ENERGY SECURITY IN THE EXTERNAL ENERGY POLICY OF THE USA

BEZPIECZEŃSTWO ENERGETYCZNE W ZEWNĘTRZNEJ POLITYCE ENERGETYCZNEJ STANÓW ZJEDNOCZONYCH

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Abstract

Energy security is a key idea of countries’ energy policy at both domestic and international levels. The aim of the paper is to reveal and describe the role and significance of the concept of energy security within the external energy policy of the USA with particular attention to its regional aspects. In a theoretical section, a number of definitions of energy security were discussed and summarized, presenting a brief theoretical overview of energy security. Besides, the need for a spatially diversified approach towards energy policy planning and implementation was described briefly. Analyzing relevant secondary data sources (Department of Energy and Congressional Research Service publications, energy statistics, etc.), the main priorities of U.S. external energy policy were identified and discussed: international assistance and capacity building, environmentally friendly energy development and ensuring energy security (of both the USA and its international allies and partners). Thus, the general framework of U.S. external energy policy was suggested and generalized. As a regional case overview, the main issues of European energy security and U.S. engagement were discussed in brief: geographical diversification of energy supply, legislative and institutional assistance, etc.

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**Streszczenie**
Bezpieczeństwo energetyczne jest kluczowym zagadnieniem polityki energetycznej zarówno na poziomie krajowym, jak i międzynarodowym. Celem artykułu jest przedstawienie i opisanie roli oraz znaczenia koncepcji bezpieczeństwa energetycznego w ramach zewnętrznej polityki energetycznej Stanów Zjednoczonych ze szczególnym uwzględnieniem jej aspektów regionalnych. W części teoretycznej omówiono i podsumowano wybrane definicje bezpieczeństwa energetycznego, a także konieczność przestrzenne zróżnicowanego podejścia do planowania i realizacji polityki energetycznej. Analizując wtórne źródła danych (m.in. publikacje Departamentu Energii i Działu Badań Kongresu Stanów Zjednoczonych, statystyki energetyczne), zidentyfikowano i scharakteryzowano główne priorytety zewnętrznej polityki energetycznej Stanów Zjednoczonych: pomoc międzynarodową w zakresie kształtowania własnego zaplecza energetycznego, rozwój energetyki przyjaznej środowisku oraz zapewnienie bezpieczeństwa energetycznego zarówno Stanom Zjednoczonym, jak i ich międzynarodowym sojusznikom i partnerom. W ten sposób przedstawiono ogólne ramy zewnętrznej polityki energetycznej Stanów Zjednoczonych. Następnie opisano problematykę europejskiego bezpieczeństwa energetycznego i rolę Stanów Zjednoczonych w kształtowaniu tego bezpieczeństwa, m.in. poprzez geograficzną dywersyfikację dostaw energii oraz pomoc legislacyjną i instytucjonalną.

**Słowa kluczowe:** bezpieczeństwo energetyczne, zależność energetyczna, polityka energetyczna, zewnętrzna polityka energetyczna, Stany Zjednoczone, regionalna polityka energetyczna

**INTRODUCTION**

In general, a country’s energy policy is considered to be a complex of activities that are planned and implemented by the state and aimed at achieving the goals and priorities of energy sector development: particularly, referring to energy import and export, security, efficiency, production, distribution and consumption, sustainability, etc.

In spatial scope terms, energy policy can be planned and conducted at two interconnected levels:

- **Domestic energy policy** (‘inside view policy’, national level). It focuses on national energy system development issues and the needs of local consumers and stakeholders: energy production, distribution, availability and consumption, efficiency, sustainability, subsidies and incentives, taxation, pricing, etc.;

- **External (particularly regional) energy policy** (‘outside view policy’, international level). This level includes a country’s activities and priorities in the following main fields: energy sector development, energy trade (import and
export) and reliable energy supply, strategic geopolitical priorities and national security issues in connection with energy needs, etc. External energy policy is accomplished on a regionally diversified basis and makes an important part of the system of international relations and regional cooperation.

Ensuring energy security is a comprehensive and pivotal goal at both levels of energy policy planning and implementation. In general, it includes a number of policymaking activities related to decreasing the dependence on foreign energy markets and imports, or at least diversifying the energy import (supply) geography, increasing energy production and strategic energy reserves, etc.

The main aim of this paper is to discuss the place and importance of energy security issues in the external energy policy of the USA. Accordingly, the following objectives can be distinguished:

- To summarize and discuss the main theoretical provisions and principles of energy security and energy policy (the essence, main aspects and concepts, as well as their basic regional dimensions);
- To describe the main directions, goals and priorities of U.S. external energy policy: ensuring U.S. own energy security and contributing to energy security of international allies and partners, promoting energy-related environmental activities and international energy assistance programs;
- To discuss briefly the current state and challenges of European energy security within U.S. perspectives (interests and engagement instruments) as a case study of regional dimensions of energy security.

The general research question of this paper can be formulated as the following: what are the place, role and implementation framework of energy security in U.S. external energy policy?

Thus, the broad (general) research framework is U.S. external or regional energy policy, while the particular (specific) framework is U.S. policy toolkit and priorities in the context of ensuring energy security.

For achieving the aforementioned aim and objectives, analysis of secondary data sources was accomplished (statistical yearbooks and database, research reports and in-depth analysis, papers, books, etc.).

The character of the study is not empiric but theoretical. In order to achieve the aim of the article, the following main research methods were applied: analysis and synthesis (different literature sources), case studies (particularly of the EU), comparison (revealing common and different patterns of external energy policy, including regional differences), usage of quantitative data (energy statistics, from 2020 to March 2022).
A GENERAL THEORETICAL OVERVIEW OF ENERGY SECURITY AND ITS STUDY

The theoretical section of the paper focuses on the meaning and interdisciplinary conceptual framework of energy security (particularly its regional-geographical dimensions), as well as mutual connections between domestic and external policies in terms of ensuring energy security. Different theoretical aspects of energy security and related concepts (such as energy insecurity, independence, security of supply, energy security perspectives and attributes, etc.) are discussed by Bohi and Toman (1996), Klare (2001), Van der Linde et al. (2004), Yergin (2006), Kruyt et al. (2009), Chester (2010), Cherp and Jewell (2011), Geri and McNabb (2011), Matthew (2013), Boersma (2015), Austvik (2018) and other authors. Publications suggesting definitions of energy security were prepared by the U.S. Agency for International Development (USAID), the European Commission and the International Energy Agency (IEA) as well. However, there is still no consensus about the scope of energy security. It remains a concept with contested ideas and contradictions.

According to the IEA, energy security can be defined as reliable and affordable access to all fuels and energy sources (International Energy Agency, www.iea.org/topics/energy-security). Daniel Yergin, an American author and energy expert has suggested one of the most popular and well-known definitions of energy security: “the availability of sufficient supplies at affordable prices” (Yergin, 2006). Almost a similar definition was worked out by the European Commission: energy security is an “uninterrupted physical availability on the market of energy products at a price which is affordable for all consumers” (European Commission, 2000).

Aleh Cherp and a group of authors have summarized and analyzed several theoretical ideas referring to the energy security concept, particularly:

- The definition of energy insecurity by Bohi and Toman (1996) as the loss of economic welfare that may occur as a result of a change in the price or availability of energy;
- The ‘4A’ model of energy security by Kruyt, van Vuuren and de Vries (2009), including availability (physical availability of energy resources), accessibility (geopolitical aspects associated with accessing resources), affordability (economic costs of energy) and acceptability (social and environmental aspects);
- Three main perspectives of energy security by Cherp and Jewell (2011): robustness (focused on protection from disruptions originating from predictable and ‘objective’ natural, technical, and economic factors), sovereignty or independence (focused on protection from disruptions originating from intentional actions of various actors, such as unfriendly political powers and overly powerful market agents) and resilience (focused on protection from disruptions caused by less predictable factors: political instability, extreme weather events, etc.) (Cherp, Jewell, 2011; Cherp, 2012).
An additional confusing factor is that sometimes two concepts are used as synonyms: energy security and security of supply. In this regard, our approach is that energy security is a broader concept including security supply, technological solutions, sustainability approaches, pricing, etc.

When summarizing the aforementioned provisions it is possible to conclude that the most general understanding of energy security refers to the decreasing energy dependence of a country on import (by increasing energy production and the overall usage of available local energy capacities), developing renewable energy, diversifying energy import geography and reducing dependence on a small (limited) number of suppliers as well as ensuring permanent, reliable and affordable access to energy resources and reducing the possible negative impacts of disruptions.

Despite the diversity of aspects and interpretations of energy security, at least two main points of consensus can be distinguished:
1. The idea of sufficient availability of affordable energy supplies;
2. The concept changes over time and receives different interpretations in different circumstances (Boersma, 2015).

An example of the latter is the agreement of energy ministers of G7 member countries to set the following principles of energy security in 2014, taking into account the current state and challenges of energy sector development:
1. Development of flexible, transparent and competitive energy markets;
2. Diversification of energy fuels, sources and routes;
3. Reducing greenhouse gas emissions and developing low carbon economy;
4. Enhancing energy efficiency and demand response management;
5. Promoting clean and sustainable energy, investment in research and innovation;
6. Improving energy systems resilience by promoting infrastructure modernization and supply and demand policies that help withstand systemic shocks and cyberattacks;
7. Putting in place emergency response systems, including reserves (U.S. Department of Energy, 2017).

Besides, the third consensus point could be added to the aforementioned two points: a high level of sensitivity to both direct and indirect external impacts and disruptions (political, military, geopolitical, natural, economic, etc.) at local, national, regional and global levels.

The Covid-19 pandemic may be mentioned among the global factors of influence. Having no direct effect on energy security, it clearly impacted the energy sector. In particular, businesses and educational institutions in the United States had to change their working load and schedule which led to a significant decrease in energy consumption and electricity demand. For example, consumption of petroleum products fell around 30% from January to March 2020. Across the United States, electricity consumption decreased by 3.8% in 2020 (U.S. Energy in the 21st Century: A Primer. 2021). If these trends keep continuing, the entire strategy of
energy sector development (including production, pricing, supply, etc.) should be revised to meet the changing needs of households, businesses and social spheres.

When considering a quantitative approach towards energy security studies, three main parameters could be suggested: energy mix, energy production and import dependence.

Energy mix shows the shares (%) of certain types of primary energy resources (natural gas, coal, petroleum, nuclear, renewables) within the total energy usage. Energy production is based on local capacities of exploitation and production of primary energy resources and secondary energy (electricity). Import dependence is measured by an energy import (dependence) rate (%), showing the share of energy supplied from external energy markets in a country’s total energy consumption to satisfy the country’s own needs. Accordingly, countries with lower import dependence are considered as more energy independent.

Needless to say, both domestic and external levels of energy policy are interconnected in terms of ensuring the country’s energy security. For example, increasing energy production and an overall use of local energy resources, improving the distribution systems and promoting a sustainable consumption through relevant domestic policymaking instruments may contribute significantly to overcoming possible external challenges and threats, reducing and/or mitigating negative impacts of disruptions in external energy markets, etc.

In other words, improving the internal (country level) ‘energy environment’ makes it easier to adapt to so-called negative external energy realities (caused by various factors: geopolitical, military, geo-economic, natural, environmental, etc.) which mostly cannot be predicted, controlled and prevented.

It goes without saying that energy security-based policymaking should be considered as an interdisciplinary field of study and research based on the following ‘pillars’: economic, environmental (including sustainability and renewable energy development issues), political, historical, geopolitical (including energy geopolitics), regional-geographical (as a potential ‘umbrella’ or a methodological background for the previous approaches), etc.

Obviously, an important precondition for successful planning and ensuring energy security is a spatial approach, i.e. spatial (geographical) substantiation and analysis of different aspects of energy policy. In particular, the following factors should be taken into account at the levels of regions (groups of countries), countries and certain parts (territorial units) of countries:

1. Resource factors: the main features of the natural energy potential (availability of energy resources, their supplies, location, accessibility and expediency);
2. Economic factors: energy consumption and needs of different stakeholders, opportunities and prospects for an energy production increase based on available resource capacities, possibilities for regional diversification of imports and exports of energy and electricity, etc.;
3. Geopolitical factors: energy security issues in the context of national security and foreign policy strategic priorities of different countries at regional and global levels. The main ideas or focal points of energy geopolitics include the supplies, distribution and location, control, availability and cost of natural energy resources, alternative transportation routes, regional and global market balance and regulations, political decisions, pricing, etc. (Austvik, 2018);

4. Limiting factors: existing challenges and problems of energy sector development (socio-economic, military-political, geopolitical, natural-environmental, technical, etc.);

5. Sustainability factors: prospects for the use of renewable energy sources and maintaining sustainable energy development.

Thus, the spatial (geographical) approach is an essential tool of working out and implementing energy policy programs and activities: particularly when taking into account the regional differences of energy resources, needs, production and supply, existing challenges, etc. Accordingly, both domestic and external levels should have a strong regional component (direction). The main aim of regional energy policy can be defined as planning and practicing place-based and diversified programs of energy sector development (with a special focus on regional differences, preconditions and challenges in terms of energy security).

And last but not least, there is a strong interconnection between the concepts of energy security and environmental security in terms of several common key ideas: use of renewable energy sources and “green energy” development, reducing environmental pollution (particularly atmospheric emissions caused by burning fossil fuel use), climate change issues.

The process of joint development of energy and environmental security ideas includes three main historical periods: wave one (1960–70s, connected to population growth and pollution issues), wave two (1980–90s, coincided with the emergence and spread of sustainable development ideas) and wave three (2000s, climate change issues) (Matthew, 2013).

It gets a particular significance in light of 21st century global development challenges and perspectives, including undoubtedly the need for adopting sustainable development principles.

**U.S. EXTERNAL ENERGY POLICY: AN OVERVIEW OF PRIORITY DIRECTIONS**

**U.S. external energy policy implementation framework**

As of 2021, the United States is in the world’s top three countries with all major energy sector development parameters:

1. Total energy consumption;
2. Production of electricity;
3. Production of the main types of fossil fuel: natural gas, oil and coal.

Thus, energy policy gets a special economic, political and geopolitical significance for the United States and is connected to national security interests directly.

At domestic level, the main energy policymaker is the Department of Energy (DOE), a specialized agency of the U.S. Federal Government responsible for the country’s energy sector security and development. Among the external level energy policymakers, the Department of State (including the Bureau of Energy Resources), Department of Energy (including the Office of Fossil Energy), and the U.S. Agency for International Development (USAID) have a great role.

As part of external energy policy, the United States participates in a number of regional and global energy-related associations and forums, such as the International Energy Agency (IEA), Asian-Pacific Economic Cooperation Energy Working Group, North American Energy Working Group, International Energy Forum, etc. Among the main international challenges affecting U.S. energy policy (and even the foreign policy to a certain extent) are the following: high energy prices, the failure of a global agreement on reducing greenhouse gas emissions, international tensions and armed conflicts over energy transportation, etc. (Geri, McNabb, 2011).

In the international context, the ‘energy behavior’ of other countries and regions (the patterns of energy production, trade and consumption, ensuring the sustainability of energy and economic development, etc.) is linked to U.S. foreign policy interests and priorities directly or indirectly.

Therefore, the Department of State and the Department of Energy are carrying out a comprehensive system of activities called energy diplomacy, “seeking to ensure that energy resources are used to promote global economic growth and stability and to advance global integration of renewable and cleaner energy sources in support of U.S. climate change goals” (U.S. Department of Energy, 2017).

**U.S. external energy policy priority directions**

When analyzing a number of publications prepared by the Department of Energy, the Department of State, Congressional Research Service (CRS) and USAID, the following interconnected priority directions of U.S. external energy policy can be identified (Fig. 1):

1. Energy security (ensuring the country’s own energy security and contributing to the energy security of allies and partners in different regions of the world);
2. International assistance and capacity building in energy sector development;
3. Energy-related environmental activities and green energy development).

Point 1 (energy security) will be discussed in detail separately in the following section of the article. In this section, points 2 and 3 will be discussed in brief: however, in the end, they are also one way or another aimed at ensuring
energy security both directly and indirectly (especially the international assistance programs and initiatives). Thus, it can be summarized that energy security is a key and comprehensive goal of U.S. foreign energy policy and affects all its main directions and aspects.

![Fig. 1. Priority directions of U.S. external energy policy (own compilation)](image)

**International assistance and capacity building: Country- and region-level activities**

Assistance programs designed to help emerging and promoting oil and gas producers have great importance for U.S. external energy policy. Particularly, the Department of Energy is engaged in a number of technical and regulatory assistance programs worldwide, ensuring a great diversity of country- and region-based activities.

The Office of Fossil Energy (in the structure of the Department of Energy) cooperates with governments and industrial sectors in different countries providing with consulting and sharing technology achievements and best practices in safety and environmental approaches towards energy sector development. For example, U.S.–China Oil and Gas Industry Forum (promoting technology and environmental solutions for oil and gas sectors development in China), technical workshops with Brazil, Argentina, and Colombia on oil and gas sectors development, supporting the Power Africa initiative (consultations for African natural gas producers on LNG development). Meanwhile, the Department of Energy works intensively with Canada, India, Japan, and South Korea in the sphere of gas hydrate research (U.S. Department of Energy, 2017).

Besides of the Department of Energy, the U.S. Department of State’s Bureau of Energy Resources (ENR) should be mentioned separately.
ENR was established in 2011; its main task is “helping boost international energy security, steer the world’s energy mix toward a more sustainable path, and emphasize the United States’ continuing commitment to transparency and good governance, in order to ensure that each nation’s natural wealth translates into increased prosperity for its citizens” (Department of State, 2011). Examples of specific programs include the Energy Governance and Capacity Initiative (providing technical and capacity-building assistance to developing countries in the sphere of oil and gas production) involving different agencies from the Departments of Interior, Treasury, and Commerce (Global Shale Gas Initiative, 2010).

Another key actor of U.S. foreign energy policy is the U.S. Agency for International Development (USAID). It is promoting the development and implementation of various regional and country-level programs supporting the energy sector in different aspects (policymaking and regulatory, legal, participatory, financial, etc.)

Energy-related environmental activities (sustainable energy development)

The United States is one of the most important contributors to global environmental problems and impacts (large emissions of carbon dioxide, consumption of resources, combination of a large population with high consumption and energy use, etc.). In terms of the U.S leadership in international environmental issues, the different priorities can be distinguished: from species protection and mitigating ocean pollution (the earliest ones) to combating climate change (one of the newest and the most important ones (Desombre, 2013).

Along with China and India, USA is one of the world’s largest greenhouse gas emitters. U.S. emissions increased by 17% between 1990 and the mid-2000s, reaching 24 tons of per capita carbon dioxide equivalent emissions annually. However, U.S. policymaking and efforts directed to control greenhouse gas emissions are often considered as not efficient (Selin, Vandeveer, 2013). The United States’ role in multilateral international environmental agreements has varied significantly: in some cases final agreement was reached, while in other cases U.S has never signed, ratified or withdrawn without rejoining (like in the case of the Kyoto Protocol on greenhouse gas emissions reducing in 2001) (O’Neill, 2013).

Currently, the main energy-related environmental activities within U.S. external energy policy include the country’s international efforts and policy instruments directed to reducing carbon emissions, confronting climate change and promoting green and clean energy approaches. Green and sustainable energy cooperation of the United States at international level can be discussed from two perspectives: bilateral activities and multilateral (regional and global levels) activities.
The main bilateral activities include U.S.-India Low Emission Gas Task Force, U.S.–India Strategic Energy Partnership, U.S.–Norway Collaboration on Carbon Capture and Storage, U.S.–Japan Strategic Energy Partnership, U.S.–China Clean Energy Forum, U.S.–China and U.S.–UK Collaborations in Fossil Energy research and development. The framework of multilateral regional and global activities includes Clean Energy Ministerial, Carbon Capture Initiatives, Mission Innovation, Carbon Dioxide Removal Mission, Accelerating Carbon Capture and Storage Technologies, Asia-Pacific Partnership for Clean Development and Climate, etc. (International Cooperation, Office of Fossil Energy and Carbon Management, [www.energy.gov/fecm/international-cooperation](http://www.energy.gov/fecm/international-cooperation)).

In the context of bilateral cooperation the significant potential for U.S.–Mexico regional transboundary solar energy production should be mentioned as well, taking into account the huge capacities in the regions on both sides of the state border: Northern Mexico (mainly Baja California, Sonora and Chihuahua) and U.S. Southwest (mainly California, Arizona and New Mexico). Actually, the Mojave Desert in California is already famous for huge solar power plants like Ivanpah, Desert Sunlight, Solar One, Solar Two, etc.

**ENERGY SECURITY: A KEY PRIORITY OF U.S. EXTERNAL ENERGY POLICY**

**Policy designed to ensure the domestic energy security**

In the United States the current concept of energy security and adjacent ideas has passed through several stages of transformation, evolution and rethinking.

From the beginning of the 1970s the dominating idea was energy independence (meeting the nation's energy needs from domestic resources, President Nixon). This was a crucial task in terms the oil crisis of 1973–74. In the early 2010s, the idea of U.S. world leadership in clean energy development got a special significance (low carbon source development, Secretary Clinton). President Trump’s administration (2016–2020) has announced the need for energy dominance, including energy independence itself, as well as affordable energy prices and more job opportunities in the energy sector (Ladislaw, 2017).

According to the Energy Independence and Security Act of 2007, the main goals are to increase the production of clean renewable fuels, to protect consumers, to maintain the energy efficiency of products, buildings and vehicles, to promote energy conservation and greenhouse gas capture, etc. (Grossman, 2013).

As was discussed, one of the key tools of ensuring the country’s energy security is increasing energy production on the basis of available local primary energy resources. It will allow covering the existing energy needs and having surplus
energy, decreasing dependence on energy imports from external energy markets and becoming an energy exporter.

In the case of the United States, surplus energy has a crucial significance in terms of powering the urban sprawl: a crucial attribute of American global system. The need for surplus energy and power is a serious push factor for developing nuclear energy and investing in solar power and biofuel in the USA (Gonzalez, 2012). Thus, energy supply politics is pivotal in the context of U.S. energy policy and is connected to national security priorities directly.

The United States is rich in fossil fuel supplies: the regional geography of distribution of the main deposits includes Texas, New Mexico and North Dakota, federally administrated offshore waters of the Gulf of Mexico (oil), Texas, Pennsylvania, Louisiana and Oklahoma (natural gas) and Wyoming, the Appalachian states of West Virginia and Pennsylvania (coal) (U.S. Energy Atlas, 2021). Therefore, Inland South keeps being a key region in terms of oil and natural gas production.

The oil boom here dates from the 1930s, starting from Texas and including also Louisiana and coastal areas. Natural gas production and consumption in the USA increased since the mid-1900s: again, mostly because of supplies of Inland South and coastal region (Montello, Applegarth, McKnight, 2021).

Nowadays, the United States is the world’s largest producer of crude oil, refined petroleum products and natural gas: gas production growth allowed becoming a net gas exporter and exporting liquefied natural gas, LNG (U.S. Department of Energy, 2017). It is the world’s largest exporter of LNG: the main export destinations include South Korea (around 13.3% of total LNG exports), Japan (12.1%), China (9%), Spain (8.4%), UK (6.7%), India and Turkey (around 5.2% each) (U.S. Natural Gas Export and Re-Exports by Country, 2020).

As of 2020, the shares of renewable energy sources (solar, geothermal, wind, etc.) in the country’s total energy consumption and electricity production were around 12.6% and 19.8% respectively (U.S. Energy Information Administration, 2020).

As was mentioned, the energy dependence rate is a crucial indicator of countries’ energy security. According to the World Bank database, the energy dependence rate (the share of imported energy in the total energy use) of the United States is around 7% (Energy Imports, net, The World Bank).

The diversification of energy imports has a great significance in the context of energy security, reducing the negative impacts of possible disruptions and ensuring reliable access to energy resources. Actually, supply diversity, permanent and reliable access to energy resources and limiting the dependence of the United States on external energy imports and a limited number of suppliers have been a crucial priority of U.S. energy policy since the 1973 oil embargo and energy crisis which impacted the U.S. economy significantly.
Today, the United States has access to imports of oil and gas from different countries, demonstrating a high-level regional export diversification. According to the U.S. Energy Information Administration (EIA) data, in 2021 the United States imported around 50% of its total annual crude oil and oil products’ consumption from about 70 countries (mostly from Canada, Mexico, Saudi Arabia, Russia and Colombia). Meanwhile, the country imported less than 10% of its total annual natural gas consumption and more than 96% of those natural gas imports came by pipeline from Canada.

**Contribution to energy security of international allies and partners**

In the context of global and regional integration processes, energy needs and goals of countries maintaining strong political, cultural and economic interrelations (allies, partner countries) are collective (shared by all parties). It means that energy needs and security challenges of a particular country may have a direct or indirect impact on the other allies and partners. Therefore, ensuring shared collective energy security requires a tight collaboration between countries via bilateral and multilateral forums.

Among the essential international platforms or U.S. alliances in terms of multilateral regional and global energy cooperation the followings should be mentioned: European Union, Organization for Economic Cooperation and Development (OECD), G7 (USA, Canada, UK, France, Germany, Italy, Japan) and NATO (North Atlantic Treaty Organization).

An essential point is that many of the United States’ allies and partners do not have relevant supplies of primary domestic energy resources to ensure their own energy security and independence (e.g., two of East Asian countries: Japan and South Korea). There are crucial challenges towards ensuring energy security in the EU member states. Canada, Mexico, and Australia are exceptions in this regard.

Obviously, international allies and partners have faced a variety of energy security challenges which may influence the United States as well. Here are some examples of relevant mitigation activities the country is engaged in (as of 2017), improving energy security levels in partner countries and obtaining additional guaranties and benefits for the domestic energy security:

- Promoting the construction of the Southern Gas Corridor for Europe;
- The trilateral U.S.–Canada–Mexico agreement on reducing methane emissions;
- Practicing cybersecurity standards into the energy policy in the EU on the example of the USA;
- Maintaining more secure, reliable and clean energy standards for Japan and South Korea on the basis of American experience and best practices;
Engagement of the Department of Energy and the Department of State in a variety of activities with partner countries in the spheres of reducing fossil fuel subsidies, cybersecurity, safety of nuclear energy, etc. (U.S. Department of Energy, 2017).

To promote the policies and technologies ensuring energy security at global and regional levels the Department of Energy has been engaged in various multilateral forums with international allies and partners: Mission Innovation (an initiative aiming to double the government investment in clean energy research and development), The Energy Climate Partnership of the Americas (a multilateral platform for clean energy technologies and practices), the International Partnership for Energy Efficiency Cooperation, IPEEC (partnership of nations promoting collaboration on energy efficiency) (U.S. Department of Energy, 2017).

In the context of increasing the level of energy security of partner countries the development of global energy markets is a crucial task. It implies a number of activities like removing energy trade barriers and obstacles, integration to global energy markets and networks, liberalization of foreign energy trade (import and export), etc. It will ensure countries' reliable and smooth access to global energy resources and mitigate the negative impacts of any potential disruptions (in terms of robustness, resilience and sovereignty challenges).

Finalizing, a brief summary of territorial patterns of U.S. external energy policy is shown in Table 1.

**Table 1.** Regional and country-level patterns of U.S. external energy policy directions

| Policy directions/activities | Main stakeholders (regional- and country-level examples) |
|-----------------------------|--------------------------------------------------------|
| Promoting technology and environmental solutions in energy sector development | China |
| Technical assistance (via workshops) for oil and gas producers | Latin America (particularly, Brazil, Argentina and Colombia) |
| Consultations on LNG development | African countries (natural gas producers) |
| Gas hydrate research | Canada, India, Japan, South Korea |
| Low carbon, emission free and clean energy initiatives | South and East Asia (India, Japan, South Korea, China), Europe (UK, Norway), North America (Canada, Mexico) |
| LNG export | East Asia (Japan, South Korea and China) and Europe (UK, EU) |
| Cybersecurity assistance | EU |
| Regional energy supply diversification | EU |
| Legislative and institutional assistance | EU |

Source: own study.
European energy security and American engagement: A brief case study

In general, the following main points explaining American interests in European energy security could be marked out:

1. Traditionally close and multilateral partnerships (economic, security, political, etc.), including the platform of Transatlantic Cooperation;
2. The growing economic and infrastructure interests and perspectives of China at Eurasian level (like the Belt and Road Initiative);
3. Historically formed geopolitical role and significance;
4. The high level of import dependence on a certain external seller (Russia) in the context of military actions in Ukraine since February 2022.

In this paper points 3 and 4 will be particularly focused on.

According to 2020 data, around 39% of the EU’s total energy is being produced locally and 61% is imported. Particular member states reach 90% of the dependency rate (Malta, Luxembourg and Cyprus). Energy import dependence has increased by 5% since 2000 and by 16% since 1990 (Energy Security in the EU’s External Policy, 2020). In other words, because of relatively limited local primary energy resources, the EU depends strongly on energy imports from external energy markets. This is a crucial issue for the Union with a total population of around 450 million.

Sharing land borders with 5 of 27 EU member states (Poland, Lithuania, Latvia, Estonia and Finland), Russia has been the main external energy supplier to the EU for years. The favorable geographical neighborhood makes it easy to practice the cheapest and technically the most preferable option of natural gas transportation from Russia: through pipelines in large quantities. There are several gas transportation systems from Russia (mainly from West Siberia) to the EU through the territories of Belarus and Ukraine.

Besides, the underwater gas transportation from Russia is particularly crucial. The Nord Stream pipeline is transporting natural gas from Vyborg (Leningrad Oblast, Russia) to Lubmin, Germany under the Baltic Sea with a maximum annual capacity of 55 billion m³. Nord Stream 2 (construction completed in September 2021, never operated) has almost the same technical parameters. Actually, the United States has clearly emphasized the unacceptability of the operation of Nord Stream 2 in the event of a possible escalation of the situation in Ukraine at the Secretary of State level at the end of 2021, much before the active phase of the conflict in Ukraine.

According to Eurostat data, the share of energy imports in total imports to the EU from Russia increased to 65.5% in the first half of 2021 (EU imports of energy products – recent developments, 2021). As shown in Table 2, Russia had leading positions by all types of the main energy resources imported by the EU in 2021. Besides, the differences of shares of Russia and second-ranked suppliers are big:
around 2.5 times for oil and petroleum products (24.7%:9.5%), more than 2 times for natural gas (46.8%:20.5%) and more than 2.5 times for coal (43.5%:16.8%).

It should be noted that the countries of Central and Eastern Europe are more dependent on Russian gas than the western European countries. According to the data of European Union Agency for the Cooperation of Energy Regulators, the highest shares (%) of gas supply from Russia have the following European countries (including non-EU members): North Macedonia, Bosnia and Herzegovina and Moldova (100%), Finland (94%), Latvia (93%), Bulgaria (77%), Poland, Italy and Germany (40–50%) (Estimated number and diversity of supply sources, 2020).

Given the above, it is not surprising that different U.S. Presidential Administrations and Congresses have viewed European energy security issues alongside the key strategic interests of the country’s own foreign policy and national interests as well. Accordingly, relevant activities and contributions have been initiated. Particularly, the regional diversification of EU natural gas import and promotion of the development of alternative routes of energy import to the EU have been a priority of U.S. energy policy in Europe (and Eurasia, in general) during the last decade.

At congressional level the following examples of U.S. inclusion in maintaining European energy security should be mentioned (legislative assistance):

- Protecting Europe’s Energy Security Act (2019, 116th Congress), establishing sanctions related to the construction of Nord Stream 2 and Turk Stream gas transportation pipelines (under Baltic and Black Seas respectively);
- European Energy Security and Diversification Act (2020), aiming to promote the diversification of Central and East European energy supply routes (European Energy Security: Options for EU Natural Gas Diversification, 2020).

Other types of engagement include financial support and investments (USAID, U.S. International Development Finance Corporation USDFC), institutional assistance (US–EU Energy Council, Transatlantic Cooperation), promotion of further regional diversification of energy supply from Norway, North Africa and Nigeria, East Mediterranean (from Israel and Egypt), Caspian Sea

### Table 2. The share of Russia in the EU energy export by certain types of resources

| Types of energy resources                          | From Russia, % (1st ranked supplier) | 2nd ranked supplier, % |
|----------------------------------------------------|--------------------------------------|------------------------|
| Oil and petroleum products (2021, 1st semester)    | 24.7%                                | Norway, 9.5%           |
| Natural gas (2021, 1st semester)                   | 46.8%                                | Norway, 20.5%          |
| Solid fossil fuel (mainly coal), 2019              | 43.5%                                | USA, 16.8%             |

Source: Energy production and imports, Eurostat, 2019 (coal data), EU imports of energy products – recent developments, Eurostat, 2021 (oil and natural gas data).
(through South Caucasus, Trans-Anatolian and Trans-Adriatic segments) and Central Asia, etc.

Besides, the United States is providing direct energy alternatives: particularly, exporting coal and liquefied natural gas (LNG) to the EU. It became more crucial in the context of the current situation in Ukraine and the urgent necessity of decreasing Russian energy import via relevant alternatives, as well as skipping the exploitation of Nord Stream 2. The main EU importers of American LNG are Spain, France, Netherlands, Italy, Greece, Poland, Portugal and Lithuania.

In March 2022, the U.S.–EU joint task force and the RE Power EU program was launched. The main aim is to replace the import of Russian fossil fuels by 2030 (for natural gas it is more than 150 billion m$^3$) through increasing LNG import, developing renewable energy capacities and reducing energy consumption by 30% approximately, in parallel with the aforementioned regional diversification of energy import.

Actually, a domestic natural gas production increase could be an alternative to an import increase. Particularly, the Bureau of Energy Resources of the Department of State started promoting shale gas development in Europe. However, it faced a serious opposition (both public and political) even in the stage of exploration and resource assessment in Germany, the Netherlands and France (Boersma, Johnson, 2018).

As was said, the current state and developments over European energy security and U.S. and Russian involvements can be referred to strategic location and significance of Europe (especially, Eastern Europe): thus, seen in wider historical and geopolitical perspectives as well.

Back in 1904, Halford Mackinder developed the idea of ‘Heartland’ (stretching from the Himalayas to the Arctic, and between the Volga to Yangtze rivers (“The Geographical Pivot of History”). Later in 1919, Mackinder discussed the strategic role of Eastern Europe in terms of control the ‘Heartland’ and the world in general (Jones, Jones et al., 2015).

These ideas were developed and modified by Zbigniew Brzezinski (“The Grand Chessboard”) in a wider spatial scope: the Eurasian continent or Eurasian space.

Particularly, the importance of a long-term, sustained and effective ‘management’ of Eurasia for American global primacy was emphasized. Meanwhile, Ukraine was seen as a new and important geopolitical pivot in Eurasia because of the great population number, resources and strategic access to the Black Sea (Brzezinski, 1997). In this context, taking into account the different aspects of energy dependence as a political influence factor, the current issues of European energy security and American perspectives are gaining geopolitical and geo-economic significance rather than being pure regional.
CONCLUSIONS AND DISCUSSION

Summing up the paper, two main types of conclusions can be distinguished concerning the aforementioned research objectives: theoretical (based on discussing the main interpretations of energy security) and practical (based on U.S. energy policy and implementation analysis).

As was shown in the theoretical section of the paper, despite the need for the clarification, unification and generalization of interpretations of energy security, some basic and inarguable ideas could be distinguished: accessibility and affordability of energy resources, minimization of supply risks and disruptions, time changes and sensitivity. In terms of energy policymaking, these points imply maximization of local energy production, supply and infrastructure development, relevant pricing and taxation policies, import diversification, etc.

Undoubtedly, an interdisciplinary approach is a pivotal precondition of comprehensive energy security studies. In this context regional studies of energy security-based policies may serve as an ‘umbrella’ or unifying instrument through a spatial approach for more specific (topic-based) studies like economic, geopolitical, environmental, etc.

As discussed, the United States has conducted a multi-vector and regionally-diversified external energy policy with a particular focus on three main aspects: direct energy security, international assistance and capacity building (institutional, legislative, financial, etc.) and green energy development. However, it was shown that energy security is the main framework and the priority outcome expected for all aspects eventually. Ensuring energy security can be considered as the most comprehensive and primary goal, merging and unifying different policymaking instruments.

Meanwhile, a clear spatial diversification of U.S. energy policy priorities at country and regional levels exists. Generally said, in economically more developed countries and regions with lack of energy resources (EU, Japan, South Korea), policy mostly focuses on supply security and diversification (including LNG imports), energy research, renewable energy development, legislative and institutional assistance, cybersecurity. For the regions with a lower level of economic development and relatively rich supplies of energy resources (Latin America, Africa) the main priorities of policy include consulting, technical and financial assistance for the energy sector and infrastructure development, aimed at the emergence of new and competitive producers of energy (oil, natural gas and LNG) eventually. The cooperation in the spheres of environmentally friendly low carbon and emission free energy development is broader regionally, including both more and less economically developed countries (MEDCs and LEDCs). The list of the main direct and indirect external policymaking actors includes the White House, Congress, the Department of Energy, Department of State and USAID.
The great diversity of U.S. external energy policy activities could be merged into the following main directions:

a) Ensuring U.S. energy security directly (direct or U.S.-focused external efforts and policy): reducing external energy dependence through increasing energy production and export, diversifying energy import geography, creating strategic energy supplies, focusing on cooperation with immediate neighbors (Mexico and Canada) in terms of energy imports and renewable energy development, etc.;

b) Ensuring U.S. energy security indirectly, through a comprehensive assistance and contribution to energy security of international allies (thus having benefits for the domestic energy security). Undoubtedly, a variety of the international assistance programs (at the levels of regions and certain countries) accomplished by the United States (technical, legislative, regulatory, financial, institutional, consulting, capacity building, etc.) are linked to domestic energy security indirectly through improving the energy sector development at global and regional levels and reducing the possible risks and negative consequences for itself. That is to say, a continuous regional energy cooperation and policy are allowing the USA to avoid negative development scenario and necessity of costful intervention in the future.

The situation in Ukraine and related developments since February 2022 have confirmed the strategic urgency of energy security and flexible energy policymaking and planning at regional and global levels once again. The idea of ‘Plan B’ in terms of both alternative resources and alternative suppliers was raised sharply. Thus, ensuring European energy security is considered to be a good example of geopolitical and regional dimensions of U.S. external energy policy, taking into account the strategic geopolitical importance of Europe for the United States, the active phase of military activities in Ukraine and the high dependence of Europe on Russian fossil fuel imports. In this case, two main types of U.S. involvement are identified: narrow-sense and broader-sense involvement.

Narrow-sense (direct) involvement includes providing with direct (immediate) energy alternatives, such as LNG. Besides, the United States keeps being the second largest coal supplier to the EU.

The most recent initiatives (REPowerEU, U.S.–EU joint task force) have emphasized the necessity of a gradual increase of LNG imports by 2030 as an important step towards replacing Russian natural gas imports. However, a large spatial distance between the USA and Europe and impossibility of pipeline-based transportation (ensuring a continuous and permanent supply in large volumes) reduce the competitiveness of American energy resources on the European market. Particularly, the feasibility of the widespread use of LNG in the future still raises a number of questions in terms of:
• Economic viability, including the costs associated with liquefying natural gas, transporting it through tankers, turning it into a gaseous form again, and building new LNG terminals in Europe (like those which were constructed in Lithuania and Poland in 2014–2016);
• The potential negative environmental impact during above-mentioned technological periods;
• Potential challenges for the USA: one of the main arguments of opponents of an American LNG export increase is a possible increase of domestic natural gas prices.

Broader-sense (indirect) involvement includes a great variety of policymaking instruments such as legislative, technical and institutional support, sanctions (like for the Nord Stream2 construction), promoting the emergence of new energy suppliers and routes of supply, etc. In both narrow and broader cases, the significance of resources, socio-economic, geopolitical and other factors of regional energy security analysis (discussed within the theoretical provisions of energy security) can be clearly traced.

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