

1st Greek-Turkish Energy Forum, 25/4/2024



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Energy Markets and Electricity Systems

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EDISON
EDF GROUP

One of the largest industrial & commercial energy groups in SE Europe

The longest-running electricity company in Europe & one of the largest in Italy



Electricity Production

With two state-of-the-art power production plants located in Thisvi and in Thessaloniki, ELPEDISON has a total installed capacity of 820 MW



Energy Management

ELPEDISON is one of the largest “players” in the wholesale trading sector of electricity and natural gas in the wider SE European market



Energy supply

Since 2011, ELPEDISON has been the leading alternative electricity supplier for business and residential customers.

Since 2018, it is also active in the natural gas market



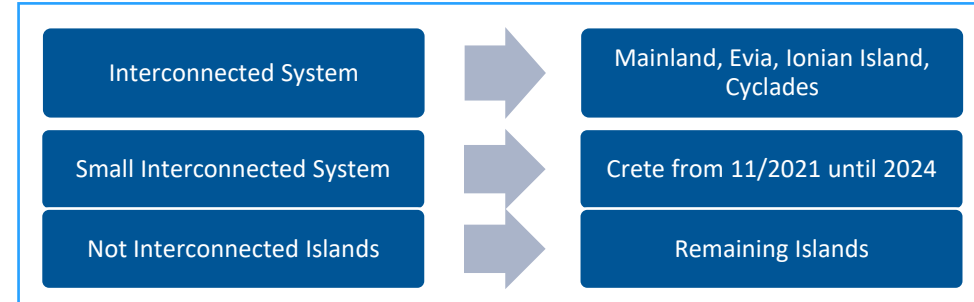
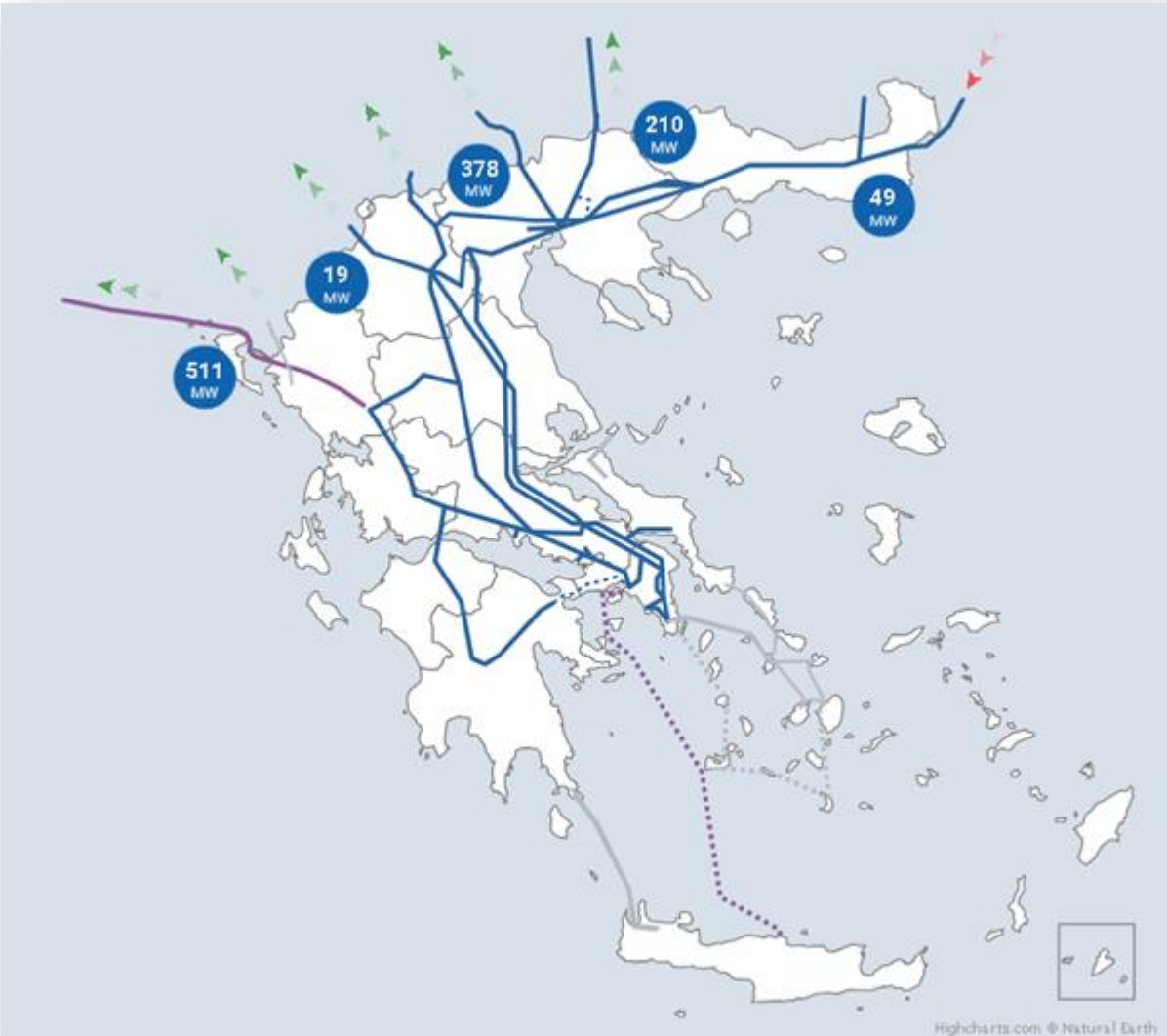
Energy Efficiency Services

ELPEDISON knows better than anyone else the value of energy. For this reason, we assist our customers in their effort to increase the energy savings for their business, through the provision of adequate inspection services.

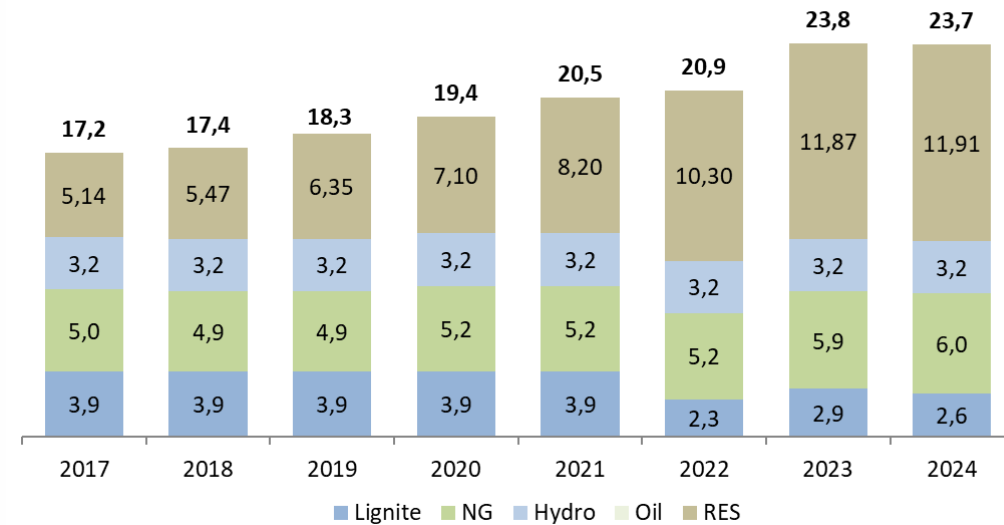
Overview of The Greek System

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The Greek System



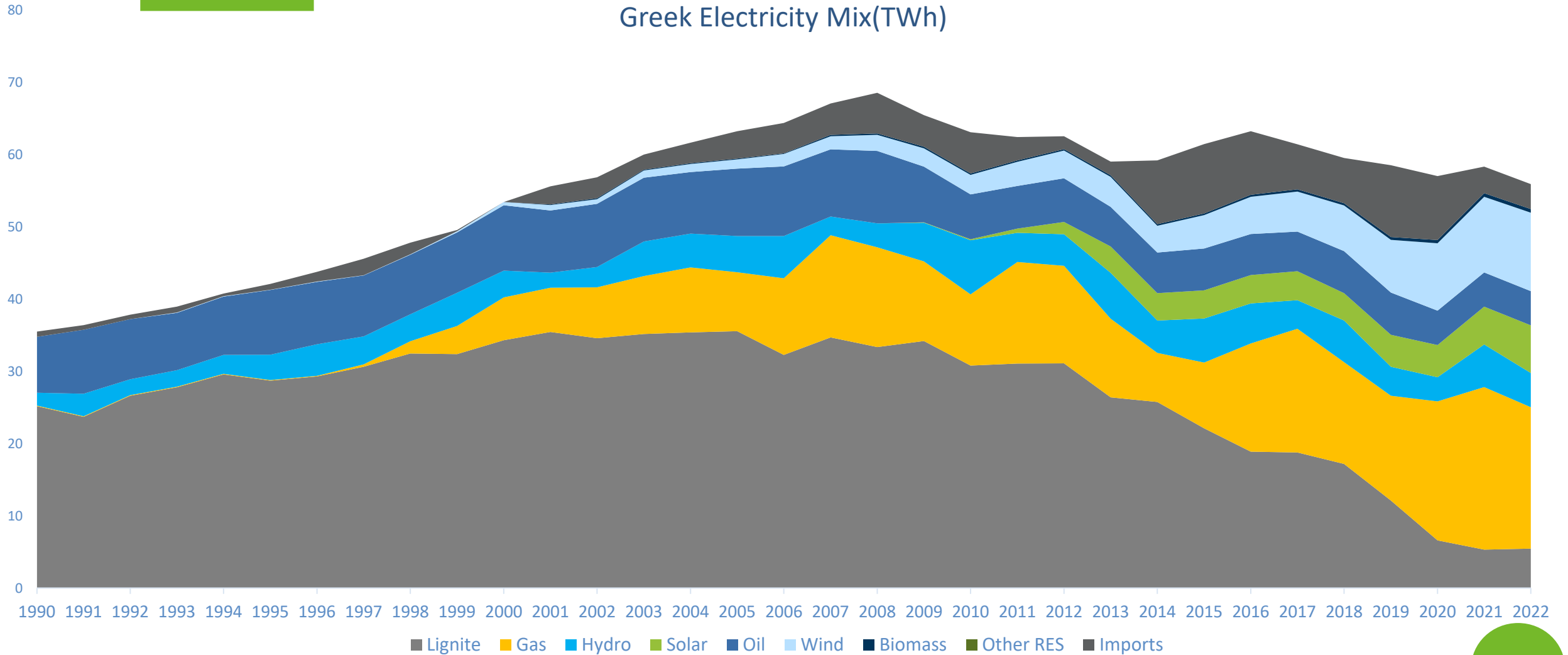
Installed Capacity (GW)



Energy Mix



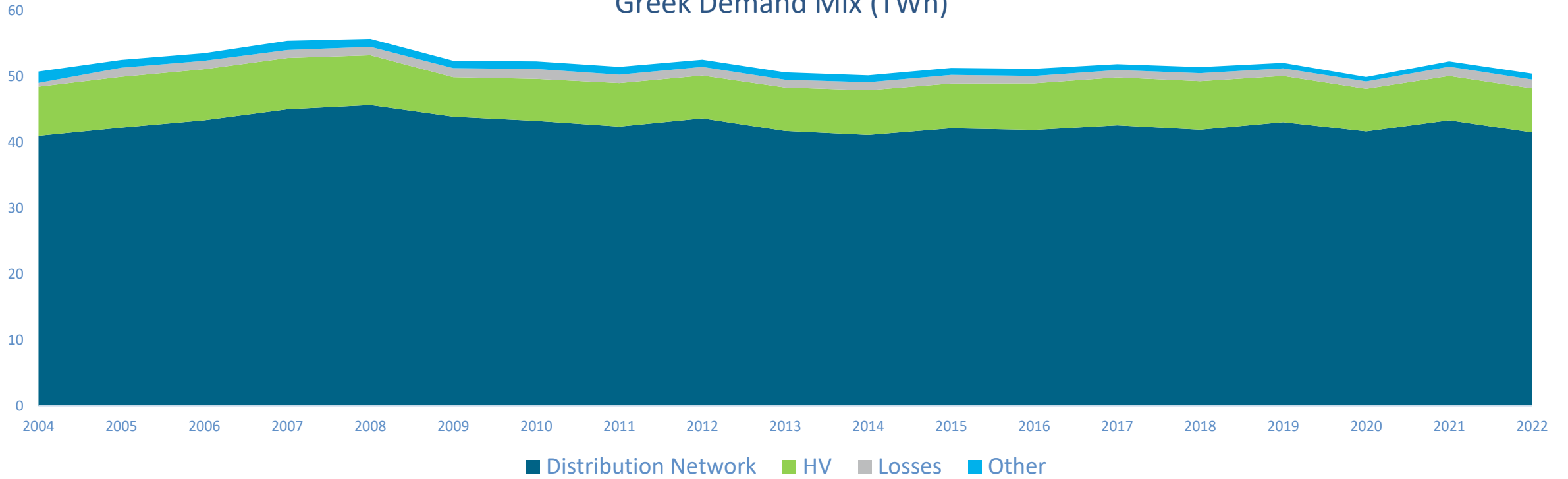
Greek Electricity Mix(TWh)



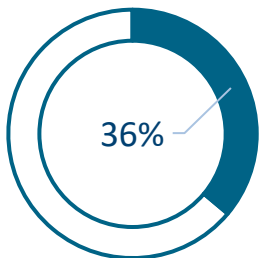
Demand Mix



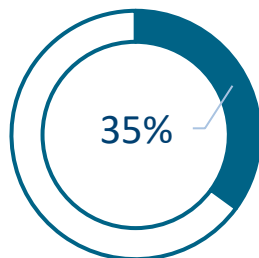
Greek Demand Mix (TWh)



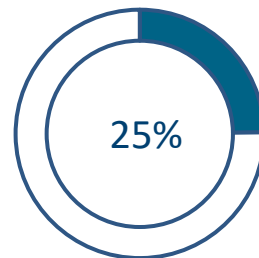
■ Distribution Network ■ HV ■ Losses ■ Other



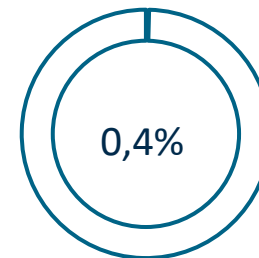
Commercial & Public Services



Residential



Industry



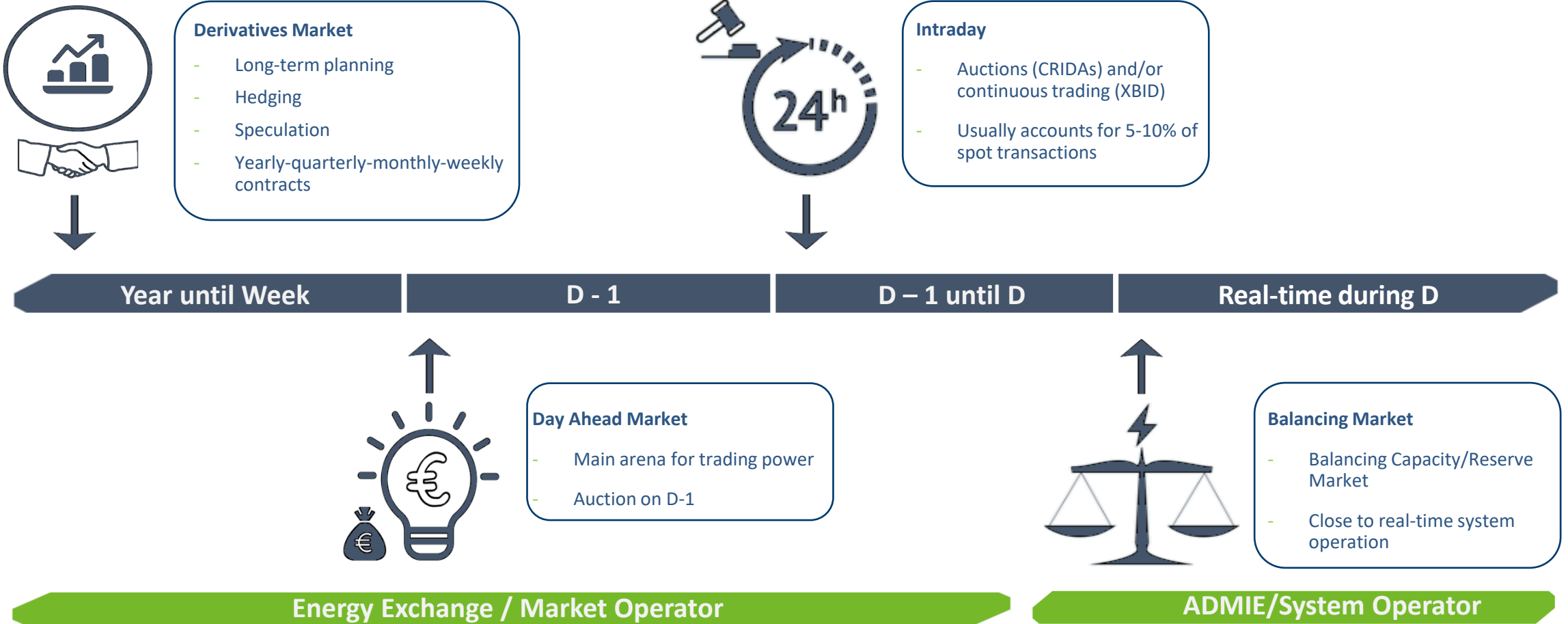
Transport



Wholesale electricity markets in Greece

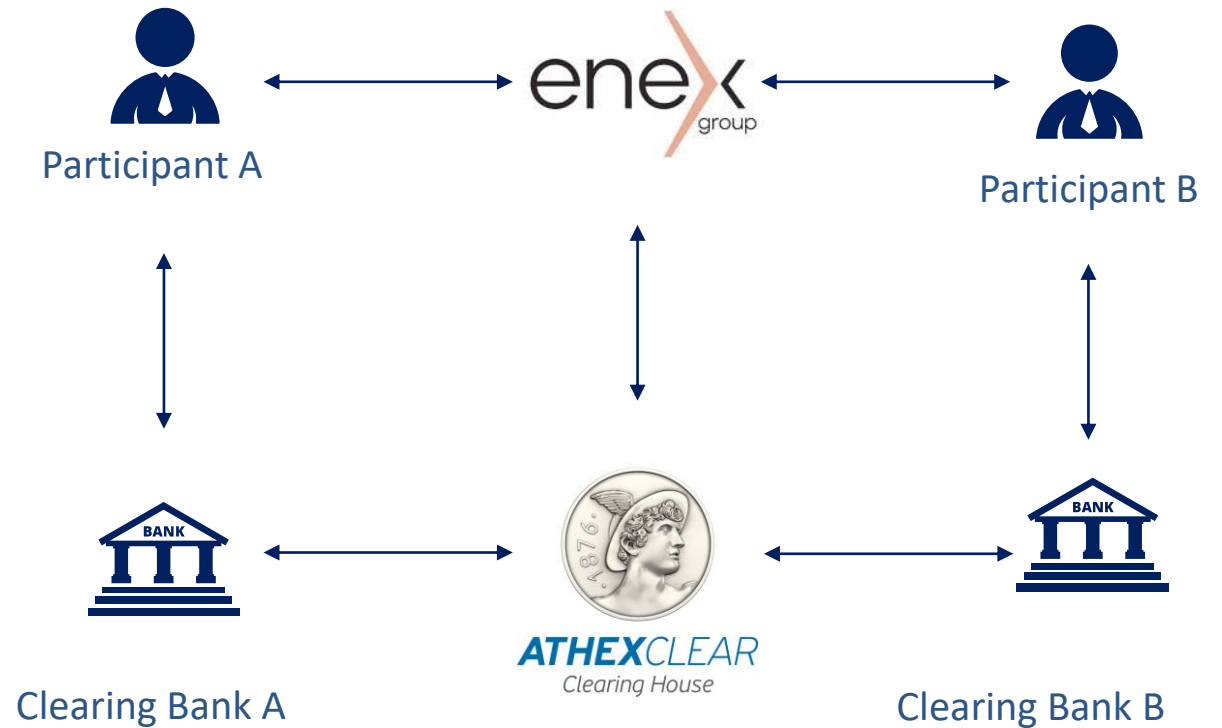
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Main Electricity Markets since November 2020



Derivatives Market Structure

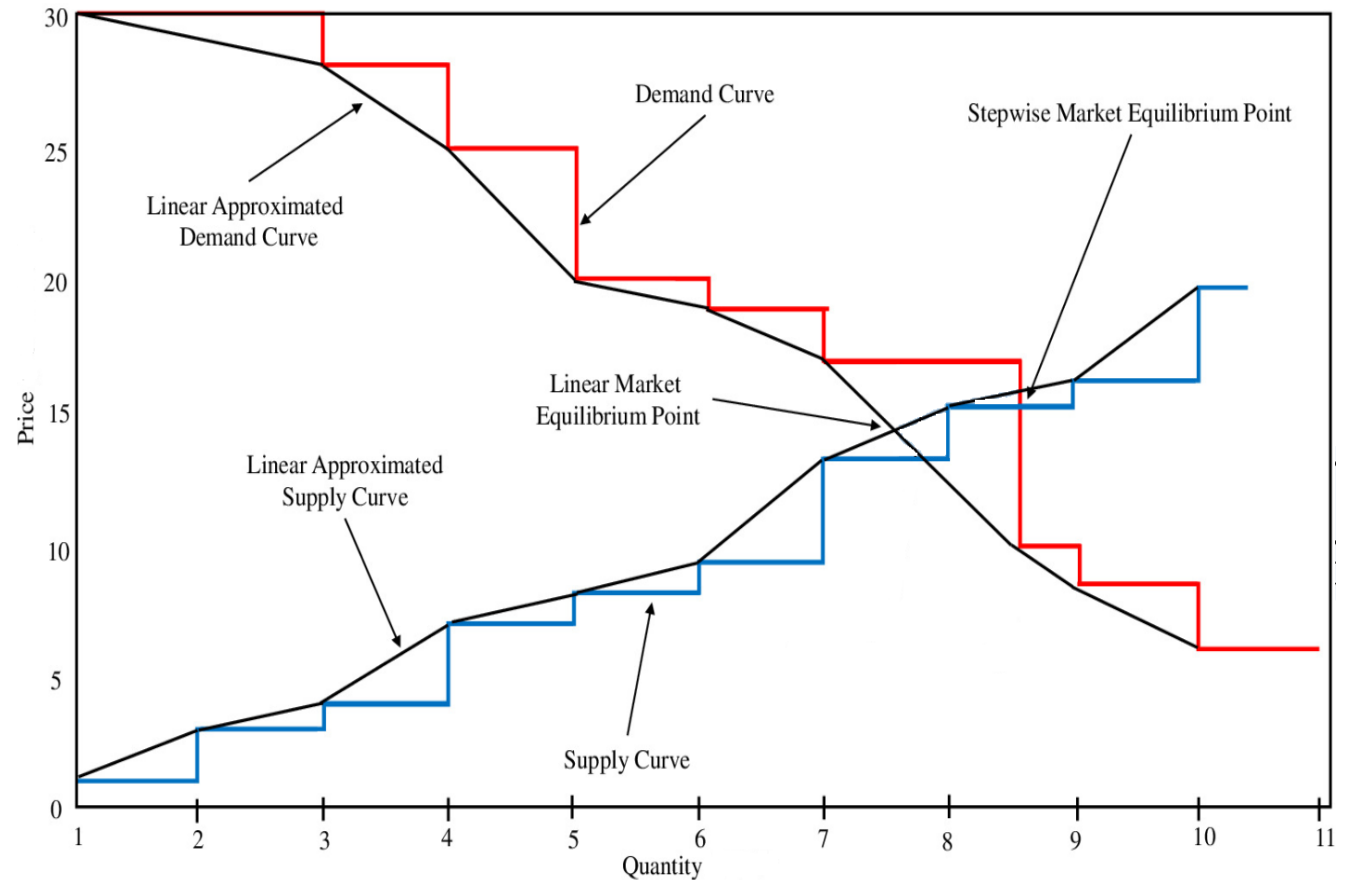
- Started in March 2020
- Offers monthly, quarterly and yearly standardized products
- Optional physical settlement
- Provides hedging opportunities
- The Day-ahead-price serves as the underlying commodity



Day-Ahead Market (DAM)

DAM Concept Design

- Pan-European market clearing algorithm – EUPHEMIA
- Asset-based participation
- Hourly MTUs->tbc
- Only energy products are traded (no ancillary services)
- Mandatory Participation for Producers
- Implicit trading with Italy and Bulgaria



Source : International transactions on Electrical Energy Systems

Single Day-ahead Coupling (SDAC)

EUPHEMIA: EU Pan-European Hybrid Electricity Market Integration Algorithm

- Solves the market coupling problem on PCR perimeter
- Single price coupling algorithm
- Calculates energy allocation and electricity prices across Europe
- Energy-only market
- Participants buy/sell at the market clearing price (no uplifts)
- The solution maximizes the social welfare



Single Day-ahead coupling (ENTSOe)

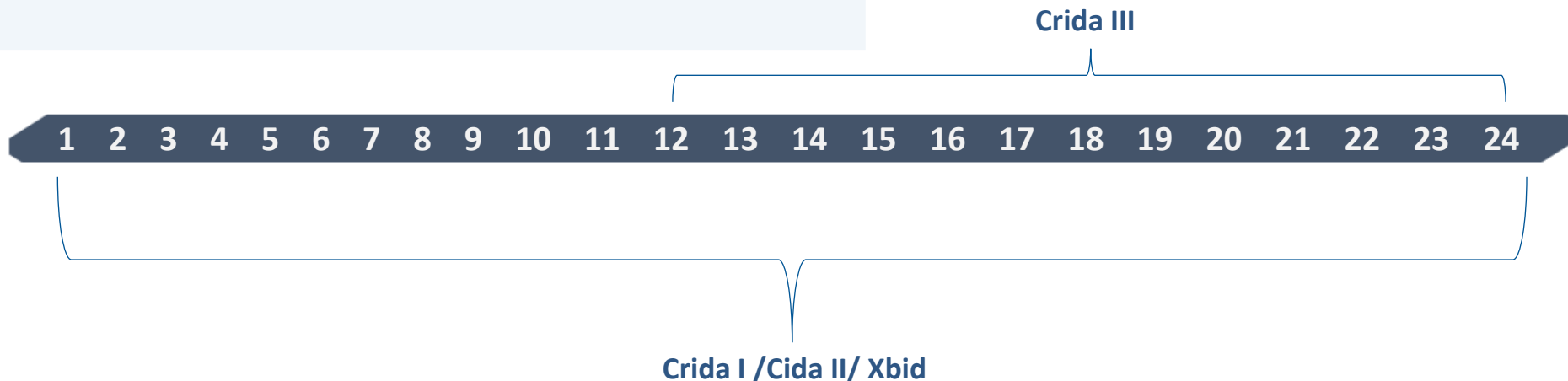
The aim of Single Day-ahead Coupling (SDAC) is to create a single pan European cross zonal day-ahead electricity market

Intra-Day Markets (IDMs)

IDM Concept Design

- Continuous trading along with 3 auctions:
(LIDAs->CRIDAs->IDAs)
- MTU duration: 60min Hourly MTUs
- Asset-based participation
- Participation is not mandatory
- Traders are not allowed to participate

Market	Gate close time (CET)
Crida I	15:00 (D-1)
Crida II	22:00 (D-1)
Crida III	10:00 (D)
Xbid	Before the start of each specific contract

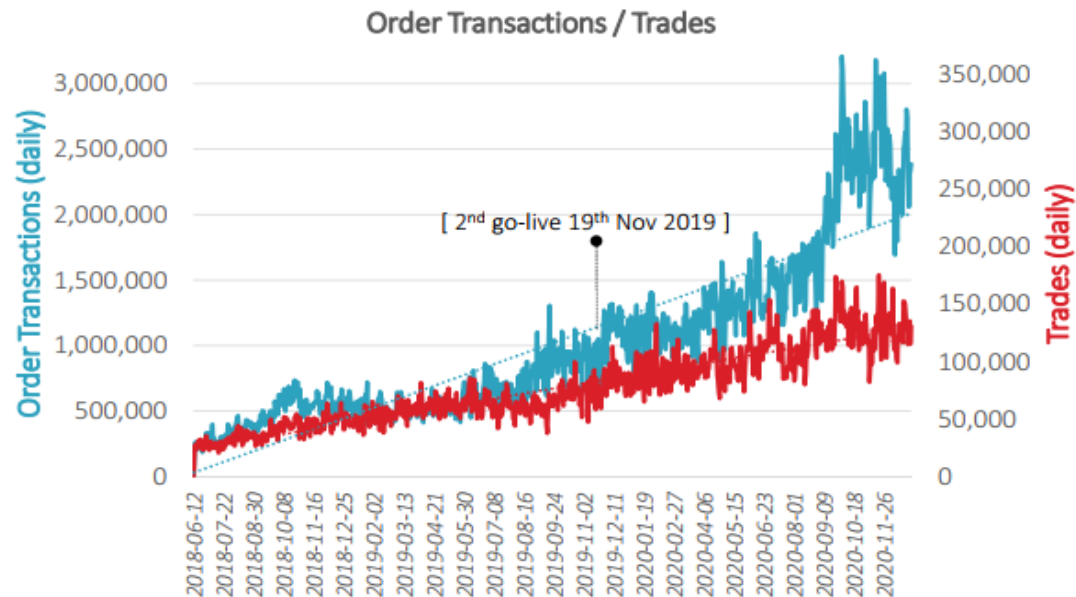


Intra-Day Markets, SIDC Overview (XBID)

SIDC represents a significant step forward towards the European target model and a full implementation of CACM on Greek bidding zone borders

Continuous intraday trading started in Greece on 30/11/2022

- Trading **24/7**
- Cross-border trading opportunity across Europe on one platform
- Enables increased optimization of generation assets, especially RES
- Brings the whole European Intraday continuous market together and complements the Day Ahead Market & the Intra-Day Market Auctions
- Capable of delivering a wide product range – 15 minutes, 30 minutes, hourly, block products etc.



Average No. daily trades 2019: 64.000 ↑ +72%
 Average No. daily trades 2020: 110.000

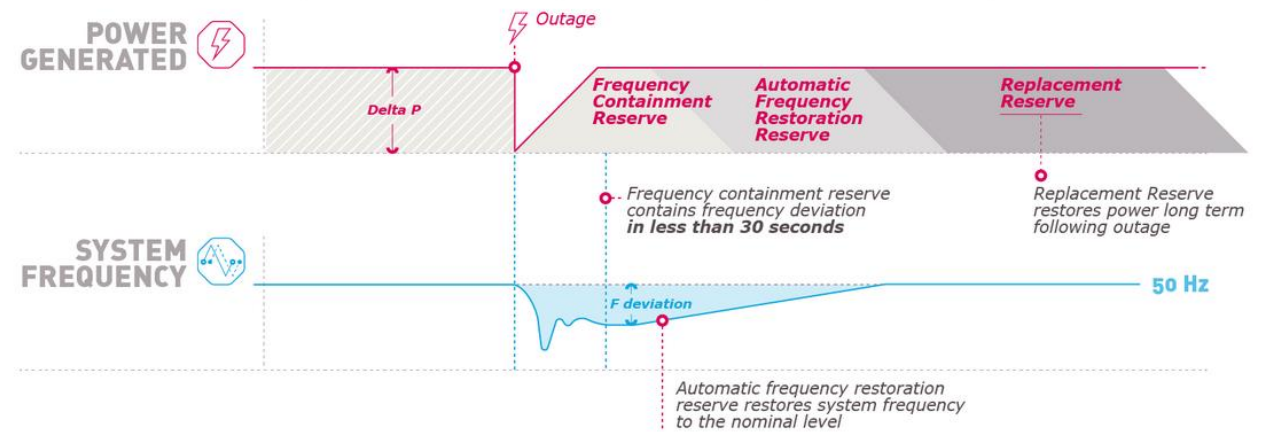
Average No. daily order transactions 2020: 1.646k ↑ +130%
 Average No. daily order transactions 2019: 708k

Balancing Market

Balancing Market :

- Ensures efficient and reliable power system operation.
- Involves market mechanisms for optimal resource allocation.
- Aligns electricity production and consumption schedules.
- Takes into account network and asset constraints and limitations.
- Procures Balancing Capacity

The result of the above are the Integrated Scheduling Process Results



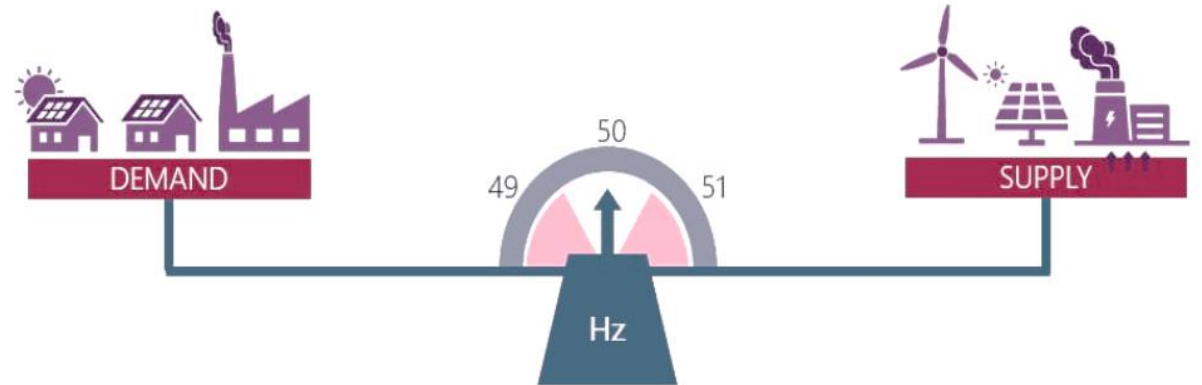
Real Time Balancing Market & Imbalance Settlement

RTBM

- 5 min before each period ADMIE runs the RTBM process taking into account most recent conditions and calculates the set point for each BSP (mFRR)
- BSPs which have been awarded aFRR capacity offer aFRRr energy

Imbalance Settlement

- ADMIE calculates ex-post the financial settlement between market participants



Thank you for your attention!



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