Single Electricity Market Committee

Intra Day Congestion Charging Methodology

Decision Paper

SEM-12-054

06 July 2012

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1. Introduction

Regulation 2003/1228 (2nd Package) of the European Parliament and of the Council on conditions for access to the network for cross-border exchanges in electricity provides that all Member States must have intra-day trading mechanisms in place on their borders by 1 January 2008. On 28 June 2010, Ireland and the UK received Reasoned Opinions from the European Commission in relation to provisions of Regulation 1228/2003 (the Regulation).

One of the specific issues raised by the European Commission relates to the inability for market participants in the SEM (Single Electricity Market) to 'take part in intraday trade after the issuing of the indicated or actual day-ahead production schedules' and further the apparent lack of coordination of congestion management procedures. Ireland and the UK replied to the Commission setting out the substantial progress being made by the SEM RAs (Commission for Energy Regulation (CER) and Utility Regulator (NIAUR)) in conjunction with the system operators and market participants on intra-day trading with an assurance that the SEM would be compliant with the provisions of the Regulation when the East West Interconnector was fully operational in 2012.

Similar commitments were made to the Commission by the UK Authorities with regard to the Moyle Interconnector, though the UK Government continues to consider Moyle to be an internal tie-line.

1.1 Intra Day Trading Modification

The SEM Committee decided that a Modification to the Trading and Settlement Code to facilitate intra-day trading in the SEM rules should be developed and submitted to the SEM Committee by the end of 2010. On 16 March 2010 the Regulatory Authorities submitted Modification 18_10 Intra-Day Trading to the Modifications Committee.

The Modification was subsequently developed in two phases. The high level design was developed first and was approved by the Modifications Committee. The SEM Committee issued a decision letter on the High Level Design on 4th March 2011. The detailed design of the modification was completed in the second phase. A number of working groups were held during 2011 culminating in the submission of a final Modification proposal to the Modifications Committee on 6th December 2011. Following Modifications Committee approval, the SEM Committee issued a decision letter on the final Modification on 14th February 2012. The decision letter instructed SEMO and the TSOs to implement an intraday trading solution which will see two additional gates (Ex-Ante 2 and Working-Day 1) introduced into the SEM. These new gates will give market participants additional opportunities to trade in the SEM. In particular intraday trading allows unused and spare long term interconnector capacity rights to be reassigned to other interconnector users.

It is expected that Intraday Trading will begin on the Moyle Interconnector in July 2012. The East West Interconnector will go live in Quarter 3 2012 incorporating this facility for trading intraday.

1.2 Interconnector Access Rules

Pursuant to their respective interconnector licences granted by NIAUR, CER and Ofgem the interconnector owners (EirGrid Interconnector Limited and Moyle Interconnector Limited) consulted upon and submitted Access Rules to the SEM Committee in September 2011. The SEM Committee and Ofgem approved the Access Rules in October 2011.[1] The Access Rules are available on the websites of the Interconnector owners and on the AIP website (www.allislandproject.org).

1.3 Intraday Congestion Charging Arrangements Consultation

When approving the Access Rules, the SEM Committee requested that the interconnector owners submit proposals on intraday congestion charging for approval ahead of the implementation of Intraday Trading in SEM in 2012.

The interconnector owners issued a Consultation Paper in February 2012 setting out a number of proposals for congestion management and charging intraday on the interconnectors. The main issues dealt within the consultation paper were as follows;

- Treatment of Unused Capacity
    - Use It or Lose It (UIOLI) or
    - Use It or Sell It (UIOSI)
- Options for Determining Congestion
    - Summing all interconnector unit bids or
    - Summing only in merit interconnector unit bids
- Calculating the Congestion Charge
    - Marginal Pricing
    - Pay as Bid
    - Difference between SEM and BETTA Price

Responses to the consultation were received from ten interested parties. Following the receipt and consideration of responses, the interconnector owners submitted a recommendations paper to the SEM Committee and Ofgem seeking approval for intraday congestion charging arrangements. Their recommendations paper is published with this Decision Paper.

[1] Ofgem did not have formal powers to approve the access rules at that time. In its decision letters Ofgem anticipated that further changes to the access rules would be necessary to incorporate intraday arrangements and that it would undertake a formal approval process.
http://www.ofgem.gov.uk/Europe/Documents1/Eirgird%20EWIC%20Access%20Rules%20Approval%20Letter.pdf
http://www.ofgem.gov.uk/Europe/Documents1/Moyle%20Access%20Rules%20Approval%20Letter.pdf

2. Issues

This section deals with the issues in the consultation paper, the responses from participants, the recommendations of the interconnector owners and concludes with the SEM Committee Decision. It is recommended that the owners' recommendations paper be read in conjunction with this paper. Ofgem is following a parallel approval process for the issues in this paper and the views in this paper attributed to SEM RAs have been agreed with Ofgem as part of this piece of work. This paper concludes the work which has been undertaken within SEM RAs and Ofgem on these issues which has involved a number of meetings with Interconnector Owners, SEM RAs and Ofgem.

2.1 Treatment of Unused Capacity – UIOSI or UIOLI

The treatment of unused capacity refers to instances where long term interconnector capacity rights have not been utilised in the initial run of the market schedule (i.e., at EA1), either because the holders have not submitted price/quantity offers in respect of the long term interconnector capacity rights they hold; or because those offers were out of merit. In either case, these capacity rights are made available to all interconnector users in subsequent runs of the market schedule (at EA2 and WD1), together with any previously unsold capacity rights.

There are two ways to treat the capacity rights which had previously been sold in an explicit auction, both of which are described below.

Firstly, with Use It or Lose It (UIOLI) the original capacity rights holder receives no benefit where the capacity rights are subsequently used by another participant. Thus, as the name suggests, if the capacity right is not utilised by the original long term capacity rights holder at EA1, it is lost to the original holder. Any proceeds from the re-selling of those rights after EA1 accrue to the interconnector owner.

Secondly, with Use It Or Sell It (UIOSI) the long term interconnector capacity holder receives all or part of the proceeds where the capacity rights that were not used in EA1 are used by another participant in EA2 or WD1.

Interconnector Owners' Recommendation

The interconnector owners have not made a clear recommendation to the Regulatory Authorities on this issue and have suggested that regulatory input is needed. However, the interconnector owners noted that, of the ten responses received, six expressed a clear preference for UIOSI at all Intraday Gates with another two expressing qualified support for UIOSI.

As stated above, the majority of respondents to the IC owners' consultation paper supported the implementation of UIOSI. The full rationale put forward by the respondents is summarised in the owner's recommendations paper but the main points put forward include the following;

- Capacity holders in self dispatch markets can clearly signal their intention to use or not use capacity. Capacity holders in SEM are unable to do so, so UIOSI is more appropriate to recompense them for the “involuntary” transfer of their capacity rights
- The value of long-term capacity rights must be preserved particularly in a centrally-dispatched market such as the SEM
- UIOSI encourages participation in long-term auctions, with buyers facing less risk of subsequently having to write off the value of their investment.

SEM Committee Decision

The SEM Committee has decided that a Use It or Sell It (UIOSI) regime for unused capacity should be used on the interconnectors intraday. While this may not align with other interconnectors in the France UK Ireland region, this treatment is more appropriate owing to the specific design of SEM compared with other electricity markets in the region and is more consistent with the provisions of the Framework Guidelines on Capacity Allocation and Congestion Management.

The central commitment design of SEM does not allow long term interconnector capacity holders to nominate flows in SEM at the day-ahead stage in the way that long term capacity rights holders can, for example, on the interconnectors between Britain and France or the Netherlands. Instead the capacity holder must bid into the SEM and must be included in the ex-ante market schedule for the interconnector flow to be scheduled. The SEM Committee agrees with a number of respondents that this is a strong reason for adopting UIOSI as opposed to UIOLI, since the nature of the capacity rights is intrinsically affected by the nomination process.

The SEM Committee believes that a UIOSI regime for interconnector capacity which is reallocated at the intraday timeline will encourage greater participation in the long term auctions of capacity on the Moyle and East West interconnectors and hence provides a more stable framework for long term capacity holders than UIOLI would. However, this stable regime should not affect the efficient operation of the SEM intraday market for non-holders of long term capacity. In addition, this stable regime under UIOSI should not affect the ability of non-holders of long term holders to trade intraday; nor does it create an ability to hoard capacity since capacity rights can only be exercised by offers that are in merit.

It is also worth noting that The Framework Guideline on Capacity Allocation and Congestion Management (CACM) for Electricity states that “the CACM Network Code(s) shall require that PTR are subject to the UIOSI requirement at the time of nomination (or equivalent market allocation process), which means, as a default, the resale of non-nominated capacity rights”. While the CACM and Forward Network Codes have not yet been finalised, it will be important to ensure that the charging methodology is consistent with these insofar as it possible until the SEM implements the Target Model in 2016.

2.2 Options for Determining Congestion

Interconnector Owners' Recommendation

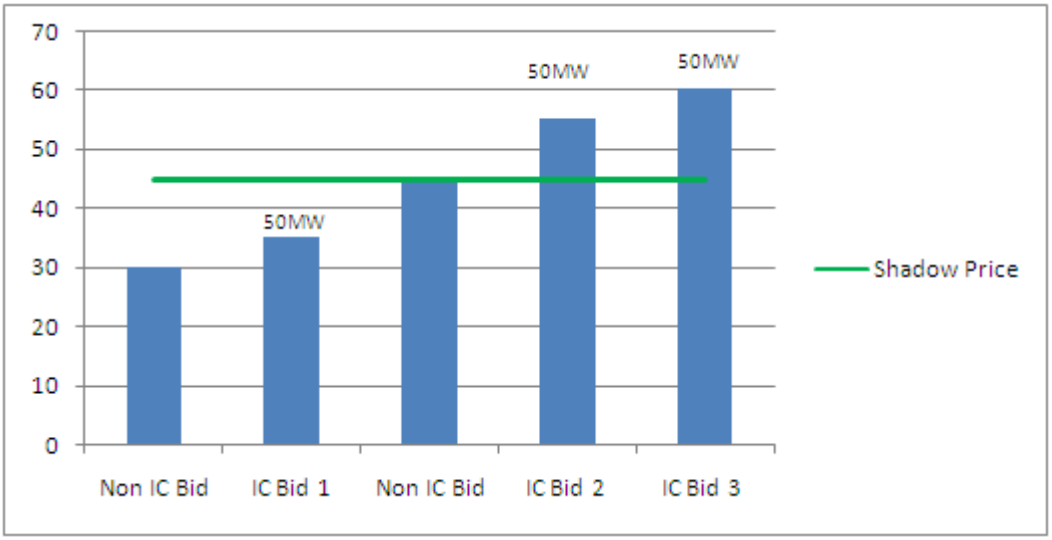
The IC owners have recommended that, in identifying whether congestion exists intraday, all submitted interconnector bids should be accumulated and compared with the available interconnector capacity. If the sum of the bids is greater than the available capacity, then congestion would be deemed to have occurred. Six of the ten respondents agreed that this was the best way to identify congestion on the Intraday Auctions.

The other option put forward in the paper was to sum only in-merit bids and compare this with available capacity in identifying whether congestion has occurred. This option was favoured by four of the ten respondents.

SEM Committee Decision

The SEM Committee has decided that in determining whether congestion has occurred intraday, all in-merit bids should be summed and compared to the available interconnector for the same trading period. This approach is not favoured by the interconnector owners and is not in line with the majority of the respondents to the owners' consultation. However, the SEM Committee believes that the option of summing all interconnector bids and comparing this with the available capacity does not provide the most efficient solution for promoting maximum utilisation of and trade on the interconnectors. This is because only in-merit bids will lead to physical flows of electricity; that including out of merit bids could result in a 'congested' interconnector with few or no flows on it; and that out of merit bids are not a real indication of interconnector demand.

The preferred option of the interconnector owners and the majority of respondents to their consultation is where all interconnector offers, no matter what their magnitude or whether they are in-merit or not, would be considered in identifying whether congestion has occurred. This is illustrated below.



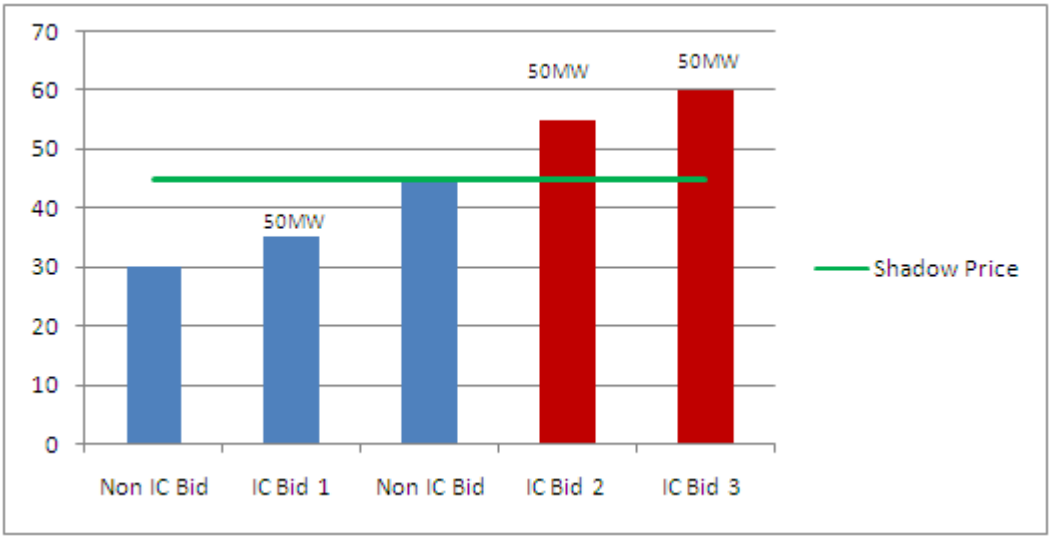
In the above example IC bids 1-3 would be considered when identifying congestion under the interconnector owners' preferred position. If there was only 100MW of interconnector capacity available in the period the proposed methodology would sum all offers which would suggest that the demand for interconnector capacity was 150MW.

The SEM Committee believes that including offers that are not in-merit is problematic as it would allow unrealistic offers for capacity to be submitted into SEM in order to ensure that congestion exists.

The SEM Committee believes that this approach is incompatible with the UIOSI methodology for unused capacity, as it would allow holders of long term capacity to submit vexatious bids in order to force congestion and make sure they get a return on their long term capacity intraday. The Cross Border Regulation (714 of 2009) is clear that (for regulated interconnectors) where no congestion exists, no charge can be levied on interconnector capacity. Therefore the SEM Committee does not believe that the option proposed would be in the spirit of or indeed compliant with EU legislation and requirements.

In addition, and as pointed out by a number of respondents, the summing of all interconnector bids, whether in merit or not, need not indicate a genuine request for capacity. In an extreme case there could be congestion on the interconnector at the long term auction and intraday stages and yet there could be low or zero flows in real-time. Yet those flows would be subject to a congestion charge, thereby inhibiting the potential use of the interconnectors. This is not an outcome that the SEM Committee believes would be in the best interest of consumers. This is especially important when, bearing in mind that in the case of import bids at least, interconnector user bids cannot increase the SMP and can only suppress it.

Moving to the SEM Committee's preferred option, the summing of only in merit bids means that only realistic offers for capacity are taken into account. This is shown below.



In the above example only IC bid 1 is taken into account when determining whether congestion has occurred. In this example there are in merit offers for 50MW with only 100MW of capacity available; therefore congestion has not occurred. IC Bids 4 & 5 are not

considered in the calculation. The SEM Committee believes that this option best fits with the requirement of the Regulation and CACM Framework Guideline.

While it might be argued that this option minimises the possibility of congestion and in turn minimises returns to the customers who have underwritten the Interconnectors, the SEM Committee believes that the encouragement of interconnector trade outweighs such concerns. Where scheduled imports on the interconnector reduce the SEM wholesale market price below what it would otherwise have been, this benefits the entire market. So a framework that encourages the maximum possible efficient trades works best for SEM and its customers.

2.3 Calculating the Congestion Charge

Interconnector Owners' Recommendation

The IC owners have recommended that the charge for congestion should be calculated using a marginal pricing approach calculated as follows;

- For Import (GB to SEM), Price = (Ex Ante Shadow Price – Highest Accepted Bid) x Factor
- For Export (SEM to GB), Price = Max[0,(Lowest Accepted Bid – Ex Ante SMP) x Factor]

The IC owners have recommended that the factor be set to 50%.

There was no clear consensus among respondents on the most suitable approach to calculating a congestion charge, but the majority favoured either Option 1 or Option 2 in the Consultation Paper. The now preferred approach from the IC owners is based on marginal pricing (i.e., Option 1) with a factor applied to the spread between the ex ante shadow price and the marginal bid (as in Option 2).

SEM Committee Decision

The SEM Committee has decided that the methodology employed for calculating intraday congestion charges should be the methodology that was proposed by the Interconnector Owners and which appears to be endorsed by a number of participants.

The SEM Committee also sees merit in an approach where the spread between SEM and BETTA is used, but accepts the concerns that were raised in the consultation relating to the requirements for a number of data feeds including those on capacity payment rates and a number of GB charges. The option proposed by the interconnector owners allows all the data requirements to be sourced within SEM systems. The SEM Committee is also concerned that the choice of a particular index to represent the BETTA price would inevitably introduce risk for participants and could inhibit trade

One respondent to the IC owners' consultation suggested that there was no economic rationale for the implementation of the proposed solution. However, the SEM Committee

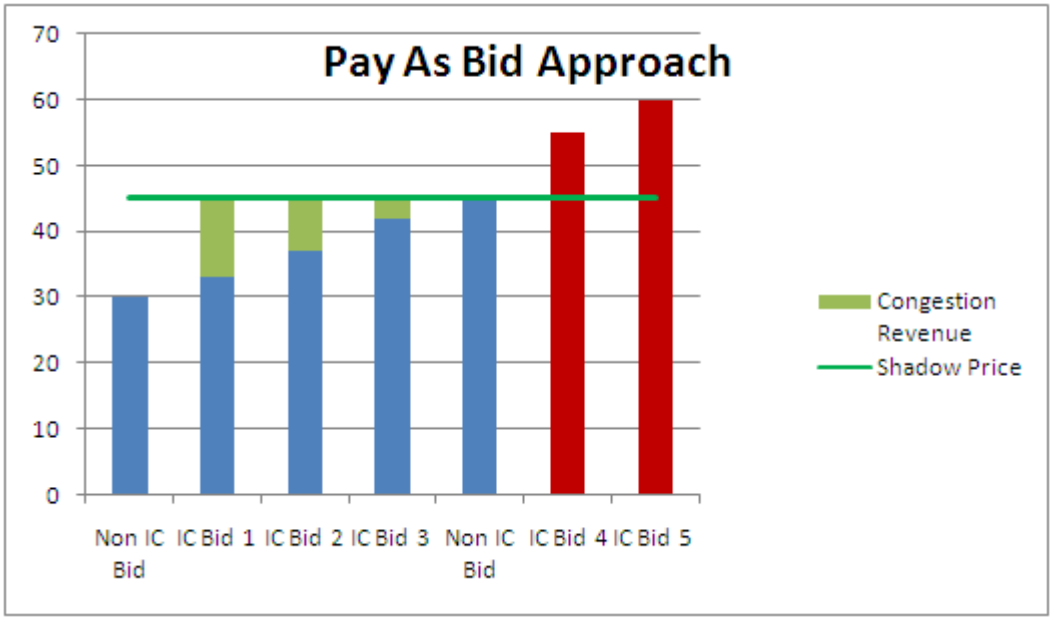
believes that the proposed solution does, to some extent at least, act as a proxy for the spread between SEM and BETTA. This is because the bidding behaviour of in merit interconnector bids (based on the expectation of BETTA prices) should capture the spread between the markets.

- Treatment of Import Trades

The majority of responses to the IC Owners paper advocated either a pay-as-bid or marginal pricing approach, with some suggesting a hybrid. One of the main comments was that the shadow price, rather than SMP should be used, given that interconnector import flows are scheduled against the shadow price. The interconnector owners appear to accept this point and have proposed using Shadow Price for imports in their recommendations paper.

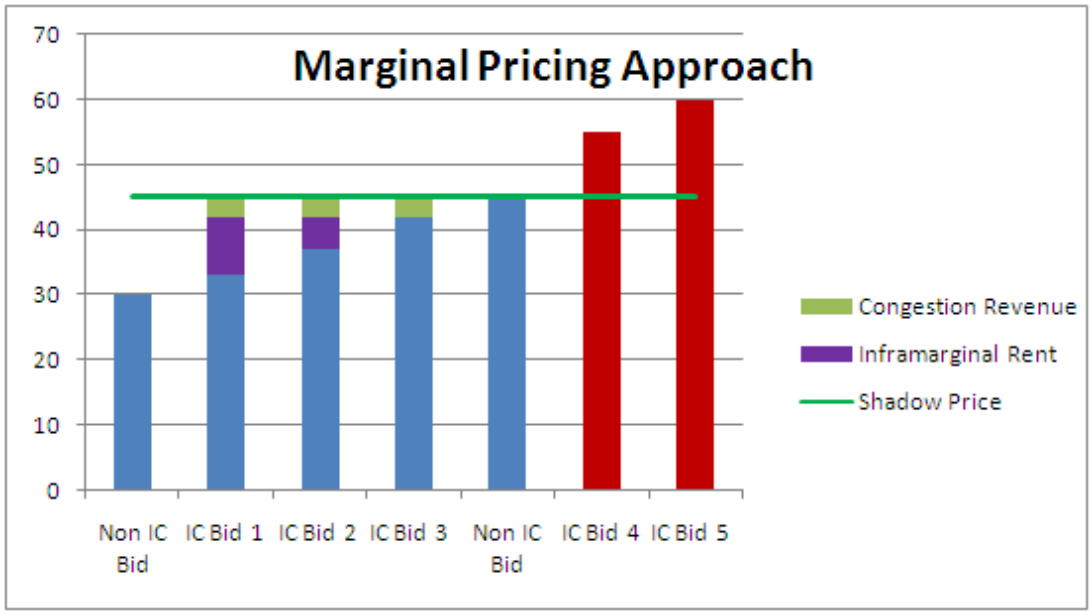
The difference between the two options (marginal pricing and pay-as-bid) relates to the level of revenue being returned to the long term capacity holder or the IC owner from the implicit intraday auctions. The pay-as-bid option might result in higher returns to the long term capacity holder and/or the interconnector owner than would a marginal pricing approach, though that will depend on whether bidding behaviour changes as a result of choosing pay-as-bid, which is likely.

The congestion revenue for the pay as bid approach is set out below.



With a pay-as-bid approach, the congestion revenue depends on the level of the various bids and so in theory different IC users will pay different congestion charges depending on the level of their bids compared to the shadow price, though as noted above bidding behaviour might change such that all bids are closely grouped.

The marginal pricing approach sees all scheduled IC users pay the same congestion revenue with any difference between the individual user's bid and the maximum successful bid being retained by the intraday IC user. This is shown below.



The SEM Committee believes that the marginal pricing approach should be adopted for pricing of intraday congestion in SEM because it should encourage efficient trade on the interconnectors and cost reflective bidding.

The SEM Committee therefore accepts the IC owners' recommendation that the following approach should be used in the case of imports:

Price = (*Ex Ante* Shadow Price – Highest Accepted Bid) x Factor

On respondent (Energia) strongly suggested that ex post prices should be used rather than ex-ante ones in the congestion charging calculation. Energia argued that using ex-ante prices increases price risk for traders and acts as a further barrier to cross border trade. Responding to this in subsequent correspondence, the Interconnector Owners cited the majority support from respondents for ex-ante prices and that they remain of the view that using ex-ante prices should be used for the congestion charging calculations.

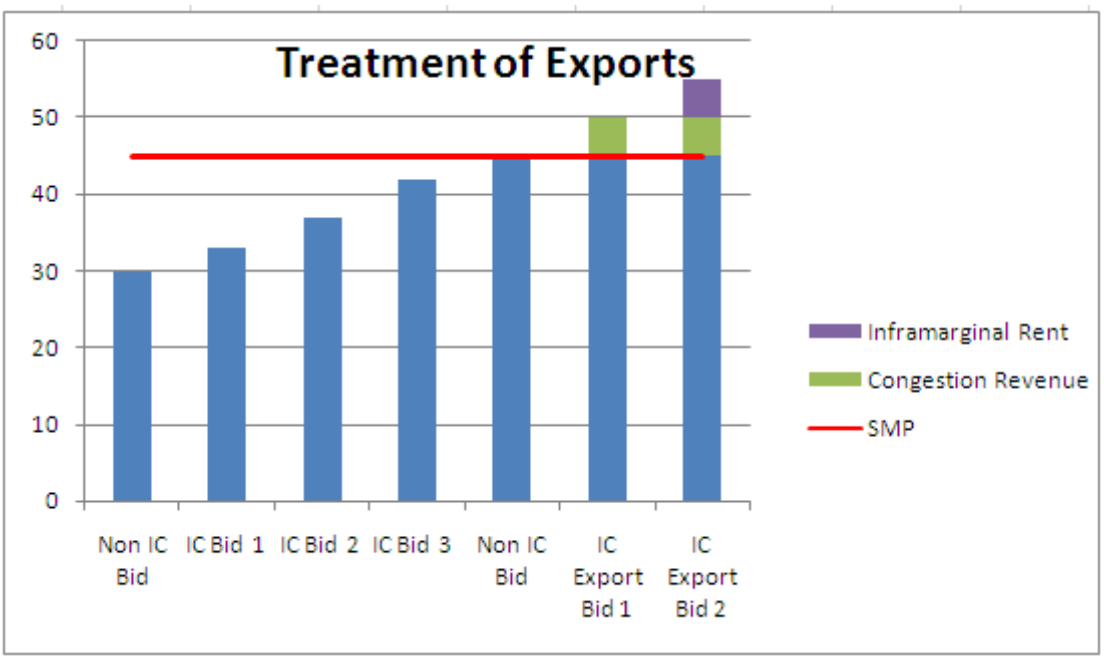
The SEM Committee has decided that the recommendations of the Interconnector Owners be adopted at this time and that ex-ante prices should be used. However, this will be reviewed in the future as part of annual assessments of interconnector efficiency.

- Treatment of Export Trades

The predominant flow of commercial trades on the interconnectors is expected to be from BETTA to SEM at least in the near term. However, it is important that an efficient intraday congestion charging regime exists for both imports and exports. For congestion charging with export trades, the interconnector owners have proposed using SMP rather than shadow price (which is proposed for import trades). The formula is set out below

Price = Max [0, (Lowest Accepted Bid – Ex Ante SMP) x Factor]

The figure below shows how this would work in practice.



The SEM Committee believes that there is merit in this proposal. The interconnector owners have pointed out that there would be a risk, if the congestion charge was based on the shadow price in the case of exports, that a bid to export was greater than the shadow price but less than SMP. This would result in the export flow being scheduled and the trader paying a congestion charge which would force them to take a loss on the trade. (The design of the SEM protects them from such a loss on the energy trade itself.) In this case it would not be appropriate to apply a congestion charge and the charging mechanism should reflect this.

- Congestion Revenue Sharing Factor

The Interconnector Owners have proposed employing a sharing factor of 50%, which would allow a cross border trader to retain half of the infra-marginal rent from an intraday trade in the event that the interconnector was congested in that particular trading period .. Given that the intraday solution being employed in SEM is unique across Europe, there are no precedents to look to when setting this factor. The SEM Committee believe that it is appropriate to set the factor at a level that both encourages intraday trading and gives some signal to bidders in the long term capacity auctions that they will get some value for their capacity holdings at the intraday stage if they are not scheduled in EA1.

Given the lack of evidence as to what would be the optimum level at which to set the factor the SEM Committee has decided that the level should be set initially at 50%. This can be reviewed after one year of operation of the intraday solution in SEM.

Also, it should be noted that the move to full market coupling in 2016 will mean that there will no longer be a need for a congestion charging regime like this one.

2.4 Superpositioning

Superposition is a means of netting trades across an interconnector to enable trading in excess of the capacity of the interconnector in each direction whilst still respecting the physical capacity of the interconnector. Without superpositioning, trades in one direction at times of congestion would result in an inefficient utilisation of the interconnector.

Interconnector Owner Recommendation

The interconnector owners proposed in their consultation paper that, if there were any congestion charges to be collected from flows made possible by superpositioning, these charges would accrue to the interconnector owner and not to long term capacity holders at EA1 under any UIOSI arrangements.

Three respondents commented on this proposal One thought that participants should not be charged for superpositioning against their EA1 or EA2 position – i.e. if scheduled for 50MW import in EA1, a participant should not have to pay a congestion charge for export capacity to export 50MW in EA2, since that would amount to double-charging for a net flow of zero. A second respondent challenged the assumption that any charges on flows made possible by superpositioning would be due to the interconnector owner and would not be payable to EA1 capacity holders under any UIOSI arrangements. A third respondent was amenable to the proposal in the consultation paper arguing that, for additional flows made possible by superpositioning, it was reasonable that charges for such flows would be payable only to the interconnector owner.

The interconnector owners responded to these points by saying that the proposals from respondents were not in line with the arrangements on the other interconnectors in the FUI region; nor were they aligned with the direction of travel of the European proposals for interconnector trading. They also stated that superpositioning is applied on all FUI interconnectors and is not accounted for in the manner proposed by the two respondents. Furthermore capacity rights apply to a particular direction and a particular timescale and that previous capacity holders have no additional rights in respect of the capacity they previously held and need to be allocated intraday capacity if they wish to change their position.

In light of the above the interconnector owners have recommended no changes to the proposals in the consultation paper and that any charges collected for flows made possible by superposition will be due to the interconnector owner.

SEM Committee Decision

The SEM Committee has accepted the recommendations of the interconnector owners in relation to superpositioning. It is persuaded by the argument that physical transmission rights sold in long term auctions apply to a specific direction. After EA1, those physical rights have either been used or sold in subsequent gates. At subsequent gates, pre-existing capacity holders have no additional rights in respect of the capacity they previously held and cannot therefore be entitled to revenues accruing from charges collected for flows made possible by superpositioning. Charges in respect of superpositioned capacity will therefore accrue to the interconnector owner, which in the case of East West and Moyle will be recycled back to the end consumer in the relevant jurisdiction given their regulated nature.

3. Next Steps

3.1 Amendment of Access Rules

The Interconnector Owners will now amend the access rules for their respective interconnectors and submit them to the Regulatory Authorities for approval by close of business on Friday 13th July 2012.

3.2 Submission of Charging Methodology Statements

The Interconnector Owners should also make any amendments to their Charging Methodology Statements and submit them to the SEM Committee with the Access rules by close of business on 13th July 2012. Moyle should make any amendments to the previously approved Charging Methodology Statement and EIL should make amendments to the version that they have consulted upon already but which has not yet been approved by the SEM Committee.

3.3 Annual Review of Cross Border Trading Arrangements

As part of the transitional arrangements for island systems with central dispatch provided for in the Capacity Allocation and Congestion Management Framework Guideline and Network Code, the Regulatory Authorities (SEM Committee and Ofgem) have committed to monitoring the efficiency of the cross-border trading arrangements on interconnectors connecting to the SEM and publishing an annual report on the results of this monitoring exercise. Further to this, Directive 2009/72/EC concerning common rules for the internal market in electricity also requires Regulatory Authorities to monitor congestion management of national electricity systems including interconnectors.

As part of this monitoring exercise the Regulatory Authorities will assess the operation of these intra-day congestion charging arrangements.