



Review of Locational Charges for TUoS and TLAFs

Presentation by Shane Lynch
AES Development Director for Ireland

Shane.Lynch@aes.com

Introduction

- Asked to represent the views of conventional NI Generators.
- Consulted with ESB Coolkeeragh and Premier Power.
- Views may well be common with most other conventional and wind generators.

Objective of Locational TUoS Charges for Generators

To send a signal to generators to locate at places where the incremental investment cost of network reinforcement is least.

Determination and Allocation of TUoS Charges

- Modelled marginal power flows based on assumed dispatch scenarios.
- 25% of existing fixed costs allocated to generators on the basis of these power flows.
- 75% of existing fixed costs allocated to customers on the basis of demand and jurisdiction.

Problems with This Approach

- Poor Quality Signal based on the Wrong Information
- Year-on-Year Variability
- Lack of Transparency

An Example of Poor Quality Signalling

Kilroot CCGT	RoI CCGT
275 KV Connection in NI	220 KV Connection in RoI
Firm Connection Offer	No-Firm Connection Offer
Reinforcement Costs Zero	Reinforcement Costs approx. €60m.
TUoS Tariff €11/kw-year	TUoS Tariff € -1/kw-year

NPV Difference = €50m, assuming a cost of capital of 8% over 15 years.

Grid 25 and Gate 3 – The New Location Drivers.

- Proactive and Centrally Planned Approach.
- Network Investment Driven By:
 - Renewable Generation Policy,
 - Facilitating Interconnection (to improve security)
 - **Assumed** location of new conventional generation (existing sites, close to sea ports and existing network).
 - Regional Development Plans “to **attract in** future industry and *boast existing industry*”,

Other TUoS Issues

- Why are TUoS charges not levied on interconnector imports?
- Why are demand TUoS charges not localised?
- Why charge generators at all, when ultimately costs must be passed to consumers?

Conclusions on Locational TUoS Charging

- Flawed Signal.
- Redundant Signal.
- Increased Investment Risk.
- Better to socialise costs jurisdictionally.

SEM Objectives for TLAFs

(as set out in the High Level Design)

- To encourage generators and demand to locate close to each other.
- To minimise losses via the dispatch process (dynamic efficiency).
- To correctly allocate the cost of losses in the settlement process.

Determination of TLAFs

- Not based on metered losses or historic losses.
- Based on assumed dispatch scenarios rather than actual dispatch.
- Based on static marginal loss factors calculated on an annual basis.

Problems with TLAF Determination

- Using marginal power flows introduces a major flaw because:
 - There is a convex relationship between variable losses and power flow, and
 - Losses also vary with distance of travel.
- Proper modelling approach would be to gradually populate the network with blocks of load. This is consistent with existing approach of generators declaring price/quantity pairs.
- To achieve economic efficiency in dispatch, all variables should be optimised in one step, across all P/Q pairs. This approach uses two steps.
- Lack of transparency on input assumptions (demand, availability, commodity prices, transmission constraints, operating reserve, amount of wind, TLAFs!).

Application of TLAFs in the SEM

- Unclear how generators are treating TLAFs in bids.
- Bids must be based on variable prices and quantities at station gate. Transmission losses occur after the station gate.
- Marginal loss factor applied linearly to all block loads although actual losses will vary with load and distance of travel. Therefore this approach will result in inefficient dispatch.

Cost Allocation

- Typically 50% of total losses on a transmission network are fixed and 50% are variable.
- Yet SEM allocates 100% of losses to generators on a localised basis.
- BETTA proposal is to allocate only 50% of total losses on a localised basis, of which:
 - 55% localised across demand, and
 - 45% localised across generation.

Conclusions on TLAFs

- Concept economically sound but determination and application of loss factors inaccurate and will result in inefficient dispatch and unfair allocation of costs.
- Volatility, subjectivity and lack of transparency increases investment risk.
- Socialising losses across all demand jurisdictionally is likely to be more equitable and efficient.
- At the very least:
 - Given that 50% of total losses are fixed, these should be socialised across all demand.
 - If the remaining 50% of total losses are still to be allocated on a location basis, this must also include demand.