

# **Single Electricity Market**

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

### **Decision Paper**

**26<sup>th</sup> June 2012**

**SEM-12-049**

## 1. INTRODUCTION

This paper sets out the decision of the SEM Committee (SEMC) in relation to the all-island Transmission Loss Adjustment Factor (TLAF) arrangements from 1st October 2012 and beyond. This decision follows a period of public consultation on the SEMC proposed decision on all-island Transmission Loss Adjustment Factors (SEM-12-024).

### 1.1. Background

The development of harmonised all-island transmission charges and losses arrangements was an objective stated in the original Single Electricity Market (SEM) high level design (AIP/SEM/42/05)<sup>1</sup>. It was also stated as an objective that the harmonised transmission arrangements should provide locational signals to users that reflect the costs that they impose on the transmission system. The RAs initiated a review into all-island transmission loss adjustment factors (TLAFs) as part of a review of transmission network locational signals in January and the proposed decision paper was published on 18 June 2010 (SEM-10-039)<sup>2</sup>. Following this, a period of public consultation by the Regulatory Authorities including a public workshop followed in July 2010.

A decision paper was published on 24 September 2010 by the SEMC on all Island transmission loss adjustment factor (TLAF) arrangements (SEM-10-066)<sup>3</sup> for the tariff year 2010/2011. The SEMC decided to implement compression of the existing TLAFs (locational TLAF methodology) as an interim solution for the treatment of losses in the SEM, while an enduring solution for the treatment of losses in the SEM was developed. This paper also outlined the SEMC's intention to examine "splitting" as a preferred long-term solution for the treatment of TLAFs in the SEM. Splitting is the separate treatment of TLAFs in the market schedule and the dispatch schedule. The SEMC indicated its preference for stability of losses in the market schedule with as close to real time losses as the Transmission System Operator could manage in dispatch.

The SEMC requested that the Regulatory Authorities (RAs), assisted by the Transmission System Operators (TSOs), carry out an impact analysis into splitting and report back to the SEMC outlining the results of the analysis. An information paper on the Terms of Reference for the Impact Analysis on TLAF splitting was published on the 14th February 2011 (SEM-11-006).

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<sup>1</sup> [AIP/SEM/42/05](#)

<sup>2</sup> [SEM-10-039](#)

<sup>3</sup> [http://www.allislandproject.org/en/project\\_office\\_sem\\_publications.aspx?year=2010&section=2](http://www.allislandproject.org/en/project_office_sem_publications.aspx?year=2010&section=2)

The SEMC provided guidance to the Regulatory Authorities with regard to splitting by stating in SEM-10-066 that, “the SEMC favours an efficient dispatch signal through TLAFs....[and] in the market schedule, the SEMC favours and values stability (non-volatility) e.g. Uniform TLAF or long-term zonal TLAF”.

The aim of the splitting analysis as outlined in SEM-11-006 was to assess if the potential benefits and advantages of implementing splitting, as the long term solution for the treatment of transmission losses in the SEM, outweighed any potential costs and disadvantages of this approach. In order to assess this, the RAs with the assistance of the TSOs carried out this modelling project and assessed the results of the modelling against the proposed set of measurement criteria.

On 18th November 2011 the SEMC published a paper (Treatment of Losses in the SEM, SEM-11-098a) to report on the results of the TLAFs splitting impact analysis in the SEM and to carry out a full public consultation on this matter. The consultation period ended on the 27th January 2012. The SEMC also encouraged market participants to carry out their own TLAF modelling and to include full details of their modelling in their submissions on this consultation.

On 5th April 2012 the SEMC published a proposed decision paper for consultation (Proposed Decision on Treatment of Losses in the SEM, SEM-12-024). The consultation period ended on the 4th May 2012. Following a review of the responses to SEM-11-098 and consideration of the options available at the time, the SEMC presented two proposed decisions in relation to the treatment of losses in the SEM. These two proposed decisions were as follows:

1. Splitting: The SEMC is proposing not to implement splitting;
2. The SEMC is proposing to maintain compression of TLAFs as the longer term solution for the treatment of losses in both the market and dispatch schedules.

The purpose of this paper is to outline and summarise the responses to that consultation (Proposed decision by the SEMC, SEM-12-024) and to put forward the decision of the SEMC on the treatment of losses in the SEM resulting from that consultation process.

Queries with regard to this decision paper should be submitted to [jeanpierre.miura@uregni.gov.uk](mailto:jeanpierre.miura@uregni.gov.uk)

## 1. COMMENTS RECEIVED

There were 7 responses received to the Proposed Decision paper SEM-12-024. These were submitted by:

- Bord Gais Éireann
- ESB PG
- SSE Renewables
- Energia
- PPB
- IWEA
- Endesa Ireland

None of the respondents favoured compression as the long term solution. While two respondents favoured locational losses, all other responses favoured uniform. Market participants favouring uniform tended to concentrate their arguments on the shortcomings of the current methodology while uniform supporters have focused in on criticising the arguments presented by opponents of the use of locational TLAFs. The issues raised by industry participants can be grouped in the following categories.

- Criticism of the locational component of the current compressed TLAFs
- Support of the locational TLAFs
- Comments on the influence of future market developments on the SEMC Proposed Decision
- Comments on the rationale for the SEMC decision
- Proposal of alternative approaches

All full responses, which were not indicated as confidential, are published in tandem with this document.

### 1.1. Criticism of the locational component of the current compressed TLAFs

Market participants supporting the uniform approach severely criticised the locational component of the current compressed TLAFs. The main points raised were:

- The current methodology is fundamentally flawed and should be rejected in favour of a move to uniform TLAFs in the market
- The current methodology does not reflect a generator unit's real use of the network and therefore distorts the merit order and is an expropriation of generators rights to returns.

- Without the tools to accurately calculate real-time TLAFs, the SEMC has no basis to differentiate the allocation of losses in the market and therefore can only reasonably apply uniform TLAFs.
- All Compression achieves is removal of ‘the extremities of the [previously] existing TLAF [Locational methodology]’. Thus maintaining Compression on an enduring basis perpetuates the methodology which had been under scrutiny as a result of this review in the first place.

## 1.2. SEMC Responses

The SEMC recognise that the approach employed prior to the review (i.e. the current locational methodology) was not perfect and for this reason the TLAFs review was initiated. As the current TLAFs are defined at year-ahead stage, they may not accurately reflect the prevailing system conditions when the dispatch schedule is being created.

To mitigate this problem, it would be preferable if losses could be calculated closer to the real time dispatch. However given the limitations on the systems and modelling tools currently available to the TSOs , the TSOs are currently unable to provide close to real time losses and indeed near real time TLAFs were not available to be used in the splitting analysis.. The RAs will continue to work closely with the TSOs to find alternatives to the current system’s limitations.

As outlined in SEM-11-098, the results of the impact analysis were inconclusive regarding whether splitting would deliver on the initial objectives which were to provide stability in the market schedule and efficiency in the dispatch schedule. In particular, the SEMC has outlined its view in the proposed decision paper (SEM-12-024 that until such time as the determination of close to real time TLAFs is achievable by the TSOs, the current methodology should prevail.

Compression takes some of the positive features of uniform and positive features of locational and delivers a better solution than either of the other two on their own – that is a locational signal for efficient dispatch is maintained but it is not as extreme and likely to be less volatile year on year than pure locational methodology. The aim of stability and efficiency still exists and compression achieves this better than a pure uniform or locational TLAFs.

### 1.3. Support to the locational TLAFs

Market participants supporting locational TLAFs have raised the following points:

- The annual volatility of the current methodology is a positive signal that the TLAFs are reacting appropriately to the changes on input variables that occurs between estimation periods.
- Year ahead determination of TLAFs may not lead to the determination of losses that that reflect perfectly the conditions of the system when losses are in fact occurring. However, in the absence of an alternative system utilising real-time losses, the current methodology captures in aggregate, the losses one can reasonably expect to be attributable to generators on the system.
- The current methodology gives a reasonable and predictable locational signal. It does this without much of the expense required to attain the ideal end position (real-time losses).
- The compression of the locational signal in the current methodology serves merely to enforce a cross-subsidy from generators in good network locations to generators in poor locations.

### 1.4. SEMC Responses

At present TLAFs are calculated once a year on an ex-ante basis. As part of the work carried out on the Locational Signals project, the SOs investigated a number of approaches including the calculation of losses closer to real time.

The investigation found that a number of SOs abroad are calculating close to real time losses e.g. Norway.

According to the TSOs, the development cost of such systems can be considerable even where the delay is around five days. The SOs also found that the benefits of calculating TLAFs close to real-time as opposed to the default methodology are considerably reduced, where the delay between the calculation of TLAFs and dispatch is more than a day or two (outside a high predictability weather window).

The SEMC accepts that any ex-ante determination of losses will be imperfect. However given current circumstances (as explained in 1.2) the SEMC is of the view that the current approach is the best compromise between what is ideal (real time losses) and what is currently possible.

## 1.5. Comments on the influence of future market developments on the SEMC Proposed Decision

One market participant strongly disagreed with the view of the SEMC that future developments of the SEMC should be taken into consideration when deciding over the TLAF methodology.

- The view of the SEMC that the potential developments of the SEM due to the implementation of the European target model are a deterrent to the implementation of radical changes on the current approach for treatment of losses, sends damaging signals to market stakeholders about the governance of the SEM.

Another market participant was supportive of the SEMC view stating that:

- *“On the expected phasing out of TLAFs under the EU Network Codes, we concur with the view expressed in the proposed decision that such details within the EU Target Model have not yet been finalised and does not form an appropriate basis from which to begin making fundamental changes to the market foreseen and agreed in the SEM HLD.”*

## 1.6. SEMC Responses

The European Commission and its agencies ACER and ENTSO-e are in the process of creating guidelines and network codes that will be legally binding in the next few years. The implications for the SEM have not been fully identified. The implementation of the target model may affect not only the way that losses are treated in the SEM but potentially the high level design of our market may require substantial changes.

While this was not the strongest driver for the SEMC proposed decision, this is a factor that was taken into consideration. The SEMC is closely monitoring developments in the Internal Energy Market project and does not accept the argument that the review of TLAFs should not take account of the fact that a major reform of energy markets across Europe is set to be implemented in the next few years.

## 1.7. Comments on the rationale for the SEMC decision

None of the respondents were in favour of compression and many responses questioned the SEMC’s rationale. The main points raised were as follows:

- The decision of the SEMC in September 2010 to move away from their previously proposed decision of June 2010 to implement Uniform TLAFs in the SEM was made on the basis of a replacement two-step process; step 1, implement Compression of TLAFs as an interim measure for one year, predicated on step 2, a permanent move to Splitting. If the SEMC no longer propose to introduce Splitting, the intended goal of the September 2010 decision, then the situation with TLAFs in the SEM ought to revert to status-quo ante, i.e. the position of June 2010 which was to implement uniform TLAFs.
- The impact analysis did not present any clear direction on the approach that should be taken for the treatment of losses in the SEM. Therefore, the most appropriate way forward is to choose the simplest option which is easiest to implement, while at the same time being transparent and removing volatility, i.e. move towards a uniform approach.
- Until reliable and close to real time TLAFs are available, it is more appropriate to adopt a uniform TLAF approach.

### **1.8. SEMC Responses**

When the decision to adopt splitting was made, the SEMC was aiming at an efficient dispatch signal through TLAFs and stability in the market schedule. From reviewing the impact analysis modelling carried out by both the RAs and the TSOs, the SEMC concluded that an improvement in dispatch efficiency through loss factors is most likely to be achieved by the adoption of close to real time TLAFs.

Therefore, the SEMC is of the view that until such time as the determination of close to real time TLAFs is achievable by the TSOs, and modelling can be carried out to determine the impact of these real time loss factors on efficiency of dispatch, the compressed methodology should prevail.

In addition, the recent developments on the European Internal Market create additional risks for the implementation of amendments to the current TLAFs methodology. For these reasons the SEMC has decided to maintain the compressed approach in the market and dispatch schedule.

### **1.9. Alternative Approaches**

Some market participants presented alternatives to the current compressed methodology. The main proposals were:



- Fixing a generator's TLAF for the life of the station (for new investment, the TLAF that is applicable at the time of signing a grid connection agreement should be applied).
- Fixing of locational TLAF values for 3 years.
- A migratory approach towards uniform TLAFs over the next two years by further compressing TLAFs in each of the next two years and the implementation of uniform TLAFs in 2014.

#### **1.10. SEMC Responses**

While the proposals to fix TLAFs would reduce uncertainty for new investors and mitigate the volatile characteristic of the current approach, the SEMC is of the view that the efficiency signal provided by multiyear (or permanent) TLAFs is inferior to the current methodology (Year ahead compression).

A multiyear TLAFs would increase the deviation between forecast and outturn losses. The model employed to forecast losses is very sensitive to fluctuations on variables such as fuel prices, demand forecast, improvements on the transmission system and outage schedules of power plants. These variables can fluctuate abruptly from one year to another.

With regard to the proposal for further compressing TLAFs, the SEMC is of the view that if uniform TLAFs were an acceptable solution for the allocation of losses, a migration to uniform TLAFs would be made in one step from October 2012. However as it was discussed at length on SEM-10-066, in the absence of splitting, uniform TLAFs are conceptually inferior to the current methodology in terms of efficiency of dispatch.

## 2. CONCLUSION

The SEMC has deployed a considerable amount of effort on the process to reach a decision on the treatment of losses in the SEM. Several modelling exercises have been undertaken, five papers presenting SEMC views and decisions have been published and resources across both RAs have been extensively deployed in this project.

From reviewing market participants responses, the SEMC is of the view that points raised have been recurrent since the publication of the proposed decision on treatment of losses in July 2010. These points have been dealt with in a comprehensive manner especially through the Decision Paper SEM-10-066.

From reviewing the impact analysis modelling carried out by both the SEMC and the TSOs, the SEMC concluded that there was no material evidence that any combination of the TLAF methodologies have a material positive or negative impact on customers. The inconclusiveness of the impact analysis is likely to be derived from the fact that near real time TLAFs were not available to be used in the analysis.

When the decision to adopt splitting was made (as long as consumers are not materially worse off through the implementation of splitting - SEM-11-006), the SEMC was aiming at an efficient dispatch signal through TLAFs and stability in the market schedule. Following the impact analysis and the inconclusive nature of the results, the SEMC concluded that an improvement in dispatch efficiency through loss factors is most likely to be achieved by the adoption of close to real time TLAFs. Therefore, the SEMC is of the view that until such time as the determination of close to real time TLAFs is achievable by the TSOs, splitting should not be implemented and the current methodology should prevail.

In addition, recent developments on the European Internal Market create additional risks for the implementation of amendments to the current TLAFs methodology. For these reasons the SEMC decided not to implement Splitting on this occasion and maintain the current compressed methodology.

In taking this decision to implement compression, the SEMC recognises both the competing nature of certain objectives in this review and the ability for these important objectives to be reflected in what amounts to a compromise position. Compression, as implemented importantly preserves a locational TLAF approach while amending it predictably to provide for greater stability around the outturn TLAF.

## **2.1. Decision**

The SEMC has decided the following with regard to harmonised all-island transmission loss adjustment factors:

- A compressed TLAF will be implemented for all Generators from 1st October 2012. This compressed TLAF is based on a methodology developed by the TSOs and amended by the SEMC.
- This compressed TLAF will apply to both the SEM market schedule and the SEM dispatch schedule from 1st October 2012;
- Based on the compressed methodology, the TSO will revise the TLAFs every year and submit revised figures for the SEMC approval.

## **2.2. Next Steps**

- TSO consultation on 2012-13 TLAFs – 1 to 31 of July 2012
- Publication by TSOs of TLAFs for 2012 – 2013 - 1 September 2012
- Application of enduring solution to TLAFs 1 October 2012