

Reforming the Greek Energy Market: Recent Developments and Key Challenges

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RAE, Member of the Board**

**35th ECRB Meeting,
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Key Facts and Challenges

- Market Structure

PPC - **Dominant player** in both wholesale and retail

79% of conventional capacity, **88%** retail share

77% of conventional production

55% of DAS volume (RES included, without cross-border flows)

- In the previous decade, incentives for **new capacity**, to address anticipated capacity shortage

Capacity payments over 2006 - 2014

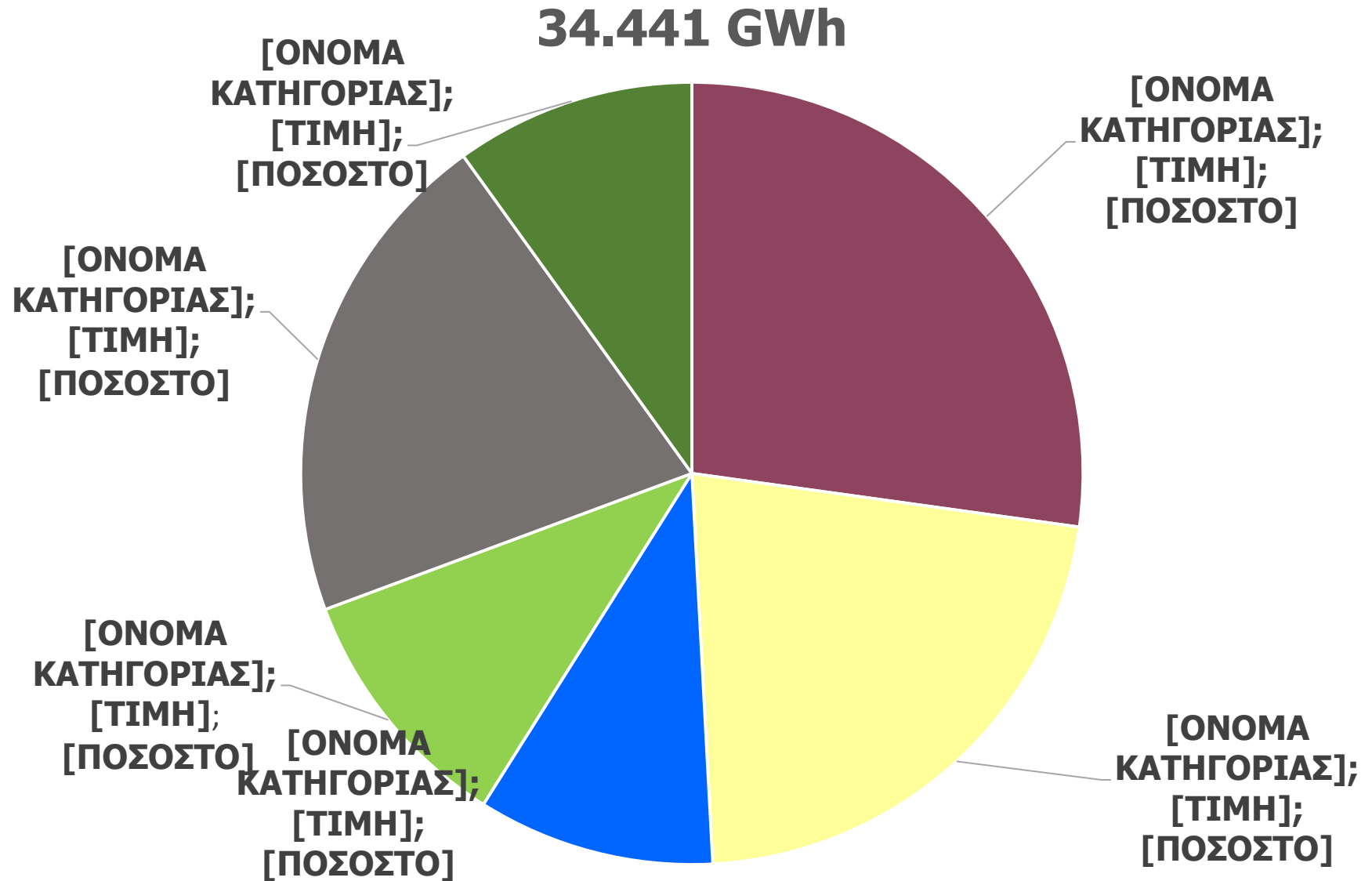
2500 MW by IPPs (6 CCGT, 1 OCGT)

New capacity by PPC

- Generation Mix: **Well-balanced** across lignite, gas, hydro, renewables

Impact of Oil Prices

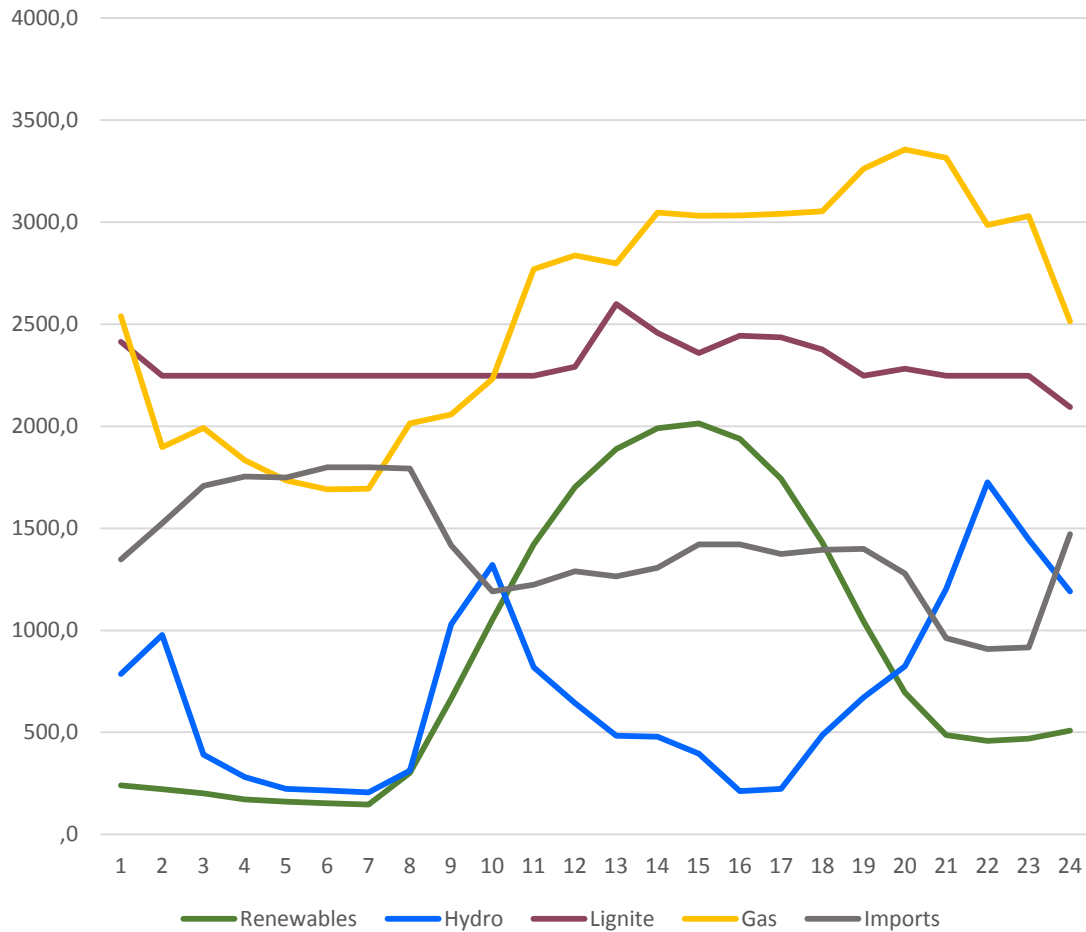
Energy Mix (GWh), January - August 2016



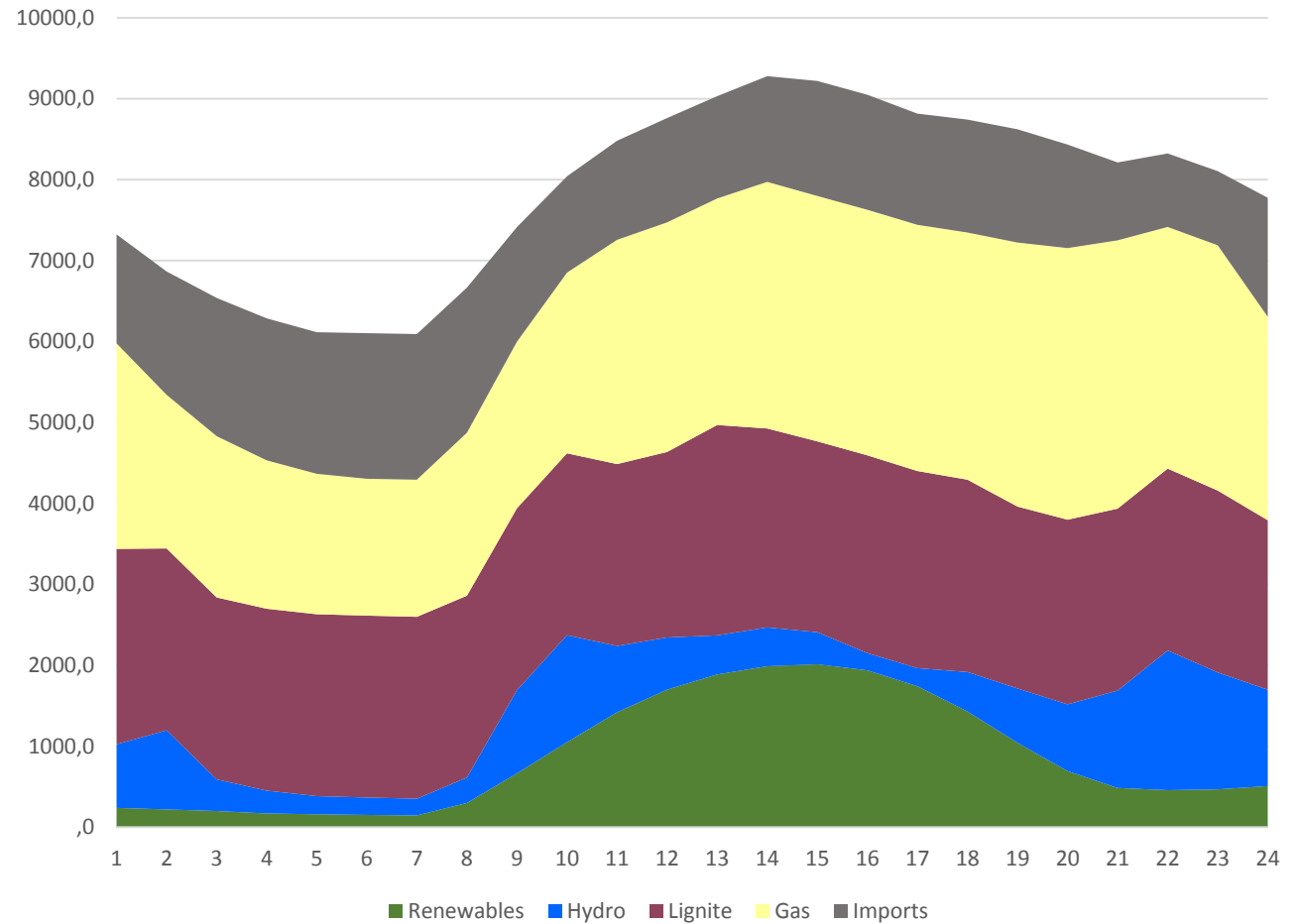
Impact of Oil Prices

Summer Demand Peak - 15.07.2016

Generation mix



Generation mix



NOME Auctions

- To enhance **competition in retail** market
- Remedy for **asymmetry** due to PPC's exclusive access to lignite and hydro plants
- Similar to **French** paradigm, different from previous proposals
- Concept: Hypothetical, baseload product (**mix of lignite and hydro**)
RAE derives variable cost, as outlined in the law
This product is auctioned to **alternative suppliers**
- Target: **50% decrease** in PPC's market share **by 2020**
Annual targets + specific implications if not reached

NOME Auctions

- In June 2016, RAE proposed the **reserve price (37.37 €/MWh)**, which was adopted at a ministerial decision
- RAE approves quantities, products, auctions schedule
- **1st auction**: 25th October 2016, 1-year product, **460 MW**, physical delivery from Dec 2016 to Nov 2017
- Auctions for 2017: RAE decision in December
- **Parameters to be clarified**:
 - **Re-auctioning** of previous year's quantity? If so, **to what extent?**
 - Frequency and **timing of price revision** - Every June
Balance between stability and realistic CO2 price levels
 - Negotiation with institutions

NOME Auctions

- Expected discount of 7-10 €/MWh relatively to SMP
- Benefits should be transferred to consumers and be balanced across categories
- In-depth monitoring of retail market
- Suppliers will submit quarterly data on:
 - Competitive charges of tariffs, volume and revenue per consumer category
 - Development of new products
- Compliance of contract terms and conditions with the Supply Code
- Price comparison tools - CEER Guidelines under public consultation

Why consumers do not switch? Commercial Barriers - CEER Report

- Switching rate: **6.3%** (EU level) but **31%** in Portugal
- Consumers' **misperception about insufficient gain**
e.g. in Netherlands: **perceived** annual gain 85 € **vs. realized** gain 147 €
- Lack of **complete, understandable and comparable information** -> Guidelines on price comparison tools
- Vague **conditions**, unjustified **termination fees**, value added services difficult to assess
- **Misperception** about complexity of switching process
- **Inertia / loyalty** rather than satisfaction
- Broad customers' **distrust** to the energy markets
- **Complexity of bills**, substantial regulated component

Transition to Target Model

- **Target Model** Implementation: January 2018
Day-ahead, intra-day, balancing and forward markets
- **Market Coupling** with Italy initially
- **Technical Assistance (JRC)**
7 Key Deliverables on: Market and Grid Codes, IT platforms, Credit and Clearing, Regulatory measures (e.g. hedging ratio)
- **Current status:**
 - **Legislation** in place (following RAE's Proposal to Ministry)
 - **Guidelines** will be issued by RAE to the Market and System Operators
A proposal is under **public consultation**

Auction-based Capacity Mechanism

- Previously, the capacity scheme was administratively set (570 mil. € in 2014)
- Transitional flexibility payments (171 mil. €) for 1 year
- Security of Supply
Deter plant mothballing due to RES impact. Lignite plants retirements.
- Key principle: Price coverage for consumers until competition intensifies, given the price cap adjustment and limited hedging tools
- Proposal to DG Comp for Reliability Options, similarly to Italy and Ireland
Auction winners: capacity obligation + implicit cap on their market revenues
- Study of flexibility requirements is expected by the TSO (JRC technical assistance)

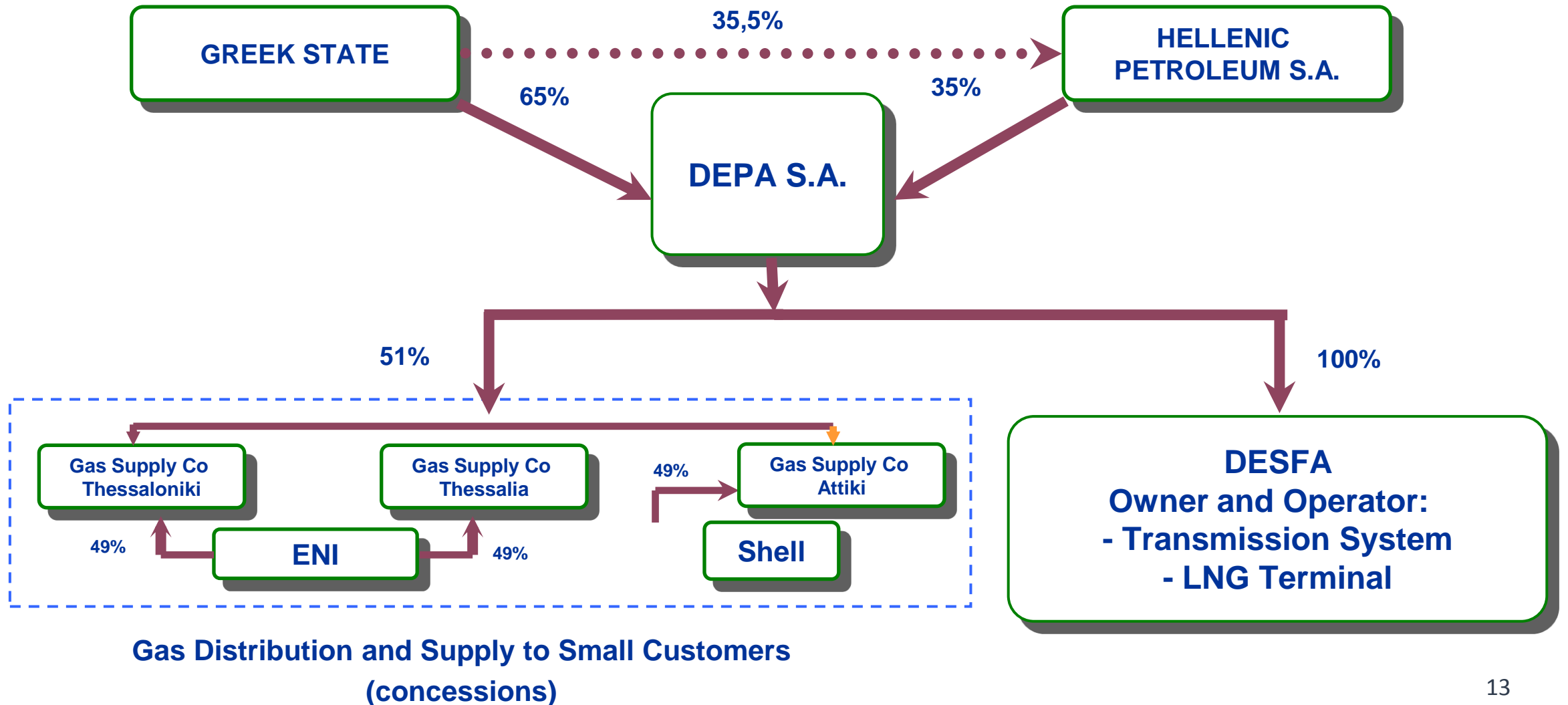
Interconnection Agreement (BG - GR)

- Compliance with Network Code CAM
- Signed in June 2016 between the TSOs of Greece and Bulgaria
- Applicable up to January 2017.
- Enabled **commercial gas flow** from Greece to Bulgaria from **1.7.2016**
- EC: "*A crucial step towards implementing EU rules on one of the last cross-border points in Europe where **historic transit arrangements, tailored to a single company, prevailed***"
- **Auctions via the RBP platform:** 9-month, quarterly, monthly products
- Forward direction
- **Interruptible, virtual reverse,** monthly product
- First auction: **9th December**

Other Developments at Wholesale Gas Level

- **Revised IA** currently being drafted by DESFA and Bulgartransgaz
- Key elements:
 - **35 renominations, physical reverse flow**, harmonization of gas day definition, change of temperature reference point.
- 3rd revision of Network Code on-going
- Additional quantities of **gas released by DEPA**
 - 10% of annual supply **plus: 5%** (2016), gradually **increasing to 10%** (2020)
- 1st auction under new framework in November

So far: Unbundling of Incumbent DEPA Transmission (DESFA) vs. Supply (EPAs)



Opening of the Retail Gas Market in Greece

- **Unbundling of distribution from supply activities** by 1.1.2017
- End to EPAs' and DEPA's **exclusivity** in their specific areas
- **All customers will be eligible** from 1.1.2018 onwards, following the adoption of Law 4336/2015
- Increase in number of market players holding a license for gas supply
- **EPAs can now freely choose their supplier** for quantities relating to their eligible customers
- New secondary law and regulatory framework outline the **effective unbundling** of distribution from supply and the operation of distribution networks.

Regulatory Steps towards Liberalization

- Gas **Distribution Tariff Regulation: Sept 2016**
- Gas **Distribution Tariffs: Oct 2016**
- **Distribution Network Code: Dec 2016**
- **Metering Regulation: Dec 2016**
- **Third Party Access contracts: Dec 2016**
- **Legal and Operational Unbundling: Jan 2017**
- **New distribution and supply licenses: within 2017**

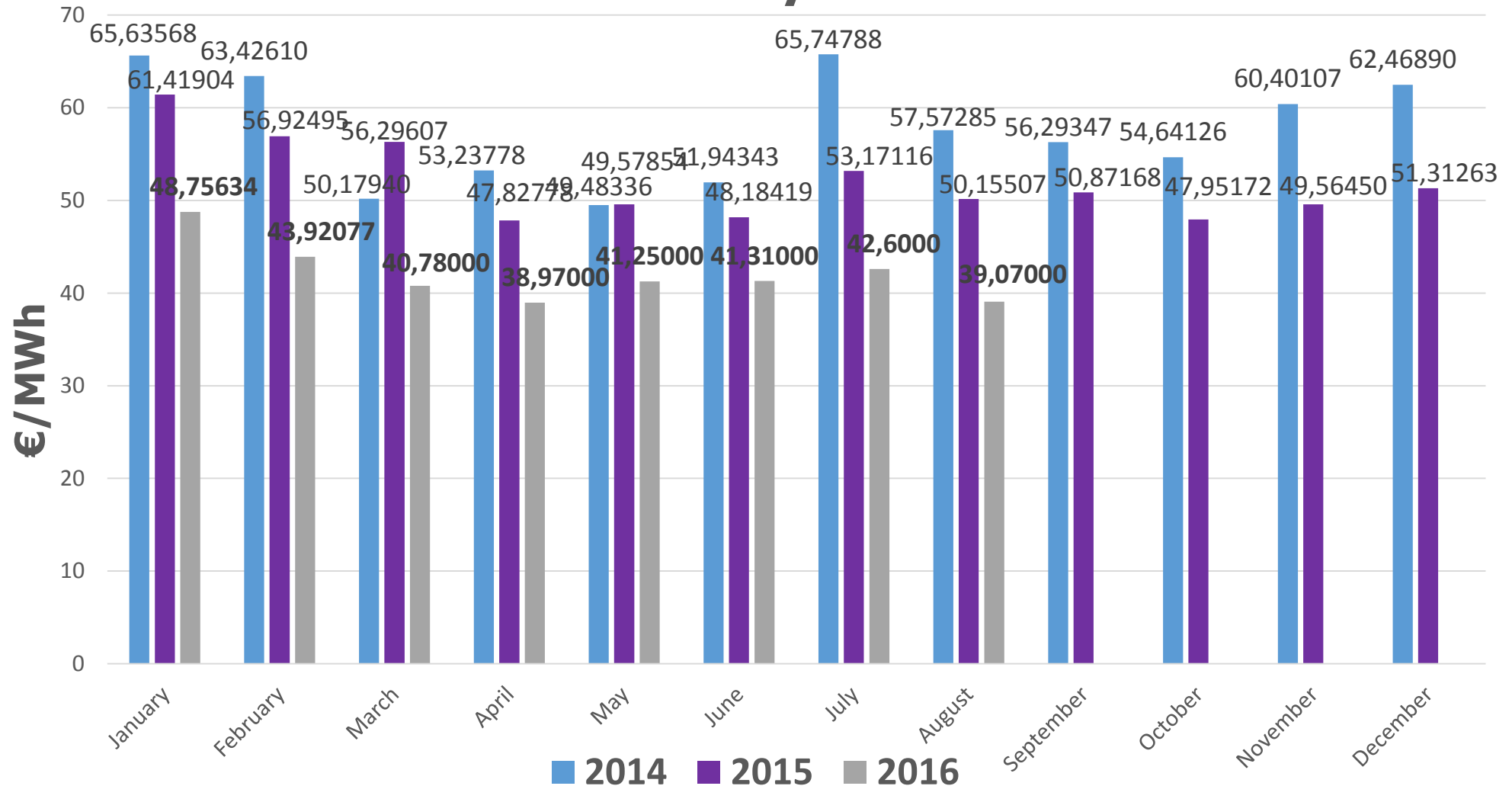
The IGB Pipeline - Regulatory Timeline

- 05.2013 - 09.2014: First Market Test. Terminated by sponsors.
- 11.2015 - Regulators issued revised Guidelines for non-binding phase (EoI)
- 12.2015 - 4.2016 - EoI Phase was conducted
 - 9 companies expressed interest
 - up to 4.4 bcm/year forward flow, 1 bcm/year reverse flow
- 07.2016 - Regulators issued Bidding-phase Guidelines
- Bidding-Phase was concluded in November 30th.
- A new session is expected for non-allocated quantity
- Expected commercial operation: 2H 2018

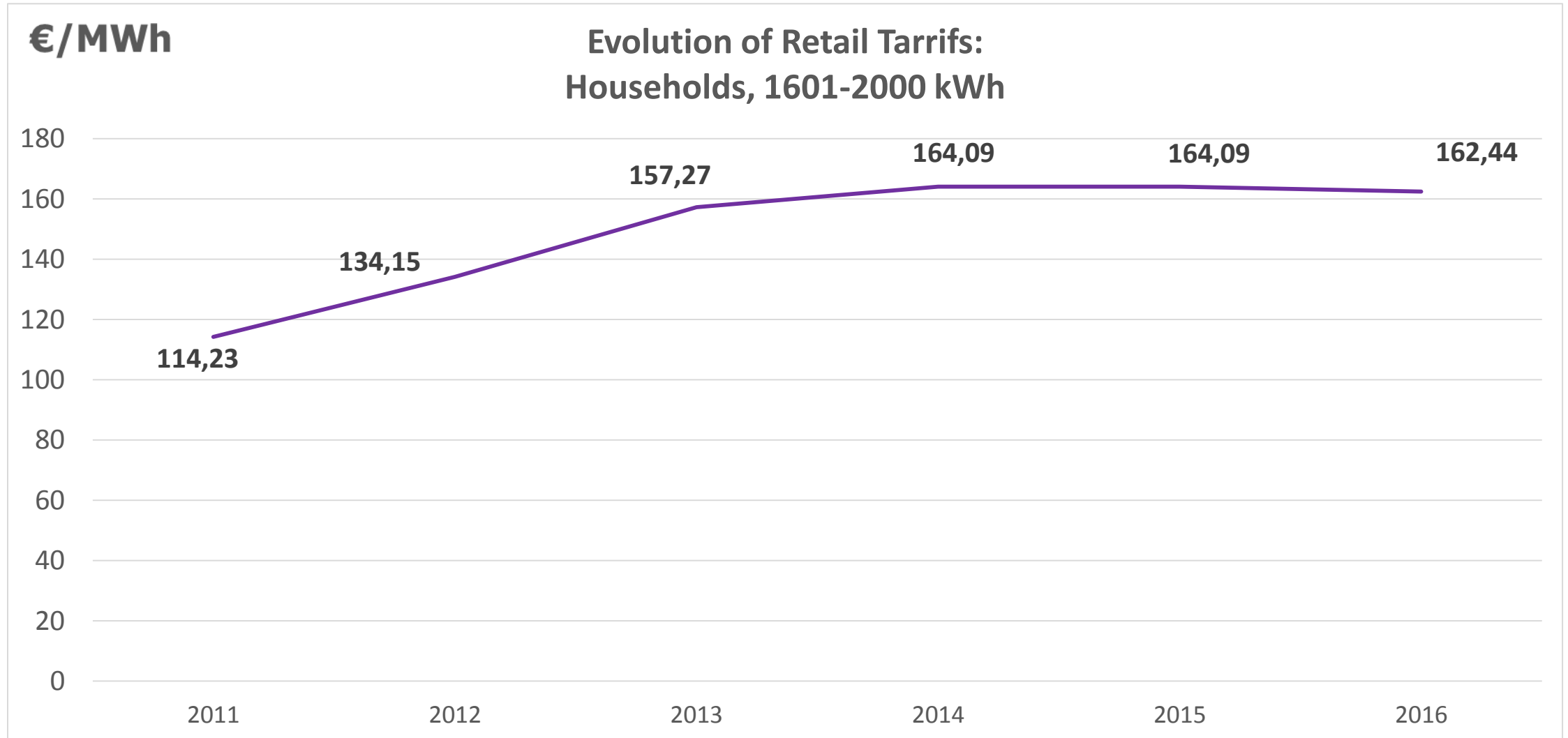
Supplementary Material

Dynamics of Wholesale Prices

SMP Monthly Variation



Consumers not seeing the effect of wholesale price drop



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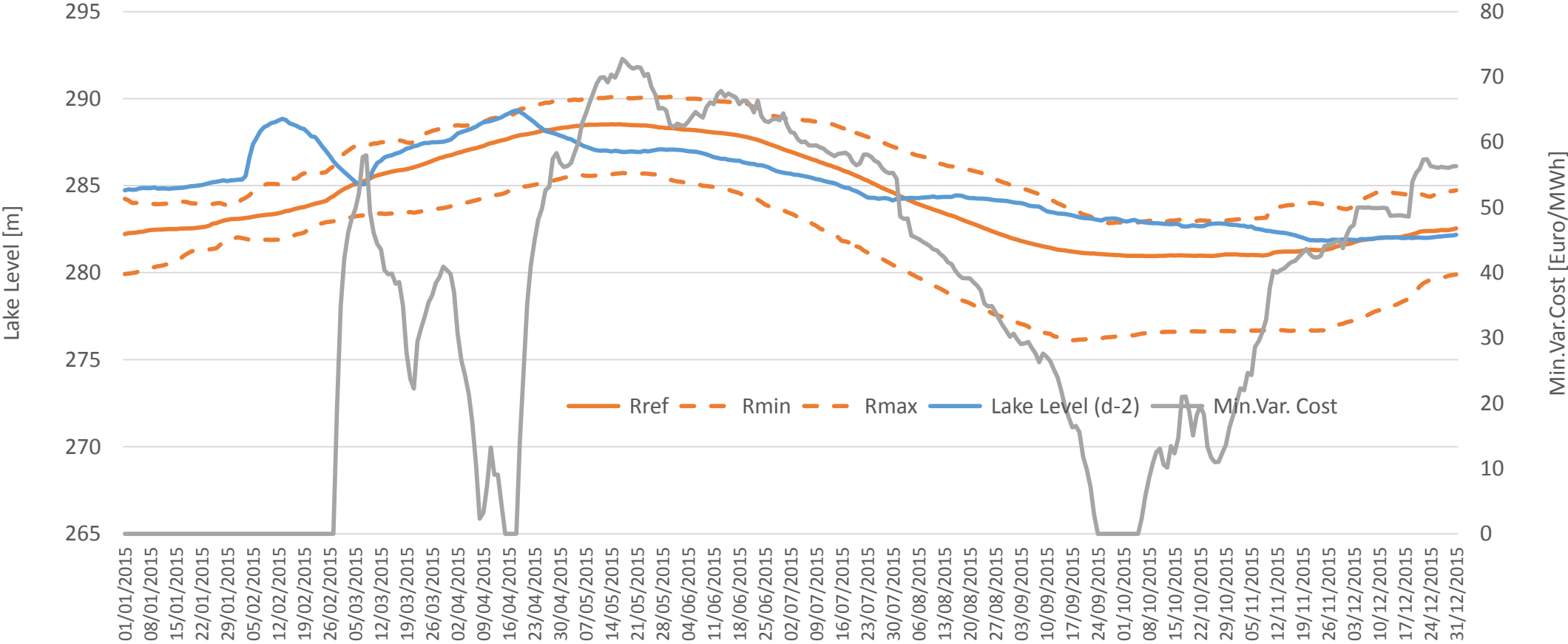
New capacity by PPC

- Generation Mix: **Well-balanced** across lignite, gas, hydro, renewables

Key Facts and Challenges

- **Asymmetries**
Portfolio of Lignite and Hydro assets: PPC Only
More flexible (Multi-shaft) CCGT: PPC Only
- **Intense competition among CCGT units**
Reflected on the dynamics of bidding and technical parameters
- Fuel Competition
Lignite vs. Gas (impact of falling oil prices)
Emerging **since October 2015**
- **Mandatory quantities** -> Reduce the competitive segment of demand
Hydro, RES, Commissioning units

Hydro Pricing Methodology – from 1 October 2016 onwards Example

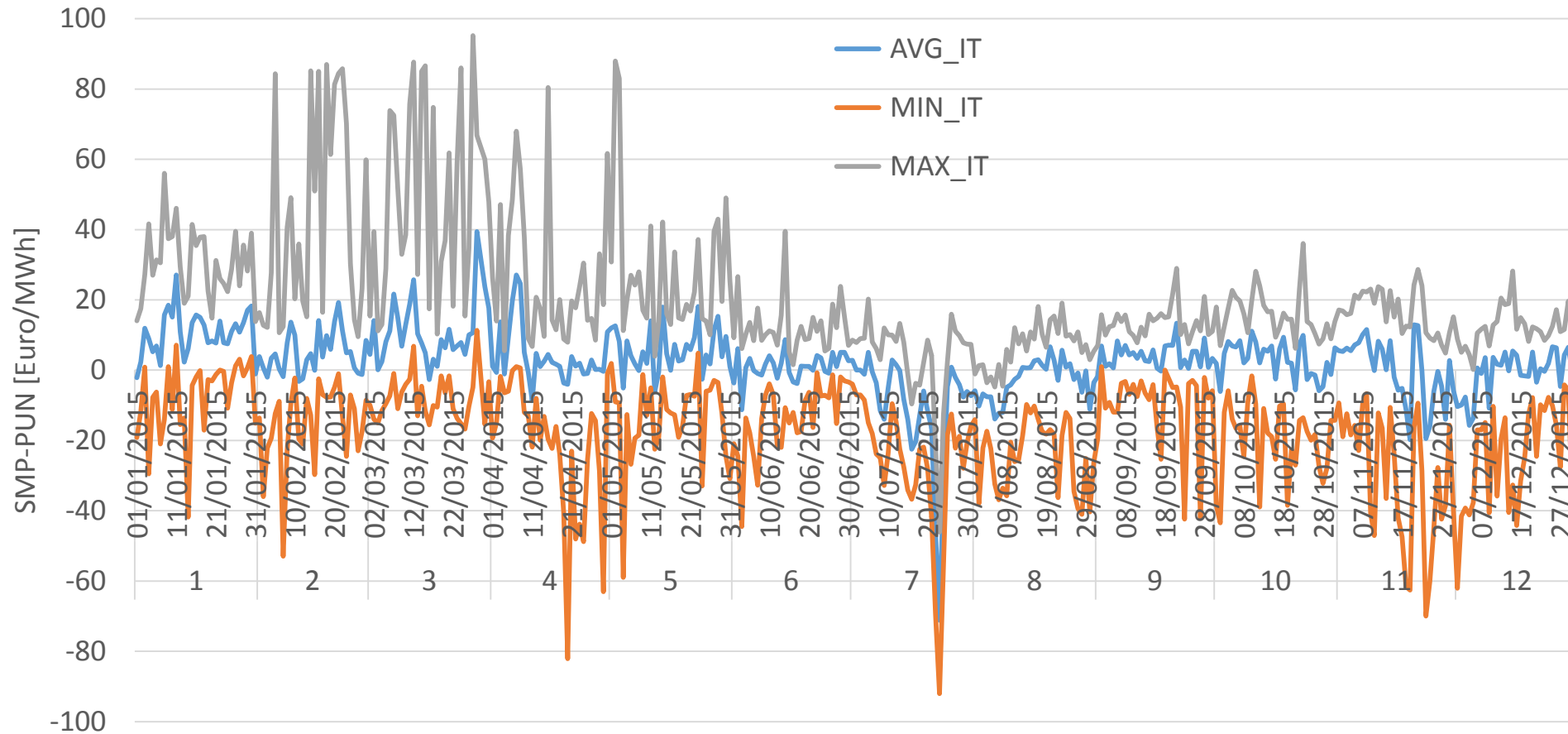


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- **Technical Assistance (JRC)**
7 Key Deliverables on: Market and Grid Codes, IT platforms, Credit and Clearing, Regulatory measures (e.g. hedging ratio)
- **Current status:**
 - Legislation in place (following RAE's Proposal to Ministry)
 - High-level market design: almost finalized
- **Next step**
Guidelines to be issued by RAE to the Market and System Operators

Market Spread with Italy, 2015

Daily market spread Greece (SMP) - Italy (PUN-GREC) for 2015



Electricity Markets: Challenges at EU Level

- **Impact of RES**

RES suppress SMP and displace conventional production, while requiring **flexible** systems -> Viability of gas plants?

- More than 20 GW of gas plants **mothballed** in Europe

- Even if capacity surplus exists, this could be **temporary and fragile**

- Transition to **feed-in-premium** and RES auctions

In parallel, more ambitious **environmental targets** for 2030

- **Higher overall costs**, often distributed across **stagnating demand**

- **Storage**: Crucial. Still, needs to make its business case, **barriers**

- **Retail prices irresponsible** to wholesale price drops

What challenges do Regulators face?

Regulatory Challenges at EU Level

- **Transparency** requirements (REMIT)
Huge potential for detecting manipulation - Huge databases
- Regulators **beyond conventional** fields
 - Regulatory over-sight of **new entities**, such as NEMOs (market coupling)
- Interaction with Regulation of **Financial Markets**
- Given all these challenges, **ACER's role is crucial**
- **Energy Regulators Forum**: recently established to **facilitate decision-making**
e.g. **12 decisions, relating to CACM provisions**, same for all regulators

Consensus but also Diverging Views

- **Harmonisation** of Gas Transmission Tariffs -> ACER Board of Regulators (BoR) did not reach a decision -> **referral to EC**
- Internal Electricity Market:
 - What are the **right bidding zones**?
Dispute over Austrian - German border -> **referral to EC -> ACER**
 - Delay in intra-day coupling
 - Sensitivity to parameters of flow-based methodology
- **On 26.9.2016, ERF approved the required amendment of the Market Coupling Operations Plan**
Cost-sharing: key issue

Supplementary Material

Success Stories on Regulators' Co-operation

The TAP pipeline

11.2013 – Approval of **Tariff Code** by the 3 NRAs (Greece, Italy, Albania)

02.2014 – Approval of the **Regulatory Compliance Programme**

03.2014 – Launch of **Binding Phase** of the Market Test

06.2015 - Work on **TAP Network Code** started

04.2016 – NRAs **certified TAP as an ITO**

05.2016 – Construction stage started

2020 – Commercial operation to start

The IGB pipeline

- 11.2012 - ICGB submitted an application to the Greek and Bulgarian regulators for **exemption** from
 - Unbundling provisions
 - Regulated tariffs on the forward and reverse flow capacity
 - Third-party access on the forward flow capacity
- **3 bcm/year expandable to 5 bcm/year**
- Estimated construction cost: € 220m
€ 45m secured from EEPR.



The IGB pipeline - Regulatory Timeline

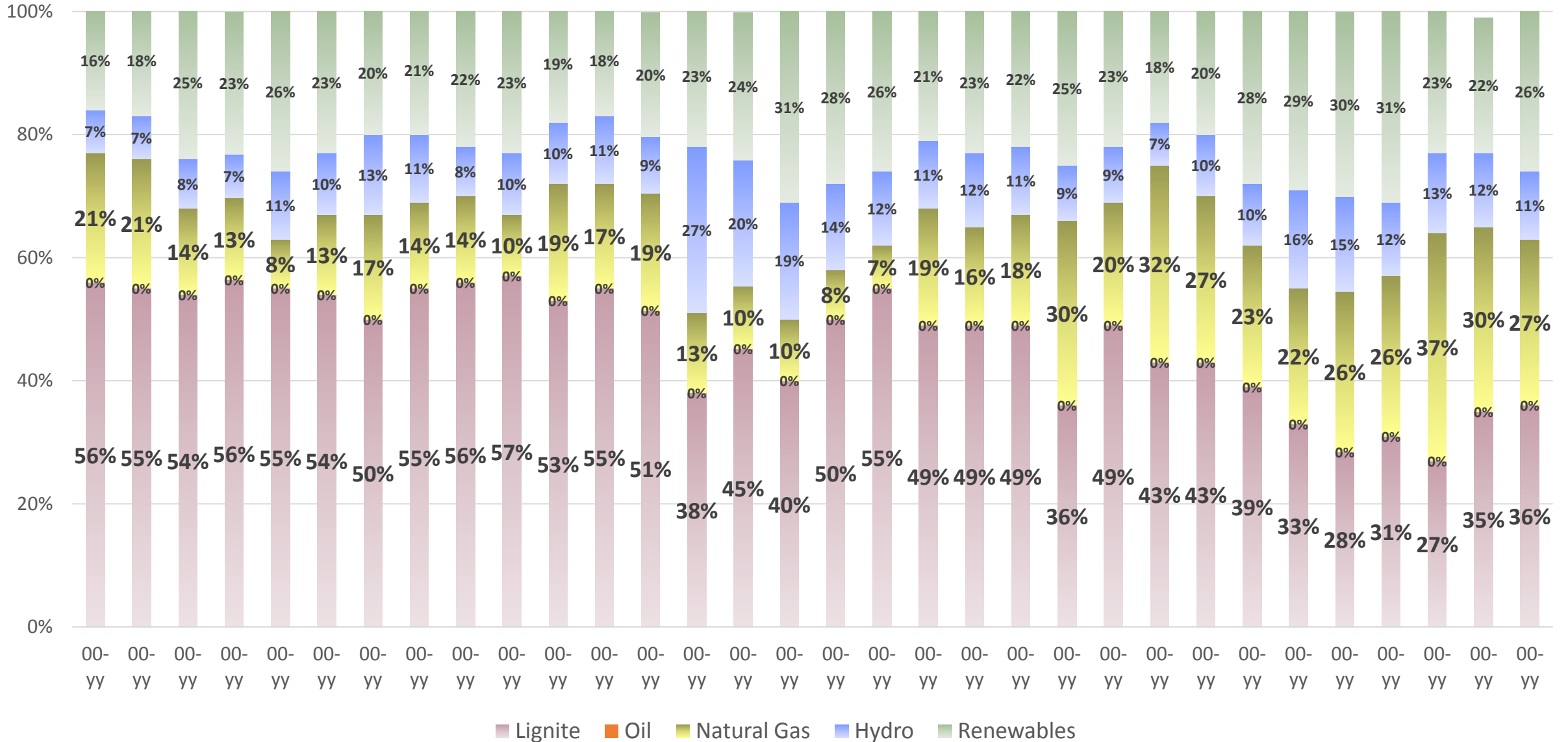
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Old quotes. Relevant for the Energy Transition?

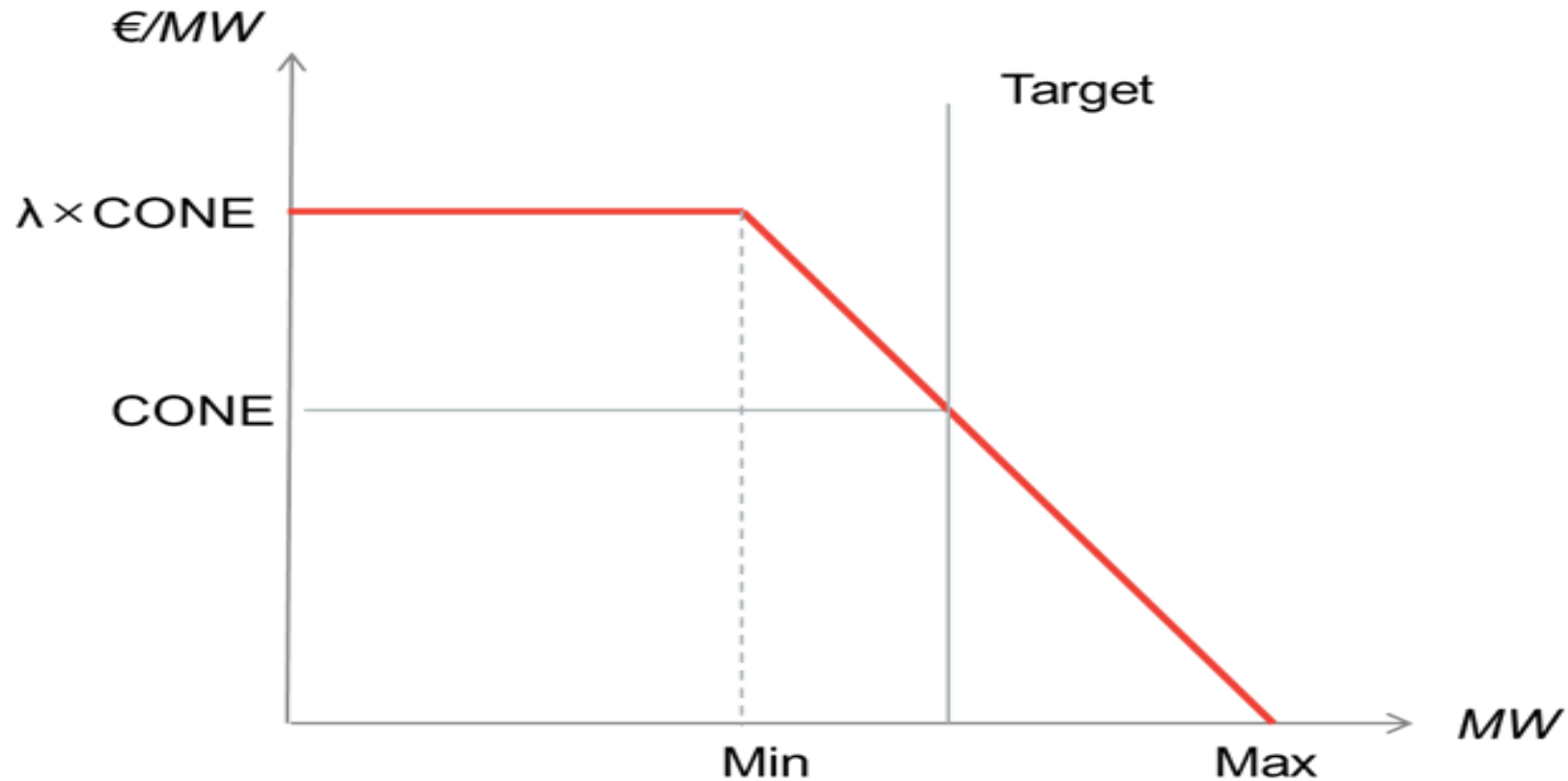
- “If you wish to create tension, simply try to change something”
- “Out of discord comes the fairest *harmony*”
- “The only constant is change”
- “Everything rests by changing”

Thank you for your attention

Fuel Market Shares, Jan 2014 - Aug 2016



Demand Curve



Min : set by requirements in **wet winter scenario**

Max : set by requirements in **dry winter scenario**