SP Transmission & Distribution

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Your ref

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Dear Gary

Electricity Distribution Losses

I am writing on behalf of SP Distribution and SP Manweb in response to the June Consultation Paper.

We agree that any new losses incentive needs to encourage efficient decision making. We can see the theoretical attractions of an output based incentive that seeks to equalise the share of costs and benefits that a DNO incurs in reducing losses. However, there are a number of practical difficulties in such an approach that lessen its usefulness, and some of these are set out in the attached note.

The key issues as we see them are as follows:

- A new losses incentive must focus on factors within DNOs' control

"Technical" losses are not wholly within DNOs' control, and a number of examples are given in our response. One of these concerns saved losses from embedded generation. This is of particular importance in our two operating areas, which are expected to see a disproportionate amount of new renewable generation in the years ahead. Much of this is likely to be located away from comparable load, and will therefore increase system losses. **For these reasons, the adjustment for saved losses from embedded generation must be retained.**

- An output-based incentive in the form proposed will significantly increase risks to DNOs

The proposal for an enhanced losses incentive, coupled with partial cost recovery for loss-reducing capex, is theoretically attractive. However, if reported losses move in adverse direction despite loss reducing programmes, the DNO faces the double hit of a losses penalty, and rejection of its claim for cost recovery. There are also a number of practical issues to do with separating 'loss reducing' from 'mainstream' capex.

We would like to work with you to develop a robust incentive arrangement that addresses these issues.

- An input-based incentive can provide an efficient incentive on DNOs

We believe that a hybrid approach that focuses on underlying/programme-related loss reductions can avoid the difficulties in applying a purely output-based approach while incentivising DNOs to devise efficient loss reduction programmes. In particular, it will help to reduce the exposure to significant factors outside the DNO's control that would otherwise weaken that incentive. Also, DNOs should be able to submit loss reduction programmes as part of this review. Acceptance of such expenditure as efficient, allowed for within the investment total, will avoid the risk inherent in your 'Option 1' that cost recovery for otherwise efficient expenditure may be disallowed.

More detailed comments are set out in the attached note. I hope that this is helpful, but please contact me if you need to discuss further.

Yours sincerely

J Sutherland

Jim Sutherland
Asset Director

Distribution Losses – SP Transmission & Distribution Response to June 2003 Consultation Paper

Executive Summary

- We welcome the second consultation paper on losses and agree with a number of the conclusions, in particular that any adjustment to the existing incentive should work in the direction of encouraging efficient decision making by DNOs.

- We agree that in principle if a DNO is subject to the same share of costs as of benefits in reducing losses, **and has sufficient control over losses**, this should drive efficient decision making.

- Accordingly, we see some merit in enhancing the existing incentive mechanism in the interests of efficient decision making, including an element of cost recovery of additional capex to reduce losses.

- There are difficult issues in 'ring fencing' cost reducing capex for purposes of establishing the base for cost recovery, but we are happy to work with you to achieve a robust means of addressing this.

- **However, there are a number of significant factors that weaken the link between DNO initiatives to reduce losses and resulting measured losses.** For example, trends in the voltage mix of units distributed will affect losses over time, but are generally not within DNOs' control. Weather conditions are another important factor influencing reported losses. Other examples include the incorrect registration of site details by suppliers, which impact on reported sales and losses.

- The importance of both fluctuating and persistent factors driving losses outwith DNO control is not sufficiently recognised in the paper – this has a number of implications for any new incentive.

    - Such factors lead to heightened risk that additional capex to reduce losses will be deemed inefficient and cost recovery denied;

    - DNOs may face increased 'penalties' from a new incentive if losses move the wrong way despite measures to reduce them;

    - The starting point for the losses benchmark in any new incentive is crucial;

    - **There is a continuing need to adjust for saved losses attributed to embedded generation, particularly as much of the new renewables generation is likely to increase system losses.**

- In the light of the above difficulties, we continue to believe that an input based approach, based on reductions in 'underlying' losses from particular programmes, is likely to be more workable. We would like to work with you to develop such an approach in greater detail.

Distribution Losses – SP Transmission and Distribution Response to Initial Proposals

Introduction

1) We welcome the opportunity to comment on this consultation paper, and support a number of the conclusions. **In particular, any new incentive to reduce distribution losses needs to encourage efficient decision making by DNOs.** We can see the theoretical attractions of a revision to the existing incentive mechanism designed to equalise the proportions of costs and benefits to DNOs of reducing losses. In practice, there will be significant implementation issues with a revised incentive linked to partial cost recovery of capital investment. One reason for this lies in the distortions to headline reported losses due to such factors as weather-related demand fluctuations, variations in the voltage mix of units distributed and measurement errors. These factors, some which can work in the same direction for a number of years, are more significant than your paper appears to recognise. We therefore continue to believe that an input based approach can provide an effective solution. We would like to work with you to develop a robust framework for incentivising loss reduction in the next price control period.

2) Our comments on the individual chapters of the paper are set out below.

Chapter 3 – Estimating Losses on Distribution Networks

3) We note the comment in paragraph 3.5 that reductions in technical losses will improve total measured losses performance compared with what it would otherwise have been, even if measurement errors and other non-technical factors offset the impact on the reported total. While this is true, it remains the case that measured losses following a loss reduction programme may not reflect the true impact of that programme as a result of extraneous factors.

4) It is also important to remember that 'technical' losses are not wholly within DNOs' control. For example, this applies to changes in the voltage mix of units distributed which can work in the same direction over a number of years, and influence measured losses accordingly. Fluctuations in losses due to weather are another factor that may be of particular importance in certain years, depending on the nature of the loss incentive in place. Another example is embedded generation. Where this is located away from load, it can increase system losses. This is likely to be increasingly the case as new renewable generation is connected to DNOs networks.

5) It also needs to be remembered that third party connection providers are mainly interested in providing low cost connections rather than in optimising cost and loss performance. They will therefore have little interest in providing sufficient capacity headroom to optimise loss reductions. This is an additional factor influencing 'technical' loss performance that is outside the control of DNOs. This example strengthens the case for minimum

equipment standards related to loss reductions, as a supplement to a revised losses incentive.

6) We look forward to the consultation on revenue protection. Although suppliers have the primary responsibility for metering, and have statutory powers of access to premises to inspect or remove meters, the allocation of licence responsibilities for revenue protection is far from clear.

7) As regards unregistered sites, it needs to be recognised that the responsibility for ensuring that unregistered sites are not energised is shared with suppliers. Although as DNOs we issue MPANs for a new site, and provide a cablehead ready for the meter to be fitted, it is the responsibility of suppliers to register the site concerned and to install the meter. Nevertheless, we are actively reviewing our procedures for checking unregistered and de-energised sites.

Removing the adjustment for embedded generation

8) Paragraph 3.22 includes a proposal to remove the current adjustment for saved losses from embedded generation. This is on the grounds that the adjustments reported by companies do not take adequate account of the differences in impact between different generation sites. We are currently reviewing our approach to assessing loss factors for embedded generation with a view to obtaining greater accuracy in this area.

9) We do not believe that it is appropriate to remove this adjustment, particularly as significant new renewable generation is expected in both the SP Distribution and SP Manweb network areas. As we have previously stated, embedded generation can lead to increased losses depending on where it is sited in relation to load, and we are aware of a number of situations where this is the case. This will be more of an issue in future as much of the future renewable generation will be located in areas away from comparable load. This factor, which is largely outside DNOs' control, will tend to increase system losses.

10) It is important that any revised incentive mechanism is based on factors within the control of DNOs, and in particular that the existing adjustment to account for the impact of embedded generation on losses is retained.

Chapter 4 – Incentive Design

11) While the analysis in the paper of the different options is useful, there is insufficient recognition of variations in measured losses due to factors outside the DNOs' control, for example due to fluctuations in weather or movements over time in demand at different voltages.

Option 1: Modifying the current mechanism

12) We agree with the statement in paragraph 4.14 that the losses incentive should avoid perverse incentives in the trade-off between the capex and losses incentives and also, in principle, that it should allocate to DNOs the same proportion of benefits as of costs from a reduction in losses.

13) There would need to be a satisfactory means of distinguishing the loss-reducing component of capex where separate cost recovery would apply.

14) There is also the issue referred to above of assessing the impact of loss-reducing capex where numerous other factors affecting measured losses are at work. In the context of option 1, these factors would expose a DNO undertaking loss reducing investment to the risk that cost recovery would be denied in the event that reported losses failed to reflect the expected reductions from the projects concerned.

15) Appendix 1, attached, sets out an example to illustrate the potential distortion to DNO behaviour stemming from this source. It should be noted that annual fluctuations in reported losses can be significant, amounting to 1% or more of total losses. This is in addition to more or less persistent influences elsewhere, such as changes in the voltage mix.

16) In order to provide an efficient incentive to DNOs, we believe that option 1 would therefore need to take into account underlying reductions in losses resulting from specific programmes.

17) **We would like to work with you to develop a robust losses incentive that addresses the measurement and other issues identified above.**

Option 2: NGC style incentive

18) Unlike in the case of NGC, DNOs have limited means of influencing measured losses in the short term, and there is a wider range of factors at work, many of which are outside their control. We agree that investment is the main means whereby DNOs can influence losses, and therefore a longer term framework is required than in the case of NGC.

Option 3: DNOs purchasing losses

19) We agree that this option is not appropriate due to measurement and other factors that may lead to significant imbalance costs outside DNOs' control.

Option 4: Input-based incentive

20) Your paper argues that an input based approach would not encourage efficient decision making. This is on the grounds that under such an approach DNOs

would lack an incentive to rank loss reduction projects by their cost effectiveness, and also that standard assessments of expected losses in particular categories would fail to take in account differing load characteristics and other circumstances across DNOs and locations.

21) We have mentioned above some of the difficulties with an output based approach that relies on overall measured losses. Some of these could be avoided with an approach that looks at expected loss reductions from specific programmes. An alternative approach would be to adjust overall reported losses to take account of embedded generation, weather and other extraneous factors and so measure 'underlying' loss reductions. Once an agreed methodology for assessing such reductions is in place, this could drive an incentive mechanism in a number of ways. Some examples of these are shown below.

- Targets for **underlying/programme-related** loss reductions for each company, with associated revenue allowance (analogous to IIP);
- Incentive as for your Option 1, but applying underlying/programme-related rather than total reported losses;
- Programmes meeting loss reduction cost/benefit test allowed in advance as part of capex total for price review purposes.

21) These approaches reduce the risk to DNOs in carrying out programmes where cost recovery may be disallowed, and focus on factors that are within their control. In each case, cost recovery would be subject to an efficiency test.

22) While such an approach does involve greater administration than a pure output based approach, we would argue that the gap is relatively narrow given the difficulties in practical implementation of an output based-approach referred to above. An input based approach would have the merit of avoiding, or at least reducing the distortions of measurement and extraneous factors that would be inevitable with an output based approach, based as this is on overall reported losses.

23) **An input based approach can drive efficient decision making to reduce losses while avoiding the distortions that are likely to reduce the effectiveness of a purely output based approach. We would like to work with you to develop in more detail a robust framework that recognises these factors.**

Option 5 – minimum technical standards

24) We believe that minimum technical standards have merit as an **additional** measure. For example, this would mean that third party connectors would

take due account of loss performance in providing new connection assets to be adopted as part of the DNO network.

Chapter 5 – Valuing the benefits of reducing losses

25) We broadly support the approach taken of considering a range of values and sources of information. Although in principle it is appropriate to take into account environmental costs of generation to cover losses, we believe that a wider range of information should be used here than anticipated trading prices for emission rights under the EU greenhouse gas emissions trading scheme. There is anecdotal evidence that carbon tax emissions could be reduced by means of demand side measures under the Energy Efficiency Commitment such as home insulation more cheaply than the £81/tC quoted in your earlier paper. Also, the traded emissions market will be limited in scope, at least initially, and so traded prices need to be applied with some caution.

26) As regards the proposal in paragraph 5.21 to revise the level of the incentive at each five yearly review, this would have the effect of increasing the risk to companies that investment decisions taken on the basis of a pre-set valuation of losses may prove not to be viable subsequently as a result of an amended valuation. DNOs should not be penalised where efficient investment decisions taken in good faith are affected in this way. **There should therefore be a means for DNOs to recover any shortfall in cost recovery as a result of this process.**

Regulatory Impact Assessment

27) In view of the points made above about measurement and risk associated with option 1, we do not agree with the statement in paragraph 1.15 that implementation costs are unlikely to be significant. There will be costs associated with this option, for example in establishing and carrying out a robust framework for 'ring-fencing' (and auditing) loss reducing expenditure for purposes of cost recovery. These costs will also apply to option 4, but as the paper acknowledges that option also exposes the DNO to less risk. We would also argue that option 4 – or a 'hybrid' approach – is more likely to encourage efficient decision making as DNOs are less exposed to regulatory risk as a result of factors influencing measured losses that are outside their control.

Appendix 1
Illustrative example of output and input-based incentive mechanisms

Suppose a capital expenditure programme is expected to reduce distribution losses by 10 GWh per year. However, due to annual fluctuations in measured losses and other extraneous factors, reductions in total losses after 5 years are expected to lie in the range 5 to 15 GWh. Regulatory treatment under the two types of incentives might be as follows.

(1) Output based incentive

Expected benefits from loss reduction = 10 GWh * value of losses

Expected disallowance of capex for cost recovery purposes:

scenario 1: loss reduction = 5 GWh (=50% of target)
50% of capex disallowed

scenario 2: loss reduction = 10 GWh (=100% of target)
0% of capex disallowed

scenario 3: loss reduction = 15 GWh (=150% of target)
0% of capex disallowed

Using a probability weighting for each scenario, on average the DNO will expect 17% (=50/3) of its capex on loss reduction to be disallowed. If this is not taken into account in calibrating the degree of cost recovery of capex, the DNO will expect to incur a net loss in undertaking a loss reduction programme that would otherwise meet an overall cost/benefit test.

If no capex is undertaken, the DNO will expect zero benefits from loss reduction.

On the above assumptions the DNO will expect to be worse off undertaking the loss reduction programme.

(2) Input-based incentive

Expected benefits from loss reduction programme = 10 GWh * value of losses

Disallowance of capex for cost recovery purposes = 0% (following audit of programme plus efficiency test)

The DNO is more likely to undertake the above loss reduction programme, as it is not exposed to the risk of fluctuations in overall measured losses that would otherwise threaten cost recovery of capex undertaken