Business Actors in Ukraine's Integration into the EU Energy Market

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Author's declaration

I, the undersigned, Onysiia Novykova, candidate for the MA degree in Political Science declare herewith that the present thesis is exclusively my own work, based on my research and only such external information as properly credited in notes and bibliography. I declare that no unidentified and illegitimate use was made of the work of others, and no part of the thesis infringes on any person's or institution's copyright. I also declare that no part of the thesis has been submitted in this form to any other institution of higher education for an academic degree.

Vienna, 07 June 2024

____Onysiia Novykova_____

Abstract

This thesis responds to the question about the role of business actors in Ukraine's energy sector. Historically, since the declaration of independence, the energy sector in Ukraine has not only been divided into subsectors, but private business actors have also begun to participate in it and play an important role in this sectoral policy making. Along with the state ones, they had to coexist in the same framework until the time of unification of the energy system with the European, which also brought with it new policies and rules. Such processes are accompanied by different obstacles, including those that depend on the ongoing war on the territory of Ukraine.

Building upon several theories of policy making and policy lobbying, and agency approaches and utilizing the method of process tracing, this MA thesis conceptualizes causal mechanisms of the EU legislation-based integration, which is tested in the empirical part of the work on the case of Ukraine, its energy sector. The focus is on the impact of business actors and their interactions with the state in the process of Ukraine’s joining the European energy system. The empirical analysis is based upon expert interviews conducted as part of the study, as well as from the data from primary and secondary sources related to the functioning of Ukraine’s energy sector.

Major findings present an overview of the situation as of May 2024. The study demonstrates the gaps in the regulatory integration of the Ukrainian energy sector as regards European standards. It also reveals the topic of the implementation of green tariffs and their benefits for private business, as well as the important role of private business in the market: the findings offer that it will sustain in the post-war reconstruction of energy capacities.

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List of Abbreviations

CO2 – Carbon Dioxide

CHP – Combined Heat and Power

DV – Dependent variable

ENTSO-E – the European Network of Transmission System Operators for Electricity

EU – the European Union

FEC – Fuel Energy Consumption

IMF – the International Monetary Fund

kW - Kilowatt

LLC – Limited Liability Company

NCREPU – National Commission for State Regulation of Energy and Public Utilities

NEC – National Electric Company

NPP – Nuclear Power Plant

PJSC – Public Joint Stock Company

RES – Renewable Energy Sources

SOE – State-Owned Enterprise

TPP – Thermal Power Plant

TSO – Transmission System Operator

UARE – Ukrainian Association of Renewable Energy

Ukrainian SSR – the Ukrainian Soviet Socialist Republic

USSR – the Union of Soviet Socialist Republics

1. Introduction

The research is related to the energy sector in Ukraine, especially the role of business actors in the electricity market (so called semi-governmental as well as non-governmental energy market players). This study defines policy making as well as activities related to energy production and trade as a process, in which, apart from the state authorities and agencies, various business actors participate. The general framework presents the integration of Ukrainian energy into the energy system of the European Union and incorporation of EU standards into this sector. The focus on business in such a changing of the sector enables us to look at European integration on a micro-level. Business actors in this work are both state organizations and non-state energy companies.

The issue is worth investigating because of the wartime context: Russia has invaded Ukraine on February 24th, 2022. Ukraine needed rapid changes simultaneously with making efforts to reduce damages to infrastructure. Due to the sensitivity of all the infrastructure objects, they immediately became the most wanted military targets. Currently, Ukraine's energy capacities capabilities are 50% of pre-war values (Korohod 2024), and the country still is a member of the European electricity network. That means that there is a space for business actors to develop in different ways, either following national trends and mostly outdated state recommendations, or switching to the EU standards. The differences between them exist, especially considering the slow changes and modernization of the sector due to the war. The main reason to do this research is a limited understanding of the role of Ukrainian business actors in the process of the overall integration into the EU energy market during the war.

The theoretical puzzle in this thesis is the gap in understanding how exactly business actors in the Ukrainian energy industry influence the changing of the sector according to European standards. The knowledge on the role of business actors in the process of EU sectoral

integration promises to enrich Europeanization studies. Also, in the conditions of the ongoing war initiated by Russia, it is important to understand how business actors respond to challenges and prepare for the consequences or post-war reconstruction.

Addressing this issue will help both Ukrainian and European representatives have a deeper understanding of the nature of Ukrainian collaboration with EU energy sector bodies, and how the common regulations for the European members can be adopted in the non-EU country. This research will also help Ukrainian business actors to assess the energy market situation, as well as Ukrainian authorities to adapt new policies in the field more effectively.

The study will present an analysis of the cooperation between the state and business and within financial and industrial business groups, and the process leading to enhanced integration in the EU.

The introduction leads to the definition of problems and a research question that needs to be revealed in the research. **A research question:**

"What role do business actors play in the Ukrainian energy sector and in its integration into the EU energy markets? If positive or negative, then in which way?".

To answer this research question, the MA thesis identifies the actors in the energy market and analyzes the modes of their interaction. It concentrates on business strategies and mechanisms of cooperation related to the integration of Ukraine's energy sector into the EU. It reveals a subtopic about whether it is possible to consider the energy cooperation of Ukrainian business players with European institutions for the micro-integration of Ukraine into the EU. The study also analyses the impact of the situation of green pricing and the renewable energy sector on the state of business actors in Ukraine in crisis conditions and evaluates.

The study is structured as follows. The first chapter describes the theoretical framework, which includes policy transfer theory and policy translation theory. Business advocacy and policy

advocacy frameworks, agency approaches, and corporate social responsibility theory were also considered. These theoretical approaches provide an explaination for the adaptation of EU policies, the importance of cooperation between business actors of different ownership structures, and the principal-agent problem.

The second chapter presents the research design and methodology as well as the justification of the case, which explains the current realities of the Ukrainian energy sector, with prerequisites for integration into the European system. The chapter also explains what a causal mechanism is and how it works within the framework of applying the process tracing research method in work. The final stage of the chapter is the presentation of the causal mechanisms modeled using the theoretical base.

The third chapter is empirical and shows the date of collection, methods of collecting these data as well as presents expert interviews, which became an important source of important information in the study. The causal mechanisms modeled in the second chapter are superimposed on the case of the functioning of business actors in the Ukrainian energy sector, an analysis of their interaction, roles in the sector, challenges that private market players face during the war, as well as the application of European policies, green tariffs and new reforms are presented in the Ukrainian modern context.

2. Theoretical Framework

Due to the fact that Ukraine signed the Association Agreement with the European Union in 2014 (Verkhovna Rada of Ukraine 2014) and has been implementing European norms for a long time, it can also be expected that the energy sector should also be in accordance with European requirements. In this way, Ukraine also adapts its energy to "green goals". If we even take into account the European Green Deal, it becomes clear that despite the fact that "from the legal point of view there are no obligations for the countries participating in the Deal, but only recommendations, the need to change traditional approaches is on the agenda of various sectors of society economic life" (Novykova 2023). Difficulties in implementing the strategy itself may arise due to the specifics of each country that is part of the European Union, however, Ukraine has its own achievements, and this does not negate the fact that there is a need to adapt legislation and the executive part.

Previous approaches mainly tried to analyze the potential of Ukrainian business actors to join European initiatives and standards, but this study is designed to investigate such cooperation at the level of understanding whether the collaboration of Ukrainian businesses can be considered a part of Ukraine's energy market incorporation into the general European integration process.

The work "Russian Energy Chains: The Remaking of Technopolitics from Siberia to Ukraine to the European Union" by Margarita Balmaceda focuses more on the gas market, oil, coal dependencies. It is possible to conclude from the text that Ukraine is mentioned more as a transit country in the past, and that for Russia the war, as well as energy shutting out, are a big loss (Balmaceda 2021; cited in Krempin 2023). Balmaceda's another article, where she presented current wartime energy situation with co-authors (Greene, Schmitt, Kluge and Pavlenko 2023), describes Russia's problems because of absence of new energy markets, not favorable position geopolitically, reduced energy consumption by the European countries. Ukraine is presented

from the point of changing her system to a new one, which is integrated with the EU (Balmaceda, Greene, Schmitt, Kluge and Pavlenko 2023).

One more study by Richard L. Morningstar, András Simonyi, Olga Khakova, Paddy Ryan (2023) investigates the topic of the energy sector in Ukraine, but with an emphasis on energy security and the green transition in the context of impacts of the war. Theoretically it tests integration processes about economic and political spheres, how Ukraine aligns European Union standards, and whether it is important for the integration into EU markets (Morningstar, Simonyi, Khakova, Ryan 2023). The study is well-organized and provides an understanding of actions about future security measures, threats and disruptions reflects theories related to security studies and resilience planning. These theories examine how systems can withstand and quickly recover from disruptions, particularly in the context of national security.

Several theories were analyzed for the study – seminal articles by Marsch and Dolowitz (1996, 2000), a review of research by Benson and Jordan (2011) and a broader theory comparison section by Legrand (2021) (in the Chapter 3); policy translation – Stone 2012, Berger 2017. This chapter also provides an overview of agency, policy advocacy, and corporate social responsibility theories, which are relevant as a lens to explore the topic.

3.1. Theoretical approaches to policy making and business lobbying

3.1.1. Policy transfer theory

David Dolowitz and David Marsch wrote articles focusing on the policy transfer theory (1996, 2000). In the “Who Learns What from Whom: A Review of the Policy Transfer Literature” (1996) the context of the post-World War II situation was taken. The theory is about adoption of policies and practices from another government or international body to another one (1996). Different actors (state or non-state) play their roles in this process, and this transfer is normally

happening to create a better policy environment, avoid crises and get satisfactory answers from the important EU structures (Dolowitz and Marsch 1996).

The article, written later in 2000, named "Learning from Abroad: The Role of Policy Transfer in Contemporary Policy-Making" focuses on the policy transfer theory as well, and discusses the role of global communication and the influence of international organizations like the EU, IMF, and World Bank (Dolowitz and Marsh). The authors also suggest the structure for analyzing policy transfer, with more precise details in this process (Dolowitz and Marsh 2000). The important note is that there is a new distinguishing thing: between voluntary transfers, which are initiated by domestic actors out of a desire to improve systems, and coercive transfers that may be influenced by some external pressures (Dolowitz and Marsch 2000). Policy transfer may lead to policy success or failure, it may depend on implementation strategies (Dolowitz and Marsch 2000).

Tim Legrand (2021) categorizes the extent of transfer ranging from simple emulation to complex adaptation and delves deeper into how policies move from one system to another, with a focus on varieties. Multi-level dynamics is important for the general understanding of how policies evolve crossing different governance levels (Legrand 2021).

Policy transfer is relevant in a sense of phenomena such as globalization, Europeanization, and policy innovation (Benson and Jordan 2011). The research conducted by David Benson and Andrew Jordan (2011) also suggests various types and degrees of transfer, from direct copying to more adapted forms of lesson drawing.

This theory is relevant to this researcher, because it explains policies and practices that can be transferred from one government and adapted to another. Such an emphasis on mechanisms of influence can be useful for the case of Ukraine, because the country aspires to become a member of the European Union. The theory will help to understand whether it is possible to transfer

European practices to Ukrainian realities, and, if so, to what extent such implementation is effective.

3.1.2. Policy translation theory

The article by Stone (2012) discusses the concept of policy translation, which is important for my research to understand how EU policies are adapted and implemented, and whether there are any differences compared to other European countries. Stone (2012) also distinguishes two theories of policy transfer and translation, with a suggestion that transfer is more direct, while translation shows modifications to fit the specific conditions of the country.

This theory, according to Stone (2012), focuses also on international organizations and non-governmental actors, and their role in the policy-making process. The overall concept is presented to be able to understand local nuances and differences, and policies should be adapted to them at the same time.

Another article, where policy translation is presented, is the one written by Tobias Berger (2017), it also highlights the role of local actors in the process of adapting to global norms by using "translation" for specific cases. The author pointed out that in the Bangladesh case different NGOs and local fieldworkers play an important role in adjusting to the global tendencies. The local level of government can help in many ways, especially in situations where it is necessary to introduce new rules according to the general agenda in a specific and unprepared environment (Berger 2017).

The theory is very useful for research, because thanks to it, it is possible to understand whether it is possible to adapt the European practices of the functioning of the energy sector, the regulatory part, precisely in the conditions of war. Policy translation theory helps to see not only the transfer of policies, but how they can be translated and possibly modified to the contemporary context.

3.1.3. Business advocacy: Social exchange theory

Social exchange theory, presented in the article by Fernandes and Dias (2024), becomes an important theoretical part for the business lobbying process. It explains how individuals act to get the maximum benefits from the business process. This helps in understanding and evaluating how relationships are built according to the costs and rewards (Thibaut and Kelley, 1959; Blau, 1964; cited in Fernandes and Dias 2024). In business lobbying this theory makes clear the interactions between business actors (Fernandes and Dias 2024).

In the Ukrainian case with energy market players the social exchange theory is also applicable: for the analysis of cooperation not only between state and private businesses, but also between businesses and policymakers.

These theories can be used for the causal mechanism about the integration of the Ukrainian energy sector according to the EU norms. They help to analyze the adoption of European practices, adapting them to the Ukrainian context, and lobbying efforts of business actors, as well as their interaction.

3.2. Agency approaches

3.2.1. Policy advocacy

The article "Policy Advocacy Organizations: A Framework Linking Theory and Practice" by Sheldon Gen and Amy Conley Wright (2013) reveals a very important conceptual framework, which also suggests practical applications. The term "policy advocacy" is presented as a complex of processes, which involve various activities, actors, and factors (Gen and Wright 2013). The main aspect is that they are influenced by governmental representatives and include non-governmental organizations, ordinary citizens (Gen and Wright 2013). Policy advocacy includes several theories. Some of them need to be mentioned: empowerment theory, social

capital theory, resource mobilization theory, and advocacy coalition framework (Gen and Wright 2013). Together, they form the overall context of making policy changes a reality.

Empowerment theory talks more about the competency of people who work in various fields, particularly in politics, and who can provide specialized skills for effective advocacy (Gen and Wright 2013).

Social capital theory highlights one more important aspect in the overall policy advocacy framework. According to Gen and Wright (2013), it's about the people, relationships they build. There were bridging and bonding as well highlighted, what "brings together people from diverse backgrounds" and what "encourages group identification and exclusivity" (Putnam 2000: 174; cited in Gen and Wright 2013). These activities form trust within networks, and it facilitates the effectiveness of advocacy goals, while helping people find jobs, or participate in social activism (Gen and Wright 2013).

The presented resource mobilization theory highlights resources as a need for engagement and social movements. It is very important to mention the main points about it, since it tells the solution to the complexity of long-term initiatives, which normally cost a lot of money. One more suggestion is the importance of social media coverage and group creation – this helps to get larger coverage and mobilize resources faster.

Advocacy coalition framework explains how stakeholders and coalitions can cooperate for the sake of the common good (Gen and Wright 2013). This theory underscores the importance of coalitions for future profound policy changes (Gen and Wright 2013). The overall perspective of success and prestige makes individuals act in an organized way, that is why information exchange is crucial in this process.

In general, these theories help to closely observe what happens when coalitions cooperate. This may be beneficial when referring to policy changing and lobbying, helping to cover more

interested parties. The described above complex of theories helps to understand better the ideal communication between governmental and non-governmental actors, including citizens.

The above-mentioned theories are linked with the studies of Morningstar, Simonyi, Khakova, Ryan (2023), since these authors investigate energy security and transition, as well as institutional changes and compliance with the EU standards and new regulations. It can be linked to how Ukraine adapts to European energy policies. Balmaceda's works (2021; cited in Krempin 2023; Balmaceda et al. 2023) are also relatable to the theories, because the author mentioned Ukrainian energy sector's response to certain geopolitical issues, changing energy systems, and the process of adaptation to new norms.

All these theories allow us to better understand in this study how exactly business actors contribute to policy changes. The theoretical lens helps to look at the creation of connections, certain coalitions, unions, associations and the joint mobilization of resources as an important role of non-state actors in facilitating strategic planning in the sector.

3.2.2. Agency theory and Corporate social responsibility (CSR)

This concept explains social obligations and communication between citizens and the government. Thus, the main idea is to optimize positive actions for the benefit of the entire society, which should be a priority for a corporation. Moral obligations and business are rather difficult things to combine, but CSR presents benefits that are also manifested in the form of legal requirements, effective management and boosting the interest of shareholders. This concept may seem too philosophical, without practical application, but it gives a reason to investigate the network of firms as a part of social welfare and the model of stakeholders.

Agency theory, suggested by Jensen and Meckling (1976; cited in Shaba 2023), is relevant to be paid attention to in this study. The general framework of business interest in the Ukrainian energy sector reveals that business actors benefit from playing a great role in the whole process.

After all, compared to the European Union, which has more clear and transparent rules for the energy actors, in Ukraine there is rather a monopolist energy sector. This issue can be supported by the agency theory, which claims that sometimes when transferring control over institutions to a certain company, a conflict may arise, consisting in a mismatch of interests and expectations of the principal and agent, that is how the problem occurs (Jensen and Meckling 1976; cited in Shaba 2023). Thus, the work examines the relationship between private and state companies, the state and business, with the understanding that in the Ukrainian energy system, companies have different ownership structures. Agency theory views the agency problem as precisely the kind that arises because of the lack of a regulatory mechanism, according to which it is possible to achieve control over shareholder behavior (Eisenhardt 1989; Dockery, Herbert, and Taylor 2000; Cohen and Holder-Webb 2006; cited in Shaba 2023). Within agency theory, Y. Shaba (2023) also considers the problem of corporate governance, which presents the question of how to create certain incentives for all parties that have an interest (Turnbull 1997; cited in Shaba 2023).

The case considered in the MA Thesis analyzed the functioning of private and public business actors who benefit from the activity.

The CSR is relevant, because it allows us to understand in the selected case how business actors in the energy sector of Ukraine join the well-being society. CSR principles allow us to look at the aspect of adapting norms to common ones due to the desire to follow sustainability goals and achieve long-term integration benefits. Together with agency theory it is possible to have a glance at the issue of whether business actors can provide balanced and effective management, simultaneously leading to sustainable success in the Ukrainian energy sector.

3.3. Conclusion

The theories of policy transfer and policy translation help in research from the point of view of understanding the degree of integration and compliance of the Ukrainian framework with European norms in the context of energy. Cooperation between the EU and Ukrainian energy business actors will be analyzed, and it will be determined how policies are "transferred"/ "translated".

Policy advocacy theory complex and CSR theory help to multi-dimensionally observe the topic of how business actors facilitate Ukraine's EU integration process. The theories address different factors and issues of how market actors cooperate, and why they should do that for the sake of common good.

4. Causal Mechanisms

4.1. General context

The causal mechanisms presented in the study are of great importance for understanding the case. What is the causal mechanism itself? To explain briefly, this is interdependence, A leads to B. As Beach and Pedersen (2019) schematically present, the causal mechanism takes place in the form of stages and factors that accelerate each other. In this way, we get a result in the form of changes (Fig. 1).

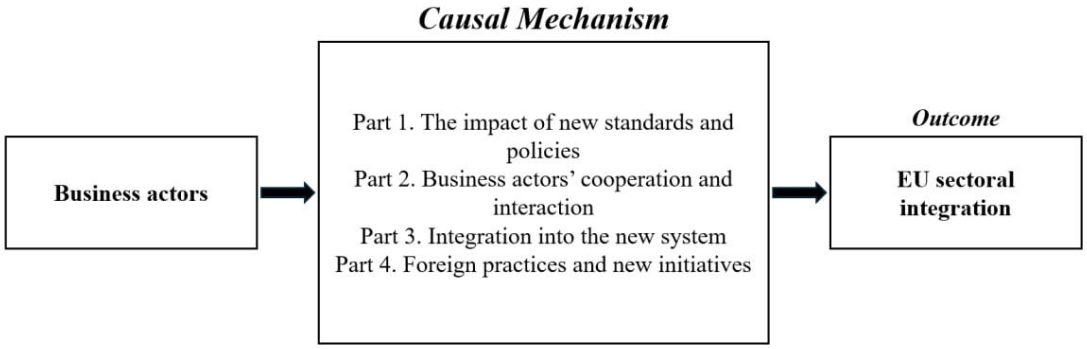

Fig.1. A causal mechanism modeled after Beach and Pedersen (2019)

This can lead to the following policy consequences in the case of state changes. Another description of causal mechanisms explains that there can be random variables instead of mechanisms (Della Porta and Keating 2008). Della Porta and Keating (2008) describe this approach as positivist. Thus, in the case of applying the process-tracing method in research (more details in the Chapter 3), it is possible to trace in more detail such processes, which are essentially cause-and-effect relationships, but their logic is difficult to follow (Beach and

Pedersen 2019). In general, a causal mechanism is the result of establishing a connection between cause and effect, so it is important to analyze such mechanisms in political research.

In this thesis the causal mechanisms were analyzed; what influence exists, which causes gradual integration of Ukraine into the EU energy market and the changes of its energy sector during the war. In this context, it is very important to investigate the causal mechanisms, because the context and prerequisites are presented. Also, this topic is quite specific, even from the point of view of its novelty and the ongoing process of cooperation between Ukraine and EU energy structures, which has been going on for more than 10 years. The causal mechanisms analyzed will reveal the hidden meaning, a more detailed consideration of the cooperation, actions and decisions that led to the current situation that is happening now.

The dependent variable is the level of integration into the EU energy market and the level of changes of the Ukraine's energy sector. In this research energy policies and regulations are presented and compared to European standards. One more aspect to measure the level of integration are participation rates of Ukrainian energy companies in the overall European energy system.

Independent variable is interaction and difference between energy market actors in Ukraine and their efforts to drive the integration of Ukraine into the EU energy market.

The research focuses on business actors due to the fact that my scientific interest is to understand how the cooperation of the state, business and international organizations take place in the energy sector, especially against the background of adaptation to European norms and accelerated integration of systems due to war.

The causal mechanism that I was testing is the significance and level of collaboration between Ukrainian business actors in the electric power sector with the European Union, especially considering the current policies towards the energy network and the wartime situation in Ukraine.

To conclude the overview of the topic, here are hypothesis to present:

- *Hypothesis 0: Business actors do not play a significant or positive role in the changes IN the Ukrainian energy sector.*
- *Hypothesis 1: Business actors play a significant and positive role in the changes in the Ukrainian energy sector; this process involves integration with the European energy market and facilitating energy-related reforms.*

Overall expectations of the research on the DV presented in the research are related to the level of integration into the EU energy market can be named as "micro-level of the European integration", and the level of changes of the Ukraine's energy sector during the war is high in a sense of resistance to the massive damages and a slight ability to recover.

The research includes the method of process tracing to trace the process of integration of the energy sector, cooperation with partners in the conditions of war. Interviews with experts in the field were used, and information and topics relevant to the source were analyzed.

The Master of Arts (MA) thesis is case-centric, the highlighted relevance is justified and supported by the theoretical approaches, expert interviews and causal mechanisms that are introduced in the next chapters, with a focus on the importance of a further investigation of the Ukrainian energy sector and its challenges during the wartime adaptation. There are policy issues that need to be addressed due to the rapid changes of the geopolitical situation. Close collaboration between Ukraine and the EU facilitates the potential for the further changes of the investigated sector. The Ukrainian case may be also a good example for other applicant or candidate countries that want to become members of the European Union, as well as for countries in crisis situations.

4.2. Case justification and background

The energy sector of Ukraine is a complex of enterprises and organisational units. They are traditionally divided into the fuel industry and electric power facilities (NPPs, TPPs, hydroelectric power plants, renewable energy sources). Due to the resource potential of many Ukrainian regions, heavy industry and powerful electric power facilities have historically been built in these areas.

Due to the vastness of the republics' territories and the needs of the republics, during the Soviet era, a powerful communist "machine" siphoned off energy and minerals from the most naturally enriched countries. Among them, the Ukrainian SSR was the first to be taken. All those stations or industrial centres, factories that were built met the demands of the leadership – "the more the merrier". Such facilities were often created in accordance with the requirements of the 20th century, but the main problem today is that these technologies no longer meet the standards and innovations of today (Savitskyi 2018). Because of this, many of the requirements from Western colleagues, such as those set out in the European Climate Act (which has a shortened plan until 2030 and is quite important now, as it sets out a specific requirement for all those who support the course: reducing greenhouse gas emissions by up to 55% compared to 1990 levels), may not be theoretically fulfilled or only partially fulfilled (European Parliament and Council 2021).

As Ukraines FEC is, as noted earlier, a rather large sector of the economy, it is important to understand that independent Ukraine has remained dependent on a system combined with some post-Soviet countries since 1991. Olga Rybachuk, the managing director of the company "Elementum Energy", mentioned in the interview with Onysiia Novykova:

> "Ukrainian energy system or what we are saying, Ukrainian energy mix, basically has been 100% dealt within Soviet time. So that's very old-fashioned, very rigid, but still quite a stable and well-developed energy system. And the only new capacities which have been added to the Ukrainian energy system, that was renewables – green production, which started like in 2011, 2012 and then boomed. From 2018, when the Ukrainian state announced a couple of state support schemes of the green producers, like everywhere... Ukraine was not unique and, like all the countries, especially in the EU, they supported the changes of the renewable sector, so Ukraine needed the same as well

> because of traditional generation, which is nuclear-based, or thermal power plants, or hydropower plants, or combined thermal power plants. First, they're Soviet, second, quite old, like 25–50 years. Third – they are very large scale, so this has all been designed for the huge production in the industrial economy. So, they've been built close to the huge industrial plants like machinery, heavy machinery, all these kinds of sense. And they're very of high capacities, right" (Olga Rybachuk)[1].

In the 1990s, the Ukrainian economy was in a rather shaky state, as it was disconnected from the Soviet Union and had a surplus of capacity due to the decline of industry (Omelchenko 2024). The restructuring of the electricity sector was one of the most ambitious reforms at that time to create a more advanced market economy in the country (Pittman 2015). This restructuring meant active privatisation, but the focus of this process was, of course, on energy capacities because of their profitability, which was the basis for the growth of oligarchic clans in the 1990s (Redaktsiya VUE 2022). At that stage, Ukraine was not able to move from a planned economy to a fully market economy, but a large part of the sector was finally privatised (Shpek 2015). Thus, there is a situation of different forms of ownership of large industrial enterprises.

Ukraine has several Ukrainian non-state and semi-state electricity companies that participate in the general European integration process at their respective levels, what do they advocate ("DTEK" is a private energy company specializing in coal and mining activities; "Ukrenergo" is a private joint-stock company that belongs to the state and is responsible for the transmission of electricity throughout the country through the national energy system, etc. (Youcontrol 2024)). For example, Ukrainian energy sector entities such as UWEA (Ukrainian Wind Energy Association) or Elementum Energy are limited liability companies, which means private ownership (Youcontrol 2024). There are also types of ownership that include LLCs, but they are Associations, such as UARE (Youcontrol 2024), which is engaged in "ensuring support for the implementation of the state policy of stimulating renewable energy at both the national and regional levels; initiates participation in the changes of draft legislative acts, strategic changes

[1] Olga Rybachuk (interviewee), in the interview with Onysiia Novykova (interviewer), 03.05.2024.

documents, framework programs, norms and standards that determine the changes of the field of renewable energy; creates a platform for finding and developing a common position by UARE participants in terms of key issues of the changes of the field of renewable energy; attracts other participants of the field of renewable energy to this platform" etc. (UARE 2014). In Ukraine, there are internal problems related to further privatization. This is also clearly visible during the war, when the shareholder "Ukrainian Distribution Networks", managed by the Ministry of Energy, transfers several state-owned companies "Oblenergo" to private shareholders (Makohon 2024).

When referring to the closer description of the ownership structure of Ukraine's energy sector companies, it is highly important to distinguish gas and electricity sectors. As Andrii Ursta, a general manager on energy markets of the DiXi Group, Kyiv-based think-tank, explained in the expert interview:

> "If we speak about gas production — more than 70% of gas produced in Ukraine accounts for UkrGazVydobuvannya, which is a state-owned company, subsidiary of Naftogaz. If we speak about gas distribution, it's transportation of gas through local gas grids. Also, more than 70% of these gas grids are operated by state-owned company GAZMEREZHI, which is also a subsidiary of Naftogaz. If we speak about gas supply – more than 95% of gas supply to households accounts for another Naftogaz subsidiary, and non-regulated segment of gas supply market is more competitive, and the share of Naftogaz in it is only 15%, I gue, according to the latest information by the energy regulator. If we speak about gas transmission, the transportation of gas through main pipelines is solely own-based: both transmission systems are owned by owned by state, as well as gas transmission system operator – is owned by Ministry of Energy, 100% of its share is in Ministry's ownership"[2].

This detailed description underscores the structure, which is totally another case, compared to the electricity market. In this sub-sector there is more difficult situation to manage and understand:

> "…the first generation and the supply sectors are the most competitive and should be competitive. The second, which relates to transportation, is always natural monopolies in all countries. If you take generation, we have the Soviet legacy, we still have quite a concentrated generation sector with big companies and in terms of share of electricity mix, almost half of it relates to nuclear power plants. We have only one company running all four… not four, now maybe three – one is occupied. Zaporizhzhia Energoatom is running all the nuclear fleet. Energoatom is 100% SOE. Then let's take hydro hydropower plants. We also have about… it's difficult to calculate after the recent damages

[2] Andrii Ursta (interviewee), in the interview with Onysiia Novykova (interviewer), 17.05.2024.

> and distraction, but about, let's say ten, quite big or medium hydropower plants, all of them are also run by SOE Ukrhydroenergo. It's also a 100% state company. Then, if you take the thermal power plants, it's a different situation because we have here the governmental sector and private sector. The biggest company is DTEK, previously we had Centrenergo. Centrenergo as a SOE, around three power plants, but all of them have been recently completely destroyed, and one is occupied. Normally we have this company with absolutely destroyed generation capacities. Also, Donbasenergo, it's quite a relatively small company of some power plant, it's a privately owned company. And then all the renewables are privately owned. There are a lot of small and medium players. There's also DTEK there on some huge solar power plants and special living power plants. And we have a bunch of small players, private players running renewable power plants. That is the landscape in terms of ownership and generation then in terms of transmission, we have only one company Ukrenergo. It's a transmission system operator completely SOE. Then we have distribution for electricity. We have 32 companies, most of them are privately owned. Still, they are heavily regulated. Transmission and distributions are heavily regulated as they are national, non-regulated by the National Regulatory authority. And, as for the parts which relate to supply to consumers, we have hundreds of suppliers. Almost all of them are privately owned. We have quite intensive competition in in this field, so there is the whole landscape in terms of electricity market (Bohdan Serebrennikov)[3].

A deputy research director at DiXi Group, whose field of expertise relates to energy markets and energy policy analysis, commented on the topic of the ownership structure of the market and highlighted that it remains chaotic, but Ukraine also has different layers of this electricity sector, which are faster than the generation, transmission, and distribution, what relates to natural monopolies (Bohdan Serebrennikov, expert interview with Onysiia Novykova, 17.05.2024).

On July 1, 2019, Ukraine launched a liberalized electricity market model as an important step to fulfill the commitments to the Energy Community (Kukharchuk 2019). The new rules changed the agenda according to the EU standards, addressing low tariffs for nuclear power plants which potentially was aimed at boosting production costs and investment funding (Kukharchuk 2019). Also, considering the consequences of the Chernobyl disaster in 1986, in 2019, the EU placed a containment system that closes the damaged power unit (UA Energy 2019).

Currently, Ukraine is suffering from critical infrastructure attacks, so alternative electricity is also quite important. Before the war, the country had increased its renewable energy capacity

[3] Bohdan Serebrennikov (interviewee), in the interview with Onysiia Novykova (interviewer), 17.05.2024.

(EUEA 2021), in line with the standards of the 2016 Paris Agreement. “Thus, from 2016 to 2020, the installed capacity of renewable energy sources in Ukraine increased almost 4 times" with the dominant share of solar power plants in the overall energy balance (EUEA 2021). As described in the article by Razom We Stand campaign manager Oleh Savitskyi (2018), on the contrary, the RES sector, at least before the outbreak of a full-scale war in Ukraine, was quite progressive and showed good results in terms of investment. Even without taking into account the current crisis conditions, it would be important for Ukraine to look to the future in the form of a focus on alternative energy sources.

My case is Ukraine, namely the Ukrainian energy sector. What is important for me in this study is that it is not only the sphere or subsector that is analyzed here. Here, the research is about how business actors act during war. Such a case is completely atypical for all times and countries, because Ukraine is currently the only example of a country that has the status of a candidate and is actively conducting negotiations on joining the European Union. At the same time, a full-scale war has been going on in Ukraine for more than two years.

In this case, novelty and relevance for different countries and spheres of economy are important. After all, the focus of the research is about the energy industry of Ukraine - business actors, on how exactly their activities and possible cooperation affect the well-being of the country.

Therefore, it is very important to understand that Ukraine has a rather complex regulatory landscape and a diverse ownership structure of energy institutions and companies (state/non-state companies). At the same time, the research reveals the topic of forecasts for the future and possible scenarios changes in the energy sector. The case study is also interesting in that the main interest is electricity. It depends on the events that brought Ukraine closer to the EU, namely, the merger with ENTSO-E and further actions that will transform the Ukrainian energy industry to new standards. Special attention is paid to the topic of green tariffs, which help companies with RES capacity to function more easily. Thanks to such tariffs, it is possible to

reduce the amount of energy production through traditional capacities, because due to the possibility of reflecting prices, customers are more willing to switch to clean forms of energy (Stein 2024). As another positive factor, investments in the sector are increasing (Stein 2024).

Potential limitations are the insufficient amount of data for analyzing the degree of involvement of business actors in European integration processes and the absence of a reliable mechanism for assessing the success of reform implementation and cooperation within businesses to make further forecasts. Another problematic and important factor to note is the novelty and constant changeability of the described processes, so the causal mechanism can be confirmed only by events that occurred before May 2024. For Europeanization studies there is also a need to know more about the role of non-state actors in the accession countries with the state authorities weakened by war. This issue can be addressed through further research.

4.3. Overview of the causal mechanism

Part 1: The impact of new standards and policies

This part is supported by policy transfer theory (Dolowitz and Marsh 1996; 2000) and policy translation theory (Stone 2012; Berger 2017).

The process of integrating a country's XXX sector with another is dependent on accepting different rules. These are policies, standards and need in reforms. This involves sometimes direct transfer of instructions, and translation processes to adapt some policies to the specific country’s environment.

Part 2: Business actors’ cooperation and interaction

This part is supported by agency theory (Jensen and Meckling 1976; cited in Shaba 2023) and social exchange theory (Fernandes and Dias 2024).

Well-structured cooperation between state actors, private companies, and international partners facilitates future integration into bigger alliances and makes a state more powerful because of

stakeholder's common goals. Strong business cooperation leads to effective management inside of the sector.

Part 3: Integration into the new system

This part is supported by policy advocacy theory (Gen and Wright 2013).

Policy advocacy by business actors needs to be structured and makes it necessary to adapt to the new agenda, changing the regulatory aspect in the field. It also includes engagement of support from partners, which from a legal point of view is safe and effective for further business cooperation and entry into a new system of a certain sector. Such interaction is possible thanks to not only state organizations, but also independent private actors.

Part 4: Foreign practices and new initiatives

This part is supported by corporate social responsibility (CSR) theory (Freeman 1984; Harrison Barney, Freeman, Phillips 2019).

Such a mechanism demonstrates the possibility of adopting a new framework for the sector under consideration. At the same time, what is important is the sustainability of the environment in which the practices used help attract investment and increase public trust. This also includes the general goal of improving the natural environment in the functioning of the economic sector.

The outcome: Successful alignment with the new standards and policies has improved the country's process of integration into the XXX market. Effective interaction between different business actors within the sector created an environment for further beneficial cooperation, as well as for successful implementation of new reforms and policies.

4.4. Conclusion

The causal mechanisms provide a framework for justifying the case of Ukraine's energy sector and its integration in the European market. By using the theoretical framework about policy

advocacy and CSR practices, policy transfer and policy translation theory, agency and social exchange theory it is possible to further investigate processes that are happening in the country. In the chosen case it is important to understand whether presented causal mechanisms work, or not.

5. Empirical analysis

Presenting the empirical part of the study, it is necessary to highlight the general goals achieved in the chapter. First, the case of state and private business actors in the Ukrainian energy sector is considered. Secondly, this study considers the military context, including the infrastructural destruction, loss of capacity, and changes in the regulatory sphere. In general, the process tracing method is used to track the entire process of entry of the Ukrainian side into the European energy system and the interaction between two sides.

5.1. Data collection methodology and process tracing

Data was collected using expert interviews and analysis of literature sources. I conducted five interviews between the 3rd of May and 1st of June 2024. The interviews took place online with the director of a privately-owned energy company "Elementum Energy" in Ukraine, and experts of the DiXi Group think tank working in different areas (search for investors, renewable energy, electricity and natural gas markets) and a a head of the Women's Energy Club of Ukraine.

This study traces in detail the specifics of the ownership structure of energy companies, but the empirical section presents key trends related to the topic of the study, a detailed evaluation of the processes taking place in the field, as well as their results as of May 2024, modest recommendations for the future research and for the representatives in the field, forecasts regarding the changes of the sector in the conditions of the war.

The process tracing method was used to analyze causal mechanisms and to understand whether they function as we expected, and if they are present in a case or may be relatable for a particular outcome (Beach and Pedersen 2019).

When applying the process tracing method, it is important to select a time frame - in my case, it is relevant to look at the period that covers both the time before the full-scale invasion and joining ENTSO-E, and the time period until May 2024 (wartime). Very important to understand

that energy business in Ukraine is divided into private companies and the state-owned companies. If we turn to a detailed description of the operation of the main strategic investor in energy assets - the company DTEK, then the war is a very strong factor in the success of the operation. As Bohdan Serebrennikov, expert on energy markets and energy policy analysis highlighted: “Most of the generating capacities in Ukraine's about attack and its private companies. DTEK suffered a lot because of the attacks, but at the same time, DTEK is very progressive company, and we need to understand that not only DTEK, each private business: small, medium-sized, big ones — they're focusing on the money and on the profit”.

However, the impetus for the entry into the European system of electricity transmission operators and, in general, the prospect of entry into the European Union of even the largest investor and key player in the Ukrainian electricity market makes one understand that technologies are developing, and Ukraine should not lag behind its colleagues in terms of its standards:

> “…if [some] technology is improving, some processes inside of the company – they directly implement it. If we're speaking about such policies, what is implemented on the EU level and need to be implemented in Ukraine, like in Ukrainian companies, DTEK started to calculate how it's profitable on the site. Of course, your practice shows that…it's more resource saving and detects [that it should be] implemented. They had a lot of decarbonization policies. They started to work strongly with renewable energy. They're a leader in our market to implement [something] in such a big organization.
>
> Regarding the state companies, it's much different because private [companies have their] own money and they can operate them in different ways as state companies depend on the state budget or on the owner sources. Most of our state companies have not been profitable in recent years because our politics and policies are focusing more on protecting consumers.
>
> We have such programs, such tariffs, that it's not very profitable to implement for state companies. Now we have a tariff on electricity..., but of course, due to all the calculation that we have, and European think tanks provided, we need to raise our tariff for consumers and private houses to 8 hryvnias per kW. Of course it's a lot. It's a lot for each household and each person, but it's a sum of money that can cover all expenses of state companies nowadays. What I'm talking about: the state companies are now in the situation where they have big losses in their profit, and they do not like focusing on transforming their companies into greener and so on. In this way, they are more focusing on the policies of a government. If the government had the policy that we need to have like 27% of renewable energy in our energy production capacities, they're trying to implement such measures. If we need to cut down the CO2 emissions, they're trying to implement such measures, but of course each of these actions called the state companies to call the government for help. It should be financial help or any other help, to help them to do such techniques because they can’t do it on their own” (Bohdan Serebrennikov).

5.2. The European standards and policies as a part of the EU conditionality

Private energy companies do not operate according to the standards of the Soviet Union, but many problems remain relevant for more than 30 years. And the energy subsectors, even if we pay attention to the gas sector for comparison, cannot get rid of dependencies and difficulties. The basic legislation for the gas market in Ukraine, and which was adopted by the European Union in 2009, is about transposition and implementation in the sector, including basic network codes on the capacity allocation of the transmission system capacity and balancing codes (Andrii Ursta). If the topic is about basic legislation – it was successfully adopted, but some gaps persist and are related to the pricing of the natural gas, because, as of now, Ukraine doesn't have free pricing on the gas on most segments of the natural gas market (Andrii Ursta). As an expert on energy markets mentioned: “That generally contradicts the spirit of your legislation, which, in general, gives opportunity to implement regulated pricing, but only the limited in time, with respective or justification for such regulated pricing. But, in our case, this price regulation is permanent without any action plan on how to transfer to free pricing without having any negative economic consequences. The other loophole related to implementation of your legislation is unbundling of distribution system operators. So, the operators of local gas grids should be fully independent from gas suppliers who directly sell gas to the final consumer. And, in our case, these distribution system operators, they are not still completely independent from the suppliers, which poses the risk to competition on the retail gas market” (Andrii Ursta). Andrii Ursta also added that Ukraine cannot fully ensure independence between natural monopoly, which is a typical case in the energy sector in Ukraine, and supplier, simultaneously liberalizing gas market according to the EU tendencies. What is important at this point to understand is that consumers switching suppliers is a very important process for market competition, Ukrainian current legislation on balancing in the gas market does not fully respond to European standards and there emerge new issues about

liquidity in the short-term gas market; for the gas sector it is also very important to implement decarbonized gas and hydrogen package into the main framework (Andrii Ursta).

The quote by expert Bohdan Serebrennikov describes the state of the regulatory sphere in relation to the electricity market in quite some detail. Therefore, it can be concluded that since joining the Energy Community in 2011, Ukraine has succeeded in aligning its legislation with European legislation, through the adoption of key laws in 2017; there was also a transition to a competitive electricity market model in 2019 (Bohdan Serebrennikov). However, even nowadays, Ukraine does not implement the latest EU legislative packages, partly due to the war and existing regulatory challenges (Bohdan Serebrennikov). But the forecasts regarding such actions remain positive: harmonization of the energy market of Ukraine with European standards is mostly completed, and further implementation creates attractiveness and potential for investments:

> "Ukraine joined the Energy Community in 2011, and from that time we are trying to transpose and implement European legislation in our energy sector. I would say, the main breakthrough was made in 2017 with two basic laws, laws on gas market and law on electricity market, which make it possible to transform the market system in both gas and electricity sectors, and in 2019 the electricity market was completely shifted from the previous non, let's say non-competitive model to the competitive model. From that time, we are almost five years running this European competitive model of electricity market and based on. This year's package is a legislative package, we all must not transform it, transpose it, and implement it completely. But as Andrew said, European legislation is evolving, and then we must force so-called force energy package or clean energy package for all Europeans. We must implement it and Ukraine is a bit delaying, because we do it in in white established framework under the Energy Community Umbrella. We have a schedule made for Ukraine, as well as for other contracting parties of energy Community, schedule all transposing and implementing adapted and adopted European legislation acts through the energy community, because we have, let's say, light version. Yes, some of acts are adept on the level of energy community and to be transposed in Ukraine, and we have a schedule and most of this clean energy package had to be implemented by the end of 2023. Now we are a bit delaying, we are now in a process of European integration and entering the negotiation process. We also are touching the base regarding the implementation of European legislation. We did a self-screening; we saw that a lot of work was done but some places remained without implementing or transposing. So, I would say the pace is quite good. The pace of transposing the European legislation and implementation is quite well and now it's difficult to say about the reasons for delaying because of the voids, it's quite difficult to distinguish what part of the delaying was caused by the war and what by some and others. But we are now in the process, we are trying to implement the rest of the regulations and directives, but mostly electricity markets look like European markets. The only difference, but huge difference, is heavily regulated and heavy interventions of the state into the market. Because structurally it's like European markets – the rules are almost the same, but in practice it's heavily regulated. First, in terms of pricing, as we say, both in wholesale and retail segments because our

> government is very reluctant. And to shift from the regulated electricity tariffs for households to market-based prices. And now it's even more difficult to do because of the war and all the disruptions, it's a very political and sensitive question. Reform and electricity terms for household. But from the other side, it distorts the market a lot… Devoted to [some] artificial and non-competitive rules in the market, and we also have huge regulation in the wholesale market, it's called price caps, when the state keeps the price the upper level, the ceiling level of the price. And it tremendously influenced the market players. It tremendously influenced market conditions and attractiveness for investing in the market when the prices are regulated, prices are the only way to return your investment and when it's regulated and who knows how the government will regulate it in the future. That is another example of a huge regulation which is still in place and the government is also reluctant to get rid of it. And now it's also obvious, because nobody knows when we have these huge damages and disruptions, and that does mean that the capacity mix changed a lot and markets market is becoming even more concentrated, and nobody knows when it will end up, in what situation we will end up, and what it will does mean in terms of price. Because you know, some parts of the economy are also quite dependent on energy prices. Those are two very painful cases. Regulation of sale prices and wholesale prices. That is maybe the most problematic issue, and the rest of the market model is very similar to European (Andrii Ursta).

Turning to the private sector, it was very important for this research to conduct an interview with a person who manages an alternative energy company. Olga Rybachuk noted several important reasons for understanding the changes of the electricity market thanks to business actors involved in the energy sector in Ukraine. This includes both the understanding that the war is a relative facilitator of the process (ENTSO-E accepted Ukraine almost on time), and the theses that Ukraine's progress in energy issues can be largely attributed to informal connections provided by individual business actors:

> "There are different types of connections. First, we have the formal agenda where we must fulfill certain steps to be completely reintegrated with ENTSO-E... There is a time plan, there are deadlines. There are numerous reforms and changes which we must deploy. And this is mostly cooperation between the TSOs or the European Union Commissions, specifically dedicated to the energy questions and our NEK Ukrenergo. The Ukrainian transmission system operator. This is a huge working group, and they are operating all together. We also have formal connections between the energy community, the special body of the EU dedicated to those questions, and the Ukrainian regulator, which is the National Commission, or which is regulating the energy market. But the point is that Ukraine and the Ukrainian energy system are in an emergency state. You cannot just put some kind of guidelines and action plans and expect Ukraine to follow them as any other country because we are …in the war time. That is why there are a lot of informal connections, which are customizing those formal reforms and changing the approaches… Because, obviously, Ukraine cannot go the standard way, just impossible, right? Because the Ukrainian system is being redesigned every second month. At least in terms of capacities and technologies. That is why there is a lot of attention. Obviously, there is no economy which can function without the energy sector, and the energy sector is a fundamental cornerstone for any economy to function… There are a lot of funds which are providing donorships to the Ukrainian energy sector, buying different types of equipment, helping with the kind of generators and transformers... And there are also a lot of things, with respect to the inter-capacity connections, with the technical assistance from the neighboring countries when Ukraine is an emergency state. We also have these kinds of relations, but still, I have to say that the Ukrainian energy system is quite inefficient…" (Olga Rybachuk).

Olga Rybachuk highlighted that it is difficult to expect efficiency in wartime, but even so, Ukraine could have built much more efficient relations. The expert said that their company regularly meets representatives from the Energy Community and the international financial institutions, asking them to moderate, to coordinate and influence reforming of the Ukrainian energy sector in a more intense way. Olga is sure that Ukraine has never been operating in the decentralized, flexible, well-developed energy environment because there was no such a possibility. The partners are being constantly invited just to be more active in the way to teach Ukraine, to guide and lead (Olga Rybachuk). The expert concluded: "…the connections are there, cooperations are there, but … I would like [the energy bodies of the EU] to be in the driving seat [to invest]".

Interviews underscore the great role of private actors in Ukraine's energy market changes during the war. The achieved goals and ongoing progress toward European integration, adaptation of new practices show the overall ability to adapt despite certain inefficiencies.

Green pricing is another European practice, which Ukraine has just borrowed and introduced in 2009 (Bohdan Serebrennikov). Ukraine took that initial stimulus for renewables to develop from the EU, because renewables require a lot of capital, and global climate change should be considered when mentioning this practice; the country must stimulate investors to come and to put their capital into the changes of the sector (Olga Rybachuk). It is important to mention the agenda about tariffs in the framework of the study because it is worth noting that such tariffs allow increasing interest in the production of alternative energy. Thus, in accordance with the resolution of the NCREPU No. 621 of March 29, 2024, it was ordered to "establish green tariffs for electric energy produced by economic entities at electricity facilities using alternative energy sources, and surcharges to green tariffs for compliance with the level of use of Ukrainian-made equipment" (Verkhovna Rada of Ukraine 2024).

Bohdan Serebrennikov commented on the practice:

> "Growing tariffs was enabled in Ukraine and it was a huge push for investment in renewables and maybe the most intensive increment of renewable capacity we had in 2017-2018 and 2019. And green tariffs were the main driver of the process. But the cons of these green terms were very relatively high, even compared to the European. And some European countries were getting rid of it because it's not competitive, it's not competitive at all, this fixed price. Yeah, it's on some stage of encouraging investment in both sectors. It provides you with some safeguard mechanisms that you can predict your revenue because of green tariffs. It is fixed and guaranteed. You can predict your cash flow and it brought this scheme of support and renewables brought a lot of investment in Ukraine. But on the other side, when they have been gradually growing, there are problems. Which our, from the one side, electricity system phase and those from the other side of the market phase. We're also growing because we face technical and financial imbalances. And at some point, we recognized that these green tariffs brought us to the situation where we are not able to cover the cost of renewables within this scheme. Now, we should recognize that Ukraine has this problem. We have several rounds of, let's say, negotiations with renewables state from up on the one side and the renewables producers from the other side. They negotiated because these green terms were embedded in the law of Ukraine, and it was difficult to change something. But when we saw that we can go further anymore with the scheme, we had this negotiation in 2020, I believe, and the state concluded a memorandum with the renewable producers to review the scheme, to lessen the tariffs a bit. And some other adjustments were made to the legislation. I believe, coming back to your question, it was not a European idea, it was European practice borrowed by Ukraine. It was efficient for some time span, but you know, you should at some point transfer from this very strict support scheme to the market-based schemes of integrating renewables into the energy system into the energy market. And now we have quite serious issues" (Bohdan Serebrennikov).

Andrii Ursta added on this topic that the system has started increasing only after 2017-2019 years, because earlier it was designed to boost corruption in the country: "…the feed-in tariff scheme in times of Yanykovich regime, it was designed in such way as to benefit quite narrow list of players, which were close to then President of Ukraine. Primarily Andriy Klyuyev, for example, and there were specific elements of this scheme, which made it possible. For example, the localization requirements, which required the renewable electricity Generation Company to account for a certain amount of its cost for the project, a certain share of cost, that should account for materials and equipment, which were produced and manufactured in Ukraine, and that were practically inefficient plants… Subsequently these requirements were lifted and, I guess, following 2015, these mechanisms were…other private players, including foreign ones, could benefit from this scheme, and this also contributed to the search in installed capacity of renewable energy sources…" (Andrii Ursta).

The main problem about the "green tariffs" mechanism, as Olga Rybachuk highlighted, is the inability of Ukraine to implement the strategy on time, which is always an important requirement from investors:

> "But the problem with Ukraine almost from the very beginning was that Ukraine almost never paid its obligations to investors. What I mean by saying this, is that Ukraine has chronically and prominently delayed the settlement of the full obligations of the feeding tariffs to the investors, so they never paid 100%. And that's why the investors always had accumulated debts of the Ukrainian state to renewables, and this problem has been [present] in the sector from almost day one. That is why, I mean, you have debts which [are] accumulating in local currency. If you are an international investor, you invest the hard currency dollars or euros. You must receive the greener revenues. You are not receiving them in time. They delay. Your revenues are impaired and evaluated. All in all, the returns which investors were planning [to receive, were absent] from the very beginning. And this is one of the big issues of Ukrainian state policy and Ukrainian policy makers towards the energy sector…it is obvious that [rebuilding and reconstructing] the Ukrainian energy system will be only in the private sector. The state won't be rebuilding, so there will be the private investor, private capital, and you must get along with them. You must make them trust in you, right? You must [make] them invest in the country. And to do so, you must act as a reliable partner. And this is something which Ukraine is a bit lacking now… And there are a lot of objective reasons for this. Obviously, issues with liquidity and system attacks and there is no question about that, a war made it very difficult, right for the state. But still there is not only this one, because we did not have this even before the war. That is why some of the scenes which Ukraine needs to develop and to improve (Olga Rybachuk).

5.3. Business actors of Ukraine: preferences and cooperation

The market must be competitive. This gives impetus to changes. State and private business actors in the energy sector of Ukraine do not have direct agreements (Bohdan Serebrennikov). At the same time, if we talk about the renewable sub-sector, then such interaction is necessary - there are associations for better cooperation: "…we have the Ukrainian Wind Association, Ukrainian Solar Association, Ukrainian Bio Association. European Ukrainian Energy Agent is also an association, uniting several players in terms of renewables. Renewables need to have a stronger voice and there are a lot of small companies. To better protect the interest, to safeguard their interests, they are connecting and creating in this association and trying to promote their interests, to make it embedded in those legislation through the association. They take part in different round tables and different meetings in Verkhovna Rada, in government, trying to promote interest. That is a picture of agreements between players, but I hardly could make another example of agreement between some energy companies" (Bohdan Serebrennikov).

The above quote from the expert gives an understanding of the fact that the electricity market is developing, but certain internal cooperation makes it possible to scale and, in the future, give a certain result in the form of a balanced energy system and further changes. In this study this process refers to further integration with European countries. That is, considering the energy sector of Ukraine in the conditions of war, it is important to consider the case of cooperation of business actors of different forms of ownership and their gradual approach to a larger and more modern energy system. Bohdan Serebrennikov commented in an expert interview on the following processes that have been taking place for more than two years:

> "With a catalog of measures as a part of this agreement, it was concrete catalogs of measures hundreds of pages, describing what we as a country, as an energy system, should do to be compliant and to be prepared to integrate. This process was controlled. Part of the actions, technical actions, investment actions had to be done by private companies. For instance, thermal power plants did their job to be technically upgraded, nuclear power plants…also did its job to [adjust to] this kind of plans, to be technically prepared first. Hydro is the same. We have these technical measures to do. Also transmission system operators did their job, it was a controlled process. The state and the private companies were very closely involved. And finally, in 2022, Ukraine was integrated to the ENTSO-E in merchant mode because it was expected that we will be ready to integrate in 2023.
>
> But, you know, exactly when the war started, this day the Ukrainian power system was scheduled to be disconnected from the Russian system and for three days to operate for three days independently in an isolated mode. This proves that we are quite self-sufficient and a reliant energy system, and we are ready. But they both start the very same day and we operate in not three days but three weeks in a very disruptive environment. We proved that our energy system is quite resilient. And it was an emergency decision to integrate. So, concluding a lot of factors were involved in the process, both state as a state, state owned companies, as are part of the energy sector and private companies as well. We did our homework. Quite well" (Bohdan Serebrennikov).

The military actions had an incredibly large impact on the energy industry of Ukraine. Russia began the invasion in February 2022, but the attacks on infrastructure facilities occurred in October of the same year. Later, Ukrainians began to use the term "blackouts" to refer to a situation where there is no electricity for a certain time. Such situations occurred periodically and were sometimes accompanied by a lack of hot water supply or water supply in general. The main goal of the Russians was to strike the main system of energy and heavy industry. As Olga Rybachuk mentioned in the interview, "with the start of war, they became ideal military targets. And that is why, like for the last two years already, we have had massive shelling and massive destruction of the traditional generation because it's quite easy to be targeted" (Olga Rybachuk).

Alona Korohod, external expert on renewable energy and energy efficiency at DiXi Group think tank, described the situation now due to the infrastructure damages and war, in general, as very difficult – Ukraine lost more than 50% of the generating capacities in the energy market (Alona Korohod)[4]. The expert mentioned that some businesses, especially big ones, are facing the elimination in a sense of using electricity in some hours of the day. That happens, because Ukrainian nuclear capacities need some restoration period, restore time, which is quite a long process (Alona Korohod). The destruction prevents the Ukrainian system from quickly recovering and improving. When there is a shortage of electricity in one region, it is already a reason for others to save by consuming less. Renewable energy capacities now are the only way to somehow balance the system (Alona Korohod). Olga Rybachuk, who works in the RES sector, also mentioned that renewables luckily are located in a very decentralized way, and it is very hard to target them, unlike thermal power plants or nuclear power plants. When such big objects are being damaged, it may take from 5 to 7 years to rebuild it, or to build a new one from scratch (Olga Rybachuk).

Since 2022 the Ukrainian energy sector has been suffering from massive rocket attacks. The largest and most powerful electricity distribution and generation facilities belonging to the DTEK company suffered mainly (Topalov 2024). The most negative factor is that some regions remain without light for an indefinite period of time after such shelling, mainly in the eastern and southern regions of Ukraine (Topalov 2024). Moreover, the consequences of infrastructural destruction are the complete decommissioning of CHP power units, as for example in the situation with the Kharkiv CHP; due to the lack of equipment, there is a problem in the new, however, the main need remains transformers, which can increase power generation, however, they are also expensive and can only be bought abroad; an important drawback is also constant human losses - due to infrastructure attacks, a large number of specialists, who are very difficult

[4] Alona Korohod (interviewee), in the interview with Onysiia Novykova (interviewer), 09.05.2024.

to replace in production, sometimes die, especially when such attacks occur during working hours (Topalov 2024). One more good example of the complexity of this issue for Ukrainian infrastructure is a complete destruction of the Trypilska TPP in Kyiv region, or Kakhovska hydroelectric plant (PJSC lost 100% of generation) (UHE 2023).

In the conditions of the concentration of power on military needs, funding for energy and reconstruction is decreasing. Thus, there is a need for closer communication with both internal external partners. The impact of the cooperation of business actors and European Union representatives is very important, because it currently prepares the ground for future negotiations and specific actions regarding reconstruction. After the end of the war, it is not known to what extent the state of the energy industry will be damaged, but even the affected areas will be able to be rebuilt according to new standards, with the support of various interested parties, so the causal mechanisms tested below can be considered a reason for predictions about the cooperation of the subjects of the energy sector of Ukraine, as well as an understanding of it current state through detailed analysis.

5.4. The process and impact of integration into the European energy system

Ukrainian business actors focus on the timelines and requirements of their Western colleagues. This integration is poorly researched and is of significant political interest, especially in the context of the fact that on the night of February 24, Ukraine officially disconnected from the joint energy system with Russia and Belarus, and already on March 16 became a member of the "Energy European Union" (Zelenskyy 2022), which meant further steps of fast joining to the European network of operators of electricity transmission systems ENTSO-E (DTEK 2022).

Today, Ukraine is oriented towards the European Union, especially in the conditions of Russia's armed aggression, which began in 2014, but continued as a full-scale war in 2022. In the context of the topic it is important to note that massive Russian attacks on the energy infrastructure of

Ukraine began in October 2022. The country faced long power outage periods, costly infrastructure damages, which mostly disrupted heating systems and energy generating sources, leaving approximately 30% of power stations destroyed (Zelenskyy 2022). Although the energy system integration level (ENTSO-E and Ukrainian grid operator) remains low, the European Union managed to provide financial support packages to help during crisis times in the form of electricity generators (Kardaś 2024).

Even though Ukraine has done a lot during more than 10 years to become closer to the EU energy system, the expert on energy efficiency still highlights: "…we can't compare the experience of European countries and Ukraine, because Ukraine is now dealing with a lot of things that European countries are not facing at all, we have a war, and we have such, not even damages, we have big losses in the energy generating capacities. Of course, our case of integration is a unique case because it was very fast, and it was a very successful integration, and now we are in the process of implementing different laws to fully finish all these processes on our lower level and on the European level. Our legislation is kind of different to implement all these steps on time and right now. We need some changes on the [governmental] level, and we need the changes in European level also" (Alona Korohod).

The managing director of the company "Elementum Energy" in Ukraine, Olga Rybachuk underscores the successful case of becoming the member of the European Transmission System Operators, but adds that it was a unique experience, because such changes were not initially planned to be rapid:

> "Pre-war Ukrainian energy system was united with the Belarusian and Russian energy systems. We were a single, united energy system. So, we operated within the overall balance of these three countries. If we needed their energy help, we would import from them; if they needed energy help, they would import from us. We were completely dependent on each other. And that was quite a challenge because, generally, it was the overall course of Ukraine to join the EU, not only in terms of the economic union, but also in terms of the other cooperations. Ukraine announced in 2020 that they want to integrate with ENTSO-E, it's basically European System of Transmission System operators which combines most of the European TSO's (Transmission System Operators). And, surprisingly, I would say even more mysteriously, the first trial of the integration of the Ukrainian

> system with the ENTSO-E has been planned for the 24th-28th of February 2022. When the full-scale invasion started, at 4 a.m, it was exactly the day when the Ukrainian energy system started a trial integration with the European system of TSO's. After the 28th [of February] the initial plan, Ukraine should have come back to the Russian and Belarusian energy systems and then continue in trial integration and all the technical preparations for the second trial, being the last one at the end of 2022. But because of the full-scale aggression that didn't happen. That is why Ukraine made the trial. The trial was successful. And, of course, it was impossible to rejoin our enemies. So, Ukraine just continued to integrate into the ENTSO-E after the first trial, and on the 16th of March 2022 we became a full-scale member of the European Union Energy Operator Community".

The expert mentioned that there is a positive result of modest cooperation with the European Union in the energy-related questions. It is mostly about the guidelines, timelines, and reforms that should be implemented in Ukraine. But there are exceptional situations, like the fact of beginning of the full-scale war, which is counted as an emergency state. That is why some informal connections between actors in the sector emerge, that helps being more flexible and customize different approaches. This is not a standard approach, but Ukrainian energy capacities are rapidly changing, with redesigned features that help the state economy continue to function (Olga Rybachuk).

5.5. Conclusion

The chapter reveals key topics for research related to the state of the Ukrainian energy sector during the war. The structure of cooperation between state and non-state actors is described, in which there is currently a consensus to achieve a balance in energy. Thanks to the empirical analysis, it was possible to analyze the impact of European practices and standards on the Ukrainian framework: despite the loss of generation capacity and constant damage to infrastructure facilities, Ukraine is moderately moving towards changes in the regulatory sphere, following the main sustainability agenda of the European Union. Interviews with experts became a key source for writing the chapter. The comments of experts are clear and understandable, the information is new and valuable, which cannot be found in academic literature or in Internet resources.

The study emphasizes the importance of the challenges that exist for Ukrainian business in the energy sector due to the fact that there are informal agreements on communication between foreign business actors and private companies of Ukraine, but the interviews reveal that despite the energy sector's high ability to recover and stay stable, the country is not an attractive investment object due to the uncertain war situation

The empirical part presents the importance of renewable energy in the territory of Ukraine, and possible business attractiveness for investors in the future. At the same time, traditional energy, which depends on the state, has low profitability, functions mainly according to outdated methods and requires further implementation of reforms.

6. Conclusions

This MA Thesis addresses the question of what role do business actors play in the Ukrainian energy sector and its EU integration, and whether this role is positive, or not. The method of process tracing was used to analyze the complexity of changes of the energy sector, facilitated by different state and private actors. Expert interviews were conducted to get precise information about the business during wartime, as well as some internal information about the main issues that exist for the new standards to be implemented.

Having tested the causal mechanism, it is possible to conclude that in Ukrainian case the impact of Ukrainian business in adoptation of new European standards in the energy sector is positive. And there is a need for further implementation of new legislation and provision of a favorable business environment, which is claimed by the tested causal mechanism. Therefore, it can be claimed that hypothesis 1 is confirmed. The theories used for the study of policy transfer, policy translation, policy advocacy, and CSR demonstrate the possibility ensuring the successful application of European practices in the Ukrainian energy sector by means of business lobbying. The 3rd part of the tested mechanism demonstrate progress on the way to the integration of Ukrainian and European energy even in the difficult conditions of war. Part 2 of the causal mechanism superimposed on the case of cooperation between public and private business actors explains the importance of contributing to the improvement of the situation in the sector through joint efforts, but also emphasizes the importance of the competitive nature of the market for its further changes. For sure, this part of the mechanism shows that the impact of business actors in the energy sector is significant, especially considering the perspective of post-war rebuilding. Causal mechanism part 1 was tested with average confirmation of the hypothesis, because modern Ukraine's energy sector faces challenges with regulatory gaps and market instabilities. Private actors play a very important role in Ukrainian energy, because they have the factor of

faster adaptability to conditions, the desire to modernize capacities and active informal communication with external partners.

There are certain limitations and conditions in the chosen case. This mainly concerns the implementation of the European framework in the Ukrainian energy system. European legislation is different not only because of a totally different agenda, but also because of absence of factor about the ongoing war. The main con of the energy sector in Ukraine are damages of infrastructure. This issue is unpredictable and makes plans for businesses unrealistic.

Therefore, questions remain open regarding problems in the regulatory framework of the energy sector, the lack of stable regulations for all the investors to come to Ukraine during the war, means there should be some guarantees from the country, also in terms of the green tariffs; other weaknesses are related to the understanding of gaps in the legislation and adopting transparent rules for the energy business actors (Valentyna Belyakova)[5].

[5] Valentyna Belyakova (interviewee), in the interview with Onysiia Novykova (interviewer), 01.06.2024.

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