

The Greek Energy Market: Reforms, Challenges and Regional Developments

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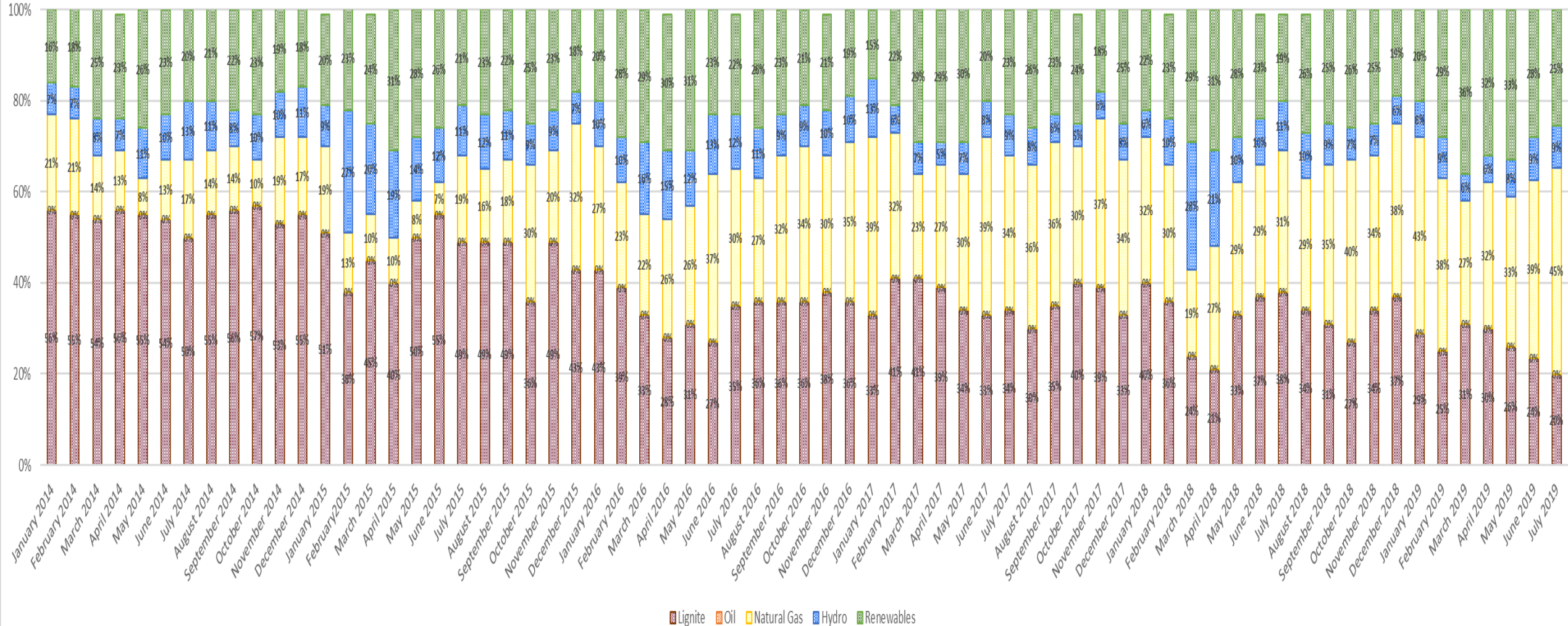
ECRB Plenary, Athens, 9 October 2019

*** Any views expressed are personal.**

Evolution of Energy Mix in Greece

Fuel Market Shares in Electricity Generation, 2014 - 2019

Fuel market shares, Jan 2014 - July 2019



Transformation of the Greek Energy Sector (I)

More competitive, compliant and connected.

**Anti-trust measures
on incumbents:
Electricity Auctions,
Gas Release
Programme.**

**New Investors in
TSOs
(ADMIE, DESFA),
Gas DSOs and
Suppliers.**

**New Market Roles:
Aggregators,
Paper traders,
Clearing parties,
EV service providers.**

**Cross-border
Infrastructure
Gas: TAP, IGB, East
Med.
Electricity: Euroasian,
Maritsa East.**

**Harmonized
market rules.
Gas: Capacity Auctions
and Balancing Platform.
Electricity: New Markets -
Target Model.**

**New Key Entities:
Hellenic Energy
Exchange,
Energy Clearing
House.**

Transformation of the Greek Energy Sector (II)

More resilient and on clean energy transition.

**LNG Terminal
Expansion and
Upgrading.**

**FRSU
Alexandroupolis.
Underground Storage
in Kavala.**

**Preventive Action Plan.
Cost-efficient measures
were adopted.**

**RES Market Share
> 23% in electricity
production.**

**2600 MW auctioned
over 2018-2020.**

**Transition from Feed-
in-Tariffs to Feed-in-
Premium.**

**8.5 bil € investments
up to 2030.**

**Gas Network is expanded.
250 mil € investments.**

**Island interconnections
and small-scale LNG.**

Indicators of Market Evolution

**PPC Retail Share: 74 % vs. 98% in 2015.
50% in Medium Voltage.**

PPC Wholesale Share: 48% in 2018.

Gas share: 45 % vs. 20% lignite in July 2019.

**DEPA Wholesale Share (1st Resale):
58% in 2018, 19%-55% in 2019.**

DEPA Import Share:

72% in 2018, 31-63 % in 2019.

LNG utilization exceeded 40%.

Reverse flow from Greece to Bulgaria.

Consumers switching electricity supplier:

338.000 in 2018 vs. 186.000 in 2017.

Access to gas: 1500 km network development.

CNG in 9 regions.

Alternative gas suppliers:

50% of new connections in Attica.

Power Derivatives Market

- ❖ Risk hedging.
- ❖ Multiplies the value of physical market.
- ❖ Rulebooks under public consultation.
- ❖ **Product**: Financial derivatives contract based on average spot price over delivery period.
- ❖ **Option of physical delivery** on Day-ahead Market, via Priority_Price-Taking Orders.

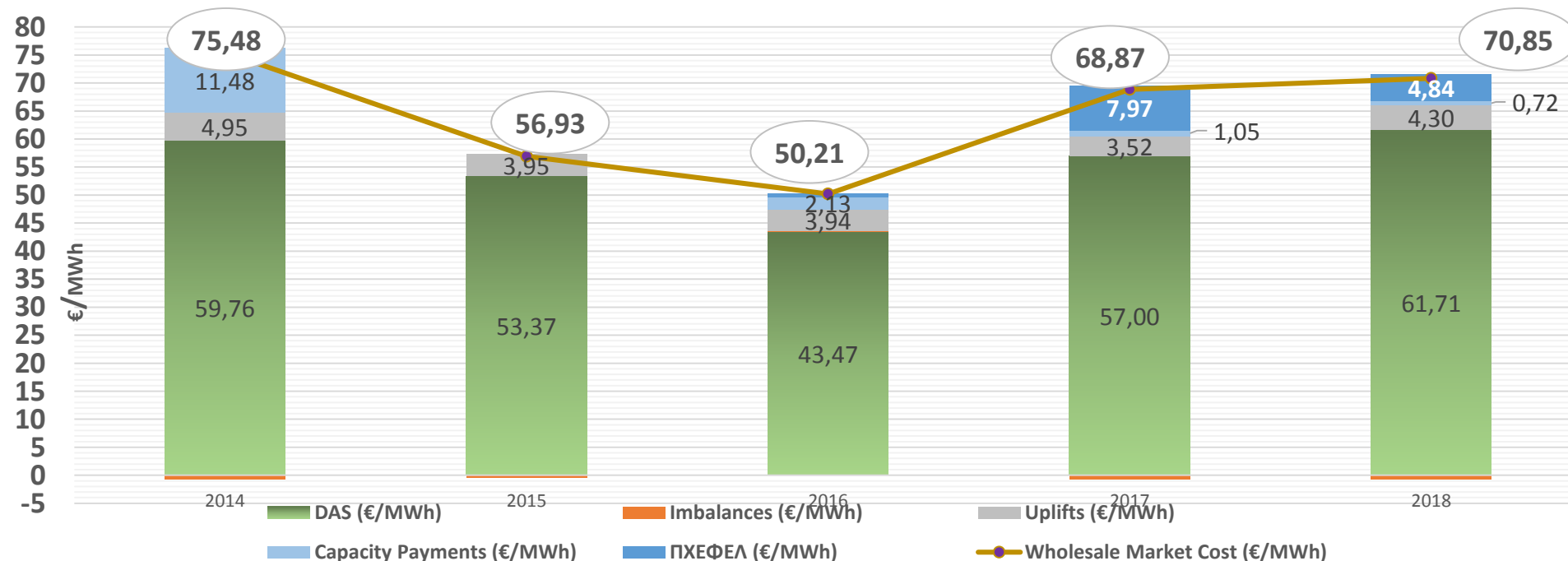
Advantages of a financial contract with the option of physical delivery

- Appealing both to financial and non-financial entities.
- **Liquidity** is gathered into a single pool.
- Counterparty risk is **minimised**. Clearing by EMIR-authorized CCP.
- Not required for both buyer and seller to request physical delivery.
- **Common practice** (e.g. EEX, HUDEX).

NOME Electricity Auctions

- 20 suppliers. 12 auctions.
- Total Volume: 41.62 TWh. Average Price: 48.29 €/MWh.
- Total benefit: 566 mil € (Dec 2016 - July 2019) on wholesale market cost.

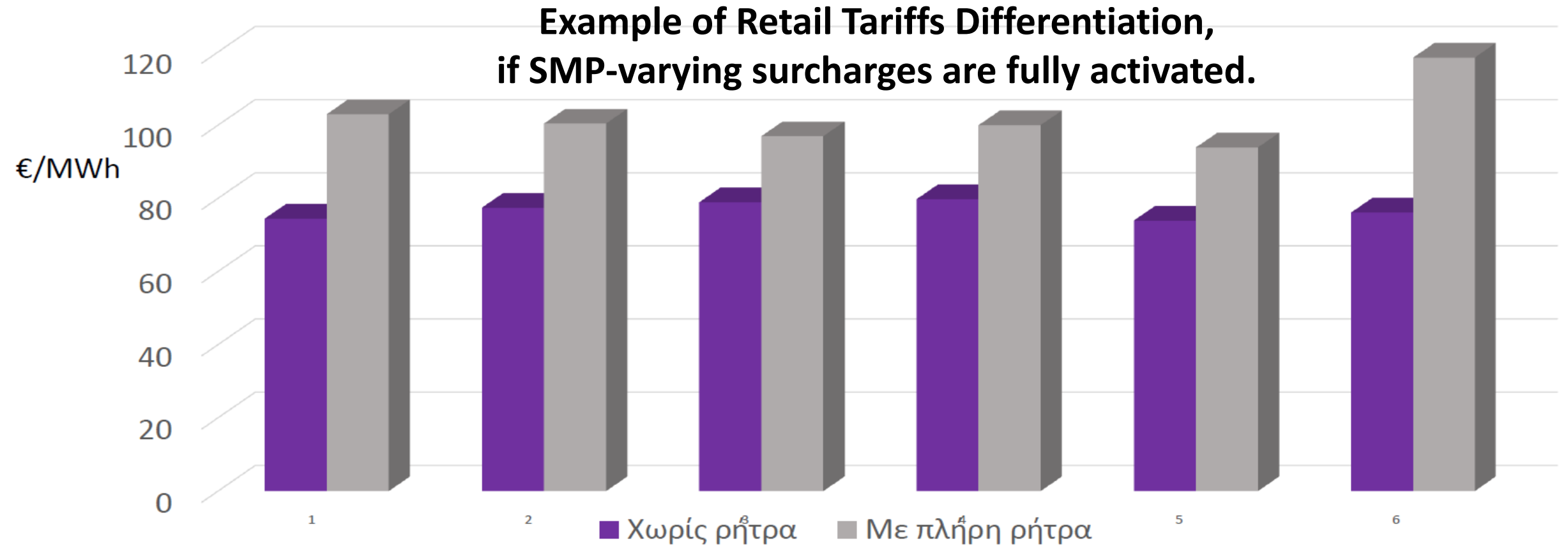
Evolution of Wholesale Market Cost



Source:
ADMIE

Retail Prices: Transparent, Well-explained, Comparable

- ❑ **Price Comparison Tool:** Essential for Consumer Protection.
- ❑ **Time-varying surcharges:** reflecting fluctuations of SMP, wholesale costs, or CO2.

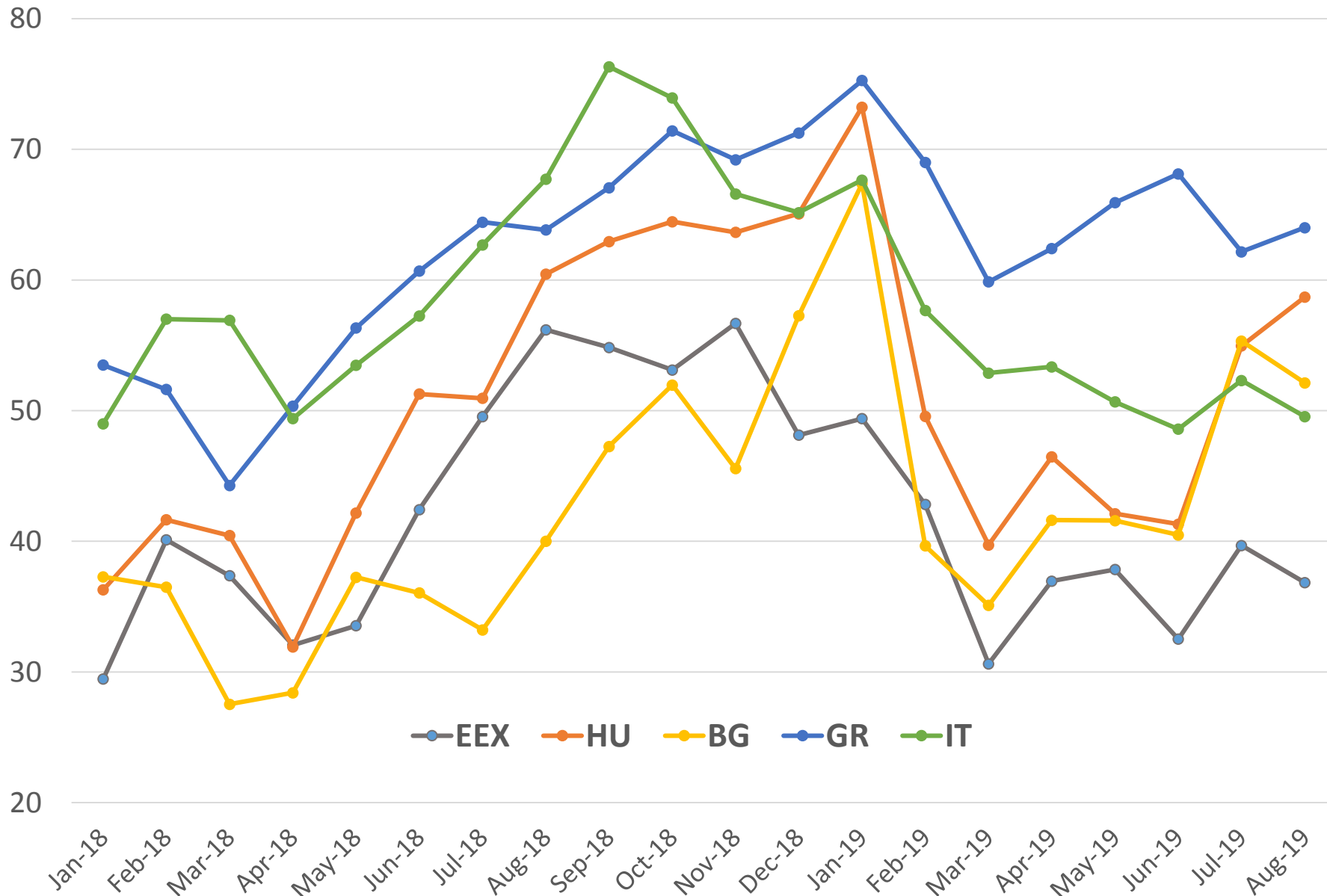


Regional Cooperation: Essential at Several Levels

- ❑ Risk assessment and crisis mitigation both for electricity and gas.
Solidarity obligations: in progress.
- ❑ Capacity mechanisms: Cross-border participation is a key element.
- ❑ Regional Operational Centers: reserves requirements and sharing.
- ❑ RES Schemes: Participation in RES tenders from other Member States.

- ❑ Still, regional challenges emerge in SEE.
- ✓ Efficient co-operation on gas framework and infrastructure projects.
- ❖ Coupling of electricity markets: Delayed. But, positive momentum.
- ❖ Electricity Interconnections: Limitations.
- ❖ From market fragmentation towards coupling and Power Exchange mergers.

Price Convergence? Market Coupling Potential



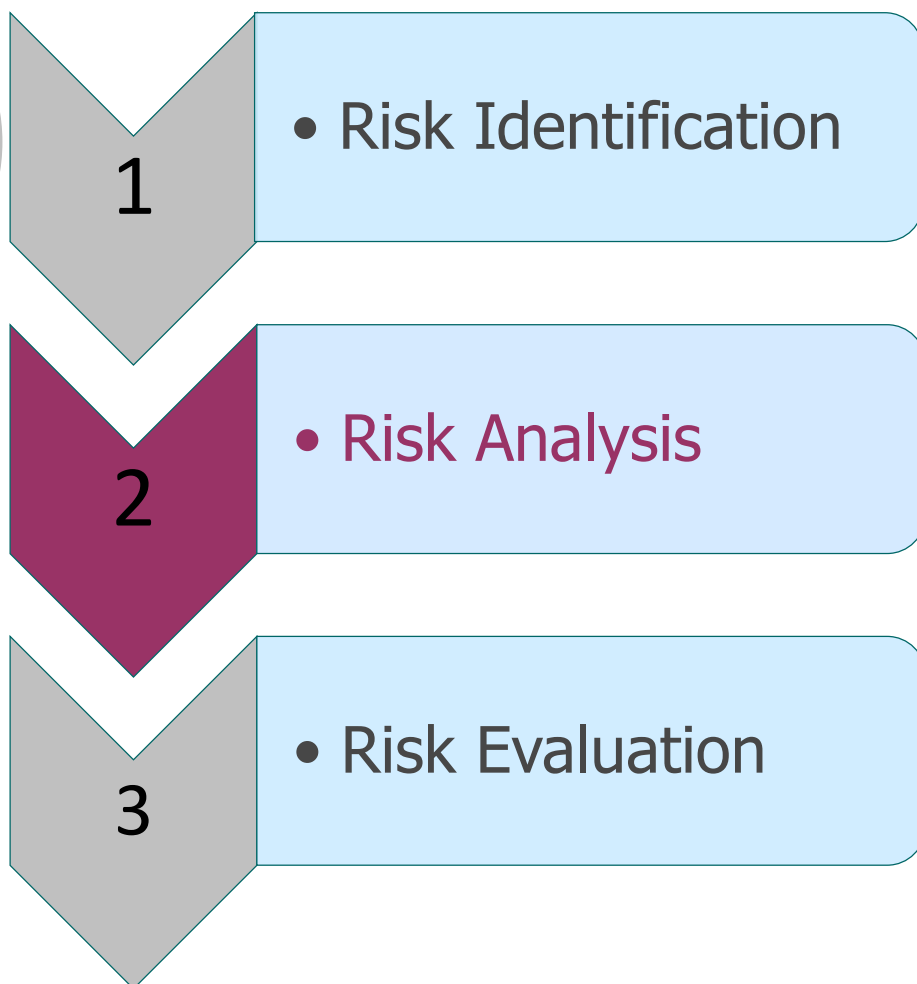
Market Coupling Benefits in SEE:
15 - 28 mil € / year

Cross-border trading:
280 mil €

Source:
Energy Community Secretariat (2016)

Trans-Balkan Joint Risk Assessment

RAE: Co-ordinator

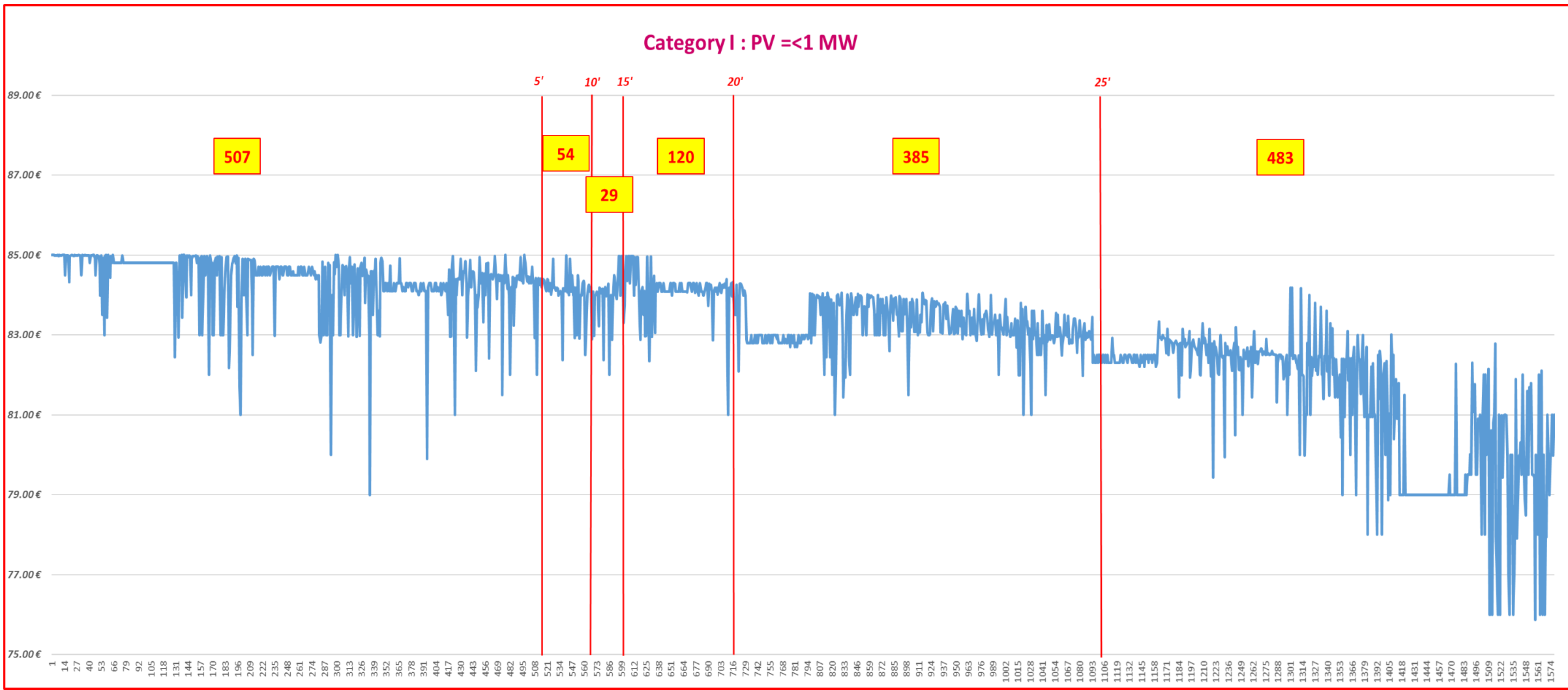


New Regulation 941/2019 on Risk-Preparedness in Electricity

- Regional and bilateral measures to prevent and mitigate crises.
- Crisis coordinator, tests, trigger points for non market-based measures.
- Assistance mechanisms.
- 5.1.2020. Member States designate the Competent Authority.
- ENTSO-E submits to ACER proposed methodologies for regional electricity crisis scenarios, short-term and seasonal adequacy assessments.
- European Commission may issue guidance on fair compensation in assistance mechanisms.
- 5.3.2020. ACER approves the above methodologies.
- 5.9.2020. ENTSO-E identifies regional crisis scenarios.
- 5.1.2021. Competent authorities identify national crisis scenarios.
- 5.4.2021. Draft Risk Preparedness Plans are completed. Consultation and Submission to ECG.
- 5.1.2022. Approval and Publication of the 1st Risk Preparedness Plan.

RES support arising from auctions - Competition drives down prices

Auction for PV =<1MW (2 July 2018)



Challenges for the Sector and Consumers Bills

❑ Cost efficiency

- ✓ Production costs: Mining activity at a loss of 200 mil € in 2018 (PPC unbundled financial statements).
- ✓ Network costs: CEER Benchmark Study for European TSOs.
- ✓ Under-investments in electricity networks. Still, momentum in island interconnections.

❑ DSO Charges: Accumulated under-recovery of 100 mil €.

❑ RES Account: Reduction of RES levy for LV consumers -> ~ 200 mil € deducted from RES Account.
Withholding of 4 mil ton allowances in July 2019 (Market Stability Reserve) ->
~ 60 mil € reduction of inflows to RES Account.

❑ PSO Account: Essential to be financed by state budget to avert deficit.

❑ Gas tariffs: Level of socialization of infrastructure.

❑ Key Drivers of Future Developments:

- ✓ Target Model: Implementation Dates, Market Parameters, Surveillance.
- ✓ Capacity mechanism (strong impact on PPC new lignite plant).
- ✓ NOME auctions.
- ✓ Structural measures (Decision on Lignite Case, DG Comp investigation).
- ✓ PPC restructuring. Privatizations.

Retaining Order in a Profound Transformation

- ❑ From Market Design and Structural Changes -> **Cross-sectoral synergies.**
- ❑ “ **Phase transitions** create order in an expanding universe ” (*Physics*).
- ❑ “ **Instead of two opposed polarities, there is a continuous spectrum**” (*Mathematics*).

