

ENDURING CHARGING ARRANGEMENTS FOR DISTRIBUTED GENERATION

**Response to Ofgem Discussion Document
September 2005**

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Summary

This document sets out National Grid's views in relation to the questions posed in Ofgem's Discussion Document "Enduring transmission charging arrangements for distributed generation" published in September 2005.

We welcome the opportunity to comment on this important theme because we believe the current contractual arrangements could distort the market by providing perverse incentives to embed. Ultimately this is an unsustainable position as the proportion of distributed generation on the system continues to grow, potentially leading to inefficient outcomes.

Having said that, National Grid believes that there is no easy solution or quick fix to satisfactorily addressing enduring transmission charging for distributed generation. In order to address the matter adequately, the industry would need to consider more significant reforms in the treatment of embedded generation. In our response we detail why we believe an Option 7 Agency model would provide the most economically efficient solution, and specifically, outline the reasons for our preference for a Supplier Agency Model.

Introduction

National Grid believes that this Ofgem discussion document is both appropriate and timely. We estimate that unlicensed embedded generation now amounts to 7GW of installed capacity and anticipate that this total will rise to 10GW by April 2007. Until recently, the proportion of unlicensed embedded generation has not been sufficiently large as to require specific attention in the transmission charging methodologies, however there are two reasons why this is no longer the case:

1. The recent BETTA reforms to unify the England and Wales and Scottish electricity markets has led to inconsistencies in the treatment of embedded generation between the two areas. This is most notable in the thresholds at which power stations are classed as "small, medium or large", and the differences in rights and obligations offered by contracts such as BELLAs and BEGAs. It was acknowledged during the BETTA process that the treatment of embedded generation would require review after implementation of the reforms.
2. Government policy aiming to encourage renewable energy sources means that DNO obligations and incentives to offer connection to distributed generation is likely to precipitate a significant and ongoing increase in the proportion of distributed generation. Increased levels of embedded generation are likely to result in lower transmission demands within some GSPs, and even exporting GSPs. It is therefore appropriate to review the impact of embedded generation on the transmission system both in terms of costs and the commercial arrangements underpinning the regime.

This response is structured in the following way:

- (i) The appropriateness of the current charging and contractual arrangements relating to distributed generation and the need for refinement;
- (ii) Analysis of the options
- (iii) National Grid's preferred way forward

1. Appropriateness of current charging and contractual arrangements and issues to be addressed

As the transmission licensee authorised to co-ordinate and direct the flow of electricity onto and over the transmission system within Great Britain, we have duties to maintain and develop an efficient, co-ordinated and economical transmission system and to facilitate competition in generation and supply. Along with these high level duties we are also required to have a charging methodology that achieves the following relevant objectives:

- a) To facilitate effective competition in generation and supply of electricity;
- b) To reflect as far as reasonably practicable, the cost incurred by transmission licensees in their transmission businesses; and
- c) In so far as is consistent with a) and b) above, and as far as reasonably practicable, they properly reflect developments in transmission licensees' transmission businesses.

In addition, Section C7 of the National Grid Electricity Licence prohibits discrimination between users.

In the discharge of these objectives and further to the developments noted in the Introduction to this document National Grid has been considering the most effective means to manage distributed generation in a sustainable manner, and we describe our proposed way forward later. Firstly, it is worth noting how the present arrangements have developed. The generation threshold deemed to have an impact on the transmission system has historically been set at 100MW. The charging methodologies have evolved to accommodate this threshold by effectively treating generation below this level as negative demand.

In light of recent developments National Grid agrees with Ofgem that the time is right to review the present arrangements. We believe the current regime could well lead to inefficient transmission investment and/ or an inappropriate allocation of costs if National Grid is unable to consistently apply its charges across all generation. The charges reflect the costs to transmission of locating in a specific area, and we firmly believe that an additional MW of generation has the same effect on the transmission system whether it is transmission or distribution connected.

We believe that Ofgem have accurately presented the main themes in Chapters 2,3 and 4. National Grid would like to emphasise that we believe this consultation is not simply about charging, but also about rights to use the transmission system and the contractual arrangements to manage generation that is not physically connected to the transmission system.

In particular, National Grid is keen to address the following issues:

- Exporting GSPs without access rights
- Consistent application of charges
- Cost reflective charges
- Removal of perverse incentives to embed

Our thoughts on how the above can be best achieved are set out in our analysis of the options identified in the Ofgem discussion document.

2. Options

This section of our response summarises our thoughts in relation to the specific options raised in the discussion document.

Option 1 – Do Nothing

We believe that “doing nothing” is not an appropriate option. Ofgem have rightly noted the significant issues that need to be addressed including exporting GSPs, cost reflectivity and perverse incentives. In accordance with our licence obligations, and separately for this Ofgem consultation, we are actively considering proposals to change the charging methodologies.

A decision on “CAP093 – Enabling the flow of Electricity from Distribution Systems into the Transmission System at Grid Supply Points” in isolation would only clarify whether unlicensed distributed generation in England and Wales could legitimately export to transmission without TEC. If Ofgem were to approve CAP093, then this could present fundamental difficulties to National Grid in terms of managing spills onto the network as there is no contractual mechanism to manage these flows. In addition, this highlights the problem of demonstrating efficient investment, charging cost reflectively and applying fair charges to generators. If Ofgem were to reject CAP093, then this presents problems to DNOs in the discharge of their licence obligations. As many of the respondents to the CAP093 consultation document noted, addressing embedded generation through a simple tweak in the definitions of the CUSC is wholly inadequate, and Ofgem and industry should embrace this opportunity to correct the present arrangements.

Appropriate treatment of embedded generation includes far larger issues and it would be helpful if Ofgem rejected the “do nothing” option outright, however National Grid will be bringing forward its own proposals in the event Ofgem chooses this option. The costs of “doing nothing” are large both in terms of inefficient outcomes ultimately financed by the consumer, and in terms of the ongoing uncertainty from the knowledge of the unsustainability of the present regime, which would only manifest itself in calls for change at a later stage.

Option 2 – De-energise plant that spills

We believe that non-commercially de-energising plant is not an efficient way to run a transmission system and should not have to be a necessary arrangement if the commercial incentives are correctly aligned. If CAP093 was approved in isolation, this may be National Grid's only means to maintain transmission flows within safe parameters, until further modifications could be brought forward.

The costs of this option are large as it is inefficient, and increases risk to embedded generation.

Option 3 – Amendments to charging Model

National Grid believes that the issues raised in the consultation can not be resolved by simply re-calculating charges in the transmission model through the addition of embedded generators connected to the 132kV network in Scotland. As described in

Section 1 of our response, the issues raised by Ofgem for resolution confirm that this consultation is about access arrangements as well as charging. In particular, it is about rights to use the transmission system and the means through which National Grid can manage flows from parties not physically connected to the transmission system.

This option may address a fraction of the distributed generation issues (and indeed would form part of National Grid's proposed way forward), but in isolation leaves the substantive distributed generation themes unsolved with potentially higher costs to consumers.

Option 4 – Extend DCLF ICRP model to parts of the distribution network

National Grid considers that this option is another step closer to our proposed way forward in the sense that it begins to acknowledge the commercial impact of distributed generation on transmission. However, it is not clear how any benefit from this option can be achieved without an associated contractual framework to enable targeting of costs to appropriate parties. Without changes to the contractual regime, and specifically the allocation of transmission rights, National Grid would be unable to levy the adjusted charges on the larger charging base. In some respects therefore, with the appropriate contractual framework this option is akin to a DNO or DSO Agency model, which we return to later.

We agree that the downside of the option would be to drive the perverse incentives to embed below the 132kV level.

The costs of this model would not be large in terms of implementation, but we question the value of the benefit without consideration of the appropriate contractual framework.

Option 5 – Amend use of size definitions as the basis for charging and contractual arrangements

This option specifically targets one of the main reasons for the perversities in the current regime, namely the definition of power stations as large, medium or small. Lowering the thresholds would mean that more distributed generators would be required to establish a contractual relationship directly with National Grid, acquire TEC through a BEGA contract and ultimately be liable for TNUoS charges.

Identifying the precise threshold may be difficult to justify. Clearly, there is a spectrum of options ranging from lowering the present 100MW threshold to 50MW right through to making all half hourly metered generation liable for transmission charges. We agree with Ofgem's analysis that reducing the thresholds diminishes the magnitude of the problem but does not provide an enduring solution unless the threshold is low enough. Clearly, charging all half hourly generation is one option which would at least be transparent and sustainable.

The costs of this option lie in increased administration, and the continuation of inefficiencies below any newly defined thresholds.

Option 6 – Creating a consistent liability for charges

We agree with the principle that there should be a consistent liability for charges for all generators, directly connected or embedded, given that an additional 1MW of

embedded generation has the same effect on transmission as 1MW directly connected generation.

However, we do not support this option for two reasons. Firstly, there does not seem to be any underlying rationale for the approach suggested. Whilst separation of the transport and tariff models would provide a locational signal to distributed generation, reflective of generation TNUoS, an arbitrary embedded benefit would remain amounting to the value of the residual charge. National Grid would still need to allocate the residual charge in a non-discriminatory manner, and it is worth noting that presently the residual component of the TNUoS tariffs amounts to £800m. Secondly, as in Option 4, this solution focuses purely on a charging solution without the associated reforms necessary to the contractual frameworks. An accompanying contractual framework would make this option look more like a Supplier Agency model.

Option 7 – Agency Models

National Grid believes that an Agency model is the most effective, consistent and enduring means through which to deliver solutions to the issues raised by Ofgem in the discussion document. Ofgem have identified three types of Agency model and we believe that a variant of a Supplier Agency model is the most appropriate.

It could be argued that an independent DSO model has some merits now that parts of the DNO networks are becoming what might be regarded as “active”. However the requirement for primary legislation and the substantial change in existing contractual frameworks that would be required to enable it would in our opinion be disproportionate to resolution of the problem, and unnecessary given the other agency model options.

The DNO Agency model is attractive in the sense that it provides National Grid with a clear nodal interface at the GSP and aligns with the Licence Exempt Embedded Medium Power Stations (LEEMPS) proposals currently being discussed in the Grid Code Review Panel. National Grid could levy transmission charges only to the DNO and not concern itself with matters below the GSP level. It is for consideration whether under a DNO model it would be appropriate to base transmission charges on net or gross flows across a GSP. We consider that gross flows would be more appropriate, since a “Net flow DNO model” would replace discrimination in charges between transmission and distribution, with discrimination in charges between importing and exporting GSPs.

We believe that DNO agency models come with other insoluble difficulties and are as such inferior to Supplier Agency models for the following reasons:

1. It would be necessary for DNOs to place offers in the Balancing Mechanism to enable National Grid to commercially manage the transmission system. These DNO BMUs may then have interactions with Supplier BMUs.
2. DNO networks may be affiliated to generation businesses within the same corporate group. Industry would require assurance that applications for connection to DNO networks would be treated on an equal basis.
3. Targeting transmission charges to DNOs may require re-opening of the recently completed distribution price controls.

4. DNOs would need to develop methodologies to pass through transmission charges to Suppliers. Arguably, National Grid is in a better position to do this directly using existing channels.

Supplier Agency models in contrast avoid some of the disadvantages mentioned above. In the next section of this response we detail a possible Supplier Agency model which at this time is National Grid's preferred approach.

3. National Grid's Preferred Way Forward

In this section we describe a Supplier Agency Model that could be used to address all the issues raised in Chapter 4 of the discussion document. We believe it appropriately balances the costs and benefits by minimising the level of reform required to address the substantive issues in an enduring manner and ultimately providing certainty to users.

The aims of the Supplier Agency model described below are to:

- Formally confer rights to Suppliers to export onto transmission from distribution
- Remove perverse incentives and discrimination by providing a consistent liability for transmission charges
- Ensure cost reflectivity by consideration of the generation connected to distribution and transmission networks in the DCLF ICRP charging model
- Facilitate an operational interface to manage transmission flows

The above would be achieved by recognising the principle that an additional MW of generation has an impact on the transmission system whether or not it is transmission connected. Under this model, it is proposed to charge Suppliers generation TNUoS for the total MW capacity of embedded generation connected within a GSP. By levying transmission charges, it is implied that all embedded generators have an impact on transmission system assets, regardless of whether the particular GSP is exporting onto transmission or not. By improving charging signals, it is anticipated that embedded power stations will be exposed to the full cost of their location decision on the transmission system and remove incentives to be "embedded", which are not cost reflective.

"Embedded benefits" arise for two reasons:

1. The present generation thresholds exempting generation below a certain size from exposure to TNUoS charges (and their treatment as negative demand)
2. The 27:73 Generation:Demand split in the transmission charging model (for the locational element of the charge)

Both of the above reasons are features of the defined charging base and the method of revenue recovery, and are not pure locationally reflective elements of the charge. Further, we believe that the value of embedded generation to transmission is limited and removal of these transmission-related embedded benefits is justified on grounds of cost reflectivity. Indeed, including embedded generation in the overall charging base would result in payments to distributed generators located in negative charging zones.

The first stage of the process would be to establish the capacity of embedded generation at each GSP node that should be considered. This could be achieved in one of two ways:

- Onus on the Supplier to provide the required information; or
- Changes to SVA settlement systems or creation of “sub-BMUs” to obtain HH embedded generation metered data;

It may also be necessary to acquire information from the DNO to assist in mapping embedded generators to the appropriate GSP. The capacities would be entered into the DCLF ICRP charging model, and Suppliers would be charged the resulting generation transmission TNUoS, which would presumably be passed through in some form to embedded generators.

We believe that the Supplier Agency model could also assist in resolving operational issues associated with managing potentially numerous small generators in relation to transmission flows. We envisage the possibility of aggregating embedded generators into “Sub-BMUs”, so that the SO can commercially enable their despatch in the same way as directly connected generation.

In terms of implementation, whilst there may be some initial work in terms of mapping embedded generators to generation tariff zones in the charging model and fully specifying any required IS changes, we believe that the above model represents the most viable enduring solution to the issues raised.

Conclusion

National Grid is a major stakeholder in this review and we are committed to finding the most appropriate solution. We have already undertaken some work to identify the optimum model and have outlined our high-level thoughts in relation to the sustainable enduring management of embedded generation above. We look forward to discussing our views with industry and it would perhaps be helpful if Ofgem was to facilitate workshops to enable these discussions.

National Grid recognises that this is a difficult and complex area with commercial positions at stake. We believe that the Supplier Agency Model would best enable us to discharge our licence obligations and lead to the most efficient transmission system, which would ultimately be to the benefit of the consumer.

If you have any questions regarding this response, please contact either Nick Pittarello, 01926-656261 / nick.pittarello@uk.ngrid.com or Stuart Easterbrook on 01926-656213 / stuart.easterbrook@uk.ngrid.com