



Integrated Single Electricity Market (I-SEM)

Financial Transmission Rights

Decision Paper

SEM-15-100

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1 EXECUTIVE SUMMARY

The SEM Committee has committed to implement the Integrated Single Electricity Market (I-SEM) that will go live in Q4 2017 and will be consistent with the European Union Target Model for electricity. Ahead of I-SEM go-live, an important element that must be in place is hedging tools for cross border trading across the interconnectors with the GB market.

In the High Level Design of the I-SEM market, it was determined that physical trading of energy would not take place before the day ahead market (DAM) and that the Interconnector Owners would offer long-term transmission rights in the form of Financial Transmission Rights (FTRs), which would enable market participants to manage forward spatial hedging between markets. This determination is consistent with the EU regulation being developed in this area, the Forward Capacity Allocation (FCA) Guideline, which is currently undergoing approval in the EU decision process.

Under the FCA Guideline responsibility for proposing the form of long-term transmission rights is vested in the Interconnector Owners. However the requirement to have functioning cross-border auctions and products available at I-SEM go-live as part of the implementation of the new wholesale market has required the development of policy on FTRs. This has included a Forwards and Liquidity Discussion Paper issued in February 2015 that covered initial ideas about the form and design of FTRs and in September a Consultation Paper (SEM-15-061) which posed the following questions:

1. **Which offers the greater benefit to the I-SEM/GB market: FTR options or FTR obligations?**
2. **What arrangements would be preferred: one FTR between the I-SEM and GB or one FTR per interconnector?**
3. **Should any of the following be discounted from the FTR product payouts?**
 - Interconnector transmission losses;
 - Ramping constraints;
 - Curtailment risks.
4. **What are the important issues to be considered in deciding on the development of an auction platform?**
5. **What is the preferred approach in relation to the establishment of the I-SEM FTR auction platform?**

On questions 1, 4 and 5 no “minded to” view was expressed but for question 2, the SEM Committee was minded to have separate products for each interconnector. For question 3 the SEM Committee was minded to include adjustments for losses in the FTR product, exclude the cost of ramping constraints from the FTR product and to follow the requirements for treatment of curtailment set out in the FCA Guideline.

Following the consultation, the SEM Committee has made the decisions set out below.

FTR options or FTR obligations

Respondents to the consultation believed that both products offered benefits although most favoured FTR options. This was partly driven by familiarity (as FTR options are similar to the PTRs with use it or sell it (UIOSI) currently traded across much of Europe), but also because auction rules for FTR options have been written and existing European auction platforms can cater for options. On the other hand the corresponding rules and auction functionality for FTR obligations do not currently exist and may not be in place by I-SEM go-live.

While FTR obligations form a perfect hedge product ideal for physical players seeking to hedge at a lower net cost, FTR options incur a lower cost in terms of credit that market participants would need to post and may also be more attractive to assetless traders, which would boost liquidity in trading. Finally, the implementation risk for I-SEM go-live is lower with FTR options because trading rules are in place and auction platforms catering for options are also much more likely to be in place.

The SEM Committee has therefore decided that FTR options should be offered at I-SEM go-live but this will not preclude introducing FTR obligations in the future if this is considered appropriate.

FTRs per border or per interconnector

Most respondents to the consultation preferred a single product traded at the border as this would be simpler and enhance liquidity. One of the Interconnector Owners believed that it would be too difficult to negotiate a revenue sharing agreement so that the products should be offered separately at each interconnector. While the SEM Committee believes that the negotiation of a revenue sharing agreement would be possible, we did not find a compelling reason to challenge the status quo where trading and liquidity for the more complex PTR product seems adequate. There may be advantages of flexibility in having products separate at each interconnector, especially if future changes including, potentially, to bidding zones, might need to be accommodated.

Treatment of interconnector losses

The SEM Committee considers that the treatment of losses in the FTR product is relatively easy to manage for the market. While a product that was not adjusted for losses would provide a full hedge to FTR holders and would therefore command a better price at auction, it would not be unduly difficult for market participants to manage the shortfall in hedging caused by discounting the FTR payout to account for losses by simply purchasing extra FTRs. From the point of view of the Interconnector Owner, there are fears for revenue adequacy if the FTR pay out was not discounted for losses as they would be paying out for unadjusted price spreads in cases where there may be no income from market coupling to compensate. To cover this risk the SEM Committee has decided that FTR payouts should be adjusted for losses.

Ramping Constraints

Neither the interconnector user nor the Interconnector Owner can manage ramping constraints. However the potential cost of ramping constraints could see a very significant mark-down by FTR purchasers in bid prices at auction, which would unduly undermine the value and usefulness of the FTR product while also significantly reducing Interconnector Owner revenue from auction. The SEM Committee has therefore decided that ramping constraint costs should be borne by the Interconnector Owners. This is not ideal but it indicates the need to implement potential incentives on the onshore TSOs to loosen the ramping constraint. Therefore, the SEM Committee has decided that there will be no adjustment to FTR payouts as a result of ramping constraints.

Curtailement

Under the FCA Guideline, curtailments in interconnector flows before the firmness deadline are compensated by paying out the positive price spread on each curtailed FTR up to a monthly revenue cap. Respondents to the consultation were mainly concerned with how curtailments were defined and did not want routine testing restrictions to be defined as curtailment. This concern arises from the draft Annex to the Harmonised Allocation Rules (HAR), which included some wording suggesting a much broader definition of what would be classed as curtailment. The content of the final HAR will be subject to approval by all National Regulatory Authorities (NRAs) and regional annex will also be subject to approval by the relevant NRAs. The SEM Committee has been determined that the interpretation of the FCA Guideline will be enforced.

Choice of auction platform

The SEM Committee has sought the views of market participants on the main considerations relevant to selection of an auction platform and on which of the potential approaches might be preferred. The submissions of respondents have been useful in informing the TSOs' development of the platform and oversight of this development by the Regulatory Authorities.

This decision paper provides the basis for moving forward to delivery of a well-defined FTR product in good time for auctioning ahead of I-SEM go-live and in doing so allows associated elements such as the complementary onshore forward financial products to be developed.

2 INTRODUCTION

2.1 FORWARDS AND LIQUIDITY WORKSTREAM

The philosophy of the I-SEM is characterised by a number of features including:

- Preference for a competitive approach that is in the interests of consumers
- Access to all I-SEM market places for participants of all sizes and technologies and
- Liquid trading of financial forward contracts for effective hedging of short term prices.

These principles guided the initial assessment of issues set out in a Forwards and Liquidity Discussion paper (SEM-15-010) issued in February 2015 on which initial comments were received. In the Consultation Paper: Financial Transmission Rights (SEM-15-061) we focussed on the issues raised regarding cross-border forward liquidity through the High Level Design decision that Long Term Transmission Rights should be issued as purely financial rights (FTRs) by the Interconnector Owners.

This paper sets out key decisions arising from that consultation and maps the way forward for the introduction of FTRs on the border between the SEM market and GB, taking into account developments in the European regulatory regime, namely the Forward Capacity Allocation Guideline currently undergoing approval.

2.2 CONSULTATION

As noted, the SEM Committee published its Consultation Paper on FTRs on 8 September 2015. Written responses were received from:

Bord Gáis Energy
Bord na Móna
Brookfield Renewable Ireland Limited
Cenergise
EirGrid Group
EirGrid Interconnector Limited
Electric Ireland
Electricity Association of Ireland
ElectroRoute Energy Trading
Ennergia
ESB Generation & Wholesale Markets

Gaelectric Holdings Plc
Irish Wind Energy Association
Moyle Interconnector Ltd
National Grid Interconnectors Limited
Power NI
Power NI Energy Limited Power Procurement Business
SSE
Tynagh Energy Limited

These responses are published on the All Island Project website. The responses were supplemented by bilateral meetings with market participants held after the publication of the consultation document. The issues for discussion were also aired at a Stakeholder Forum held in Dundalk on 14th September 2015.

In this document we discuss the issues under consideration, summarise the comments made by respondents, the SEM Committee's views on the issues and the SEM Committee decisions.

Under the FCA Guideline responsibility for proposing the form of long-term transmission rights is vested in the Interconnector Owners. However the requirement to have functioning cross-border auctions and products available at I-SEM go-live as part of the implementation of the new wholesale market has required the development of policy on FTRs. This has included a Forwards and Liquidity Discussion paper issued in February 2015 that covered initial ideas about the form and design of FTRs and in September a Consultation Paper (SEM-15-061) which posed a number of questions. The topics covered in this paper are:

- **The choice of FTR for the borders of the SEM market: FTR options or FTR obligations.** Both types of FTR offer different attributes useful for cross-border forward hedging so that the most effective choice for the I-SEM market is not immediately evident. The consultation therefore asked for opinions from respondents which covered issues such as relative risk, liquidity and the utility of both products.
- **Whether FTRs should be a single product at the border or separate products for each interconnector.** As a financial product it is possible to design a single product sold at both interconnectors. The consultees were asked whether the benefits of this to market liquidity would outweigh the negotiation and implementation costs of the consequent Interconnector Owner revenue sharing agreement as well as other issues associated with an undifferentiated product.

- **Whether specific physical characteristics of interconnectors should be reflected in the FTR product** namely:
 - Interconnector Losses
 - Ramping Constraints
 - Curtailments.

In moving from the essentially physical PTR product currently traded at the interconnectors to the financial FTR product it is important to determine how and to what extent the risks inherent in the physical product should be allocated between the provider and the user of the FTR. This risk allocation affects both liquidity in the traded product and the revenue adequacy of interconnector provision.

- **Criteria for selecting the auction platform for FTRs.** The Consultation paper sought the views of market participants on the most important considerations to be taken into account in evaluating the various options for the provision of an FTR auction platform. It also sought the views of respondents on the three broad choices available in order to inform the decision making of the Interconnector Owners responsible for their development.

The decisions in this document take into account the views expressed by respondents to the consultation and remain consistent with the guiding principles set out in the High Level Design.

In making the choice, the SEM Committee has been guided by the principles laid down in the consultation, namely:

- Facilitate effective risk management
- Facilitate the provision of long term price signals
- Ensure spot markets are liquid
- Be consistent with the other elements of the I-SEM design
- Be consistent with the development of the reference price for CfDs.

To these principles must be added the need to implement a form of cross border transmission rights within a tight timeframe. In assessing feasibility the SEM Committee has considered the options for early implementation of one of the choices with the ability to transition in the future.

3 FTR TYPE- OPTIONS VS. OBLIGATIONS

3.1 INTRODUCTION

Although it has been established that the most appropriate long term cross-border transmission rights to be offered in support of a market that does not go physical until the day ahead market is the FTR, the decision for the SEM Committee has been the form of the FTR products to be offered. The two forms allowed under the draft FCA Guideline are an FTR option and FTR obligation. As summarised in the Consultation document:

- An FTR option bought from A→B pays out the price spread per MW between markets whenever the price in day ahead market B is above the price in market A (but pays nothing when the price in market B is below that in market A).
- An FTR obligation bought from A→B pays out the price spread per MW between markets whenever the price in day ahead market B is above the price in market A but the holder pays out the price spread to the provider whenever the price in market B is below the price in market A.

The SEM Committee believes that both types of FTR offer the market different benefits and so has sought the opinions of respondents as to preferences.

3.2 SUMMARY OF ISSUES

The principal requirement for long term transmission rights is to allow market participants access to the market price in an alternative marketplace. This will enhance liquidity in the energy market but will also support temporal hedging in either market by providing an effective spatial hedge (the FTR) between markets. Both FTR options and obligations offer this benefit. Therefore the SEM Committee has evaluated the choice of FTR options or obligations based on other attributes associated with each product.

In the Consultation Paper we summarised these attributes and provided selected worked examples of how a hedging position could be achieved. We assessed the attributes of each product under several headings:

- **Coverage of price spread risk.** An FTR option is an effective hedge protecting the holder against downside risk while an FTR obligation is a perfect hedge such that the holder seeking to hedge to an alternative market price should be indifferent to the energy price spreads between the markets.
- **Hedging efficiency.** Because the FTR option had no downside risk the holder could be financially hedged with fewer FTR options per MW hedged compared to FTR obligations, but possibly at a higher price per MW. However, the nature

of FTR obligation payment flows would allow the Interconnector Owners to net off rights sold in opposite directions and to thus increase the number of FTRs offered, thereby increasing availability.

- **Liquidity.** An FTR obligation may be suited to physical participants – especially when bought to complement a forward temporal hedging product – but an FTR option might be more likely to additionally attract speculators, thereby enhancing liquidity in the market for FTRs.
- **Price.** An FTR obligation should be relatively easy to price at auction because its value would be the difference between the forward prices in the two energy markets, whereas the bidder for an FTR option would need to predict the prevalence of positive price spreads (albeit, this is what they need to do now in order to price bids for PTRs). Because the FTR option has no downside cashflow risk for the holder it would command a higher price at auction, whereas an FTR obligation might even have a negative value at auction to market players. This would be partly because of:
 - **Credit cover with potential price shocks.** The credit cover that a holder would have to post for an FTR option to purchase at auction in comparison to an FTR obligation is likely to be lower due to additional credit required for the latter to cover for uncapped downside payment risks.
 - **Feasibility.** An FTR option is a similar product to the PTR with UIOSI used in much of Europe while FTR obligations are a requirement in the Forward Capacity Allocation Guideline but are not yet operational on any other bidding zone border.

It was on the relative importance of these attributes that the SEM Committee sought views.

3.3 SUMMARY OF RESPONSES RECEIVED

The SEM Committee did not make a recommendation regarding this issue. The question posed was:

- Which offers the greater benefit to the I-SEM/GB market: FTR options or FTR obligations?

There were mixed responses, with the majority of respondents favouring FTR options, although a significant number were either indifferent or, in a few cases, favoured both FTR options and obligations being offered simultaneously. One respondent stated that they served different needs (obligations for hedging a physical position, options for selectively managed exposure) and so were both valid. One party read the current draft of the FCA Guideline as requiring either FTR obligations or FTR options but that both could not be offered simultaneously.

Another respondent, in contrast, suggested that other parties should be allowed to offer products in the auctions in addition to those offered by the Interconnector Owners, thus breaking any linkage between available transfer capacity and volume of financial products offered.

The Interconnector Owners favour FTR options although this was influenced in some part by concerns about implementation of FTR obligations for I-SEM go-live. Several respondents suggested that FTR options should be introduced initially for practical implementation reasons (citing lack of rules in the existing HAR for FTR obligations as well as lack of provision at present under the Joint Allocation Office (JAO) platform) but FTR obligations could be included at a later stage. In general, fears about practical implementation of FTR obligations were expressed by several respondents, which may have influenced their expressed preferences.

Various reasons were given for stated preferences:

Similarity to existing products

Some respondents saw FTR options as similar to existing PTRs and therefore relatively easy to price while others saw similarities between FTR obligations and existing CfDs used for temporal hedging in the current market.

One characterised FTR obligations as suitable as a baseload hedging instrument with FTR options as conceptually more suited to shaped energy. This is of particular relevance because more than one respondent highlighted that they used interconnectors to hedge shaped forward energy requirements because of the lack of shaped CfD coverage in the domestic market.

One respondent suggested that the benefits of FTR obligations would only be realised once more areas of Europe traded them as they were seen as a means of hedging when trading across multiple borders. One respondent expressed the view that an FTR obligation was a natural pan-European product because FTR options were not decomposable in the same way when trading across multiple borders.

However, one respondent highlighted the risk of trading something that was not generally used in the rest of Europe, as this would limit the benefits of pan-European integration and would therefore deprive the I-SEM of potential sources of additional liquidity.

Types of product required

Several respondents who slightly favoured FTR obligations also stated that there was a need for time-of-day FTRs to match time-of-day (shaped) procurement of forward energy products. Another respondent saw no real need for shaped FTRs. Overall,

about a third of respondents mentioned the need for time-of-day products. One respondent specifically stated that time-of-day products were only needed if an FTR obligation was being offered. One response, however, pointed out that time-of-day products are not offered anywhere in Europe and questioned the benefits (including ability to deliver netting). Another respondent considered the possibility that introducing time-of-day products would fragment the market, thereby reducing liquidity.

One respondent questioned the worked examples as only showing the position from an I-SEM supplier point of view. The respondent cited an example of an Irish wind generator who they believed could not hedge using FTR obligations because of uncertainty as to timing of when a hedge would be needed. This wind producer needed to hedge the risk that Irish prices would be low during windy periods (and so needed an option to lock in the less wind-affected GB price) but would then be penalised with an FTR obligation during periods when there was no wind because they would be paying out on the obligation (Irish prices now being high) even though they had no output and so no wish for a hedge. The same respondent also raised the question of the mid merit Irish generator who wanted a hedge for only part of the day.

Another respondent also questioned the validity of the worked examples in the Consultation document because of an assumption of perfect foresight in the examples.

Respondents with physical assets had a preference for either FTR obligations as matching their hedging positions either side of the interconnector or else would like to see both products on offer. Those that wished to offer risk management or else to actively arbitrage generally expressed a preference for FTR options, which they saw as more tradable. However, others thought that trading in the secondary market would be very limited regardless, as most holders would prefer to either return unwanted FTRs to the TSO to re-auction or else would hold them to term and take the payout.

Although most believed that obligations were not suited to assetless traders, several respondents with active trading functions (both assetless and those with a physical position to hedge) expressed a view that the perceived risks of FTR obligations would not be a deterrent to trading them.

However, a recurring theme in some responses was that it was not possible to determine whether FTR options or obligations would be better without knowing what products would be available in both timeframe (yearly, monthly, within month, and up to two days ahead – which was suggested by one respondent) and in terms of time of day products. This uncertainty extended to products available on the forward

energy markets in I-SEM. More than one respondent requested that availability of products be specifically consulted upon, this being in the context of forward energy markets as well as forward capacity products.

Price issues

Some thought that an FTR option would be easier to price due to its similarity to existing PTRs while others thought that FTR obligations could be priced straightforwardly based on the differences in forward energy prices between the I-SEM and GB markets. One respondent believed that it would be easier to develop a full forward curve for FTR obligations because valuation could be linked to forward energy markets either side of the interconnector. Another respondent thought that pricing difficulties for FTR options were overdone, specifically asserting that the US experience was not relevant because the difficulties of pricing options in a multi-nodal system were not found in the zonal pricing regime across Europe.

It was acknowledged by some respondents that FTR obligations would be cheaper to purchase although there were concerns over the potential for a negative valuation of FTR obligations due to the uncapped risk of the holder facing negative prices – an issue raised mainly by those considering non-physical trading. One respondent believed that the greater difficulty of pricing FTR options would make them easier for larger players to hold, which would lead to issues of market power (they suggested that those with generation assets would be in a better position to accurately price FTR options).

The issue of reserve prices at auction was raised. Currently there is an effective reserve price of zero. It was suggested by some that a negative price could be allowed for FTR obligation auctions.

One respondent considered that FTR obligations could be “scary” but conceded that any negative valuation would be built into contingency calculations when making auction bids.

Associated with price at auction is the issue of revenue adequacy for the Interconnector Owners, which was raised by them as a concern. Revenue adequacy, as pointed out by one respondent, was not listed by the SEM Committee as a criterion at the time the Consultation Paper was issued but it must inevitably remain a concern because of its impact on costs for tariff customers, who effectively underwrite the incomes of the interconnectors. The concern raised was the risk of under-pricing at auction, which is also a current concern with PTRs.

Collaterals

The relevance of collateral was mentioned by just over half of respondents. It was believed by some respondents that FTR obligations would entail posting much higher collateral than FTR options due to the risk of negative spreads, although one respondent believed that the lower expected auction price of obligations would mean that lower collaterals would be needed. It was pointed out that “excessive” collaterals were already required in order to trade in CfDs and so for FTR obligations this would be a relatively small additional cost. Others thought that for smaller players this could prove a barrier to entry. It was generally suggested that synergies between markets might allow for collaterals to be offset by gains in other markets (i.e. sharing of collaterals in the forward energy markets both sides of the interconnector with those for FTRs would offset the margin requirements). A few respondents stated that their support for FTR obligations was contingent on suitable collateral arrangements (including designation of a clearing house) being in place.

Liquidity

Well over half of respondents believed that liquidity – along with simplicity – was important, with several stating that it should be the primary driver of all decisions pertaining to the consultation. These considerations arise against a background of fears that forward energy markets in Ireland will continue to be illiquid and that access to the GB market is necessary in order to address the perceived risks posed by the SEM. One party suggested that a likely lack of liquidity in acquiring and trading FTR obligations would favour dominant parties while another believed liquidity in cross-border (PTR) trading was already adequate and need not be a major consideration.

It was generally considered that FTR options would trade more liquidly than FTR obligations. One respondent suggested that liquidity in transfer capacity is not really an issue in the current market, with several products of different durations already being traded without much problem, although it was noted that secondary trading is negligible. It was considered that this is likely to be the case with any form of FTRs, where the only effective trading will be with the TSOs through returning the unwanted rights for subsequent resale.

Netting

The possibility of netting of FTR obligations with opposite-flow sales in order to increase the overall availability of transfer rights in the primary auctions was not considered by most parties. Where mentioned, only one respondent ventured a view as to its likely prevalence if available (believing it would be negligible) although a few thought it would increase availability of product and hence would enhance liquidity.

3.4 SEM COMMITTEE RESPONSE

The SEM Committee noted the views of several respondents that FTR obligations may not be feasible at I-SEM go-live and accepted that the final decision would be influenced by practicality. However, given the general importance of effective hedging tools any short term impracticality of implementing FTR obligations would not be used as a reason for permanently ruling them out.

The SEM Committee also notes the views expressed by some respondents that both products should be offered. The SEM Committee does not agree with the interpretation of the FCA Guideline, which says that it rules out both products being offered on the same border and believes that the construction of the relevant Article in the Guideline is clear on this interpretation. However the SEM Committee believes that it would be difficult to facilitate this initially even if this were feasible on the eventual Single Allocation Platform (SAP), and are mindful of emerging market requirements. We note that one respondent suggested parties other than TSOs could also offer financial forward capacity products and, while this would not be implementable on the designated allocation platform, there is nothing preventing such products being offered by third parties as is already the case with financial energy derivatives, which are outside the regulatory oversight of the SEM Committee. Such products are therefore not within the scope of this Decision Document.

Several respondents discussed FTRs in the wider European context. The SEM Committee considers that benefits of FTR obligations can be captured by I-SEM and GB market participants whether adopted more widely across Europe or not but agrees that they will have a bigger impact where available on several borders, facilitating energy trading in the wider European market.

The SEM Committee has also considered the point made by the respondent who believed that the worked examples were invalidated by the assumption of perfect foresight. That assumption was made in order to illustrate the time-of-day limitations of hedging with the two types of baseload FTR. It is acknowledged that there is inevitably greater uncertainty as to both the magnitude and direction of price spreads for any particular hour and so the clarity of differences in value of products is certainly not so clear. However, unless price spread differences are completely random (in which case it is arguable why somebody would be seeking access to another market rather than just temporally hedging in one's home market) then it remains the case that a position can be financially hedged with fewer FTR options than FTR obligations. This is what the worked examples in the Consultation paper sought to demonstrate.

The SEM Committee agrees that market pricing of FTRs at auction should not prove difficult for most parties whether as FTR options (where the pricing decisions will be similar to those applied for the current PTRs) or FTR obligations (where differences in prices in forward energy markets either side of the border will be accurately reflected in auction bidding prices for FTRs). Therefore, this factor did not lead the SEM Committee to favour either option. However, it should be noted that concerns about the liquidity of forward energy markets in the I-SEM should logically suggest that it may be difficult to price forward contracts in the I-SEM at market opening, making valuation of all FTRs more difficult at the initial auctions.

With regard to Interconnector Owner fears of revenue adequacy, we note that with the current PTR auctions, risk averseness in bidders arises due to uncertainty of getting an efficient price spread hedge due to forecast errors (risk that price spreads won't materialise) and due to allocative inefficiencies. The latter arises to an extent because UIOSI is not currently a payout on price spread (benefitting from the allocative efficiency inherent in market coupling) but only on resale in the IDM – as with nomination, the payout is restricted to volume flowed so the holder must discount what they expect to be paid – hence an additional price discount at auction. Under market coupling, payout is based on price spread (regardless of actual volume flow, although the efficiency of market coupling should reduce price spreads) so there is less reason to discount auction bids. For the Interconnector Owner, reduced discount increases revenue adequacy. There is protection against discounted bids that do not reflect price spreads because congestion revenue will compensate for unforecast excess price spreads. Hence we expect the move to FTRs and market coupling will reduce the likelihood of market participants discounting auction bids, irrespective of the choice of FTR options or obligations.

We note the request for a requirement for time-of-day FTR products. These are not currently offered anywhere in Europe. This requirement is more particularly needed with regard to FTR obligations as FTR options already contain an element of effective time-of-day hedging, as pointed out by one of the respondents. Similarly, the preference of non-physical players for FTR options informed our decision to the extent that it impacts on potential liquidity in FTRs, which should, in turn, facilitate liquidity in forward energy markets by increasing access to additional markets and hedging choices.

While the SEM Committee has sympathy with respondents seeking clarity as to which products should be offered both at borders and in the I-SEM forward markets, it should be noted that the FCA Guideline allocates responsibility to TSOs to determine the variety and form of products to offer *based on market requirements* and the SEM Committee believes that it would not be appropriate to pre-empt this aspect of decision making. A prescriptive solution at this stage may preclude useful

products in the future or else adversely affect liquidity in such products, based on insufficient information about future market requirements.

The Consultation document discussed the effects of profiled demand for energy with baseload FTRs. One respondent did not believe that these examples covered the cases of two types of generator: wind farms and mid-merit generators. While the illustrations in the Consultation paper did focus on suppliers, the same effects can easily be discerned for generators. In the case of a wind farm seeking to lock into the GB price, FTRs do not offer a specific hedge because they pay out (or not) regardless of whether the holder has physical output or offtake in the hour concerned. However, to the extent that the price spread is driven by wind force in Ireland, an FTR option would protect against weather-related price collapse although it remains a spatial hedge whereas the respondent should actually be looking for a more specific weather-related derivative. In the case of a mid-merit or peaking plant it is acknowledged that, for non-baseload generation or for profiled demand, FTR options do offer hedging with lower volumes of baseload FTR purchased than do FTR obligations, as was demonstrated in the Consultation paper, but at a possibly higher price.

We agree that FTR obligations will be cheaper in the market but this will simply reflect the relative payouts under the two products including the risk of the FTR obligation holder paying out on negative price spreads. To the extent that the risk of negative payouts in excess of forecast will reduce the price of FTR obligations (due to the risk contingency built into auction bids), this may have an impact on revenue adequacy for the Interconnector Owners, although this risk is hedged for them to the extent that excess payouts are offset by congestion revenues from market coupling. However this risk can be exaggerated because, where an FTR holder believes that the price spreads are likely to turn against him, he will return the FTRs to the Interconnector Owner for resale; which means that the value of the holding can fall to zero but not below, which is the same situation as with FTR options. Therefore, these pricing issues and revenue implications for IC owners did not weigh heavily in our decisions.

One respondent believed that FTR options would support the exercise of market power because they would be more expensive than FTR obligations at auction. However, this seems unlikely because the credit requirement for FTR obligations will be higher.

We agree that the requirement for unreasonably high collateral requirements (on CfDs) would form a barrier to entry in a forward contract market and are anxious to minimise these costs to promote competition. However, as one party noted, the collaterals required for FTRs will be a small part of overall collateral requirements for

trading in the energy market and so this issue was given due weight but was not the sole basis for our decision. We also note the importance attached by many respondents to netting off collateral requirements across several markets and instruments and will consider how this can be facilitated in the next phase of the Forward and Liquidity workstream.

Similarly, we note that FTR options are likely to be more liquidly traded than FTR obligations (again due to the collateral risk) and this is a reason to favour FTR options. However, as one party noted, secondary market trading may be limited, with the predominant form of secondary trading being via return of rights to the auctioneer for resale. In addition, our primary concern is with liquidity in the main forward energy markets with liquidity in FTRs being a concern to the extent that it forms a barrier to energy market entry. Therefore, in terms of liquidity, access to primary auctions for FTRs formed a major element of our deliberations on choice of product but also informed decisions on issues such as whether time-of-day products should form part of the offerings. There is a trade-off between flexibility through multiple products and the need to concentrate liquidity.

We agree that netting may currently play only a minor role.

In addition to responding to the questions raised in the Consultation, several respondents also raised the issue of whether it would be feasible to implement FTR obligations by I-SEM Go-live. The SEM Committee has taken into account relative implementation risks in coming to its decision and notes the concerns raised by respondents. Implementation will be the responsibility of Interconnector Owners but market participants will also have to adapt their trading and credit management systems to the new products and this too has influenced the SEM Committee's decisions.

3.5 SEM COMMITTEE DECISION

The SEM Committee has decided that, for I-SEM go-live:

- The Interconnector Owners will offer FTR options at auction. This does not preclude a move to offering FTR obligations at a later stage:
 - should there be market requirements for such products on the GB-SEM border
 - if there are moves in Europe towards such products.

Interconnector Owners will have responsibility for proposing such requirements in line with the FCA Guideline

- Nothing precludes third parties from offering additional financial spatial hedging tools to the market if they so wish. These however are separate products from those that come within the scope of the SEM Committee decision.
- The proportion of products of different duration to be offered will remain a decision for the Interconnector Owners, in line with the responsibilities set out in the FCA Guideline, who will have a responsibility to respond to market requirements.
- The SEM Committee will not require the Interconnector Owners to offer time-of-day products although they may offer such products if they perceive a market requirement. In any case, the need for time-of-day products is less intense with FTR options as compared to FTR obligations.
- The SEM Committee will not require adherence to a specific clearing house for guaranteeing such bids but would urge market participants and market providers to be mindful of the need to seek ways to minimise the need for collaterals as this will help reduce trading costs.

Reasons for SEM Committee decisions

The SEM Committee has always seen merit in both FTR options and FTR obligations as both offer benefits to forward hedging. Table 1 below sets out the main advantages and disadvantages of the two types of FTR with the SEM Committee's assessment of the net benefit of each.

Attribute and Assessment	FTR option	FTR obligation
<p>Coverage of price spread risk</p> <p>Both products offer users effective hedging</p>	<p>Effective hedge: covers holder against any adverse price spread exposure.</p>	<p>Perfect hedge: holder indifferent to changes in direction of benefit to a holder that is trying to hedge a buy/sell energy contract.</p>

Attribute and Assessment	FTR option	FTR obligation
<p>Price shock risk</p> <p>Easily managed for holder of FTR option; FTR obligation may need to be more actively managed if spreads move against holder. FTR options better for those not hedging a physical position. Not important for those with a physical position.</p>	<p>Holder hedged against unpredicted large price spreads.</p> <p>Provider hedged through congestion revenues.</p>	<p>Uncapped risk of unpredicted adverse price spreads for the holder, but only if there is no underlining energy contract that offsets this position.</p> <p>Provider hedged through congestion revenues.</p>
<p>Hedging efficiency</p> <p>FTR options offer sufficiently effective hedging; netting may be only a small addition to the pool of obligations that could be available. FTR options possibly slightly better</p>	<p>Because there is no downside risk, with reasonable price spread forecasting, a financial position can be hedged with fewer than 100% FTRs per peak MW anticipated flow, but at a potentially higher cost.</p>	<p>Depending on market profiles, more than 1 MW of FTR per average MW of contract may be needed to completely cover the financial position of the contract. This may be offset by the availability of netting, increasing the pool of available FTRs at auction.</p>
<p>Credit cover</p> <p>FTR options will not require a heavy outlay from auction bidders. FTR obligations may need much more in the way of collateral and may require designation of a clearing house to manage credit risk. FTR options better</p>	<p>Less collateral required due to absence of downside risk on negative price spreads, but higher collateral required for auction due to the higher expected clearing prices.</p>	<p>Lower credit cover at auction because lower auction price but credit cover higher due to potential negative price spreads.</p>
<p>Pricing of bids at auction</p> <p>FTR obligations are easier to price but FTR options are no more difficult to price than current PTRs. FTR obligations better</p>	<p>Requires forecasting of positive price spread expectation (volume and prevalence).</p>	<p>Can be priced using differences between prices in forward markets in GB and Ireland (assuming sufficient liquidity in those markets); price shock risk difficult to value.</p>
<p>Cost at auction</p> <p>FTR obligations will be cheaper at auction but more may be required to provide the same financial hedge. FTR obligations cheaper</p>	<p>Options would always have positive value therefore higher prices should be achieved at auction.</p>	<p>Lower net price due to likely lower net payout than FTR options and due to uncapped risk of negative price spreads to the holder.</p>

Attribute and Assessment	FTR option	FTR obligation
Liquidity of product <i>FTR options more liquid</i>	Usable as a speculative instrument, increasing potential demand.	May be less valuable to assetless speculators. Credit requirements will dampen resale opportunities.
European integration <i>FTR options are currently more compatible with European trading at present</i>	FTR options are similar to PTRs traded in Europe so may attract a broad range of market participants. However, trading across multiple markets could be expensive as options are not decomposable.	Suited to trading across multiple markets as product is decomposable. Lack of FTR obligations in other markets will negate this benefit at present. This may require revisiting decisions on losses and a single FTR if pan-European trading benefits are to be fully realised
Revenue adequacy <i>Neither product has a strong claim to offer better revenue adequacy to the Interconnector Owners</i>	Pricing difficulties may under-price these at auction but this should be no worse than PTRs at present. Possibly, the presence of assetless speculators may boost auction revenues	Price shock risk and credit cover costs may lead to relatively greater under-pricing
Implementation <i>FTR options feasible for go-live</i>	JAO platform and HAR rules support options now.	No rules available for any platform at present; credit arrangements likely to be most complex element.

Table 1: Assessment of advantages and disadvantages of FTR options and FTR obligations

As Table 1 indicates, the SEM Committee considers that both types of FTR have their merits. FTR obligations offer a cheap, relatively easy to price product designed for pan-European trading, providing a perfect hedge for physical traders. FTR options may be more expensive at auction but they provide an effective hedge with lower overall credit cover requirements. FTR options also offer a degree of familiarity to existing market participants in Europe and likely much greater liquidity in both the primary auctions and the secondary market. The absence of FTR obligations elsewhere in Europe means that no rules or platform for auctioning them are readily available making the choice of FTR obligations at go-live exceedingly difficult. Feasibility is higher for options than obligations because of the availability of a platform that supports FTR options. On balance, the SEM Committee considers that FTR options are the more feasible choice to deliver timely transmission rights. While not ruling out FTR obligations for the future, it seems clear that the balance of advantage and practicality dictate opting for FTR options at I-SEM go-live.

Although there were several requests for the SEM Committee to specify additional attributes such as time-of-day products and designation of clearing arrangements (for the broader forwards market), these are not things that it is appropriate to specify at this stage as these are within the responsibilities of the Interconnector Owners to provide.

4 PRODUCT PER BORDER OR PER INTERCONNECTOR

4.1 INTRODUCTION

Currently, separate products are offered at each interconnector in separate auctions. This is inevitable because the PTR products offered have different physical attributes, which impact on nomination rights. In order to manage product auctions efficiently the Interconnector Owners have agreed a staggered auction timetable for existing PTRs to ensure that bidders are not forced to duplicate their bids across multiple interconnectors and risk winning twice; the Interconnector Owners agree which interconnector should be auctioned first in any auction cycle.

However, the FTR is a pure financial product and so it can be argued that physical characteristics should play no part in it. As such, the same product could be offered at each interconnector in terms of payout (although products of different duration could still be offered by each interconnector).

Two options were consulted upon, 1 product per interconnector and 1 product per bidding zone border. In order to offer identical products, a revenue sharing agreement between the Interconnector Owners would be required. This ought to be relatively straightforward (a MW of transmission rights offered for the same duration on either interconnector ought to command the same price at auction and so auction revenues would split based on how many such rights were offered), and payout under these conditions would be the same per MW. Where the interconnectors would continue to differ would be in the congestion revenue earned through market coupling, which would be affected by physical constraints such as losses and ramping. Revenue adequacy risks in aggregate do not change between the two options; they are also discussed in the next section covering the extent to which physical characteristics of interconnectors should be reflected in the FTR product.

A further aspect of a single product is that, if there is curtailment on one of the interconnectors leading to the revenue cap being hit, then the reduced payouts resulting would need to be socialised amongst the FTR holders - there would be no option available to choose an interconnector in order to *not* have to share in the reduced payouts resulting from the curtailment cap.

As noted in the Consultation paper, the SEM Committee was minded to maintain the status quo of separate products and auctions at each interconnector. This would not require any new agreement between the Interconnector Owners and would not force any new interconnector to come into such an agreement with the existing Interconnector Owners (although the need to agree auction timetable would

remain). However, in the consultation we asked respondents what arrangement they would prefer: one FTR between the I-SEM and GB or one FTR per interconnector?

4.2 SUMMARY OF RESPONSES RECEIVED

A clear majority of respondents expressed a preference for a single product sold at the border as it was considered that it would be more liquid. One of the Interconnector Owners believed that this could be facilitated and indicated that it would be open to either solution. One respondent suggested that having separate products at each interconnector was more likely to create arbitrage opportunities through mis-pricing. In a few cases, the preferences expressed were not strong, especially as the products are to be sold on the same auction platform.

All parties are used to bidding for separate products now, although more than one party stressed the importance of simplicity as a way of facilitating the market, which strongly favoured a single product. One party took the opposite view, suggesting that the staggered auctions currently held provided additional liquidity through increased trading opportunities. Another party described this as simply inefficient. On the issue of maximising liquidity it was further suggested that FTR auctions should be synchronised with auctions for CfDs.

It was pointed out in a number of the responses that different sets of consumers underwrite the revenues of the two interconnectors and suggested that it was therefore appropriate that they be sold separately.

A few parties acknowledged that getting the Interconnector Owners to agree to revenue sharing could be too difficult while also considering that the mechanics of revenue sharing would be straightforward for a purely financial product with a single value per MW. This view was shared by one of the Interconnector Owners. In a few cases parties asked that a cost-benefit analysis should be undertaken to deliver a more definitive answer to the net benefits of any single-border product. However, an alternative view was that liquidity and simplicity were vital to the success of I-SEM and that this should trump any considerations such as potential difficulty in negotiating a revenue-sharing agreement or hypothetical deterrence to a new merchant interconnector. It was also pointed out by several respondents that recent considerations by the Agency for the Cooperation of Energy Regulators suggested that the objectives of the single European market were better served by pan-market products, which they inferred was also applicable to this case.

Another response suggested that, as the interconnectors are modelled separately in EUPHEMIA, a single product is not critical to I-SEM implementation and the status quo should prevail.

4.3 SEM COMMITTEE RESPONSE

The SEM Committee notes the responses of market participants who prefer a simple single product. Separate products must be sold at separate auctions and are only imperfectly interchangeable in subsequent secondary markets. We also note the views concerning the inefficiency of the current staggered auction process. To the extent that a single product at the border might improve liquidity and market access in both the transfer capacity and the forward energy markets, this was an important consideration in taking our decision.

Similarly, we recognise that while a revenue sharing agreement may be difficult to agree between the Interconnector Owners it would be possible to agree the terms of such an agreement. As noted by one respondent, it would be important in any revenue sharing agreement that the costs to the tariff customers underwriting each of the current interconnectors should not cross-subsidise costs to other tariff customers.

However, the SEM Committee notes that, in many cases, preferences are not strong and that no party has asserted that separate products would be unduly illiquid in the market.

4.4 SEM COMMITTEE DECISION

The SEM Committee confirms its “minded to” decision that separate products should be offered at each interconnector.

The SEM Committee believes that this will be the best way of ensuring that the benefits of FTRs can be delivered at I-SEM go-live. Market participants clearly preferred a single homogeneous product primarily for reasons of liquidity. However, beyond liquidity, we did not receive strong additional reasons that had not already been considered in arriving at our minded to position. In particular, some respondents confirmed our view that there is a reasonable degree of liquidity in current markets and a move to FTRs would certainly not reduce such liquidity.

While recognising that there would be additional liquidity in the market for a single product at the border the SEM Committee considered that the reasons for separate products were stronger:

- **Status quo.** Market participants are already familiar with separate products, which seem to trade reasonably liquidly; retaining separate products would not reduce liquidity relative to the current market.

- **Negotiation cost.** Although the difficulties of agreeing the mechanics of a revenue sharing agreement are probably not prohibitive, the cost and effort of negotiation should not be underestimated and should only be undertaken if the benefits are substantial. The SEM Committee was not convinced that these costs would be outweighed by any benefits of increased liquidity compared to today.
- **Curtailement cap.** Where curtailment occurs, users are paid the price spread on the curtailed capacity but subject to a monthly cap on the payout. While it is mathematically simple to allocate the effects of the curtailment to the appropriate interconnector, the impact of the cap would need to be socialised across all holders of FTRs in the relevant direction. Socialisation prevents users selecting an interconnector based on appetite for curtailment cap risk. This may reduce incentives on the Interconnector Owner to ensure minimisation of curtailment because the owner with the higher level of curtailment would see reduced prices at auction (however, we would not exaggerate this issue because there are strong incentives on the interconnectors to be available anyway).
- **New entrant interconnector.** A single product per border would force a new merchant interconnector to join a revenue sharing agreement, which may reduce their incentive to invest. This may be offset by anticipation of higher auction revenues from participating in a more desirable product from the market's perspective. However, other potential barriers are also discussed below.
- **Flexibility.** The issue of inclusion of physical attributes in the FTR product is discussed in the next section. Inclusion of physical attributes requires either separate products at each interconnector or else some form of second-best solution of averaging the impacts of those physical attributes (e.g. average loss factor), which would not be fully cost reflective and so would reduce net welfare. Additionally, binding both interconnectors into a single product will make future developments more difficult including if a decision were made to split the bidding zone either side of the border, which may reflect changes in congestion in either market or else localisation of loss factors.

For these reasons, the SEM Committee has concluded that a single product per interconnector is preferable. As with all decisions, the SEM Committee will continue to monitor the effectiveness of the market arrangements, which shall include such factors as evidence of a need to enhance liquidity, improving integration into the single European market and any potential barrier to entry to either market participants or a new entrant interconnector.

5 PRODUCT DEFINITION

5.1 INTRODUCTION

The physical characteristics of an interconnector may be taken into account in the features of the Financial Transmission Right. These characteristics are:

- Interconnector losses
- Ramping constraints
- Curtailment.

These were each dealt with separately in the consultation.

Interconnector losses average 1.8% of flows on the Moyle Interconnector but are 5% on the East-West Interconnector. With respect to this factor, capacity on Moyle is therefore more valuable to holders than on the East-West Interconnector. Currently, a user must nominate more flow at entry to an interconnector than they expect to get out at exit from that interconnector due to these losses; the consultation addressed whether FTRs should or should not be similarly discounted for these losses. This would mean that, while the Interconnector Owner would pay out the full price spread to users on each FTR sold in the relevant direction, that owner would only be paid the price spread less the loss factor (1.8% or 5%) for physical provision of the interconnector. If losses were included in the FTR payout, or paid on the basis of the FTR value less the loss factor, with small price spreads, one or both interconnectors could be paying out on price spread to FTR holders even though there might be no physical flow on that interconnector. This therefore has potential risks to revenue adequacy for the Interconnector Owner if the value of actual losses differs from the value included in the auction price. An FTR including losses would be expected to trade at a higher price in the FTR auction compared to one without this.

The SEM Committee made a “minded to” decision to allow discounts in FTR payouts for losses. The justification for this is that the Interconnector Owners have no control over losses and face revenue adequacy risks if they must pay out for losses even where there may be no physical flows on the interconnector. On the other hand interconnector users can manage the hedging risk by purchasing extra FTRs.

Ramping constraints are essentially imposed on interconnectors by the onshore TSOs who do not wish to manage too great a change in flow between hours. Therefore, if the price spread between the GB and the I-SEM DAMs reverses between hours then, rather than up to the full 1,000 MW of flow on the interconnectors reversing in direction over the hour, (500 MW each), only 600 MW of flow change will be allowed. This can result in the market coupling requiring 1,000 MW of flows A → B but the allowed flow will actually be 400 MW B → A because the flow had been

1,000 MW in the opposite direction in the previous hour. This means that the interconnector physical flow will be in the opposite direction to the actual price spread. In this circumstance the interconnector users are currently paying for restrictions in the onshore systems through flow restrictions due to nomination restrictions on PTRs; if ramping constraints are included in the FTR product then they will continue to pay, but through adverse price spreads.

The SEM Committee “minded to” proposal was that ramping constraints should not be part of the FTR product, meaning that these constraints would effectively be paid for by the Interconnector Owners. The reasoning applied in this recommendation was that FTR holders have no ability to influence flow directions so that this was not a manageable risk for them. Although Interconnector Owners have a similar lack of control of this risk, they have a revenue guarantee through Tariff customers that will ultimately protect them from the risk. It is the onshore customers who benefit indirectly from ramping constraints because, as already noted, the ramping constraint is imposed to allow easier management of onshore power flows.

The SEM Committee’s “minded to” position in respect of curtailment was that the interpretation of the FCA Guideline would be enforced.

5.2 SUMMARY OF RESPONSES RECEIVED

Losses

A significant majority of respondents agreed that an FTR is a financial instrument used for price hedging and so should not be contaminated by adjustment for losses. It was generally agreed that the unadjusted product would be more saleable and that the value of losses should therefore be reflected in the price.

However, most agreed that it would be relatively easy to trade out the losses position by simply buying extra FTRs. This was only an issue when valuing potential multi-year products, which were favoured by customers in the industrial and commercial markets. The problem was valuing losses when the energy price was uncertain. It was generally acknowledged that the alternative losses payers – the Interconnector Owners – faced the same dilemma. Some respondents suggested that Interconnector Owners were better able to manage the cost of losses because they were underwritten by tariff customers. One respondent suggested that this should not be an issue because TSO revenue adequacy was not cited as an objective of the FTR decision process. One respondent suggested that losses were a direct result of choices on equipment made by the interconnector Owner so that they should bear the costs and suggested that the practice in Europe whereby TSOs buy losses should also prevail here. This was echoed by another respondent who suggests that losses costs would deter multi-border trading. This respondent also

noted that the losses deadband was a deterrent to trading because it ceased to provide a hedge.

Several respondents suggested that the issue would be eased if loss factors were published well in advance and were held fixed.

Ramping

There was near unanimity that ramping costs should not form part of the FTR product. One Interconnector Owner dissented from this view.

There was general dislike among market participants to being responsible for ramping costs because they had no way of managing the risk. One stated that there was no case for inclusion of ramping in any day ahead timeframe. Another questioned why interconnectors should recover ramping costs from the market while a generator with ramping constraints would recover this through its contracts. They acknowledged that this was really an issue for the onshore TSOs and not for the Interconnector Owners. One party suggested that the ramping restrictions should be removed, forcing the onshore TSOs to manage the resulting power flows.

One party acknowledged that if ramping costs were part of the product design, the average risk could be modelled and reflected in auction bid prices.

It was accepted that there was a risk that ramping based on efficient day ahead market prices determined by algorithm could be a more frequent occurrence in the new market.

Curtailement

The vast majority of respondents believe that curtailment costs should be outside the FTR product. The majority advanced the argument that a pure financial hedging product should not be contaminated by physical characteristics. TSOs and Interconnector Owners took a different view arguing that ability to curtail payouts was important to protect revenue adequacy. It should be noted that curtailment is currently a feature of the PTR product sold.

A major issue mentioned several times was the proposed wording in Annex 12 in the current draft of the HAR. These respondents were concerned that the definition of curtailment for “capacity shortage” was too vague and unreliable to allow reasonable pricing of a hedging instrument. Others mentioned that maintaining black start capability should not be a reason for curtailment.

5.3 SEM COMMITTEE RESPONSE

The SEM Committee has noted the preference of market participants for a pure hedging product uncontaminated by physical characteristics and the respondents' expectation that this would be more liquidly traded. This includes the importance of promoting liquid trading with the involvement of a broad range of European traders. In weighing this against the risks to revenue adequacy for the Interconnector Owners, we acknowledge the view of market participants that passing physical risks back to FTR purchasers will simply result in lower auction returns.

The SEM Committee must be mindful of the impact of each decision on the costs imposed on tariff customers. Where there is a risk to revenue adequacy for Interconnector Owners, such revenue shortfalls are underwritten by tariff customers who must consequently pay extra. Where there may be an argument that increased liquidity will reduce prices for those same customers, this must therefore be weighed against any increases in costs that may be imposed on consumers.

With regard to interconnector losses, we note from responses that this is an issue that can be managed by either holders of FTRs or by the Interconnector Owners. This is indicated by evidence provided in independent reports provided to us by some respondents. We also note that losses are not a direct cost to Interconnector Owners but are rather paid for by users of the day ahead markets through prices higher or lower than they would otherwise be due to losses requiring more generation on the import end of the interconnectors and thus limiting the volumes of available interconnector capacity in the day ahead pricing algorithms. However, to the extent that payouts for FTRs might otherwise be greater than revenues earned from market coupling, we must be mindful of revenue adequacy regardless of whether it was originally specified as an objective of our decision-making. The Regulatory Authorities are required to be mindful of, and carry out their statutory responsibilities to protect, the interests of consumers.

Ramping is a different issue. We note the views of respondents that the ramping constraints are imposed by the onshore TSOs who should be incentivised to keep them to a minimum.

The SEM Committee's "minded to" position in respect of curtailment was that the interpretation of the FCA Guideline would be enforced. The current drafting of the FCA Guideline, which is currently undergoing approval in the EU decision process, makes provision for firmness on the grounds of operational security (Article 53.1). The FCA Guideline also requires that Interconnector Owners optimise capacity available (Article 3(b)). This suggests that the Interconnector Owners must make available as many long-term transmission rights as they can safely provide and there

are commercial incentives to maximise availability. There will however be a need to schedule outages. The definition of “operational security” may not cover “curtailment” for these scheduled outages. It would appear reasonable that when these are known in advance and that the interconnector will be unavailable, the Interconnector Owners should have a right to *not* sell transmission rights for the duration of that scheduled unavailability. For example, if this includes activities such as black start testing, it would seem reasonable that FTRs should not be sold for such periods. Therefore, at time of sale of the product, the defined product will have scheduled unavailability, which will be reflected in the bid prices at auction. Such pre-determined unavailability will not be curtailments and will not be subject to the curtailment cap. The SEM Committee agrees that greater clarity and understanding on this issue would be useful and should be clarified, including in the regional annex to the HAR.

5.4 SEM COMMITTEE DECISION

The SEM Committee confirms its “minded to” decisions on the impact of the physical characteristics of interconnection on the FTR product:

- **Transmission Losses** on the interconnectors should be reflected as discounts on FTR payouts
- **Ramping constraints** on interconnectors should not be reflected as adjustments to FTR payouts
- **Curtailment risks** should follow the final wording in the FCA Guideline.

Our reasoning for these decisions is discussed under each topic below.

Losses

The majority of respondents to the Consultation believed that the FTR should be a pure financial product and as such should not be adjusted for physical characteristics. The SEM Committee concludes that hedging losses outside of the FTR is a manageable risk for market participants. While it may be manageable also for the Interconnector Owners who would expect to see a discount to auction revenues as a consequence of selling a slightly devalued (losses-adjusted) product, this is

outweighed by their concerns on revenue adequacy, which ultimately poses a risk to the Tariff customers underwriting Interconnector Owners' incomes.

Therefore, our assessment on the key issues involved is as follows:

- **Ability to manage risk.** Where the FTR payout is adjusted for losses, market participants can easily buy a defined extra percentage of FTRs in order to be fully hedged; Interconnector Owners can similarly sell a defined percentage fewer FTRs in order to more closely match FTR payouts to congestion revenues earned but this will not exactly match payouts to congestion revenue.
- **Traded price of FTRs.** The auction price of FTRs can be expected to fully reflect any adjustment to payouts due to losses and so will make no difference to net revenues of Interconnector Owners, and similarly will make no difference to the net financial position of the FTR Holders.
- **Liquidity and simplicity.** For market participants, a pure financial hedge product covering full price spread will be a more liquid, simple and tradable product. However, especially when considering current levels of liquidity on interconnectors, there is no evidence that liquidity would be greatly damaged by losses adjustment to FTRs.
- **Revenue adequacy.** With no losses adjustment, FTR payouts would exceed congestion revenue; there will be no congestion revenue when spreads are small (and so flows are zero) but payouts would still continue, albeit on only a small price spread between markets. However, to the extent that auction revenues should theoretically cover expectations of payout on price spreads, revenue adequacy should not be affected overall.

As already discussed with regard to whether there should be one product per border or one product per interconnector, this issue could be revisited. The criteria for evaluation when considering change will be essentially the same but the SEM Committee will be in a position to review pricing evidence from actual trading.

Ramping Constraints

Respondents to the Consultation were near unanimous that they should not be included in the FTR product. Many of the issues arising with regard to losses also arise with regard to ramping constraints but there are important differences:

- **Predictability.** The frequency of ramping constraint is not predictable to either the interconnector user or the Interconnector Owner. This makes pricing difficult for both.
- **Ability to manage.** Neither the interconnector user nor the Interconnector Owner can effectively manage costs associated with ramping constraint. The

parties able to manage their costs via their operating decisions are the onshore TSOs who impose the constraint on the interconnectors in the first place.

- **Auction valuation.** Depriving the FTR holder of a payment on the price spread due to ramping constraints might devalue the FTR at auction excessively due to the unpredictable nature of payment shortfall.
- **Revenue adequacy.** Ramping constraints impose lost revenue on the Interconnector Owners through reduced flows leading to congestion revenue losses and potentially costs where flows contrary to the price spread occur. Payment to FTR holders would increase this loss. The revenue loss would ultimately impact tariff customers who underwrite the interconnectors.

Although neither the interconnector user nor the Interconnector Owner is responsible for the effects of the ramping constraint, the SEM Committee considers that the financial risk is better placed on the Interconnector Owner.

The SEM Committee objective is to minimise costs to Tariff customers while providing an effective hedging product to interconnectors users, but in this instance, the ramping constraint has been imposed in the first place to reduce the costs of the onshore system operator and so it is appropriate and consistent with this approach (even if imperfectly cost reflective) that transmission Tariff customers carry the ultimate cost of the ramping constraint. This may indirectly incentivise the onshore TSOs to relax the ramping constraints, making market coupling more efficient. In the end, the costs to tariff customers may be lower if the benefits of market coupling are maximised through relaxation of ramping constraint even if costs of onshore system management may be higher. This will be reviewed by the SEM Committee but is not within the scope of this decision paper.

For the reasons given above the SEM Committee has decided that the FTR product should not have its payouts adjusted for ramping constraints.

Curtailment

The current draft of the FCA Guideline holds that, with the exception of force majeure, curtailment of flows on the interconnectors compared to the volume of long term transmission rights (LTTRs) sold will result in the Interconnector Owner paying out the full price spread in the relevant direction for curtailed flows but subject to a monthly cap (in the case of HVDC interconnections) on the amount of such compensation paid. This is where the curtailment occurs before the Firmness Deadline, which is at or before the time of market coupling.

Respondents are concerned that the definition of curtailment in the Annex of the HAR is too broad and that extra conditions such as reductions in capacity availability

for things like black start testing would be included under the cap. This is a complex area covering several legal documents. At this stage, the SEM Committee considers that the rules on curtailment (and cost allocation resulting) will be carefully examined to ensure consistency with the FCA Guideline.

6 AUCTION PLATFORM

6.1 INTRODUCTION

The Forward Capacity Allocation Guideline requires regulatory approval of a Single Allocation Platform (SAP) for auction of LTTRs but this solution will not be in place for I-SEM go-live. The Interconnector Owners have therefore considered the options for providing a platform in advance of the SAP solution and three were presented in the Consultation paper. The Regulatory Authorities have engaged with the Interconnector Owners to ensure provision of a platform in advance of the required SAP solution and the Consultation paper requested views in order to inform this Regulatory Authority engagement. The Consultation paper asked market participants what they considered were the important issues to be considered in developing a platform and the preferred approach to doing so. The Consultation document discussed possible alternatives:

- **Local/SEM allocation platform.** This would offer greatest flexibility including the possibility to develop rules for an FTR obligation product (not effectively an option with the other choices at present). However, this would be the costliest option to implement because the costs would not be shared with other interconnectors.
- **FUIN Platform.** This would be regional platform developed by all the interconnectors to the GB system, which are all HVDC. This would share the costs of development but would remain specialist to HVDC, which may contain implementation risks compared to developments on the continent where AC interconnection dominates.
- **Joint Allocation Office (JAO).** This would be based on the recently merged initiative of the main platform providers in Europe: CASC and CAO. At the time of development of the Consultation document, it seemed to be a risky proposition because it seemed to be focussed on its own merger rather than discussing with other interconnectors. However, recent discussions have been more fruitful and, although not designated as the Single Allocation Platform required under the FCA Guideline, it may well develop into that. This would therefore be the cheapest option to implement but it would not cater for FTR obligations at I-SEM go-live.

The SEM Committee has made no recommendations with regard to platform choice. Rather, in the Consultation it asked:

- What are the important issues to be considered in deciding on the development of an auction platform?

- What is the preferred approach in relation to the establishment of the I-SEM FTR auction platform?

6.2 SUMMARY OF RESPONSES RECEIVED

Market participants were generally sympathetic to the difficulties in settling on an auction platform, which is not a SEM Committee responsibility. They primarily wanted to emphasise that their own IT costs were not insubstantial and so they favoured a solution such as JAO mainly because in their view it was likely to be the single auction platform and so less likely to leave them with stranded IT costs once the single platform is decided.

6.3 SEM COMMITTEE RESPONSE

The SEM Committee is mindful of the issues raised by respondents. We note the desire for certainty in order that users can plan ahead for bidding for new products as soon as possible. We also note the needs of users to control their own IT costs, which was a major driver for several preferring the JAO option.

The SEM Committee is not in a position to make a decision on choice of platform because the choice will be driven by practical circumstances. Therefore, we propose some guiding principles to be applied in choice of platform:

- **Timeliness and low implementation risk.** Market participants need to be able to plan ahead to procure forward hedging instruments of which FTRs will form an important part. Ahead of I-SEM go-live, such instruments need to be in place and user systems need to be developed so that such instruments can be procured and traded. Therefore, the choice of platform should be one that best guarantees that it can be in place in good time.
- **Implementation cost.** Users will face costs in adapting their systems to deal with new hedging instruments; these costs must be considered in addition to the central costs of procuring an FTR auctioning platform. These costs should be kept as low as reasonably possible.
- **Future cost minimisation.** Under the FCA Guideline, a single auction platform (SAP) for the whole EU will need to be designated at a time after I-SEM go-live. The choice of platform now must be such as can be adapted to the likely requirements of the SAP with minimal cost and disruption to both users and Interconnector Owners.

7 NEXT STEPS

This paper sets out the decisions of the SEM Committee with regard to Financial Transmission Rights. As noted by several respondents, the final decisions will be subject to agreement with the GB Regulator Ofgem, which has been consulted and kept informed of developments in the I-SEM market. Additionally, all decisions must ultimately conform to the FCA Guideline currently in the decision making process at the European level.

The decisions therefore provide a basis for Interconnector Owners to proceed in developing the appropriate auction platform and products to be auctioned at the interconnectors. Market participants will thus have a clear view of what to expect and can begin to develop their models for pricing bids in the auctions. The SEM Committee is aware of the lead times needed for all participants and so has provided as much clarity as is possible.