Enduring transmission charging arrangements for distributed generation

REA response to Ofgem discussion document

Introduction

The Renewable Energy Association is pleased to offer its views on the many issues raised in this discussion paper. Whilst a large number of interrelated matters have been discussed, including information flows, distribution and transmission system charging, planning and operational matters and the contractual relationships between all the parties involved, the REA feels that there is in fact one key issue to resolve and once that is decided the resolution of all other issues flows in accordance with the decision made.

The key question is how to manage the relationship between parties connected to different networks and the "operators" of those networks.

Managing connected networks

If two or more networks are connected together then the behaviour of generation and demand connected to one of the networks will, to a greater or lesser extent have an effect on the other network or networks.

Method 1 of managing this is to say that the generation and demand connected to one network has to have a contractual arrangement with the "operator" of the other network. They have an effect on the other network so it is quite reasonable for the other network operator to have a say as to when they may connect and charge them for the effect on their system. In principle this would mean that all parties connected to a network would have a contractual relationship with the operator of another network.

Method 2, the alternative approach to managing two connected networks, is to appoint an agent or agents to be responsible for the effect that parties connected to one network have on another network connected to it. This recognises that the flow-related effects that parties connected to one network have on the other network are related to the net flow on the circuits that interconnect the two networks. What matters to the owner of the other network is the *net* flow on to or off it from the first network and it is that that must be managed and can be charged for by the owner of the other network.

This analysis can be applied to a number of situations including micro generation connected to end customer networks, larger "on site" generators connected to "private" networks, two interconnected transmission networks (whether the interconnection is AC or DC) or indeed a transmission network and a distribution network.

In the context of a distribution network with embedded generation and a transmission network, there are two choices. The choice is between generation connected to the distribution network having a relationship with the transmission network operator, or the management of flows onto and off the transmission network being managed by an agent or agents that are accountable to the TSO for net flows, paying transmission charges on that basis.

The REA prefers the latter approach, for reasons expanded upon below. Generators connected to the distribution network should have a contractual relationship only with an agent/agents associated with the distribution network and the relationship with the transmission system operator should be managed by that agent/s.

Our detailed response to the paper is given below. Whilst the details are important we have stated our position up front to emphasise our view that which of the two methods one chooses is the fundamental question. Once that decision is made, the resolution of most of the other issues discussed follows.

Chapter 2- Existing contractual and charging arrangements

These chapters outline the current contractual position and describe the areas of work related to the main issues. Above all, what the current contractual position illustrates is that the system has become more and more complex with an increasingly large number of different contractual possibilities, largely relating to generator size and location. The system is of course made even more complex by 132kv being categorised as transmission in Scotland with the result that smaller generators there are judged to have a significant effect on the transmission network and hence (under the current philosophy) must have a contractual relationship with the transmission system operator.

Thus generators as small as 5MW may need a contractual relationship with the TSO. Whilst they do have an effect on the transmission network it is no greater than that of 5 x 1MW generators or indeed 5000 x 1kw micro-generator units. If there is to be an increasing number of smaller and smaller generators the current philosophy would suggest that they would all need a contractual relationship with the TSO. Taking this approach, and continually lowering the size limit at which a generator requires a contractual relationship with the TSO, could result in TSO having contractual relationships with hundreds of thousands or even millions of generators, if micro generation grows as anticipated.

Currently distribution connected generators may be required to enter into a BEGA, or a BELLA or a LEGA with the TSO. These give various degrees of binding to the BSC, CUSC and Grid Code as well as possible liability to pay transmission charges directly to the TSO. This is in addition to the connection and use of system agreements that the generator will have with the DNO and the obligation to pay distribution charges and comply with the Distribution Code.

Chapter 3 Interrelated areas of work

BETTA and transmission charging

Whilst all the areas that NGC has/had to consider are related to the main issue in this paper, they may all be considered independently of it. We are not commenting on them here, with the exception of wishing to express our disappointment that Ofgem vetoed NGC's proposal to alter the balance of transmission charges between generation and demand. This would both have eliminated the negative demand charging issues and facilitated fairer competition between generation in Great Britain and continental Europe by aligning the share of charges more closely with the typical share on the continent. We note that efficient operation of the European gas market is currently of concern to Ofgem and we would urge Ofgem to do what it can to remove distortions in the electricity market. Clearly one of Ofgem's main concerns was the possibility that some of the rebalancing of charges between generation and demand would not lead immediately to a corresponding fall in the wholesale price of electricity. We urge you to re-consider the issue, and suggest that you consider a longer notice period (say 3 to 5 years) and/or a phasing of the change.

Interim discount for small generators connected at 132kv in Scotland

We note that whilst one could continue with the current arrangements, you do not consider this as desirable. Our preference would be for 132kv to be reclassified as distribution in Scotland. If more active management of distribution networks is really the way of the future what better way to get real experience of the issues than by starting with the 132kv system in Scotland, where staff with appropriate experience are available to manage these networks? We note that this would require primary legislation and suggest an alternative long term arrangement in the section below.

Embedded Benefits

We recognise this as a key issue and take the view that all charges from the operator of one network relating to the activities of parties connected to another network should be based on the net flow of electricity between the two networks. This has the effect of retaining embedded benefits and indeed extending them to parties connected to distribution systems that are not currently entitled to them i.e. generators of above 100MW. In practice, if the distribution network is exporting there would be appropriate charges on the export. By definition, at these times there would be insufficient demand to net off the generation and therefore not all the generation would be able to enjoy embedded benefit. This is, of course, the situation at present if there is an export.

This leads to our proposed alternative long term solution for Scotland which would be to allow generation and demand connected at 132kv to net each other off for the purpose of transmission charging. This could be implemented via the transmission charging methodology. The justification for this would be that the 132kv network in Scotland, whilst being classified as transmission, really performs a sub-transmission role and as such justifies different charging arrangements from 400kv and 275kv transmission. This would also more closely align the costs faced by 132kv connected generators north and south of the border.

Distribution Charging

We support the move towards more cost-reflective DUoS charging. As transmission and distribution charging becomes more cost-reflective, this should naturally reduce economically unjustified incentives to connect to one system rather than another.

Proposed Grid Code modification proposals

We support the concept of distributed generation having its technical requirements specified in the Distribution Code as proposed. There should be discussion between the transmission and distribution system operators as to what these requirements should be. This is consistent with our overarching view that generators connected to one network should not need to have a relationship with the operator of another network.

For example it may be that, because 132kv in Scotland is "more active" than in England and Wales, generators connected at 132kv in Scotland (and indeed lower voltages) may have to meet requirements that they would not if connected to the equivalent networks in England and Wales. In all cases however, the requirements can be specified in either the Grid Code or the Distribution Code, according to which network the generator is connected. There would thus be no need for generators connected to one network to have a contractual relationship with the operator of another network.

CUSC modification proposals

Clearly any new generation or demand connected to a distribution network will affect the flow of electricity on the transmission system and it is therefore reasonable for the transmission system operator to be able to assess the implications of this, yet as it is the net flow onto or off the transmission system that matters, we think the process is most effectively managed by an agent or agents.

Overview

We make no comment on the issue of managing the GB queue and think that this chapter has captured the important issues related to transmission charging for distribution connected generators.

Chapter 4 Issues to be addressed

Exporting GSPs without access rights

Whether a distribution system exports to or imports from the transmission system is a function of the net effect of all the demand and generation connected to that distribution system. A system can become an exporter because of either a reduction in demand or an increase in generation. Because the effect is net it makes no sense to try to pin the responsibility for the export onto one or a group of generators, particularly a group of generators over any arbitrary size limit. The cause of the export is the total generation being higher than the total demand. This reinforces the overarching principle that access to the transmission system can only be properly managed by an agent or agents that act for all the generation and demand connected to a distribution system.

Cost reflectivity

We are strong supporters of cost reflectivity and point out that with respect to flow related costs on the transmission system these are driven by the net flows onto and off that system.

Perverse incentives - voltage and location

Providing charges are as cost reflective as possible, there should be no perverse incentives in these areas. As far as transmission charges are concerned, basing them on net flows on and off the transmission system is cost reflective (with respect to costs caused by flows) and so charging distribution system connectees (through an agent or agents) for their use of the transmission system based on the net flow onto or off the transmission system is cost reflective.

Perverse incentives – size

Having an agent or agents being responsible for the net flow onto or off the transmission system removes the issue of size threshold from charging altogether. We agree that it is perverse to size plant marginally below arbitrary figures. The worrying possibility is that if there are an increasing number of smaller and smaller generators the arbitrary figures will become smaller and smaller as of course a larger number of smaller generators has the same impact on transmission system flows as a smaller number of larger generators.

Other matters

We feel that the current philosophy of a direct relationship between the TSO and certain generators connected to the distribution system is under strain. This is due to the increasingly complex number of contractual arrangements and because transmission system flows will be driven in the future by a larger number of smaller generators. Adjusting size thresholds will only buy a certain amount of time. Even if it is initially more resource intensive to implement, the agent model would be an enduring arrangement, and will work irrespective of the future makeup of distributed generation.

Chapter 5 Options for an enduring charging framework

Option 1: Do nothing

Clearly not recognising that a distribution network may export is like trying to turn back the tide. The do nothing option is unlikely to be satisfactory from the point of view of either generators or the transmission system operator.

Option 2: De-energise plant that spills

This is not practical as spill is a net effect of all generation and demand within a distribution network so it is impossible to identify which generator or generators are responsible for the spill. Indeed export could be due to a decrease in demand, yet it is clearly illogical to suggest that additional demand should be created.

Option 3: Amendments to the charging model

We agree that amending the transmission charging model may deal with the issue of 132kv connected generators in Scotland but would not resolve any of the other matters. We have earlier suggested allowing 132kv connected generation and demand to be charged on a net basis throughout Great Britain as a possible way forward on this.

Option 4: Extend the transmission charging model to part of the distribution network

We support cost reflective charging and extending a transmission type charging model to part or all of the distribution network may or may not be the way forward. This should be progressed as part of work on developing distribution charges. Whatever the outcome however it will not address the issue of who should pay for transmission system and on what basis.

Option 5: Amend the size thresholds for payments for use of the transmission system

We do not support this as it is neither enduring nor cost reflective. The only sensible way forward is to base charges on net flows on to or off the transmission system.

Option 6: Create a consistent liability for charges

This option has considerable merit although we feel that it is actually a subset of the next option, with a particular adjustment to the charging methodology. Separating the locationally varying elements of transmission charges (which should in principle be equal and opposite for generation and demand) from the residual element would allow generation and demand to net off the locational element automatically. We feel however that the residual elements should also be netted off between generation and demand as it is only the net flow onto or off the transmission system that imposes flow related costs and which therefore should be charged for.

We consider this to be a subset of option 7 as there is mention of using suppliers as an agent (as they are for demand at present) and it is assumed that payment by distributed generators of the "inverse" of the demand tariff would also be through an agent.

Option 7 Agency Models

For reasons that we have made clear this is the model that we support as it will allow transmission charging of distribution connected parties to be undertaken on a net basis, avoid the need for the TSO to have direct contracts with an ever increasing number of parties and avoid the need for all arbitrary size limits.

Whilst both supplier and DNO agency models have merits (we think that the independent DSO one is unnecessarily complex in terms of introducing new organisations) we think that on balance the DNO agency model is superior, because

- All parties concerned already have a contractual interface with the DNO
- The DNO is in the perfect position to aggregate net flows on to and off the transmission system. Indeed this must be undertaken for the purpose of planning and agreeing with the TSO requirements for the DNO connection to the transmission system
- The DNO has an enduring relationship with all parties connected to it and already needs to know their short medium and long term demand / generation plans for the purpose of planning and operating the distribution network.

General and timescales

We acknowledge that the option we are advocating will require some thought to implement. Nevertheless we feel that an agency model is the only one that will provide a truly enduring solution and the effort to move to one will be worthwhile in the long term. In terms of timescales a realistic target date for bringing in the changes necessary would be between April 2007 and April 2010. The former would coincide with the start of the next Transmission Price Control period and the latter with the next Distribution Price Control period. Further consideration would be needed as to whether there is merit in the date for the new arrangements coinciding with one of these events.