

Article

Lithuanian Energy Security Transition: The Evolution of Public Concern and Its Socio-Economic Implications

Dainius Genys ¹, Ričardas Krikštolaitis ^{2,*}  and Aušra Pažėraitė ³ 

¹ Energy Security Research Centre, Vytautas Magnus University, Vileikos 8, LT-44404 Kaunas, Lithuania; dainius.genys@vdu.lt

² Faculty of Informatics, Vytautas Magnus University, Universiteto 10, LT-53361 Akademija, Lithuania

³ Faculty of Economics and Management, Vytautas Magnus University, K. Donelaičio 52, LT-44244 Kaunas, Lithuania; ausra.pazeraite@vdu.lt

* Correspondence: ricardas.krikstolaitis@vdu.lt

Abstract: The article analyses the evolution of the social dimension in energy security transition in Lithuania. It contributes to an emerging attempt in the literature to broaden the horizons of our understanding of societal transformation and energy transitions. The analysis reveals the interdependence of changing Lithuanian society and its developing energy security concerns throughout the Independence period, from the importance of material threats (ecological, economic, and political) to post-material values (such as climate change concerns) in the context of energy security. Accordingly, the energy sector undergoes a vivid transition from a totally dependent “Energy Island” to a diversified, interconnected, and self-sustainable system. Such a journey inevitably resulted in the highlight of the social dimension in energy security and provoked certain socio-economic implications, like changing public awareness and participation, social equity and justice, and socio-economic resilience and vulnerability. The research is based on case study principles (applying sociological discourse analysis through scientific articles’ qualitative content analysis method as well as energy security policy analysis reviewing all national strategies throughout the Independence period) and is focused on a unique Lithuanian context.

Keywords: sociological research; social change; agency; knowledge; energy security; Lithuania



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1. Introduction

The concept of energy security has undergone an evolution over the past few decades, from the reliable supply of resources at affordable prices [1] to the resilience to a wide range of disturbances [2], from sustainable development [3,4] to decarbonization and transition to circular economy-based green energy [5,6]. Whereas technical, economic, and geopolitical aspects used to dominate, today, social aspects are increasingly prominent. Recent findings suggest [7–9] that it is the socio-cultural attitudes of societies (with regard to energy security) that contribute to a large extent to the concrete trajectory of the development of the energy sector.

Energy security is considered to be an issue of national security in many countries [10], including Lithuania [11]. It is no coincidence that Lithuanian sociologists have been concerned not only with the analysis of public opinion but also with explaining the deeper socio-cultural assumptions of energy security perceptions and their development. The deconstruction of a phenomenon (in this case, energy security) and its ability to reflect its interconnections with the public view and its context is one of the main features of sociological research. Usually, sociology is concerned with such social problems that attract considerable attention from the public. It not only sheds light on the phenomena but also explores the level of public participation, i.e., the capacity of individuals to have the power and resources to fulfil their potential. Energy security policies typically focus on aspects such as the availability, affordability, and reliability of energy sources, and the analysis of

the social dimension would not only focus on the direct and indirect implications these policies present for individuals, communities, and society as a whole but also how the development of society as a whole impacted those policies.

Reliable and stable energy supply, as well as energy system resistance (to various disturbances and threats), are key aspects of energy security [2]. However, the stability of the energy transition heavily depends on social infrastructure [12]—the enormous work required by the energy infrastructure maintenance or its transformation (which required a lot of effort, data analysis, various calculations and modellings, and careful planning). Lithuania's energy sector has come a long way from total dependence on Russia and being something of an energy island after Independence, now presenting a diversification of resources and the creation of a flexible and sustainable energy security system. It is obvious that all these developments were made possible by the development and growth of the society—geopolitical, economic, energy literacy, etc. In other words, it is difficult to expect effective policies without the certain value base and interests underpinning a particular policy. Therefore, tracing the social dimension of this transition requires the examination of preferences, conceptual features, and behavioural orientations of public attitudes and the relationship of all this to energy policy. Understanding and addressing the social dimension in the energy sector is crucial for developing sustainable and inclusive energy policies that consider the broader impacts on society and promote its well-being.

The sociological research deconstructs the phenomenon and explains the interrelationship between individual details and the whole, for example, the impact of the socio-cultural context on the public's concern and its socio-economic implications on energy security policy and, again, its impact on society. The sociological research allows us to understand how public attitudes change, which attributes they develop to impact (in our case) energy security policy, and how they, in turn, affect society. The aim of this article is to explore the social dimension of the energy security transition and its socio-economic implications on energy security policy. The article contributes to an emerging attempt in the literature to broaden the horizons of our understanding of societal transformation and energy transitions.

The relevance of the Lithuanian case lies not only in its geographical orientation but richness of the object—the social dimension in the energy security transition. The Lithuanian example contains a wide variety of transitional dimensions: different socio-political systems, different waves of modernization, rich political ambitions (from the destruction of the USSR to the escalation of democracy towards China), rich societal developments (from agrarian to high-tech, from equality ("classless society") to fragmentation (economic inequality), from welfare policies to its liberal implementation), and above all, a rich development of the energy infrastructure and the energy policy (from an "energy island" to energy independence (from Russia)) (to see fuller description of the current state of energy security in Lithuania see <https://www.iea.org/countries/lithuania>, accessed on 6 December 2023). Therefore, the relevance is applicable not only to the countries of the region but also to everyone who is interested in better understanding the role of the social dimension in energy transition, i.e., how to organize societal transformations to reach particular results in difficult times while acknowledging the complex nature of modern society.

2. The Social Dimension in Energy Security Transition

The sociological energy security research shows that, alongside the usual technological, economic, political, and ecological aspects, the social aspects are equally important. There is a wide variety of theoretical perspectives on risk and security in sociology, for example, structural and individualistic, constructivist and objectivistic, micro and macro perspectives [13]. On the one hand, the abundance of different sociological theories based on different epistemologies and ontologies introduces a certain uncertainty, but on the other hand, to gain a comprehensive understanding of such a complex concept as energy security, such a combination of different perspectives is very useful as it allows us to grasp

the different peculiarities. The social dimension in energy security transition refers to the fundamental nature of changes that societies undergo over time. The energy sector is a vivid indicator (from the meaning of technologies in society to the consequences they cause) of social change starting from the transition from traditional society to industrial, later to modern and post-modern society [14–16]. It encompasses a wide range of interconnected transformations in various aspects of social life, including cultural, economic, political, and structural dimensions. By studying the transition of energy security, we can better understand the processes, drivers, and consequences of these changes [17,18].

From a sociological point of view, energy security is not just about the reliability of energy infrastructure, the diversification and security of supply, or the price of raw materials or products. Sociology analyses less visible but not less important aspects of norms, values, and power relations. In order to ensure the smooth implementation of new energy security projects, it is inevitable to assess the public perception, interests, and causes of anxiety of the society as a whole, as well as of its individual groups, as people of different backgrounds, values, knowledge, and opportunities to participate in energy policy, they all might have different perceptions as well as interpretations of energy threats and their possible consequences. Sociological research helps to gain a clearer and more accurate understanding of the public's interests, expectations, and opportunities to contribute to the development of a sustainable energy system, and, most importantly, it fosters the optimization and rationalization of energy politics. The construction of social reality will depend on the social development of a particular society and the maturity of its political system. In other words, the sociological research of energy security, by combining different theoretical perspectives and selecting relevant methodological solutions, allows for deconstructing the phenomenon and explaining the interrelationship between the concrete details and the whole. In many cases, this is not the task of a single study but of a series of research based on different methodologies, which constitute the sociological approach.

Sociology examines the impact of social factors, their extent, and key drivers, as well as consequences on energy policy and its outcomes (ideas, concepts, attitudes, processes, etc.). It is emerging as an important tool for energy security research with different methodologies and applicability [19,20]. The social dimension in transition studies typically refers to the examination of processes associated with societal transformations, particularly transitions from one form of social, economic, or political organization to another. In our case, Lithuanian energy security transitions include shifts from communistic totalitarianism to liberal democracy, from a so-called planned economy to market economies and from a Soviet-type modern to post-modern society. The analysis of the social dimension in energy security transition investigates both the challenges associated with the legacy of past political and economic systems and opportunities associated with particular transitioning stages.

In the context of energy security transition, the social dimension plays a crucial role in emphasizing the dynamics of societal transformations. The social dimension encompasses a wide range of factors related to the ways in which society is affected by and contributes to transition [21–23]. Different attempts are emerging in the academic literature to conceptualize the dimensions of energy transition [24–27]. Accordingly, drawing on both the above-mentioned literature debate and empirical evidence [28,29] of the common consequences of energy transition for society, we further explored the following socio-economic implications—public awareness and participation (exploring attitudes, beliefs, and opinions of the general public regarding the transition process and its outcomes, socio-economic implication includes the legitimacy of energy security policy and ability to shape social and political climate for the wishful transition), social equity and justice (exploring how transition affects existing social inequalities and contribute to the creation of more equitable structures, socio-economic implication includes addressing disparities in access to resources, opportunities, and benefits during and after transition), socio-economic resilience and vulnerability (exploring how society is able to adapt and respond to the challenges

of energy security, socio-economic implication includes the level of social cohesion and to what extent public resilience can mitigate the negative impacts of transition).

3. Methodology

The article is based on discourse analysis applying qualitative content analysis of the scientific literature and energy security policy analysis (the analysis of energy security strategies). One of the reasons for choosing qualitative research is the nature of the research problem. The design of the empirical research was focused on the object of the research (social dimension in energy security transition) and the methods of data analysis that would allow for valid and reliable analysis and reveal the peculiarities of the researched phenomenon (the applicability and consequences of sociological knowledge). In this work, we chose to focus on qualitative differences and peculiarities but not the quantitative re-presentation of certain attributes of the social dimension. This choice was based on the main feature of qualitative research, which is to go deeper into the phenomenon and to convey an in-depth analysis of the object of study.

Authentic and data-driven sociological articles are one of the main sources to trace social dimensions. Thus, the empirical research was carried out on the basis of the content of such articles. The content analysis was conducted in accordance with the following principles: social dimension is interpreted by describing the social contexts of its emergence; it is studied in accordance with the principles of impartiality and reflexivity; and the multi-layered nature of the social dimension’s historical development.

The research timeline is focused on the Lithuanian Independence period (since 1990). We started from the most famous articles published in Lithuanian sociological journals (Mainly “Filosofija. Sociologija” [Philosophy. Sociology] and “Sociologija. Mintis ir veiks-mas” [Sociology. Thought and Action]) and later used the snowball approach, i.e., ex-ploring reference lists. More than 50 sociological articles related to energy security were found. From them, applying the selection criteria (social aspects of energy security, origi-nal methodology, original empirical data, Lithuanian peculiarities), 37 were selected for the analysis. Accordingly, the analytical categories for empirical analysis were formed to correspond with theoretical considerations, including the attitudes of society towards energy security (transition from concern with external risks to manufactured risks) and its representation evaluating changes in public participation (from an object to a subject), the implications on energy policy (a change in the representation of public interest taking into account structural changes in society and changing perceptions of security (i.e., from environmental threats to climate change). For the detailed research design, see Table 1. The distinguished categories were divided into three conceptually distinct phases, making it possible to understand not only the change in the object (social dimension) but also its development. Finally, the development of public participation was discussed (indicating both structural change in society and a clearer understanding of the public role) to describe its socio-economic implications.

Table 1. Conceptual and empirical research design. Conducted by the authors.

Social Dimension and Its Development		
Theoretical Public Concern Categories and Empirical Energy Security Transition Subcategories	Analysed Articles	Dominant Methods in the Studies
External risks vs. manufactured risks	[30–36]	In-depth Research on Public Attitudes
Risk amplification vs. sustainable development	[37,38]	In-depth Research on Public Attitudes
Technological rationalization vs. public agency	[13,39–41]	In-depth Research on Public Attitudes
Energy security assessment, social vs. objective criteria, impact on society	[42,43]	Discourse analysis; media content analysis; qualitative research (semi-structure interview)

Table 1. Cont.

Social Dimension and Its Development		
Theoretical Public Concern Categories and Empirical Energy Security Transition Subcategories	Analysed Articles	Dominant Methods in the Studies
National energy strategy	Evolution of energy security policy 1994, 1999, 2002, 2007, 2012, 2018 Socio-economic implications	Qualitative content analysis (by authors)
Public awareness and participation: rationality, sociocultural setting, reflexivity, systemic thinking	[41,42,44]	Discourse analysis; media content analysis
Social equity and justice: representation of public interest, public trust in institutions, delegation, implementation, decentralization	[7,37,44–50]	In-depth Research on Public Attitudes; discourse analysis
Socio-economic resilience and vulnerability: trust in scientific approach, type of governmentality, new ideas and decisions	[43,51–53]	In-depth Research on Public Attitudes; discourse analysis, document analysis

The contours of Lithuania’s energy policy are determined on the basis of the analysis of strategic, official documents, i.e., the Lithuanian Energy Strategy, which was first published in 1994, and the latest version was published in 2018 (See full list: <https://enmin.lrv.lt/lt/teisine-informacija/teises-aktai/bendrieji-energetikos-strateginiai-dokumentai>, accessed on 6 December 2023). The features of Lithuanian energy policy are examined, first of all, by distinguishing the most important goals of the energy policy; second of all, by examining the directions of Lithuanian energy policy.

4. The Dynamics of Social Dimension of Energy Security Transition in Lithuania

4.1. Evolution of Public Concern

Given that energy issues are deeply intertwined with social issues, this has been a source of interest for sociologists since the beginning of Independence in Lithuania. Figuratively speaking, sociological knowledge mirrors the predominant issues and concerns of the public. However, in addition to the analysis of attitudes towards specific energy issues and the focus on public interest, the area of research that is of most interest to sociologists is the attempt to gain a deeper understanding of society itself. Considering the social dimension in energy security transition provides a more comprehensive understanding of how societal changes unfold, how they are experienced by the public, and how social factors influence the success and sustainability of energy security transition. The issue of energy security serves as an indicator of different types of societies—developed or developing and materialist or post-materialist. During the period of Independence in Lithuania, there were several waves of large-scale sociological research in which different authors used similar, but at the same time different, conceptualizations and operationalizations.

The first research strand was related to ecological risks (especially in relation to the Chernobyl catastrophe and major objects in Lithuania, such as the Ignalina Nuclear Power Plant and Mažeikiai oil refinery). The studies tended to focus on specific types of energy, in particular nuclear energy, essentially in an attempt to diagnose public attitudes (or their dynamics) in the new reality and to identify the dispersion of opinion between different groups [34]. Soon after, the analysis deepened, and the research methodologies themselves improved. Research on public attitudes evolved into research on societal development and typology [30]. Energy (especially nuclear energy) began to be interpreted as an indicator of social change, both in terms of diagnosing the Lithuanian forms of risk society and in an attempt to grasp the nuances of the post-Soviet reality [35]. It should be mentioned that when introducing new theories into the Lithuanian context, researchers had additional tasks to translate and, in some cases, create Lithuanian terms for Western concepts. Thus, the first strand of the analysis of public attitudes helped to locate the voice of the public more clearly in the more public discourse on energy security and distinguished the (inherited) structural interrelationships between energy infrastructure and social structure and the

subsequent attempts of the already independent government to change the situation and the inevitable reactions of the new, free society.

The second strand of research was related to Lithuania's transition towards a liberal market and public concern shifting towards energy prices and availability. As energy problems have become more complex and have direct consequences for public welfare (for more on the development of the Lithuanian energy sector, see [42]), sociological research has become more popular. The sociology of energy security as another (independent) sub-field of sociology was more clearly understood and highlighted [37]. Energy security as an object of sociological research evolved. The dialectical relationship between the attitudes of different societal groups in relation to the ideological priorities of politics, the power of the economy, the priorities for social well-being, and the development of the energy system itself have become essential indicators of the maturity of society. In other words, the expanded conceptual methodology of sociological research allowed for a deeper examination of the subject. The increasing sophistication of public attitudes and behaviour (in relation to the energy sector) increased the possibility of rationalizing and optimizing energy policy.

Finally, the third stage was related to Lithuania's transition (from a developing to a developed country) according to the theory of value development [54] and once again changed public interest—energy security became the most important component of climate change [39]. If previously a sustainable pro-environmental attitude of the society was an aspiration, nowadays, we are talking about empirical factors of social acceptability [13]. In other words, availability, efficiency, investment, product price, etc., no longer defines the public's attitudes or behaviour, as environmental concern has become the fundamental reference point (the core issue) that structures public attitudes towards energy security. As mentioned above, this is a testament to the maturity of society and the precision of sociological methodology in capturing this change, and at the same time, it made it possible to consolidate the importance of public opinion as a cornerstone of any energy policy.

The analysis of the social dimension in the energy security transition highlighted the development of society, i.e., the dynamics of the public's concerns in assessing the essential threats related to the energy sector and the impact on energy-related activities, policies, and technologies impact society and individuals. For example, when considering how the evolution of social dimension in the energy security transition in Lithuania has changed, if at the beginning it was only a specific "aspect", the analysis of public attitudes as a consequence of energy policy, then later it grew into an "independent variable", which contributed to systemic analysis and strategic planning. This is an indication of a change in society's role in energy security: while at the beginning (of the study time frame), society was interpreted as an object of energy policy to be adapted to strategic energy security policy, three decades later, we see that society has become the subject of energy policy, whose interests (including its unmediated participation through civil society representatives) are the basis for the construction of a strategic direction for energy security.

4.2. Evolution of Energy Security Policy

An essential priority of Lithuania's energy policy is energy Independence. The definition of priority—"to freely choose sources of supply of energy resources that best meet the needs of the state's energy security and the interests of Lithuanian consumers to purchase energy resources at the most favourable price"—is recognizable from the first to the last energy strategy [43]. The goals formulated in the Lithuanian energy policy orient the energy system towards the West. Strategic energy infrastructure projects, such as the liquefied natural gas (LNG) terminal "Independence"; electricity connections between Lithuania, Sweden, and Poland; synchronization of electricity systems with continental European grids; and the gas interconnection between Poland and Lithuania (GIPL) integrate the Lithuanian energy system to the systems of the European Union states and accordingly expands the boundaries of the energy system to the West. The eastern direction is identified with a threat that cannot be controlled, so attempts are being made to distance ourselves

from it by integrating the Lithuanian energy system into the safer and more predictable energy system of the European Union.

The specific tasks of Lithuania's energy policy are aimed at achieving the main goal of energy independence. Evaluating the development of these tasks from the first to the last strategy, several stages of their development can be distinguished, which partially reflect the evolution of public concern. The first stage entails the development of energy infrastructure (Nacionalinė energetikos strategija 1994 (<https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/TAIS.12760>, accessed on 6 December 2023), improvement of energy efficiency (Nacionalinė energetikos strategija 1994, 1999 (<https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/TAIS.88074>, accessed on 6 December 2023)), and running the energy sector in a least-cost manner. In the early years of Independence, Lithuania faced the challenge of transitioning from the centrally planned Soviet energy system to a market-oriented and independent energy sector. The focus during this period was on restructuring the energy sector and ensuring a reliable energy supply for the population.

The second stage entails the strengthening of regional cooperation and the representation of Lithuanian energy interests in international organizations (Nacionalinė energetikos strategija 1999) and the reduction in energy resource prices (Nacionalinė energetikos strategija 1994, 1999). Lithuania's accession to the European Union (EU) in 2004 marked a significant milestone. EU membership brought new opportunities for collaboration, funding, and the adoption of common energy policies. This resulted in the fact that Lithuania aligned its energy policies with EU goals, emphasizing environmental sustainability, the application of market rules, energy efficiency, and social inclusivity.

In the third stage, during this period, the problem of dependence on Russia was strongly emphasized, at the same time emphasizing integration into the energy system of the European Union: "Lithuania's energy dependence on gas imports from a monopoly supplier and the prevailing import of electricity pose a real threat to Lithuania's national security and, as a result, Lithuania's integration into the European energy system is vital" [43]. Threats posed by Russia to Lithuania's national and energy security until the end 2014, mainly related to the monopoly of Russian gas supply to Lithuania (Nacionalinė energetikos strategija 2012 (https://enmin.lrv.lt/uploads/enmin/documents/files/Teisin%C4%97%20informacija/Teis%C4%97s%20aktai/Bendrieji%20energetikos%20strateginiai%20dokumentai/Nacionalin%C4%97%20energetikos%20strategija/energetines_nepriklausomybes_strategija.pdf, accessed on 6 December 2023). Russia was taking advantage of this situation by manipulating the prices of energy resources, interfering in the political process of Lithuania, and trying to convince the Lithuanian public that energy independence is an expensive and non-beneficial direction of energy policy (Grėsmių nacionaliniam saugumui vertinimas. Vilnius: Valstybės saugumo departamentas. 2015). Accordingly, the need for liberation from Russia's dependency by diversifying supply capabilities was clearly acknowledged in the early years of strategic development of the sector (Nacionalinė energetikos strategija 1994, 1999, 2002 (<https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/TAIS.188456>, accessed on 6 December 2023), 2007 (<https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/TAIS.291371>, accessed on 6 December 2023). Thus, the opening of the Klaipėda LNG terminal in 2014 was another pivotal moment for Lithuania's energy security. The terminal not only diversified natural gas supply sources but also had economic consequences, ensuring a lower price, more stable and secure energy supply for citizens (fifth energy (Independence) strategy). Joining the Nord Pool electricity exchange was another step towards not only increasing the Independence of Lithuania's energy sector but also ensuring even greater price transparency. This created objective conditions for the public to have more confidence in the development of the energy sector.

The fourth stage is related to the sixth, most recent, energy strategy (2018), which was drawn up and adopted on the eve of the announcement of the EU Green Course (https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en, accessed on 6 December 2023). Looking ahead, it can be noted that although the goal of self-sufficiency and Independence is maintained here, the entire future of the Lithuanian

energy system is positioned through the perspectives of competitiveness, self-sufficiency, and sustainable development. Great attention is paid here not only to protection against possible disruptions and geopolitical threats (as in previously mentioned cases) but also to trying to enter the global energy market as a competitive and sustainable energy system. Accordingly, renewable energy resources and concern for climate change are emphasized here (Nacionalinė energetinės nepriklausomybės strategija 2018). Instead of emphasizing, speaking sociologically, the materialistic aspects, much attention is paid to the post-materialistic aspects like [carbon neutral] impact on the environment. Such an effort is recognized not only in the development of the energy sector but also in its impact on society. Active support measures aim to stimulate the expansion of the number of prosumers. The measures are divided into two strands. One strand is to require new or renovated buildings to meet a certain level of compliance. Requirements may include self-sufficiency in energy (either by becoming a prosumer installing a generating facility on one's own property or by becoming a co-owner of a remote power plant). Another approach is to simplify the conditions for becoming a prosumer, provide financial support, and the recent introduction of flexible pricing conditions to manage energy flows with seasonality. This encourages wider public involvement in the energy sector and provides opportunities for income generation. This, in turn, contributes to the democratisation of the energy sector. Various energy efficiency programs were foreseen to address social issues such as affordability and energy poverty. These programs aim to improve the energy efficiency of buildings and support vulnerable populations in accessing essential energy services. Financial support is also available for the replacement of an old fossil fuel boiler with a newer fossil fuel-free boiler. It is worth noting that for people at risk, financial support is linked to their income. Therefore, improving energy self-sufficiency does not have a negative impact on the risk of poverty.

5. The Variety of Socio-Economic Implications

Sociological research combining different empirical data brought energy policy closer to the interests of society. The sociological research of the Lithuanian energy security transition highlighted the social dimension, drawing attention to the interrelationship between societal transformation and energy sector development. The more detailed social reality provided a clearer understanding of why energy security is not solely determined by energy infrastructure, why the rational arguments of energy experts do not always materialize, and why the results of energy policy are not in line with the objective needs of the country.

5.1. Public Awareness and Participation

Sociologists working in the field of energy security research also acted as public sociologists, not only raising awareness and, thus, not directly representing the interest of the public (and especially its weaker groups) but also, in a way, enlightening the public about their rights and duties and their specific expectations of politicians. The awareness highlighted by sociologists that society is a subject testifies to the change in public participation, which inevitably influences the process of policy-building. Politicians, whether they like it or not, can no longer ignore public interest and its representation. The sociological perspective consistently emphasized and seemed to reinforce the classical axiom that the more democratic a state is, the more influence the public has on government decisions and, consequently, the more socially just (i.e., in the interests of the public at large) energy security policies are likely to be.

Public perceptions of energy security are often used by authorities as a specific way to control the (dis)approval of certain energy policy decisions by the population [55]. This type of public governance is directly related to the informativeness of the public—when the public is less informed, policymakers tend to rely on expert judgement and on the strategic national interests that were identified and shaped. When the public is more informed, dialogue is sought not only by considering public opinion but also by being more thoughtful about the arguments chosen, communication strategies, and the prestige of

policy-makers in society [43]. The implications of sociological knowledge on energy policy are assessed through raising public expectations, which politicians cannot ignore if they want to maintain public trust. In this way, even if the public does not always become an active policy-maker, its level of agency increases because it forces policy-makers to consider the expressed expectations. It is not a coincidence that changing energy security policy has largely coincided with the public's priorities (The public supported the goal of energy independence and the reduction of Russia's influence on Lithuania's energy system. The public also supported Lithuania's integration into the European Union's energy system and the redrawing of the boundaries of Lithuania's energy system from East to West. All of this was in line with the main objectives formulated in the energy security documents [28].).

5.2. Social Equity and Justice

The rise of social dimension links the level of energy security and the distribution of "life chances". In this way, energy security is linked not only to the availability or deprivation of services but also to quality of life. Sociological methodology integrates a wide variety of social parameters and searches for interdependent relationships that can be empirically measured and quantified [56].

The sociological energy security interpretation in Lithuania encompasses both—its capacity to balance possible oppositions between its strategic aim and public attitude to it, and the cost (necessary investments) of energy security policy and its consequences for the public [46]. In the quest for strategic long-term goals, sometimes raising the price of energy is inevitable, but from a sustainable development point of view, this might lead to the fragmentation of society and even to an increase in anxiety levels. The sociological approach allows considering not only the efficiency (from a strategic or economic point of view) of the concrete energy project itself but also its impact on social cohesion. In other words, a large part of the Lithuanian population understands the importance of energy security and the need for protection from possible risks. However, a large part of society does not wish to contribute to it personally. This means that overall, the support is insufficient in order for it to have a positive effect. It seems that the pursuit of energy security is still a heavy burden on society that various social groups experience differently [38]. Energy security is not an area where every citizen has the competence to make argumentative decisions. Often, they are forced to rely on other actors with such expertise (e.g., politicians, experts, journalists). Public knowledge and understanding of energy security are shaped by different actors.

A wide range of reasonable alternatives, specific energy policy objectives, and activities that are beneficial for the public are needed [37]. A broad discussion of options and scenarios enables the need for the negotiation of social equity and justice and reduces the potential for the representation of narrow interests [57]. It is no coincidence that in Lithuania, the impact of energy on society (at least in the context of social sciences) is perhaps most often studied by analysing energy-related interest formation and representations [42,44].

5.3. Socio-Economic Resilience and Vulnerability

The importance of energy in modern economies is well-recognized, and ensuring its efficiency and smooth functioning is a primary concern for many countries. However, Lithuania faces unique challenges in its energy sector due to historical and geopolitical factors. Inheriting an inefficient and dependent energy sector, primarily relying on Russian energy, Lithuania had to undergo significant restructuring, posing a substantial and costly challenge to its relatively poor society.

After the transition from a planned to a liberal market economy, post-Soviet societies, including Lithuania, had to adapt their understanding of the energy sector. Formerly provided by the state at low costs, energy became an expensive challenge, with Russia now perceived as a significant threat. Along with societal transformation, the symbolic meaning of the energy sector shifted, becoming a considerable economic challenge for the newly independent country, burdening taxpayers.

Research indicates that, for Lithuanians, the price of energy has long been the most crucial aspect of energy security [23]. Despite acknowledging the importance of energy independence (71.8%), a significant portion (68.7%) believes the state should prioritize ensuring cheap energy over energy security. This discrepancy between public perception and strategic interests poses challenges in implementing energy policies aimed at independence.

Despite the transformation of the energy sector and adapting it to market principles, the existing economic differentiation in Lithuania means that energy prices still affect different social groups differently. The welfare of a large part of society is tied to energy resources, and lower-income groups are particularly vulnerable to the financial burden associated with ensuring energy security. This, along with other socio-economic factors, may contribute to an increase in social exclusion.

6. Discussion

Relating Public Concern, Energy Security Transition, and Its Socio-Economic Implications

The qualitative research allowed us to look at the relationship between the details and the whole, such as how societal change manifested itself in the development of public attitudes (e.g., towards security, risk, welfare, environment) and the dynamics of expectations for energy security, and how the changed socio-cultural context enabled the change of the energy security policy, not only in terms of making the public's interest more explicit but also in terms of reflecting the public's role (i.e., increasing its agency). We saw the constant growth of the social dimension in the energy security transition, which inevitably had certain social and economic implications. The table below (Table 2) demonstrates its relations at different stages of the Lithuanian energy security transition.

Table 2. Relation between public concern, energy security transition, and its socio-economic implications. Conducted by the authors.

		Transition Stages		
Relative geopolitical events	Early Independence (1990s)	Integration into the European Union (2004)	I War in Ukraine 2014	II War in Ukraine 2022
Relative socio-political challenges	Transitioning from the centrally planned Soviet energy system to a market-oriented and independent energy sector.	Transitioning to EU energy sphere (both technical, political, and social structures).	Liberating from Russia’s dependence, reducing dependence on a single energy supplier, and exploring alternative sources, including renewables.	Building sustainable energy system, synchronizing with continental European grids, increasing renewables.
National energy strategy	1994, 1999	2002, 2007	2012	2018
General public concerns	Public concern with ecological catastrophes.	Public concern with energy prices and availability.		Public concern with climate change.
Socio-economic implications				
	Efforts to involve local communities in decision-making processes related to energy projects gained importance (i.e., referendum regarding NPP, involvement in multi-apartment renovation process, etc.). This inclusivity ensures that the social concerns and preferences of citizens are considered.			
Public Awareness and Participation	The market mechanism fundamentally changed from being completely centralised, where consumers were captive, to being liberal, where consumers could choose their supplier. Consumers are encouraged to become prosumers and, thus, become more involved in the electricity sector. Public awareness and involvement are promoted in various ways through educational measures. Energy companies and NGOs are making efforts to educate about responsible consumption, sustainability, and climate neutrality.			
Distinctive feature of the transition stage	Public is aware of situation in general, and public interest is determined by geopolitical situation. Without individual possibilities to participate in energy markets.	Public is aware of main threats, public interest formulated by experts. Dismantling monopolistic energy companies’ structures.	Public is aware of energy policy, public interest reflected by public attitude. Appearing but still limited individual choice.	Public is aware of energy issues, public interest represented through civic agency. Full participation in energy market.

Table 2. Cont.

Transition Stages				
Social Equity and Justice	Various energy efficiency programs were implemented to address social issues such as affordability and energy poverty. These programs aim to improve the energy efficiency of buildings and support vulnerable populations in accessing essential energy services.			
	Active measures were taken to raise public awareness of the various support measures. Over the last ten years, there has been a gradual decline in arrears on utility bills and household energy costs towards the EU average.			
Distinctive feature of the transition stage	Undergoing stratification of society.	Formation of different social groups and their interests.	Growing inequality and need to address the interests of the weak.	Ensuring justice in energy sector (especially promoting renewables at the cost of public expenses).
	Energy sector as rigid system.	Identification of strengths and weaknesses of energy sector.	Diversification of energy supply and sector efficiency increase.	Increasing renewables and creating a “smart grid”.
Socio-economic Resilience and Vulnerability	Lithuania has been proactive in addressing energy poverty through social support programs. These initiatives aim to assist low-income households in meeting their energy needs and ensuring that vulnerable populations are not disproportionately affected by energy costs. This transition aligns with broader EU efforts to decarbonize the energy sector and addresses social concerns related to environmental sustainability and public health.			
Distinctive feature of the transition stage	Society as the “hostage” of soviet district-heating.	Different social groups depending on different sources of energy supply and prices.	Under-representation of the interests of the weak social groups and their inability to reduce energy consumption.	Energy policy is differentiated according to various segments of society.
	Energy sector as a legacy oriented towards heavy (Soviet) industry.	Energy sector orientation towards needs of independent country.	Energy sector orientation towards market.	Energy sector orientation towards consumer behaviour.

In our case, we chose to show the relation between the whole and the details. In other words, we showed how the social dimension unfolded from the qualitative point of view in the dialectical relationship between energy security and societal development and discussed its socio-economic implications. However, the range of research scenarios is not exhaustive, as the ability of contemporary sociology to reveal reality is very vivid. For example, contemporary sociology uses modernisation theory and focuses on the transformation of the energy sector, uses a value development theory and focuses on the structural change of public expenditure (in the energy sector), or uses transformation theory and focuses on the structural change of society.

A combination of qualitative and quantitative approaches (analysing the quantitative representation of the empirical categories developed by the qualitative research) would allow us to understand the extent of the social dimension in quantitative terms. It would be particularly useful to study decision-maker groups as they practically embody the representation and implementation of dominating ideas. As mentioned above, the assessment of the social dimension was based on the analyses of already carried out research (i.e., comparing the links between public attitudes and energy policy). In this sense, the limits of the study clearly depend on the results of previous studies. Thus, an authentic study allowing to assess both the public attitude/behaviour and the objective consequences (e.g., described in terms of economic benefits, policy efficiency, or public satisfaction) would definitely enrich the weight of such a study, whether it would use qualitative or quantitative approaches.

While the study was only preoccupied with the sociological discourse (by examining sociological articles) and policy analysis (the review of national energy security strategies), it would clearly be useful to extend the empirical scope, e.g., by undertaking an interdisciplinary analysis, both in an attempt to assess the dispersion of the social dimension in other disciplines and in the policy building process. On the other hand, this would require an entirely different attempt and ability to collect data on a multiple scale.

7. Conclusions

Sociological research does not only question the declarations, policy guidelines, and the circumstances of their implementation but also their direct consequences for society. Unlike other disciplines, sociology does not view society as an object to be persuaded of the “right” energy security policy or the importance of the so-called strategic interest but as a subject with its own expectations in energy security policy. The research revealed

the interdependence of changing society and its developing energy security concerns throughout the Independence period—from dependence on big energy objects and their ecological (like NPP, oil refinery) and political (Russian blackmail) threats to liberal market and economic (energy prices) threats, as well as to developing post-material values and concerns for energy security impact on the climate change. By tracing the social dimension in the Lithuanian energy security transition, we witnessed not only the development of public concern but also the evolving definition, re-definition, and activation of public participation (from being an object to becoming a subject in energy security policy). All of it had certain socio-economic implications.

First, it helped to transform the approach to the energy sector from a technical process and an object of natural sciences to a social problem. Today, energy security in Lithuania is analysed in the context of classical social problems—public awareness and participation, social equity and justice, socio-economic resilience and vulnerability—where the public interest is treated as an important factor in the success/failure of energy security policy implementation. Second, a deeper understanding of social reality led to a clearer understanding of why energy security is not solely determined by energy infrastructure, why the rational arguments of energy experts do not always materialize, or why the results of energy policy do not always overlap with the objective needs of the country. The roots of implications lie in the evolving energy security policy's ability to understand and consider deeper processes. The rise of social dimension depends on the wider, predominant socio-cultural context and the ability to make use of it. Third, the evolution of social dimensions inevitably resulted in rebuilding a more dynamic, market principle-based, and user-friendly energy sector for society, as well as fostering special governmental support programs to combat the flaws of the market on behalf of the weaker social groups.

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