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THESIS

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FACULTY OF INTERNATIONAL MANAGEMENT AND BUSINESS

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EU ENERGY SECURITY PLAN AS A KEY POINT OF INDEPENDENCE IN
INTERNATIONAL RELATIONS

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LIST OF ABBREVIATIONS

ACER	Agency for Cooperation of Energy Regulators
APEC	Asia-Pacific Economic Cooperation
AS	Limited company
CEA	Central Eurasia
COM	Clean Energy for All Europeans
SWFs	Economies' sovereign wealth fund
DSO	Distribution System Operator,
ECSC	European Coal and Steel Community
ENI	Ente Nazionale Idrocarburi, italian oil and gas company
ENTSO-E	Electricity Transmission System Operators
FSRU	Storage and regasification unit
GTS	Gas transmission system
IMF	International Monetary Fund
LNG	Liquefied natural gas
ME	Middle East
NAFTA	North American Free Trade Agreement
NGO	Non-governmental organization
OPEC	Organization of the Petroleum Exporting Countries
PJSC	Joint-stock company
TEN-E	Trans-European Network Infrastructure
TSO	Transmission System Operator
TYNDP	Ten-year plans network development
UN	United Nations
WPPs	Wind power plants

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INTRODUCTION

Energy is the engine of Europe. The well-being of people, industries, and the economy depends on safe, sustainable and accessible energy. The European Union must deal with the significant energy challenges of our times, such as climate change, the increase in dependence on imports, the exploitation of energy resources and guaranteed access to energy for all. The European Union's reliance on energy imports, especially oil and natural gas, serves as a backdrop for policy concerns about energy supply security.

The EU energy industry is unique – it uses a diverse range of energy sources, with oil accounting for the largest share, electricity, nuclear energy, coal and renewable energy sources. However, Certain EU members remain highly reliant on fuel imports, making them fragile in situations of market instabilities or supply difficulties. EU's depletion of domestic reserves, combined with aggressive environmental and energy policies, may force the EU to rely more heavily on natural gas imports. The gas crises in 2006 and 2009 prompted a review of current energy policies. The Commission's Green Paper in 2006 and the Lisbon Treaty that followed emphasised the importance of unified representation of EU concerns at the international level, which has recurred in light of the 2014 Crimean crisis. The recent crisis and the sanctions imposed on both sides put pressure on the EU to explore alternative oil supplies to replace Russia's dubious gas supply, thus improving the EU's energy security prospects.

This particular work examines the effectiveness of energy diplomacy in the EU and its dependency on the supplying countries. More fundamentally, while legal grounds are hotly debated among scholars, estimating the effectiveness of energy suppliers' diversification, the implementation of renewable sources remains of the utmost importance. The study seeks to determine whether current EU strategies are a suitable method for establishing long-term stability.

Plenty of debates are raised concerning energy security strategies. Moreover, different scholars determine energy security and energy diplomacy in different ways. Nevertheless, it seems that energy independence plays a vital role in conflict resolution and is used as a tool in international relations.

The development of a balanced gas and oil partnership and energy security through supply stability will necessitate a shift in the EU's attitude toward Russia and other unstable countries. Being aware of Europe's reliance on imported oil and gas, importers of fossil fuels continue to believe they have the upper hand in negotiations. Europe must maintain its stance on issues such as Ukraine, Nabucco, and Russian activity in Central Asia in the long run.

CHAPTER 1. RESEARCH QUESTIONS, METHODOLOGY, LITERATURE REVIEW

1.1 Research questions and hypotheses

Energy security is one of the most critical aspects that determine the possibilities of sustainable development of society, so solving the problem of energy saving requires the development and implementation of appropriate energy-saving policies. Moreover, it depends on the effectiveness of the implementation of the measures envisaged by it the success of the country's achievement of energy independence.

Energy-saving policy, aimed at conserving energy resources by increasing the efficiency of their use in individual enterprises and the economy as a whole, is a complex combination of internally and externally oriented measures. The choice of steps is determined by the country's characteristics at a particular time of its socio-economic and political development.

This thesis focuses on implementing the EU energy security plan, and European energy diversification as a key point of energy safety and independence from the other supplying countries in international relations. To do that, the study targets the first research question: “What is the level of energy dependency of the EU from the other countries and what are the goals of the EU in energy security?” Despite the constant attention of European countries to security issues, including multilateral and energy security, the EU remains vulnerable to external and internal threats and challenges. In this context, the study investigates the following hypothesis: the EU has effective energy sector strategies and can be self-sufficient and reach its own goals.

The EU energy industry is unique – it uses a diverse range of energy sources, with oil accounting for the largest share, led by electricity, nuclear energy, coal and renewable energy sources. However, Certain EU members remain highly reliant on fuel imports, making them fragile in situations of market instabilities or supply difficulties. EU's depletion of domestic reserves, combined with aggressive environmental and energy policies, may force the EU to rely more heavily on natural gas imports. The gas crises in 2006 and 2009 prompted a review of current energy policies. The Commission's Green Paper in 2006 and the Lisbon Treaty that followed emphasised the importance of unified representation of EU concerns at the international level, which has recurred in light of the 2014 Crimean crisis. The recent crisis and the sanctions imposed on both sides put pressure on the EU to explore alternative oil supplies to replace Russia's dubious gas supply, thus improving the EU's energy security prospects.

Some energy packages outlined in the European energy strategy suggest energy route diversification. However, we can see from current energy routes that moving from one provider to another would not help to improve EU security. Switching to renewable energy sources is the best way to achieve energy independency. Based on this, the second research question is “How the implementation of the Green Deal plan will impact EU international relations?”. The second hypothesis is: oil and gas exporters such as Russia, Saudi Arabia and Iran strongly influenced the political decision making of the EU in the past. Therefore, the implementation of the Green Deal plan will significantly affect the fossil fuel market.

The EU is highly dependent on the policies of other countries. Very often, importing countries dictate their values and rules and use energy resources as leverage in relations. For example, in 2016 and 2020, the EU limited itself to separate sanctions for Russia. As a result, there was a direct military threat to Europe. Another example is Algeria - the EU has repeatedly ignored its democratic values and supported illegitimate elections. To protect these oil and strategic ambitions, the EU has often supported dictatorships and ruthless regimes in Bahrain, Qatar, Saudi Arabia, Angola, Azerbaijan and Nigeria. “How renewable energy sources will make the EU independent from the oil and gas supplying countries?” The third hypothesis is: Diversification of roads and transfer to renewable energy of European countries will strengthen its role of the EU as a global economic and political leader.

1.2 Methodology

To accomplish the goals and objectives of research, a set of general scientific and special methods is used. The methodological basis of logical and systematic research of management processes in general are such methods as: systemic, prognostic, observation, comparison, generalization, analysis and synthesis, abstraction and formalization.

The special methods of scientific knowledge used in the study include analytical-synthetic (analysis of the scientific literature, the ratio of concepts in the field of energy conservation); formal-logical (representation of the essence of the energy management mechanism); comparison (selection of patterns of development of the regulatory framework in the field of energy-saving and division of the process of its implementation in stages); statistical analysis (state of implementation and achievement of the renewable energy).

This work primarily employs qualitative and quantitative approaches. More fundamentally, the thesis endorses related articles and scientific papers from foreign journals as part of the qualitative approach. Books, scholarly journals, papers, and pieces of legislation in energy security are examined. In terms of the quantitative approach, primary statistics from Eurostat used. At the same time, the study chiefly focuses on analyses of EU energy security to find out if transfer to renewable energy sources will work effectively in terms of EU political dependency.

Analysis and perspective of European international relations and energy security don't consider possible wars, pandemics, natural disasters, or any other emergency on EU territory. Such a strategy was also chosen due to the limitations of research methods.

1.3 Literature review and the concept of energy security and energy diplomacy

This section summarises previous scientific research on the role of EU energy security and EU energy diplomacy in international relations. It explores scientific works on energy security and its place in EU energy strategy. Then, it delves further into empirical studies on EU energy perspectives and analysis. Followed by analyzing the literature on the connection between renewable energy sources and the security of the EU. The statistics on the EU situation of export and import of energy sources is an important aspect of this study.

Some issues related to economic and energy security are considered in the works of foreign and European scientists, in particular: Andreas Goldthau, Benjamin K. Sovacool, Zbigniew Brzezinski, Martin Russell, Ahmed Elbassoussy, Manuel Welsch, Tim Boersma, Thomas G. Weyman-Jones, Kacper Szulecki, Henry Alfred Kissinger, K.H. Yu, H. Zhao Saligin, Azamat Tekeev, Leonid Abalkin and others.

The main energy issues nowadays include security of supply a reasonable prices, good governance, environmental friendliness and sustainable development. These challenges have international implications, and energy diplomacy is becoming increasingly important for national actors with unique interests. According to T. Van de Graaf, J. Colgan, energy diplomacy is defined as a strategy of bilateral or multilateral cooperation in order to maximize national interests through stable energy supply (for energy-importing countries) and demand (for energy-exporting countries). It also means a strategy for the production, consumption and trade of energy that is in line with foreign policy objectives. [1]

Energy diplomacy has expanded in recent years to include international efforts to achieve sustainable development and combat environmental problems and climate change. In the framework of the international dialogue, energy diplomacy addresses the national interests of each player and his "dilemmas between the three alternatives": energy security, sustainable economic development and environmental protection (Anna Herranz-Surralles). [2]

Energy diplomacy policy focuses primarily on energy security in the short and long term. Energy security in the short term refers to the security of supply, or a country's ability to purchase fuel that corresponds to its current energy consumption pattern [22]. In the long perspective, energy security includes broader considerations about a country's energy supply and demand, as well as how well they protect national interests and policy objectives in general. Moreover, as the energy landscape changes and energy security becomes linked to several factors, such as the political situation, the environment and sustainable development, international cooperation is becoming increasingly important.

To understand the practical value of using the tools of energy diplomacy in the state's foreign policy, it is advisable to consider modern theoretical approaches to the content of the concept of "energy diplomacy" and its main components. The widespread use of energy diplomacy in the EU is linked to the activities of the so-called seven sisters of the most significant energy concerns, which dominated the world oil market in the 1960s.

Beginning in the 1990s, when individual states began to use energy resources as an instrument of direct political pressure, the concept of energy diplomacy acquired a new meaning (Weinberg, 1990). Today, this term refers to those phenomena in the state's foreign policy that relate to energy resources or the activities of individuals in the energy sector.

UK K.H. Yu and Chinese H. Zhao scientists define energy diplomacy as government-related foreign activities that aim to ensure a country's energy security while promoting business opportunities related to the energy sector. [4,5]

Energy importers, according to Goldthau, use diplomacy to secure their energy supply, whereas energy exporters use it to strengthen their 'access to markets or reserves'. Thus, in order to achieve energy security, governments cooperate, and this is called energy diplomacy. Another way to secure access to energy supplies is with the use of threats, economic sanctions or force, making use of hard power (Kruse 2014). [6]

After analyzing all the definitions, we can identify the main interpretations of energy diplomacy as follows: 1) a strategy of bilateral or multilateral cooperation to maximize national interests through stable energy supply (for energy-importing countries) and demand (for energy-exporting countries); 2) the strategy of production, consumption and trade in energy in a way that meets the objectives of foreign policy.

Outlining the content of energy diplomacy, some political scientists (for example, A. Tekeev) correctly determine that this concept contains all the features of classical diplomacy, being one of the primary means of implementing the set and goals of foreign policy. At the same time, energy diplomacy has some special features, reflecting the close interaction of foreign policy structures with energy companies, their active role in the international arena in the status of independent actors. In this case, they are perceived as tools that implement the state's foreign policy and as a means of regulating international relations in the energy sector. It should be taken into account that the basis of energy diplomacy is the economic interests of states and companies engaged in the extraction, transportation or processing of energy resources. [7]

Different approaches characterize the attempts to develop analytical tools to assess the level of threats and the state of energy security, which does not allow to clearly delineate the subject field and define the scope of the concept of energy security (Alekh Cherp and Jessica Jewell). [8] The development of tools for assessing the level of energy security is impossible without a clear understanding of the meaning of "energy security". Attempts to define the essence of the concept of "energy security" were not systematic and are marked by the use of different approaches.

In the interpretation given by the World Energy Council, energy security is the assurance that energy will be available in the quantity and quality required under these economic conditions. [9]. On the International Energy Agency website, energy security is defined as continuous physical availability at a price that is acceptable from the point of view of environmental protection. [10]

At the same time, there is a difference in the priorities of different groups of countries in energy security. For importing countries, this is primarily to ensure the reliability of their energy supply, diversify sources of energy supply, ensure the security of energy infrastructure, the introduction of new technologies to reduce dependence on energy imports. For exporter countries,

it is consolidating in strategic markets at cost-effective prices, providing capital and financing investments in infrastructure and resource development. [11].

The European Commission gives a more complete definition: "Security of supply means that essential energy needs will be met both through the use of adequate domestic resources extracted in a cost-effective way or held as a strategic reserve, and through available and stable external sources that are supplemented if necessary at the expense of the strategic reserve ". [12]

Unfortunately, in these definitions we can see a certain narrowness and vagueness of the concept of "energy security", because, firstly, this wording does not specify the object and subject of energy security, which does not allow to define the objectives of the strategy of energy security and work out specific means to achieve these goals. Secondly, the cause of threats to energy security, which can be both economic and political, social, natural, man-made, technological in nature, is not specified. Third, such interpretations do not provide for additional inclusion in the concept of energy security of factors that consider the role of the fuel and energy complex in the economy.

It should be noted that within the framework of the International Energy Agency, OPEC, as well as several regional organizations, primarily the EU, NAFTA and APEC, are actively developing conceptual provisions and mechanisms for international energy security, primarily the security of member countries` connections.

In modern economic literature, there are two main approaches defining "energy security", which complement each other.

The first approach identifies the concept of energy security with the definition given by the World Energy Council. [13]

The second approach formulates two complementary concepts of energy security, based on the definition of "security":

1. Energy security is a state of protection of vital energy interests of an individual, society and the state from internal and external threats. [14,15]

2. Energy security is a state of protection of a country, citizens, society, state, economy that serves them from the threat of deficit in providing energy needs with economically available fuel and energy resources of acceptable quality under normal conditions and in emergency

circumstances, as well as from the threat of disruption of the stability of fuel and energy supply. [16, 17]

In this definition, we already see the specification of the object of energy security (state, society, individual). There is no doubt that interests, threats and security are the basic elements of security. Moreover, its primary basis is the interests of the individual, from which follow the interests of society and the state as a tool that provides the best conditions for the development of the individual and society. However, since the threat to security is a set of conditions and factors that endanger the vital interests of the individual, society and the state, the key to the concept of "security" is the term "security" (from internal and external threats), through which many experts define the concept of "energy security".

Energy security studies have evolved from a traditional methodology to an interdisciplinary area. Climate change, globalisation, and the unknown future of fossil fuels have introduced additional aspects such as recycling, energy conservation, greenhouse gas pollution reduction, energy service connectivity (energy poverty), etc. As a result, the idea of energy protection became intertwined with environmental, socioeconomic, political, and protection concerns. International studies on varying views of energy protection are one of the goals of capturing the multidimensional nature of energy security (Sovacool). Instead of attempting to define a single definition, it provides 16 distinct aspects of energy protection, such as sustainable energy resources, equal energy access, energy conservation, etc. [18]

According to the writers, this interpretation varies depending on education, age, ethnicity, history and others. To take things a step further, Sovacool introduces the idea of "cultures" within the energy industry. Sovacool contends that a person's perceptions may be clarified by the society to which he or she belongs. [18]

In the study "Energy and Security: Towards a New Foreign Policy Strategy" American scientists define energy security as "ensuring access to energy resources necessary for the progressive development of national power." [19]

According to the president of the International Research Center W. Wilson Lee Hamilton, "Energy security is the second most important component of public security policy after the national defence." (Kalicki, Goldwyn, 2005). [20]

The downside of energy security is the energy danger that arises due to the acute shortage of fuel and energy resources, uneconomical use of energy, excessive dependence on imports, irrational privatization and privatization of the state energy system, and more. The main factors influencing energy security are the level of supply of own oil, gas and some raw materials, as well as high energy consumption of production.

A new definition of energy security as protection against threats to reliable fuel and energy supply was given at the 32nd Summit of G8 Heads of State and Government (2006), which also clearly identified six essential conditions for strengthening it: increasing transparency, predictability and stability of world energy markets; improving the investment climate; increasing energy efficiency and energy saving; diversification of energy types, ensuring infrastructure security; reduction of energy poverty; addressing climate change. [21]

Analysing all the above approaches to the interpretation of energy security, we note that they have in common the separation of the following three postulates [23]:

- the state of protection of citizens, society, the economy from threats of unsatisfactory energy supply;
- state of protection of interests (national, state, public) in the energy sector;
- the state of protection of energy supply systems (including fuel and energy) in different conditions.

There are various approaches in the scientific literature to the definition of the relationship, the interdependence of basic and specific concepts of security, and energy security in particular. Obviously, in order to form a national energy security strategy, it is necessary to thoroughly investigate all existing approaches to the interpretation of energy security and on this basis develop its model.

Today, the main difficulty in studying energy security is that each of the existing approaches focuses on only one specific aspect. This situation is the insufficient development of the theory of energy security, the methodology of its study and provision.

Without denying the existing definitions of energy security, the most appropriate, in my opinion, in theoretical and practical terms is the following definition: energy security is security in

the energy supply of the state, security of the state in the energy sector, and security of energy supply systems in different conditions.

The analysis of the main approaches to the definition of energy security allows us to conclude that the peculiarities in the interpretation of energy security based on the fact that in relation to energy resources, one country acts as an exporter, another - as an importer.

The supplier is interested in high, and the consumer in low product prices, but both are interested in the security of supply. The study shows the need for further theoretical developments in this area.

CHAPTER 2. CURRENT SITUATION OF ENERGY SECTOR OF EU AND ITS ENERGY SECURITY

2.1 EU energy production and consumption

Energy is the engine of Europe. The well-being of people, industries, and the economy depends on safe, sustainable and accessible energy. However, the energy of the related emission is almost 80% of the EU's total greenhouse gas emissions. Moreover, the European Union must deal with the significant energy challenges of our times, such as climate change, the increase in dependence on imports, the exploitation of energy resources and guaranteed access to energy for all. The European Union's reliance on energy imports, especially oil and natural gas, serves as a backdrop for policy concerns about energy supply security.

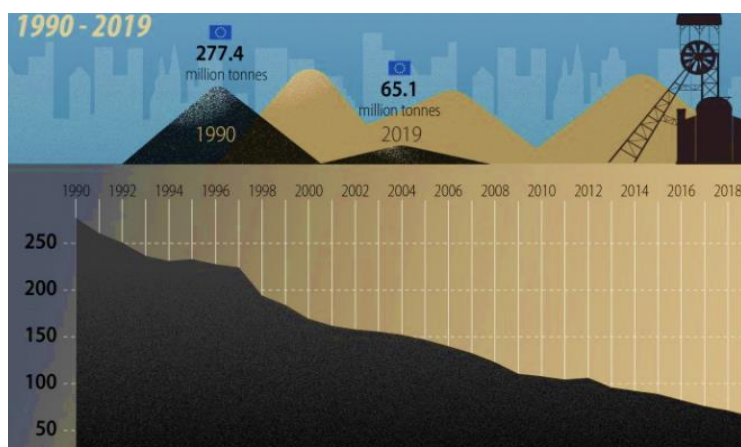
In the EU, the primary production of energy includes the production of Renewable energy 34.3%, nuclear energy 30.9%, solid fuel 21.6%, natural gas 9.3%, and crude oil 3.9% .

[64]

2.1.1 Hard Coal

The inexorable decline of coal production in Europe continues. The latest data released by Eurostat show that 65 million tons of hard coal were produced in Europe in 2019, which is 77 percent less than the 280 million tons in 1990. Today, only two hard coal producing countries are in the EU: Poland, which in 2019 produced 95 percent of all coal in the EU, equivalent to 61.6 million tons, and the Czech Republic - 5 percent, 3.4 million tons. [62]

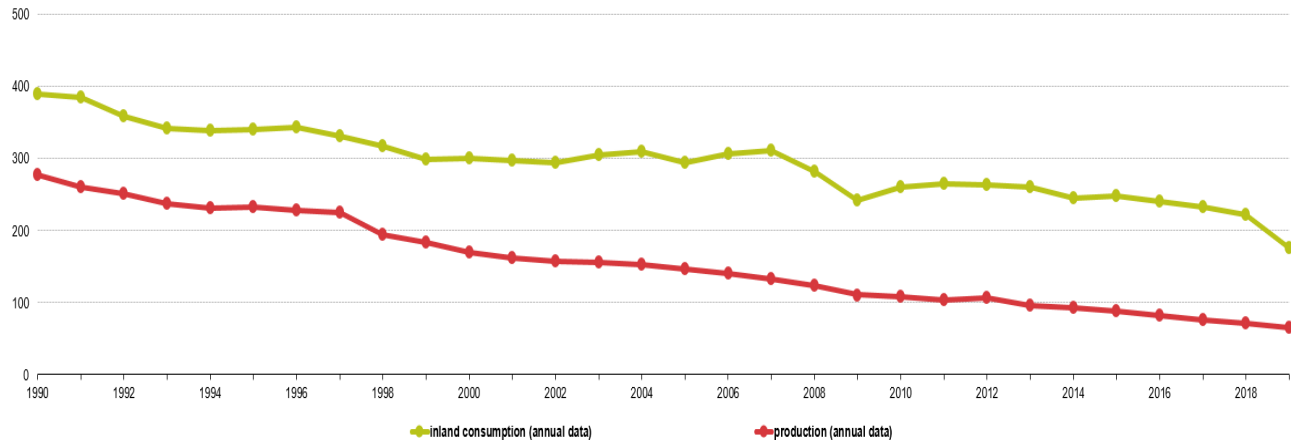
Chart 1. Production of hard coal in the EU in million tonnes



Source: Consumption and production of hard coal (<https://ec.europa.eu/eurostat/>)

Hard coals are mainly used for the production of electricity and heat. After a sharp decline and a brief recovery between 2008 and 2011, consumption of hard coals continued to decrease. In 2019, coal consumption was 55 percent lower (176,4 million tonnes) than 390 million tons in 1990.

Chart 2. Consumption and production of hard coal EU-27, 1990-2019 (million tonnes)

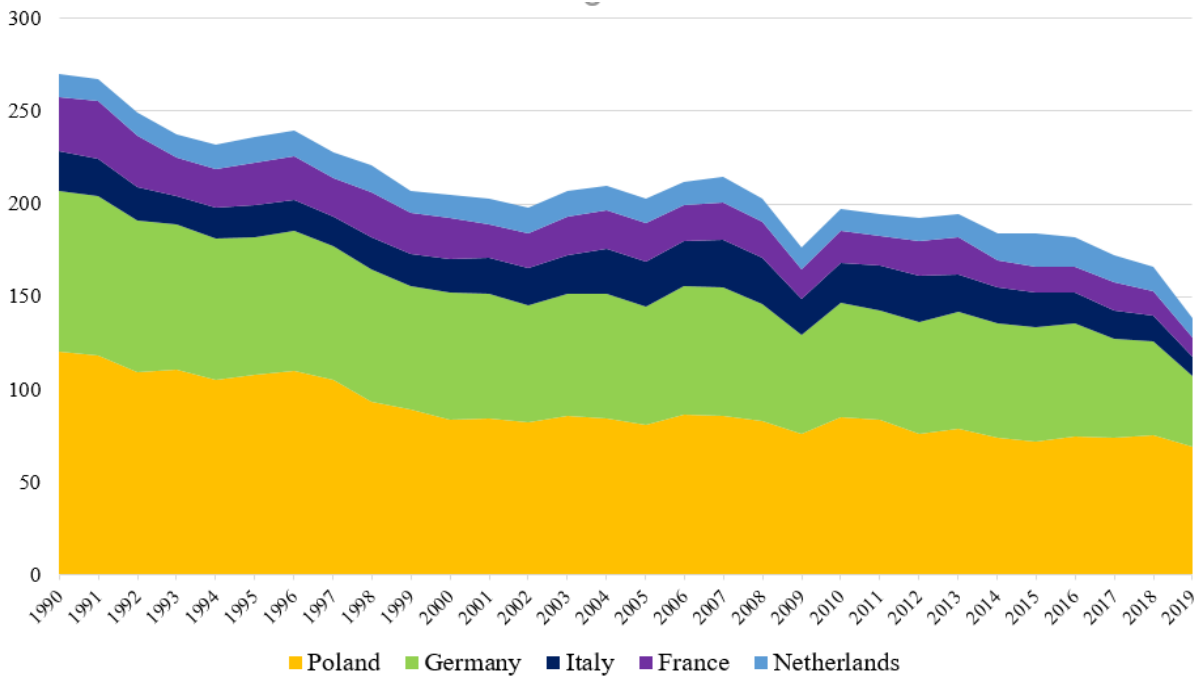


Source: Created by the author based on dataset Eurostat [62]

The last production peak was in 2012 with 123 million tons, since then it rapidly decreased. Poland and the Czech Republic have reduced production by 22 percent and 70 percent, respectively.

More than 80 percent of the total hard coal consumption of the EU accounts for Poland (39%), Germany (22%), Italy (6%), France (6%) and the Netherlands (6%). However, all consumers reduced their values by 20 percent in 2019 in comparison with 2018.

Chart 3. Consumption of hard coal by member states 1990-2019 (thousand tonnes)



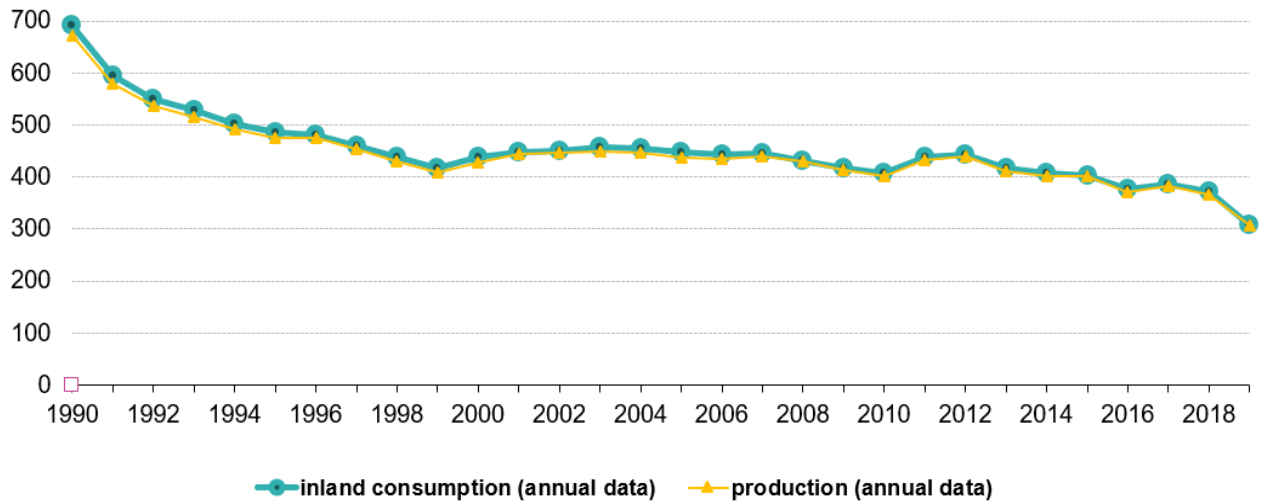
Source: Created by the author based on dataset Eurostat [62]

The EU produces 37 percent of total hard coal consumption, which means that dependency on export is more than 60 percent. Such a significant difference creates dependency in other countries. Countries of the EU exporting hard coal from Russia, the United States, Colombia and Australia.

2.1.2 Brown coal

In 2019 the EU consumed about 308.1 million tonnes. On the graph we can see that from 1990 – 1999's consumption dropped by 56 percent. In the last 20 years the decrease was slighter and since 1999 until decreased 100 million tonnes. The production trend is almost the same and mostly declining following consumption. Overall, countries produce brown coal themselves on their territories.

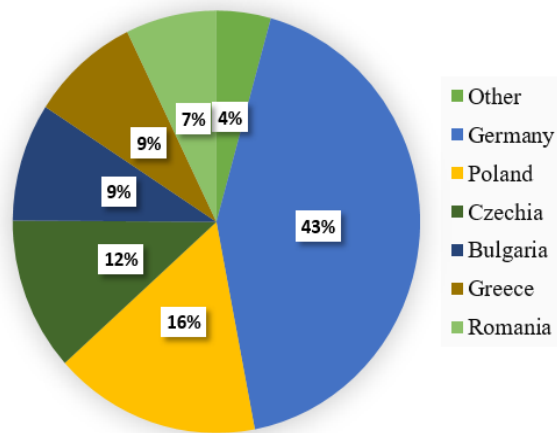
Chart 4. Consumption and production of brown coal EU-27, 1990-2019 (million tonnes)



Source: Created by the author based on dataset Eurostat [62]

The main countries of production and consumption in 2019 are Germany (43%), Poland (16%), Czech Republic (12%), Bulgaria (9%), Greece (9%) and Romania (7%).

Chart 5. Consumption of brown coal by member states 2019 (%)



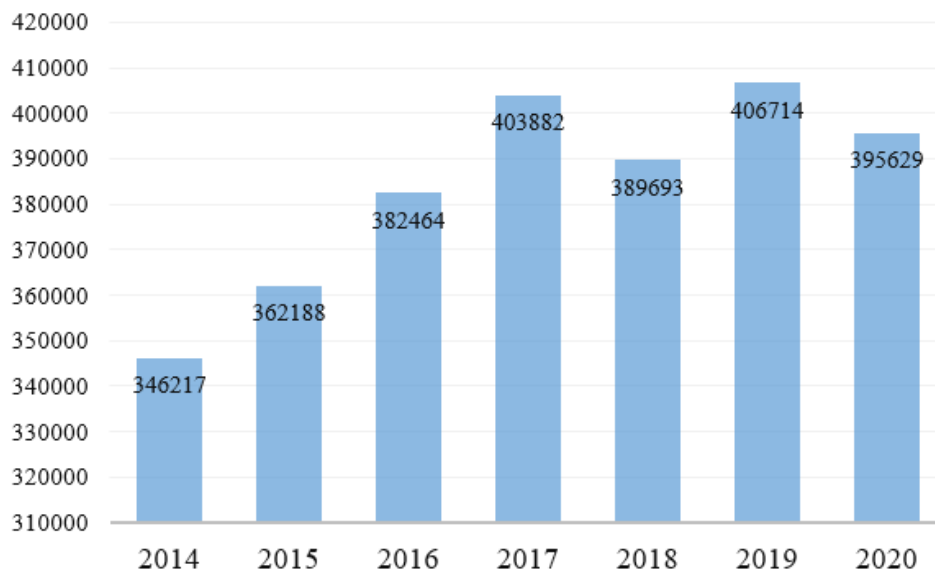
Source: Created by the author based on dataset Eurostat [62]

Hard coal (47%) and brown coal (83%) are both used for the production of power. 83 million tonnes of hard coal in 2019 were delivered to power plants that produce electricity and heat in the EU (brown coal amount was 256 million tonnes)

2.1.3 Gas

In 2020 gas consumption was increased by 49421 million cubic meters compared to 1014. The peak of consumption was in 2019, and there was a slight decrease due to the Covid-19 crisis in 2020 by 2.7 percent. Increases in consumption were recorded in Spain (14.1 %), Greece (9.0 %) and Germany (7.7 %). Overall consumption of EU-27 in 2020 was 396 billion cubic meters.

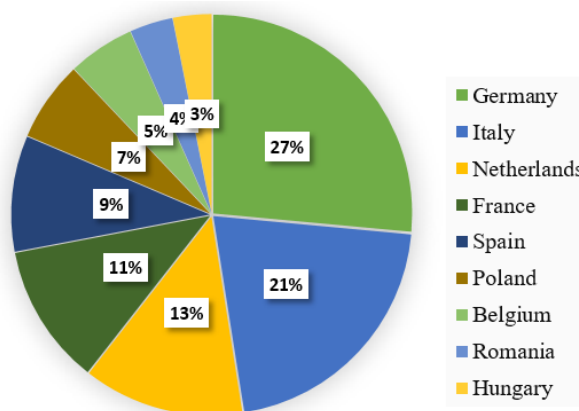
Chart 6. Gross inland consumption of natural gas 2014-2020 (million cubic meters)



Source: Created by the author based on dataset Eurostat [62]

The main countries of natural gas consumption in 2020 are Germany (27%), Italy (21%), Netherlands (13%) and France (11%).

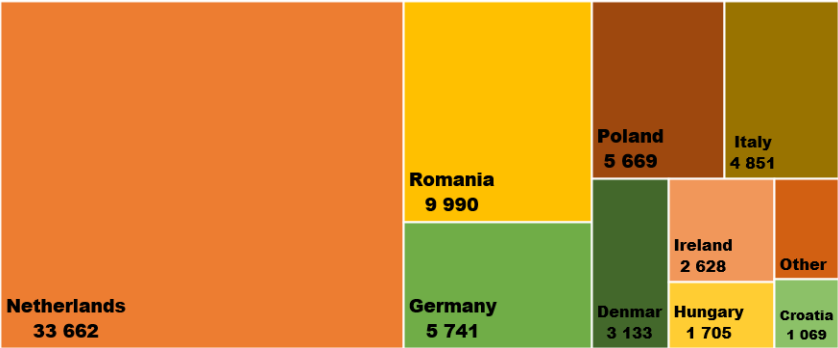
Chart 7. Consumption of consumption by member states 2019 (%)



Source: Created by the author based on dataset Eurostat [62]

Natural gas production continues its decreasing trends. Total natural gas production decreased by 45059 million cubic meters in 2019 compared with 2014. The main natural gas producers are the Netherlands (62%), Romania (10%), Germany (9%), Italy (6%) and Poland (5%). Since 2014 the Netherlands decreased production to 36528 million cubic meters, which is twice less in quantity. In 2019 there was a production decrease of 11% from 2018.

Chart 8. Primary production of natural gas by countries, 2019 (million cubic meters)



Source: Created by the author based on dataset Eurostat [62]

Overall production of gas in EU-27 in 2019 was 69995 million cubic meters, 17% from all the European consumption. That proves high European dependency on other countries. The EU's reliance on natural gas rose to 90 percent in 2019, compared to 84 percent in 2018. The Netherlands became a net importer in 2018, Denmark is the only net exporter in the EU. Natural gas dependence was greater than 90% in 19 Member States.

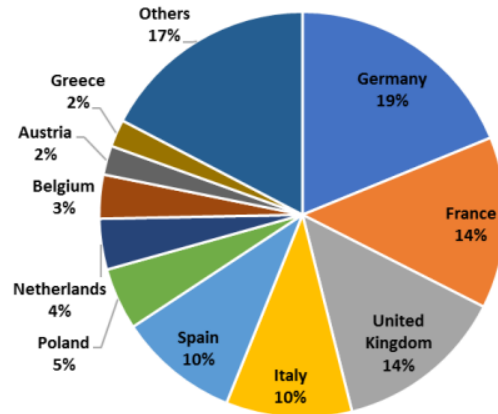
Leading gas importers for the EU in 2019 are Russia 44.7%, Norway 21.3%, Algeria 12.1%, Qatar 6.3%, Nigeria 5.9% and others 9.7%.

2.1.4 Oil

Crude oil and petroleum products have accounted for the majority of total inland energy consumption in the EU for decades. Despite declining supply and fluctuating demand over time, crude oil and its derivatives continue to be the primary sources of energy.

The most significant amount of oil consumed in Germany in 2019 was 19%, the second-largest country was France 14%, following Italy and Spain both 10%.

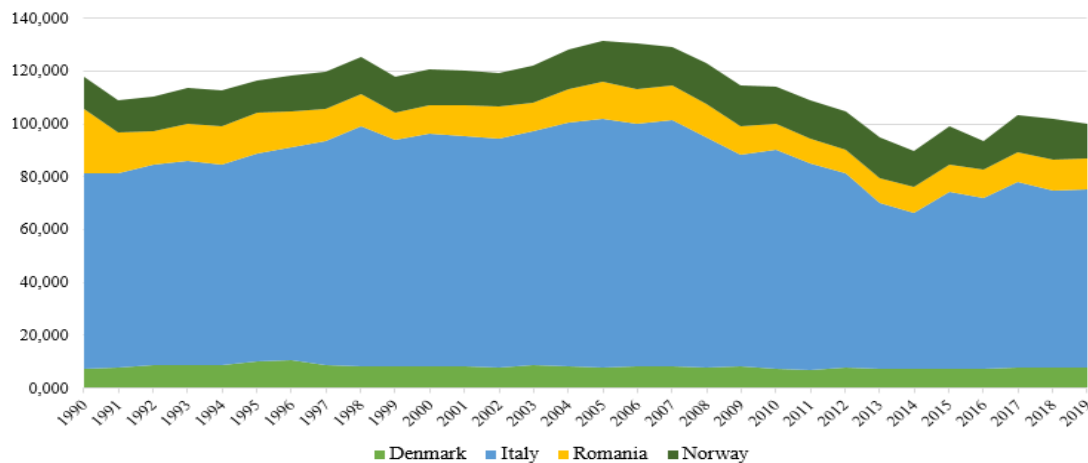
Chart 9. Consumption of oil by member states 2019 (%)



Source: Created by the author based on dataset Eurostat [62]

In 2019 production of crude oil in the European Union was 526.4 million tonnes. The biggest producers of crude oil are Italy (67 million tonnes), Denmark (7.8 million tonnes), Romania (11.8 million tonnes), Norway (13.2 million tonnes).

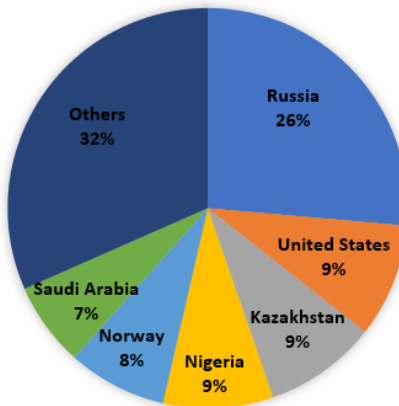
Chart 10. Production of crude oil by member states 1990-2019 (thousand tonnes)



Source: Created by the author based on dataset Eurostat [62]

Russia (26.4%) was less dominant in petroleum oils export than in natural gas, but still far ahead from the second-largest supplier as the United States (9.2%). Other biggest exporters are Kazakhstan, Nigeria, Norway and Saudi Arabia.

Chart 11. Exporters of oil by member states 2019 (%)



Source: Created by the author based on dataset Eurostat [62]

The production of electricity from fossil fuels, especially oil products, is gradually declining, despite a slight rebound in 2018 and 2019. A lot of existing oil-fired plants, which primarily use fuel oil and gas/diesel oil, are only kept as part of the power reserve margin.

Global final energy consumption of petroleum products (excluding international shipping and aviation) has decreased below 1990 levels in the last twelve years. As a result, oil import through pipeline accounts for only a minimal share of the total import.

Most of the imported crude oil (80%) is brought in by tankers and vehicles, and only 20% arrive through two pipelines: Druzhba and Norpipez. [22] Oil pipelines from third countries are therefore currently of limited importance for the energy supply in the EU. Crude oil is mainly transported by pipelines and marine transport, while rail and trucks are mainly used to transport refined products. Enormous volumes, high capital cost and minimal flexibility are features of transportation in pipelines. Transportation in pipelines also has environmental advantages, i.e. lower emissions compared to the other means of transportation.

Druzhba pipeline. The oil system of pipelines Druzhba is the world's largest oil pipeline with a total length of about 5200 km. The pipeline route runs from Almet'yevsk through Samara, Bryansk (Russia) to Mozyr (Belarus), where it branches into two branches: northern (via Belarus, Poland and Germany) and southern (via Ukraine, the Czech Republic, Slovakia and Hungary).

Figure 1. Map of Druzhba pipeline



Source: Commission Staff Working Paper: oil Infrastructures

Due to leaks that have yet to be fixed as a result of disputes between Lithuania, Belarus, and Russia, as well as decreased oil demand in Hungary, the Czech Republic, and the Balkan States, the maximum capacity of the Druzhba line of 85-100 Mtons per year is not being used. Therefore, the current capacity utilisation level is 65-70 Mtons per year.

Norpipe is a system of underwater oil and natural gas pipelines in the North Sea. It supplies oil from the Norwegian Ekofisk and related fields in the North Sea to the United Kingdom and natural gas to Germany.

The pipeline is 354 kilometres (220 miles) long and has a diameter of 34 inches (860 mm). Norpipe Oil AS, a group comprised of ConocoPhillips Skandinavia AS (35.05 percent), TotalFinaElf Exploration Norge AS (34.93 percent), Statoil (18.5 percent), Eni Norge AS (6.52 percent), and SDFI, owns the pipeline (5 percent). ConocoPhillips Skandinavia AS runs it. [66]

Figure 2. Map of Norpipe



Source: Commission Staff Working Paper: oil Infrastructures

Dependency of EU on import from other countries.

The drop in production of primary energy sources lately led to the situation when the EU started exporting more energy resources from other countries.

According to Eurostat, in 2019, the level of dependence on imports in the EU was 60% energy consumption for about 400 billion euros per year (about 1 billion euros per day) which means that more than half of the EU energy needs have been met by clean import. The EU imports almost 96% of crude oil, 89% of natural gas, 43% of coal and other solid fuels. [67]

The highest degree of dependence on imports is observed in two strategically essential sectors - oil and gas. This dependence varies from country to country 90% in Malta, Cyprus and

Luxembourg and up to below 20% in Estonia and Denmark. Dependency from energy imports had increased since 2000 when it was only 56%.

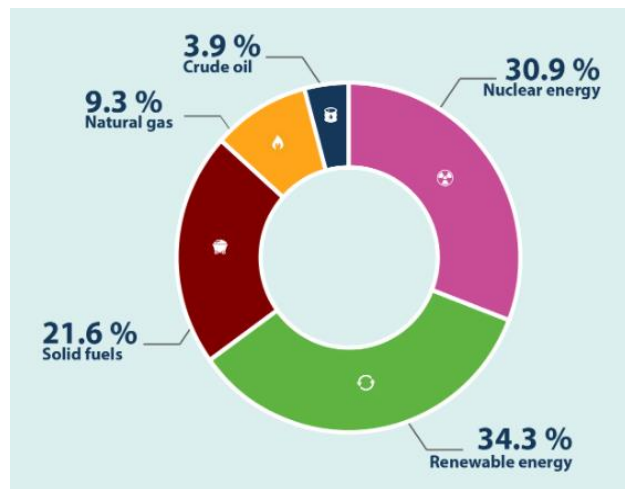
Table 1. EU energy import dependency 2000 – 2019 (% of imports in total gross available energy)

Year	Solid fossil fuels	Oil and petroleum products (excluding biofuel portion)	Natural gas	Total
2000	29,849	93,279	65,721	56,279
2005	35,711	93,860	68,982	57,827
2010	38,235	93,982	67,758	55,746
2011	40,428	93,352	71,620	56,338
2012	39,855	93,862	69,239	54,887
2013	39,049	94,333	68,274	53,905
2014	41,469	94,099	71,909	54,391
2015	40,980	96,761	74,491	56,005
2016	41,096	94,719	75,691	56,122
2017	43,264	93,808	80,189	57,530
2018	43,791	94,498	83,257	58,192
2019	43,970	96,774	89,663	60,704

Source: Created by the author based on dataset Eurostat [62]

The main supplier of natural and crude oil gas in European markets is Russia, with a share of 32% of oil imports to the EU. For importing crude oil and petroleum products, The European Union spends more than 300 billion euros. In 2019, Russian gas company Gazprom supplied 193.9 billion cubic meters to Europe of natural gas, which is 8% higher than the previous volume of 2018. The largest customer of Gazprom in the EU is Germany (53.4 billion cubic meters), and Austria became the largest country in terms of procurement growth (surplus 40%). [67] EU is among the five most significant buyers of gas in Russia. Nevertheless, unlike other clients of the Russian monopoly, Europe is trying to cut energy dependence on Russia. High dependence on a single supplier harms the EU economy, reducing its industry competitiveness and other related business sectors globally.

Chart 12. Share of EU energy production by source



Source: Created by the International energy agency (<https://www.iea.org>) based on dataset Eurostat

High dependence on a single supplier negatively impacts the EU economy, reducing the competitiveness of its industry and other related business sectors globally.

2.1.5 Pipelines

At the beginning of the XXI century, energy resources and diversification of their supply routes became an urgent problem for most European countries. EU countries are import-dependent on oil and gas, and the European market is one of the largest consumers of these resources in the world. The main supplier of energy to Europe is Russia, which is trying to dictate rules in the European energy market. Therefore, European countries' main task is to diversify sources of energy supply to European markets and reduce dependence on Russia. The attention of the world community is focused today on two potentially important energy regions - the Middle East and the Caspian Sea. The Caspian Sea region is quite promising for European countries. Therefore, a topical issue today is to study the main routes of transportation of oil and petroleum products from Russia and the Caspian region to Europe.

EU countries, with the support of the European Union, are actively developing domestic gas transportation infrastructure. In addition to the construction of infrastructure facilities that impact natural gas transportation to the middle countries and between the two countries, a number of projects are implemented that will have a significant impact on the entire European natural gas market and gas infrastructure.

Turkish Stream I – II. Detailed information on the impact of the two Turkish Stream strands on natural gas transportation is provided in Section 2.2. in the sub-item "Natural gas transit forecasts".

The Turkish Stream is a structure of two offshore parallel pipelines (15.75 billion cubic meters per year) connecting the Ruska compressor station near Anapa on the Russian coast with a receiving terminal in the city of Kiyiköy on the Turkish Black Sea coast. There are also two offshore pipelines: one connects the terminal with the Turkish gas transmission system at Luleburgaz; [68] the other is going from the terminal on Turkish territory to the border with Bulgaria. The second pipeline enters the connection point (software) Strandzha-Malkoclar, where the second software is created - Strandzha-2. The existing Strandzha software is connected to the Trans-Balkan gas pipeline.

Construction of two offshore pipelines, a receiving terminal and two onshore connection pipelines was completed by the end of 2019. On January 1, 2020, PJSC Gazprom began sending gas through the first line of the pipelines to Turkey and Bulgaria (and further to Greece and Northern Macedonia) through the second line. However, projects for constructing "receiving" gas pipelines downstream, which are to redirect flows from the "Turkish Stream" to European countries, remain unfinished. [68]

Expected completion dates for downstream pipelines:

- The Bulgarian section from its border with Turkey to the border with Serbia was awarded in September 2019, ending on May 26, 2021;

- The Serbian section from the border with Bulgaria to the border with Hungary was completed in November 2020. In November 2019, the Hungarian GTS, FGSZ, proposed that the Bulgarian and Serbian sites begin commercial operation at full capacity on October 1, 2021. As a result, the distribution of "Turkish Stream" will be as follows:

- 20 billion cubic meters. m per year of output capacity on the border of Turkey and Bulgaria
- 14 billion cubic meters. m per year of output capacity from Bulgaria to Serbia
- 11 billion cubic meters. m per year of output capacity on the border of Serbia and Hungary

Nord Stream II. One of the projects that will have the most significant impact on the European gas market is the Nord Stream II project, which aims to import Russian gas through the Baltic Sea. This project (1230 km long, EUR 9 billion) will double the capacity of Nord Stream, which was commissioned in 2012. Nord Stream II consists of two parallel lines with a total annual capacity of 55 billion cubic meters. Gas (27.5 billion cubic meters each).

Figure 3. EUGAL



Source: Eurostat [52]

Signed long-

EUGAL To ensure the functionality of Nord Stream II, the "receiving" gas pipeline is being built downstream - EUGAL. EUGAL is a new 480 km long gas pipeline connecting the outlet of the Nord Stream II submarine gas pipeline at the Greifswald entry point and the Deutschdorf exit point on the German-Czech border. It consists of two parallel threads to Brandenburg (Kienbaum and Rayland) and then one thread to Doinoidorf.

EUGAL's input potential will be 55 billion cubic meters per year. term contracts provide 45.1 billion cubic meters per year of output at the German-Czech border and 9.9 billion cubic meters per year of output capacity to the west for supply to Germany. EUGAL will be connected to both the NEL (Lubmin) and JAGAL (Brandenburg) pipelines to provide gas outlets to Germany and Western Europe, as well as outlet capacity at Kienbaum and Radeland connection points. The JAGAL pipeline delivers gas from the Yamal-Europe pipeline on the Polish-German border to southern Germany. Thus, flows through Nord Stream II and EUGAL can also affect flows to Germany through the Yamal-Europe pipeline. The EUGAL pipeline will not be fully used until Nord Stream II is completed. The physical connection means that EUGAL can receive some of the gas from Nord Stream I. The first line of the EUGAL pipeline (capacity 30.9 billion cubic meters) was put into operation on January 1, 2020. The second line, providing the full capacity of EUGAL, is scheduled to be commissioned in January 2021. [68]

Baltic Gas Pipeline. The Baltic Gas Pipeline project is a gas pipeline from Norway to the North Sea off the coast of Poland (via Denmark). This project is the result of cooperation between

Figure 4. Baltic Gas Pipeline



Source: Eurostat [52]

the Danish GTS operator Energinet and the Polish GTS operator Gaz-System. The project aims to create a new gas supply corridor on the European market; the European Commission has recognised the project as a priority infrastructure project and EU funding. Currently, full commissioning is scheduled

for October 1, 2022. The pipeline will transport 10 billion cubic meters of gas per year from Norway to Denmark and Poland. [63]

and 3 billion cubic meters of gas per year from Poland to Denmark. The Baltic gas pipeline will help lift Poland's dependence on Russian gas and open up opportunities for the country's development as a regional gas hub that can transport surplus gas to Central and Eastern Europe.

Polish LNG projects. It is planned to expand the Swinoujscie terminal from 5 billion cubic meters to 7.5 billion cubic meters of gas per year. Polskie LNG (a wholly-owned subsidiary of Gaz-System) said the 50% increase in terminal capacity is scheduled to be completed by the end of 2021 and the construction of a third gas storage bunker by 2023. The expansion program

Figure 5. Polish LNG projects



Source: Eurostat [52]

envisages the construction of a second berth for loading and unloading LNG tankers, LNG transhipment, relocation and maintenance of LNG bunkers. Polish project FSRU - Polish Baltic Coast Gaz-System is developing another LNG project in the Gulf of Gdansk Baltic Sea. This project envisages the construction of a floating LNG storage and regasification unit (FSRU). The main role of the FSRU is to provide the state network with regasified natural gas for domestic

consumption in Poland and neighbouring countries. The FSRU will also provide additional services, such as reloading LNG into smaller tankers and moving natural gas to bunkers. Installation of FSRU capacity 4 billion cubic meters per year is scheduled to be completed by 2025. The Secretary of State, responsible for energy projects, also stressed that the installation's capacity in the future could be doubled to 8 billion cubic meters per year. The project ranks fourth in the EU investment plan and has the status of a priority infrastructure project. [69]

Development of LNG in Europe In Europe, there is the development of additional LNG capacity. In the near future it is planned to put into operation 9 billion cubic meters per year of additional LNG capacity, of which 3 billion cubic meters per year accounts for the Croatian LNG terminal Krk, which is to be commissioned in the 4th quarter of 2020. It is also planned to put into operation an additional LNG with a capacity of 130 billion cubic meters per year, of which 108 billion cubic meters per year in the EU and 14 billion cubic meters per year in Turkey. Of the 130 billion cubic meters per year of planned LNG capacity, only part of the capacity will be put into operation - the status of these projects is uncertain.

Figure 6. Map of new projects of gas pipelines



Source: Eurostat [52]

2.2 Review of the European Union energy market legal framework and history

There was no "common approach" in the EU for some time: different political associations formed separate goals and directions for their implementation, which were developed separately without defining a common goal. To address these issues, the European Commission in June 2010 adopted a basic energy policy document - "Energy 2020. Strategy for competitive, sustainable and secure energy" (Energy 2020). The Energy Strategy sets appropriate targets for energy and climate change for 2020 - to reduce greenhouse gas emissions by 20%, increase the share of renewable energy sources to 20% and increase energy efficiency by 20%.

In accordance with the provisions of the Strategy and decisions of the European Union, all EU member states have become an integral part of the European internal market by 2020. 10-year

development plans for the ENTSO-E and ENTSO-G networks (European Network of System Operators for Electricity Transmission and Natural Gas Supply) with relevant cross-border corridors and safe routes have been developed with the help of a specially created Agency for Cooperation of Energy Regulators (ACER), together with other stakeholders.

The beginning of the integration of Europe can be associated with signing the "Treaty establishing the European Coal and Steel Community" (ECSC) in 1951. European integration in the field of energy policy was not easy. Not only did coal's value, and thus the ECSC's, diminish (with oil being the most crucial energy source), but disparities in energy mixes, transportation routes, and market structures resulted in Member States' competing interests impeding energy policy. In 1990 markets of natural gas and electricity were monopolised. [70]

The formation of the energy market of the EU can be divided into five stages by legal directives and regulations that were formed in packages and approved by European Commission.

The First Energy Package

The first stage reform of the energy markets of the EU member states began with the adoption in 1990 of Directive 90/377/EEC on the functions of the Community to promote competition and the transparency of electricity prices for final consumers and 91/296/EEC of May 31, 1991, on the transit of natural gas through grids. For the first time at the interstate level, the documents of the "first energy package" provided for: increasing the transparency of gas and electricity prices; introducing various models to ensure third party access to transportation and distribution systems; establishing rules on the gradual opening of markets. Further measures to regulate the transmission, transit and organisation of electricity supply were laid down in Directive 90/547/EEC.

In 1996 of Directive 96/92/EC on standard rules for the domestic electricity market, which identified ways to move to a competitive market with free choice of consumer electricity supplier. The Directive regulates the opening of national electricity markets by EU member states. The delimitation of activities in the electricity sector deepens competition in retail markets and ensures open and non-discriminatory access to the market and electricity networks.

The process of reforming the gas market continued with the adoption of Directive 98/30/EC on common rules of the natural gas internal market. Directive was mainly regulating prices and maintenance of the competitive market.

According to the European Commission, the main task of the first stage of reform (liberalisation) was - as much competition as possible, as much regulation as necessary. National regulations determined the opening of markets. At the EU level, the only mandatory criterion was to prove the sale on the open market of at least 35% of annual electricity consumption by end-users for five years. The results of the practical application of the documents of the "first energy package" were insufficient to achieve the goals of liberalisation of the electricity and gas market in the European Union.

The Second Energy Package

In November 2002, the Second Energy Package was adopted, aiming mainly to ensure free access to networks and further develop the competitive environment and free choice of gas and electricity suppliers for domestic consumers. The Second Energy Package includes the following legislative and regulatory documents:

- Directive 2003/54 / EC of the European Parliament and of the Council of June 26, 2003, concerning common rules for the internal market in electricity;
- Regulation of the Council and of the European Parliament N 1228/2003 of June 26, 2003, on the conditions of access to networks for cross-border exchange of electricity;
- Directive 2003/55 / EC of the European Parliament and of the Council of 2003 on common rules for the internal market in natural gas;
- Regulation (EC) №1775 / 2005 of 2005 on conditions of access to natural gas transmission networks.

In general, the Second Energy Package provides for further liberalisation of the energy sector, introduces rules for mandatory separation of finance in vertically integrated monopoly companies by type of activity, introduces competition in wholesale and retail supply, monitoring the distribution of transmission networks and managing third-party access to energy infrastructure. At this stage, the minimum seven requirements were the legal separation of transmission system operators and operators that sell energy to end-users and the establishment of a regulatory body at the national level in each country.

The provisions of Directive 2003/54 / EC are supplemented by the rules laid down in Council and European Parliament Regulation N 1228/2003 of June 26, 2003, on conditions for

access to the network for cross-border exchanges in electricity. The regulation aims to create fair conditions for cross-border exchange of electricity on a competitive basis, taking into account regional specifics in EU member states and the introduction of a single tariff system for access to the internal market.

In comparison with the acts of the "first energy package", the acts of the "second energy package" contained a number of innovations: strengthening consumer protection; the full legal opening of markets from July 1, 2007; establishment of a regulated access regime for third parties; determination of regulatory bodies; consolidation of the mechanism of compensation payments to operators of transportation systems for the development of cross-border electricity flows and others.

The conceptual basis was in its own way a "revolutionary" idea of the need for a gradual liberalisation of the energy market: the abandonment of the model of natural monopolies and the comprehensive development of competition in those sectors that were previously considered completely inviolable.

At a meeting of the European Council held on March 8-9, 2007, the European Commission was instructed to develop proposals for legislative regulation of the effective division of activities in the field of electricity into competitive - generation and sales, and non-competitive - transportation and distribution.

The reform was based on the principle of division of assets of vertically integrated undertaking (VIU) in accordance with the division of activities into monopoly and competitive activities with the creation of an effective infrastructure for the functioning of the market.

In 2005, the EU Commission began a large-scale study of the possibility of creating and operating a Single European Energy Market. Following the study, the Commission noted shortcomings such as residual over-monopolisation in the energy sector of most EU Member States; lack of free access to the market for new entrants and the possibility of energy transfer from one country to another; weak integration between member markets; lack of transparency; the inadequate level of VIU business division.

The second stage was characterised by a systematic approach and application of the principle of solidarity in implementing an energy security policy. The First and Second Energy

Packages laid the foundations for the formation of the internal energy market as the main tool for ensuring the security of energy and gas supply.

The Third Energy Package

In 2009, the European Parliament approved the Third Package of EU Energy Legislation to ensure fuller liberalisation of the energy market, especially in the electricity and gas sectors. The Third Energy Package included:

- Directive 2009/72 / EC, which establishes the basic principles and rules of the internal market in electricity, repealing Directive 2003/54 / EC;
- Directive 2009/73 / EC on common rules for the internal market in natural gas (repeals Directive 2003/55 / EC);
- EU Regulation №713 / 2009, which established the Agency for the Cooperation of Energy Regulators (ACER);
- EU Regulation №714 / 2009 on conditions of access to cross-border electricity exchange networks, which repeals EU Regulation №1228 / 2003;
- EU Regulation №715 / 2009 on conditions of access to natural gas transmission networks, which repeals EU Regulation №1775 / 2005.

The provisions of these regulations are aimed not only at the sustainable development of the domestic electricity and gas market but also at harmonising its functioning. The development of a truly functioning internal electricity market through the integrated energy system of the European Union is one of the main objectives of Directive 2009/72 / EU. In order to create an internal electricity market, Member States should facilitate the integration of their national markets and the cooperation of electricity system operators at the EU and regional level. Therefore, the main feature of the Third Energy Package is the separation of electricity transportation activities from other activities (production, purchase and sale of electricity) and the task of equalising the cost of energy resources throughout the EU, the difference between which reached 30% between regions.

According to the provisions of the regulations of the Third Energy Package, the national regulatory authorities of the country must be legally separated and functionally independent of any state, public, private persons and market interests. EU member states are obliged at the state level

to provide the national regulatory authority with budgetary appropriations with the right to use them independently and with sufficient human and financial resources to perform their duties. Directive 2009/73/ EC identifies the need to strengthen the independence of national regulators, including through the inclusion in their powers of provisions related to tariff approval or tariff calculation methodology based on proposals from the Transmission System Operator (TSO) or the distribution system operator (Distribution System Operator, DSO), or on the basis of proposals agreed between these operators and network users. In addition, the Directive empowers national regulators to take binding decisions and apply effective sanctions to gas companies for non-compliance with licensing conditions.

The most important aspect of the institutional reform carried out in accordance with these regulations was the creation of a supranational sectoral body - the Agency for the Cooperation of Energy Regulators - ACER, to which EU member states were delegated basic regulatory powers. In accordance with the provisions of EU Regulation №713 / 2009, ACER is empowered to issue authorisations to electricity companies of EU member states, as well as to expand the powers to exercise regulatory functions at the European level to more effectively monitor the development of the internal energy market and cross-border problems in accordance with the provisions of the relevant EU regulation. Initially, the Agency focused its efforts on developing the common market and network rules by preparing basic guidelines and examining draft network codes developed by ENTSO-E and planning the development of European energy networks with conclusions on the draft ten-year plans network development (TYNDP).

Regulation 347/2013 of April 17 2013 on the Trans-European Network Infrastructure (TEN-E) entrusted the Agency with new functions for identifying projects of common interest and assisting in the processing of investment requests. These new tasks in terms of organisation and development of networks have significantly expanded its competence.

The Agency's powers are extended to the states that have concluded the Agreement on the Energy Community of South-Eastern Europe with the EU.

In accordance with the provisions of the Third Energy Package, the European Association of Electricity Transmission System Operators ENTSO-E was established, which is responsible for the management of the electricity transmission system, the organisation of cross-border transmission and trade in electricity between the EU Member States. ENTSO-E is responsible for

the formation of the general conditions of the electricity network, the ten-year network development plan, and recommendations for the coordination of technical cooperation between system operators in the EU.

The state of reform of the EU energy market. As a result of large-scale institutional reform in the EU in the field of electricity to create an internal electricity market, the EU member states and their regulators at the stage of formation of a common competitive electricity market retained law enforcement functions, which have the power of tariff regulation, dispute resolution, enforcement. At the same time, most of the regulatory powers of the EU member states are transferred to the ACER Agency.

Thus, the "Third Energy Package" documents formed a system of specialised sectoral public national and supranational bodies endowed with special powers, determined the order of their interaction. More than 25 years after the beginning of the liberalisation of national energy markets, initiated by the European Commission, significant progress has been made, which is primarily related to the adoption and implementation of the provisions of the Third Energy Package. In addition, the legal status of the EU's single energy market was significantly strengthened by the Lisbon Treaty, where for the first time in the history of the EU a separate article was devoted to energy development (Article 194 of the Treaty on the Functioning of the EU).

The implementation of the provisions and requirements of the Third Energy Package in the Community has significant results. First, in practice there has been a separation of production and marketing activities from infrastructure (power grids and gas pipelines). Thus, the activity, which a single national vertically integrated operator previously monopolised, is now carried out by a number of companies operating not only in one country, but also in 12 territories throughout the European Union.

Second, significant steps have been taken to remove barriers between markets and to consolidate national markets, both legally and technically.

Third, the consumer began to play an active role, gaining more rights and opportunities when choosing an energy supplier. Today, more than 15 European energy and gas companies are active in more than one EU country. In each of the twenty EU member states, there are already more than three major electricity suppliers, allowing consumers (including households) to choose

from several suppliers or to switch freely from one supplier to another. According to expert estimates, today EU consumers have the opportunity to save about 13 million euros annually, provided the optimal choice of supplier with more favorable offers.

Fourth, consumer support measures are complemented by the introduction of new technologies in the energy sector. Calculations show that the cost of household consumers for electricity can be reduced by more than 13% with the introduction of modern metering devices and energy management systems.

Fifth, we have managed to ensure the stability of energy supplies, which is the most vulnerable place for the European Union as an importer of energy resources. Using the gas storage system, EU Member States have the opportunity to help each other by transferring the necessary amounts of energy within the EU. Currently, as a result of diversification, the number of major suppliers of natural gas to Europe has increased from 14 to 23 between 2000 and 2015.

The Fourth Energy package

The European Commission's report "Clean Energy for All Europeans" (COM (2016) 860 final, 30.11.2016) presents a new concept of the Fourth Energy package. In general, the project of the Fourth Energy Package defines three main goals: 1) achieving global leadership in the field of Renewable Sources and reliability of electricity supply in the transition to "environmentally friendly" energy; 2) providing better conditions for consumers; 3) priority of energy efficiency.

In general, proposals and measures to improve energy efficiency, decentralized generation, accelerate innovation in clean energy and modernisation of buildings and ecodesign, develop Renewable Sources, improve the structure of the electricity market, supply rules and regulations for the Energy Union are identified. Measures are also being taken to stimulate public and private investment, help increase the competitiveness of the EU industry and mitigate the social consequences of the transition to clean energy. The concept reflects the creation of a single architecture of the domestic electricity market in the transition to "clean" energy and new energy-efficient technologies.

On December 4, 2018, the EU Council adopted a number of bills on the Fourth 13 energy package, namely:

- Directive 2018/844 on Energy Performance of Buildings Directive;

- Directive 2009/28 / EC on Renewable Energy Directive;
- Directive 2012/27 / EU on Energy Efficiency Directive;
- Regulations on the management of the Energy Union.

The main provisions of the adopted documents of the Fourth Energy Package relate, first of all, to the new binding EU targets for bringing the share of Renewable sources in the total energy balance to at least 32% by 2030, as well as increasing energy efficiency by 32.5%. If the goals are achieved, the reduction of harmful emissions into the atmosphere, according to forecasts, will no longer be 40%, but 45% science level of 1990.

The new Regulation on the governance of the Energy Union, in turn, aims to create the most transparent scheme of interaction between EU institutions, national authorities, energy companies and investors. In addition, each EU member state will develop a national plan for the period 2021-2030 for integrated energy and environmental development, with regular reporting on progress.

Current stage

The further development of the legal framework for the integrated European energy market is reflected in the European Energy Security Strategy provisions for the period from 2020 to 2030, as an integral part of the Climate and Energy Policy Framework. On February 25 2015, the European Commission adopted the COM Energy Package (2015) 80 "A Framework Strategy for a Strong Energy Union with a Progressive Climate Policy" (Energy Union Strategy) and a "Roadmap for an Energy Union to 2050", in which specific goals and priorities were presented with an action plan for the adoption of the relevant legislation by the end of 2018.

Major resolutions were adopted lately:

- European Parliament resolution of May 26 2016 on delivering a new deal for energy consumers (2015/2323(INI))
- European Parliament resolution of September 13 2016 on Towards a New Energy Market Design (2015/2322(INI))
- European Parliament resolution of October 25 2016 with recommendations to the Commission on the establishment of an EU mechanism on democracy, the rule of law and fundamental rights (2015/2254(INL))

- European Parliament resolution of March 2 2017 on EU options for improving access to medicines (2016/2057(INI))
- Concerning measures to safeguard the security of gas supply and repealing Regulation (EU) No 994/2010 September 12 2017: new rules have been introduced to allow neighbouring countries to assist each other in managing gas crises, as well as to ensure cross-border solidarity and contract transparency.
- European Parliament resolution of February 6 2018 on accelerating clean energy innovation (2017/2084(INI))
- European Parliament resolution of January 15 2020 on the European Green Deal (2019/2956(RSP))

Summarising in latest resolutions adopted the following strategies and goals must be achieved until the 2030 year:

- reduction of greenhouse gas emissions compared to 1990 by at least 40%;
- increase in the share of renewable energy in the structure of consumption to 27%;
- increase energy efficiency by at least 27% (possible revision of the target in 2020 and increase the target to 30%);
- complete the creation of a common energy market, setting a 15% target for interconnection between EU countries by 2030;
- promotion of essential infrastructure projects.

The EU also aims to achieve an 80% -95% reduction in greenhouse gas emissions compared to 1990 by 2050. In mid-December 2011, the European Commission presented the "Energy Roadmap 2050 ", which reflects the desire to develop environmentally friendly technologies and create a pan-European energy market. Achieving this goal will require a radical overhaul of European energy and radical changes in legislation. [70] However, there is again no common position on this issue in Europe, and the Czech Republic, Finland and the United Kingdom also have no plans to abandon nuclear energy.

European Green Deal Plan (2019/2956(RSP)) adopted in 2020 aims to make Europe by 2050 into the first climate-neutral continent on the planet, decarbonise energy, and the economy in 30 years. The resolution stresses the importance of cross-border interconnections and EU energy market integration in ensuring energy supply stability and achieving a sustainable, zero-carbon economy, as well as the need for sufficient support from the Agency for Cooperation of Energy Regulators. The strategy is to substitute harmful to the global climate fossil fuels, coal, oil and

natural gas with renewable energy sources and raw materials produced by environmentally friendly technologies (such as "green" hydrogen). Renewable energy sources include solar, wind, tidal, rivers, geothermal, biogas and biofuels.

Figure 7. Elements of the Green Deal Plan



Source: European Green Deal / Source: European Commission 2019 [53]

Such a large-scale goal requires not only huge financial and technological but also political and diplomatic efforts, especially since the Green Deal program refers to the entire European continent, not just the territory of the European Union, the authors of the report emphasise. Thus, it directly affects all post-Soviet countries in Europe. Therefore, implementation of the plan will have a significant impact on geopolitics and international relations. Figure 7 above illustrates various elements of the European Green deal.

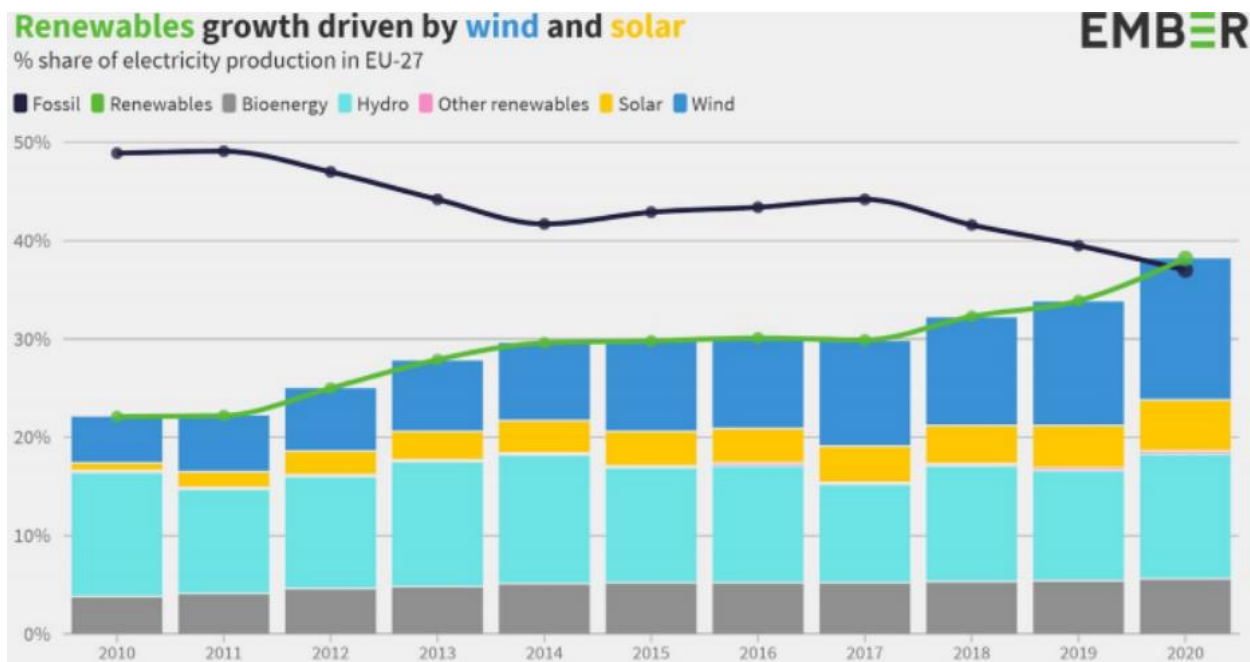
The EU has already established a wide range of rules governing specific energy issues within the European Union and in international relations. The primary position in the field of economic instruments of energy policy is played by legislative initiatives. They are legally binding on all member states in terms of both priorities and means of implementation. Directives that are binding on EU countries in terms of achieving their targets are not binding on the means of implementation. In addition, country-specific strategies and recommendations are developed. There are trade and technical standards, import quotas, price management system, subsidies and investment loans.

2.3 Implementation of renewable energy sources in EU

There are two main reasons for the transition to renewable sources: the desire to reduce the negative impact on the environment and the need to reduce energy dependence on fossil resources.

Each country of the European Union has its own objectives within the Energy Directive and separate roadmaps and strategies for the transition to alternative energy sources. They depend on the country's level of renewable sources development: the highest bar was set by Sweden - 49% by 2020, while Malta, for example, only 10%. Sweden has even exceeded this forecast and now receives more than 54% of its energy from Renewable resources. In addition to it, 11 more countries achieved their goals before 2020: Greece, Denmark, Estonia, Bulgaria, Italy, the Czech Republic, Croatia, Latvia, Lithuania, Cyprus and Finland.

Figure 8. Renewable growth is driven by wind and solar (%share of electricity production in EU-27)



Source: Europe's power sector in 2020, published by Ember and Angora Energiewende on 25th January 2020 (<https://ember-climate.org/project/eu-power-sector-2020>) [74]

In 2018, the EU revised the Directive and set new goals: to provide at least 32% of energy from renewable sources by 2030. Energy in the context of the Directives includes both electricity and heating and transport fuel. To look only at electricity production, the performance of many countries will be much higher: for Norway and Iceland, for example, it is almost 100%.

In 2020, for the first time in the European Union, the energy produced from wind, solar, hydropower and biomass exceeded energy produced from traditional sources, i.e. fossil fuels. (Ember i Agora Energiewende у своєму звіті «Енергетичний сектор Європи-2020».)

According to the results of 2020, green energy accounted for 38% of the entire energy sector, while traditional energy accounted for 37%. Thus, alternative energy exceeded traditional energy in terms of volume for the first time since 2015, when companies prepared their reports.

In general, since 2015, coal-based energy production has decreased in half; in 2020 alone, that percentage has dropped by 1/5 to 13%. Electricity production from natural gas, however, decreased by only 4% last year. Instead, alternative energy sources have been producing twice as much energy since 2015. In 2020, one-fifth of the EU's electricity was generated by wind and solar power plants, with Denmark (61%), Ireland (35%), Germany (33%) and Spain (29%) generating the most.

In addition, Europe's energy sector has become safer for the environment: in 2020, one kilowatt-hour of electricity produced 226 grams of carbon dioxide, 29% less than in 2015.

By 2050, the EU seeks to achieve "carbon neutrality" to eliminate harmful emissions into the atmosphere completely. Therefore, it is necessary to achieve annual growth of alternative energy of 100 terawatt-hours. The current EU climate plan envisages an increase to 75 terawatt-hours by 2030.

In May 2020, the Federal Statistical Office of Germany reported that in the first quarter, renewable energy sources in Germany accounted for more than half of all electricity generated in the country - this was the first time in history.

Biomass. Grass, woodland refuse, animal dung, man excrement, and farm wastes in the form of crop waste such as stalks and coconut husks used for biomass. Bamboo, rice, sugarcane, livestock waste, sewage sludge, and algae are other forms of biomass. Since carbon was trapped from the environment during the biomass life cycle, using biomass as a fuel is considered carbon neutral (its growth). The usage of biomass as fuel raises several environmental questions.

The biggest biomass producing countries in the EU are Germany 15.1%, France 12,9%, Sweden 11.9%, Finland 9,3% and Poland 8,4%.

According to Eurostat, the EU's statistics agency, biomass already accounts for almost 60% of the EU's green resources, more than solar and wind combined. Moreover, despite rapid growth in wind and solar, analysts believe that countries such as Austria, Denmark, Finland, Latvia, and Sweden will be unable to meet their 2030 clean energy goals without biomass.

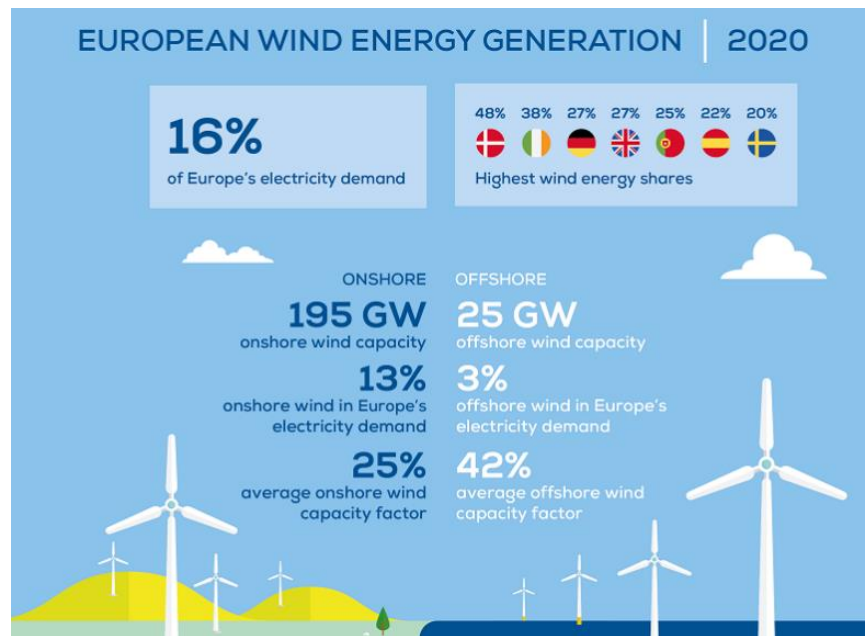
Biofuel. Since the turn of the century, the EU's total biofuel output has risen sharply, rising from 29.2 petajoules in 2000 to 728.8 petajoules in 2020.

Germany generated the most biofuels in Europe in 2020, with 143.4 petajoules. This was almost 30 petajoules more than France, which came in second place that year. Germany accounts for approximately 3.5 percent of the global biofuel supply. Since the turn of the century, the EU's total biofuel output has risen sharply, rising from 29.2 petajoules in 2000 to 649.8 petajoules in 2019.

Geothermal energy. The European industry for geothermal district heating and cooling services is a market leader. In 2019, there was 5.5 GWh of installed capacity in 25 European countries, with several new developments planned across Europe compared to 2018. The current status of geothermal district heating and cooling represents increased participation in this natural resource and the ability to incorporate it almost anywhere in Europe, covering 25% of the EU population. The current pattern of underway ventures predicts a fast expansion and diversification in key markets.

The biggest countries producing geothermal energy are: Italy (944 MW), France (99 m MW), Germany (50m MW), Portugal (36 MW)

Figure 9. European wind energy generation in 2020



Source: WindEurope (<https://windeurope.org>)

Wind energy. According to WindEurope (European Wind Energy Association), last year Europe commissioned 14.7 GWh of new wind power (80% of which came from onshore wind). It reached 16% of wind power generation in the EU's overall energy system. At the same time, in some EU countries and the United Kingdom this figure is much higher: Denmark - 48%, Ireland - 38%, Germany and the United Kingdom - 27%, Portugal - 24%, Spain - 22%.

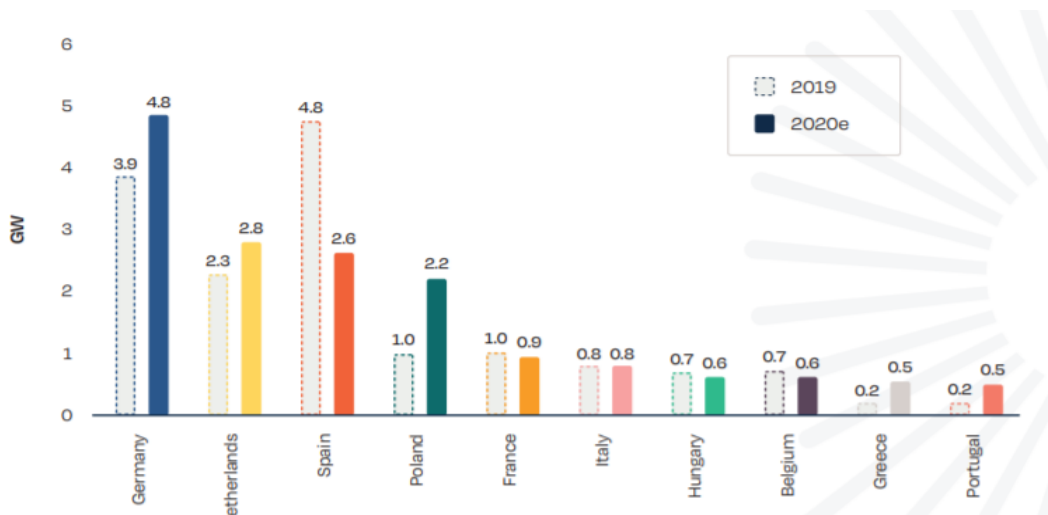
The International Energy Agency predicts that wind will become a source of energy №1 in Europe by 2027; According to the European Commission in 2050, wind power plants, which will increase from today's 220 GWh to 1,300 GW, will generate as much as 50% of the electricity consumed by EU countries.

Despite such rapid development of wind energy, Europe is still convinced that it is not building enough new wind farms (WPPs) to achieve the goal of the European Green Deal and carbon neutrality as such. That is why the European Union has set itself to build at least 15 GWh of new wind power capacity annually over the next five years to achieve its climate goals.

Solar energy is generated by absorbing the radiant energy of the sun and converting it into heat, electricity, or hot water. Sunlight and electricity are transformed by solar cells in photovoltaic (PV) systems.

Even though the Coronavirus has had a devastating effect on everyone's lives in various areas, solar power in the EU has demonstrated strong resistance in 2020. While the solar industry has effectively reduced prices for solar power production, commercial power plant developers and operators will face unexpected rivalry in 2020. As a result of reduced economic activity, industrial and wholesale energy rates fell sharply across the continent.

Chart 13. EU27 top 10 solar PV markets, 2019-2020



Source: SolarPower Europe 2020 (<https://www.solarpowereurope.org>)

In 2020, 18.2 GW of solar power plants were put into operation in Europe (EU-28). This is 11% more than in 2019 (16.2 GW) and the best year since 2011, when there was installed 21.4 GW. Europe «EU market outlook for Solar Power». Germany is becoming the European "solar" market leader, installing 2020 - 4.8 GW of solar capacity. The second one is the Netherlands with 2.8 GW. Spain was a leader for a long time, but in 2020 it has 2.6 GW. Other biggest countries are: Poland (2.2 GW), France (0.9 GW), Italy (0.8 GW), Hungary and Belgium (0.6 GW), Greece (0.5 GW) and Portugal (0.5 GW)

Wave power. The oceans are the world's most significant untapped clean energy outlet. In Europe, the availability of wave power resources is greater along the Atlantic coast (in particular in Ireland and Scotland), but the Mediterranean Sea is not far behind, indeed it offers interesting opportunities both for energy production and for the development of technologies.

Ocean generation has the potential to meet 10% or about 100MW of Europe's existing power requirements by 2050. Currently, the EU produces 27.7 MW of tidal stream capacity. Italy

ranks first among the Mediterranean countries and second in Europe, behind the United Kingdom, for public funding for energy from the sea. This was revealed by the European project OceanSet 2020, which analyzed investments and technological development of 11 European countries (Belgium, Finland, France, Ireland, Italy, Norway, Netherlands, Portugal, United Kingdom, Spain, Sweden).

Hydrogen would play a part in the potential decentralised energy grid, alongside solar electrification and more sustainable and circular resource usage. Large-scale implementation of renewable hydrogen rapidly is critical for the EU to meet its higher carbon ambitions of lowering greenhouse gas emissions by at least 50% and up to 55% by 2030 in a cost-effective manner. In the EU today, approximately 8.2 Mt of fossil-based hydrogen is generated, the overwhelming majority of which is produced by SMR from natural gas.

2.4 European energy plan impact on energy security

The world is changing its approach to energy policy: the shift from an outdated model of the energy system dominated by big suppliers, fossil fuels, inefficient networks, and imperfect competition in natural gas, electricity, and coal industries - to a new model. New model, in which a more competitive environment is created, opportunities for development are equalised, one type of energy production or sources is dominated and ways of fuel supply is minimised. Simultaneously, emphasis is placed on increasing energy conservation and the usage of energy from sustainable and unconventional sources. Implementing policies to mitigate and respond to climate change is still one of the global energy goals.

This provides the EU with new economic and technical challenges, as well as new prospects for identifying and implementing innovative approaches in mining, fossil fuel production, energy generation, transformation, supply and use, necessitating the implementation of a new energy strategy.

The main targets of the energy policy of the European Union are:

- secure supply of energy resources anytime, anywhere;
- creation of a competitive environment for all energy suppliers, which guarantees affordable prices for households, businesses and industrial producers;

- ensuring sustainable energy consumption in combination with reducing greenhouse gas emissions, pollutants and reducing the use of fossil resources.

Secure supply means a continuous supply of energy resources - a priority for strengthening energy security. EU competitiveness and political incipency are essential that can be achieved with the right balance between these three goals of energy policy.

Firstly, the questing of energy security was raised after the formation of the EU, when countries of Eastern and Central Europe joined. The importance of energy security and diversification of supplies of energy resources was clearly demonstrated during the gas crises of 2006 and 2009, when transit through the territory of Ukraine suddenly stopped. As a result, a large part of Central and Eastern Europe was left without a sufficient amount of energy in the winter. The humanitarian and economic consequences flowed the crisis and it became a significant issue.

Energy resources can be used as geopolitical instruments aimed at achieving strategic and political goals. With the given potential risks to Europe, it is important to find a way to mitigate the consequences of the current vulnerability, primarily through diversification of sources and routes of supply, increase in domestic energy production, optimising the structure of energy consumption, while ensuring a competitive price level.

The EU ranked as the third region in the world in terms of energy use. Domestic European resources at the current rate of industrial development will be enough for about eight more years. The limited own resource base of Europe causes significant dependence of EU countries on external energy supply. Therefore, the issue of energy security has become a priority in this region.

In the XXI century, the EU has expanded considerably due to countries that were previously part of a single energy system under the USSR. This has further complicated the goal of providing consumers with energy resources. We should not underestimate Russia's rising power, which is attempting to wield political power through oil and gas usage.

A reliable energy supply is critical for the European economy, but EU countries lack nearly enough energy infrastructure to meet their own needs. Currently, imports would meet almost 90% of the EU's oil requirements and 70% of its gas needs. The EU has plenty of options for a significant section of its energy imports. For example, oil is abundant and can be traded and transported internationally in a variety of forms. Gas presents a greater challenge since it must be transported through pipelines, which take a long time to construct. Currently, almost 40% of

imports come from a single source – Russia, a nation with strained ties with the EU. The EU's reliance on energy imports could be its most significant external weakness, undermining its status vis-à-vis supplier countries such as Russia. The EU's response to energy instability has both internal and external aspects. Internally, the EU supports clean energies and pushes for European gas markets that are interconnected. Externally, energy is at the heart of the EU's ties with third countries.

The EU encourages its member states to take a coordinated approach to energy providers such as Russia. The EU's commitment to a multilateral, rules-based order supports international energy frameworks such as the International Energy Agency and the Energy Charter. Also, with more solar energies, imported gas is expected to continue to play an essential role in the EU's energy mix for decades to come. Europe is attempting to find alternative supplies to reduce its reliance on Russian coal, but this is proving challenging. Azerbaijan, Central Asia, and – perhaps in the long run – Iran all have promise, but each has limits. Liquefied natural gas (LNG) allows for imports from countries without pipelines to the EU. However, it is more costly, and most European countries lack the necessary facilities to supply it, all of which ensures that Russia will remain the EU's primary energy partner for the near future. Energy is also essential in the EU's ties with its neighbours. Ukraine remains the primary transit country for Russian gas supplies to Europe; therefore, assisting Kyiv in its tough ties with Moscow, such as mediating in gas talks between the two sides, serves the EU's own interests.

The EU also works on energy issues with a number of other eastern neighbouring/western Balkan countries, the majority of which pose common energy protection problems. Energy stability remains a problem, notwithstanding EU efforts. The image is skewed, with both positive and negative patterns present. On the one side, the growth of green energies provides the EU with the ability to grow its own sources of sustainable energy in the long term; on the other hand, declining domestic oil and gas output ensures that Europe would be more reliant on fossil fuel imports than ever before in the short and medium term. On the one side, Europe has shown its ability to function decisively and successfully in imposing restrictions on energy providers that breach international law, such as Russia and Iran; on the other hand, it has failed to find a consistent stance on Russia's Nord Stream 2 pipeline. On the plus hand, there has been no long-term instability of supply since the 1970s oil crisis, and energy import prices, although significant, have remained within the EU economy's budget.

The implementation of EU energy diplomacy uses classical methods and means of bilateral and multilateral diplomacy, as well as special ones - embargoes, economic and political sanctions. In addition to state institutions, such relatively new attributes of international relations as transnational corporations located in the territory of the European Union are actively used to achieve the goals of EU energy diplomacy. They work closely with official diplomatic structures, very often using tools and methods borrowed from official diplomacy. Undoubtedly, energy diplomacy is an important component of European diplomacy. Proof of this was the definition in July 2015 by the Council of the European Union of an action plan for European energy diplomacy, the priority objectives of which are: strengthening and developing cooperation and dialogue in energy with producer and transit countries; supporting efforts to strengthen the global energy architecture and multilateral initiatives within the EU; strengthening the pan-European potential of energy diplomacy. Today, the EU is actively discussing the creation of a Single Energy Union at the crossroads of "European Gas OPEC", which guarantees energy security and stable economic development of EU member states. As part of its energy strategy, the European Union is trying to diversify its energy sources and reduce the dependence of individual organizations operating in Russia.

Today, EU countries are the leading transportation destination for Russia's Gazprom. This situation has long been unsatisfactory for EU leaders, and they are trying to compensate for the growth of Russia's gas share, which in the coming years, however, remains inevitable. European gas suppliers cannot compete with Russia's resources, African gas reserves at the current rate of selection will be enough for a maximum of 50 years. Moreover, the situation around Iran does not make it a reliable supplier.

The EU's energy policy has come a long way, never leading to the desired goal set by the European Commission. The rapidly growing demand for all types of energy in emerging markets poses challenges for EU countries to develop and market technologies on the world as soon as possible that will help them at least reduce their dependence on Russian energy supplies and talk about their own energy security. In general, the future of EU energy is based on a broad vision of solving the problems of the ratio of energy supply and demand, strengthening the role of public authorities and, above all, EU bodies in pursuing a common policy. However, it should be noted that the EU will only be able to achieve successful results in both the internal and external energy markets if EU member states succeed in a rather difficult period of consolidating their energy

strategies and legislation and even lose some sovereignty in the energy sector policy and to speak with one voice in the international arena.

There are different threats that the EU might face if it continues to operate with the same export level. So we cannot deny that there are internal as well as external threats.

Table 2. EU energy security threat system

Internal threats	External threats
Insufficient availability of fossil fuels	Large-scale accidents at fuel and energy facilities
Irrational use of energy that leads to their deficit;	Contradictions in the geopolitical interests of countries
Unsatisfactory technical condition of fixed assets, threats of accidents and terrorism at fuel and energy facilities	Lack of well-thought-out diversification among energy suppliers
Social tensions caused by rising prices for energy, high accident rate on fuel and energy enterprises	Political instability and the military conflicts in areas of concentration energy resources
Disadvantages of the state energy policy	

Source: Created by the author

The European Union must strengthen its preparedness in the event of a shortage of energy supply. Existing European emergency and solidarity frameworks should be strengthened to improve stability, based on risk evaluations (energy protection stress tests) organized by the Commission in collaboration with the Member States, authorities, TSOs, and operators. The Union would also work with its foreign allies to establish alternative natural gas solidarity strategies and the usage of gas storage facilities. Europe needs to achieve a better functioning and a more integrated energy market.

Since the EU has a high-level dependency from the other countries, making Europe climate-neutral could entirely change the economy and the way the EU negotiates with other countries. The EU has enough legal framework and resources to make itself independent from the supplying countries. It is highly possible that European Green Plan will reach its goal by 2030 and greatly affect the fossil fuel market. Minimizing external threats, the EU will likely get a self-sufficient stable market.

CHAPTER 3. ENERGY DIPLOMACY OF EU AS A KEY POINT IN INDEPENDENCE OF DECISION MAKING IN INTERNATIONAL RELATIONS

3.1 Energy dependency impact on European Union decision making in the past

In the past, the EU suffered from dependency on other countries, and as a result of transgressing its values, it made unfavourable decisions. The European Union countries are heavily reliant on oil and gas. Russia, Algeria, Saudi Arabia, Iran, Qatar, Nigeria, and Kazakhstan are the leading fossil fuel exporters. Using historical examples, we can examine the EU's reliance on energy and how it influenced its decision-making.

3.1.1 Russia

*Oil and gas are part of the game of blackmail, lies and far
between Russians and Europeans*

Christophe-Alexandre Paillard [59]

The gas conflict between Ukraine and Russia remains with the help of the Russian company OAO Gazprom as a political tool in energy relations. Reduction of natural gas supplies to Ukraine, as well as the accession of its transit territory to Ukraine during the gas crises of 2006 and 2009 (Box “Verification of the installation of natural gas to EU countries”), not only contributed to the growing politicization of European-Russian gas relations but also prepared the body of the Russian Federation as a reliable source of energy. The identified flows of vital energy supplies became the owner for the formation and implementation of a common European energy policy. Since then, many measures have been taken to help strengthen the EU's energy security regarding natural gas installation and reduction. However, despite many advances in the system of strengthening infrastructure and diversifying suppliers, the EU remains vulnerable to the external energy crisis.

Interruption of natural gas supply to EU countries

On December 30, 2005, the Ukrainian side unilaterally terminated talks with OAO Gazprom over natural gas supplies to Ukraine. The following day, December 31, 2005, Vladimir Putin instructed the Government and OAO Gazprom to supply natural gas to Ukraine in the first quarter of 2006 under the terms and prices of 2005, but with the immediate signing by Ukraine of a contract offered by OAO Gazprom with a move to market prices beginning in the second quarter of 2006.

Due to the non-signing of the contract for the supply of natural gas in 2006, January 1, 2006. in the morning, the supply of natural gas to Ukraine was suspended. The conflict formally ended on the night of January 3-4, 2006. after signing an agreement on the terms of Russian gas supplies to Ukraine through the intermediary company RosUkrEnergo AG with the condition of transit of Russian gas to Europe on the territory of Ukraine for five years.

December 18 2008, OAO Gazprom has announced the suspension of natural gas supplies to Ukraine from January 1, 2009, unless an agreement is reached on overdue payments to Ukraine and a new contract is signed.

OAO Gazprom cut off gas supplies to Ukraine on January 1, 2009, and on January 2, supplies to several EU member states, including Bulgaria, Romania, Poland, Slovakia and Hungary, were disrupted. On the night of January 6-7, 2009. all supplies from Russia through Ukraine to the EU were reduced, and from 7 to 20 January 2009. deliveries to EU countries from Russia were not carried out at all.

Today, Russia continues to participate in geopolitically motivated and risky natural gas transportation projects to avoid transit through Ukraine. It offers Europe with a number of alternatives to the Ukrainian GTS, the application of which is prohibitively highly expensive, technologically difficult, and economically unsustainable. [75]

Nord Stream-2 threats to Europe [75]:

- The project contradicts the provisions of the EU energy legislation (in particular, the Third Energy Package) and the Antimonopoly legislation, namely in matters of non-compliance with the requirements for transportation and sale of natural gas;
- The project is not a new route for natural gas supply, as it does not provide the EU with access to new sources of resources;
- The project sets a precedent for ignoring the interests of most EU countries in favour of Russia and the financial interest of the project's lobby groups in the EU;
- The project threatens EU unity and jeopardizes EU plans and priorities for the implementation of strategies for the development of pipeline routes for the supply of natural gas from alternative sources (Caspian region, Middle East, USA), increasing LNG supplies to the European market, development of alternative energy;
- The project will create excess capacity in Europe only for Russian gas;

- The project will increase the EU's dependence on Russian gas imports;
- The project will have a high cost, which European consumers will eventually pay through gas prices.

Even though the project does not have building permits, it can be implemented with political support and complete disregard for legal aspects.

One of the projects being developed at the initiative of Russia today is Nord Stream-2 (Nord Stream-2), which aims to weaken the EU's energy security, which will provoke a severe reduction in the amount of gas transported by existing routes. The Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Romania opposed the project.

In addition to intensifying negotiations with EU on the Nord Stream-2 gas pipeline project, the leaders of Russia and Turkey have agreed to "revive" the Turkish Stream pipeline, which opposes European antitrust law and is similar to the South Stream gas pipeline project, which was pushed to suspend in 2014.

3.1.2 Algeria

The EU has repeatedly defended Algeria's government, supporting its non-democratic elections, despite common suspicion that they are illegitimate, ignore accountability, and take place amid widespread coercion. In this sense, the EU appears to be working with Algeria on democratic transition while failing to properly criticise Algiers' suppression of demonstrations, limitations on democracy, persecution of civil and human rights activists, and the ruling elite's endemic corruption. EU foreign policy is strongly dominated by weapons and fossil fuel business interests, with the aim of integrating North African natural gas into the European grid. The EU is exporting gas by pressing for long-term gas exports in an environment where the Algerian population is removed from decision-making and profits are solely reserved for the regime elite.

The Energy Union was frequently criticized for schemes that gained political traction after the crisis in Ukraine exposed the EU's reliance on Russian gas imports.

Much of this is a euphemism for the EU's coercive efforts to seize more Algerian gas (conventional or unconventional) while dismissing the Algerian people's will and, in the case of natural gas, their fears and worries about their water and climate. This may be referred to as energy colonialism, particularly in light of the EU's continued push for further liberalisations in energy contracts, citing Algeria's preference for long-term contracts. More importantly, Algeria's

ownership rules of 51-49 percent (the lowest end of energy nationalism) force foreign companies to engage in a minority joint-venture with Algeria. [76]

Algeria's 1990s history was not only one of heinous civil war but also of coerced capitalist liberalisation at the hands of the International Monetary Fund (IMF) and the World Bank. Algeria was opened to international trade, sparking a race for oil, power, and control. Western businesses and the European Union wooed the government with the accelerated restructuring of the vital electricity market, agreeing on several profitable contracts to obtain a share in the country's capital.

Such behaviour, which paved the way for greater *infitah* (neoliberal opening) and outside influence, would have been unthinkable in the 1960s and 1970s. However, by the mid-1990s, the Algerian government had applied to the World Bank and the IMF for foreign credit. To entice potential buyers, the government established a special zone across the southern oil and gas fields. Thus, on December 23, 1995, BP signed a \$3 billion contract granting it the right to tap gas reserves in Salah, Sahara, for the next 30 years. One month later, there was a similar transaction worth \$1.5 billion, and on February 16, 1996, the American firm Arco signed and made an agreement for a joint venture to drill in the Rhourd El-Baguel oilfield. In addition, the Maghreb-Europe Gas Pipeline, which runs via Spain and Portugal, was inaugurated in November 1996 to deliver gas to the EU. [76]

The country's natural capital can be seen as both a blessing and a curse. The government has shown little interest in reinvesting this money in the people, which has resulted in widespread corruption. Algeria is not alone in the EU's attempts to court militant and authoritarian regimes. In order to protect those oil and strategic ambitions, the EU has repeatedly colluded with dictatorships and regimes in countries such as Bahrain, Qatar, Saudi Arabia, Angola, Azerbaijan, and Nigeria.

In developing a shared European external energy strategy, the EU is still prioritising ideals of asserting power over significant fossil fuel supplies, even though this implies allowing for intensified violence and coercion, as well as ecological degradation.

The EU's ability to secure further gas deposits in Algeria drives it to support the silencing and disenfranchisement of a nation. The acts of ministers and civil servants from various EU countries (including France, Spain, and Italy) show a similar ignorance for Algerian privileges and freedoms. In the pursuit of oil and gas, the EU's foreign Energy Policy has been largely centred on industrial profiteering.

Exploring and producing alternative fuels in Algeria, spurred by export demands, would carry significant environmental challenges resulting from the technological hazards inherent in mining, social problems, and rising conflicts in regions.

While the EU is seeking long-term gas exports, the Algerian population is away from decision-making, and gains are primarily reserved for the regime elite. Promoting such an ideology, thus turning a blind eye to Algeria's human rights violations, is unacceptable. It must be questioned and subjected to more substantial public and parliamentary oversight. [76]

3.1.3 Saudi Arabia

The stability of the European Union's energy source, mainly from the Middle East, faces a variety of challenges:

1. The persistence of Arab patrimonial states and cultures, which are a source of domestic and geopolitical insecurity, violence, and tension.

2. The Asian developing economies, especially China, and their roles and effects in post-Cold War shifts taking place in the Middle East.

The political system in patrimonial states and cultures has unquestionably generated a climate of permanent tension, confrontation, and chaos at the domestic and international levels. The path chosen by these states' governing classes and a lack of economic development and democratic democratisation have resulted in a persistent structural crisis in these regions and nations. This is due to “a mutually reinforcing mix of a profound economic recession and ethnic frictions that become rooted in the public sphere, contributing to militant confrontations between cultural communities within the state and culture as well as between states and societies”. This crisis resulted from unsuccessful attempts at nation-state formation, long-term growth, and democratization. [30]

The populace of the Persian Gulf's patrimonial rentier states is funded by funds received from resource exports in return for remaining silent in state relations. A fragile democratic society and associated powers, organisations, and associations, as a consequence of collapsed growth, lead to the persistence and domination of patrimonial regimes in the resource-rich Arab Middle East. At the same time, the SWFs of Arab countries have contributed to the perpetuation of the existing patrimonial-based state system. Consequently, SWFs do not serve as instruments for reforming

and diversifying economic sectors but rather reflect the issue of a fragmented state-society system in which authorities continue to rule. [30]

As the region's geopolitical change is factored in the threats to EU supply protection develop. What would happen further is difficult to guess. However, the Asian boosting economies, particularly China, would impact future geopolitical and geoeconomics dynamics. These countries depend on more capital to promote domestic growth. The Middle East's oil-rich countries have long been a target for collecting that wealth.

To summarise, the growing political, commercial, and even security ties between ME and resource-rich countries would impact EU energy security. The patrimonial state system, resource volatility, and developing markets to fight against—the area would not be a welcome source of energy unless the EU is equipped to react to these potential challenges.

3.1.4 Iran

After the events of the Arab Spring in 2011, a fresh challenge to the EU's access to Iranian reserves has emerged. The prospect of new demonstrations in Iran, similar to the 2009 anti-government protests, has risen as a result of regional events. Internal divisions in Iran cannot be ruled out as a possible source of current regime instabilities. Possible instabilities in Iran could lead to additional supply deficit, impeding the EU's rise in Iranian energy imports.

Domestic vulnerabilities on race and demographics also affect Iranian stability. The Iranian community is divided into many ethnic communities, the most populous of which is Persian, accounting for about 61 percent of the populace. Other ethnicities include Azeri 16 percent, Kurd 10 percent, and other underrepresented classes. Grievances between these ethnic groups result in political demands and, as a result, political conflict. Actual conflicts, on the other hand, have stayed low owing to one aspect that unites these ethnic groups: Islam. The Iranian community is 98 percent Muslim, and 89 percent Shia Muslims. [77] The Iranian government seems to have been effective in preventing the manifestation of these ethnic cleavages. In general, Iran's democratic structure and culture are mainly peaceful. However, there are factors that could jeopardise this stability and stymie EU investments in the Iranian oil and gas market, as stability is critical for establishing and maintaining the requisite EU-Iranian ties for increased energy exchange.

Iran's nuclear aspirations are critical to the country's alliance with the rest of the world. If Iran establishes a nuclear weapons, it would jeopardise regional and global stability, as well as the

EU's energy security. The Middle East is critical for the EU's energy supplies and oil and gas prices; if peace in this area is disrupted, oil prices would almost definitely rise, posing a concern for the EU's energy protection. Aside from national existence, Iran's aim is to become the most powerful state in the Middle East.

3.2 The role-changing consequences on the international political arena of the "European Green Deal" plan.

The four geopolitical mechanisms by which the Green Deal would affect and influence the EU's geopolitical partners differently, based on their relationship with the EU. Countries in Europe's closest neighbours, such as Russia and Algeria, would bear the brunt of the consequences of reforms in the European energy sector and the European approach to energy stability. Global actors such as the United States, China, and Saudi Arabia would be particularly affected by the Green Deal's effect on global energy prices and trade. This segment examines those five countries to determine how they may see and react to the initiative.

Russia is the world's fourth-largest emitter of greenhouse gases, and it has long been opposed to conservation measures that will limit the usage of fossil fuels: the country's environmental doctrine – and also its adoption of the Paris Agreement – are more of an international relations ploy than anything else. Its climate change records are vague and often contradictory documents.

Vladimir Putin appears to deny that human activity is influencing climate change, claiming that Russia has the “greenest electricity grid in the world.” Meanwhile, Russia is also heavily reliant on hydrocarbons. As a result, Russia struggled to reach Putin's goal of reducing the country's reliance on fossil fuels by 40% between 2007 and 2020. (it decreased by only 12 per cent). Russia's coal production programme for 2035 was updated upward in 2019, with a current goal of 10% to 20% growth in coal demand. Any regulatory attempt to limit carbon pollution remains fiercely opposed in Russia, especially by the Russian Union of Industrialists and Entrepreneurs.

In this sense, the Green Deal has the potential to have a significant effect on Russia. Oil and gas sales added 36% to the Russian government's spending in 2016, and Europe consumed 75% of Russian natural gas exports and 60% of its crude oil exports. For the next decade, the EU-Russia oil and gas exchange will remain unaffected, since Europe will only slightly decrease its oil and gas imports by 2030, even though emissions are reduced by 55%. However, the scenario

will improve dramatically after 2030, as Europe is projected to decrease its oil and gas imports significantly. As a result, the EU may move away from suppliers such as Russia, where extraction is carbon-intensive, and toward suppliers such as Saudi Arabia, where an extraction has approximately half the carbon footprint of extraction in Russia.

Furthermore, a carbon border adjustment system (on EU imports other than oil and gas) will limit Russian products exports, since they are typically high in carbon intensity. It is unclear how far Russia would go to oppose these attempts. Ruslan Edelgeriev, Putin's environment advisor, advised businesses to brace for the EU border tax in February 2020, adding that "the EU needs to drive through these rules not because they do not like our firms, but so that their own companies do not overstep carbon quotas." Since Russia's electricity grid is inefficient, there are many opportunities to minimise carbon intensity in the country's economy.

The most plausible diplomatic answer from Russia would be an attempt to diversify its oil consumer base. After at least the 2007-2009 financial crisis, Russia has been attempting to turn to oil sales to China, which has accelerated since the 2014 Ukraine crisis strained Russia's diplomatic partnership with Europe. Russia surpassed Saudi Arabia as China's leading crude oil provider in 2016. Russia sent 1.4 million barrels of crude oil to China a day in 2018, accounting for more than 25% of Russian oil exports. Until recently, Russia only supplied very limited quantities of natural gas to China. However, the Power of Siberia gas pipeline opened in December 2019 and is planned to deliver 38 billion cubic metres of gas per year to China by 2024, or approximately 15% of Russian 2018 natural gas export volumes. Despite these developments, China has shown a reluctance to help Russia's oil sector for geopolitical reasons. In an atmosphere of declining oil costs, China has taken advantage of Russia's shortage of alternatives and pressured Russia to accept ever-lower prices.

The long-term challenge for Russia is that if this attempt to shift to the Chinese market is not accompanied by a green transition that allows it to continue servicing the European market, Russia will become more reliant on China.

Algeria, it would serve as a test case for the Green Deal's foreign policy component. As Europe's third-largest source of natural gas, the majority of the world's electricity infrastructure is oriented toward the European economy, and the country is heavily dependent on Europe for

hydrocarbon revenues. This is important since hydrocarbon sales account for 95% of its total exports and 60% of its national expenditure.

Algeria needs to reconsider its economy and brace for a time when European appetite for its natural gas supply would gradually decline – perhaps long after 2030. Diversifying Algeria's economy away from hydrocarbons while building a robust, sustainable energy market will mitigate the impact of a green Europe. There are grounds to believe that this would occur - there have been several indications of international collaboration. A 2017 agreement outlining Algeria's and the EU's shared goals emphasised Algeria's “considerable potential” in the sustainable market, as well as plans to move green energy technologies throughout the Mediterranean. This was not the first time an effort was made to communicate with European allies. The German-Algerian Energy Partnership was established in 2015 with the aim of “developing and implementing a national energy strategy for an environmentally friendly energy supply.”

With the price of hydrocarbons dropping, the nation desperately requires a more diverse economy and international investment to meet the demands of its rising population and infrastructure. The government's close monopoly of hydrocarbon energy is what keeps the dictatorship in power. The country is also suspicious of receiving overseas financial support. It failed to contact the International Monetary Fund for loans in 2020, despite a global downturn triggered by the crash in oil prices and the coronavirus lockdown.

To compound matters, Algeria and other hydrocarbon exporters suffer from what economists refer to as Dutch disease. Algerian currency has positive inflation resulting from massive hydrocarbon exports impacts economic sectors and industrialisation in a way that they could not expend. This is not the only cause why Algerian production, industry, and services have stayed underdeveloped, but oil exports did not help.

In terms of electricity change, Algeria's wind and solar energy potential increased from 1.1MW in 2014 to 354.3MW in June 2018, accounting for around 1.6% of the country's 2030 goal of 22,000MW. However, the nation has little suitable alternate markets for its oil or other future exports at the moment. While it entered China's One Belt One Road Initiative in 2018, its ability to sell energy to the Chinese market is restricted. In either event, in the current economic climate the Algerian government recognises the value of creating a renewables sector and a more diverse economy.

In this way, the Green Deal is just another version of the EU's ongoing attempt to use financial instruments to achieve political and economic liberalisation in its neighbouring countries. This initiative has shown inconsistent results at best, with no progress in Algeria. However, the Green Deal initiative strikes at the core of the government's power over culture – the energy system built on hydrocarbons promotes centralised control, allows collusion among the system and funds subsidies that give the systems public approval. As a result, the new leadership is likely to postpone diversification to retain tight leverage over countries.

Saudi Arabia is the world's largest exporter of crude oil. Saudi Arabia's oil and gas sales accounted for 80% of net production in 2018 and 67% of government income in 2017. Fundamentally, Saudi Arabia's long-standing reliance on hydrocarbon rent has resulted in an economy reliant on public sector jobs (30% of the workforce) and costly and wasteful subsidy schemes (costing \$37 billion in 2017), mainly in the energy market.

Unlike in Algeria, the European Green Deal, on the other hand, poses no clear challenge to this structure. Saudi Arabia sells just more than 10% of its oil to Europe. Its primary markets, both now and in the future, are in Asia, where it already exports more than 70% of its crude. A European transition to green energy is not in and of itself a significant issue for Saudi Arabia. Indeed, the European Green Deal can boost demand for Saudi oil in the short term, as it has a lower carbon footprint than oil from Russia or the US. Saudi Arabia could face 30% to 50% lower EU carbon tariffs than the majority of competitors.

Until now, the Saudis' overarching strategy has been to avoid public discussion of the Green Deal, secretly persuade Europeans to create modern alternative technologies, and concentrate their efforts on keeping fossil fuels cleaner. Saudi Arabia, for example, used its 2020 G20 presidency to support the concept of a circular carbon economy, attempting to make oil and gas production more climate-friendly.

However, the further move away from fossil fuels, which includes the Green Deal, poses a major long-term challenge to Saudi Arabia. Its capacity to afford its high public-sector wage bill and domestic energy subsidies would deteriorate as demand and prices for hydrocarbons decline, potentially jeopardising Saudi domestic stability. Saudi Arabia's foreign exchange reserves are now declining together with the fall in oil revenue since.

Saudi Arabia's government, headed by Crown Prince Mohammed Bin Salman, seems to be acutely conscious of this challenge and has developed a plan to counter it. More officially, it unveiled the Vision 2030 initiative in 2016, a comprehensive growth strategy aimed at diversifying the economy away from hydrocarbons, growing private small and medium-sized businesses, and developing a non-oil export market.

The prospect of a near-term global peak in oil demand has prompted Saudi Arabia to expand its export capacity in order to produce as much oil as possible and seize market share until demand fades away. Due to Saudi Arabia's comparatively low-cost manufacturing, it is able to maintain low prices, which could keep competitors such as Iran and Russia out of business. This low-cost approach jeopardises the Paris Agreement's whole climate change effort by making clean energy supplies less competitive than hydrocarbons.

Increased market share, also at lower rates, gives Saudi Arabia the promise of increased net sales from its large oil reserves in the face of a long-term decline in production. This argument motivated Saudi Arabia to wage a price war with Russia in the middle of the coronavirus-induced price crash in April 2020, which briefly sent US oil prices below zero.

None of this precludes the EU from implementing the Green Deal. The EU has every reason to support Saudi Arabia's economic diversification efforts, and any Saudi substitution of higher-carbon oil for lower-carbon alternatives would help Europe transform more smoothly. Saudi Arabia, through its vast sovereign wealth fund, would be an eager partner and client for clean energy technologies originating in Europe.

Saudi Arabia's inability to make a transfer could put at risk the Persian Gulf's stability as the world gradually transitions away from fossil fuels. Europeans have an interest in assisting this transition, but cooperation with Saudi Arabia's government is complicated due to human rights violations. Due to Saudi Arabia's large reserves and close alliance with the US, the EU lacks the power necessary to compel tough reforms. Successful strategies to promote both improved governance and economic diversification in Saudi Arabia would undoubtedly entail strong collaboration with the US, which could now be made under a new US administration that is much more aware of the energy transformation requirements.

At times, the US has competed with the EU for global climate leadership. However, the Trump administration withdrew from environmental talks and broadly declined to take any

obligation for climate change mitigation. Trump removed from the United Nations' Paris Climate Agreement, repealed several Obama-era rules limiting carbon pollution, and characterised climate warming as a Chinese scam concocted to achieve an unfair trading advantage. About two-thirds of Americans, on the other hand, believe in climate change. They believe the federal government is not doing enough to mitigate its effect and place environmental conservation at the top of their policy priorities list. Numerous states in the United States are enacting laws that are on a par with or much worse than those in Europe. Concerns over climate change have developed as a result of fires and flooding throughout the United States in 2020.

One explanation for this disconnect is that climate change has been a heavily partisan topic in the United States – may be the single most polarizing issue between the two parties. This suggests that the Democrats have positioned themselves as the majority committed to addressing climate change. Thus, under a Biden presidency, US strategy on this subject would undergo a sea shift. Biden suggested proposals comparable to the European Green Deal during the election campaign, including net-zero pollution by 2050, a 100% sustainable energy market by 2035, carbon tariffs, and boundary change processes.

It is unknown, however, whether more comparable US and European environment policies under Biden would actually result in greater harmony. The European Green Deal, also for the Biden government, poses specific diplomatic difficulties. For instance, the European Green Deal means tighter environmental requirements for US cars than the United States would implement. Given that the US exported passenger cars worth more than €5.5 billion to Europe in 2018, this may significantly affect a politically unstable sector.

However, it is the plan for a carbon boundary adjustment system that causes the most controversy in the United States. A carbon tax could have a significant effect on US coal, natural gas, and a variety of consumer goods exports. In 2019, the US shipped over 1.5 million barrels of petroleum products a day to Europe, accounting for 19% of its total exports. The Trump administration perceived the danger to this vital industry posed by the Green Deal as an intolerable attack on US sovereignty and outright protectionism.

As the US rejoins the Paris Agreement, a Biden administration may want to follow its own version of a green pact and aim towards global neutrality by 2050. However, resistance in the US Congress suggests that, in comparison to the EU, the US effort would almost certainly follow

fewer aggressive goals and depend more on promised technological advancements than the European Green Deal anticipates. This suggests that, especially prior to 2030, as the EU's climate goals will be more ambitious, interventions such as the carbon boundary adjustment mechanism will result in trade frictions with the US. Managing such pressures could prove extremely difficult, perhaps more so in the case of a potential Republican government.

Additionally, the Green Deal provides more than a semblance of a modern sustainability rationale for industrial strategy. According to a Council of the EU report on the Green Deal, the EU needs "climate and resource pioneers to create industrial implementations of breakthrough innovations" and calls for "fresh ways of cooperation with business and developments in strategic value chains" in fields such as battery technology and digital technology. Any potential US administration would almost certainly see such government incentives as a protectionist European attempt to grab the renewable energy industries of the future by state assistance.

It is highly possible for the US to apply for the Green Agreement if the EU is able to make concessions and strike a package deal with the US. The EU and the US would almost certainly encounter similar obstacles in achieving their environmental goals.

Climate change has become the single most critical issue for the cooperative agenda with Beijing at a period when it has become challenging to identify the optimistic, productive elements in the Europe-China partnership. While European policymakers discuss Chinese state capitalism's market-distorting policies, technological transfers, intellectual property piracy, or large-scale human rights abuses in Xinjiang or Hong Kong, the dialogue concludes with acknowledging that the EU needs China for overcoming global threats, such as climate change.

China must be a part of the solution for the European Green Deal and the Paris Agreement to succeed. China has the world's second-largest population, is the world's largest CO2 emitter, and is an important manufacturing centre for European products. Greening the European economy responsibly entails greening the supply chains, of which China is a critical component.

Despite its leaders' green rhetoric, China runs 3,000 coal plants – more than the US, the EU, Japan, India and Russia combined – and has more than 2,000 under planning. Chinese emissions have not yet peaked, but the United States has significantly reduced emissions through the federal government's refusal to be kept responsible by global agreements. These stark realities,

along with a young, more environment-friendly US administration taking office in 2021, indicate that the informal China-EU climate partnership may not last long.

China, on the other hand, is interested in following a more prosperous and productive road to development. Climate change is having a significant and growing impact on Chinese agriculture, water, and food stability. These consequences, when combined with air and soil contamination, have the ability to upset the delicate equilibrium of approval of the Communist Party. Beijing's general commitment to be a positive force in global climate talks and its support for the Paris Agreement were critical. However, adherence to an agreement that does not require Beijing to reduce pollution - is no longer sufficient considering China's position in global emissions.

In September 2020, the Chinese government said that it “aims to make CO2 emissions peak before 2030 and achieve carbon neutrality before 2060,” in part to demonstrate to Europeans that it is focusing on the global climate agenda. China, without a doubt, has a national policy to shift the country toward greater sustainability.

A more energy-independent Europe has no significant impact on ties with Beijing because China does not sell energy to Europe. A decline in European energy demands could, in effect, lower global energy prices, which would benefit China, which is already a net importer of energy (primarily oil which gas), and would enable China to lower its economic costs.

China, on the other hand, is a big supplier of minerals such as rare-earths, which are critical to the European Green Deal, but China's capacity to use this dependency for geopolitical leverage is minimal. China's prior attempt to use its market supremacy against Japan in 2010 prompted other countries to construct stockpiles. In the long run, rare-earths are not particularly rare. China had controlled this sector mainly due to supplier incentives that held costs too low for prospective entrants to join. This was an expensive strategy that resulted in unpopular environmental degradation in the areas of China where these minerals were mined. The Chinese government seems to be determined to reverse it, which is promoting the growth of international competitors in the United States and Malaysia.

3.3 Perspectives of European international relations with countries and prospects on development.

Concluding all the above EU energy dependency from the countries that produce oil and gas impact European energy security and contradicts EU principles on human rights and democracy.

In the energy sector, Europe will face several challenges during the next two decades. Most importantly, with the potential exception of nuclear technology, there is no simple solution to conventional energy globally. Nevertheless, few countries are willing to compensate for the large expenditure demanded by a nuclear industry. Furthermore, energy policies would become even more politicized due to the need to maintain more substantial energy efficiency and tighter control of energy sources. Energy, which is already a significant security issue, would begin to influence potential military and political ties, particularly if there are no other options to meet rising demand other than oil and gas.

For geographical purposes, many energy protection challenges in Europe have a robust east-west slant: Russia is close to Europe, has vast oil and gas deposits, and acts as the supply of a natural resource to the European Union. Over the long run, Russia and Europe's economic and political interdependence is clear. However, it can seem less so in the short term, considering Russia's reactions to recent energy initiatives in the area.

Natural gas is expected to account for 22 to 29 percent of the total global energy supply in 2030, with the rise in demand-driven primarily by new gas power plants installed during the next twenty years. Natural gas is projected to be Europe's second most powerful energy source, behind only oil and competing with coal. Indeed, according to the European Commission's Second Strategies Energy Review 2008, "Europe will continue to depend on oil and gas imports until 2020, pending attempts to transition to a low-carbon economy."

The future of European gas markets is based on three pipeline ventures, two of which are funded by Russia (North Stream and South Stream) and one by Europe and Turkey (Nabucco), both of which plan to deliver Caucasian gas to Europe.

To retain their current high quality of life, European residents and energy providers need a reliable energy supply at reasonable costs. Europeans are attempting to find solutions to ensure those supplies. On the other hand, external dependency is growing and is now concentrated in

countries, such: Russia and Middle Eastern (Iran, Iraq, and Saudi Arabia) and Caspian post-Soviet states like Kazakhstan, Turkmenistan and Azerbaijan.

None of them has yet established liberal competitive economies, and nearly all of countries base their energy policies on raw political influence. Connection to these services necessitates the use of complex pipelines. The latest Baltic pipelines would bypass Poland and the Baltic's old Soviet satellites. The most recent Baltic pipelines will avoid Poland and the Baltic's former Soviet satellites. Because of the routes between Iran, Georgia, and Turkey, the problems in the Caspian region are far more complex, with each country having its own set of political interests and negotiations.

Quite a lot of scientific research and publication lead to the idea that diversification of EU energy suppliers will help in energy diplomacy. "The EU's energy diplomacy" by Sprague, Andrew concentrates on alternatives for Europe: oil and gas alternatives and suggests Iraq, Saudi Arabia and other countries as the right choice of diversification. Many scholars suggest Algeria as a safe EU supplier. [33,34]

Analyzing the experience of EU and legislation with the goals, it can be concluded that diversification of energy routes would not bring Europe stability and independence. Only wise construction of supply and storage of energy resources through developing renewable energy sources will strengthen the role of the EU as a global economic and political leader.

Russian military intervention in Ukraine and other countries led to the point where the EU had to impose sanctions. However, due to dependency on its energy sources, it led to the conflict situation with Nord-Stream 2. Energy trading brings an enormous amount of money to supplying countries and in case of countries with a high level of corruptions (mainly third world countries), such trading finances corruption, terrorism and oppression. The EU's ability to secure further gas deposits in Algeria drives it to support the silencing and disenfranchisement. The acts of ministers and civil servants from various EU countries (France, Spain, and Italy) show a similar contempt for Algerian privileges and freedoms.

The prospect of new demonstrations in Iran, similar to the 2009 anti-government protests, has risen due to regional events. Internal divisions in Iran and interruptions in energy supply affecting the EU. Consequently, the EU has always a choice between repression from the government and fundamental human rights support.

If the EU would not continue the implementation of renewable energy sources, then it will become highly dependent on neighbouring countries. In 2000, the European Commission likened the EU, an industrial behemoth reliant on various energy suppliers, to a "Gulliver in chains." The EU's dependence on imported energy may restrict its ability to support priorities and values that are not often shared by supplier countries. According to the NGO Freedom House, only Norway follows international democratic expectations within the EU's top five oil and gas suppliers; Nigeria is classified as "partly open," whereas the others (Russia, Iraq, Kazakhstan, Saudi Arabia, Algeria, and Qatar) are repressive states.

While the Treaty on European Union requires that the EU's joint foreign and security strategy "consolidate and support independence, the rule of law, human rights," critics contend that the EU prioritises resources over those values in its dealings with countries (for example, Saudi Arabia). It should be noted, however, that the EU and its energy providers are mutually related. These mutually dependent relationships are unavoidable in a globalised economy. Countries that depend on hydrocarbons for the majority of their export income, like Russia, want energy trading to proceed as much as the EU does.

EU as the biggest importer wields considerable power over countries such as Iran, whose economy was devastated by an EU-led oil embargo between 2012 and 2015, pressuring it to commit to nuclear-related compromises. Furthermore, expanding gas and oil fields necessitates large sums of money and advanced infrastructure, all of which several supplier countries neglect. Kazakhstan, for example, could not have grown its oil industry without significant investment from European companies such as Total, ENI, and Shell. ²⁸ Furthermore, energy is not the only, or even the primary, element influencing EU ties with supplier countries. The EU still has broader, non-energy exchange and investment priorities, a desire to form strategic partnerships, and a general preference for (in terms of the EU's 2016 Global Strategy) "principled pragmatism" over conflict, sometimes with challenging allies.

The EU often imposes sanctions over serious violations of human rights around the world. However, often this is not enough. Energy independence is one of the biggest questions of security and the key factor in international negotiation. Making the EU more self-sufficient will put away a question of energy from the factors of international influence.

There are three main security measures Europeans should consider:

- 1) Europe has to maintain a stable situation around its borders to prevent Russian, Iran and Saudi Arabia aggression;
- 2) Europe must keep its technological advantage, which ensuring stability in the oil and gas game;
- 3) The EU should be attentive to money flows to prevent corruption.

The primary focus of EU energy diplomacy would be to promote the global energy transformation by encouraging energy conservation and green energies, among other items. Simultaneously, the EU's energy diplomacy would deter more developments in third-country fossil-fuel infrastructure schemes because they are compatible with an aggressive climate neutrality roadmap. It would contribute to multinational attempts to reduce the environmental and greenhouse gas emissions from current fossil fuel facilities. The European Green deal strategy will lead to the prevention of climate change efforts globally and make the EU a self-sufficient, independent country.

The EU has the potential to become a world leader in the energy transition. One of the EU's greatest assets is its 450 million-strong domestic economy. The need for stringent environmental regulations as criteria for entry to the EU market provides a clear motivation for exporting countries to green their manufacturing processes.

Furthermore, the EU has the potential to become a standard-setter in the emerging hydrogen industry. The EU could lay the groundwork for a foreign hydrogen market focused on EU requirements by rapidly establishing a benchmark for euro-denominated hydrogen trades. Furthermore, it could attempt to strengthen the euro's position in the renewable energy trade.

CONCLUSION

This research examined the role of energy security in EU international relations and its dependency on the other countries. Specifically, the level of implementation of European Green Deal Plan, its impact on the other countries and perspectives of energy diplomacy. A special place was given to assessing the complex legal framework of the four Energy Packages. The level of implementation of renewable energy sources was studied, and main external threats were identified. Subsequently, role-changing consequences on the international political arena were studied. Moreover, this study provided an outlook on perspectives of European international relations.

In Chapter 1, the research questions and hypothesis were outlined along with the methods used in the thesis. We learned that scholars view energy security and energy diplomacy from various perspectives. The main approaches to the understanding of definition were determined. This study provided an outlook on different issues related to economic and energy security considered in the works of European and foreign scientists, in particular: Andreas Goldthau, Benjamin K. Sovacool, Zbigniew Brzezinski, Martin Russell, Ahmed Elbassoussy, Manuel Welsch, Tim Boersma, Thomas G. Weyman-Jones, Kacper Szulecki, Henry Alfred Kissinger, K.H. Yu, H. Zhao Saligin, Azamat Tekeev, Leonid Abalkin and others.

In Chapter 2, the current situation of the energy sector of the EU was investigated. The primary energy consumption and production countries and level of high European energy dependency were identified. The negative impact of the EU economy's high dependency on a single supplier of oil and gas, which is reducing the competitiveness of the industry and other related business sectors globally, was stated. The main projects for the transportation of energy resources, which are Turkish Stream I – II, Nord Stream II, EUGAL, Baltic Gas Pipeline and Polish LNG projects, were outlined.

The formation of the energy market of the EU can be divided into five stages by legal directives and regulation that were formed in packages and approved by European Commission. The main task of the "first energy package" was - as much competition as possible, as much regulation as necessary. The results of the "first energy package" were insufficient to achieve the goals of liberalisation of the electricity and gas market in the European Union. The second stage was characterised by a systematic approach and application of the principle of solidarity in the implementation of energy security policy. The First and Second Energy Packages laid the

foundations for the formation of the internal energy market as the primary tool for ensuring the security of energy and gas supply. In 2009, the European Parliament approved the Third Package of EU Energy Legislation to ensure fuller liberalisation of the energy market, especially in the electricity and gas sectors. The fourth energy package aimed to create the most transparent scheme of interaction between EU institutions, national authorities, energy companies and investors. In addition, each EU member state developed a national plan for integrated energy and environmental development, with regular reporting on progress. The further development of the legal framework for the integrated European energy market has been reflected in the provisions of the European Energy Security Strategy for the period from 2020 to 2030, as an integral part of the Climate and Energy Policy Framework.

In 2020, for the first time in the European Union, the energy produced from wind, solar, hydropower and biomass exceeded energy produced from traditional sources (fossil fuels). Such a tendency positively impacts EU energy security.

Since the EU has a high-level dependency from the other countries, making Europe climate-neutral could entirely change the economy and the way the EU negotiates with other countries. The EU has enough legal framework and resources to make itself independent from the supplying countries. It is highly possible that European Green Plan will reach its goal by 2030 and greatly affect the fossil fuel market. Minimizing external threats, the EU will likely get a self-sufficient, stable market.

In Chapter 3, the research found how the experience of EU energy dependency impacted its decision-making. The analysis of consequences of the "European Green Deal" and perspectives of European international relations was provided. Russian military intervention in Ukraine and other countries lead to the point where the EU had to impose sanctions. However, due to dependency from its energy sources, it led to the conflict situation with Nord-Stream 2. Energy trading brings an enormous amount of money to supplying countries and in case of countries with a high level of corruptions (mainly third world countries), such trading finances corruption, terrorism and oppression. The EU's ability to secure further gas deposits in Algeria drives it to support the silencing and disenfranchisement. The acts of ministers and civil servants from various EU countries (France, Spain, and Italy) show a similar contempt for Algerian privileges and freedoms.

The prospect of new demonstrations in Iran, similar to the 2009 anti-government protests, has risen as a result of regional events. Internal divisions in Iran and interruptions in energy supply affecting the EU. Consequently, the EU has always a choice between repression from the government and fundamental human right support.

As the result of the European Green Deal plan, there will be appalling consequences for oil and gas main exporters, such as Russia, Saudi Arabia, Iraq and others. Analyzing the past experience of EU and legislation with the goals, it can be concluded that diversification of energy routes would not bring Europe stability and independence. Only wise construction of supply and storage of energy resources through developing renewable energy sources will strengthen the role of the EU as a global economic and political leader.

The EU often imposes sanctions over severe violations of human rights around the world. However, often this is not enough. Energy independence is of the utmost importance in the field of security and the key factor in international negotiation. Making the EU more self-sufficient will put away a question of energy from the factors of international influence.

The EU has the potential to become a world leader in the energy transition. One of the EU's greatest assets is its 450 million-strong domestic economy. The need to stringent environmental regulations as criteria for entry to the EU market provides a clear motivation for exporting countries to green their manufacturing processes.

Furthermore, the EU has the potential to become a standard-setter in the emerging hydrogen industry. The EU could lay the groundwork for a foreign hydrogen market focused on EU requirements by rapidly establishing a benchmark for euro-denominated hydrogen trades. Furthermore, it could attempt to strengthen the euro's position in the renewable energy trade.

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