

Financial Transmission Rights Consultation Paper

Stakeholder Workshop
14 September 2015

Policy definition and expected outcomes

I-SEM Forward Liquidity

- Types of forward hedging instruments in the I-SEM:
 - Temporal (contracts or contracts for difference (CfDs)).
 - Spatial (Financial Transmission Rights) – between bidding zones
- Forwards and Liquidity WS focuses on:
 - Liquidity promoting measures on issues on the CfD market
 - Design of FTRs

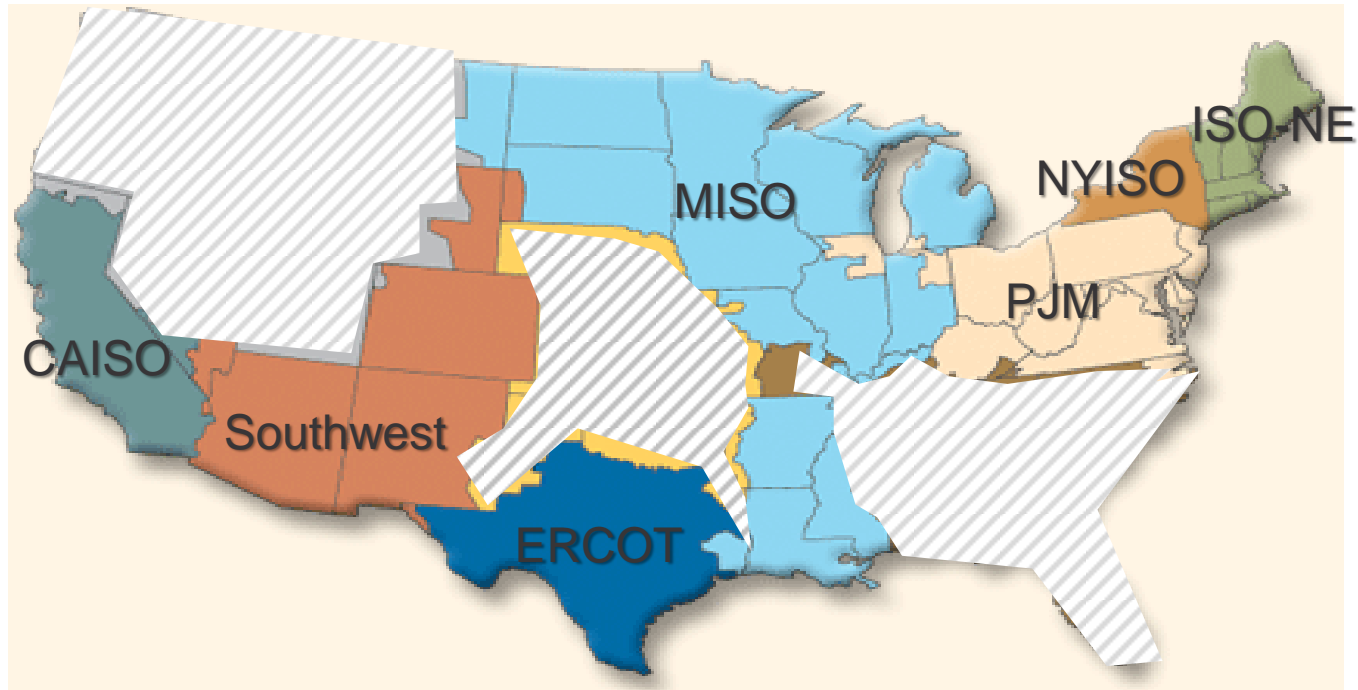
Drivers for FTRs Decision on I-SEM HLD

- Emphasis was given to centralised and transparent trading arrangements for spot physical markets.
- Liquidity in the DAM is key to promote a equitable route to market for market participants.
 - DAM and IDM are the exclusive routes to physical contracting.
 - No scheduling priority for holders of transmission rights
- Financial Transmission Rights s will maximise the availability of physical interconnection capacity for the DAM and provide cost certainty for trading across bidding zones

Objectives of FTR Policy

- Support a liquid energy market by providing a mechanism to hedge price differences between bidding zones
- Enable market participants to eliminate or reduce the cost uncertainties resulting from trading across interconnectors
- Enhance cross border competition on the forward markets.
- Design FTRs to support incentive based regulation of TSOs and Interconnector Owners:

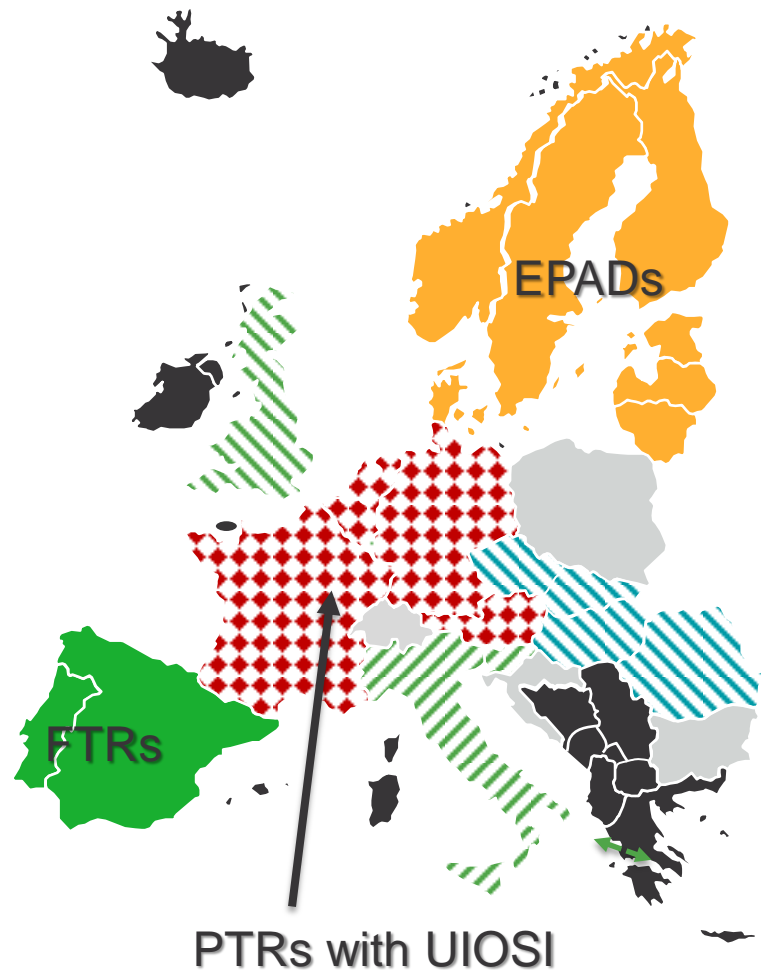
FTRs are widely used in the US ...



- Options and Obligations
- Also in New Zealand

Europe : Cross Border Hedging...

- FTR **options** on Spain-Portugal
- EPADs are like FTR **obligations** (but not issued by TSO)
- Maybe 80% of PTRs now used for market coupling **in CWE** = FTR **option**



Implementation of FTRs requires cross border agreement

- The CACM requires that the final approval on the type of the long-term transmission right offered between bidding zones be given jointly by the NRAs in the two zones.
- Therefore, for the Moyle or East West interconnectors, the SEM Committee's preference for FTRs is conditional on Ofgem agreement.
- *I-SEM HLD Decision: "Subject to further discussions and agreement with neighbouring markets, Cross Zonal trading will be supported only by Financial Transmission Rights (FTRs)."*

FTR Product – Policy Issues

- Which best meets our overall objectives for ISEM: FTR options or FTR obligations?
- Should interconnector transmission losses, ramping constraints and curtailment risks be reflected in the FTR product design?
- Should separate products be offered at each interconnector or should a single product cover the whole border?
- What allocation platform should be used? (Local? Regional? JAO?)

Financial Transmission Rights

Congestion Revenue (Revenue Adequacy ICs)

- Market participants will no longer be buying rights to flow energy across Moye and EWIC.
- EUPHEMIA will determine flows on both interconnectors.
- Interconnector owner will no longer collect revenue by selling rights to flow.
- Instead they will collect the price spread between I-SEM and GB (Congestion Revenue)

Determination of volumes and direction of Xborder flows in the I-SEM

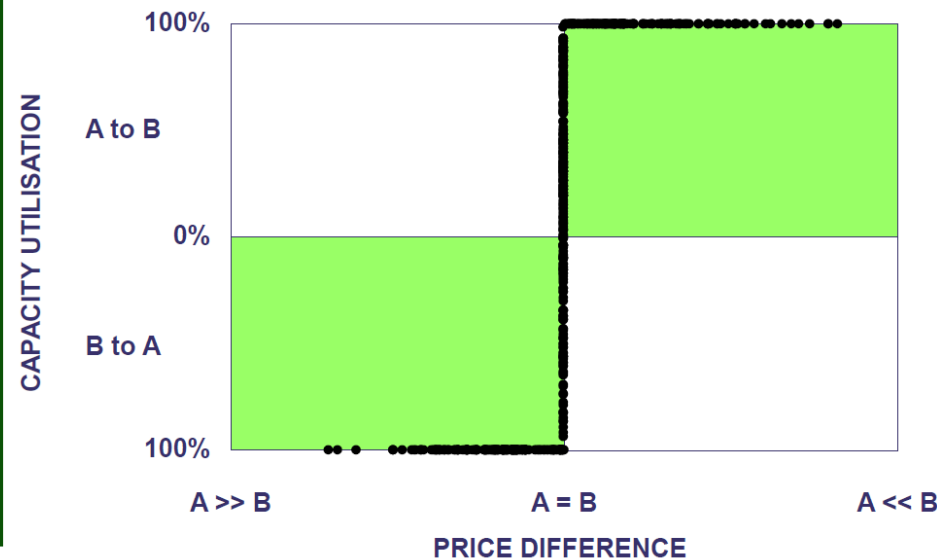
SEM – Explicit Sale of Capacity

- Sub-optimal utilization of interconnector capacity
- Typical on Moyle and EWIC

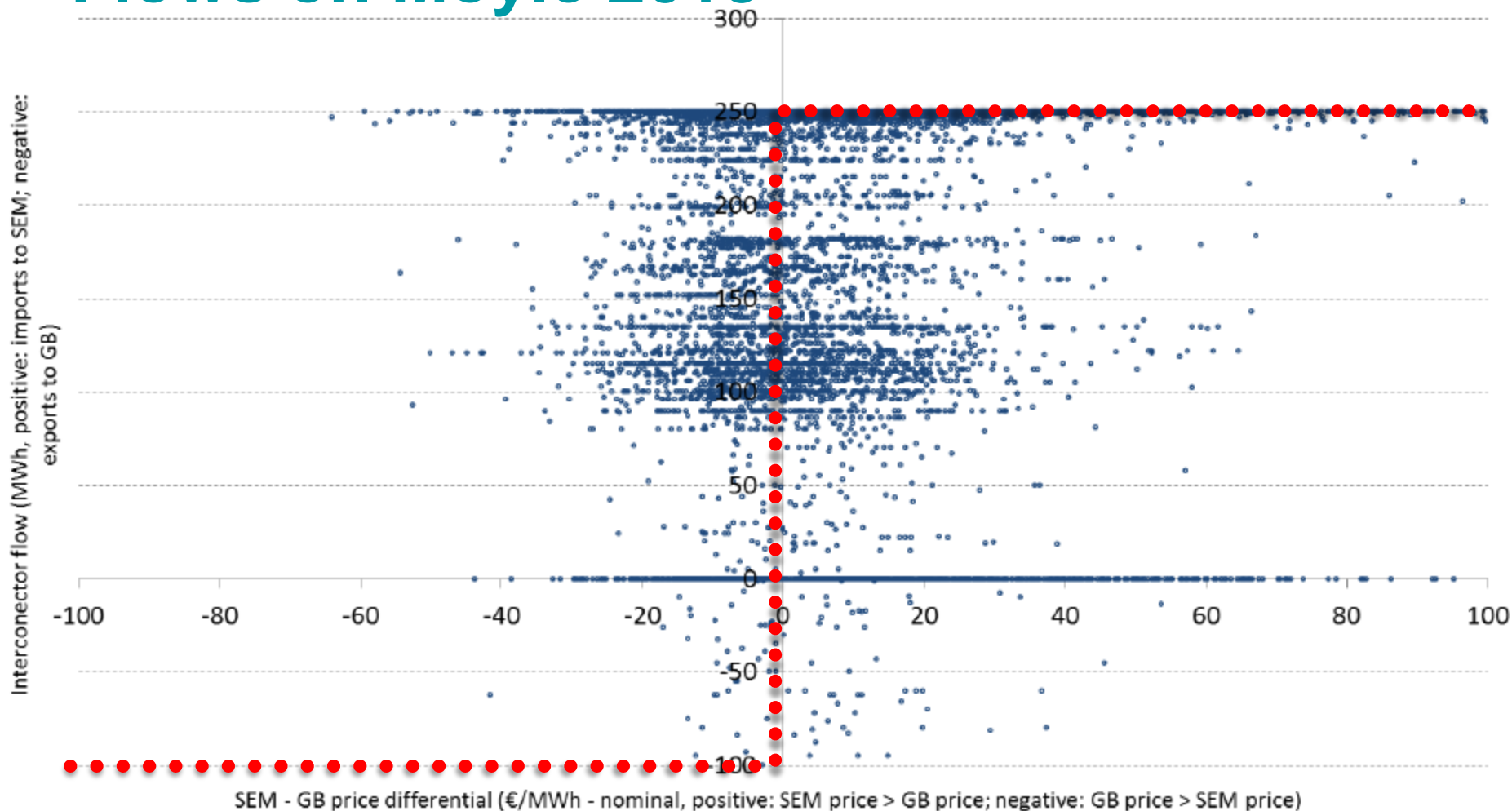


I-SEM – Implicit Allocation

- Optimal utilisation (same price unless congested)

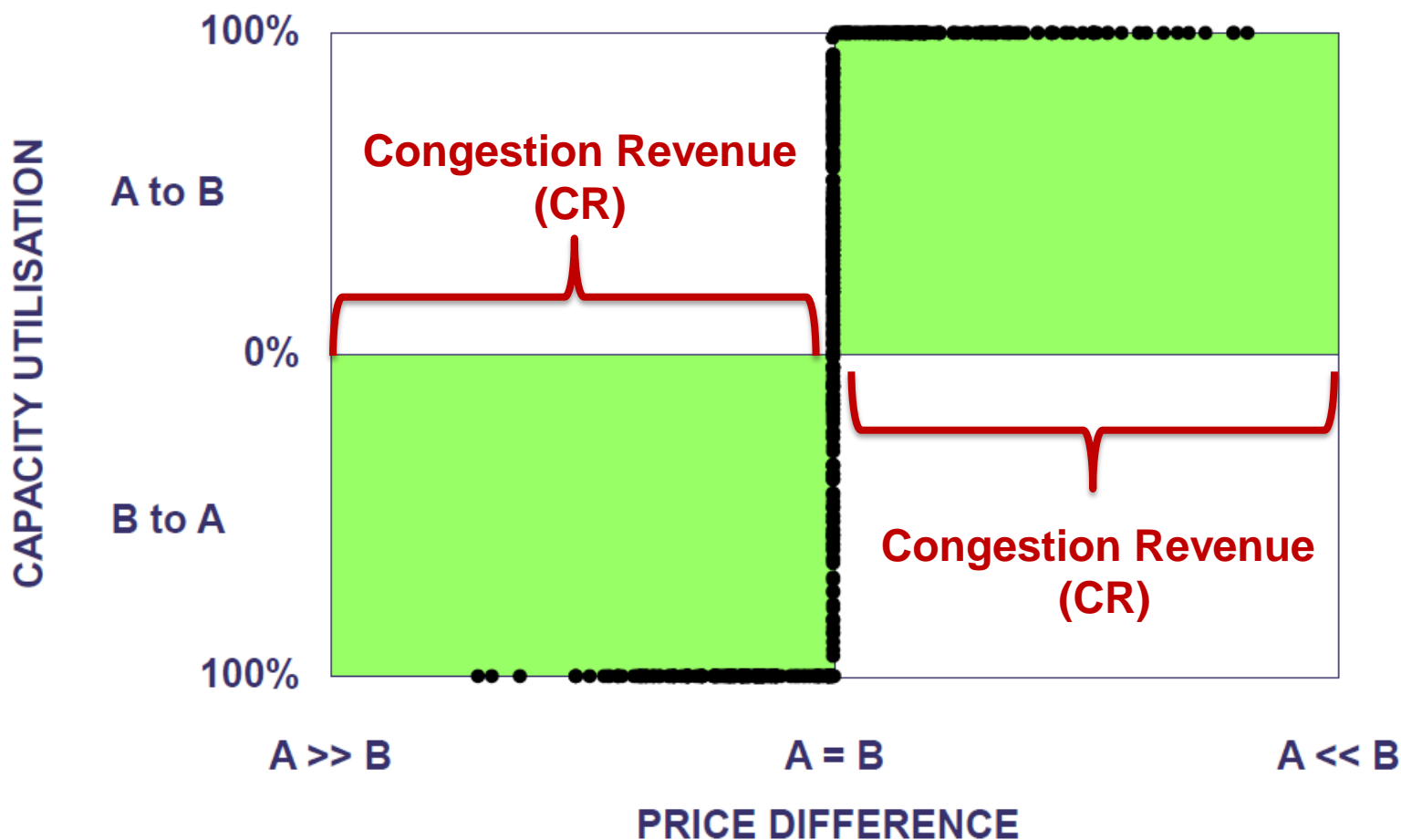


Flows on Moyle 2013



Congestion Revenue for Interconnector

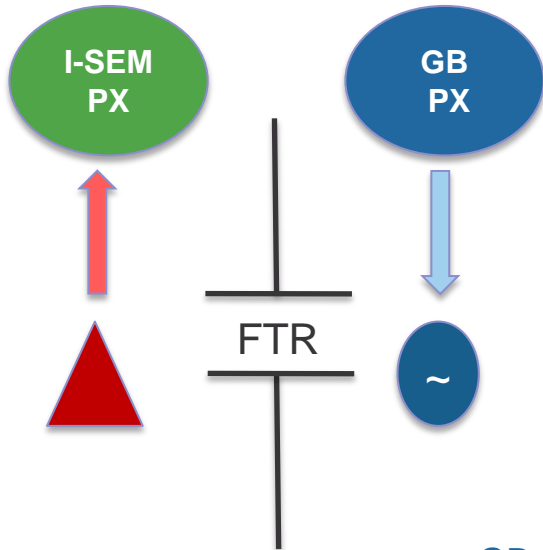
$$CR = IC_Flow * (\max(P_j - P_i, P_i - P_j))$$



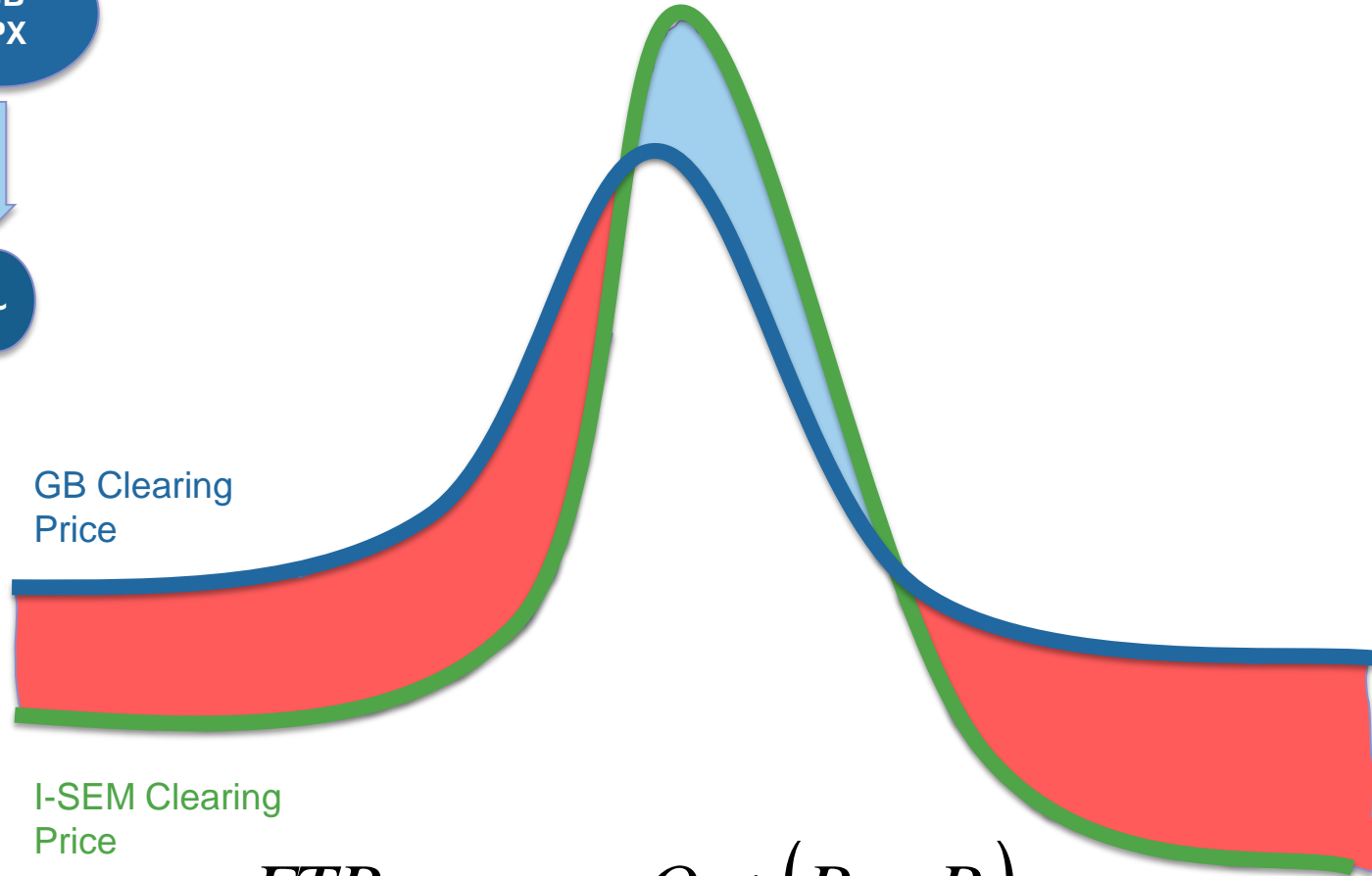
FTRs Properties

- Defined direction and volume
- Sold at auction by interconnector provider for a defined period of time (year, quarter, month, etc)
- Valuation based on forecasted price spread between two relevant zones

Economic Value: Options vs. Obligations:

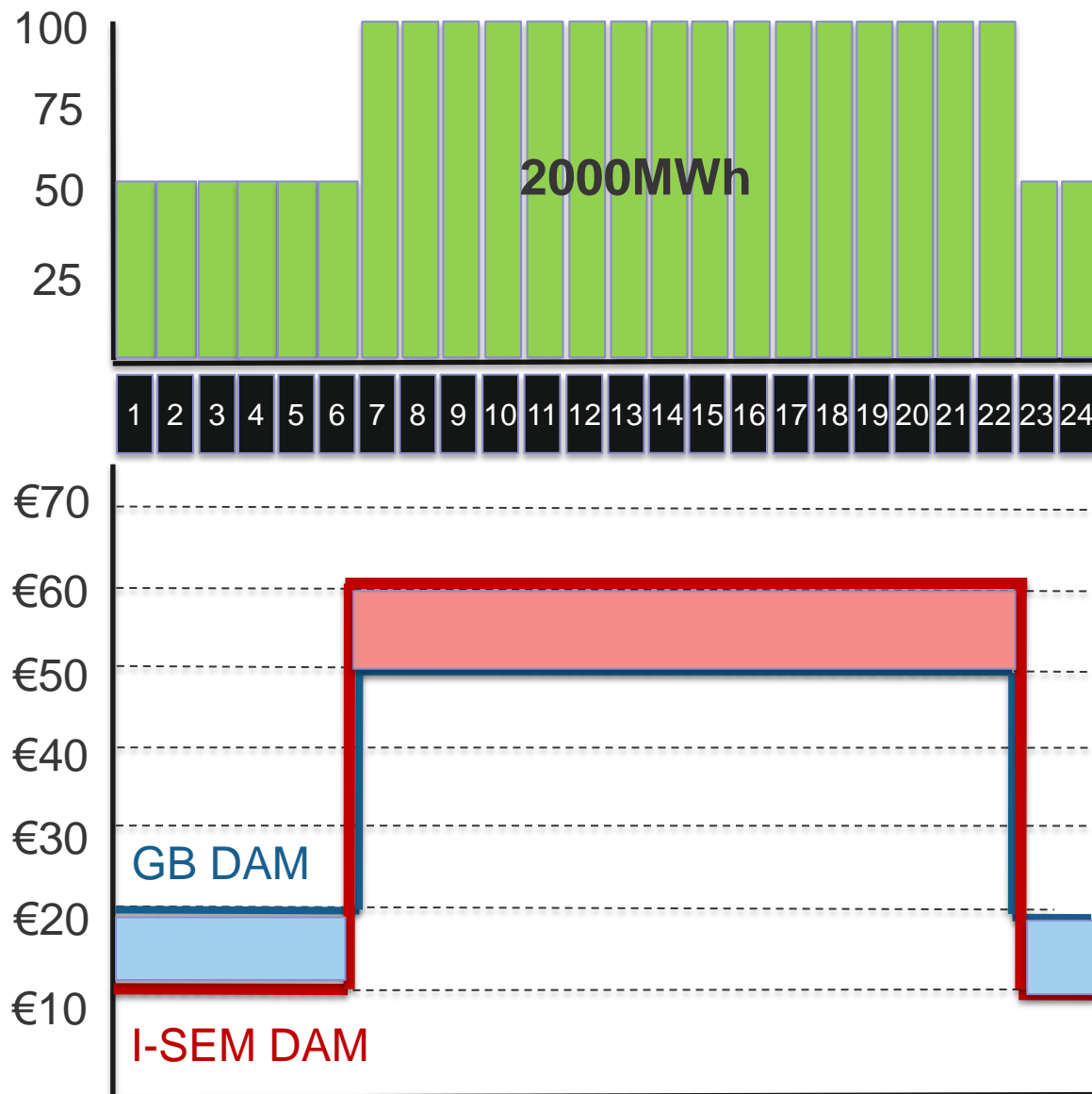


$$FTR_{Option} = \max(Q_{ij} * (P_j - P_i), 0)$$



$$FTR_{Obligation} = Q_{ij} * (P_j - P_i)$$

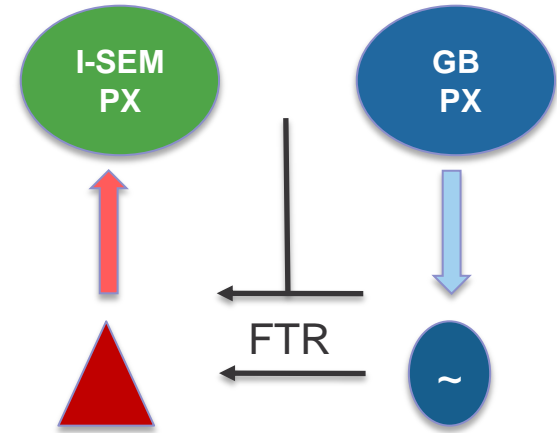
Valuation: Option vs. Obligation



$$Pos = 8 * 50 * (20 - 10) = 4,000$$

$$Neg = 16 * 100 * (50 - 60) = -16,000$$

$$Net = -12,000 EUR$$



$$FTR_{Option} = 16 * 10 = 160 \text{ € / Unit}$$

$$FTR_{Obligation} = 16 * 10 - 8 * 10 = 80 \text{ € / Unit}$$

	Option	Obligation
1	160	80
50	8,000	4,000
75	12,000	6,000
100	16,000	8,000
150	24,000	12,000

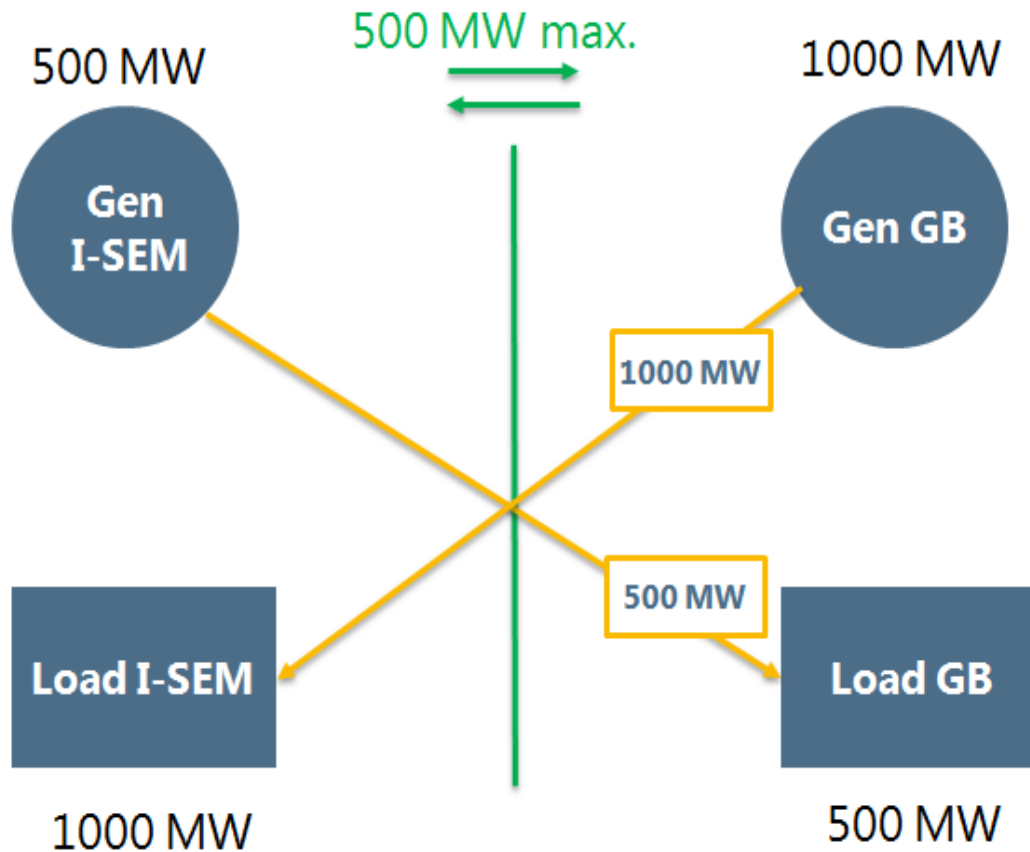
Options vs. Obligations

Attribute	FTR Option	FTR Obligation
Coverage of price spread risk	<ul style="list-style-type: none"> • Cover any adverse price spread exposure • No downside risk 	<ul style="list-style-type: none"> • Perfect hedge • Uncapped risk of unpredicted adverse price spreads, if there is no underlining contract that offsets this position.
Hedging efficiency	<ul style="list-style-type: none"> • Possible to hedge a financial position with fewer FTRs than the actual MW of energy contracted. 	<ul style="list-style-type: none"> • More than 1 MW of FTR per average MW of contract may be needed to completely cover the financial position
Liquidity of product	<ul style="list-style-type: none"> • Usable as a speculative instrument, increasing potential demand. 	<ul style="list-style-type: none"> • More appropriate to physical traders than to asset-less speculators • Possibility of Netting

Netting Effect (Obligations)

I-SEM Market

GB Market



Options vs. Obligations

Attribute	FTR Option	FTR Obligation
Cost at auction	<ul style="list-style-type: none">Options would always have positive value therefore higher prices should be achieved at auction.	<ul style="list-style-type: none">Lower net price due to likely lower net payout than FTR Options
Credit cover	<ul style="list-style-type: none">Lower requirement (all payouts are by creditworthy providers).	<ul style="list-style-type: none">Buyers will need to pay providers when spreads are negative so must provide credit cover against this possibility

Minded to Decision 1: Options vs. Obligations

- Balanced set of advantages and disadvantages
- Market Participants views should be a important driver for decision.
- We are not recommending a minded to decision.

Discussion



A Single FTR or FTR per Interconnector

FTR Product definition:

Losses

Ramping

Curtailement

A Single FTR Product or an FTR per Interconnector?

- Rationale for Single FTR Product

FTR payout based on market price difference between I-SEM and GB day ahead coupled markets

- Requirement for Single FTR Product

No adjustment to FTR payout for Interconnector operational constraints such as losses or ramping

How a Single FTR would work

- Each FTR holder receives same payout based on market price spread and each IC owner receives the same price
- Market price spread is not affected by differences in losses or ramping between interconnectors
- Harmonised Allocation Rules apply to each interconnector equally e.g. curtailment cap liability applied to relevant IC
- Income and liability sharing agreed by ICs e.g. auction revenue shared by available capacity and agreement on payout obligations

Advantages of a Single FTR

- Liquidity would be concentrated in one auction
- More straight forward for market participants

Disadvantages of a Single FTR

- Revenue/liability sharing agreement between IC owners may be complex and expensive
- Market participants may prefer choice of FTR provider with varying risk of curtailment etc
- Single FTR rules out inclusion of losses etc. in FTR
- Not future proofed regarding bidding zone changes or construction of new interconnection

SEM Committee Minded to Decision

- Continuation of existing arrangements facilitate the objectives of FTRs
- It is considered that there is greater flexibility with FTRs sold per interconnector
- There is additional complexity and cost involved in creation of a single FTR
- It is not considered that the potential benefits of a Single FTR outweigh these considerations
- It is minded to support the sale of FTRs by interconnector

FTR Product definition

- Physical characteristics of interconnection such as losses and/or ramping can be incorporated into the FTR product
- If incorporated this would mean the FTR payout being discounted for losses and/or ramping constraints
- If the FTR product were to include any of these physical constraints the FTRs would be sold by interconnector
- If the price spread was e.g. 4% and the FTR was not discounted this would mean FTR payouts by both Moyle & EWIC
- If FTR discounted for losses there will be different payouts by IC for same market spread due to different loss factors
- Final decisions will comply with European requirements

How inclusion of losses in FTR would work

- If we assume an I-SEM price of €60 and a GB price of €50 the market spread and pay out of undiscounted FTR = €10
- If we assume discounting for losses the market spread on Moyle and EWIC would take account of losses of 1.8% & 5% respectively
- The FTR payouts (in direction of I-SEM) would therefore be:

Moyle €8.92 [$€10 - (€60 * 0.018 \text{ loss factor})$]

EWIC €7 [$€10 - (€60 * 0.05 \text{ loss factor})$]

Advantages of not discounting FTR for losses

- FTR holder hedges full price spread – more effective hedging instrument
- More straightforward and transparent product may encourage asset-less traders and encourage secondary liquidity
- FTR purchasers are not responsible for losses so should not have pay outs discounted for their being incurred.

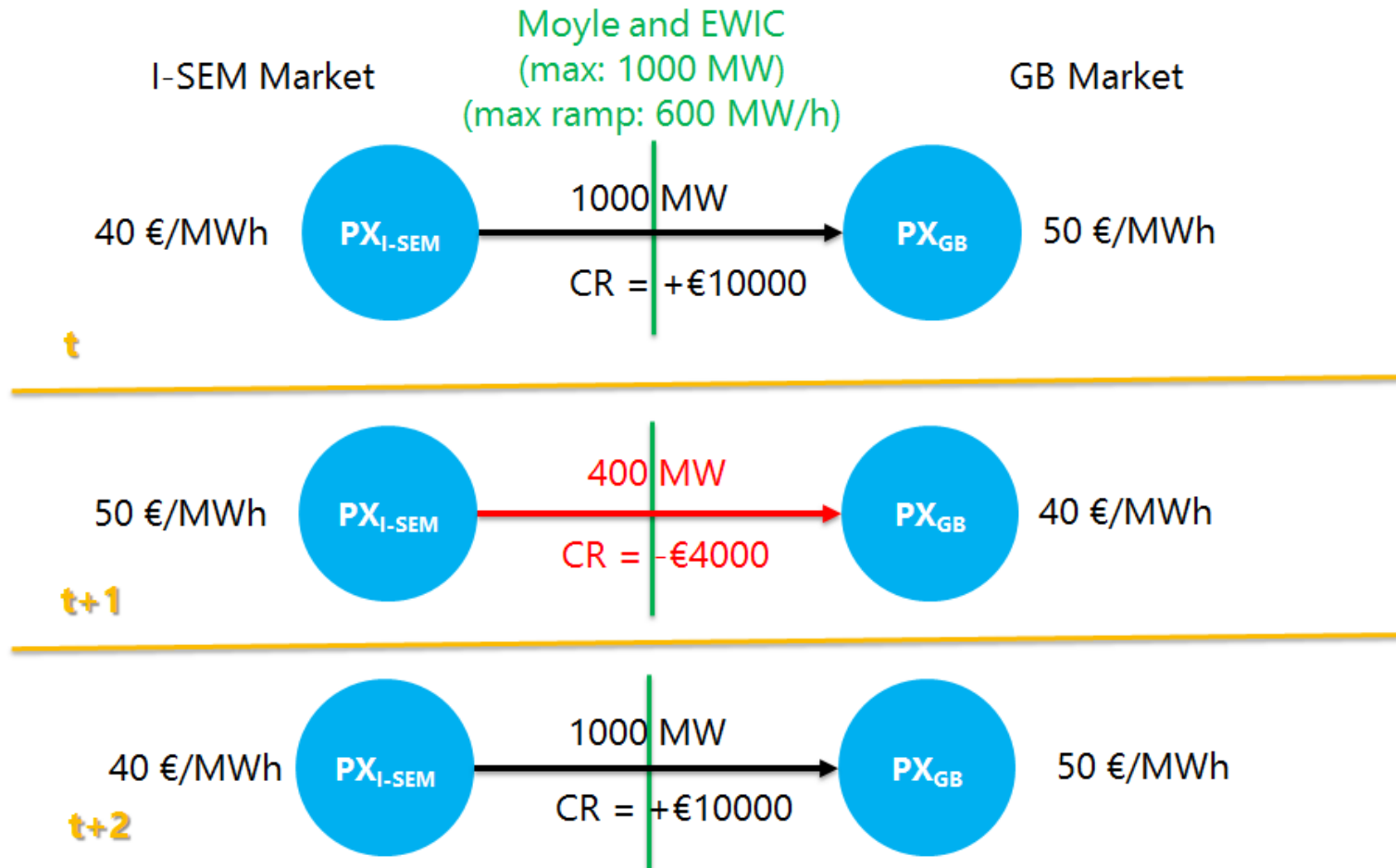
Disadvantages of not discounting FTR for losses

- Increased auction revenue adequacy risk to IC owner due to payout of price spreads due to losses
- IC owner payout of price differences when due to losses but no corresponding flow on which to collect congestion rent
- However FTR purchasers may pay a higher auction price per MW

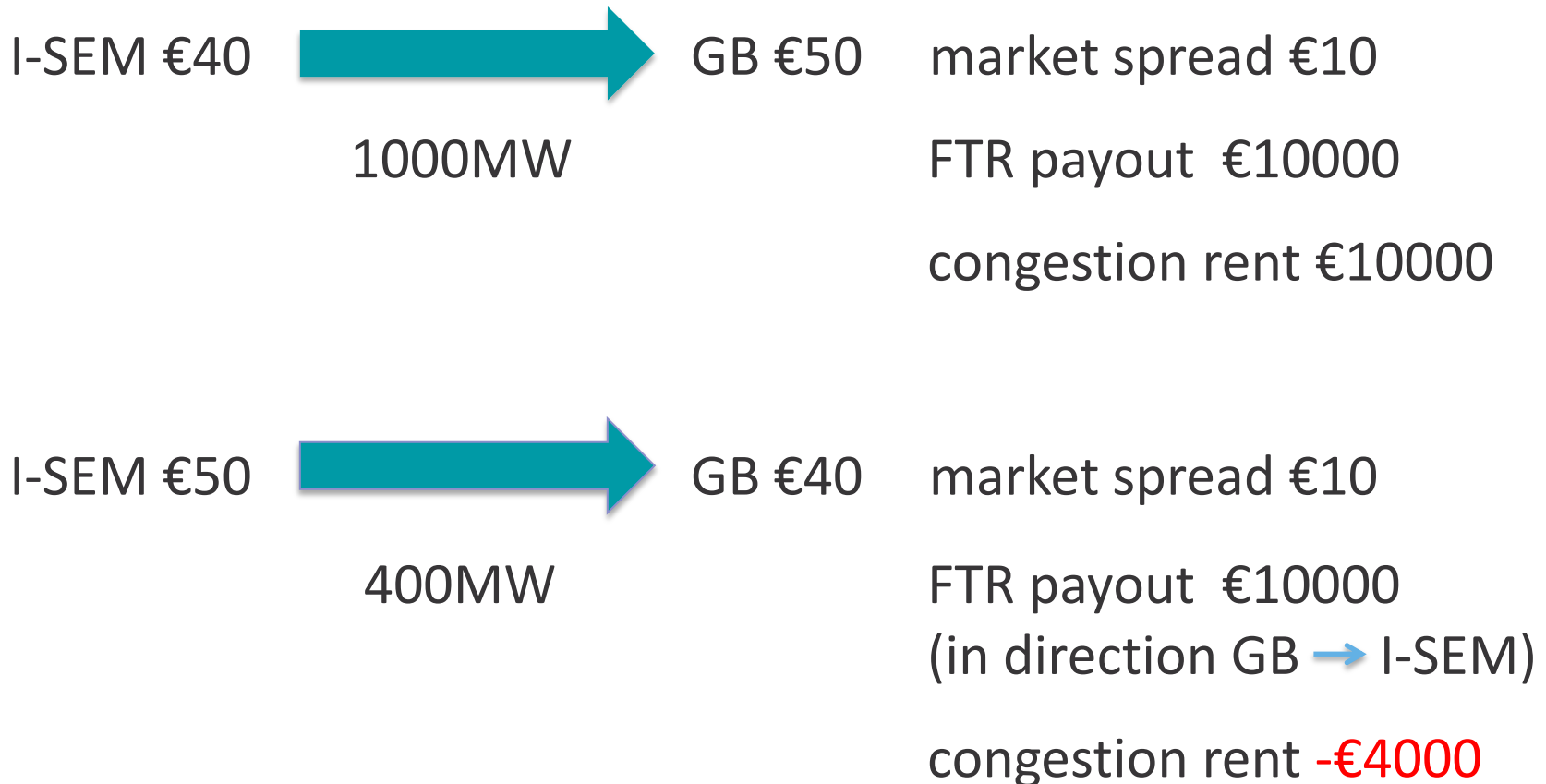
SEM Committee Minded to Decision

- It is considered that the inclusion of losses (not discounting) in the FTR payout when IC owners have no control over these losses would not be an appropriate allocation of risk
- Evaluation of risk can be taken into account through the price of the FTR at auction
- For the IC owner lower auction revenue for the FTR is offset by reduced liability to pay out on the market spread
- The SEM Committee is therefore minded to include a discount for losses in the FTR payout

Ramping Constraints 1



Ramping Constraints 2



How should ramping constraints be accounted for?

- Risk allocated to FTR holder – FTR payout discounted
- Risk allocated to Interconnector owner
FTR payout not discounted

FTR Payout discounted

- Risk allocated directly by reducing FTR payout to holder
- FTR purchaser can factor ramping curtailment risk into FTR auction price offered
- FTR holder not responsible for ramping curtailment and no means of controlling it
- Reduces potential efficiency of hedging opportunity
- Transparency of FTR product reduced by process of reducing payout

FTR Payout not discounted

- FTR payout is more straightforward and transparent
- May favour purchase by asset-less traders and increase secondary trading
- Value of FTR increased and increased potential efficiency of hedging opportunity
- Interconnector owner not responsible for most significant constraint and has no means of controlling it
- IC owner exposed to revenue risk as market spread payout exceeds congestion rent received

SEM Committee Minded to Decision

- The FTR purchaser has no control over ramping constraints and it would not be an appropriate allocation of risk to attribute it to the FTR holder
- The SEM Committee is therefore minded not to include a discount for ramping in the FTR payout

Summary of SEM Committee minded to decisions

- Minded to support the sale of FTRs by interconnector
- Minded to include a discount for losses in the FTR payout
- Minded not to include a discount for ramping in the FTR payout
- The impact of curtailment on FTR payout is defined by the Forward Capacity Allocation Guideline and the SEM Committee does not seek to move from the EC Guideline

Discussion



I-SEM FTRs

Auction Platform & Policy Implementation

14th September 2015

European Guidelines

- The driving force behind the changes in I-SEM
- Forward Capacity Allocation (FCA) Guideline applies to Interconnector Capacity
- Detail and timeline for implementation of the FCA is changing and outside the RAs control
- There is likely to be a transitional period between I-SEM go live & full implementation of the FCA

FTR Auction Platform

- Currently SEM-GB interconnector capacity is sold as physical transmission rights (PTRs) on a shared platform (auction management platform)
- I-SEM will require a platform that can sell FTRs
- FCA currently requires a European single allocation platform (SAP) that sells PTRs and FTRs
- First auction for I-SEM go-live will need to take place before the SAP will be officially in place/designated

I-SEM Auction Platform options

	Local (I-SEM to GB)	FUIN Region (HVDC ICs in FUIN)	JAO (Joint Allocation Office)
Benefits			
• I-SEM /GB tailored products	✓	✗	✗
• Caters for FTR options	✓	✓	✓
• Caters for FTR obligations	✓	?	?
• Caters for HVDC specificities	✓	✓	✓ (update to paper)
• Liquidity (expanded register of users)	✗	✓	✓
Costs on I-SEM ICs			
• Implementation costs	Highest	In-between	Lowest
• Risk of sunk costs	Highest	In-between	Lowest

FCA Guidelines

Stages	Duration	Due
<ul style="list-style-type: none">Approval by EU member states	2-3 months	By end of 2015
<ul style="list-style-type: none">Scrutiny of the EU parliament & publication in the Journal of the EU	6 months	Mid 2016
<ul style="list-style-type: none">Entry into law	20 days	Mid 2016

Harmonised Allocation Rules*

Stages	Duration	Due
<ul style="list-style-type: none"> TSOs develop a proposal for the HAR 	6 months (from FCA coming into law)	end of 2016/ start of 2017
<ul style="list-style-type: none"> European NRAs approval of HAR 	6 months	Mid 2017

Type of Long Term Transmission Rights*

Stages	Duration	Due
<ul style="list-style-type: none"> TSOs within each capacity calculation region (CCR) develop a proposal for each bidding zone border 	6 months (from FCA coming into law)	end of 2016/ start of 2017
<ul style="list-style-type: none"> NRAs within the CCR approval of LTTR 	6 months	Mid 2017

* Based on FCA draft 10 June 2015

Single Allocation Platform*

Stages	Duration	Due
• TSOs to submit requirements to European NRAs	3 months (from FCA coming into law)	Mid/end of 2016
• European NRAs approval of HAR	6 months	Early 2017
• TSOs develop Single Allocation platform	12 months	Early 2018

* Based on FCA draft 10 June 2015

I-SEM FTR Timeline

Stages	Lead in Time	Due
• I-SEM go live		Q4 2017
• 1 st Reliability Options Auction	3 months	Mid 2017
• 1 st FTR Auctions	3 months	Early 2017
• Decision on FTR Access Rules/product types	3 months	End 2016
		6 Months before 
• European NRAs approval of HAR		Mid 2017

HAR Early Implementation/ Pilot

- Developed by ENTSO-E with the support of ACER
- Voluntary adoption by ENTSO-E members
- HAR developed for PTRs and FTR options
- Includes annexes with regional specificities
- Submitted to European NRAs for approval Mid 2015
- Adoption expected in early 2016

HAR Early Implementation/ Pilot

- SEM-GB Annex (12)
- Up until I-SEM go live, local access rules apply
- HAR and annex 12 will apply from I-SEM go live
- Subject to SEM Committee & Ofgem approval

Discussion



Financial Transmission Rights - Consultation Paper

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Closing Remarks

Closing Remarks

Next Steps 1

- Consultation ends 19 October
- Responses should be sent to:

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- Decision Paper published end November

Closing Remarks

Next Steps 2

- FTRs are the first part of the Forwards & Liquidity workstream
- The second part will address within-zone liquidity
- FTRs will be auctioned in advance of auction of CRM Reliability Options in 2017

Thank You