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CRIZA ENERGETICĂ CA FACTOR DE DECLANȘARE A UNEI NOI VIZIUNI DE SECURITATE ECONOMICĂ *

ENERGY CRISIS AS A TRIGGER FOR A NEW ECONOMIC SECURITY VISION *

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Abstract

Scopul *acestei teme este de a investiga modul în care criza energetică poate influența perspectiva asupra securității economice și de a analiza modalitățile în care statele pot dezvolta strategii noi pentru a gestiona și preveni astfel de crize în viitor.*

Originalitatea *acestei teme constă în abordarea interdisciplinară a relației dintre criza energetică și securitatea economică, evidențiind modul în care perturbările în sectorul energetic pot afecta stabilitatea economică și securitatea națională. De asemenea, tema explorează posibilele soluții și strategii inovatoare pentru a gestiona și preveni crizele energetice, având în vedere impactul lor asupra economiilor moderne.*

Importanța *temei rezidă în evidențierea impactului major al crizei energetice asupra securității economice a unei țări și în necesitatea dezvoltării strategiilor eficiente pentru gestionarea și prevenirea acestor crize, contribuind astfel la stabilizarea economiei și asigurarea securității naționale.*

Materialele și metodele *utilizate în această lucrare au inclus cercetarea bibliografică, analiza datelor statistice, consultarea experților din domeniile energetic și economic, precum și utilizarea modelelor economice și a simulărilor. Aceste abordări au fost integrate pentru a analiza impactul crizei energetice asupra securității economice și pentru a dezvolta strategii eficiente de gestionare a acesteia.*

În concluzie*, criza energetică servește ca un catalizator pentru o nouă viziune asupra securității economice. Aceasta subliniază necesitatea diversificării surselor de energie, a investițiilor în infrastructura energetică și a promovării eficienței energetice. O abordare corespunzătoare a acestei probleme poate consolida stabilitatea economică și poate asigura o aprovizionare energetică durabilă și reziliență în viitor.*

Cuvinte cheie: *criză energetică, securitate economică, vulnerabilitate, diversificare energetică, eficiență energetică, infrastructură energetică, influență geopolitică.*

***** The paper is developed in the context of the realization "Strengthening socio-economic and legal mechanisms to ensure the well-being and security of the citizens" (CONSEJ 01.05.02).

* Articolul este elaborate în contextual realizării Proiectului "Consolidarea mecanismelor socio-economice și juridice de asigurare a bunăstării și securității cetățenilor" (CONSEJ 01.05.02).

Introducere

Amidst the intricate dynamics of the global economy, the energy crisis emerges as a pivotal force reshaping and redefining nations' strategies for economic security. Energy is universally acknowledged as a cornerstone resource essential for the functionality and advancement of modern economies. Consequently, any disruption or crisis within the energy sector can yield profound implications for both economic stability and national security.

Energy crises may arise from various catalysts, including abrupt fluctuations in energy prices, political turmoil in vital production or transit regions, as well as natural calamities or unforeseen occurrences. These crises not only impact the accessibility and cost of energy but also wield influence over economic competitiveness, investment patterns, employment rates, and even societal equilibrium.

Faced with these challenges, states are often compelled to reassess and redefine their concept of economic security. The energy crisis thus becomes a catalyst for formulating a new strategic vision that addresses not only the immediate aspects of energy supply but also the long-term implications for sustainable economic development and national security.

Against this backdrop, it becomes essential to adopt a comprehensive and systematic approach to evaluate the complex interactions among the economic, political, social, and technological facets of the energy crisis. This approach is essential for providing solutions grounded in evidence. Through meticulous examination of the root causes and effects of the energy crisis, governments can formulate strategies that not only enhance effectiveness but also ensure sustainability. These strategies are vital for protecting both economic prosperity and energy resilience within the constantly evolving global landscape.

Materials and methods

This study employs a diverse array of methods and sources to examine the influence of the energy crisis on economic security. It encompasses a literature review, statistical data analysis, and scrutiny of economic reports to grasp the context and ramifications of the crisis. Furthermore, consultations with energy experts and economists were conducted to gather varied viewpoints, while economic models and simulations were utilized to assess various scenarios and policy options. Through the integration of these methodologies, this paper offers an enriched comprehension of the energy crisis and proposes strategies for its effective management.

Resultats and discussion

The energy crisis can be defined as a situation where there is a significant deficiency or disruption in energy supply, negatively affecting the economy and/or society as a whole. This deficiency can be caused by a variety of factors, including restrictions in fossil fuel supply, issues in energy infrastructure, energy price fluctuations, or excessive reliance on a single energy source. In the context of economic security, an energy crisis can trigger a reevaluation of economic policies and strategies to reduce dependence on external energy sources, promote energy diversification, and enhance energy infrastructure resilience. Thus, the energy crisis can influence the perception and approach to economic security, emphasizing strategies to ensure stable and sustainable energy supply for the entire economy [1].

Factors that can trigger an energy crisis include:

- ***Decreased energy production:*** Reductions in energy production from key sources such as oil, natural gas, or coal can lead to an energy crisis.

• ***Geopolitical instability:*** Armed conflicts or political tensions in key energy production or transit regions can disrupt supply and trigger a crisis.

• ***Infrastructure problems:*** Failures or deterioration in energy infrastructure, such as pipelines, refineries, or power plants, can lead to a sudden supply decrease and trigger a crisis.

• Sharp price declines or speculation: Sudden energy price fluctuations or speculation in energy markets can destabilize the market and lead to an energy crisis.

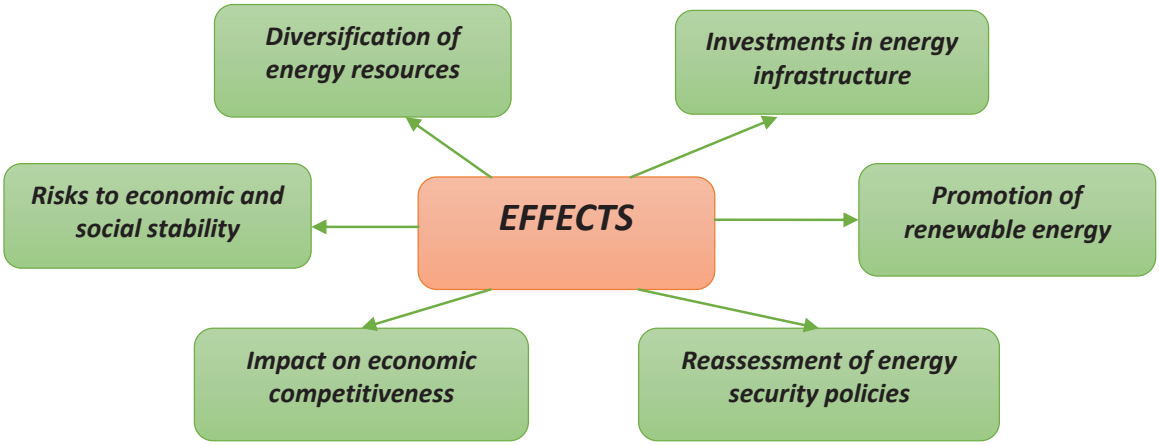
• ***Excessive dependence on a single energy source:*** Excessive reliance on a single energy source can increase an economy's vulnerability to supply disruptions and amplify the effects of an energy crisis.

• ***Natural factors:*** Extreme natural events such as storms, earthquakes, or floods can affect energy infrastructure and trigger a crisis by disrupting energy supply.

• ***Increased energy demand:*** A sudden and unexpected increase in energy demand, caused by factors such as rapid economic growth or extreme temperatures, can strain existing production capacities and trigger a crisis.

Interactions among various factors can exacerbate energy crises, necessitating their management and prevention. This entails diversifying energy resources, investing in infrastructure, promoting renewables and efficiency, reevaluating security policies, and considering economic and social stability risks. Adopting new policies for efficient energy supply management and fostering resilience is imperative.

Figure 1. Effects of an energy crisis on economic security



Source: elaborated by the authors.

Analyzing the diagram, we can describe each effect individually:

1. ***Diversification of energy resources:*** An energy crisis prompts a reassessment of a country's energy policy, advocating for diversification of energy sources to reduce excessive dependence on a single source or supplier. This diversification contributes to enhancing economic security by reducing risks associated with supply disruptions.

2. ***Investments in energy infrastructure:*** Governments are motivated to invest in modernizing and strengthening energy infrastructure to address potential energy crisis threats. These investments improve resilience and efficiency of the energy system, contributing to long-term economic security.

3. ***Promotion of renewable energy and energy efficiency:*** Awareness of vulnerabilities associated with traditional energy sources encourages a transition to more sustainable and less

import-dependent energy sources. Investments in renewable energy and energy efficiency programs support both energy and economic security.

4. ***Reevaluation of energy security policies:*** The energy crisis prompts governments to revise their energy security policies and strategies to better address threats and risks associated with energy supply. This reassessment involves international collaboration and the development of common strategies for managing energy risks.

5. ***Impact on economic competitiveness:*** The energy crisis affects the competitiveness of an economy by increasing energy costs for businesses and consumers. This prompts a shift in economic policy towards improving energy efficiency and supporting sectors less dependent on energy.

6. ***Risks to economic and social stability:*** Energy supply shortages have negative consequences on economic and social stability, including inflationary pressures, job losses, and disruption of daily activities for the population. These effects can be mitigated through proper crisis management and implementation of mitigation measures.

Evaluating the effects of an energy crisis underscores the multifaceted nature of its impact on economic security [1]. Diversifying energy resources, investing in resilient infrastructure, promoting renewable energy and efficiency, reevaluating energy security policies, addressing economic competitiveness, and mitigating risks to social stability are essential strategies for navigating such crises. By adopting proactive measures and fostering international cooperation, nations can mitigate vulnerabilities, enhance resilience, and build a more secure energy future [2].

Table 1. Indicators of the energy crisis as a trigger for a new vision of economic security

Indicator	Description	Meaning	Impact
Energy prices	Increased prices of natural gas, oil, and electricity.	Signals a shortage of energy resources or an increase in demand.	Increases production and consumption costs, affecting economic competitiveness.
Dependency on imports	Significant import of energy resources from other countries.	Vulnerability to fluctuations in the global market and geopolitical risks.	Increases the risk of energy shocks and economic instability.
Diversification of energy sources	Limited use of alternative energy sources (e.g., green energy).	Lack of flexibility and adaptability to changes in the energy market.	Limits the ability to reduce dependence on imports and mitigate the impact of the crisis.
Energy efficiency	Low level of energy efficiency in final consumption and industrial production.	Waste of energy resources and additional costs.	Increases vulnerability to rising energy prices and affects economic competitiveness.
Investments in energy infrastructure	Outdated and insufficient energy infrastructure.	Limitation of energy transport and distribution capacity.	Hinders the diversification of energy sources and increases the risk of supply interruptions.

Source: elaborated by the authors.

The table highlights the economic vulnerabilities resulting from the ongoing energy crisis, including rising energy prices, import dependency, limited source diversification, low efficiency, and outdated infrastructure. These factors collectively pose a threat to economic stability, necessitating immediate action to bolster economic security. Key measures include investing in green energy, reducing imports, improving efficiency, and modernizing infrastructure. Additionally, establishing secure energy infrastructure and fostering international cooperation are crucial for mitigating market disruptions. Viewing the crisis as an opportunity, transitioning to sustainable energy systems can mitigate risks, stimulate growth, and ensure long-term prosperity. Oil price fluctuations significantly impact Moldova's economy, affecting electricity and gas costs, competitiveness, and the risk of energy poverty. Table 2 offers a detailed analysis of Brent oil's average annual price evolution from 2018 to 2023, providing valuable insights into trends, influencing factors, and associated risks and opportunities for Moldova's energy security.

The analysis within the table reveals pronounced volatility in oil prices in recent years, driven by factors such as the surge in American shale production, the disruptive effects of the COVID-19 pandemic, and geopolitical tensions. Consequently, Moldova has faced heightened energy costs and increased dependence on energy imports, negatively impacting its energy security. In response, the Moldovan government has undertaken several initiatives to address the challenges posed by the energy crisis. These measures include implementing energy tariff subsidies and launching programs to promote energy efficiency. The goal is to alleviate the negative impacts of the crisis and bolster the country's energy resilience. Through these efforts, Moldova aims to enhance its ability to withstand energy-related disruptions and ensure a more sustainable and secure energy future [2].

Table 2. Evolution of brent crude oil prices and its impact on the energy security of the Republic of Moldova (2018-2023).

Year	Indicators	Value	Observations
2018	Average Brent Crude Oil Price (USD/barrel)	71.34	Slight increase in prices after a period of decline
2019	Average Brent Crude Oil Price (USD/barrel)	64.27	Slight decrease in prices due to increased US shale production
2020	Average Brent Crude Oil Price (USD/barrel)	41.95	Significant price decrease due to the COVID-19 pandemic
2021	Average Brent Crude Oil Price (USD/barrel)	70.67	Significant price increase due to global economic recovery
2022	Average Brent Crude Oil Price (USD/barrel)	107.10	Sharp price increase due to Russia's invasion of Ukraine
2023	Average Brent Crude Oil Price (USD/barrel)	99.79	Prices remain high due to geopolitical uncertainty

Source: elaborated by the authors.

Between 2018 and 2019, there was a modest decline in oil prices following a period of growth, attributed to factors such as heightened global demand, reduced OPEC production, and geopolitical tensions in the Middle East. However, in 2020, oil prices plummeted significantly due to a sharp reduction in global demand amid the COVID-19 pandemic and the ensuing price

war between Saudi Arabia and Russia. Subsequently, in 2021, prices surged as the global economy rebounded from the pandemic, coupled with dwindling global oil inventories. Nevertheless, in 2022, prices sharply escalated due to Russia's invasion of Ukraine, accompanied by sanctions imposed on Russia and apprehensions regarding potential disruptions in oil supplies. This trend persisted into 2023, as prices remained elevated amidst ongoing geopolitical uncertainties and a decline in investments in oil production.

The complexity and volatility of the Brent oil market make predicting prices challenging due to diverse economic, geopolitical, and technological factors. Despite this, there are opportunities for adaptation, such as developing alternative energy sources and improving efficiency to reduce oil dependency and manage price risks. It's crucial to monitor factors closely, diversify energy sources, and adapt to market changes. The energy crisis in the Republic of Moldova, triggered by rising energy prices, global disruptions, and geopolitical instability, presents significant challenges. Table 3 synthesizes key events, impacts, responses, objectives, challenges, and opportunities related to the crisis from 2018 to 2023, alongside relevant economic indicators. This comprehensive overview aids in understanding the crisis's causes and consequences, evaluating government responses, and identifying strategies for economic diversification and resilience [3].

The data presented in the table offers valuable insights into understanding the origins and repercussions of the energy crisis in the Republic of Moldova. It enables an assessment of the effectiveness of government interventions aimed at mitigating the crisis, while also identifying opportunities to cultivate a stronger, more efficient, and sustainable economy. Key findings from the table underscore the significant impact of the energy crisis on Moldova's economic landscape, highlighting proactive measures implemented by the government, such as the development of the Energy Security Strategy and initiatives aimed at diversifying energy sources. The successful execution of this strategy is imperative for enhancing the country's economic security amidst challenges in the energy sector [4].

Table 3 provides a comprehensive overview of the energy crisis in the Republic of Moldova, offering a detailed analysis of various events, impacts, responses, objectives, challenges, and opportunities from 2018 to 2023. By synthesizing this information, the table serves as a valuable tool for stakeholders to gain a deeper understanding of the multifaceted nature of the crisis.

The energy crisis spanning 2018-2023 marked a critical juncture for the Republic of Moldova, shedding light on economic vulnerabilities and underscoring the urgency for a fresh strategic approach to safeguard the nation's energy and economic security. Confronted with heavy reliance on energy imports and limited economic diversification, the adoption of a comprehensive strategic vision became imperative [5]. Consequently, Moldova embarked on the implementation of an Energy Security Strategy spanning 2022-2030, prioritizing diversification, efficiency, and sustainability. Key objectives include reducing energy import dependency, ensuring supply security, boosting economic competitiveness, and safeguarding the environment.

Table 3. Evolution of the energy crisis and its impact on the economic security of the Republic of Moldova (2018-2023)

Year	Events	Impact	Response	Objectives	Challenges	Opportunities	Economic indicators
2018	Increase in natural gas prices by 30%	Increase in electricity tariffs by 25%	Development of the Energy Security Strategy	Reduction of energy import dependency from 80% to 50%	Lack of financial resources: budget deficit of 5% of GDP	Attraction of foreign investments: 10% increase in foreign direct investment flows	GDP growth: 4.5%
2019	Reduction in natural gas deliveries from Russia by 20%	Decrease in economic competitiveness	Diversification of energy supply sources: increase in imports from Romania	Ensuring energy supply security	Limited institutional capacities: corruption perception index of 50	Development of new energy technologies: 5% increase in investments in green energy	Inflation: 6.5%
2020	COVID-19 pandemic: GDP decline by 7%	Increase in the risk of energy poverty	Investments in green energy: 100 million euros	Enhancing economic competitiveness	Political instability: 3 governments within a year	Regional cooperation: participation in regional energy projects	Unemployment increase: 7%
2021	Inflation increase to 13%	Uncertainties regarding energy supply security	Improving energy efficiency: renovation of 10,000 buildings	Environmental protection: reducing CO2 emissions by 5%	Geopolitical influence: increasing dependence on liquefied natural gas (LNG)	Increasing public awareness: energy efficiency awareness campaigns	Food price increase: 20%
2022	Ukraine war: natural gas price increase by 50%	Vulnerability to external shocks	Development of the domestic energy market: establishment of an energy exchange	Consolidation of the domestic energy market	Lack of financial resources: budget deficit increase to 7% of GDP	Attraction of foreign investments	GDP growth: 3.0%
2023	Implementation of the Energy Security Strategy	Diversification of energy supply sources	Diversification of energy supply sources	Improving energy efficiency	Limited institutional capacities	Development of new energy technologies	Inflation: 10%

Source: elaborated by the authors based on [6].

Realizing a sustainable vision in the energy sector necessitates concerted and collaborative endeavors among diverse stakeholders. Government entities must allocate financial resources and enact reforms in energy sector legislation. The private sector holds potential to bolster these

initiatives through investments in green energy and efficiency measures. Civil society, too, plays a pivotal role in disseminating information and raising awareness. Despite challenges such as limited financial resources and political instability, opportunities abound, including attracting foreign investment and advancing energy technologies. The energy crisis has catalyzed reforms and the forging of a robust strategic vision, with collaborative efforts among all stakeholders proving pivotal for success. A thorough analysis of the economic, political, and social landscape is indispensable for effectively navigating the energy crisis.

Conclusion

In conclusion, a detailed analysis of the impact of the energy crisis on the Republic of Moldova during the period 2018-2023 reveals economic and social vulnerabilities exposed by increased dependency on energy imports and the lack of diversification in energy infrastructure. This period was characterized by significant fluctuations in Brent oil prices and geopolitical events that had a major impact on the country's energy and economic security.

The energy crisis necessitated a long-term strategic approach aimed at diversifying energy sources, improving energy efficiency, and modernizing infrastructure to ensure supply security and stimulate sustainable economic growth. In this context, cooperation among the government, private sector, civil society, and international partners became essential to allocate necessary resources and promote innovation in the energy sector.

The energy crisis in the Republic of Moldova not only unveiled economic vulnerabilities but also offered avenues for progress and transformation. With a pressing need for investments in alternative energy sources and innovative technologies, there exists an opportunity for a rapid transition towards a more sustainable and resilient energy infrastructure.

Addressing the energy crisis effectively has become a cornerstone in ensuring economic stability and security in Moldova. Embracing a comprehensive and sustainable strategic approach that takes into account economic, social, and environmental dimensions is essential for overcoming challenges and charting a path towards a prosperous and secure future for all citizens.

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