

Main Challenges of the European Electricity Market Design, and Consumers' Place: Engaging Consumers in Energy Regulation

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 - **Assessment of design options**
 - **Important challenges for the Hellenic wholesale electricity market**
- **Transforming Regulator nature (R2C), creating a Consumer's Place to Protect Consumers**

Summary



EU's Electricity Market Design in Europe

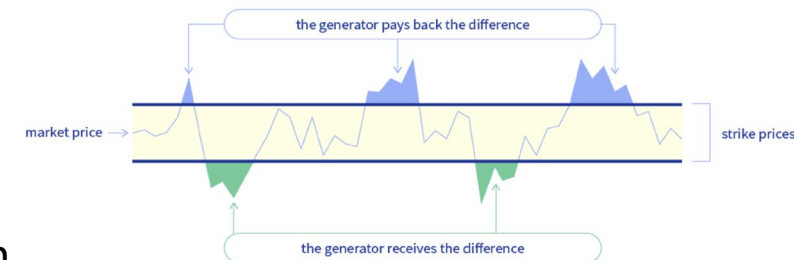
In December 2023, the Council and the Parliament reached a **provisional agreement** to reform the **EU's electricity market design (EMD)**. In November 2023, they also reached **provisional agreement on REMIT**.

The Council adopted the REMIT regulation in March 2024 and the electricity market reform in May 2024.



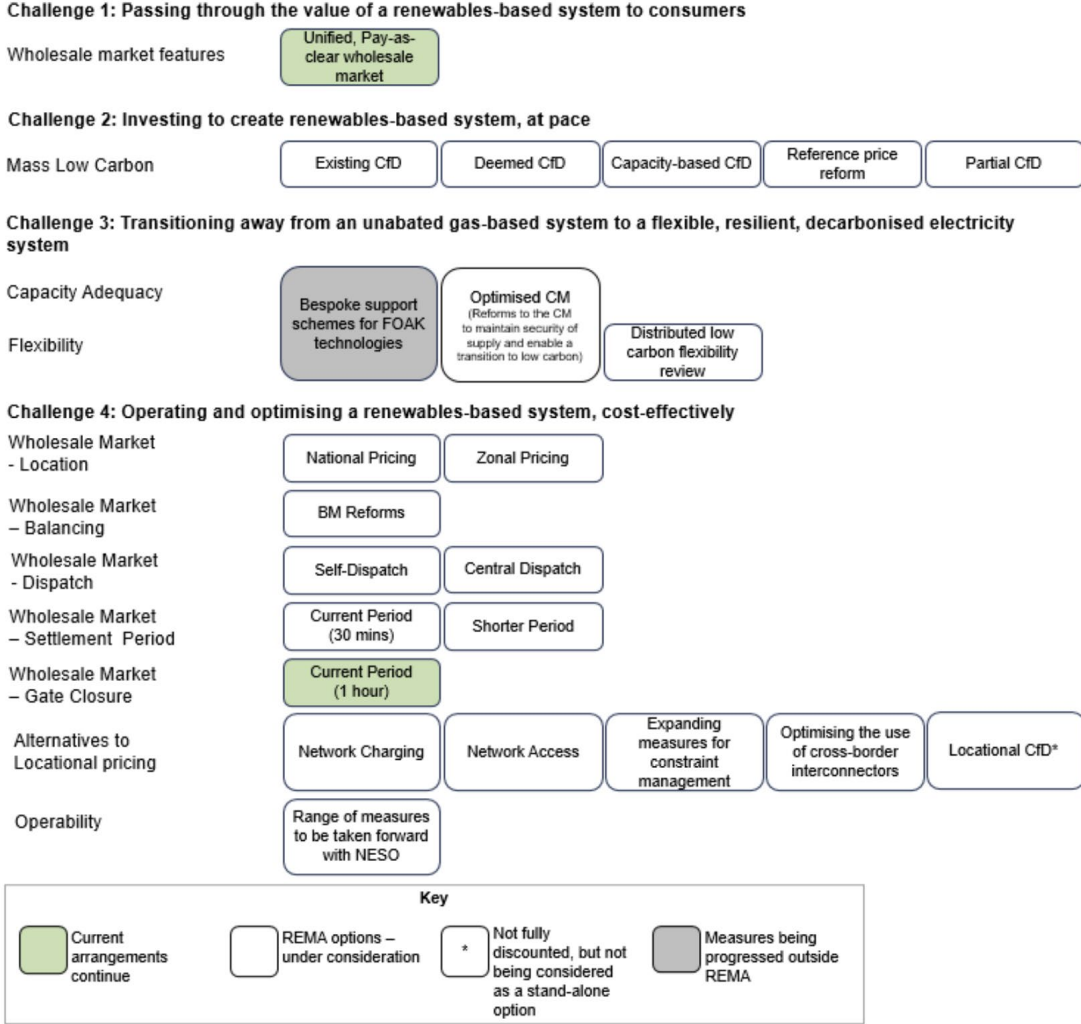
Main elements:

- Improved EU's protection against market manipulation through better monitoring and transparency (**REMIT**)
- **Availability of fixed price, fixed term and dynamic contracts. Clearer information** before signing
- **Support vulnerable consumers**
- Access to **affordable energy during an electricity price crisis**
 - Council the power to declare a crisis, based on Commission proposal
- More stable prices through **Power Purchase Agreements (PPAs)**
- PPAs and **two-way Contracts for Difference (CfDs)** to support RES/nuclear penetration
- **Capacity mechanisms** to become a more structural element of the electricity market



UK's Electricity Market Design

Figure 4: REMA Options Space



Sources: Review of Electricity Market Arrangements: Options Assessment (REMA), March 2024, <https://assets.publishing.service.gov.uk/media/65eb48f362ff48ff7487b30a/rema-options-assessment.pdf>

EU's Electricity Market Design in Europe

RAAEY proposals

RAAEY, besides agreement on ACER proposed measures to supporting consumers/retail market, [provided positions on Market Design](#) during the preparation of the ACER's Assessment Report of the EU Wholesale Electricity Market Design (April 2022) [for Electricity markets](#)

1. **Ex-ante dynamic revenue clawback mechanism** on excess profits from the wholesale markets (**during Crisis**)
2. **Ex-ante power market mitigation rules** that permanently eliminate price spikes (increase transparency and spikes)
 1. Detailed analysis was issued by RAAEY on the subject
3. **CfDs (“Contracts for Differences”)**, possibly combined with aggregator (single buyer) model, **supplementary of the RES PPAs.**
4. **Increasing the flexibility of the power system** can not be achieved through only preserving the wholesale price signal, but Flexibility can also be implemented through CfDs (“Contracts for Differences”) and **well-designed Capacity Mechanisms and policies that enhance demand-side, flexibility resources and energy efficiency**

RAAEY's proposal on Ex-ante Market Power Mitigation at offer submission stage (case study with 18 countries)

Study performed for RAE by **ECCO International Inc. USA and Aristotle University of Thessaloniki** (October 2022)

using the ATLASx DAM solver **simulates** the European Day-Ahead Markets, with the functionality of the solver **Euphemia**, incorporating all types of orders.

Data from **ENTSO-E Transparency Platform**

524 GW installed capacity: 394 GW thermal units, 130 GW hydro units

1684 units: 782 thermal units, 902 hydro units

- 18 markets under study / simulation
- Other markets interconnected with the 18 above markets
- Other markets not relevant with this study
- Interconnections between any of the 18 markets with neighboring (external) countries



RAAEY's Proposal on Market design

Ex-Ante Market Power Mitigation is also applicable to Portfolio-based EU Markets

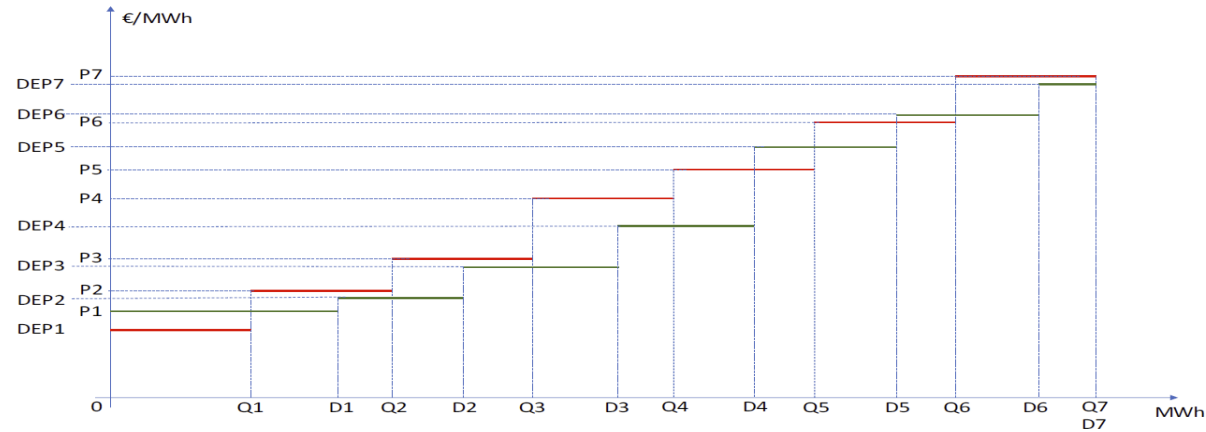


Figure 6-4: Portfolio Order and Default Energy Bids

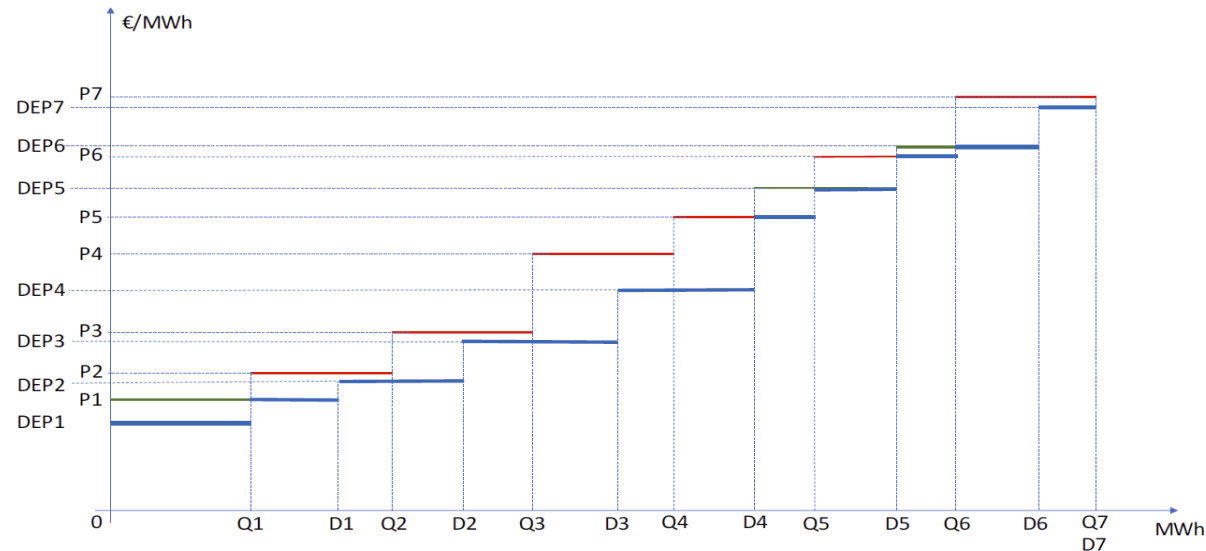


Figure 6-5: Mitigated Energy Bid to be considered in DAM Clearing

RAAEY'S Proposal on Market design

Simulation results – Market Revenues

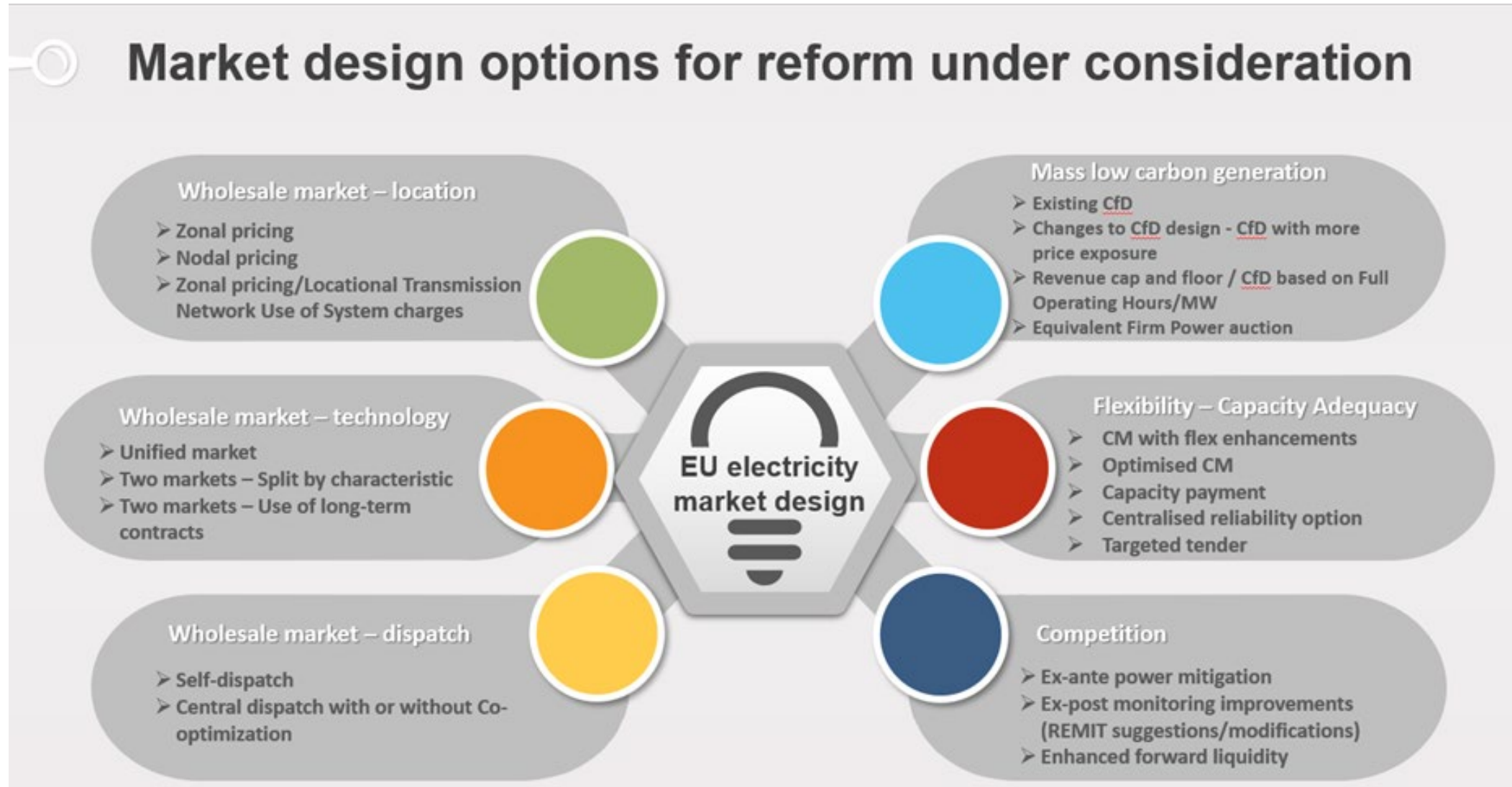
Actual 18 European markets							
Month	Thermal [MWh]	Hydro [MWh]	RES [MWh]	Net imports [MWh]	Net imports implicit [MWh]	MCP [€/MWh]	Market revenues [€]
11	140.318.511	17.747.822	44.366.433	2.225.792	0	200,599	40.828.123.727
2	54.612.701	8.151.664	31.377.430	113.239	0	167,904	14.709.311.750
3	66.197.157	8.772.433	25.071.562	935.915	0	313,065	30.979.226.576
TOTAL	261.128.368	34.671.919	100.815.425	3.274.946	0	221,434	86.516.662.053
Simulated A=1.1 18 European markets							
Month	Thermal [MWh]	Hydro [MWh]	RES [MWh]	Net imports [MWh]	Net imports implicit [MWh]	MCP [€/MWh]	Market revenues [€]
11	144.118.038	17.747.822	43.709.542	2.234.972	0	192,078	35.169.773.467
2	59.183.386	8.151.664	31.466.415	119.138	0	198,571	17.401.699.754
3	69.802.923	8.772.433	25.008.960	935.915	0	273,720	25.105.729.275
TOTAL	273.104.347	34.671.919	100.184.917	3.290.025	0	214,375	77.677.202.496
Simulated A=1.2 18 European markets							
Month	Thermal [MWh]	Hydro [MWh]	RES [MWh]	Net imports [MWh]	Net imports implicit [MWh]	MCP [€/MWh]	Market revenues [€]
11	144.082.032	17.747.822	43.709.542	2.237.021	0	204,271	37.248.171.235
2	59.224.476	8.151.664	31.466.415	118.825	0	199,127	17.384.974.789
3	69.802.923	8.772.433	25.008.960	935.915	0	291,046	27.034.863.186
TOTAL	273.109.430	34.671.919	100.184.917	3.291.761	0	225,112	81.668.009.211
Simulated A=1.3 18 European markets							
Month	Thermal [MWh]	Hydro [MWh]	RES [MWh]	Net imports [MWh]	Net imports implicit [MWh]	MCP [€/MWh]	Market revenues [€]
11	144.082.032	17.747.822	43.709.542	2.237.021	0	215,526	39.297.852.134
2	59.191.658	8.151.664	31.466.415	118.396	0	215,355	18.776.567.101
3	69.802.923	8.772.433	25.008.960	935.915	0	302,104	27.955.794.491
TOTAL	273.076.612	34.671.919	100.184.917	3.291.331	0	237,497	86.030.213.726
Simulated A=1.4 18 European markets							
Month	Thermal [MWh]	Hydro [MWh]	RES [MWh]	Net imports [MWh]	Net imports implicit [MWh]	MCP [€/MWh]	Market revenues [€]
11	144.169.954	17.747.765	43.709.317	2.235.928	0	224,445	41.154.919.358
2	59.186.447	8.151.664	31.466.356	118.385	0	234,607	20.392.833.834
3	69.802.090	8.772.433	25.008.960	936.747	0	317,321	29.291.066.458
TOTAL	273.158.491	34.671.862	100.184.633	3.291.059	0	250,469	90.838.819.650

Study on Ex-ante Market Power Mitigation at submission offers shows considerable impact on Market Revenues

RAAEY suggests the adoption of Ex-ante power mitigation mechanism with check caps on bids (threshold on cost-based Default Energy Bid - variable cost) **i.e. 25 €/MWh** instead of % level, such as IESO is doing

Active participation of RAAEY in the EU's Electricity Market Design

RAAEY Request of Proposals for consultancy support on:
"EU Electricity Market Design assessment and review"



EU's Electricity Market Design

Co-optimization of energy and reserves markets

Koltsaklis N.E., Dagoumas A.S., 2018, Incorporating unit commitment aspects to the European electricity markets algorithm: An optimization model for the joint clearing of energy and reserve markets, Applied Energy 231, 235-258

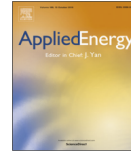
Applied Energy 231 (2018) 235–258



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Incorporating unit commitment aspects to the European electricity markets algorithm: An optimization model for the joint clearing of energy and reserve markets

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HIGHLIGHTS

- An MILP model for the extension of EUPHEMIA hourly offers module is presented.
- Power reserves market is jointly cleared with energy market.
- Minimum income condition is extended to include also welfare from reserve market.
- Intra-hourly ramping constraints guarantee system's flexibility capability.
- Strategy, market structure, and power trading affect techno-economic decisions.

ARTICLE INFO

Keywords:

Power exchanges
EUPHEMIA model
Joint energy and reserve markets
Unit commitment
Minimum income condition
Electricity trading

ABSTRACT

The European electricity markets' integration aims at the market coupling among interconnected power systems and the enhancement of market competitive forces. This process is facilitated by the adoption of a common clearing algorithm among European power exchanges, entitled EUPHEMIA (Pan-European Hybrid Electricity Market Integration Algorithm), which however lacks to capture critical technical aspects of power systems, as done by the unit commitment problem including start-up and shut-down decisions, time constraints (minimum on- and off-times), as well as the consideration of ancillary services. This paper presents an optimization-based framework for the optimal joint energy and reserves market clearing algorithm, further utilizing the hourly offers module of the EUPHEMIA algorithm. In particular, through the formulation of a mixed integer linear programming (MILP) model and employing an iterative approach, it determines the optimal energy and reserves mix, the resulting market clearing prices, and it calculates the welfares of the market participants. The model incorporates intra-hourly power reserve constraints, as well as introduces new market products such as the option of forming linked groups of power units, aiming at supplying additional flexibility in the decision-making of the market participants. The model applicability has been assessed in the Greek power system and its interconnections with neighboring power systems in Southeast Europe. The proposed optimization framework can provide useful insights on the determination of the optimal generation and interconnection portfolios that address the new market-based operational challenges of contemporary power systems subject to technical and economic constraints.

Objective function:

$$\begin{aligned} \text{Min Cost}^{\text{day}} = & \underbrace{\sum_{ht} \sum_t \sum_{f^{ht}} \sum_{dt} e_{ht,t,f^{ht},dt}^{\text{prd}} \cdot C_{ht,t,f^{ht},dt}^{\text{prd}}}_{\text{Hydrothermal units' supply cost}} \\ & - \underbrace{\sum_{dm} \sum_t \sum_{f^{dm}} \sum_{dt} e_{dm,t,f^{dm},dt}^{\text{dem}} \cdot C_{dm,t,f^{dm},dt}^{\text{dem}}}_{\text{Priced load revenues}} + \\ & \underbrace{\sum_{in} \sum_t \sum_{f^{in}} \sum_{dt} [(e_{in,t,f^{in},dt}^{\text{imp}} \cdot C_{in,t,f^{in},dt}^{\text{imp}}) - (e_{in,t,f^{in},dt}^{\text{exp}} \cdot C_{in,t,f^{in},dt}^{\text{exp}})]}_{\text{Electricity imports cost} \quad \text{Electricity exports revenues}} \\ & + \underbrace{\sum_{ht} \sum_t \sum_{dt} \left[\begin{aligned} & \underbrace{\text{Total reserve provision cost (secondary and tertiary)}}_{\text{Secondary-up reserve provision cost}} \\ & \underbrace{(r_{ht,t,dt}^{2+} \cdot C_{ht,t,dt}^{2+})}_{\text{Secondary-down reserve provision cost}} \\ & + \underbrace{(r_{ht,t,dt}^{2-} \cdot C_{ht,t,dt}^{2-})}_{\text{Tertiary-up spinning reserve provision cost}} \\ & \underbrace{(r_{ht,t,dt}^{3sp+} \cdot C_{ht,t,dt}^{3s+})}_{\text{Tertiary-down spinning reserve provision cost}} \\ & + \underbrace{(r_{ht,t,dt}^{3sp-} \cdot C_{ht,t,dt}^{3s-})}_{\text{Tertiary-up non-spinning reserve provision cost}} \\ & + \underbrace{(r_{ht,t,dt}^{3ns} \cdot C_{ht,t,dt}^{3ns})} \end{aligned} \right]}_{\text{Reserve provision costs}} \end{aligned}$$

The main contributions and the prominent features of our work include:

- incorporation of the interaction of power capacity reserves with an energy-only market,
- incorporation of the linked hourly orders, facilitating the creation of a correlated portfolio consisting of a series of units,
- consideration of power reserve constraints satisfaction at an intra-hourly level,
- quantification of the impacts of key operational aspects of thermal units on the currently utilized economic-based market clearing algorithm, and
- provision of price signals on potential investors for the optimal determination of investments in the power sector.

EU's Electricity Market Design

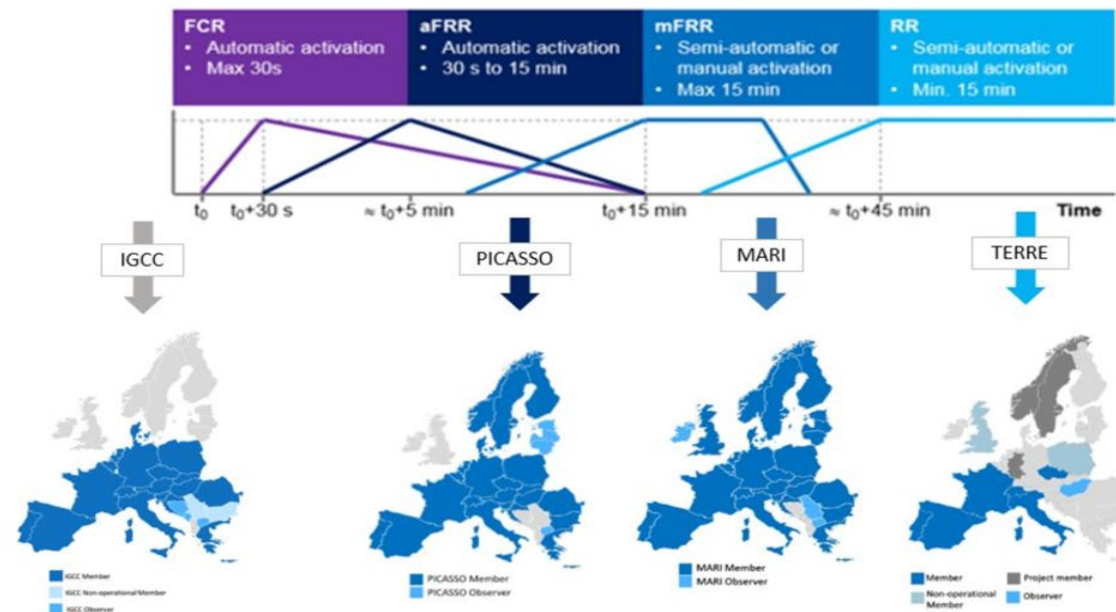
Market design options assessment

Besides the enhanced Protection to Consumers (during crisis and in normal periods)

- **Wholesale Market Location**
 - Zonal pricing expected to be retained (nodal not expected to be adopted, besides advantages)
- **Wholesale Market Technology (split)**
 - Opt-out in EMD (EU) and in REMA (UK)
 - Marginal pricing retained
- **Wholesale Market Dispatch**
 - ACER examines co-optimization of balancing capacity market with day-ahead energy market (amending the EUPHEMIA algorithm)
- **Mass Low Carbon Generation**
 - PPAs and CfD
- **Flexibility- Capacity Adequacy**
 - Capacity mechanism to become element of market design (CM with flex enhancement, optimized CM ...)
- **Competition**
 - REMIT update
 - Ex-ante power mitigation not adopted

Important challenges for the Hellenic wholesale market

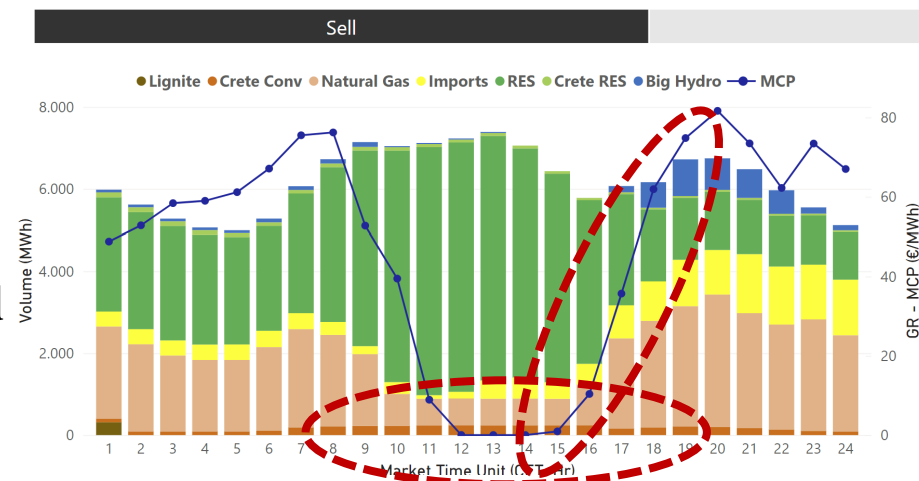
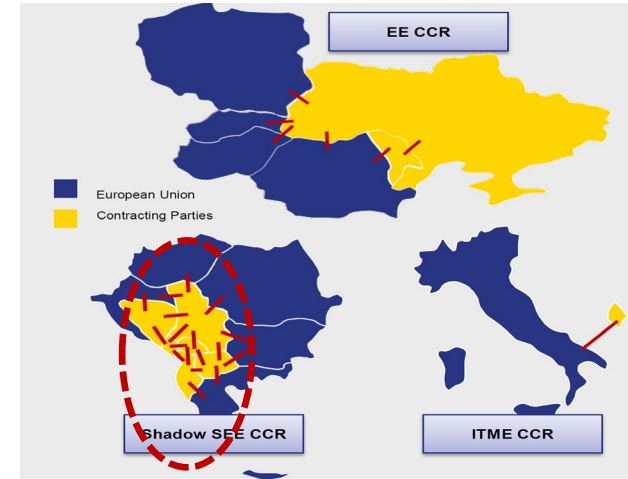
- **Completion of remaining tasks of Market Reform Plan (vast majority of MRP tasks completed – as noted in NCEP assessment by EU)**
 - **Balancing markets' platforms (IPTO to join MARI-PICASSO)**
 - **TSO-DSO coordination (facilitated by the completion of dispatch centers by DSO)**
 - **RES PPAs platform (to be completed by Henex)**
 - **Market coupling with Western Balkans (adoption of common CCR rules and enhanced role of Selene)**



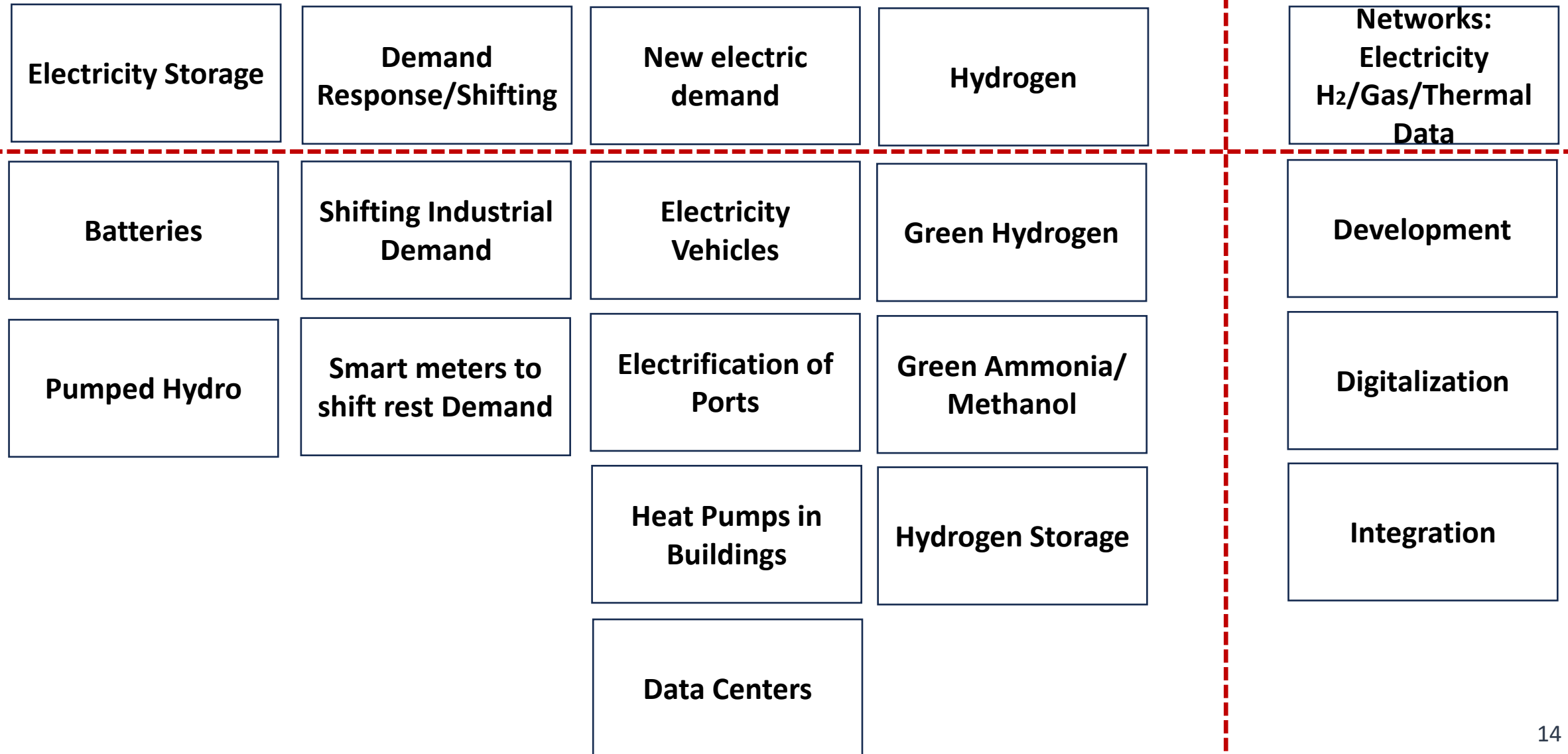
Important challenges for the Hellenic wholesale market

- **Big bang 15-minute MTU implementation**
- **Potential implementation of CM and**
- **Potential adoption of co-optimization**

- **Curtailement and remuneration of RES generation**
 - zero prices eliminate energy cost for retailers and consumers,
 - Create clear signal for investments in storage and demand response
 - however, they create uncertainty in RES projects
 - that could be offset through long-term contracts – CfD and PPAs
 - new electric demand/storage assets



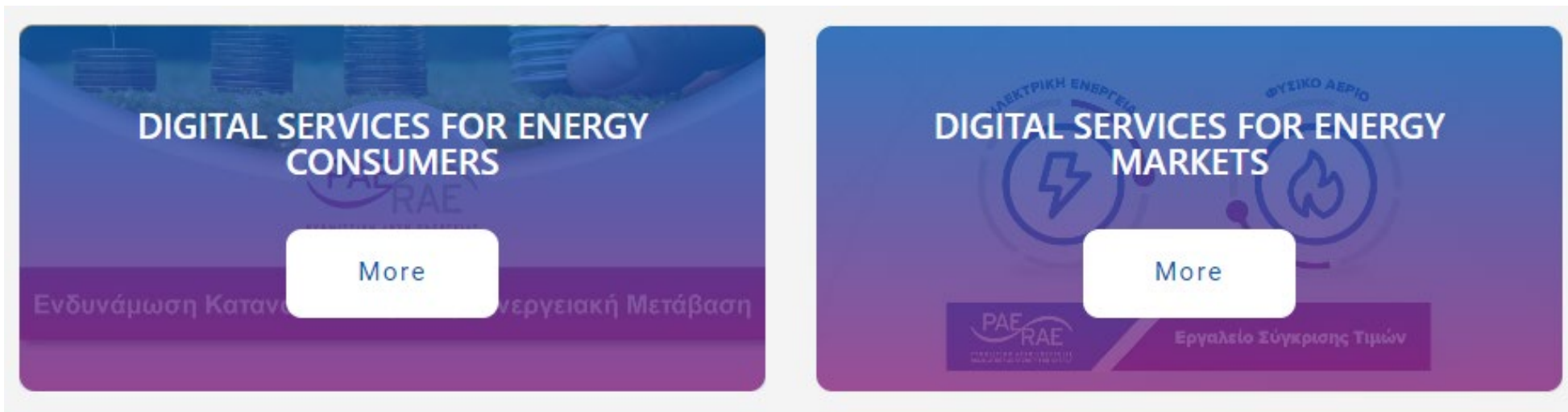
Main challenge: Competitive RES electricity production pave the way for investments of other technologies



Transforming Regulator nature (R2C),
creating Consumer's Place

to Protect Consumers and Enhance Transparency

Digital services for Energy Consumers and Markets



Digital services for Energy Consumers

SUBMIT COMPLAINTS TO ENERGY PROVIDERS OR NETWORK OPERATORS

More

Ενδυνάμωση Καταναλωτών για την Ενεργειακή Μετάβαση

FIND AVAILABLE ELECTRICITY SUPPLY CONTRACTS

More

Ενδυνάμωση Καταναλωτών για την Ενεργειακή Μετάβαση

COMPARE HOUSEHOLD ENERGY PRICES

More

Εργαλείο Σύγκρισης Τιμών

COMPARE EV CHARGING PRICES

More

ENERGY OMBUDSMAN SERVICE

More

ELECTRICITY COST CALCULATION

More

Εργαλείο Σύγκρισης Τιμών

ENERGY SAVINGS GUIDE FOR BUILDINGS

More

WHISTLEBLOWING - CONFIDENTIAL PROVISION OF INFORMATION

More

Digital services for Energy Markets

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RAE
GEOSPATIAL MAP FOR RES & STORAGE
INSTALLATIONS

Ενδυνάμωση Καταναλωτή Ενεργειακή Μετάβαση

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GREEK WHOLESALE ELECTRICITY MARKET

Ενδυνάμωση Καταναλωτή Ενεργειακή Μετάβαση

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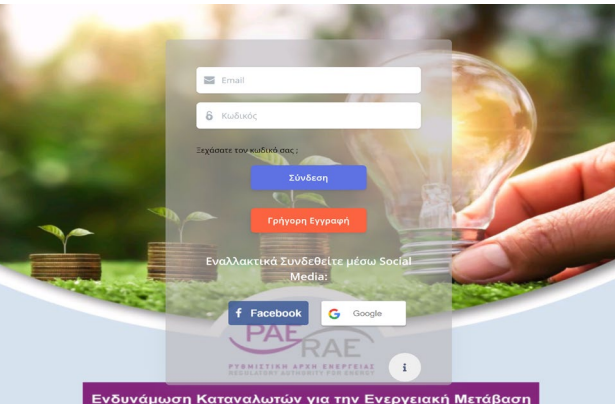
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GREEK RETAIL ELECTRICITY MARKET

More

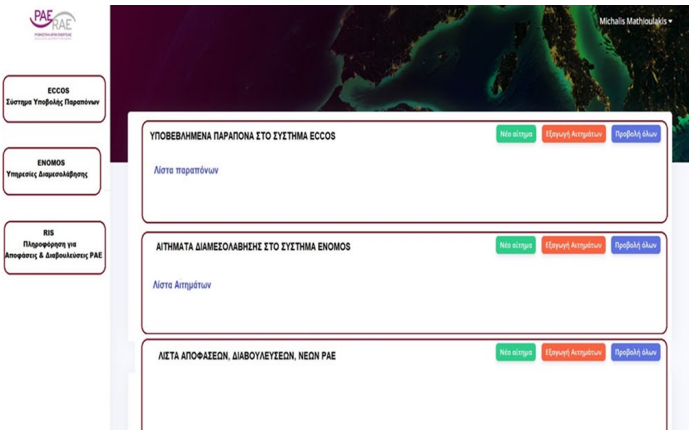
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GREEK RETAIL NATURAL GAS MARKET

More

Complaints tool – my.rae.gr
(to Energy Providers and Network Operators)
(in operation)



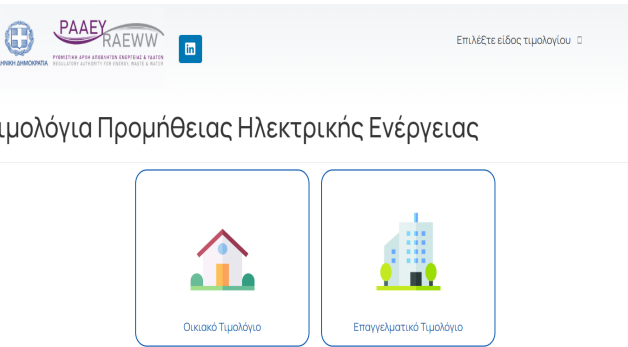
Energy Ombudsman –
Online Arbitration system
(in operation)



Electricity Cost Calculator
<https://www.electricitycostcalculator.gr/> / <https://www.buildingenergysaving.gr/>
(in operation)



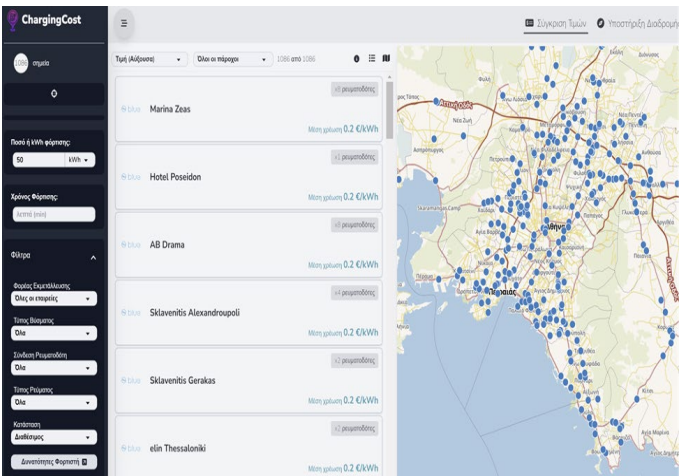
Available Electricity Supply Contracts
– invoices.rae.gr
(in operation)



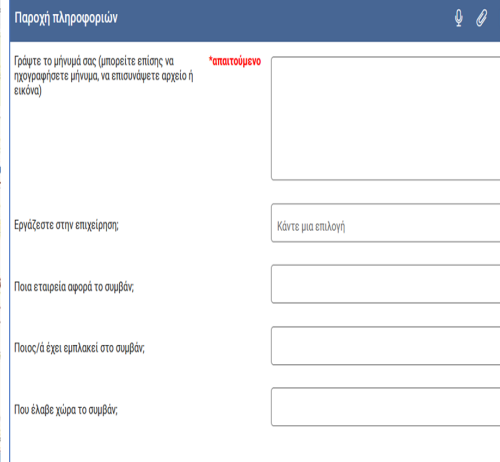
Household Energy Prices Comparison Tool
– energycost.gr
(in operation)



Electric Vehicles' Prices
Comparison Tool
(in operation May 2024)



Anonymous Complaints system
- energy-whistleblowing.gr
(in operation in 2024)



*Οι ανωτέρω τιμές είναι οι πλέον πρόσφατες προσαρμοσμένες από τους προμηθευτές ηλεκτρικής ενέργειας, τις οποίες η ΠΑΑΕΥ οφείλει να αναρτήσει στην ιστοσελίδα της σύμφωνα με την παρ. 4 του άρθρου 138Α του νόμου 4951/2022. Σε κάθε περίπτωση, εφαρμόζομεν των διατάξεων της παρ. 9 του άρθρου 138Α του νόμου 4951/2022, η ΠΑΑΕΥ θα προβεί σε έλεγχο της τήρησης των διατάξεων του νόμου και, της Υπουργικής Απόφασης ΥΠΕΝ/ΔΗΕ/120637/2107.

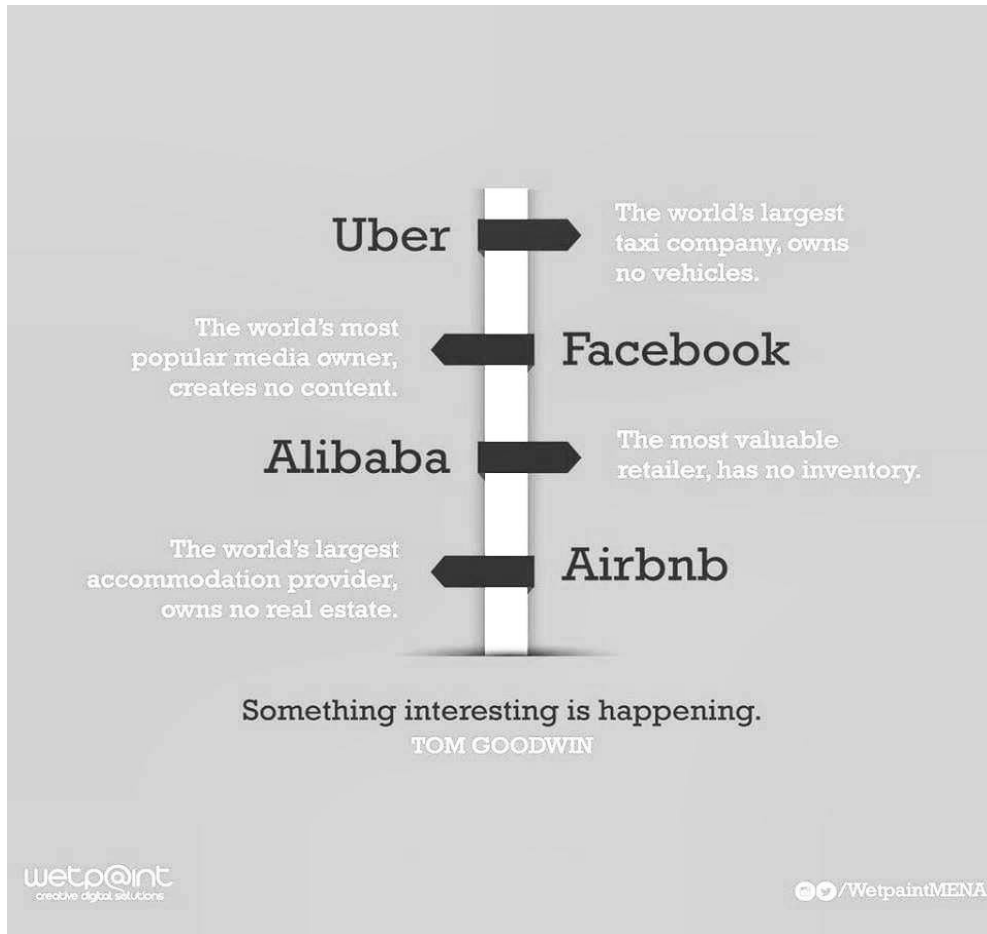
We Create a Consumers' Place

We transform Regulator's nature from B2B (R2B) to R2C

in a similar way that innovative companies

**Engage Assets' owners to create
Market Place**

**We Engage Citizens to create
Consumers Place**



Through a number of innovative tools:

Complaints platforms

- MyRAE
- Energy Ombudsman
- Energy-Whistleblowing

Energy Cost Comparison tools

- Energy Cost and Charging Cost comparison tools

Energy Efficiency tools

- Energy Cost calculator and Building Energy Savings tools

**Tools enhancing Transparency and Understanding
Retail Billing database**

Complaints tool – my.rae.gr (in operation) (to Energy Providers and Network Operators)

Email

Κωδικός

Ξεχάσατε τον κωδικό σας ;

Σύνδεση

Γρήγορη Εγγραφή

Εναλλακτικά Συνδεθείτε μέσω Social Media:

f Facebook

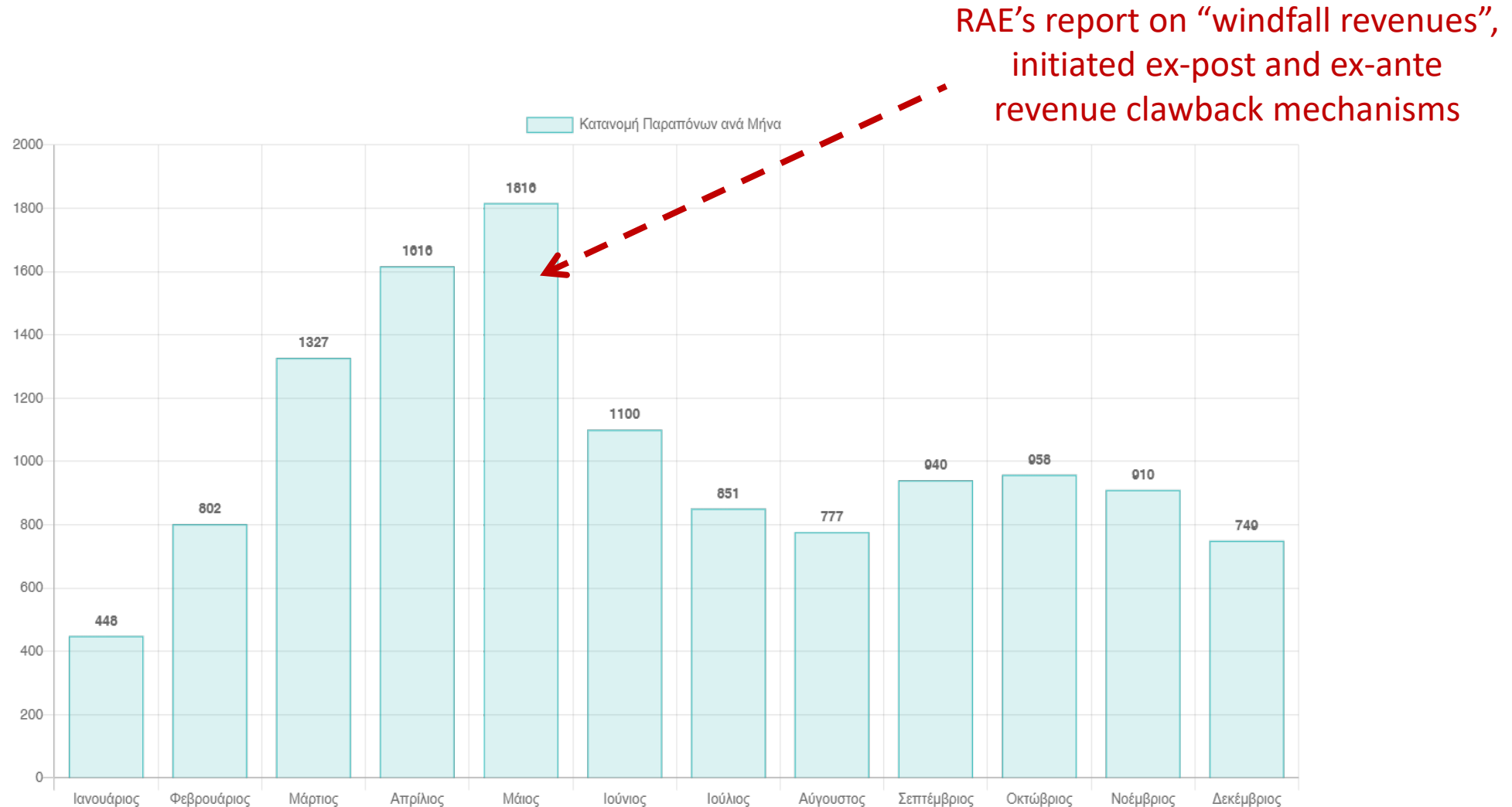
G Google

ΡΑΕ **ΡΑΕ**
ΡΥΘΜΙΣΤΙΚΗ ΑΡΧΗ ΕΝΕΡΓΕΙΑΣ
REGULATORY AUTHORITY FOR ENERGY

i

Ενδυνάμωση Καταναλωτών για την Ενεργειακή Μετάβαση

Monthly Complaints in MyRAE over 2022



Facilitate decision making for enhancing Social Cohesion and Protecting Consumers

Energy Ombudsman – Online Arbitration system (in operation)

ΑΙΤΗΣΗ ΔΙΑΜΕΣΟΛΑΒΗΣΗΣ ΠΡΟΣ ΤΟΝ ΕΛΛΗΝΙΚΟ ΕΝΕΡΓΕΙΑΚΟ ΜΕΣΟΛΑΒΗΤΗ

1. ΑΤΟΜΙΚΑ ΣΤΟΙΧΕΙΑ *(Προ-συμπληρωμένα όσα στοιχεία είναι διαθέσιμα μέσω του myRAE)*

Όνομα*	Επώνυμο*	Πατρώνυμο*
Αριθμός Δελτίου Ταυτότητας ή Διαβατηρίου (σε ισχύ) *	ΑΦΜ*	
Ταχυδρομική διεύθυνση (οδός, αριθμός, περιοχή, Τ.Κ.)*		

2. ΣΤΟΙΧΕΙΑ ΕΞΟΥΣΙΟΔΟΤΗΜΕΝΟΥ ΠΡΟΣΩΠΟΥ

Όνομα*	Επώνυμο*	Πατρώνυμο*
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Ταχυδρομική διεύθυνση (οδός, αριθμός, περιοχή, Τ.Κ.)*		

3. ΠΡΟΜΗΘΕΥΤΗ ΠΟΥ ΑΦΟΡΑ ΤΟ ΠΑΡΑΠΟΝΟ ΣΑΣ *(Προ-συμπληρωμένο μέσω του myRAE)*

Επωνυμία Εταιρίας:

ECCOS
Σύστημα Υποβολής Παραπόνων

ENOMOS
Υπηρεσίες Διαμεσολάβησης

RIS
Πληροφόρηση για
Αποφάσεις & Διαβουλεύσεις ΡΑΕ

Michalis Mathioulakis ▾

ΥΠΟΒΕΒΛΗΜΕΝΑ ΠΑΡΑΠΟΝΑ ΣΤΟ ΣΥΣΤΗΜΑ ECCOS Νέο αίτημα Εξαγωγή Αιτημάτων Προβολή όλων

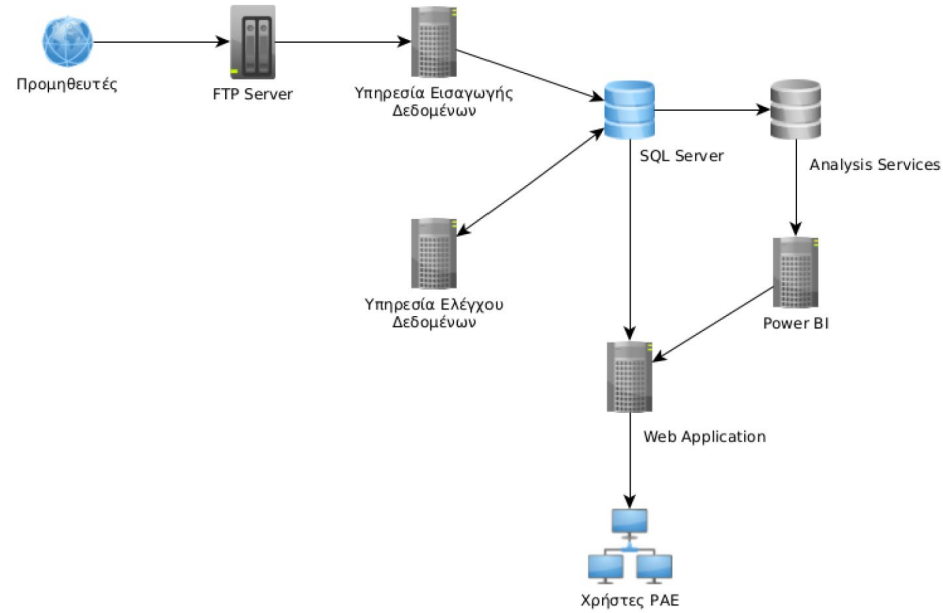
[Λίστα παραπόνων](#)

ΑΙΤΗΜΑΤΑ ΔΙΑΜΕΣΟΛΑΒΗΣΗΣ ΣΤΟ ΣΥΣΤΗΜΑ ENOMOS Νέο αίτημα Εξαγωγή Αιτημάτων Προβολή όλων

[Λίστα Αιτημάτων](#)

ΛΙΣΤΑ ΑΠΟΦΑΣΕΩΝ, ΔΙΑΒΟΥΛΕΥΣΕΩΝ, ΝΕΩΝ ΡΑΕ Νέο αίτημα Εξαγωγή Αιτημάτων Προβολή όλων

Retail Billing Database (in operation)




Billing Data Tool for Electricity

92 fields for checking by Regulator of the charges
from Energy Providers to 7,5+ million meters (customers)

Πεδίο
Αριθμός Λογαριασμού
Περίοδος Τιμολόγησης από
Περίοδος Τιμολόγησης έως
Αριθμός Ημερών Τιμολόγησης
Εκκαθαριστικός (0) ή Έναντι (1)
Ημερομηνία Έκδοσης Λογαριασμού
Χρήση
Ποσό Ενγύησης (€)
Ημερομηνία Εναρξης Συμβολαίου
Ημερομηνία Λήξης Συμβολαίου
Όνομασία Ισχύοντος Συμβολαίου
Δικαιούχος Ειδικού Τιμολογίου (ΚΟΤ Α, ΚΟΤ Β, ΠΟΤ, ΤΥΑ)
Αριθμός Περιφέρειας
Αριθμός Παροχής Ακινήτου (Βψήφιο)
Αριθμός Διαδόχου (τελευταία 2 ψηφία)
ΑΦΜ Πελάτη
Επωνυμία Πελάτη
Διεύθυνση Ακινήτου
Δήμος
Περιφέρεια
Ταχυδρομικός Κώδικας Ακινήτου (Τ.Κ.)
Επιφάνεια Ακινήτου (μ2) για Δημοτικά Τέλη
Επιφάνεια Ακινήτου (μ2) για Δημοτικό Φόρο
Επιφάνεια Ακινήτου (μ2) για ΤΑΠ
Κύρια Κατοικία 0 (ΝΑΙ) / 1 (ΟΧΙ)
Συμφωνημένη Ισχύς (kVA)
Ημερομηνία Προηγούμενης Καταμέτρησης
Ημερομηνία Τελευταίας Καταμέτρησης
Ένδειξη Μετρητή Ημέρας Προηγούμενης Καταμέτρησης (kWh)
Ένδειξη Μετρητή Νύχτας Προηγούμενης Καταμέτρησης (kWh)
Ένδειξη Μετρητή Ημέρας Τελευταίας Καταμέτρησης (kWh)
Ένδειξη Μετρητή Νύχτας Τελευταίας Καταμέτρησης (kWh)
Ενέργεια Ημέρας (kWh)
Ενέργεια Νύχτας (kWh)
Συν(φ)
Συντελεστής Μετ/τη Ημέρας
Συντελεστής Μετ/τη Νύχτας
Τιμολογηθείσα Στήση/Ισχύς (kW)
Χρέωση Παγίου [Ημέρας](€)
Χρέωση Παγίου [Νύχτας](€)
Σταθερή Χρέωση Προμήθειας [Ημέρας] (€)
Σταθερή Χρέωση Προμήθειας [Νύχτας] (€)
Εκπτώσεις επί της Σταθερής Χρέωσης Προμήθειας Ημέρας (€)
Εκπτώσεις επί της Σταθερής Χρέωσης Νύχτας Προμήθειας (€)
Κυμαινόμενη Χρέωση Προμήθειας (€)
Διακριτή χρέωση CO2 (€)
Διακριτή χρέωση CO2 Κατανάλωση (Kwh)
Χρέωση Ρήτρας Αναπροσαρμογής (€)
Χρέωση Ρήτρας Αναπροσαρμογής Κατανάλωση (Kwh)
Εκπτώσεις επί της Κυμαινόμενης Χρέωσης Προμήθειας (€)
Εκπτώσεις επί της Κυμαινόμενης Χρέωσης Προμήθειας Κατανάλωση (Kwh)
Ελάχιστη Χρέωση Προμήθειας (€)
Χρέωση Ισχύος (€)
Χρέωση Ισχύος Κατανάλωση (Kwh)
Χρέωση Πρόωρης Αποχώρησης (€)
Χρεώσεις Προμήθειας (€)
Εκπτώσεις Προμήθειας π.χ. εκπτώσεις συνέπειας και συναλικές εκπτώσεις προμήθειας, προωθητικές ενέργειες (€)
Διορθωτικές Χρεώσεις (€)
Μείον Αξία ρεύματος έναντι (€)
Στρογγυλοποιήσεις (€)
Τελικό Ποσό Χρέωσης Προμήθειας προ Κρατικής Επιδότησης (€)
Ποσό Κρατικής Επιδότησης (€)
ΕΔΔΗ (€)
ΕΔΔΗ Κατανάλωση (Kwh)
ΕΤΜΕΑΡ (€)
ΕΤΜΕΑΡ Κατανάλωση (Kwh)
ΥΚΩ (€)
ΥΚΩ Κατανάλωση (Kwh)
Λοιπές (€)
Λοιπές Κατανάλωση (Kwh)
Ειδικό Τέλος 5% (Ν. 2093/92) (€)
ΕΦΚ (Ν. 3336/05) (€)
ΕΦΚ (Ν. 3336/05) Κατανάλωση (Kwh)
Μοναδιαία Χρέωση Δημοτικών Τεχνών (€/μ2)
Μοναδιαία Χρέωση Δημοτικών Φόρων (€/μ2)
Τιμή Ζώνης (€/μ2)
Συντελεστής Παλαιότητας Ακινήτου
Συντελεστής ΤΑΠ (%)
Συντελεστής Ημερών (π.χ. 30/365)
Δημοτικά Τέλη (€)
Δημοτικός Φόρος (€)
ΤΑΠ (€)
ΕΡΤ (€)
Λοιπές χρεώσεις (€)

Anonymous Complaints system - energy-whistleblowing.gr (in operation within 2024)

1 ΜΙΛΗΣΤΕ ΜΑΣ ΓΙΑ ΤΗΝ ΥΠΟΘΕΣΗ 2 Η ΑΝΑΦΟΡΑ ΣΑΣ 3 ΣΧΕΤΙΚΑ ΜΕ ΣΑΣ




Τι τύπου οργανισμό ή φορέα αφορά η αναφορά σας;  *

Έχετε προσπαθήσει στο παρελθόν να το αναφέρετε; *

Ποια είναι η σχέση σας με τον οργανισμό για τον οποίο υποβάλετε την αναφορά σας; *

Σε ποιο βαθμό εμπλέκεστε στην υπόθεση για την οποία υποβάλετε την αναφορά; *

Επόμενο →

Παροχή πληροφοριών   

Γράψτε το μήνυμά σας (μπορείτε επίσης να ηχογραφήσετε μήνυμα, να επισυνάψετε αρχείο ή εικόνα) ***απαιτούμενο**

Εργάζεστε στην επιχείρηση; Κάντε μια επιλογή

Ποια εταιρεία αφορά το συμβάν;

Ποιος/ά έχει εμπλακεί στο συμβάν;

Που έλαβε χώρα το συμβάν;

Available Electricity Supply Contracts – invoices.rae.gr (in operation)



Επιλέξτε είδος τιμολογίου

Τιμολόγια Προμήθειας Ηλεκτρικής Ενέργειας



Οικιακό Τιμολόγιο



Επαγγελματικό Τιμολόγιο

*Οι ανωτέρω τιμές είναι οι πλέον πρόσφατες προσφερόμενες από τους προμηθευτές ηλεκτρικής ενέργειας, τις οποίες η ΡΑΑΕΥ οφείλει να αναρτήσει στην ιστοσελίδα της σύμφωνα με την παρ. 4 του άρθρου 138Α του νόμου 4951/2022. Σε κάθε περίπτωση, εφαρμοζόμενων των διατάξεων της παρ. 9 του άρθρου 138Α του νόμου 4951/2022, η ΡΑΑΕΥ θα προβεί σε έλεγχο της τήρησης των διατάξεων του νόμου και της Υπουργικής Απόφασης ΥΠΕΝ/ΔΗΕ/120637/2107.

Household Energy Prices Comparison Tool – energycost.gr (in operation)



Electric Vehicles' Prices Comparison Tool (in operation)

The screenshot displays the 'ChargingCost' website interface. On the left is a dark sidebar with filters and search options. The main content area shows a list of charging stations, each with a 'blue' logo, name, and average price of 0.2 €/kWh. A map on the right shows the location of these stations in Athens, with blue dots indicating their positions. The top right corner has navigation links for 'Σύγκριση Τιμών' and 'Υποστήριξη Διαδρομής'.

ChargingCost

1086 σημεία

Τιμή (Αύξουσα) Όλοι οι πάροχοι 1086 από 1086

Station Name	Price	Recharge Rate
Marina Zeas	0.2 €/kWh	x8 ρευματοδότες
Hotel Poseidon	0.2 €/kWh	x1 ρευματοδότες
AB Drama	0.2 €/kWh	x8 ρευματοδότες
Sklavenitis Alexandroupoli	0.2 €/kWh	x4 ρευματοδότες
Sklavenitis Gerakas	0.2 €/kWh	x2 ρευματοδότες
elin Thessaloniki	0.2 €/kWh	x2 ρευματοδότες

Σύγκριση Τιμών Υποστήριξη Διαδρομής

Αττική Οδός

Αθήνα

Πειραιάς

Electricity Cost Calculator

<https://www.electricitycostcalculator.gr/>
(in operation)



www.rae.gr



Energy Savings Guide Tool

<https://www.buildingenergysaving.gr/>
(in operation)

Οδηγός Εξοικονόμησης Ενέργειας

ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ
ΡΥΘΙΣΤΙΚΗ ΑΡΧΗ ΕΝΕΡΓΕΙΑΣ
REGULATORY AUTHORITY FOR ENERGY

Export Import

Εγγραφή / Σύνδεση

- Type and occupancy profile
- Location and topography
- Surface areas
- Thermal properties
- Setpoint temperatures
- Heating / Cooling systems
- Energy Consumption (kWh)
- Saving measures selection

Residence / Multi-apartment building

Commercial / Institutional building

Summary

European Electricity Market Design

- Improved **REMIT**
- **Better protection of consumers**
- **PPAs and two-way Contracts for Difference (CfDs)** to support RES penetration
- **Capacity mechanisms** to become element of the electricity market
- Assessed options (retaining of marginal pricing and zonal pricing, no adoption of technology market split and ex-ante power mitigation, potential adoption of co-optimization)

EU's EMD

- Completion of few **remaining tasks of Market Reform Plan** (MARI/PICASSO, TSO-DSO coordination, RES PPA platform, Market coupling with Western Balkans,)
- **Big bang 15-minute MTU implem., Market integration in Western Balkans**
- **Potential implementation of CM** and adoption of co-optimization
- **Competitive RES** electricity production pave the way for investments of other technologies (Electrification of transport, storage, demand response, green hydrogen)

Challenges for Greek wholesale electricity market

Digitalizing procedures for Energy Consumers and Markets

- Transforming nature of Regulator (from R2B to R2C)
- **Creating Consumers' Place to Protect Consumers and Enhance Transparency**

Creation of a Consumers' Place to Protect Consumers

Thank you for your attention!

