

Market Integration Phase 2:

HLD Working Group 18 November 2013

The logo for the Commission for Energy Regulation (CER) features the letters 'CER' in a bold, blue, sans-serif font. To the right of the letters are three horizontal blue lines of varying lengths, creating a sense of motion or energy.

Commission for Energy Regulation
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Assessment Framework

»» Qualitative assessment for the
Consultation Paper

- ▶ Assessment process vital to meeting requirements of SEM Committee that:
- ▶ “That the High Level Design shall be subject to an impact statement that is in line with best practice.”
- ▶ “There will be a cost benefit analysis, carried out at an appropriate stage, which takes into account the key energy policies that are materially affected by the wholesale electricity market.”

- ▶ Each of the public papers will represent a step towards the delivery of the Impact Statement

	Consultation Paper	Draft Decision Paper	Decision Paper
Identify the problem/reason for intervention	✓	✓	✓
Agree objectives	✓	✓	✓
Describe feasible option	✓	✓	✓
Detailed qualitative assessment of impacts, risks and uncertainties	✓	✓	✓
Initial quantitative assessment	x	✓	✓
Full impact statement	x	x	✓

- ▶ The Next Steps Decision Paper set out the framework for the quantitative assessment
- ▶ **Objective:** produce a new High Level Design of the wholesale electricity market on the island of Ireland that will be compliant with the Target Model, and meet the principles that underpinned the creation of the SEM.

▶ Interested in your views on the assessment in practice – e.g. is it helpful to group the principles?

Category	HLD principle
Binding	Internal Electricity Market: the market design should efficiently implement the European Electricity Target Model and ensure efficient cross border trade.
Quality of the market outcome	Security of supply: the chosen wholesale market design should facilitate the operation of the system that meets relevant security standards.
	Efficiency: market design should, in so far as it is practical to do so, result in the most economic (i.e., least cost) dispatch of available plant.
	Equity: the market design should allocate the costs and benefits associated with the production, transportation and consumption of electricity in a fair and reasonable manner
Delivery of the market outcome	Environmental: while a market cannot be designed specifically around renewable generation, the selected wholesale market design should be conducive to renewable energy generation involvement.
	Practicality/cost : the cost of implementing and participating in the wholesale market arrangements should be minimised; and the market design should lend itself to an implementation that is well defined, timely and reasonably priced.
Future changes	Competition: the trading arrangements should promote competition between participants; incentivise appropriate investment and operation within the market; and should not inhibit efficient entry or exit, all in a transparent and objective manner.
	Stability: the trading arrangements should be stable and predictable throughout the lifetime of the market, for reasons of investor confidence and cost of capital considerations.
	Adaptive: The governance arrangements should provide an appropriate basis for the development and modification of the arrangements in a straightforward and cost effective manner.

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 **Utility Regulator**
ELECTRICITY GAS WATER

Review of options

»» Update on option development

Purpose of options

- ▶ **Decentralised Market (with mitigation measures)**
 - Places much greater responsibility on market participants to manage supply–demand balance through series of voluntary physical markets over different timescales
- ▶ **Mandatory ex–post Pool for net volumes**
 - Produces firm ex–ante prices for some physical ex–ante volumes. The residual schedule is based on an ex–post pool as per current market arrangements.
- ▶ **Mandatory Day–Ahead Pool**
 - Based around a mandatory Day–Ahead market (to provide reference price) that delivers a schedule that forms a good basis for a feasible initial dispatch
- ▶ **Net Settlement of Gross Mandatory ex–post Pool**
 - Aiming at providing an ex–ante price and volumes for part of the market participants whilst maintaining a ex–post reference price based on a gross mandatory pool. Compensation towards volumes settled ex–ante ensures financial firmness on price and volumes.
- ▶ **Cross–Border Integration (centralised)**
 - Aims at increasing efficiency of interconnector flows whilst maintaining all the key features of the current SEM

(Adapted) Decentralised Market

Participation in European markets for trading of energy in Day-Ahead and Intraday timescales	Day-Ahead	Portfolio vs. unit bidding	Portfolio-based bidding by generators and demand-side units (Mitigation measure to increase transparency of bidding, and assist TSO results: unit-based bidding with supporting enforcement measures)
		Mandatory vs. voluntary	Voluntary participation (Mitigation measure: regulated market shares)
		Bid format	Simple or block bids (Mitigation measure: sophisticated bids)
	Intraday	Portfolio vs. unit bidding	Portfolio-based bidding by generators and demand-side units (Mitigation measure to increase transparency of bidding, and assist TSO results: unit-based bidding with supporting enforcement measures)
		Mandatory vs. voluntary	Voluntary participation (Mitigation measure: regulated market shares)
		Bid format	Simple and block bids by generators (Mitigation measure: sophisticated bids)
		Continuous vs. periodic auctions (in ID timeframe)	Continuous trading (Mitigation measure: Periodic auctions)
		Imbalance	Balancing market algorithm results in single marginal imbalance price paid to/by all market participants
Process for reaching feasible dispatch position		Objective of dispatch	TSO dispatches to minimise production cost of deviations assuming the volumes from the DAM as a starting point whilst maintaining secure operation of the system after DAM. Dispatch re-performed if needed within the day. Dispatch instructions re-issued as required within the day.
		Bids/Offers by market participants to bridge the gap	Voluntary inc's and dec's by generators and demand in separate balancing market(s) for providing balancing energy. Starts in the evening (Mitigation measure: balancing mechanism to start after intraday market but TSO to be in intraday market)
		Energy balancing actions	TSO takes actions to balance the forecast system based on the inc's and dec's submitted in a separate balancing market(s)
		Other TSO actions	TSO takes initial actions for ensuring a feasible schedule after the DAM. TSO procures reserve via a separate reserve market (able to facilitate DS3 products). Constraint payments towards market participants are PAB.
Arrangements for long-term trading		Internal	Both physical and financial trading
		Cross-border	PTRs to support bids for interconnector capacity (Mitigation measure: FTRs if liquid day-ahead pool emerges)
		Capacity Remuneration Mechanisms	Can work both with and without a market-wide CRM

Mandatory ex-post Pool for Net Volumes

Participation in European markets for trading of energy in Day-Ahead and Intraday timescales	Day-Ahead	Portfolio vs. unit bidding	Unit-based bidding by generators and demand-side units
		Mandatory vs. voluntary	Voluntary participation with regulated market shares
	Intraday	Bid format	Non-regulated simple and/or sophisticated bids
		Portfolio vs. unit bidding	Unit-based bidding by generators and demand-side units
		Mandatory vs. voluntary	Voluntary participation with regulated market shares
		Bid format	Non-regulated simple, block bids
		Continuous vs. periodic auctions (in ID timeframe)	Continuous trading
	Imbalance		Ex-post market schedule to minimise production cost (with no network and system constraints) assuming volumes from day-ahead and intraday as price-takers that results in a single marginal price paid to/by all market participants
Process for reaching feasible dispatch position		Objective of dispatch	TSO dispatches to minimise production cost of deviations assuming the volumes from the voluntary DAM as a starting point whilst respecting priority dispatch and maintaining secure operation of the system after DAM. Initial dispatch instructions issued after DAM. Dispatch instructions re-issued as required within the day.
		Bids/Offers by market participants to bridge the gap	Mandatory bids by generators and demand-side units (same as the bids for the ex-post market schedule - ie. complex regulated bids). Inc's and dec's from generators and demand-side units in the DAM.
		Energy balancing actions	TSO takes actions to balance the forecast for the system based on the complex bids submitted at DA and updated intraday (the same bids as used for the ex-post pool) and separate inc's and dec's from volumes in the DA market.
		Other TSO actions	TSO takes initial actions for ensuring a feasible schedule after the DAM. TSO has tools to procure reserve and take non-energy balancing actions (for example, using the tools under the DS3 framework).
Arrangements for long-term trading		Internal	Both physical and financial trading
		Cross-border	PTRs to support bids for interconnector capacity
	Capacity Remuneration Mechanisms		A CRM for volumes in ex-post pool is consistent with regulated SRMC bidding

Mandatory Day-Ahead Pool

Participation in European markets for trading of energy in Day-Ahead and Intraday timescales	Day-Ahead	Portfolio vs. unit bidding	Unit-based bidding by generators and demand-side units
		Mandatory vs. voluntary	Mandatory participation for supply and demand (Mitigation measure: voluntary for demand, mandatory for generators)
	Intraday	Bid format	Simple, block or sophisticated bids
		Portfolio vs. unit bidding	Unit-based bidding by generators and demand-side units
		Mandatory vs. voluntary	Mandatory for periodic auctions; Voluntary for continuous trading
		Bid format	Simple and blocks bids for continuous trading; Simple, block and/or sophisticated for periodic auctions
	Continuous vs. periodic auctions (in ID timeframe)	Both continuous trading and periodic auctions	
	Imbalance	Balancing market algorithm results in single marginal imbalance price paid to/by all market participants	
Process for reaching feasible dispatch position	Objective of dispatch	TSO dispatches to minimise production cost of deviations assuming the volumes from the DAM as a starting point whilst respecting absolute priority dispatch and maintaining secure operation of the system after DAM. Dispatch instructions re-issued as required within the day.	
	Bids/Offers by market participants to bridge the gap	Mandatory bids by generators and demand -side units for initial dispatch (same as bids for the DA market schedule). Inc's and dec's in separate balancing market(s) for providing balancing energy (technical constraints)	
	Energy balancing actions	TSO takes actions to balance the system based on the inc's and dec's submitted in a separate balancing market(s)	
	Other TSO actions	TSO takes initial actions for ensuring a feasible schedule after the DAM. TSO has tools to procure reserve and take non-energy balancing actions (for example, using the tools under the DS3 framework).	
Arrangements for long-term trading	Internal	Financial trading (Mitigation measure: regulated share for physical energy trading)	
	Cross-border	FTRs to support bids for interconnector capacity	
	Capacity Remuneration Mechanisms	Can work both with and without a CRM. A market-wide CRM may be one way to encourage participation in pseudo-mandatory	

Net Settlement of Gross Mandatory Pool

Participation in European markets for trading of energy in Day-Ahead and Intraday timescales	Day-Ahead	Portfolio vs. unit bidding	Portfolio bidding by generators and demand-side units
		Mandatory vs. voluntary	Voluntary participation
		Bid format	Non-regulated simple or block bids
	Intraday	Portfolio vs. unit bidding	Portfolio bidding by generators and demand-side units
		Mandatory vs. voluntary	Voluntary participation
		Bid format	Non-regulated simple, block bids
Continuous vs. periodic auctions (in ID timeframe)		Continuous trading	
Imbalance		Full ex-post market schedule (with no network and system constraints) to minimise production cost that results in a single marginal price paid to/by all market participants. Compensation for volumes traded in the DAM and IDMs market ("make whole payments" to provide financial and physical firmness)	
Process for reaching feasible dispatch position	Objective of dispatch		TSO dispatches to minimise overall production cost whilst respecting absolute priority dispatch and maintaining secure operation of the system. Initial dispatch instructions issued after DAM. Dispatch instructions re-issued as required within the day.
	Bids/Offers by market participants to bridge the gap		Mandatory complex bids by generators and demand-side units including generators and demand-side units participating in the DAM (same as the bids for the ex-post market schedule - ie. complex regulated bids)
	Energy balancing actions		TSO takes actions to balance the system based on the complex bids submitted at DA and updated intraday for the ex-post pool.
	Other TSO actions		TSO takes initial actions for ensuring a feasible schedule after the DAM. TSO has tools to procure reserve and take non-energy balancing actions (for example, using the tools under the DS3 framework).
Arrangements for long-term trading	Internal		Financial trading around ex-post price (as today)
	Cross-border		FTRs to support bids for interconnector capacity
Capacity Remuneration Mechanisms		A market-wide CRM is consistent with regulated SRMC bidding	

Cross-Border Integration (centralised)

Participation in European markets for trading of energy in Day-Ahead and Intraday timescales	Day-Ahead	Portfolio vs. unit bidding	Portfolio-based bidding by NEMO (based on the unit-based regulated bidding by market participants as done in the current SEM)
		Mandatory vs. voluntary	NEMO creates net export curve for submission into virtual zone (based on mandatory provisions of bids by generators and demand-side units)
		Bid format	NEMO submits simple or block bids (based on a conversion of the regulated complex bids submitted by market participants)
	Intraday	Portfolio vs. unit bidding	Portfolio-based bidding by NEMO in European intraday market (based on the unit-based regulated bidding by market participants as done in the current SEM)
		Mandatory vs. voluntary	NEMO creates net export curve for submission into virtual zone (based on mandatory provisions of bids by generators and demand-side units)
		Bid format	NEMO submits simple or block bids (based on a conversion of the regulated complex bids submitted by generators and demand-side units)
		Continuous vs. periodic auctions (in ID timeframe)	Either can be accommodated. For auctions, NEMO will update net export curves in response to new information (which could include wind and demand forecasts, or new bids from generators and demand-side units). For continuous, the NEMO will send it individual, updated bids per unit to the IDM.
		Imbalance	Full ex-post market schedule (with no network and system constraints) to minimise production cost that results in a single marginal price paid to/by all market participants
Process for reaching feasible dispatch position		Objective of dispatch	TSO dispatches to minimise overall production cost with IC volumes netted off demand whilst respecting absolute priority dispatch and maintaining secure operation of the system. Initial dispatch instructions issued after DAM. Dispatch instructions re-issued as required within the day.
		Bids/Offers by market participants to bridge the gap	Mandatory bids by generators and demand -side units submitted at DA and updated intraday (same as the bids for the ex-post market schedule - ie. complex regulated bids)
		Energy balancing actions	TSO takes actions to balance the system based on the complex bids initially submitted at DA and updated intraday (the same bids as used for the ex-post pool)
		Other TSO actions	TSO takes initial actions for ensuring a feasible schedule after the DAM. TSO has tools to procure reserve and take non-energy balancing actions (for example, using the tools under the DS3 framework).
Arrangements for long-term trading		Internal	Financial trading around ex-post price (as today)
		Cross-border	PTRs to support bids for interconnector capacity
		Capacity Remuneration Mechanisms	A market-wide CRM that is consistent with regulated SRMC bidding

Glossary

- ▶ **Market Participant** means market participant within the meaning of the Regulation (EU) No 1227/2011 of the European Parliament and of the Council of 25 October 2011 on wholesale market integrity and transparency.
- ▶ **Unit Commitment** means scheduling of generation or load resource for each time interval representing among others: running state of unit; load generation level; and switching states of automatic regulation system. Unit commitment aims at scheduling the most cost-effective combination of dispatchable generation and demand resources to meet forecasted load and reserve requirements, while complying with resources and transmission constraints.
- ▶ **Balancing Market** means the entirety of institutional, commercial and operational arrangements that establish market-based management of the function of Balancing within the framework of the European Network Codes.
- ▶ **Imbalance Settlement** means a financial settlement mechanism aiming at charging or paying Balance Responsible Parties for their Imbalances.
- ▶ **Unit-based bid** means the bid submitted by a Market Participant that corresponds to potential output from a single generating unit.
- ▶ **Portfolio-based bid** means the bid submitted by a Market Participant that could correspond to the combined output from one or more generating units that are part of the Market Participant's portfolio.
- ▶ **Dispatch** means the process of determining individual output leading to the physical issuing of instructions to connect, disconnect, increase or decrease output of a generating unit.
- ▶ **Nomination** means the market participant's desired position to inform the TSO about the anticipated output.
- ▶ **Scheduling** means the process for disseminating the anticipated output of all generating units or portfolios.
- ▶ **Market schedule** means the outcome of the scheduling process.
- ▶ **Simple bid** means a simple price-quantity bid (ie. 50MW for the price of 40€/MWh).
- ▶ **Block bid** means a bid that refers to more than one hour, potentially with variable output over different periods and has to be accepted as a whole.
- ▶ **Sophisticated bid** means a simple sub-order with additional complex conditions (ie. Minimum income condition, load gradient, scheduled stop).
- ▶ **Regulated bid** means a bid that is subject to bidding rules such as price caps and SRMC bidding principles.
- ▶ **Non-regulated bid** means a bid not subject to any bidding rules such as price caps and SRMC bidding principles.
- ▶ **Unit-based bidding** means the process over which a Market Participant submits bid(s) that correspond to potential output from a single generating unit or demand-side unit.
- ▶ **Portfolio-based bidding** means the process over which a Market Participant submits bid(s) that correspond to the combined output from one or more generating units and/or demand-side units that are part of the Market Participant's portfolio.

Abbreviations

- ▶ **DAM** Day-Ahead Market
- ▶ **IDM** Intraday Market
- ▶ **NEMO** Nominated Electricity Market Operator (as defined in CACM NC)
- ▶ **SRMC** Short-run marginal cost
- ▶ **CRM** Capacity Remuneration Mechanism
- ▶ **TSO** Transmission System Operator

Thank you