

European Green Deal and Energy Crisis in EU

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Abstract: European Green Deal was adopted in December 2010, before the outbreak of Covid-19 pandemic in Europe and is an extremely ambitious project of EU with a strong impact on energy sector and environment. However European Green Deal was preceded by other two major projects, that of energy market liberalization and that of Energy Union, both having important effects on energy market structure and evolution. The five energy packages induced a transition from vertically integrated national energy systems, functioning as natural monopolies, usually in public ownership, to liberalized energy systems dependent on the situation of imperfect markets, but designed to produce high profits for some players and high costs for most citizens and consuming companies.

In 2020 and 2021 some important strategies, (action) plans and other initiatives were adopted under the auspices of European Green Deal and on the 14 July 2021 was also adopted the Communication "Fit for 55" and other 17 documents. The European Commission has proposed revising important directives such as the Directive on Energy Taxation and Emissions Trading Scheme (EU-ETS), which will have a significant impact on the energy sector and market.

Given this European context, our paper will analyze, through a qualitative analysis based on a synthesis of the most recently adopted European regulations, how the Green Deal enforcement may have a potential impact on energy crisis from EU. It is worth mentioning that in 2021 the supply crisis affecting natural gas and electricity markets in Europe and leading to high price increases was caused by quick economic recovery but also by rapid abandon of fossil fuels and nuclear energy in favor of renewable energies, as recommended by Green Deal objectives. In our paper we will also highlight that the model of the natural gas market liberalization has changed the market rules and the nature of supply contracts, creating some difficulties on the supply side. This article also presents the impact of EC Communication on Energy Prices (adopted in October 2021) a, highlighting how the European regulation aims to tackle the exceptional rise in global energy prices, providing a "toolbox" that the EU and its Member States can use to address the immediate impact of current prices increases, and further strengthen resilience against future shocks.

We will also discuss the impact of energy liberalization process on Romania given the fact that although this country was badly affected by the energy liberalization process resumed in 2021 and also by energy crisis will continue to develop renewable energy capacities which will increase moderately in the current decade, especially wind and photovoltaic ones.

Keywords: European Union, Energy Union, Green Deal, energy packages, energy supply crisis, gas supply, renewable energies

JEL Classification: D40, D 42, K 32, L 94, L 95

1. Introduction

In December 2019 when European Green Deal was launched the Energy Union Strategy was already published (since February 2015) and it was conceived as a key component of the Economic Union in the new vision brought by the The Five Presidents' Report, published on June 22, 2015 and entitled to contribute to the completion of the Economic and Monetary Union (EMU) of European Union (EU). The project of Energy Union was meant to provide sustainable, competitive and affordable energy and it is based on five closely related and mutually reinforcing dimensions, which are related to the commitments of Paris Agreement and their implementation was revealed by six regular progress reports.

This project aims at building an energy union that gives EU consumers - households and businesses - secure, sustainable, competitive and affordable energy and it is based on five closely related and mutually reinforcing dimensions: 1) security, solidarity and trust; 2) a fully integrated internal energy market; 3) energy efficiency; 4) climate action, decarbonising the economy and 5) research, innovation and competitiveness.

One may see that the fourth and fifth dimensions are related to the commitments of Paris Agreement regarding the development of renewable or green energy, supporting breakthroughs in low-carbon and clean energy technologies. Since its launch in 2015, the European Commission has published several packages of measures and six regular progress reports, revealing the implementation stage of the five key dimensions, to ensure that the energy union strategy is achieved.

The Regulation on the Governance of the Energy Union and Climate Action (EU) 2018/1999 entered into force on 24 December 2018 as part of the package Clean Energy for All Europeans. The governance mechanism is based on National Integrated Energy and Climate Plans covering a ten-year period from 2021 to 2030, long-term EU and national strategies, as well as integrated reports, monitoring and publication of data.

But not only the Energy Union has influenced and configured the energy markets in the EU but especially the market liberalization packages, which started in the 90s. After Single European Act was adopted in 1986 and implemented until 1992, it has started the market opening of network industries (public utilities) which had been exempted from the application of competition law. The liberalization of public services, which were natural monopolies, had become a major concern of the European Commission as a result of the intense lobbying of private companies made in Brussels in favor of liberalization process. A major role was played by the Competitiveness Advisory Group (CAG) a body of the European Commission and European Round Table (ERT), representing big European corporations (Andrei Mocearov, 2021).

The first liberalisation directives (***First Energy Package***) were adopted in 1996 (electricity) and 1998 (gas), to be transposed into Member States' legal systems by 1998 (electricity) and 2000 (gas). The ***Second Energy Package*** was adopted in 2003, with its directives to be transposed into national law by Member States by 2004, and some provisions entering into force only in 2007. Industrial and domestic consumers were now free to choose their own gas and electricity suppliers from a wider range of competitors, by broking natural monopolies and by creating the legal separation of infrastructure from commercial services using the network. The ***Third Energy Package***, aiming at improving the functioning of the internal energy market and resolving certain structural problems entered into force in September 2009. It has introduced the concept of patrimonial separation (“unbundling”) and increased the power granted to national regulators. The ***Fourth Energy Package*** adopted in 2016 introduced new electricity market rules to meet the needs of renewable energies and to attract investments. It provided incentives for consumers and introduced a new limit for power plants to be eligible to receive subsidies as capacity mechanisms. There was a proposal for a Regulation for the internal energy market, which emphasized free market prices by excluding the possibility of setting a ceiling for wholesale electricity trading prices. The regulation stipulated that the integration of electricity from renewable sources must be done through market rules. The ***Fifth Energy Package***-Clean Energy for All Europeans, adopted in 2019, consisted of eight new laws, bringing considerable benefits for consumers, the environment, and for the economy, but encouraging the most intensive use of market mechanisms, such as spot market transactions to the detriment of long-term contracts.

In conclusion, in the last three decades we have witnessed a transition from vertically integrated national energy systems, functioning as natural monopolies, usually in public ownership, to liberalized energy systems dependent on the situation of imperfect markets, but designed to produce high profits for some players and high costs for most citizens and consuming companies. This process of energy liberalization or transition has overlapped with two other major issues on the energy agenda: energy security and climate change, issues that need public policies rather than market solutions (Mocearov, 2021)

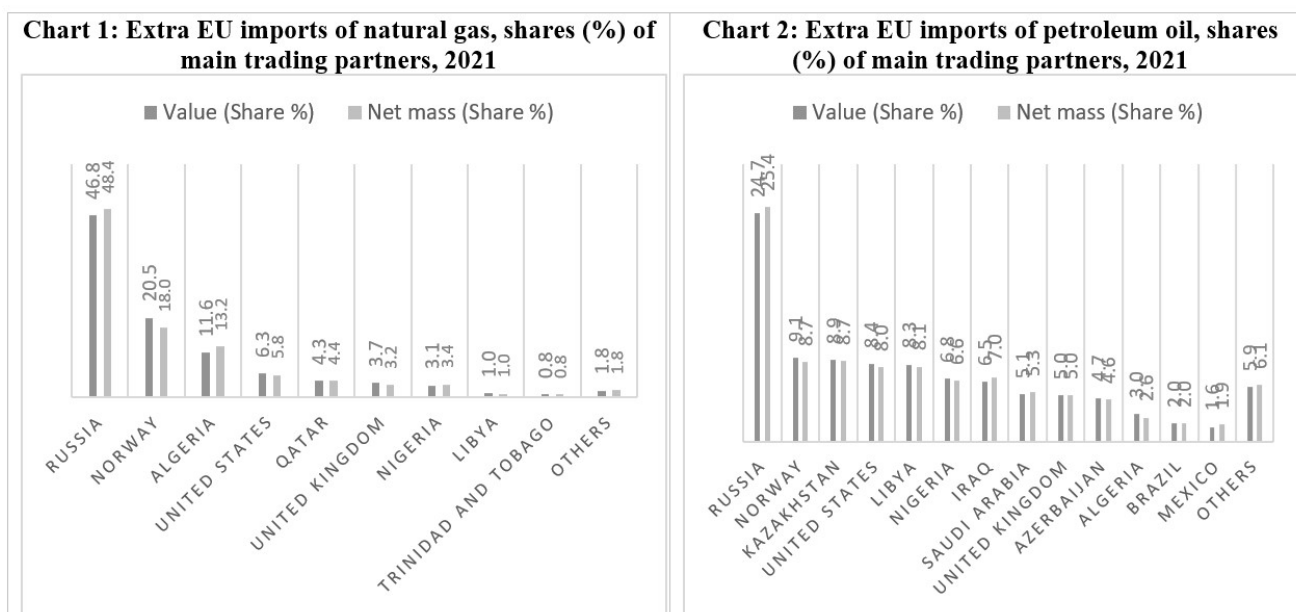
2. European Green Deal and its impact on energy sector

The European Green Deal is an extremely ambitious project of EU with many actions and initiatives aiming at increasing the efficient use of resources, ensuring a fast, fair and inclusive energy transition, promoting a clean and circular economy, protecting nature and reducing pollution and targeting the objective of getting the complete climate neutrality in 2050. Achieving the 2030 climate and energy targets was estimated to require additional annual investments of 260 billion EUR, representing around 1.5% of EU GDP (at 2018 value) with the support of the public and private sectors. EU 2030 Climate Change Plan adopted by European Commission in September 2020 included an updated emission reduction target for 2030 of 55% as compared to 1990 levels. In 2020 and 2021 some important strategies, (action) plans and other initiatives were adopted under the auspices

of European Green Deal and on the 14 July 2021 was also adopted the Communication “Fit for 55” and other 17 documents. The European Commission has proposed revising important directives such as the Directive on Energy Taxation and Emissions Trading Scheme (EU-ETS), which will have a significant impact on the energy sector and market.

All these new adopted regulations pose threats for established fossil fuels suppliers, but also represents plenty of new opportunities for renewable suppliers. The technological, economic and social challenges and transformations will be very high while energy and utility sectors will become more dynamic and more open to innovation and competition. New businesses and new technologies such as hydrogen generation and energy storage systems — including carbon capture and batteries — are tremendous technical advancements. The European Green Deal will trigger a major push towards digitalisation in all sectors, facilitating the clean energy transition in all parts of the energy supply chain, from generation to transmission to distribution.

While the “energy efficiency first” principle was considered to be at the heart of the European Green Deal, the security of energy supply was also deemed to be crucial, supported by other policies and involving a modern, secure and smart energy infrastructure to safeguard it. Boosting renewable energies was considered to have a strong impact on the energy grids and markets but in April 2020 Kadri Simson, European Commissioner for Energy, was fully aware that the decarbonisation of energy system cannot happen overnight and natural gas which owned almost one quarter of the EU’s energy mix, would therefore have a role to play in the medium term, as a substitute for more polluting sources like coal, lignite or oil shale. The role of gas in the transition was up to each Member State to decide upon, much like their energy mix in general, but while the EU could and should contribute to the decarbonisation of the gas sector ultimately, the gas used in the EU will have to be clean. Kadri Simson believed that EU has managed to diversify the sources of energy supply in recent years, in terms of more varied forms of energy and different suppliers, EU remained dependent on energy imports from Russian Federation (see Chart 1 and Chart 2).



Source: Author based on DG Trade (2021).

EU Member States are publicly committed to the implementation of the European Green Deal, but they are divided on the details of its implementation, including on energy issues. They have differing views on issues such as the proposed carbon border adjustment mechanism, the role of nuclear energy in Europe's future energy mix, the complete abandonment of fossil fuels, starting with coal, zero-emission transition technologies and the socio-economic consequences and economic downturns of carbon-intensive industries. Member States are not divided into two diametrically opposed camps, but rather agree or disagree on various environmental issues and policies. This makes the implementation of the European Green Pact a complicated matter but a possible one, if coalitions of states empower each other to implement its constituent components. The EU also needs a strong foreign policy strategy to manage the geopolitical dimension of the European Green Deal and to generate the

political determination to lead global climate action. The EU must also mitigate the socio-economic challenges of implementing the European Green Deal if all efforts are to be successful.

In early October 2021, Angela Merkel drew attention to the difficulties and differences over the implementation of the European Green Deal, and Victor Orban, the Prime Minister of Hungary, stated that he and the Visegrad group opposes taxing the population for homes and cars in order to cut greenhouse gas emissions. The costs of environmental protection should not be borne by the population but by big companies with large emissions and a transformation of the price regulation system to eliminate speculative elements would be required.

Frans Timmermans, responsible for the European Green Deal, announced at the UN High Level Dialogue on Energy, held in late September 2021 in New York, that renewable energy is now more accessible than ever and it is time to break global dependence of fossil fuels, especially since the recovery from the Coronavirus 19 pandemic offers the opportunity to make the transition faster and to build new energy systems based on renewable sources. Addressing this issue during the economic recovery period and cooperation to accelerate the global energy transition is urgently needed, although data now show that demand for fossil fuels in the global market is still rising, as is their prices. In addition, there is currently no infrastructure for storing energy from renewable sources on an industrial scale, nor there is infrastructure for transporting it in a way that would make it an accessible good for all countries in the world. Amy Myers Jaffe, an expert on oil and energy geopolitics and director of the Council on Foreign Relations' Program on Energy Security and Climate Change, says that the shift from fossil fuel-based energy to renewable energy distributed through high-tech networks will be a challenge for the US as there are major difficulties in securing these networks (Veronica Onea, 2021)

3. A partial energy crisis

After the collapse of energy prices in 2020 caused by the effects of the Covid-19 pandemic, especially after the sharp decline in spring, a real supply crisis followed in 2021, which particularly affected the EU. Artur Stratan (2021), energy specialist, believes that the current energy crisis, affecting natural gas and electricity markets in Europe is caused by the euphoria combined with the lack of vision that the supporters of the European Green Deal have shown in the last two years. All EU Member States have implemented the new green measures quickly, without carrying out in-depth impact studies and without wisely planning for the decommissioning of energy production facilities. It is very easy to understand that in order to get rid of polluting energy production facilities, you need to install or possess at least equivalent production capacities. A coal-fired power plant can also work if the sun does not shine for 30 days and even if the wind does not blow. The haste shown by the supporters of the European Green Deal did not take into account the fact that renewable energy is very much influenced by weather conditions, which can sometimes prove to be unfavorable in the short and medium term.

Some Member States and national energy systems, reacted to supply problems, especially wind energy and natural gas shortages, created by the quick abandon of fossil fuels and nuclear energy in favor of renewable energies. Subsequently, as it has already been seen in the summer of 2021, some countries have begun to reopen closed coal mines and also coal-fired power plants. Europe needs energy in abundance and at affordable prices, because these two pillars underpin the sustainability of the energy sector, and secondly, it needs measures to cut greenhouse gas emissions. The gas market was severely affected at European level, when supporters of the European Green Deal campaigned with great enthusiasm for reducing and even banning the financing of gas exploration and production projects. Banks and investment funds came out in front of public audience to declare their withdrawal of financial support for this type of projects. With the withdrawal of funding, all those who had plans to develop gas projects with borrowed money had to give up or seek other sources of funding. But important personalities, like Fatih Birol, Head of International Energy Agency, denied that this crisis is the first one of the energy transition and it can't become a barrier to the policies needed for energy transition.

Analists like David Sheppard (2021) believe that one of the explanation of critical supply situation is related to swing supplies which started to dry up. Due to the fact that winter peak is higher in the Northern Hemisphere swing supplies are needed and the first one is the storage capacities, but they have been reduced and this creates the conditions for more volatile gas prices. Another swing supplier was Europe's largest gas field, Groningen, often used to balance supply with demand but it is almost depleted and induced small earthquakes. Other swing supplier was represented by North Sea gas fields, those belonging to Great Britain being largely exhausted. But also Norway's pipeline gas supplies fell to some extent, and LNG exporters turned more to areas such as East Asia, where prices were higher, and where import demand increased by 50% in last decade (China's demand has tripled).

Artur Stratan (2021) mentioned that the planning of natural gas consumption at European level took into account ideal or optimistic situations and not the possibility of Gazprom closing the gas tap in Europe in order to achieve personal interests. Any matrix of any risk analysis contained this possibility, but the possibility of its occurrence was always minimized. The spring of 2021 was an atypical one, which forced to the maximum both markets - electricity and natural gas. The first to give way was the electricity market and this created a state of chaos at European level, which did not go unnoticed by Europe's major gas supplier, Russia. As the Nord Stream 2 pipeline was already under US sanctions, it had to make the most of this situation, which prefigured the "perfect storm" in the market. Over pan-European electricity crisis had to overlap another crisis. First, gas deliveries were gradually reduced, incidents occurred at production facilities in Siberia, which further cut deliveries, and then low temperatures in Europe also emptied gas storage facilities. Thus began the sharp shortage of gas supply in the EU in August, which culminated with record prices in late September and early October 2021. The market does not yet seem to have stabilized despite the recent increase in Russia's supply, by certification and approval of the Nord Stream 2 pipeline by Germany and the EU. The geopolitical or geostrategic burden of gas imports has become clear, but it is too late for the EU to start setting up commissions in the winter to look at Gazprom's business practices, whether competitive or not.

Moreover the model of the natural gas market liberalization has changed the market rules and the nature of supply contracts, the logic of the liberalization policy leadership being that when the buyer needs a product, he goes to the commodity market (gas hub) and buys it, without the need for a guarantee for supply regulated by a long-term contract. But this is true when there is a surplus of supply on the market, created by many offers, but after a year of pandemic in which demand fell sharply, producers did not come with offers and, in the absence of supply guarantees, they were not required to provide the quantity needed on the market at a given time. In addition, LNG suppliers have obligations only to buyers with firm contracts, and because the price in East Asia has risen sharply, liquefied gas has turned there. Another adverse effect of the commodity market model is financial speculation, which flourished in the fall of 2021 and is responsible for the exorbitant rise in gas prices.

Natural gas and coal prices also rose sharply also under the influence of the upward trend in oil prices, which exceeded \$ 80 /barrel. On the other hand, experts say that oil prices have also been influenced by the explosion in natural gas prices. Artur Stratan is convinced that the price of oil will continue to rise in the coming years. Those who studied the oil market found out that the price of oil had a cyclical evolution of increase and decrease. Now, after a few years of low prices, it is time for the price of oil to recover and continue on an upward trend, at least two or three years.

4. The first measures and actions taken by European institutions

On October 13, 2021, European Commission adopted a Communication on Energy Prices, to tackle the exceptional rise in global energy prices, where included a "toolbox" that the EU and its Member States can use to **address the immediate impact of current prices increases**, and further **strengthen resilience against future shocks**. Short-term national measures include emergency income support to households, state aid for companies, targeted tax reductions, measures to ensure the transparency, liquidity and flexibility of international markets, investigation of possible anti-competitive behaviour in the energy market, a wider access to renewable power purchase agreements. The European Commission asserted its support for investments in renewable energy and energy efficiency, for examining possible measures on energy storage and purchasing of gas reserves, and for assessing the current electricity market design. Presenting the toolbox, Energy Commissioner Kadri **Simson** said: *"Rising global energy prices are a serious concern for the EU. As we emerge from the pandemic and begin our economic recovery, it is important to protect vulnerable consumers and support European companies. The Commission is helping Member States to take immediate measures to reduce the impact on households and businesses this winter. At the same time, we identify other medium-term measures to ensure that our energy system is more resilient and more flexible to withstand any future volatility throughout the transition. The current situation is exceptional, and the internal energy market has served us well for the past 20 years. But we need to be sure that it continues to do so in the future, delivering on the European Green Deal, boosting our energy independence and meeting our climate goals."*

European Commission vision for energy security highlights the fact that **clean energy transition is the best insurance against price shocks in the future, and needs to be accelerated** while EU should continue to develop an efficient energy system with high share of renewable energy. Cheaper renewables may play an increasing role in supplying the electricity grid and setting the price, but other energy sources, including gas, are still required in times of higher demand. For European Commission the current marginal pricing model for

electricity is the most efficient one, but further analysis is warranted. As concerns the gas storage capacity, which is **more than 20% of its annual gas use**, the energy crisis has drawn attention to the importance of storage for the functioning of the EU gas market and on the fact that not all Member States have storage facilities and their use and obligations to maintain them vary.

European Commission proposed medium-term measures for a decarbonised and resilient energy system, such as: investments in renewables, renovations and energy efficiency, developing energy storage capacity in order to support the evolving renewables share, including batteries and hydrogen, investigation made by ACER of existing electricity market design followed by recommendations to the Commission where relevant, revising the security of supply regulation to ensure a better use and functioning of gas storage in Europe, exploring the potential benefits of voluntary joint procurement by Member States of gas stocks, setting up new cross-border regional gas risk groups to analyse risks and advise Member States, boosting the role played by consumers in the energy market.

European Commission seemed to be aware that EU has experienced during the autumn a sharp spike in energy, driven by increased global demand for energy, and in particular gas, and the main cause was economic recovery after the peak of Covid-19 pandemic. The European carbon price has also risen sharply in 2021, but at a lesser rate than gas prices, that impacted on electricity price nine times higher than the impact of the carbon price increase. The Commission had consultations with other European institutions, Member States, industry and international energy suppliers. Several Member States announced national measures to mitigate price rises, but others were looking to the Commission for guidance on what steps they can take. Some international partners indicated plans to increase their energy deliveries to Europe.

Following the Commission Communication, the European Council addressed the recent rise in energy prices and analyzed the impact of these price increases on citizens and businesses. EU leaders agreed that the set of measures presented by the Commission contained useful measures in both the short and long term. The European Council invited the Commission to study the functioning of the gas and electricity markets, as well as the EU ETS market, with the help of the European Securities and Markets Authority (ESMA). The Commission will then assess whether certain commercial conducts would require additional regulatory action. EU leaders also called on Member States and the Commission to make urgent use of the set of measures to provide short-term assistance to the most vulnerable consumers and businesses, taking into account the diversity and specificity of Member States' situations. The Commission and the Council of the EU should also rapidly consider medium- and long-term measures: to contribute to affordable energy for households and businesses; to increase the resilience of the EU energy system and the EU's internal energy market; to ensure security of supply and support the transition to climate neutrality, taking into account the diversity and specificity of Member States' situations. Finally, EU leaders called on the European Investment Bank to see how it can be accelerated investments in the energy transition.

On October 26, 2021, Energy Council of the EU discussed the issue of energy prices and the debate focused on two questions prepared by the presidency:

1. How can EU action support and complement the immediate measures taken by Member States to mitigate the impact of rising energy prices on EU citizens and businesses?

2. In the view of the Member States, are the medium-term measures proposed by the Commission sufficient to meet the challenge posed by future energy price fluctuations? What other measures could be considered at EU and Member State levels, including the use of EU financial instruments?

Energy Ministers welcomed the Commission's "set of measures" and broadly agreed with the Commission's analysis of the causes of the sharp rise in energy prices. With regard to short-term measures, ministers agreed that national measures must be taken urgently to protect the most vulnerable consumers. In this context, the proposed set of measures provides a useful European framework for coordinating national measures. Ministers also discussed possible medium-and long-term options, which include reforming the wholesale electricity market, voluntary gas procurement systems and EU-wide storage solutions. Some Member States have emphasized that climate policies and the transition to clean energy are part of the solution and not the cause of rising energy prices. They insisted that investing in renewable energy, energy efficiency and the integration of energy systems remains a key measure for increasing the resilience of EU energy systems.

Energy Ministers indicated that they looked forward to receiving the additional analyzes and assessments mentioned by the Commission, in particular studies on the functioning of the gas and electricity markets, as well as the EU ETS market. A preliminary report from the EU Agency for the Cooperation of Energy Regulators (ACER) will clarify the current situation on the electricity market. The first preliminary assessment to be presented by the European Securities and Markets Authority (ESMA) in mid-November will allow Member

States to have a clearer picture of the integrity of the European carbon market. Market analysis will provide elements for debate and possible further actions. Several ministers called on the Commission to clarify the role of natural gas and nuclear energy in the EU's sustainable financing taxonomy. The Energy Ministers agreed to take notice in December 2021 of energy prices and progress in implementing the measures contained in the toolbox presented by the Commission. The Energy Council was going to prepare the ground for the December meeting of the European Council, in which EU leaders will return to the issue of energy prices.

5. Conclusions - impact on European Green Deal and energy crisis on Romania's energy sector and economy

The EU wants to transfer carbon costs to buildings, transport, ships, planes, but the most important thing is that it will be transferred to construction. Among the European states, the most affected will be Romania and the Bulgaria, where we will certainly see the impact on energy costs and prices of the new European legislation, such as the new emission trading system. The sharp rise in fuel prices and utility bills for households and businesses will negatively affect the incomes of all workers and the profitability of small and medium-sized enterprises. Renewable alternatives are not yet available for many households. Real estate owners, commuters, small business owners and many consumers will experience higher energy and transport costs without a real opportunity to move towards viable short-term alternatives. The Romanian legislation adopted recently for protection of most consumers will have some effects but only for a limited period as Romania will have to face the effects of market liberalization, which led to very high prices for utilities in 2021.

As a Member State of EU since 2007, Romania has taken over the first two energy liberalization packages and supported the next three. But dismantling of natural monopolies and privatization of distribution began before joining the EU, at the recommendations of the World Bank, being separated power plants, based on primary sources and thus the production of hydroelectric electricity, coal, gas, nuclear power and then wind and solar have become independent, each source with its own production costs, which were and still are very different. Also, the electricity and gas distributions were privatized, the beneficiary companies having clear contractual obligations to modernize the networks. The liberalization of the electricity and gas markets in Romania took place between 2012 and 2018, when the regulated price increased moderately and gradually, as did the production share for the market and ended in 2017/2018 with slight price increases. In the second half of the last decade, international oil prices were in sharp decline. The electricity market has been coupled, regionally, with other EU markets, which allowed transfers of production / supply but also of prices.

In 2019, Emergency Ordinance 114 stopped the liberalization process in the sense that it capped the market prices of electricity and gas. The Ordinance was repealed and on January 1, 2021, liberalization resumed, this time with a very large increase in prices, even 2-3 times, but these increases came mostly from other Member States and from energy suppliers, from liberalization and design of European electricity, gas and carbon markets, to which there were added some speculative contributions due to the application of neoliberal economic views. The justification for aberrant price increases through a supply shock and /or demand shock is incorrect, the demand/supply balance has its contribution, but the main culprit is the speculative nature of these markets, also due to their excessive financing (Mocearov, 2021).

Combating energy poverty will be a rather difficult task. The impact of energy poverty on health is widely recognized. However, tackling the problem is thorny, as energy poverty differs between EU countries. Energy poverty is the most widespread in Bulgaria, about 30% of its citizens struggling to pay their energy bills and in Romania we can speak of a similar proportion. Romanians and Bulgarians already pay the highest electricity prices in Europe as a consequence of the EU-ETS, if they are accounted for in purchasing power. In addition, in Romania the production of coal-based electricity has been significantly reduced and some capacities have been closed, but the level of power consumption will increase quite significantly in the future.

Romania will continue to develop renewable energy capacities, which will increase moderately in the current decade, especially wind and photovoltaic ones. Increasing the cost of GHG emissions in conjunction with an increase in the performance of renewable energy production technologies are factors that will stimulate the expansion of green energy. The development of renewable energy must be accelerated because Romanian government has committed through National Recovery and Resilience Plan (PNRR) to decommissioning of installed coal-fired power generation capacities of 3780-4590 MW between 2021 (second half) and 2025, while gas and renewable power projects, wind and solar, are lagging behind. Romania has set its goal of achieving a share of energy from renewable sources in gross final energy consumption of 30.7% for 2030, taking into account

national particularities, compared to a share of 24.3% recorded in 2019, and the share of energy from renewable sources in the gross final consumption of electricity, which was 41.7% in 2019, will reach 49.4% in 2030.

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