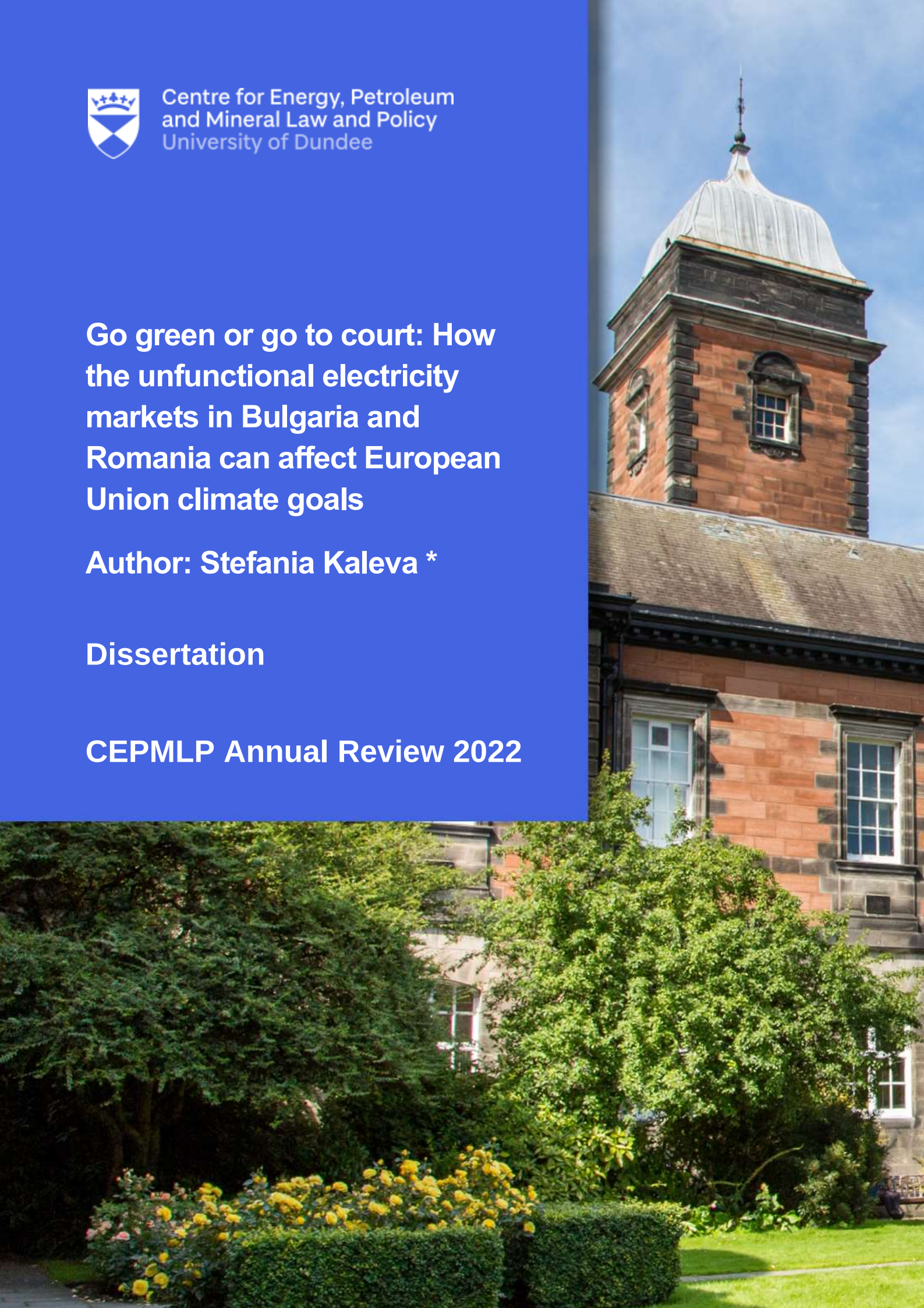
Centre for Energy, Petroleum
and Mineral Law and Policy
University of Dundee

Go green or go to court: How the unfunctional electricity markets in Bulgaria and Romania can affect European Union climate goals

Author: Stefania Kaleva *

Dissertation

CEPMLP Annual Review 2022



* Stefania Kaleva has an LLM in International Energy Law and Policy with distinction from the CEPMLP, the University of Dundee, in the United Kingdom. She also has an LLB in International Law and Policy from the the Hague University of Applied Sciences in the Netherlands. Since completing her studies, Stefania Kaleva has become an Energy Consultant in Brussels.

Acronyms

ACER	Agency for the Cooperation of Energy Regulators
ANRE	Autoritatea Naţională de Reglementare în domeniul Energiei
BEH	Bulgarian Energy Holding
CEF	Connecting Europe Facility
CEP	Clean Energy Package
DSO	Distribution System Operator
EEA	European Economic Area
EIB	European Investment Bank
ERSA	Energy from Renewable Sources Act
ESO	Electric System Operator
ESSF	Energy Security System Fund
ETSO-E	European Network for Transmission System Operator
EU	European Union
EU ETS	European Union Emissions Trading System
FiT	Feed-in-Tariff
GDP	Gross Domestic Product
GHG	Greenhouse Gas
IBEX	Independent Bulgarian Electricity Exchange
IEA	International Energy Agency
ISO	Independent System Operator
NDC	Nationally Determined Contributions
NECP	National Energy and Climate Plan
NEK	Natsionalna Elektricheska Kompania
NIS	National Institute of Statistics
NRRP	National Resilience and Recovery Plan
OEC	Oltenia Energy Complex
OPCOM	Operator Communication Manager
OMC	Open Method of Coordination
OTC	Over-the-counter
PCIs	Projects of Common Interest
PPA	Power Purchase Agreement
RAESBA	Renewable and Alternative Energy Sources and Biofuels Act
RES	Renewable Energy Sources
SEWRC	State Energy and Water Regulatory Commission
TFEU	Treaty on the Functioning of the European Union

TEN-E	Trans-European Networks Energy
TSO	Transmission System Operator
TYNDP	Ten Year Network Development Plans
UNFCCC	United Nations Framework Convention on Climate Change

Contents

Introduction

Since the 1980s, the European Union (EU) has made substantial progress towards the completion of its internal energy market, specifically with respect to electricity and natural gas. The key elements in this respect are 'Ownership Unbundling' and 'Third-Party Access' as set out in the EU's 2009 Third Energy Package, which had the objective of consolidating and liberalising the internal energy market in the EU. These legal instruments facilitate the liberalisation of the European electricity and gas markets by breaking up previously integrated energy companies and allow the introduction of competition in the wholesale market, where possible, and its gradual extension to the retail level. The liberalisation of the internal energy market is an important prerequisite for establishing a more competitive European electricity market, thus facilitating the growth of the renewable energy supply and consumption across the whole of the EU and further to the elimination of EU internal trade and other barriers that previously inhibited its European development.

This dissertation focuses on two specific EU Member States, namely Bulgaria and Romania. In its efforts to decarbonise its economy, the EU has implemented extensive legislation to meet its obligations under the Paris Agreement adopted in 2015 and mitigate the adverse effects of climate change and carbon dioxide (CO_2) emissions. Pursuant to achieving the goal of a climate-neutral Europe by 2050, as set out in the European Green Deal , a package a of policy initiatives, which aims to revise several pieces of EU climate legislation, the EU established the '2030 Climate and Energy Policy Framework' to guide European public policy development on climate and energy.

The 2030 Framework, which sets out three binding targets for 2030, has been recently replaced by the 'Fit-for-55' package, which contains a set of proposals to make the EU's climate, energy, land use, transport and taxation policies fit for reaching the European Green Deal's objective.[1] The package encompasses a suite of legislative initiatives across various sectors, including energy, transport and buildings, to reduce net greenhouse gas (GHG) emissions by at least 55% by 2030 compared to 1990 levels up from the target of cutting emissions by at least 40% by 2030 which had been agreed on in 2014.[2]

[1] Council of the European Union, 'Fit for 55' <https://www.consilium.europa.eu/en/policies/green-deal/fit-for-55-the-eu-plan-for-a-green-transition/ >
[2] Ibid (n.1)

The first step in achieving near-zero emissions by 2050 involves the creation of National Energy and Climate Plans (NECPs), relating to the period from 2021 to 2030. It comes as no surprise that according to the current (2021) versions of their NECPs, Bulgaria and Romania did not incorporate a coal-phase out plan that would achieve full phasing out of coal-fired thermal power by the end of that time window, i.e. 2030. In addition, the share of renewable energy in all forms of energy consumption for these two countries, again as per forecasted to 2030, is substantially below the 32% renewables target set out by the '2030 Climate and Energy Policy Framework', which following the introduction of the Fit for 55 package amount to 40% by 2030.

Although both Bulgaria and Romania have great potential for renewable energy production, particularly solar and wind power, countries in the southeast Europe, notably both Bulgaria and Romania, still substantially rely on thermal coal power generation, an economic activity that is becoming increasingly unprofitable.

The combination of financially dependent electricity sectors supported (subsidised) by the State and persisting problems relating to formally (but in fact, partially) liberalised electricity markets in Bulgaria and Romania, further deepens the gap between eastern and western European countries. This illustrates the inevitable 'delay' in relation to the transition to a climate-neutral economy vis-a-vis more developed countries of western Europe. Moreover, the short-term increase in electricity prices due to the revised carbon prices within the European Union Emissions Trading System (ETS) highlights the need to close fossil power plants before the end of their lifetime.[3] The key challenges from tightening the climate policy targets will be most likely be experienced in the current decade (i.e. the 2020s) given the ongoing online reliance upon substantial fossil fuel generation in downstream energy markets.[4] This is despite the pressing climate action imperative to close those fossil power plants before the end of their lifetime, and the earlier scale-up of wind and solar power in 2020–2030.

[3] Pietzcker et al., 'Tightening EU ETS targets in line with the European Green Deal: Impacts on the decarbonization of the EU power sector' (1 July 2021) 293 Applied Energy 10
[4] Ibid (n.1)

According to studies conducted by Ponce et al[5]., Marhold[6] and Dahlmann[7], the liberalisation of the EU internal electricity market reduces carbon dioxide emissions and encourage the use of a wide range of renewable energy sources. In the meantime, Glachant and Ruester [8] call for a realistic power market design that reflects the reality of the transition towards cleaner energy. The purpose of this paper is to contribute to the literature in the field of liberalisation and decarbonisation of the EU internal energy market by examining how the real-world shortcomings of, in theory the fully liberalised electricity markets in Bulgaria and Romania, can hinder the implementation of climate and energy policies therein required to meet EU climate targets.

To address this issue, an analytical legal methodology would be applied, meaning that Chapter 1 will examine the relevant EU energy legislation and identify the main objectives of energy law policies that place certain obligations on EU Member States. Moreover, Chapter 1 will discuss the main developments of EU climate law and its connection to energy law policies. Chapter 2 will focus on the implementation of the EU legislation in energy markets in Bulgaria and Romania, while the focus will be the liberalisation of the electricity sector and the impact of this process on the adoption of EU climate legislation. Chapter 3 will take the discussion a step further by analysing non-legal factors that can influence the progress of Bulgaria and Romania in achieving EU climate goals. The conclusion incorporates a discussion on possible outcomes based on the current situation in Bulgaria and Romania.

[5] Ponce et.al., 'The Liberalization of the Internal Energy Market in the European Union: Evidence of Its Influence on Reducing Environmental Pollution' [2020] 13(20) Directions and Mechanisms to Support the Development and Popularization of Renewable Energy Sources

[6] A-A Marhold, '*The Interplay Between Liberalization and Decarbonization in the European Internal Energy Market for Electricity: Energy Law and Economics'* (Springer International Publishing, 2018)

[7] F Dahlmann, 'Liberalisation vs. Decarbonisation: The Effects of EU Renewables and Internal Electricity Market Policies on the Evolution of Fuel mixes and market concentration rates' (n.d) British Institute of Energy Economics

[8] J-M Glachant and S Ruester, 'The EU internal electricity market: Done forever?' [2014] 31(1) Utilities Policy 221-228

1. Energy Policy of the European Union

1.1 The way towards liberalised markets

The first steps toward the unbundling of generation and supply activities from network operations in the EU were taken in the mid-1990s with the introduction, in 1996, of the first Directive on the internal electricity market. The EU's resulting First Energy Package, consisting of Directives 96/92/EC1 (The Electricity Directive)[9] and 98/30/EC2 (gas),[10] entered into force in 1997 and 1998 introduced common rules for the internal market. However, the Electricity Directive left much room for interpretation of the rules regarding the unbundling of management.[11] As a result, following the implementation of Directives 96/92/EC and 98/30/EC into national law, in early 2001, the European Commission (EC), namely the central executive and permanent civil service institution of the EU, has pointed out that 'the ultimate goal of non-discriminatory access to the network'[12] could not be fully accomplished on the basis of the existing unbundling rules' while the EU Parliament called for 'the implementation of ownership unbundling in the electricity sector'.[13]

To address this issue, the EU's Second Energy Package, consisting of Directives 2003/54/EC12 (electricity)[14] and 2003/55/EC (gas)[15] introduced requirements for 'legal' and 'functional' unbundling. While both the EU's First and the Second Electricity Directives advanced on the unbundling of the industry and the gradual opening of the national markets,

[9] Directive 96/92/EC of the European Parliament and of the Council concerning common rules for the internal market in electricity (19 December 1996) OJ 1997/L 27/20
[10] Directive 98/30/EC of the European Parliament and of the Council concerning common rules for the internal market in natural gas (22 June 1998) OJ 1998/L 204/1
[11] TM Dralle, '*The Unbundling and Unbundling-Related Measures in the EU Energy Sector: Ownership Unbundling and Related Measures in the EU Energy Sector*', (Springer International Publishing 2018) p.22
[12] European Commission, Proposal for a Directive of the European Parliament and of the Council amending Directives 96/92/EC and 98/30/EC concerning common rules for the internal market in electricity and natural gas (13 March 2001) COM(2001) 125 final, 31
[13] European Parliament, Position of the European Parliament adopted at first reading on 13 March 2002 with a view to the adoption of European Parliament and Council Directive 2002/.../EC amending Directive 96/92/EC concerning common rules for the internal market in electricity (13 March 2002) OJ 2003/C 47 E/351 359
[14] Directive 2003/54/EC of the European Parliament and of the Council concerning common rules for the internal market in electricity and repealing Directive 96/92/EC (26 June 2003) OJ 2003/L 176/37
[15] Directive 2003/55/EC of the European Parliament and of the Council concerning common rules for the internal market in natural gas and repealing Directive 98/30/EC (26 June 2003) OJ 2003/L 176/57

the 2003 Directive[16] has extended the scope of wholesale and retail competition by toughening regulation in the field of access to the networks.[17] The EU Second Energy Package has been mainly carried out by independent from the energy industry national regulatory authorities whose main responsibilities were to *inter alia* ensure 'non-discriminatory access to national power grids and approve tariffs for using the transmission and distribution networks'.[18] Moreover, and again quoting the EU Second Energy Package, 'industrial and domestic consumers were given the right to choose their own electricity and gas suppliers'.[19] Although the EU Second Energy Package made significant progress in reforming national electricity markets and the internalisation of ownership, additional measures were needed to establish a genuine single market in electricity with a functional cross-border wholesale market.

To cure the identified failings of the First and Second Energy Package, the "Third Internal Energy Market Package" in the form of an Electricity[20] and Gas Directive[21] (2009/72/EC and 2009/73/EC respectively) was adopted in 2009, which gave rise to the Third Internal Electricity Market Directive [2009/72/EC], the Network Access Regulation [(EC) 714/2009][22] and the establishment of the pan-European regulatory agency the Agency for the Cooperation of Energy Regulators (ACER) [(EC) 713/2009].[23] These legislative acts called for the effective unbundling of formerly vertically integrated electricity companies known as 'Ownership Unbundling' (OU), and increased transparency of retail markets, developing new organisations for regulating cross border electricity networks and national electricity markets as well as ensuring consumer protection. For instance, the main responsibility of ACER is to safeguard the effective coordination among national regulatory authorities[24] and decide on cross border issues. However, the role of ACER is limited in practice due to its substantive reliance on 'soft law' in the form of non-binding public policy (see below

[16] Ibid (n.13)
[17] M G Pollitt, '*The European Single Market in Electricity: An Economic Assessment'* (2019) Springer
[18] M Bonn & G Reizhert, 'The EU Internal Electricity Market Status and Outlook after the Reform' (2019) CEP p.4
[19]M Ciucci., A Keravec, 'Internal market' (May 2021) European Parliament available at <https://www.europarl.europa.eu/factsheets/en/sheet/45/internal-energy-market>
[20] Directive 2009/72/EC of the European Parliament and of the Council of 13 July 2009 on common rules for the internal market in electricity and repealing Directive 2003/54/EC [2009] OJ 2 211/55
[21] Directive 2009/73/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC [2009] OJ L 211
[22] Regulation (EC) No 714/2009 of the European Parliament and of the Council of 13 July 2009 Conditions for access to the network for cross-border exchanges in electricity [2009] OJ 1 211
[23]Establishing an Agency for the Cooperation of Energy Regulators [2009] OJ 2 211/1
[24] Ibid (n.24) Art. 1 (2)

discussion, e.g. section 1.2 below), rather than legally-binding law. In turn, thus hinders its capacity to address relevant cross-border issues and ensure oversight on the development of the internal energy market. Notably, ACER has decisional power only regarding technical issues and it is dependent on national regulators or the EU to issue more legally binding decisions.[25]

ACER also incorporates the establishment of the European Network for Transmission System Operators (ENTSO-E), which main goal is to ensure cooperation among all grid operators and the development of common commercial and technical codes also known as "network codes" and security standards in collaboration with ACER. Apart from the "network codes", ETSO-E has adopted the common strategic planning of the EU grid as a part of the "Ten Year Network Development Plans" (TYNDP).[26] Moreover, the EU's Third Electricity Directive sets the target of 2014 for the completion of a fully liberalised internal electricity market. However, unbundling and integrating of energy markets can impose further challenges such as lack of sufficient infrastructure investments in the European electricity market. Furthermore, the liberalisation of electricity markets exposes the need to reconsider the existing capacity remuneration mechanisms that the EU Member States have in place.

1.2 Climate policy of the European Union

Climate policy has been consistently one of the cornerstones of the EU policy ever since the Kyoto Protocol adopted in 1997. However, it was not until the EU Lisbon Treaty of 2009[27] when a discrete section on EU public policy energy was articulated as follows: 'the promotion of energy efficiency and energy saving and the development of new and renewable forms of energy, and the promotion of the interconnection of energy networks'.[28] The Energy Chapter of the Treaty on the Functioning of the European Union (TFEU), originated as the Treaty of Rome signed in 1957, established the powers of the EU to develop energy policy. Thus, the Lisbon Treaty explicitly acknowledge that energy policy falls in the category of shared competencies between the EU and its Member States subject to the principles of subsidiarity and proportionality. As a result, the EU may only intervene if it can act more effectively than the Member States of the EU. On the other hand, EU Member States have

[25] I Mahera and O Stefan, 'Delegation of powers and the rule of law: Energy justice in EU energy regulation', (May 2019) 128 Energy Policy 84-93
[26] Ibid (n.5)
[27] Treaty of Lisbon amending the Treaty on European Union and the Treaty establishing the European Community [2007] OJ 1 306
[28] Ibid (n.28) Art. 194

a veto power as stipulated by Art 192 (2) (c) of the TFEU[29] regarding measures related to their own energy mix choices.

Following the adoption of the Lisbon Treaty, the EU enacted a set of policies as part of its 2020 climate and energy package. The package puts forward the so-called '20/20/20' headline targets for 'smart, sustainable, and inclusive growth'.[30] The main reason for their success was partly the fact that these 2020 targets were broken down into national targets that were legally binding for EU Member States to meet.

The Paris Agreement is a landmark international accord not only since it is the first-ever universal legally binding global climate agreement but also because it brings all nations into a common goal to undertake efforts to combat climate change and adapt to its effects. The Paris Agreement sets out climate policy objectives to collectively 'hold the increase global average temperature to well below 2°C and pursue efforts to limit the temperature increase to 1.5°C'.[31]

Following the ratification of the Paris Agreement on 5 October 2016, the EU undertook binding commitments to make active efforts to curb emissions and prevent the further heating up of the Earth. However, the EU has been consistent with reducing its emissions even before the ratification of the Paris Agreement. As a result, in 2019, the 'EU had already achieved a 24% reduction below 1990 levels which is also the base year of the UN Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol'.[32] Therefore, to comply with its obligation under the Paris Agreement, the EU would reduce its GHG emissions to at least 40% below 1990 levels by 2030. Pursuant to achieving the public policy goal of a climate-neutral Europe by 2050, the EU take immediate actions to reduce CO_2, which represents more than 80% of total GHG emissions.[33] Typically, the carbon-

[29] Consolidated version of the Treaty on the Functioning of the European Union [2012] OJ 1 326 Art 192 (2) (c)

[30] European Commission, 'Europe 2020: A strategy for smart, sustainable and inclusive growth' (2010) COM (2010) <https://ec.europa.eu/eu2020/pdf/COMPLET%20EN%20BARROSO%20%20%20007%20-%20Europe%202020%20-%20EN%20version.pdf> last accessed 13 September 2021

[31] Conference of the Parties, Adoption of the Paris Agreement (adopted 12, 2015) U.N. Doc. FCCC/CP/2015/L.9/Rev/1 Art. 2

[32] EEA, 'Total greenhouse gas emission trends and projections in Europe' (18 Dec 2020) <https://www.eea.europa.eu/data-and-maps/indicators/greenhouse-gas-emission-trends-7/assessment> last accessed 13 September 2021

[33] J.G.J. Olivier and J.A.H.W. Peters, 'Trends in global CO_2 and total greenhouse gas emissions: 2019 Report' (May 2020) PBL Netherlands Environmental Assessment Agency 7

dioxide intensive sectors are the ones connected with the extensive use of fossil fuels. Thus, the primary sectors for policy intervention would be power generation, industry, and transport.

To bring down the GHG emissions across the economy, the EU introduced several policies the first to be the EU ETS Directive in 2003. The EU ETS established a carbon market in Europe in 2005, covering emissions from the power and manufacturing sectors. By putting a price on carbon, the EU illustrated its willingness to set out binding targets regarding its climate policies. Thus, the emission reductions obligations are hard law and hence enforceable.[34] Thus, if a Member State refuses to comply with its emission reduction target, certain corrective measures can be imposed, and an infringement action can be initiated by the EU Commission.

Following the success of the 20/20/20 targets for GHG emissions, renewable energy and energy savings, the European Council introduced the 2030 Climate and Energy Policy framework that includes EU-wide targets and policy objectives for the period from 2021 to 2030. In contrast with the legally binding 20-20-20 targets, the 2030 framework only required that EU Member States each specify non-binding Nationally Determined Contributions (NDCs). Thus the approach towards the 2030 targets can be described 'as an instance of the Open Method of Coordination (OMC) according to which targets can be reached by clear, self-imposed commitments (pledges) of each EU Member State and guided by a solid governance framework as part of the Energy Union'.[35] As a form of 'soft law', the OMC does not result in binding EU legislative measures, and it does not impose on EU Member States obligations to introduce or amend their law. This approach might be insufficient to meet the EU 2030[36] targets because it lacks sanction potential.

However, the targets set by the 2030 Framework were still not steep enough to fulfil the EU's commitments under the Paris Agreement. In November 2016, the EU Commission

<https://www.pbl.nl/sites/default/files/downloads/pbl-2020-trends-in-global-co2-and-total-greenhouse-gas-emissions-2019-report_4068.pdf> last accessed 13 September 2021

[34] M Peeters and N Athanasiadou, 'The continued effort sharing approach in EU climate law: Binding targets, challenging enforcement?' [18 June 2020], Vol.29 Review of European, Comparative & International Environmental Law 202

[35] B Vanhercke, 'Inside the Social Open Method of Coordination: The hard politics of 'soft' governance' [2016] UvA-DARE

[36] N Meyer-Ohlendorf , 'An Effective Governance System for 2030 EU Climate and Energy Policy: Design and Requirements' [2015] Ecologic Institute, Berlin 10

presented the Clean-Energy-for-all-Europeans Package (also called “Winter Package”). Unlike the previous energy packages, the Clean Energy Package (CEP) proposed by the Commission in the fall of 2016 did not include specific legislation for the gas sector mainly because the purpose of the package was to enhance the EU’s climate and energy policies up to 2030 and beyond. Therefore, the CEP builds on the energy policy framework established by the Third Energy Package and take a step further by emphasising among other things, the need to introduce flexibility onto the grid in order, to accommodate smart energy systems and prosumers into the existing structure prosumers.[37] For this purpose, the CEP builds upon the existing Renewable Energy Directive[38] and the Energy Efficiency Directive[39] and ‘introduce a new energy market design that fits a multitude of decentralised producers and consumers and allowing renewable energies to participate in all market segments’.[40] Moreover, the CEP stipulated the obligation of EU Member States to open their auctions to competitors from the other Member States. However, the CEP failed to enhance carbon pricing beyond the ETS or provide phase-out plans for fossil and nuclear power were not included in the package. The CEP aimed to align EU internal energy legislation with commitments under the Paris Agreement. Therefore, it updated the existing targets for 2030. Thus, the Package underlined the role of the EU in ‘tackling global warming and making a valuable contribution to the EU’s long-term strategy of achieving carbon neutrality (net-zero emissions) by 2050’.[41]

As a part of the EC’s Strategy to implement the United Nations Sustainable Development Goals agenda, the EU announced the European Green Deal. The aim of the European Green Deal is to achieve carbon neutrality by 2050. To achieve this goal, The EU needs to move away from coal, oil and gas and a comprehensive restructuring of the economy, agriculture, transport and private energy use.[42] As part of the legislative reform on 14 July 2021, the EU Commission adopted the Fit-for-55 package, which comprised a set of

[37] European Commission, Communication on 'Clean Energy For All Europeans' [2016] Brussels COM (2016) 860 final, 8

[38] Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources (2018) L 328/82

[39] Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC (2012) OJ L 315

[40] R Hinrichs-Rahlwes , ‘Energy Policies at Crossroads − Will Europe’s 2030 Targets and Framework Be in Line with the Paris Climate Agreement?’ (2019) 4 Renewable energy and environmental sustainability 4

[41] European Commission website, ‘Clean energy for all Europeans package’ (n.d) <https://ec.europa.eu/energy/topics/energy-strategy/clean-energy-all-europeans_en>

[42] Florence School of Regulation, 'The European Green Deal' (19th May) <https://fsr.eui.eu/the-european-green-deal/> accessed 3 September 2021

legislative proposals and initiatives whose aim is to set out how the EU's 2030 and 2050 climate goals can be achieved. The Fit-for-55 package has set out a target of at least 55% net reduction in GHG emissions by 2030 compared to 1990 levels up from the target of cutting emissions by at least 40% by 2030, which had been agreed on in 2014.[43] The package proposes to revise several pieces of EU climate legislation, including the EU ETS, Effort Sharing Regulation, transport and land use legislation, setting out in real terms how the Commission intends to reach EU climate targets under the European Green Deal.[44] To strengthen market-based frameworks, the European Green Deal recognised the importance of necessary investments in renewables, carbon-neutral energy sources and demand-side and storage technologies. Another crucial element of the European Green Deal is to ensure that no one is left behind by establishing funding and financing mechanisms.

1.3 Main sources of CO_2 emissions

As one of the main contributors to the emission of CO_2, the power industry is likely to be heavily impacted by the carbon price signal in Europe as seen in the cases of coal and other fossil-based electricity imports from non-EU/ European Economic Area (EEA).[45]

In the opinion of this author, the revision of the EU ETS will most likely align energy taxation and electricity pricing rules with the climate objectives of the EU and thus reflecting the actual price of their emissions. The result would be higher bills for the end consumer supplied by a fossil fuel-fired power industry. Although burning coal has become increasingly expensive mainly due to the revision of the EU ETS, there are several countries that will miss the 2030 deadline for a coal phase-out laid out in the Paris Agreement. Apart from the health effects due to coal-related pollution, coal-fired power plants remain responsible for the largest releases of CO_2 sulphur dioxide (SO_2) and nitrogen oxides (NOx) to the environment.[46]

[43] Council of the EU Press Release, 'Council adopts European climate law' (28 June 2021) <https://www.consilium.europa.eu/en/press/press-releases/2021/06/28/council-adopts-european-climate-law/> accessed 3 September 2021

[44] European Commission website, 'Effort sharing 2021-2030: targets and flexibilities Policy', <https://ec.europa.eu/clima/policies/effort/regulation_en> accessed 3 September 2021

[45] Eurelectric,'Powering the Green Deal' [December 2019] <https://cdn.eurelectric.org/media/4127/eurelectric_2030_high_level_paper-2019-030-0736-01-e-h-C36F5F4E.pdf> > last accessed 13 September 2021

[46] European Environmental Agency, 'Coal-fired power plants remain top industrial polluters in Europe' (09 Jul 2017) <https://www.eea.europa.eu/highlights/coal-fired-power-plants-remain> accessed 3 September 2021

Coal has played a central role in Europe ever since the Industrial Revolution; notably, due to the 'introduction of the coal-using technologies of the Industrial Revolution the European urban growth amounted up to 60% between the years 1750 and 1900'.[47] Moreover, in the mid-19th century coal was used as a source of energy and had spread to the most advanced European countries. Since coal was the first fuel to be exploited especially during the Second World War, several Western countries formed a union by signing the Treaty of Paris in 1951, which established the European Coal and Steel Community, which later evolved into the European Economic Community, the European Community and, as now, the EU.

As a result of the implementation of the above-stated EU climate policies, coal generation fell 20% in 2020 and has halved since 2015, gas generation fell only 4% in 2020.[48] The decrease in the utilization of gas-fired power is mainly due to the increase in the deployment of renewable energy sources.[49] However, according to the International Energy Agency (IEA), an international energy forum of 29 industrialised countries, 'natural gas will replace the demand for other fossil fuels, such as coal'.[50] As predicted by the IEA in 2011, the 'Golden Age of Gas' is at the time of writing (2021) already here, and according to the forecasts, the global demand for global natural gas will record 1.6% annual growth.[51]

The increase of natural gas demand can be explained by the aim of the EU internal energy policy to deliver carbon reductions while increasing both the energy efficiency and the share of renewables. Moreover, the EU needs to develop the necessary infrastructure for the transfer of renewable gases such as gas from biomass, biogas, synthetic methane from renewable energy and green hydrogen that can be found under the Third Energy Package.[52] Thus, gas infrastructure will play an integral part in the EU's energy transition, as articulated above. Additionally, gas turbines are considered the best technology to provide backup for intermittent solar and wind because end-use combustion of gas infrastructure burns cleaner

[47] A Fernihough and K Hjortshøj O'Rourke, 'Coal and the European Industrial Revolution' (January 2014) NBER Working Paper 19802 3

[48] Agora Energiewende and Ember, 'EU Power Sector in 2020: Up-to-Date Analysis on the Electricity Transition', (2021) <https://ember-climate.org/project/eu-power-sector-2020/> accessed 3 September 2021

[49] Stranded assets and stranded resources: Implications for climate change mitigation and global sustainable development

[50] IEA, 'Net Zero by 2050: A Roadmap for the Global Energy Sector' (July 2021) <https://iea.blob.core.windows.net/assets/beceb956-0dcf-4d73-89fe-1310e3046d68/NetZeroby2050-ARoadmapfortheGlobalEnergySector_CORR.pdf> accessed 13 September 2021

[51] IEA, 'Market Report Series: Gas 2018' [26 June 2018] <https://webstore.iea.org/ market-report-series-gas-2018> accessed 3 September 2021

[52] G Mete, '*Energy Transitions and the Future of Gas in the EU Subsidise or Decarbonise'* (1st ed 2020, Springer International Publishing 2020)

and more efficiently than coal or oil. Beneficially, gas can be transformed from methane into hydrogen and solid carbon and decarbonised via the capture of CO_2 from steam-reforming processes.

Due to the following factors natural gas is commonly characterised as a transition fuel[53] of high importance and utility to the EU as it decarbonises its energy mix: affordability - natural gas is relatively inexpensive; its versatility - it can be both easily dispatched when needed, and stored, at times when demand is lower than supply.

1.4 Infrastructure policy of the European Union

Therefore, significant new investments in energy infrastructure, particularly gas pipelines, are required in order to meet the growing demand for natural gas as a transitional fuel. To assist countries that lack the economic development and capital to invest in reliable electricity supply infrastructure, the EU has introduced several investment mechanisms. The first of its kind was the Trans-European Networks Energy (TEN-E) Regulation Guidelines for Trans-European energy infrastructure.[54] The TEN-E Regulation was introduced by the Energy Commission to tackle the problem of lagging investment in energy infrastructure and therefore promote the development of large cross border energy infrastructure projects in Europe. The TEN-E Regulation prioritises projects on interconnecting energy networks across the EU, labelled as Projects of Common Interest (PCIs) under the latest TYNDP. PCIs are infrastructure projects that play a central role in delivering on EU objectives in the energy field such as advancement of the interconnection between national markets, security of supply, greater competitiveness, and the promotion of renewable energy sources.

The purpose of the TEN-E Regulation has changed over time from the completion of the internal energy market to supporting the European Green Deal by fostering the deployment of innovative technologies and infrastructure in line with energy transition policies.[55] Until recently, the key EU financial instrument, namely Connecting Europe Facility (CEF), was

[53] Communication from the Commission to the European Parliament, the Council, the European Parliament and Social Committee and the Committee of the Regions: EU Taxonomy, Corporate Sustainability Reporting, Sustainability Preferences and Fiduciary Duties: Directing finance towards the European Green Deal (2021) COM/2021/188 final

[54] Regulation (EU) No 347/2013 of the European Parliament and of the Council of 17 April 2013 on guidelines for trans-European energy infrastructure and repealing Decision No 1364/2006/EC and amending Regulations (EC) No 713/2009, (EC) No 714/2009 and (EC) No 715/2009 (2013) OJ L 115

[55] T Schittekatte and others, 'Making the TEN-E Regulation Compatible with the Green Deal: Eligibility, Selection, and Cost Allocation for PCIs' (2021) 156 Energy policy 112426

used to finance not only electricity transmission infrastructure but also gas structures.[56] This had dramatically changed following the revision of TEN-E when gas was denied 'transition' fuel status in the light of the EU green finance rules.[57] The CEF Debt instrument, a risk-sharing facility, was launched jointly by the EC and the European Investment Bank (EIB) , the Union's financial institution, and is currently implemented by the EIB.[58] While the EIB had already agreed to overhaul lending to coal projects in 2013, it was not until December 2020 when new rules were announced. According to the new EIB rules, natural-gas pipelines will not be eligible to receive EU energy infrastructure funding, instead cash will be funnelled into electricity and low-carbon energy networks such as offshore wind power lines and clean-hydrogen networks to meet climate goals.[59]

While western EU Member States are successfully moving towards a greener energy sector, other developing states are highly dependent on the EIB financial instruments to further enhance their energy infrastructure. Such examples are southeast European countries, particularly Bulgaria and Romania, which share common features as to their energy sectors. Both countries, which became EU Member States in 2007, are highly dependent on fossil fuels for power generation. Thus, pursuant to meeting EU climate targets, both countries would need substantial financial resources to phase out solid fossil fuels on time. The Bulgarian and Romanian power markets, although formally unbundled, still lack functioning liberalised electricity and gas markets. Among other features, the electricity and gas markets in Bulgaria and Romania suffer from state intervention and market concentration, illiquid markets, poor regulatory framework and institutional design, occasional poor interconnectivity and cross-border energy trade and strategies for managing the transition.[60] Although these features are common not only for Bulgaria and Romania but for the rest of the wider-Balkans, it appears that there is an underlying prerequisite for the existence of

[56] European Commission website, 'CEF Energy' <https://ec.europa.eu/inea/connecting-europe-facility/cef-energy> accessed 3 September 2021

[57] F Simon, 'Gas denied 'transition' fuel status in draft EU green finance rules' (Euractiv, 11 November) <https://www.euractiv.com/section/energy-environment/news/gas-denied-transition-fuel-status-in-eu-green-finance-rules/> accessed 3 September 2021

[58] 'Connecting Europe Facility (CEF) – Financial Instruments' (EU Commission) <https://ec.europa.eu/info/business-economy-euro/growth-and-investment/financing-investment/connecting-europe-facility-cef-financial-instruments_en> last accessed 3 September 2021

[59] F Simon, 'EU shifts energy infrastructure funding away from gas, into electricity grids' (Euractiv, 16 Dec) <https://www.euractiv.com/section/energy/news/eu-shifts-energy-infrastructure-funding-away-from-gas-into-electricity-grids/> accessed 13 September 2021

[60] M Catuti, I Kustova and C Egenhofer, 'Delivering the European Green Deal for southeast Europe: Do we need a regional approach?' [2020] 1(1) CEPS

fragmented markets for both electricity and gas, namely the presence of not only of State intervention but political involvement in these sectors.

To better understand the electricity market unbundling process in Bulgaria and Romania, Second Chapter will examine the market liberalisation process focusing on the power market and the implementation of EU legislation in these countries.

2. Overview of the liberalisation process in Bulgaria and Romania

2.1 Electricity market in Bulgaria

The reform of the energy sector in Bulgaria began in 1999 with the establishment of the State Energy and Water Regulatory Commission (SEWRC). Although, in theory, the Bulgarian energy market has been officially fully liberalised since 1 July 2007, in practice, markets are only partially liberalised.

In 2003 Bulgaria adopted a new Energy Act, which was in full compliance with the existing and the new EU Electricity and Gas Directives The new Energy Act introduced a new market design and replaced the 'single buyer' model with a 'bilateral contracts and a balancing market' model.[61] Furthermore, the Energy Act of 2003 provides for further unbundling of the public utility wholesaler, namely the Natsionalna Elektricheska Kompania (NEK). NEK was incorporated in late 1991 is a sole-owner joint-stock company.[62] Since 2008 the capital of NEK is held by BEH. On the other hand, the BEH is the largest entirely State-owned holding in terms of total assets in the country. The ownership rights of NEK are exercised by the Minister of Energy of Bulgaria.[63]

The next step in the liberalisation process took place in 2004 when high voltage power consumers needed to procure their power consumption from the wholesale electricity market at freely negotiated market prices.[64] Almost a decade later, medium voltage consumers were given access to the wholesale market. Thus, until 2013 the electricity trade in Bulgaria took place in two segments-freely negotiated prices and regulated prices. However, the Energy Act of 2003 underwent a major reform following the implementation into the national legislation of the Third Energy Package, which was completed in July 2012.

[61] P. Popov et al., 'Bulgarian electricity market and the large-scale industrial customers' (NEK and SERC, 2003)
[62] NEK EAD, <https://www.nek.bg/index.php/en/about-us-new> accessed 3 September 2021
[63] Bulgarian Energy Holding, 'History' <https://bgenh.com/en/page/40/History.html> accessed 10 September 2021
[64] Kaloyan Staykov, 'Power Market Liberalization in Bulgaria: A Decade Old Problem' (4LIBERTYEU, 4 April) <http://4liberty.eu/wp-content/uploads/2019/04/08_KALOYAN-STAYKOV_POWER-MARKET-LIBERALIZATION-IN-BULGARIA-A-DECADE-OLD-PROBLEM.pdf> accessed 3 September 2021

By that year, most of the government-owned electricity generation and distribution companies were privatised because SEWRC licensed many domestic and international electricity traders.[65] Furthermore, in 2014 the Transmission System Operator (TSO) was issued a new licence for electricity transmission after it was detached from and became independent from, NEK. As a result, the unbundling under the EU Third Energy Package was formally completed. Later the same year the TSO gave the start of the balancing market in Bulgaria.

Although the restructuring of the TSO from NEK was considered as the last step in the formal liberalised power market, it soon proved differently. In 2013 the EC initiated two infringement proceedings for delayed and partial implementation of the Third Energy Package. According to the findings of the Commission, despite the partial privatisation of generation assets and distribution system, the single vertically integrated fully State-owned company, the BEH, supplied the majority of the power for the liberalised market (around 85%) and abused its dominant position.[66] Apart from recognising the central role of BEH and its subsidiary on the energy market, the Commission pointed out that 'NEK is performing functions that in *de facto* fully liberalised market would be performed by separate entities and is the single supplier of electricity at regulated low-voltage consumers'.[67] In addition, the electricity system operator(ESO), which operates the transmission grid is a subsidiary of NEK. The infringement actions led to an antitrust procedure against, BEH resulting in commitments on behalf of the holding were made to remedy the situation. In a hurry to prove its compliance with EU legislation in 2011, the Bulgarian Parliament adopted the Bulgarian Energy Strategy 2020, which was replaced by a new Energy strategy for the country for the period 2014-2030. In addition to the adoption of a new Energy strategy, an organised power exchange notably the Independent Bulgarian Electricity Exchange (IBEX) was established as a subsidiary of BEH and launched in early 2016. Less than two years after the establishment of IBEX, industrial consumers raised their concerns that the over-the-counter (OTC) market for bilateral power contracts was not functioning properly, and the reason why was the State-owned Bulgarian Energy Holding (BEH).

[66] European Commission, 'Findings and Recommendations related to Bulgarian energy policy' (2013) <https://www.eap-save.eu/images/Uploaded%20files/Dokumenti/findings_and_recommendations(1).pdf> last accessed 13 September 2021

[67] Ibid (n.66)

Judging by the step-by-step approach that Bulgaria had in establishing deregulated market and the fact that the government is cherry-picking the reforms that are adopted, one may say that the Bulgarian government is deliberately delaying decisions that can improve market functioning or rapidly adopts with almost no preparation decisions that can have a fundamental impact on the market. On the other hand, this leads to regulatory uncertainty and higher risks, not only for traders but also for consumers. In addition, the lack of consultations with stakeholders prior to regulatory changes in the energy sector results in unsatisfactory results and regulatory obstacles for the functioning of the free market. As a result, the Bulgarian liberalised power market is highly concentrated, highly monopolised, lacks market competition and therefore is not efficient and transparent.

2.2 Renewable energy law and regulation in Bulgaria

The first attempts of Bulgaria to develop its renewable sector was made in 2003 when the Energy Act was adopted. However, the Act failed to establish concrete conditions for efficient use of energy generated by renewable sources or provide investment incentives. As part of the accession to the EU in January 2007, Bulgaria undertook mandatory obligations to develop renewable energy production. For this purpose, Bulgaria adopted the Renewable and Alternative Energy Sources and Biofuels Act (RAESBA),[68] which provided for the development of renewable energy sources (RES) by way of a feed-in-tariff (FiT) support system and fostering favourable investment climate. Following the replacement of the RAESBA by the Energy from Renewable Sources Act (ERSA) of 2011, renewable energy investments in Bulgaria boomed.[69]

To comply with its new EU obligations, ERSA introduced an attractive and stable FiT support program for renewable energy projects. Once applied to an eligible plant, the FiT support programme would ensure that the plant is entitled to the specified tariff for the full duration of its power purchase agreement (PPA).[70] Until 2013, substantial investments were made in renewable energy capacities in Bulgaria as a result of the incentive program, which enabled Bulgaria to reach its EU targets by 2013. This boom in investments in the renewable sector, which was triggered by the generous and uncapped FiT, was put on hold due to

[68] Renewable and Alternative Energy Sources and Biofuels Act - Prom. SG. 49/19.06.2007, amended SG. 98/14.11.2008, into force since 14.11.2008

[69] CMS, 'Electricity law and Regulation in Bulgaria' (CMS, 1 January) <https://cms.law/en/int/expert-guides/cms-expert-guide-to-electricity/bulgaria> accessed 3 September 2021

[70] K Sirleshtov et al., 'CMS Expert Guide to renewable energy law and regulation Renewable energy law and regulation in Bulgaria' (CMS, 18 December 2020)

changes in the Law on Energy that aimed to withhold further investment in the production of electricity from intermittent renewable sources such as wind and solar. The reason for this change was that the electricity system operator struggled with accommodating the connection of all new renewable installations. Moreover, the NEC became heavily indebted to the DSOs, which served as central off-takers responsible for paying out the FiTs to RES producers.[71]

Since 2012 several measures that negatively affected incentive schemes have been implemented. For instance, the Regulator introduced a retroactive grid access fee for all RES producers while the incentive scheme has been altered almost every year between 2012-2015.[72] Consequently, the lack of regulatory stability and confidence in the legal framework push investors away from the Bulgarian energy market. These changes led to the gradual decrease of the FiTs until the RES projects to be developed after 27 December 2013 was entirely revoked, leading to a *de facto* moratorium on further investments in the renewable energy sector. Following the introduction of the balancing market in June 2014, when RES producers become part of a balancing group, existing RES gradually became more stable, which led to an increase in merger and acquisitions activity in the market. Following the ultimate termination of the FiT in July 2018, the renewable energy producers would enter into feed-in premium agreements with the Energy Security System Fund (ESSF), which will offset the difference between the long-term contracts and market price with the National Electricity Company.

As to the EU targets for energy consumption from RES of the country, the Bulgarian government has successfully reached the 2020 target of at least 16%. Following EU Commission recommendations, Bulgaria has increased its national target for renewable energy as a share of gross energy consumption in its National Energy and Climate Plan (NECP) from '25% to 27,09% by 2030 but aims to achieve these targets mainly through burning biomass for heat'.[73] According to Bulgaria's NECP, electricity demand is expected to grow by approximately 11% in 2030 in comparison with the gross electricity consumption in 2018. However, Bulgaria's government ignored the results of modelling work that it itself

[71] Couture, D Toby, T Pavlov and T Stoyanova, Scaling-up Distributed Solar PV in Bulgaria (Berlin: E3 Analytics, 2021) 12

[72] M Trifonova, Renewable Energy Sector Development In Bulgaria - An Institutional Analysis, (Yearbook of the Faculty of Economics and Business Administration, Sofia University, Faculty of Economics and Business Administration, Sofia University St Kliment Ohridski – Bulgaria, June 2019) 17(1), 311-333

[73] Ministry of Energy and Ministry of the Environment and Water of Republic of Bulgaria, 'Integrated energy and climate plan of the Republic of Bulgaria 2021-2030' (2020)

had commissioned.[74] Moreover, the Bulgarian government has not officially embraced it and thus the prepared modelling study was not made public.

In contrast with the tendency among European countries to shut down conventional thermal (lignite) power plants, Bulgaria announced in its NECP(2021) for the period 2021-2030 that there will be no coal phase-out by 2030 or just transition plan.[75] The purpose of the NECP is to meet the country's 2030 target for GHG emissions not covered by the EU ETS of 0% compared to 2005 thus no emission reductions are foreseen. In its NECP, Bulgaria highlighted the importance of locally sourced coal for its energy sector. As highlighted in its NECP, power plants fired by indigenous coal constitute approximately 48% of total electricity generation. Moreover, they are considered baseload power plants which are also the main supplier of balancing services. Thus, power plants fired by indigenously mined coal are essential, not only for the Bulgarian electricity system but also for the energy security of Bulgaria. This comes as no surprise when 'Bulgaria has the largest Gross Domestic Product (GDP) share invested in fossil fuel subsidies in the EU'.[76] Fossil fuels subsidies distort markets making clean energy and energy efficiency technologies more expensive. The result would be a 'lock-in' of high-carbon investments, increasing the risk of 'stranded assets'.

By definition stranded assets could be power plants which become "stranded" by unanticipated or premature write-downs, devaluation or conversion to liabilities. [77]According to the Bulgarian Recovery plan (2021)[78] submitted to the Recovery and Resilience Facility fund, Bulgaria plans to replace coal in power plants with 'low-carbon' gases, specifically hydrogen and biogas, blended at different ratios with fossil fuel gasses. This coal-to-gas transition will lock Bulgaria into fossil gas dependency and further create stranded assets.[79]

In its assessment of the NECP (2021) of Bulgaria, the EU Commission 'invited Bulgaria to consider measures supporting a coal phase-out strategy with a clear timeframe commitment

[74] CSD, 'Stifled Decarbonisation: assessing the Bulgarian National Energy and Climate Plan' (April 2019)
[75] Ibid (n.75)
[76] European Commission, 'Country Report Bulgaria 2020' (26 February 2020) SWD(2020) 501 final
[77] IRENA, 'Stranded Assets and Renewables' (July 2017)
[78] Government of Republic of Bulgaria, 'National Recovery and Resilience Plan of Republic of Bulgaria' (20 July 2021) Version 1.3 <https://nextgeneration.bg/14>
[79] CEE Bankwatch Network, 'The role of gas in the recovery and resilience plans' (CEE Bankwatch Network, 31 May 2021) < https://bankwatch.org/publication/the-role-of-gas-in-the-recovery-and-resilience-plans>accessed 3 September 2021

and ensuring a just transition of coal and lignite-reliant areas'.[80] However, it should be noted that NECP of Bulgaria ignored the results of modelling work, that had been commissioned by the government, and the prepared modelling study was not made public which undermines the results of the modelling. [81]

2.3 Electricity markets in Romania

The liberalisation process of the Romanian electricity market was launched in 1996 in line with the Directive 96/92/EC, which stipulated the creation of the internal electricity market although Romania had not been yet an EU Member State. The process of restructuring the energy sector started with the creation of a regulatory electricity framework following the model of a decentralised market. The regulation of the electricity, heat (only the heat produced in cogeneration) and natural gas sectors is the responsibility of Romania's National Energy Regulatory Authority (ANRE), which was established in 1996. ANRE, which since 2012 an autonomous authority from the Romanian government sets the official rules of the electricity market and monitors. Following the establishment of ANRE, the first vertical separation of the Romanian Energy System took place, and the unbundling of the distribution activity from generation one was evident.

The cornerstone legislation in Romania governs not only the electricity sector but also the gas sector and Romania's Electricity and Gas Law, while several commercial and technical regulations govern the different segments of the electricity sector. In 2000 the establishment of the electricity transmission and distribution network Transelectrica marked the vertical separation from its commercial market operator (OPCOM). Since 2012, OPCOM as the only licensed electricity market operator in Romania operated all wholesale electricity market transactions taking place on the centralised energy market. Furthermore, OPCOM is responsible for providing an efficient framework for trading on the wholesale electricity market as well as operating the green certificates market in a transparent and non-discriminatory manner. Although vertically separated, OPCOM remained a State-owned company while the DSO sector was compromised of both private and State-owned companies (five of the eight distribution operators are privatised). However, since the introduction of the wholesale market, the Romanian electricity market has gradually

[80] European Commission, 'Assessment of the final national energy and climate plan of Bulgaria' (14 October 2020) SWD 901 Final

[81] Center for the Study of Democracy, 'Stifed Decarbonisation assessing the Bulgarian National Energy' (2019) 8

liberalised in terms of greater levels of market competition. Moreover, OPCOM's plans included cross-border trading on the regional energy market.

The key players in the electricity market in Romania are mainly the State-owned generators, which generate 89% of the national electricity output.[82] In addition, the Romanian State, through the Ministry of Public Finances, owns a large majority of the shares (approx. 59%) of the TSO, which is the sole operator of the electricity transmission grid. Although the formal unbundling of the State-owned transmission system from the generators took place before the accession of Romania to the EU, it is questionable whether third party-access to the transmission network is not obstructed through non-price behaviour by the State-owned TSO.[83] Such behaviour can take the form of third-party access being denied or hindered. The result will be that the TSO will discriminate against competitors regarding network access which will have a negative effect on the competition among generators which is evident in the case of Romania, where State-owned generators which generate 89% of the national electricity output. Arising from the fact that the energy mix of Romania is mainly composed of State-owned power generators run on coal (98%) and natural gas units (73%), it is unsurprising that the plans to privatise the conventional generation sector failed so far.[84] The coal-fired generating stations are heavily reliant on government support; they also benefit from political support because many Romanians are employed in the mining industry.

Although the openness of the energy market was 83.5% in 2005, the full opening occurred once Romania became an EU member in 2007.[85] Similarly, as in the case of Bulgaria's liberalisation process, although on paper the Romanian market was fully liberalised, in practice, customers could not benefit from the liberalisation process until the end of 2014. In 2015 'household consumers were able to choose their providers and change their energy supplier when new suppliers were interested in catching a part of the market segment of household customers'.[86]Even after this, households remain on a captive market with regulated tariffs because they benefited from a lower price than the free market. Since 1

[82] CMS, 'CMS Expert Guide to electricity law and regulation: Electricity law and regulation in Romania' (1 January 2015) < https://cms.law/en/int/expert-guides/cms-expert-guide-to-electricity/romania > accessed 3 September 2021

[83] TM Dralle, *Ownership Unbundling and Related Measures in the EU Energy Sector Foundations, the Impact of WTO Law and Investment Protection* (1st ed 2018, Springer International Publishing 2018)

[84] CEE Bankwatch Network, 'The energy sector in Romania' (n.d) < https://bankwatch.org/beyond-coal/the-energy-sector-in-romania> accessed 3 September 2021

[85] M Stet, 'Characteristics of the Romanian energy market' [2017] 200 IOP Conference Series: Materials Science and Engineering 2

[86] Ibid (n.61)

January 2018, the electricity price has been freely negotiated between consumers and suppliers. Consumers can return to the regulated market at any time regardless of what has been agreed in the past. However, ANRE remains in charge of regulating the annual tariffs for transportation, distribution and system services, which are set annually.[87] Although the Romanian market gradually moves towards full liberalisation, many activities remain regulated by national bodies that further hinder competition in the sector. According to the NECP of Romania (2021) and in line with commitments made to the EC to deregulate its electricity market as of 1 January 2021, Romania passed amendments to Energy Law-123/2012 that allow PPAs for power-generation capacities that will be commissioned after 1 June 2020.[88] Although, it has been argued that this 'is an obvious discrimination against older capacities',[89] it appears that the reintroduction of PPAs generated strong interest from investors while utilities gain confidence in participating in RES projects.[90]

The transportation of the EU Third Energy Package into the national legislation was accomplished by introducing the Electricity and Natural Gas Law 123/2012 (Electricity and Gas Law) in 2012. The Electricity and Gas law substantially amended the structure of the Romanian wholesale electricity market setting out the principles of the Romanian electricity sectors, electricity-related activities as well as detailed secondary legislation. Furthermore, Romania's Electricity and Gas law defines the main concepts applicable in the electricity sector and the main competencies of the regulatory authorities.[91]In line with the Third Energy Package, Romania chose the Independent System Operator (ISO) model, where an independent company operates, maintains, and invests in the grid for both the electricity and natural gas sector, given that transmission networks are publicly owned. This model enables the certification of the TSO to comply with the EU requirements, while maintaining the current ownership regime over the networks, ensuring an effective separation between generation, transmission and supply interests.[92]

[87] CMS, 'Romania: Liberalisation of the energy market' (Law-Now, 10th January) <https://www.cms-lawnow.com/ealerts/2018/01/romania-liberalisation-of-the-energy-market> accessed 3 September 2021
[88] Government of Romania, 'Integrated national energy and climate plan 2021-2030' (April 2020) <https://ec.europa.eu/energy/sites/default/files/documents/ro_final_necp_main_en.pdf>
[89] EPG, Code of Good Practice for Renewable Energy in Romania (25 May 2021)
[90] V Radu et al., 'The Renewable Energy Law Review: Romania' (The Law Reviews, 10 August 2021) CMS Cameron McKenna Nabarro Olswang LLP
[91] D Pachiu and M Nita, 'Electricity regulation in Romania: overview' (1 October 2020) D&B David and Baias SCA
[92] Ibid (n.63)

3. Common characteristics between the energy market in Bulgaria and Romania

3.1 The role of State aid in supporting the coal industry

As illustrated in the Second Chapter, there are several similarities between Bulgarian and Romanian energy markets and, in particular the electricity market. Both countries inherited socialist economies built on the ideology that socioeconomic consequences are less important than economic gain.[93] As a result, numerous coal-mining regions are still heavily extracting that resource across Bulgaria and Romania, mainly for domestic power generation.[94] Even with the constantly increasing price of burning coal, partly thanks to the EU ETS, Bulgaria and Romania have not incorporated coal-phase out plans in their NECPs. As per its National Resilience and Recovery Plan (NRRP), [95] that Romania submitted to the EC, the country has confirmed its plans to exit coal by 2032 (2021); in contrast a coal-phase out is currently not even being discussed in Bulgaria.

In the case of growing electricity demand in both Bulgaria and Romania, the question is how the current supply will meet future demands. Although it should be noted that the NECPs of Romania and Bulgaria failed to present integrated modelling, appeared to cherry-pick data from a variety of sources, not least suffered from a lack of transparency.

While it appears that the Bulgarian government relies on derogations from EU laws to keep the old and polluting coal power plants in operation, Romania is considering passing a law on coal-phasing out, which is supposed to be adopted by the second quarter of 2022. However, it is still unclear how this energy transition to renewable energy sources will be done in a just manner. Moreover, according to 'the National Institute of Statistics (NIS), indigenous coal represents the second energy resource after gas in national production of primary energy, while Romania is also a key coal producer on the European and global

[93]A Ámon, R Popp and F Heilmann, 'The Political economy of energy in central and Eastern Europe supporting the Net Transition' (E3G 30 Jan 2020)
[94] Energy Industry Review, 'Coal Mines in Europe: A Reality We Still Need to Accept' (2021) < https://energyindustryreview.com/analysis/coal-mines-in-europe/>
[95] National Recovery and Resilience Plan of Romania (2020) < https://ec.europa.eu/info/business-economy-euro/recovery-coronavirus/recovery-and-resilience-facility/recovery-and-resilience-plan-romania_en >

market'.[96] Nevertheless, the largest bituminous coal producer in Romania, Oltenia Energy Complex (OEC) is a State-owned company that provides 90% of Romanian coal power is generating more than 14.9 TWh of electrical energy in 2017.[97] It is no surprise that the OEC benefits from large state subsidies in order to keep operating, although it recently announced that it has €180m in losses for 2020. To extend the life of its power plant and invest in new fossil fuel gas assets that will become operational from 2026, Romania has launched huge restructuring efforts, which will cost Romanian taxpayers €1.3 billion. However, this State aid is still pending approval by the EC.[98] As a State-owned company in a country heavily dependent on fossil fuels, the OEC has little interest or no interest at all in changing the *status quo*. Moreover, as a dominant company in the electricity market in Romania, which face little competition, the OEC may have an even lower incentive to innovate.[99] The same would apply to the case of Bulgaria, where the State-owned BEH controls the most important companies in the energy sector, TPP Maritsa Iztok 2, Kozloduy nuclear power plant (NPP), the National Electric Company (NEK), Bulgartransgaz, Electric System Operator (ESO), Bulgargaz, and Bulgartel.[100] However, to keep its biggest State-owned lignite power plant, Maritsa East 2, operating in 2018, the BEH covered the GHG allowance of the plant to the amount of, approximately, €150 million (m). [101]

Such a State aid in the form of GHG allowance or like, in the case of Romania for 'restructuring purposes', is in a clear contradiction to the climate policy of the EU. As a result, the Commission expressed doubt that the aid was in line with the EU climate rules. Such extensive State aid is likely to cause an increase in energy consumption and GHG emission of the utility, which will be in conflict with the European Green Deal objectives (including the one-off phasing out of fossil fuel subsidies) and the EU's 2030 climate targets.[102] Moreover, OEC approval of the restructuring plan would lock Romania into fossil fuels for a long period

[96] N Anastasiu et. al, 'Romanian coal reserves and strategic trends' [2018] 198 International Journal of Coal Geology 177-182
[97] Ibid (n.82)
[98] K Taylor and V Makszimov, 'State vs private: Europe's mismatched transition out of coal' (Euractiv, 3th June) <https://www.euractiv.com/section/economy-jobs/news/state-vs-private-europes-mismatched-transition-out-of-coal/> accessed 3 September 2021
[99] D Peng and R Poudineh , 'Electricity market design for a decarbonised future: An integrated approach' [2017] OIES Paper: EL 26 Oxford Institute for Energy Studies 37
[100] CEE Bankwatch Network, 'The energy sector in Bulgaria' (n.d) <https://bankwatch.org/beyond-coal/the-energy-sector-in-bulgaria> accessed 3 September 2021
[101] Genady Kondarev, 'Why can't Bulgaria end its coal addiction?' (Energy Transition: The Global Energiwende, 07 Jan 2019) < https://energytransition.org/2019/01/cant-bulgaria-end-coal/ >
[102] Climate Action Network Europe, 'State aid regime à la Green Deal – Subsidies to fossil fuels subvert Just Transition in Gorj County' (May 2021)

of time. Such fossil fuel subsidies could be detrimental for the energy market because they artificially lower fossil fuel prices, strain government budgets and reduce the profitability of renewable energy sources.[103] In addition, fossil fuel subsidies have multiple adverse environmental, economic and social effects. They 'divert funding that could otherwise be spent on social priorities, such as health care or education and reduce the profitability of renewable energy sources'.[104] In other words, Bulgarian and Romanian taxpayers are not only paying from their pockets but with their health because State aid in support of fossil fuels divert funding that can be spent otherwise. Moreover, State aid for fossil fuels disincentivised investment in energy infrastructure and quality of service. In order to achieve climate neutrality, no new coal and gas plants must become operational after 2021.[105]

Based on the experience of Bulgaria and Romania so far, a potential coal phase-out is likely to be connected to additional investments in gas infrastructures. Such investments in gas infrastructure 'may serve to delay-rather than a bridge-to truly low carbon sources of energy in terms of displacing investment in nuclear or renewables'.[106] Even though the role of gas in the medium-term decarbonisation pathways until 2030 has been recognised, the strong focus on gasification of the coal-mining regions without diversified and sustainable alternatives could lead to a long-term lock-in of fossil-fuel-based infrastructure.[107] For instance, if the restructuring plan of the OEC is approved, the region will be stuck with coal beyond 2030, which will be replaced by fossil gas which will also become stranded assets. Moreover, such a long-term lock-in of fossil-fuel-based infrastructure could undermine the decarbonisation efforts of both Bulgaria and Romania and potentially put their 2050 climate-neutrality target at risk.[108] Countries like Romania and Bulgaria with high shares (50–80%)

[103] A Ámon, R Popp and F Heilmann, 'The Political economy of energy in central and Eastern Europe supporting the Net Transition' (E3G 30 Jan 2020)
[104] A Cheon et al., 'Instruments of Political Control: National Oil Companies, Oil Prices, and Petroleum Subsidies' (2015) 48(3) SAGE 375
[105] European Commission website, 'Can Europe response to public consultation on the revised Climate, Energy and Environmental Aid Guidelines (CEEAG)', (n.d) < https://ec.europa.eu/competition-policy/public-consultations/2021-ceeag_en> last accessed 10 September 2021
[106] E Stephenson, A Doukas and K Shaw, 'Greenwashing Gas: Might a "Transition Fuel" Label Legitimize Carbon-Intensive Natural Gas Development?' (2012) 46 Energy policy 452
[107] Green Recovery tracker, 'Report: Bulgaria' (15 March 2021) < https://assets.website-files.com/602e4a891047f739eaf5dfad/60ccec02a395c04d374f8d3d_Bulgaria_Green_Recovery_Tracker_Report.pdf> last accessed 10 September 2021
[108] Ibid (n.77)

of fossil fuels are more likely to experience the phenomenon known as the “carbon bubble” related to the unused capacities and stranded assets.[109]

3.2 Shortcomings of the Liberalisation process

Apart from large investments in replacing the ageing and low efficient power infrastructure in Bulgaria and Romania, the unbundling of the power sector in practice and the unbundling of the TSO plays a crucial role in the development of renewable energy sources. In the case of corrupt countries such as Bulgaria and Romania, ‘formal compliance is a cheap signal relative to curbing anticompetitive practices and governmental corruption’.[110] This might explain why more corrupt countries choose (at least formally) more rigorous unbundling’.[111] Thus, the question comes to whether countries such as Bulgaria and Romania have the political will to pursue the Green Deal’s objectives they have committed to.[112] As mentioned earlier, delays in plans to coal phase-out on time would be rather costly for countries like Romania and Bulgaria, which are also among the poorest countries in the EU. On the other hand, the existing regulatory bottlenecks, uncertainty and regulated third-party access[113] in the energy markets of Bulgaria and Romania could further limit the investments in power infrastructure to EU fundings and support schemes.

As demonstrated in the first chapter, the EU has introduced energy specific measures in the form of Directives to facilitate the liberalisation process in the EU, especially regarding Ownership Unbundling and Third-Party Access in the electricity sector. It is assumed that the implementation of this legislation will further enhance the access to the grid of a larger share of producers of clean electricity and therefore increase their share in the energy mix. [114] As provided for in Article 9 of the 2009 Electricity Directive, the Ownership Unbundling would ‘prescribe the complete separation of companies for electricity generation and sales activities from their transmission network activities, requiring them to be operated by strictly

[109] K Löffler et al, 'Modeling the low-carbon transition of the European energy system - A quantitative assessment of the stranded assets problem' [2019] 26(100422) Energy Strategy Reviews
[110] Silvester van Koten and Andreas Ortmann, ‘The Unbundling Regime for Electricity Utilities in the EU: A case of Legislative and Regulatory Capture?’ (May 2007) CERGE-EI Working Papers Series 328
[111] Ibid (n.110)
[112] R Voicu-Dorobanțu et al, ‘Tackling Complexity of the Just Transition in the EU: Evidence from Romania’ (2021) 14 Energies (Basel) 1509
[113] European Commission, ‘Investment Challenges in Energy, Transport & Digital Markets Economic and Financial Affairs: A Forward Looking Perspective’ (November 2016) Institutional Paper 041
[114] Ibid (n.3)

independent entities'.[115] Solely due to the integrated utility behaviour in both Bulgaria and Romania, independent suppliers are deterred from the wholesale market represent barriers that indicate the lack of full ownership unbundling.[116] These barriers can take the form of price regulation, regulatory unpredictability and limited access to innovation. Third-party access, especially in the case of a 'network bound' industry such as the electricity sector is of great importance because it provides that EU Member States have a system in place where third parties (usual competitors to the natural energy monopoly) can access the transmission and distribution grid under objective, transparent and non-discriminatory terms.[117] The entities tasked with guaranteeing the Third Party access are the TSO, as well as DSOs.[118] However, 'the responsibility for the establishment of a level playing field and to set the right incentives for TSOs to take decisions independently, ensuring transparency and non-discrimination towards network users, lies down in the hands of the Member States'.[119]

Therefore, apart from unbundling the TSO, further measures should be undertaken by the Bulgarian and Romanian governments to resolve the issue of poorly liberalised markets. One way of evaluating the liberalisation process in a country is by estimating volatility because volatility is considered one of the indicators that define the level of market development. Electricity cannot be stored without (as of current technological advances achieved by 2021) significant losses being incurred, for instance via pumped or battery storage, and therefore power prices tend to be more volatile than prices of other commodity markets. Thus, volatility is considered as a price feature that defines the behaviour of the price process. Volatility is a useful tool in understanding the dynamics of price and therefore predicting the price development. This is particularly useful in a liberalised energy sector where the market involves a high level of uncertainty. A study on the southeast Europe has determined that the Bulgarian market is the most volatile, followed by Romania amongst other national markets, e.g. Croatia, Bosnia and Herzegovina, Slovenia, North Macedonia

[115] Directive 2009/72/EC of the European Parliament and of the Council on common rules for the internal market in electricity and repealing Directive 2003/54/EC [2009] OJ 2 211/1 Art. 9

[116] European Commission, 'Report on the European Retail Energy Market Barriers Index – Study on "Barriers to entry in retail energy markets" (July 2020) ENER/B3/2018-313

[117] Directive 2009/72/EC of the European Parliament and of the Council on common rules for the internal market in electricity and repealing Directive 2003/54/EC [2009] OJ 2 211/1 Art. 32

[118] K. Mathis, B. R. Huber (eds.),' *Energy Law and Economics: Economic Analysis of Law in European Legal Scholarship'* (October 2017) 59

[119] European Commission, 'An EU strategy to harness the potential of offshore renewable energy for a climate
neutral future' (19 November 2020) SWD (2020) 273 final 5

and Greece.[120] To decrease the current price volatility and enhance price convergence, it is necessary to strengthen market coupling through extended transmission capacities and increased cross-border flows.[121]

3.3 Future scenarios

As mentioned earlier, to ensure that Member States submit the highest possible RES pledges and put in place appropriate measures to achieve their pledges, the EU has introduced the soft governance approach of the OMC. Thus, the responsibility for meeting the EU-wide binding RES target is placed at the EU level under this approach. In contrast, the EU Member States in the present case, Bulgaria and Romania are responsible for putting in place the necessary policy instruments and measures to reach the EU-wide RES target.

As noted earlier there is a significant difference between the nationally binding targets for 2020 and the ones for 2030 because the former were binding upon States, while the latter are merely indicative. The situation is further complicated by the fact that the revised 2030 indicative targets set at the Member State level are binding at the EU level. Thus, Member States have a collective obligation to ensure that 'the share of energy from renewable sources in the Union's gross final consumption of energy in 2030 is at least 40%'.[122] Thus, Bulgaria and Romania need to submit RES contributions that add up to at least a 40% RES share at EU level and then implement policy instruments that enable the pledge to be achieved. In the case that the initial pledge does not add up to the EU ambition, the EU may face 'a delivery gap'. Under the OMC approach, the EC can act only where it considers that the targets set by the Member States are insufficient to achieve the collective achievement of the renewable energy target.

However, based on the fact that energy competence is shared between the EU and its Member States (Art 4(2)(j) TEU), it can be stated that the sovereignty of Member States is limited by the need to ensure the achievement of the climate objectives. In such instances, the EC can initiate an infringement procedure the legal basis for which can be found under Articles 258 and 260 TFEU. However, the EC should also consider other legal principles,

[120] Z Bozic et al, 'Power Exchange Prices: Comparison of Volatility in European Markets' (2020) 13 Energies (Basel) 1
[121] Ibid (n.130)
[122] European Commission, 'Commission presents Renewable Energy Directive revision' (14 July 2021) < https://ec.europa.eu/info/news/commission-presents-renewable-energy-directive-revision-2021-jul-14_en>

notably subsidiarity and proportionality (Art 5(3) & (4) of TEU) and therefore, it shall only do that which is necessary to achieve the objective.[123] Thus, the binding nature of the 2030 RES targets at the EU level can be used as a ground to exercise its powers at EU level through a direct intervention in the energy policies of Member States as long as the subsidiarity and proportionality principles are respected. However, it appears that in several cases[124] that the EC brought claims before the European Court of Justice against the non-compliant Member States under the general provision of Article 260(3) TFEU, EU Member States spontaneously complied with their obligations after being referred to the European Court of Justice, which led to the EC to withdraw its claims.

[123] I Mahera and O Stefan, 'Delegation of Powers and the Rule of Law: Energy Justice in EU Energy Regulation' (2019) 128 Energy policy 84

[124] See European Commission v Republic of Poland [2015] ECLI C-320/13; European Commission v Republic of Cyprus [2014] ECLI C/386/13; European Commission v Republic of Austria [2015] ECLI C-663/13; European Commission v Ireland [2015] ECLI C-236/14

4. Conclusion

Although, in theory, the liberalisation process of energy markets in Bulgaria and Romania has been formally finalised, it appears that there are persisting problems that the implementation of the EU energy law could not resolve. While the electricity market in Bulgaria is highly regulated and predominantly dominated by State-owned companies, part of the same holding group, the electricity markets in Romania benefit from the participation of different producers. However, many activities in the electricity market in Romania remain regulated by national institutions. In addition, the regulatory uncertainty, and the lack of transparency as to the access to the grid contribute to the lack of confidence on behalf of investors, which further hinder the competition in the electricity sector in Bulgaria and Romania.

As demonstrated in the case of Bulgaria and Romania, the lack of competition due to liberalised electricity markets has a negative effect on the deployment of renewable energy for power generation because power producers have little incentive to compete with state-owned coal-fired generators. Moreover, the state aid support for the fossil fuel-fired power industry in Bulgaria and Romania blurs the carbon price signal. Therefore, it comes as no surprise that Bulgaria and Romania did not incorporate in their NECPs (2021) coal-phase out plans. Even though burning coal is becoming increasingly unprofitable, mainly due to the EU climate legislation, it looks like the political support for coal in Bulgaria and Romania is far from over.

Furthermore, based on their NECPs (2021) and the assessment of the EC, it is evident that Bulgaria and Romania are aiming at the bare minimum reflected by their targets for renewable energy as a share of gross energy consumption. These targets show very clearly their lack of ambition, as perceived by this author, to pursue green transition beyond what is required from them as a mandatory contribution. Considering the experience of Bulgaria and Romania with the 2020 targets, it can be assumed that once the goal laid out in their NECPs is achieved, the south-eastern EU countries will proceed with their energy plan, which often is in conflict with the EU climate policy.

As demonstrated earlier, Bulgaria and Romania have identified the role of fossil fuel gas as crucial for their energy transition. However, this coal-to-gas transition appears to be the ‘least worst’ option because it will lock Bulgaria and Romania into fossil gas dependency for

a long period. Moreover, this coal-to-gas transition requires substantial financial resources, which Bulgaria and Romania cannot afford, especially in the light of the revised EIB rules according to which natural-gas pipelines will not be eligible to receive EU energy infrastructure funding. Thus, it appears that the question is not whether energy coal phase-out will take place but when and how it will happen.

Based on their NECPs for 2021-2030, it can be concluded that Bulgaria and Romania are lagging behind the rest of the EU Member States in terms of coal-phase out and green transition plans. Therefore, it is uncertain whether the lack of ambition, as noted above, on behalf of Bulgaria and Romania will not hinder the goal of a share of at least 40% of energy from renewable sources in the Union’s gross final consumption of power in 2030. The EU Commission can avert the anticipated failure to meet the 2030 targets by availing itself of the powers enshrined in Art 4(2)(j) of the TEU and initiate an infringement action to ensure the collective achievement of the EU’s climate objectives. In the case of Bulgaria and Romania, an infringement procedure for non-compliance with the EU law can be considered the only tool to enforce Member States' compliance.

Bibliography

Primary sources

Treaties

1. Conference of the Parties, Adoption of the Paris Agreement (adopted 12, 2015) U.N. Doc. FCCC/CP/2015/L.9/Rev/1
2. Consolidated version of the Treaty on the Functioning of the European Union [2012] OJ 1 32
3. Establishing an Agency for the Cooperation of Energy Regulators [2009] OJ 2 211/1
4. Treaty of Lisbon amening the Treaty on European Union and the Treaty establishing the European Community [2007] OJ 1 306

a. EU Case law

5. European Commission v Republic of Poland [2015] ECLI C-320/13
6. European Commission v Republic of Cyprus [2014] ECLI C/386/13
7. European Commission v Republic of Austria [2015] ECLI C-663/13
8. European Commission v Ireland [2015] ECLI C-236/14

a. National Legislation

9. Government of Republic of Bulgaria, 'National Recovery and Resilience Plan of Republic of Bulgaria' (20 July 2021) Version 1.3
10. Government of Romania, 'Integrated national energy and climate plan 2021-2030' (April 2020)
11. Ministry of Energy and Ministry of the Environment and Water of Republic of Bulgaria, 'Integrated energy and climate plan of the Republic of Bulgaria 2021-2030' (2020)
12. RWEA, Law no 220/2008 for the promotion of energy production from renewable energy sources (2008)

a. Secondary legislation

13. Communication from the Commission to the European Parliament, the Council, the European Parliament and Social Committee and the Committee of the Regions: EU Taxonomy, Corporate Sustainability Reporting, Sustainability Preferences and Fiduciary Duties: Directing finance towards the European Green Deal (2021) COM/2021/188 final
14. Directive 96/92/EC of the European Parliament and of the Council concerning common rules for the internal market in electricity (19 December 1996) OJ 1997/L 27/20

15. Directive 98/30/EC of the European Parliament and of the Council concerning common rules for the internal market in natural gas (22 June 1998) OJ 1998/L 204/1
16. Directive 2003/54/EC of the European Parliament and of the Council concerning common rules for the internal market in electricity and repealing Directive 96/92/EC (26 June 2003) OJ 2003/L 176/37
17. Directive 2003/55/EC of the European Parliament and of the Council concerning common rules for the internal market in natural gas and repealing Directive 98/30/EC (26 June 2003) OJ 2003/L 176/57
18. Directive 2009/72/EC of the European Parliament and of the Council of 13 July 2009 on common rules for the internal market in electricity and repealing Directive 2003/54/EC [2009] OJ 2 211/55
19. European Commission, 'Findings and Recommendations related to Bulgarian energy policy' (2013)
20. European Commission, Proposal for a Directive of the European Parliament and of the Council amending Directives 96/92/EC and 98/30/EC concerning common rules for the internal market in electricity and natural gas (13 March 2001) COM(2001) 125 final, 31
21. European Commission, State Aid SA.46894 Romania Amendments to the green certificates support system for promoting electricity from renewable sources C(2016) 8865 Final
22. European Commission, 'Assessment of the final national energy and climate plan of Bulgaria' (14 October 2020) SWD 901 Final
23. European Commission, 'Assessment of the final national energy and climate plan of Romania' (14 October 2020) SWD (2020) 922 final
24. European Parliament, Position of the European Parliament adopted at first reading on 13 March 2002 with a view to the adoption of European Parliament and Council Directive 2002/.../EC amending Directive 96/92/EC concerning common rules for the internal market in electricity (13 March 2002) OJ 2003/C 47 E/351, 359
25. Regulation (EC) No 714/2009 of the European Parliament and of the Council of 13 July 2009 Conditions for access to the network for cross-border exchanges in electricity [2009] OJ 1 211
26. Regulation (EU) No 347/2013 of the European Parliament and of the Council of 17 April 2013 on guidelines for trans-European energy infrastructure and repealing Decision No 1364/2006/EC and amending Regulations (EC) No 713/2009, (EC) No 714/2009 and (EC) No 715/2009 (2013) OJ L 115

Secondary sources

a. Books

27. Dralle TM, *Ownership Unbundling and Related Measures in the EU Energy Sector Foundations, the Impact of WTO Law and Investment Protection* (1st ed 2018, Springer International Publishing 2018)
28. G Mete, '*Energy Transitions and the Future of Gas in the EU Subsidise or Decarbonise'* (1st ed 2020, Springer International Publishing 2020)
29. K. Mathis, B. R. Huber (eds.),' *Energy Law and Economics: Economic Analysis of Law in European Legal Scholarship'* (October 2017)
30. Marhold A-A, '*The Interplay Between Liberalization and Decarbonization in the European Internal Energy Market for Electricity: Energy Law and Economics'* (Springer International Publishing, 2018)
31. Michael G Pollitt, '*The European Single Market in Electricity: An Economic Assessment'* (2019) Springer

a. Journal Articles

32. Ámon A, Popp R and F Heilmann, 'The Political economy of energy in central and Eastern Europe supporting the Net Transition' (E3G 30 Jan 2020)
33. Anastasiu N et. al, 'Romanian coal reserves and strategic trends' [2018] 198 International Journal of Coal Geology 177-182
34. Bonn M & Reizhert G, 'The EU Internal Electricity Market Status and Outlook after the Reform' (2019) CEP
35. Bozic Z et al, 'Power Exchange Prices: Comparison of Volatility in European Markets' (2020) 13 Energies (Basel)
36. Catuti M, Kustova I and Egenhofer C, 'Delivering the European Green Deal for southeast Europe: Do we need a regional approach?' [2020] 1(1) CEPS
37. Cheon A et al., 'Instruments of Political Control: National Oil Companies, Oil Prices, and Petroleum Subsidies' (2015) 48(3) SAGE 375
38. Dahlmann F, 'Liberalisation vs. Decarbonisation: The Effects of EU Renewables and Internal Electricity Market Policies on the Evolution of Fuel mixes and market concentration rates' (n.d) British Institute of Energy Economics
39. Fernihough A and Hjortshøj O'Rourke K, 'Coal and the European Industrial Revolution' (January 2014) NBER Working Paper 19802
40. Glachant Jean-Michel and Ruester S, 'The EU internal electricity market: Done forever?' [2014] 31(1) Utilities Policy 221-228
41. Hinrichs-Rahlwes R , 'Energy Policies at Crossroads − Will Europe's 2030 Targets and Framework Be in Line with the Paris Climate Agreement?' (2019) 4 Renewable energy and environmental sustainability
42. Mahera I and Stefan O, 'Delegation of powers and the rule of law: Energy justice in EU energy regulation' (May 2019) 128 Energy Policy 84-93
43. Marinescu N, 'Changes in Renewable Energy Policy and Their Implications: The Case of Romanian Producers' [2020] 13(24) Energies

44. Meyer-Ohlendorf N, 'An Effective Governance System for 2030 EU Climate and Energy Policy: Design and Requirements' [2015] Ecologic Institute, Berlin
45. Monti A and Martinez Romera B,'Fifty Shades of Binding: Appraising the Enforcement Toolkit for the EU's 2030 Renewable Energy Targets' (2020) Review of European Community and International Environmental Law, 29(2), 221-231
46. Olivier J.G.J. and. Peters J.A.H.W, 'Trends in global CO_2 and total greenhouse gas emissions: 2019 Report' (May 2020) PBL Netherlands Environmental Assessment Agency 7
47. Pachiu D and M Nita, 'Electricity regulation in Romania: overview' (1 October 2020) D&B David and Baias SCA
48. Peeters M and Athanasiadou N, 'The continued effort sharing approach in EU climate law: Binding targets, challenging enforcement?' [18 June 2020], Vol.29 Review of European, Comparative & International Environmental Law
49. Peng D and Poudineh R , 'Electricity market design for a decarbonised future: An integrated approach' [2017] OIES Paper: EL 26 Oxford Institute for Energy Studies 37
50. Ponce et.al., 'The Liberalization of the Internal Energy Market in the European Union: Evidence of Its Influence on Reducing Environmental Pollution' [2020] 13(20) Directions and Mechanisms to Support the Development and Popularization of Renewable Energy Sources
51. Popov P et al., 'Bulgarian electricity market and the large-scale industrial customers' (NEK and SERC, 2003)
52. Pietzcker P R et al., 'Tightening EU ETS targets in line with the European Green Deal: Impacts on the decarbonization of the EU power sector' (1 July 2021) 293 Applied Energy
53. Radu V et al., 'The Renewable Energy Law Review: Romania' (The Law Reviews, 10 August 2021) CMS Cameron McKenna Nabarro Olswang LLP
54. Schittekatte T and others, 'Making the TEN-E Regulation Compatible with the Green Deal: Eligibility, Selection, and Cost Allocation for PCIs' (2021) 156 Energy policy 112426
55. Silvester van Koten and Andreas Ortmann, 'The Unbundling Regime for Electricity Utilities in the EU: A case of Legislative and Regulatory Capture?' (May 2007) CERGE-EI Working Papers Series
56. Sirleshtov K et al., 'CMS Expert Guide to renewable energy law and regulation Renewable energy law and regulation in Bulgaria' (CMS, 18 December 2020)
57. Staykov S, 'Power Market Liberalization in Bulgaria: A Decade Old Problem' (4LIBERTYEU, 4 April)
58. Stephenson E, Doukas A and Shaw K, 'Greenwashing Gas: Might a "Transition Fuel" Label Legitimize Carbon-Intensive Natural Gas Development?' (2012) 46 Energy policy 452

59. Stet M, 'Characteristics of the Romanian energy market' [2017] 200 IOP Conference Series: Materials Science and Engineering
60. Trifonova M, Renewable Energy Sector Development In Bulgaria - An Institutional Analysis, (Yearbook of the Faculty of Economics and Business Administration, Sofia University, Faculty of Economics and Business Administration, Sofia University St Kliment Ohridski – Bulgaria, June 2019) 17(1), 311-333
61. Vanhercke B, 'Inside the Social Open Method of Coordination: The hard politics of 'soft' governance' [2016] UvA-DARE
62. Voicu-Dorobanțu R et al, 'Tackling Complexity of the Just Transition in the EU: Evidence from Romania' (2021) 14 Energies (Basel) 1509

a. Reports

63. Agora Energiewende and Ember, 'EU Power Sector in 2020: Up-to-Date Analysis on the Electricity Transition', (2021)
64. CEE Bankwatch Network, 'The role of gas in the recovery and resilience plans' (CEE Bankwatch Network, 31 May 2021)
65. Center for the Study of Democracy, 'Stifed Decarbonisation assessing the Bulgarian National Energy' (2019) 8
66. CEE Bankwatch Network, 'The energy sector in Romania' (n.d)
67. CMS, 'CMS Expert Guide to electricity law and regulation: Electricity law and regulation in Romania' (1 January 2015)
68. CMS, 'Romania: Liberalisation of the energy market' (Law-Now, 10th January)
69. Couture, Toby D., Pavlov T and Stoyanova T, Scaling-up Distributed Solar PV in Bulgaria (Berlin: E3 Analytics, 2021)
70. CSD, 'Stifled Decarbonisation: assessing the Bulgarian National Energy and Climate Plan' (April 2019)
71. European Environmental Agency, 'Coal-fired power plants remain top industrial polluters in Europe' (09 Jul 2017)
72. EPG, Code of Good Practice for Renewable Energy in Romania (25 May 2021)
73. EEA, 'Total greenhouse gas emission trends and projections in Europe' (18 Dec 2020)
74. Eurelectric,'Powering the Green Deal' [December 2019]
75. European Parliament, Position of the European Parliament adopted at first reading on 13 March 2002 with a view to the adoption of European Parliament and Council Directive 2002/.../EC amending Directive 96/92/EC concerning common rules for the internal market in electricity (13 March 2002) OJ 2003/C 47 E/351 359
76. European Commission, 'An EU strategy to harness the potential of offshore renewable energy for a climate neutral future' (19 November 2020) SWD (2020) 273 final 5
77. European Commission, 'Communication on 'Clean Energy For All Europeans'' [2016] Brussels COM (2016) 860 final

78. European Commission, ‘Country Report Bulgaria 2020’ (26 February 2020) SWD (2020) 501 final
79. European Commission, ‘Europe 2020: A strategy for smart, sustainable and inclusive growth’ (2010) COM (2010)
80. European Commission, ‘Investment Challenges in Energy, Transport & Digital Markets Economic and Financial Affairs: A Forward Looking Perspective’ (November 2016) Institutional Paper 041
81. IEA, ‘Market Report Series: Gas 2018’ [26 June 2018]
82. IEA, ‘Net Zero by 2050: A Roadmap for the Global Energy Sector’ (July 2021)

a. Websites and Blog Articles

83. Bulgarian Energy Holding, ‘History’
84. CEE Bankwatch Network, ‘The energy sector in Bulgaria’ (n.d)
85. Climate Action Network Europe, ‘State aid regime à la Green Deal – Subsidies to fossil fuels subvert Just Transition in Gorj County’ (May 2021)
86. CMS, 'Electricity law and Regulation in Bulgaria' (CMS, 1 January)
87. Council of the EU Press Release, ‘Council adopts European climate law’ (28 June 2021)
88. Council of the European Union, ‘Fit for 55’
89. Energy Industry Review, ‘Coal Mines in Europe: A Reality We Still Need to Accept’ (2021)
90. European Commission, Communication on 'Clean Energy For All Europeans' [2016] Brussels COM (2016) 860 final
91. European Commission website, ‘CEF Energy’
92. European Commission website, ‘Clean energy for all Europeans package’ (n.d)
93. European Commission website, ‘Effort sharing 2021-2030: targets and flexibilities
94. Policy’
95. European Commission, ‘European Green Deal: Commission proposes transformation of EU economy and society to meet climate ambitions’ (14 July 2021) Press Release
96. Eurostat, ‘Renewable Energy Tables and Figures-Second Update’ (2020) Eurostat Press Office: Luxembourg
97. Green Recovery tracker, ‘Report: Bulgaria’ (15 March 2021)
98. K Taylor and V Makszimov, 'State vs private: Europe’s mismatched transition out of coal' (Euractiv, 3th June)
99. Simon F, 'Gas denied ‘transition’ fuel status in draft EU green finance rules' (Euractiv, 11 November)
100. M Ciucci., A Keravec, ‘Internal market’ (May 2021) European Parliament
101. Simon F, 'EU shifts energy infrastructure funding away from gas, into electricity grids' (Euractiv, 16 Dec)

Centre for Energy, Petroleum
and Mineral Law and Policy
University of Dundee

Centre for Energy, Petroleum and Mineral Law and Policy
University of Dundee
Nethergate
Dundee
DD1 4HN

e: dundee.ac.uk/cepmlp