

**NIE Energy Limited
Power Procurement Business (PPB)**

**Generator Transmission Use of System Charging 2011/12 Indicative
Tariffs and All Island Generator TUoS Methodology**

Consultation Papers

July 2011

Response by NIE Energy (PPB)

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Introduction

NIE Energy – Power Procurement Business (“PPB”) welcomes the opportunity to respond to the consultation by the Regulatory Authorities and the System Operators on the “Generator Transmission Use of System Charging – 2011/2012 Indicative Tariffs” and “All Island Generator Transmission Use of System Methodology”.

The objective of the harmonised transmission arrangements is to reflect the costs that the users impose on the transmission system and those participants that drive investment should pay higher tariffs. PPB supports cost reflective charging; however this is conditional on evidence to support the source of the relevant costs in addition to ensuring non-discriminative practise. PPB is extremely concerned that the methodology which has been proposed by the Transmission System Operators (TSOs) is not sufficiently robust to be used for tariff setting and is unfairly discriminating against a group of users of the transmission system.

PPB consider that the TSOs have not provided sufficient information to support their determination that Northern Ireland generators have driven investment costs to a greater extent than Republic of Ireland generators. PPB believes that the Regulatory Authorities need to complete a technical review of methodologies which have been proposed by the System Operators and a full, open and transparent consultation on the methodology undertaken. As a consequence of the flaws in the methodology and the discriminatory outcome that it produces, PPB cannot support the GTUoS methodology and indicative tariffs, which are being proposed. PPB accept that there is a balance between accuracy and expediency in implementing a solution, however we disagree with the need to implement the proposals in their current form as they are discriminatory, anti-competitive and will create significant winners (RoI generators) and losers (NI generators).

There are a number of decisions to be made by the SEM Committee, which were outlined in SEM-11-018, which are fundamental to this consultation and PPB believe should have been made prior to this consultation. For example, if tariffs are to be fixed for a period of 5 years, it is inappropriate to base the modelling on only one year of generation dispatch forecasting and also to ignore imports on the East West interconnector (which will impact dispatch over that period).

Transparency of the process

There has been a significant lack of transparency in the methodology and calculation of the indicative tariffs. This has hindered the ability of users to comment on the veracity of data, which has been used by the TSOs in their modelling, and the lack of transparency means that investors are (or would be, in the case of potential investors) unable to replicate the costing methodology with any degree of accuracy. The System Operators have provided only limited information in relation to the assumptions they have made when modelling use of the system. PPB consider that the methodology should be open, transparent and subject to full discussion and comment by all relevant parties. PPB is surprised that there has been little industry involvement in the development of methodology presented in the TSOs' consultation paper.

Subsidy between Northern Ireland Generators and Republic of Ireland Generators

The indicative average Northern Ireland charge (€4.8/kW/year) is 23% higher than the indicative average Republic of Ireland charge (€5.9/kW/year) which represents a significant cross subsidy, of approximately €7m from Northern Ireland generators to Republic of Ireland generators. Unfortunately, in a written response from the TSOs to PPB in relation to this significant disparity, the TSOs responded by quoting the average NI and RoI listed above and astoundingly state that NI tariffs were not substantially higher than RoI tariffs (i.e. they did not believe that a 23% difference in charges is "substantial") This raises considerable concerns about the thresholds of materiality which the TSOs have assumed throughout their modeling.

The postage stamp element of the proposed GTUoS (€3.5416/kW/year) represents an increase for Northern Ireland generators. This demonstrates that NI Generators will be forced to make contributions to regulated RoI transmission costs which may be higher for many reasons – such as: environmental policy; estimations of demand growth; or policies on undergrounding/overhead etc. This further emphasises our concerns in relation to generators in one jurisdiction effectively subsidising costs in the other jurisdiction.

The charging proposals appear to introduce undue discrimination against Northern Ireland generation without providing sufficient evidence to back up the assertion that Northern Ireland generators are disproportionately driving transmission system investment costs. PPB would therefore recommend that further work is undertaken and published to ascertain which users are driving investment costs which can be accurately defined and quantified, and a more robust decision made on whether any differences should lead to significantly higher charging for generators based in Northern Ireland

It is also important to note that in respect of the generators contracted to PPB the additional GTUoS costs are in fact borne by all Northern Ireland customers, through higher PSO charges, who will, under the proposed tariffs, be subsidising generators in RoI.

Conflicting evidence to support certain generators are driving investment

The NIE Capital Investments Requirements paper for RP5, states that Northern Ireland has a "strong transmission network having been developed to link major fossil fuelled power stations and to deliver bulk electricity to the more heavily populated parts of the country"...the strong network is therefore primarily in the east of Northern Ireland which is where Kilroot and Ballylumford power stations are located. However the proposed

tariffs for thermal generators in Northern Ireland are increasing significantly under the proposed TUoS methodology. Conversely the 2011-12 Generation Capacity Statement identifies the need for network reinforcement in the Cork region to enable all thermal generation to be exported. However the thermal generators located in Cork will be paying at least 15% less than the thermal generators located in Northern Ireland. It is therefore counter-intuitive that generators which are explicitly identified in the Generation Capacity Statement as requiring network investment are attracting lower TUoS charges than those which are located in strong network locations and which are not driving network investment.

TSO System Modelling

The TSOs have produced a merit order stack in order to create the dispatch files. This has required the TSOs to make some extremely important assumptions, which will have a significant impact on the results of the load flow analysis. The process relating to agreeing these assumptions has not been transparent and PPB has significant concerns about the robustness of the decision making in relation to these assumptions.

Dispatch Files

The merit order stack and subsequent dispatch has been created using fuel prices from a single trading day. The actual outturn merit order and dispatch will almost certainly be very different. The transmission system will have been built to accommodate different merit order scenarios, including changes in the relativity of coal and gas prices, however the TSOs have not taken these scenarios into consideration when proposing their tariff methodology. A change in the gas / coal price relativity will result in a significant change in the dispatch files for a potentially considerable length of time. However the TSOs have proposed using two different levels of wind generation output (80% and 0% of MEC) which raises an inconsistency in their methodology whereby different types of generation are being modelled differently. The probability of high winds during the summer minimum demand is extremely low yet the System Operators have used this as a scenario in their tariff methodology.

The TSOs' forecast of Dispatch Balancing Costs for the period 1 October 2011 to 30 September 2012 is €143 million, more than 7% of forecast energy costs, represents a significant value for constraining on out-of merit generation. Given that two of the main reasons stated by the TSO as to why constraint costs arise are: (1) transmission constraints and; (2) reserve requirements; the methodology adopted by the TSO of using only unconstrained modelling does not accurately reflect use of the system. Constraining off wind generation in order to ensure that adequate levels of reserve and reactive power are available to the System Operator is proving very expensive and whilst these ancillary services are being provided by thermal Generators located in close proximity to load centres these same generators are not being suitably compensated for the flexibility and ancillary services they afford and would be further penalised by the proposed GTUoS charges.

A weakness in the methodology is the use of a DC Model which is a simplification of a full AC power flow and looks only at active power flows, neglecting voltage support, reactive power management and transmission losses. Whilst it is recognised that DC load flow models have traditionally been used by system operators for planning purposes it is also recognised that there is an approximation error associated with DC modelling. The TSOs have stated that they validate their DC Linear Model with a full AC load flow model – however the results have not been provided to users. As stated in the

NIE Capital Investments Requirements paper for RP5 "if the future dispatch of power generators changes, as might be expected, to favour a significantly increasing proportion of wind powered generation, then there will be a corresponding need to invest in reactive compensation devices to adjust either the static or dynamic reactive power conditions on the network" which is a transmission system benefit currently afforded by thermal generators located close to demand centres which is not recognised in the proposed use of system charging methodology.

Moyle Interconnector Assumptions

The Moyle interconnector is a significant factor in the transmission power flows however the System Operators have arbitrarily selected a fixed Moyle flow based on historical flows from 2010. In the Summer Minimum Demand High Wind scenario the Moyle import value would only need to be reduced from 205MW to 139.8MW (a reduction of circa 32%) to materially change the tariffs for Northern Ireland generators. Similarly changes could be made to the other scenarios for the benefit of Northern Ireland generators, for example in the Summer Peak 0% Wind Scenario a reduction of circa 9% is required. PPB considers this methodology for forecasting interconnector flows to be very crude and the result of the selection based on historic flows has very significant impacts on NI generators. This is further compounded by the fact that Moyle imports frequently exceed the flows on the tie-line between NIO and ROI and therefore are a major contributor to the flows identified in the TSOs' modeling, yet the economic consequences of such imports is allocated fully to indigenous NI generators. This further highlights the serious flaws in the methodology. .

In the absence of a robust methodology for forecasting import values and on the basis that users of the Interconnector do not pay TUoS charges, PPB considers there is a strong case for the removal of interconnector imports from the load flow analysis. The degree of discretion which is currently afforded to the TSOs in selecting import values which ultimately affect the net North South flows can have significant commercial impact for market participants, creating winners and losers which we consider is potentially discriminatory and anti-competitive. This would be further compounded if tariff rates determined in this manner were to prevail for five years.

The Moyle interconnector has had two major failures in the last year and there is a high degree of uncertainty in relation to when the current subsea failure will be repaired and the Available Transfer Capacity restored to maximum levels. There is a chance that it will not be fixed until Summer 2012 and therefore the import assumptions made by the TSOs for 2011/12 will be extremely inaccurate.

Wind Capacity Factor Assumptions

It can be observed from historical analysis that the probability of high wind capacity factors are higher for winter months than summer months. However the System Operators have modelled the Summer Minimum High Wind Scenario with 80% of contracted wind capacity. National Grid (GB) have recognised, from historical analysis, that the coincidence of higher wind days with wind capacity factors of greater than 75% or more combined with low demand is in the order of 3 times per year. PPB has also reviewed wind capacity factors and have also observed that the probability of low capacity factors is higher in summer months than winter months. PPB has also identified diurnal characteristics with the wind capacity factors being higher, on average, for daylight hours than during night-time hours when the minimum demand will be observed. Given that the summer minimum only occurs for a few hours in the day then it seems inappropriate that GTUoS tariffs are based on this scenario, which occurs for

approximately a few hours in a year, whilst the TSOs ignore much more significant factors such as significant changes in the merit order and interconnector flows. The use of a scenario which occurs extremely infrequently has major implications for thermal generators in Northern Ireland as their tariff is being set by this scenario. It is unlikely that Northern Ireland thermal generators will be in the market schedule in the Summer Minimum High Wind Scenario and output from wind generation will need to be constrained off in order to ensure sufficient thermal capacity is synchronised to meet the technical requirements of operating reserve and provision of reactive power.

Open Cycle Gas Turbines

The primary purpose of open cycle gas turbines is to provide the system operator with replacement reserve for system security purposes, which will become increasingly important with increasing levels of wind generation. PPB believe that it is inappropriate for TUoS charges for open cycle gas turbines to be based on the Summer Minimum High Wind Scenario as they are least likely to be in the market schedule during these periods and will also be dispatched by the System Operator to provide replacement reserve.

A large number of generators located in Northern Ireland are not in the forecast market schedule. They are not therefore contributing to network investment. These generators are forced on as a result of existing transmission constraints or to provide the TSO with ancillary services. The decision by the TSOs under the methodology to force out-of-merit generation on at 1MW in order to derive a locational element of the tariff which is greater than zero cannot be justified as it results in out of merit generators being severely penalised by a discriminatory charge when they are not utilizing the system and the TSO is reliant on these generators to ensure system security is preserved. This methodology is unfair and PPB would propose that in any determination of GTUoS charges the locational element for out of merit generators, should be zero.

Consistency between TUoS, TLAF and BNE Peaker Locational Signals

The proposed locational signals under TUoS indicate that new generation should locate in the Republic of Ireland whilst the locational TLAFs and the BNE Peaker consultation shows that Northern Ireland is a better location to connect generation. It is extremely concerning that there are mixed signals in relation to the optimum location for installing new generation capacity. PPB also argue that SEM Committee must recalculate the cost of the BNE peaking plant using the actual 2011/12 Generator TUoS tariffs as decided by the RAs.

Cost File

The cost file has been based on the Transmission Forecast Statement and the Seven Year Statement however there are a number of concerns in relation to the use of these statements for the purposes of transmission use of system charging:

- Some of the investments have considerable capital costs and are also subject to uncertainty in relation to when they will be commissioned. For example the TSOs have modelled the system including the new Cavan-Turleenan circuits despite the fact that there is considerable uncertainty in relation to when these circuits will be commissioned and whether they will be commissioned within the 5 year future horizon. PPB would suggest that these circuits are removed from any analysis until such time as greater certainty can be provided to users.
- Whilst the new Cavan-Turleenan circuits have been included by the TSOs they have not considered use of the two 110kV circuits. The TSOs have not explained why these circuits cannot be used to transfer active power, especially during periods of high wind and low system demand, and therefore it is uncertain as to whether or not the TSOs have considered all the potential options.
- The operational topology of the system has traditionally been the connection of large central generators to the transmission system transferring electric power to the distribution system. With an increase in the number of generators connected to the distribution system, new transmission system assets may be required. However the TSOs have confirmed that not all investment costs are included in the tariff model (for example short circuit related works) as these costs are not included in the Transmission Forecast Statement and the Seven Year Statement.

Discrimination against existing generators and gaming investment timing

The methodology of including assets in the model for 5 years in advance and 7 years post commissioning discriminates against existing generators whereby new generators may only need to pay for the asset for 7 years or less. This could incentivise gaming by prospective investors, e.g. there is a benefit to them from proposing earlier connection than they really anticipate such that a larger proportion of the post-alised costs associated with any new transmission assets have been paid for by existing or other users.

Conclusions

PPB has substantial concerns in relation to the proposed indicative GTUoS Tariffs for 2011/12, as:

- The methodology which has been proposed by the TSOs is not sufficiently robust to be used for tariff setting and is unfairly discriminating against Northern Ireland Generators with indicative tariffs being 23% higher than those for Republic of Ireland generators. There has been a lack of transparency in the methodology and calculation of the indicative tariffs.
- The proposals result in a cross subsidy of circa €7m from Northern Ireland generators (and Northern Ireland customers in respect of PPB generation) to Republic of Ireland generators;

- The TSOs have made assumptions in their modelling which results in discriminatory and anti-competitive tariffs. For example they have arbitrarily decided on Moyle import levels and wind capacity factors when all other types of generation have been modelled using the dispatch file from the price driven merit order (except for out-of merit generation).
- The methodology for creating a locational charge for out-of merit generation is inappropriate as these generating units are likely to be constrained on during the Summer Minimum scenarios in order to ensure system security.
- There is a fundamental inconsistency between GTUoS and TLAF locational signals. This confusion and lack of transparency in TSO modelling methodologies will mean that potential investors will be unable to accurately replicate the costing methodologies increasing the risk of investing in the SEM. The signal also conflicts with the BNE proposals for 2012 which indicate the preferred plant should locate in Northern Ireland. The BNE cost will need to be updated to reflect the final GTUoS tariffs that are implemented for the 2011/12 tariff year.