



WHOLESALE POWER MARKET OF GREECE

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Structure,
Actors,
Clearing
Upcoming
changes
New Vision

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MARKET ACTORS & AUTHORITIES

- **Ministry of Environment, Energy and Climate Change**
 - ❖ Sets policies and the regulatory framework,
- **RAE (Independent Regulatory Authority)**
 - ❖ Sets / gives opinion on the regulatory framework,
 - ❖ Monitors market operation, solves disputes, imposes fines
- **ENEX (Energy Exchange as Market Operator – ex LAGIE)**
 - ❖ Sets the Day-Ahead Schedule (DAS) - System Marginal Price (SMP)
 - ❖ Clears DAS transactions, pays Feed-in Tariffs to RES
- **ADMIE (Independent Power Transmission Operator)**
 - ❖ Dispatch instructions to plants and ensures ancillary services
 - ❖ Determines the usage of interconnections
 - ❖ Monitors generation-demand imbalances, calculates the ex-post SMP
- **Power Sellers**
 - ❖ Independent Power Producers (IPPs), Importers, PPC Energy Trading Department-Generation
- **Power Buyers**
 - ❖ Supply Companies, Exporters, PPC Energy Trading Department-Supply

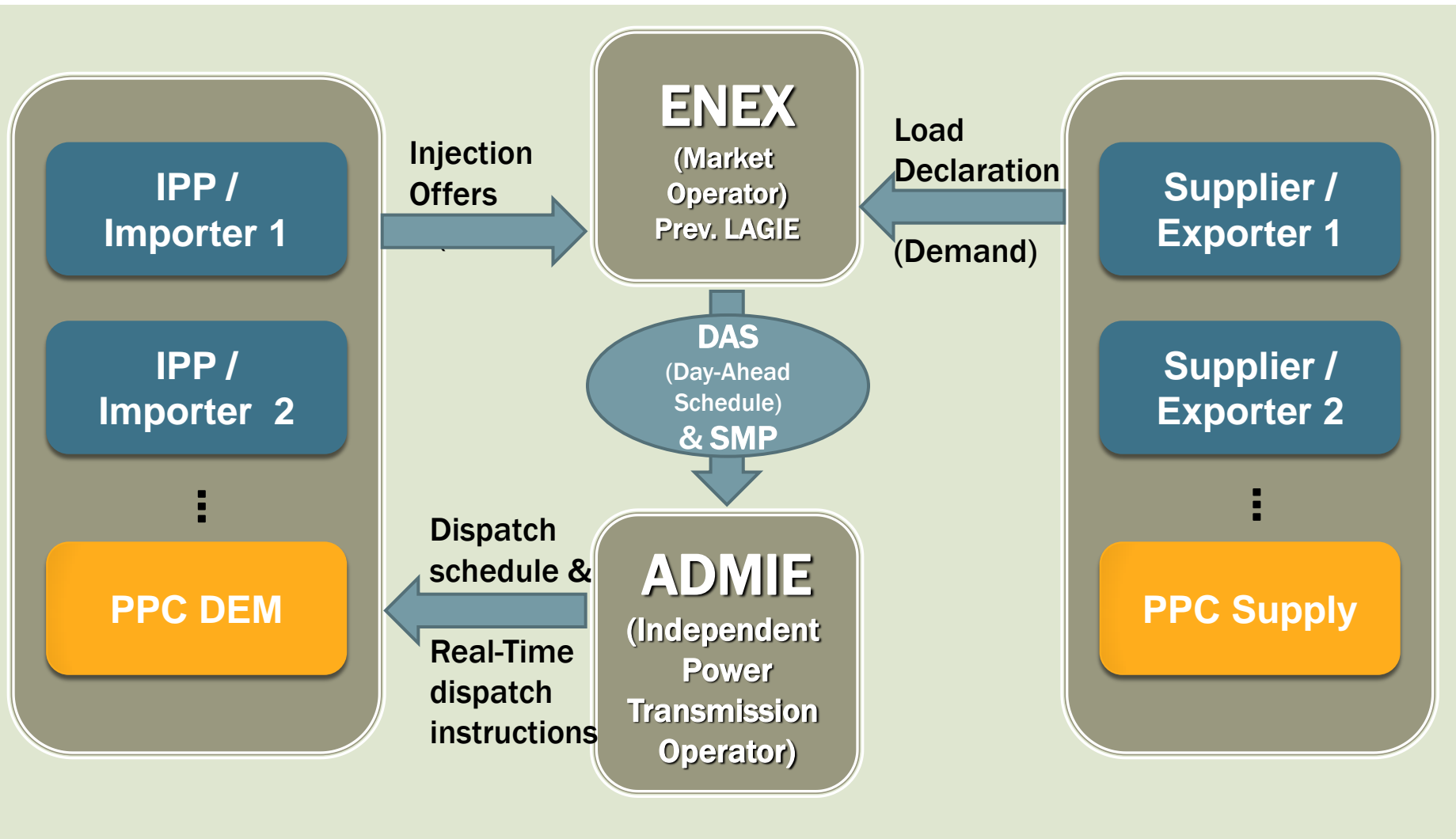


POWER MARKET TRAITS

- **Mandatory Pool System**
 - All wholesale market participants must be registered in the market pool and make all transactions through the Day-Ahead Market
- **Day-Ahead Market**
 - Market participants must submit Load Declarations on day D-1, 12.30
 - ENEX (LAGIE)'s software draws up the Day Ahead Schedule (DAS) and calculates the System Marginal Price (SMP) for day D
 - ADMIE sets up the Dispatch Schedule for day D
- **Ex-post (balancing) System Marginal Price**
 - On day D, ADMIE performs real-time dispatching of available generation plants, adjusting for generation-demand imbalances.
 - Flexibility award mechanism (provisional, currently for 4500MW)
 - Gas and Hydro plants reimbursement
- **Feed-in Tariffs**
 - for generation from Renewables (RES, mainly wind and PV) and Combined Heat & Power plants

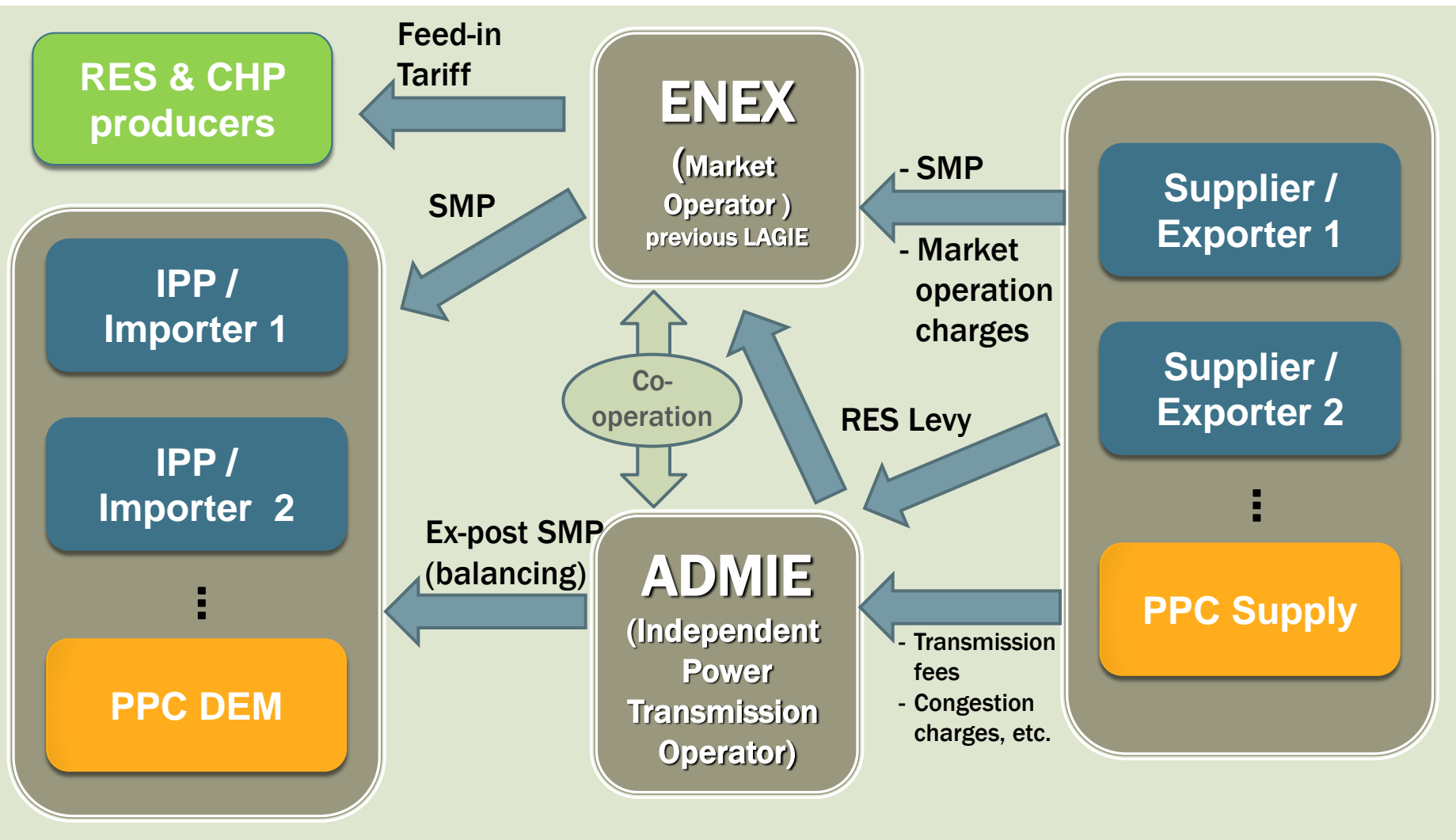


MARKET STRUCTURE (MW)



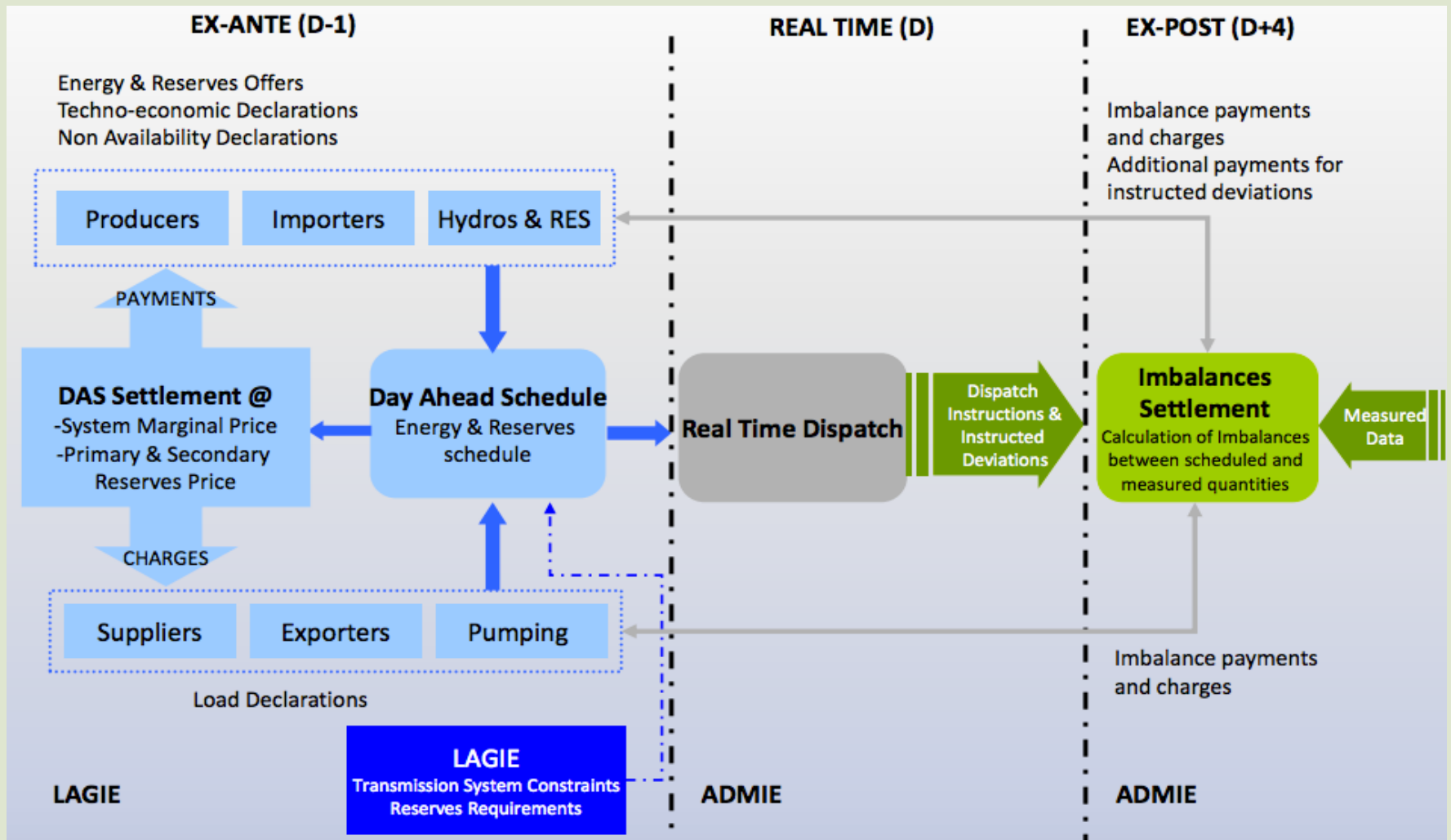


CLEARING & SETTLEMENT (EUR)





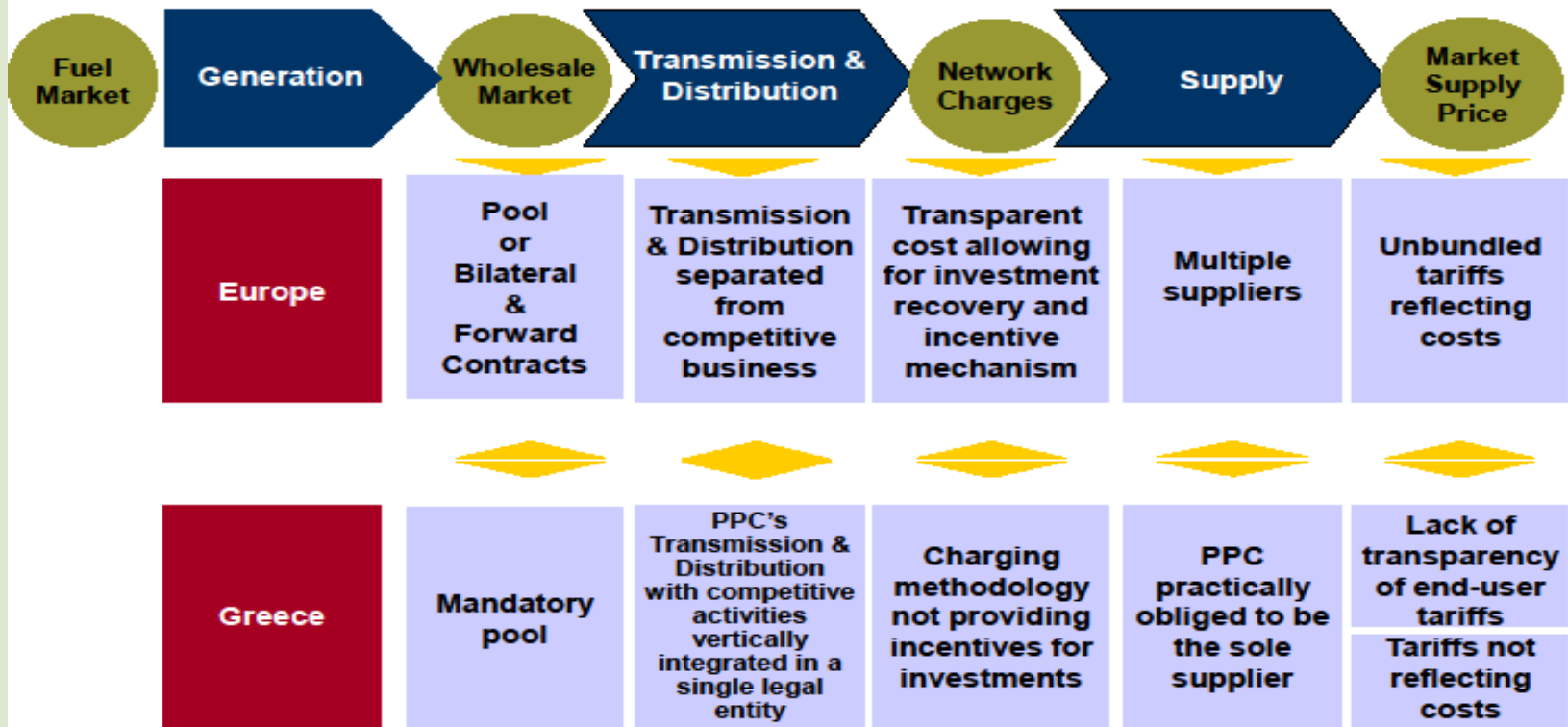
ENERGY MARKET PARTICIPATION TIME FRAME





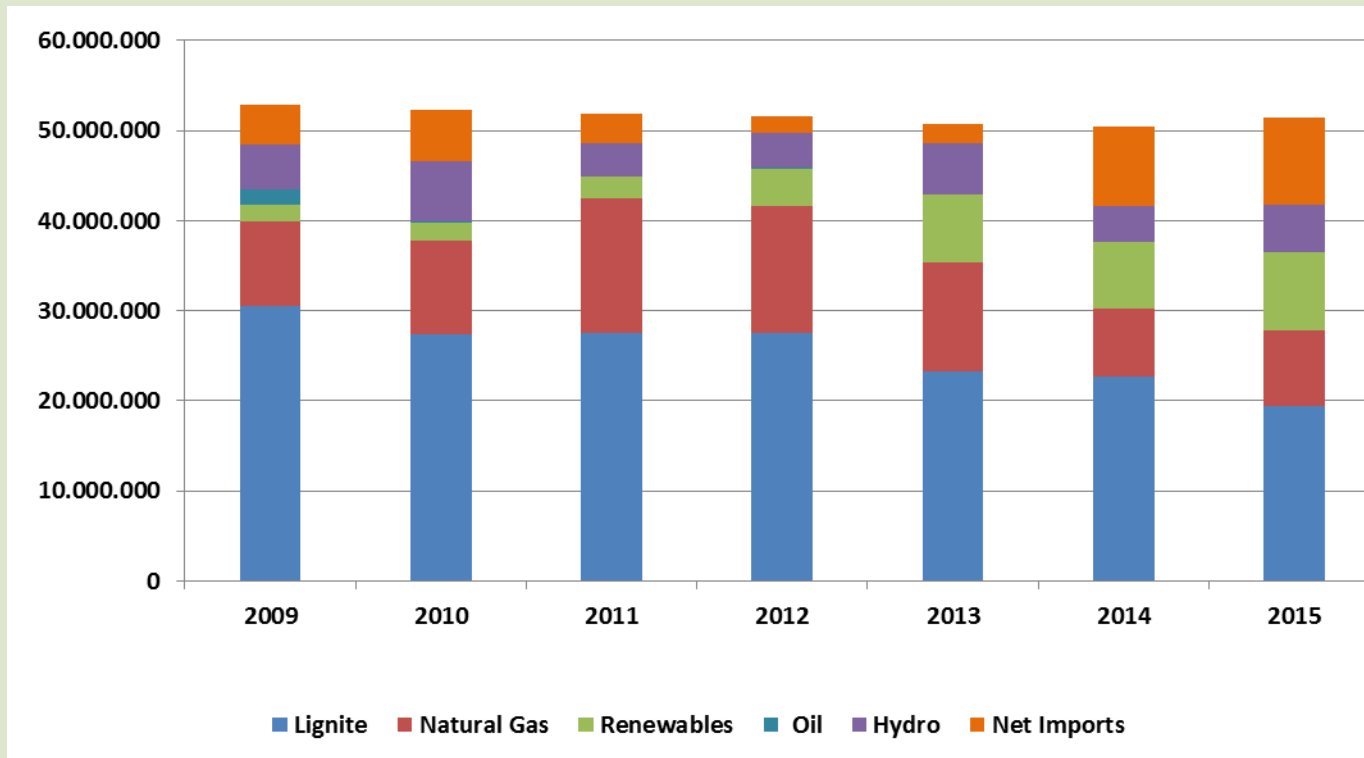
DIFFERENCES EUROPE - GREECE

Electricity value chain in Europe and Greece





GREEK SYSTEM EVOLUTION OF GEN MIX OVER TIME (MWH)

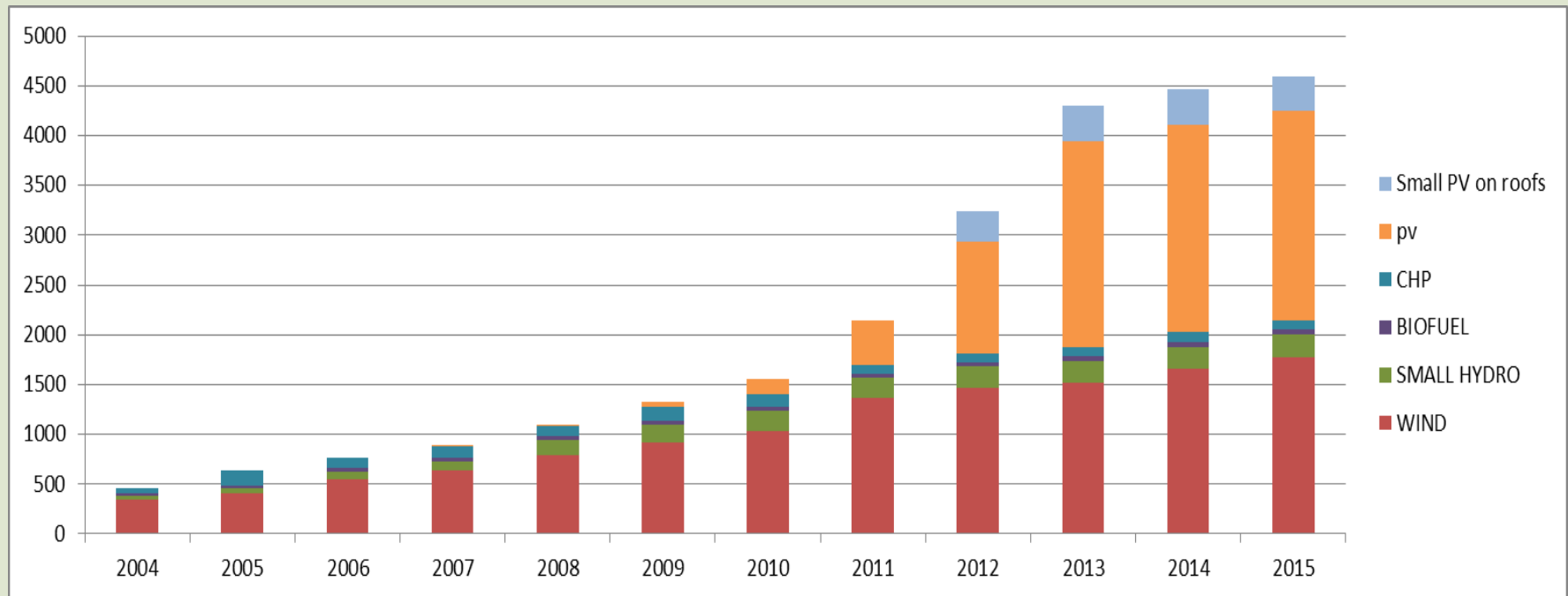


- ✓ Gradual decline in Lignite contribution within the Greek system
- ✓ Exponential increase in RES Production (mainly PV)
- ✓ Natural Gas production high in 2011-2012 mainly due to lower production from renewables and also market distortions related to cost recovery mechanism, abolished in 2014



GREEK SYSTEM: ELECTRICITY PRODUCTION FROM RENEWABLE SOURCES OVER TIME

Installed Capacity (MW)

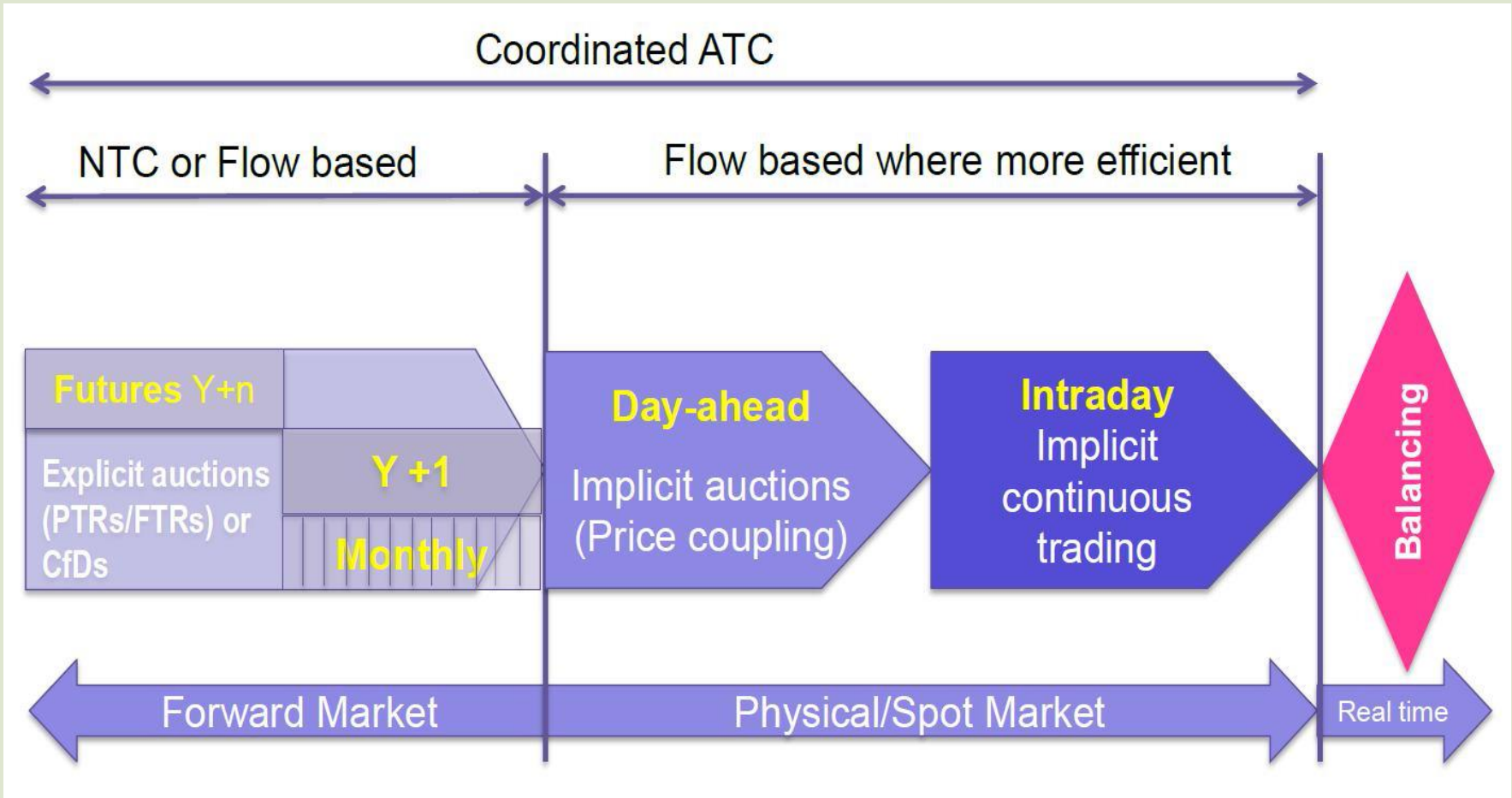


Exponential growth of PV capacity:

i.e. Huge increase from 2010 onwards, from 50MW to over 2.500MW, ~4000%



TARGET MODEL





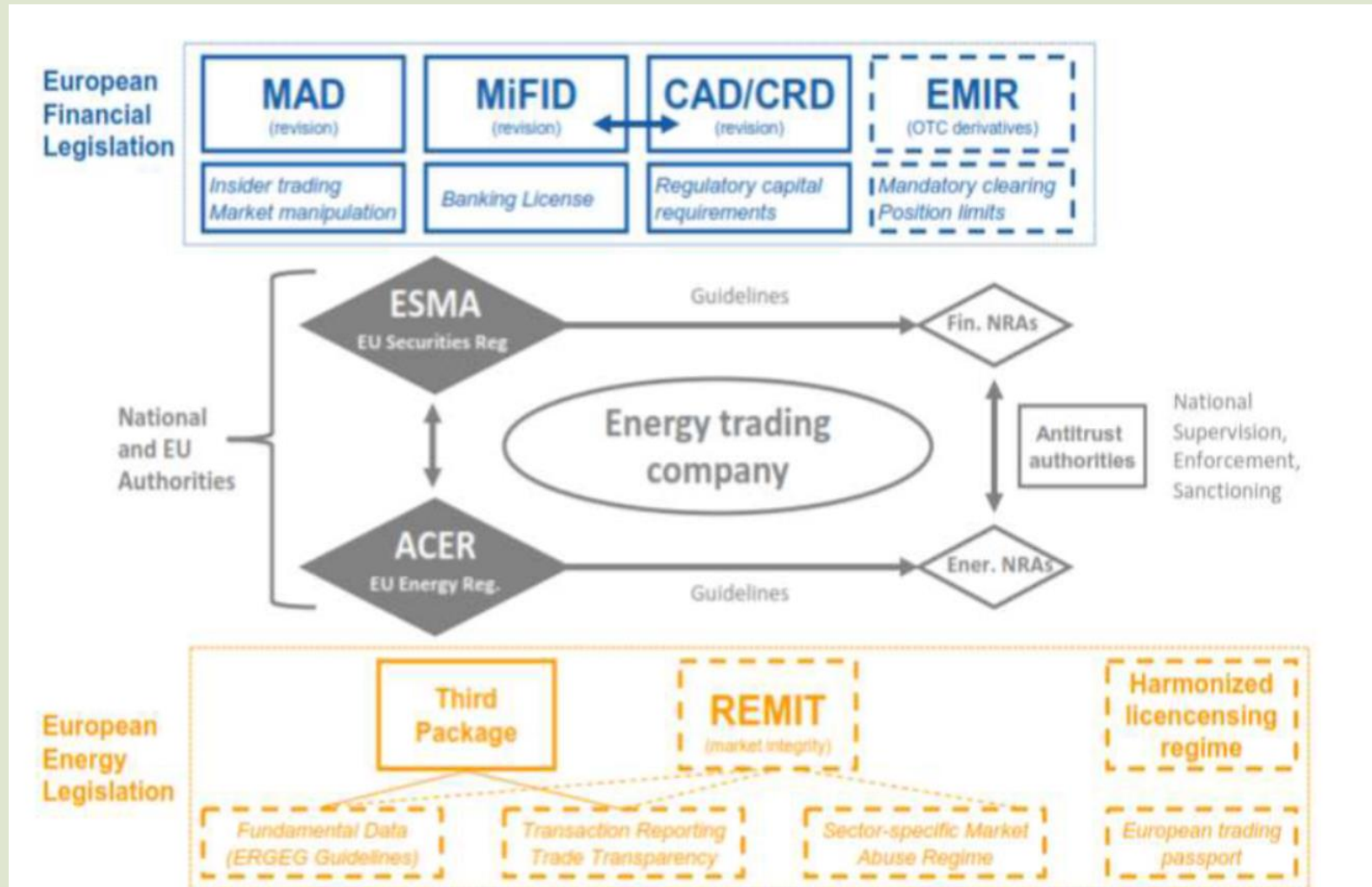
TARGET MODEL - BENEFITS

Implementing the Target Model across Europe:

- ✓ **Increases competition** and **reduces the potential for market concentration** and market power issues, leading to more effective competition and reducing prices
- ✓ Creates a level playing field which grants **cross-border trade opportunities** to large and smaller Market Participants (MPs) alike
- ✓ Reduces risk for all market players by providing **opportunities to hedge risk** in different timeframes
- ✓ Optimally uses existing transmission capacity and clearly **signal the demand for new capacity**
- ✓ Provides signals to generators and load about where to locate future facilities; potentially creating **efficiency benefits in the longer term**
- ✓ Provides a clearer and more stable framework that can **reduce barriers to entry into markets**
- ✓ **Removes arbitrary distortions** and disincentives to trade caused by differential market rules
- ✓ **Delivers economies of scale** through the coordination of many existing practices
- ✓ **Facilitates the integration of renewable energy** by providing liquid Intra-Day Markets in which positions can be fine tuned



ENERGY REGULATION MEETS THE FINANCIAL REGULATION





EU ENERGY REGULATION

- ✓ **REMIT**: for the integrity and transparency of the wholesale energy market
- ✓ **EMIR**: for OTC derivatives, central counterparties and trade repositories
- ✓ **MiFID I**: on markets in financial instruments
- ✓ **MiFID II**: on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU
- ✓ **MAD (Market Abuse Directive) I**: for insider dealing and market manipulation
- ✓ **MAD II**: on criminal penalties for market abuse
- ✓ **CRD I-IV (Capital Requirements Directives)**: on the access to credit institutions' activity and the prudential supervision of credit institutions and investment firms
- ✓ **MIFIR**: on financial instruments markets and amending Regulation (EU) 648/2012
- ✓ **MAR**: for market abuse



CLEAN ENERGY PACKAGE THE VISION

" In essence the new package is about tapping our green growth potential across the board"

Commissioner Miguel Arias Cañete (2016)



**Energy Union
Governance**



Energy Efficiency

(Energy Efficiency Directive, European Performance of Buildings Directive)



Renewables

(Revised Renewable Energy Directive)



**New Electricity
Market Design**

(including Risk Preparedness)



**Energy prices
and costs
report**

THE ENERGY SYSTEM OF TOMORROW WILL LOOK DIFFERENTLY

2030

50% of electricity to come from renewables



2050

Electricity completely carbon free





Thank you for your attention

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