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Dear Jean Pierre,

### **Consultation on Treatment of Losses in the SEM**

ESB PG welcomes the opportunity to respond to this consultation and looks forward to the conclusion of the TLAF consultation process which has been a long and contentious process for the industry.

ESB PG found the current consultation document somewhat unclear in places and difficult to interpret: In particular, the description of the methodology employed by the RAs lacks detail so as to facilitate full comment on the appropriateness of the analyses employed. Nonetheless we believe the output contains enough detail as to facilitate a response.

#### **Background:**

Before responding to this consultation in particular it is important to revisit the decision paper of 2010, which has led to this Impact Assessment and consultation on the impact of splitting.

The rationale provided by the RAs for the use of TLAFs in SEM was that *'transmission arrangements should provide in some form appropriate signals to transmission users of the costs that they impose on the transmission system'*

and

*'These signals should also provide for lower costs to customers than would otherwise be the case. On the basis of these signals, users can make informed decisions concerning their use of the transmission system. This should, other things being equal, lead to more efficient development and use of the transmission system and therefore lower costs for the all-island customer.'*

ESB PG accepts that the use of marginally derived TLFs derived in real-time and based on loadflow analysis would be economically efficient when applied as part of a solution to minimise the total cost of production (in real time).

However, ESB PG, like many other participants, has since the onset of SEM, had strong reservations around the use of ex-ante derived TLAFs in the market schedule.

A review of the TLAF regime was initiated because the RAs shared these concerns as stated:

- *Existing volatility: The derived TLAF values have, in some cases, been volatile with significant year-on-year variations. This creates risk and uncertainty for the affected generators.*
- *Relevance for dispatch: As TLAFs are calculated year-ahead, the ex-ante TLAFs do not reflect the prevailing conditions on the system at the time of dispatch. This creates a concern that the arrangements are not contributing to efficient dispatch. There has been no evidence made available to the RAs that these ex-ante derived TLAFs reflect real time losses on the transmission system.*
- *Increasing volatility: It is likely that increased dispatch efficiency cannot be obtained without increased TLAF volatility and non-predictability for Generators. This presents a significant issue for both new and existing market participants alike. It is believed that this situation will deteriorate as the generation mix changes and the penetration of intermittent generation increases.*
- *Complexity and lack of transparency: The methodology for calculating the TLAFs is deemed to be too complex and lacking in an appropriate degree of transparency. It is difficult for participants to work out the impact that these TLAFs have on their plant in advance or indeed to forecast their TLAFs.*
- *Appropriateness as a locational signal: One of the original objectives of the methodology was for TLAFs to incentivise the locational decisions of Generators. While the existing TLAFs do provide a definite locational signal, other locational signals such as existing brown field site, proximity to gas pipeline, quality of site for wind generation are arguably stronger.*
- *Sensitivity: As outlined above the methodology is extremely sensitive to changes in dispatch scenarios and changes in the generation mix and location. As a result of this, TLAFs have been perceived to be 'perverse signals'. Using the existing methodology, it is possible for a Generator to respond to a 'good locational signal' only to find that their presence impacts the calculation of losses to such an extent that they get a very poor loss factor. It therefore follows that the signals provided are not stable and are not effective in delivering the desired outcome.*

We are now 3 years into a consultation considering TLAFs, which has yet to prove that use of the current TLAF regime (compressed or locational) conveys **any** benefit to the consumer. ESB PG, amongst others has expressed concerns that the regime may indeed be detrimental to end consumers in both the short and long term. Yet the disadvantages of their use in the wholesale market, as specified by the RAs above is clear, leading the RAs to conclude in 2010 that changes to the existing methodology are needed. The RAs did however retain a concern that there may be a benefit to retaining locational TLAFs in the dispatch schedule for efficiency reasons as quoted below:

*'Efficiency in dispatch: The RAs proposed decision paper pointed out that a uniform TLAF was as likely to be as close to the actual real-time losses in dispatch, as the present ex-ante TLAF methodology. However there is no indication that a Uniform TLAF would improve the efficiency of dispatch, while there is a risk that the impact on dispatch could be negative. This is one of the key disadvantages with a Uniform TLAF in the absence of Splitting. The SEMC have decided that a stable signal (for example, uniform, long-term zonal TLAF or another form of stable TLAF signal) is best implemented in conjunction with an appropriate model of Splitting (on the basis of an Impact Analysis).'*

Considering these matters the SEMC made the decision to implement splitting as the enduring solution in SEM.

*'Splitting which is the separation of TLAFs in the market schedule and the dispatch schedule will be implemented from 1st October 2011 as the enduring solution for all island TLAFs. The adoption of Splitting will be subject to final approval by the SEM Committee based on the output and results of a RA led Impact Analysis. This Impact Analysis will examine a Splitting proposal from the TSOs which is developed to enhance efficiency in the dispatch schedule and favour stability in the market schedule.'*

Thus it is clear the intent of the examination of splitting was to ascertain if the expected benefits moving to close to real time TLAFs in the dispatch schedule outweigh the costs to the TSO of implementing same.

### **The Impact Assessment – General Comments**

Having now established that the purpose of the impact assessment was to ascertain if the expected benefits of moving to close to real time TLAFs in the dispatch schedule outweigh the costs to the TSO of implementing same, it is important to highlight that the impact assessment fails totally against that purpose.

Firstly, TSOs have not provided any costs for moving close to real time TLAFs.

They advise:

*'The mechanisms/processes required to produce close to real time information and turn this data into TLAFs do not exist and would require a large IT & engineering project with an ongoing resource requirement for production.'*

Secondly, no meaningful analysis was conducted of near real time derived TLAFs based on up to date forecasting (in particular wind forecasting). Any analysis performed did not improve the input assumptions forecast error greatly.

It is therefore clear, given that the RAs have not pressed further for this cost, nor the analysis to establish the benefit, that there is no intention of proceeding with a solution which involves near real time use of losses in dispatch. This undermines the entire Impact Assessment as it removes the only proven economically efficient solution for the use of TLAFs, i.e. their use based on real time data and therefore that leaves us with ex-ante TLAF solutions which are clearly suffering from forecast errors that plague the current approach or an acceptance of the need to move to uniform.

ESB PG suspects that there is a second and most fundamental flaw in the analysis contained in the Impact Assessment, but the detail within the Impact Assessment is insufficient to ascertain if this is indeed the case. It appears that the methodology as described by the RAs suffers from a significant assumption, i.e. that system demand does not vary by generation pattern. System demand as specified in PLEXOS is defined at the station gate (or at the export point). Inherent in a PLEXOS only analysis therefore is the assumption that system demand including transmission losses is fixed i.e. the generation pattern has no impact on transmission losses.

The whole purpose of locational TLAFs as applies in the market is to attempt to act as a proxy for the co-optimisation of production costs for a given level of demand which inclusive of losses which is understood to be variable.

By just running PLEXOS without running loadflow studies in parallel, it introduces errors in 'actual demand' into the analysis (which in the real world would materialise and be ultimately captured by the Error Supply Units, but it is never surfaced in the PLEXOS only runs).

This undermines the analysis performed, and its impact is most particularly acute in any analysis that compares total costs e.g. total supplier costs. Its impact would be significantly lesser when looking at IMR outcome between regions or constraint implications, but it is still present.

This simplifying assumption by itself could explain variances in the outcomes between the various alternatives when looking at total supplier costs.

In summary: If the analysis did not provide for a loadflow analysis, and losses were deemed to be fixed, this undermines the entire rationale underpinning the TLAF regime: if the use of locational TLAFs does not improve actual losses incurred on the system, how can their use lead to a more efficient outcome in optimising the objective function?

We would also welcome greater transparency on the Dispatch Balancing Costs model. If this model is not PLEXOS based then it may give fundamentally different answers to the PLEXOS unconstrained runs, regardless of the unspecified equivalence measures that the RAs refer to in the paper.

Notwithstanding the above serious concerns with the Impact Analysis, the results (if valid), fail to provide any clear signal, with any degree of statistical significance, that any one solution provides a better outcome from an efficiency perspective over any other.

We are now 3 years into a consultation considering TLAFs, for which has still been no analysis to prove that use of the current TLAF methodology (compressed or locational) conveys any systematic benefit to the consumer. The disadvantages have however been well documented.

We believe this leaves the RAs with only one sensible course of action, i.e. to end this disruptive experiment in the use of ex-ante derived locational TLAFs and provide a stable, sensible market design with uniform TLAFs.

### **The Impact Assessment – Specific Comments**

The RAs specified four criteria for the assessment, but have rather obtusely added a fifth, i.e. constraint costs. ESB PG makes the following comments on the analysis:

#### **Stability of the Market Schedule – how infra-marginal rents vary with loss factors.**

The analysis shows an outcome that is already very well known, i.e. that locational loss factors result in significant transfers of wealth between regions, with swings in

IMR earned in regions varying up to €20m/annum when compared with uniform TLAFs. It is this very outcome that has created the significant winners and losers and made the whole consultation so contentious to date.

**Production Efficiency of the Dispatch Schedule – how total production costs (Constrained Dispatch) vary as loss factors move closer to real time.**

This analysis is not what it is claimed to be. It does not assess how dispatch costs change as loss factors move closer to real time. Revised, more timely loss factors have not even been calculated. It instead assesses total cost of production with the use of various 'non-timely' TLAFs (locational, compressed and uniform). It is unclear if that assessment includes a fixed estimate of losses in each case, or if losses are calculated to vary as a function of the generation plant mix. Treatment of losses as a variable would require loadflow analysis to be done in parallel with the production cost optimisation. If the analysis did not provide for a loadflow analysis, and losses were deemed to be fixed, this undermines the entire rationale underpinning the TLAF regime: if the use of TLAFs does not improve actual losses incurred on the system, how can their use lead to a more efficient outcome in solving the objective function?

Notwithstanding the serious reservations expressed with the analysis employed, the outcome is ambiguous with no one methodology giving a clear benefit over the other.

**Constraint Costs**

Again, it is unclear precisely how or indeed why the analysis was performed. It's not clear how this analysis ties in with the analysis in section 4.5 'Divergence between the market schedule and dispatch schedule'. ESB PG suspects the studies are the same, but one represents the analysis in cost terms, the other in GWh terms. ESB PG would contend that GWh is not a significant criterion, it is the cost implication attached to divergences that are relevant.

Nonetheless, the outcome is not surprising, i.e. it is ambiguous with no clear trend, with the amounts of money involved not significant in the overall scheme of the wholesale electricity market.

**Impact on All-island Customer**

Again, it is unclear precisely what analysis was performed. It is stated to be the total energy cost (market schedule only) which would imply it is based on unconstrained energy costs. However, the end consumer cost should also include constraint costs, and it is unclear if this is indeed the case (but ESB PG suspects that it does).

As per our general comment, ESB PG believes these figures have an inherent error in their calculation (i.e. in relation to system demand inclusive of losses being treated as fixed) and carry with them a most serious health warning.

Notwithstanding those concerns, the level of costs here swing positively and negatively, from +€34m to -€24m between the options in each year. There is no systematically 'best answer' here, with various options seeing 'good' and 'bad' results in different years.

In the absence of a systematic benefit to using locational TLAFs, it is best to avoid their negative impact altogether, and revert to uniform TLAFs at the earliest opportunity.

### **Divergence between the market schedule and the dispatch schedule**

See above comments regarding constraints.

### **Conclusions**

In summary, the industry is now three years considering the TLAF regime. At this juncture we are all well aware of the problems with the current regime and yet there is no proven systematic benefit to their continued use.

There is also no evidence to support market splitting in the Impact Analysis as there has been no attempt to model the potential benefit of real time loss factors or the cost of implementing same.

The analysis performed is flawed, but nonetheless, even if that were not the case, is highly inconclusive in terms of appropriate outcome.

This we believe, leaves only one sensible and pragmatic solution, which is to move to the use of uniform TLAFs in both the market and dispatch schedule at the earliest opportunity.

This could be re-visited if at some stage it appears feasible to derive TLAFs in real time at which stage their consideration in the dispatch schedule is appropriate subject to cost benefit analysis.

Should you have any queries in relation to the above response please do not hesitate to contact me.

Yours sincerely,

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Strategy & Regulation