

Measures to Promote Liquidity in the I-SEM Forward Market

Open Forum

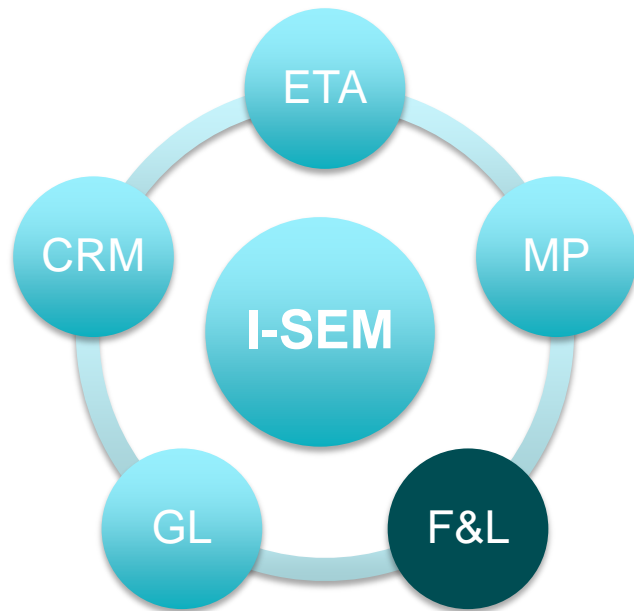
Dundalk, 6 July 2016

Agenda

10:15 – 10:30	Opening
10:30 – 10:50	Background and issues in the forward market
10:50 - 11:20	Approach to DCs/Ring-Fencing and scope for intervention
11:20 – 11:50	Removal of Barriers for Trading
11:50 – 12:20	Discussion
12:20– 13:00	Lunch
13:00 – 13:40	Proposed Interventions – Options for Consultation
13:40 – 14:20	Discussion
14:20	Closing

Identifying the issues in the forwards market

What is the problem we are trying to solve?



- **Key Issue:** Chronic Lack of Liquidity in the SEM
- **How the lack of liquidity hinders the market?**
 - Deterring entry and growth of players in the market
 - Inhibiting competition between existing players in the market
 - Weakening price signals that help to ensure security of electricity supply

What is Liquidity?

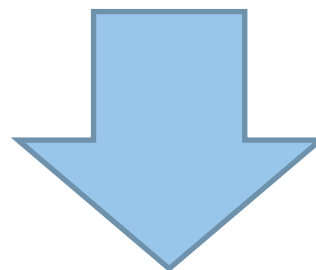
- Parties must be able to trade “reasonable” volumes without significantly moving market prices; and
- Parties must be readily able to trade out of positions as well as to acquire those contractual positions.



SEM Hedges in 2015

- Within zone contracts such as DCs, NDCs, OTCs and PSO CfDs accounted for 34% of MSQ.
- Transactions across interconnectors accounted for 11% of MSQ.
- Internal hedges accounted for 26.5% (ESB*, SSE, BGE and Energia)

	Volumes of 2015 in TWh	Share of MSQ
CfDs	11.21	34%
Interconnectors	3.82	11%
Internal Hedges	8.73	26.5%
Total	23.76	71.5%



71.5% of MSQ hedged in 2015 ...
lower than that experienced in similarly
operated competitive markets

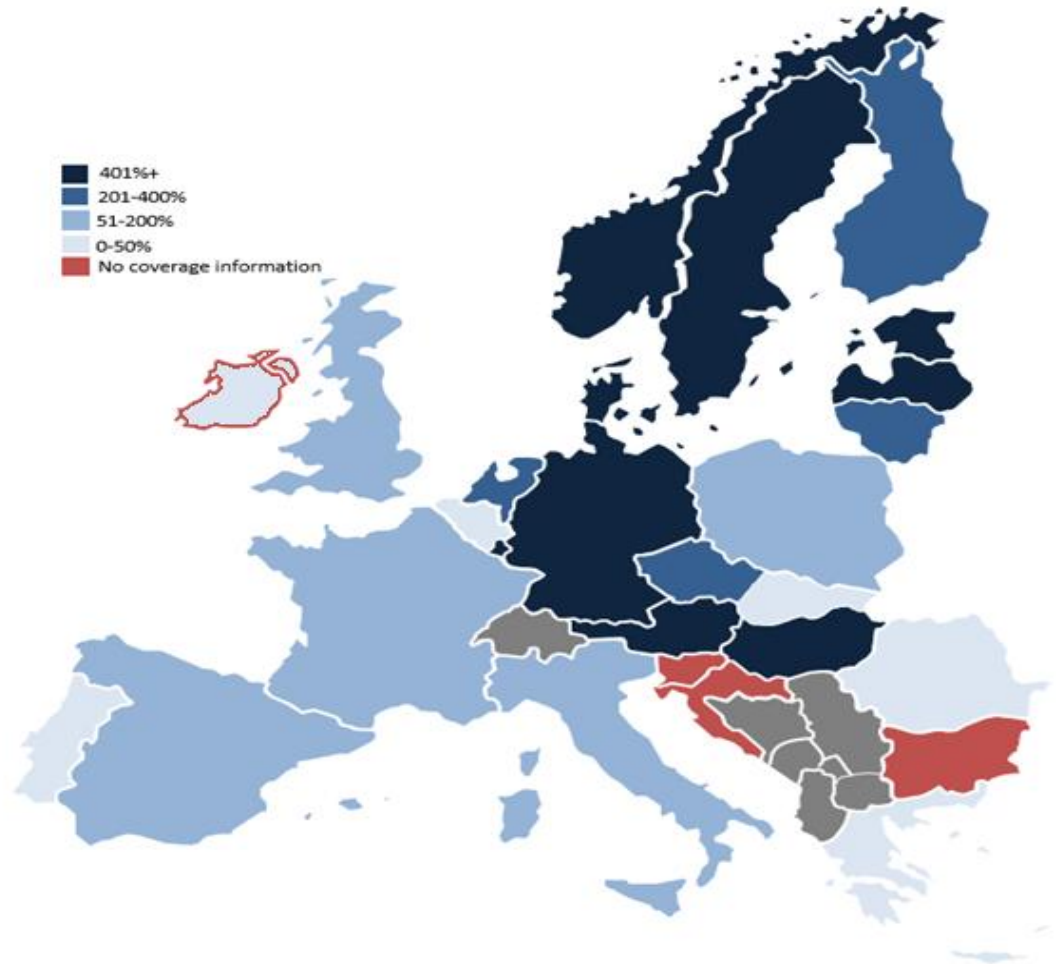
Liquidity In SEM

- What is the ideal level of liquidity in the I-SEM Forwards Market?

- SEM demand is around 32 TWh.

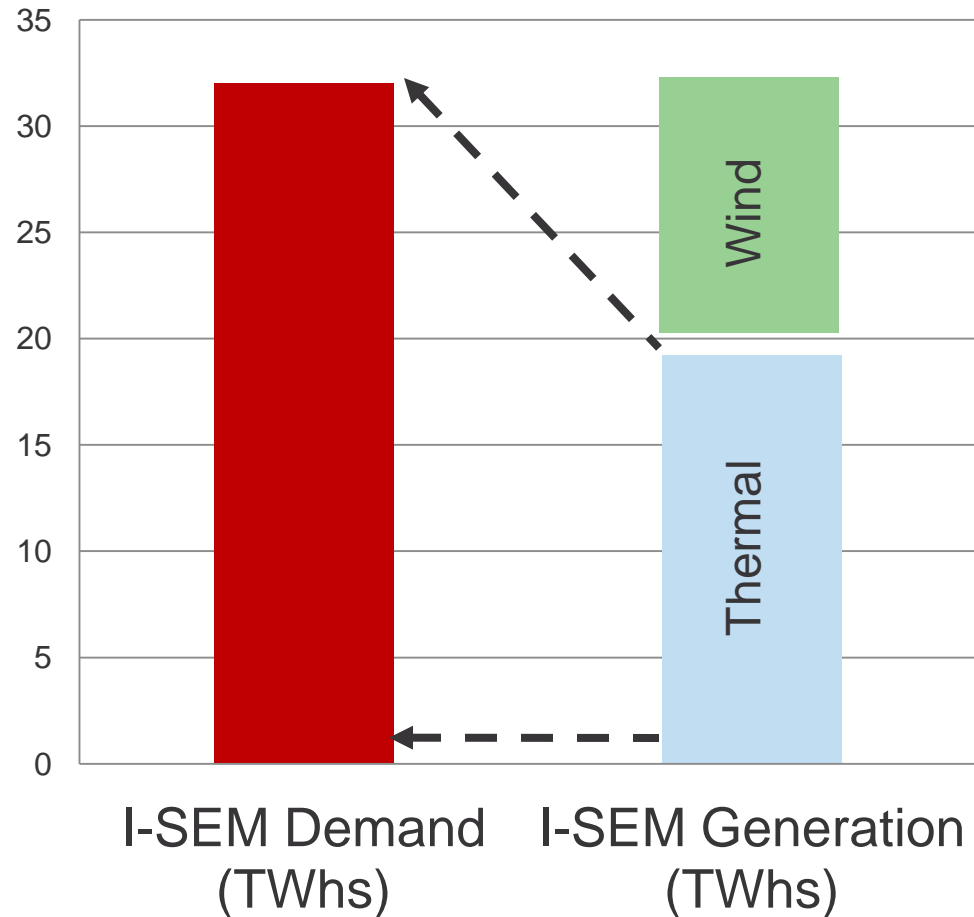
- Around a third of this volume is currently traded forward

- DCs
- NDCs
- PSO

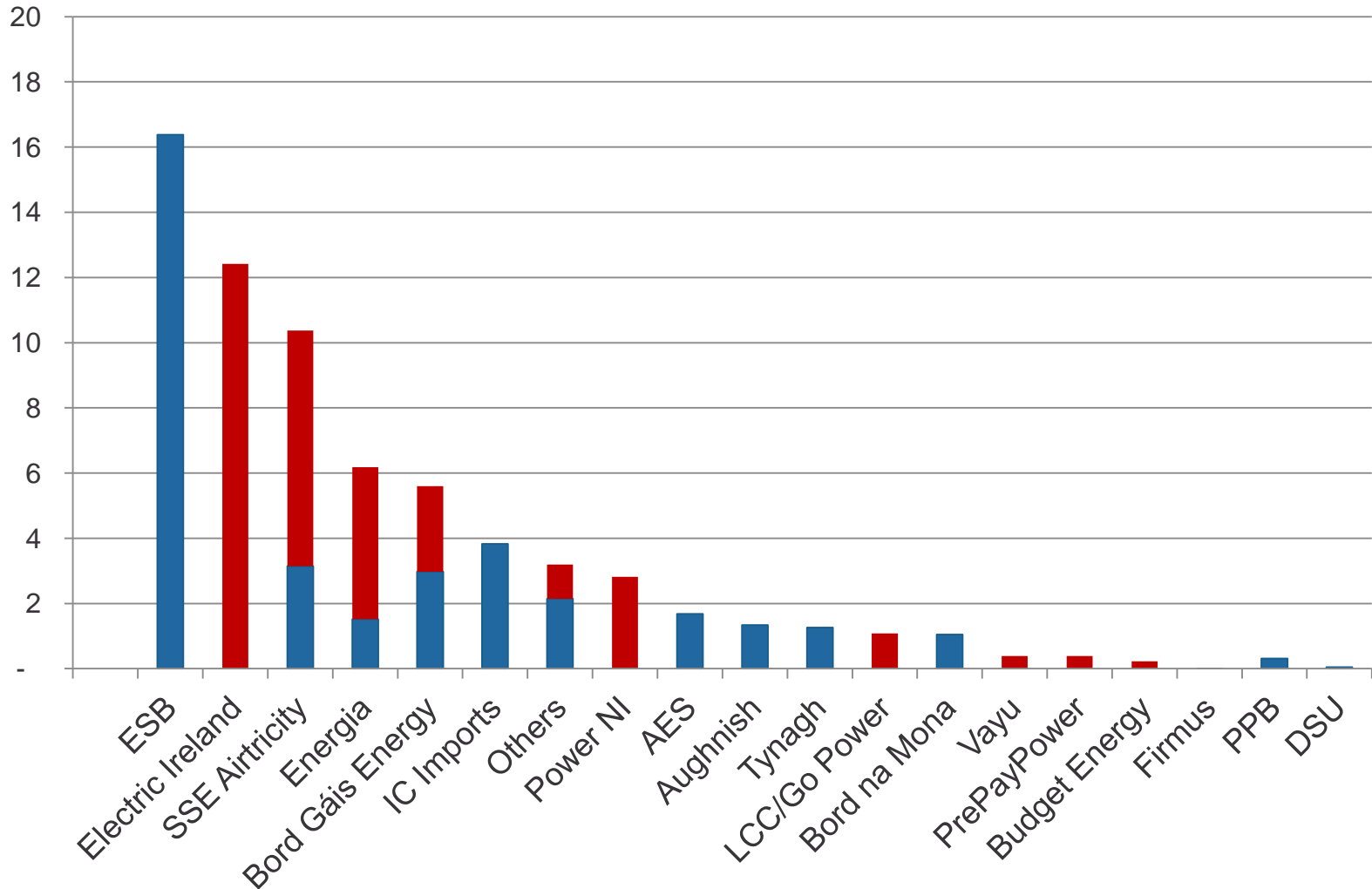


Structural features affecting I-SEM forward trading

- Asymmetric demand and supply of hedge.
- I-SEM Internal Market will not supply the entire demand for forward hedge.
- GB Market should complement supply of forward hedge

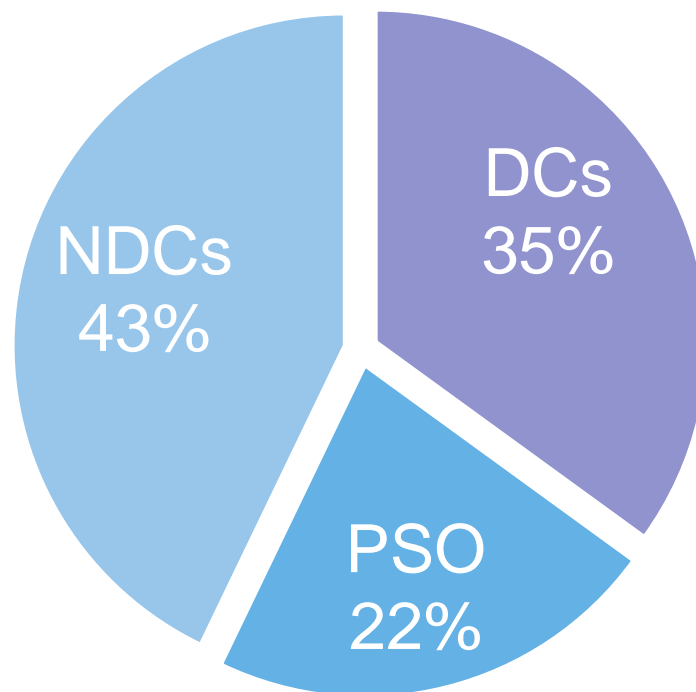


Market Structure Generation and Supply (TWh) 2015



CfDs in SEM in 2015

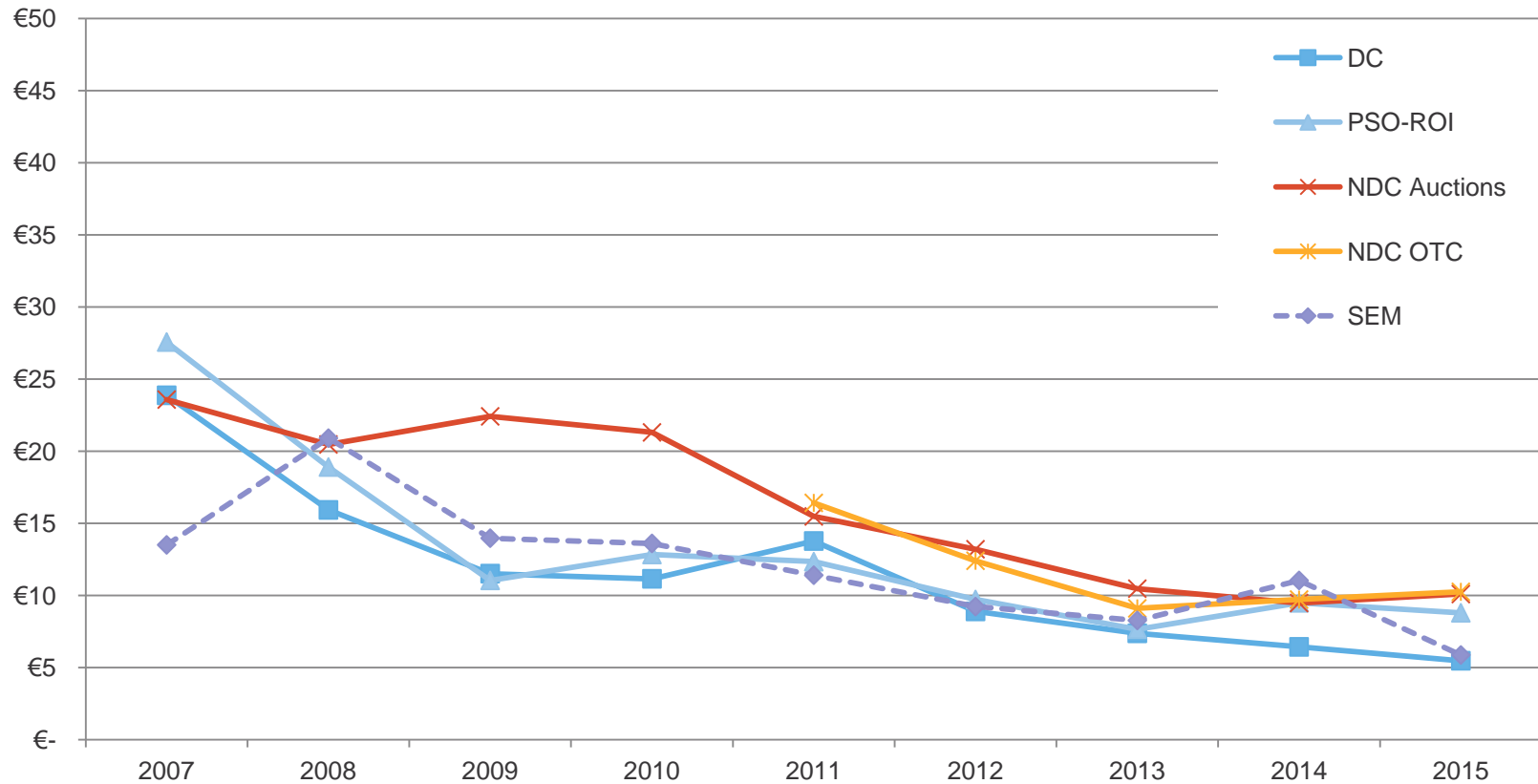
	CfDs 2015 in TWh	Share of MSQ
DCs	3.92	11%
PSO	2.48	7%
NDCs	4.80	14%
Total CfDs	11.21	32%



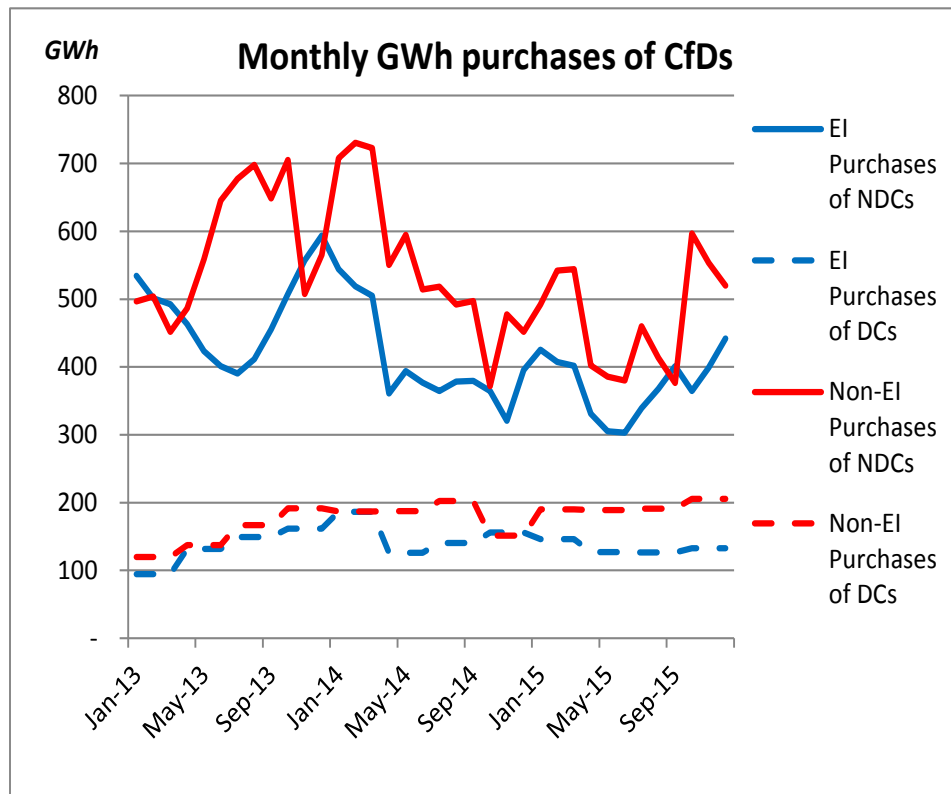
CfDs in SEM

CfD Clean Spark Spread (sold in Euros)

€/MWh

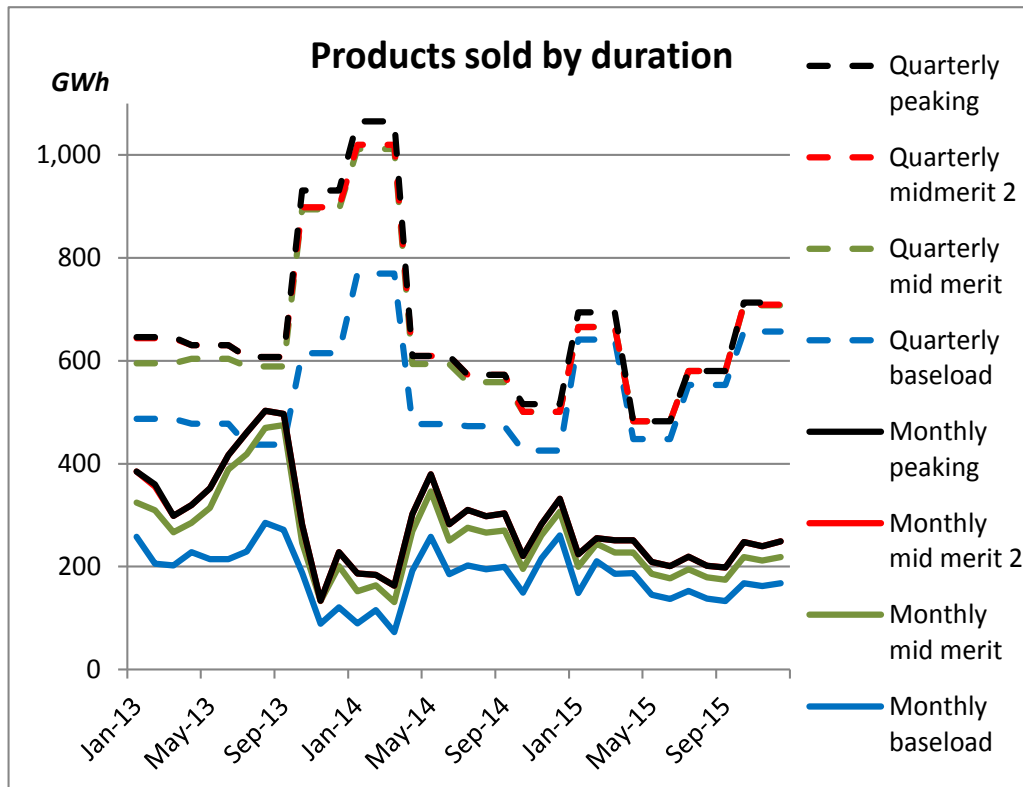


CfDs in SEM



- Downward trend in the availability of NDCs since 2014
- On average, Electric Ireland's purchases of NDCs align with their market share
- In 2015, EI purchases of NDCs = 38% of total NDCs

CfDs in SEM

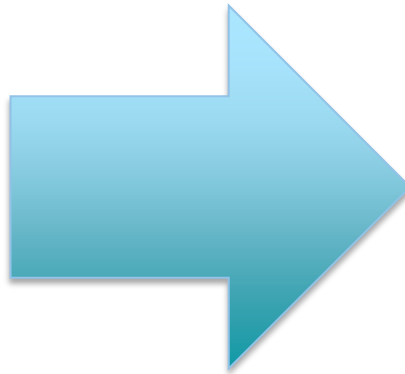


- Quarterly products
 - DCs + NDCs
- Monthly products
 - NDCs only
- Longer-duration products tend to be preferred
- Quarterly products more popular than monthly

Will Increases in Liquidity Arise Organically in I-SEM?

— DA differs from SEM in:

- Voluntary market
- More direct influence from prices in GB
- Balance positions are commercial decisions not mandated by TSO
- ID and BM price expectations to influence DA



- DAM price could be more volatile
- Increased incentives on generators to seek forward hedging

Other considerations

- By 2020 all **PSO** contracts will have stopped
 - Aughinish, Tynagh, Edenderry today have an incentive to offer un-regulated forward contracts
 - Lough Rea & West Offaly will have an incentive to offer NDCs based on their possible running output
- **FTRs** could contribute to I-SEM forward market liquidity for up to 6.34 TWh
 - Assuming a max available capacity of 500MW on Moyle and EWIC
- Increase of **wind** penetration likely to increase the demand for hedging products

Intervention in the I-SEM forward Market

- **Key Rationale for Intervention**

- Market structure
- Asymmetric of incentives to buy and sell forward contracts.
- Shortage of products (Wind)
- Market Immaturity

- **Focus of the intervention**

- Reduction of transaction costs
- Increase availability of products
- Increase in trading of hedging products
- Support robust reference prices

Directed Contracts, Ring-fencing and Regulatory Intervention

Forward Liquidity - Directed Contracts

- Market Power Decision Paper determined that there will be a Forward Contracting Obligation to address market power in the I-SEM physical markets
- DCs in 2015 were 3.9 TWh – 11% of Generation MSQ
- Of these 1.597 TWh were allocated to Electric Ireland

Forward Liquidity - Directed Contracts

There are two potential designs:

1. An administratively set volume and price of DCs determined by the RAs (based on forecast DAM price)
2. An administratively set volume and price set by competitive auction with RAs setting a reserve price

Directed Contracts Design Issues 1

Option 1 - DCs allocated by RAs

- DCs address market power concerns directly by RAs setting the price
- RA price setting includes DAM price expectation but not value of price certainty
- There may be an absence of secondary trading
- Allocation is based on current market share which does not facilitate new entry

Directed Contracts Design Issues 2

Option 2 - DCs allocated by auction

- Value of DCs determined by market (with reserve price)
- Availability of volumes for auction would assist introduction of central trading mechanisms
- Auction in a net short market may lead to upward pressure on prices
- DC Allocation not based on existing market share

Forward Liquidity - Directed Contracts

SEM Committee has no minded-to decision on form of DCs allocation:

- Option 1 – Current allocation method would remain
- Options 2 – Allocation by auction

Forward Liquidity – Ring Fencing

- Ring-fencing currently applies to Viridian Group and ESB
- SEM Committee does not consider that ring-fencing of Viridian is a relevant consideration for liquidity promotion
- Given the significant market share of generation and supply vertical integration of ESB is a significant consideration for liquidity promotion
- Ring fencing of ESB enforces accounting separation; operational and managerial independence of generation and supply; prohibits anti-competitive behaviour, cross subsidy and disclosure of sensitive information

Forward Liquidity – Ring Fencing

- Vertical integration can reduce incentives to trade in the forward market
- Vertical integration can result in foreclosure of markets to other market participants
- Vertical Integration can increase efficiencies that could potentially be passed to customers
- Ring fencing can increase transparency in the market
- Removal of ring fencing will only be carried out as part of increased liquidity obligations set out in options 3 - 5

Forward Liquidity – Ring Fencing

- The SEM Committee has no minded-to decision on removal of ring-fencing of ESB
- The SEM committee will consider the issue from the perspective of liquidity promotion and mitigation of market power
- The SEM Committee will consider:
 - Advantages and drawbacks of vertical integration
 - Competitive dynamics of new I-SEM
 - Market Power mitigation measures in I-SEM
 - Potential for enhanced liquidity promotion

Forward Liquidity – Ring Fencing

- Options 1 & 2 involve retention of ESB ring-fencing
- Options 3 – 5 allow vertical integration of ESB
- All options retain Directed Contracts as a market power mitigation measure
- Options 3 – 5 require additional obligations of ESB:
 - No allocation of or bidding for Directed Contracts
 - Increased forward contracting obligations in the form of an (increased) forward contract sell obligation and/or a market making obligation

Forward Liquidity – Need for intervention

Regulatory intervention is justified where there is market failure that can be rectified by such intervention

Features of SEM & I-SEM:

- Significant part of generation with potential to supply forward products has little incentive to provide them
- There is an asymmetry of incentives between generators and suppliers to engage in forward contracts
- Costs of entry and participation in the forward market can be high
- I-SEM will be a new market with lack of pricing history and additional risk
- The market is short of hedging products

Forward Liquidity – forms of intervention

Regulatory intervention:

- Intervention already exists in the form of Directed Contracts and ring-fencing
- Intervention will be designed to reduce costs of forward market participation
 - facilitating provision of exchange, counterparty and collateral services
- Intervention may promote availability of hedging products
 - Introduction of forward contract sell obligations
- Intervention may promote increase in forward trading
 - Introduction of a market making obligations

Forward liquidity - Regulatory Principles

- Objective of SEM Committee is protection of interests of consumers, wherever appropriate by promoting competition
- Lack of liquidity in the SEM forward market is a barrier to effective competition. It creates barriers for existing and future independent suppliers to access the retail market.
- The SEM Committee believes that this problem will persist in the I-SEM and requires regulatory intervention
- This intervention will be proportionate and non-discriminatory

Addressing Trading Barriers

Agenda

- Anticipated (mechanical) trading barriers for the I-SEM forwards market
- Potential solutions
- Approach
- Progress
- Emerging roadmap

Anticipated (mechanical) trading barriers In I-SEM forwards market

- Price discovery

NDCs are negotiated privately outside any regulatory purview. Therefore price discovery is a concern as details are not known to the wider public

- Susceptibility to defaults if prices are not favorable

As there is no standardised counter party risk guarantee, coverage for counter party risks must be negotiated on a bilateral basis

- Barriers to entry

The bilateral nature of forward contracts and counterparty risks present barriers to small players entering into a forward contract. Parties minimise this risk by being very careful while entering into deals

For any deal entered into, parties impose relatively high credit coverage requirements

Due to the obligations imposed on bilateral trading, transaction costs are high (e.g. following EMIR/REMIT obligations).

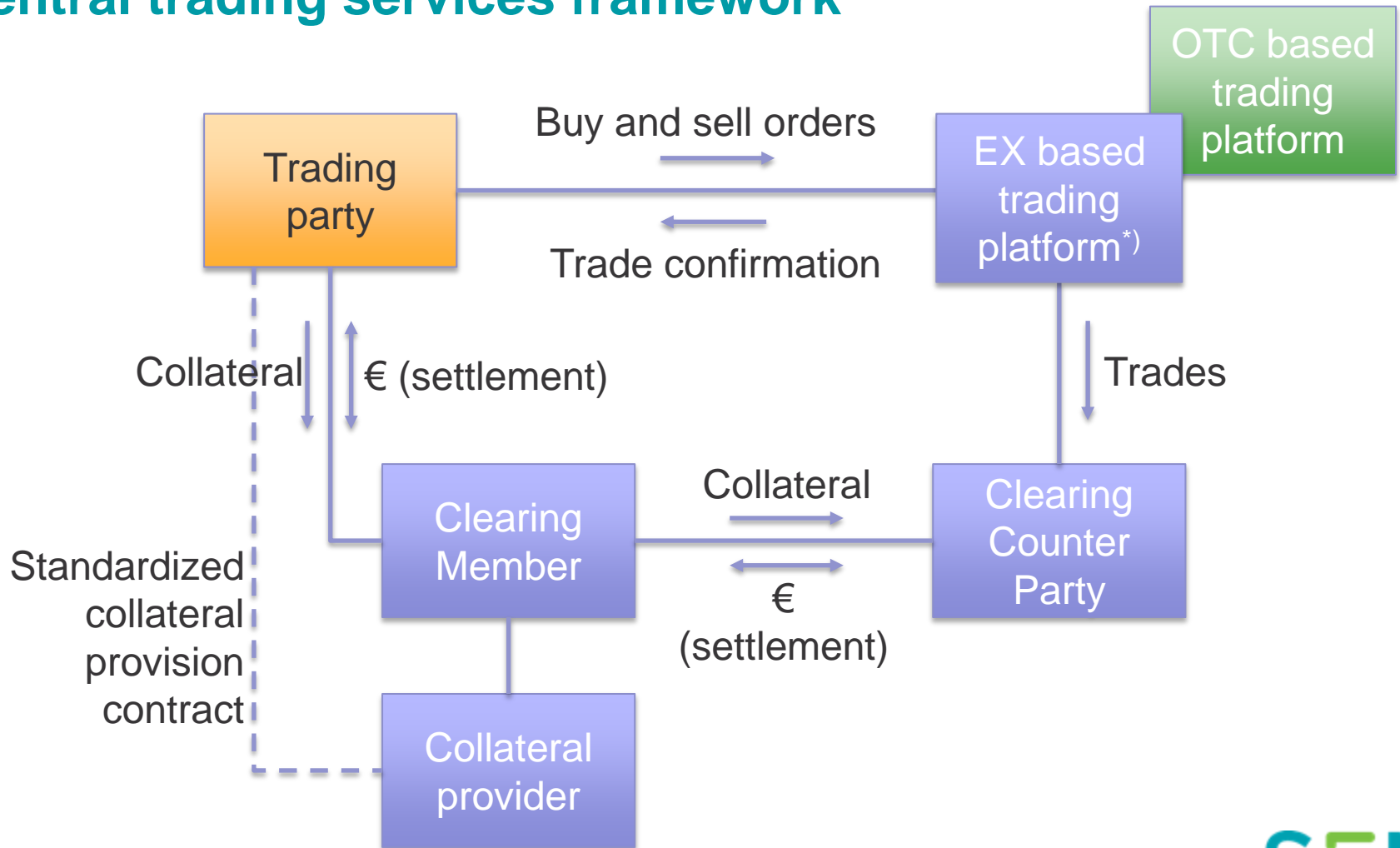
Potential solutions

(1/4)

- Central service provision has been identified as a potential solution for the identified I-SEM trading barriers.
- Three types of central services are identified that can contribute:
 - Central Clearing Party
 - PX-like forwards products trading platform
 - Central Collateral Provider
- Integration of provision of these services for the forward market with central service provision for other I-SEM market time frames and products (FTR, day ahead, intraday and balancing markets) forms a fourth potential contribution

Potential solutions: Central trading services framework

(2/4)



Potential solutions

(3/4)

- A **central counterparty (CCP)** for the clearing of forward market trades would reduce counterparty risk and could reduce clearing costs
 - Lower counterparty default risk
 - Lower costs of clearing (clearing fees)
 - Lower costs of credit (collateral requirements)
- A **central trading platform (PX-like)**
 - Could offer anonymous trading
 - Could offer price discovery
 - Could fulfill any necessary EMIR/REMIT obligations
- A **central collateral provider**
 - Could offer to cover for default risks against a counterparty for a certain fee at standard conditions
 - Could offer Clearing Member services for a CCP

Potential solutions

(4/4)

- A **combination of central services** for the forward market with an existing service provider could reduce costs, increase transparency and lower entry barriers (membership fees, trading fees)

Approach

Parallel with the formal consultation, engagement of voluntary provision of required central services is strived for:

Step 1: A set of central service requirements is established with input (questionnaire interviews) from a subset of market participants and potential service providers

Step 2: “Negotiation” talks with selected candidate providers should lead into voluntary engagement. Form of engagement to be agreed between RAs and service provider concerned:

- There should be a reasonable expectation that the required services will be provided in time for I-SEM go live
- Any form of procurement is excluded from this step

Approach - Intermediate findings

(1/3)

- PXs offer standard product futures trading with business day to business day clearing cycles, thus minimizing collateral requirements; Any OTC trading platform could liaise with them to offer the PX's CCP service for trading of the same standard products – in this case parties trading OTC at the TP platform would no longer need a Master Agreement with individual counterparties
- Tullett Prebon provides OTC trading services with such CCP functionality in other European markets by liaison with ECC;
- Financial players are more likely to be attracted to a financial futures trading platform with a short clearing cycle
- Go-live of I-SEM end of 2017 should not be a barrier for go-live of forward market central services

Approach - Intermediate findings

(2/3)

- Bank guarantees are not likely to be accepted as collateral for CCP forward products clearing (according to ECC, this is ruled by EMIR, neither Nasdaq Clearing nor ECC accept bank guarantees as collateral for any forwards market)
- Access to CCP services for forwards clearing is generally only allowed through a Clearing Member. Banks can offer Clearing Member services which include a collateral provision service. The terms and conditions are framed by the CCPs' collateral terms and conditions
- Players with “own” collaterals may become a Clearing Member themselves, others will need an intermediate who acts as a Clearing Member
- Banks may offer Clearing Member services to trading parties:
 - Usually including banking service (settlement account)
 - Optionally including market access services
- CCPs apply netting in clearing across markets and products but no netting of collaterals between commodities and derivatives markets

- The business case of trading platform providers is influenced by the liquidity measures that will be decided:

Form of measures

FCSOs provide guaranteed initial liquidity but no guarantee of secondary market liquidity

MMOs do not provide guaranteed initial liquidity but some guarantee of secondary market liquidity

Conditions for trading

Any trading condition on FCOs that would require clearing through an exchange liaised CCP influences the business case of the CCP (like: the FCO must be traded on a platform that provides a CCP service and allows eligibility to trade to anybody that has a clearing arrangement with that CCP)

- Exchange-based forward trading platforms offer standard services towards regulators for regulatory purview:

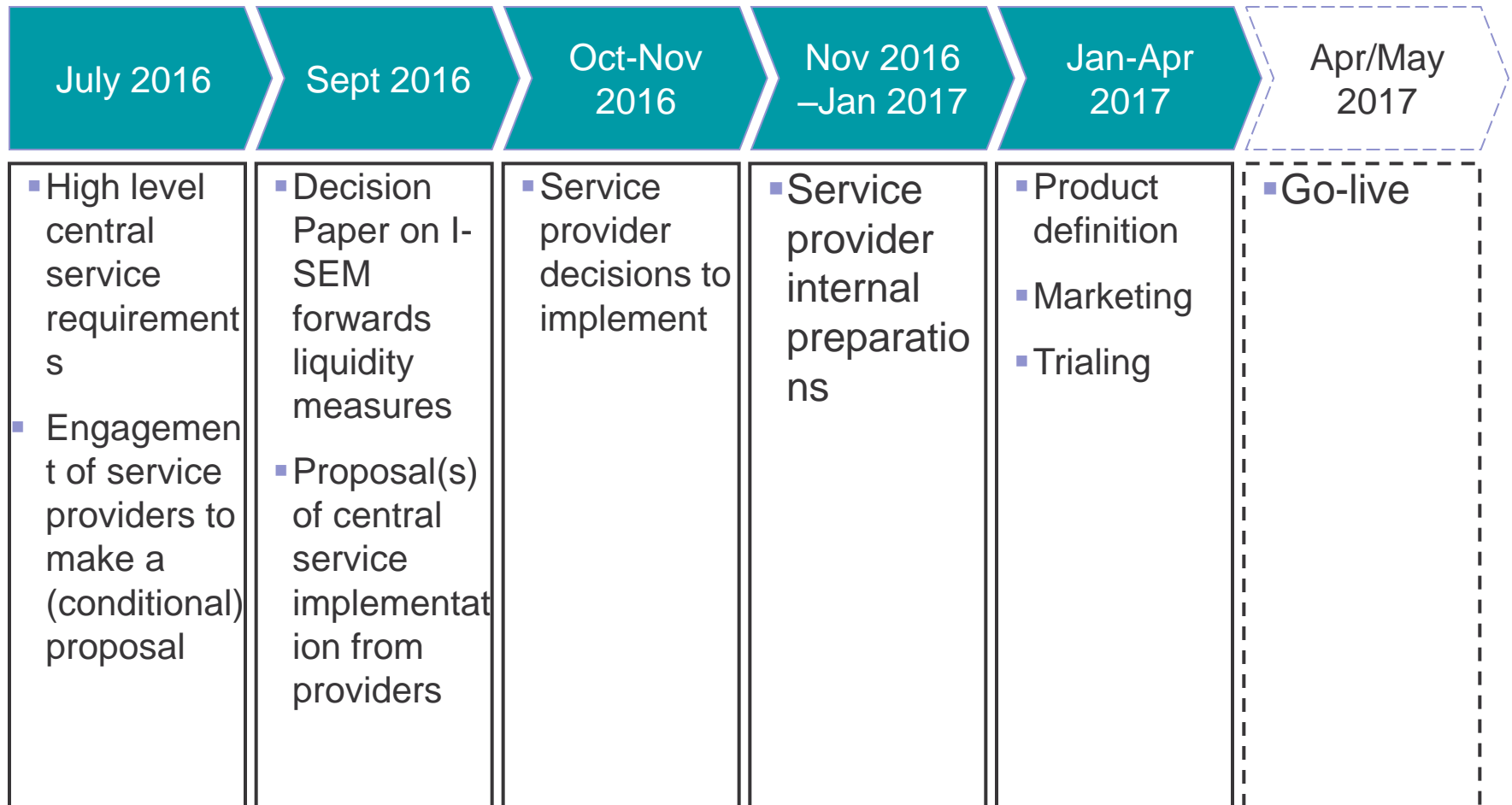
Market monitoring

market surveillance

Progress

- Draft of high level central services requirements is delivered
- Calls/meetings with central service providers have taken place
 - Calls: EEX/ECC (2), Tullet Prebon (2), Danske Bank (1) and Nasdaq/OMsX (1)
 - Physical meetings: EEX/ECC (1)
 - Scheduled calls: Danske Bank, Nasdaq/OMX
- Interviews on trading barriers and central service requirements with selected market parties have taken place:
 - ESB, SSE, Energia, Electroroute, Brookfieldrenewable, AES, PowerNI
 - Based on written feedback on initial draft of requirements and questionnaire
 - 1-2 hour clarification call each

Emerging roadmap



Emerging solution(s)

- Nasdaq/OMX opens an I-SEM hub on futures trading with Nasdaq Clearing as CCP
- EEX/ECC opens an I-SEM hub on futures trading with ECC as CCP
- Tullett Prebon liaises with either of the two to offer OTC trading with CCP services of the same standard forward products as traded on the Nasdaq/OMX or EEX/ECC I-SEM hub
- A Clearing bank offers Clearing services through Nasdaq or ECC CCP Clearing membership
- Bilateral cleared OTC trades move to a CCP cleared (and accessed) trading platform(s)

Discussion

Proposed Interventions

Two types of measures considered

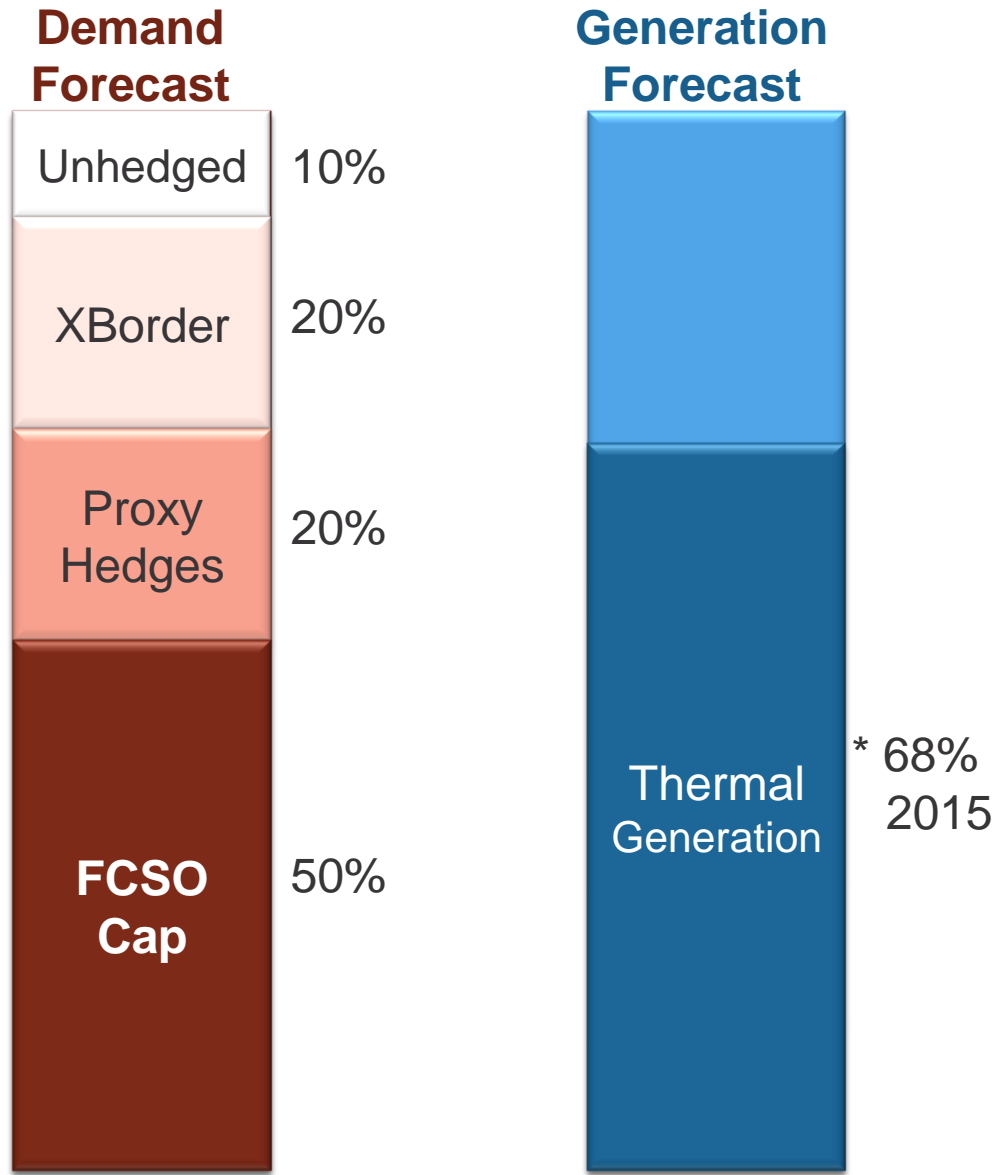
- A Forward Contract Selling Obligation (FCSO)
- A Market Maker Obligation (MMO)
- Different ways to implement these measures
- 4 different options to implement FCSO and or MMO
- And 1 option where neither FCSO nor MMO would be mandated

Forward Contract Sell Obligation

FCSO basic framework

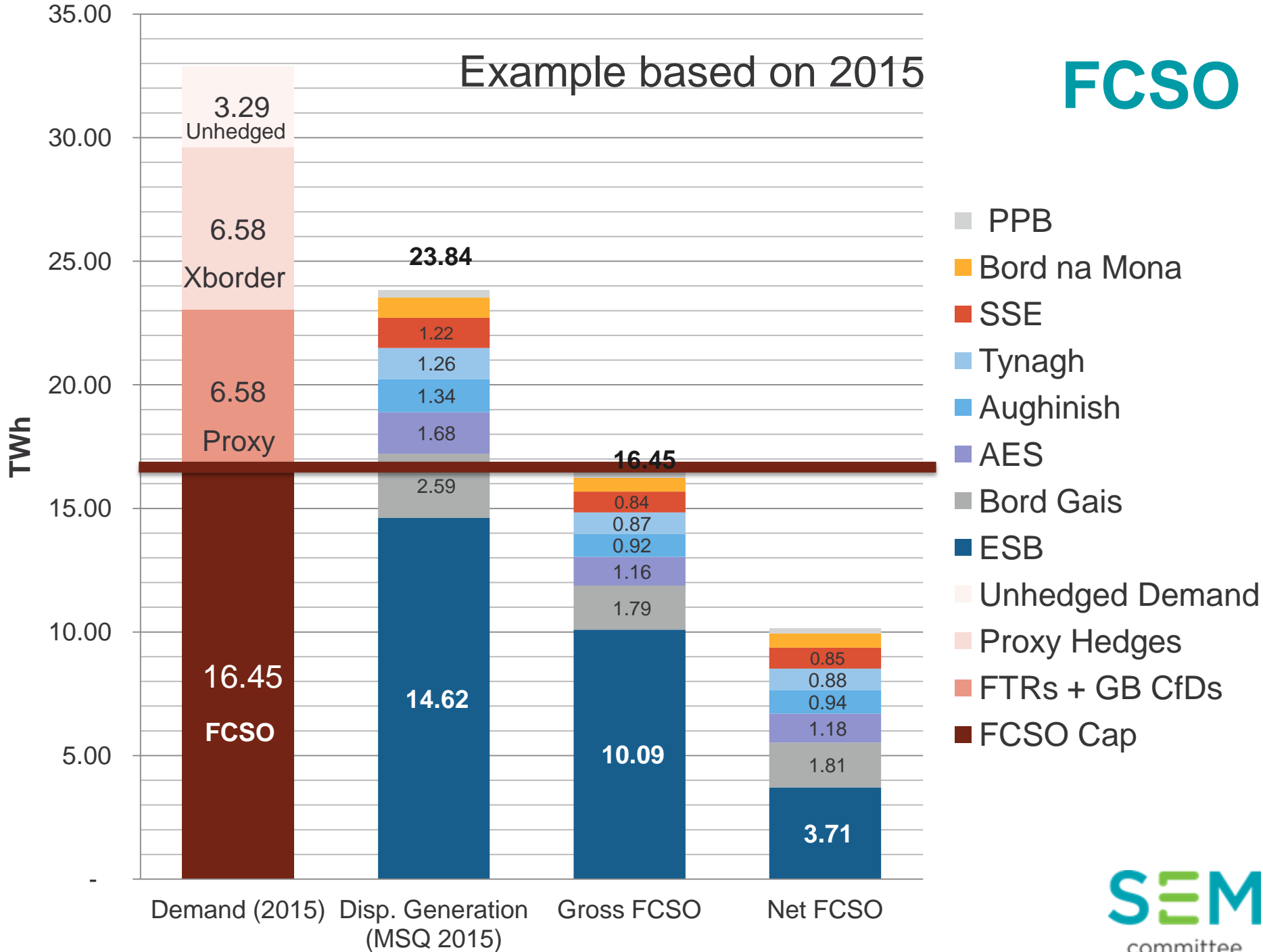
- A FCSO would be a regulatory intervention on the forward market to increase availability of hedging products.
- The RAs would mandate minimum volumes to be sold by generators in the forward market.
- Prices would be set by market based mechanisms (i.e. Clearing Price Auction)
- The RAs would set reserve prices based on forecast of the I-SEM DAM.
- FCSOs would be allocated proportionally to the forecasted market share of the DAM of each generator.

FCSO: Demand for hedging

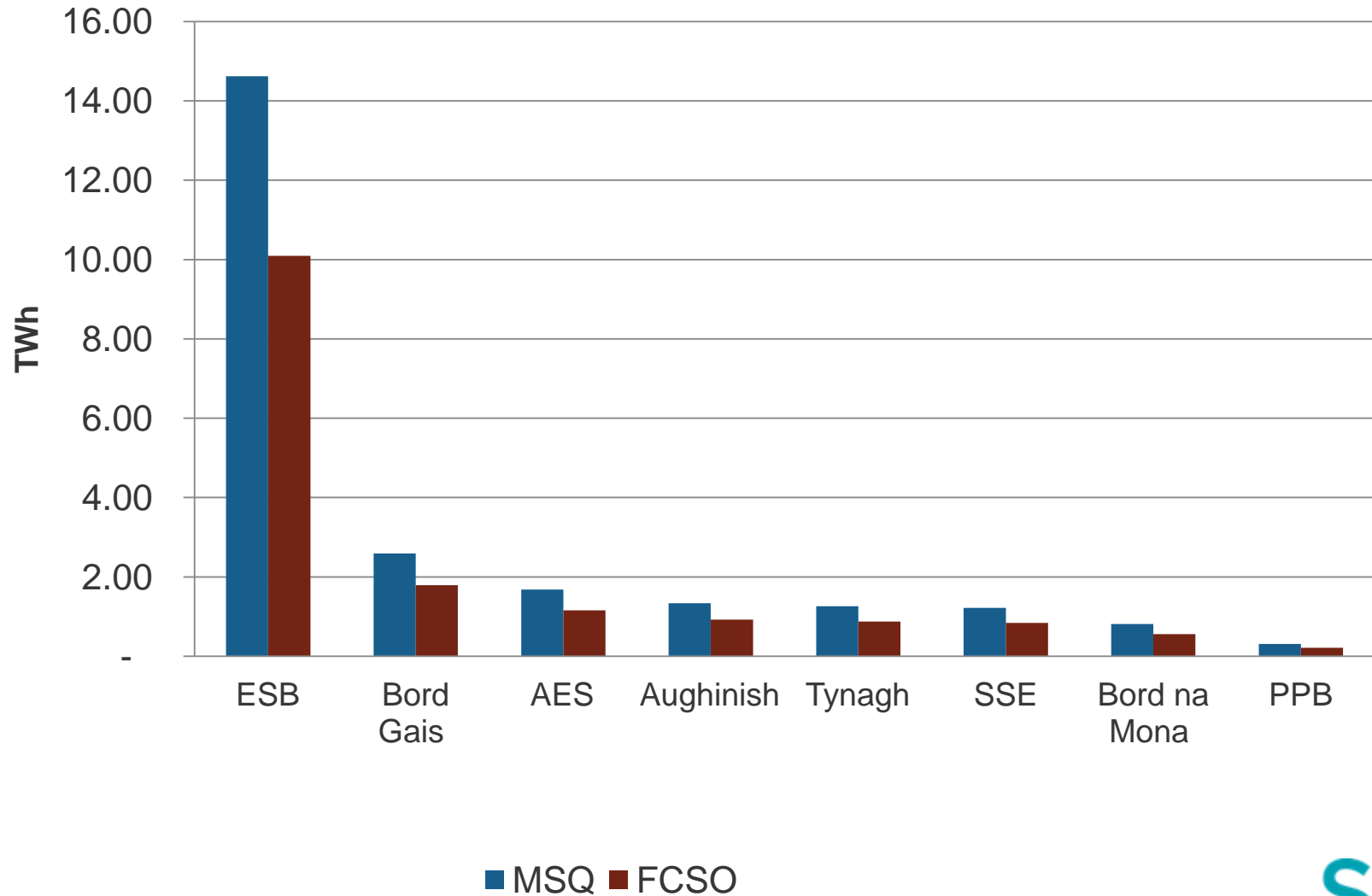


Example based on 2015

FCSO



Distribution of FCSO (Approximately 70% of MSQ)

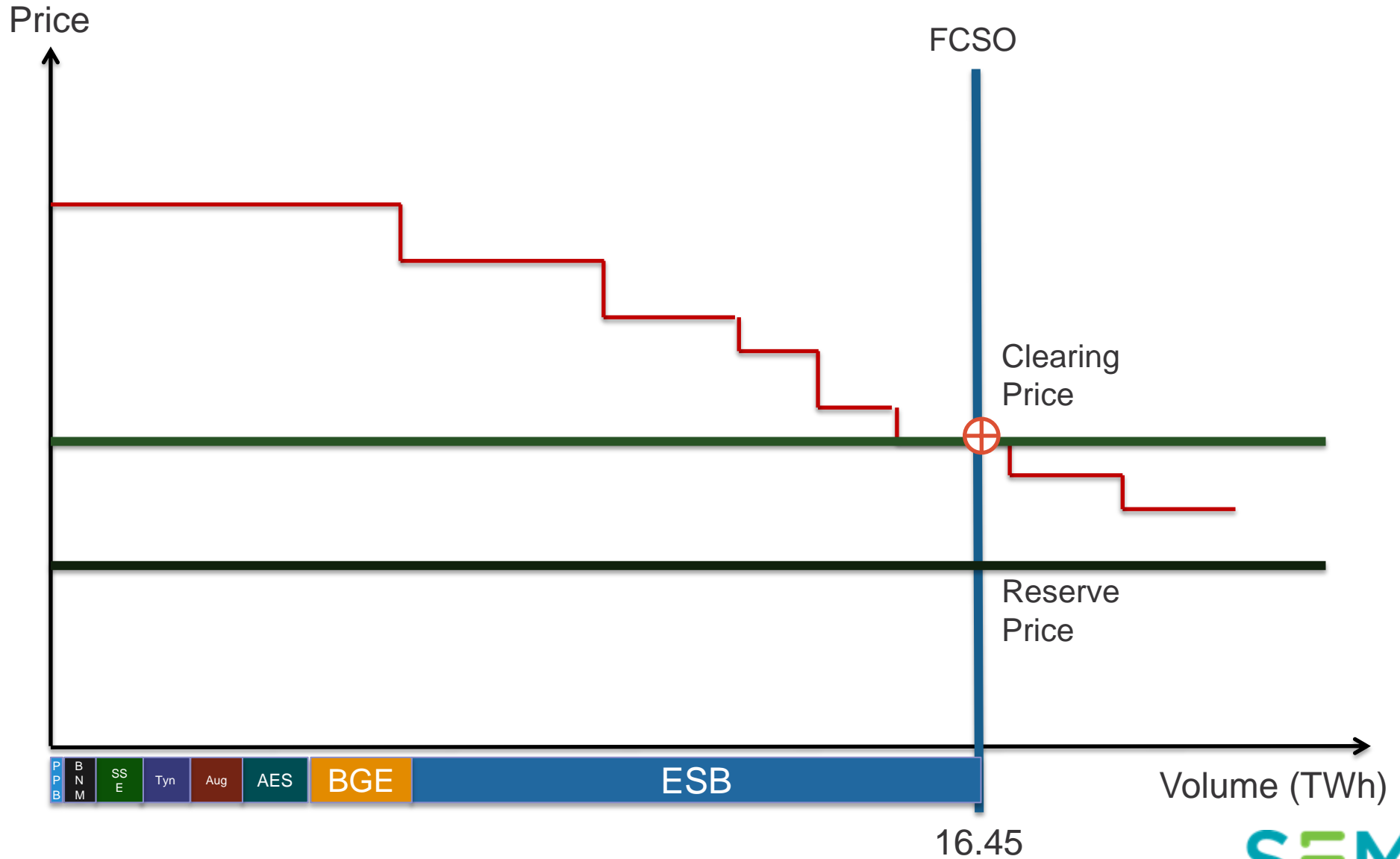


Market Arrangements

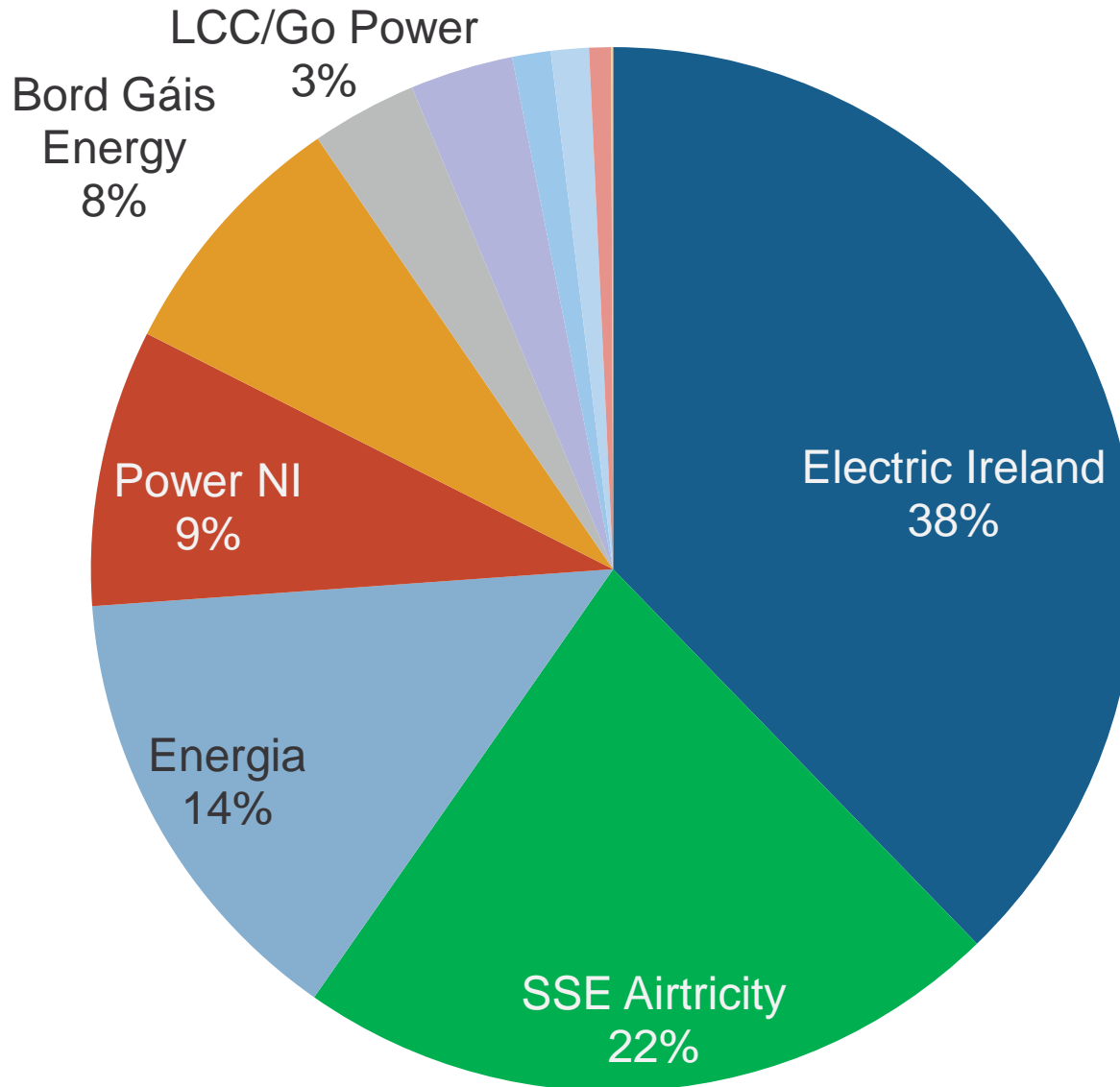
- Monthly Auctions
- Cleared based
- Generators price takers

- ***Products to be offered***
 - Monthly CfDs should be offered
 - MW ratios baseload/Mid merit/peaking: **2/1/1**
which mirrors DCs

Clearing Price Auction



Demand for FCSO (2015 data)



Expected effect of FCSO

- The FCSO on its own will not create the levels of liquidity prevailing in other liquid energy markets.
- However the FCSO will be an improvement from the current levels of liquidity by increasing volume of hedging products.
- Selling obligations would be spread across a larger number of market players.
- The advantage of this approach is that it makes the price formation in the forward market more robust.
- In addition, Market Participants which now have an internal hedge would be required to externally trade some of that internal hedge.

FCSO Parameters also being consulted upon

- Auction Periodicity
- Form of participation of generators - Price Takers/Makers
- Reserve Price set by the RAs
- Products to be offered (Ratio of Base-load/Mid-Merit/Peak) 2/1/1 ratio.
- Specific issues preventing generators to fulfill FCSO

Market Maker Obligation

Market maker obligation concept

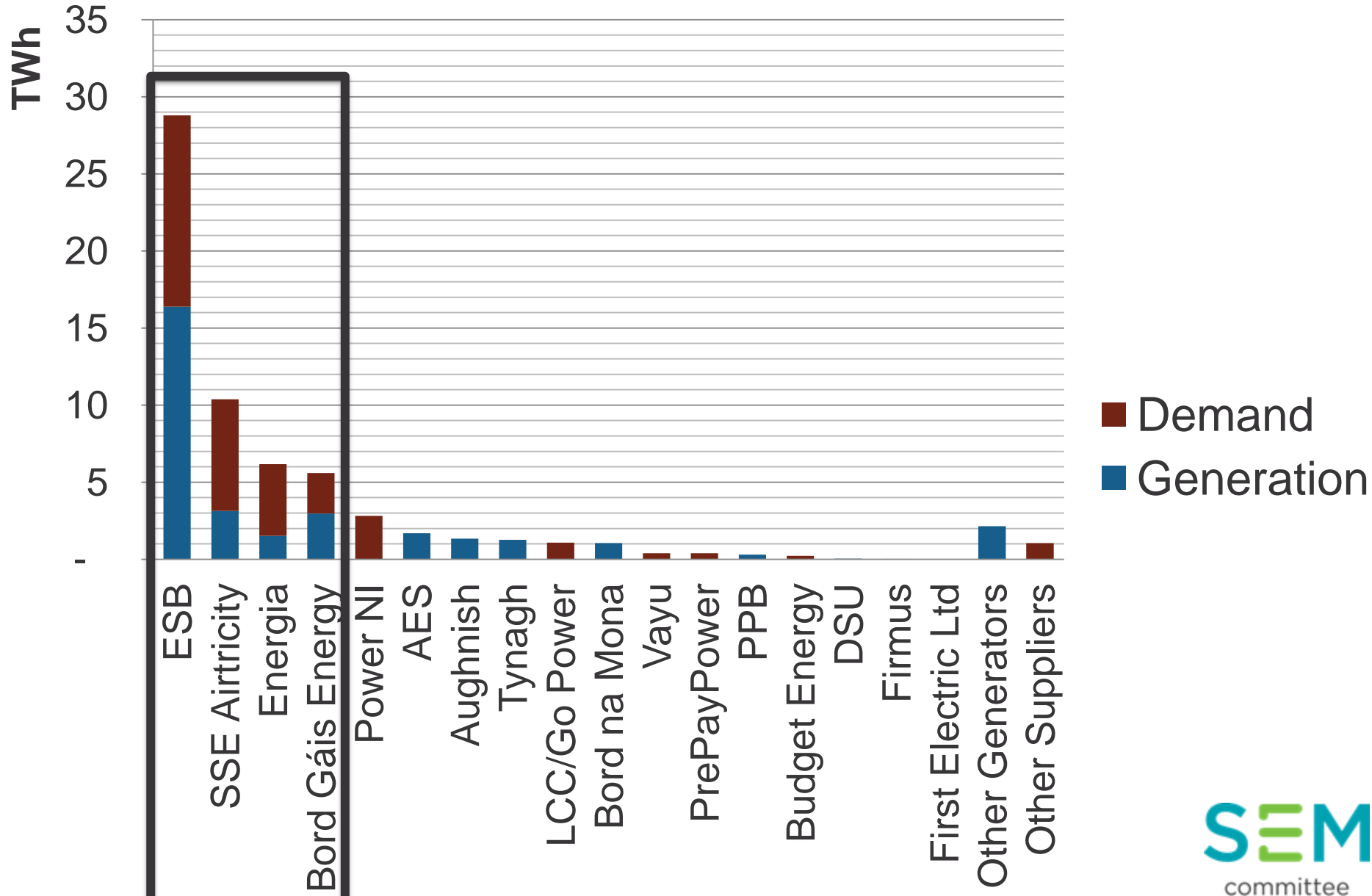


- Creates an obligation to post bid and offer prices for a range of products.
- Posted prices for buy and sell would have a regulated spread.
- The objective of an MMO would be to always have an acceptable price quote for CfDs along the forward curve.

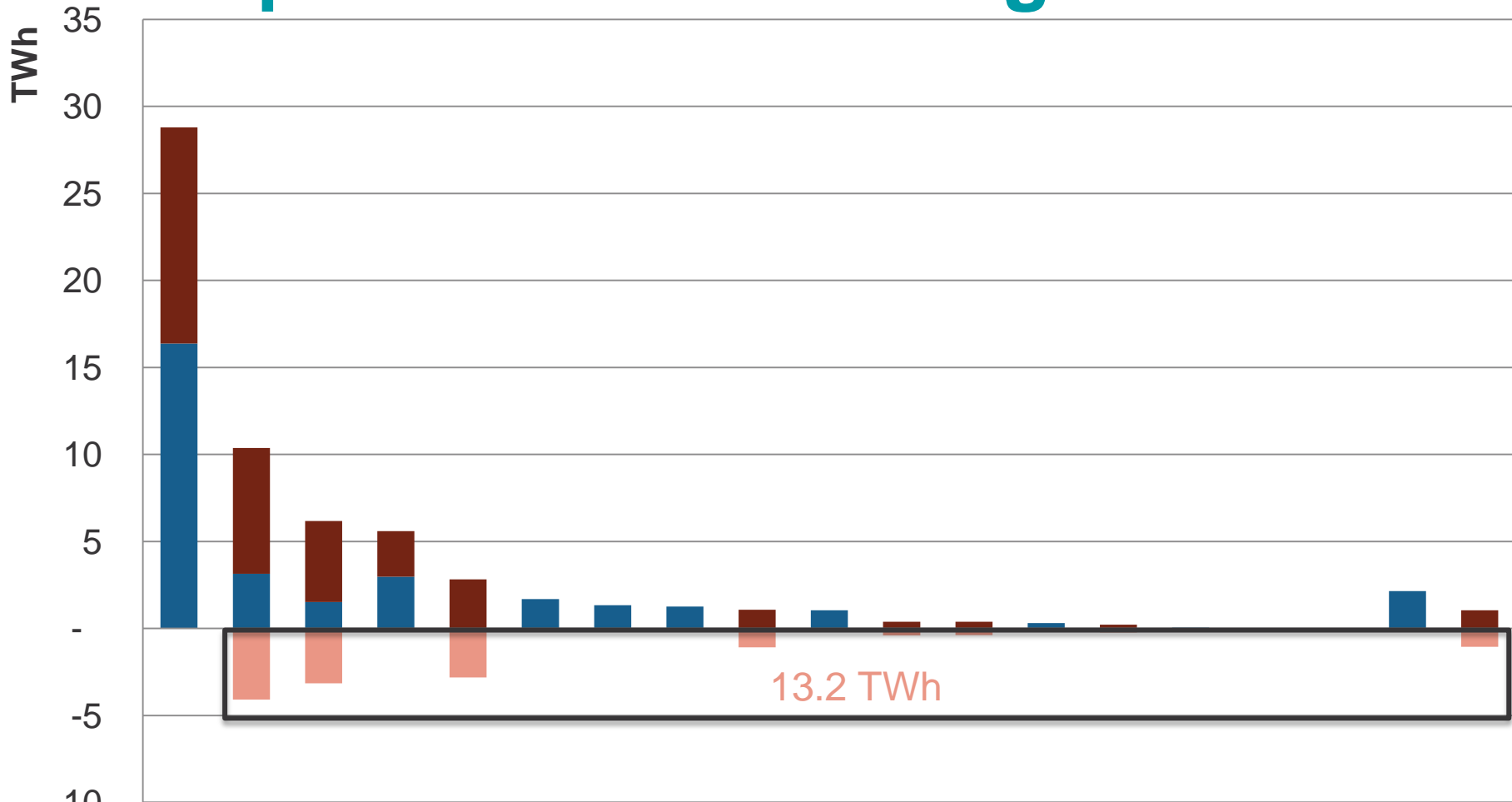
Market maker obligation concept

- The RAs will, year ahead, determine maximum volume of contracts that MMs would be required to make prices available for.
- This caps the exposure of MMs collectively but does not prevent them offering more.
- The RAs will use forecast volumes of generation and supply combined.
- The capacity of a market participant to act as a market maker is proportional to their balance sheet.
- Dependency on the removal of ring-fencing on ESB

How many market makers?

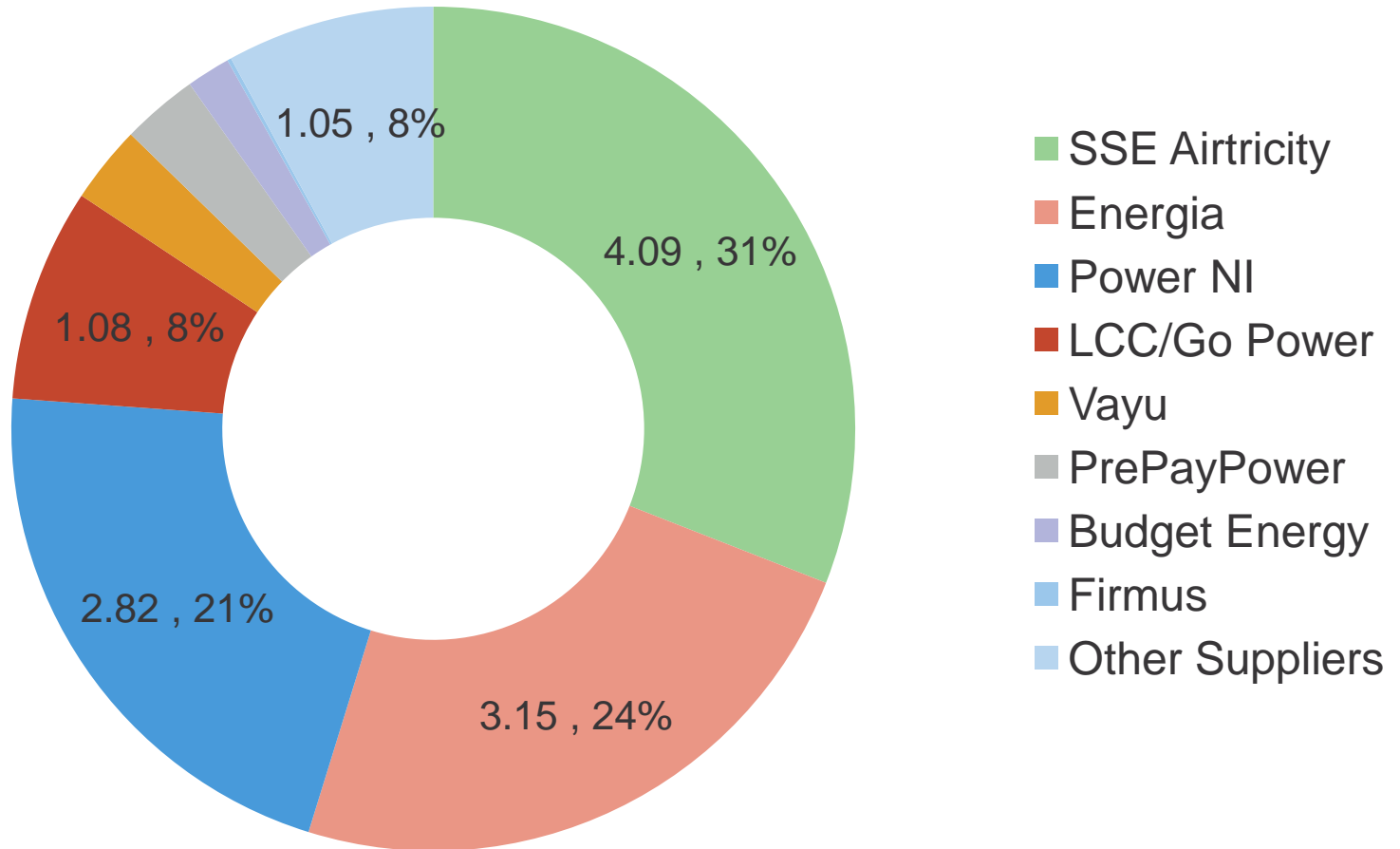


Required Market Making Volume

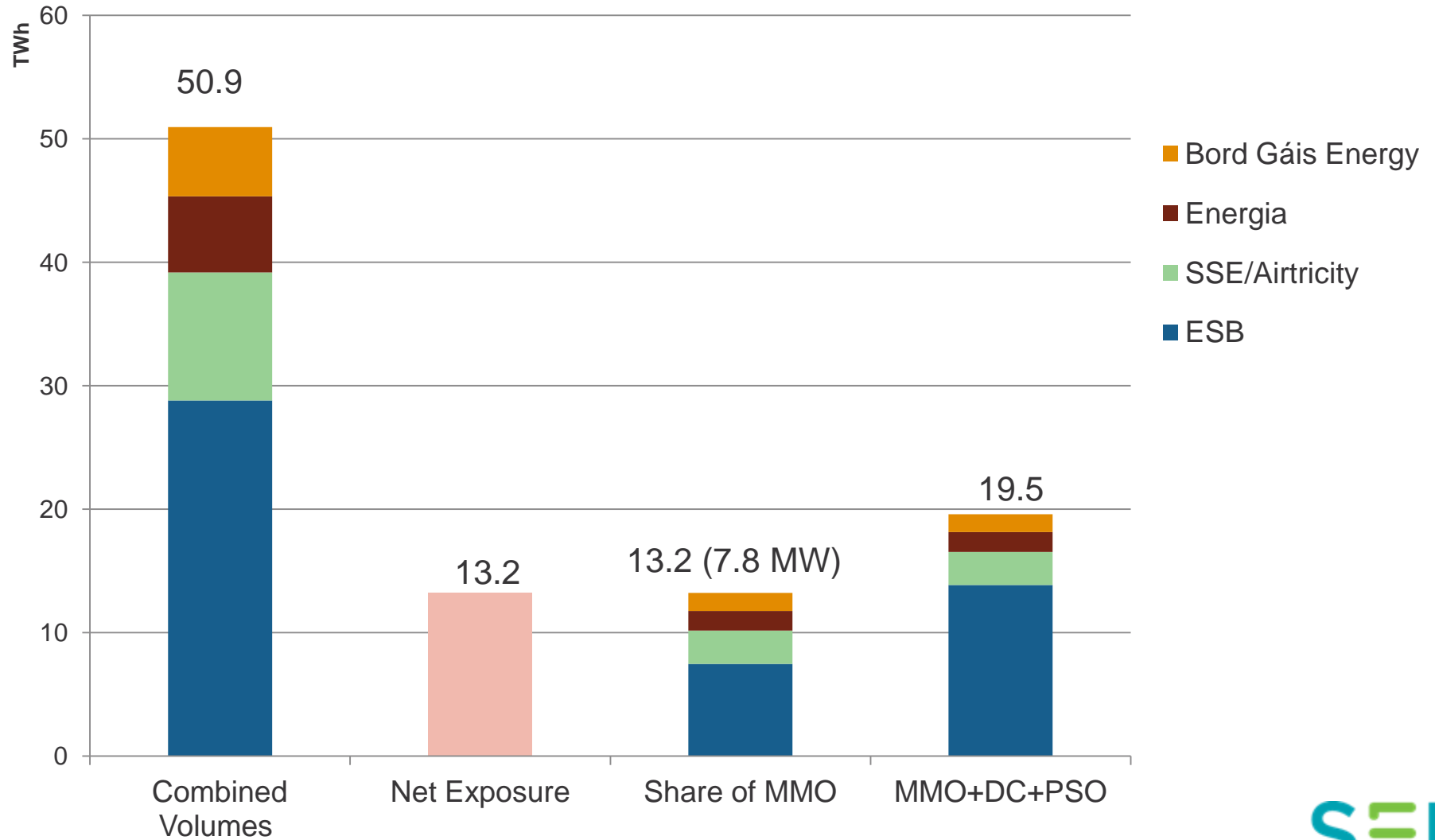


	ESB	SSE Airtricity	Energia	Bord Gáis Energy	Power NI	AES	Aughnish	Tynagh	LCC/Go Power	Bord na Mona	Vayu	PrePayPower	PPB	Budget Energy	DSU	Firmus	First Electric Ltd	Other Generators	Other Suppliers	
Net Exposure		-4,08	-3,14		-2,82				-1,07		-392,	-386,		-222,		-20,1				-1,05
Demand	12,4	7,22	4,66	2,62	2,82				1,07		392,	386,		222,		20,1				1,05
Generation	16,3	3,14	1,51	2,97		1,68	1,33	1,26		1,04			307,		44,9			325	2,14	

Net Exposure



MMO Allocation (TWh)



MMO Allocation

	%	MMO (TWh)	MMO (MW)
ESB	57%	7.4	4.4
SSE/Airtricity	20%	2.6	1.6
Energia	12%	1.6	1.0
BGE	11%	1.4	0.9
	100%	13.2	7.8

- Volumes across Base Load, Mid-Merit and Peak.
- 250 market making windows per delivery window
- 365 days of delivery during calendar year
- 24 hours of delivery per day.

MMO Parameters also being consulted upon

- Price Spread (5%)
- Number of trading windows, times and durations
- Re-quote limits
- Deminimus level threshold (5% Generation + Supply)
- Product Delivery (Quarter/Month)
- Granularity (Standard Contract Size of 0.1 MW)
- Price Volatility Cap

Liquidity Promotion Measures

Options for Consultation

Option 1: Removal of Trading Barriers

- The least intrusive of the options
- The characteristics of this option are such that little will change in relation to forward contracting obligations:
 - DCs – Volumes will continue to be determined by the RAs.
 - PSO generation would continue to be auctioned as CFDs for as long as such contractual arrangements continue.
 - NDCs may voluntarily continue to be offered as well as OTC hedging arrangements.
 - Ring-fencing arrangements will not change.

Option 1: Removal of Trading Barriers

- Exclusive focus on
 - Central Trading Platform
 - Central Clearing Counter Party
 - Central Collateral Provider
 - Integration of Central Services across trading timeframes
 - Forward Contracts freely traded
- This option relies on a greater willingness to trade forward due to changes in the underlying reference price derived from the I-SEM DAM.
- In relation to DCs, this option would work better with prices set administratively by the RAs

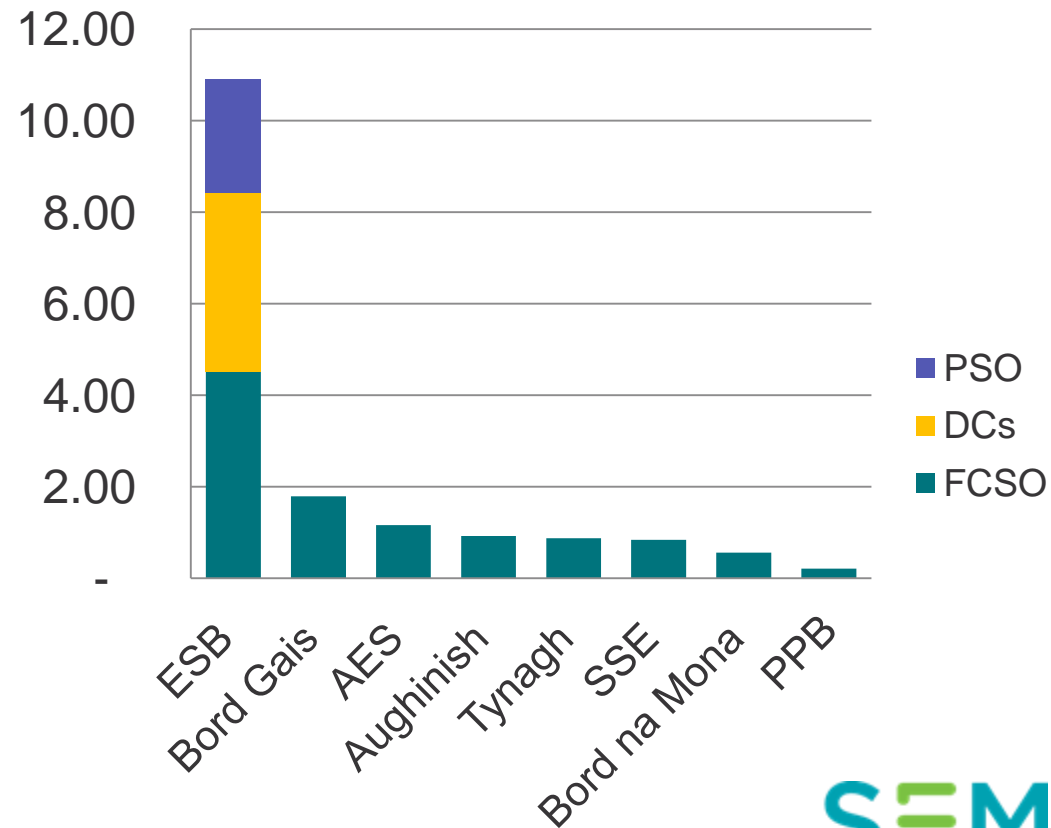
Option 2: Forward Contract Sell Obligation

- This option introduces a FCSO on certain generation
- Implements the pure version of FCSO as previously described
- Centrally determined:
 - Minimum quantities that must be offered in auctions
 - Reserve prices
 - Specific participants who must offer contracts
- Rests on a premise that there is a market failure and that the market will not solve this problem by itself.
- DC prices set administratively by the RAs

Option 2: Forward Contract Sell Obligation

- Based on 2015 data, the following volumes would be determined:

	FCSO (TWh)
ESB	10.09
Bord Gais	1.79
AES	1.16
Aughinish	0.92
Tynagh	0.87
SSE	0.84
Bord na Mona	0.56
PPB	0.21
Grand Total	16.45

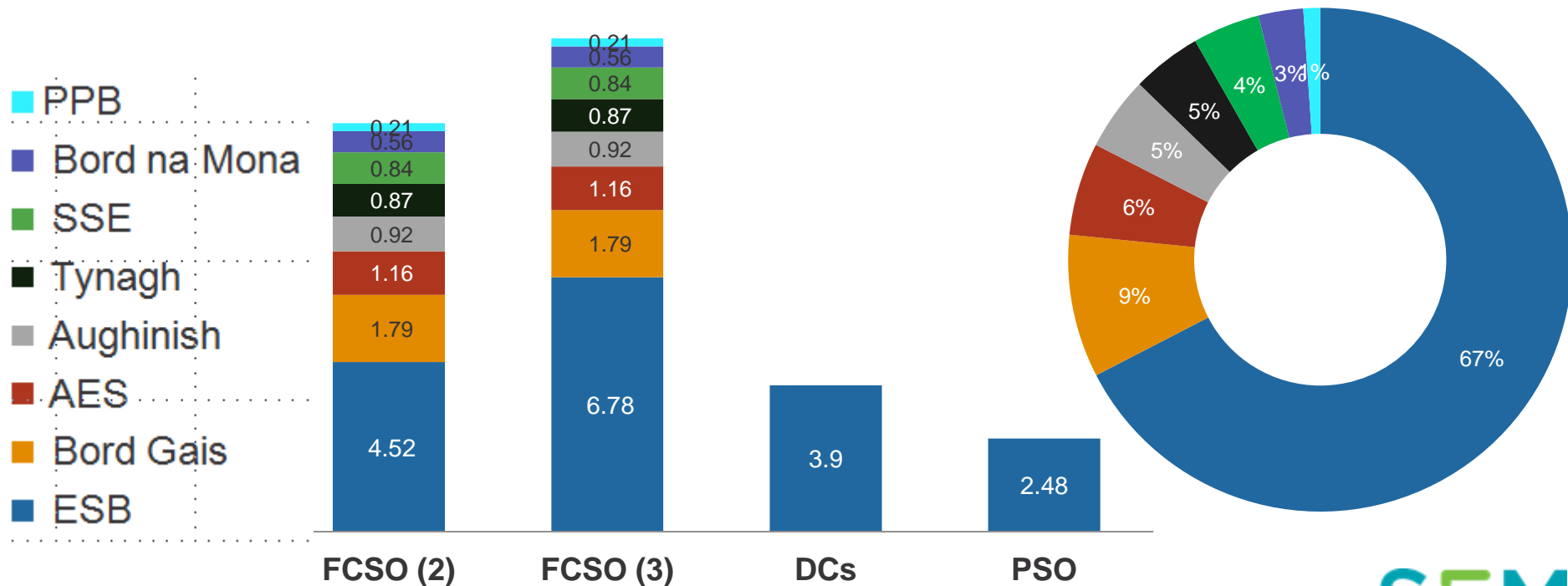


Option 3: FCSO and Removal of ESB's Ring Fencing

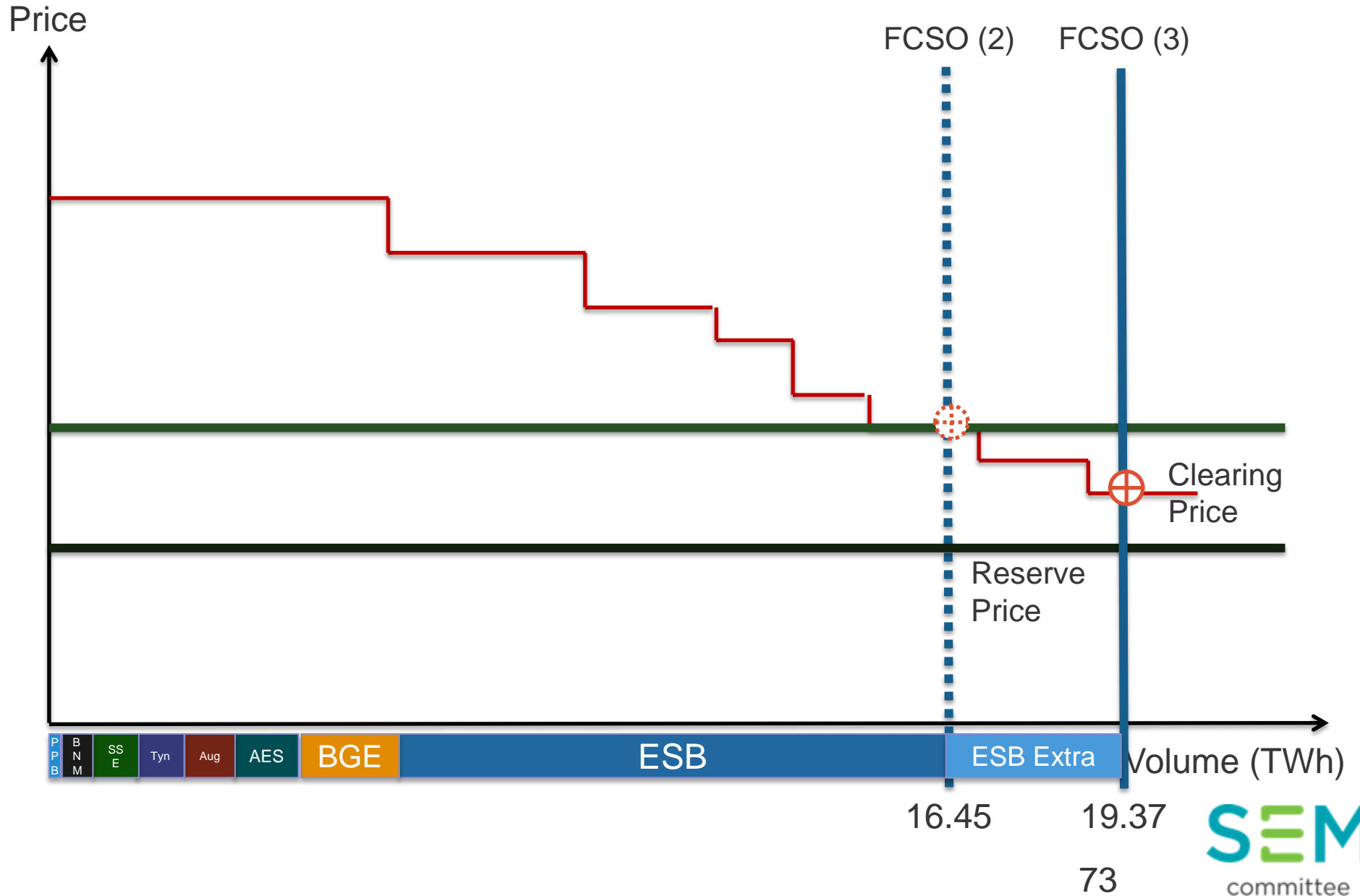
- This option is a variation of Option 2.
- Generators would be required to provide an aggregate volume of yearly forward hedge
- However the ring-fencing arrangement between the ESB Generation and Supply businesses would be removed,
- It would involve a change in the methodology for allocating DC volumes (Prices determined by market). Electric Ireland would not be eligible.
- To offsets potential market foreclosure, a high requirement of FCSO on ESB.
 - FCSO on 90% of ESB's dispatchable generation

Option 3: FCSO and Removal of ESB's Ring Fencing

- ESB would be required to sell 13.14 (including DCs and PSO) TWh instead of 10.09 TWh under Option 2
- Overall 19.37 TWh would be provided instead of 16.45 TWh under option 2



Auction Process



Option 4: Market Maker Obligation

- Implements the pure version of MMO as previously described:

	MMO	%	Plus DCs/PSO
ESB	7.4	57%	13.8
SSE/Airtricity	2.6	20%	2.6
Energia	1.6	12%	1.6
BGE	1.4	11%	1.4
	13.2	100%	19.5

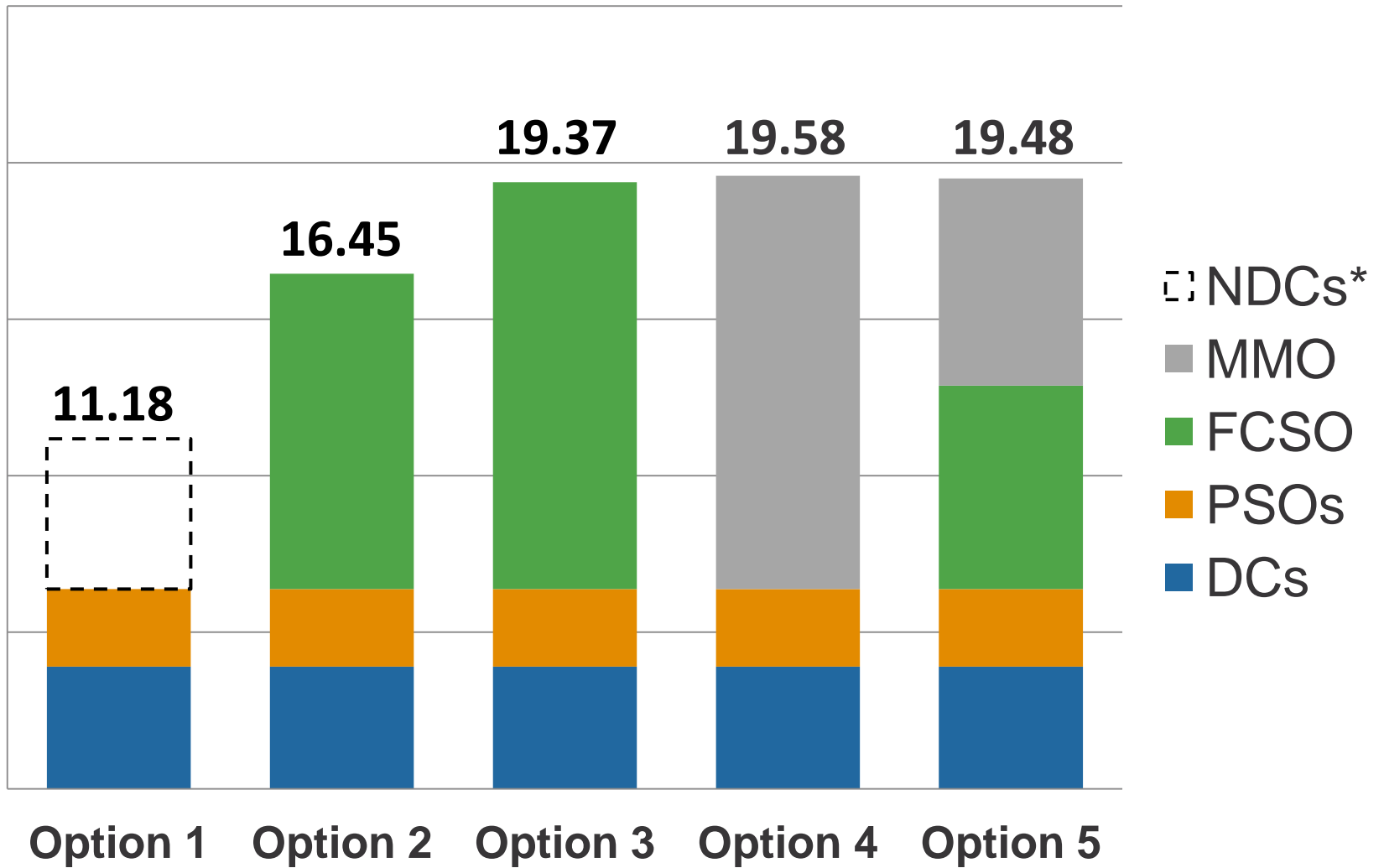
Option 5: FCSO and MMO

- Implements **hybrid** version of Options 3 and 4 previously described:
 - FCSO based on 50% of the Option 3 (FCSO+RF)
 - MMO based on 50% of the Option 4

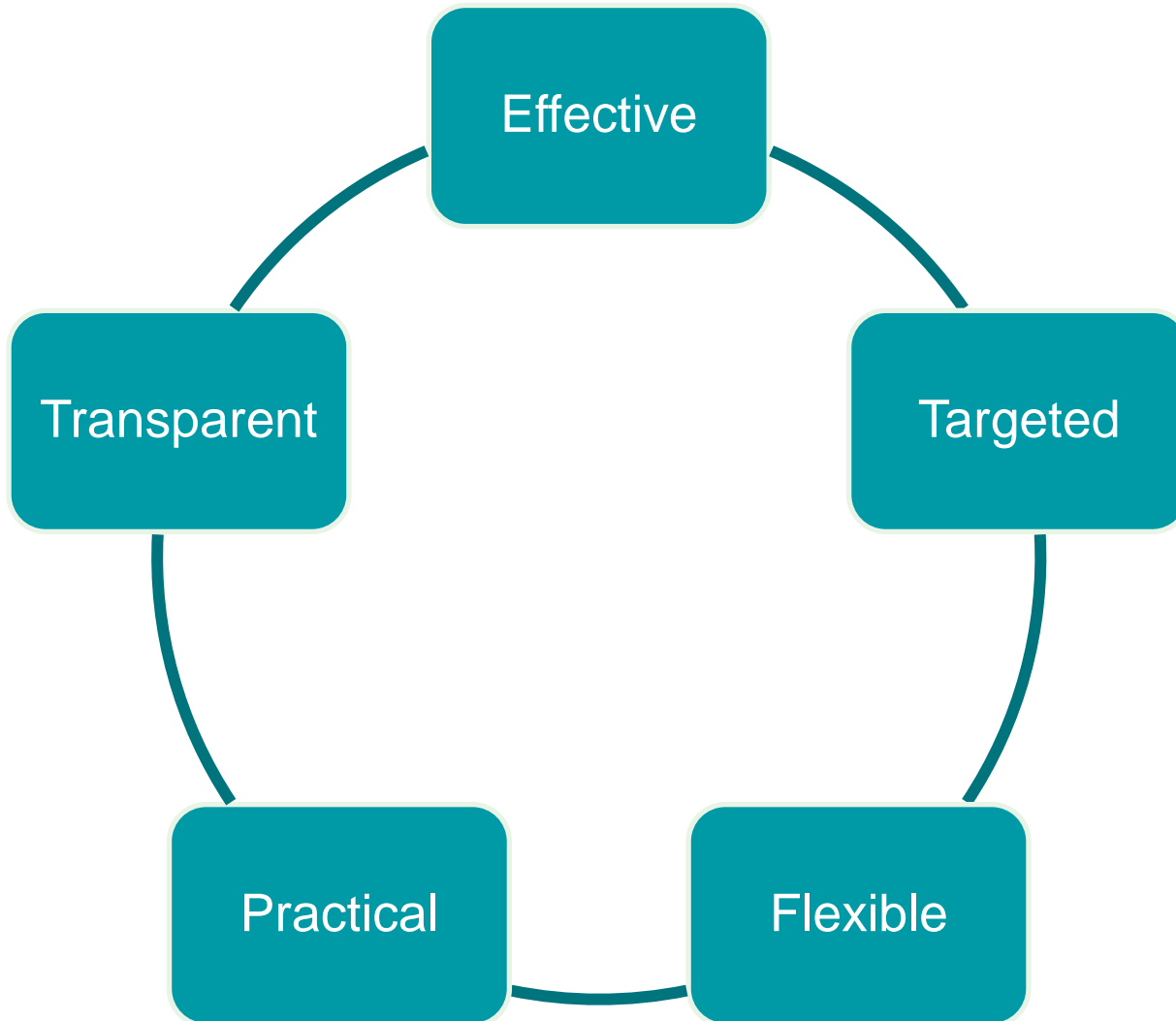
	Gross FCSO	Net FCSO
ESB	6.57	3.38
Bord Gais	0.91	0.91
AES	0.59	0.59
Aughinish	0.47	0.47
Tynagh	0.44	0.44
SSE	0.43	0.43
Bord na Mona	0.29	0.29
Grand Total	9.685	6.495

	MMO	%
ESB	3.7	57%
SSE/Airtricity	1.3	20%
Energia	0.8	12%
BGE	0.7	11%
	6.6	100%

Volumes across all options



Assessment Criteria



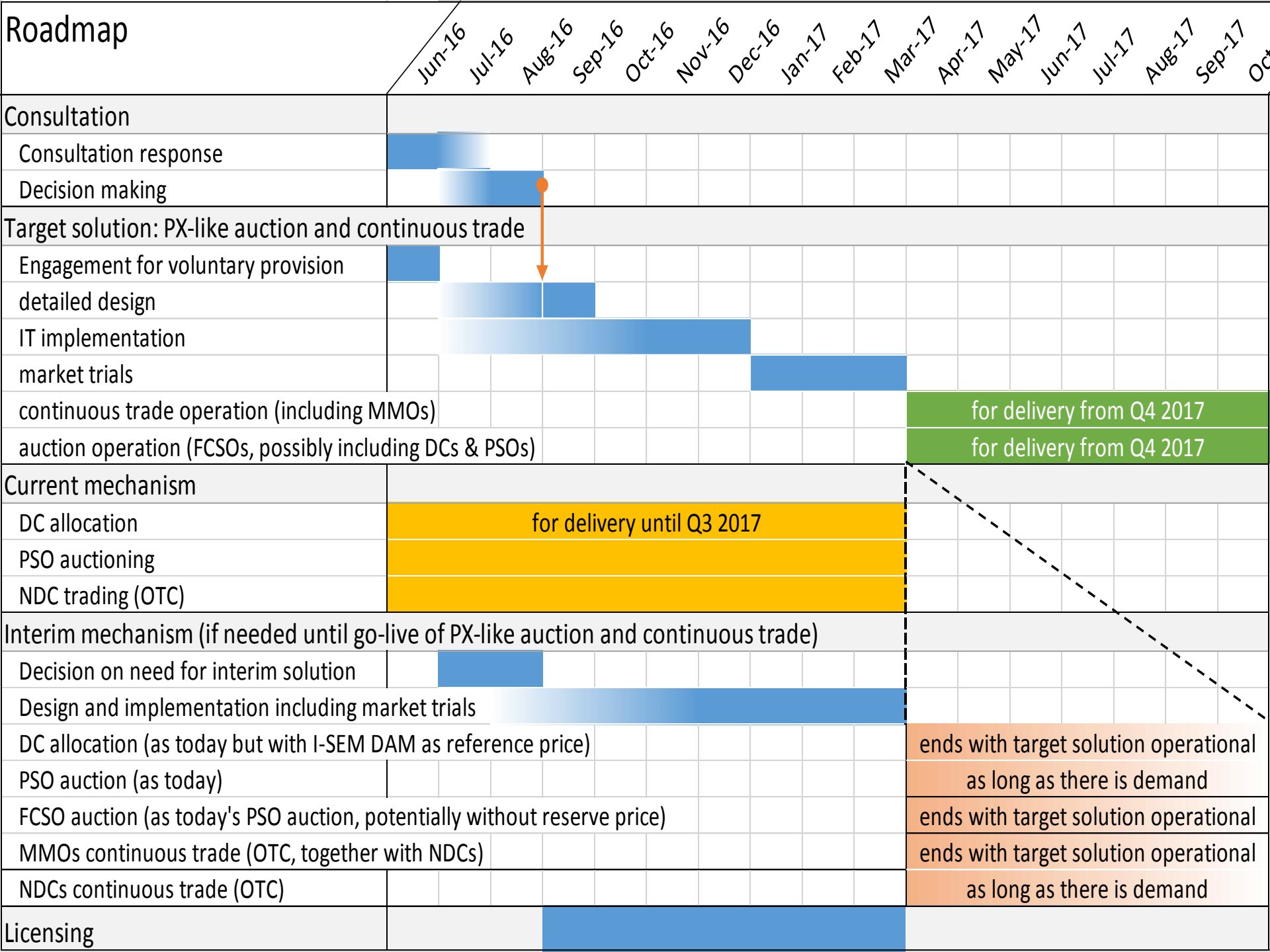
Preliminary Assessment

- **Effective:**
 - Options 1 to 5 ordered by effectiveness
- **Targeted:**
 - Option 1 lower score, options 3 to 5 higher end
- **Flexible**
 - Options 3 to 5 involve removing of ring-fencing, therefore less flexible to future developments
- **Practical**
 - Options 3 to 5 requirement for further licence changes on ESB, In particular option 4 and 5 given MMO
- **Transparent**
 - Options 2 and 3 higher scores.

Implementation

Implementation Issues

- Obligations placed on market participants will be implemented through new licence condition.
- This new licence condition would be drafted based on the particular option selected.
- Consultation on the new licence condition will be carried out by the Governance and Licensing workstream.
- Consultation is planned to take place from mid September.



Discussion

Reserve Slides

De minimus level

	Sale per auction lot (MW)	Auctions per year	Months of product delivered per auction	Hours of product delivered per week per MW per auction	Hours of product delivered per year per MW per auction	MWh per year
	(1)	(2)	(3)	(4)	(5)	(6)
Base load	2	12	12	168	8,760	210,240
Mid merit	1	12	12	70	3,650	14,600
Peaking	1	12	12	20	1,043	4,171
Total	4		12		13,453	266,554