1a through to 3.3 the comments above associated with tables 1.1a to 1.3 would apply to the relevant table.

However, as noted earlier, it is unlikely that there will be any known developments on which to base answers and, as such, we recommend that this table be removed from the BPQ.

Table 4 Future Incremental DG Information

Table 4 appears to be a more appropriate way of dealing with future generation than Table 3 and the information asked for would appear reasonable.

Appendix 2 - Availability and quality of information in your company for the areas identified

Table 1 Historical DG Information

In the period 2000-2003 the information asked for in Table 1 is generally available, although it would benefit the review as a whole if the data were to be aggregated and presented as described earlier. This comment applies throughout table 1.

There follow specific additional comments on individual tables.

Table 1.1a Historical DG Information - Generation

Generally all data is available, though there are issues with MWh data.

It is suggested that estimated MWh data be used, based on available data extrapolated to annual figures. We do not specifically keep generator MWh data, though we can capture it for sites where generators are already connected. However, MWh data is recorded semi-automatically in real time, taking a year of elapsed time to capture a year's data. Estimated data is therefore more useable.

Table 1.3 Historical DG Information - Strategic and Overall DG-Related Costs

The sundry costs associated with retaining the capability to connect generation have not historically been recorded.

It is simple to suggest that these costs would include the maintenance of a level of expertise and necessary tools and systems associated with design, project engineering and system operation as well as some level of reinforcement. It is more difficult to calculate accurately what the incremental level for each of these might be relative to the level required simply for load enquiries.

It would be best to examine the areas where extra resource is expended due to distributed generation and make a prediction of what this expense might come to.

Table 2 Interim Period Forecast DG Information

The same issues would apply to table 2 as to table 1 with some additional complications. These are specific to individual sub-tables and are detailed below.

Table 2.1a Interim Period Forecast DG Information - Generation

It will be necessary to use predicted or estimated data for generator capacities, assets required and commissioning dates as all these fields are generally not known until late in the connections process due to the speculative and iterative nature of many connection enquiries.

This is because developers adjust the size of their machines according to the costs of connection. Therefore, if the budget costs of a large connection prove higher than expected, a developer may propose a smaller machine. Alternatively, if a larger connection can be produced at little incremental cost, then a developer may choose to take advantage of this. Technical parameters other than capacity can have similar effects. These factors all require redesign and affect timescales.

A similar but more pronounced issue pertains to MWh output. Developers will not normally commit to annual outputs as they are dependent on their co-processes (in the case of CHP), input energy costs (particularly for gas-fuelled generators), electricity prices (for peak loppers) or similar constraints (e.g. wind). It is only after a number of years of operation that this parameter will be accurately known. Whilst these variations can be significant, it would be possible for an assessment to be made of the likely output based on a scaling factor, derived from established

actual data, that could be applied to the machine size. At this stage, we would anticipate that this would probably be adequate for use in price control considerations.

Table 2.1b Interim Period Forecast DG Information - Connection Work & Costs

As would be expected from the description of activity associated with the previous table, costs and assets to be installed can vary enormously until late in the connections process.

Again it would be necessary to use predicted or estimated data for these fields.

Table 2.3 Interim Period Forecast DG Information - Strategic and Overall DG-Related Costs

As table 1.3

Table 3 Future Baseline DG Information

As previously mentioned, the data for table 3 will most probably not exist, due to a lack of firm connection requests made to NEDL and YEDL.

Table 4 Future Incremental DG Information

Information for table 4 would be taken from the combined results of a number of studies of likely penetration that have been done. These have been produced both internally and externally to NEDL and YEDL, and have been based both on technical parameters and economic ones. As such it is believed that they will give a reasonably clear indication of the probable development of distributed generation within our distribution services areas.