

New Greek Energy Markets

12th SE Europe Energy Dialogue

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Chief Executive Officer

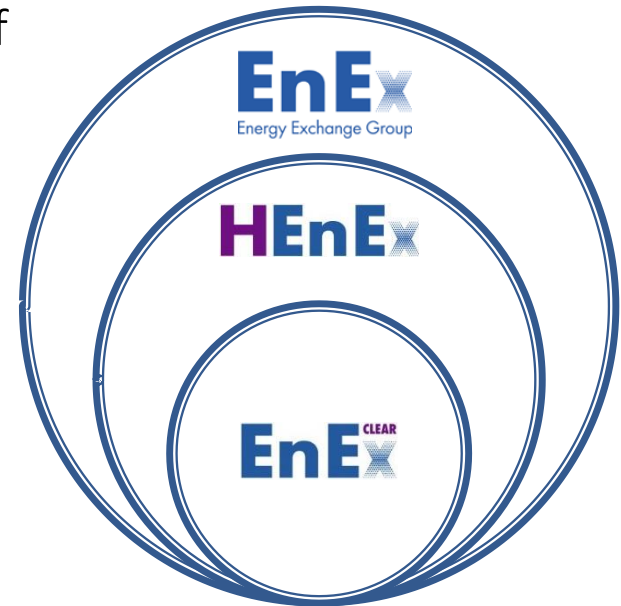
HEnEx | EnExClear

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- ▶ **Establishment of EnExGroup**
- ▶ New spot electricity markets overview
 - Day-Ahead Market (DAM)
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- ▶ Roadmap
 - DAM & IDM Coupling
 - Natural Gas Trading Platform

Energy Exchange Group

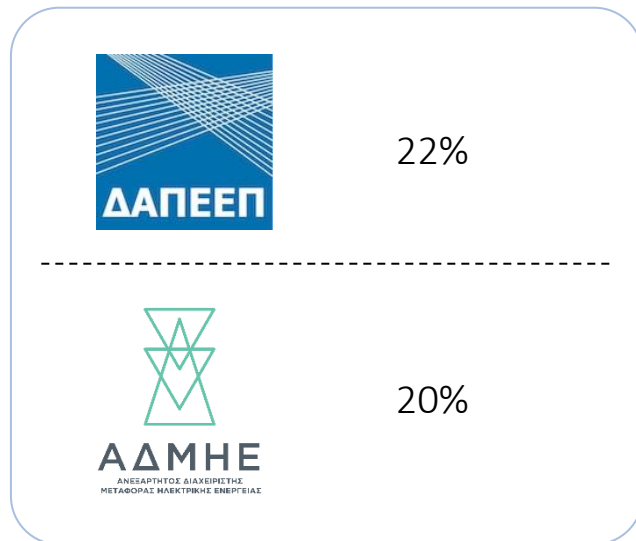
- ▶ **EnEx Group** (Energy Exchange Group) consists of two companies
 - **HEnEx** (Hellenic Energy Exchange S.A.)
 - which is a private company operating **Spot & Derivatives** energy markets
 - **EnExClear** (EnEx Clearing House S.A.)
 - which is a private company owned 100% by HEnEx, clearing **Spot** energy markets
 - **Derivatives** energy markets are cleared by ATHEXClear (company of ATHEX Group)



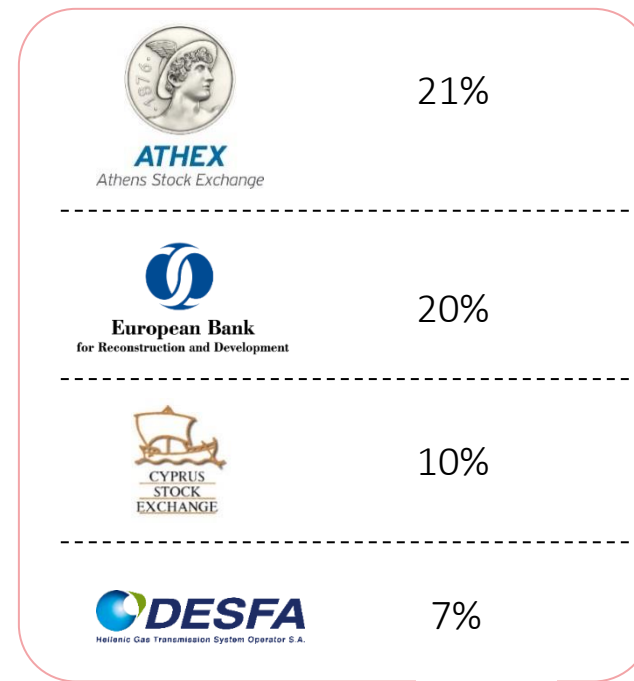
HEnEx Shareholders

- ▶ HEnEx's shareholders are both private (ASE, EBRD, CSE, DESFA) and public (DAPEEP, IPTO) companies
- ▶ The shareholders structure is diverse, featuring two TSOs, the GoO competent authority, two stock exchanges, and an international bank, creating synergies and facilitating knowledge transfer

Public sector

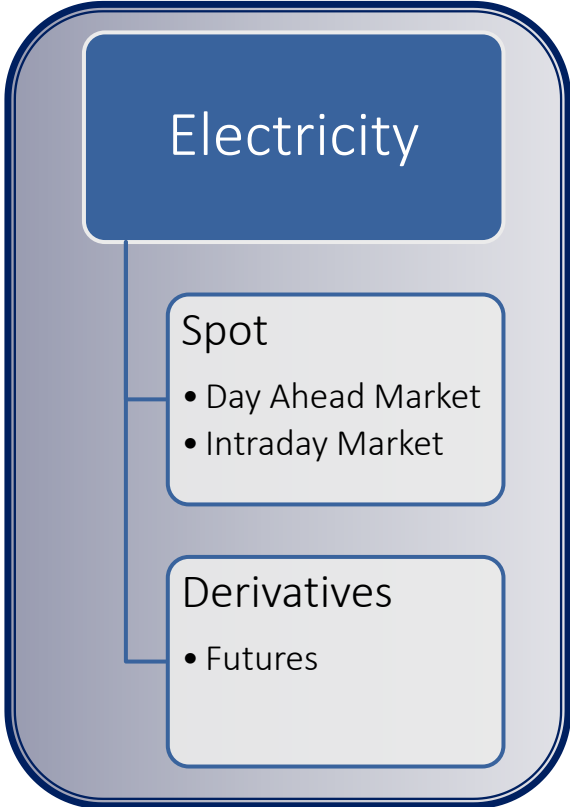


Private sector



EnEx Group Augmented Target Markets

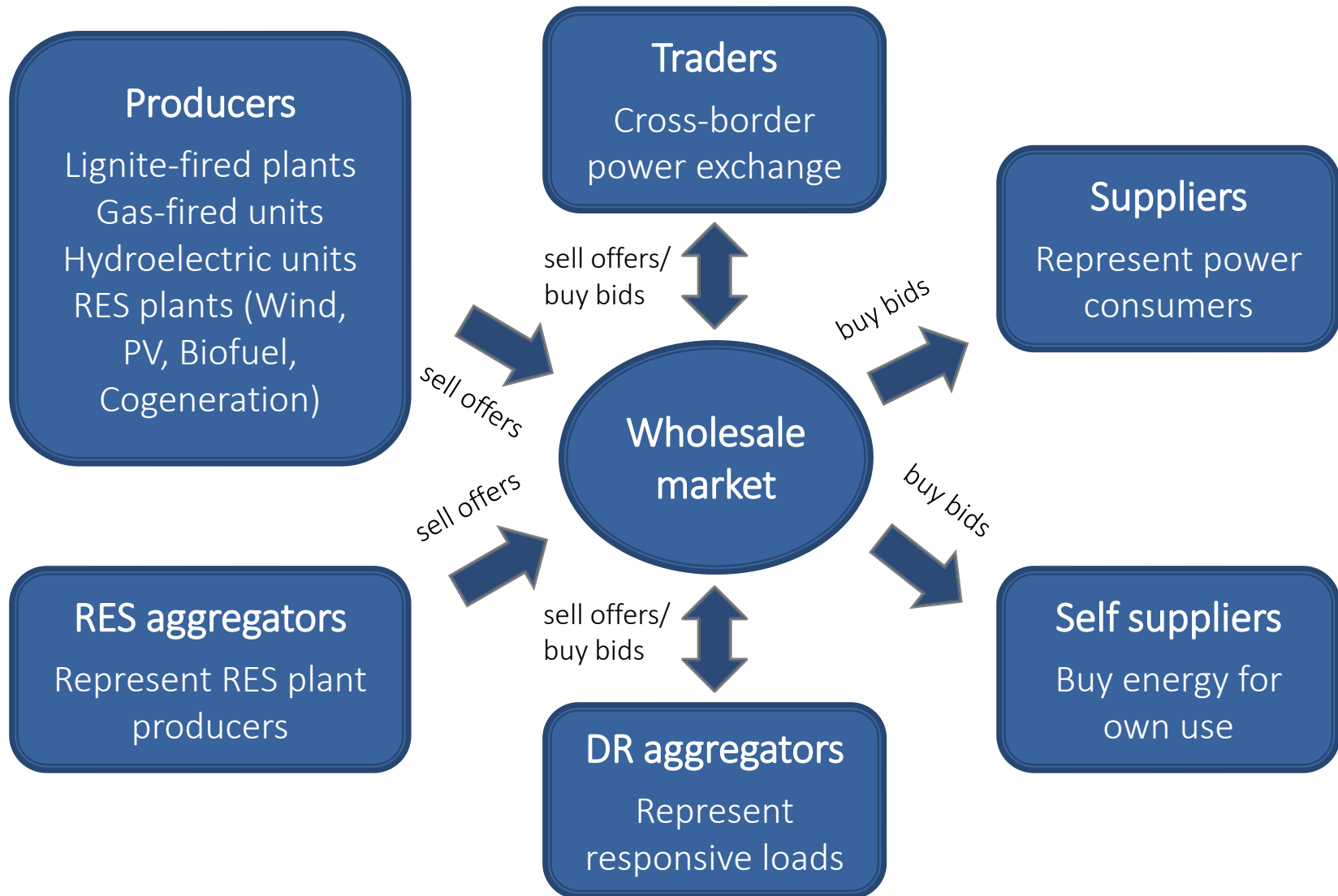
- ▶ HEnEx's **one-stop shop** offering will provide access to a range of Energy Markets, beyond electricity, including Natural Gas and Environmental Markets, both for the Spot & Derivatives Markets



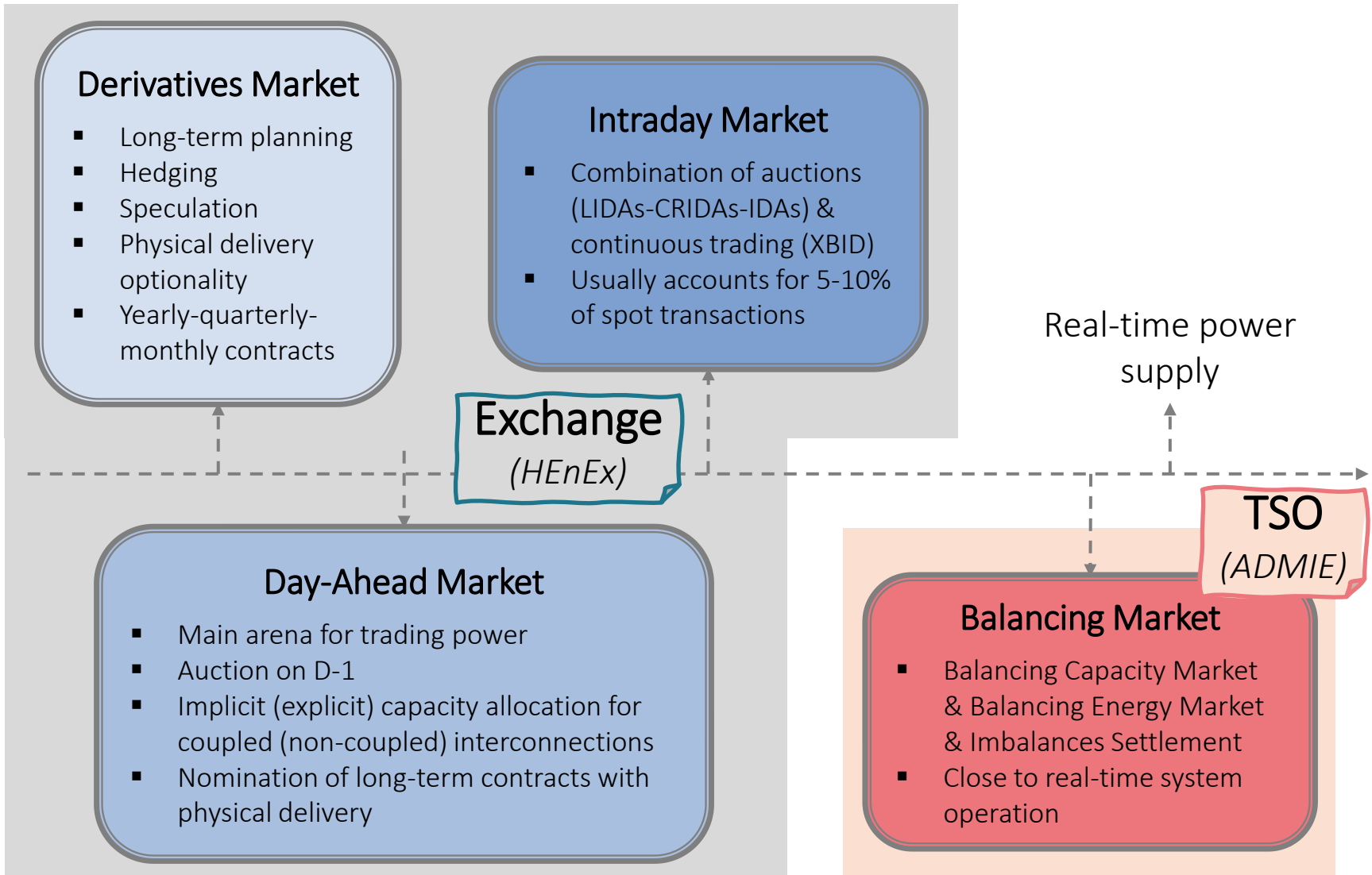
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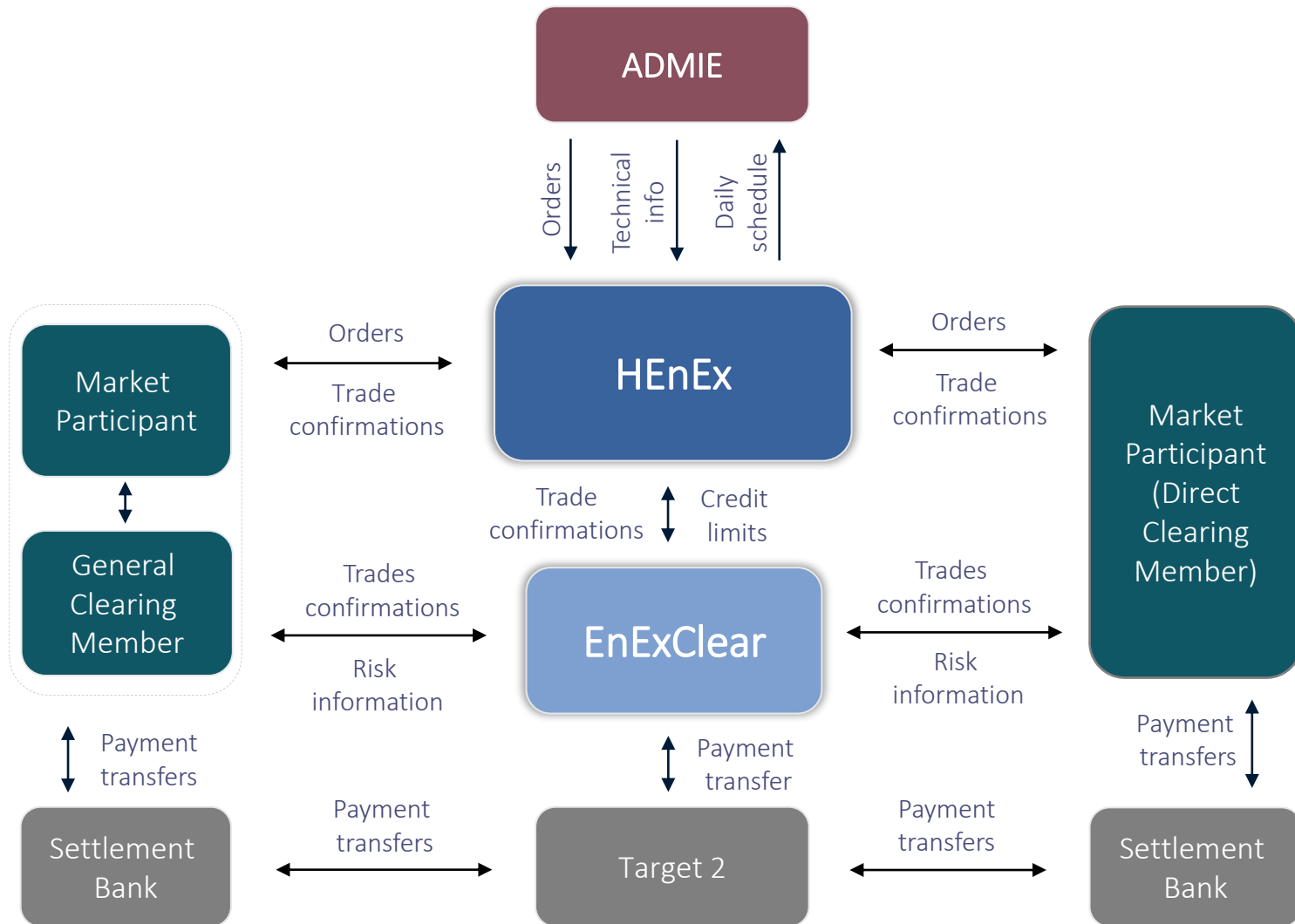
Wholesale Electricity Market Stakeholders



Electricity Markets Sequence (Target Model)



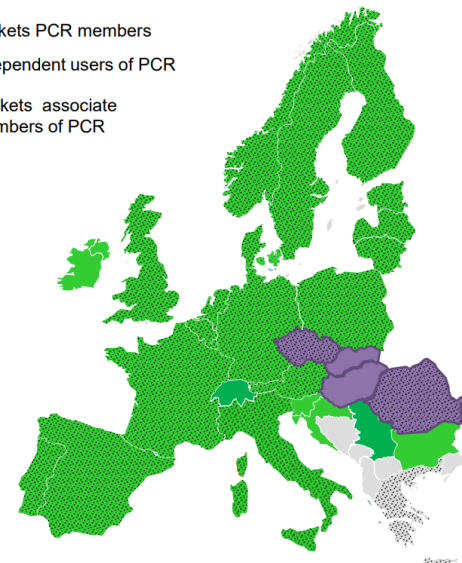
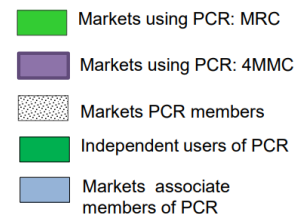
Spot Markets Architecture



Tools & Benefits of the new markets

Day-Ahead Market

- ▶ The DAM is still the main spot market which now also serves as the **underlying market** for the Derivatives market.
- ▶ The DAM can be used for trading hourly load/generation profiles. Additionally, it can be used for **position fine-tuning** after the Derivatives Market as well as registration of physically settled Futures positions and OTC contracts.
- ▶ **Implicit trading** requires no a priori purchase of transmissions rights for coupled interconnections thus removing unnecessary trading risks.
- ▶ The set of new order types (hybrid, blocks, linked families, exclusive groups) **can serve all market participant needs**, including those with complex physical assets, trying to optimize their bidding strategies and operational profiles.
- ▶ The optimization algorithm, *EUPHEMIA*, is a **common algorithm across all Europe** which guarantees a level and familiar playing field for all.



Tools & Benefits of the new markets

Intra-Day Market

- ▶ IDM can be used **for further fine tuning of positions and reduction of imbalances** (thus reducing the financial exposure) prior to the TSO-managed Balancing Market.
 - In case of power plant outages or changes in demand market participants can **update their trading position**.
 - The submission of more accurate short-term RES forecasts **can benefit the RES Producers and Aggregators** and help them handle the associated RES stochasticity, thus reducing risk exposure and allowing for further integration of intermittent renewable production.
 - **Flexibility providers can leverage their portfolio** to maximize the use of their resources while contributing to the energy balance.
- ▶ **2 Implementation phases:**
 - **1st Phase:** Local Intra-Day Auctions (LIDAs)
 - **2nd Phase:**
 - Complementary Regional Auctions (CRIDAs) / Pan-European Intra-Day Auctions (IDAs)
 - Continuous Trading (XBID), up to one hour before actual delivery

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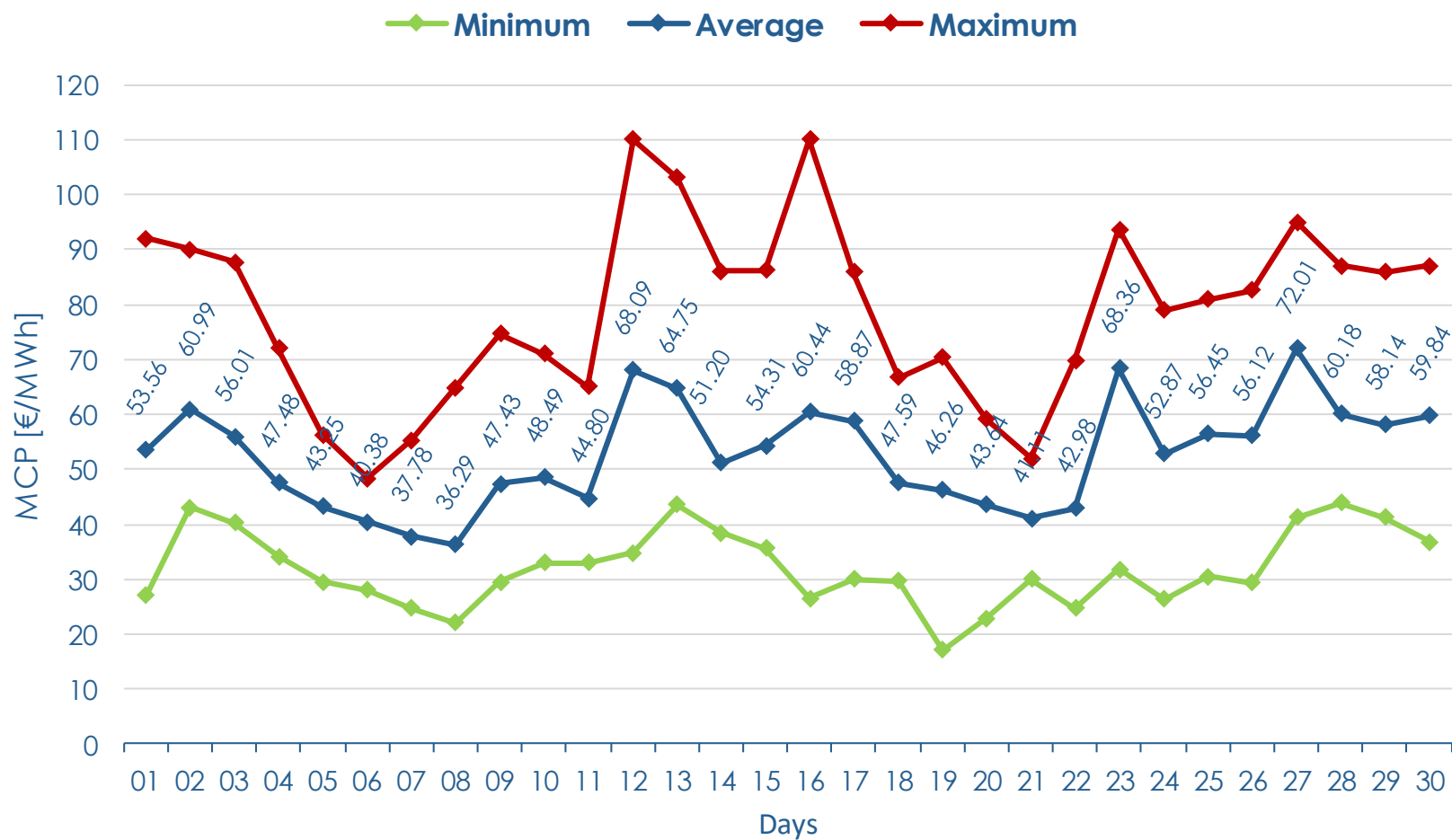
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Go-live!

- ▶ November 1 was the first delivery date
- ▶ October 31 all orders in-place
 - EUPHEMIA solved the model
 - Results were received
- ▶ Intra-day auctions concluded – October 31
- ▶ Balancing market solved – November 1
- ▶ No system, software, process or other problems identified – smooth transition from day 1
- ▶ Fully embraced by all market participants

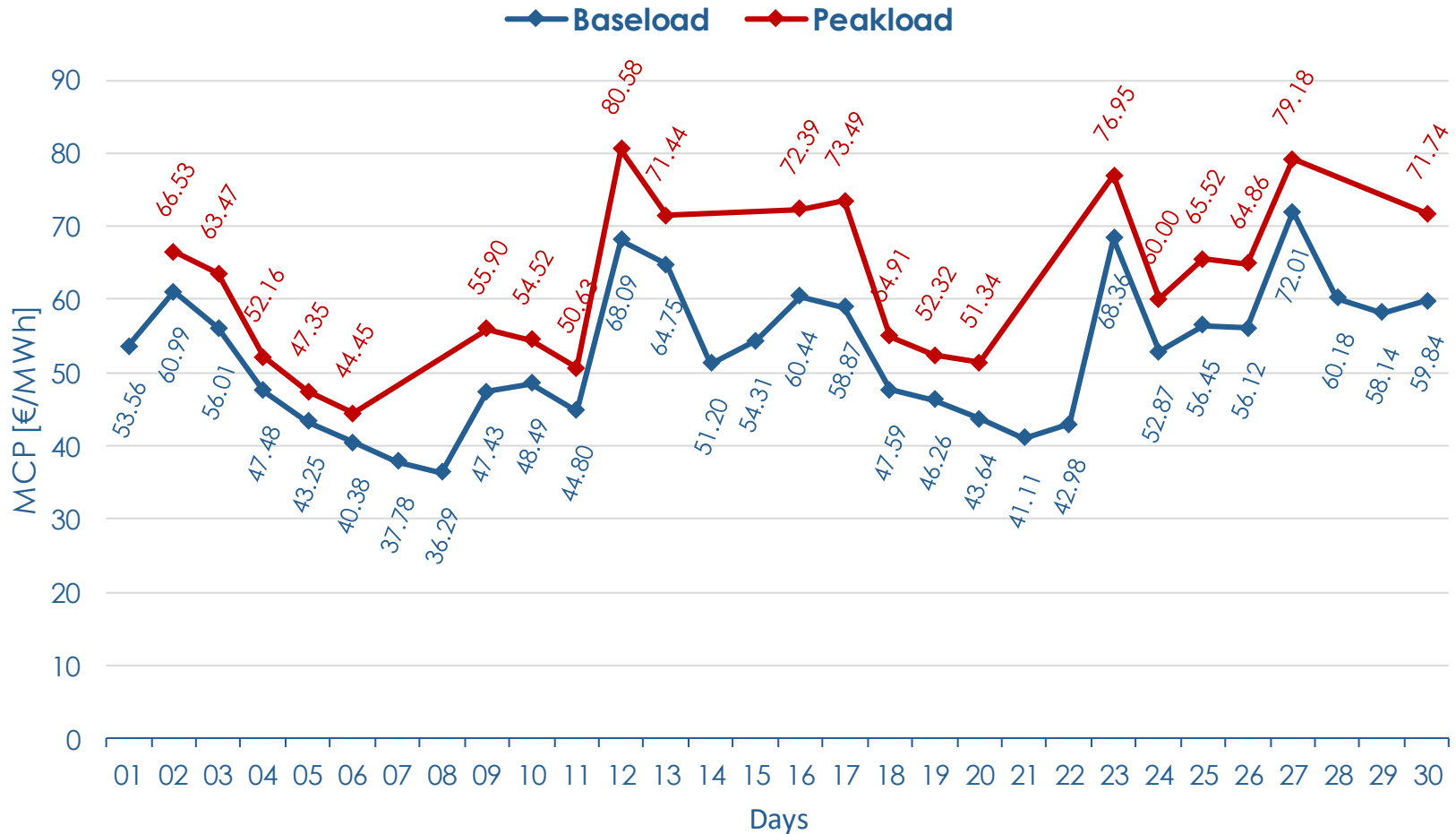
DAM: First results - MCP

Daily MCP data of the Greek Bidding Zone – November 2020



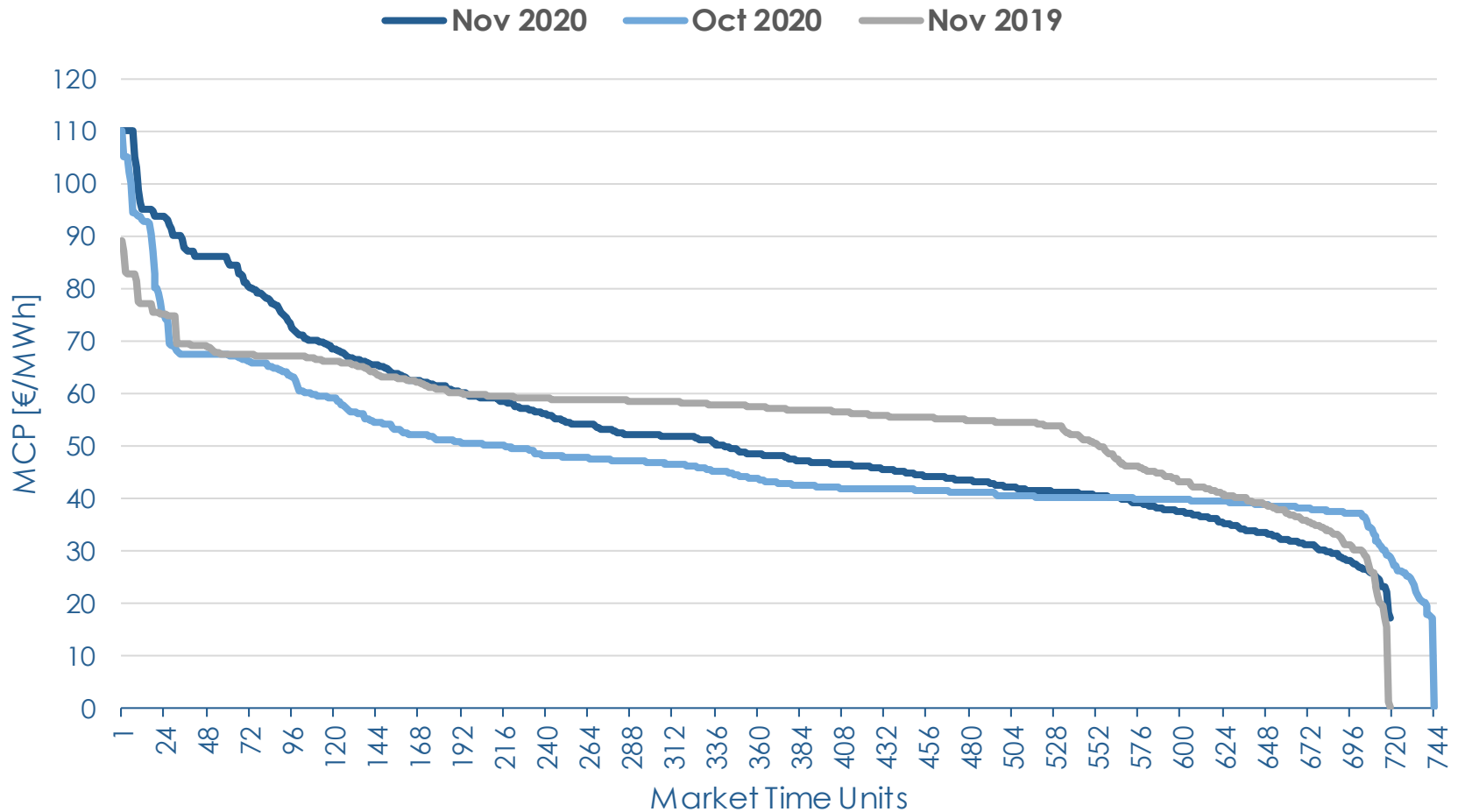
DAM: First results - MCP

Daily average prices of the Greek Bidding Zone – November 2020



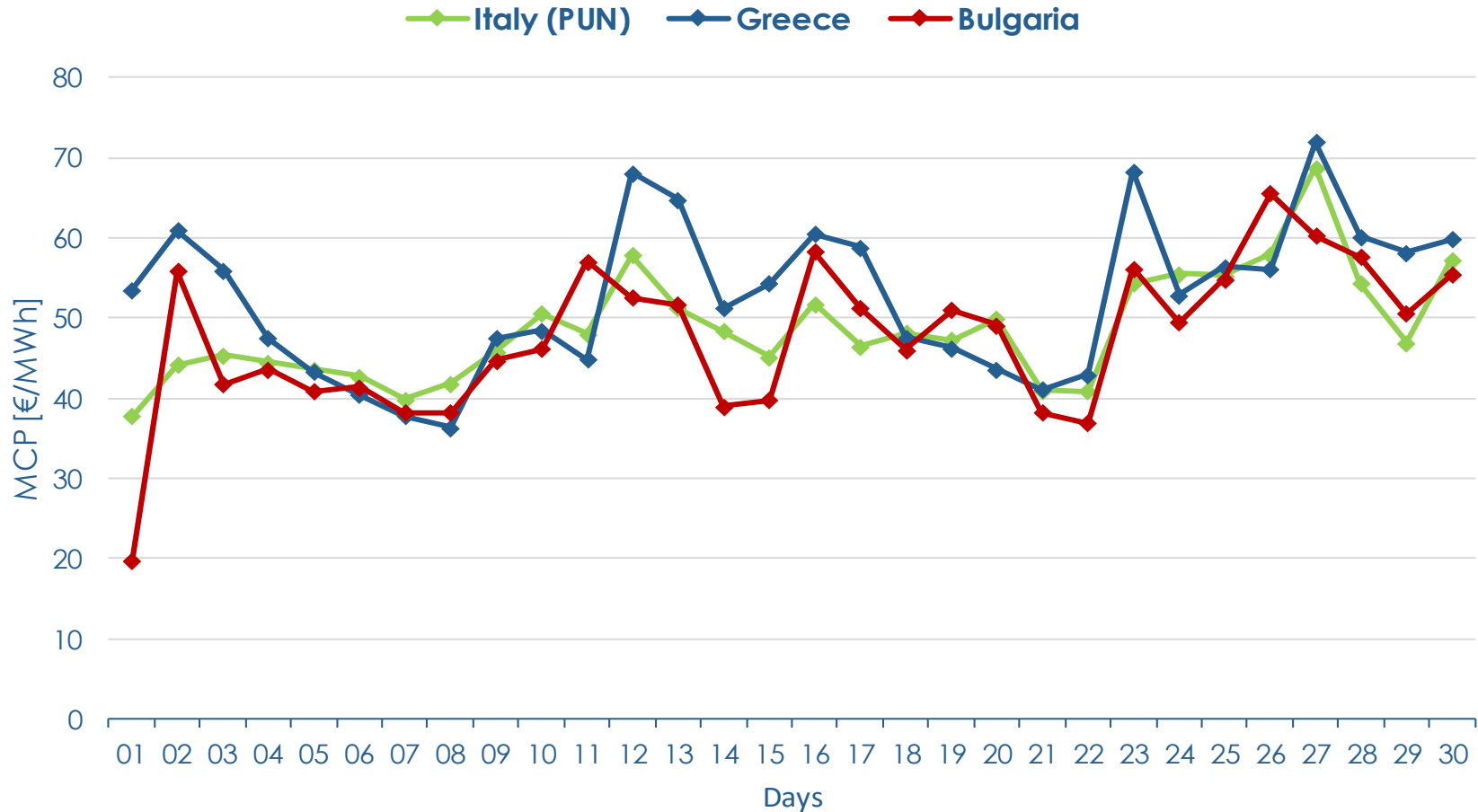
DAM: First results - MCP

MCP duration curve – November 2020



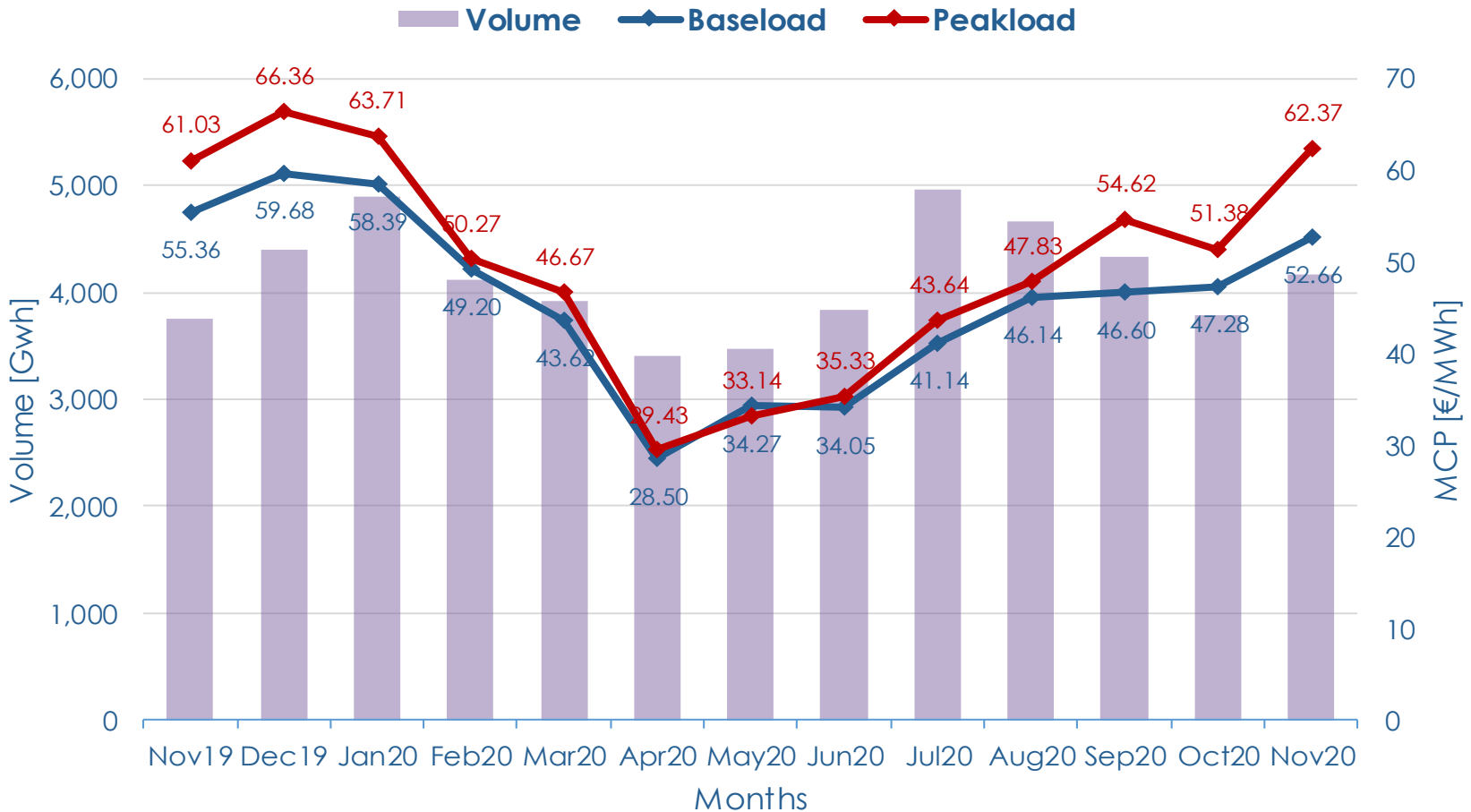
DAM: First results - MCP

Daily average MCP of GR, IT, BG – November 2020



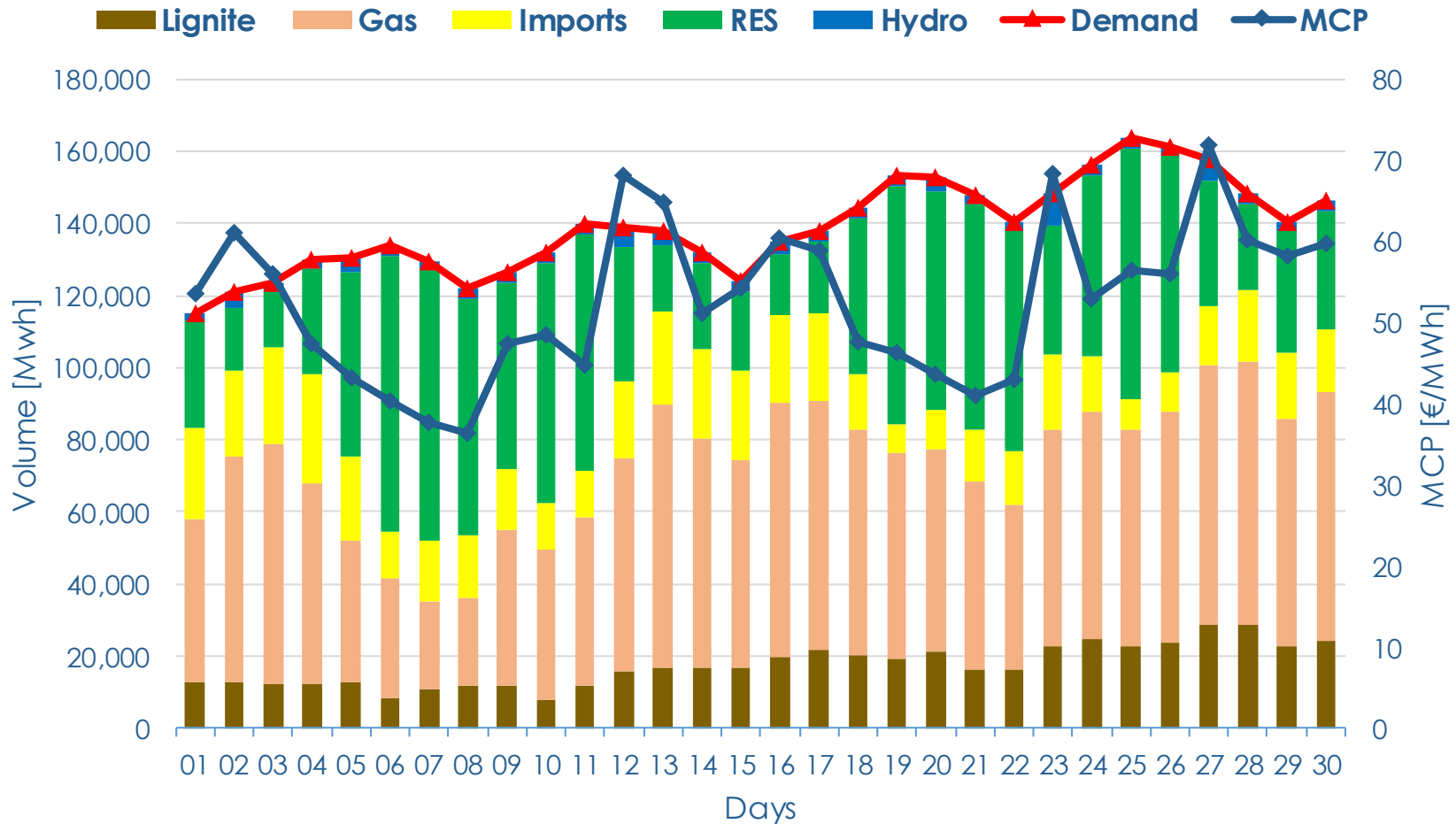
DAM: First results – Comparison with DAS

Monthly volume and average prices – Nov. 19 to Nov. 20



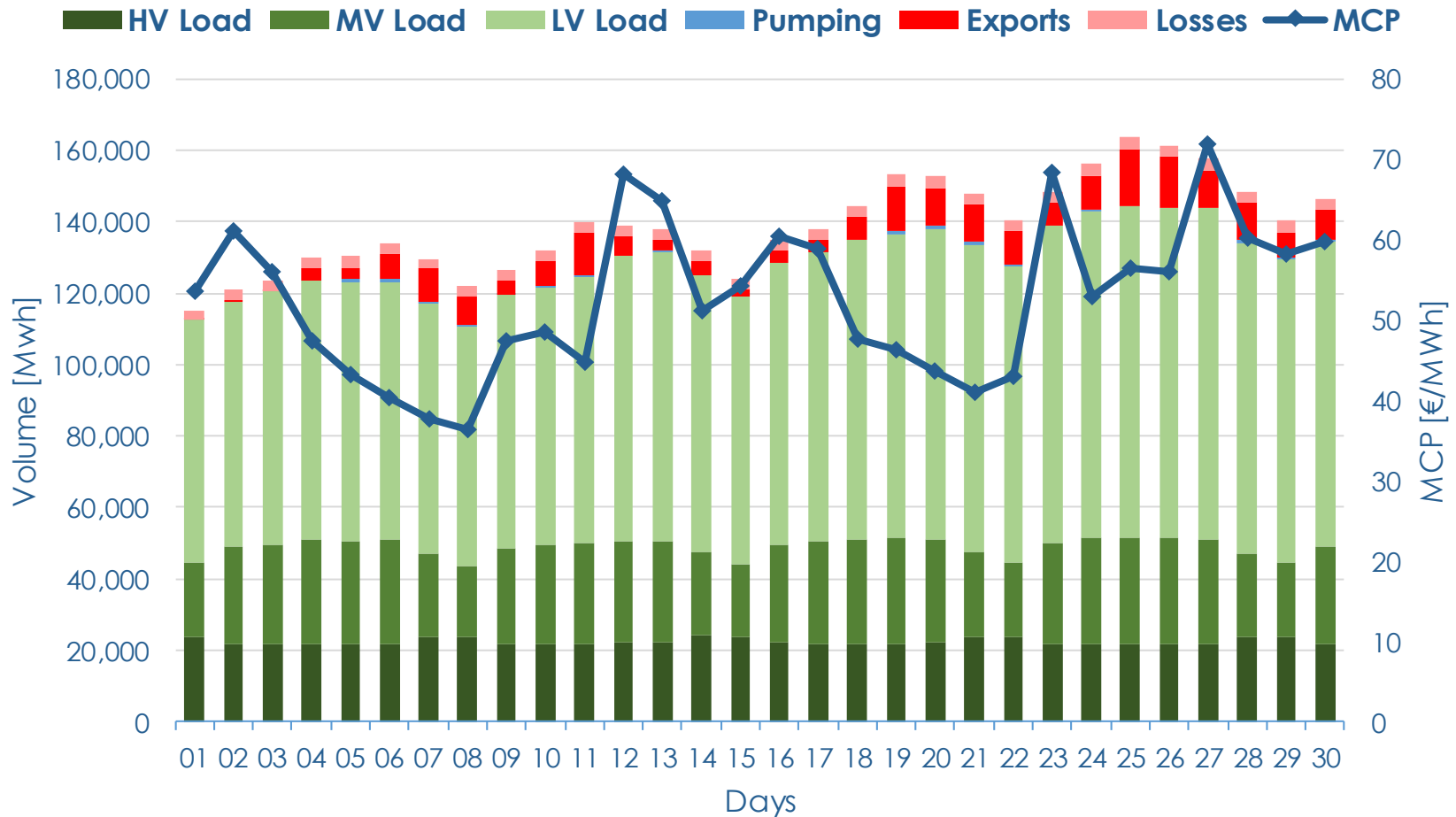
DAM: First results – Volume mix - Sell

Volume mix of sell side per day – November 2020



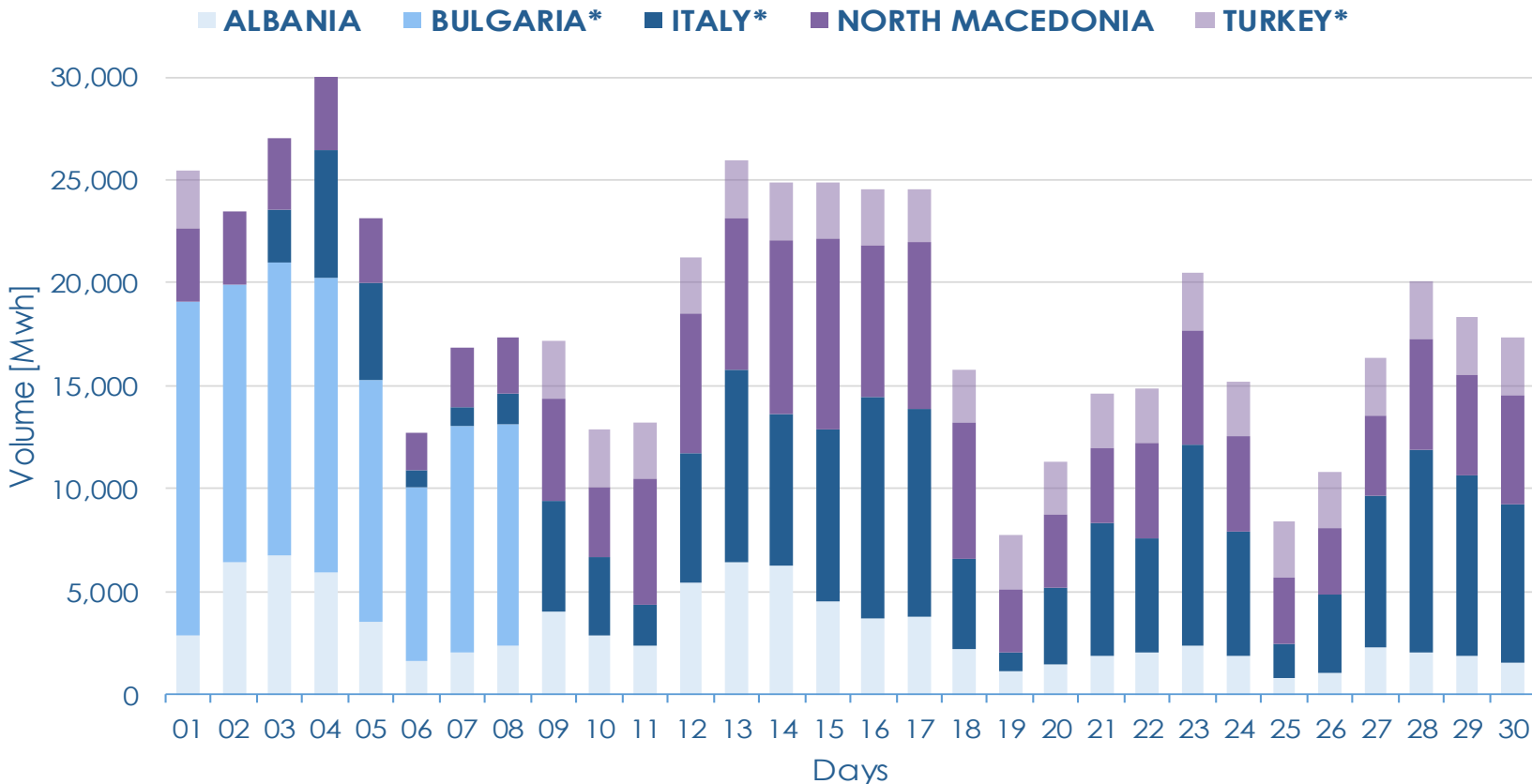
DAM: First results – Volume mix - Buy

Volume mix of buy side per day – November 2020



DAM: First results – Imports

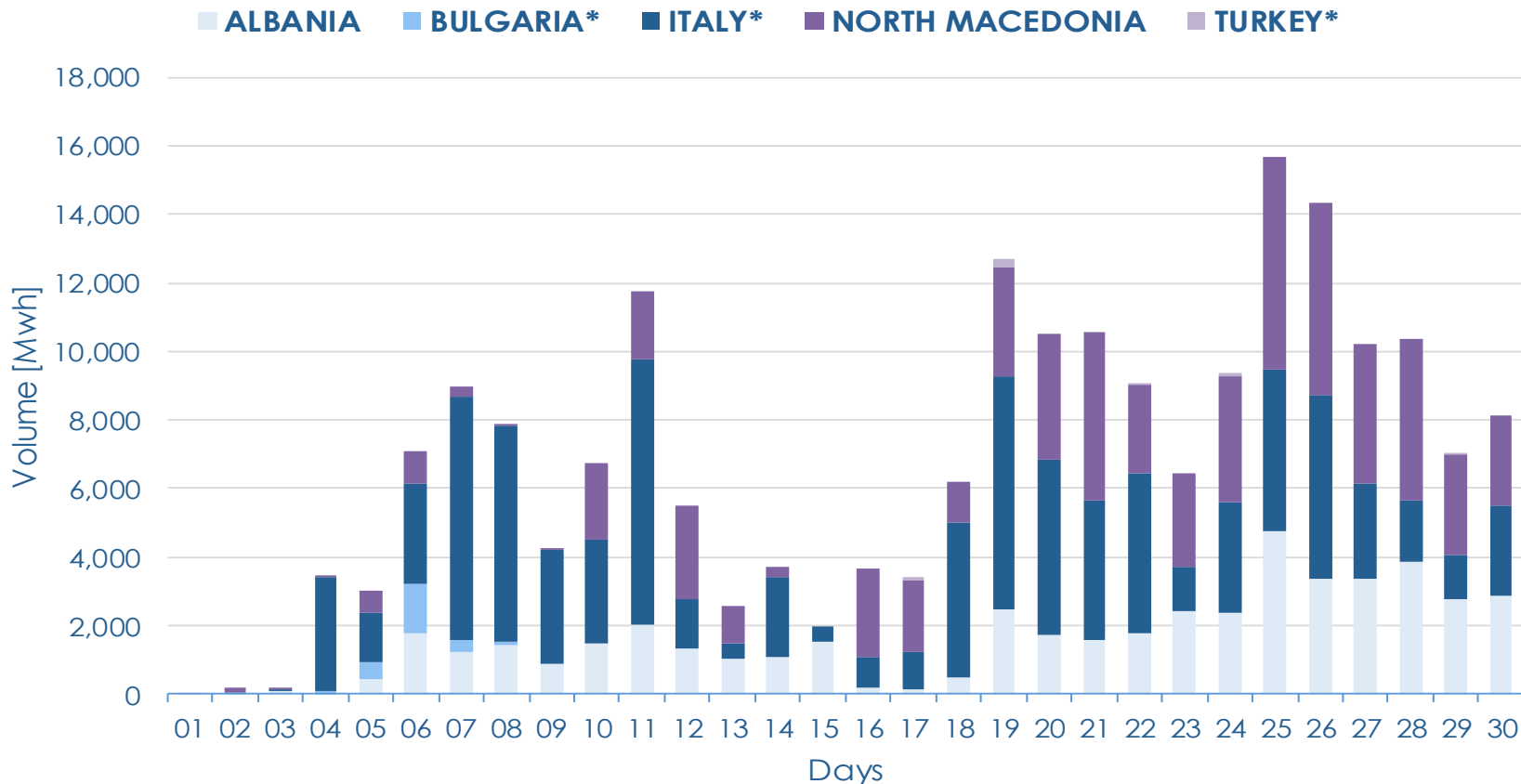
Cross Border volume - Imports - November 2020



*Interconnection with Bulgaria had zero NTC from 09/11-30/11, interconnection with Italy had zero NTC 01/11 - 03/11 (till 14.00 CET) and interconnection with Turkey had zero NTC from 02/11-08/11.

DAM: First results – Exports

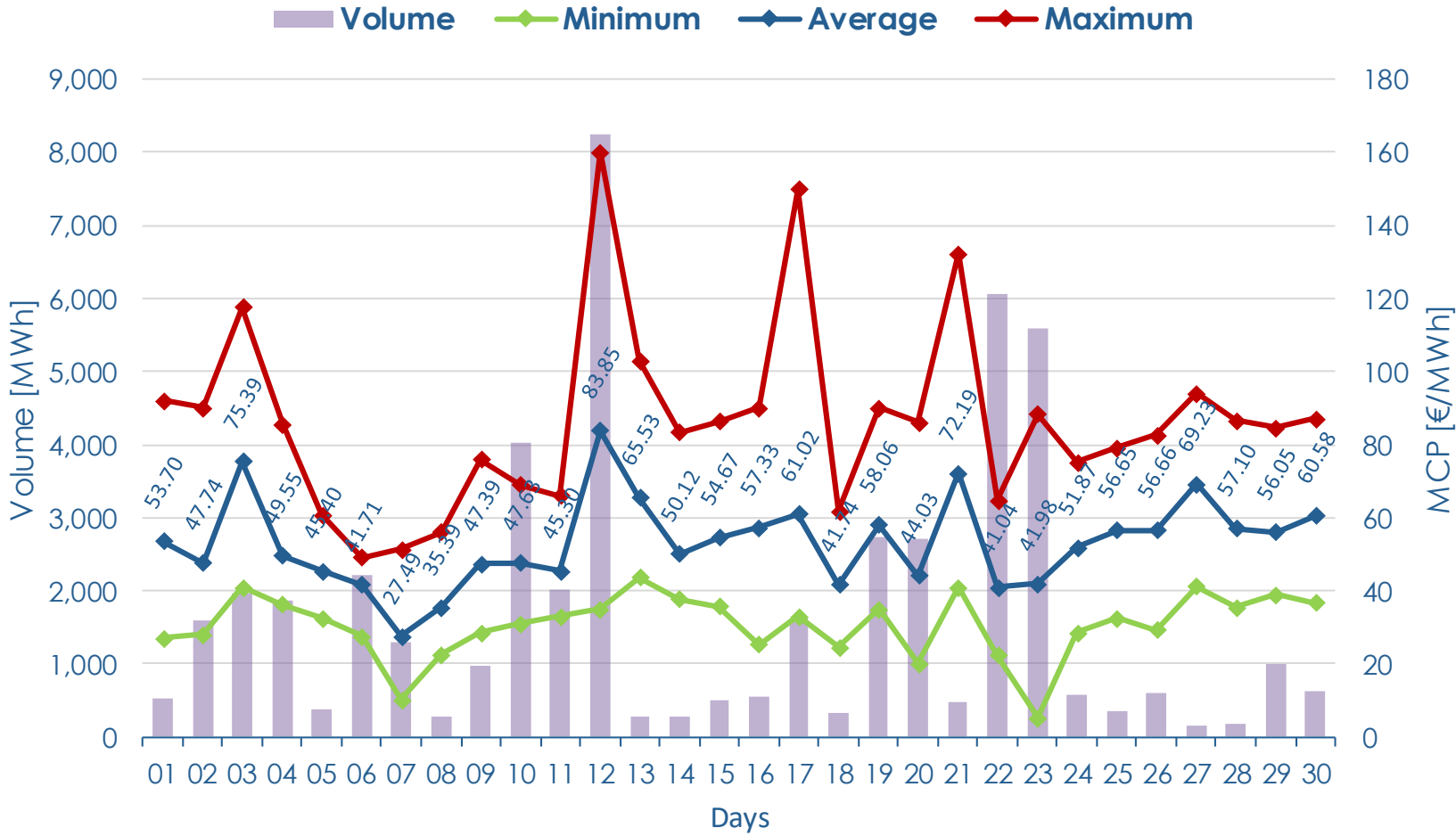
Cross Border volume - Exports - November 2020



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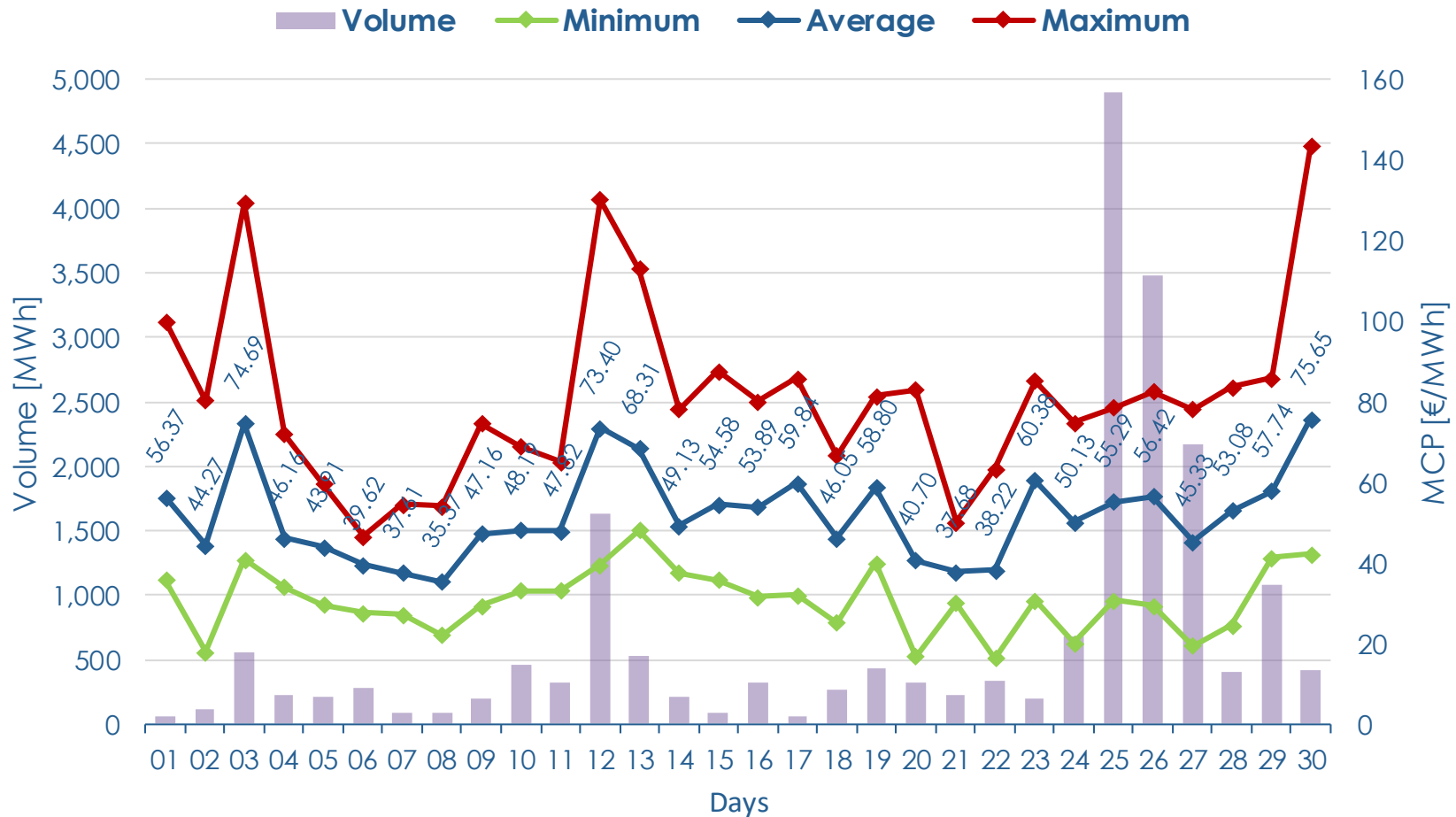
IDM: First results – First Intraday Auction

Daily MCP and volume · LIDA1 – November 2020



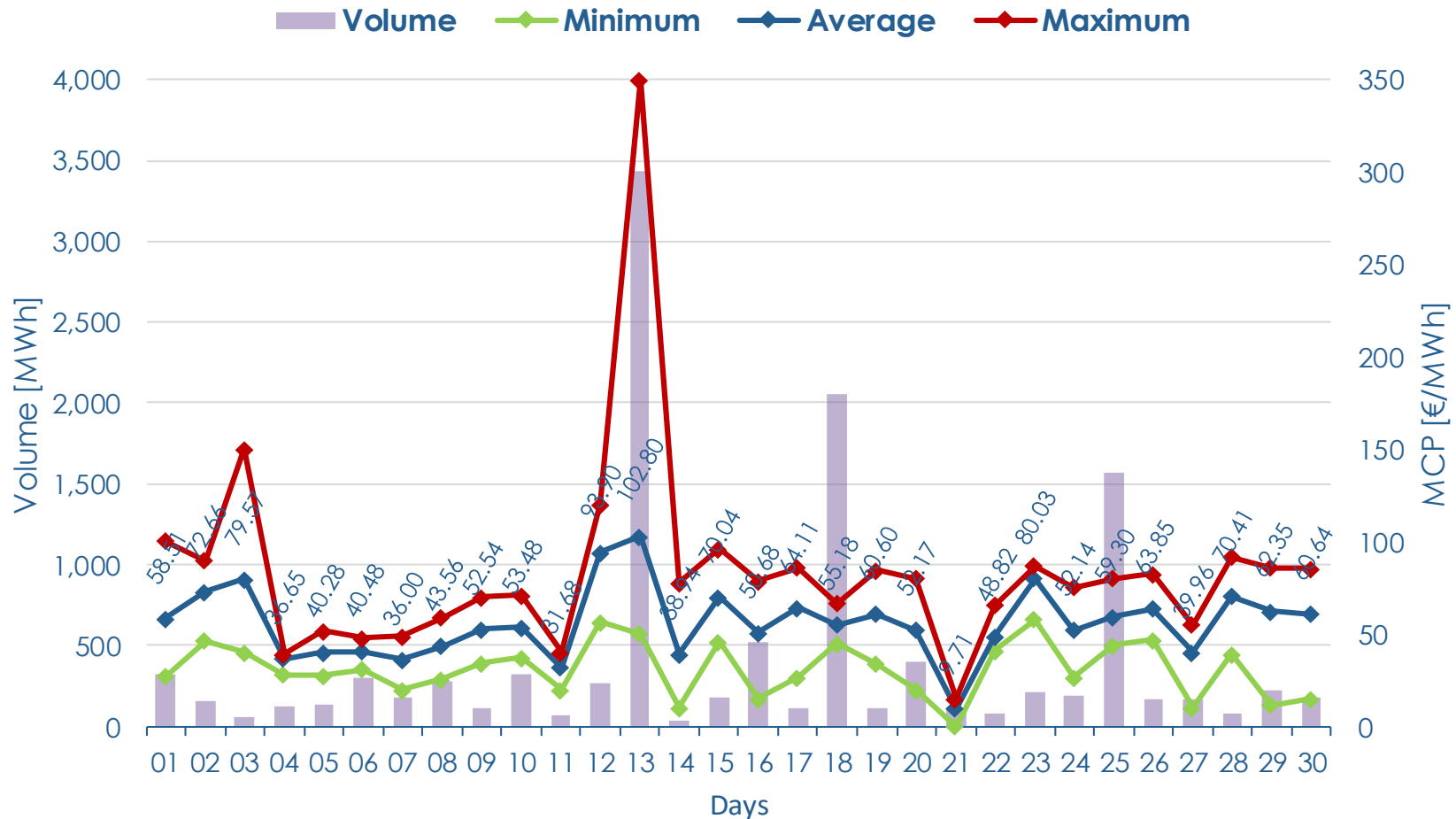
IDM: First results – Second Intraday Auction

Daily MCP and volume · LIDA2 – November 2020



IDM: First results – Third Intraday Auction

Daily MCP and volume · LIDA3 – November 2020

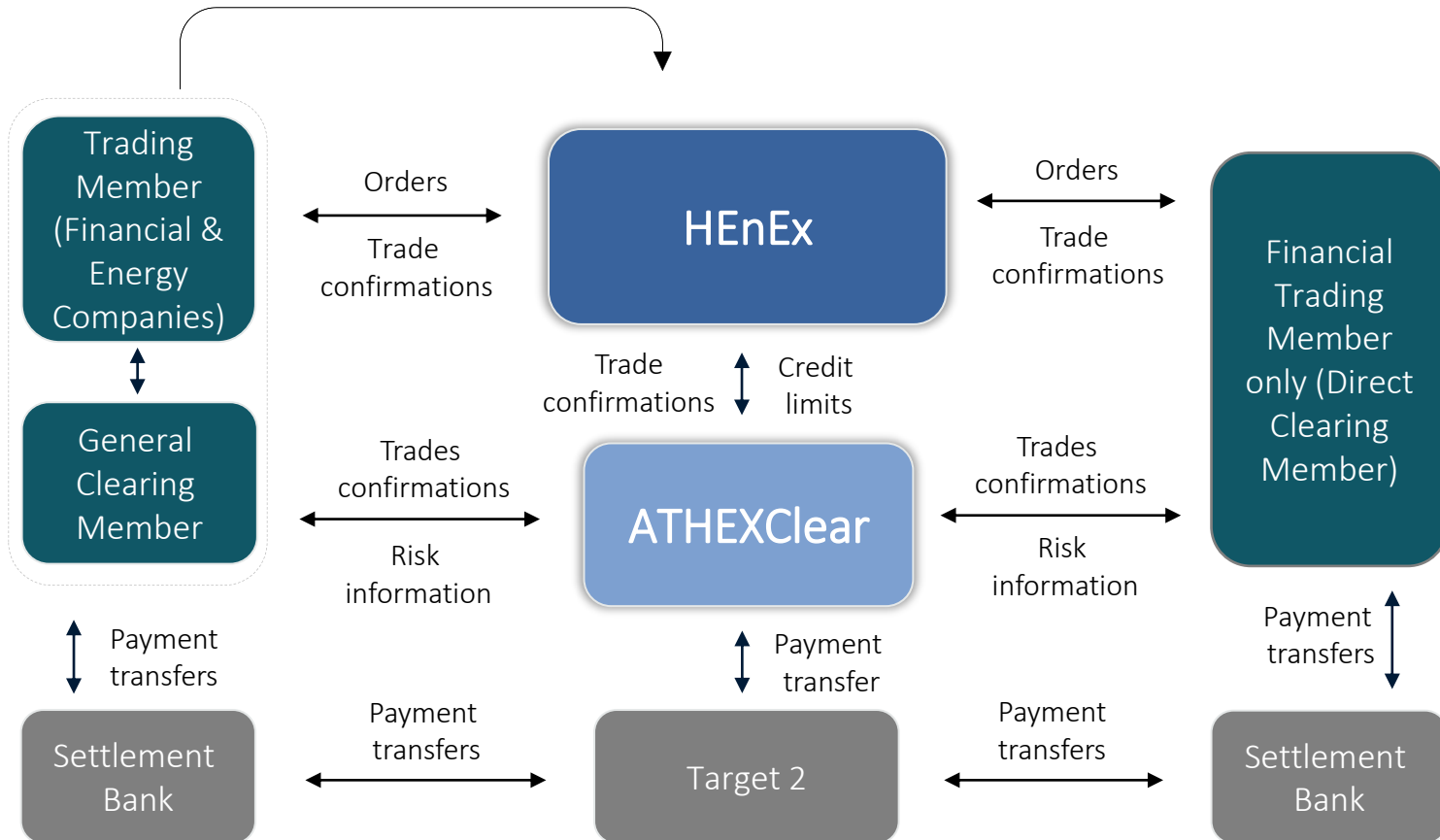


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Derivatives Market Architecture

Non-financial Members/clients of Members
may opt for physical settlement of their
positions in the Spot Market



Derivatives Market

New tools

- ▶ Implementation Phase II
 - Full product deployment
 - Will be activated together with the spot markets go-live
- ▶ Pre-arranged trades (trade registration): to be added soon

		Phase I	Phase II (LIVE!)
Products period	Monthly	current + next 3 months base & peak (8 in total)	current + next 6 months base & peak (14 in total)
	Quarterly	NO	next 4 full quarters (8 in total)
	Yearly	NO	next full year (2 in total)
Underlying		DAS (previous market)	DAM (new spot market)
Physical Settlement		NO	YES, optional

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Interconnections

▶ Albania

- 250 MW (imp.)/
250 MW (exp.)

▶ Bulgaria

- 500 MW (imp.)/
300 MW (exp.)
- ~2023: +600MW
Capacity decided

▶ N. Macedonia

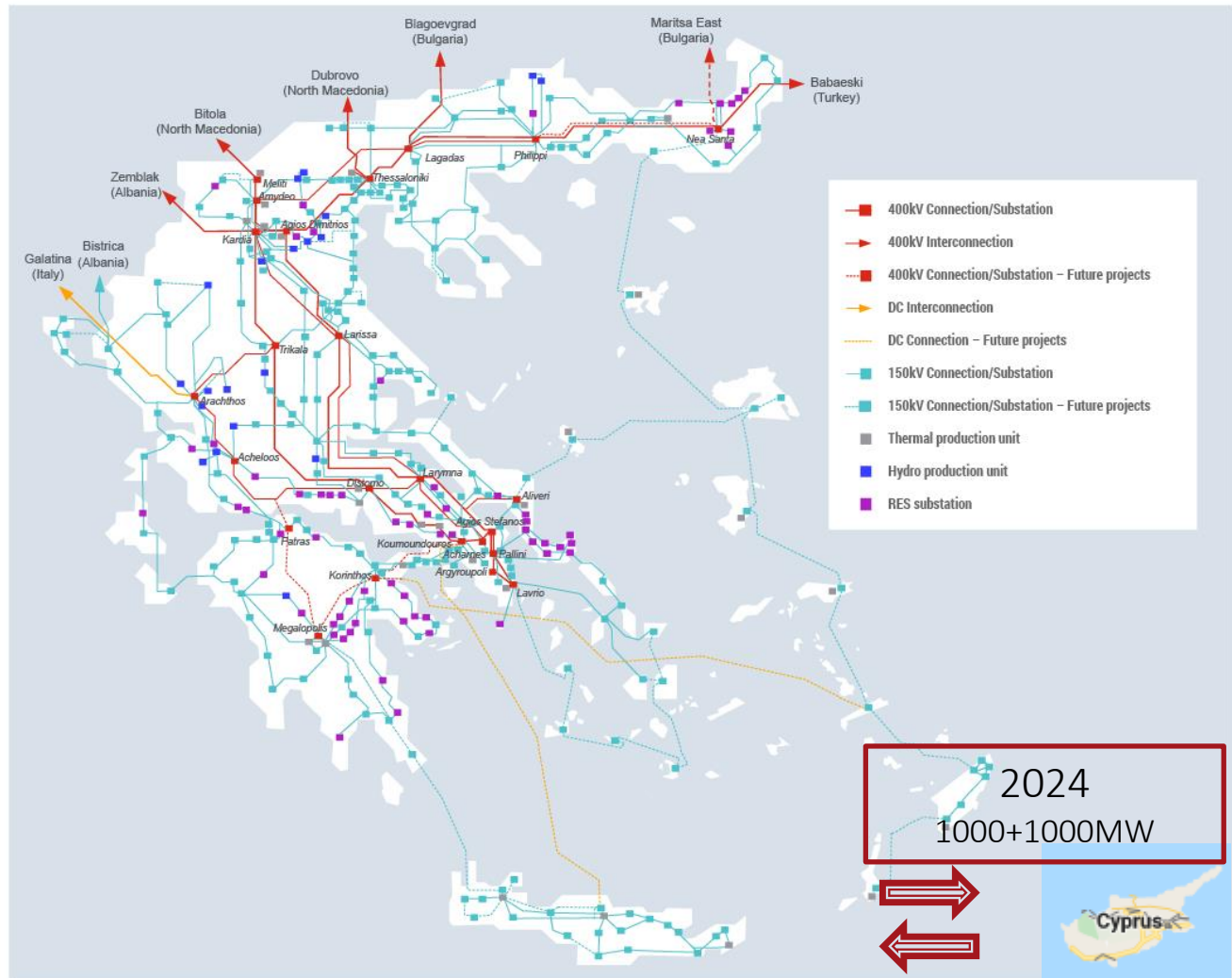
- 250 MW (imp.)/
350 MW (exp.)

▶ Turkey

- 200 MW (imp.)/
275 MW (exp.)

▶ Italy (DC link)

- 500 MW (imp.)
- 500 MW (exp.)



Source: ADMIE

DAM & IDM Coupling

Coupled & non-coupled interconnections

- ▶ Starting with isolated operation (non-coupled)
- ▶ Interconnections to be coupled:
 - Italy first, Bulgaria will follow
- ▶ Non-coupled Interconnections:
 - Albania, N. Macedonia, Turkey
- ▶ Allocation of capacities
 - Explicit during isolated operation
 - Implicit during coupling (with coupled Bidding Zones)
- ▶ Coupling in IDM
 - Local auctions are substituted by Regional/Pan-European auctions
 - XBID project



Market Coupling: first stage

Gas Spot Market

▶ Project scope

- Establishment of a Gas Trading Platform where HEnEx will be **the Trading Platform Operator (TPO)** and EnExClear **the Clearing House**

▶ Trading platform

- Compliant with EU Regulation 312/2014
- In the current Balancing Platform, DESFA (Hellenic NG TSO) buys and sells through auctions the quantities of gas needed to balance the NG Transmission System
- **In the new Trading Platform**, anonymous transactions between gas market participants will take place, providing marginal prices for the purchase and sale of natural gas
 - **Gas-fired power plant participants and all other end-users** will have the possibility to trade depending on their gas needs within an efficient and safe market environment

EnEx Group Milestones for 2020-21

Milestone	Date
Spot Markets Go-Live (isolated mode)	LIVE!
Futures Market Phase II (full product deployment)	LIVE!
Spot Markets Coupling with Italian Borders	December 2020
Spot Markets Coupling with Bulgarian Borders	Q1 2021
GAS Trading Platform	2021
IDM Continuous Trading (XBID) + CRIDAs Go-Live	2021



Energy Exchange Group

