

Școala Națională de Studii Politice și Administrative
Școala Doctorală Multidisciplinară
Domeniul de Doctorat Științe Politice

TEZĂ DE DOCTORAT

Energy crisis and the future of European Union. An analysis of energy as the basis of sustainable
development

SUMMARY

Conducător științific: Prof.univ.dr. Cezar Bîrzea

Autor: Roxana Andreea Andrei

Bucharest, 2024

Table of Contents

Introduction	3
Argument	3
Objectives and Premiss	8
Methodology	10
Structure of thesis	11
Chapter 1	13
<i>The context of energy for sustainable development</i>	13
1.1. The implications of energy in the development of societies	13
1.2. The impact of exponential growth on modern societies	26
1.3. The limits of energy	34
Chapter 2	44
<i>Beyond the Club of Rome. A closer look to the degrowth perspective in the context of energy security.</i>	44
2.1. The Concept of Exponential Growth	44
2.2. Sustainable development and the degrowth perspective	52
2.3. Sustainable development and the state of equilibrium	59
Chapter 3	76
<i>Defining the risks and vulnerabilities in nowadays world</i>	76
3.1. The concept of risk society	76
3.2. The contextualization of risks	82
3.3. The Concept of Securitization	97
3.4. Energy security	116
3.5. The model of polycrisis	120
Chapter 4	131
<i>Energy security in the green transition</i>	131
4.1. Describing the context and the global challenges	131
4.2. European Green deal Context	139
4.3. Energy Security in the Context of the European Green Deal	146
Conclusion	178
How strategies are synthetized?	188

SUMMARY

Key words: Energy Security, Exponential Growth, Sustainable Development, Non-renewable resource dependency, Green Transition Policies.

The evolution of technological developments in the last century since the Industrial Revolution have determined a growth in consumption of resources by requiring higher amounts of energy in order to satisfy the needs of developed societies. Today, we see that we are facing one of the highest levels of energy consumption in history, thus becoming an issue due to the limited amounts of energy resources available. Consequently, the exponential growth in energy consumption has brought high level of pollution that contribute to the environment degradation, and to climate change. Since economic development still has influences on the energy consumption and production, this exponential growth has led to the increase in need for resources both from businesses and states in general. At the same time, globalization has brought many benefits and challenges due to the opportunities of trade and offshore exploitation of resources. The higher – income states moved industries in developing countries, enhancing the economic development and trade, transforming international trade relations and on the other side affecting the availability and security of resources and energy alike.

Furthermore, as industries are dependant of the use of fossil fuels for their energy needs, the consequence of exponential growth in energy use has become the exponential growth of pollution. Thus, the move of industries offshore in the past has facilitated higher – income countries to move the industries offshore, where developing countries were using high polluting fossil fuels such as coal, thus reducing their direct pollution. States such as the United States of America and European countries have become nowadays deindustrialized, however, the limits of resources have an impact on the security of energy, thus on their development. Nowadays, it seems that the world is facing two issues based on a long series of consequences, on one side there is the issue of securitization of resources through industrialization, while on the other side there is the problem of climate change where the economy needs to transit towards a green economy in order to prevent future degradation of the environment. In this thesis I have analysed the relation between the two global issues in the context of sustainable development.

In this context, the European Union has established a global strategy to address the problem of climate change and resource depletion through various strategies, the most notable one being the

European Green Deal (EGD). The objective of the EGD is to tackle the multifaceted consequences brought by climate change. The EGD is presented as a “new growth strategy” (European Commission, 2019), that will foster the efficient management of resources while transitioning to a green economy with net zero emissions until 2050. The basis of this strategy has mostly economic rationale, with the goal for the European Union to become a competitive economy. With this strategy, the European Union aims to keep its status quo as a global leader in the transformative state of development towards a green economy.

Considering the vast nature of literature that covers the topic of sustainability in relation to climate change and resource security, this thesis aims to integrate existing perspectives and shed new light on the policy – driven securitization of environment at the EU level, while concentrating on the trade – offs that are made in relation to energy security. I am aware that the environmental crisis has led to significant challenges and policy developments in how the relationship between energy and security is framed and enhanced within the EU. These developments underscore the inherently complex and intricate nature of energy securitization, reflecting the multiplicity of policy actors involved and the diversity of perspective on how energy should be sustainable and secured. This thesis seeks to complete the extensive literature, which often missed the aspect of energy in relation to the topic of environmental sustainability. Rather than focusing on only one logic for sustainable development, this thesis bridges earlier and current studies, illustrating how the process of sustainability must include the sector of energy at the core of development policies.

Within this thesis I analysed the previous works in specialized literature that discuss the problem of environment as a concern for the sustainability of societies, however having little consideration for the topic of energy as a referent object for securitization. In this regard, my aim is to integrate existing perspectives related to securitization of resources, placing energy as an object of reference for security, in the context of Copenhagen School. It is my perspective that because of the current crisis contexts, there have been developments in EU policies in regard to the reframing energy security.

Moreover, at European level there is an issue that is becoming more relevant in today’s context, which until now it did not benefit from as much visibility neither in specialized literature, nor in the context of policy framing at the European level. The issue that I am referring to is related to the energy security in the European Union in relation to sustainable development which is the thematic for this thesis. Considering the above – mentioned arguments, this research was developed due to the dilemmas that rose from the problematic of environmental security and energy security, as both are relevant for the sustainable development context. As I have elaborated in this research, to produce energy, we need fossil fuels, which are affecting the environment in the form of pollution when they are combusted to be transformed in energy. Furthermore, there is a contradiction on this topic, some

arguing that the environment protection is the most pressing issue, while missing to address the aspect of energy in their research, while others argue that energy is the foundation of development, however minimizing the problem of environment. Moreover, the available data that I have analysed and observed is conflicting on some aspects, especially related to the topic of resource limits, which is a problematic that is lengthily discussed within this thesis.

My motivation in choosing this topic results from its relevance today and the complexity of its dynamic. Energy security affects all levels of life, influencing the economic sector, the societal sector, the environmental sector and the political sector, thus it becomes mandatory to view energy as a catalyst for sustainable development policies. Furthermore, it is necessary to observe these interactions from an objective perspective that is focused on the analysis and observation of the political framework of the future of energy security. Moreover, at European level there is a high complexity in which the political objectives are attained, which have produced visible changes related to the energy security, raising a need for questioning the sustainability of the green transition frameworks in search of valid arguments and responses to this problematic.

For the European context, the relevance and utility of this doctoral thesis comes from the need to understand the implications of the past and the current dynamic of the relations between energy and climate policies in order to provide a solid basis for future policies in the field of sustainable development. The green transition has raised many challenges related to the implementation of policies, producing effects both for the European community, and for the global partners. My hypothesis is that if an energy crisis exists, then this situation may generate multiple crisis and vulnerabilities, thus the whole equilibrium may be under threat.

Globalization and the transfer of industries from developed states to developing countries have contributed to a growth in the dependency of the European Union on the resources needed for energy, mainly referring to fossil fuels, however, having implications as well on other resources that are needed for production of renewables. Furthermore, the dependency on resource imports is one of the main characteristics that affects the energy security within the EU, contributing on other effects that will be discussed lengthily in this thesis. From the EU perspective there is a need to highlight that energy security, and the limits of resources is a problem that is not only affecting the future of sustainable development in the EU, but may as well influence the global equilibrium, having an impact in all aspects of life. For the last fifty years, the availability and accessibility of resources, and the economic fluctuations that impacted their affordability have played an important role in the international policy development related to green transition. Many researchers have pointed out the risks associated with resource depletion in relation to energy security. Thus, this research is constructed based on the following premises:

- Economic development and political stability of the European Union are in a causal relationship with energy.
- Energy is more than a product used for consumption but is the essence of societal security and global equilibrium.
- The depletion of resources which can be traced back to at least fifty years ago, produces consequences that are felt in relation to the energy security.
- Cooperation is one of the key aspects for attaining sustainable development, thus without engagements at global level to address climate change the impact of the European Union's policies is insufficient.
- At European level, energy security will become one of the guiding aspects for the future of climate and economic policies.
- Limited availability of fossil fuels will impact the energy security of the European Union which will further cascade its effects in all aspects of life, economic, political and societal.
- Green transition policies are in a causal relationship with energy security, due to the dependence of energy production on fossil fuels which are affecting the environment.

Furthermore, the approach of this thesis is based on the intention to further implement the following research objectives:

- The general objective of this thesis is to investigate and determine the relationship between energy security and sustainable development by analysing the impact of European Green Deal on the development cooperation.
 - Identifying the most relevant developments that contributed to the current context and determining the implications of exponential growth on today's context.
 - Analysing and comparing for global strategies to understand their implications on the future for sustainable development policies.
 - Analysing the most recent approaches that the European Union has initiated related to energy securitization.
 - Analysing the position of the European Union as a leader in the green transition.
 - Identifying and presenting the necessary theoretical frameworks that are needed for understanding the causal relationships between energy security and sustainable development.
 - Determine the impact of the strategic move of the European Green Deal on the development cooperation.

From the methodological point of view, within the course of the scientific approach for this thesis I have employed a qualitative analysis method, which provided the opportunity to identify the context and factors related to energy security and sustainable development. The substantiation of the theoretical framework was developed through the analysis of specialized literature, in which I have analysed the content and concepts, having the scope to determine the theoretical framework that was necessary to address and expose the global strategies which are relevant for the understanding of causal relationships between energy security and sustainable development. Furthermore, the I have used the document analysis and observation as the main research methods to document and develop this research. In this regard, I have analysed official documents and position statements, legislation, previous studies based on similar thematic, articles and books relevant for the discussed topic. I have developed the analysis of the global strategies starting from the Club of Rome, moving towards the Copenhagen School, and other relevant research that are integrated in the bibliography of the present thesis. The diverse nature of the content of the specialized literature in the field of study, which I have employed in this analysis has materialized in mixed research in which I have utilized the analysis of specialized literature and further integrated quantitative data that I have compared in order to establish the causal relationships between variables.

Furthermore, throughout the research I focused on identifying and presenting the causal relationships between the discussed aspects, while employing the descriptive analysis where necessary. Additionally, I have employed the cross – sectional analysis method to address the differences and similarities between global strategies, which has contributed to the validation or overthrow of certain aspects within the research process. As a general theoretical framework, the securitization theory from the Copenhagen School for Security Studies was the most suitable for explaining the Global and European relations related to the security of energy, while the Club of Rome has provided the relevant background for explaining the problematic of exponential growth and the nature of finite resources and their consequences on sustainable development.

The thesis was structured as follows:

The first chapter named “The context of energy for sustainable development” describes the global context of energy by discussing the problematic of inequalities between different levels of development of societies. It is based on a desk review which highlights the current threats to energy and the problematic of resource peak in the context of the highest levels of energy consumptions since the Industrial Revolution. The chapter aims to provide a mapping of the context of energy dependency and the issues associated with scarcity of resources and the new “energy revolution”. The chapter discusses the main problems of energy dependency on fossil fuels and by providing the necessary data to highlight the limited capacity of alternative energy to sustain the modern civilization.

The second chapter named “Beyond the Club of Rome. A closer look to the degrowth perspective in the context of energy security” provides an in – depth examination of the Club of Rome “Limits to Growth” report and its proposition for degrowth as a policy for sustainable development. This chapter will discuss the main concepts that contributed to their thesis, outlining the main characteristics. Exponential growth is one of the main concepts outlined in the “Limits to Growth” report as an issue for the world equilibrium. Furthermore, the chapter aims to highlight the causal relationship between exponential growth and the depletion of resources such as fossil fuels that are the primary source of energy. This chapter discusses the main elements for sustainable development and traces the problematic of resource scarcity.

The third chapter named “Defining risks and vulnerabilities in today’s world” provides the context and framework for understanding the risks associated with nowadays context by employing the research developed by Ulrich Beck named “Risk Society, Towards a New Modernity”, furthermore, the chapter highlights the securitization theory of the Copenhagen School which brings into discussion specific elements of energy security in the context of a global strategy that connects the problem of risks of modernity with the problem of energy security. This chapter emphasizes the aspect of sectorial securitization from the perspective of energy and discusses the societal threats and vulnerabilities of energy security. The chapter discusses the methodology of the four As for security, and identifies the main risks and vulnerabilities for energy security in the context of modernity.

The fourth chapter named “Energy security in the green transition” analysis the impacts of green policies, strategies and laws at the European level. It provides an analysis of the EGD policies and their impact on the energy security, by emphasizing the gaps and vulnerabilities that renouncing of fossil fuels as a resource for energy production may bring to people both regionally and globally. It discusses the current situation from the perspective of availability, affordability and accessibility of resources, discusses the evolution in consumption in production and the sustainability of proposed practices through the EGD.

The research findings reveal a complex interplay between energy demand, economic development and globalization, highlighting significant growth in energy consumption, particularly from non – renewable resources, with the industrial and technological advancements of societies in the past fifty years. Population growth has influenced the increase in demand for resources and final products that are indispensable for further advancements. Additionally, globalization has facilitated exploitation and distribution of resources, however it led to dependency and increased consumption in wealthier regions, leaving others behind. Through my analysis I have highlighted the disparities in energy access between high – income and low – income countries, affecting development and quality of life. Furthermore, the significant growth in energy consumption has highlighted the dependency on fossil

fuels for the energy security. Moreover, another problematic highlighted is related to resource depletion which is an ongoing risk since the 70's. The depletion of resources, particularly fossil fuels, poses a risk to energy security and economic stability, necessitating a balance between fossil fuel reliance and renewable energy adoption. Within my analysis I have highlighted that economic development is still closely linked to energy use, which is a vulnerability in the context of green transition. This interconnection complicates the process for green transition if this transition is done without global cooperation in the light of Paris Agreement.

The EGD strategy puts Europe in a vulnerable position with risks for energy security due to its high dependency on fossil fuel imports for a large portion of its energy mix. The policies following the EGD strategic framework aim for degrowth and a renunciation of fossil fuels by applying punitive measures. This has effects on the security of energy thus, affecting the wellbeing of society. EDG remarks itself through the discourse in which reliance on technological advancements may solve the problem of energy security. Technology however, as I have argued, can provide solutions, but they also introduce new vulnerabilities such as the newly introduced energy vulnerabilities based on the high consumption of AI technologies. In the context of which COVID – 19 has already exacerbated vulnerabilities, leading to high energy prices and lack of affordability of goods to some people, the current context highlights the need for a closer look of the EGD and more cooperative policies between nations to address the current challenges of sustainable development (climate change, resource depletion and energy security).

Energy security is an integral part of sustainable development, and not just because of the commodity factor, but because it provides the possibility for technological advancements, education, decent lifestyle and so on, as it was highlighted throughout this research. In this regard, I have concluded the research by arguing that sustainable development requires global cooperation, effective policies focusing on energy efficiency, and addressing inequality in access. The transition to a green economy must consider the economic, politic and societal implications of reducing fossil fuel use. Within the research I have emphasized the need for a strategic approach to energy security that balances environmental stability with economic growth, advocating for international collaboration to mitigate risks associated with energy crisis, resource depletion and climate change.