



Suppliers, generators, distributors
and interested parties

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Direct Dial: 020 7901 7255
Email: martin.crouch@ofgem.gov.uk

30 July 2004

Dear colleague,

Electricity Distribution connection and use of system charges for demand customers and generators

Introduction

On 7 July 2004 a collective licence modification to standard licence condition (SLC) 4 of all the electricity distribution licences was made by the Gas and Electricity Markets Authority ('the Authority'). The modification places a requirement on all the electricity distribution network operators (DNOs) to determine use of system (UoS) and connection charging methodologies, and gain approval for these methodologies from the Authority by 1 April 2005.

The DNOs have now submitted first drafts of these methodologies to Ofgem on a confidential basis. Ofgem is committed to improving transparency and user input into electricity distribution charging. The process to achieve this has been discussed with industry representatives, leading to the following four-stage process:

- a consultation on the general issues raised and the scope of the methodology statements (this letter), to inform
- resubmission by the DNOs of complete drafts with indicative charges by the end of September, enabling
- publication in full of those second drafts in early October, to enable full consultation on their contents, prior to
- finalisation and approval of methodologies by Ofgem, expected towards the end of 2004, enabling the DNOs to finalise charges to apply from 1 April 2005.

This open letter summarises the main topics and themes of the first draft methodologies and seeks views from any interested parties. Ofgem recognises that many interested parties would have preferred to see and comment on full drafts of the methodologies at this stage, but nonetheless considers that there is value in addressing some of the general issues first, before a

full consultation on the detail. The above process reflects the views of the DNOs, who have responsibility for finalisation of their methodologies.

Ofgem will continue to discuss the issues raised with the DNOs while the consultation proceeds to encourage the DNOs to ensure that their second drafts are consistent with their licence obligations to the fullest extent possible¹.

Format and terms used in this open letter

Ofgem has identified key areas from the use of system and connection charging methodologies which are set out in the two annexes to this letter, broadly corresponding to the two statements provided:

1. Use of system charging for (a) demand and (b) generation.
2. Connection procedures and charging arrangements.

On each of these topics, DNO-anonymous details are given indicating what information has been provided in this area, and where there is commonality between the statements.

Of the seven DNO groups, six have submitted common methodology statements for all their licensed distribution areas. One group has submitted separate statements for its two areas, both for connection and use of system. As such, this letter refers to eight methodologies/statements for both use of system and connections (sixteen in all), and references to 'all' refer to all eight in any one category. References to 'one' DNO or 'one' methodology may refer to one methodology submitted by a DNO group (i.e. this one methodology may apply to more than one distribution area).

Views invited

Views are sought on all the topics listed under main and sub headings in the annexes. In some areas additional questions have also been asked where more specific responses may be useful. Respondents are requested to consider the following areas in particular, to assist in the development of the draft statements:

- whether, from the descriptions given here, it appears that users will have **sufficient information** to estimate charges and terms under which connection and use of the system will be provided;
- whether (and on what points) **divergence** between methodologies is an issue, and what the consequences of these differences might be;
- which topics **do not seem important** or useful, and could provide areas where the DNOs could streamline the statements and limit the inclusion of unnecessary information.

Responses should be received by Friday 27 August and addressed to Distribution Policy, 9 Millbank, London, SW1P 3GE or distributionpolicy@ofgem.gov.uk. Any queries about the topics in this letter should be addressed to Mark Cox at the address above or on 020 7901 7458.

¹ The discussion of issues is provided on an informal basis and should not be treated as binding on the Authority. Nothing in this letter is to be construed as granting any rights or imposing any obligations on the Authority.

Yours faithfully,

A handwritten signature in black ink, appearing to read 'M. Crouch', written over a light grey rectangular background.

Martin Crouch
Director, Distribution

ANNEX 1: USE OF SYSTEM

Format of the use of system charging methodologies

Introductions to the use of system methodology statements follow a generally common format, providing information on the licence requirements, the contractual framework and the requirements for users of the system to comply (where appropriate) with the Master Registration Agreement (MRA), the Balancing and Settlement Code (BSC) and other industry standards. General principles of use of system charging are also covered, and four of the eight statements contain glossaries of common terms, though some of these are limited. Views would be welcome on whether explanations of terms are a helpful guide, or aid comparison of how different companies use the same terms.

A number of the statements include quite detailed information on price control calculations and revenue recovery explaining how charging models and tariffs are scaled to allowed revenue.

Details on the licence obligations vary: most of the methodology statements mention standard condition 4, and three set out the relevant objectives which methodologies must comply with. One also sets out the process for modification of the methodology. Ofgem is aware that an up to date distribution licence is not readily available to the industry (and that the recent modification to SLC4 was a substantial revision from its previous form) and would appreciate comments on whether it would be useful for the statements to briefly set out the licence requirements and associated change and dispute processes.

Six of the statements make it clear that they are available to download free of charge from company websites. A charge of between £5 and £10 is levied for a paper copy of the statements (in one case the charge is discretionary). Two of the use of system charging methodologies mention that a charge is payable for the methodology statement. They do not specify whether copies may be downloaded from the web although they provide details of where the use of system charges statement may be downloaded free of charge.

Three of the methodologies provide flowcharts:

- one provides a diagram of the high level industry contractual framework and a flowchart of the process for setting generator distribution use of system (GDUoS) tariffs;
- one has a diagram of the contractual framework for central volume allocation (CVA) and supplier volume allocation (SVA) connections and flowcharts indicating how price control revenues are converted into tariffs for LV and HV demand, EHV demand and generators; and
- one has a detailed diagram of the contractual framework and obligations to industry codes and agreements, and a flowchart showing how tariffs are developed from the distribution reinforcement model (DRM).

Worked examples are provided by some of the use of system statements. Only two methodologies provide demand use of system examples (with one of these for EHV). Five of the statements provide generic worked examples for the calculation of GDUoS tariffs (see Generation section below).

General comments on the format and scope of the statements are welcomed: it would be useful to know how the statements are used, and in light of this, how much background information is needed, and to have views on where the line should be drawn between information contained in the charging methodologies and the charging statements.

1 (a) Demand

Demand use of system models

Five of the eight methodologies are based on the 500MW distribution reinforcement model. This uses a model which mirrors the DNO's own load characteristics and customer mix and calculates the cost imposed by a 500MW increment in maximum demand at each voltage and transformation level, based on modern equivalent asset (MEA) values. The application of yardsticks for each customer group then apportions these costs according to each one's contribution to peak demand at the relevant level on the system to produce yardstick tariffs, which are then scaled to price controlled revenue. Other costs, such as local authority rates, NGC exit charges, billing costs and other administrative charges may be added into the model.

The five DRM based methodologies have varied the method in a number of ways:

- one includes both reinforcement (the cost of additional load) and replacement (the cost of ongoing replacement of assets) into the system cost model where the mix between replacement and reinforcement is determined at each voltage level by the need to comply with security of supply requirements; and
- all of the methodologies include charges for reactive power under specific circumstances. All but one of the methodologies state the limits outside which these charges may be applied for poor power factors.

Alternative methodologies have also been presented. One DNO is using a 'regulatory reflective' method to scale variable charges to allowed revenue, determining annual changes to tariffs based on the projected marginal increase in revenue with each additional GWh added to the network for a particular 'tariff basket', then divided by GWh to produce a unit charge for each basket (p/kWh).

One DNO has outlined a simulation model which estimates the extent to which costs are customer related (non-demand based) and asset related (demand based costs).

Another DNO has introduced a charge-setting model which evolved from the DRM model. This concentrates on calculating allowed income and scaling existing tariffs from one year to the regulatory formula in the next. This is done by looking at the proportion of variable and fixed income recovered from each customer group and varying the relationship between fixed and variable elements of charge over time as well as scaling to achieve the allowed income in any one year.

Yardsticks

Split of customers between yardsticks

Yardsticks represent costs for each customer group. Two of the methodologies have provided a fairly detailed description of how customer groups are determined. For example, one splits groups according to domestic/non-domestic status, half hourly and non-half hourly metering (and non-metered street lighting), voltage level and connection to the network/substations at each voltage. Average consumptions are calculated for morning, afternoon and night time peaks, with yardsticks for higher voltage levels taking account of losses and diversity factors. Long run marginal costs are then projected according to required capacity rather than calculated demand. Customer related costs vary according to the voltage level of connection.

The remaining methodologies provide minimal detail on how customer groups or tariff baskets are determined although some mention metering and Supercustomer billing arrangements as a basis for determining customer groups.

Calculation of yardsticks

One methodology describes how yardsticks are calculated based on reinforcement and replacement costs, reflecting the mix of underground and overground assets and using scenario capacities at each voltage level to derive yardsticks which are adjusted for power factor to give a £/kW value and then annuitised on the regulatory rate of return. Coincidence factors are derived from demand estimation coefficients created for each half hour at each time of day/season and expressed as a proportion of the annual demand estimation coefficient. These coincidence factors are combined with the yardstick £/kW values and losses figures to give a cost figure for each tariff group, and billing costs, exit charges and rates are added in.

Other methodologies list the possible component costs, and provide limited detail on how these costs on the system are determined or apportioned. There is very little detail on the calculation of line loss factors/loss adjustment factors or on the determination of diversity factors beyond the statement in some cases that 'average' diversity factors will be employed.

Treatment of EHV

One methodology states that a common (non-DRM based) method will be used for tariff setting across all voltage levels. The remaining seven methodologies state that site specific charges will be set for EHV customers.

All but one of these provide some details on the method that will be employed in tariff setting:

- one includes EHV charges in its description of the methodology for setting other tariffs, thus although it states that charges are site specific, the methodology used is common to all voltage levels (the DRM model);
- five state that tariffs will comprise customer related costs, a contribution to the annuitised cost of joint use assets based on a ratio of the authorised supply capacity of the EHV exit point to the network maximum capacity of the joint use assets, operation and maintenance (O&M) costs, NGC exit charges and rates;

- one states that while charges are site specific, the tariffs will be determined in accordance with the principles of the methodology for lower voltages, based on the regulated demand tariff model;
- one includes the components listed above (in the second bullet point) but notes that the asset valuation will be based on a three year rolling average of the estimated capital cost of replacing the assets, and O&M costs will be based on a three year rolling average; and
- one notes that a study will be carried out annually to reassess the site's use of the system, and a charge will be made for this study.

Two methodologies mention the arrangements for the movement of EHV connections from the present to the interim regime:

- one states that present site specific charges will be preserved, but notes that these may include inherited cost recovery and charging mechanisms. Where appropriate, these will be preserved until the end of the agreements, or brought into line with the new methodology over a transitional period; and
- one states that where EHV charges are higher than the new theoretical charges, these will be frozen in real terms (with RPI increases) until charges fall into line with the new levels.

Special arrangements and non-standard terms

All of the methodologies state that where none of the existing charging categories are deemed appropriate for a customer, special arrangements may be entered into. This includes cases where standards of security differ from the set norms, or where power factor is outside a specified band. All but one of the DNOs mentions acceptable power factors: the lower acceptable limit on these varies between 0.95 and 0.8.

Ofgem has noted that the following issues on special charging arrangements are not covered:

- charges for exceeding agreed capacity, which is only mentioned by one methodology, which states that excess use may be reflected in billing, but this does not indicate a right to use such capacity;
- changes to agreed capacity: one methodology states that changes cannot be made within a year of connection, one within 5 years and another within 15 months. The remaining methodologies do not state how changes to agreed capacity will be dealt with; and
- preserved charges², which are not mentioned in any of the methodology statements.

Inclusion of NGC exit charges in use of system charges

All of the DNOs include a contribution towards NGC exit charges in use of system charges, calculated in a variety of ways. These include:

- apportioning charges on the basis of each customer class's contribution to total use of the system; and
- for EHV sites: apportioning NGC exit charges on the basis of the ratio of agreed site capacity to grid supply point (GSP) firm capacity.

² These are tariffs that are honoured for existing customers. These tariffs are not available to new customers.

1 (b) Generation

Generator use of system models

Seven DNOs have provided simple capacity based models, but one has provided two models: a simple model and a nodal model which produces voltage and time varying capacity based charges. The DNO has indicated that this nodal model may not be ready for implementation by April 2005, hence the submission of the simple model as well. For the purposes of the Generation section of the open letter, nine methodologies are being summarised, all of which are capacity based (eight simple models and one nodal model).

All the models outline the price control distributed generation (DG) parameters under which generator charges will be determined, and charges consist of the same basic elements as demand UoS charges. Beyond these basic assumptions, the models vary in a number of ways:

- six methodologies define capacity as export, one uses an installed capacity definition and two do not define capacity;
- five plan to vary the charge by voltage level, and four do not set out how charges will vary; and
- two plan to vary the charge by location, and the remaining seven do not indicate whether charges will vary by location.

Inclusion of NGC exit charges in GDUoS charges

There is no mention of whether exit charges will be charged in seven of the generation methodology sections. One methodology states that it may be appropriate to charge a share in the future, and the remaining methodology notes that EHV GDUoS charges will be set on the same basis as demand EHV charges, where a contribution is included.

Inclusion of business rates in GDUoS charges

The situation is similar for business rates. Seven of the GDUoS methodologies have no mention of the inclusion of business rates, one states that rates will be included and the remaining methodology makes the same reference to the similarity between EHV GDUoS and demand EHV tariffs as for exit charges.

Preventing volatility in GDUoS charges

Five methodologies state that a tariff cap will be applied to GDUoS charges to guard against volatility in the early years of generator charging. The statements suggest that caps may be applied according to the whole DNO area, or by smaller area or by voltage level, but note that these details have yet to be determined. Caps are subject to change with three months notice, or with annual reassessment for RPI. Three methodologies state that caps will be locked in place for 15 years once set.

One methodology proposes a restriction in tariff movement of +/-10 percent.

The remaining three methodologies are not proposing either a cap or a restriction in the movement of tariffs.

Treatment of microgeneration

One methodology states that there will be no connection charge for 'small' (up to 16A per phase) generators connected at LV, but details of the connection must be provided to the DNO, and Engineering Standard G83/1 must be adhered to. The methodology notes that this may not apply to multiple connections at a single property or for the connection of single generators at multiple new properties: if design studies or reinforcement work prove to be necessary, charges may be levied, and UoS charges may apply for LV non-half hourly (NHH) connections.

None of the methodologies cover specific arrangements for microgeneration, but all nine, including the example above, state that charges may be levied on LV NHH users.

Distributed generation and deferred expenditure: rewards for benefits to the network

The nodal charging model uses projections of the optimal rating of system plant to create representative loading conditions, and resulting charges may reward users that reduce the nominal loading of the plant during the relevant period.

The remaining eight methodologies do not mention the benefits that embedded generators may bring in deferring network investment, and how such benefits might be reflected in charges.

Transitional arrangements

One methodology states that arrangements will be unchanged for generators connected before 1 April 2005, but requests to opt in to the new arrangements will be dealt with on application. Eight methodologies state that the new charging arrangements apply only to generators connected after 1 April 2005, and one makes no reference to generators connected before 1 April 2005.

Network access rebate payments

DNOs are required by the price control to compensate customers for disconnection through a rebate on use of system charges, but none of the methodologies mention how this scheme might operate.

Changes to agreed capacity

None of the methodology statements mention how changes can be made to generators' agreed capacities.

Worked examples

Five of the methodology statements provide generic worked examples of how GDUoS charges are calculated, and four do not.

ANNEX 2: CONNECTION

Format of the connection charging methodologies

The connection charging methodology statements are generally much longer and more detailed documents than the use of system charging methodologies, chiefly because of the inclusion of schedules of indicative prices and works. Much of this information is unchanged from the present connection charging statements, but nonetheless views are sought on whether this information is useful, and how it should best be presented to aid understanding of likely charges.

All of the methodology statements include a large amount of standard information on connection procedures, principles and obligations, how applications should be made, and how these will be handled. In one statement, the connections procedure is laid out in diagram form: one basic representation of the connection procedure, and one more detailed diagram of the construction and adoption process. One other statement contains a diagram, which is a basic representation of industry agreements, repeated from the use of system statement. Views would be welcomed on whether there is no need for overlap between the connection and use of system statements (on this matter or other information) or whether this is a useful reiteration for a different audience.

The revised licence requirements are introduced briefly by some of the connection methodologies, with one statement setting out the relevant objectives and two stating the aim and purpose of the connection charging statement. As for the use of system methodology statement, views would be welcome on whether greater detail on the licence requirements would be a useful guide for users.

All but two of the connection methodology statements contain worked examples of various connection types, including generator connections, some using the apportionment rules and some for simpler connections.

Five of the methodology statements contain glossaries. As for use of system, views are sought on whether there is a need for clarification of the use of any particular terms.

Three of the statements state clearly that they are available free to download from the web. A further three mention that copies of use of system charging statements are published on company websites, but do not mention whether methodology statements are also published on the web. Charges of between £5 and £10 are levied for paper copies of the statements (in one case the charge is discretionary). Three statements do not provide any details of how electronic or paper copies may be obtained.

Payment options

There is limited information in the statements on how relationships between distributors, suppliers and generators will work, although the statements explain current supplier hub arrangements. One statement notes that consideration will be given as to whether charges are to be levied directly on generators or dealt with through suppliers, and one offers generators a choice of dealing with distributors direct or through a nominated supplier.

All of the statements offer the option of applying to phase payments for EHV or high cost projects over the lifetime of the project, subject to full payment before completion and energisation of the connection.

Non-standard connections

Four of the methodology statements outline procedures for speculative connections, where capacity may be reserved for development agency projects. The statements note that in these cases the right to second comer payments may be waived, and that reservation payments may be necessary. Terms will be negotiated bilaterally.

Connection boundary

The following common apportionment rules have been developed with the industry as a basis for apportioning reinforcement costs:

Security rule: $\frac{\text{required capacity} \times 100}{\text{new network capacity}}$, max 100%

Fault level rule: $\frac{3 \times \text{fault level contribution from connection} \times 100}{\text{new equipment fault level capacity}}$, max 100%

All the methodologies commit to use of these rules for all standard connections (at all voltage levels and for both generation and demand). A number of the methodologies note that there may be non-standard occasions where these will not be applied: for example, speculative connections and certain high cost generation connections (over £200/kW or over £100,000). High cost generation connections over £200/kW are also mentioned in three of the use of system methodology statements (and the £100,000 rule in two of these).

Connection charges

The DNOs have offered a generally consistent description of the determination of connection charges: these will be the cost of the sole use assets necessary to provide the minimum scheme for the connection, a proportion of reinforcement costs, plus the costs of any additional requested requirements. The cost of any additional assets over and above those requested by the connectee will be met by the DNO, and where the minimum scheme can support more than one connectee, costs may be split. A number of the statements note that the principles and indicative prices in the statement may not be a reliable guide to charges where connections are at EHV or special standards of security are required.

Second comer charging for reinforcement

All the statements note that second comers making use of existing assets (previously reinforced within the prescribed period) will be charged a contribution towards those assets, but do not state how this scheme will work.

Abolition of O&M

O&M charges have now been removed from connection charges, apart from charges relating to extra assets provided at the request of the connectee. The methodologies generally state that ongoing O&M charges will be calculated by multiplying the sole use asset valuation by the standard O&M percentage, with a contribution to joint use asset O&M determined on a similar basis.

Two of the statements detail how O&M capitalised charges will be determined on over equipped sites: charges will be 30 percent of the cost of extra assets for demand and 20 percent for generation. The different percentages recognise different replacement policies for demand and generation.

Contestable and non-contestable works

The methodology statements provide details on procedures for contestable and non-contestable quotes and works, and some detail on the adoption process and areas to be covered in adoption agreements. Most of the statements include brief lists of contestable and non-contestable items, and indicative charges for non-contestable works. One DNO commits to providing a breakdown of charges for contestable and non-contestable works in each quote.

Out of area networks

Some DNOs operate networks outside their distribution services area. None of the statements include methodologies for out of area networks.