

# All island Transmission Use of System Charging and Loss Factor

## Airtricity Position Paper – 27 March 2009

### Purpose of Transmission

Transmission is of course essential for interconnecting generation and load, but it should not be seen as dictating the market shape, or of defining the nature and location of either Generation or Demand. Adoption of such a philosophy would be to have the tail wagging the dog. Transmission access for Generators is a "ticket to ride" - to get in the energy market. It is not an end in itself.

### Charging philosophy

Transmission access should be cost based, not value based. In particular we believe that Transmission charging must move away from subjective, modelled scenarios based on assumed merit order dispatch but lacking in ex-post correction. As a natural monopoly, the Transmission provider receives a guaranteed, regulated return for efficient investment so should not seek to use complex, opaque and pseudo-economic signals to distort broader signals, such as resource availability, that are far more relevant to Generator or load location than network charging – and fairer.

When Transmission revenue is fixed, large locational incentives merely transfer wealth between participants. Transmission charging should reflect the underlying fact; that the system is a tradeoff between efficient investment in a secure network and Generators receiving low-risk access to transport their power to market (customers) over both the short and long term. For too long the underlying Transmission charging philosophy has been based on constraining Generator access for the purpose of avoiding additional network development.

Transmission is all about assets and capacity. Certainly there is a need for efficient investment, but once that has been made it is fairly pointless to argue about utilisation of an interconnected network of regulated assets with a 40-year life!

**Adoption of Grid 25 means that this previous approach is now redundant and new charging arrangements can reflect revenue recovery rather than capacity rationing.**

### Commercial drivers

#### Network investment drivers

Decisions on whether or not to build new Generation should be governed by commercial signals in the energy and capacity markets. These signals should deliver the required level of demand security, which must be the starting point. The Regulatory Authorities decide (on behalf of customers) how much Demand security is "worth" both in terms of Generation (the capacity payment) and delivery (network). In turn this determines the security standard for the core Transmission network and hence the asset and investment levels.

**Ultimately therefore, demand drives Transmission investment.**

#### Source of customer value

Energy charges comprise around half the cost of a delivered kWh and Distribution charges add roughly another third. A competitive energy market will drive development of a more efficient generation portfolio and deliver more value to customers than a perfectly configured Transmission network.

**Transmission needs to facilitate energy market competition and not interfere with it because an efficient energy portfolio will save more than imposing a cost allocation methodology designed to deter a Generator from connecting.**

## Transmission charging principles

### Demand

Since Demand ultimately drives the level of Transmission assets required to meet its security requirements, charging must be based on the level of peak demand and efficiency of network usage at an aggregate level. Therefore Demand Transmission charges must differentiate between times of capacity surplus and capacity scarcity. We believe that a "triad"-type charging arrangement is an excellent signal for load to self-constrain within an envelope of efficient network investment. This is an excellent proxy for the value of network capacity; the alternative is to constrain investment and oblige load to remain within available capacity through disconnection.

At a localised level users may or may not choose to have a lower standard of connection security. Locational charges should only relate to this aspect of their connection, since all users benefit from the core network security standards and associated charges; there is only one network.

We do not believe that it is necessary for Transmission charges to target each individual user; if a Supplier's aggregate load is the basis of charging, then each will allocate demand charges to its customers in a way that passes the signal through. This is certainly a simpler approach than any system of charging based on the assumption that customers have to be individually charged by the TSO.

**Demand charges should reflect aggregate demand at system peaks.**

### Generation

Generators should pay charges;

- for having the core network in place to transport their power to (potentially) all demand,
- that reflect the incremental cost of connecting them into the network at point A rather than at point B. But these should be at a level which ensures the correct "economic cost" between the Transmission system and Generator is "sensible". e.g. A Generator having a choice to connect at either of 2 nodes, cost difference to Gen €100k, but cost difference to Network provider of €100m - needs an appropriate signal. However this signal need only be sufficient to incentivise the "correct decision". It does not have to be and should not attempt to be "fully cost replicating", since the TSO is a facilitator; not judge and jury,
- that are local, but only to the extent these reflect the required level of security; ie single or double circuit for a more secure connection.

While some Transmission service providers sometimes adopt the most arcane of methods in seeking to recover non-locational charges (the "residual"), we believe Ireland should have a straightforward and sensible system of charging. Any system that purports to allocate every Euro cent to its "economically correct" 13 amp socket, based on intensive use of a Cray supercomputer and a collection of heroically opaque input assumptions, is pointless. As highlighted above, energy market efficiency delivers far more value to end-user customers.

**The process used to derive Generator charges must be clear and based on the above high level principles and European tariffication guidelines (that limit the maximum charge on Generators).**

### Embedded Generation

Embedded Generation can be dealt with by requiring the interface between DNO and the Transmission service provider to have certain entry/exit requirements and be managed on a net basis. The TSO applies exit charges to the DNO, who allocates the cost to demand via Distribution charges. Transmission entry capacity charges should be allocated to embedded Generators on a net basis, also at the T/D boundary. This keeps the Transmission system consistent and the DNOs then manage their systems according to local needs and conditions whilst remaining "compliant" at the boundary. This arrangement will cater for the existence of a single Transmission system with two separate Distribution networks on the Island and allows for independent Distribution charging arrangements.

**Charges to embedded Generators should be tarified to reflect DNO payments for net Transmission capacity requirements at the T/D boundary.**

### Treatment of losses

The current arrangement of charging TLAfs is inaccurate, unfair and subjective. In the questionnaire associated with this Transmission review process, we list some of the main objections. In a joint cost allocation process there is no right answer and just because marginal losses exist in the vicinity of Generator A, it requires a particular mindset to attribute these to Generator A rather than to Generators B and C, whose recent commissioning has changed these losses. Therefore, even if the methodology were perfect and calculated with impeccable simulation based on perfect foresight of Network conditions, attribution of cause would still be subjective.

As Demand ultimately drives Transmission investment, it is wrong to penalise Generation for changes in the pattern of Demand. Unless nodal Demand losses are applied, it is discriminatory to apply nodal Generation losses (even if these were properly calculated and everyone could agree on fair attribution).

**All losses should be borne by Demand, particularly as the Transmission system is not fully metered and losses are calculated rather than properly measured.**