Single Electricity Market Committee

Transmission Loss Adjustment Factors for 2009

Decision Paper

SEM-08-173

25 November 2008

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1 Introduction

1.1 Background

In June 2005 the Commission for Energy Regulation ("CER") and the Northern Ireland Authority for Utility Regulation ("NIAUR"), collectively known as the RAs, published a decision paper[1] entitled "SEM High-Level Design Decision Paper". This paper outlined the design of the Single Electricity Market (the "SEM") for the island of Ireland, and included a decision requiring that transmission losses in the SEM be accounted for on an all island basis, using a consistent methodology involving the application of locational Transmission Loss Adjustment Factors ("TLAFs") to the outputs of generators.

Following the publication of this paper, the RAs had extensive discussions on the issue with EirGrid and the System Operator for Northern Ireland ("SONI"), the transmission system operators in the Republic of Ireland and Northern Ireland respectively, leading to the publication in May 2006 of a consultation paper on the treatment of transmission losses[2]. Following consideration of the comments received to the consultation paper, in August 2006 the RAs published a decision paper[3] on the matter.

TLAF values are derived by modelling the increase or decrease in transmission system losses that arise as a consequence of an increase or decrease in the output of each generator, against a background of generation and demand that is representative of the month and day/night condition to which TLAFs are to be applied. The TLAFs for each particular month and day/night condition are then shifted uniformly, in order to recover in aggregate the overall transmission losses that are estimated to occur for that condition, whilst retaining differentials between TLAFs at each location.

1.2 Previous Documents

The methodology used to calculate the transmission loss adjustment factors for SEM have been developed through a number of consultation and decision documents. These papers are available on the All Island Project website via this hyperlink:

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[1] The Single Electricity Market (SEM) High Level Design Decision Paper", 10 June 2005, AIP/SEM/42/05

[2] The Single Electricity Market: Treatment of Transmission Losses. A Consultation Paper", 24 May 2006, AIP-SEM-58-06.

[3] "The Single Electricity Market: Treatment of Transmission Losses. Decision Paper", 31August 2006, AIP/SEM/112/06.

- High Level Design – Stated that TLAFs will be used to provide a locational signal in SEM;
- May 2006 – Consultation on the method for calculating and applying TLAFs in SEM;
- August 2006 - Decision paper on treatment of transmission losses;
- March 2007 – Consultation regarding the calculation of TLAFs for November and December 2007;
- April 2007 – Decision regarding the calculation of TLAFs for November and December 2007;
- October 2007 – Consultation regarding the TLAFs to apply for 2008;
- December 2007 – Decision regarding the TLAFs to apply for 2008; and
- September 2008 – Consultation regarding TLAFs to apply for 2009.

1.3 TLAFS from 1st January 2009

The RAs have already consulted on and published the all-island TLAFs which apply up to December 2008. EirGrid and SONI submitted to the RAs, in accordance with section 4.41 of the SEM Trading & Settlement Code, a set of draft all-island TLAFs to apply from 1st January to 31st December 2009. These were calculated jointly by EirGrid and SONI in accordance with the RAs' decision on the treatment of transmission losses published in August 2006. On 15th September 2008 the RAs published for consultation these draft all-island TLAFs (SEM-08-121). This current paper discusses the responses received to the consultation and provides the decision of the SEM Committee in relation to the proposed TLAFs.

1.4 Purpose of this paper

The purpose of this paper is to outline and describe the RAs' decision with regard to the TLAFs to be applied in SEM in 2009. The RA's have considered fully the comments and submissions received to the earlier consultation. Issues raised throughout the consultation process are addressed in this paper, as well as outlining the final decision on this topic.

1.5 Comments Received

The RAs received 10 submissions to the consultation paper (SEM-08-121). Submissions were received from the following organisations:

- ESB Power Generation
- Airtricity
- NIE Energy – PPB
- Viridian Power and Energy
- AES

- ESB Customer Supply
- Coolkeeragh ESB
- IWEA
- Bord Gais
- One confidential response

The non-confidential submissions to the consultation paper are published separately.

1.6 Structure of this paper

Section 2 outlines the comments received on the consultation paper and the RAs initial responses to these comments.

Section 3 contains an overall summary of the decision being made in this paper and the RAs' conclusions in this area.

Section 4 outlines the RAs' next steps with regard to this topic.

Appendices: The TLAFs to be applied in 2009 are presented in Appendices A and B, which are published separately. The responses received (where not identified as confidential) are also published.

1.7 Other Relevant Information

Any queries on this decision and the calculation of TLAFs should be directed to John Lynch (jlynch@cer.ie) or Sarah Friedel (sarah.friedel@niaur.gov.uk).

2 Comments Received

2.1 Introduction

The comments that were received covered seven main topics. Each of these will be addressed in turn below.

2.2 Volatility

2.2.1 Respondents' Comments

The volatility of the TLAFs was raised as a concern by four respondents. Their concerns include:

- The TLAFs send a locational signal that will change each time a substantial quantity of generation responds to it. The lead time required for projects means that these fluctuations in TLAFs can result in projects becoming unviable part way through construction, with the potential to lead to bankruptcy;
- In particular, the revenue impact of new generation in the Cork area coming on line in the second half of 2009 and 2010 is a significant concern;
- The volatility of TLAFs is a concern to lenders and increases the cost of capital and subsequent capital costs of new generation;
- In addition, the installation of new generation plant is a long term investment, this is in conflict with a locational signal that can vary significantly in the short term; and,
- An investigation into volatility mitigation was requested.

2.2.2 RAs' Response to Comments

In the decision paper for the 2008 TLAFs, the RAs stated that they were open to the need for volatility mitigation in SEM. "The RAs will therefore follow-up on volatility mitigation measures for the TLAFs post 2008". As discussed in section, 4 the RAs propose to include this issue in the upcoming review of locational signals in SEM, to be undertaken in 2009, with a view to implementation in the following years.

2.3 Transparency

While respondents welcomed the publication of data relating to the scheduling and dispatch assumptions made for the calculation of the TLAFs for 2009, there were still areas of concern for some respondents and a number of additional data were requested.

2.3.1 Respondents' Comments

- The additional information was welcomed by many respondents.
- Clarity was requested regarding the 3% reduction in the load factor of wind farms.
- Specific questions have been asked regarding the volumes for Moyle in the dispatch data and the scheduling of Kilroot.
- Concern was raised that the scenarios are subjective and underlying fuel prices etc. that determine the dispatch are not identified in the data provided.
- More information regarding the methodology is required.
- There was disagreement with the load factor for wind. There is a seasonal variation and also potential for significant variations in the Moyle flows from those quoted.
- Sufficient data should be published to allow full replication the calculation.
- Lack of transparency creates significant risk and uncertainty for current and prospective generators
- More information on the assumptions is required to provide a fully intelligent response. These assumptions include demand, availability, fuel prices, transmission constraints, operating reserve, wind and even TLAFs themselves.

2.3.2 RAs' Response to Comments

The System Operators have reduced the capacity factor for wind from 35% to 32% in order to appropriately reflect the availability of more wind data. In particular, the load factor figure of 32% is based on an average of data from the years 2003 to 2007 based on load factor figures compiled for EirGrid's Generation Adequacy Report (GAR). This is therefore historically more accurate than 35% and is generally to the benefit of wind farms when calculating TLAFs.

With regard to the provision of more information, the RAs will work with the System Operators to continue to improve the transparency of the calculation of TLAFs.

2.4 Magnitude of Impact

Some respondents are concerned about the materiality of the impact that TLAFs have on their revenues, although not all parties have had the same interpretation of how the TLAFs should be affecting the generators revenue.

2.4.1 Respondents' Comments

- The magnitude of the impact of TLAFs on generators revenues was highlighted by more than one party.

- TLAF volatility directly affects revenue receipts and goes straight to bottom line of generators. A variation of 2.5% in loss factor (as highlighted in the consultation paper) is material.
- A 1% difference in TLAFs will have material effect on competitiveness. This would have the same impact as a 1% improvement in a generating unit's heat rate, and would amount to millions of Euros over the lifetime of a project.

2.4.2 RAs' Response to Comments

The locational signal provided by marginal TLAFs is required to be material if it is to be effective; however the impact will be included in the upcoming review of locational signals in SEM (see section 4), to ensure that it is compatible with the RAs' duty to protect electricity customers by promoting competition in generation.

2.5 Interaction with Gate 3

2.5.1 Respondents' Comments

- The locational signal indicated by TLAFs is contradictory to the Gate 3 grid allocation process. The change in TLAFs in the south west may affect achievability of government targets.
- It makes no sense to develop wind in "windless population centers" and resource availability drives the location of new generation, particularly wind.
- This method of calculation is an attempt to make the resources fit the historic grid developments and allocates the penalty of historic under investment across generators.
- Gate 3 is based on connection application date with no regard to locational signals. What impact will Gate 3 have on TLAFs?

2.5.2 RAs' Response to Comments

The Gate 3 grid allocation process may dilute somewhat the locational signals which will apply to generators which will receive Gate 3 connection offers to the grid. It is anticipated that this will not have an impact on generators connected (or connecting) in 2009 as Gate 3 offers are currently forecast to commence roll out from late 2009. The full details of the roll out of offers will be published in the final Gate 3 direction which is scheduled to be issued in the coming weeks. The impact of Gate 3 on locational signals will be considered as part of the upcoming review of locational signals in 2009 (see section 4).

2.6 Error Supplier Unit

Three respondents referred to the application of TLAFs to demand and the Error Supplier Unit in their responses.

2.6.1 Respondents' Comments

- Parties would like information on losses on a jurisdictional basis, to ensure the end consumers are also getting a fair apportionment of the costs.
- The RA's unduly discriminate against generation compared with supply (as the TLAF for demand is set to 1 for each jurisdiction).
- There is a potential to create inter-jurisdictional distortion for demand customers, therefore the RAs need to clarify their plans for the treatment of the ESU.

2.6.2 RAs' Response to Comments

Similar issues were raised in response to the 2008 consultation also. The response then was: "The issue of locational TLAFs being applied to generation but not to demand has already been discussed in response to comments made to the consultation on TUoS charges[4]. As the RAs stated before, the determination of customer demand for NIE Supply using the original Error Supplier Unit algebra does not redistribute them to customers in that jurisdiction in general but only to the particular supplier that registers the Error Supplier Unit. Far from removing any perceived distortion, this could put that supplier at an unwarranted competitive advantage over other suppliers in that jurisdiction."

The existing Error Supplier Unit algebra has been extended in the TSC for a further 12 months (reference to Mod 50-08) to allow further analysis of this issue. Any modifications subsequent will be assessed and implemented in accordance with the relevant TSC agreed procedures.

2.7 Equitability

A number of respondents were concerned about the equitability of the current method of sharing the cost of losses in SEM. This equitability relates to the sharing of transmission losses between generation and demand, the method of calculation and the fact that some losses will always occur.

[4] "Transmission Use of System Charging Decision Paper", AIP/SEM/07/50, 15th March 2007.

2.7.1 Respondents' Comments

- In some other countries, "TLAFs are applied to both generation and demand. Is this the optimal allocation of losses?"
- Given that TLAFs are not based on actual metered data, it is very important that the methodology employed is robust and fair.
- One respondent claims to "have uncovered what we consider to be material flaws in the derivation and application of loss factors, and in the subsequent allocation of costs."
- Not all losses are variable (BETTA assumes a 50:50 split between fixed and variable). This should be corrected as the current assumption is inefficient and unfair.
- No transmission losses are allocated to demand customers.
- In the existing SEM application, payments to generators with TLAFs greater that one appear to come from generators with TLAFS less than one. If marginal loss factors are applied to all volumes this impact is magnified.

2.7.2 RAs' Response to Comments

The losses allocated to generators are reflective of the losses which they contribute to on the transmission system. These losses are calculated in accordance with a methodology which has already been consulted on and approved by the RAs.

The RAs accept that any estimation of losses on an ex-ante basis will always result in a difference between the actual losses incurred in each circuit and those predicted. However, the RAs are satisfied that the losses are calculated in a robust, equitable and accurate manner.

2.8 Bidding / Scheduling & Dispatch

Some respondents referred to the application of TLAFs in commercial offer data.

2.8.1 Respondents' Comments

- How do generators include TLAFs in their bids? Should they include TLAFs in their bids?
- Are TLAFs considered in dispatch at all? If not, then one of the main objectives of TLAFS cannot be achieved.
- The TLAF is applied to all dispatch quantities, while the actual losses vary with dispatch quantity. How can the SO optimise the dispatch if they are only using the marginal loss factor.

2.8.2 RAs' Response to Comments

The incorporation of the TLAFs in commercial offer data is the subject of an ongoing investigation by the Market Monitoring Unit. The outcome of this will be published shortly.

The minimisation of actual losses in the scheduling and dispatch process will be reviewed following this investigation and will be included in the review of locational signals in SEM if appropriate.

2.9 Other Comments

2.9.1 Respondents' Comments

- Four respondents requested a complete review of the method of calculating and allocating losses.

2.9.2 RAs' Response to Comments

In the light of the first year of operation of SEM, the grid development study and the volatility in fuel price differentials (and hence the merit order and the direction of the dominant flows), the RAs will be reviewing the locational signals in SEM in 2009 to ensure that they fulfil the aspirations of the SEM High Level Design.

3 Decision

Having considered carefully the above comments, none of which were concerning the draft TLAF values in the consultation paper, the SEM Committee considers that it is appropriate that the TLAFs in the appendices be adopted for the period 1st January 2009 to 31st December 2009.

This list has been updated from the previous list published on 15th September for consultation by the RAs to include the following:

- Aghada peaking unit AP5 has moved to Tawnaghmore 110kV station (unit ID = TP3);
- Poolbeg (Shellybanks, unit ID = PBC) TLAFs are amended to account for the fact that the Shellybanks 220kV station is now sectionalised;
- Coomacheo transmission station is renamed to Garrow; and,
- It is assumed that the new ESBPG CCGT at Longpoint will begin to export in July 2009. On connection of the new unit the Aghada 220kV bus will be sectionalised. Thus the configuration of the station changes in July 2009 and all units (new and existing) do not receive the same TLAFs from that time.

Otherwise the TLAFs are the same as those which were published in the September 2008 consultation paper.

Notable differences between 2008 and 2009 TLAFs are:

(1) compared to 2008, higher TLAFs in Ireland tend to decrease and lower TLAFs in Northern Ireland tend to increase. This is due principally to the connection of new generation in the South West of Ireland with consequential reductions in other generation and in Moyle imports;

(2) despite (1), TLAFs in Northern Ireland on average remain lower than in Ireland, reflecting a continuation of a North to South flow on the system, albeit the differences are less pronounced than in 2008; and,

(3) also due to the connection of new generation in the South West of Ireland, TLAFs in the South West decrease during 2009, whilst TLAFs for generators in the Dublin area increase.

The TLAFs are shown in the appendices (published separately) as follows:

Appendix A:

- set of TLAFs for Republic of Ireland Market Participants; and,
- set of indicative TLAFs for nodes on the transmission system in the Republic of Ireland.

Appendix B:

- set of TLAFs for Northern Ireland Market Participants; and,

- set of indicative TLAFs for nodes on the transmission system in Northern Ireland.

4 Conclusions and Next Steps

The RAs are initiating a review of the generator TUoS and TLAFs locational signals in SEM. This review will commence in 2009 and will assess the implications and impacts of the locational signals on generators in the context of:

- Mandatory participation;
- The gate connection process;
- System operator incentivisation; and,
- Harmonised charging of generators for access to the all island transmission network.