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COMPETITION AND ENERGY - ISSUES ARISING FROM THE ABUSIVE EXPLOITATION OF A DOMINANT POSITION IN THE ENERGY MARKET

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Abstract

The present Thesis is taking place in the context of Post-Graduation Program Energy: Strategic, Law & Economics of University of Piraeus - Department of International & European Studies. Its topic is “Competition and Energy - Issues, arising from the Abusive Exploitation of a Dominant Position In the Energy Market”.

As it emerges through its title, this Thesis is substantially divided into two parts.

The first one, operates a general theoretical view over the relationship between Competition and Energy, with emphasis to the way that Competition’s Policy has shaped Energy policy, at European and National Level, while the second one, turns the Thesis’s approach to specified legal and technical issues, as it seeks to approach the implementation framework of one of the primary enforcement tool of Competition's Policy, which is none other than the Article 102 of TFEU.

In particular, the relevant analysis, initiates with an introduction to Energy and its importance as a common good at social, political and economic level and moves forward, demonstrating the development and evolution of the E.U.’s Energy Policy and the Regulations of the Market, as well as the role of Competition Policy as a Driver for the Energy Policy Development, during the period from 1998 until today. This route takes place hilightening the main turning points in energy field - such as liberalization of the energy markets, energy transition and of course the energy crisis after the Russian-Ukraine war.

In continuation of the above, the present Thesis deals exclusively with issues of enforcement Competition’s Policy and especially with the Article 102 of TFUE, which prohibits the abuse of dominant position in internal markets. The first step is going through a legal and theoretical approach of the Article 102 and the general categorization of conducts of abuses, while the second step applies the article 102, specifically in Energy Markets, demonstrating the relevant friction points, conducts of abuse, emerging Trends and of course the respective Case Law, which imprint the specificities and needs of these markets.

In the above context, the present Thesis concludes, seeking to address the case of Greece and specifically the general view of its Institutional Response to Energy Market Liberalization (1998 - 2025), indicating relevant structural reforms and significant Case Law, that reflect a big part of developments and correlations at energy field in our country.

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List of Abbreviations

1. ACER: Agency for the Cooperation of Energy Regulators
2. AEC test: As-Efficient Competitor test
3. AGCM: Autorità Garante della Concorrenza e del Mercato
4. ATC: Average Total Cost.
5. AVC: Average Variable Cost
6. BEH: Bulgarian Energy Holding
7. CACM: Capacity Allocation and Congestion Management
8. CAN Europe: Climate Action Network Europe
9. CBAM: Carbon Border Adjustment Mechanism
10. CEEAG: Guidelines on State aid for climate, environmental protection and energy 2022
11. CEER: Council of European Energy Regulators
12. CCS: Carbon Capture and Storage
13. CJEU: Court of Justice of the European Union
14. CMA: Competition and Markets Authority
15. CRM: Customer Relationship Management
16. CSAM: Methodology for Coordinating Operational Security Analysis
17. DEPA: Public Gas Corporation of Greece
18. DESFA: Hellenic Gas Transmission System Operator S.A.
19. DG COMP: Directorate-General for Competition
20. DG EMPL: Directorate-General for Employment, Social Affairs and Inclusion
21. DG ENER: Directorate-General for Energy
22. DSO: Distribution System Operator
23. EC: European Community
24. ECA: European Court of Auditors
25. ECN: European Competition Network
26. EDF: Électricité de France.
27. EE: Energy Efficiency
28. EETT: Hellenic Telecommunications and Post Commission
29. EEX: European Energy Exchange
30. EIB: European Investment Bank
31. EMD 2024: Electricity Market Design

32. ENI: Ente Nazionale Idrocarburi
33. ENTSO-E: European Network of Transmission System Operators for Electricity
34. ENTSOG: European Network of Transmission System Operators for Gas
35. EPSU: European Federation of Public Service Unions
36. ERGEG: European Regulators Group for Electricity and Gas
37. ETSO: European Transmission System Operators
38. EU: European Union
39. EUMR: EU Merger Regulation
40. FSR: Foreign Subsidies Regulation
41. FSRU: Floating Storage and Regasification Unit
42. GBER: General Block Exemption Regulation.
43. GDP: Gás de Portugal S.A.
44. GDPR: General Data Protection Regulation
45. HCC: Hellenic Competition Commission.
46. HEDNO: Hellenic Electricity Distribution Network Operator
47. HEnEx: Hellenic Energy Exchange
48. HRADF: Hellenic Republic Asset Development Fund
49. HTNOs: Hydrogen Transmission Network Operators
50. IEA: International Energy Agency
51. IMF: International Monetary Fund
52. IPTO: Independent Power Transmission Operator
53. ISO: Independent System Operator
54. ITO: Independent Transmission Operator
55. LNG: Liquefied Natural Gas
56. LTCs: Long-Term Contracts
57. MCO: Market Coupling Operator
58. NBP: National Balancing Point
59. NCAs: National Competition Authorities
60. NEMO: Nominated Electricity Market Operator
61. NOME: Nouvelle Organisation du Marché de l'Électricité
62. NRAs: National Regulatory Authorities
63. OECD: Organisation for Economic Co-operation and Development.
64. OU: Ownership Unbundling

65. PCI: Project of Common Interest
66. PMI: Project of Mutual Interest
67. PPC: Public Power Corporation S.A.
68. PPAs: Power Purchase Agreements
69. R&I: Research and Innovation
70. RAAEY: Regulatory Authority for Energy, Waste and Water
71. RAB: Regulatory Asset Base
72. RAE: Regulatory Authority for Energy
73. RAP: Regulatory Assistance Project
74. RDI: Research, Development and Innovation
75. RED II: Renewable Energy Directive II
76. Reg.: Regulation
77. REMIT: Regulation on Wholesale Energy Market Integrity and Transparency
78. RES: Renewable Energy Sources
79. RWE: Rheinisch-Westfälisches Elektrizitätswerk Aktiengesellschaft
80. SEN: Servizio Elettrico Nazionale
81. SOGL: System Operation Guideline
82. SWD: Staff Working Document
83. TAG: Trans Austria Gasleitung
84. TENP: Trans Europa Naturgas Pipeline
85. TFEU: Treaty on the Functioning of the European Union
86. TPA: Third-Party Access
87. TSI: Technical Support Instrument
88. TSO: Transmission System Operator
89. TTF: Title Transfer Facility
90. UCPD: Unfair Commercial Practices Directive.
91. VAT: Value Added Tax
92. WACC: Weighted Average Cost of Capital
93. ΑΔΜΗΕ/ADMIE: Ανεξάρτητος Διαχειριστής Μεταφοράς Ηλεκτρικής Ενέργειας
94. ΔΕΔΔΗΕ/DEDDIE: Διαχειριστής Ελληνικού Δικτύου Διανομής Ηλεκτρικής Ενέργειας

Introduction

Energy is one of the most strategic and critical sectors of economic activity, affecting every aspect of production, consumption and social cohesion. The nature of energy as a product with high transport costs, a limited number of suppliers and national importance makes it unique in the context of markets. In this environment, the concept of competition cannot be seen in isolation from the institutions, regulations and geopolitical dependencies, that determine the functioning of the market.

The liberalization of energy markets in the European Union has been a long-term and multi-layered process, based on the principles of the internal market and economic liberalism. Since the mid-1990s, European Directives have sought to limit the role of state monopolies, to separate the functions of production, transmission and supply, and to create conditions of competition to the benefit of the consumer. Despite the intentions, the implementation of these policies has been uneven, revealing contradictions between economic theory and institutional reality.

The presence of a dominant position in energy markets is not simply a consequence of economic power, but a result of historical and institutional formation. Many public energy companies, such as PPC in Greece or EDF in France, operated for decades under an exclusive regime, investing in infrastructure and ensuring social provision. The transition to a competitive regime has called this role into question and highlighted the possibility of abuse of power by entities that still hold critical resources or networks.

The prohibition of abuse of a dominant position, as provided for in Article 102 of the Treaty on the Functioning of the European Union (TFEU), has been the main legal tool for addressing distortions arising in liberalized energy markets. Enforcement of this legislation has taken various forms: from imposing fines for exclusionary behavior to requiring the allocation of critical resources to third parties through commitments. The difference with other markets is that herein the room for manoeuvre of state or former state-owned enterprises is significantly greater, due to their institutional weight and historical privileges.

Cases of abuse of a dominant position in the energy sector are not limited to denial of access to infrastructure or practices of exclusion of competitors, but also extend to more complex forms, such as capacity retention, selective pricing, exclusive use of data or the maintenance of contractual restrictions. European experience shows that these practices are not always clearly visible but are identified over time and with the development of supervision and case law. In the context of the energy transition and the growing importance of renewables, tensions between competition and public intervention are intensifying. On the one hand, competition law requires equal access conditions and the avoidance of distortions; on the other hand, the imperative to decarbonize requires public support and long-term planning. This dual pursuit highlights new forms of concentration of power, both in the private and public sectors, which put the debate on abuse back on a different footing.

The case of Greece provides an interesting example of the transition from state monopoly to quasi-liberalized market, with continuous interventions by the European Commission and national regulators. Structural changes, such as NOME auctions or the privatization of infrastructure, have been accompanied by legal conflicts, administrative gaps and social reactions. The balance between liberalization and protection of the public interest remains delicate and controversial. Understanding the phenomenon of abuse of dominant position requires analysis beyond economic theory. It needs to be integrated into the context of the real functioning of markets, institutional weaknesses and social needs. Energy is not just a field of commercial activity; it is at the same time an infrastructure, a social good and a geopolitical weapon. Any distortion in its market has direct consequences not only for providers, but also for social cohesion and environmental strategy.

This paper attempts to systematically analyze the network of reforms, institutional resistance and applications of European competition law in the energy sector, focusing in particular as to the dynamics of abuse of dominant position. Through a comparative presentation of European cases and an in-depth study of the Greek experience, the aim is to capture the complex interaction between rules, markets and power. The ultimate goal is to assess whether competition has functioned in practice as a lever for transforming the energy market, or whether it has become a formal rule that coexists with structures of power and dependencies. The work focuses on the relationship between legal framework and

implementation, seeking the essence of the market as a social and political mechanism, and not simply as a neutral economic structure.

PART A

Chapter 1: Energy as a Special and Strategic Product

1.1 Chapter Introduction

The energy is differentiated from other goods by its vital importance: it is the driving force for all economic activity and social well-being. Its ability to influence production, transportation, and daily life makes it a strategic good, with its prices and availability having direct implications for geopolitics and the state (Yergin, 2024). Unlike conventional raw materials, energy requires complex infrastructure, such as pipelines, power grids, and storage facilities. This creates barriers to entry and dependence on countries with the know-how and capacity to build such facilities, enhancing their power on the global map (Yergin, 2024).

In the modern transition to clean energy, the importance of security in energy supply has been renewed. Renewable energy depends on minerals such as lithium, cobalt and rare earths, the extraction and processing of which, is concentrated in a few countries - a fact that creates new, even more complex strategic issues (IEA, 2025). The focus on critical materials, beyond oil and gas, is an indication that energy security policies now also include securing the necessary materials for the green transition, such as their scarcity and constraints on stimulating availability (IEA, 2025).

Furthermore, the new energy security framework is not limited to state oil storage facilities with temporary use, but extends to a wide range of critical goods. Discussions on the creation of strategic stocks of critical materials are bridging the energy sector with high-tech industry and defense (Singh & Datta, 2024; 2024 IISS - Critical Raw Materials and European Defence, 25.3.2025). The concept of energy system resilience now covers both short-term crises (such as supply disruptions) and long-term material starvation phenomena. Planning must include preventive measures as well as rapid response and recovery strategies (Schmitz etal., 2025). The comprehensive nature of energy as a strategic commodity means that coordination is required between states, private companies and international organizations. Multilevel cooperation is crucial to achieving stability in markets, that can

affect security and economic prosperity (Schmitz etal., 2025). In conclusion, energy is now seen as a specific, strategic commodity - not only itself, but for the entire industrial chain and the security of political systems. This realization foregrounds the need for improved policies, infrastructure and international alliances.

1.2 Energy as a Natural Monopoly

According to the Organization for Economic Co-operation and Development (OECD), the Natural Monopoly stands for the situation where, “in a particular market, a single firm can serve that market at lower cost than any combination of two or more firms. Natural monopoly arises out of the properties of productive technology, often in association with market demand, and not from the activities of governments or rivals (see monopoly). Generally speaking, natural monopolies are characterized by steeply declining long-run average and marginal-cost curves, such that there is room for only one firm to fully exploit available economies of scale and supply the market” (ESCWA website).

Based on the above definition, energy, and in particular its production and especially distribution, has historically been characterized as a natural monopoly due to the nature and cost of the infrastructure required. Indicatively, electricity and natural gas require extensive and well-defined networks of pipelines or cables, which it is not economically feasible for multiple competitors to replicate. The initial investment in these networks is so high, that it is often a deterrent to new entrants, leading to monopolistic situations (Mulder 2021).

Indeed, as it is noted above, the term “natural monopoly” is used to describe those markets where a single company can serve the entire demand at a lower cost than if there were multiple suppliers. In energy, this is particularly true for the transmission and distribution stages, where economies of scale, trump any form of competition. However, the existence of a monopoly, creates the need for regulation to prevent abuses, as the natural monopolist may use its dominant position, against the public interest. (Helm, 2021). The regulation of natural monopolies in energy has followed various models over time, from state ownership and operation to supervised privatization. In the European Union in particular, efforts to liberalize the energy market have not eliminated the natural monopoly

character of the networks, but have led to the creation of independent regulatory authorities and the separation of activities (Newbery, 2002 ; Reg. (EU) 2019/942 and Dir. (EU) 2019/944).

In this context, the phenomenon of vertical integration, where one company controls generation, transmission and supply, has been a challenge to the creation of equal competition. In practice, even when more suppliers are allowed to enter, control of the network by the dominant company can lead to foreclosures or to favorable conditions in its favor. Of course, as it will be show below, after the third energy package and the relevant EU Directive, the "Unbundling Procedure" was introduced, in order for the vertical integration to be restrained [Directive 2009/72/EC; Directive 2009/73/EC).

Energy as a natural monopoly is also associated with long-term security of supply. Governments often retain control or impose strict regulations on companies to ensure uninterrupted power and heat supply, especially in isolated or unprofitable areas. This need makes full market liberalization energy-wise risky (IEA, 2023). Despite the challenges, technological progress and decentralization of production – such as solar power on household roofs – are challenging the natural monopoly character to some extent. However, distribution and transmission remain areas where competition is almost impossible without serious consequences for the efficiency and security of the system (Joskow, 2008).

In recent years, the energy transition is creating new forms of monopoly power at different levels. Cases include electric vehicle charging networks, which - although in a theoretically competitive context - tend to develop into local monopolies due to limited space, accessibility and cost (CMA, 2021). Nevertheless, policy design must take into account that energy, as a main social good, cannot be left entirely to market forces without regulation. The risk of abuse of a dominant position, whether through delaying third-party access to infrastructure or through unilateral price setting, remains real and requires continuous supervision. Finally, the efficient operation of a natural monopoly in the energy sector is not self-evident. A balance is needed between private initiative, investment incentives and public interest, in order to ensure fair access, adequate investment and energy justice at all levels of society.

1.3 Public Interest and Universal Services

The concept of public interest in energy policy is at the core of every discussion, about the role of the State in regulating markets. Energy, as a basic need and infrastructure of modern society, cannot be addressed exclusively in terms of economic efficiency or a free market. The public interest requires the existence of regulatory mechanisms and strategic intervention to ensure equal access for all citizens, the stability of energy supply, environmental protection and social cohesion (European Commission (DG EMPL; Regulation (EU) 2017/1938). The state is called upon, through institutions and policies, to shape an energy system, that serves the needs of society as a whole and not only the demands of the market or investors.

Universal services, known as universal service obligations, are fully integrated into the concept of public interest. These services constitute a set of obligations imposed on energy providers to ensure the smooth provision of essential energy services to all citizens, regardless of geographical location or economic situation (Rossi, 2000). In countries with strong inequalities and regional disparities, these obligations are crucial to prevent energy exclusion, especially for households in rural or remote areas.

Energy poverty is now a central issue on the European energy policy agenda and is directly relevant to the public interest. The difficulty of households to access adequate and affordable energy, whether due to low income or inadequate housing, is a social pathology that exacerbates poverty, burdens health and intensifies social inequalities. State policies aimed at reducing energy poverty – such as consumption subsidies, special social tariffs or investments in energy efficiency – are deeply related to the institutional obligation to defend the common good and dignity of citizens (Commission Recommendation 2023/2407; Chan and Klass, 2022).

Alongside the social dimensions, the public interest is also intertwined with the environmental dimension of energy. The transition to a cleaner energy mix is not only a technological necessity but also an obligation towards future generations. Achieving the

energy transformation requires political and investment choices, that are not only guided by the logic of profit, but also by environmental responsibility. The state must actively intervene, both regulatory and financial, to strengthen renewable sources, promote energy efficiency and impose substantial environmental requirements (MDPI, 2022).

A crucial aspect of the public interest is transparency and citizen participation in decision-making. Access to information, the possibility of participating in public consultations and the empowerment of local communities in the co-formation of energy strategies are inextricably linked to the strengthening of social legitimacy. The public interest is not limited to technocratic measures, but requires democracy and institutional guarantees of accountability (JeDEM, 2025) The evolution of technology and the entry of smart energy solutions create new challenges for the definition and implementation of universal services. Access to digital media, data and autonomous energy management applications constitutes a new type of social necessity. Vulnerable population groups, who may lack know-how or digital infrastructure, risk being left behind in the energy transition. Therefore, the public interest requires that digital equality be incorporated as a design criterion at all levels of policy (TEN/834-EESC-2024).

The implementation of the universal service principle varies depending on the institutional and regulatory framework of each country. In some cases, the cost of these obligations is spread across all consumers through fees or contributions, while in other cases it is financed from the state budget. The choice of the appropriate mechanism has direct consequences for both the efficiency and social acceptance of energy policies (Rossi, 2000). Regulators are called upon to fairly weigh the costs and benefits, aiming at long-term balance and the legitimacy of regulations.

The public interest in energy also includes security a of energy supply. The reliability of networks, the maintenance of sufficient reserves and the resilience of the system to crises are key axes of energy policy. The state must foresee and plan infrastructure and risk management scenarios, in order to prevent situations of energy poverty or strategic dependence (Regulation (EU) 2017/1938). This dimension makes it clear, that energy cannot

be treated exclusively as an object of commercial negotiation, but is a crucial issue of national and social security.

The universality of energy services becomes particularly important in times of crisis, as was seen during the pandemic or the war in Ukraine. In such circumstances, the state is called upon to take extraordinary measures to protect consumers, impose ceilings or interventions in pricing, and support vulnerable groups with direct subsidies or debt arrangements. These actions embody the institutional guarantee that energy is not a luxury, but an essential social good (Toolbox 2021; NCSL, 2023).

The public interest dimension extends to the planning of the energy transition. The choice of technologies, the allocation of infrastructure and the impacts of delignitization or decarbonization affect different social groups unequally. The public interest requires that the transition be fair, take into account the rights of workers, local economies and vulnerable populations, and incorporate strategies for retraining, employment and financial support (Chan and Klass, 2022).

Integrating the concept of energy justice at the core of public interest policies, necessitates a transition from a narrow economic approach to a broader ethical and social perspective. Energy is a tool for social participation, dignity and perspective, and not simply a technological service. Energy policy must incorporate the complexity of social needs and provide the foundations for an inclusive, sustainable, and just society (European Commission - DG EMPL).

1.4 EU and Greece Regulatory Frameworks

The European Union has established a comprehensive regulatory framework for the energy market, aiming at market liberalization, transparency and consumer protection. Key pieces of legislation such as the Third Energy Package, the REMIT (Regulation on Wholesale Energy Market Integrity and Transparency - Regulations (EU) No 1227/2011 and (EU) 2024/1106**)** and the provisions on universal service and public service obligations of Directive 2019/944/EU, confirm the need for equal access, prevention of abuse and active

market supervision These regulations aim to enhance the transparency of transactions, reduce the risk of manipulation and ensure, that network operators and suppliers act in the public interest, under the supervision of national RAEs in collaboration with ACER.

At the national level, Greece has aligned its institutional framework with EU directives, legislating through the package of laws 4001/2011 on the liberalization of the electricity and natural gas market, 4336/2015 which in the context of a broader adjustment program, introduced the unbundling of activities in natural gas, 4414/2016 which introduced and strengthened the framework for supporting RES and reinforced the unbundling in the natural gas and 4425/2016, on the ownership unbundling of natural gas networks. Together, these acts aim to open up the market while respecting universal service obligations and ensuring capital stability guarantees sector. ("DEPA" 2025) The laws are intended to ensure that the market is opened up, but at the same time universal service obligations and capital stability guarantees are respected.

The Regulatory Authority for Energy, Waste and Water (RAAEY f. RAE) is a key pillar of the national regulatory system, with the mission of implementing European rules and supervising the electricity and natural gas market. According to the RAAEY, its main responsibility is to ensure security of supply, supervise networks, approve pricing structures and monitor the performance of vertically integrated companies (RAE, 2021). The independence and "harmonization" of its decisions make the Greek model in line with CEER standards.

The system of pricing and access to transmission and distribution networks (TSO & DSO) utilizes the capital-based investment (RAB) model in combination with regulatory tools such as revenue caps, which are regularly reassessed by the RAAEY, following European guidelines (CEER, 2025). The use of competitive mechanisms and market research to calculate Weighted Average Cost of Capital (WACC) and depreciation allows for a corresponding adjustment of tariffs according to investment needs.

Public service and consumer protection are clearly reflected in the right of all consumers to connect to the electricity grid, regardless of geographical location, without discrimination in accountability and pricing (Gov.gr, 2022). At the same time, Greece

implements universal obligations that guarantee access to basic energy services, strengthening the social and economic content of the energy supply. RES have acquired a comprehensive regulatory framework through Law 4414/2016, which introduced a market with competitive measures and feed-in premiums, opening the country to gradual delignification (European Commission – State Aid SA.44666). Through auctions, subsidies and grid connection frameworks, Greece is trying to align with the goals of energy transition and climate neutrality, strengthening the security and competitiveness of the market.

Cooperation with the European Commission through the Structural Reform Support Programme, which now has been replaced by Technical Support Instrument (TSI), has supported energy efficiency reforms and the legal integration of RES, with results such as new energy audit obligations and an improved institutional framework (EU Reform Support, 2024). This international support has improved the implementation of formal regulatory provisions and their acceptance at all levels.

Recent events, such as the rise in energy prices in 2024, demonstrate the need to strengthen cross-border regulation, transparency and network infrastructure. Greece has requested a common market with grid upgrades worth over €584 billion, across Europe a portion of which would involve Greek infrastructure and the link between energy security and the European strategy is gaining greater prominence (Reuters, 2025; Reuters, 2024). Furthermore, Greece's involvement as an energy hub, with projects such as the LNG terminal in Alexandroupolis, transcend national borders and raise environmental concerns. The legislative and administrative integration of these projects into the European regulatory framework and the shielding through RAE opinions ensure that they meet the public interest and Community requirements (AP News, 2023). Finally, the regulatory model in Greece is constantly adapting to developments in energy policy, with mechanisms being adapted for efficiency, environmental responsibility, and security of supply, being aligned with the EU strategic directions (CEER, 2025)

Of course, all the above and specifically the aiming of the European Union and the respective regulatory framework in Europe and Greece, are not fully implemented in practice, as in several cases, the opposite results have been noted. Price volatility, as it was

mentioned above, weakened public control, and uneven access to affordable energy, especially for vulnerable groups of population, have been connected with the liberalization of the market and the persistence to technocratic oversight. Given that, it is obvious, that both at European and national level, there must be complementary policy tools, which will directly and in practice prioritize social justice and energy democracy, alongside market efficiency.

1.5 Main Points

The energy is universally recognized as a product of special and strategic nature, a fact that stems from its crucial role in the functioning of the economy, the maintenance of social stability and the shaping of the foreign policy of states. Unlike other goods, energy is not simply a means of transaction in the free market, but a cornerstone of geopolitical power and technological progress. This strategic importance makes it the subject of special management, both at national and transnational levels, with an emphasis on security of supply and control of critical raw materials.

The special nature of energy is accentuated by the technical and economic nature of its market, which presents characteristics of a natural monopoly. Especially in the field of infrastructure, such as transmission and distribution networks, the existence of a single company is considered the most efficient option in terms of cost and technical viability. However, this natural monopoly carries serious risks of abuse of power, which makes it necessary to have constant supervision and regulation by independent authorities that ensure transparency, accountability and equal access for all users.

The effort to strike a balance between the need for efficiency and safeguarding the public interest is evident in the European Union’s policy for the liberalization of the energy market. Through multi-level regulations and directives, an attempt is made to create a competitive, transparent and secure framework for the operation of the market, with respect for the social dimension of energy. This approach incorporates concepts such as universal access, energy justice and the fight against energy poverty.

In the Greek case, harmonization with the European institutional framework has been gradual yet with impact, with the progressive introduction of laws and reforms that tries to enhance transparency, separate activities and allow the entry of new players into the market. However, it is a fact that, the above procedure has been in many cases connected with the prioritization of market interest over public interest, as price volatility, weakened public control, and uneven access to affordable energy appeared in the Greek reality. In this context, the functioning of the Energy Regulatory Authority, which as an independent supervisory body, aims to ensure fair pricing and institutional stability, is crucial for compliance with the rules.

Greece, as a country with strong geographical diversity and energy challenges, is leveraging European tools to promote renewable sources, energy efficiency and the reorganization of the natural gas market. At the same time, its role as an energy transit hub in Southeastern Europe is being strengthened, which requires a clear and flexible regulatory framework, capable of integrating international factors.

Maintaining the concept of public interest at the core of energy policy is crucial for the social acceptance of the market and the long-term sustainability of investments. The protection of vulnerable consumers, the fair distribution of transition costs and the support of local communities are now non-negotiable parameters of a modern energy framework. The transition to new energy models is based not only on technological and economic adequacy, but also on regulatory capacity and political will. The effectiveness of regulatory mechanisms, the ability to predict risks and the readiness of institutional response are now aspects that distinguish countries that can transform energy from a problem into a strategic opportunity.

The European and Greek experience, show that there is no single regulatory model that applies in all cases, but a dynamic process of adaptation, based on local specificities, technological developments and international pressures. Flexibility in regulation, combined with institutional stability and social sensitivity, is the key to the success of any strategy. Finally, the modern regulatory framework must combine elements of economic rationality, social justice and environmental responsibility. Energy in the 21st century cannot be defined only as a good or service; it is a critical variable in the survival and development of societies.

The role of the state and institutions is to ensure that this variable works for the benefit of all and not for the few.

Chapter 2: The Development and Evolution of the E.U. Energy Policy and the Regulations of the Market (1996 - 2025)

2.1 Introduction

The evolution of European Union's energy policy, from the late 90s to 2025, reflects a gradual transition from a more nation - centric system, towards a unified European vision for energy. Adopting the first legislative measures back in 1996 and 1998, and guided by the principles of integration, security of supply, competition and sustainability, the EU has gradually strengthened its regulatory presence in the energy sector, seeking to unify national markets and free energy from state monopolies (European Commission, 2003). The initial focus on cross-border interconnection and operational harmonisation of markets has evolved over the years into a multi-layered strategy with economic, environmental and geopolitical axes.

The year 2003 was a pivotal year with the adoption of the Second Energy Package, which attempted to lay the foundations for the legal - functional unbundling of energy production and transmission activities and the reinforcement of third-party access. It was the first time that a substantial liberalisation of national markets was attempted, while the pan-European obligations of transparency and access to third parties were strengthen and put into operation (Newbery, 2005). However, the heterogeneity between Member States and the strong presence of national champions in the energy sector highlighted the limits of the original model, leading the Union to the need for stronger supervision.

With the Third Energy Package of 2009, the EU proceeded with deeper institutional reforms, officially establishing three unbundling models, emphasizing on the full ownership unbundling of system operators (unbundling), the strengthening of the role of national regulatory authorities, as well as the creation of ACER – the European supervisory body. These arrangements upgraded the scope of the Union's interventions and strengthened the direction towards a single and competitive energy area (Glachant, et al., 2010). At the same time, the focus was also on consumer protection and universal access to energy, integrating social policy elements into the energy framework.

The Ukraine crisis in 2014 and the sharp fluctuations in international markets highlighted the need for energy security. The European Commission responded with the Energy Union proposal, which gave new impetus to cooperation between member states on issues of security of supply, strategic reserves, alternative supply routes and investments in cross-border infrastructure (European Commission, 2015). This policy was a turning point, because it shifted the focus from liberalization to energy resilience.

The period 2020 - 2025 marks the most pronounced shift in European energy policy towards the green transition, within the framework of the European Green Deal and the Fit for 55 packages. The goal of climate neutrality by 2050 has led to a series of legislative interventions to decarbonize production, electrify mobility, increase energy efficiency and strengthen the carbon pricing mechanism, which operates since 2005 (Dir. (EU) 2003/87). These reforms consolidate the environmental nature of the policy, without however negating the importance of the market and competitiveness (European Commission, 2021).

Finally, the context of the war in Ukraine and the energy crisis of 2022-2023 imposed faster and more radical changes in the regulatory regime. The European Commission has taken emergency measures, including price interventions, profit caps and redistribution mechanisms. At the same time, revisions to the Target Model for the functioning of markets have been launched, with an emphasis on fixed price agreements and guaranteed price mechanisms, to protect consumers and strengthen the energy sovereignty of Member States (ACER, 2023). The new landscape suggests that energy regulation in Europe has entered a transitional phase, where strategy, resilience and social protection are returning to the fore.

2.2 EU Energy Packages and Services (1st to 5th)

The first attempt to liberalize the energy market in the European Union initiated with the Directive 90/547/EC for Energy transit and Directive 90/377/EC for transparency for gas and electricity prices, two preparatory legislations, a few years after which, the introduction of the First Energy Package between 1996 and 1998 followed. This package implemented through Directive 96/92/EC for electricity and Directive 98/30/EC for natural gas, introduced the first legislative moves to limit monopoly rights and encourage competition in

electricity and natural gas (CEER, 2025). This move laid the foundations for reform, introducing the first frameworks for localized liberalization, without, however, substantially changing the structure of national markets, which continued to be controlled by tightly regulated state or semi-public monopolies.

In the context of the First Energy Package (1996 - 1998), the initial reform aimed to limit monopoly structures, mainly through the introduction of accounting unbundling in integrated companies. This meant that companies had to separate their revenue streams for generation and network management, but without being obliged to actually separate roles (Next-Kraftwerke). Despite its initial impact, the package was characterized as a preliminary step, as it did not eliminate the institutional barriers that kept markets closed to new competitive schemes. The introduction of this first package created the ground for cross-border cooperation and the exchange of best practices, laying the foundations for subsequent reforms. The first attempts at liberalization reinforced the awareness that energy management required a European approach, with the ultimate goal of economies of scale and technological adaptation at a common level.

The Second Energy Package of 2003, implemented through Directive 2003/54/EC for electricity and Directive 2003/55/EC for natural gas, was a targeted step towards liberalization, enabling consumers - both industrial and residential - to freely choose their supplier (the household consumers could exercise their rights from 2007). (Europarl; CEER, 2025). At the same time, the ERGEG organization was set up, strengthening the channels of cooperation between national regulatory authorities. Although new possibilities for choice were created, the lack of cross-border access infrastructures prevented the effective implementation of the European market. The first attempt at separating companies into distinct legal entities (legal unbundling) was an important step but did not lead to full ownership independence. The unbundling was intended to reduce conflicts of interest, but the absence of enforcement mechanisms allowed for limited possibilities for market exploitation. Nevertheless, the package helped to highlight the need for cross-border competition with real content.

The 2009 Third Energy Package, implemented through Directive 2009/72/EC and Directive 2009/73/EC, as well as Regulations (EC) No 713/2009, 714/2009 and 715/2009, is considered as milestone in the energy field, bringing significant structural reforms.

Specifically, this Package introduced the establishment of three models of unbundling - i.e. a. Ownership Unbundling (OU) b. Independent System Operator (ISO) and c. Independent Transmission Operator (ITO) and reinforced TSO's independence, setting the framework where Member States must choose between ownership unbundling or equivalent models (ISO/ITO). In parallel, it strengthened the institutional independence of national regulators and established the European body ACER - i.e. Agency for the Cooperation of Energy Regulators [see Regulation (EC) No 713/2009 and Regulation (EU) 2019/942 ; European Parliament, 2009; CEER, 2025), while at the same time, European network operators (ENTSO-E and ENTSOG) were established - replacing earlier coordination bodies such as ETSO, which was a pre - existing TSO association - reinforcing the integration of the electricity and gas systems at a pan-European level.

While these provisions enhanced transparency and uniformity in pricing and infrastructure access procedures, the full implementation of the package in practice faced delays due to institutional dysfunctions and resistance from traditional energy actors. Nevertheless, the Third Package laid the essential institutional basis for the Energy Union and the EU's regulatory reach.

The Fourth Energy Package, also known as 'Clean Energy for all Europeans', adopted in 2019 and implemented mainly through Directive (EU) 2019/944 and Regulation (EU) 2019/943, set new foundations for the integration of renewables, strengthened consumer rights and contained energy crisis management mechanisms, as these mechanisms were introduced by the No. Reg. (EU) 941/2019 and 942/2019 (e.g. risk-preparedness plans and ACER performance - reinforcement) (CEER, 2025; FSR, 2020). In addition, it introduced the 'performance-based regulation' model, which rewards networks that demonstrate efficiency, resilience and flexibility.

The launch of this package (2019), introduced strong elements for consumer engagement and the integration of RES, such as long-term capacity mechanisms,

performance-based regulation and mandatory energy crisis response plans (CEER). The emphasis on energy sustainability, while respecting energy justice, made the market enriched with a social dimension. The implementation and integration process of the package's measures revealed difficulties in the licensing of renewable projects and the digital adaptation of national systems (Ecologic, 2024). Nevertheless, the package stabilized the path for an energy transition that combines an economic, technical and social approach.

The Fifth Energy Package, known as Fit For 55, is a broader package of proposals, which was introduced in 2021 and adopted gradually in the period of 2022 - 2024 as part of the Green Deal. In this context - i.e. the Green Deal - the Directive (EU) 2024/1788 and Regulation (EU) 2024/1789, regarding internal gas and hydrogen market, were introduced, aiming to align energy policy with climate neutrality by 2050, extending the coverage of the gas market towards green hydrogen (CEER, 2025). Following the war in Ukraine and the energy crisis, REPowerEU policies, as were imprinted through Regulations (EU) 2022/1032 and 2023/435, developed in parallel with "Fit for 55" (see Communication COM(2022) 108 final – a strategic action plan, not a legislative package), aiming at a gradual withdrawal from Russian fossil fuels, optimizing systems and establishing mechanisms that soften the impact of prices on society (EUR-Lex, Wikipedia REPowerEU).

The Fifth Energy Package - Fit for 55 (2021 - 2024) expanded the regulatory scope towards full decarbonization, strengthening the carbon market (ETS), energy taxation and hydrogen (Consilium, 2024). Characteristically, the legislative measures that were taken by the EU in 2024, and specifically the adaptation of the above Directive (EU) 2024/1788 and Regulation (EU) 2024/1789, essentially integrated the green hydrogen and decarbonised gases, into the internal energy market. Personalizing energy policy with legal emission reduction commitments equal to or greater than 55% by 2030 reflects the full shift towards a climate action framework. The adoption of Fit for 55 strengthened the mechanisms of the energy green transition, such as the CBAM and the integration of the Renewable Directive RED II, which was amended by the Dir. (EU) 2023/2413, setting new and demanding compliance rules for Member States and business hubs (Intereconomics, 2024).

Despite the challenges in implementation, the package evolves the market towards fairness, green growth and innovation. Finally, the integration of REPowerEU was followed

in parallel to address the energy crisis after 2022 and accelerate the transition from Russian gas imports. The combination of emergency and long-term directives demonstrated that the EU has flexibility in regulation, combining market, security and strategic autonomy. The series of packages did not simply follow a linear path of market liberalization but reflected the attachment to new challenges: economic strengthening of competition, security of supply, social justice, environmental sustainability, digitalization and technological innovation (IMF, 2025). The reflection of these changes in laws and regulations demonstrates the shift of the European energy vision towards an integrated energy governance ecosystem.

Each legislative phase, built on the previous one: from basic access rules to the introduction of modern pricing mechanisms and renewable solutions. In 2022, the interaction between the emergency measures and the broader packages demonstrated, that the EU now has dynamic crisis response tools, combining market policies and social protection mechanisms (Energy and Prices, 2023).

The result to date is an upgraded, multi-layered energy regulatory system - not only regulatory and competitive, but also green, resilient and digital. The packages now incorporate regulations for energy efficiency in buildings, smart infrastructure, consumer protection and the combined response to the climate and energy crisis. The trajectory from the first to the fifth package demonstrates the leverage of the internal market as a means to broader goals: the development of a strong, single, protective and sustainable energy area is now a primary objective of the Union.

2.3 From Monopoly to the “Complete” Competition

The transition from national energy monopolies to competitive markets is one of the most important and complex energy policy reforms in the European Union. Given that EU’s target is to achieve effective competition in every competitive level, while the relevant networks are still natural monopolies, the above transition is taking place through regulated competition. Indeed, while the 1990s and early 2000s focused on fair unbundling and regulatory reform, the more recent period - especially after 2020 - is characterized by efforts to achieve meaningful competition at every level of the market, from retail to cross-border

trade (Europarl, 2025, EU electricity grids). Most National Regulatory Authorities across the EU, have adopted new regulatory models, that combine revenue caps, efficiency incentives and multiple performance metrics, introducing systems that balance consumer interests with the need for sustainable investment (ResearchGate, 2022). This system aims to prevent the abuse of the remaining natural monopolies through price controls and network access conditions.

During the all this period, the EU Commission has located specific structural issues both in the electricity and gas markets (e.g. lack of liquidity, market concentrations, inadequate unbundling, foreclosure e.t.c.), a condition that led to specific actions. Indeed, the transition to "gas-on-gas" competition and the transition away from oil-indexed pricing has been expanded over the last two decades, strengthening the natural gas market with transparent spot and short-term trading mechanisms (OECD, 2022). The leading-edge competition between price hubs, such as the NBP and the TTF, has been a factor in freeing the market from old concentration structures. In the electricity sector, the concept of "market 2.0", as described in the German reforms, introduces producers, storage operators and flexible consumers into the market, paving the way for full competition and innovation (SMARD, 2017). The new model encourages the participation of small-scale and flexible units in the formation of prices and services.

Despite the steps, the integrated competitive market remains challenging, especially in cross-border networks. Insufficient interconnections and unequal access to infrastructure prevent full integration of Member States (Bruegel, 2023). The implementation of the Target Model and cross-border consortiums (TSO cooperation - NEMO cooperation - MCO Function), are structural requirements for deepening competition, as this condition was imprinted in the relevant CACM Reg. 2015/1222. The digitalization and local energy ecosystems - such as energy communities and local flexibility markets - *see Directives (EU) 2019/944 - 2024/1711 and Regulation (EU) 2024/1747* - are the new frontier, creating opportunities at the retail level. The relevant legislatives reform the electricity market design aiming to consumer protection and improve price stability, but also bring regulatory and implementation challenges, such as Data Access and Network tariffs (CEER 2025). The

challenge is to integrate them into the existing framework, without reproducing new forms of monopolistic concentration.

In parallel, noted here, that the Regulation on Wholesale Energy Market Integrity and Transparency (REMIT, Regulation (EU) No 1227/2011 as amended by the Reg. (EU) 2024/1106) has been crucial in ensuring fair trading practices and transparency in energy markets, by addressing potential market manipulation. The effective enforcement of this Regulation is taking place through the institutional cooperation between ACER and NRAs, that ensures the investigation and where applicable, the imposition of sanctions.

In the case of Ireland for example, a recent study showed that different competition structures, can significantly affect investment decisions, market prices, carbon emissions and the contribution of renewable technologies (ArXiv, 2025). This practice confirms the correlation between competition, sustainability and investment incentives at national level. At the same time, the ever-increasing role of RES and the reduction in the production costs of key technologies have brought about the "collapse of the merit-order": the wholesale price falls when the renewable share increases, making it difficult for conventional units to compete, but boosting overall efficiency (Prol & Schill, 2020).

At the retail level, empirical evidence shows that more competitive markets provide lower prices and increased consumer mobility, without however dispelling the fact that players such as the "Large Legacy Suppliers" in UK, still play a dominant role (SD article, 2022; Research briefing, UK Parliament). As to the storage and flexibility technologies – such as batteries and flexible consumers - now act as a competitive lever, balancing supply and demand in real time and offering new sources of revenue (SMARD, 2017). At the same time, they increase the resilience of systems and reduce the profit margins of monopolistic providers.

Finally, the integrated EU energy market is directly linked to European competitiveness. According to the IMF predictions, strengthening the integrated - competitive European energy model could reduce costs by around 40 billion euros annually, while simultaneously enhancing investment activation and climate performance (Reuters

IMF, 2025). Similarly, the EU Commission estimates that the existing internal energy market could bring around 34 billions benefits for customers, that could reach to 40-43 billions by 2030, if a deeper integration takes place. (EU Commission - Electricity market design). Nevertheless, these predictions and the relevant amounts are indicative and not guaranteed. As it was demonstrated and will be further analyzed in the next Chapters, the energy field is full of peculiarities, that are connected with market design and are affected by social and political dimensions. Indeed, the fulfilment or not of the integration of the market, require the right implementation of the market regulatory framework and of course political stability and social cohesion.

Chapter 3: The Competition Policy as a Driver for the Energy Policy Development.

3.1. Introduction

As it became clear through the Chapter's 2 analysis, the shape of European's Union Energy Policy, since the late 1990s until today, took place through gradual legislative measures, that aimed at the creation of an integrated internal market, with an emphasis in achieving climate goals, in the last years. Events such as the institutionalization of Third Energy Package, which emerged due to the existing until then situation in energy field, regarding phenomenon like vertical integration and foreclosure via LTCs, demonstrated that this process had at its center, the EU Competition Policy, which not only kept up with the developments in the Energy Law, but much more it shaped them (Reg. (EU) No 1/2003; EU Commission 2007, Energy sector inquiry - Final Report).

Indeed, the present Chapter will light out the fact, that the reforms that transformed the monopolistic national energy markets to an integrated internal market, bear the significant imprint of EU's Competition Policy. It will be shown, that Competitions Policy does not operate on its own, but it has been a primary factor in the effort to open up energy markets, establish network rules and ensure both economic efficiency and consumer protection.

In particular, through the focus on the dominant institutional instrument for the implementation of EU Competition Policy, which is none other than DG COMP's (Competition Directorate), there will be examined a. the way that Competition Principles were incorporated to the broader legislative framework of energy, institutionalizing the Unbundling procedure, b. the DG COMP's Operating Framework, c. the Coordination of Regulators & Competition Authorities, and d. the role of mergers and state aid in the shape of market, in order to demonstrate, how the EU Competition Policy affect the national Energy Policies.

3.2 DG COMP's Operating Framework

Competition law is about applying rules to make sure businesses and companies compete fairly with each other. Theoretically, a competitive market offers low prices for all, better quality of goods and services, differentiation of products, innovation in product concepts and of course, better competitors in Eu and global markets. EU competition law applies in 27 EU Member States and equivalent legal framework applies respectively for 3 EFTA States, while national Competition Laws are modelled on EU Competition Law and apply in parallel. EU competition law is enforced by the European Commission, National Competition Authorities, national Courts and the European Courts, while National competition law is enforced by national Competition Authorities and national Courts (Marina Stavropoulou 2023 ; EU Antitrust Legislation Notices).

In this context, the European Commission's DG Comp has emerged as a central player in energy competition, as it has a number of powers, to take decisions, to conduct investigations and to impose fines. It exercises these powers when, following a complaint or on its own initiative, it finds in a given case, that there has been a violation of Article 101 or 102 of the Treaty (Reg. (EU) No 1/2003).

This framework lead to the conduct, based on Article 17 of Reg. 1/2003, of Energy Sector Inquiry 2005 – 2007 and as a result to the Third Energy Package, which was based on the DG Comp's Final Report, that imprinted findings, regarding vertical integration, foreclosure through LTCs e.t.c. and other conducts that prohibited the effective Competition in the energy markets. (EU Commission 2007, Energy sector inquiry - Final Report). Of course, in any case, there are several Law Cases in Energy Field, such as RWE and E.ON, which highlighted the role of Unbundling procedure, as they have been ended up, with network divestments (see Section 6.3.1).

More specifically, regarding the European Commission's DG Comp functioning, the latter one is based on Regulation 1/2003, that provided the European Competition Network (ECN), which set the preconditions for cooperation and case allocation between the Commission and national competition authorities. The above Regulation maintains the rule, that Member State's competition authorities are automatically relieved of their competence if the Commission initiates its own proceedings. The Commission undertakes to consult the

national authority in question, before initiating proceedings. When the competition authority of a Member State or the Commission receives a complaint concerning a case, which is being or has been dealt by another competition authority, it may suspend its proceedings or reject the complaint. In general, the above Regulation gives to NCAs the capability to directly enforce the Articles 101 and 102, while several National Cases - both for electricity and gas - were solved on the base of E.C.N. (Marina Stavropoulou 2023 ; e-Competitions Antitrust Case Laws e-Bulletin, 2019).

As it will be demonstrated in the Section 3.4., this model of enforcement, secures that the most appropriate Authority, either at European or National Level, will take care of each Case, implementing the respective legislative framework. In practice, it has been proven, that the DG COMP's is frequently in cooperation with the National Regulatory Authorities and Courts, in significant cases, where energy issues regarding Competition and its affection to the markets, arise.

3.3 Unbundling as a competition-driven regulatory instrument

One of the cornerstones of Europeans Union's Energy Policy has been the separation of generation/supply activities from transmission and distribution. This specific condition is called "Unbundling" and is considered to be a significant tool in preventing abuse of a dominant position in Energy Markets (European Commission, 2024).

Even if there were forms of Unbundling in the past, the strict framework of "Unbundling" as it is today, it was promoted by Competition Policy through the relevant Energy Sector Inquiry 2005-2007, which led to its institutionalization in the context of the Third Energy Package, as an effort to systemize the findings of the Europeans Commission's DG Comp, regarding the Competition's distortion on Energy Markets. Indeed, as it has been already mentioned and will be further analyzed below, the Europeans Commission's DG Comp, policies were decisive for the Unbundling's promotion, which is an subsequent regulatory tool, making it a central player in energy competition. The aim is twofold: ensuring equal access to infrastructure for all and creating a competitive environment in wholesale and retail markets (Dir. 2009/72/EC and 2009/73/EC, as replaced by 2019/944 and 2024/1788 respectively).

Unbundling at TSO level, is implemented in three main models, based on the needs and choices of each Member State: ownership, operational (ITO - independent transmission operator) and institutional (ISO - independent system operator) (European Commission, 2024). The chosen model is going through the National regulatory Authorities (NRAs), which initiate the certification's procedure and inform the Eu Commission, about their Decision. Respectively, the EU Commission, recruiting its DG ENER (Directorate-General for Energy), issues an opinion on this Decision, focusing on the effectiveness of third-party access and whether the possibility of access being denied by integrated operators is minimized (Dir. 2009/72/EC and 2009/73/EC).

Given these, it is made clear, that the above institutional framework was strongly influenced by the DG Comp's 2005-2007 Energy Sector Inquiry and its findings, which showed that without clear unbundling, large operators were using network ownership as a barrier to new businesses (European Commission, 2007). These findings prompted the transition to the Third Energy Package and the introduction of stricter regulations.

In practice, divestment or structural reform decisions were accepted as commitments on large European companies due to indications of abuse. In cases where Ownership Unbundling was deemed necessary, network sales were requested - e.g. E.ON Case, which led to divestment of generation units and the TSO and RWE Case, which led to the sale of the natural gas transmission network - while in other countries ITO or ISO models were adopted (WilmerHale, 2019). DG Comp set strict criteria such as, for example, the separation of contracts and subsidiaries. The choice of either an ownership or an operating model is not simply a matter of legal form. Relevantly, it is argued that simple RAB-based pricing systems undermine third-party access when the same company controls network and generation (Brunekreeft & Twelemann, 2004). In any case, full transparency in cost contracts and project award procedures are considered "necessities", which derive from ACER and NRAs practice and are promoted by DG Comp's practice Paper on Electricity Distribution Tariffs Supporting the Energy Transition (CEER, 2020).

In Member States, "Unbundling" shows mixed performance. Countries with a full ownership scheme were estimated to show a reduction in electricity prices for industrial consumers. Specifically, in the period 1998 - 2006, there has been noticed the following

variance: -3.0% (OU) vs +6.0% (integrated TSOs), as this arises through European Commission, SEC (2007) 1179. Of course, as the Commission notes, the prices reduction is not automatically connected with Unbundling, but other cost drivers may exist. Respectively, countries with ITO have shown effective separation and investment outcomes (European Commission - SWD (2014) 312/2014), while in countries with ISO the operation - maintenance -investments of the network are assigned to an independent body. While the NRAs monitor and enforce Unbundling Obligations, the DG Comp continuously monitors developments, and intervenes when competition issues arise, e.g. through merger, acquisitions or joint ventures between generation and network management. In 2022, there has been observed an intense activity of M&A in energy sector, as this reality was recorded in Annual Competition Report 2022.

The emerging technologies - such as storage, digital platforms and electric vehicle charging - require the extension of the concept of unbundling beyond traditional networks, in order to avoid new forms of proprietary access control. The relevant regulatory framework for the prevention of distortive actions by network platforms are shaped by DG ENER and ACER - CEER practice in parallel with the DG Comp's operation, regarding fair competition and state aids.

Indicatively, the Greek case demonstrates how unbundling can be integrated into energy policy: PPC, subject to unbundling, has established subsidiaries for transmission and distribution, as IPTO (ADMIE) operates as a fully ownership-unbundled TSO, while HEDNO (DEDDIE) is a legally and functionally unbundled DSO, that remains at its majority, under PPC's control. Both of these subsidiaries are under the supervision of RAAEY at National level and under DG Comp at EU level. The integration of structural obligations strengthens equal access to third parties (RAE, National Report 2021).

In addition to unbundling, DG Comp monitors the effectiveness of access for new producers - in terms of the actual capacity to connect to networks. The Guidelines on State aid for climate, environmental protection and energy 2022 (CEEAG), states that state interventions should not favor any producer or supplier over others (European Commission, 2022). Finally, DG Comp does not focus only on the economic concept of access. It also takes into consideration that network restructuring also takes into account the protection of

workers, as highlighted by reactions from EPSU, which calls for compensation, job security and compliance with social rights (EPSU, 2007). These social dimensions are now inextricably linked to the market liberalization strategy.

3.4 Coordination of Regulators & Competition Authorities

The effective functioning of internal Market and specifically the incorporation of Competition Policy either in European or National Level, is strictly connected with the institutional cooperation between energy regulators and competition authorities (OECD, 2022).

In particular, as regard to the Energy Sector, which is characterized by the complexity of energy markets, where technical, legal and economic issues coexist, the above coordination is indeed, "explicitly" established, as the DG Comp, the Agency for the Cooperation of Energy Regulators (ACER) and National regulator, such as RAAEY in Greece, are officially in convergence, in addition to Article 102 of TFEU. This institutional interaction which contains, among others information exchange protocols and joint assessments has been particularly strengthened in the last decade in the context of the energy transition and the need for preventive control of irregularities (European Commission, 2023).

The European Regulation 2019/942, explicitly printed and strengthen ACER's jurisdiction and coordination role, especially as regards to the cooperation with national regulators and DG Comp, when examining cross-border issues or conduct affecting competition, within or outside the internal market (ACER, 2023), while the Regulation on Wholesale Energy Market Integrity and Transparency 1227/2011 - Remit I, as amended by Regulation (EU) 2024/1106 (REMIT II), reinforced the framework of Transparency and supervision in Wholesale Energy Market. In cases such as mergers and acquisitions of energy companies or state aid, DG Comp often relies on technical data from national regulators to form a complete market picture. This form of technical assistance enhances the accuracy of the legal assessment and reduces regulatory gaps (OECD, 2022).

The case of Greece highlights the practical benefits of coordination, in particular through the cooperation between RAAEY and the Competition Commission. During the implementation of the PPC divestment measures and the NOME program, the two

authorities collaborated closely so that the interventions met both competition and regulatory equality criteria (RAAEY National Report, 2023). Furthermore, the creation of the Target Model in Greece was based on technical analyses by RAAEY in collaboration with DG Comp on the distribution of roles in the market (wholesale, balancing, forward), resulting in a coordinated institutional market model (Greek Law Digest, 2024).

The energy cost crises after 2021 further strengthened the need for cooperation. The Competition Commission and RAAEY carried out coordinated control actions in the electricity and natural gas market, focusing on unfair charges, price manipulation and opaque tariffs (Hellenic Competition Commission, 2022). At the European level, examples such as the management of Gazprom and the integration of Nord Stream 2 have involved DG Comp and ACER, to assess whether the participation of third-country state-owned enterprises poses risks of competition abuse or circumvention of regulatory conditions (Bruegel, 2022).

The technological complexity of the energy market (e.g. hybrid PPAs, virtual coupling, demand response) requires competition authorities to consult technical regulators to avoid an oversimplified legal approach to highly specialized market schemes (ACER & CEER, 2022). However, the two types of authorities are not always fully aligned. There are cases where regulators are hesitant to introduce interventions for fear of market disruption, while DG Comp seeks stricter control (OECD, 2022). This reinforces the need for institutional convergence and ongoing dialogue.

Coordination is not limited to national or European policy level, but also extends to international forums, such as the CEER-OECD Roundtable, where common risk assessment tools, competitiveness indicators and regulatory models are developed (CEER, 2022 ; OECD 2022). The general direction taking shape in the EU is an institutional dualism with a collaborative character, where competition authorities focus on structural market efficiency, while regulatory authorities ensure technical balance and social accessibility.

3.5. Integrating competition into energy legislation - The role of Mergers and State Aid as market shapers in Energy Sector

The integration of the competition principle into European energy legislation reflects the fundamental objective of creating an integrated and competitive internal energy market.

This process has been gradual and targeted. As it was already demonstrated, the European Union, adopted a series of other legislative measures - i.e. Energy packages, Guides, Regulations, establishment of Organizations) - which gradually integrated Competition safeguards, reaching finally in the Clean Energy Package. This was a turning point, as the directives and regulations, of this Package introduced new mechanisms to reward efficiency, such as incentive based network tariffs (ACER 2021, Europarl, 2025), formed the basis for this. The institutional support for these tools was an important step towards integrating competition into the market structure.

Given that and specifically that the above sectoral rules set the general framework for market operation, the present section will highlight the way, that Competition Policy shapes the Energy one, focusing on State Aids and Merger Control, which constitute two of the main tools of Competition Energy Policy, given that they shape the Energy Market in advance. Indeed, in practice the achieving of Energy policy's goals is directly connected with the stability of market correlations and the impartiality of public support, i.e. two aspects that highlight the role of merge control and State Aid as ex ante market shapers (Reg. 139/2004 ; Commission Notice 2024).

In this context, third-party access is recognized as a critical tool: it requires infrastructures such as connections, storage and EV charging to operate in a truly competitive manner (Kiwumulo, 2025). The incorporation of these concepts into European legislation signals a shift from monopoly or monopsony structures to open network service platforms. The digitalization and retrofitting of networks, using flow-based market coupling, involves strict competition requirements. Bruegel's (2024) analysis highlights the fact that increased interconnections have increased resilience and led to lower costs thanks to more unified, competitive markets (see CACM 2015/1222).

Relevantly, a legislative example of transparent and non-discriminatory access to critical energy infrastructure is imprinted to the case of hydrogen and decarbonized gas which are legally linked to the new Hydrogen and Decarbonized Gas Package: requires ITO/OU for HTNOs to ensure open access channels (Reg. (EU) 2024/1789 and Dir. 2024/1788). The legal integration of liberalization rules in the hydrogen market is an example of a holistic application of competition principles (Cleary Gottlieb, 2024). The

promotion of local communities and micro-markets is an important element of integrating competition into the retail market. (Dir. 2019/944 and RED II / Directive 2018/2001**).** However, as the study in ScienceDirect (2025) points out, the regulatory framework remains incomplete in adapting the ecosystem to the needs of energy communities.

3.5.1 Merger Control and its role as a shaper of Energy Market

The concept of "Concentration" at European Level, as this arises through the Article 3 of Reg. EU 139/2004, refers to the situation where "a change of control on a lasting basis results from: (a) the merger of two or more previously independent undertakings or parts of undertakings, or (b) the acquisition, by one or more persons already controlling at least one undertaking, or by one or more undertakings, whether by purchase of securities or assets, by contract or by any other means, of direct or indirect control of the whole or parts of one or more other undertakings."

In this context, as regards to energy sector specifically, the respective concept of "Merger Control, is considered to be an another fundamental axis of Competition Policy's influence on energy policy, acting as entry filter and market shaper. Specifically, although market liberalization focused mainly on vertical unbundling and the opening up of wholesale and retail markets, the increasing trend towards centralization through acquisitions and mergers has entailed the risk of a re-emergence of a dominant position.

To this end, the European Commission, through the Merger Regulation (EC) 139/2004, has the power to assess whether a proposed transaction is likely to significantly impede effective competition in the internal market. Relevantly this evaluation, is taking place through the Significant Impediment to Effective Competition test - i.e. SIEC - on the base of Article 2 of the above Regulation. At EU level, the implementation of this test, which is running through DG COMP**,** usually regards cases of dominant position in the relevant markets (ECA 2020, Special Report on Mergers and Antitrust proceedings; Market Definition 2024). Respectively, at National level, the conduct of the evaluation is running through NCAs, with the capability to refer to EU Commission (Article 22 EUMR).

In the energy sector, the Commission has examined numerous mergers in order to prevent the reversal of the gains achieved through market liberalization. A case in point is

the rejection, in 2004, of the proposed acquisition of Gás de Portugal (GDP) by the Portuguese EDP and the Italian ENI, which would have led to a vertically integrated duopoly, threatening the progress of liberalization in Portugal. More often, however, the Commission approves mergers subject to conditions, imposing remedies such as divestments, access guarantees or the unbundling of critical infrastructure. Such interventions ensure that the structural benefits of the market are not undermined by private concentrations (European Commission - Mergers, 2024 ; EU Guidelines 2004).

3.5.2 State Aid and its role as a shaper of Energy Market

Respectively to the Merger Control, the concept of State Aids constitutes an autonomous complementary tool of Competition Policy, that operates as an ex ante energy market shaper, aiming to prevent - limit government interventions that may distort competition.

In particular, as it emerges through the Article 107 of TFEU, the present concept refers to the situation, where, “Save as otherwise provided in the Treaties, any aid granted by a Member State or through State resources in any form whatsoever which distorts or threatens to distort competition by favouring certain undertakings or the production of certain goods shall, in so far as it affects trade between Member States, be incompatible with the internal market.”. In practice Commission and Case Law require 4 cumulative features in order for a measure to be considered as a State Aid: a. There has been an intervention by the State or through State. b the intervention gives the recipient an advantage on a selective basis. c. Competition has been or may be distorted due to the above and d. the intervention is likely to affect trade between Member States (European Commission - State Aid Overview).

In accordance with the above Article 107 and the Article 108 of the TFEU, which defines the procedure that is followed when a measure is considered to be a State Aid, the Commission assesses subsidies, compensation schemes and other forms of public support in the energy sector. Especially in transitional markets such as Greece, support schemes - whether for renewable energy, security of supply or consumer protection - must be aligned with the EU State aid directives. The previous framework (2014 - 2021 State Aid Guidelines

for Energy and the Environment) was replaced by the 2022 CEEAG Guidelines, which provide that aid must be proportionate, transparent and awarded through competitive procedures. The mandatory documentation of the public interest and the linking of all aid to measurable benefits are key requirements of the framework (European Commission - CEEAG, 2022).

This framework - i.e. the CEEAG - supports also the development of clean technologies. The EU Competitiveness Progress Report (2025) notes that integrating competition into clean technology - especially in R&I, which are subject to RDI Framework/GBER - requires synergy between market and industrial policy to address the challenges of the lack of private investment capital. Competition rules are now combined with more flexible state aid models, which are introduced in periods of crisis (Temporary Crisis Framework and Temporary Crisis and Transition Framework). The intention to facilitate clean technology and partnerships, which will strengthen the EU climate objective, is already being discussed in the context of the revision of the framework of application of Articles 101/102 TFEU (Main Developments, 2024).

Nevertheless, the European Court of Auditors report (2024) warns that excessive state aid tailored to the specific national markets risks distorting competition in internal market, as long as there is no full visibility and a coherent strategy (Reuters ECA, 2024). Finally, discussions on the relaxation of competition rules - e.g. merger control or state aid - under the leadership of the new competition commissioner Ribera (Guardian, 2024) show that the EU is considering ways to boost innovation and clean technologies without sacrificing the competitiveness of markets.

In 2022 - 2023, the energy crisis highlighted the importance of integrating competition rules with the aim of domestic and cross-border resilience. The REPowerEU measures envisaged hybrid solutions: intervening in the pricing sector while simultaneously implementing rules ensuring transparency and non-preemption (European Commission, 2025). The link between competition and security of supply gained legal and political depth, as this shift was imprinted in temporary State aid frameworks for crisis and transition, enforced under Commission’s oversight (REPowerEU Plan, COM(2022) 230 final ; EU Commission Temporary Crisis Framework).

In conclusion, central principle of DG COMP's action is transparency in market access and contract terms, particularly in cases of state-owned entities that have historically operated with opaque advantages. The Commission has imposed measures such as the holding of transparent auctions, the obligation to publish results and the establishment of standardized conditions for access to third parties. These tools not only enhance competition, but also public oversight, as they create an institutional framework where the market is accessible, controllable and trustworthy for society and consumers.

From a competitive perspective, the Draghi report (FriendsofEurope, 2024) stresses that the shift towards competitive, clean markets must be complemented by policies, that reduce energy costs through long-term contracts and investment incentives - noting that only with the right combination of competition and targeted interventions will the EU remain industrially viable.

Overall, it is made clear that DG COMP's supervision is not limited to maintaining market integrity. It also aims to ensure that public resources serve clearly defined social objectives, without causing undue distortions. Especially in energy, where issues of affordability and universal access affect the most vulnerable social groups, competition policy acts as a proportionality filter. It accepts interventions where necessary, but requires them to be evidence-based, targeted and non-discriminatory. Through this logic, the Commission is shaping a hybrid institutional framework: it allows for social protection without abandoning market dynamics. The concept of a balanced coexistence of market and public intervention becomes essential for the EU of the energy transformation, especially on the path towards climate neutrality and sustainable development.

Chapter 4: The Recent Challenges in the Energy Sector

4.1. Introduction

In the recent years, the energy landscape in the European Union came face to face with new challenges, as the two decades of gradual reforms and regulatory integration gave their place to emergency interventions and measures. This condition came as a result of new coming events, regarding geopolitical shocks, volatile markets and urgent need for sustainable transition. Specifically, the period of the last three years, from 2022 until to 2025, is considered a turning point, as many top issues, like the political instrumentalization of Energy, the acceleration of Renewable Energy Sources (RES) and of course, the massive subsidies, for dealing with the very high prices of energy crisis, emerged.

Given that and based on the analysis, that took place in the previous Chapters, about the shape of EU Energy Policy, the present one, focuses on the recent developments to energy sector, initiating from the effects of 2022 energy crisis and reaching to the future restructuring of energy markets. The present approach, addresses this topic, through three thematic units, which deal with the crisis of supply security and dependency, the regulatory and economic interventions and finally the future transformation of the market, with an emphasis on flexibility, networks, and new technologies.

4.2. The Energy Crisis and Dependence from the Russian Natural Gas

The energy crisis triggered by the Russian invasion in Ukraine, back in 2022, has sharply highlighted the European Union's strong dependence on Russian gas. Before the conflict, Russia supplied almost 45% of the EU's total gas imports, but this share fell approximately to 15% in 2023, and to 19% in 2024 as a result of an urgent policy of de-dependence (Council of the EU – REPowerEU plan). This abrupt change proved to be crucial, in restructuring the European energy strategy.

The complete suspension of Nord Stream 1 pipeline flows by Gazprom in the end of August 2022, was a turning point in the crisis. Natural gas prices skyrocketed, while

countries such as Germany and Italy faced critical energy shortages (Brookings, 2023). The consequences of this decision have exposed Europe's inability to maintain energy security without diversifying its supply sources. In response, the European Commission adopted the REPowerEU plan in 2022, which aims to gradually eliminate dependence on Russian energy by 2027, as this target was imprinted very recently in 2025, through European Commission's relevant legislative proposal. The plan includes measures to increase energy efficiency, promote renewable energy and strengthen the diversification of LNG sources (European Commission, 2022).

Despite the efforts to reduce dependence, in 2024 there was an 18% increase in Russian gas flows to the EU, through direct LNG imports as well as intermediary countries and trade mechanisms, which raises questions about the effectiveness and consistency of Member States' policies (Ember, 2025). The selective resumption of flows demonstrates, that the energy transition is neither automatic nor irreversible. However, in other areas, the European policy on natural gas storage has achieved progress, as in the winter of 2022 - 2023, member states managed to fill their storage facilities by more than 90%, ensuring adequacy for the winter season and limiting speculative pressures on the market (European Commission, 2023).

The increase in prices had a serious impact on industrial activity. Companies such as BASF were forced to reduce their production and lay off workers due to the inability to cover energy costs, especially in countries with a high dependence on natural gas for electricity generation (The Guardian, 2023). In Germany, the Bundesnetzagentur warned that achieving energy self-sufficiency cannot be achieved without long-term planning and stable energy saving policies. Despite successes in reducing dependence in 14%, it was estimated that at least a 15-20% reduction in total consumption was needed to maintain the sustainability of the energy system (AP News, 2023; Council of the EU – Regulation on reducing gas demand by 15%).

Russia actively exploited natural gas as a geopolitical weapon. The concept of "energy blackmail" returned to the public debate, as Eastern European countries found themselves in a position of dependence with very limited alternative (Washington Post). This

fact strengthened the determination for a common European energy policy. The REPowerEU project seeks to increase LNG capacity, through new terminal facilities and agreements with countries such as Qatar and Egypt, while at the same time strengthening cross-border supply within the EU (European Commission, 2023). The success of this strategy depends on the speed of implementation and the technical capabilities of the Member States.

Analysts from Bruegel, emphasize the need for a common gas supply strategy in the EU, noting that excessive reliance on LNG and spot markets risks creating new forms of dependency and instability (Bruegel, 2024). Despite European sanctions, Russia continued to export oil natural with the help of a "shadow fleet" tankers and natural gas through LNG and some remaining pipelines, while several countries found themselves in a position of diplomatic ambiguity, remaining dependent on Russian flows for security reasons (Washington Post, 2025). Finally, according to Ember and the IEA, full energy independence cannot be achieved by de-reliance on Russian gas alone. Strengthening energy storage, hydrogen penetration, and the development of CCS technologies to control emissions from natural gas plants in transition are required (Psarros and Papathanassiou, 2023).

4.3 The Regulatory Response - Subsidies

As it was shown above, the attempts of de - dependence and diversification of energy supply, were a critical aspect of dealing with energy crisis, which began in 2021 and escalated back in 2022. In the same context, financing the energy transition through state subsidies has been a key tool, in this process, after 2022.

The number of subsidies - measures in the EU increased significantly, reaching around €397 billion in 2022 and decreased slightly to €354 billion in the 2023, representing around 2.1% of GDP (European Commission, 2025). Most of the resources were directed to households for immediate relief from price increases (European Commission, 2024). A large part of the subsidies are related to measures to protect society and industry during the crisis. In the period 2021 - 2023, consumers received around €121 billion in total, followed by industry (€30 billion) and transport (€28 billion) (European Commission, 2024). Greece,

through - mainly - the Energy Transition Fund, allocated €9 billion €, within a period of 15 months (IEA, 2023).

Despite the reduction in subsidies after 2022, renewables received only 22% of total subsidies in 2022, with fossil sources continuing to receive significant funding (EU Commission 2023). The intended transition remains uneven, with €87bn for RES being less than €120bn for fossil (CAN Europe, 2024). At the European level, the European Audit Office warned that accelerating subsidies without a full impact assessment could distort the internal market in the long term (Reuters ECA, 2024). It called for stricter supervision, targeted criteria and the collection of comparable data. Fossil fuel subsidies were reduced in 20 Member States in 2023, although they remain at levels above 2021 levels (European Environment Agency, 2025). 43% of these subsidies are expected to be phased out by 2025, a further 9% had an end-date by 2030, although 48% of these, is not connected with a specific end - date.

Of course, it should be noted herein, that there are specific analyses, which point out the fact, that the support of customers through the above subsidies, have problematic implementation, as they may have been beneficial for the short term costs, but in many cases, they worked in favor of intermediaries and suppliers, over vulnerable groups of population. This lack of social orientation, calls the need for better redistribution mechanisms and stronger conditionality, in public energy spending (IMF, WP/22/262).

Respectively, in the case of Greece, specific measures were already taken back in 2019, addressing reductions in VAT on electricity (13% →6%) and tax refunds for bills to households with limited consumption. Also, a final subsidy package of €50/MWh for prices above €80/MWh was combined with a subsidy for natural gas and heating (Bruegel, 2022). The "power bill subsidies" program led to new waves of support for vulnerable households until the end of 2024 (Reuters, 2024), covering over 80% of the increase in bills. At the same time, the EU introduced the Foreign Subsidies Regulation (FSR) mechanism in 2022 - adopted in 2023 - to control state support from third countries that potentially distort competition in the internal market (FT, 2025). This also seems to concern RES equipment manufacturers from China (FT, 2025).

Nevertheless, as it was noted above, about the European Union in general, so in the case of Greece, despite the aforementioned support measures, a large majority of the Greek citizens continue to struggle with the energy prices. In particular, Retail energy prices in Greece, skyrocketed by 40% after the energy crisis (Reuters, 2025), while almost 30% of Greek population is still considered energy poor (European Commission, September 2024). These statistics, puts Greece directly among the highest-ranked countries in the European Union, for households unable to keep their homes adequately warm, since the relative indicator in EU, was an average of 10.6% in 2023 (The Loop/Eurostat, 2024). These figures constitute one more indication, that the support mechanisms bear strong limitations, when they are applied in short term and they are not accompanied by structural policies, which aim at the root of the problem. Oligopolistic practices seem to be still in the spotlight in Greece, preventing the effectively regulation of the relative energy market (Heinrich-Böll-Stiftung 2024, ENA Institute, 2024).

On another level, regarding the support initiatives, the Council undertook measures such as the Just Transition Fund, as a part of the Just Transition Mechanism, aiming at a fair transition in lignite-based regions, mobilizing €100bn by 2027 (Wikipedia Just Transition, 2024). In Greece, particular emphasis was given to the D. Macedonia and Megalopolis. Greece has tried to boost its energy sector, through 4.7GW of access to storage projects and Smart Grids, supported by EU subsidies (StrategicEnergy, 2025). The project is considered pioneering, for the transition of the system. Subsidies for technologies, such as heat pumps have resulted in balancing costs compared to conventional boilers (RAP, 2022). Tax breaks have helped efficient technology, supported by the Climate Energy and Environmental Aid Guidelines (CEEAG, 2022).

Still, while these initiatives constitute a decisive step towards infrastructure modernization and decarbonization, several targeted assessments highlight, that there are not enough social counterweights, regarding Greece's case. In particular, in regions like Western Macedonia, which is considered as a former lignite - dependent region, the energy poverty has not been tackled yet in a sufficient way, by the respective measures, i.e. subsidies and investments. A fair and equitable energy transition, in practice, requires the collaboration of

technological progress and social inclusion and not the distance between them (IEECP & JustEM, 2025).

In fact, new analyses explain that subsidies must be combined with a competitive selection basis and compliance control to avoid distortions and monopolies (FT, 2025). The common nature of the system has been emphasized in recent EU dialogues (APNews, 2024). Experience shows that subsidies - when designed strategically, proportionately and temporarily - can act as a bridge to the green transition, without negating competition or the market. At the same time, ongoing monitoring and evaluation are needed for long-term sustainability.

4.4 The Future Formation of the Market

The new decade promises a major reshaping of the European energy market, as the decline in gas use and the rise of renewables set the stage for the future. For instance, in 2024-2025, gas-fired power generation in the Netherlands, home to Europe's main gas trading hub (TTF), fell to a historic low, 33% of domestic electricity production (Reuters, 2025). At the same time, the share of renewables has now reached around 47% in EU electricity generation, with 2024 marking the first time that solar energy has overtaken coal (Ember, 2025). The challenge now, has to do with balancing the decarbonization effort with the costs of the transition. Analysts warn that without serious investment in the grid, the expansion of renewables may fail, as seen in the recent holiday boom black out in the Iberian Peninsula, where two big photovoltaic perks disconnected due to excessive voltage, causing in the end, system collapse (Reuters, 2025).

The debate over the role of nuclear power is heating up. The Commission's proposal to endure its financing via multi-annual programs, such as Euratom Programme 2028 - 2034, suggests that nuclear could play a medium-term role in ensuring balance (Reuters, 2025). The future also foresees increased hydrogen market penetration. Newer grant programmes (e.g. the European Hydrogen Bank) are financing large-scale projects that could produce up to 2.2 million tonnes of green hydrogen -in depth of 10 years - boosting energy independence (Innovation News Network, 2025).

At the research level, the development of an integrated European hydrogen network, with inland, underground reservoirs and cross-border interconnection, emerges as a critical issue for the transition – according to relevant analyses (ScienceDirect, 2024). Changes in electricity demand are two-way - while an increase of up to 7% per year was predicted towards 2030, new estimates show significant instability (McKinsey, 2024). The coming decade is expected to see a concentration of investments in clean technologies: the IEA predicts about 110bn USD, in RES in 2023, while the clean/polluting investment ratio in EE, exceeds 10 to 1 (IEA, 2024).

The development of smart and local flexibility markets will also be crucial: these platforms will allow for local load/generation balancing and the exploitation of small producers, as highlighted in a relevant thesis (arXiv, 2025). The prospect of a European "supergrid" connects offshore renewables with the mainland, reducing energy costs by up to 32% and increasing cross-border solidarity (UCD, 2022). By 2060, a potential failure to achieve the transition targets could lead to a 50% increase in prices, compared to a scenario where climate targets are achieved (EU Outlook 2060, 2025). Finally, four Deloitte scenarios identify differentiated developments: from a federal European Union market model to parallel, non-integrated sub-grids - with consequent economic, environmental and energy outcomes (Deloitte, 2025).

Nevertheless, the social inclusion will define in this case too, if the concept of energy transformation will have a long - term success or not. Indeed, every State must secure, the balance between technological ambition and protection of its people and especially the vulnerable ones. An energy transition without social justice will make the green shift an exclusionary project, instead of a condition accessible to all. Besides, as it will be demonstrated in the next Chapters, all the above - i.e. the recent Challenges in Energy Sector - are deeply connected with Competition's Policy at national and European Level, and especially with the implementation of the relevant legislative provisions, such as Article 102, of TFUE, which secures fair competition conditions under the specificities of the emerging energy market.

PART B

Chapter 5: Legal Analysis of Article 102 TFEU - Dominance and Abuse in the "relevant" Markets

5.1 Introduction

Having preceded an overview of the general institutional and historical context of Eu Competitions Policy in the Energy Sector, the present Chapters start to deal with the legal mechanisms, which are being used for the implementation of the respective legislations and by extension, for the protection of competitive functioning of energy markets.

In particular, there will be an analytical approach of the Concept of Dominant Position in Eu Law and in Energy Markets, through thorough examination of Article 102 of the Treaty on the Functioning of the European Union (TFEU), which constitutes the main legal tool against this anti - competitive behavior.

The theoretical approach of Competition's Policy, will be harmonized with the required legal analysis, regarding the implementation of the above article in practice, and specifically the European Commission's DG Comp interventions in European energy markets, that historically have been connected with the strong presence of former state monopolies.

5.2. The Concept of Dominant Position in EU Law and Energy Markets

As it will be demonstrated in the present Chapter, the indispensable prerequisite for the application of Article 102 TFEU is the existence of a dominant position held either by a single undertaking (individual dominance) or by two or more undertakings acting together (collective dominance).

This is a legal concept, that is not explicitly defined in legislation, but, according to the classical definition developed by the Court of Justice of the European Union (CJEU) in

landmark cases, such as United Brands and Hoffmann-La Roche, a dominant position refers to the economic strength enjoyed by an undertaking, which allows it to hinder the maintenance of effective competition in the relevant market and which gives it the ability, to act to a considerable extent, independently of its competitors, customers, and ultimately of consumers (United Brands Case; Hoffmann-La Roche Case; Herz & Vedder 2024).

In order to identify, who may hold such a position, it first must be clarified the notion of Undertaking. According to settled case law of the Court of Justice (Klaus Höfner and Fritz Elser v Macrotron GmbH), this notion covers any entity engaged in economic activity, regardless of its legal status or the way it is financed. This term includes natural persons, self-employed individuals (Pavel Pavlov and Others v Stichting Pensioenfonds Medische Specialisten), civil and commercial companies, entities that are not companies, such as foundations, associations, and public institutions, including public law entities (Höfner and Elser Case -41/90; Pavlov Case -180/98 to C-184/98).

Respectively, since it is identified, that the entity in question is an Undertaking, then we must procced with the orientation of its action field and specifically, with the clarification of the notion of relevant market, within Competition is exercised, between such entities. Indeed, according το Case Law and Commission's practice, *"the definition of the relevant market is of essential significance",* as this term is considered to be a basic tool for enforcing Competition Law and especially, the rules of Antitrust Law under Articles 101 and 102 of the TFEU (Continental Can Case - 6/72).

In particular, in its cases, the relevant market within which the Commission assesses the dynamics of competition, usually comprises a specific product and a specific geographical dimension. On the one hand, the relevant product market comprises all products and services, that customers consider interchangeable - substitutes, based on characteristics, price and use. In other words**,** demand substitution is the main base, for the definition of the relevant market product, while the supply – side substitution, is taken into consideration, only when it is in the short term, and leads to similar competition conditions – i.e. when suppliers turn their production to similar products without incurring significant additional costs or risks. On the other hand, the relevant geographic market comprises where

the conditions of competition are sufficiently homogeneous to assess the effects of the conduct - concentration at issue and which is distinguishable from neighbouring areas with appreciably different conditions (Commission Notice 2024).

The definition of the relevant market is not a static notion, as the Commission and the Case Law, define it, based on the facts of each Case, separately. However, the clarification of this term and specifically the orientation of relevant product and geographic market, constitute the perquisite framework, within which Dominance is assessed. In any Case, it must be noted herein, that under the prism of its recent Notice, Commission is able to use a different approach, regarding the market definition and not the standards one, when this is justified by the relevant context, such as digitalization and value chains (Commission Notice 2024).

As it has been established, dominance represents an economic power with significant influence on the market, affecting both the conduct and economic decisions of other undertakings. In economic theory, the equivalent concept of Dominant Position, is that of significant market power, which is defined as the power to influence prices - that is, the capacity to maintain prices at a level above those expected under conditions of effective competition, for a sustained period of time, or to limit output below competitive levels in terms of quantity or quality. Although the legal and economic definitions use different terminology, the two are generally treated as synonymous within competition law (Guidance 2009; WilmerHale, 2014).

This economic perspective, becomes more tangible, through the examination of the way that monopoly power operates in practice. Specifically, dominance is held by an undertaking whose activity confers monopoly power and the ability to act as a "price maker", setting prices above competitive levels for a reasonable and significant period. Having determined the level of production, the monopolistic firm sets the product’s price, knowing or estimating the number of units that buyers will demand. Economic theory defines a monopoly as facing a downward-sloping demand curve; in order to sell larger quantities, the monopolist must lower prices (CJEU, C-376/20 P, CK Telecoms, para 94).

While the above approaches, define the theoretical context of Dominant Position, there are concrete indicators, that are being used to assess the concept of Dominance. Particularly, the determination of whether a dominant position exists is carried out on a case-by-case basis and results from the overall assessment of several factors, none of which is necessarily decisive on its own.

The primary criterion for identifying such a position refers to the volume of transactions carried out with the products or services of the particular enterprise, within the relevant market. In other words, the market share held is examined. However, as the Commission has confirmed in its Guidance on the enforcement priorities in applying Article 102 TFEU, dominance cannot be inferred solely from market shares, which serve as an initial indication; other factors that constrain the undertaking's ability to behave independently must also be taken into account (Guidance on Article 102 -2009/C 45/02).

Indicatively, even if there is no fixed threshold and the assessment is considered to be contextual, based on several factors, in the AKZO case, the CJEU established a rebuttable presumption of dominance, when an undertaking's market share exceeds 50% (Guidance 2009; AKZO, C-62/86). It has been further argued, that when a firm's market share is very high and maintained over a significant period of time, and where no exceptional circumstances exist, dominance may be established on that basis alone (Hoffmann-La Roche Case). Consequently, market shares in the range of 35% to 40% have been considered significant, but insufficient in themselves to prove dominance, unless if there are other additional enhancing factors, that could compose a dominant position, as this was shown in British Airways Case (Guidance on Article 102 -2009/C 45/02; Rimsaitė, 2013).

In situations where market shares are particularly high and no other factors are present that could prevent the undertaking from acting independently of its competitors, such as low barriers to entry or strong countervailing buyer power, the descriptive term - i.e. without constituting a separate legal test - "super-dominance" is used (Dr. Justyna Maliszewska-Nienartowicz, 2007). Moreover, the greater the dominance of an undertaking, the greater its special responsibility to ensure that its conduct does not distort genuine competition in the market (Michelin I Case - 322/81).

Indeed, market share is a significant indicator of power, but it does not in itself confirm dominance. A comprehensive assessment of all relevant circumstances is always required, which should demonstrate, that the high market share held by an enterprise contributes to the distortion of competition (United Brands Case; Academic OUP, 2025).

In all circumstances, the presence and strength of competitors in the relevant market must be assessed. If there are rival firms with substantial market shares, they may prevent the undertaking in question from behaving independently, and their reactions must be taken into consideration, when forming commercial strategies. Moreover, the evolution of market shares over time, both of the undertaking and of its competitors, is also relevant (EU Commission Guidance 2009; Herz & Vedder 2024). This competitive assessment aligns with the Court of Justice's classic test for dominance - namely, whether the undertaking has the *"*ability to act, to an appreciable extent, independently of its competitors, customers and ultimately consumers*"* (United Brands, Case 27/76; Hoffmann-La Roche, Case 85/76).

Consequently, the above extends to cases of collective dominance. Collective dominance exists where two or more undertakings, particularly due to the links between them, jointly hold the power to adopt on a lasting basis a common policy in the market and act to a significant degree independently of their competitors, customers, and consumers (Shaburova, 2019).

In the Compagnie Maritime Belge case, the Court of Justice of the European Union ruled that the term "two or more undertakings" implies that a dominant position may be held by two or more legally independent economic entities, provided that, from an economic perspective, they appear and act in a particular market as a collective entity (Compagnie Maritime Belge, C-395/96; Academic OUP, 2025).

Respectively, in the Gencor case, the General Court recognized that under specific market conditions, such as high concentration, transparency, and product homogeneity, collective dominance may arise as a result of both the economic links between undertakings and the interdependence among them. Finally, in the Airtours case, the General Court

identified three conditions necessary for establishing collective dominance: sufficient transparency in the market, the existence of a deterrent mechanism preventing deviation from the common policy, and the absence of external constraints or pressures. Indeed, even if these two cases are considered "merger cases", they demonstrate that collective dominance is applicable in cases of Article 102 too, as this is conformed, even if unofficially, through EU Commission's Draft Guidelines on the implementation of Article 102 (Gencor T-102/96; Airtouirs T-342/99; Draft Guidelines 2024).

Within this context, there are also numerous other practices that demonstrate the existence of dominance. These include the ability to influence market prices, high costs for distribution channels, a highly developed distribution or sales network, non-recoverable advertising expenditures, a lack of alternative competition, and the absence of substitute products, meaning that the products of the dominant company cannot easily be replaced by others. These all serve as significant indicators, that a company holds significant, perhaps even the greatest, economic power within the relevant market (United Brands Case; OECD 2021).

It is also important to consider that in markets, where there are no significant barriers to entry or expansion - meaning that companies can enter or exit the market quickly, easily, and at low cost - even high market shares may not be sufficient to support a finding of dominance. Additional to these general considerations, there are economic barriers, that may also hinder market entry. These barriers include the level of financial resources and capabilities, securing raw materials through systematic backward vertical integration, the size and structure of the business and the generation of economies of scale, meaning large-scale production or distribution that can offer the dominant enterprise an advantage over smaller competitors. Even advantages in terms of technological development and industrial-commercial experience are considered key means for displacing existing competitors and discouraging new ones from entering the market (Academic OUP, 2025).

Finally, the existence of strong countervailing buyer power, stemming from the size of customers, their ability to switch quickly to alternative suppliers, and other similar factors, may also limit a firm's ability to increase prices above competitive levels, thus preventing it

from exercising dominance even when holding substantial market shares. Of course, all these parameters are deeply connected to energy field, where state-owned monopolies and structural conditions, still affect competition dynamics, in national markets. (EU Guidance 2009; WilmerHale, 2014).

Generally, absolute cost advantages, such as those derived from preferential access to essential facilities and regulated energy infrastructures, natural resources, innovation, research and development, industrial property rights, and capital, provide the dominant enterprise with competitive advantages.

On the other hand, legal barriers imposed by large and powerful companies that restrict competitors' activities may include the existence of a national monopoly or the possession of exclusive and absolute rights, including sector - specific exclusive or regulatory concessions. Absolute rights are legal rights that grant the holder exclusive use for a set period of time, excluding any use, reproduction, or sale without the holder's permission, thereby creating significant development obstacles for competitors.

In this context, it must be examined, whether intellectual property, in and of itself, suffices for the existence of a dominant position. As a general rule, the Court's concludes, that the mere possession of intellectual property rights does not automatically confer dominance. However, it emphasizes that dominance may arise from the overall market situation, which may exceptionally apply in the event of market saturation in relation to a specific intellectual property right. In other words, we must everything is in direct correlation with market conditions and constraints in the relevant market (Marvi Qazi LL.M MIPLC 2023; Volvo v Veng Case - 238/87; Parke, Davis Case - 24/67).

The rules regarding dominance are enforced to prevent the abuse of power by companies or entities that have the ability to negatively influence competition and the market. The criteria for determining dominance are structured to achieve balanced market conditions, encouraging both competition and innovation. Factors such as market share, economic strength, commercial practices, ease of market entry for new competitors, and price influence must be carefully evaluated. It is important to note that the aim of the rules

on dominance is to protect competition and ensure the wellbeing of the market and its consumers.

Through the proper application of these criteria, we can ensure that markets function fairly and efficiently, fostering innovation and safe guarding the interests of all stakeholders. This is a significant factor in maintaining healthy and competitive markets across all sectors of the economy (Article 102, TFEU).

Of course, the above procedure, requires an appropriate legal framework with clear legal provisions to address the abuse of such positions. As it is going to be analyzed below, Article 102 TFEU (see also Article 2 of Greek Law 3959/2011) is such a provision, prohibiting the abusive exploitation of a dominant position that an undertaking may hold in a relevant market. The mere existence of a dominant position is not unlawful. Business success is not prohibited. What is prohibited is the abusive exploitation of that dominant position. However, any undertaking that achieves success and subsequently acquires dominance is legally burdened with a special responsibility not to allow its conduct to restrict competition through the exploitation of its dominant position (Rimsaitė, 2013).

This analysis is centered on the distortions in competition caused by the abusive exploitation of a dominant position, which former monopoly enterprises in the energy sector inherently possess. Due to their historical control over the energy supply chain, these entities often enjoy structural advantages, that can hinder the development of fair and open market conditions.

The abusive practices stemming from this dominance account for a very big part of cases, handled by the European Commission and national competition authorities. Respectively, intervention in cases of anti-competitive agreements or concerted practices between companies, prohibited under Article 101 TFEU, varies over time and across Member States, being applicable in practice and specifically in the energy sector (Zepos & Yanopoulos, 2023).

In the context of energy markets, such practices can be particularly harmful given the essential nature of energy for both households and industry. Abuse of dominance may, for example, involve denying network access to new entrants, cross-subsidization between regulated and competitive services, or discriminatory behavior in pricing and service provision. These actions not only undermine competition but also contradict the EU's objectives of market liberalization, consumer protection, and energy security.

Therefore, Article 102 TFEU plays a crucial role in preserving the integrity of the internal market by ensuring that dominant undertakings do not exploit their market power to the detriment of fair competition and consumer welfare. The enforcement of this provision, especially in sectors historically dominated by state-owned monopolies, such as energy, is vital to achieving a genuinely competitive and integrated European energy market.

5.3 Forms of Abuse, Legal Categories and Practical Manifestations

According to Article 102 of the Treaty on the Functioning of the European Union (TFEU) it is explicitly provided, that:

"Any abuse by one or more undertakings of a dominant position within the internal market or in a substantial part of it shall be prohibited as incompatible with the internal market, insofar as it may affect trade between Member States" (Article 102, TFEU). Such abuse may, in particular, consist in:

(a) directly or indirectly imposing unfair purchase or selling prices or other unfair trading conditions;

(b) limiting production, markets or technical development to the prejudice of consumers;

(c) applying dissimilar conditions to equivalent transactions with other trading parties, thereby placing them at a competitive disadvantage;

(d) making the conclusion of contracts subject to acceptance by the other parties of supplementary obligations which, by their nature or according to commercial usage, have no connection with the subject of such contracts." (EUR-Lex).

This article identifies dominance not as inherently illegal, but deems its abuse unlawful, when it distorts competition or harms consumer welfare (Competition policy brief, 2023). Indeed, it is crucial to clarify that competition law does not prohibit, per se, the possession or acquisition of a dominant position by an undertaking. What is prohibited is the abuse of such a position. Therefore, the significant market power held by a former monopoly enterprise in the energy sector does not, in itself, constitute misconduct or lead automatically to condemnation of the undertaking. However, according to consistent case law, dominant undertakings are held to a special responsibility to preserve the integrity of the competitive process, meaning they are required to refrain from conduct that distorts or is likely to distort genuine competition in the market (Michelin I, Case 322/81; Rimsaitė, 2013).

The concept of abuse is not explicitly defined in EU legislation. Nonetheless, according to established case law of the Court of Justice of the European Union (CJEU), abuse is considered an objective concept relating to the conduct of a dominant undertaking, which is capable of affecting the market structure where, because of the dominant position held, the degree of competition is already weakened. Such conduct, through methods different from those which govern normal competition based on the merits of products or services in the marketplace, has the effect of hindering the maintenance or development of the existing level of competition (Hoffmann-La Roche Case - 85/76).

Importantly, proof of intent is not required to classify conduct as abusive, although evidence of intent may be taken into account in the assessment. Similarly, it is not necessary to establish or prove actual anti-competitive effects. What matters is whether the conduct in question, is objectively capable of restricting competition, taking into account the specific circumstances of the case and specifically, the actual data of the market, under which the conduct occurred, setting in that way a more effect based approach (TeliaSonera Case – C - 52/09; Unilever Italia Case - C - 680/20; Academic OUP, 2024).

In legal theory, a distinction is often made between two forms of abuse: exploitative abuse and exclusionary abuse, although this distinction lacks an explicit legal basis.

Exploitative abuse focuses on the direct harm inflicted on consumers, such as through unfair pricing or conditions.

Exclusionary abuse, on the other hand, derives from the understanding, that competition is a process of rivalry between independent undertakings and focuses on conduct that restricts this competitive rivalry.

However, this distinction has been criticized in academic literature, on the grounds that exclusionary abuse ultimately also leads to consumer exploitation and undermines consumer welfare. Therefore, all forms of abuse can be seen as exploitative in their effect (Baskaran Balasingham 2024). In this context, in practice, the categorization of abusive conducts stands between pricing abuses and non-pricing abuses. This distinction arises substantially, through the European Commission's Enforcement Priorities Guidance too, where the price-based exclusionary conducts is explicitly orientated, while other forms of exclusionary conducts are not considered priced - based.

Examples of pricing abuses include predatory pricing (selling below cost to drive out competitors, see AKZO Case - 62/86), excessive pricing (see United Brands Case - 27/76), abusive discount policies (such as quantity discounts, loyalty discounts, and de facto loyalty discounts, see Intel Case - C-413/14 P.), price discrimination, and margin squeeze (where a vertically integrated company sets its upstream and downstream prices in a way that squeezes competitors' profit margins, see TeliaSonera Case - C-52/09).

Non-pricing abuses include exclusive dealing (see Van den Bergh Case -T-65/98), refusal to supply or termination of supply (which may include refusal to license intellectual property rights, see Bronner Case - C-7/97 and Magill - Joined Cases C-241/91 P & C-242/91 P and IMS Health - C-418/01), obstruction of parallel trade, as well as tying (making the purchase of one product conditional on the purchase of another), bundling (selling products or services as a package, see Microsoft Case - T-201/04) and lately self-preferencing (where the dominant Undertaking uses its power over an infrastructure in favor of its own product and services, see Google Case - C-48/22P, 2024. These practices, particularly in sectors such as energy where access to essential infrastructure is critical, can significantly hinder market entry, distort competition, and reduce consumer choice, thereby violating the principles underpinning Article 102 TFEU (Shaburova, 2019; Google Shopping, C-48/22 P).

All the above references, are explicitly concern the differentiation of types of abuse conducts and their implementation in practice. However, it is very crucial to clarify herein, that the two pairs of distinctions - i.e. Exploitative / Exclusionary and Pricing / Non Pricing - are two different, non - overlapping axes, which do not exclude each other. A pricing practice could be either Exploitative or Exclusionary, which is something that happens with non pricing practices too. For instance, in United Brands Case, we meet a pricing - exploitative abuse, while in the Intel Case, we meet a pricing and exclusionary one. The above conceptual independence of these type of abuse, is not explicitly written in official papers, but emerges naturally from its separate handling in Legal theory, Commission's Practice and Papers, Law Cases and relative Bibliography. (Eur-Lex, 2009 Guidance; 2023 Amending Communication; Academic OUP, 2024; Crowell & Moring LLP 2024).

Nevertheless, the determination of whether such conducts are really capable of limiting or distorting the competition or not, requires a separate procedure, used by the European Commission and the Court of Justice of the European Union. Indeed, these two institutional bodies use over the time, a combination of legal and economic tests, regarding the legal evaluation of abuse conducts, in the light of Article 102 TFUE.

In particular, the said procedure, as it emerges, through the relevant regulatory context and the Case Law of the European Court of Justice, starts with the delineation of the relevant market, and respectively the determination of dominant position (see 5.2) and it ends up with the implementation of other specialized tests. Such tests are, As-Efficient Competitor (AEC) Test (i.e. the ability to exclude an equally efficient competitor based on cost), Cost Benchmarks Tests, Price-Cost Test for Margin Squeeze (i.e. if the wholesale-retail price difference leaves room for a competitor's profitability) and Special Tests for loyalty rebates. According to 2009 EU Commission's Guidance, these tests were basically considered as quantitative tools, as they determine whether the conduct of a dominant undertaking has exclusionary effects, harming competitors, that are equally efficient to itself, focusing on cost benchmarks and economic indicators. Nevertheless, this specific approach differentiated in 2023, through the Amending of the said 2009 Guidance, which brought a new definition of anti-competiive foreclosure and restrained the use of AEC test, while it is

expected to connect to a broader legal and evidentiary assessment, under the Prism of the New Guidelines (2009 Guidance and 2023 Amending Communication; Stibbe 2024**).**

Indeed, it must be noted herein, that very recently and specifically, in August 2024, a new draft Guidelines on exclusionary abuses under Article 102 TFEU, was published by the European Commission. (European Commission, Press Release IP_24_3623; Reuters). Based on this draft, the new Guidelines, which are expected to obtain a final and official form, by the end of current year 2025 - replacing in that way the Guidance of 2008 - are going to bring a new, two - stages, test. On the one hand, there will be an assessment, whether the practice constitutes a departure from competition on the merits, while on the other hand, there will be an evaluation of its ability to produce exclusionary result (European Commision - Competition policy). Finally, these Guidelines address specific forms of abuse, such as margin squeeze and predatory pricing, through specialized “rebuttable” presumptions.

In conclusion, it became clear, that the above classification of types of abuse - i.e. exploitative / exclusionary and pricing / non pricing, enclose the listing of cases, from a to d of Article 102 TFEU, while the evaluation of these conducts, goes through specialized procedures and tests. In any case, as it was shown in the previous section 5.2, necessary and primary perquisite for all the above procedures, is the determination of existence of dominant position, through specific indications, such as markets shares and barriers to entry. In the next Chapter, a more targeted analysis will follow, trying to address specific forms of abuse and their implementation in practice, focusing on the energy sector. This analysis, going through a sector - specific “theories of harm”, will demonstrate that the above general categories of conducts of abuse, apply horizontally to all stages of the supply chain, including wholesale and retail level, respectively.

5.4 The Objective Justification as a Defense of the Dominant Undertaking.

As it was demonstrated above, through the references to specific Case Law and European Commission’s Guidance, the implementation context of Article 102, does not demonize the dominant position of an Undertaking itself, but the abuse of such position in the relevant market (Hoffmann-La Roche Case - 85/76). In addition, as far as it concerns the

notion of abuse, this is considered to be an objective concept, as emphasis is placed on the results of such conduct and in particular, in the examination, of whether this conduct is distorting or is likely to distort, the market, regardless the Undertaking's intention (Hoffmann-La Roche; Michelin I; Post Danmark I, Cases).

However, the above do not automatically incriminates the undertakings place, as it is acknowledged, that undertakings in a dominant position, whose conduct is initially assessed as restricting competition, have, in all cases, both the possibility and the burden, to provide objective justifications, so as, to ultimately avoid a finding of abuse (Hoffmann-La Roche Case - 85/76). Indeed, even if the Article 102, does not explicitly contains a relevant provision, and the only relevant textual reference exists in the Article 2 of EU Reg. 1/2003, where it is provided that the burden of proving is connected with the part "that aligns the infringement", (Art. 2 EU Reg. 1/2003), the EU Case Law has gradually set the framework for the Undertakings Justification (JECLAP 2019 - Cani Fernández; Apostolakis 2023), as the address of issues like loyalty discounts and price thresholds, pointed out the distinction between competition on the merits and methods other than competition on the merits (AZKO Case - 62/86).

In this context, back in 2009, the Europeans Commission did not legislate but systemized for the first time the Practice of itself and of the Case Law, shaping the Undertakings Objective Justification, through the publishment of its "Communication - Guidance on its enforcement priorities, in applying Article 82 of the EC Treaty to abusive exclusionary conduct by dominant undertakings" (EU Guidance 2009 OJ 45/7). In particular, this paper, inducted an effect based analysis, using AEC test, as important tools, in its evaluation process (Competition Policy Brief No 1/2023) and of course, established the two forms of Undertakings Defense, which are, the objective necessity and the efficiency defense with the four cumulative criteria (EU Guidance 2009 OJ 45/7), as it will be analyzed below.

Respectively, in the next years, the European Commission adopted once again the new Practices, regarding the evaluation of Undertakings Conduct, publishing back in 2023, another Communication, that amended specific fields of its 2009 Guidance (Amending Communication 2023 - OJ C 116/1). Specifically, given the new Case Law, such as Intel

and Elettrico Nazionale Cases, the EU Commission updated its Guidance, clarifying the notion of anti-competitive foreclosure (Apostolakis 2023) - in the sense that the weaking of the competitive structure against the consumers is considered to be enough (Servizio Elettrico Nazionale / Enel Case C-377/20), demonstrating in parallel that AEC test (Apostolakis 2023) is crucial, but not necessary in the evaluation process (Intel Case - 413/14 P). In general, the Amending of initial Guidance finally deepen the approach to market access methods and especially to margin squeeze, which is now considered as an independent category of abuse and not and not a subcategory of "refusal to supply", as it was back in 2009 (Guidance 2009 - OJ C 45/7; Competition Policy Brief No 1/2023).

Finally, very recently, back on August 2024, the EU Commission initiated a public consultation, which ended on October 2024 and concerned the seeking of "feedback on draft antitrust Guidelines on exclusionary abuses" (Draft Guidelines 2024). This Draft, which is expected to be finally adopted by the end of 2025 (Latham 2024), tries to fully systemize the methodology, that was developed through the Case Law and was captured in the EU Commissions Guidance of 2009 and its 2023 Amendment (Dentons 2024). Specifically, this paper converts priorities to Guidelines, explicitly imprinting general principles, specific legal tests" per behavior and of course objective justification control with clear - but demanding - burdens of proof on the dominant parties (Draft Guidelines 2024; Latham 2024).

As it was made clear from the above demonstration of the legal and institutional framework of the Objective Justification, despite the changes that have been made in the Case Law and their capture on the EU Commission's Communications, the main two types of defense, that an undertaking is able to use, in order to justify their practices, are still the same, even in the context of the expected new Guidelines by the end of 2025. In particular, when an undertaking in a dominant position, whose conduct is initially assessed as restricting competition, have, in all cases, the ability to invoke either the objective necessity or / and the efficiency defense with the four criteria, which must exist cumulatively, in order for the fine to be avoided (Dentons 2024).

The first type of defense i.e. the objective necessity, as this notion emerges from the Case Law and is explicitly stated at the paragraphs 28 - 29 of the 2009 Commission's Guidance (EU Guidance 2009, paras 28-29), refers to the situation, where a dominant undertaking must proves, that its conduct is objectively necessary and proportionate, without a less restrictive measure available (EU Guidance 2009, paras 28-29), based on external factors to itself, like health or safety reasons related to the nature of the product in question. The dominant undertaking is not allowed to substitute public authorities' competences, regarding issues like the above - i.e. "public health and safety standards".

The relevant Case Law confirms the concept of the objective necessity, as there are many Cases, where characteristically highlight the prerequisites for the establishment of this condition. Indicatively, in the Bronner Case it is demonstrated, there must be not a realistic and economically feasible substitute (Bronner Case-7/97), that makes the conduct under question, not necessary, while in the Servizio Elettrico Nazionale / Enel Case, there is an exhibition, about conducts, that could be considered as external circumstances (SEN/Enel Case - 377/20) in the context of objective necessity (e.g. network/data protection).

Respectively, the second type of defense i.e. the efficiency defense, emerging from the Case Law and being stated at the paragraph 30 of 2009 Commission's Guidance (EU Guidance 2009), refers to the case, where the dominant undertaking bears the burden, to prove the cumulative fulfilment of the following conditions:

"a) efficiency gains have already been achieved or are likely to be achieved as a result of the conduct in question,

b) the conduct is necessary for the realization of these efficiency gains and there are no less anti-competitive alternatives capable of delivering the same improvements (principle of proportionality),

c) the efficiency gains resulting from the conduct outweigh any negative effects on competition and consumer welfare in the affected markets and

d) the conduct does not eliminate effective competition by removing all or most existing sources of actual or potential competition." (EU Guidance 2009)."

In this case too, the Case Law confirms the above, as there are several Cases, where it becomes clear, that cumulative fulfilment of the pre - said conditions, and especially the existence of efficiencies, that benefit consumers, counterbalancing the conduct in question, creates the preconditions for dominant undertaking's justification. Characteristically, the British Airways, demonstrate, that an exclusionary conduct could be theoretically justified, if there are efficiencies in favor of the consumers, while the Intel Case, dealing with the clauses and rebates, that initially are proven capable of distorting competition, concludes, that the illegal aspect of these conducts, could be counterbalanced with efficiencies that benefit consumers (British Airways Case -95/04; Intel Case - 413/14).

Having mentioned the two main types of objective justification, there must be a brief reference to a third line of defense, which is not officially recognized by the EU Commission, but it emerges through the Case Law. Specifically, as it was demonstrated through the United Brands, a dominant undertaking is exceptionally able to align its strategy to competitors' strategy, in order to protect its trade interests (United Brands Case 27/76). This type of justification which is called "meeting competition" is considered to be a narrow type of defense, which is used only for safety reasons against the competitors' behavior and not for strengthening the undertakings dominant position.

According to Article 2 of Regulation, it is provided that "In any national or Community proceedings for the application of Articles 81 and 82 of the Treaty, the burden of proving an infringement of Article 81(1) or of Article 82 of the Treaty shall rest on the party or the authority alleging the infringement. The undertaking or association of undertakings claiming the benefit of Article 81(3) of the Treaty shall bear the burden of proving that the conditions of that paragraph are fulfilled" (Article 2, of EU Reg. 1/2003).

This article, as it stands today, explicitly sets the framework of the evidentiary process, providing that the authority, that calls for the infringement, bears the "legal burden" to prove it and on the contrary, the dominant undertaking, whose conduct is under question, bears the so called "evidential burden" to substantiate its arguments, regarding the existence of objective justifications, as this is imprinted in the relevant Case Law (Article 2, of EU Reg. 1/2003).

By extension to the above, it effortlessly arises, that there is a distinction between the legal burden and the evidential burden, as it is confirmed through the EU Case Law.

In particular, the legal burden is settled through the Article 2, of EU Reg. 1/2003 (Article 2, of EU Reg. 1/2003) and it always weighs the Authority, that is obliged to assert the infringement. On the other hand, the evidential burden is a different legal condition, as it rolls over the parties - i.e. the Authority or the dominant undertaking - depending on the stage, at which every case stands. Specifically:

i. Initially, as it was shown through the Volkswagen and Tetra Laval Case, the Authority, is called upon to prove, that there is a case, with strong and sufficient evidence, capable of establishing a "firm conviction" (Volkswagen Case T-62/98, Tetra Laval Case-12/03 P).

ii. After this initial “diagnosis”, it’s the turn of dominant undertaking to contradict the Authority’s claims, invoking either persuasive evidence (e.g., econometric/technical analyses), or sufficient objective justifications – i.e. necessity or/and efficiencies – on the basis of Guidance 2009 and its 2023 Amendment (Guidance 2009 & Amendment 2023; Apostolakis 2023). Indicatively, the respective burdens of adducing proof, was demonstrated in the Opinion of Advocate General Kokott in T-Mobile Netherlands Case (T-Mobile Netherlands (Case-8/08); Post Danmark I Case).

iii. By extension, if the undertaking’s contradicts, are considered to be capable of shaking the Authority’s first diagnosis, then the burden of evidence goes back to the latter, which must examine the relevant arguments (e.g. AEC tets e.t.c.), in order to determine if they stand, as this obligation was crystallized in the Intel and Unilever Italia Cases. These Cases demonstrated, even if AEC test is not mandatory, it must always be examined if it is invoked as a means of rebuttal (Intel Case-413/14 P; Unilever Italia Case-680/20).

In this context, the Draft Guidelines 2024, do not substantially change the interplay of the evidential burden, but it is expected to shape this interplay, formalizing the two – stage mythology i.e. the deviation from competition based on advantages plus the ability to foreclose.

Of course, all the above are in direct correlation with presumptions, i.e. inference tool, that Authorities use in order to conclude, that the conduct under question falls under the prism of Article 102. These inference tools, that basically emerge from Case Law, are rebuttable and compatible with the standard of "precise and consistent" evidence and dominants' undertaking ability to rebut these tools (JECLAP 2019 - Cani Fernández). Such presumptions, are very high market shares, usually connected with dominant position (see Hoffmann-La Roche, Case-85/76), predatory pricing with prices below AVC, and prices between AVC and ATC, in the context of a displacement plan, (see AKZO, Case-62/86), margin squeeze, with price–cost/AEC (see TeliaSonera Case-52/09) and (iv) loyalty rebates/conditional exclusivity, where, after Intel and Unilever Italia Cases, it is clear, that the Authority must always evaluate the economic evidence, provided by the dominant undertaking (see Intel Case - 413/14 and Unilever Italia Case-680/20).

In this Context, the EU Commission's practice, has tried to imprint these i.e. inference tools, first in 2009, with an effect based analysis (e.g. predation/price - cost), (Guidance 2009 - OJ C 45/7), then in 2023, with the change targeting to foreclosure ability and the non - mandatory use of AEC (Amending Communication 2023 - OJ C 116/1; Competition Policy Brief) and finally, to the Draft of 2024, which, when it is going to be officially adopted, is expected to tighten the role of foreclosure's presumptions, making more difficult for an Undertaking to justify its conduct, especially, when the relevant Case deals with "naked restrictions" or conducts, where the possibility to foreclose is rebuttably presumed, such as margin squeeze, notably exclusive purchasing - supply e.tc. (Apostolakis 2023 ; Draft Guidelines 2024).

Relevantly, as far as it concerns the energy field, there are not substantially, specified - separate "sectoral" presumptions, as it will be shown in the next Chapter. The above demonstrated framework applies in the Energy Markets too, where the Undertakings have the capability to invoke "objective necessity", that is connected with the current regulatory and system - security obligations.

Chapter 6: Applying Article 102 in Energy Markets

6.1. Introduction

The application of Article 102 of the Treaty on the Functioning of the European Union (TFEU) remains a fundamental mechanism in regulating competition within the EU's liberalized energy markets given that the energy field is directly connected with the sustainability of modern societies and consumer protection (Hancher /Herrera, 2024). The enforcement of relevant provisions is taking place based on the EU Commission's Policy, as it is merges through the relevant Case Law and Commission's Papers - i.e. the Guidance 2009 (2009 Guidance: OJ C 45), its Amendment back in 2023 (Amendment 2023 - OJ C 116/1) an the Draft Guidelines of 2024, which have not yet been adopted (2024 Draft Guidelines on exclusionary abuses).

The implementation of the relevant provisions in the energy sector, are of a highly importance, as the relevant markets are uniquely structured, often dominated by vertically integrated entities, that exercise control over critical infrastructure and are characterized by significant entry barriers. As a result, they are especially prone to anticompetitive practices aimed at excluding rivals (EU Commission 2007, Energy sector inquiry - Final Report). Three core forms of abuse have emerged as particularly relevant in this context: vertical foreclosure, discriminatory access and deliberate creation of scarcity, which substantially imprint and contain the categorization of abusive contacts, that took place in the previous Chapter (WilmerHale 2019).

In any case, the present analysis, within the energy field, is directly related with the established rules, regarding market Design, such as Reg. (EU) 2024/1747 - Dir. (EU) 2024/1711, and Data - Transaction Integrity, such as Reg. 1227/2011 as amended by Reg. (EU) 2024/1106 (wholesale energy market), for electricity and natural gas, which naturally, affect the shape of the pre - said forms of abuse (Zorková, 2022).

6.2 Sectoral Methodology

6.2.1 Regulated Infrastructure and Market Design Frictions

The application of Article 102 in energy markets must be examined through both infrastructure control and the practical design of market access conditions.

Indeed, in liberalized energy markets, the fixed and sunk-cost networks that transport and interconnect energy - transmission grids, distribution systems, high-pressure pipelines, LNG terminals and cross-border interconnectors - operate as non-substitutable inputs for any rival wishing to compete upstream or downstream (EU Commission 2007, Energy sector inquiry - Final Report). Their natural-monopoly characteristics and physical constraints make duplication technically unrealistic or socially inefficient, so control over these bottlenecks confers durable market power (de Hauteclocque and Glachant, 2009). The relevant Case Law, does not implicitly recognizes these assets as “essential inputs, but it sets a cumulative standard for any duty to supply, such as in Bronner Case with the so called “Bronner Test” - i.e. the examination of “indispensability, elimination of all effective competition and no objective justification”(Bronner Case - C-7/97) and in exceptional circumstances, such as it was indicated through the Microsoft Case - T-201/04, it allows interoperability and disclosure duties (Microsoft Case - T-201/04; Ansari, 2009).

In particular, sector-specific rules, as these rules are imprinted in the relevant legal Framework - such as Reg. (EU) 2019/943 and Dir. (EU) 2019/944 for electricity and Reg. (EU) 2024/1789 and Dir. (EU) 2024/1788 for gas and hydrogen - hard-wire this insight into market design (ACER/CEER, Bridge to 2025). Third-party access and unbundling transform monopoly infrastructure into open platforms by neutralizing the incentives of vertically-integrated incumbents to discriminate and by codifying a right to connect and use capacity on transparent, non-discriminatory (Diathesopoulos, 2012 ; Greek Law Digest, 2024). These obligations do not replace Article 102 TFEU, but they frame it. Where unbundling and TPA work as intended, the competitive benchmark for a 102 analysis becomes clearer; where they fail, 102 provides a “shiled”, against strategic foreclosure that escapes ex ante regulation. (European Commission, 2024).

Against that regulatory background, exclusion risks must also be examined through the technical and operational design of the market itself. Specifically, across sectors of electricity and gas seemingly technical choices about capacity calculation, allocation, gate-closure times and settlement rules can tilt competitive conditions by raising rivals' costs or restricting timely access to essential trading and transport functions (European Commission, 2024 ; ACER 2024; Zachmann et al., 2023). Respectively, in electricity there is a specific regulatory framework, consisting of CACM (EU) 2015/1222, EBGL (EU) 2017/2195 and Electricity Regulation (EU) 2019/943, while in gas the respective framework is consisting of Renewable – Natural Gas & Hydrogen Regulation (EU) 2024/1789, CAM NC (EU) 2017/459, Gas Balancing (EU) 312/2014 and Interoperability (EU) 2015/703 (CEER, 2022).

Specifically, in electricity day-ahead and intraday markets, friction arises at the interface between congestion management and cross-zonal allocation. Under market coupling, the amount of cross-border capacity released to trading, the timing of its release, and the transparency of curtailments (see Reg. (EU) 543/2013) shape whether rivals can arbitrage prices and discipline local market power (ACER 2023; Schittekatte/Reif/Meeus, 2020). Respectively, the minimum margin available for cross zonal trade for TSOs, is established to 70%, according to the Article 16 (8) of Regulation (EU) 2019/943. Under-declaration of capacity, conservative remedial actions, or opaque redispatch and countertrading can depress interconnection availability and entrench local incumbents (ACER, 2023 MMR - MACZT ; Emissions-EUETS.com 2025). Intraday design choices - continuous trading versus auctions - determine whether new entrants and aggregators can respond to volatility and capture value, or whether data asymmetries and interface access advantages, privilege integrated incumbents with better control - room visibility (European Commission, 2024; ACER Decision No 11/2024).

Comparable friction points also arise in gas markets, through the specific structure of transport and balancing arrangements. In gas, friction points are mainly found in interconnections, the entry-exit model and balancing (Reg. 2024/1789 ; ACER 2025). Capacity can be hoarded through long-term bookings that are not fully utilized, reducing out short-term access even when physical space exists. Where anti-hoarding rules are weak,

capacity holders can maintain strategic options and limit rivals' flexibility (see CAM NC 2017/459).

Mapping these leverage points clarifies where exclusion or distortion can be created from within the rules: in electricity, congestion calculation and release, cross-zonal allocation, redispatch transparency, prequalification and real-time settlement ; in gas, the balance between long-term and short-term capacity, anti-hoarding disciplines, interoperability and balancing exposure (European Court of Auditors, 2023 ; OECD, 2022).

Once these sectoral leverage points are identified, the analysis can return to the legal forms through which abuse materializes in practice. This interaction reshapes theories of harm in a regulated contest. "Abuse" often materializes less as clear refusal and more as gradual restriction of access - administrative delays, arbitrary curtailments, discriminatory maintenance scheduling, strategic information asymmetries, that tilt balancing and congestion outcomes, or margin squeeze between network charges and retail prices (European Commission, 2007; WilmerHale, 2014; ACER MMR 2024). This can constitute a stand-alone abuse under Article 102 that does not require the Bronner indispensability test (Bronner Case - C-7/97; TeliaSonera Case - C-52/09; Özkan, 2014).

Accordingly, a robust Article 102 assessment in energy must be based on the regulated practical rules of access (European Commission, 2024) - technical standards, available and booked capacity, curtailment and congestion procedures, deadlines, nominations and balancing exposure - rather than in formal compliance alone. (ChillingCompetition, 2023 note on Case T-136/19). Sectoral obligations, such as TPA, unbundling and transparency, provide the baseline rules and evidence; competition law provides incentive-compatible remedies, when conduct departs from that baseline (ACER 2023 MACZT). Grounding the analysis in these practical access terms, ensures, that conclusions reflect the physics, system-operation realities and trading constraints of the market, while remaining consistent with the EU's integrated market governance and consumer-centric goals (CEER, 2022).

6.2.2 Retail Data, Switching & Customer Frictions

As it was noted in the end of Chapter 5, the general categorization of conducts of abuse under the prism of Article 102 of TFUE, apply horizontally to all stages of the supply chain, including wholesale and retail level, respectively. Herein, there will follow a demonstration of basic characteristics of retail energy market, which constitutes a autonomous relevant market, where the abusive conducts regarding Article 102, manifest themselves directly in the consumers. The relevant inputs and friction points, such as data, switching and customer interfaces, could operate as "passages" of exclusionary or exploitative abuses as this is confirmed through official Papers and relevant Case Law.

In particular, in retail energy, market power often travels through customer inertia and data advantages. (Waddams Price, 2018). Switching frictions, such as complex tariffs, unclear discounts, exit fees and limited comparison transparency, raise the cost of leaving, while loyalty mechanisms like targeted retention offers, bundled services and rewards selectively, reward staying. These loyalty mechanisms are related to the so called loyalty / fidelity rebates, as this is emerges through Case Law (Willems et al., 2022 ; Post Danmark II Case).

Ease of switching and tariff transparency therefore become core pro-competitive levers (see Dir. (EU) 2019/944, as amended by Dir. (EU) 2024/1711; ACER-CEER, 2024). Practical enablers include standardized price displays, that incorporate all taxes and network charges (see Dir. (EU) 2019/944, Annex I), plain-language contract summaries (see Dir. (EU) 2019/944), protective measures, in favor of the 14 day right of withdrawal (see Dir. (EU) 2011/83/EC) and against the win-back practices under the prism of UCPD (see Dir. (EU) 2005/29/EC), a one-stop digital switching with strict timelines and auditable rejection reasons (Willems et al., 2022).

When vertically integrated groups or incumbents enjoy privileged access to CRM systems and detailed consumption data (see Art. 23 Dir. (EU) 2019/944; Reg. (EU) 2023/1162), they can identify high-value customers and practice price discrimination under the cover of complexity, turning information asymmetries into durable competitive

advantages (see GDPR - Reg. (EU) 2016/679; Nicolai, S. & Münchmeyer, M. 2025). Ultimately, retail outcomes provide the test of consumer harm (2009 Guidance - OJ C 45/7; Amendment 2023 - OJ C 116/1; ACER-CEER, 2024). Indicative signs include lower customer switching, despite rising relative prices, systematic win-back success against independent competitors, switching delays and cancellations and differential treatment between affiliates and independents during credit checks (CEER Handbook 2025).

Coordinated action by the competition authority and the energy regulator should focus on the specific choke points - data interfaces, CRM privileges (see Art. 23 Dir. (EU) 2019/944; Reg. (EU) 2023/1162), complaint handling and supplier-of-last-resort rules (see Art. 27a Dir. (EU) 2019/944 as amended by Dir. (EU) 2024/1711) - so that consumer choice and engagement, not delay and lack of information, determine retail market dynamics (Willems et al., 2022 ; CEER Handbook 2025).

6.2.3 Evidence & tests Procedure

A practical evidence procedure in energy markets, starts by asking whether an as-efficient-competitor and price - cost framework is meaningful, given the role of regulated networks. (Fumagalli & Motta, 2024) This test is pertinent, where a vertically integrated firm controls an input that rivals must use and charges for that input, while also competing downstream, or where access fees and additional charges materially shape rivals' costs (Deutsche Telekom Case - C-280/08 P and TeliaSonera Case - C-52/09). The above AEC (= As-Efficient Competitor test) - Price Cost is examined, when the Undertaking brings relevant data while in the non prices abuses, this is not necessary. In other words, the Commission reserve the right to use the AEC test, unless the undertaking in question, brings relevant data, something that "requires" the Commission to examine this test (Intel Case - C-240/22 P ; 2009 Guidance - OJ C 45/7 ; Amendment 2023 - OJ C 116/1; Draft Guidelines 2024 ; Peeperkorn, 2024).

Because price - cost tests do not capture non-price foreclosure, the assessment must also collect operational evidence about access conditions (Fumagalli & Motta, 2024). In practice, that means requesting flows, allocations, nominations and re-nominations (with

time stamps and gate-closure references) (see CACM - Reg. (EU) 2015/1222), capacity offered, booked, and actually used (see Reg. (EU) 543/2013; CAM NC - Reg. (EU) 2017/459), curtailment logs with reasons, maintenance and shutdown plans (see SOGL - Reg. (EU) 2017/1485), connection requests with waiting list positions and waiting times, balancing bids and acceptances (see Gas Balancing - Reg. (EU) 312/2014), and the terms applied to affiliates versus independents (DG COMP, 2007; CMA, 2016; ACER-CEER, 2023).

Objective necessity must be assessed with reliable technical evidence, not assertions. The dominant operator should identify the legitimate aim (system security, safety, quality or regulatory compliance), link it to specific contingencies and criteria, and show that the chosen measure was necessary, proportionate and time-limited (2009 Guidance; Amendment 2023; Bronner C-7/97; Lazăr & Lazăr, 2024). That requires contingency analyses, capacity-calculation files, remedial action lists, N-1 and stability studies, security-of-supply assessments, and incident reports, that explain why alternatives with less market impact were not feasible (see Reg (EU) 2017/1485; ACER Decision on CSAM: Annex I; ENTSO-E, 2022).

Finally, the present assessment connects legal theories with measurable market conditions (Fumagalli & Motta, 2024). It shows when AEC and price - cost tests are reliable in a networked environment (2009 Guidance - OJ C 45/7; 2023, Amendment 2023 - OJ C 116/1), how to design a replicability benchmark that reflects the realities of day-ahead, intraday (see CACM - Reg. (EU) 2015/1222) and balancing in electricity (see EBGL - Reg. (EU) 2017/2195) and of entry-exit, interconnection and balancing in gas (ACER-CEER, 2023), and how to evidence objective necessity with limited and proportionate measures, based on system-operation. By focusing the analysis on flows, booked capacity, shutdowns, nominations, access times and terms, and price - cost indicators matched to real trading timeframes, investigators can distinguish genuine security or compliance constraints from strategic conduct, that raises rivals' costs or reduces their ability to compete (CMA, 2016).

6.2.4 Commitments under Article 102 (procedure & use in energy)

The adoption of commitments is considered to be one of the most significant among the corrective or restorative measures aimed at eliminating distortions of competition (Rimsaitė, 2013; Stones, 2019). At the European level, it is regulated by Article 9(1) of Regulation (EU) 1/2003, which provides, that when the Commission intends to issue a decision requiring the termination of an infringement of Article 101 and/or 102 TFEU, it may render binding the commitments proposed by the undertakings on their own initiative, provided that they are appropriate and sufficient to address the concerns identified in the Commission's preliminary assessment (Alrosa Case - C-441/07 P; Hjelle, 2019) and restore competitive balance in the market.

Although commonly used during the ex-ante control of mergers, the mechanism of commitments is particularly relevant in the application of Article 101, and especially of Article 102 TFEU. In addition to expediting the procedure and saving administrative resources, this mechanism offers considerable advantages to the undertakings concerned (Academic OUP, 2024; MEMO/13/189, FAQ 2013). Given that there will be a preliminary assessment and maybe a market test, the undertakings may avoid thorough investigation and fines, a formal finding of anti-competitive conduct, as well as adverse publicity, since the Commission does not issue a formal infringement decision under Article 7 of Regulation 1/2003 (Case C-441/07 P, Alrosa; Stones, 2019).

In any event, the acceptance of commitments by the Commission does not mean that ascertainment of infringement. In this context, the national competition authorities and courts of the Member States, still have the powers of to make a finding and adjudicate on the Case, of course under the prism of Article 16 of Reg. (EU) 1/2003, which gives them the space to investigate the Case, but not to issue a Decision, against the relevant decision of Commission (see Gasorba Case - C-547/16; Olovsson, 2017).

Commitments become binding through the Article 9 decision, which includes the key elements of the preliminary assessment and the full text of the commitments, concluding that no further action by the Commission is necessary (Groupe Canal Case -C-132/19 P;

Stones, 2019). The Commission may, under the threat of financial penalties, compel undertakings to comply with their commitments. In case of failure to fulfil a binding commitment under Article 9, an autonomous infringement is established, which may result in the imposition of fines under Art. 23(2)(c) and penalties payments under 24(1)(c) of Reg. (EU) 1/2003. In liberalized energy markets, the use of the commitment's procedure is a common practice of the Commission and becomes especially significant in the context of exclusionary abuses under Article 102 TFEU (Shaburova, 2019 ; OECD, 2022).

6.2.5 Long-term contracts (LTCs): security-of-supply vs foreclosure

In the energy market, long-term contracts play a crucial role, regarding the maintaining of Competition's balance between the undertakings, as their function can either be efficient for the investment facilitation and price stability or distortive to competition, to the extent that they effectively seal off the market as all these emerge through the EMD 2024 - Reg. (EU) 2024/1747 for electricity and the Dir. (EU) 2024/1788 for gas (EU Commission 2007; Energy sector inquiry - Final Report; Rimsaitė, 2013 ; EMD 2024 ; Dir. (EU) 2024/1788). These contracts are a common practice both upstream and downstream and consist of bilateral agreements between buyer and seller with durations ranging from 15 to 30 years. They entail mutual obligations for the involved parties. At the outset, it should be noted that long-term contracts positively impact market stability, contribute to the containment of final prices, and maintain a smooth relationship between buyer and supplier, assisting in the fair distribution of risks faced by the two contracting parties (Rimsaitė, 2013).

In a market highly dependent on external suppliers, long-term contracts have been inextricably linked with the fundamental goal of security of supply and the assurance of continuous delivery at prices acceptable and foreseeable by the contracting parties. Without such contracts, buyers would be exposed to price fluctuations, while suppliers would be discouraged from making investments, which in the energy markets often involve sunk costs and are difficult to amortize (Rimšaitė, 2013; Chyong et al., 2021).

In this sense, long-term contracts serve as a modus operandi for volatile (due to the changing regulatory framework) and multi-year investments (Chyong et al., 2021). They

function as a tool for avoiding the hold-up phenomenon and for reducing transaction costs, such as the costs of negotiation, execution, or renegotiation of the contract. In practice, what usually occurs in long-term contracts, especially in the supply of natural gas and electricity, is the inclusion of a take or pay clause (EU Commission 2007; Energy sector inquiry - Final Report; Rimsaitė, 2013). However, the assessment of these clauses is something, that is examined, in accordance with al terms of the Agreement and not per se (Thorrud, 2012).

In this way, the demand risk is transferred to the buyer, who is required to pay regardless of their actual needs, thereby securing a steady revenue stream for the seller and enabling the seller to structure the financial framework of their project. Simultaneously, the seller assumes the price risk by providing the buyer with the possibility of price revision, making resale in the downstream market feasible (Academic OUP, 2024). Thus, both parties are secured: the seller is protected from excessively low sales prices and the absence of demand, while the buyer is safeguarded against excessively high prices and the lack of a stable supply in the free market, addressing, to some extent, the problem of inflexibility that characterizes long-term contracts (Academic OUP, 2024 ; Gürkaynak, 2016). In any case, as it was indicated through the Gazprom Case (Case AT.39816 – Gazprom, Commitments), suitable revocation clauses, such as removal of territorial restrictions and prices revision, can reduce the foreclosure either it has to do with undertakings or consumers (Shaburova, 2019; Chyong et al., 2021).

As a cornerstone of energy investments, long-term contracts are not prohibited a priori. However, the Commission, as will be further demonstrated, in an attempt to conciliate competition rules with security of supply, establishes a framework to examine potential negative impacts on competition. One such impact is the foreclosure of the market, which arises when a large portion of demand remains committed long-term, preventing customers from benefiting in the future from offers by new entrants and undermining the right to freely choose a supplier, a right established by liberalization Directives (EU Commission 2007; Energy sector inquiry - Final Report; Rimsaitė, 2013). It is noted, however, that such contracts were evaluated by the Commission as a whole, without specific reference to the embedded take or pay clauses. Duration, price review and revocation clauses, resale rights are aspects that, are all examined by the Commission, as it was shown in the Distrigas Case

- COMP/B-1/37966, where it was decided that the duration and volume, lead to foreclosure of switching, finally accepting Commitments.

Given all the above, the evaluation of LTC in the context of Energy Sector, which is taking place under the prism of Article 102 and the relevant targeting - by the EU Commission - i.e. effect based with some deviation in specific practices - as this was indicated above, with the analysis of the relevant provisions of EU's Papers Guidance 2009 (OJ C 45/7), Amendment 2023 (OJ C 116/1) and Draft Guidelines 2024, which are yet to be officially adopted (Draft Guidelines 2024 ; Giorgio Monti, 2024).

6.3. Selected Case Law in the EU and Greece: Illustrating the Models of Abuse

The framework that preceded in Section 6.2 reflects the toolbox, under which, both the European Commission and national competition authorities have extensively utilized Article 102 TFEU to curb anticompetitive behaviors by dominant players in the energy sector. A series of emblematic decisions over the past two decades reveal the evolving approach of regulators and reflect theories of harm - such as vertical foreclosure, discriminatory access, and artificial scarcity - identified through literature and of course EU Commission' s Papers, regarding the enforcement of Article 102 (EU Commission 2007, Energy sector inquiry - Final Report).

Specifically, as it will be shown below, through selected Case Law, these theories are not separate institutional legal categories, such as e.g., exclusive dealing or margin squeeze, but they operate as sectoral umbrellas, under which the classic categories of abuse are manifested. Indicatively: a**.** vertical foreclosure manifests via control of infrastructure/resources - i.e. refusal or obstruction, capacity hoarding, margin squeeze, b. discriminatory or unequal access via terms, prices, deadlines, functional requirements, that deter entry and c. artificial scarcity via scarcity - i.e. engineered withdrawal or delay, underinvestment, withholding.

In this context, the following selected Case Law are mainly related to upstream level, while in downstream filed, there are respective practices, such as loyalty and fidelity rebates (see 6.2.2), that could lead to foreclosure results (The EC's Draft Guidelines on the

application of Article 102 TFEU Response by RBB Economics to the EC consultation 2024). Specifically:

i. Vertical Foreclosure: refusal/restriction of network access & margin squeeze

A landmark example is the RWE Gas Foreclosure case in Germany, where Commission's preliminary assessment conclude to strong indications, that RWE had exploited its dominant position in gas transmission, by limiting competitor access to its pipeline network. This vertical foreclosure was resolved through a structural commitments, under Article 9 of Reg. (EU) 1/2003, as RWE agreed to divest its entire gas transmission business, thereby ensuring independent and nondiscriminatory network access (RWE Gas Foreclosure Case - COMP/39.402 ; European Commission, 2009a).

ii. Vertical / input foreclosure Capacity hoarding, Capacity degradation & Strategic Underinvestment:

Similarly, ENI came under investigation for practices that included capacity hoarding on strategic cross-border gas pipelines - interconnectors TAG, TENP and Transitgas and deliberate underinvestment aimed at obstructing third-party access. To address these concerns, the Commission accepted commitments from ENI involving the divestiture of its holdings in the TAG, TENP, and Transitgas pipelines. This remedy was designed to dismantle potential foreclosure scenarios and enhance infrastructure neutrality (ENI Case - COMP/39.315, European Commission, 2010).

iii. Artificial Scarcity: Capacity withdrawal & Discriminatory access:

In the cases of E.ON, enforcement action addressed both vertical foreclosure and artificial scarcity. The Commission suspected E.ON of withdrawing electricity generation from the market to manipulate wholesale prices and of denying fair access to its transmission grid, given the vertical integration with the TSO. In response, E.ON offered structural remedies, including the sale of generation assets and the separation of its transmission system operator, opting for divestment over financial penalties, closing in that way both cases, regarding the wholesale and balancing market. (E.ON Cases - COMP/39.388 & 39.389; European Commission, 2008).

iv. Discriminatory access: Discriminatory trading conditions:

In OPCOM Case, Commission dealt with discriminatory access, i.e. the situation, where a dominant operator, while nominally allowing third-party entry, imposes terms that are unfair or unequal. This may take the form of differentiated pricing, unreasonable delays, or overly complex operational requirements that functionally obstruct access. In this Case, the Commission found that Romania's electricity exchange abused its dominant position, by requiring foreign traders to establish a legal presence within the country - by requiring Romanian VAT and establish, Business Premises in the Country as a requirement for their participation in Day-Ahead and Intraday Markets - thereby deterring cross-border competition (European Commission, OPCOM Case AT.39984-2014).

v. Vertical Foreclosure: Territorial restrictions (market partitioning) & Unfair pricing:

The Gazprom case illustrated a hybrid form of abuse combining exclusionary and exploitative conduct, even though Commission expressed concerns and not definitive judgments, regarding Article's 102 infringements. Specifically, the company's long-term gas supply contracts contained destination clauses that restricted cross-border resale and imposed pricing disparities between Member States. The Commission's investigation led to a set of commitments in 2018, under Article 9 of Reg (EU) 1/2003: Gazprom agreed to eliminate territorial clauses - restrictions, introduce price review mechanisms and restructure contractual terms (hub prices - flexibility on delivery points), to enhance market integration, (Gazprom Case - Case AT.39816 ; European Commission, 2018).

vi. Vertical Foreclosure: Input foreclosure:

In Greece, several notable cases have involved the Public Power Corporation (PPC/ΔΕΗ), particularly concerning its privileged access to lignite. Back in 2008, the European Commission found that the state's exclusive allocation of lignite resources to PPC, infringed Article 106(1) TFEU in conjunction with Article 102 TFEU, as it conferred disproportionate market power in favor of PPC. In this Context after a long sequence of decisions either from Commission under Article 106 (3) – remedies and revised package - or from General Court of EU and its Court of Justice, regarding examination of appeals and

validation of Decisions, we ended up back in 2021, where in order to address this distortion, Commission issued a new Decision under Article 106 (3). According to this Decision, PPC is obliged to be a net seller in forward products in HENEx/EEX, in order for the Competitors to have long term access in wholesale level, at fixed prices, something that counterpoise PPC's lignite advantage. (OJ C 93/3, 15.4.2008 ; GC T-169/08 RENV & T-421/09 RENV, 15.12.2016; European Commission, 2021).

vii. Vertical Foreclosure: through Input foreclosure & Tying / Bundling:

Another Greek case, concerned the gas incumbent DEPA, whose control over import contracts raised concerns of input foreclosure. In agreement with the Hellenic Competition Commission (HCC), DEPA implemented a Gas Release Program, offering regular auctions of its contracted volumes, suitable termination clauses and access to LNG terminal slots and to enhance liquidity and support new market entrants (DEPA 551/VII/2012).

viii. Discriminatory Access: discriminatory treatment and pricing conditions:

Further scrutiny was applied to PPC's dealings with Aluminium of Greece, where the HCC examined allegations of contract abuse and discriminatory pricing. The investigation culminated in commitments decision under which, PPC was obliged to uphold non-discriminatory access to high-voltage supply, effectively, resolving the issue without formal sanctions (PPC - Aluminium 621/2015 ; HCC 2015).

Across these diverse examples, a recurring pattern emerges dominant firms have leveraged infrastructure control, access asymmetries, and strategic withholding practices to entrench their market power. Enforcement authorities have responded with a spectrum of remedies - ranging from structural separation and asset divestment to behavioral commitments - all aimed at restoring effective competition and advancing the goals of energy market liberalization.

6.4 Emerging Trends and Digital Challenges in Abuse of Dominance (2020 - 2025)

In recent years, the scope of Article 102 TFEU enforcement in the energy sector has expanded significantly due to transformative changes in the market landscape, most notably

the EU's green transition, increasing digitalization, and greater sensitivity to issues of infrastructure and data access. These developments have altered both the conception of market dominance and the mechanisms through which exclusionary conduct may occur. One of the most notable shifts involves the alignment of abuse enforcement with climate policy objectives. A prominent case emerged in 2021, when the European Commission initiated an investigation into Public Power Corporation (PPC) in Greece. The Commission examined under Article 102, whether PPC had strategically deployed its lignite-fired units to bid electricity below market cost in the wholesale market, thereby undercutting gas-based and renewable energy producers. This behavior raised concerns about predatory pricing aimed at distorting competition in energy production field and suppressing investment in cleaner technologies. Although the Commission has not yet delivered a final decision, the investigation signals a willingness to treat environmentally regressive exclusionary strategies as a form of aggravated abuse under Article 102 (European Commission, Case AT.40278 – PPC, IP/21/1205).

A second emerging trend concerns the control of digital infrastructure and data. As utilities modernize their operations - introducing smart meters, digital interfaces, and customer flexibility services - access to granular consumer data and the understanding of their behavior become a key source of competitive leverage. In the ENEL/SEN case, Italy's competition authority (AGCM) concluded that Enel's retail subsidiary had violated Article 102 - through discriminatory practices - gaining in that way, preferential access to customer data through its regulated affiliate, allowing it to obstruct consumer switching via targeted retention strategies. The authority treated this as an abuse of dominance, emphasizing that data access under regulated public service obligations must be provided on non-discriminatory terms. This case, even though the Superior Court of Italy (Consiglio di Stato) annulled the AGCM's decision, after relevant preliminary question in CJEU, has reignited debate over whether such data could be addressed as an "essential facility", under EU competition law (AGCM, ENEL/SEN Case - A511).

The evolution of energy markets toward digital platforms has also introduced new risks of exclusion. Local flexibility markets and intraday trading platforms - critical for balancing intermittent renewable generation - are increasingly operated by dominant entities.

Concerns over potential foreclosure were central to the Commission's investigation into EPEX Spot SE, which raised questions about technical restrictions and contractual barriers, that may limit rival access or prevent aggregator participation in intraday market iliquidity. Though the case was eventually closed without formal action, it underscored the potential for dominance in trading infrastructure to distort both market competition and energy transition pathways (European Commission, EPEX Spot SE Case - IP/21/1523).

Moreover, judicial scrutiny has influenced the evidentiary thresholds for enforcing Article 102 in the energy domain. In the case against Bulgarian Energy Holding (BEH), the Commission had previously found that the company had unlawfully refused access to key gas transmission networks - i.e. pipeline & storage. However, in 2023, the General Court annulled the Commission's decision, citing deficiencies in demonstrating actual anticompetitive effects and procedural safeguards. This ruling reaffirmed that even in sectors with inherent structural constraints, such as energy sector, enforcement must be underpinned by rigorous analysis and procedural integrity, that justify the claims of anticompetitive practices (EU Commission - AT. 39849 - BEH C (2018) Case 8806; OJ C 121/06, 1.4.2019; General Court, Case T-136/19).

An additional dimension of recent enforcement is the convergence of abuse of dominance with market manipulation, particularly in short-term energy trading environments. In its 2024 annual report on the Regulation on Wholesale Energy Market Integrity and Transparency (REMIT), the EU Agency for the Cooperation of Energy Regulators (ACER) noted a significant expansion of enforcement priorities. Beyond traditional price manipulation, ACER now systemize forms of dominance-based conduct - such as systematic withholding of capacity or preferential treatment of affiliated entities in balancing markets - within the scope of market abuse. The report highlighted that such practices, when linked to structural market power, warrant parallel enforcement under REMIT II, especially regarding market abuse, capacity withholding and preferential access to balancing services (ACER, 2024).

These developments collectively point to a future in which abuse of dominance in energy markets is not only defined by legacy infrastructure control but also by emerging

practices linked to data monopolies, strategic sustainability-related manipulation, and the architecture of digital platforms. The intersection of competition law with environmental and technological regulation will likely become more pronounced, requiring adaptive enforcement models and increased coordination across regulatory bodies.

6.5. Main Points - Strategic Use of Article 102 TFEU to Safeguard Energy Market Integrity

The abusive conduct within the energy sector continues to represent a critical and dynamic area of concern for both EU-level and national competition enforcement authorities. Although the traditional analytical pillars - vertical foreclosure, discriminatory access, and artificial scarcity - still underpin the majority of cases, the application of Article 102 TFEU has significantly evolved over the past decade and a half in both breadth and depth (2009 Guidance - OJ C 45/7; Amendment 2023 - OJ C 116/1; 2024 Draft Guidelines on exclusionary abuses). The first half of the 2010s was marked by a robust phase of enforcement, during which major energy incumbents such as RWE, and E.ON, faced far-reaching structural remedies (Wilmerhale, 2015/2019). These included the mandatory divestment of key assets and the unbundling of vertically integrated operations, resulting in a substantial reconfiguration of competitive conditions and furthering the liberalization agenda across Member States (European Parliament, Competition Policy and an Internal Energy Market, 2017).

In the Greek context, targeted interventions regarding the State itself and PPC (lignite measures under Art. 106 and 102 TFEU) (Commission Decision, Case AT.38700 – Greek lignite and electricity markets; Judgment C-553/12 P) and DEPA (HCC Commitments), addressed entrenched forms of dominance and infrastructure control (HCC, Decision 551/2012 - DEPA Commitments ; OECD Annual Report on Competition Policy Developments - Greece 2018). Through commitments such as net seller forward products obligation and gas release schemes, these measures supported new entry, improved wholesale market liquidity, and laid the foundations for competition in segments previously defined by monopoly conditions (Case AT.38700 - Greek lignite and electricity markets; HCC, Decision 551/2012 - DEPA Commitments ; The application of EU competition law in the energy sector, NTUA 2018).

Since 2020, competition policy has entered a phase of conceptual expansion. The growing convergence between competition enforcement and climate objectives - epitomized by the PPC lignite case (Case AT.38700 - Greek lignite and electricity markets ; Mantzaris, 2024), with the relevant lignite measures and sectoral reforms - signals a shift in focus: dominance is now assessed not only in terms of structural market power, but also its broader implications for sustainability, decarbonization, and long-term consumer benefit. At the same time, the rise of digitalization and data-driven business models has introduced new avenues of exclusion, prompting regulators to adapt existing doctrines to account for informational asymmetries and platform-based gatekeeping (REMIT II - Reg. 2024/1106; Data Act - Reg. 2023/2854).

Notably, energy abuse cases embody a dual mandate. They serve to protect the competitive integrity of liberalized markets, while simultaneously ensuring that essential energy services remain accessible and non-discriminatory. Respectively the sectoral rules, such as REMIT II, are applied in parallel, without prejudice to the enforcement of Article 102 (Berceanu, 2025). In this context, Article 102 TFEU functions as a balancing mechanism between market dynamics and the public interest, particularly in systems where energy supply intersects with fundamental social and environmental goals (European Parliament, 2017).

Looking ahead, enforcement strategies will need to become more integrated, incorporating considerations that extend beyond immediate market effects to include systemic outcomes - such as grid efficiency, renewable integration, and data governance [see Data Act - Reg. 2023/2854). The evidence presented in this chapter illustrates that competition law, and particularly the doctrine of abuse of dominance, must evolve in parallel with shifts in market structure, regulatory frameworks, and technological innovation. Only through such adaptive enforcement can the EU maintain a competitive, open, and forward-looking energy sector (Chiarella, 2024).

Chapter 7: Greek Institutional Response to Energy Market Liberalization (1998 - 2025)

7.1 Introduction

The liberalization of the Greek energy market, within the framework of European integration and Community law, started from the early 2000s, where Greece has been oriented towards the integration of the European Directives for the internal market in electricity and natural gas, laying the foundations for the transition from a state monopoly to a competitive, institutionally supervised system. This process has not been linear or seamless, as it has encountered institutional, political and technical obstacles that required continuous adjustments.

The creation of an independent regulatory authority, the Regulatory Authority for Energy (RAE, now RAAEY), has been a crucial turning point for the transition from administrative control to independent supervision, as this Authority took over the role to secure transparency and equal access, both to networks and to markets. At the same time, the institutional separation of production, transmission and supply activities gradually progressed, based on the European unbundling model. In this context, an important step was also the establishment of the Independent Transmission Operator of Electricity (IPTO), as well as the National Gas System Operator (DESFA), which undertook the operation of critical infrastructures under regulatory conditions of transparency and impartiality.

The liberalization of the retail electricity market has been one of the most complex institutional experiments, given the historical monopoly of PPC and the dependence of consumers on regulated prices. However, this path was strongly influenced by external shocks, such as the energy crisis of 2021 - 2022 and the regulatory adjustments it imposed. Greece’s institutional response was not limited to compliance with EU requirements, but gradually acquired characteristics of a national strategy, adopting policies, around energy transition and social impact.

In general, the period 2020 - 2025 marks a new phase of institutional maturation, with the consolidation of regulatory responsibilities under the National Energy Regulatory

Authority - i.e. RAAEY, the strengthening of supervision in the gas and water markets, and the digitalization of supervisory tools

7.2 The Energy Regulator (RAAEY) in Greece

The Regulatory Authority for Energy, Waste and Water (RAAEY), formerly the Energy Regulatory Authority (RAE), is a significant institutional pillar for the supervision and regulation of the energy market in Greece. Its creation in 1999 under Law 2773/1999, following the implementation of the first European Directive 96/92/EC, marked the beginning of an independent regulatory function, separated from government management. The role of the Authority has gradually evolved to ensure the smooth functioning of the electricity and natural gas markets, equal access of participants to networks and services, and the protection of consumers, especially in times of crisis or distortion.

The Law No. 4001/2011 guaranteed the independence of RAAEY both institutionally and operationally, following the guidelines of the Third European Energy Package. The Authority has decisive powers in the control of tariffs, the licensing of new entities, the supervision of Network Operators (IPTO, HEDNO, DESFA), as well as in assisting with reports of violations of the legislation on free competition in the energy sector. Its transition from RAE to RAAEY in 2023, under L. 5037/2023, entailed multi-sectoral supervision with additional responsibilities in the water and waste sectors. (L. 4001/2011; L.5037/2023)

RAAEY also plays an important role in the development of a strategy for the energy transition, the implementation of the target model and the monitoring of competitive market mechanisms (e.g. Energy Exchange, day-ahead markets, balancing market). In addition, the Authority exercises regulatory supervision over the investment plans of the Operators, assesses projects of European interest (PCI and PMI) and coordinates actions with other EU regulatory authorities through ACER and CEER. Its contribution to monitoring shortages, transparency and security of supply is crucial, especially in periods of high energy instability, such as the one that followed the energy crisis of 2021 - 2022 (RAAEY - National Reports 2021 -2023).

Finally, the RAAEY is called upon to operate in a constantly evolving environment, where achieving the triple objective - competitiveness, security and sustainability - requires preventive regulation, technocratic competence and transparent procedures. The challenges it faces include both the balancing between investment security and consumer protection, and the need to control complex forms of market power, that are now related to data, smart metering and decentralized production. The effectiveness of the Authority depends to a large extent on its ability to maintain a high level of independence and expertise, in a market that is not only liberalized, but also technologically demanding.

7.3 Structural Reforms: Public Power Corporation (PPC) and Public Gas Corporation of Greece (DEPA)

The Public Power Corporation (PPC) was at the center of the Greek structural energy reforms, aimed at reducing its market share and strengthening competition. In the context of adapting to the European institutional framework, PPC was forced to gradually separate its generation, transmission and distribution activities, resulting in the establishment of subsidiaries - such as IPTO (ΑΔΜΗΕ - ADMIE) for the electricity transmission system and HEDNO (ΔΕΔΔΗΕ - DEDDIE) for the Distribution Network Operator (Greek Laws 4001/2011 for IPTO and HEDNO - 4389/2016 for IPTO's unbundling ; RAAEY, 2023). This change was the one of the first significant changes in the structure of the Greek energy market, being agreeable in that way, with the EU Dir. 2009/72, which had already set the preconditions for the unbundling procedure.

In the context of the energy legislative framework - i.e. the 3rd Energy package - PPC was required to implement the ownership unbundling procedure of IPTO – ΑΔΜΗΕ/ADMIE, a procedure which was completed under the L. 4389/2016. In this context PPC, procced to divestments in strategic private investors, something that strengthened the entry of private producers and achieved a significant reduction in its market share. (Greek Laws 4001/2011 and 4389/2016). The result was that PPC went from a pure monopoly to a company, wich still holds its dominant position but operates in the context of competitive wholesale energy market. (IEA, 2023). In fact, the entry of alternative providers into the retail market was strengthened, with PPC's share falling 62,4% in 2022, 56,5% in 2023, while new players such as Watt+Volt and Heron gaining ground, which led to increased

consumer mobility and more competitive prices (RAEY National report 2023 ; PPC FY2023 Financial Report /Press Release 9.4.2024).

DEPA, once a state monopolist in natural gas, also underwent structural changes. In 2020, following the adoption of Law No 4602/2019, as it was amended by Law 4643/2019, the company was separated into DEPA Infrastructure - for distribution networks - DEPA Commercial, which now operates in the main energy space with a competitive nature and DEPA International Projects S.A., for cross-border gas infrastructure projects, a procedure, that was completed back in 2020. (DEPA, 2020 ; IEA, 2023). Noted herein, that the sale of DEPA Infrastructure to Italgas was completed on 1.9.2022 (HRADF). This change resulted from the need for alignment with the unbundling requirements and the promotion of Competition in the EU context (Greek Laws 4602/2019 and 4643/2019 ; Dir. (EU) 2009/72 - 73).

The result was that private players such as ELPEDISON, MYTILINEOS and MOTOR OIL increased their share in the relevant wholesale market, while DEPA Commercial is in no longer considered a monopoly power (National Report RAAEY 2022). The change increased competitiveness and displaced the state monopoly. After the reform, DEPA Commercial signed strategic agreements, such as the creation of a new power generation unit in Larissa worth €600 million (Reuters, 2025).

Electricity and natural gas infrastructures were significantly improved. In cooperation with the European Union, Greece completed projects compatible with the Target Model (cross-border day-ahead market). The connection with Bulgaria in 2021 and the upgrade of the interconnection with Italy in 2020, strengthened cross-border liquidity (HEnEx, 2021; RAAEY, 2023), while Lignite plants such as Amyntaio and Megalopolis have been retired or are in the process of being closed, in the context of delignification. (Global Legal Insights 2025). Changes in the regulatory framework were decisive. Law 4425/2016, as amended by Law 4512/2018, introduced the “Target Model” and regulations for the creation of the Greek Energy Exchange Market (HEnEx), followed by specialized regulations for the forward market, intraday and balancing (Laws 4425/2016 and 4512/2018; RAAEY, 2023). These measures aimed to strengthened the transparency and functionality of the market.

The strategy of de-monopoly also provided for state aid, such as the social tariff mechanism. RAE secure the implementation of State's decision to establish and legalize a transparent subsidy process with competitive criteria, so as not to affect competition (National Report 2021). These measures aimed to strengthen the social dimension without distortion. State interventions also included the modernization of RES licensing. Law 4685/2020 simplified the process of issuing production facilities, replacing outdated schemes with an automated approach, in line with EU regulations, something that laid the foundations for relevant investments (CEER/RAAEY, National Reports 2019 - 2023).

The completion of projects such as the FSRU in Alexandroupoli, which is in operation from 2024, demonstrates the commitment to state projects with a competitive dimension and third-party access (National Report 2023 ; Gastrade, 2024). A general assessment is that the reforms have had a significant positive impact. However, the IEA (2023) estimates that, despite the fact that both the natural gas and electricity markets have seen increased entry and improved price transparency, the energy poverty continues to worry, as the relevant indicators are still in high levels.

The above institutional - legislative reforms are strongly related to the competition context and the relevant interventions - compliance policies, both in national and European Level. In fact these reforms do not simply constitute political manifestations, but they secure in practice the implementation of Article's 102 provisions against anticompetitive behaviors, as these conducts have been specialized through EU's DG COMP and Courts practices, over the years.

7.4 The Competition Authority (HCC) - Powers and Energy Sector Enforcement

The Hellenic Competition Commission (HCC) is the independent administrative authority responsible for the enforcement of competition rules in the Greek territory, with the exception of electronic communications and postal markets, where EETT is competent. Its institutional mission includes the monitoring and suppression of abusive practices by undertakings holding a dominant position, the control of anti-competitive agreements and the provision of opinions on mergers. The HCC has investigative, sanctioning and regulatory powers, as well as the ability to intervene both ex officio and following a complaint. The

current legislation and specifically the Law 3959/2011 in accordance with Reg. (EU) 1/2003, allows it to directly apply European competition law, including Articles 101 and 102 TFEU, as it is already mentioned above.

In the energy sector, the Competition Commission's action focuses on ensuring equal access to critical markets and infrastructure. Its interventions against companies with historical monopoly power, such as PPC and DEPA, have been particularly important. For example, the case of PPC's alleged abusive behavior towards Aluminum of Greece, where the abrupt termination of high-voltage contracts was examined, was addressed with binding proposals - under Article 2 L. 3959/2011 and 102 TFUE - to restore non-discriminatory treatment. (621/2015 HCC). Accordingly, DEPA's Gas Release Program emerged following the intervention of the Competition Commission, in order to enhance the liquidity of the wholesale natural gas market through auctions aimed at new suppliers. Of course, in 2020, the HHC issued the n. 723/2020 decision, based on which the Gas Relese Programm is not mandatory for DEPA Commercial (RAE - National Report 2018 ; HCC - Decision 551/2012; DEPA).

The HCC works closely with European institutions, such as DG COMP, and with national regulatory authorities (NRAs), to identify complex anti-competitive practices that sometimes involve technical or institutional asymmetries. Integrating energy parameters into general competition law enforcement methodologies is now necessary, as new markets (such as flexibility markets, platform procurement or consumer data management) create new areas of potential dominance. The Commission must adapt its priorities to reflect technological and regulatory developments, while maintaining its fundamental role as a guarantor of the sound functioning of markets.

7.5 EU Compliance and Case Law - DEPA and PPC

Greece’s compliance with EU competition law in the energy sector has been gradual and influenced by the structural specificities of the market. The European Commission has repeatedly identified incompatibilities in the practices of state-owned enterprises, notably PPC and DEPA, in particular with regard to exclusive access to critical resources and the formulation of distorted pricing conditions. These practices, although historically part of the

public service framework, have been found to be incompatible with the objectives of Article 102 - 106 TFEU and the objectives of Directives 2009/72/EC and 2009/73/EC, which require the opening of the market and the avoidance of abuse of a dominant position.

As it was already mentioned, in the case of DEPA, the HHC intervened - by accepting binding commitments - to force the release of natural gas quantities through the so-called Gas Release Program. (HCC - Decision 551/2012). This mechanism aimed to facilitate the entry of new participants into the wholesale market, which until then had remained essentially closed due to the exclusive import contracts held by DEPA. Despite the fact, that this measure in no longer active, its implementation constitutes a typical example of compliance with the EU guidelines on anti-competitive conduct and the restoration of the functioning of the market by means that are not punitive but corrective.

Even more emblematic was the case of PPC and its exclusive control over the country's lignite reserves. In 2008, the European Commission ruled that the transfer by the Greek State of almost lignite resources (about 91%) to PPC constituted a violation of Article 106(1) TFEU in conjunction with Article 102, as it gave it a disproportionate advantage in energy production. After many years of consultations and pending legal proceedings, as it was analyzed in previous chapter, PPC was obliged to be a net seller in forward products in HENEx/EEX, in order for the Competitors to have long term access in wholesale level, under forward market conditions, something that ensure, that competitors can gain access on a level playing field. (CASE AT.38700 - Greek lignite - 10/09/2021; PPC)

Before the adoption of 2021 lignite commitments and specifically, in the context of compliance with Competition rules and EU Commission’s hints, Greece, tried to handle the matter of reduction of PPC’s share, introducing NOME (Nouvelle Organisation du Marché de l'Électricité) auctions through the establishment of Law No 4389/2016. This initiative was in fact a remedy mechanism, which aimed to enhance competitive entry into the wholesale market and improve the liquidity of the HEnEx platform (RAE, National Report 2019, European Commission, 2021). Despite its initial success in reducing PPC’s share, the programme was terminated in 2019, through Law 4638/2019, as it was deemed not to ensure long-term competitive prices and functionality. However, it was an important practical

example of state intervention with a market-strategic nature, for the benefit of the internal market structure (Enhanced Surveillance Reports, 2019).

In any case, the above remedies (lignite commitments and NOME auctions) were followed by targeted structural policies, the most important of which, was the No. 4936/2022 Law - i.e. the first National Climate Law. This Law directly affects PPC's lignite-based dominance, as it sets a target for the definitive cessation of lignite production by 2028, with a parallel provision - under the prism of joint Ministerial Decision adopted until 31 December 2025 - for an earlier cut-off date, subject to adequacy and security-of-supply considerations.

In this context and specifically, given that the forementioned schedule is burdening traditional lignite regions such as Western Macedonia and Megalopolis (IEA, 2023), the delignification is accompanied by targeted support to the said areas. In particular, the European Investment Bank has already approved a EUR 325 million framework loan for investment projects and infrastructure upgrade programs in lignite regions, trying to ensure a just and fair transition (EIB, 2021; EIB 2025). Indeed, despite the drastic reduction of share of lignite in power generation, from 60% in 2005 to ~10% in 2021 - 23, the efficiency of the power generation system was improved, through the increase in natural gas and RES (IEA, 2023).

The above cases highlight that Greece's compliance with EU competition law has been more the result of continuous negotiation than direct harmonization. However, through these decisions, a precedent has gradually been established that has obliged the national legislator and public undertakings to align with the European approach to structural unbundling, preventing distortions and promoting equal access. This development is a crucial factor both for the deepening of the internal energy market and for Greece's credibility as a Member State bound by the principles of EU economic law.

The forementioned Cases are essentially of the most indicative examples, regarding the implementation of Article 102 in practice and specifically in Greek reality, demonstrating all the compliance mechanism, that not only secures the elimination of abusive practices, but leads to market reformation too.

7.6 Critical Challenges and Market Assessment in the Greek Energy Sector

The process of legislative harmonization of the Greek energy market with European law was characterized from the outset by delays, fragmentation and limited regulatory continuity. Although the main European Directives for the liberalization of the electricity and natural gas markets (96/92/EC, 2003/54/EC, 2009/72/EC and 2019/944/ EC, for electricity and 98/30/EC, 2003/55/EC, 2009/73/EC and 2019/692/EC for natural gas) were gradually incorporated into national law, their implementation was superficial or incomplete, particularly with regard to the practical separation of activities and the functional independence of key players. Many pieces of legislation were adopted with delays or during periods of political pressure, without sufficient public consultation or institutional stability.

One of the most critical legal obstacles has been the issue of unbundling, i.e. the separation of production, transmission and supply activities. While the necessary legislative provisions were established, in practice the operational independence of the operators (ADMIE, DESFA, DEDDIE) was undermined by delays in privatization (see 7.3), the maintenance of state control, and internal administrative dependencies. In addition, institutions such as RAE/RAAEY repeatedly faced limited funding, insufficient staffing, and an "unclear" regulatory framework of responsibilities, limiting their ability to impose effective regulation (IEA Greece 2023, Energy Policy Review).

Judicial developments at national and EU level highlighted the weaknesses of the Greek system in terms of law enforcement. Decisions by the European Commission and the Court of Justice of the EU in cases such as those of PPC, may enriched the Law Case regarding the Articles 102 and 106, but they highlighted the difficulties, regarding legal reasoning, evidence collection and the assessment of the consequences of state interventions in the market, while the slow delivery of justice in Greece, acted as additional obstacles to the effective implementation of competition in the energy sector.

These institutional and enforcement weaknesses were directly reflected in the actual structure and functioning of the market. Indeed, the internal electricity and natural gas market has continued for years to be characterized by high concentration and a limited number of active participants. State-owned entities, mainly PPC and DEPA, have continued

to maintain dominant positions, often under favorable terms. Even when corrective measures were adopted - such as NOME auctions or the gas release program – the results were not always sustainable. Competitors often faced uncertainty, price distortions and difficulty in accessing critical information or infrastructure, while consumers had limited real incentives to switch suppliers (CEER - National Report 2019).

The impact of the reforms on actually enhancing competition was limited, especially in the retail market. Despite the prospects for the development of a diverse supply landscape, relative few new providers managed to survive in the long term. Low consumer confidence, changing regulatory conditions and aggressive pricing by dominant players prevented the establishment of a mature competitive landscape. Moreover, the energy crisis of 2021 - 2022 highlighted the weaknesses of the existing model, in particular in terms of resilience and social fairness (HAEE 2022 - Greek Energy Market Report).

These limited competitive outcomes must also be assessed in light of the institutional capacity to supervise and enforce the liberalized market framework. In terms of institutional maturity, independent authorities such as the Hellenic Energy Regulatory Authority and the Competition Commission have gradually upgraded their functioning and legitimacy. However, supervisory and enforcement capabilities still lag behind the speed and complexity of markets, especially nowadays where the need for storage and flexibility infrastructure creates new relevant markets and new dominant positions. (Research shows that batteries and pumped storage projects can support RES, with a balance of cost and operational efficiency - Psarros & Papathanassiou, 2022). Controls for abuse of dominant position, compliance procedures and the ability to anticipate new forms of dominance - such as access to data or exclusivity on platforms - remain limited. The issue is not only technical, but also institutional: a stable regulatory environment and long-term political consistency are required.

Beyond institutional capacity and market design, the Greek experience also raises a broader normative question, regarding the relationship between competition and social protection. Indeed, energy reforms have never been socially neutral. The role of public undertakings, pricing mechanisms and measures to protect vulnerable consumers interact with market demands. Liberalization, as implemented, failed to guarantee social protection

and an efficient market, despite the provisions of EU law. This fundamental tension between competitiveness and social mission remains unresolved.

Overall, the record of reforms suggests a mix of institutional progress and practical inadequacy. The energy market in Greece today is more complex, technically structured and linked to the single European market. However, its competitiveness remains fragile, with dependencies on a few players, fluctuations in the regulatory framework and limited trust from users. Future interventions should focus not only on institutional compliance, but also on creating real conditions of healthy competition, with a positive impact on society and the energy transition.

Conclusions

The energy policy and competition law are two axes that are increasingly converging in the European institutional reality. The liberalization of the energy market in the EU developed through specific legislative packages, initiating since 1996 - 1998, was not simply a technical reform, but a complex undertaking that affected state-market relations, public undertakings and final consumers. The internal energy market was the field of application of fundamental principles of EU competition, including the prohibition of abuse of dominant position, the guarantee of equal and fair access to essential facilities and the prevention of unfair mergers.

The concept of energy as a natural monopoly, regarding the relevant networks and strategic product highlighted the importance of state control in the early stages of the development of energy markets. However, as technologies and institutions evolved, it became clear that maintaining monopolistic structures created systemic distortions, limiting the entry of new players and hindering innovation and efficiency. The transition from a state monopoly to a competitive market was an extremely difficult and politically sensitive process, containing the detection and arrangement of typical conducts of abuse suc as foreclosure and margin squeeze.

The interventions of the Directorate-General for Competition (DG COMP) were decisive in the application of the rules of Article 102 TFEU. With strategic tools such as commitments under Article 9 of Regulation 1/2003, the imposition of structural divestures or transparency obligations in contracts, the Commission shaped a new institutional practice. The cases of RWE, ENI, and Gazprom demonstrate that structural or behavioral intervention can lead to substantial results, with a lasting impact on the structure of the market.

The importance of consumers also emerged as a crucial factor in strengthening competition. Switching options, transparency in pricing and the avoidance of harmful incentives (such as loyalty rebates) are particularly important in a market where information and access asymmetries can operate exclusively. A regulatory approach that takes into account user behavior and the social impacts of competition is proving more sustainable. The case of Greece demonstrates the difficulties of transferring the European institutional

framework to an economy with a strong state presence, limited institutional capacity and traditional dependence on public enterprises. PPC and DEPA were for decades pillars of the national energy model, with privileged access to resources, infrastructure and customer bases. Removing these privileges required not only legal measures, but also political costs, social management and institutional persistence.

The Greek Regulatory Authority for Energy which established back in 1999 (N. 2773/1999) and the Competition Commission (N. 3959/2011**)**, have developed a regulatory and supervisory role with increasing effectiveness, especially over the last decade. However, they still face challenges regarding administrative autonomy, technical expertise and access to critical data. Effective supervision requires flexibility, timely analysis and regulatory consistency in a constantly evolving field. Institutional reforms, such as the target model and the energy exchange, have introduced new market rules, aiming to create competitive prices and interconnect national markets. However, experience has shown that institutional reform without a social and technological infrastructure can create new distortions, such as price volatility, abusive behavior or loss of control over price-setting mechanisms.

The recent energy crisis and the dependence on Russian natural gas have highlighted the risks of a competitive model that remains vulnerable to external shocks. Despite the market integration and diversification efforts, energy markets remain concentrated, politicized and sensitive to geopolitical developments. These developments make it necessary to review the competition framework alongside with specific sectoral design and relevant State Aid. The concept of sustainability, green transition and socially fair energy model is now dynamically entering competition law. The example of the investigation under Articles 106 and 102 of TFEU, of Greek State, which granted to PPC preferential and exclusive rights of access and exploitation of lignite deposits demonstrates that the abuse of a dominant position is no longer just an economic issue, but also a field with direct implications for market openness and energy transition.

New forms of sovereignty, particularly through data management, platforms and access to consumer information, introduce challenges for competition authorities. The use of informational advantages as exclusivity requires new legal tools and possibly an adaptation of existing theories of harm. Competition is no longer just about price and

volume, but also about information, forecasting and management. The existence of common cooperation frameworks between regulators and competition authorities emerges as a crucial mechanism for prevention and rapid response. This coordination is not simply technical, but deeply institutional, as it reflects the coherence between economic regulation and ensuring equal access for all participants.

The Greek experience of the liberalization of the energy market is instructive: reforms are never just a matter of legislation or political will. They are processes of institutional consolidation, social acceptance and administrative efficiency. Competition in energy is not imposed externally, but is built internally through conditions of trust, stability and accountability. The evaluation of the reforms to date shows mixed results. Substantial steps have been taken towards the integration of competition rules and the strengthening of transparency, but serious imbalances remain, especially in the distribution of benefits between producers and consumers. Systematic monitoring of markets, strengthening of accountability and the use of innovative tools (such as digital regulation) are considered essential.

In conclusion, the future of competitive energy in Europe and Greece depends on the ability of institutions to harmonize economic efficiency with the values of social justice and environmental sustainability. Energy is not only a commodity; it is a common good, and competition must function not only as a market mechanism, but also as an institutional guarantee of participation and fairness.

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