

Northern Ireland Electricity Limited

**Consultation on Electricity
Connection Policy to the Northern
Ireland Distribution System
(15 November 2010)**

NIE's Response

10 January 2011



Executive Summary:

- NIE would support the move to cost reflective charging and therefore the removal of the 40% subsidy for domestic and smaller commercial connections. However, it should be noted that, when an asset becomes wholly a Connection Asset, it is not included within NIE's Regulated Asset Base (RAB) and therefore O&M costs would need to be added to the Connection Charge.
- We agree that the charging of the full cost of a connection for a new dwelling or business premises would act as a locational signal to future developers.
- NIE, in conjunction with the Utility Regulator and CCNI, would support the allocation of resources to developing a policy framework, to be determined by the Utility Regulator, for connection of vulnerable customers.
- We do not believe it is appropriate for micro-generation connections in Northern Ireland to be subsidised by use of system tariffs.
- NIE does not consider it appropriate to extend the period for rebates for shared connection assets for all connections on the Distribution System to 10 years. However, NIE recognises that for high cost distribution system load and generator connections that an extended timeframe for rebates should be considered. Furthermore, whilst NIE would support a change that sees rebates applied to all classes of customer connected to the Distribution System, careful consideration would need to be given to how this should be implemented.
- NIE would question if moving to a 'semi shallow' connection policy is compatible with the Utility Regulator's stated desire to ensure transparent, fair and cost reflective connection costs. We would propose that the Utility Regulator and NIE should scope the terms of a review which should be conducted before deciding this matter (this should also include the issues relating to micro-generation presented in Section 6 of the consultation paper).
- NIE would welcome the introduction of an appropriately structured incentive scheme aimed at reducing quotation and connection times. Furthermore, consideration should be given to the length of time a customer quotation is valid and if a re-quote fee should be applicable.
- NIE believes that the introduction of contractually binding agreements in relation to connection works would introduce additional and significant contract management costs into the delivery of these works. This would not be in the best interests of customers.
- The current "up front" Operation and Maintenance (O&M) payment arrangement for generator connections could be reviewed against the possible alternative of taking annual payment for O&M charges over a certain value. NIE would need to consider a threshold value for such cases in order that the offer of such an arrangement is transparent and fair between customers and classes of customer.

Introduction

Northern Ireland Electricity plc welcomes publication of the Utility Regulator's consultation paper on Electricity Connection Policy to the Northern Ireland Distribution System. We are pleased to provide the following comments on the issues discussed in the consultation paper and look forward to working with the Utility Regulator over the course of its review. For ease of reference, we have used the same section numbering as the consultation paper.

Section 3 Current charging methodology in Statement of Charges (new domestic and smaller business connections)

NIE would support the removal of the 40% subsidy for new domestic and smaller commercial connections in a move to cost reflective charges. This would be the first step towards creating a competitive market by ensuring that the pricing strategy exposes the full cost of delivering connections to competitive pressures to entice contractors to enter the market. NIE would support the introduction of competition in connections activity.

All service providers' pricing policies must be easily comparable. At present NIE largely implements a 60/40 pricing policy which means that a new customer is charged 60% of the connection costs "up front" with the remaining 40% currently being recovered over the assumed 40-year connection life through Use of System (UoS) income. New entrants to the NI connections market would not have the ability to subsidise connection costs with tariff income therefore removal of the existing cross subsidy of connection costs from UoS income to encourage competition is required.

Removal of the present subsidy will provide a greater incentive to new customers to take the least cost option when considering a new connection. For example, developers would be more likely to take account of the full cost implications of alternative substation sites within new estates if they are required to pay 100% of the difference in any connection costs.

Currently a Standard Connection Charge of £420 applies to individual connections for Housing Developments of 12 or more dwellings paid on an individual basis prior to energisation. Whilst this Standard Connection Charge is based on the 60/40 principle, calculated annually, there can be substantial cross subsidy since some developments have very high connection costs. NIE believes the removal of the Standard Connection Charge would rectify this anomaly and act as a locational signal to developers.

The general body of electricity customers would benefit from this change in policy since net Capex associated with new connections would not be funded by use of system and consequently customer tariffs.

Removal of the 40% subsidy for demand customers will require a change to the DUoS tariffs <1MW. Careful thought is required to the phasing in of a new policy for recovery of connection costs in the DUoS tariffs to ensure both new and existing customers are treated fairly. It is not possible to treat all customers equally as those

connected prior to April 2012 will have already received the 40% subsidy and yet they will be charged under the same DUoS tariff as customers who pay 100% connection costs “up front”. It should be noted that any such change in charging policy will simply re-allocate NIE’s regulatory income from UoS tariff revenue to connections contributions and there will be no net financial gain for NIE.

It should also be noted that, under the present rules, when an asset becomes wholly a Connection Asset it is not included within NIE’s Regulated Asset Base (RAB) and therefore O&M costs would need to be added to the Connection Charge. This would result in the connection appearing to cost just over twice as much in developer payment terms.

It should be recognised that the move to cost reflective charges for new connections has the potential to significantly increase the number of complaints from customers in relation to the level of connection charges. This in turn may lead to a higher number of requests for determination being referred to the Utility Regulator.

Section 4 Treatment of domestic connections of significant cost

NIE agrees that charging the full cost of a connection for a new dwelling or business premises would act as a locational signal to future developers. We also agree that this should act as an incentive to developers to balance the cost of constructing properties with the cost of the construction of any additional electricity infrastructure required.

Section 5 Connection costs paid by “vulnerable customers”

NIE has to date worked with the Utility Regulator and CCNI to develop an initial framework to facilitate decisions regarding connection charges to be paid by “vulnerable customers” and is happy to continue with this work. Clearly, determining the details of any applicable policy is primarily a matter for the regulatory authorities.

The number of occasions when this issue has arisen in recent years has been low. Therefore, the provision of electricity infrastructure should not represent a significant burden on the wider customer base. It should be recognised, however, that final connection charges to truly vulnerable customers still have the potential to go beyond their reach, particularly if the 40% subsidy is removed. Therefore, the level of funding set by the Utility Regulator towards connections for vulnerable customers will be an important consideration.

Clarity is required on how NIE should recover the subsidised amount. If the Utility Regulator determines that NIE should recover the subsidy directly from vulnerable customers over an extended period, then this could be facilitated by either DUoS charges or direct monthly/ annual invoices to the individual vulnerable customers. The latter option will require administrative arrangements by NIE and arrangements for claiming unrecovered connection costs will also need to be determined. If the recovery is via the DUoS tariffs, vulnerable customers will pay an average cost which may be higher than their actual connection cost.

NIE would agree with the proposed criterion that the applicant has to be resident at the address for more than 10 years.

NIE does not believe that it should be involved in the capture of potentially sensitive personal information to be used in deciding a customer's vulnerability and ability to pay. NIE would be prepared to complete a pro-forma that provides the relevant details of the connection offer to assist the agency or agencies designated to decide on vulnerability and ability to pay.

In relation to the question of whether or not any new infrastructure will bring broader benefits to the community, NIE is prepared to work with the Utility Regulator to help develop criteria against which this can be judged.

Section 6 Connection of micro-generation

With regard to the appropriateness of subsidising micro-generation connections from the use of system tariffs in Northern Ireland, it is important to consider the benefits and disadvantages of micro-generation to the network and the system.

Renewables target

The Strategic Energy Framework has a 40% target of energy from renewables by 2020. The majority of renewable energy is likely to come from large scale wind farms or large scale biomass plant and later from ocean energy. Our analysis shows that there are various combinations of these energy sources which could meet any interim and final targets until 2020. Up to 70MW per annum with a median of 50MW of small scale generation might be expected and would add to the transmission network burden.

Small scale wind will on average have a lower generation load factor than large scale wind because the turbine hub heights are lower. Therefore more MW need to be installed to get the same energy yield. On the other hand, biomass, energy from waste and other non-variable generation may have a significantly higher generation load factor and can assist in achieving the Plan proportionately more than on-shore wind and with less uncertainty in output.

Therefore it seems that, at least as far as the interim target in the SAP is concerned, this could be achieved with or without small scale renewable generation.

Technical issues

Operation

From a system operator point of view, a large body of distribution connected generation needs to be associated with at least summarised information and some level of control, albeit through either aggregators or the DSO. Technical and administrative arrangements are required, but the Distribution Code compels the generator to make signals and information available.

Inertia

We have carried out research with QUB which indicates that small scale wind generators seem to have an inertia constant of about 4.5MW/MVA which is approximately equivalent to some large plant. This is because it is Fixed Speed Induction Generator plant. Biomass and similar plant should have similar inertia unless it is fully converted DC generation. So in essence small scale generation is generally much better at provision of inertia than doubly fed induction generation or fully converted generation used in larger wind farms.

Reactive power

The problem on distribution systems is to limit voltage rise, so the ability of generators to absorb reactive power rather than generate it is often advantageous. On the other hand, that reactive power needs to be made available and there is an equipment cost in doing so. Generators could be asked to contribute to that as part of the cost of connection.

NIE, together with industry experts, developers and academics, has considered the generation performance and communication and control arrangements necessary to facilitate higher levels of penetration of small generators onto the distribution system. These requirements have been approved and published as a Distribution Code, so that fair and transparent access is assured. It is not at all clear that small refurbished scale wind generators coming forward can become compliant with the requirements. The principal plant requirements relate to tolerance of system conditions and control of voltage / reactive power.

Reserve and energy balance

It is unlikely that micro-generators would contribute to reserve and we do not comment further on that or energy balance which are matters for the Transmission System Operator, SONI.

Therefore, it seems that, provided distribution system operators are facilitated to manage their systems, embedded generation can be accommodated. Energy balance and reserve are a separate issue. Aggregation, either formally by aggregators or by DSOs, may offer some scope.

Network issues

A small amount of embedded generation may create network capacity and losses benefit by cancelling local load at times. On this basis, it was determined that such generation should not be liable to pay DUoS. By way of explanation, if the generation required extra local capacity to connect, then that was charged in full. The principle was that connecting network capacity was paid for in full and therefore no annual charge was due, and the load on the remainder of the network was lightened and therefore no annual charge was due. This resulted in the full connection charge / no DUoS principle for distribution connected generation.

However, when the amount of generation connected in aggregate exceeds the ability of the circuit to deal with voltage variation or exceptionally thermal capacity, then the driver for investment has changed from load to generation. Voltage performance can be improved a little by allowing the generation to operate in the inductive

quadrant absorbing reactive power, but that reactive power needs to be provided at source. It is inefficient and potentially destabilising to provide large amounts of reactive power from a few synchronous generators connected to the 275kV system to feed loads deep in the distribution system. So some form of power factor correction may be required at local step down substations.

A further problem, highlighted in the consultation paper, is that when the rural 11kV system in NI was developed in the mid 1900s it was created as inexpensively as possible because individuals were paying for much of it in connection charges. Much of it was created as single phase branches of 3-phase lines. Often these were long and with further branching over their length. The system has served well for 60 years, although recent storms have shown a weakness to severe winds. NIE has already decided to use heavier construction for new work. Given the cost of upgrading long lengths of this network, under the present connection charging policy NIE has advised applicants that only generators within a reasonable distance from a 3-phase line are likely to find connection of generation financially attractive.

In view of the level of NIROC support to many of these generators, NIE does not favour subsidising the cost of connection, however we would support a review of the extent to which a generator should pay for upgrading an 11kV network from single phase to three phase. We believe that other customers may benefit from the additional resilience and opportunity which this brings. We recognise that, given the size of the network, it will take a long time to achieve overall, but the work could be prioritised to help turn the core network into a more “generation friendly” connection environment.

We believe that such a review should encompass Section 8 of the consultation paper by determining what part of the network should be paid for by generators and what part of the upgrade carried out through addition to NIE’s RAB. Therefore, we would propose that the Utility Regulator and NIE should scope out the terms of such a review which should be conducted before the charging principle in Section 8 is determined.

If contestability, subsidies, and rebates in connections are introduced in the future these generation connections could be very complex to implement and manage. Can NIE offer connection to a part of the distribution network that is not under its ownership yet and where the final costs are not yet known? How will O&M costs be managed?

As pointed out in the Utility Regulator’s consultation paper, distribution systems were designed to transmit energy from the transmission connected energy sources to load customers. It is at the transmission system level where network security can best be provided. Distribution systems were not designed to keep generation connected during a network outage, nor would it be practical to introduce such a standard. Furthermore the consultation paper highlights the risk that large scale grid code compliant renewable generators might have to be curtailed in order to allow micro-generators to operate. It would seem inappropriate, having made the necessary network and control investments to connect the large scale grid code compliant renewable generators that their operation is curtailed and further investment made to connect micro-generators. Notwithstanding the need to review the charging

approach for 11kV single-phase to three-phase conversion, we consider that backbone investment represents better value for money at higher voltage levels. However, we note that micro-generation can still play its part in delivering renewable energy. On balance, whilst we would support considering where the boundary should be between backbone and final connection responsibility, we believe that the final connection charging would be more consistent with other proposed changes if charged at 100% of the costs of that work.

Section 7 Rebates for generators and customers

Whilst NIE recognises that there is a discrepancy between the Transmission Connection Charging Methodology and the Statement of Charges for Connection to the Northern Ireland Distribution Network in relation to the period for rebates for shared connection assets, NIE does not believe it is appropriate to extend the period for rebates for shared connection assets on the Distribution System to 10 years for all Distribution System load or generator connections.

The costs for connection to a Transmission Network are significantly higher than those associated with connection to a Distribution Network. The number of further connections to the Transmission Network needing to share assets will also be significantly less. This makes a 10 year rebate period appropriate for Transmission connections since a rebate even towards the end of the period will most likely still be substantial.

On the distribution system the number of subsequent connections made could be substantial and could lead to multiple rebate calculation particularly if extended out to 10 years especially for the low cost connections. This has the potential to be complicated and difficult to manage not to mention the increased costs associated with storing and retrieving the necessary information. As connection costs on the Distribution System are generally lower than on the Transmission System there is a high probability of administrative costs outweighing any potential rebates resulting in low or zero refunds to customers.

However, NIE recognises that for high cost distribution system load and generator connections that an extended timeframe for rebates should be considered. One option could be for any load or generator connection above £500k there should be a 10-year rebate timeframe.

If the Utility Regulator is minded to proceed with a 10 year period it should be implemented from April 2012 onwards. Furthermore, NIE currently only retains connections data for 6 years and to extend this to 10 years will increase costs to customers.

Whilst NIE would support a change that sees rebates applied to all classes of customer connected to the Distribution System, careful consideration would be required on how this should be implemented. Due to the differing connection requirements for commercial and domestic customers (three phase supplies versus single phase) rebates could be very difficult to calculate and the administrative costs of managing this would increase. However, as indicated above, we recognise the need for an extended timeframe for high cost load and generator connection.

Finally, in a fully competitive connections market all participants will be expected to adhere to such a policy which could make the application and value of refunds complex.

Section 8 The definition of “connection assets” and associated costs

NIE would question if moving to a ‘semi shallow’ connection policy is compatible with the Utility Regulator’s stated desire to ensure transparent, fair and cost reflective connection costs.

For a shallow or semi-shallow connection policy to be fair and transparent, it needs to be linked to locational tariffs. We would question whether locational tariffs could be applied or would make sense on a distribution system. At present Generators pay no DUoS and this would represent both a major change and a major financial risk to such Generators. There would also be a very significant legacy issue to manage.

Providing a subsidy to generators through a ‘semi shallow’ connection policy (as would occur if locational tariffs were not introduced) will naturally encourage generator connection to NIE’s distribution network however it will fail to provide any locational signals. It is a general maxim of a modern system of charging that some degree of locational signal is given to Generators.

Charging policy cannot, therefore, be viewed in isolation from the wider needs of the network (see our comments under Section 6) and we would suggest that more work is needed to assess the impacts of decisions in this area. We would also caution that unless very detailed rules are developed, there may be costly consequences of such a change in distribution charging policy, where customers who should be connected to HV supplies can only be charged for connection to already stressed LV networks.

Section 9 Timing of Connection Offers and Connections

The level of service provided by NIE in a number of areas is governed by standards that have been agreed with the Utility Regulator. The agreed standard for the provision of a quotation for the majority of new load related connections is either 7 working days for a small job or 15 working days for a larger job. NIE believes it offers exceptional service in this area having achieved 100% compliance with this standard since April 2003.

The agreed standard for the construction of a range of new load related connection is within 30 working days for a domestic customer and 40 working days for a non-domestic customer. This is from the date that the terms for connection are accepted and does require all legalities and planning permissions to be in place. NIE has achieved 100% compliance for the past 7 years.

Whilst having achieved a high level of performance against both of these standards NIE continues to strive to reduce the cycle times associated with aspects of the process for providing all other new connections not covered by existing standards.

NIE would welcome the development and application of incentives that would provide the impetus to deliver improvements in this area.

As part of the process for the provision of a new connection, NIE will always attempt to work with customers to achieve connection within the desired timescale. Whilst in the majority of cases this can be achieved there are occasions when timescales do not meet the customer's requirement. Quite often this can be due to a late application by customers because they were unaware of the timescales necessary to complete the process. In the case of generation or more complex loads, the customer needs to supply a significant amount of technical data. Analysis can only be carried out after that information is complete. There are elements of the process, particularly with respect to gaining DRD Planning Permission, the granting of legal permissions by third parties and compliance with Roads and Street Works legislation, which are beyond the direct control of NIE. Any agreement to a date for connection would need to recognise these external factors.

NIE does not believe that a customer's position in the programme to have their work completed should be based on their ability to pay. Notwithstanding this, and whilst it is not the preferred method of operation, NIE is prepared to explore options for customers to pay for an accelerated service where the accelerated service is in relation to working outside normal hours. As there is a limit to the volume of out of hours working that can be sustained, the circumstances in which this would be applicable need to be considered carefully. In the case of generation or commercial load, the customer is then free to balance the additional cost versus additional income.

NIE currently works to agreed standards for the quotation and delivery of a range of new load related connections and would be prepared to develop the scope of these standards further and link them to an appropriately structured incentive scheme aimed at reducing cycle times for customer connections generally. However, NIE does not believe that it is in the customer's best interests to include contractually binding duration for the connection works within the terms offered for connection. There are many occasions when customers and developers are not ready for NIE to complete works on the days agreed leading to wasted journeys and expensive downtime. The monitoring and management of claim and counter claim will introduce additional and significant contract management costs into the delivery of these works.

NIE's connection offer is valid for 90 days and there is no re-quote fee if a customer requests multiple quotes. We believe that this slows down the overall connections process. NIE understands that the quote is only valid for 30 days in parts of GB and that there is a £250 re-quote fee. In our interactions with one GB DNO, it pointed out that this approach speeds up the overall connections process. The shorter validity also assists in removing uncertainty for offers which are interactive.

Section 10 The treatment of Charges for Connecting Groups of Generators

Consideration of grouping smaller generators applying for the 11kV network onto the 33kV network may be required in the future. However, the geography may make this less attractive than for wind farm clustering.

Section 11 Other Issues

11.1 Operation and Maintenance (O&M) Costs

It is noted that the Utility Regulator does not at this time propose any changes to charging for O&M but will seek to address costs and charging methodology in future papers.

The current “up front” payment arrangement for generator connections could be reviewed against the possible alternative of taking annual payment for O&M charges over a certain value. The present calculation includes the rate of return which is consistent with the rate of return allowed on the RAB. NIE would need to consider a threshold value for such cases in order that the offer of such an arrangement is transparent and fair between customers and classes of customer.

11.2 Grid Code and Trading and Settlement Code Costs

Currently NIE includes, where necessary, the costs of providing SONI communications and Grid Code costs within the distribution connection offer to the customer. These may not be explicit enough within the offer and NIE accepts that there is scope to improve the transparency of these costs.

11.3 Contestability

As indicated previously, NIE would support a move towards competition in connections. NIE believes that certain activities within the connections domain should not be exposed to competition. An example of this is the design of a new connection. Network reinforcement has to be considered for each new connection application. On occasions (and with distributed generation the incidence will increase) applications are interactive. It is therefore appropriate for NIE to design a connection as only NIE can calculate reinforcement requirements with the knowledge of other applications, network load and capacity. It is an important licensee principle that the details of each application are confidential to the licensee.

Deciding which activities are suitable for competition will require the compilation and agreement of a list of contestable (suitable for competition) and non-contestable (not suitable for competition) activities.

NIE has a rigorous authorisation procedure to allow engineers etc to work on the electricity infrastructure. In a competitive environment, both NIE and the Utility Regulator need to be satisfied that new entrants to the market are adhering to the required quality and health & safety standards.

Where contestable work is completed by a licensed connections contractor it will be necessary for the connections customer to enter into an Adoption Agreement with NIE. This Adoption Agreement transfers ownership of the electricity infrastructure from the connections customer to NIE and enables NIE to maintain the infrastructure on the customer's behalf and use the infrastructure in providing new supplies to others. There is also a need to monitor the quality of work carried out, so that NIE only adopts connections constructed to an acceptable standard. Development and implementation of that process has a cost. Developers will need to factor that cost into the overall cost of options.