

# **INCENTIVES TO PROMOTE EMBEDDED GENERATION**

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## **1 Introduction**

There is increasing acceptance of the potential power of incentives and market mechanisms to help to deliver the Government's environmental targets. Renewable generation will benefit from ROCs and CHP can help energy-using companies to avoid the Climate Change Levy. However, this use of the carrot rather than (or as well as) the stick has not yet reached the distribution companies. They may be monopoly businesses, used to operating under the terms of regulatory licences, but this is no reason to exclude them from a package of effective economic signals.

## **2 Connecting Embedded Generation**

Much of the work of the DTI/Ofgem Working Group on Network Issues related to embedded generation, focussed on the cost implications of connecting increasing amounts of renewable generation to distribution networks. The emphasis was on whether the charges being made by distribution companies properly reflected the net costs of the new connections. There is a danger that this approach could lead to misleading messages. In particular:

- Many generation projects fail for reasons other than excessive connection costs (such as difficulty with planning consents)
- Connection charge policy is about cost-recovery, not incentivisation.

It would be wrong to suggest that the Working Group should not have recommended a review of connection charging, but this is not enough.

## **3 Connection Charging**

Connecting generation to a network designed to deliver power from the grid to consumers' premises is often expensive (even if there is some network in the vicinity!). It is beyond the scope of this paper to explore the reasons why. What matters for this purpose is to recognise that such costs must be paid by someone, if the generator is to start producing. The options are restricted, though there are several that are worthy of some consideration :

- i) *The new generator* – the premium available to renewables from the system of ROCs should provide sufficient compensation for all the costs that would otherwise make a project uneconomic. If this is not the case, the scheme will fail to deliver the anticipated increase in renewable generation and the resultant benefit against environmental targets. A similar argument could also be applied to the Climate Change Levy exemption available to operators of CHP plant.
- ii) *Electricity Suppliers* – the distribution company could increase its use of system charges to recoup (some part of) the capital costs of

connecting renewable generators. Such costs would be passed on to customers, who are the ultimate beneficiaries of a greener generation mix. It may be appropriate for such a scheme to operate on a national basis. In this case the concentration of renewable generation in areas with particularly favourable resources (such as wind or waves) would not lead to higher local use of system prices, when the environmental benefit was enjoyed across the whole country.

- iii) *Tax Payers* – this would extend the concept of public benefit one stage further, but is unlikely to be popular politically (and may be difficult to sustain). It also removes the potential link between the source of revenue and energy usage, which is the original driver of the environmental targets.

In the long term, it is inappropriate to consider the shareholders of distribution companies as the means of cost recovery. Full cost recovery for the distributor is a prerequisite, consistent with their obligations to offer connections to all parties and with the regulator's duty to secure that licence holders are able to finance their activities. Shareholders might be expected to assist in financing some of the other options above, provided they are able to earn a suitable return to reflect the costs and risk of providing such funds. There are likely to be advantages in such arrangements: for example if companies are incentivised to finance reinforcement expenditure, this may open up avenues for addressing the first-comer/second comer distortion that is one of the oft cited problems with the current up-front deep charging approach.

Certainty of cost recovery, however, is not an incentive to act. It only represents the removal of a disincentive. For distributors to positively want to see generation connected to their network requires a more obvious carrot to be dangled in front of them. If suppliers and generators are expected to respond to financial incentive, why shouldn't distributors?

#### **4 Developing an Incentive Regime**

Ofgem's work on an incentive regime for distribution companies has led to a narrowly defined scheme which considers performance against only three headings:

- The number of interruptions to supply,
- The duration of interruptions to supply,
- The telephone response to customers related to interruption to supply.

It is debatable whether embedded generation has a consistent, significant or attributable effect on any of these. Other elements of the DTI/Ofgem group's suggested work programme will research this. While it is possible to envisage circumstances in which local generation could support networks which might otherwise be in danger of failing, there will also be cases where the existence of a generator adds to the risk of failure or complicates the repair process. IIP as currently proposed is unlikely to stimulate enthusiasm among distribution companies for more locally connected generation.

What is needed is a separate income source that does reflect the level of embedded generation, but goes beyond simple cost recovery for the reasons described in the section above. Ofreg have discussed this in their recent paper on 'Greening Transmission and Distribution'. They propose an incentive on NIE's distribution business to carry more kWh than the transmission system (after allowing for losses). Such a mechanism would positively reward the growth of embedded generation in a distribution area.

There are similarities here with the problem faced by ORR in trying to match the incentives on Railtrack with the Government policy objective of increasing the usage of the rail network. ORR have responded by creating an adjustment to Railtrack's allowed revenue which reflects increases in both train miles and revenue, against a baseline volume. The particular device used by ORR is to make an adjustment to Railtrack's RAB thus insulating the incentive from the effects of each price control review.

It would be possible for Ofgem to use a similar approach and to establish a new component of RAB that reflects the capacity of embedded generation connected to the distribution network. For this purpose it would be necessary to consider the precise definitions to be used. At present there are different treatments of renewable generation and CHP in various elements of Government policy. However, there would be scope within such a scheme to offer differing levels of RAB-based reward for different forms of generation – perhaps to reflect the complexity from a network perspective, the likely longevity of the generation source, or the environmental benefit.

In either of the cases described above, the scale of reward would need to be considered in terms of its likely effect on distribution behaviour. The additional income would have to more than offset the additional complexity that would be introduced to network operation and management from the growth in embedded generation. At this stage, it is important to establish the principle that incentives should be aligned across the whole market if real change is to occur. While distributors do not have the commercial opportunities available to generators and suppliers, connection issues will always be seen as a frustrating element within the chain of events needed to secure an increasing share of renewables in the country's generation mix.

## **5 Conclusions**

This paper points out that real commercial incentives on distributors have been ignored in the debate on embedded generation so far. The arguments have been about cost recovery, and where the distributor should look to recoup the costs of connecting new generators. This would remove the understandable concern that distributors will be left with stranded costs, but does not begin to build a positive incentive on them to encourage more embedded generation. For that to happen we should look to the recent examples set by Ofreg and ORR, who have suggested ways of providing additional income where companies move their businesses in ways that match Government policy objectives.