CE Electric UK

Our ref.

Your ref.

Date: 11 December 2009

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Dear Rachel,

Consultation on IDNO/DNO boundary equipment and which parties should fund this equipment (ref 132/09)

I am writing on behalf of CE Electric UK Funding Company (CE), which is the UK parent company of Northern Electric Distribution Ltd (NEDL) and Yorkshire Electricity Distribution plc (YEDL).

Thank you for the opportunity to respond to your consultation published on 30 October 2009 in which you set out that you are minded to reverse your previously held (since 2005) position on boundary equipment.

Within this consultation Ofgem asserts that the main benefit of boundary metering is the accurate quantification of losses on the DNO network in particular with respect to the losses incentive scheme. Whilst CE agrees that boundary metering provides a mechanism for the accurate quantification of losses, CE believes it is clear that there are a range of other benefits of boundary metering that have not been fully considered in the consultation document. We shall set out our thoughts on these benefits of boundary metering in this response.

We do not agree with the Ofgem conclusion on the funding of boundary meters. We do not believe that it is logical to conclude that the full cost of boundary metering should be met by the DNO and that such costs should not be covered by price control allowances. Your consultation would appear to conclude that, if something is useful to a DNO in running the network, it must be funded entirely by shareholders and no allowance made in the price cap. It could only be logical to adopt this approach where the equipment in question led to benefits that flowed entirely to the DNO and did not lead to a more efficient operation of the network or more cost-related (i.e. more economically efficient) charges. If that were the case then we would agree that the investment benefits no-one except the DNO, and therefore it might be regarded as discretionary and it ought to pay for itself. However, we do not believe this to be the case here. If boundary metering helps us to be more efficient (including helping us to send more efficient cost signals in our prices) then the regulatory regime eventually passes that benefit to customers. We cannot see the rationale for distinguishing between investments that give the DNO a benefit and those that benefit customers. As such we believe that the cost of providing boundary metering should be treated in an identical manner to any other DNO investment that benefits customers via an allowance under the distribution price control.

Within the consultation document you asked specific questions. Where we have additional information or thoughts on the questions presented we shall provide responses to your questions in the attachment to this response.

We believe there are several benefits from the use of boundary metering, namely;

- The provision of accurate energy-flow data at the DNO/IDNO boundary, enabling the reconciliation of data provided by the portfolio billing process and including the identification of discrepancies from causes such as unmetered supplies (UMS) and other unrecorded abstraction;
- To ensure the accurate calculation of losses between the DNO and IDNO networks, thus ensuring that the accountability for losses performance sits appropriately with both DNOs and IDNOs; and
- To ensure the safety of the distribution networks by providing sufficient information to DNOs and IDNOs to satisfy regulation 3[1] and regulation 5[2] of the Electricity Safety, Quality and Continuity Regulations (ESQCR).

We shall consider each of these benefits in turn below. However, it should be noted that these benefits may increase with the size and complexity of the IDNO site and it should be noted also that EHV-connected IDNO sites are already a feature of the market.

Reconciliation of Portfolio Billing

Portfolio billing of IDNOs by DNOs is still in the early stages of development. It is planned that an interim billing solution will be in place by 1 April 2010, with an enduring solution potentially by 2011. However, there is currently more than one possible solution and the timescale for introduction is dependent on which solution is adopted by the industry.

Portfolio billing is a new process, which is proving complex to implement, and the indicative timescales may well yet prove unattainable.

Some comparison of boundary metering data with settlements data has already been carried out by DNO and IDNO parties and discrepancies have been identified in the early site data. Potentially this may settle down in later years. However, the evidence to date suggests that there is a clear risk that any interim billing solution may introduce further errors and discrepancies at least in the early stages of implementation.

For this reason we believe that boundary metering will provide invaluable support to the portfolio billing process in the early stages of implementation, enabling a full and transparent reconciliation opportunity until the full enduring portfolio-billing solution is implemented and proven to work.

Accurate Calculation of Network Losses

Without a boundary meter the best source of data for a proxy of units leaving our network and entering the IDNO network would be the exit point settlements consumption data provided to the IDNO by suppliers, summated across all of the exit points on individual networks (providing that we would have access to this supplier-owned data at IDNO-site level as part of future portfolio billing arrangements). This IDNO exit-point data should be as accurate as the data we already receive from settlements for exit points on our networks that we use for DUoS billing and losses reporting. However, the accuracy of the IDNO exit-point data will depend on the IDNO inventory of connected customers being up to date.

[1] General adequacy of electrical equipment
[2] Inspection of networks

Moreover, in order to determine the number of units which leave our network at the boundary with the IDNO network the settlements data needs to be uplifted to add back the units lost between the boundary point of connection to our network and each exit point on the IDNO network. This will be an arbitrary calculation at best and will introduce inaccuracies that will impact on us through the losses incentive scheme, the price of which rises to £60/MWh in DPCR5. Such discrepancies could be positive or negative.

A boundary meter provides an accurate view of the units leaving our network and entering the IDNO network and therefore the overall calculation of losses on each network is more accurate as we shall be validating data against another source, ensuring any anomalies can be rectified promptly.

Without boundary metering the IDNOs would be indifferent to the true losses performance of their own networks as this would have to be inferred rather than measured. Given the UK Government's commitment to reducing greenhouse gases, it seems strange to us that Ofgem should not wish to incentivise the behaviour of the IDNOs to design their networks as efficiently as possible in a comparable manner to the incentives placed on DNOs. We note that Ofgem has not included an analysis of the CO2 savings attributable to boundary metering and to the alternative options outlined in the consultation.

Safety of the Distribution Network

To deliver an effective service to our customers, and to safeguard the general public, we have to be sure that our assets are fit for purpose. This is backed up by regulation 3 of ESQCR, which requires us to ensure that all our assets are sufficient for the purposes for, and the circumstances in, which they are used.

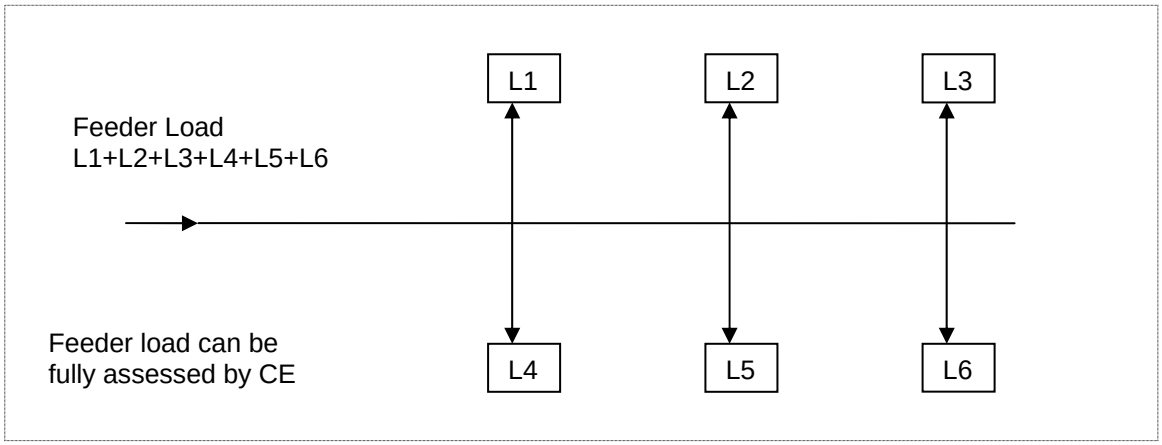
Additionally, regulation 5 of ESQCR requires us to inspect our network with sufficient frequency so that we are aware of what action we need to take so as to ensure compliance with the general requirements of ESQCR.

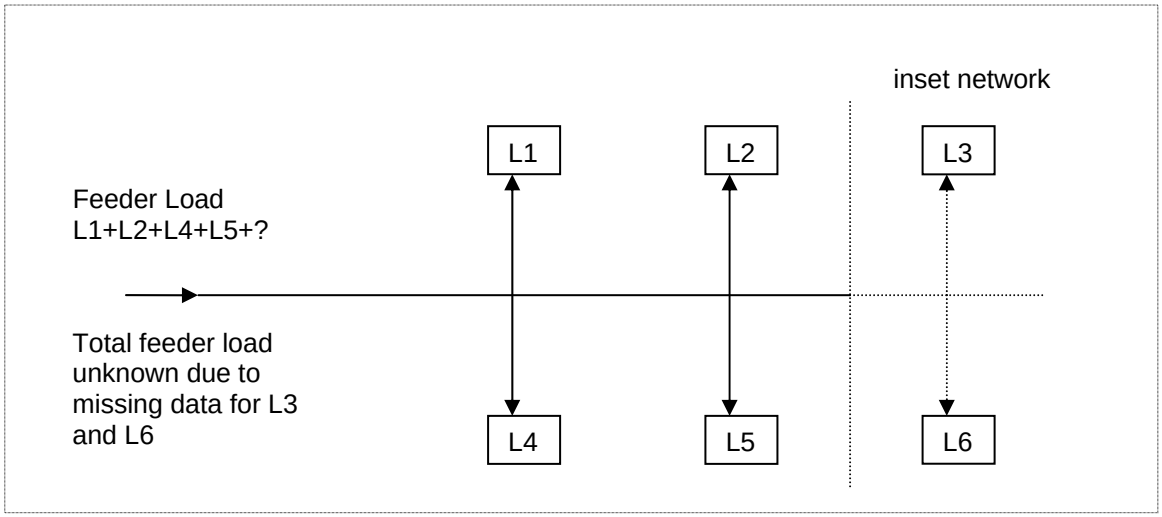
We discharge both these obligations in respect of LV networks and HV/LV transformers by carrying out load surveys from time to time. We do this by using the connectivity models we have developed to support the Interruption Incentive Scheme (IIS) reporting, along with the settlements consumption data we have from suppliers for each exit point on our network. This process models the load on each LV feeder and on each HV/LV substation of our network.

We further respect our ESQCR regulation 3 obligation by carrying out the same exercise for each LV feeder to which we make material alterations, such as significant new connections.

Our continued ability to carry out these exercises and discharge our obligations relies on having accurate and reliable consumption data for every exit point on our system. We already have access to consumption data for customers connected to our networks, but with the introduction of IDNO networks we have no visibility of the customers connected to them or access to the consumption data for the exit points located on them. Unless portfolio billing data is aggregated at an individual-site level to facilitate load estimates at the boundary, the only logical alternative is for boundary metering to be installed to provide the consumption information of the IDNO network as a whole.

Unfortunately, settlements data aggregated at IDNO-site level may not be a feature of the interim or enduring portfolio solutions as Ofgem will note the preference of IDNOs that portfolio data should only be aggregated at grid supply point group level.





The above diagrams show that, with current processes but without boundary metering, we simply cannot tell what the load on any given feeder might be.

At the current time the only option available to DNOs to provide the information required to satisfy our obligations under ESQCR is through boundary metering. The required level of information may become available through portfolio billing in the future, although this is by no means certain at this time. It is still unclear whether portfolio billing will deliver consumption data at an individual network level or whether the process will provide only data aggregated at a GSP group (or distribution network) level. Only if portfolio billing provides us with an accurate picture of the consumption at each individual exit point from our network do we believe that we shall be in a position to continue to satisfy the applicable regulations.

Has Ofgem taken advice on satisfying the ESQCR in relation to DNO obligations where IDNO sites are embedded within DNO networks? This is important because, if such advice confirmed that DNOs needed to be able to monitor networks as part of their normal operations, for example via network assessment load surveys, we would expect Ofgem to have considered how DNOs could discharge their obligations without a) boundary meters or b) alternative aggregated site-level settlements data. We believe Ofgem should ensure that it considers this aspect thoroughly prior to finalising its position on the need for boundary metering, any alternative data mechanisms and funding arrangements.

We believe that this issue will become more acute with the likely changes to consumption, and increases in LV generation, as we move to a lower-carbon economy. The installation of micro-generation, electric-vehicle charging, heat pumps and other low/zero-carbon technologies will

cause consumption patterns to become even more diverse in the future, thus increasing the need to measure the load at the boundary rather than estimate it. To ensure that we increase network capacity when required, without excessive investment ahead of need, we need to monitor actual consumption patterns closely both on our own network and on the inset IDNO networks.

Alternatives to Boundary Metering
Your consultation mentions alternatives to boundary metering including:

- scaling of data available from portfolio billing;
- substation monitoring;
- the use of detailed IDNO network data; and
- sample metering.

Although each of these alternative methods can provide some of the benefits provided by boundary metering, we do not believe that these alternatives provide all of the benefits of boundary metering.

Any of these alternatives could provide a reasonable estimate of the position at the boundary for systems where there is little variety between customers' consumption patterns on the site, such as simple LV sites. However, where there is variety, either between domestic and non-domestic customers (complex LV sites and HV sites), or with low and uneven penetration of low-carbon options, the estimate is likely to be inaccurate in comparison to the data that boundary metering would provide.

You also mention lower-cost kWh meters and a *de minimis* level for boundary metering. We agree with both these approaches but see these options as refinements to a boundary metering option rather than separate options, as outlined in this response.

Funding of Boundary Metering
If portfolio billing provides accurate data for each and every exit point for the 'host' network, the value of physical boundary metering is in validating this synthesised data. This is particularly relevant for IDNO networks where there is a variety of customer types and usages, leading to a greater potential for variation from assumed consumption patterns.

It is not clear to CE why DNOs alone should meet the cost of boundary metering when the benefits that accrue through portfolio billing reconciliation, accurate loss identification and network safety are equally applicable to IDNOs and to all customers connected to our networks. We believe that the benefits that accrue to DNOs and IDNOs from boundary metering flow through to the end users and to improved network safety.

We do not agree with the Ofgem conclusion on the funding of boundary meters. We do not believe that it is logical to conclude that the full cost of boundary metering should be met by the DNO and that such costs should not be covered by price control allowances. Your consultation would appear to conclude that, if something is useful to a DNO in running the network, it must be funded entirely by shareholders and no allowance made in the price cap. It could only be logical to adopt this approach where the equipment in question led to benefits that flowed entirely to the DNO and did not lead to a more efficient operation of the network or more cost-related (i.e. more economically efficient) charges. If that were the case then we would agree that the investment benefits no-one except the DNO, and therefore it might be regarded as discretionary and it ought to pay for itself. However, we do not believe this to be the case here. If boundary metering helps us to run our system more effectively or to be more efficient (including helping us to send more efficient cost signals in our prices), then the regulatory regime eventually passes that benefit to customers. Where there are wider benefits

we cannot see the rationale for distinguishing between investments that give the DNO a benefit and those that benefit customers. As such we believe that the cost of providing boundary metering should be treated in an identical manner to any other DNO investment that benefits customers via an allowance under the distribution price control.

Conclusion

In this response we have set out why the accurate calculation of the electrical flow at the DNO/IDNO boundary provides clear benefits for network safety, portfolio billing reconciliation and the calculation of losses and that at the present time the best way to provide this information is through boundary metering.

It is possible that the same benefits may become available from portfolio billing at some time in the future, provided that the portfolio-billing solution progresses to the provision of aggregate data for each and every exit point from our network. Even then, additional information will need to be provided to ensure that unmetered demand data for each network is also available along with technical network information sufficient for the IDNO network losses to be assessed. Portfolio billing will also need to deliver assurances that processes have been set up and maintained by each IDNO for the control and maintenance of the data relating to the connections to their network so as to ensure that the information passed to us is sufficiently robust for billing purposes and for the calculation of losses.

At this time the required level of information and data assurance is not available from the portfolio billing solution, leaving boundary metering as the only possible solution.

We believe that the benefits of boundary metering are significant for IDNO networks, where the opportunity for irregularities in the calculation of the electrical flow at the boundary through variety between customer types on the network is increased. For these sites we believe that the cost of some type of boundary metering is proportionate to the benefits gained from that metering. We have identified that the benefits of boundary metering increase as the size and range of the end-users increases.

We agree with Ofgem that for small IDNO networks covering domestic properties the cost of boundary metering may be disproportionate to the benefits gained, as the opportunity for irregularities in the calculation of the electrical flow at the boundary is limited. For these sites we do not believe that any boundary metering should be installed so long as the consumption data and IDNO network technical information identified above are made available for each exit point for ESQCR regulation 3 and 5 purposes.

We also believe that the costs of accommodating boundary meters have been overstated in the consultation, particularly for larger sites where the required boundary isolation equipment requires sizeable accommodation. In most instances we believe that the additional cost of locating boundary meters at these sites will be minimal.

As outlined in our response to your original consultation on boundary metering in 2005, we believe that an appropriate metering solution should not incur significant costs in relation to data collection and processing. We would propose that an appropriate solution is to use a basic half-hourly meter requiring no more than a monthly visit from an appropriately equipped meter reader.

I trust that our views and observations are useful and we look forward to being able to discuss our views with you in more detail in the near future. If you require any clarification of the points we have raised here please contact Chris Allanson on 01977 605937

Yours sincerely

Tony Sharp

Tony Sharp
Regulation Manager, CE Electric UK

ATTACHMENT 1 – SPECIFIC QUESTIONS ASKED BY OFGEM

Section 2 – Current Situation

Question 1: Have we accurately understood the annual charges for boundary metering levied by DNOs in Table 1.1?
Answer: Table 1.1 does not make it clear what the prices quoted are for and we believe that the table may well not be comparing "like with like" and as such is confusing and possibly mis-leading. For example, it is not clear whether the prices quoted cover only a meter or whether the prices also include ongoing meter maintenance and data collection costs.
The cost of procuring a suitable meter and installing this at a boundary site is relatively cheap and comparable to the lower prices quoted in this table. However, this may not be reflective of the full annual cost of maintaining this meter and collecting the data from the meter.

Question 2: Why are there such large variations in the charges levied by DNOs for boundary metering?
Answer: As detailed above, it is not clear that the charges quoted are like-for-like charges. CE does not own a meter operator business and has to contract with meter operators in the market to provide boundary meters. As such, the prices quoted are the prices offered to CE for metering that is compliant with the relevant code of practice depending upon the connection size. We cannot comment on the prices quoted by other meter asset providers.

Question 3: To what extent do IDNOs provide the boundary meter and data retrieval services themselves and what barriers prevent them from doing so on a wider scale, given the evidence suggests this may reduce their costs?
Answer: IDNOs already install meters and provide data for sites connected via close-coupled substations. Under these arrangements the IDNO provides low-voltage metering data adjusted for transformer losses to create psuedo-high voltage metering data. Given that the IDNOs are capable of procuring these more complicated metering arrangements, we see absolutely no reason why IDNOs could not procure boundary metering for all sites. IDNOs could even secure bulk purchasing savings through a joint procurement exercise for common metering and data packages.

Question 4: Are we correct in assessing the level of additional costs required to accommodate the necessary technical and isolation equipment required at the ownership boundary between networks?
Answer: You do not quote any costs for the accommodation of the isolation equipment required at each boundary point, so we are unable to provide any assessment.

Question 5: Have we correctly understood the additional costs associated with accommodating boundary metering at sites?
Answer: As suggested in the consultation document, most of the costs quoted seem to us to be those associated with accommodating the isolation and protection equipment. We believe that the marginal costs of providing boundary metering are limited to the cost of current transformers and suitable meters.

Section 3 – Is Boundary Metering Required?

Question 1: Have we captured all the arguments for and against boundary metering, and the reasons why flows should be measured across the boundary?
Answer: As set out in our response, we do not believe that Ofgem has captured and evaluated all the arguments for and against boundary metering. We have set out our own arguments for boundary metering in our response.

Question 2: Have we identified all the reasonable alternatives to uniform half hourly boundary metering which can measure flows of electricity between DNO and IDNO networks?
Answer: Yes, you have identified the alternatives to boundary metering but we believe that boundary metering provides benefits that can not be provided by any of the alternatives available as set out in our response.

Question 3: We welcome views on whether our illustrative analysis is an accurate picture of the costs and benefits of boundary metering?
Answer: : We do not believe that your analysis provides an accurate picture as we believe that you have not fully considered the other benefits of boundary metering as we have set out in our consultation response.

Question 4: Why would IDNO networks incur losses which are 7-8% higher than those on similar DNO networks?
Answer: Firstly, as we agree that full half hourly settlement metering is not required, the hurdle losses rate is in the order of 2-3%. There are then two issues: genuine engineering (technical) losses and unrecorded abstraction.

We know that IDNOs have different standards for network design than we do. For example, because we face an explicit losses incentive, we have adopted economic ratings for LV cables. This means that we 'oversize' mains cables, because the lifetime benefit of reduced losses outweighs the higher initial cost. In contrast, we see inset networks that apply smaller cross-section cables then we would. We often find at the boundary isolation and protection equipment that our incoming cable is larger than the outgoing inset operator's cable. The work we carried out to justify our design policy suggests that inset networks' losses will therefore be more than 50% higher than our equivalent. IDNOs do not face a real incentive to reduce their losses.

We also have long and relevant experience of the data quality issues that frustrate the accurate measurement of sales and losses. Broadly speaking, a 2-3% error rate in registrations will create the 2-3% increase in apparent losses required to justify boundary metering. We have observed a 4-5% error rate in the past on our own systems.

Question 5: We welcome respondents' views on the conclusions which should be drawn from this analysis.
Answer: We agree with the Ofgem conclusion that there is a need to measure the flows between DNOs and IDNOs to ensure that losses on the IDNO networks are measured accurately and to promote billing accuracy. For the reasons we have set out in our response we believe that the only option currently available is boundary metering.

Section 4 – Initial Conclusions
Question 1: Do you agree with our minded to view that DNOs are best placed to decide the most appropriate arrangements for measuring electrical flows between DNOs and IDNOs, and that by bearing the costs of the arrangements they choose, more economical arrangements will be chosen?
Answer: We believe that both IDNOs and DNOs are well placed to decide jointly the most appropriate arrangements based upon the information provided by the IDNO.
We believe that the benefits of portfolio billing reconciliation, accurate loss identification and network safety that arise from the accurate measurement of the electrical flow at the boundary are equally beneficial to DNOs, IDNOs and to all customers connected to our networks. As such we believe that any costs incurred by us for the provision of appropriate arrangements for measuring electrical flows between DNOs and IDNOs should be subject to an allowance under the distribution price control.

We do not believe that it is logical to conclude that if something is useful to a DNO in running the network then it must be funded entirely by shareholders and no allowance made in the price cap. It could only be logical to adopt this approach where the equipment in question led to benefits that flowed entirely to the DNO and did not lead to a more efficient operation of the network or more cost-related (i.e. more economically efficient) charges. If that is the case then we would agree that the investment benefits no one except the DNO, and therefore it might be regarded as discretionary and it ought to pay for itself. However we do not believe this to be the case. If boundary metering helps us be more efficient (including helping us to send more efficient cost signals in our prices) then the regulatory regime eventually passes that benefit to customers. We cannot see the rationale for distinguishing between investments that give the DNO a benefit and those that benefit customers. As such we believe that the cost of providing boundary metering should be treated in an identical manner to any other DNO investment that benefits customers via an allowance under the distribution price control.

Question 2: Are there any practical difficulties that respondents can identify with implementing our minded to position?
Answer: We believe that there is currently no available proven alternative to boundary metering. Implementing your minded to position will undermine a DNOs ability to accurately calculate system losses, reconcile the portfolio billing process and ensure the safety of the distribution networks in line with ESCQR regulations 3 and 5. Each of these failures will in turn provide practical difficulties to DNOs.
Additionally, the final price proposals have now been issued to DNOs. Within these proposals there is no mechanism for DNOs to be able to recover costs associated with boundary metering.

Question 3: We welcome views on the proposed ways forward for the development, procurement and governance of a portfolio billing system.
Answer: We have expressed our views on the information that we will require from any portfolio billing system within our response.
At this time we do not believe that the data we require will be available through a portfolio billing system in the near future. On this basis we conclude that boundary metering should be used for larger IDNO networks and also for smaller IDNO networks where there is a range of users connected to the IDNO network thus increasing the opportunities for variance from an assumed consumption pattern.