

Hellenic Energy Exchange: Its operation in the framework of the restructuring of the electricity market in Greece

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RAE's workshops 83rd TIF

Efterpi Lampaditou, MSc, M.Fin.

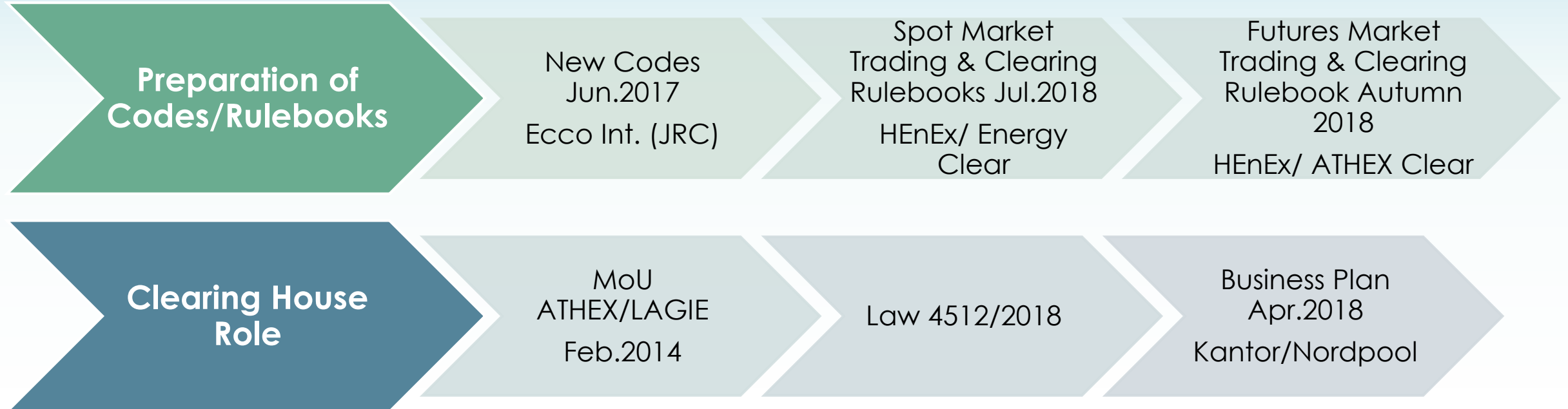
- ▶ **Regulatory Framework**
- ▶ **Transition of the greek electricity market**
- ▶ **HEnEx Markets Overview**
- ▶ **HEnEx – The company**
- ▶ **Milestones and Main Challenges**

Regulatory Framework

Market Evolution: Strongly governed by Law & Regulation



Law 4425/2016: Actions



Transition of the greek electricity market

Transition of Day-Ahead Market

DAM

- Compulsory Mandatory Pool
- Unit-Based
- Central Dispatch
- Co-optimisation of reserves
- Explicit Allocation of PTRs
- 24h/ 1 MWh Product/ One order type (linear step-wise)
- In-house Risk Management

MC DA

- Semi-compulsory for Producers
- Unit-Based
- Central Dispatch
- Euphemia Algorithm
- Nomination for the Physical Delivery of Forward Contracts
- Implicit Allocation in coupled borders
- 24h/1 MWh Product/ Simple Step-wise and Linear, Block order types
- Clearing House (CCP)

The role of Energy Clear

▶ The role of Energy Clear

Intervenes between counterparties' transactions (both in DA and ID markets) and undertakes the role of buyer vs each seller and vice versa for the clearing of transactions.

▶ Main advantages of Energy Clear:

- Efficiency: Energy Clear aggregates the obligations of the counterparties considering their positions (netting)
- Risk Management: Energy Clear manages counterparties' risk applying suitable risk management models already in operation in mature energy markets.

HEnEx Markets Overview

Spot Markets Membership

Eligible Trading Participants

Producers, Suppliers, Traders,
RES Producer, RES Aggregator,
Self-Supplying Customers ,the RES Last
Resort Aggregator, the TSO,
the Last Resort Supplier and the RES &
CHP Units Registry Operator (DAPEEP)

**Key Prerequisites: Participation Application +
+ Balancing contract with the TSO +
Clearing Agreement with "Energy Clear" or
with a GCM**

Eligible Clearing Members

Direct Clearing
Member (DCM)

Energy Market
Participants

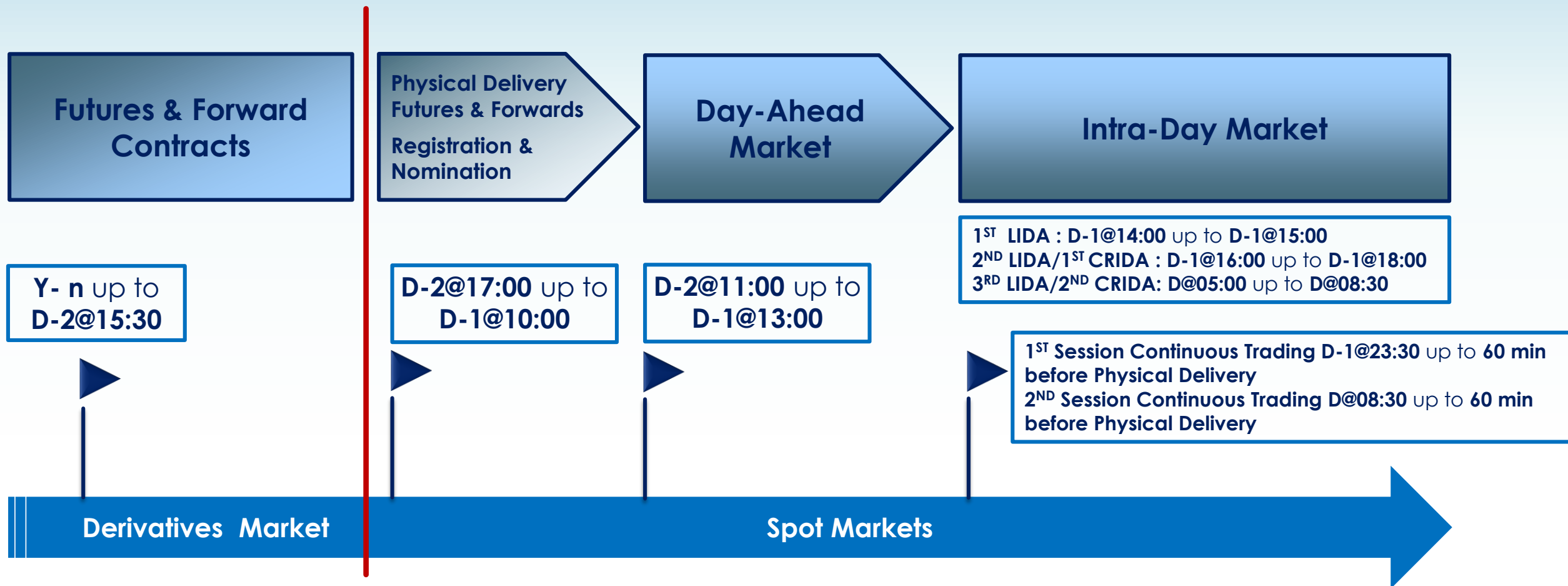
General Clearing
Member (GCM)

Credit Institutions &
Investment Firms

Energy Trading System

- ▶ **Registration** of Products and Order Types
- ▶ **Interface** with Energy Clear for receiving “Credit Limits” and notifying results
- ▶ **Interface with TSO** for assets, unit availabilities and PTRs
- ▶ **Registration and Nomination:** of Forward Contracts for Physical Delivery, NDP calculation, PDN/PON submission and validation
- ▶ **Orders** :Submission, validation, creation of anonymous Order Book
- ▶ **Connection with MC infrastructure:**
 - ▶ PCR Matcher and Broker, Algorithm/ e-platform CRIDAs/ XBID
- ▶ **Results:** Reception, decryption and notification
- ▶ **LIDAs:** Execution

Derivatives & Spot Markets / Timeline



Day-Ahead Market

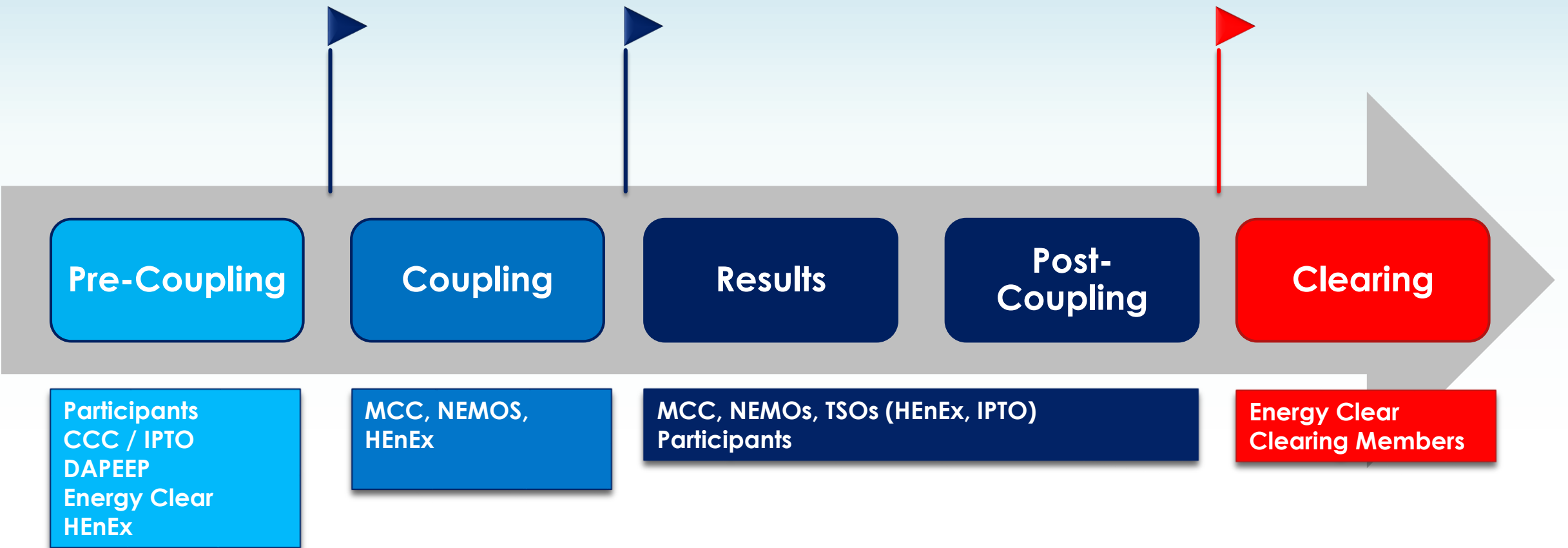
DAM Processes / Overview

11:00 EET, d-2

13:00 EET, d-1

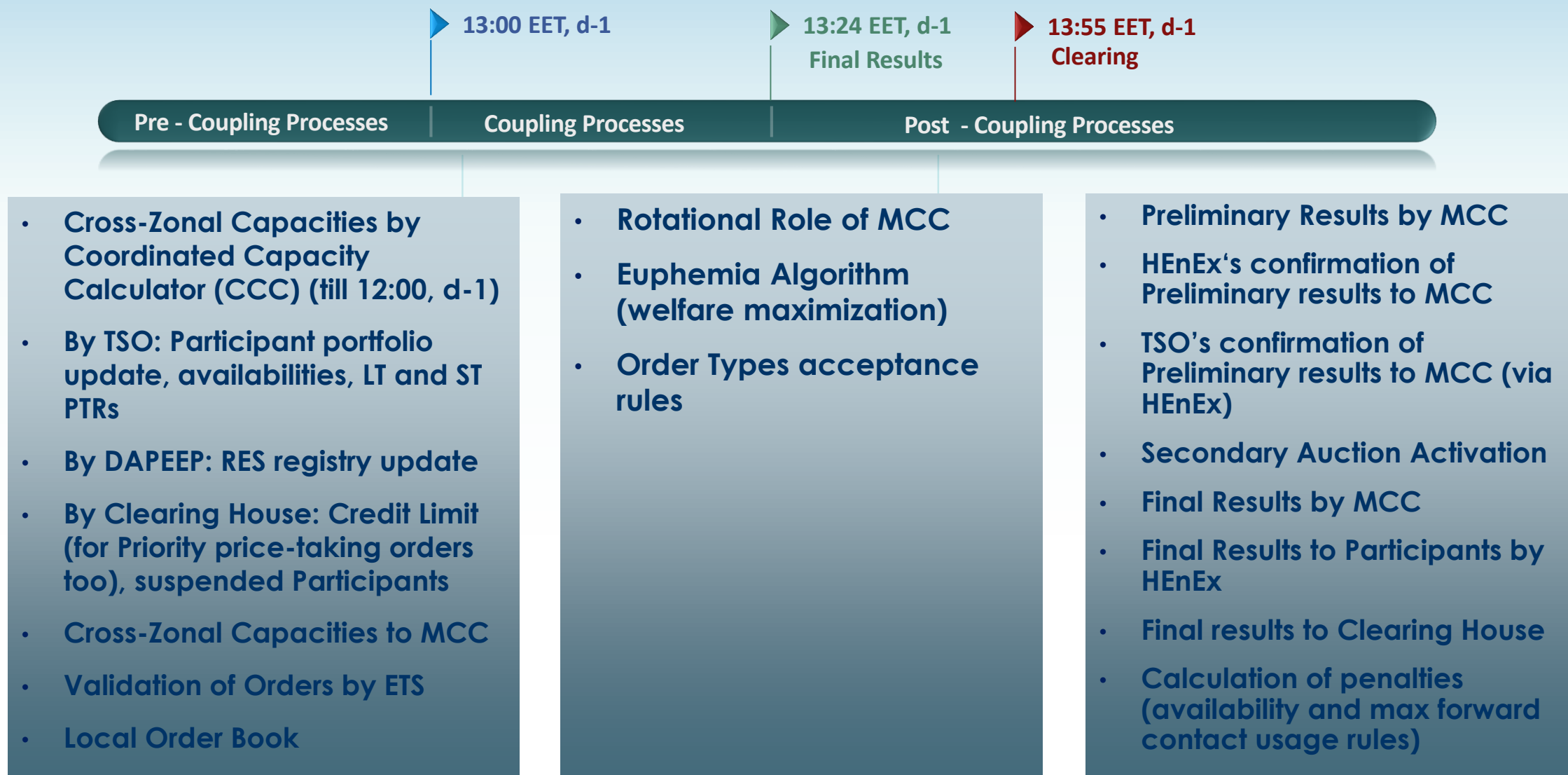
13:24 EET, d-1

13:55 EET, d-1



Pre-Coupling/Coupling/Post Coupling Processes

15



Day-Ahead Market - Validations

Ex-ante

Time

- Orders must be submitted within DAM Gate Open & Closure Times

Ex-ante

Price

- Price CAPs and Floors under relevant Regulatory decision must be respected

Ex-ante

Credit

- Buy Orders within Credit Limits set by the Clearing House and/or the GCMs
- Priority Price-Taking Buy Orders valuation using Price determined daily by the Clearing House

Ex-ante

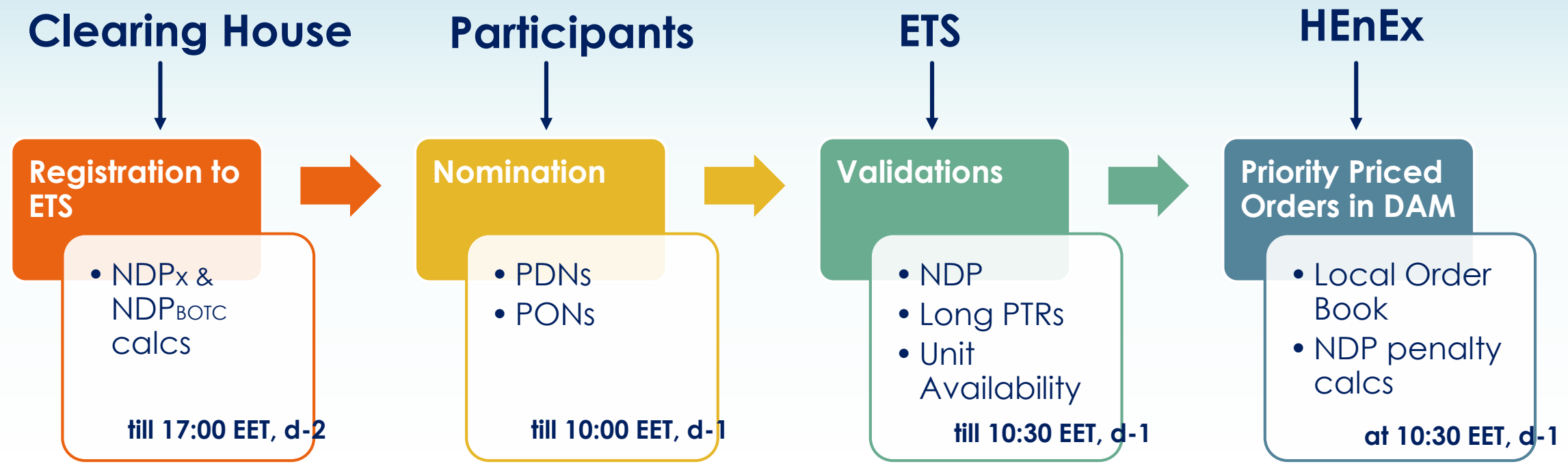
Quantity

- Nominations vs NPD
- PTRs validations
- NCAP validation
- Margin_{p,i,h} for Interconnections
- Margin_{p,i,h} for Units

Ex-Post

Energy quantities from **Futures/Forward Contracts** with Physical Delivery should not exceed **A%** for every Supplier with a market share of **x%**

Physical Settlement of Futures & Forward Products



Intraday Market

Intraday Market

benefits of trading in ID market

- ▶ **Position correction** after the Day-Ahead Market
- ▶ View as an extension of **Day-Ahead fine tuning**
- ▶ For **updating the trading position** based on risk profile as approaching to real-time, as in case of **power plant outages or changes in demand**
- ▶ Submit more **accurate short-term forecasts** for Renewable Energy Resources (**RES**), such as solar and wind
- ▶ Profit from flexible sources of generation and load management
- ▶ **Reduce the imbalances** and the **financial exposure** to the **Balancing Market**

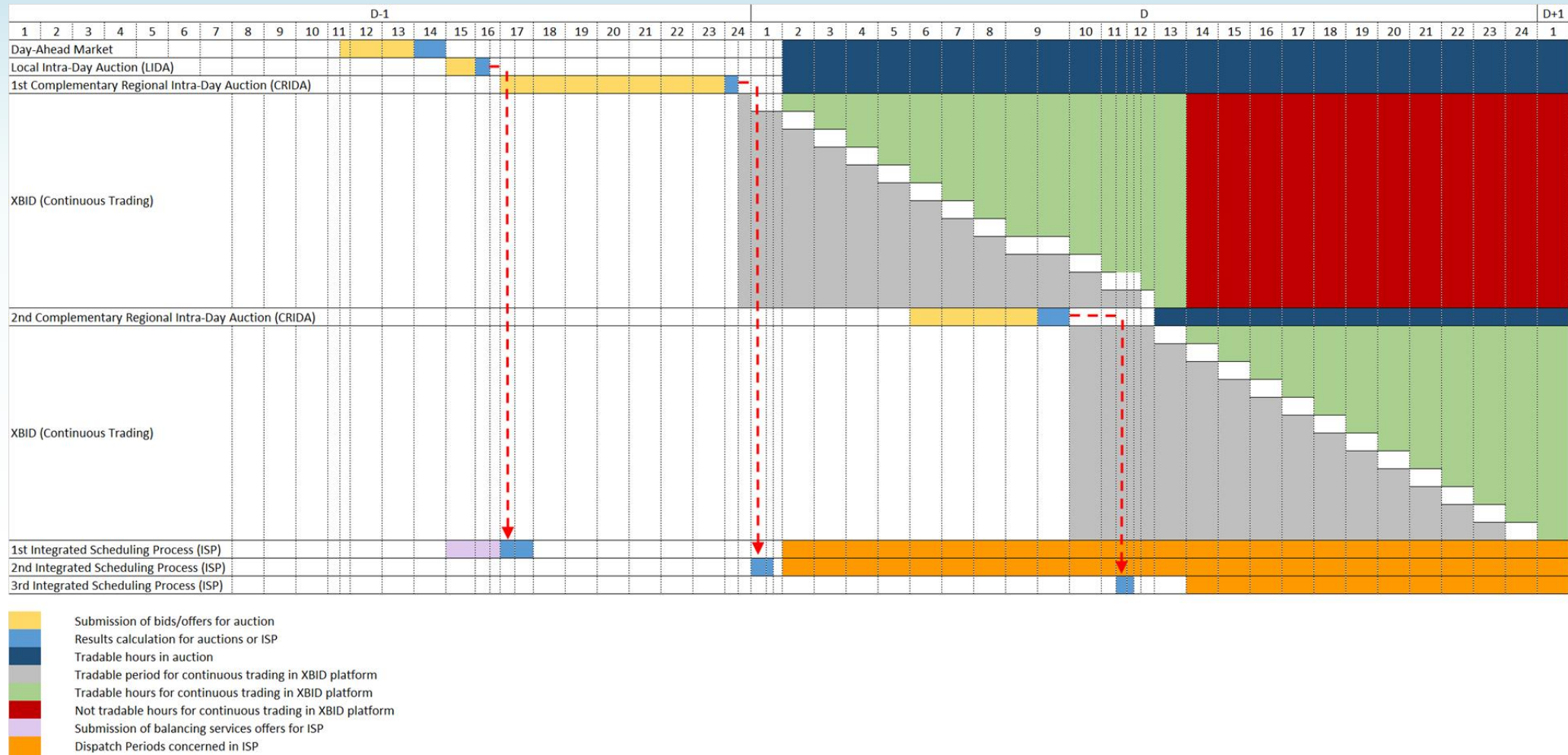
Intraday Market

main characteristics

- ▶ **Optional** Participation
- ▶ **Submission** after the Day-Ahead gate closure in **D-1 and D**
- ▶ **Unit-based** Market
- ▶ **Two Phases approach:**
 - ▶ **1st Phase: Local Intra-Day Auctions (LIDAs)**
 - ▶ **2nd Phase:**
 - ▶ **Complementary Regional Auctions (CRIDAs)** and
 - ▶ **Continuous Trading (XBID)**
- ▶ In case of introducing **Pan-European Intra-Day Auctions (PEIDAs)**, the CRIDAs will align with the PEIDAs

Intraday Market

Interaction with Balancing Market



HEnEx – The company

Establishment of Hellenic Energy Exchange SA (H.En.Ex. SA) 18th June 2018

HEnEx SA aspires to play a crucial role in the development of the national and regional economy. In order to achieve this target, the Business Plan of the company has two major keystones:

- ▶ The first keystone is the development of “spot” and “derivatives” markets in a number of energy commodities, in electricity at a first stage and in natural gas and environmental products at a later stage.
- ▶ The second keystone involves its extrovert orientation, by pursuing collaborations with the operators of other organized markets in the broader area of South-East Europe, in order to facilitate energy transactions and investments.

The operation of organized commodities markets from operators traditionally has two goals:

- ▶ **Strong and Reliable Price Signals:** By facilitating trading between sellers and buyers, the market depth, liquidity and competition of the markets are enhanced and transparent market prices are ensured. These market prices must meet two conditions:
 - to be attractive and affordable to the buyer and ultimately to the end consumer and
 - to ensure the sustainability of the investments of the seller and to provide strong and reliable signals for further viable and competitive investments.
- ▶ **The security of transactions:** By implementing the appropriate risk management mechanisms, to ensure the security of transactions and to enhance the confidence of market participants

Shareholder Structure

Public Sector (49%)

DAPEEP 22%


ΑΔΜΗΕ 20%
ΑΝΕΞΑΡΤΗΤΟΣ ΔΙΑΧΕΙΡΙΣΤΗΣ
ΜΕΤΑΦΟΡΑΣ ΗΛΕΚΤΡΙΚΗΣ ΕΝΕΡΓΕΙΑΣ


DESFA 7%
Hellenic Gas Transmission System Operator S.A.
DEVELOPMENT POWER

Private Sector (51%)

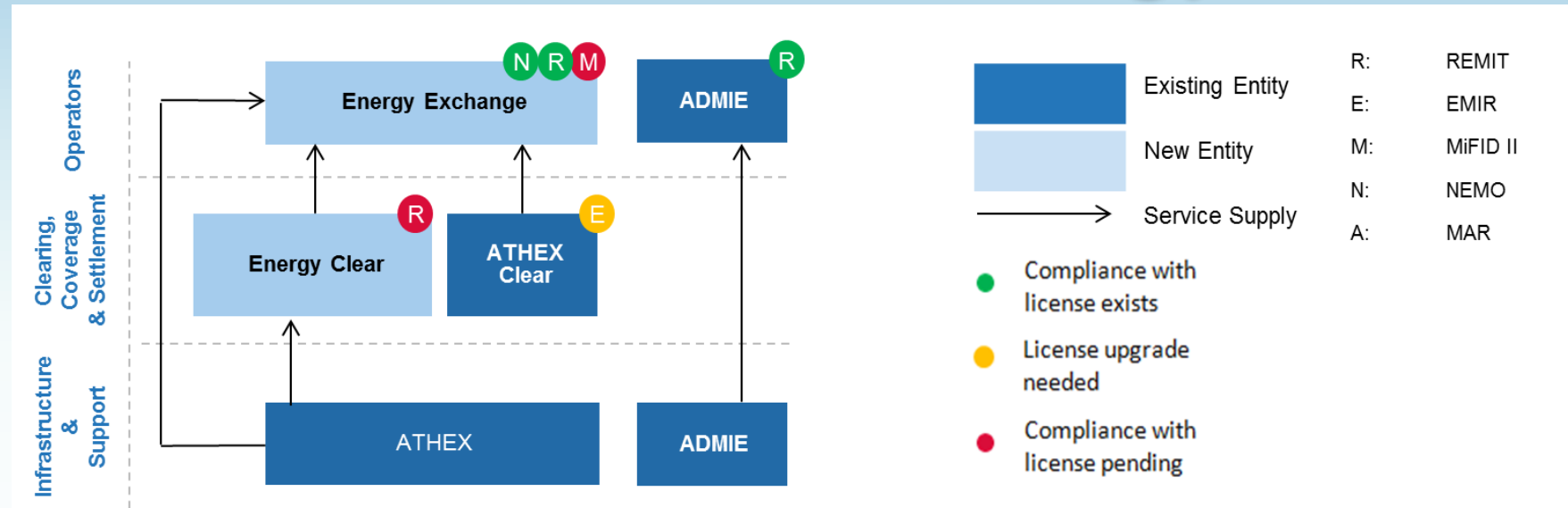

ATHEXGROUP 31%
Athens Exchange Group


European Bank 20%
for Reconstruction and Development


ΧΡΗΜΑΤΙΣΤΗΡΙΟ ΑΕΙΩΝ ΚΥΠΡΟΥ
CYPRUS STOCK EXCHANGE

Agreement to participate with 10% share after the Cypriot Parliament's approval. This will be deducted from AthexGroup's share

The model for the Hellenic Energy Exchange



	SPOT Markets			Derivative Markets	
Functions	Day Ahead	Intraday	Balancing	Physical Delivery	Cash Settlement
Trading	Energy Exchange	Energy Exchange	ADMIE	Energy Exchange	Energy Exchange
Clearing*	Energy Clear	Energy Clear	Energy Clear *	ATHEX Clear	ATHEX Clear
Settlement	Energy Clear	Energy Clear	Energy Clear *	ATHEX Clear	ATHEX Clear
Technical and Operational Support	ATHEX	ATHEX	ADMIE	ATHEX	ATHEX

Energy Exchange – Key functions



Energy Clear – Key functions



Milestones and Main challenges

HEnEx towards the new markets

- ▶ RAE's approval of the new regulatory framework – October 2018
- ▶ HEnEx to become Co-owner of PCR Algorithm – September 2018
- ▶ RfCs to PCR/MRC and IBWT – started
- ▶ Trading Systems readiness – December 2018
- ▶ **New Markets operational – Q2 2019**
- ▶ **Coupling with Italy – Q3 2019**

Main Challenges

- ▶ Meet tight deadlines
- ▶ Create a competitive market with high liquidity
- ▶ Provide Market Participants with appropriate tools for a smooth transition to the target model era
- ▶ Expand in other markets

Thank you for your attention!

Efterpi Lampaditou, MSc, M.Fin.
Markets Operation Division HEnEx S.A.

Tel.: +30-211-880 6953/ +30-210-336 6853
email: Efterpi.Lampaditou@enexgroup.gr