

SEM Market Integration Workshop 2 – options and issues

Sheenagh Rooney, SEM Project Manager

- ▶ Workshop 1 – October 3rd, discussions on challenges facing SEM
- ▶ Discussions with ACER on 1.2 process
- ▶ Briefings for DETI / DCENR and JSG
- ▶ Discussions with Ofgem and FUI colleagues
- ▶ Interaction with Key PCR and NWE contacts
- ▶ Engagement with industry stakeholders on process
- ▶ ENTSOE process continuing
- ▶ Ongoing European meetings at ACER level
- ▶ RA project resource planning in train for 2012 and beyond
- ▶ Investigative work and drafting on all options, costs, impacts
- ▶ SEM Committee meeting to consider consultation paper December 19
- ▶ Longer consultation period expected

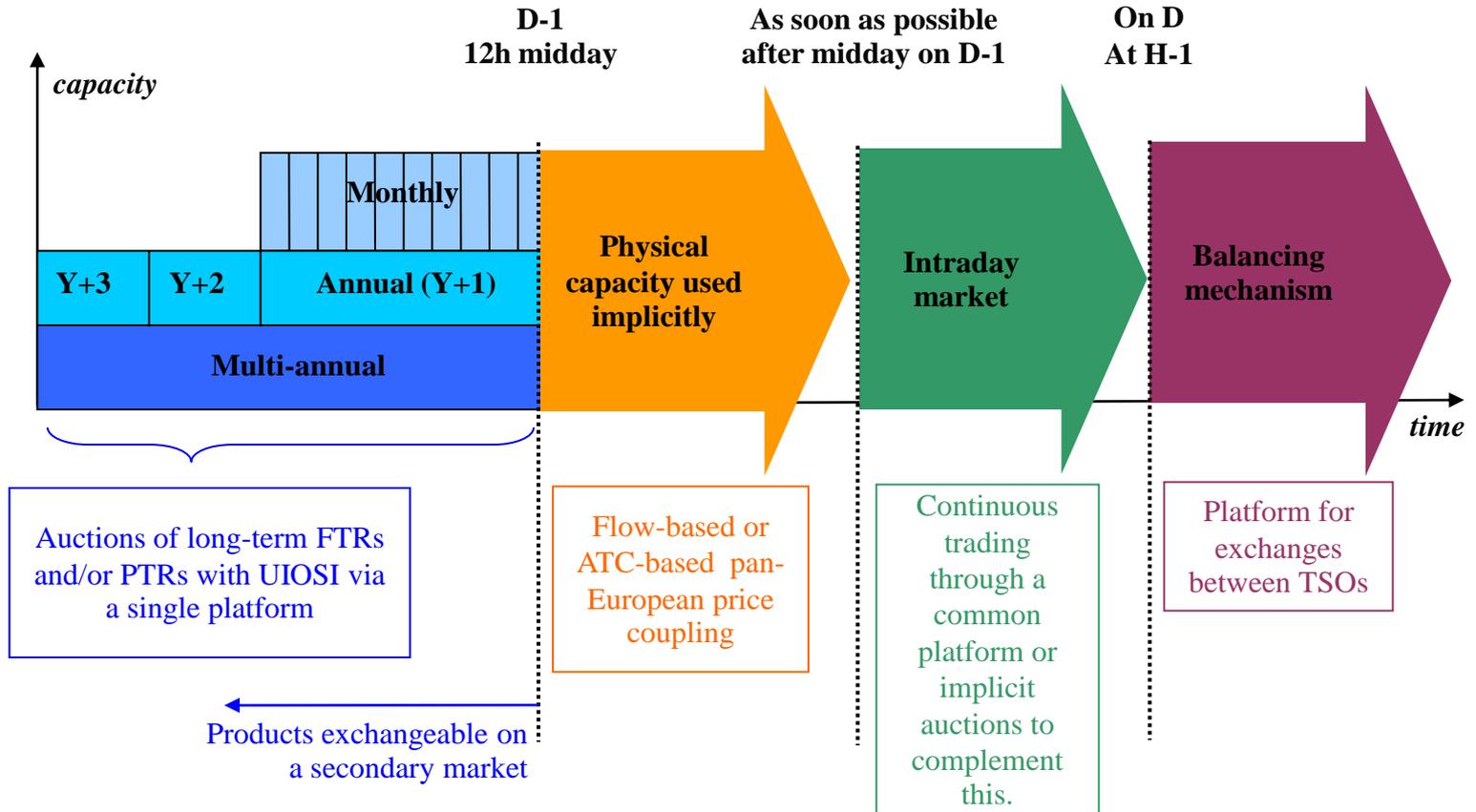
- ▶ RAs committed to inclusive project process
- ▶ Ongoing project workshops part of this
- ▶ Market participants engagement is key
- ▶ Facilitating understanding of issues and their development at European level is key
- ▶ No RA views on information presented today
- ▶ Views today not attributable to organisations or individuals so speak freely
- ▶ Format: presentations and break out sessions as appropriate
- ▶ Inputs today to feed into RAs considerations in advance of SEM Committee December meeting and future Consultation paper

- SEM committed to changing wholesale design to be more integrated into internal European energy market
- SEM has more time (FGCACM) to consider how best to change in interests of its customers and to secure benefits of integration fully
- SEM Committee to consider how best to do this following consultation
- Consultation involves many stakeholders – RAs / MO / SOs / industry / Member States / FUI colleagues / Commission / ACER / ENTSOE / consumers
- All options involve significant changes to SEM design, approach solution from top down (redesign options) or bottom up (evolution)
- All options for consideration presently
- Will be a challenge to secure all relevant information on options
- Original SEM objectives will guide decision in addition to integration and compliance objectives
- Project to design and implement changes to commence after high level SEM Committee Decision made early in 2012

Update on European Developments

Philip Newsome, CER
21 November 2011

Recap: European Target Models



Key Target Model Developments

▶ **Capacity Calculation/Zones**

- German Regulator's paper on market splitting

▶ **Long Term/forward**

- Move to single European auction platform
- Report to EC on Long Term Transmission Rights to be published
- FTRs v PTRs to be considered at FUI level, Target model by 2013
- ACER recommendation on FTRs expected by the end of 2011

▶ **Day Ahead**

- Selection by EuroPex of starting point for the PCR algorithm
- Validation by ENTSO-E and endorsement by NRAs
- EC Governance Guideline Impact Assessment in December

▶ **Intra Day**

- Key issues of congestion pricing, intermittency to be resolved
- NWE Implementation by end 2012

▶ **Balancing:**

- FGs being developed by ACER
- Expert Group has been appointed – workshop held 21 October 2011
- Approval February 2012, public consultation: February – April 2012

Latest ACER Developments and Events

- ▶ ACER to step up oversight of development of Network Codes
- ▶ FG System Operation due to be approved in December
- ▶ Regional and Cross Regional Roadmaps finalised on 7th/8th November
- ▶ Florence Forum - Florence, 7th December
- ▶ North West Europe Stakeholder Workshop on day-ahead and intraday - London 9th December
- ▶ FUI Stakeholder Group Meeting - Q1 2011

Latest EU Commission Developments

- ▶ 2 key papers of note next year from EC:
 - 1. Review of Internal Market Framework, focussing on long term investment in generation
 - 2. Communication on RES strategy beyond 2020
- ▶ Infrastructure Package
 - Proposal for Regulation published 19 October
 - Regional cooperation element
- ▶ REMIT
 - Regulation has been adopted by EU
 - From December – prohibition on market abuse and insider trading
 - Implementing measures required for ACER reporting and market monitoring function
 - RAs considering how to streamline process for SEM

Options to align SEM with CACM – Introduction and Scope

Sheenagh Rooney/Stephen Powell

Achieving compliance

- Two possible approaches: evolution and revolution
- Revolution might start by looking at what is already compliant in Europe
- Evolution might involve by starting with the SEM and changing only as necessary
- Examples in Europe include:
 - The Nordic market (Nord Pool)
 - The Spanish/Portuguese market (MIBEL)
 - BETTA in GB

Revolutionary Options I

Stephen Powell, CER
21 November 2011

Nordic electricity market

- 1996: Norway and Sweden set up a common electricity market
- 1997: Finland joined
- 1999: Denmark West joined
- 2000: Denmark East joined
- 2010: Estonia joined
- Comprises several interacting markets – Elspot, Elbas, a regulating power market and financial (derivatives) market
- Elspot and Elbas Run by Nord Pool Spot, regulating power market by the SOs

The day-ahead market – Elspot

- Elspot is the main platform for trading power in the Nordic region, with ~ 340 participants
- Matched volumes account for ~ 70% of total consumption, currently >300TWh/year
- Implicit auction across all five countries takes place at 12.00 D-1 CET
- All transmission capacity between the Nordic bidding areas is dedicated to the implicit auction in Elspot
- Participants can also enter into long term bilateral contracts

The day-ahead market (contd.)

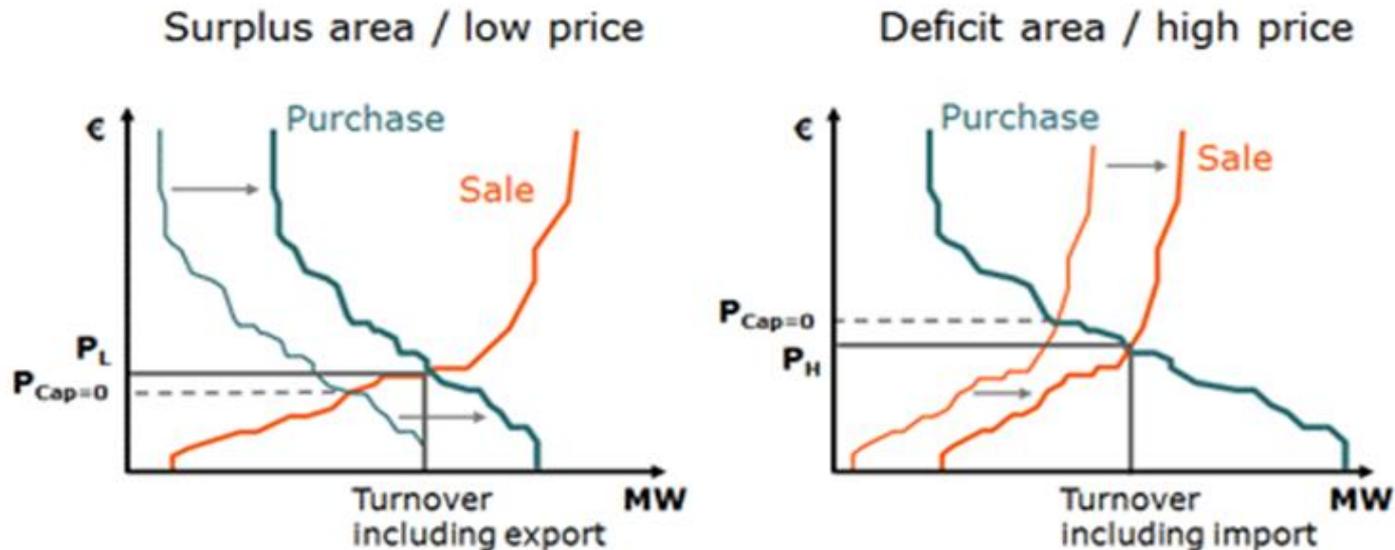
- Trading day midnight to midnight CET, hourly products, physical delivery
- Each participant specifies the volume in MWh/h that he or she is willing to buy or sell at specific price levels (€/MWh) for each individual hour in the following day
- Simple price/quantity and block bids allowed
- Block bid is a bid with two characteristics:
 - one single bid refers to more than one hour
 - a bid is to be accepted or not accepted as a whole (kill-or-fill)

The day-ahead market (contd.)

- System price for each hour is determined by the intersection of the aggregate supply and demand curves
- Price cap of €2000/MWh and price floor of -€200/MWh
- Local SO decides on bidding areas in its jurisdiction – 13 in all
 - Number in Norway can vary – there are 5 now
 - Eastern Denmark and Western Denmark are always treated as 2 different bidding areas.
 - Finland and Estonia constitute 1 bidding area each.
 - Sweden now has 4

The day-ahead market (contd.)

- Market splitting when congestion between bidding areas occurs



P_L and P_H → Prices for each area when full utilization of trading capacity

$P_{Cap=0}$ → Price in area with isolated price calculation.

The intraday market – Elbas

- Elbas is a cross-border continuous intraday market
- At 14:00 CET, ATCs available for Elbas trading are published
- Trading in hourly products takes place continuously until one hour before delivery
- Prices are set based on a first-come, first-served principle
- Implicit recognition of available transmission capacity (ATC)
- After each trade in ELBAS, participant nominates its matched position to the local TSO
- Nord Pool Spot and APX Endex act as shippers

A financial derivatives market

- Financial contracts are used for price hedging and risk management
- Contracts have a time horizon up to six years, covering daily, weekly, monthly, quarterly and annual contracts.
- Nord Pool Spot (Elspot) is used as the reference price for the financial market.
- No account taken of technical conditions such as grid congestion and access to capacity
- Run by Nasdaq OMX Commodities

The regulating power market

- SO procures “up regulation” and “down regulation” within the delivery hour from generators and the demand side whenever frequency deviates below or above 50 Hz
- All regulating power bids and offers submitted to the TSO’s are ranked with increasing price (merit-order).
- The price of the last “up regulated” MW sets the up-regulation price. The same procedure is used to find the down-regulation price.
- Normally:
 - the up-regulating price will be higher than the day ahead price market price
 - the down-regulating price will be lower than the day ahead price in that hour.

The regulating power market (contd.)

- The principle for settling imbalances is that participants contributing to the imbalance will pay their share of the costs for re-establishing the balance.
- Imbalances are cashed out as follows:
 - If a generator is long and the SO had to procure up-regulation during the hour, the SO will pay the generator the up-regulating price for the imbalance
 - If a generator is long during a down-regulation hour, it gets paid the down-regulating price for the imbalance
 - If a generator is short and the SO had to procure up-regulation during this hour, the SO will invoice the generator the up-regulating price for the difference
 - If a generator is short during a down-regulation hour, it will be charged the day ahead price, not the down-regulating price.

The Iberian Electricity Market

- Evolved from a SEM-like market in Spain originally set up in 1997
- A bilateral contracts market with a day ahead pool-type market
- Simple bids plus minimum income condition bids
- Capacity payments
- Financial forwards/futures market (for price hedging)
- Optional integration of financial contracts in the day ahead market
- Six mandatory intraday auctions
- Two daily explicit auctions on the France/Spain border
- Balancing market with two imbalance prices

Designing a New Market

- Choose a high level design, with participation of
 - Departments
 - Stakeholders
 - Ofgem, ACER & European Commission
- Consider legal and other implications
- Consult interested parties
- Consultancy support
- Detailed design phase
- Drafting of new Settlement Code, software procurement etc.

Criteria

- Reliable and secure system operations
- Efficiency – least cost dispatch
- Impact on end-customer bills
- Security of supply
- Promotion of competition
- Compliance with the CACM day ahead and intraday target models
- Cost-effective, practical and feasible
- Consistent with renewable penetration targets

BETTA Integration Options

21 November 2011
Jean Pierre Miura, UR

BETTA High Level Design

- ▶ Market Concept
- ▶ System Operation
- ▶ Clear Split between Futures and Spot Markets (OTC vs. PX)
- ▶ Trade arrangements encourages the match metered quantities and contract levels.
- ▶ Bids and offers to cater for unanticipated exposures.
- ▶ imbalances are settle by different prices (SSP,SBP)

Two Theoretical Options

- ▶ Expanding BETTA option: NI and ROI ‘joining’ BETTA.
 - ▶ joint regulatory arrangements,
 - ▶ Complete harmonisation of market architecture and SO.
- ▶ Twined BETTA option: Implementing identical market arrangements to those in GB on the island of Ireland.
 - ▶ the implementation of the decentralised market structure that is currently in place in Great Britain.
 - ▶ DA market coupling and continuous intra day trading would then be implemented across the Moyle and East West interconnectors linking the two markets.
 - ▶ Separate prices zones to be considered.

Potential implications or issues

- ▶ Trading Arrangements
- ▶ System and Market Operations
- ▶ Regulatory Governance
- ▶ Legal Issues
- ▶ Closer integration with neighbouring market
- ▶ Wholesale price harmonization across both islands
- ▶ Harmonized system and market operation?

Potential implications or issues

- ▶ Substantial constraints on the transmission system
- ▶ Challenges for the TSO to operate a market based on contracted positions.
- ▶ BETTA Current Issues?
 - Liquidity.
 - Market power.
 - EMR.
 - FGCACM.
- ▶ Disparity of market sizes BETTA 336.9TWh vs. SEM 34.88 TWh per year.
- ▶ “Big Six” vertically integrated companies ruling the generation and supply market.

Questions for 'Break Out' Sessions

- ▶ **General**
- ▶ Do centralised or decentralised arrangements best suit a small island system? Economic and System operation considerations?
- ▶ Does the CACM model meet all relevant the energy policy challenges for Ireland and Northern Ireland now and in future:
 - 2020 renewable generation targets
 - Maintaining long & short term supply security & efficient dispatch
 - Maximising social welfare on island and across internal market
 - Fostering competition
- ▶ What are the key timeframes for market participants?
 - Forward, Day Ahead, Intra Day, Balancing
 - What areas of the target models do you see as most important for Ireland and Northern Ireland?

Questions for 'Break Out' Sessions

- ▶ What are the key drivers for the decision as to whether the SEM be evolved or replaced?
- ▶ Are there extraneous issues that we need to consider – e.g. EMR?
- ▶ **Revolution:**
- ▶ New market must be CACM compliant and so EU rather than US standard market design. Should we rule out US style markets?
- ▶ Target models largely based on Nordpool. Is this a feasible option?
- ▶ MIBEL market has been evolved from centralised pool. Is this a feasible option?
- ▶ Is a BETTA style market appropriate for the island of Ireland?
- ▶ **Evolution:**
- ▶ Are evolution options presented attractive to market participants?
- ▶ Do they provide investor certainty?
- ▶ Are there options that are best dealt with through revolution rather than evolution or vice-versa?

Project Next steps

- ▶ SEM Committee briefing November 29th
- ▶ Workshop discussions will be published on web site
- ▶ Observations from participants welcomed by x date
- ▶ November 21st – December 9th – project team drafting consultation
- ▶ SEM Committee December 19th to decide on publishing consultation paper and time for consultation
- ▶ In tandem: Department and European briefings and interactions
- ▶ Workshop 3 on consultation paper – January