

ROMANIA'S ENERGY SECURITY, REGIONAL AND EUROPEAN ECONOMIC STABILITY FACTOR

Abstract:	<p><i>The liberalization of energy markets in the European Union, as well as Russia's invasion of Ukraine, were events that equally emphasized the challenges the European Union faced in procuring its energy and fuels consistently and at affordable prices. In such a profoundly unfavorable context, the European Union was compelled to adopt crisis measures both in the short term and, more importantly, medium to long-term solutions to free itself from dependency on Russian fuels.</i></p> <p><i>This study highlights Romania's relatively stable energy situation in this complicated context, as well as the positive prospects it can offer in the region. This can be achieved either through the adoption of proposed measures at the European level or through the solutions that Romania can provide to its partners within the European Union.</i></p> <p><i>In this regard, the paper provides a synthesis of the most significant public policies and specific projects that Romania has established for the coming years to truly become a stabilizing factor in the energy field, both at the regional and European levels.</i></p>
Keywords:	Energy security; energy supply security; renewable energy; decarbonization of energy production; energy markets
Contact details of the authors:	E-mail: cristina.onet@ulbsibiu.ro (1) E-mail: cipriangrigore.florea@ulbsibiu.ro (2)
Institutional affiliation of the authors:	Lucian Blaga University of Sibiu, Law Faculty
Institutions address:	Street Calea Dumbrăvii, no 34, Sibiu, 550324, https://drept.ulbsibiu.ro/ , drept@ulbsibiu.ro

Introduction

The risks and threats that the European Union must face in the field of energy are numerous and extremely complex, referring to issues such as import addiction, lack of diversity of sources, unpredictable prices due to the distortion of demand and supply, geopolitical and technical risks and fight against climate change, the need to decarbonize the economy and its slow pace of achievement, and the slow pace of achieving energy efficiency, the challenges arising from the growing share of renewable energy, given the fluid nature of these energy sources, and last but not least, the need for greater transparency and better integration and interconnection in energy markets.

To find solutions to all these problems, the European Union has conceived an energy policy based on a set of various measures, which will have to generate together an integrated and stable energy market, based on the security of energy supply and the resistance and sustainability of the energy sector.

Evolutions and Approaches at the European Level⁶⁹³

The General Legal Framework

Since its establishment, the European Union has taken into account the creation of the central pillars of its energy policy aims and has done so through the Treaty on the Functioning of the European Union (TFEU), Title XXI, Article 194, which settles that "in the context of the establishment and functioning of the internal

⁶⁹³Parlamentul European, *Politica energetică: principii generale*, <https://www.europarl.europa.eu/factsheets/ro/sheet/68/politica-energetica-principii-generale> (21.11.2023)

market and in the light of the need to preserve and improve the environment, the policy of the Union in the field of energy policy aims at, in the spirit of solidarity between the member states:

- (a) ensuring the functioning of the energy market;
- (b) ensuring the security of energy supply in the Union;
- (c) promoting energy efficiency and energy saving, as well as the development of new energy sources and renewable energies;
- (d) promoting the interconnection of energy networks".

The issue of supply security is settled, in general terms, by Article 122 TFEU, that of energy networks is contained in Articles 170-172 TFEU, and the coal regulations in Protocol 37 (which clarify areas like finance and future European institutions like European Coal and Steel Community, Euratom and also future nuclear policies are also found in the contents of Article 114 TFEU relating to the internal energy market, and the EU's external energy policy is regulated by Articles 216-218 TFEU.

In 2021, the package "Prepared for 55" was developed⁶⁹⁴ that originally aimed at aligning all climate and energy objectives, which included the reviews of all EU climate and energy acts as follows:

- the Renewable Energy Directive⁶⁹⁵;
- the Energy Efficiency Directive⁶⁹⁶;
- the Energy Tax Directive⁶⁹⁷;
- the Energy Performance Directive of buildings⁶⁹⁸;
- the Natural Gas Directive⁶⁹⁹;
- the Regulation⁷⁰⁰.

The revision of the European legislative framework has created innovative carbon-free industries, for example, hydrogen, and recommendations for a new technology configuration of transport of substitute combustible:

- The regulation on the installation of alternative fuels infrastructure⁷⁰¹;
- the ReFuelEU Aviation Initiative⁷⁰²;
- the FuelEU Maritime Initiative⁷⁰³.

EU reacted quickly to the geopolitical reality that followed the Russian invasion of Ukraine. There were promoted and adopted a series of regulations regarding energy supply (March 2022)⁷⁰⁴, transactions of

⁶⁹⁴European Commission, *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee Of The Regions "Fit for 55": delivering the EU's 2030 Climate Target on the way to climate neutrality*, COM/2021/550 final

⁶⁹⁵ European Commission, *Proposal for a Directive of the European Parliament and of the Council amending Directive (EU) 2018/2001 of the European Parliament and the Council, Regulation (EU) 2018/1999 of the European Parliament and the Council and Directive 98/70/EC of the European Parliament and of the Council as regards the promotion of energy from renewable sources, and repealing Council Directive (EU) 2015/652*, COM/2021/557 final

⁶⁹⁶ European Commission, *Proposal for a Directive of the European Parliament and of the Council on energy efficiency*, COM/2021/558 final

⁶⁹⁷ European Commission, *Proposal for a Council Directive restructuring the Union framework for the taxation of energy products and electricity*, COM/2021/563 final

⁶⁹⁸ European Commission, *Proposal for a Directive of the European Parliament and of the Council on the energy performance of buildings*, COM/2021/802 final

⁶⁹⁹ European Commission, *Proposal for a Directive of the European Parliament and of the Council on common rules for the internal markets in renewable and natural gases and hydrogen*, COM/2021/803 final

⁷⁰⁰ European Commission, *Proposal for a Regulation of the European Parliament and of the Council on the internal markets for renewable and natural gases and hydrogen*, COM/2021/804 final

⁷⁰¹ European Commission, *Proposal for a Regulation of the European Parliament and of the Council on the deployment of alternative fuels infrastructure, and repealing Directive 2014/94/EU of the European Parliament and of the Council*, COM/2021/559 final

⁷⁰² European Commission, *Proposal for a Regulation of the European Parliament and of the Council on ensuring a level playing field for sustainable air transport*, COM/2021/561 final

⁷⁰³ European Commission, *Proposal for a Regulation of the European Parliament and of the Council on the use of renewable and low-carbon fuels in maritime transport and amending Directive 2009/16/EC*, COM/2021/562 final

⁷⁰⁴European Commission, *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee Of The Regions „Fit for 55”: delivering the EU's 2030 Climate Target on the way to climate neutrality*, COM/2021/550 final

liquefied gas and hydrogen (April 2022), ending EU vulnerability on energy in Russia (May 2022)⁷⁰⁵, new proposal for legislation (July 2022)⁷⁰⁶. The EU also assumes Regulation 2022/1032 regarding gas storage and Regulation 2022/1369 regarding gas consumption. The Commission urged the legislative process to manage the geopolitics volatility of the day. From September to December 2022, the Council established three exceptional temporary market measures:

- a) a voluntary overall target to reduce gross electricity consumption by 10% and a binding target to reduce peak electricity consumption by 5%;
- b) a ceiling on market revenue at EUR 180/MWh for producers of electricity using renewable energy sources, nuclear energy, and lignite;
- c) a mandatory temporary solidarity toll for the fossil fuel sector.

During September-December 2022, the Council adopted regulations on measures to reduce electricity demand, a temporary revenue ceiling for producers of infra-marginal electricity, a contribution of temporary solidarity for the surplus benefits on fuel industries, development of renewables, and stopping the volatility of gas transactions.

Starting in March 2023, an increasing speed of implementation of the renewable sources program took place gradually eliminating gas and reducing the dependence of consumer bills on volatile fossil fuel prices.

Key Objectives of the European Union's Energy Policy

EU Energy Policy Has the Following Five Main Objectives

The diversification of Europe's energy sources, securing safety energy transactions and collusion of members, a free inland energy market, proper configuration of transportation with no blockades, carbon/free policies, reduction of imports, green jobs, and new economy according to Paris Agreement, identifying new technologies ensuring the transformation of sources and conversion from to renewable stimulation of job creation and economic growth; The decarbonization of the economy and the transition to a low-carbon economy in line with the Paris Agreement; The promotion of research in low-carbon and clean energy technologies and the prioritization of research and innovation to drive energy transition and improve competitiveness.

Energy from Renewable Sources

Solar energy, wind energy, hydroelectricity, geothermal, bioenergies, biofuels, tidal power, photovoltaics, and marine are sustainable and viable energy sources. Those cannot be supplied by the European market only, therefore there is a need for state policies, funds, and programs that must supplement the development of these sources. EU objectives for energy should be multiplying sources, local sources mostly to reduce imports. According to Directive 2018/2001 there is a minimum share of 32% consumption from renewable sources by 2030, hydrogen mostly. According to *The Proposal of July 2021 Commission revising the Renewable Energy Directive*⁷⁰⁷, in July 2022 the target increase to 40%. In May 2022 to 45%.

The Strategy concerning Solar Energy from May 2022⁷⁰⁸, proposes to increase the solar photovoltaic sources by 2025. According to The Offshore Wind Strategy from Renewable Sources, of November 2020⁷⁰⁹,

European Commission, *Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions REPowerEU: Joint European Action for more affordable, secure and sustainable energy*, COM/2022/108 final

⁷⁰⁵European Commission, *Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions REPowerEU Plan*, COM/2022/230 final

⁷⁰⁶European Commission, *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions "Save gas for a safe winter"*, COM/2022/360 final

⁷⁰⁷European Commission, *Proposal for a Directive of the European Parliament and of the Council amending Directive (EU) 2018/2001 of the European Parliament and of the Council, Regulation (EU) 2018/1999 of the European Parliament and of the Council, and Directive 98/70/EC of the European Parliament and of the Council regarding the promotion of energy from renewable sources and repealing Council Directive (EU) 2015/652*, COM/2021/557

⁷⁰⁸European Commission, *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions EU Solar Energy Strategy*, COM/2022/221 final

⁷⁰⁹European Commission, *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions an EU Strategy to harness the potential of offshore renewable energy for a climate neutral future*, COM/2020/741 final

”Prepare for 55” settled climate neutrality by 2050 and, also, development of wind sources. *The Strategy concerning hydrogen from July 2020*⁷¹⁰ proposes the development of 6 GW of hydrogen measures by 2024 and a surplus of 40 GW by 2030. They established the goal of 10 million tons of hydrogen measures as an inland production and another 10 million tons for imports by 2030.

*The Biomethane action plan from May 2022*⁷¹¹ settled a target of 35 billion cubic meters of production by 2030. That proposal is of core importance regarding the Parliamentary decarbonization package of February 2023.

Improvement of Energy Supply Security

The safety policy regarding energy is also important, essential being prevention, organization, and combating the disturbance of installations. The Russian invasion of Ukraine has accelerated the need for safety regulations. *The Regulation (EU) 2019/941 concerning risk preparation in the electricity sector*⁷¹² is about electricity safety, policy, and collaboration between member states. This regulation confers the instruments of safety and management of disasters. *The Regulation (EU) 2018/1999 concerning the governance of the energy union*⁷¹³ initiates a general association of electricity at the EU level, defined as 15% greater than the installed capacity of members. *The Regulation (EU) 2017/1938 concerning the measures to safeguard the security of gas supply*⁷¹⁴ is like the rule mentioned above only that it refers to gas. Russian invasion determined the European Parliament to settle a minimum gas storage level of 80% establishing new targets and new bureaucratic processes for license.

The Regulation (EU) 2022/2576 concerning the strengthening of solidarity through better coordination of gas purchases, reliable price benchmarks, and cross-border gas exchanges⁷¹⁵, provides regulation for the EU energy storage deposits during the 2023/2024 winter. According to the Council Directive 2009/119/EC of 14 September 2009 on the obligation for member states to maintain a minimum level of crude oil and/or petroleum products reserves⁷¹⁶. The member States shall maintain emergency minimum oil reserves corresponding to the average daily net imports over 90 days or the average daily domestic consumption over 61 days, depending on which quantity is higher.

The field of application of Directive 2009/73/EC of the European Parliament and of the Council of 13 July 2009 on common rules for the internal market in natural gas and repealing Directive 2003/55/EC⁷¹⁷ extends to future gas pipelines to and from third countries, with derogations for existing pipelines, and the Directive 2013/30/EU of the European Parliament and of the Council of 12 June 2013 on the safety of offshore oil and gas operations and amending Directive 2004/35/EC contains special provisions on the safety of offshore oil and gas operations.

⁷¹⁰European Commission, *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee Of The Regions a hydrogen strategy for a climate-neutral Europe*, COM/2020/301 final.

⁷¹¹European Commission, *Commission staff working document implementing the REPowerEU action plan: investment needs, hydrogen accelerator and achieving the bio-methane targets accompanying the document communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions REPowerEU Plan*, SWD/2022/230 final

⁷¹²European Parliament and of the Council, *Regulation (EU) 2019/941 of 5 June 2019 on risk-preparedness in the electricity sector and repealing Directive 2005/89/EC*, PE/73/2018/REV/1

⁷¹³European Parliament and of the Council, *Regulation (EU) 2018/1999 11 December 2018 on the Governance of the Energy Union and Climate Action, amending Regulations (EC) No 663/2009 and (EC) No 715/2009 of the European Parliament and of the Council, Directives 94/22/EC, 98/70/EC, 2009/31/EC, 2009/73/EC, 2010/31/EU, 2012/27/EU and 2013/30/EU of the European Parliament and of the Council, Council Directives 2009/119/EC and (EU) 2015/652 and repealing Regulation (EU) No 525/2013 of the European Parliament and of the Council*, PE/55/2018/REV/1.

⁷¹⁴European Parliament and of the Council, *Regulation (EU) 2017/1938 of 25 October 2017 concerning measures to safeguard the security of gas supply and repealing Regulation (EU) No 994/2010*

⁷¹⁵Council, *Regulation (EU) 2022/2576 of 19 December 2022 enhances solidarity through better coordination of gas purchases, reliable price benchmarks and gas exchanges across borders*

⁷¹⁶Council, *Directive 2009/119/EC of 14 September 2009 imposing an obligation on Member States to maintain minimum stocks of crude oil and/or petroleum products*

⁷¹⁷European Parliament and of the Council, *Directive 2009/73/EC of 13 July 2009 concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC*.

The EU policy on trans-European energy infrastructure is governed by TEN-E regulations. Adopted in June 2022, the Regulation (EU) 2022/869 of the European Parliament and of the Council of 30 May 2022 on guidelines for trans-European energy infrastructures concerning the TEN-E identifies 11 core passages for the hydrogen and electricity in the EU. Also, development of Projects of Mutual Interest for EU members and other states and propose new projects and core criteria for the implementation of projects. The Regulation (EU) 2022/869 on TEN-E is financed by the Connecting Europe Facility 2021-2027, established by the Regulation (EU) 2021/1153 Of the European Parliament and of the Council on 7 July 2021 establishing the Connecting Europe Facility⁷¹⁸. The Fund for a Just Transition is the essential EU program for transition to renewables.

The Situation in Romania

Decarbonization of Electricity Production

To ensure the respect of the Romanian state obligation to adopt by 30 June 2022 the legal framework for decarbonization of the energy sector, as follows, setting the cut-off date for the cessation of lignite and hull-based electricity generation, the timetable for the withdrawal from service of the total lignite and hull installed capacity and the closure calendar of lignite and holly mines, given that the phased removal of lignite and coal-fired power plants is the first reform element of Component C6. Energy, from Pillar I. The green transition of the Romanian national recovery and Resilience Plan. As a result, on June 30, 2022, GEO no. 108/ was adopted/2022 regarding the decarbonization of the energy sector which establishes the general legal framework for the phased elimination of lignite and hull electricity production from the energy mix of Romania, setting precise deadlines for the closure and conservation of coal-fired energy groups.

The total installed capacity of electricity based on lignite and coal to be gradually eliminated until the late is 4,920 MW, of which 3,780 MW by the end of 2025, and the execution of safety works, closure works, and the greening of quarries and mines must be completed by the same date⁷¹⁹. The mentioned normative act sets a timetable for these operations. Thus, the remaining coal and lignite energy capacities available on 31 December 2021 shall be phased out as follows.

- a) by the end of 2022, 660 MW of lignite-based electricity generation capacity;
- b) by the end of 2025, an additional 1,425 MW of lignite-based electricity generation capacity;
- c) by the end of 2032 at the latest, additional lignite and hull-based electricity production capacities of 1,140 MW.

Thus, all coal and lignite-based energy capacities will therefore be taken out of operation by 31 December 2032 at the latest. However, they will be able to be reactivated and used under certain conditions and in compliance with the legal provisions in the field of state aid, as well as meeting the requirements related to environmental legislation. Energy capacities to produce electricity based on lignite that have been removed from conservation, are kept outside the energy market, and can only be dispatched if the transmission system operator is likely to lack balancing resources to restore a balance between demand and offer. This requirement is without prejudice to the activation of conserved resources before actual dispatching to be in respect of the activation constraints and the operating requirements of conserved resources.

To replace the electricity generation capacities on lignite and coal that will be closed and in order not to endanger the safety of the National Energy System, new capacities of green electricity production will be created. In this context, the largest producer of coal-fired electricity in Romania - Complexul Energetic Oltenia - is entering a process of deep restructuring⁷²⁰, a restructuring plan which was also approved by the European Commission by Decision C (2022) 553 final of 26 January 2022 was drawn up at governmental level. To support this technological and financial restructuring plan, the CEO has obtained financing from the Modernization Fund worth 897 million euros and new investments in natural gas capacities and renewable energy sources, as follows:

- a) 2 gas groups "ready for hydrogen" type CCGT, with a total capacity of 1,325 MW:
 - Isalnita: 850 MW - with commissioning in 2026;
 - Turceni 475 MW - with commissioning in 2026;

⁷¹⁸European Parliament and of the Council, *Regulation (EU) 2021/1153 7 July 2021 establishing the Connecting Europe Facility and repealing Regulations (EU) No 1316/2013 and (EU) No. 283/2014.*

⁷¹⁹Government Emergency Ordinance No. 108/2022 regarding the decarbonization of the energy sector, Art. 3.

⁷²⁰ Cristina Oneț, *Greenhouse gas emission certificates-financial instruments for implementing enviromental policies in Romania*, "Pandemic Challenges for European Finance, Business and Regulation", Eufire 2021, pp. 330-348

b) 8 photovoltaic parks with a total capacity of 735 MW - by 2024.

Together with the Oltenia Energy Complex, it is also targeted by the restructuring of the Hunedoara Energy Complex. Thus, the capacity to produce electricity based on coal within it, namely energy group Paroseni 4, with an installed power of 150 MW, will ensure, by the end of 2030, neutralization of the coal resulting from the work on the safekeeping of coal deposits. Finally, lignite quarries and coal mining are closed and greened as follows:

a) the quarries of the Oltenia Energy Complex - according to the Restructuring Plan correlated with the need for lignite for energy capacities whose decommissioning did not occur, ensure the safe and stable operation of the National Power System and will gradually cease their activity by the Closing Plan (PIA) for each quarry;

b) Alunu and Berbesti quarries (CET Govora) - closure and greening by 31 December 2027;

c) mining of Hunedoara Energy Complex:

- Lupeni and Lonea - closing and greening until 31 December 2026;
- Livezeni and Vulcan - closing and greening until 31 December 2032.

Modification of PNR and Repower EU Content Proposed by Romania

On 8 September 2023, Romania submitted a request to the European Commission to amend its recovery and resilience plan, to which it also wants to add a chapter dedicated to the Repower EU plan. The Repower EU chapter proposed by Romania covers two new reforms and six new investments, as well as a strengthened measure already in the plan. Reforms and investments in this chapter are linked to increasing green energy production, improving energy efficiency in buildings, and strengthening workforce skills in the field of green energy production.

The modification of the plan proposed by Romania mentions the removal of four investments from the initial plan and the modification of about 70 measures.

Romania's request to change its plan is based on the need to take account of the high inflation recorded in 2022, supply chain disruptions, and the downward revision of its maximum grant allocation through the Recovery and Resilience Mechanism (MRR), from EUR 14,2 billion to EUR 12,1 billion. This review is part of the June 2022 update of the MRR grant allocation key and reflects the comparatively better economic result achieved by Romania in 2020 and 2021 compared to the forecasts initials.

Romania has requested that its share of the Brexit adjustment reserve of 43.2 million EUR be transferred to its recovery and resilience plan. Together with grants to Romania through MRR and REPowerEU (12.1 billion EUR and 1.4 billion EUR respectively) and MRR loans already committed under the original plan (14.9 billion EUR), these funds bring the value of the modified plan presented to almost EUR 28.5 billion.

The reforms and investments in REPowerEU proposed to strengthen the resilience of the national energy system are as follows:

- creation of the legal framework for the use of non-productive/degraded land owned by the State/UAT for green energy production, including the creation of the national single register of non-productive land (allocation of 15,000,000 euros);
- professional training of human resources in the fields of production, storage, transport, and distribution of green energy (allocation of 4,000,000 euros);
- increasing energy efficiency and green energy production (allocation of 229,000,000 euros);
- decarbonization of the agricultural sector by increasing the energy efficiency of main channel infrastructure and equipment related to hydro-ameliorative systems (allocation of 207,000,000 euros);
- use of residential buildings to accelerate the deployment of renewable energy;
- vouchers to stimulate the installation of photovoltaic panels and related energy storage systems for residential buildings belonging to individuals (allocation 233.691.220 euro);
- autonomous energy villages (allocation of 200,000,000 euros);
- new capacity of electricity production from renewable sources (300,000,000 euros allocation);
- digitization, efficiency, and modernization of the national electricity transmission network (allocation of 148,000,000 euros);
- digitization, efficiency, and modernization of the national gas transmission network (allocation of 103,700,000 euros);

Ongoing Projects and Future Plans

The main objectives of Romania's public policies in the energy sector refer to its transformation and decarbonization. To achieve these objectives, Romania implements the most important programmatic documents developed and adopted at the European level, but it also elaborates its programmatic documents. After the implementation of Directive 944/2019 on common rules for the internal market in electricity and amending Directive 2012/27/EU, has been carried out, the Directive on renewable energy sources (Red III and IV) follows and work is being done on a National Hydrogen Strategy, as well as on the updating of the National Energy and Climate Change Plan. A brief analysis of Romania's current energy situation reveals many positive observations. The structure of energy production in Romania shows that 70% is carbon-free, which puts it ahead of many European countries with a long tradition and stronger financial resources, compared to the ones Romania has.

A law on decarbonization was also adopted. It foresees that by 2032, all production capacities using solid fossil sources will be preserved or decommissioned, and these will be replaced by nuclear units. It is about Units 3 and 4 from Cernavoda in the perspective of 2031. Romania is also running a project to place a power plant with small modular nuclear reactors in Doicești, which was planned to be put into operation in 2029. Renewable energy is growing. At the level of 2030, in addition, there will be another 10,000 MW installed from renewable energy sources. The first step was made with the implementation of Directive 944, in December 2021, by introducing the paragraph on quantitative and financial compensation. Consequently, there is currently over GW installed at prosumers. This development will continue, and at the end of 2023, it is expected to be close to 1.5 GW installed at prosumers.

As for the electricity networks, significant amounts allocated were made available to the carrier (Transelectrica), as well as contracts signed for the development of the transport network. These are 430 million euros from signed contracts and another 150 million euros from contracts under negotiation. About the distribution of electricity, microgrid networks are considered a form of development of future systems, as they must deal with many more territorially dispersed producers and, at the same time, be able to track the traceability of energy produced and consumed in these microgrids.

Regarding the expansion of natural gas production in the Continental Black Sea Platform, it is estimated that the association between Petrom and Romgaz on the exploitation of natural gas in the Neptun Deep perimeter will lead to, at the end of 2026, the beginning of 2027, at an additional volume of approximately 8 billion cubic meters per year, which will cover Romania's consumer needs and put it in the situation of becoming a supplier of stability in this field in the region.

From a financial point of view, the Romanian Government has two instruments, namely PNRR and the Modernization Fund. PNRR contracts are being signed for renewable production capacities of around 590 million euros and the final target is 950 MW. Thus, contracts were signed for the construction of new high-efficiency cogeneration capacities in Constanta, Arad, Craiova, and Ramnicu Valcea. For energy storage in batteries projects and integrated chains are under evaluation, production, battery assembly, or photovoltaic panels in Romania. Also, a call for projects for hydrogen production is under evaluation. All these programs represent investments that are carried out through PNRR and have an estimated value of 1.1 billion euros.

At the same time, Romania has the Fund for Modernization at its disposal, until 2030. More than 5.3 billion euros were allocated through signed contracts, individual projects, and schemes approved by the Investment Committee for this fund. It is about 890 million euros of financing for the Oltenia Energy Complex to produce energy from photovoltaic sources of 730 MW, which is added to the 1,3 GW installed in combined cycle power plants. Applications were sent for three more projects of 150 million euros for Transelectrica, including an interconnection project Suceava – Balti, with the Republic of Moldova. 100-million-euro contracts were signed with distribution operators, which will continue until the competition of 1.3 billion euros, providing investment grants to those operators covering between 80 and 85% of the investment value, to make the network more resilient and able to accommodate new producers from renewable sources, dispersed from a territorial point of view. 93 million euros are still available for the Transgaz network, for the development of interconnections and lines that will make possible the use and transport of gas from the Black Sea to the internal transport network.

Finally, more than 2 billion euros in financing schemes for renewable energy production have been created and approved. All types of renewable sources are considered, not just wind and photovoltaic. These financing schemes are divided as follows: 500 million euros for public authorities, 500 million euro for

prosumers, 500 million euro for independent producers, and 500 million through a scheme to be developed by the Ministry of Agriculture for the rehabilitation of thermal energy networks⁷²¹.

Conclusions

As the war in Ukraine has exacerbated the existing European and international energy problem by generating high energy prices, it has become imperative to find new solutions to secure the energy supply of European states. This crisis context has highlighted the serious dependence of EU economies on fossil fuels (natural gas, oil, and coal) in Russia. The "REPowerEU" plan brought measures to reduce the EU's energy dependence on all types of Russian fuels and ensured that the implementation of the European Green Pact was accelerated through new actions, considering the legislative package "Prepare for 55".

Additional funds were needed to accelerate further the decarbonization of European economies, close infrastructure gaps in the EU and address important cross-border links. Measures have been taken into consideration to mitigate the impact of energy supply disruptions on both companies and the population.

The plan is accompanied by legislative measures, including a proposal for a regulation aimed at introducing chapters in national recovery and resilience plans dedicated to increasing the resilience of the EU's energy system, that is a proposal for a directive modifying Directive 2018/2001 on the promotion of the use of energy from renewable sources, Directive 2010/31 on the energy performance of buildings and Directive 2012/27 on energy efficiency. The new plan and related initiatives consider member states' use of fossil fuels (coal, oil) and nuclear energy as transitional, temporary solutions, which should not incriminate the achievement of the long-term objectives set out in the European Green Deal.

Romania has made efforts and is still working to integrate these new visions into the EU's common energy policy. If on some restructuring levels, it still has a lot to do, from the point of view of energy security, it has an energy potential favorable to growth on all levels, and for this, it needs important investments for:

- restructuring of the energy mix;
- strengthening existing capacities;
- creation of public infrastructure capable of supporting new investments in the energy sector;
- stimulating investment in the private sector, especially in the field of renewable energy sources.

Bibliography

Studies and Articles

1. Cristina Oneț, *Greenhouse gas emission certificates-financial instruments for implementing environmental policies in Romania*, "Pandemic Challenges for European Finance, Business, and Regulation", EUFIRE 2021

Documents and Legislation

1. Council, *Regulation (EU) 2022/2576 of 19 December 2022 enhancing solidarity through better coordination of gas purchases, reliable price benchmarks, and exchanges of gas across borders*
2. Council, *Directive 2009/119/EC of 14 September 2009 imposing an obligation on Member States to maintain minimum stocks of crude oil and/or petroleum products*
3. European Commission, *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, and the Committee of The Regions „Fit for 55”: delivering the EU's 2030 Climate Target on the way to climate neutrality*, COM/2021/550 final
4. European Commission, *Proposal for a Directive of the European Parliament and of the Council amending Directive (EU) 2018/2001 of the European Parliament and of the Council, Regulation (EU) 2018/1999 of the European Parliament and of the Council and Directive 98/70/EC of the European Parliament and of the Council as regards the promotion of energy from renewable sources, and repealing Council Directive (EU) 2015/652*, COM/2021/557 final
5. European Commission, *Proposal for a Directive of the European Parliament and of the Council on energy efficiency*, COM/2021/558 final

⁷²¹<https://cursdegovernare.ro/inscrieri-deschise-conferinta-cdg-online-romania-si-noua-ordine-energetica-europeana-rolul-local-businessul-cum-sa-devenim-centrul-energetic-regional.html> (23.11.2023)

6. European Commission, *Proposal for a Council Directive restructuring the Union framework for the taxation of energy products and electricity*, COM/2021/563 final
7. European Commission, *Proposal for a Directive of the European Parliament and of the Council on the energy performance of buildings*, COM/2021/802 final
8. European Commission, *Proposal for a Directive of the European Parliament and of the Council on common rules for the internal markets in renewable and natural gases and hydrogen*, COM/2021/803 final
9. European Commission, *Proposal for a Regulation of the European Parliament and of the Council on the internal markets for renewable and natural gases and for hydrogen*, COM/2021/804 final
10. European Commission, *Proposal for a Regulation of the European Parliament and of the Council on the deployment of alternative fuels infrastructure, and repealing Directive 2014/94/EU of the European Parliament and of the Council*, COM/2021/559 final
11. European Commission, *Proposal for a Regulation of the European Parliament and of the Council on ensuring a level playing field for sustainable air transport*, COM/2021/561 final
12. European Commission, *Proposal for a Regulation of the European Parliament and of the Council on the use of renewable and low-carbon fuels in maritime transport and amending Directive 2009/16/EC*, COM/2021/562 final
13. European Commission, *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, and the Committee of The Regions „Fit for 55”: delivering the EU's 2030 Climate Target on the way to climate neutrality*, COM/2021/550 final
14. European Commission, *Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee, and the Committee of the Regions REPowerEU: Joint European Action for more affordable, secure, and sustainable energy*, COM/2022/108 final
15. European Commission, *Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee, and the Committee of the Regions REPowerEU Plan*, COM/2022/230 final
16. European Commission, *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, and the Committee of the Regions "Save gas for a safe winter"*, COM/2022/360 final
17. European Commission, *Proposal for a Directive of the European Parliament and of the Council amending Directive (EU) 2018/2001 of the European Parliament and the Council, Regulation (EU) 2018/1999 of the European Parliament and the Council, and Directive 98/70/EC of the European Parliament and the Council regarding the promotion of energy from renewable sources and repealing Council Directive (EU) 2015/652*, COM/2021/557
18. European Commission, *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, and the Committee of the Regions EU Solar Energy Strategy*, COM/2022/221 final
19. European Commission, *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, and the Committee of the Regions an EU Strategy to harness the potential of offshore renewable energy for a climate-neutral future*, COM/2020/741 final.
20. European Commission, *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, and the Committee of The Regions a hydrogen strategy for a climate-neutral Europe*, COM/2020/301 final
21. European Commission, *Commission staff working document implementing the REPowerEU action plan: investment needs, hydrogen accelerator, and achieving the bio-methane targets accompanying the document communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions REPowerEU Plan*, SWD/2022/230 final
22. European Parliament and of the Council, *Regulation (EU) 2019/941 of 5 June 2019 on risk-preparedness in the electricity sector and repealing Directive 2005/89/EC*, PE/73/2018/REV/1.

23. European Parliament and of the Council, *Regulation (EU) 2018/1999 11 December 2018 on the Governance of the Energy Union and Climate Action, amending Regulations (EC) No 663/2009 and (EC) No 715/2009 of the European Parliament and the Council, Directives 94/22/EC, 98/70/EC, 2009/31/EC, 2009/73/EC, 2010/31/EU, 2012/27/EU and 2013/30/EU of the European Parliament and the Council, Council Directives 2009/119/EC and (EU) 2015/652 and repealing Regulation (EU) No 525/2013 of the European Parliament and the Council, PE/55/2018/REV/1*
24. European Parliament and of the Council, *Regulation (EU) 2017/1938 of 25 October 2017 concerning measures to safeguard the security of gas supply and repealing Regulation (EU) No 994/2010*
25. European Parliament and of the Council, *Directive 2009/73/EC 13 July 2009 concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC.*
26. European Parliament and of the Council, *Regulation (EU) 2022/869 30 May 2022 on guidelines for trans-European energy infrastructure, amending Regulations (EC) No 715/2009, (EU) 2019/942 and (EU) 2019/943 and Directives 2009/73/EC and (EU) 2019/944, and repealing Regulation (EU) No 347/2013.*
27. European Parliament and of the Council, *Regulation (EU) 2021/1153 7 July 2021 establishing the Connecting Europe Facility and repealing Regulations (EU) No 1316/2013 and (EU) No 283/2014.*
28. Government Emergency Ordinance no. 108/2022 regarding the decarbonization of the energy sector

Websites

1. <https://cursdeguvernare.ro/>
2. <https://www.europarl.europa.eu/>