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Public Financial and Non-Financial Policies on renewable energy in Ukraine:

What is the role of the government?

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PREFACE

This Master thesis is an obligatory final assignment for the two-year double degree master in Business programme at Business School, Nord University, and Economic Faculty, Department of Finance, Taras Shevchenko national University of Kyiv. The thesis constitutes 30 credits and is written within Public Sector Finance specialization.

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Bodo, May, 2019

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ABSTRACT

The research was based on the case study of policy changes in supportive schemes and reforming the Ukrainian renewable energy sector. The key ideas and the purpose of the study were formulated in the main problem of the study about the role of the government in development of renewable energy (RE) and three interrelated research questions, concerning the overview of the changes in the current RE government policies, the gaps over policy options and development of RE sector, main actors, their interests in shaping and influence on the RE area of development in Ukraine, the main driving forces of the reforming process and factors/actors that shape national renewable energy policies.

The findings of my master thesis position the role of the Ukrainian government in RE developing in the new light. The study proves that the development of RE is policy driven one. The main role of the Ukrainian government is changing in relation to those goals, the country pursues to achieve on different stages of RE development. Now the government sees the shift from FIT to auction system, as the most appropriate way of new policy schemes, giving an ability not to lose the temp of RE development, the country has already reached.

Different logics, views, motives of the stakeholders'– to move towards the new RE mechanisms and policies were also analyzed, allowing to highlight barriers and obstacles on the path of RE development. The problem of energy companies' involvement in the process of RE supportive policies choice and interaction between the investors and the government helps understanding the way the state deals with the companies interests on day to day basis, whether the government's priorities coincide with the aims of investors and how can they better understand each other.

It was also found, that the government plays the role of rule maker, when setting legislative framework and auction guidelines, aimed at providing stability for investors and protecting their financial interests. However, the Ukrainian government also plays a dual part, promoting and hindering RE initiatives at the same time, when, from one side claiming to initiate the dialogue between the stakeholders, and from another side being under the strong political lobby, capable of identifying the path for the future RE development.

Key words: RE policy instruments, policy change, RE development, feed-in-tariff, renewable auctions, government, investors, international organizations, central logics, dialogue, challenges.

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EBRD – European Bank of Reconstruction and Development

EU – European Union

FIT – Feed-in-tariff

IEA - International Energy Agency

IFC – International Financial Corporation

IRENA – International Renewable Energy Agency

MPs – Members of Parliament

NEURC – National Energy and Utilities Regulatory Commission

NGO – Non Government Organization

NREAP - National Renewable Energy Action Plan

PPA – Power Purchase Agreement

RE – Renewable energy

RES – Renewable energy sources

SAEE – State Agency on Energy Efficiency and Energy Savings

SE – State Enterprise

SPP – Solar Power Plant

UWEA – Ukrainian Wind Energy Association

WPP – Wind Power Plant

I. INTRODUCTION

Government has always been on the edge of importance when changing policies to reform public sector. The global trend of the last several decades shows that developed and developing countries are in a rush towards an upgrade of public administration (Eakin et al., 2011). Eakin et al., (2011) has also stated that there are direct and indirect effect of reforms on public administration by using examples of such sectors of economy as construction sector in Norway, water and flood risk management in central Mexico. However, some sectors of economy are especially sensitive and dependent on an excess to technologies, natural resources, that puts the state to be responsible for the sector's effective management. Energy sector is a vivid example of this phenomenon.

The world has shown a global trend in movement towards changes in approaches to formation of energy policy of the states: many advanced industrialized countries have experienced the transition to renewable energy technologies (see e.g. Rodrigues, 2009; Gan et al., 2007; Johnstone et al., 2010; Wang, 2006; Van Rooijen and van Wees, 2006; Wustenhagen and Bilharz, 2006). The priority now goes to the increase of energy efficiency and use of energy from renewable and alternative sources. The impact of international organizations and EU with their 2001 EU Directive on renewables and 2009 EU Directive on promotion of the use of energy from renewable sources, together with European Commission Guidelines on state aid for environmental protection and energy 2014-2020, influence governments in policy choices and trigger adoption of supportive policies and participation in supporting renewables in electricity production (Schaffer and Bernauer, 2014).

Most studies have also focused on drivers that push the government in guided direction externally (Schaffer and Bernauer, 2014), direct and indirect effect of reforms on public administration (Eakin et al., 2011), public policies as the main drivers for RE development (see e.g. Gan et al., 2007; Johnstone et al., 2010; Wang, 2006; Van Rooijen and van Wees, 2006; Wustenhagen and Bilharz, 2006; Jaffe et al., 2005; Nemet, 2006, 2009), relations of the government with the main stakeholders, such as industry, consumers, NGOs, experts, professional associations (Ruggiero, Onkila, and Kuittinen, 2014; Rinaldi, Unerman, and Tilt, 2014). Speaking about the renewables, most of the studies (see e.g. Elizondo and Barroso, 2012; Butler and Neuhoff, 2008; Stokes, 2013; Lipp, 2007; Mitchell et al., 2006; Mendonca, 2007; Mendonca et al., 2009; Fouquet and Johansson, 2008; Schaffer and Bernauer, 2014; Owen 2006; Auer et al., 2009; Couture and Gagnon, 2010; Jacobsson and

Lauber, 2006; Frondel et al., 2008) assess the performance of particular energy policy instruments in developed countries, mainly European and USA's models.

Earlier studies that examine renewables policy adoption either concentrate on general characteristics of policy instruments used, or advantages and disadvantages of each instrument (see e.g. Marques, Fuinhas, and Manso, 2010; Mitchell, 2008; Jaffe et al., 2005; Nemet, 2006, 2009; Elizondo and Barroso 2012; Lipp, 2007; Mitchell et al., 2006; Mendonca, 2007; Mendonca et al., 2009; Butler and Neuhoff, 2008; Fouquet and Johansson, 2008). These studies provide important insights into the efficiency and effectiveness of policy instruments for promoting renewables. From one point of view, it gives extremely valuable information to understand what schemes and policies are used worldwide, what are the successful experiences, what is better to avoid in order not to harm the system of energy supply in general. However, the data covers only the experience of developed and developing countries, that have already stabilized their RE systems and overcame transition from beginner stage, when technology is born to advanced level, when proper management regulation and supervision is needed. So, the effective policies and policy changes in governmental support for RE are not highlighted for such developing countries, as Ukraine, that are currently on the stage of drastic transformations and reformations of the sector.

In order to get more understanding about how RE policies are regulated and controlled, I am going to study transition in RE sector in the context of Ukraine, where the adoption of the new approaches to government policies and supportive schemes, as well as policy changes bring new understanding of how the policy reforms in renewable energy sector function. Ukraine represents an interesting research context, as the country is in the process of internal reformation of all main sectors of economy. Energy has always been controversial topic for Ukraine, as it is among those countries whose main target is energy independence, especially when the country started transition to the European standards and focused on intensifying the area of renewable energy.

1.1. Problem statement and research questions

The aim of this study is to describe and analyze the process of transition towards new RE government policies and who are the main actors of this process. This study also aims at identifying the gaps over policy options and development of RE sector in Ukraine and main actors, their interests in shaping and influence on the RE sphere development in Ukraine.

There is also an ongoing policy reforming of Ukrainian RE policy from feed-in-tariff mechanism to auction system starting from 2020, that has led to recent discussions between state officials, members of Parliament, representatives of international financial institutions, and market players on how to achieve better market integration for RE during the transformation period. So, I am interested in to investigating the main driving forces of the reforming process and factors/actors that shape national renewable energy policies. How does the Ukrainian government position itself in the policy change implementation? That is why my master thesis will be directed on the role of the government in policy-making process of RE development in Ukraine.

Problem statement:

What is the role of the government in the process of RE development in Ukraine?

RQs:

1) What is the current policy of the Ukrainian government in RE sector?
2) Who are the other actors and their role in shaping the development of RE?
3) What are the gaps in the government's actions to develop RE?

1.2. Structure of the thesis

Master thesis consists of 6 chapters. Introduction describes the research gap of the study, formulates the aim of the study, research problem and research questions. The next chapter "Overview of the energy structure in Ukraine" gives a general review about energy sector of Ukraine and the place of RE in it. Theoretical chapter discusses theoretical framework of my study, including the combination of stakeholder and institutional logics theories. In Methodological chapter I will show my actions on each stage of the research: which case study I have used; how I have collected data; the sources of data I have used. Empirical chapter provides empirical findings about RE policy instruments used in Ukraine.

Analytical chapter provides an analysis of the empirical data through the stakeholders and institutional logics theories, focusing on different logics, views and motives of the stakeholders' to move towards new RE mechanisms and policies and highlighting barriers and obstacles on the path of RE development. Chapter 7 presents the main conclusions and discusses implications of the RE policies development in Ukraine.

II. OVERVIEW OF THE ENERGY STRUCTURE IN UKRAINE

Ukraine uses various sources of energy for its own needs (see figure 2.1), such as oil, natural gas, coal, atomic and hydro energy, wind and sun energy. Ukrainian energy balance includes such primary energy resources as crude oil, natural gas, coal, but their production provides only 47–50% of necessary hydrocarbons (Ministry of Energy and Coal Industry of Ukraine, 2017). According to Energy Strategy of Ukraine (2017) it is planned to use nuclear energy generation in the amount of a half of total annual electricity generation up to 2030 as a key component of energy supplying system of the country.

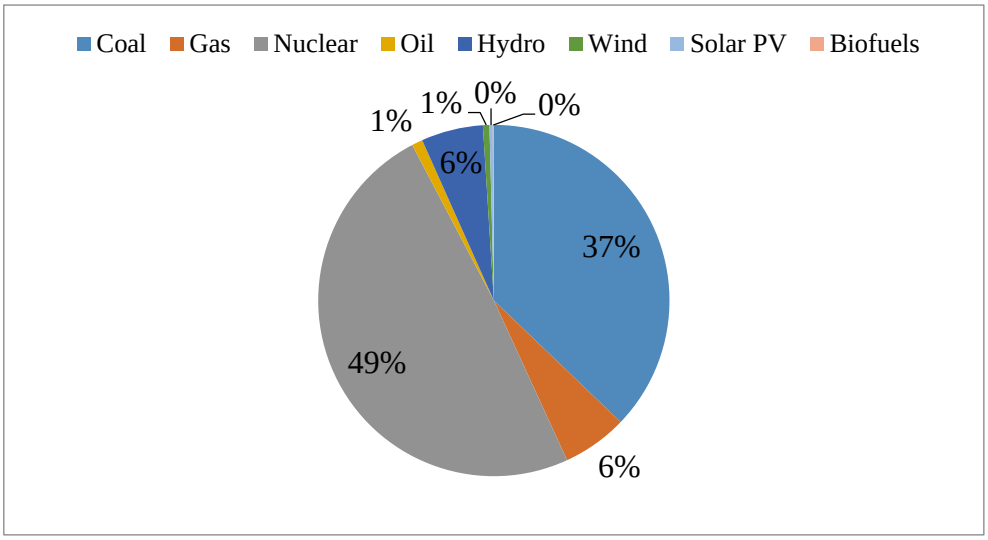

Figure 2.1.Share of energy sources in the total amount of energy used in Ukraine in 2017
Source: International Energy Agency (2019b)

Traditionally, the following fossil fuels currently are the most demanded ones in Ukraine: natural gas and coal, which in total make up more than 60% of the domestic energy balance (see the table 2.1). Ukraine is the world 12th largest producer of coal and 10th in largest reserves, however, still being among those countries, which are only partly resourced with its own traditional fuel and energy. So, the country is in permanent need for significant volumes of imported fuel and energy. Ukraine is a huge energy consumer, though being unable to generate sufficient amounts of own power. Most of energy resources are still situated on the occupied territories in the East, which are not currently under control of Ukraine. The electric stations have problems from coal deficit, as it was previously supplied from Donetsk and Luhansk regions. The country continues to deliver coal from the occupied territories, but in smaller amounts with unstable delivery process. The coal deficit led to power cut-offs all over Ukraine.

The abovementioned provokes the country to import energy resources from abroad. Until 2014 the main importer for Ukraine was Russia, then - European countries. The share of imports in the total supply of primary energy in Ukraine has been about 38% over the past few years (PricewaterhouseCoopers, 2018). As Verrastro et al. (2010) and Johansson (2013) stated, intermittency in energy supply can result in the emergence of new interdependencies between the countries.

Table 2.1.Main energy balance indicators of the world, OECD, EU and Ukraine in 2017

Total primary energy supply	**World**	**OECD**	**EU**	**Ukraine**
	%	%	%	%
Coal	28.6%	19.2%	17.2%	33.7%
Crude oil	31.8%	39.1%	37.8%	2.9%
Oil products	-0.5%	-3.4%	-5.3%	7.2%
Gas	21.2%	25.5%	21.9%	31.6%
Nuclear energy	4.8%	9.8%	14.6%	21.9%
Hydroenergy	2.4%	2.3%	2.1%	0.7%
Geothermal, solar, etc.	1.3%	1.9%	2.6%	0.1%
Biofuel and waste	10.3%	5.7%	9.1%	1.8%
Electricity	0.0%	0.0%	0.1%	-0.7%
Heat energy	0.0%	0.0%	0.1%	0.7%
TOTAL	100.0%	100.0%	100.0%	100.0%

Source: International Energy Agency (2019b)

Natural gas is also a leader in supplying primary energy (31.6% in 2017). However, domestic production level provides one third of the total needs. Ukraine aims to increase domestic production of gas by 2020, as the country is the third in Europe in the amounts of natural gas reserves. Domestic production was replenished by import from Russian Federation. The figure 2.2 shows that during 2013-2017 Ukraine has completely switched to European natural gas suppliers, which, in turn, still use Russian sources (PricewaterhouseCoopers, 2018).

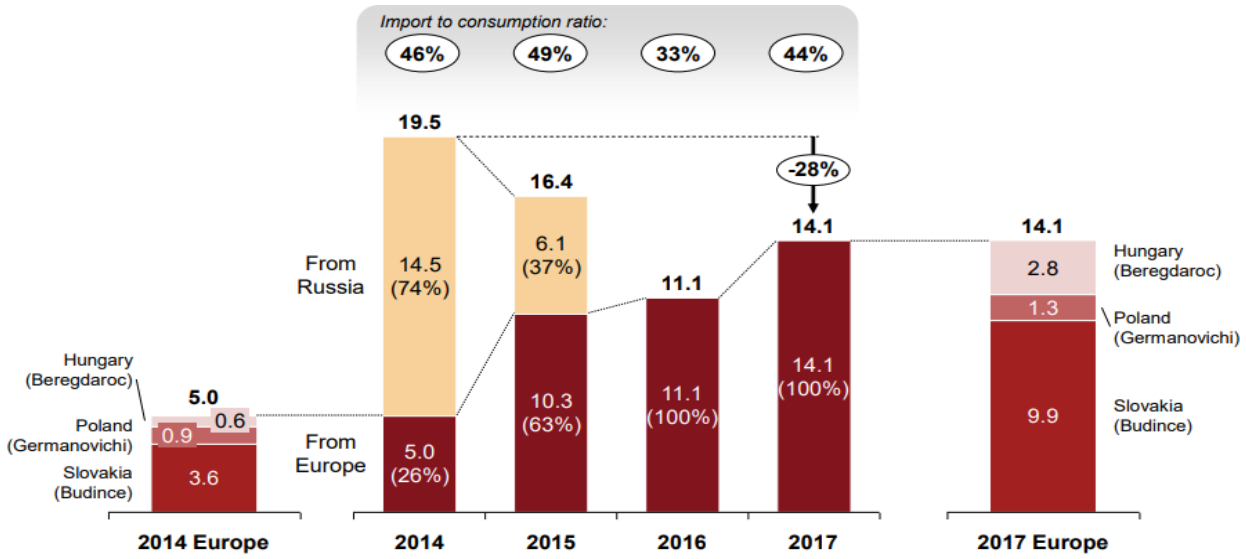

Figure 2.2. Import of natural gas to Ukraine 2014-2017 (billion cubic meters)

Source: PricewaterhouseCoopers (2018)

The table 2.2 below shows Ukraine's strategic priorities in energy sector according to the Energy Strategy – 2035 (2017). As we may see, Ukrainian government aims to ensure the country's energy security and efficiency by not only intensifying the production of traditional sources of energy, but also through renewable energy development. The country decided to change its strategy in energy sector as energy independence became a vital target for Ukraine.

Table 2.2. The main phases of Ukrainian New Energy Strategy

Phase	Phase 1: Energy sector reforming	Phase 2: Optimization and innovation development	Phase 3: Ensuring sustainable development of the energy sector
Time period	Until 2020	2021-2025	2026-2035
Main priorities in a phase	•Reforming of the energy companies • Increase in natural gas production •Formation of the coal products market •Gradual reduction of GDP energy intensity •Alternative energy usage increase to 8% •Observance of high ecological standards •National emission reduction plan with the target amounting to more than 5%	•The formation of local heat supply systems •Development of distributed generation of smart grids •Investments attraction to the alternative energy sector •Modernization and improvement of accounting systems collecting own energy consumption data •Implementation of the infrastructure for electric transport improvement	•Innovative development of energy sector •Increase in unconventional gas production as well as production of the gas extracted on the shelf •Establishment of specific and transparent conditions for the coal sector •Increase of RES share in PES (primary energy supply) to 25%

Source: Ministry of Energy and Coal Industry of Ukraine (2017)

The renewable energy sector of Ukraine in 2018 showed record-breaking performance for Ukraine. As the figure 2.3 shows, during 2018, 742 MW of new capacity was installed. Wind and solar power plants amount up to 96% of the installed capacity (Ukrainian Wind Energy Association, 2018). More than 730 million euros were invested in the renewable energy sector during the year (Ukrainian Wind Energy Association, 2018).

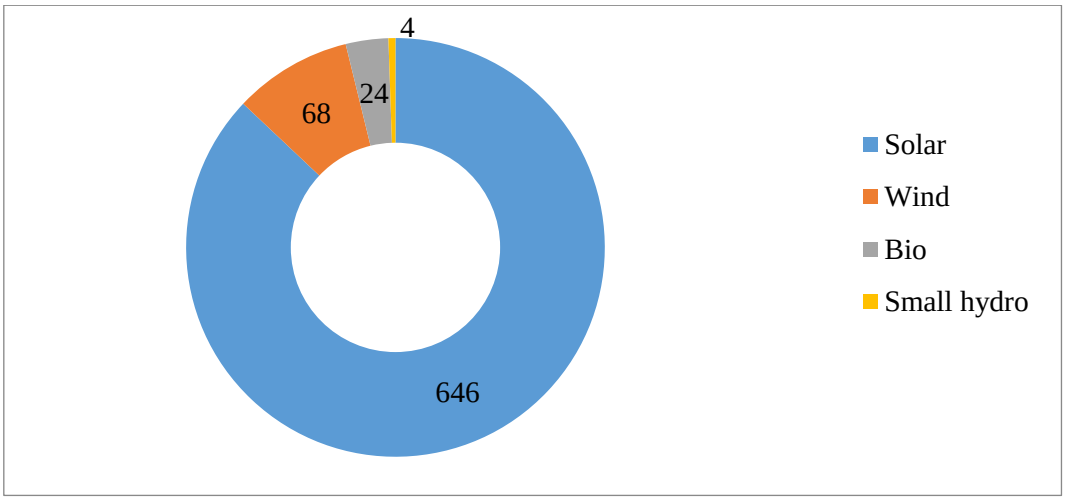

Figure 2.3. New RES capacities introduced in 2018, MW

Source: Ukrainian Wind Energy Association (2018)

According to the Ukrainian Wind Energy Association (2018), the total installed capacity of the renewable energy sector in Ukraine since the beginning of 2018 has increased by 51% and accounts for 2 117.4 MW, which is 1.5 times more than by the end of 2017 - about 1 400 MW. At the same time, the share of renewable energy (excluding hydro power plants) in the country's overall energy balance is still very low, 1.9%.

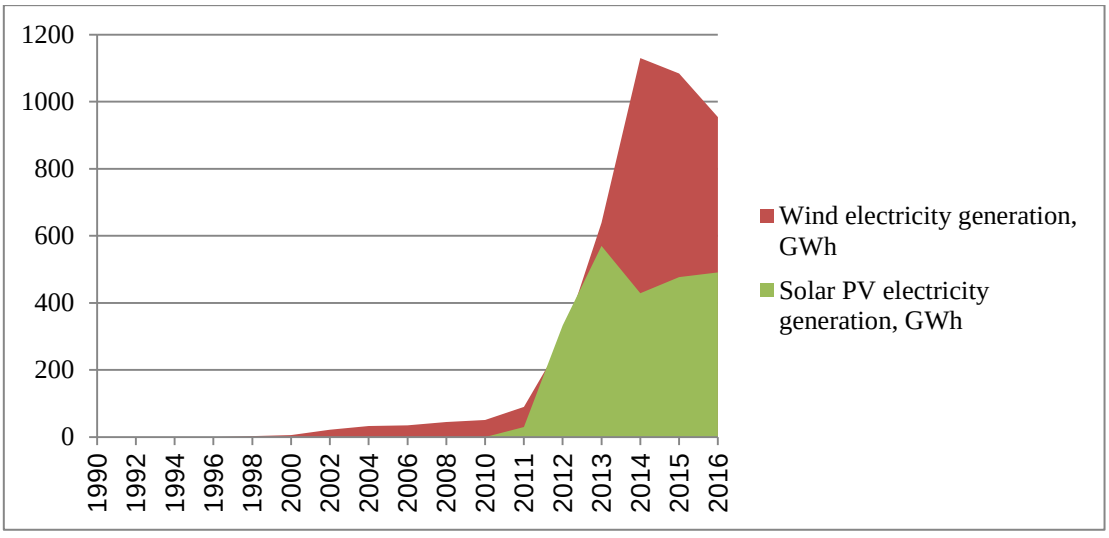

Figure 2.4. Generation of wind and solar power in Ukraine

Source: International Energy Agency (2019b)

The figure 2.4 illustrates that in recent years, starting from 2011 (the year of launching the country's first industrial-commercial wind farm), the wind and solar power generation were the most actively developed sectors of RE. Negative increase in generation capacity of RE in 2014-2016, especially wind power is explained by the loss of renewable energy facilities located on the present territory of Russian Federation, Crimea and regions of military conflicts – Lugansk and Donetsk.

III. THEORETICAL CHAPTER

3.1. Government and policy changes

RE is not only associated with an attemp to be climate conscious, but also with energy security and reduction of energy dependence between the countries. Kitzing, Mitchell, Morthorst (2012) see a significant increase in the production of energy from renewable energy sources (RES) in Europe as an obligatory requirement aimed at reaching not only the reduction of harmful emissions, but the higher level of security of energy supplies as well.

Geels (2004) explains policy change as well as changes in new technologies, markets, user practices, cultural meanings as a normal processes of socio-technical transitions (Geels, 2004). As transitions are complex and long-term processes, all the changes are initiated and managed by different actors such as firms and industries, policy makers and politicians, consumers, civil society, engineers and researchers (Geels, 2011). Geels (2011) also mentions that transitions do not come about easily: changes in policies always provoke power struggles, as a result of different interests trying to resist such changes. Consequently, different actors have clashing opinions and start a so-called fight, negotiation towards the conditions of future transition changes. Taking into consideration this fact, Geels (2010) defines the importance of interactions between technology, policy/power/politics, economics/business/markets, and culture/discourse/public opinion.

Dimitrova et al. (2013) cited Elzen et al., who thought, that public authorities and civil society are becoming crucial to support "green" niches and changes necessary for new economic frame conditions. New rules give stability to the new regime to coordinate and manage targeted activities (Geels, 2004). Institutions are seen as "rules and regulations which have achieved a degree of social permanency" (Zucker, 1987) in a particular context. In the context of RE sector, regulatory institutions create the rules of the game, constructing the norm system for the support of RE, while organizations are the players.

The majority of literature (see e.g. Gan et al., 2007; Johnstone et al., 2010; Wang, 2006; Van Rooijen and van Wees, 2006; Wustenhagen and Bilharz, 2006) puts emphasis on public policies as the main drivers for RE development. Marques, Fuinhas, and Manso (2010) determine government support policy in RE as a combination of various schemes and strategies, such as research and development (R&D) incentive programs, investment incentives (grants or low-interest loans), incentive taxes, incentive tariffs, mainly feed-in-

tariffs (FITs), voluntary programs and compulsory renewable targets (production quotas and tradable certificates).

The state should support RE by adopting policies to increase investments in renewable energy. In addition, White et al. (2013) in his study stressed on the importance of long-term continuity of policy support in achieving policy goals on renewable energy. Implementation of long-term stable policies helps to minimize uncertainty, that becomes vital for those, who want to invest in RESs or support such development for social or environmental reasons.

Mitchell (2008) states that there is considerable debate on the role of governments in supporting renewable energy technologies as well as on the choice of policy instruments aimed at promotion renewables' share in the electricity supply. Debates occurred from different views on innovation perspectives (Grubler et al., 1999). Jaffe et al. (2005) and Nemet (2006, 2009) see two ways the government can influence RE deployment: by funding allocation for energy innovation to technology-push mechanisms, through knowledge creation, research and development (R&D), or by demand-pull mechanisms, through market creation via subsidies or guaranteed markets. Frondel et al. (2008) explains the priority of technology-push in R&D, particularly technologies with high cost, such as solar photovoltaics. Others see demand-pull mechanisms (FITs) as a key to deployment of barriers removal, focusing on market creation and production increases (Loiter and Norberg-Bohm, 1999; Menanteau et al., 2003).

In this sub-section, I have focused on policy changes as the main instrument for state's involvement in the governance of transition process and showed the literature overview of government's policies in RE.

3.2. Stakeholder framework

In this study I am adopting stakeholder framework to understand who are the main stakeholders of the Ukrainian transition to more sustainable policies in RE sphere, and what are the forces that influence the government to move towards policy changes and the state's response to this influence.

The main gap, within stakeholder theory, actually is that researchers (see e.g. Ruggiero, Onkila, and Kuittinen, 2014; Rinaldi, Unerman, and Tilt, 2014; Schaffer and Bernauer, 2014; Walker and Devine-Wright, 2008) reveal the relations of all project-affected stakeholders, paying too little attention to the problem of government and investor's interrelations, as the main stakeholders of RE development process. As

Fligstein and McAdam (2011) have stated, actors, who have different field backgrounds tend to have competing ideas on the future development of the field, how it should be (re)structured or (re-)shaped.

3.2.1. Understanding the concept of stakeholder influence on policy changes in RE

The government's involvement in the process of conducting an optimal way of policymaking during the period of changes is held through participation in the multi-stakeholder learning processes and debates (Rotmans et al., 2001). Stakeholder theory focuses on the interaction and interdependence between a company and its stakeholders (Donaldson and Preston, 1995; Näsi, 1995). According to this theory a firm exists through the interaction, transactions and exchanges between its stakeholders (Näsi, 1995). Actually, stakeholders can be defined as "any group or individual who can affect or is affected by the achievement of the organization's objectives" (Freeman, 1984, p. 46).

Another classification of stakeholders was elaborated by Rinaldi, Unerman, and Tilt (2014), who have defined two main categories of stakeholders: external and internal. The first one comprise a broader definition of stakeholders, including:

> Individuals or groups within society that are very close to the organization along with others that are very remote from the organization (and could even include future generations and nature) all of whose life experiences and interests are impacted in some way by the organization's operations, policies and/or practices (Rinaldi, Unerman, and Tilt, 2014).

The latest group is represented by narrower explanation, including "individuals or groups that are close to the organization in terms of having the strongest ability to affect the success of its operations through the decisions they make" (Rinaldi, Unerman, and Tilt, 2014).

Ruggiero, Onkila, and Kuittinen (2014) studied Community renewable energy (CRE) projects. They used stakeholder theory to analyze public involvement in the decision-making process (people, groups, organizations that may influence, or be influenced by these projects). According to Walker and Devine-Wright (2008), CRE projects were characterized by the process dimension, defining the actors that are involved during the implementation of the project, and the outcome dimension showing the actors that are influenced by the results of the project. These two dimensions are transformed into the questions "who is involved and

has influence" in the development of a project and "who it is that benefits in economic and social terms" (Walker and Devine-Wright, 2008, p. 488).

Ruggiero, Onkila, and Kuittinen (2014) have described three types of stakeholder influence on the project: government policies, energy-market factors and local community cultures. Concerning the benefits for local communities, Ruggiero, Onkila, and Kuittinen (2014) concluded that community renewable energy schemes bring economic benefits by increasing rural household incomes and welfare and create economic development. From this point of view, CRE projects significantly increase general RE capacity and contribute to the expansion of the RE technology market. The results of the study conducted by Ruggiero, Onkila, and Kuittinen (2014) also showed that RE technology industry, consumers, NGOs, experts, policymakers and professional associations can become influential stakeholders. In order to overcome the barriers in RE deployment the state needs to initiate the interaction with them.

Spitzeck and Hansen (2010) have concluded that decision making can be influenced by stakeholders. Other studies have shown how stakeholder power and influence may affect a project's success or failure (Berardi, 2013; Bourne and Walker, 2005). Berardi (2013), while describing barriers in implementation of the new energy-saving technologies, stated that the main one lies in low influence-capacity of highly motivated stakeholders on the decision making.

Rinaldi, Unerman, and Tilt (2014), when researching sustainability accounting and accountability, pointed on the importance of the dialogue with stakeholders, as a form of prioritization of different stakeholders' needs and expectations. Stakeholder engagement, from this point of view, is seen as an attempt of actors to participate in the process of consulting with potential stakeholders, who are affected by or can affect an organization's or institution's activities (Rinaldi, Unerman, and Tilt, 2014). According to Rinaldi, Unerman, and Tilt, (2014) the organization or institution makes its performance better through sustainable social development strategy when responding to stakeholder's concerns, when giving a right to be heard and to participate in decision-making processes.

3.3. Institutional logics framework

3.3.1. What is institutional logic?

Thornton and Ocasio (2008) described institutional logics as a new approach to institutional analysis, focused on individual and organizational behavior. Thornton, Ocasio, and Lounsbury (2012) explained the usefulness of institutional logics in ability to analyze interrelationships between institutions, individuals, and organizations in social systems. Svenningsen (2018) has used the case of hybrid organization to show different institutional logics in collaboration process of the parties from different organizational fields (Svenningsen, 2018).

Each actor has its own organizing principles, practices, which define actors' individual and organizational behavior towards choices and motivates in a particular situation (Thornton, Ocasio, and Lounsbury, 2012). Such principles and practices of each institutional order define the different ways rationality is perceived by each actor (Thornton, Ocasio, and Lounsbury, 2012). Institutional logics explains shaping of actor's rational behavior, logics of action, when the interplay between institutional sectors – professionals, the corporation, and the state takes place (Thornton, Ocasio, and Lounsbury, 2012). Society is seen as an inter-institutional system and existence of contradictions in logics between different institutional orders becomes inevitable. Institutional orders are shaped as a result of the interplay between material and cultural forces: culture and social structure, networks of social relationships, structures of power and status (Thornton, Ocasio, and Lounsbury, 2012).

The culture aspect is observed in the process of how people understand each other, disagree, compromise, and come up to certain agreements. Culture is a kind of social resource that individuals use strategically, culture justifies motivation for action (Thornton, Ocasio, and Lounsbury, 2012). Thornton, Ocasio, and Lounsbury, (2012) have also cited Swidler, who thinks that despite staying completely different in the way cultures organize an overall pattern of people's behavior, they may still share common aspirations. Every actor has its own central logic that guides its organizing principles, motives used to their own advantage in the future (Thornton, Ocasio, and Lounsbury, 2012). So that institutional logics is seen as a result of cultural assumptions embodied in practice. The emphasis is mostly put on the normative dimensions of inter-institutional contradictions between the actors (Thornton, Ocasio, and Lounsbury, 2012).

Consequently, institutional logics are seen by Thornton and Ocasio (1999, p. 804) as:

> The socially constructed, historical patterns of material practices, assumptions, values, beliefs, and rules by which individuals produce and reproduce their material subsistence, organize time and space, and provide meaning to their social reality.

Institutional logics explain the actor's interests in the form of power, status, and economic advantage (Thornton, Ocasio, and Lounsbury, 2012). The existence of individualistic interests is also known as embedded agency and focuses on rational choice of institutions (Thornton, Ocasio, and Lounsbury, 2012). Actor's rational choice is defined by self-interest of fixed and maximized material well-being, and is seen as a main mechanism that leads an actor towards the direction of action (Geels, 2010). Actors tend to choose between alternatives that can exist in parallel depending on the consequent result of their choices (Geels, 2010).

In this project I am studying the point of view of Ukrainian and international investors towards the current state's policy of economic development and stimulation of RE; how the state deals with the companies interests on day to day basis; do they look in the same way and where they overlap or differ in their approaches towards RE development; how do they better understand each other in case of the existence of barriers and obstacles on the path of RE development. Institutional logics framework, in this case, will help me to figure out different logics, views, motives for government and RE companies to move towards the new RE mechanisms and policies.

3.3.2. The concept of competing logics

The assumption of the best alternative for each individual gives a start to competing logics between the actors. Wassermann, Reeg, and Nienhaus (2015) used the case of transition to RE in Germany to examine competing logics between big conventional energy companies and small ones and their points of view on searching for the best strategies aimed at successful energy transition.

Thornton and Ocasio (2008) see competing institutional logics and power struggles as a consequence of changes. Different interests resulted into competing institutional logics lead to battles and struggles between the two sides (Thornton and Ocasio, 2008). Geels (2011) explains competing logics of institutions referring to the concept of sustainability and debates towards the ways of sustainability transitions (Stirling, 2009) and choosing the most appropriate policy instruments during the policy change process. An absence of common

visions between the actors during sustainability transitions is explained by different interpretations of the optimal balance of social, economic and environmental conditions (Geels, 2010).

One more point that encourages struggles and conflicts between the actors is policy framework changes in the form of regulations, taxes, policy programmes and instruments, that influence economic frame conditions (Geels, 2010). This becomes a starting point for mutual dependencies between industry and policy maker, aimed at stabilization of new regimes (Meadowcroft, 2005). Geels (2010, p. 502) has cited Levy and Newell, who researched European oil, coal and automobile industries and came up with the following idea "business interests have significant scope to define the policy agenda".

Changes during sustainability transition rise a set of strategic dilemmas for companies, who have to find the most optimal way to balance the risks and opportunities, connected to multi-million dollar investments (Geels, 2010) into the projects of the country, that is currently in the phase of transition changes. Companies can find it rational to postpone "green" investments because of existing uncertainties in government regulations, price fluctuations, the level of willingness of the state to pay more for green products, and the emergence of "green" markets (Rugman and Verbeke, 1998). These factors cast a shadow on a satisfactory return on green-investments. Another side of the coin is also that being pioneers in the field of emerging "green" markets can bring such benefits as favorable positions in brand recognition, creation of market positions, technology lead (Geels, 2010).

The institutional logics is helpful to me to identify different logics, views, motives for government and RE companies to move towards the new RE mechanisms and policies. Competing logics concept will help me to study closer, where do the government and investors differ in their approaches towards RE development of Ukraine during the policy changes; what barriers and difficulties the investors are facing now; in which ways can the state and investors understand each other?

3.4. Analytical model

The central role in supporting changes necessary for new economic frame conditions goes to the state (Dimitrova et al., 2013). Regulatory institutions create rules of the game, constructing the norm system for RE support, while organizations are the players. The majority of literature (see e.g. Gan et al., 2007; Johnstone et al., 2010; Wang, 2006; Van

Rooijen and van Wees, 2006; Wustenhagen and Bilharz, 2006) put emphasis on public policies as the main drivers for RE development.

White et al. (2013) stressed on the importance of long-term continuity of policy support in achieving goals on renewable energy. Implementation of long-term stable policies helps to minimise uncertainty, which becomes vital for those who want to invest in RESs. Government support policy in RE combines various schemes and strategies, such as R&D incentive programs, investment incentives (grants or low-interest loans), incentive taxes, feed-in-tariffs, voluntary programs and compulsory renewable targets (production quotas and tradable certificates) (Marques, Fuinhas, and Manso, 2010). FITs are known as demand-pull mechanism, as a key to deployment of barriers removal, focusing on market creation, increases in production (Loiter and Norberg-Bohm, 1999; Menanteau et al., 2003).

In my master thesis I will use the combination of stakeholder theory and institutional logics theory. The figure 3.1 illustrates how these theories fit together and how they will help me to solve my research problem about the role of the government in development of RE. Stakeholder framework will highlight, who are the main stakeholders of the Ukrainian transition in RE sphere and, what are the forces, which influence the government to move towards policy changes and the state's response to this influence.

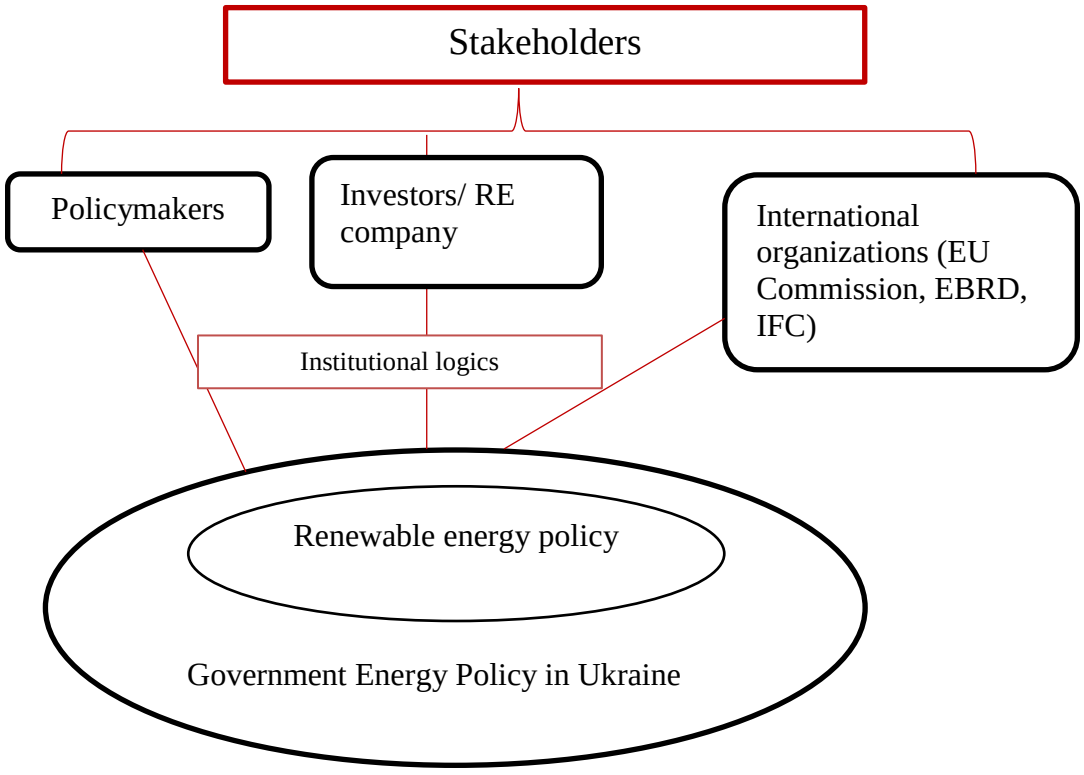

Figure 3.1. Illustration of how the theoretical frameworks are working in complex

Source: constructed by the author

Thornton, Ocasio, and Lounsbury (2012) explained the usefulness of institutional logics in ability to analyze interrelationships between institutions, individuals and organizations in social systems. In my study I will try to explain the way of policymaking through relations and interplay between the key actors. A central prerequisite for the government to successfully run new policies - is to establish a common understanding of the core questions of changes necessity of and to create awareness for the policy's systemic and interdisciplinary approach (Dimitrova et al., 2013). Each actor has its own organizing principles, practices, which define actors' individual and organizational behavior towards choices and motivates in a particular situation (Thornton, Ocasio, and Lounsbury , 2012).

Actors, who have different field backgrounds tend to have competing ideas on the future development of the field, how it should be (re-)structured or (re-)shaped (Fligstein and McAdam, 2011, p. 2). Changes in policies always provoke power struggles, as a result of different interests trying to resist such changes (Geels, 2011). Consequently, different actors have clashing opinions and start a so-called fight, negotiation, that defines an importance of interactions and dialogue between the key stakeholders, between public authorities, business, and public and international expert's opinion (Geels, 2010; Rinaldi, Unerman, and Tilt, 2014).

The concept of competing logics will help me to study closer where do the government and investors differ in their approaches towards RE development of Ukraine during the policy changes; what barriers and difficulties the investors are facing now; in which ways can the state and investors understand each other.

IV. METHODOLOGICAL CHAPTER

In this chapter I will show my actions on each stage of the research: how I have chosen the research problem and formulated research questions; which case study I have used; how I have collected data; the sources of data I have used; detailed information about the respondents and objects of the research. So that, methodology will provide information about the process of information gathering, analysis and interpretation of the data.

4.1. Philosophical position

Ontological and epistemological peculiarities define the methods and methodology used. The ontology of my research was assessed based on the assumptions about the nature of reality, the nature of policy strategy and policy mechanisms of the governmental support for RE in Ukraine.

As Yin (2003) claims, relativism positions scientific laws (the involvement of government in policymaking) to be not only simply discovered, but being created by people (policymakers, state officials, authorities, enterprises, international organizations). There is no single reality, as the concept of the state supportive policies is experienced differently in different contexts (different countries), or the concept of Ukrainian policy changes in RE is explained differently by different origin of respondents. So that, everyone has its own truth, depending on the point of view of each individual observer (Easterby-Smith, 2008).

The epistemology of my research was defined based on the assumptions about the ways of getting knowledge about RE, RE policies and reforming of energy in Ukraine. Concerning Easterby-Smith (2008) assumptions about social constructionism, I see it as the most appropriate epistemology approach for my research, because:

- I have chosen myself as a part of what is being observed (the process of policy changes in Ukrainian RE);
- human interests, as well as different institutions' interests, are the main driver of what is being observed;
- the explanative nature of social constructionism that tends to give the general understanding of the situation;
- the research progress is made through gathering lots of different data from which the main ideas and contributions are made.

However, according to Easterby-Smith (2008), the main task for me, as for social constructionism researcher, was not only to gather as much facts and information as possible about a certain event or process, but to compare, analyze different attitudes of people towards the same issue, how people understand what goes on around them, based on their own experience. At the same time, social constructionism approach can sometimes cause difficulties for the researcher: access to the data, time consuming process of conducting the interviews, complicated process of analysis and results interpretations, bipolar data and information received from different respondents, making it hard to come up to one single idea.

4.2. Research design

The research design is about understanding the ways of planning the activities necessary for the research being conducted properly. The research design consists of: the choice of methods of data collection, that help the researcher to reach the targeted aims in the best way possible; identify the peculiarities of data that will be collected; how, from where and by whom this data will be provided and collected; methods of data analysis necessary for solving the research problem and answering the research questions.

My research is based on qualitative case study method. The case study approach is an empirical investigation of a contemporary phenomenon throughout its real-life context and multiple sources of evidence (Yin, 2002). A case study design is better suited to the research if a researcher can't influence the behavior of those, who participate in the study, the researcher wants to discover the contextual conditions, as he or she believes in their relevance to the phenomenon, being studied (Yin, 2003).

According to Baxter and Jack (2008) before defining the case, that would be appropriate for the researcher and suit to his or her particular study, he or she needs to ask him- or herself the following questions: "do I want to analyze the individual?, do I want to analyze a program?, do I want to analyze the process?, do I want to analyze the difference between organizations?" (Baxter and Jack, 2008, p.546). After answering these questions, I came up with a case study of reforming of the Ukrainian renewable energy sector, when the country is in the phase of adoption of policy changes in supportive schemes. Yin (2003) classifies case studies as exploratory or descriptive, as well as multiple or single. Descriptive case study is used to show the phenomenon in real existing situation, live example of context in which it occurred (Yin, 2003).

The case of Ukrainian transition to new policy mechanisms in governmental support for RE, is studied from different respondents' point of view, different thoughts of state officials, policymakers, business, international RE and financial organizations. Merriam (1995) points on the usage of qualitative method to understand the roles of research participants and their tasks disclosure in particular situation and organization. The analysis I have made was descriptive and deductive, reflecting the results of the data collection with comprehensive and holistic findings achieved towards the topic of the government's support policies of RE in Ukraine.

The case study methodology in my study is based on interviews. I have used myself as the main researcher for data collection through conducting interviews and searching for appropriate literature regarding my topic. In order to provide an analysis to the role of the government in RE support, I need to have direct access to the state officials from the governmental bodies responsible for RE in Ukraine, NGOs in RE and RE companies, running their projects in Ukraine, to collect primary data and to get the knowledge about mechanisms of the governmental support for RE. More detailed information about my interviewees is described in the next sub-section.

Triangulation of evidence is used in case studies when the area of research is characterized by complex conditions and a deeper insight is needed for the analysis to be carried (Yin, 2002). Triangulation is also used to explain in details the overall picture of the situation and complexity of human behavior by researching it, using more than one opinion (Cohen and Manion, 2000). By using triangulation, I hope to increase validity and reliability of my research and to overcome biases of single-observer approach over perceptive points of view, as information received from market players can't always coincide with policy makers' one.

4.3. Data collection and analysis

Data collection has been preceded in the following steps. Firstly, the grounded literature review, concerning the topic of RE development, RE policies, government support and policies in RE was conducted. For qualitative analysis, themes were identified through the secondary data collection. My secondary data includes not only extensive scientific literature reviews, but also broad range of documentation evidence such as: Ukrainian normative and regulatory, legislative framework in renewable energy (policy statements, regulations, draft laws, laws and guidelines); annual reports on RE development both

worldwide and locally, prepared by international organizations, NGOs, Ukrainian government; working groups' and conference papers.

Afterwards, I started to plan how to collect primary data for my empirical chapter, where to find the informants. I thought that my potential interviewees and experts should vary in their origin, for example, representatives of government bodies, responsible for RE in Ukraine, RE companies, NGOs. Gathering data was conducted according to the chosen case study of reforming of the Ukrainian renewable energy sector, when the country is in the phase of policy changes adoption in supportive schemes.

During the data collection, visiting international conferences, hosted by Ukrainian government officials, working groups and round tables of the Energy Committee of Ukraine, has helped me to deepen my knowledge towards the development of renewables in Ukraine as well as find the experts, who could be useful for my research and become my potential respondents. One of such events was the joined international conference "Auction support scheme in Ukraine for renewable energy support" hosted by the State Agency on Energy efficiency and Energy Saving of Ukraine (SAEE) and International Renewable Energy Association (IRENA). The event has gathered representatives of politicians, public authorities, state officials, NGOs, RE experts from Ukraine, other countries, international organizations, that are partners of Ukraine in formation of the legislative framework necessary for transition to new RE policies. Participating in this conference helped me to find my potential interviewees, among whom were: Chief Executive of the Renewable Energy Department, State Agency on Energy Efficiency and Energy Saving (Mr. Shafarenko), Deputy Chairman of the Office of the National Investment Council (Mr. Chyzhyk), Director of the European-Ukrainian Energy Agency (Mrs. Gymeniuk). Later I have contacted them and we agreed upon the time for interview.

The most difficult part of primary data collection was to set the time for our interview appointment. Speaking about the state officials, our meetings have been delayed for several times, because they are public servants and all the time overloaded with their direct duties. I started to communicate to Norwegian RE companies, Scatec Solar and NBT, via email by the beginning of December, but received an invitation to interviews only by the end of February and beginning of March representatively. The interview with Scatec Solar was held in Kiev, as the Project Development manager, while the interview with the NBT's Vice President Corporate Finance was held in Oslo. I would name this stage of my research as the most time-consuming one.

I have also visited the working group of the Energy Committee in order to better understand the process of policymaking of the Ukrainian regulative framework in the field of RES, the cooperation between politicians, public authorities, state officials, NGOs, other RE experts and business participants.

4.3.1. Interviews

Before the appointment with my interviewees, the interview guide (see Appendix A), a set of open-ended questions, was prepared and individually tailored under the origin and background of the respondent. The questions in the interview guide focused on explaining present situation of wind and solar power in Ukraine, both from the point of view of current actions and policies of the state officials, regarding renewables, and a view on such policies from other affected participants' point of view (RE companies, NGOs, international organizations).

All in all, 7 interviews were conducted in order to achieve an in-depth explanation of the government role in support for RE. Interviewees were selected regarding their experience and adequacy in the RES sector. The interviews I have held were conducted among the experts from national (1) and international (2) RE companies in the wind and solar power sectors of Ukraine, public officers and representatives of national authorities dealing with RE matters (2), experts from NGOs (3) and association providing support for RE schemes (2). All these informants serve as a base for further triangulating of my evidence.

In six cases the interviews were recorded, but in one case the permission for recording was not allowed. So, the field notes were taken by the interviewer. All the respondents were informed about the privacy of the conversation and the ability to be anonymized, but all of them were very open and agreed upon their names, position and organization disclosure. After the recordings had been written, the transcripts were sent back to informants for the approval and ensuring data reliability. All the interviews lasted between 30 and 97 minutes and were conducted from February 2019 till March 2019. The table 4.1 presents the key informants of my research.

Table.4.1. Interviews with the key informants

#	Institution	Activities and main facts	Interviewee	Position	Duration
1	NBT (http://www.nbtas.no/en)	Norwegian wind power developer, which has announced an agreement to build a 250 MW wind farm Sivash in Ukraine and signed an agreement for $ 450 million investments.	Mr. Tvorg	Vice President Corporate Finance	47 min
2	Scatec Solar (https://scatecsolar.com)	• Norwegian solar power company, that has secured 3 projects in Ukraine with capacity of 47 MW in the Mykolaiv region (Tokarevka, Taborivka, Afanasivka) in the south of Ukraine. • Scatec Solar has so far secured 130 MW of projects under the FIT scheme in Ukraine.	Mr. Johansen	Business Development Manager	1 hour 6 min
3	DTEK RES (https://dtek.com)	• Subsidiary and part of DTEK's energy holding, one of the most active players in the Ukrainian energy market. • The company's share among the Ukrainian "greens" exceeds 11% and amounts to 210 MW of power. • DTEK RES is currently running the projects in both solar and wind power	Mrs. Gorodetskaya	Project Manager	1 hour
4	State Agency on Energy Efficiency and Energy Saving (http://saee.gov.ua)	Governmental body, aimed at developing state norms, rules and standards, as well as creating the system of monitoring in the sphere of efficient usage of fuel and energy resources, renewable energy sources and alternative fuels.	Mr. Shafarenko	Chief Executive of the Renewable Energy Department	40 min
5	Office of the National Investment Council (https://m.facebook.com/nicoffice)	• non-government organization • provides advisory solutions for investors, promotes investment and environment improvement for the more effective cooperation of investors with state authorities	Mr. Chyzhyk	Deputy Chairman	1 hour 25 min
6	NGO "Dixi Group" (http://dixigroup.org)	• non-government organization • informs the stakeholders about the energy policy of Ukraine, creates platforms for their effective dialogue	Mr. Mykhailenko	Renewable energy analysist and expert	1 hour 37 min
7	European-Ukrainian Energy Agency (http://euea-energyagency.org)	Independent non-governmental organization open to all stakeholders in the Ukrainian RE sector, aimed at support of the transparent development of RE market in Ukraine.	Mrs. Gymeniuk	Director	34 min

Source: constructed by the author

However, there were also other relevant experts, whose opinions and statements I have been using in the empirical chapter. The experts are from international organizations, representatives of other RE companies, Ukrainian state officials, who were speakers and gave their presentations at conferences and round tables on issues of RE policy in Ukraine.

4.4. Validity and reliability

Patton cited by Golafshani (2003) positions validity and reliability as core elements each qualitative researcher needs to use, while ensuring the quality of the analyzed results of the study. The researcher should answer the following question: "How can an inquirer persuade his or her audiences that the research findings of an inquiry are worth paying attention to?" (Lincoln and Guba, 1985, p. 290). It is about persuading the reader that the solution to the research problem is trustworthy.

Internal validity answers the question "How congruent are one's findings with reality?" (Merriam, 1995). Reliability focuses on the identitying of the researchers findings in other conditions, for example, if the inquiry is repeated (Merriam, 1995). Merriam, (1995) also determines the external validity or generalizability as a tool for defining whether the findings of the research could be applicable to explanation of other situations and events. However, Merriam (1995) also suggests that the goal of qualitative research is to deepen into particular phenomenon, not just to showing what is true in general for various aspects.

Noble and Smith (2015) described the following methods to check for the trustworthiness of the findings through validity and reliability in qualitative studies: control over the personal biases; scrupulous recording of the conversation to ensure the correct interpretations of data; using the definition of similarities and differences across the results to be sure that different perspectives were taken into account; using rich verbatim descriptions of participants' points of view and visions; focusing on clarity, transparency and subsequent interpretations of the data analysis; validation, performed by respondents, when the researcher asks the research participants to comment on and check the interview transcripts to ensure whether the final data reflects correctly and adequately the topic being investigated.

In my research, in order to ensure the data reliability and validity, I have interviewed the informants, who have the direct access and participate directly in the process of policymaking, RE support programs development and laws elaboration. To provide the adequate and accurate primary data, without incompetence biases, the interviewees were selected regarding being experts in RE sector. After the recordings had been written, the transcripts were sent back to informants for the approval and ensuring data reliability.

Golafshani (2003), Noble and Smith (2015) see triangulation also as a strategy for testing validity and reliability of the researcher's findings. Healy and Perry cited by Golafshani (2003) mentioned that using multiple perceptions about a single reality can help the researcher to ensure validity and reliability, pointing that several data sources provide

various interpretations. Using triangulation in social constructionism epistemology is explained by "multiple realities that people have in their minds" (Golafshani, 2003). The state officials from the governmental bodies responsible for RE in Ukraine, NGOs in RE and RE companies, running their projects in Ukraine were chosen as the main informants. Such a vivid variation in the respondent's origin allowed me to use triangulation. By using this method, I hope to increase validity and reliability of my research and to overcome biases of single-observer perceptive point of view.

4.5. Summary

In methodological chapter I have described my steps in the process of problem statement defining, designing the research, gathering information and providing trustworthiness of the analysis. The epistemological basis of the study lies in social constructionism. I have chosen the method of qualitative and descriptive case study of reforming and transition to new policy mechanisms in governmental support for Ukrainian RE.

I have used myself as a main researcher for primary and secondary data collection. Primary data was formed through conducting 7 interviews with the state officials from the governmental bodies responsible for RE in Ukraine, NGOs in RE and RE companies, running their projects in Ukraine. Secondary data included literature regarding my topic, as well as a broad range of documentation evidence (Ukrainian normative and regulatory legislative framework in renewable energy, annual reports on RE development both worldwide and locally, working groups' and conference papers).

In my research, in order to ensure the data reliability and validity, I have interviewed the informants, who have the direct access and participate directly in the process of policymaking, RE support programs development and laws elaboration. To provide the adequate and accurate primary data, without incompetence biases, the interviewees were selected regarding being experts in RE sector. After the recordings had been written, the transcripts were sent back to informants for the approval and ensuring data reliability. The broad range of informants with different professional backgrounds helped me to increase validity and reliability of my research and to overcome biases of single-observer point of view through triangulation.

V. EMPIRICAL CHAPTER

This chapter will provide empirical findings about RE policy formation and instruments used in Ukraine. The chapter makes overview of government's policies in RE and policy instruments used, and then moves on to stakeholders in RE policy development, such as policy makers/government, RE companies and international organizations, describing their attitudes towards the current policy mechanisms in RE support in Ukraine, as well as transition and changes in governmental supportive schemes. Later, the main challenges and obstacles on the current stage of RE development in Ukraine for both the government and investors are also discussed.

5.1. Instruments of renewable energy policy

International Renewable Energy Agency (IRENA) classifies direct policies of RE support by: targets, quotas, auctions, obligations; regulatory and pricing policies (e.g., administratively set tariffs, competitively set tariffs); fiscal and financial instruments (e.g., tax incentives, subsidies and grants) (Bianco, 2019). The researchers (Elizondo and Barroso, 2012; Schaffer and Bernauer, 2014) have always debated on what types of policy, price, quota-based mechanisms and regulatory instruments, are more effective and efficient in setting the sustainable promotion of RE development. Elizondo and Barroso (2012) have highlighted the main controversies around the pros and cons of price and quota-based mechanisms, focusing mostly on FITs (German and Spanish models) and auctions (United Kingdom) representatively. The figure 5.1 illustrates these instruments worldwide.

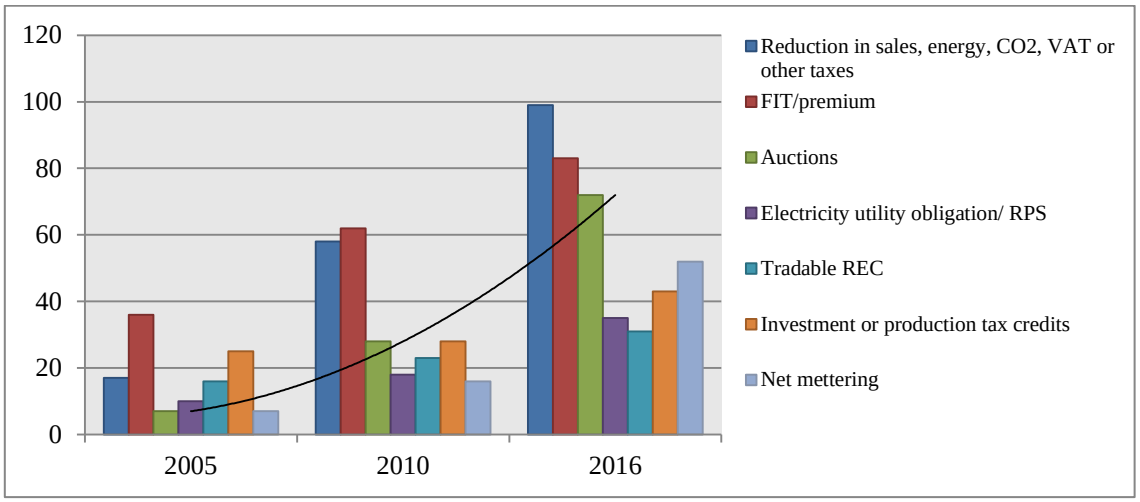

Figure 5.1. Trends in renewable energy policies

Source: Bianco (2019)

A large amount of literature suggests RE market to be a policy-driven one (see e.g. Elizondo and Barroso, 2012; Kitzing, Mitchell and Morthorst, 2012; Schaffer and Bernauer, 2014; Stokes, 2013; Butler and Neuhoff, 2008; Lipp, 2007; Mitchell et al., 2006; Mendonca, 2007; Mendonca et al., 2009; Fouquet and Johansson, 2008; Owen 2006; Auer et al., 2009; Couture and Gagnon, 2010) by analyzing experience of developed countries, mainly Europe, with the use of different types of policy, price, quota-based mechanisms and regulatory instruments to promote RE development. Table 5.1 highlights the main policy mechanisms used in European countries.

Table 5.1.Characteristics of policy mechanisms used in European countries

Policy mechanism	**Characteristics**
Feed-in tariff (FIT)	Prioritized at long-term generation and guaranteed prices over this period.
Auctions	are usually combined with other policy mechanisms. The main advantage of this policy type lies in the ability for the government bodies to launch tenders for specific projects with necessary and regulated amounts of capacities. Than the participants (investors) start a rivalry by proposing their bids for the required level of capacities. The winner is identified by the combination of the lowest bid for the requested level of capacities.
Investment grants	A form of financial supports for investment in renewable energy projects granted by governmental (and European) institutions. Non-reimbursable payments in the amount from 5% to more than 70% of the total investment cost of the project are given for the construction of a project.
Fiscal measures in the form of direct fiscal support	1. Income tax reliefs – direct, partial or full relief (Belgium), capital allowances or investment cost depreciation rules (UK, Netherlands). 2. Electricity tax relief – is used when electricity generation is a subject to electricity taxes (Poland and Latvia). 3. Reduced value added tax (VAT) – is used on sales from eligible technologies (France and Portugal).
Financing support	Is used in the form of equity investments by governmental bodies, debt financing, low-interest loans given by a governmental financial institution. Mezzanine finance (equity/debt hybrids) is also actively used, as well as equity guarantees, loan guarantees, securitization products (credit default swaps) provided by international financial organizations. The abovementioned instruments allow the investors of renewable projects to access the capital market, receive financing at favorable terms at low support cost.

Source: constructed by the author, based on Kitzing, Mitchell, and Morthorst (2012, p. 194-195)

Schaffer and Bernauer (2014) described FIT system, as a monetary compensation for feeding electricity from renewable sources into public grids. Public authorities are responsible for setting compensation rates, named feed-in tariffs for different methods of energy production. The purchase of electricity produced by renewable energy generators becomes obligatory for electric utilities using specific, above-market tariffs. These tariffs are set at the

long term period (10-20 years) in order to motivate investment in renewables by offering producers a guaranteed return on investment.

Some experts (see e.g. Elizondo and Barroso 2012; Lipp, 2007; Mitchell et al., 2006; Mendonca, 2007; Mendonca et al., 2009; Butler and Neuhoff, 2008; Fouquet and Johansson, 2008) characterize feed-in tariff (FIT) policies as the most effective instrument aimed at rapid and large-scale renewable energy development. According to Elizondo and Barroso (2012) points of view, it is believed, that feed-in tariffs are more effective at lowering risks, carried by investors, even in comparison with quota instruments together with considering price, volume, and balancing risks.

Elizondo and Barroso (2012) have concluded, that FITs are being implemented now in 49 countries around the world and are often cited as the most effective policy for attracting private investment in RE. Stokes (2013) explains more widely pros of FITs. Within the abovementioned debates, FITs are used by the government to create market for renewable technologies. Secondly, by removal barriers to renewable energy projects, FITs are able to quickly deploy RE capacity (Owen 2006; Auer et al., 2009), provide stability and investor certainty by reducing the premium risk and the energy prices volatility (see e.g. Lipp, 2007; Couture and Gagnon, 2010; Butler and Neuhoff, 2008; Mitchell et al., 2006).

Elizondo, Barroso (2012) have also defined other supplementary measures that are used in developed and developing countries to directly stimulate investments in RE, such as fiscal and financial incentives. These instruments are always adopted in parallel to price and quantity instruments. However, Elizondo and Barroso (2012) are also in favor of quota mechanisms, explaining that it is relatively less expensive than price-based mechanisms. In this case FITs often have higher subsidy rates, aiming at support of technology on the early stage of development, while quota systems encourage competition among technologies, aimed at promotion of the most mature technologies (Elizondo and Barroso, 2012). However, many developed and developing countries such as Brazil, Chile, China, France, Poland, Sweden, the United Kingdom, and the United States use quota-based mechanisms, including auctions. Brazil, for example, started to use auctions since 2009 to ensure generation capacity expansion through long-term power purchase agreements (Ferreira, 2019).

This sub-section highlighted the literature overview of government's policies in RE and policy instruments used to set the optimal way of policymaking in different countries. The empirical data based on this overview (Elizondo and Barroso, 2012; Schaffer and Bernauer, 2014) show that it is also very common for both developed and developing countries to start from price schemes with the future shift to quota setting policies. FITs are

always used in combination with auctions schemes to support small-scale RE projects and less mature RE technologies.

5.2. Renewable energy policy in Ukraine

World economic forum in Davos on January 2019, where Ukraine has been participating, has confirmed one more time that alternative energy, based on the use of inexhaustible energy sources, can serve as a "key", capable of opening the door to independence in the gas and fuel sectors, as well as huge potential for capturing investments. And Ukraine is on its way in accordance with this development. According to the Head of the State Agency on Energy Efficiency and Energy Saving (SAEE), Mr. Savchuk, over the past 4 years, about EUR 1.7 billion have been invested into ''green'' projects in Ukraine. During 2014-2018 1307 MW of new RE capacities were installed. About 300 companies are now producing electricity from renewable energy sources (RES). Their total capacity at the beginning of November 2018 was about 1.9 GW.

5.2.1. Renewable energy policy development in Ukraine

Ukraine is one of many countries that are suffering from: significant fluctuations in energy prices, objective to strengthen energy and economic security, politicization of energy supplies and other reasons, which have consequently led the state to the urgent search for the opportunities of energy sector modernization and policy upgrade. Ukrainian energy transition has started from the implementation of the New Energy Strategy (2017), one of the main pillars of the continuous RE development in the country (see the figure 5.2).

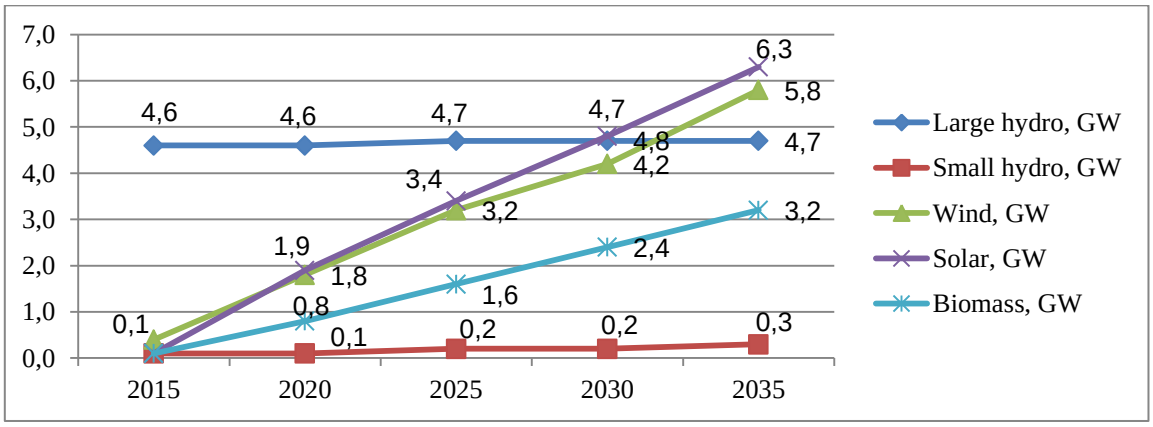

Figure 5.2. Development of renewable electricity by 2035

Source: Savchuk (2019)

The figure 5.3 shows the targets of renewable energy development in Ukraine according to the National Renewable Energy Action Plan-2020 (SAEE) and the Energy Strategy of Ukraine for the period until 2035 (2017). By 2020, the country needs to produce at least 11% of "clean" electricity together with 25% of RE in the total primary energy supply by 2035 (Savchuk, 2019). According to the International Energy Agency's data (2019b), the share of RES in the world's total final energy consumption was amounted to 23.9% in 2017, while in Ukraine this figure is currently 6.7% (see the figure 5.3).

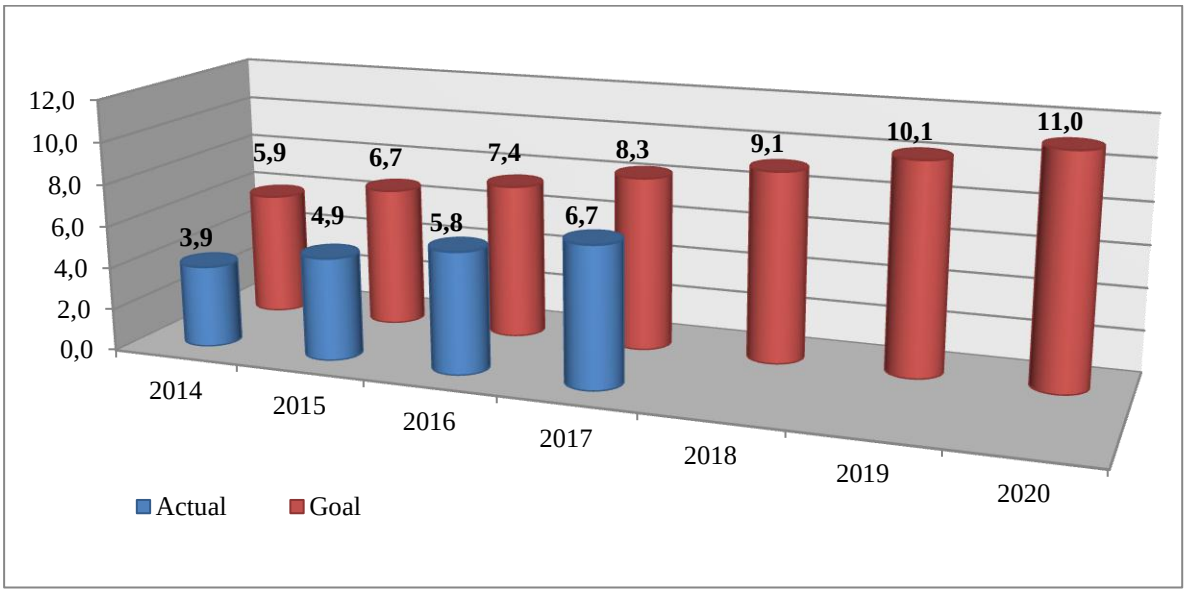

Figure 5.3. Share of RES according to the National Renewable Energy Action Plan-2020

Source: Savchuk (2019)

Simultaneously with price-based schemes to stimulate investments in RE, direct instruments, such as fiscal incentives are used. The only fiscal instrument applicable in Ukraine is an exemption from VAT payments and customs duties for imported equipment, used for generation of renewable energy in case of identical equipment with similar quality characteristics is not being produced within the territory of Ukraine. While speaking to the NGO analysist and expert in renewable energy, Mr. Mykhailenko pointed, that nowadays there is enough support for RE sector from the state:

"When adding new support mechanisms, it is necessary to remember, that it may be too much of what the state wants to give to business and how to balance it. Ukraine doesn't support RE financially, as there are no special funds in the country. One such fund "The fund of energy efficiency" is planned to be launched, but it will be mostly supported by Europe, not by the governmental money", – said Mr. Mykhailenko.

The regulatory bodies showed improvements of the legislative framework in the field of renewable energy. The following international regulatory framework has been implemented: Paris Climate Agreement in 2015; as a member of the European Energy Community, Ukraine has signed and ratified the Association Agreement with the European Union (EU), undertaking the commitment in developing renewables. The table 5.2 and the Appendix B define the main laws in RE, which are currently in force (International Energy Agency, 2019a).

Table 5.2. The primary legislation RE framework in Ukraine

Title	Year	Policy Status	Policy Type	Policy Target
Electricity Market Law no. 4493	2017 (entering into force in 2019)	In force	Regulatory Instruments	Multiple RES
National Renewable Energy Action Plan	2014	In force	Policy Support Strategic planning Economic Instruments Fiscal/financial incentives Tax relief	Multiple RES
Feed-in-tariff (FIT)	2009 (amended in 2017)	In force	Economic Instruments Fiscal/financial incentives Feed-in tariffs/premiums	Multiple RES
VAT and Customs Duties Exemptions	2008	In force	Economic Instruments Fiscal/financial incentives Tax relief	Multiple RES
Alternative Energy Sources Law	2003	In force	Policy Support Strategic planning	Multiple RES

Source: International Energy Agency (2019a)

Today, the development of renewable energy sector is based on the two Laws of Ukraine: Alternative Energy Sources Law (2003) and Electricity Market Law (2017). Both acts determine the functioning principles of the stimulation for electricity generation and FIT sizes - the cost of kilowatt-hours, according to which the state undertakes to redeem all energy from RES (Dixi Group, 2018). The current system is based on the feed-in tariff (FIT) – the cost of electricity from renewable energy sources, according to which the state is obliged to buy it. The size of tariffs depends on the year of power plants' commissioning, and is attached to the quarterly exchange rate of the euro, that helps to protect investors against possible inflation.

The current Ukrainian policies in RE are aimed at large-scale attraction of significant foreign investments into energy sector. The tariff is valid during 10 years and gradually decreases every few years. Electricity from RES is redeemed by the state enterprise SE

"Energorynok" and then "mixed" with electricity from other sources for being sold by the power supply companies. The FIT is not financed from the state budget, but is paid by every consumer of the country (Dixi Group, 2018).

5.3. Policy makers/government

5.3.1. Attitudes towards RE policy

5.3.1.1. Feed-in-tariff

As it has been described before there are several mechanisms of RE policy. When it comes to FIT, the Chief Executive of the Renewable Energy Department, State Agency on Energy Efficiency and Energy Saving, Mr. Shafarenko, explains the appearance of FITs in Ukraine as an instrument for grabbing the attention of investors by providing return on investments:

"In an economically volatile situation that is now in Ukraine, it is very difficult to attract an investor, especially when there are opportunities in other more stable countries. Our task was at least to create the legal field within which the investor would like to stay in Ukraine," – Mr. Shafarenko added.

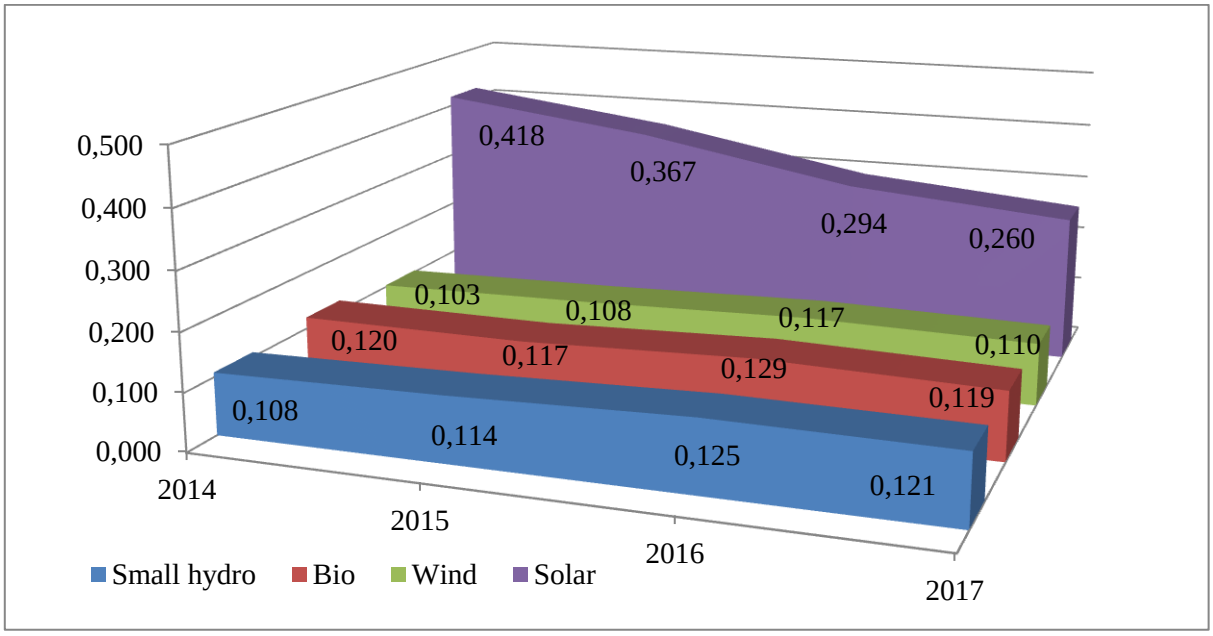

Figure 5.4. Average cost of electricity from RES, Euro/kWh

Source: calculated by Dixi Group (2018)

But the current FITs are very expensive for the government. As the Deputy Chairman of the Office of the National Investment Council, Mr. Chyzhyk, explained to me, if the

country leaves everything as it is, in the future it will face serious challenge towards the *"... growing financial burden and the inability of the state to guarantee the support to RE producers, that are already operating in the market".*

There is a global trend in reduction of RE price. The global average price of solar and wind energy technology has shown the dynamics of contraction from USD 250/MWh in 2010 to USD 50/MWh in 2016 and from USD 80/MWh in 2010 to USD 40/MWh in 2016 respectively (Bianco, 2019). The figure 5.4 shows the average cost of renewable electricity, calculated by the experts from Ukrainian NGO "Dixi Group".

"Why does the country need to pay more for the technology, that is becoming cheaper and cheaper every year?" – has stated Mr.Shafarenko, confirming, that the feed-in-tariff does not provide flexible and stable price revision, can't react quickly and operationally to changes of the price policy.

5.3.1.2. Auction

Now many European countries are moving from a fixed tariff to more efficient support methods, such as green auctions. Ukraine now is very pro-active towards the transition to new policies using the auction model, which will help to establish a real market price for "green" electricity. The Parliament of Ukraine, Verkhovna Rada, is currently adopting the Draft Law no. 8449-d (2019), aimed at the future transition to auctions. The politicians, representatives of public authorities and experts, who work under the Draft Law elaboration, believe that this Draft Law is very important for the future of Ukrainian RE, as it will trigger the development of the market.

In February 2019, I was present at one of the round tables of the Energy Committee of Ukraine, dedicated to the formation of the Draft Law, where the following changes have been presented and discussed, and later submitted by the Energy Committee to the Parliament for voting:

- the first 3 years auctions will be obligatory only for large power producers (from 10 MW for solar power plants (SPP) and from 20 MW for wind power plants (WPP)) and then, after the pilot period, the system will be also applicable to all RES projects;
- the feed-in-tariff is also planned to be optimized and used as a ceiling price for the auctions;

- starting from 2020 feed-in-tariff for solar energy will be reduced by 25 per cent with 2.5 percent reduction during the next 3 years, and for wind energy the tariff will we reduced only in 2020 by 10 percent.

The FIT is still important for small generation support, so on the pilot stage of the auctions, FITs will not be eliminated and the shift will be done gradually, from large generation to small one. Implementation of the transitional period will be optimal in case of ineffective pilot auctions: the feed-in-tariff for the first time will not be eliminated, as it will play the role of the back-up plan for minimizing the risk of the market halting (Dixi Group, 2018).

The main advantage of auction system support scheme is the ability for the government to regulate amounts of capacities: "*…if feed-in-tariffs can be in any amount, auctions are always linked to quotas"* (Dixi Group RE analysist, Mr. Mykhailenko), the government defines how much power capacities the system is able to maintain. This provides the element of control over the reckless growth of prices. The state officials, NGO experts and RE associations, named that Ukrainian energy system imbalanced due to the presence of new uncompleted solar and wind power plants, that have to be accepted and connected to the current energy system. The energy system is not ready to maintain such big volumes of renewables capacities, it needs to be modernized and provide forecasting of the RE generation. From this side, both the Ministry of Energy and Ukrenergo, the transmission operator, will, as stated by director of the European-Ukrainian Energy Agency, Mrs. Gymeniuk: *"…coordinate and control the plan of capacities within setting the quotas of what the system will be able to carry annually"*.

5.3.2. Key challenges and gaps of RE policy

All the market players have produced 2 percent of electricity, but also have taken 8-8.5 percent of money from the wholesale market (see the table 5.3). If this continues, Dixi Group RE analysis, Mr. Mykhailenko prognoses the prices for electricity to grow, especially for end users.

One of the main gaps of the current RE policy is the absence of control over the amount of investors and consequently unlimited capacities of energy in the system. Here, Mr. Mykhailenko has pointed on the fact, that an unlimited access of market players to FITs always results into the risk of electricity prices rise and have put Germany, as the example. In Germany, the state officials have monitored annually, that too much companies were working

within the FIT. They reacted very operationally and immediately have cut the rate for the tariff, simultaneously switching to auctions. The Germans regulated the price: they have found an appropriate price for investors and for the technology, and then they regulated it. Otherwise, without prices monitoring, *"the policy is blind and here comes the risk of ephemeral price of RE for the end user"* (Mr. Mykhailenko).

Table 5.3. Production of electricity from RES and its share of value in Ukraine, 31.12.2018

Primary energy source	Share in the electricity, %	Share of market's value, %	Share of electricity cost, %
Small hydro	0.16	3.5	0.56
Wind	0.75	3.47	2.6
Solar	0.69	6.9	4.76
Biomass	0.07	3.57	0.25

Source: International Energy Agency (2019 b), Ukrainian Wind Energy Agency (2018)

The NGO expert has also pointed that there is no single calculation towards the amount of money that is shifted to the end user in Ukraine, no single position between the governmental bodies, responsible for RE development, towards the level, renewable electricity price should be diminished to. Nobody evaluates the effect of FIT policy on the whole economy of the country, nothing is clear about what sums are shifted to be paid by the end users. According to the expert's point of view, the public officials need to identify the state body that will be responsible for such calculations. This should be the priority of the Ministry of Energy, the Energy and Utilities National Regulatory Commission, but in fact the calculations are done separately by different bodies (SE "Energorynok", Antimonopoly Committee). As the result, the country faces the absence of a single vision on targeted price definition, as well as an absence of regulatory body, responsible for this. The expert also explains "blindness" of the RE policy by absence of coordination in governmental bodies. The Ministry of Finance does not align with the Ministry of Coal and Energy Industry. As the result, the policy can't be stable and self-balancing.

The main challenge of the auction system will be faced by those investors, who are working in the legal framework, those, who are interested in transparent way of auctions and price definition. Deputy Chairman of the Office of the National Investment Council, Mr. Chyzhyk expresses the worries towards the companies working non-transparently and trying to influence the auctions to get the lower bidding price. Now the public authorities try to figure out all these ways of cheating and find the solution to eliminate them. So, the state officials see their main task in creation of such a mechanism, that will be capable of providing

the transparent way for the auction process conduction. Now, this mechanism includes the bank guarantee, connection to the grid and land permission.

What is more, auction system administration may be risky for the public officials and government bodies in defining the size of quotas not properly, bringing the risk of having imbalances in the system. The government and state officials understand that the auctions have to be conducted, the prices and the rivalry should be tracked, the proper amount of quota should be defined. For instance, the situation in which there will be too large quota and too many participants may lead to the prices growth.

5.3.3. Logic of policy makers/government

Ukraine depends heavily on oil and natural gas imported from Russia. Current dependence on imported energy resources has provoked Ukraine to choose energy independence, as one of the priority directions for development. All the representatives of government bodies, NGO's, RE experts have one common opinion, that development of renewables is one of the ways to become more energy independent, to decrease the energy dependency on Russia.

According to the Chief Executive of the Renewable Energy Department, State Agency on Energy Efficiency and Energy Saving, Mr. Shafarenko, the country produces electricity and heat using imported gas, coal and petroleum products. Renewable energy is the resource that is used internally and provides the same heat, the same electrical energy from the resource, which was not imported and has not withdrawn money from the state. Ukraine could also use atomic electricity, but the country has no means to provide itself with new nuclear power plants, it is too expensive. The renewable energy system compared to nuclear energy is more flexible, a key to decentralized system of energy allocation and distributed generation. The transition to the new, clean energy system enables installation of local power stations in different places, ensuring the production and immediate consumption of electricity without overloading national transmission grid system.

What public authorities, state officials and RE experts can say about the strategic goals, Ukrainian government is putting into priority, while reforming RE policy now, is that there are three main ones. Goal number one is achieving the targets of the New Energy Strategy of Ukraine-2035, aimed at change of energy generation structure. In this structure the country needs to achieve 25 percent of RE by 2035, that becomes a quite ambitious goal and corresponds to Ukrainian European Union (EU) obligations. Goal number two is to keep the

sector sustainable in long term perspective, keep the sector growing with simultaneous correspondence to the third main goal – reduction of financial burden on the budget, as the current system is unsustainable.

In the process of new policies regulatory framework, "*Ukraine is following the best practices of other countries*" (Mr. Chyzhyk), what other countries have already done in the process of setting the rules. However, as there is no single, universal model of auction system for every country, the experts from government bodies have collected the data towards variety of countries, that have already introduced and are currently running auction schemes, but still are in the process of searching for the best approach, and will try to understand whether this approach will work in Ukraine.

Actually, there is a global trend in switching from FITs to renewable auctions, as the number of counties, which have chosen to change the policies in favor of auctions, has grown *"from 5-7 10 years ago up to 65 by the end of 2018"* (Mr. Chyzhyk). As the exper explains, Ukraine doesn't want to have an experience of Spain, which has faced the similar situation few years ago with 250 cases at international arbitrage towards the state's inability to pay the guaranteed money to investors. Spain has already lost 4 cases in the court and, as a result of these loses, the country will need to compensate EUR 1.2 million to those investors. So, not to face the risk for investors, risk of the financial system and risk of national grid operation system, the Ukrainian state officials have decided to change the support mechanism: *"The country is not able to accept more than 3 GW of RE capacities neither financially nor technically,"* – Mr. Chyzhyk said.

Ukrainian politicians, the State Agency on Energy Efficiency and Energy Saving (SAEE) together with International Renewable Energy Association (IRENA) have had a joint international conference dedicated to the auction support scheme in Ukraine for renewable energy development, where the experience of Brazil and Germany were discussed. The Head of the Wholesale Prices Brazilian Power Market Operator, Rafael Ferreira, during his presentation has mentioned, that the government of Brazil, before launching auction scheme, has created a primary legislation framework with range of conditions, such as: goals of auctions, guidelines for the sellers and buyers to be eligible, mechanisms to ensure creditworthiness, guidelines for allocating risks among sellers and buyers. The secondary legislation framework is responsible for determining the detailed design of auctions: qualification requirements, contract design, bidding and winner selection protocols, remuneration mechanisms (Ferreira, 2019). The expert has mentioned that: *"Brazilian*

secondary legislation includes system of robust checks and balances among the governmental bodies responsible for auction design choices".

What is more, market-based decisions and administrative guidance is very important when it comes to balancing the allocation of risks to project sellers (project developers) and buyers (consumers):

"…the first Brazilian auctions were more allocated towards the risks of buyers, as the main aim was to foster the activity of investors. However, currently as competition increased, more complexity in administration was needed to cope with evolving power industry and Brazilians made it through stricter qualification requirements to restrain problems with underbuilding," – Rafael Ferreira, an expert from Brazilian Power Market Operator said.

The Ukrainian participants have agreed that these issues have to be tackled in Ukraine. These recommendations can be relevant for Ukraine not to face the risks for potential auction participants, for legal stability and transparency of the auction process necessary for the investor to be able to form reasonable expectations on the long-term demand for energy Power Purchase Agreements (PPAs).

Currently, all the government bodies responsible for RE development in Ukraine are working under the Draft Law no.8449-d and *"…it is an example of the highest level of Members of Parliament (MPs) involvement,"* – said Mr. Chyzhyk. By being actively involved into the process of this law making, the expert takes part in each round table and meeting of the Energy Committee. He explained me the reason of such active involvement of MPs in the process of the Draft Law creation. Everything is very simple: it is the influence on their direct interests. More than the half of the Ukrainian MPs represent the interest either of themselves by being owners/beneficiaries of RE projects, or other people, who are the owners/ beneficiaries of domestic RE companies. So that, MPs have either invested their money in RE projects, or simply represent the interests of those, who have invested money, their friends, relatives, etc. As the result, the main lobbyists here are MPs by themselves, being not only political stakeholders but RE beneficiaries as well.

"*Multiple interests protection, different interests lobbying, when everybody tries to pull the strings over its own interest makes the working process under the Draft Law the most complicated I have ever seen. It was the second time in the history of Ukrainian Parliament, Verhovna Rada, when the Committee has presented 8 versions of the Law for the voting,"* – Mr. Chyzhyk said.

The expert claims the current process of the regulatory and normative system creation to be rather difficult by itself, when the government needs to balance and maintain three main

goals, mentioned in this subsection above, and implement them in the law, the presence of different interests lobbying makes the policy creation process even more challenging.

5.3.4. Interaction between RE companies and the government

The representatives of government bodies responsible for RE in Ukraine confirm that the state sets the rules of the game. But before setting these rules, SAEE communicates with investors, with business, as the state understands that business needs to perform in this particular country. If business does not agree to accept these rules, nothing will be developed. The representatives of the state authorities are developing RE policy in partnership with investors, they work out requirements for bills with the business, and write laws so that to create not just declared norms, but working and clear regulatory framework.

Despite being the governmental body of the National Investment Council, which is under the President's umbrella, the body is financed by European Bank of Reconstruction and Development (EBRD). So, that the institution represents the triangle of interests: not only interests of the Ukrainian government, but also interests of EBRD and investors. Speaking about the duty of the Office of National Investment Council, my interviewee told me, that, firstly, before the country's decision to move to auctions in February 2018, the Council have gathered all the investors saying to them, that they may either like or dislike such kind of policy changes, but in any case the country will have to introduce auctions. Then the arguments why does the country need changes were presented to investors. The only question, investors were interested in was how, in which way the renewable auctions will be conducted, which way will make the auctions sustainable and understandable for the participants?

What is more, the expert told, that all their working groups and meetings are public, they are open, and everyone can follow and register via Facebook to be present at meetings. The similar situation is with meetings and working groups in Verhovna Rada. Ukrainian government is interested in foreign investors' involvement in the process of policymaking: "*...by coming and participating I mean an ability to influence,"* – said Mr. Chyzhyk. In the very moment, the Draft Law is being elaborated and prepared, all the investors, especially foreign ones have a chance to show their "loud voice", they have an opportunity to influence. My interviewee said that those who want to be involved are involved:

"I don't remember any single change in any single sphere to have such an open discussion with all stakeholders. It is probably the most open discussion so far in any policy

change procedure. Anybody, on any level, can join this discussion and provide not only comments, but ability to push what they need".

The expert is sure, that investors are and will be heard, as level of influence depends on level of involvement, a so called "policy shaping".

5.4. Investors

5.4.1. Attitudes towards RE policy

5.4.1.1. Feed-in-tariff

Very attractive FIT, higher than in other European countries is seen to be one of the main factors to attract investments into Ukrainian RE sector. NBT Vice President Corporate Finance, Mr. Tvorg, was more specific pointing on the compliance of the Ukrainian FIT to the EU direction, by having a fixed term and being predictable. The FIT scheme of "green" tariffs brings more stability to investors, it is very straightforward. However, he also mentioned, that high Ukrainian FITs are a kind of compensation for investors.

When deciding to invest the money into the country or not to do this, foreign companies, as the rule, pay attention to three components: the revenue itself, the profit; the timeline, the payback period; and the third thing, the key component, especially applicable for Ukraine, the risks. The high FIT in Ukraine mirrors the high risk of the country. From this side, reduction of FIT rates from 2020, due to the auction principle, is seen as a positive issue.

The majority of RE companies, who are currently working under the FIT, would like to have larger time horizon, as such short period is not enough for such volatile countries as Ukraine. Scatec Solar Business Development Manager in Ukraine, Mr. Johansen thinks, that it would be much better to have the continuation of FITs for 2-3 years more. The tariff can even be reduced more that it is now, minimum by 15 percent. The best variant Scatec Solar representative sees in reduction and prolongation of FIT for several years and then to start a pilot auction scheme.

5.4.1.2. Auction

The auction system provides longer period of power purchase agreement *"20 years instead of 10 years of agreement within the FIT"* (Director of the European-Ukrainian Energy Agency, Mrs. Gymeniuk), being more suitable for *"time horizon planning"* (Deputy Chairman of the Office of the National Investment Council, Mr. Chyzhyk) and an instrument

for investors *"to hedge their risks within the participation in the auctions"* (Scatec Solar Business Development Manager in Ukraine, Mr. Johansen).

The uncertainties over the new system casts a shadow on renewable auctions in Ukraine for the foreign wind and solar energy investors, as they want to know that someone will buy all their power and will give them a fix price for that. It is a normal situation, when a country starts from FITs and then goes to auctions. But auction schemes are highly unpredictable, it is impossible to foresee the price outcomes. What is more, instabilities in government regulations create uncertainties for investors, who don't know how the law will look like.

5.4.2. Key challenges and gaps of RE policy

Investors struggle if they *"don't have a proper Power Purchase Agreement (PPA), don't have proper legal protection for your business, for your assets"* (NBT Vice President Corporate Finance, Mr. Tvorg). According to NBT Vice President, the PPA is not strong enough. In order to make it strong, Ukraine needs to have international arbitrage for commercial lenders. Investors must be able to choose – if there is a problem, they should know, that the government is going to buy all the power. If there is a conflict, investor itself, must be able to say that he or she wants to have a court case in London or in Stockholm, or in Switzerland, as *"…there is a lack of trust to the court system in Ukraine now"* (Mr. Tvorg). That is why if there are disputes, they will be treated in Ukraine with Ukrainian judges and that is not good for international companies.

Another investor, Scatec Solar Project Development manager, Mr. Johansen claimed the process of PPA signing to be rather risky in Ukraine. The process of PPA signing is very confusing, as PPAs are usually signed before the construction. In Ukraine it is vice versa, signing is after the construction. It is risky, as the investor has constructed, received all licenses and there is no guarantee that the company will eventually receive the PPA arrangement.

At the present moment, Vice President of NBT, sees lack of international requirements understanding in general, requirements the company is usually working with. That is why the company wants the state officials to hear them, they want to be heard and would like to have an ability to meet government representatives and discuss all the issues, which are important for them. The two examples, where the investors, especially foreign ones, are facing

corruption and red tape are difficulties in receiving land permission and connection to the grid.

The European-Ukrainian Energy Association director, Mrs. Gymeniuk, said that members of the association express their worries about the too low level of bank guarantee, EUR 5 thousand per MW*h plus EUR 10 thousand per MW*h in case of winning, that can cause future challenges for the participants. Too low bank guarantee motivates too many different small companies to participate in auction, and then, after winning the auction, they will not be able to construct power plant with the defined capacity. Consequently, these small companies will sell quotas to bigger ones, but the price of electricity will be still very low, that will create risks for big companies. Investors are not interested to rebuy the quotas. The same worry towards risk of unsustainable drop in power price was expressed to me by my respondents from NBT and Scatec Solar, as:*"...people are bidding as low as they can just to get the contract"* (NBT, Mr. Tvorg)*, "...not being financially and technically credible enough to complete those volumes of capacities they have received"* (Scatec Solar, Mr. Johansen). The association has proposed to rise bank guarantee up to EUR 40-45 thousand per MW*h, but proposal was rejected by the Energy Committee.

5.4.3. Logic of investors

FIT offers a good return reward. My interviewee from Scatec Solar, Mr. Johansen, explained that being listed at the stock exchange, the company has shareholders and needs to run profits. The high level of FIT is only one of other aspects influencing the decision of international investors to enter the Ukrainian RE market. NBT Vice President, Mr. Tvorg, has told me about their long way of cooperation with Ukraine. The company came to Ukraine in 2012-2013 for the first time. There were a lot of things not in place to establish wind farms in Ukraine for them. FIT is the last link in the path on. The tariff is good enough in Ukraine, even reflecting the risk the company is taking. But besides FIT, clear and transparent legal framework needs to be in place. Back in 2012-2013 in was not in place, from the company's point of view. But in the last 4 years there were a lot of reforms in energy industry, in particular and in general as well. The reforms helped to make the legal system working in such a way the foreigners to come to the market.

One important principle in project finance for NBT is an ability to raise international project finance, finance that comes from banks, inside and outside Ukraine, finance the project without any extra guarantees from the owners, from other companies and the

government. All the projects of this particular investor are financed by a portion of their own capital and a portion of banks' capital. In this case, the company takes a much higher risk, as:

"if something goes wrong the banks will take their money first and we will be the last one to get money back. There are no guarantees to mother company, to other entities around this project. The project stands along, we and the banks only hold the guarantees to the project itself", – said Mr. Tvorg.

High FIT in Ukraine reflects the high risk of the country. Being still a risky policy tool for NBT, the company chooses FIT strategy. The reason is actually that the company is among the first movers in the market and wants stability around the pricing on power selling, wants to know that someone will buy all the generated power and give a fix price for that. Feed-in-tariff complies to the EU direction, has a fixed term, is predictable. It's a way *"...to mitigate the risk for us when going into the market of such countries as Ukraine"* (Mr. Tvorg).

The companies don't want to change and remake their business plans, as most of PPAs have been signed and performed according to FIT scheme. NBT is not interested in auction participation as their business model and experience of doing business in other countries defines investing money and working under the FIT regime.

The foremost question to the state authorities, government bodies and policymaking institutions remaining so far, is whether the auctions will work as they are foreseen? Until the investors receive the answer to this question, the majority of them will have been finishing the construction of projects, started much earlier, by the end of 2019, using the old model of FITs. There is a certain procedure for the companies and if they are unable to finalize the project by end of 2019, they will not be able to get higher FIT. The project manager of the national RE company DTEK RES, Mrs. Gorodetskaya, described the main task of the company's management team as finishing the construction of WPP and connect it to the grid by the end of 2019, as they understand that only in this case the company receives higher FIT. Otherwise, in case the project is done in 2020, the company will lose 10-15 percent of the profit, as there will be the reduction of FIT from 2020:

"Now the only thing we are interested in is profit from the tariff, so we will use all our political triggers to finish the project on the targeted time".

An absolutely different attitude towards the level of received FIT was expressed to me by Mr. Tvorg, NBT:

"We will have all the permits in place by end of 2019 and then the law gives us 3 years more to build and still achieve FIT".

But even if the company finalizes the project not by the end of 2019, but later, in 2020, for instance, then the tariff from 2020 till 2029 will be another one, lower than the tariff of 2019. But still it is acceptable for the company:

"We are not concerned about that, it's ok for us as long as the government is transparent in what they are doing, because we know, that we can put it into our financial schemes and plan accordingly" (Mr. Tvorg).

But if something is changed, as the company is developing and building, that will be a disaster not only for this particular investor, but for everyone. And that is why, predictability and certainty are so important for all players in the energy market and for all investors in general in the country.

5.4.4. Interaction between RE companies and the government

When it comes to interaction between companies and the government, the manager of national energy company DTEK, Mrs. Gorodetskaya, was very honest towards the pushing and lobbying power of the company's interests influencing the decisions in policymaking process. According to her, the government understands that its job is to provide such laws, which would be targeted at and accepted by investors. The authorities understand that satisfied investor is a key to economic benefits of the local communities. Investors increase rural incomes and welfare and create economic development of the region. Actually, the law about the VAT exemption was pushed by the stakeholder of DTEK, who is a famous politician. The Law no. 8015 was tailored specially under the interests of this company, giving the green light for the development of wind power in Ukraine, by: simplification of construction control procedures for facilities producing electricity from wind power; possibility of building renewable energy objects through the simplified procedure, which sees little impact on the environment; simplification of the requirements for the construction of wind power plants by transferring the objects from the CC-2 (average) to the CC-1 (insignificant) level of consequences for the surrounding.

Speaking about the international investors, NBT Vice President states, that they have had a very healthy relationship with local, regional administrations, up to the president level. The company has been very open and explained what they were doing and what was important for them to be successful. All the state officials, the company has dealt with, provided positive support for the "Sivash" WPP project. The company is expecting the same to happen to their second WPP project "Sofia", three times bigger than the previous one. It is

important for such investors to be open, transparent with the authorities. At the same time, authorities have to be predictable and understand the requirements of investors and their needs.

NBT also pays attention to the informal side of communication, when they can sit down with the governor of the region, who brings his deputies to the round table and all together they express what problems the company is having in bureaucracy issues, how is the company's project doing. From Mr. Tvorg's point of view, in such way they can sit all together and talk how to resolve the problems. So, that kind of interaction is important, as the faster regional administration is moving, the faster it will receive benefits from the company in the form of substantial amounts of taxes payed to the local, regional and national budgets. As the expert said, it is a "win-win situation". The company also has corporate social responsibility program, when a certain amount of money is set aside to support social infrastructure in the area, where they are building. All the communities affected by the projects, will receive benefits, like a new roof in the kindergarten, new ambulance car, new water pipes, if they are broken down. *"It is a very transparent process, not like giving one Ukrainian guy this money. We have a savior tolerance towards such issues"* – said the Vice President of NBT.

The same applies to the Prime Minister and the President, who have investment councils, Ukrainian Investment Council of Ukraine and Ukraine Invest. These bodies help investors, like NBT and Scatec Solar, to make investments and if there are problems the companies are free to go to these government bodies and to share problems with experienced people, to communicate with other companies in RE sphere, representatives of authorities and other state bodies, that may help the investor to move the problem forward. Recently, there was an economic and investment forum in Oslo, where the Prime Minister of Ukraine was present. NBT and Scatec Solar, as the biggest Norwegian investors in Ukraine have also participated. As Mr. Tvorg has mentioned:

"We have experienced a good level of informal communication with authorities. The Prime Minister was there, he was listening and leaving his comments, which is good and it was his initiative to meet the investors, we don't ask him about that. He wanted to see the business community before he came to the forum. At first he had breakfast with all the investors in Kiev, and then, few weeks later, we arrived to the forum".

The Vice President of NBT has explained to the Prime Minister all the issues that are vital for the company and have also discussed with him corruption and business culture issues, that are currently problematic.

5.5. International organizations

5.5.1. Attitudes towards RE policy

5.5.1.1. Feed-in-tariff

The FIT tends to reduce each year, becoming less and less attractive from 2020, that became the vital reason for EBRD to reject the financing of solar or wind power projects in Ukraine until the auction system or at least the Draft Law for the renewable auctions is implemented. Other consultant international organizations, like IFC, IRENA, EU Commission, facilitate on the right direction of Ukraine to use not only price-based and fiscal instruments in supporting RE, but also to move to new schemes.

But, the common recommendation from international experts is to leave the FIT system and combine it with green auctions. During his presentation, the President of Energy Watch Group of Germany, Mr. Fell, highlighted the importance of combination of FITs and auction system for Ukraine. According to the expert: *"Auctioning leads to fewer investments, excludes small and medium actors, while FIT stimulates faster cost decline"*. From his point of view, auctioning is more preferable for large scale investment (more than 40 MW) and FIT need to be used to support small-scale projects (under 40 MW).

5.5.1.2. Auction

EBRD pushes Ukraine in the direction of auctions, as it is beneficial for the consumers, the state authorities and industry: the consumers will be able to buy energy at the lowest price; the authorities will take control over budget, timing, location and transparent price determination; the industry will face lower regulatory risk, concerning the "right" price and stable, long-term, high volume business perspective (European Bank of Reconstruction and Development, 2019).

5.5.2. Key challenges and gaps of RE policy

During international conference dedicated to the auction support scheme in Ukraine for renewable energy development, different foreign experts discussed barriers Ukraine struggles now, as well as challenges Ukraine may face while changing its policy. All experts agree that now the domestic investments come mainly from big companies (oligarchs).

While presenting his view over the future transition of Ukraine to renewable auctions at the international conference, the speaker from IRENA has listed both the strength and

weaknesses the country may face. Among the pros of auctions in Ukraine, the expert mentioned *"flexibility in the design according to conditions and objectives, real price discovery, greater certainty regarding prices and quantities"*, as well as *"commitments and transparency"*. In addition, he mentioned*"…no limits on the size of the projects can lead to low prices through economies of scale. Lower ceiling prices can cause low prices for large scale bidders and lead to rejection of reasonable bids"*, as the potential risks, the country may face in case of underbuilding, delays and high transaction costs for both developer and auctioneer.

5.5.3. Logic of International organizations

European Bank of Reconstruction and Development (EBRD) is supporting Ukraine on the transition to renewable energy auctions, as EBRD is the biggest international financial organization in Ukraine. The Bank has been supporting Ukraine in development of renewable energy projects since 2009 using the Ukraine Sustainable Energy Lending Facility (USELF) program and *"…has already invested EUR 100 million in the projects with total capacity of about 150 MW"* (Mr. Chyzhyk).

Being the largest international organization, which finances Ukrainian RE projects, explains the motives of EBRD to push the auction system. Conversation with the expert from the Office of National Investment Council, highlighted that by protecting investors, EBRD protects its own money. EBRD wants to protect its own interests, own money, that have been invested into Ukrainian RE projects. According to general rules, the money from such organizations are repaid, received back in the last turn. Approximately 50 percent of RE projects in Ukraine are financed by EBRD, it is much more, than financing from Ukrainian banks, which, eventually, provide financing also through EBRD. If the system collapses, the government won't be able to pay for its obligations, the financial institutions which have provided the loans will suffer the most.

5.5.4. Interaction between international organizations and the government

Every country is involved in cooperation with international institutions in the process of information exchange, coordination of policy-making, setting standards and rules. Ukraine is also currently under the tight cooperation with the European Energy Community,

International Financial Corporation (IFC), International Renewable Energy Agency (IRENA), EBRD in energy sector.

As Schaffer and Bernauer (2014) have stated, the EU influence on the national policy choices can be seen both in the vertical (top-down rule making and enforcement) and horizontal policy diffusion. The EU Commission, EBRD, IFC influence the Ukrainian policy choices in horizontal way, when the government still has a choice whether to follow the recommendations. According to 2001 EU Directive on renewables and 2009 EU Directive on the promotion of the use of energy from renewable sources, Ukraine can freely choose any policy instrument, such as investment subsidies, tax incentives, tendering systems, FIT or combination of them to achieve growth in the renewables share. EBRD as well as IFC do not interfere directly into policymaking and management of the country. Policy changes are always a responsibility of the government bodies and state officials of the country, it is their choice to follow the advice or not to follow.

Though EBRD finances Ukrainian RE projects and IFC does not, both the organizations do advice Ukraine to move to renewable auctions. The Office of the National Investment Council is a permanent participant in the expert and consultancy seminars, organized by IRENA. Each such seminar was held officially in the form of closed meetings. The state officials and government bodies are following all their recommendations. IRENA does not directly take part in draft laws development. Such organizations usually provide general guidelines, but they don't understand the peculiarities of Ukrainian realities. That is why, Ukrainian experts, some of whom I have interviewed, are also involved in working groups to evaluate whether the international expert's advice will work in Ukraine.

5.6. Summary of empirical findings

The empirical findings presented in this chapter show that all the stakeholders were very positive towards the job done by FITs, claiming it to be very effective (see the table 5.4). However, the policy-makers/government and international financial institutions point on the urgent need for Ukraine to change the supportive system for RE. The main risks they see in: growing financial burden and the inability of the state to guarantee the support to RE producers; risk for investors, risk of the financial system and risk of national grid operation system; high degree of uncontrolled growth of capacities leading to potential growth of tariffs on electricity for end users.

Table 5.4. Summary of the empiric results

	Investors/ RE companies	Government / Policy makers	International organizations (EBRD, IFC, IRENA)
Pros of FIT	1. High FIT level 2. Enough return on investments 3.Fixed term 4.Predictability 5. Fixed price 6.Stability of purchases, the pricing on power selling	1. The main aim – to boost the market and to attract investors. 2. Return on investments is legally secured.	
Cons of FIT	1.High level of merchant risk 2.Short term duration	1.FITs are very expensive 2.Low flexibility in prices: cost of RE technologies are reduced annually, while FIT remains high	
FIT vs. Auction system	FIT	Combination of FITs and auctions on the transition stage. FIT will be valid till 2030, but annually reduced from 2020. Auction system starts from 2020.	
Pros of auctions	Lowering the riskiness of the country by reducing the tariffs	1.Operatively react on price policies 2.Balance and control the system (quota)	Protection of the investors capital interests
Cons of auctions	1.Unpredictability 2.Uncertainties 3.The risk of low bidding price 4. Low level of bank guarantee	Hard to predict the result	
Key challenges and gaps of the RE policy	1. Uncertainties with the new energy law 2. Law under development 3.Bankability of PPA 4.International arbitrage 5.Corruption and business culture 6.Martial law 7. Connection to the grid. 8. Uncertainties in signing PPA after the construction.	1. Carrying capacities of national grid system. 2. Define the size of quotas not properly 3. Inability to ban FITs, as it may lead to loss of all contracts. 4. Provide the transparent way for the auction process conduction	Insolvency of the country to repay the financial liabilities to investors

Source: constructed by the author

The government, as well as the consultants from EBRD, IFC, IRENA, have chosen renewable auctions to be implemented in Ukraine as the new system, capable of pressing down the risks and imperfections of the current RE policies. However, investors still prefer FIT system to auctions. Despite being different in perceptions of supportive schemes choice, all the actors have named the gaps of the current RE policy as well as the challenges they could face during the transition period to the new, auction scheme of RE support in Ukraine. The policy makers/government actors were also named to be very open to discussions from the foreign investors' point of view, while the large national RE company is absolutely not interested in this, rather using powerful political lobby.

VI. ANALYTICAL CHAPTER

This chapter provides the analysis of the empirical data in terms of the stakeholders and institutional logics theoretical framework. The chapter starts from the development of RE in Ukraine, the mechanisms of government support for RE used, reforming and adoption of policy changes in supportive schemes. Different logics, views, motives of the stakeholders' to move towards the new RE mechanisms and policies were also analyzed, giving an ability to highlight barriers and obstacles on the path of RE development.

6.1. Development of RE in Ukraine

The development of the Ukrainian RE sector is linked with the governmental objective to strengthen the country's energy and economic security. All the representatives of government bodies, NGO's, RE experts have common opinion, that development of renewables is one of the steps upon energy independence and decreasing energy dependency on Russia. The first pillar for continuous RE development was launched by the New Energy Strategy-2035 and National Renewable Energy Action Plan-2020, according to which, by 2020, the country needs to produce at least 11% of "clean" electricity together with 25% of the total primary renewable energy supply by 2035.

The international experience has shown that no single RE instrument is used separately, they are always combined between each other. The current system of the state's support for RE in Ukraine uses price-based mechanism of feed-in tariff (the "green" tariff) and direct fiscal incentives (VAT exemption), aimed at large-scale attraction of significant foreign investments into the energy sector.

The importance of different policies on different stages of RE development, the necessity in policy mechanisms change is explained by different goals on each stage (see figure 6.1). The main goal of FITs was to give push to RE deployment on a predevelopment phase. Aiming at the attraction of investments into green energy, Ukraine started from the FIT, as it brings more stability to the investor. Ukraine has already overcame the predevelopment phase, when the technology of RE has only appeared in the country. When the country has reached a certain speed on the investments and felt that now more money was flowing into that sector, it was a signal to shift to new policy principles. The FIT system in Ukraine has grabbed the attention of investors, both on the national and international levels and became too expensive tool for the country to attract investments.

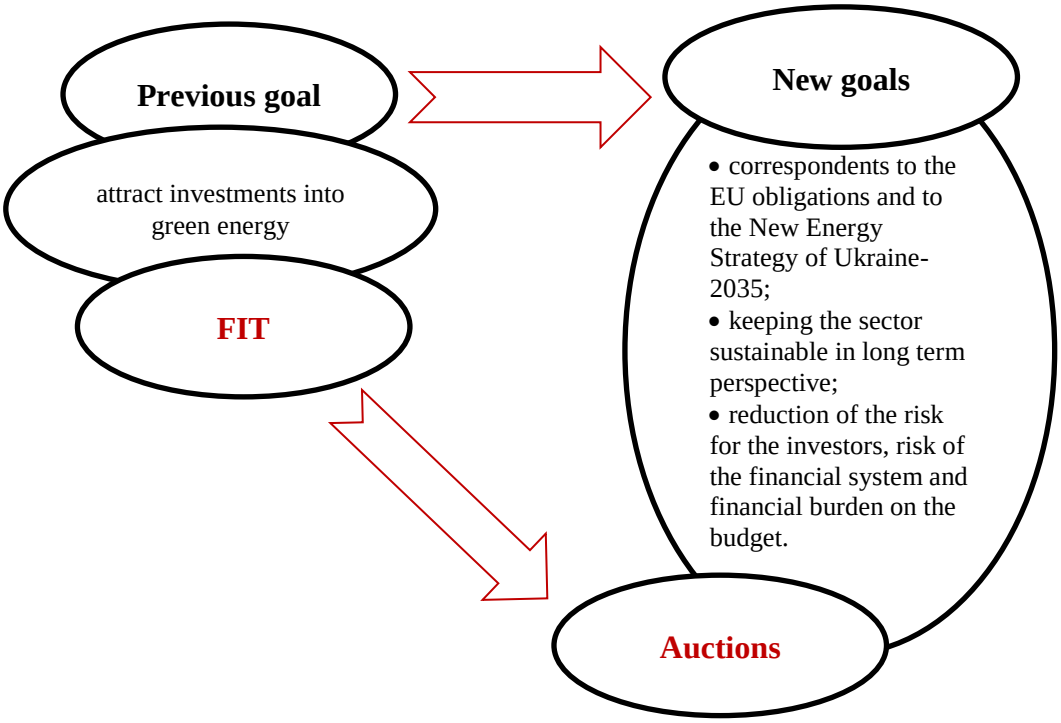

Figure 6.1. Interrelations between the governmental goals and appropriate instruments in RE development of Ukraine

Source: constructed by the author

Foreign and national investors see very high rates of FIT, its fixed term and predictability among the main factors of Ukrainian RE investment attraction. However, despite the common understanding of the advantages of current FITs for the country and investors, all the stakeholders understand that such an instrument is becoming very expensive for the Ukrainian government to manage the system properly, as the country is now on the edge of insolvency. The high FIT in Ukraine mirrors the high risk of the country, defining the need for the system to be changed.

The empirical findings show that Ukraine puts into the priority three main goals, while reforming RE policy. Goal number one is achieving the targets of the New Energy Strategy of Ukraine-2035, aimed at the change of energy generation structure. In this structure the country needs to achieve 25 percent of RE by 2035, that becomes a quite ambitious goal and corresponds to the country's EU obligations. Goal number two is to keep the sector sustainable in long term perspective, keep the sector growing with simultaneous correspondence to the third main goal – the reduction of the financial burden on the budget, as the current system is unsustainable. This means to balance the real capacity needs of national energy system and to demonstrate the investors the stable interest of the state in the continuation of RE support, but only in a smarter and more sustainable way. This new path of

smartness and sustainability lies in the transition to auction system of government support for RE in Ukraine.

The previous studies (Geels, 2010, 2011), explained the central logic of the actors mostly from the point of economic advantages and benefits in the future. That is why, setting different goals on different stages of RE development in Ukraine, helps to add new understanding to the institutional logics of the Ukrainian policy makers/government actors, while reforming RE policies.

6.2. The competing logics: FITs vs. Auctions

6.2.1. Investors choose FITs

Starting from 2015-2016, the market of RE in Ukraine continues to keep an active interest of both national and international investors. That is why, it was important for me to show the point of view of Ukrainian and international investors towards the current state's policy of economic development and stimulation of RE. The FIT scheme brings more stability to the investors, being straightforward, but at the same time, high Ukrainian feed-in-tariffs are a kind of compensation to investors for the high risk of the country.

Despite auctions are more suitable for time horizon planning, being an instrument for investors to hedge their risks, longer duration of power purchase agreements during the auctions, in comparison to FITs term, investors would better choose to follow the FITs rather than renewable auctions system. The main reason lies in the uncertainties linked to instabilities of the government regulations and around the pricing on power selling, as they want to know that someone will buy all their power and will give them a fix price for that. Instead, investors don't know how the law will look like.

6.2.2. The Ukrainian government and international organizations choose auctions

The empirical findings show that public policies can be considered as the main drivers for RE development. The same could be said about Ukrainian RE supportive policies. FIT scheme aims at attracting the investors, while renewable auctions - at pressing down the financial burden on the stat, when paying the guaranteed rates to investors. In the process of RE policy change, movement from FIT to renewable auctions, Ukrainian government plays the role of regulatory institution, that creates the rules of the game, constructing the norm system for the support of RE. However, the government's involvement in the process of

conducting policymaking during the period of changes is performed through the multi-stakeholder interaction processes. The stakeholders' analysis shows that the government is not free in decision making, it is constrained by the pinch of forces, the main driving factors of the reforming process, policy-making and governmental policy choices, factors that shape national renewable energy policies and energy transition pathways. The politicians, representatives of public authorities and international experts, who work under the Draft Law no. 8449 elaboration, the main law for auctions implementation in Ukraine, believe that the launch of the renewable auctions is very important for the future of Ukrainian RE. It will trigger the market development as well as target the three main goals, mentioned previously.

Goal setting is the result of the following RE policy reforming driving forces, which push Ukrainian government in policy choices (see figure 6.2):

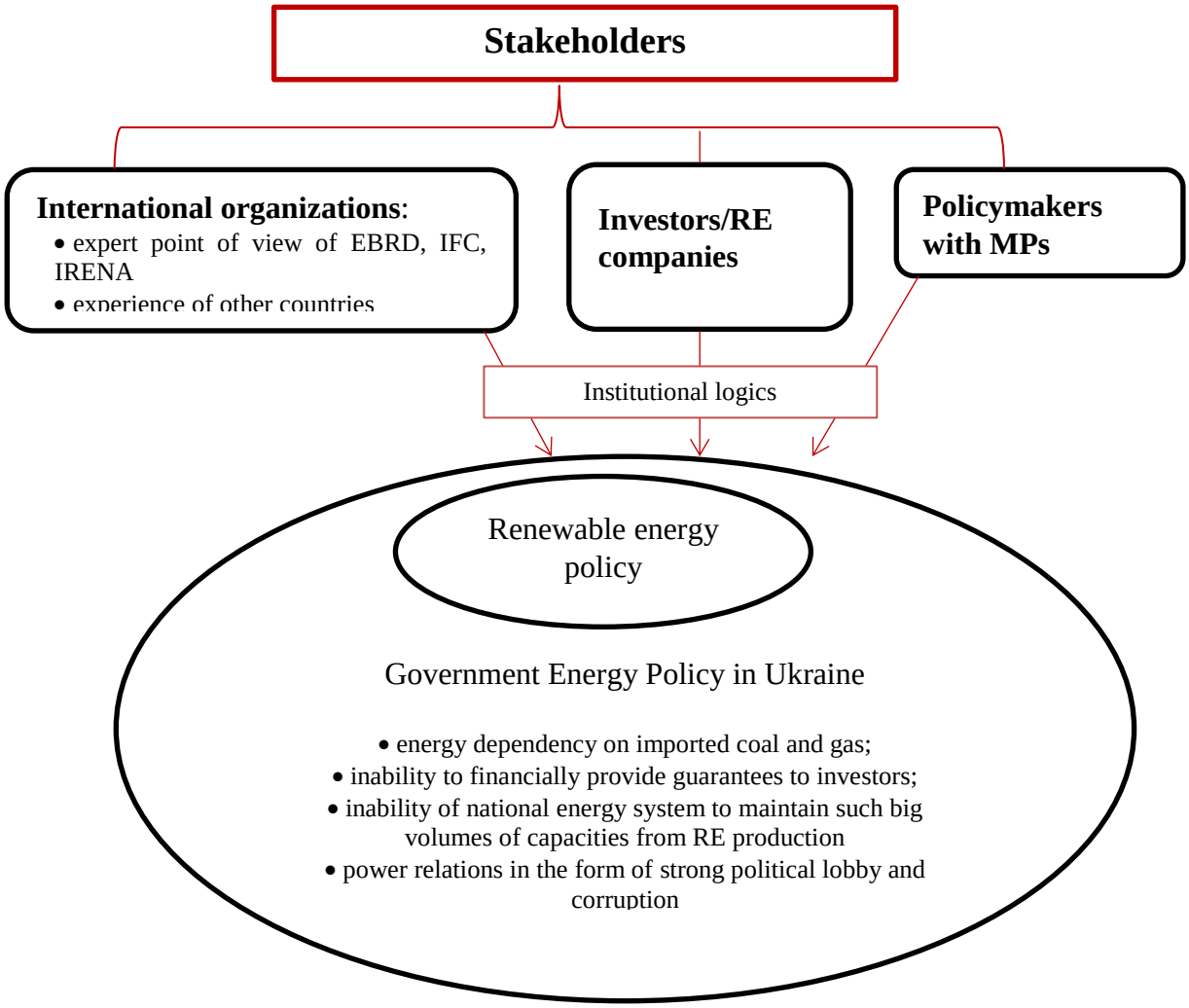

Figure 6.2. Analytical model, adjusted after empirical investigation

Source: constructed by the author

a) Government energy policy context in Ukraine.

First of all, the dependency on the imported coal and gas, defined the strategy for the government in energy independency way of development and comprehensive renewable energy policies, targeting on the domestic energy market creation and stimulation of the domestic energy production.

Secondly, the central logics of the Ukrainian government, while choosing the transition to renewable auctions, is to create a system way in adjusting what has been paid to investors, as the state is unable to guarantee the high incomes over many years ahead. The switch to auctions is occuring in Ukraine now, as the state has realized that FITs have done their job. The government woke up and saw that FITs system is very expensive for them. Ukrainian government sees the present day as the right time for the transition to auctions. The new auction system presses down the amount of money, the government has to pay to the companies, whom the state has encouraged to invest.

When deciding to change supportive mechanisms, the main motive and the question the state officials tried to answer was: is it worth to continue FITs for the nearest 20 years? Renewable energy, sun and wind technologies are developing every year. Why should the state and, consequently, people give guaranteed revenues to companies, if the technology becomes cheaper annually, but the tariff remains still high? The market does not need such a powerful stimulus as it needed before: the situation in the country is not so intimidating any more, the investors don't afraid anymore, so that there is no need to provide such a stimulus from the state as before. The state wants to pay money, but in smarter way – in the form of auctions. With the help of renewable auctions, the government is going to reduce the financial burden and the risks of the country in the long-term perspective, as the risk assessment, especially for such counties as Ukraine, is vital for the investors, when deciding to invest or not to invest.

Thirdly, the Ukrainian energy system is not ready to maintain such big volumes of capacities from RE production, the country has faced, as the result of very attractive FIT. So that through auctions the government will be able to regulate amounts of capacities in the form of quotas. The government is also representing Ukrainian citizens, so their logic is also to protect the end users, the citizens, from the future electricity price escalation, as the end users are those, who will eventually pay for this.

Last, but not least reason is power relations in Ukraine, presented in the form of lobby of interests, related to the politically motivated approval process of regulatory framework. The main lobbyists are big national renewable energy companies and Members of Parliament

(MPs). For the last 3 years, DTEK, the largest Ukrainian energy company has pushed 2 laws (VAT exemption for the imported equipment and the easement in the procedures for the wind power plants commissioning). MPs have shown the highest level of involvement in the process of current elaboration of the Draft Law no.8449-d, which will regulate the renewable auctions in Ukraine. The reason of such an active involvement is very simple: the conditions of the draft law influence directly their interests, as MPs have either invested their money in RE projects or simply represent the interests of those, who have invested money.

Consequently, the presence of different interests lobbying, makes the policy creation process even more challenging. The current process of the regulatory and normative system creation is rather difficult by itself, when the government needs to balance and maintain the three main goals, mentioned previously, and implement them in the laws. What does make the working process under the Draft Law even more complicated is multiple interests' protection and different interests lobbying.

b) International experience.

As Rinaldi, Unerman, and Tilt (2014) have mentioned, during the process of consulting with stakeholders, countries engage the experts from international financial organizations. Ukrainian government is actively engaging experts from European Energy Community, International Financial Corporation (IFC), International Renewable Energy Agency (IRENA), European Bank of Reconstruction and Development (EBRD) in renewable energy sector policy framework elaboration. All these organizations, despite actively supporting Ukraine in transition to auctions, don't have a direct influence on the government in policy making process. Influencing the Ukrainian policy choices in horizontal way, when the government still has a choice whether to follow the recommendations or not, defines international organizations as supportive actors of RE policy development in Ukraine.

EBRD thinks that Ukraine is about to stop guaranteeing all the money to the companies, money that is reimbursement of those risks, the investors have been taken. Being the largest international organization, which finances Ukrainian RE projects, explains the motives of EBRD to push the auction system: by protecting investors, EBRD protects its own interests, its own money that have been invested into Ukrainian RE projects.

What is more, the policy change in the form of transition from FIT to auction system has already been done by other countries. Ukraine is following the best practices of what has been done before. As the Ukrainian government is now in the active process of the formation of the normative and regulatory framework for the auction mechanism launch, the state officials are looking not only for the countries that have switched from FITs to auctions, but

also their practices in legislation framework, enabling the quick adoption of the auction design to changes in economic environment of the electricity industry.

However, there is no single, universal model of the auction system for every country. The experts from the government bodies have collected the data towards variety of countries, that have already introduced and are currently running auction schemes, but still are in the process of searching for the best approach and are trying to understand whether this approach will work in Ukraine.

In terms of stakeholder theory, according to the classical definition of Freeman (1984), investors and international organizations can affect the third stakeholder, the government and its decisions in choosing the mechanisms for RE support. The stakeholder analysis of this study gives a broader understanding of the influence on the government's decisions about RE mechanisms. The influence in the Ukrainian RE policy making process can be divided into direct and indirect in terms of the ability to push the actors' own interests into the laws contents. Foreign and national investors, MPs represent the direct stakeholders by having the strongest ability to affect the laws developing decision making. International organizations are indirect stakeholders, playing the role of professional consultants, giving recommendations, which the government can follow or not. However, on the other side, the process has been as open as possible with involving social media, when RE mechanisms have been discussed. It seems that RE policy attracts a sufficient level of engagement from citizens, who can also express their opinion. The involvement of citizens is explained by the Ukrainian government's vision of RE as a sustainable element of the future generations development.

6.2.3. The competing logics of RE actors

The analysis of the investors' and the Ukrainian government's logics shows how the policy change process is accompanied by struggles. Geels (2010, 2011) saw the struggles between different institutions inevitable, as the result of different interests and contradictions in their logics. Different interests resulted into competing institutional logics, as Thornton and Ocasio (2008) stated, lead to contradictions between the two sides towards the choice of RE support scheme. As empirical findings show, in the context of Ukraine, the main "controversies" between the government and investors occur due to the:

a) Money aspect in the unpredictability of income streams, while using auctions. Investors want to receive as much income as possible using FITs, while the state wants to pay as less as possible by choosing auction scheme.

b) Culture aspect. Different views on the future are explained by different origin of the actors and their business models. Companies are representatives of business interests, when the Ukrainian government doesn't have the state company participating in RE. The government is just building the regulatory system, it defines the rules of the game, policy framework changes in the form of regulations, taxes, policy programs and instruments, that influence economic frame conditions. The companies are working according to their business strategies. The choice of new policy schemes of RE support in Ukraine means the complete change of their business models and plans, however all of them have already started working under the FIT system.

c) Time horizon. Government wants to expand industry with a long term ambition, while RE companies want to maximize their profit in a short term perspective.

Empirical analysis of three main stakeholders of the RE development process in Ukraine: the government, the investors and international organizations with their individual logics, helps to better understand shaping of the actor's rational behavior towards an ability to choose among the alternatives existing in parallel, depending on the consequent result of their choices (Geels, 2010). Every actor here has its own central logic aimed at rational choice of their own economic advantage in the future, at self-interest of fixed and maximized material well-being, guiding its motives (Geels, 2010).

The RE investors in Ukraine choose FIT scheme. During the current transition period from FITs to auctions, investors have an alternative of choice, whether to follow the old system or to switch to the new one. Actually, the result of their choice is declared in their business plans, strategies and business models. The investors are satisfied with the current system of FITs, their central logic lies in receiving the profit, the guaranteed and fixed pricing by the state, but at the same time, they are dissatisfied with the short-term duration of FIT (until 2030) and high risks, imbedded in the high rate of the tariff. The companies still prefer FITs to auctions, though the latest aiming at hedging the investor's risks and prolongation of the PPA agreement up to 20 years. The main reason is uncertainties in the consequent result of the auction choice – instabilities in regulative and legislative framework, no guarantees from the state to buy out all the produced electricity on a fixed and stable rate.

Speaking about the central logic of the Ukrainian government, regarding the alternatives and their results, it becomes clear, why it is in favor of auction system. If

everything is left as it is, the government will be insolvent in repaying all its obligations and guarantees to investors, working under FIT system. Alternatively, by choosing auctions, the government's rational choice corresponds to pressing down the financial burden on itself, protecting the investors' money, as well as hedging itself from the responsibilities that may alter after the financial collapse of the FIT system.

Despite choosing the logics of rational and economically beneficial choice of FIT system, some of the investors are rather supportive towards the auction system in Ukraine. The empirical findings have shown that, unfortunately, only one foreign company, out of three analyzed, is actively participating in the process of law elaboration. From my point of view, both foreign and national investors, who tell that they have limited influence on the process, in fact have very limited desire to get involved, as many of those want to keep the system as it is. The reason why, is that they have their current projects being developed with the current system of FIT, they have received financing, they have made business plans based on the current model. Moreover, it was mentioned, that it is hard to forecast the expenses in the business model with the auction system, at least on the current stage. It will be possible to understand how the system works at least, when the pilot auctions show their results. The main issue here is protecting own money.

The story does not end only on getting the FIT, it is about getting your money back in 5, 6, 7 years. The typical scenario of what will occur, if not to change anything, what most of international investors don't want to accept is: even, if investors eventually sign PPA to get their FIT, they will still face the risk of their money paid back, in case the system collapses. Consequently, the ones who will suffer mostly are not those, who have already invested their money in 2013, as they will receive their IRR in 2024 and everything will be fine, but the newcomers, those who are investing right now.

Even being against the uncertainties brought by auctions, the companies understand that the system needs to be changed, that the changes are inevitable. Right now the companies are against the renewable auctions, but when they switch on their mind, they realize that all financial institutions support auctions and will finance any more new projects, unless the auction system or, at least, the Draft Law is implemented. Finally, they understand that if the Law is not implemented, they will not receive the loans. The investor's rationality makes them to be involved in the process of negotiations and cooperation with the government bodies and authorities towards the auction transition.

Foreign investors have a strategic perspective approach to doing business in terms of timeline, while domestic RE companies are targeted more on the receiving profits in the

current situation. It seems, that sustainable development agenda is not yet on the priority list of the national RE companies. This positions Ukrainian government to understand the importance of time horizon and long-term planning. Ukrainians usually are not used to plan so long. As White et al. (2013) have stressed on the importance of the long-term continuity of policy support in achieving policy goals on renewable energy, the implementation of long-term stable policies will help the Ukrainian government to minimize uncertainties, which become vital for those, who want to invest in RESs. The state needs to clarify the final procedures for purchasing electric energy according to Power Purchase Agreement (PPA) at an auction scheme conditions, as this is important thing, investors are paying attention to, when considering the possibility of RE project financing. First of all, before investing, the companies need to confirm that they will have enough guarantees from the government, about the future payments for the electricity, generated within the new regime of RE support through auctions.

Using FIT or auctions, the investors want clear guidelines, stability for themselves, legislative framework protecting their rights and financial interests, guarantees from the government in purchasing the declared power. This kind of explanation of the investors' motives, broadens the interpretation to the previously stated basis of the institutional logics framework about the actors' central logics in rational choices, their self-interest and economic advantages and benefits in the future. The companies simply want to know that they will receive their money back. They want to be sure that auctions will work as much perfect as it is stated by the policymakers. And only in this case, the majority of the investors would rather prefer renewable auctions to FITs.

The foremost question to the state authorities, government bodies and policymaking institutions remaining so far, is whether the auctions will work as they are foreseen? An important task for the state is to properly identify what to procure, how much is to be procured and where to do this? The state authorities have to be aware of the necessary capacity, number of projects, maximum and minimum size limits of the projects. Until the investors receive the answer to these questions, the majority of them will have been finishing the construction of previously started projects by the end of 2019, using the old model of FITs. That is why, all the investors want to be in time till the end of 2019 to get the FIT of 2019, that is higher than the tariff of 2020. That is the main reason why 800MWt have been put into operation in 2018, and 1,6 GWt is expected to be put in 2019. All in all, the system operates 2,2 GWt of power now.

Unfortunately, the current actions in RE are directed on the hedging the government from the responsibility that it should carry in case the current system of support falls down. This main driver of the policy changes is hidden under the mask of the state's striving for the system's stability.

6.3. Key challenges and gaps of the Ukrainian RE policy

6.3.1. Key challenges for the government

The public authorities are threatened by an unlimited growth of market players using FITs, that always results into the risk of electricity prices rise for end users. The main challenge for Ukrainian governors now is to find the appropriate way of new policy schemes, at the same time not losing the positive dynamics of RE that the country has reached now.

Now the government pays high premium for solar and wind projects, that creates a high level of investment flows into the country. The auction system tends to pay less, so there will be less investments. If the target is 25%, state officials need to be sure in their ability to provide all the necessary conditions for auctions to be conducted properly, as less demand, in this case, causes less supply of investments.

What is more, there is nobody in Ukraine evaluating the effect of FIT policy on the whole economy of the country, nothing is clear about what sums are shifted to be paid by the end users. The government needs to identify the state body that will be responsible for such calculations. This should be the priority of the Ministry of Energy, Energy and Utilities National Regulatory Commission, but in fact the calculations are done separately by different bodies. As the result, the country faces the absence of a single vision on targeted price definition, as well as an absence of the regulatory body, responsible for this.

Last, but not least, auction system administration may bring a risk for the public officials and government bodies to improper definition of quotas sizes, leading to the risk of imbalances in the system. State officials and public servants understand, that the auctions have to be conducted, the prices and the rivalry should be tracked, the proper amount of quota should be defined. For instance, the situation, in which there will be too large quota and too many participants may lead to the growth of prices.

6.3.2. Key challenges for the investors

Ukraine has set very short term support for RES (10 years) and limited the period of validity of the FIT ("green" tariff) until December 31, 2029, while the world-wide practice of setting the support deadline is 15 - 20 years. Usually, this term is used in the corporate sector for the general planning of the projects. With the decrease in the rates of FITs closer to 2029, there will be a certain moment, when the RES projects under the current system will be not payed back by the end of the supportive actions. Even with a competitive electricity market, it is hard to predict the long-term price, and without any sales forecasts, no project will receive funding and will not be realized.

Investors also struggle if they don't have proper legal protection for their business. What has united the foreign investors is a weak PPA and pre-PPA signing procedure: PPAs are signed after the initial construction and without the international arbitrage for corporate lenders.

Instabilities in government regulations of auction system basics create uncertainties for the investors around the pricing on power selling. What does bother all the investors is in which way the renewable auctions will be conducted in Ukraine, which way will make the auctions sustainable and understandable for the participants? Until the investors receive the answer to this question, questions about predictability and certainty, the majority of them will have been finishing the construction of the previously started projects, started previously, by the end of 2019, using the old model of FITs.

Speaking about corruption and red tape, the investors have named two cases of evidence: the difficulties in receiving the land permission and connection to the grid. The whole society is built by bringing the investments. But it needs to be made in the transparent way of paying taxes, complying with the laws. It is absolutely unsuitable for transparent investors who want to do their business in Ukraine to be pushed by authorities for their illegal benefits in the form of bribes. This needs to be cut off very strictly.

One more uncertainty of auctions, mentioned by both the investors, and experts from IRENA and NGOs, is the too low level of bank guarantee, leading to lots of small companies to participate in auctions. But after winning the quota, the winners loose to financially construct the project. Afterwards, the "winners" will sell their quotas to big investors causing the risk of unsustainable drop in power price to a low level. The Ukrainian government authorities have to pay a significant attention on the pre-bidding stage, the participants'

selection is very important for investors. They need to know the clearly specified auction parameters, just what, where, when and how the auctions will be run.

6.4. Interaction between the RE actors

In terms of the institutional logic theoretical framework, Thornton, Ocasio, and Lounsbury (2012) mentioned, that people, remaining profoundly different in their culture organizes and overall pattern of behavior, still may share common aspirations. Despite being completely different in their cultures, Ukrainian government as a "rules trendsetter" and companies as business entities, and having competing logics, both of them have one thing in common – to reach the high level of domestic product development. Both of them want the support for projects to happen, though for different reasons and in different ways. Both the government and companies confess that they are dependent on each other and they both need each other in reaching their aims. As Geels (2010), Rinaldi, Unerman, and Tilt (2014) have stated, that clashing opinions define mutual dependencies between industry and policy maker and the importance of interactions and the dialogue between the key stakeholders, public authorities and business.

Looking back at the institutional logics theory, different rational logics of the actors and differences in their strategic views towards the current period of changing policies in Ukraine, define the dual role of the state in the transition process. The complexity here for the government, as the main manager, is in balancing different interests - corporate and civic interests – the main target of the current changes taking place in RE policy framework of the country.

6.4.1. Dialogue between the RE actors

The stakeholder analysis, described in this study, points on the government and investors, as the main stakeholders of RE development process, giving the chance to complete the main gap, defined in the stakeholders' framework of this study by looking at the interrelations among them. In terms of institutional logics theory, Geels (2010) pointed on the importance of interactions between the actors. The clashing opinions of the investors and Ukrainian government push them both to negotiate towards the conditions of future transition changes. The best way of interaction and negotiation processes in Ukraine, from the points of view of all the actors involved, is the dialogue.

The dialogue between the key actors plays a crucial role, when it comes to defining the optimal way of policymaking. The reason is, actually, that during participation in decision-making processes, institutions, the government bodies and RE companies make their performance better by responding to stakeholder's concerns, having and giving right to be heard to each other (Rinaldi, Unerman, and Tilt, 2014). The process of interaction during the dialogue between the government and investors in Ukraine also contributes to the stakeholders and institutional logics. At first, the main stakeholders, each one "armed" by its own motives, develop strategy of sustainability visions towards RE development, define transition paths and come up to a common transition agenda. Then, the state uses tactics for this agenda to be voted in the Parliament and, consequently, implemented in the form of policy tools and instruments.

Before setting the rules of the game, the state officials and governmental bodies, responsible for RE in Ukraine, communicates with investors, business, as the state understands, that business needs certain conditions to perform in Ukraine. Ukrainian government is interested in foreign investors' involvement in the process of policymaking. Actually, there is a very strong dialogue between the government and investors, but not all of them. The state officials were also named to be very open to discussions from the foreign investors' point of view. At the same time, while international investors are willing to fall into active discussion with the government towards the issues that bother them, the large national RE company is absolutely non-interested in this and tends rather to use the political trigger in the form of powerful lobby to solve their problems.

International investors were very positive towards the attempts of the state to initiate round tables between politicians, state authorities, responsible for RE in Ukraine and representatives of business, concerning the current problems, the investors are facing now, as well as the issues of the future transition to new policy mechanisms. At the same time, some big national RE companies are absolutely uninterested in the dialogue between them and the representatives of public authorities.

Informal communication during the international forums, round tables with state officials, governors and the Prime Minister, was seen by international investors as openness to discussions. Both the foreign investors, NBT and Scatec Solar, have experienced a good informal communication level with authorities and representatives of state officials. During the investment forum in Oslo, where the Prime Minister of Ukraine was present, NBT and Scatec Solar have participated as the biggest Norwegian investors in Ukraine. Actually, the initiative to meet all together came from the Prime Minister, not from the companies. The

investors could discuss the corruption and business culture issues, which are currently very problematic and need to be solved. However, the investors understand that there are still limits for what the government can do, they can't fix everything today and it will take time.

In the Ukrainian realities very powerful lobby from both the sides of big, strong energy companies and MPs, influencing the regulatory laws in RE sector, weaken the cooperation between those, who really want and are interested in changes. This questions the effectiveness of the government's intention aiming for stable RE development and for the transparent way of dealing with the barriers, the companies are facing. Despite Ukrainian state authorities and government clamming the investors', especially foreign ones, strong ability to influence decision making process during the phase of the laws and draft laws elaboration, there is still very limited influence-capacity of highly motivated stakeholders on the decision making.

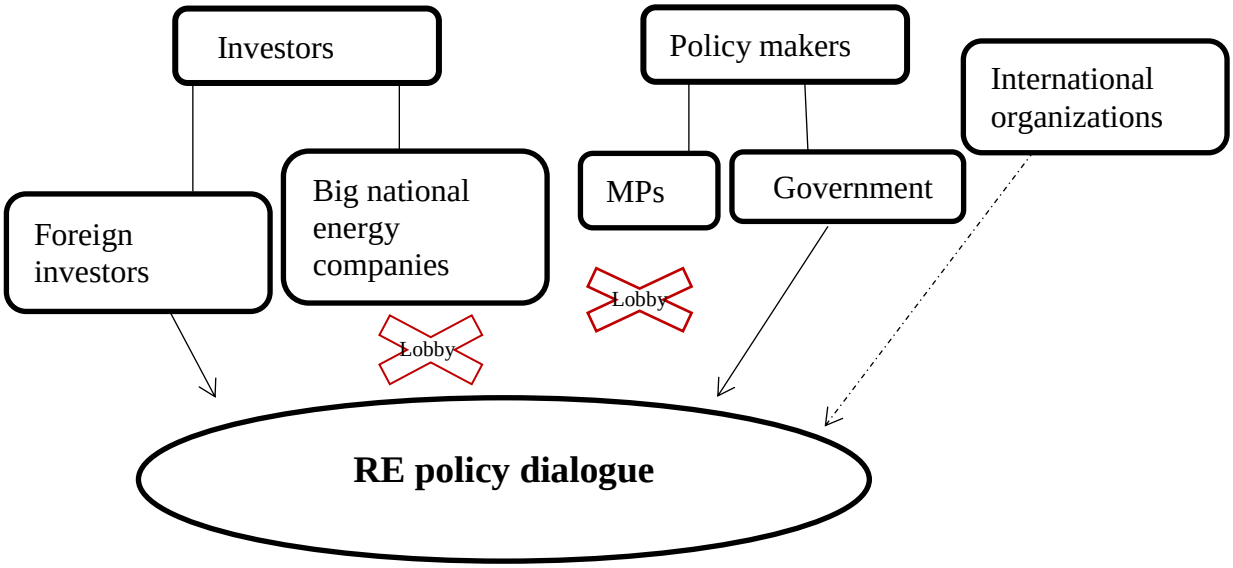

Figure 6.3. RE dialogue process in Ukraine

Source: constructed by the author

Unfortunately, the realities of Ukraine have shown that, until the powerful lobby exists (see figure 6.3), the dialogue between the investors and government, though being named very strong, will still be only pointless discussion. MP's appear here as a new influential actor in the dialogue towards RE legislative framework development of the country. Even if the negotiations result in the inclusion of foreign investors' requirement into the draft laws, all these requirements and changes would be only on the paper and would not be voted in the Parliament by the MPs. This situation can bring the new concept of the dual role, played by the Ukrainian government, to understanding of the stakeholders theory. This dual role

confounds the government: from one side the state claims to initiate the dialogue, from another side – the state officials are under the strong political lobby, capable of identifying the path for the future RE development. But the state officials need to remember, that cooperation and partnership is defined by mutual benefits. From this point of view the dual role of the government can be also interpreted in promoting and hindering RE initiatives. That is why, if the results of negotiated issues are successfully lifted up to the highest level, if Ukraine keeps on reforming the country and looking towards Europe, implying European kind of legislation principles, that will bring much more results. Results in this case are stability, the risk reduction and, as a consequence, much more investments flow.

6.5. Summary

The case I have chosen, the reforming of the Ukrainian renewable energy sector, the ongoing policy change in supportive schemes from FITs to more sustainable RE development in the form of renewable auctions, gave me an ability to analyze and cover the main actors of RE sector in Ukraine, their logics towards the choice of supportive policy instruments, government participation in the policy change process. The analysis has also helped to shed the light on the gaps and barriers of the government's policy choices in supporting the RE sector of Ukraine as well as to highlight the importance of the multi-stakeholder interrelations. The analysis has been conducted in response to the empirical data, the basics of stakeholders and institutional logics theoretical frameworks.

RE supportive policies are the main drivers for RE development in Ukraine, aimed at attracting the investors with FIT scheme and pressing down the financial burden on the state, while paying the guaranteed rates to investors with the renewable auctions. The stakeholder's analysis shows, that the Ukrainian government is not free in decision making, it is constrained by the multi-stakeholder interaction process.

The analysis has identified four main stakeholders: direct actors (the government, MPs and investors) and supportive actors (international organizations). Each one having its own central logic aimed at rational choice of its own economic advantage in the future, self-interest of fixed and maximized material well-being: for investors and international organizations, that provide loans for RE projects – FIT system means receiving the profit, protection of their rights and financial interests, guarantees from the government in purchasing the declared powers; for the government – the auctions mean pressing down the

financial burden on itself, protection the investors' money, as well as hedging itself from the responsibilities, that may alter after the financial collapse of the present FIT system.

The Ukrainian government and investors are seen as the main stakeholders of RE development process, giving the chance to complete the main gap, defined in the stakeholders' framework of this study by looking at the interrelations among them. Despite having competing logics, both the investors and the government have a common goal – to reach the high level of domestic product development, confirming the interdependency between each other in reaching their aims. The best way of interaction and negotiation processes in Ukraine, from the points of view of all the actors, is the dialogue, which plays a crucial role, when it comes to defining optimal way of policymaking.

Unfortunately, the realities of Ukraine have shown that, until the powerful lobby exists, both from the side of big national energy companies and MPs, the dialogue between the investors and government, though being named by both the actors very strong, will still be only pointless discussion. Even if the negotiations result in the inclusion of foreign investors' requirement into the draft laws, all these requirements and changes would be only on the paper and would not be voted in the Parliament by the MPs. This situation can bring the new concept of the dual part, played by the Ukrainian government, to the understanding of the stakeholders theory. Here the government confounds itself: from one side claiming to initiate the dialogue, from another side – being under the strong political lobby, capable of identifying the path for the future RE development. The study findings also show, that reforming of the Ukrainian renewable energy, aimed at fast and steady growth of the sector, is a question of political will. The Ukrainian public servants can accelerate the reforming process by implementing clear legislation frameworks, aimed at sufficient flow of private investments.

VII. CONCLUSIONS

7.1. Answering research questions

What is the current policy of the Ukrainian government in RE sector?

The current system of state's support for RE in Ukraine uses price-based mechanism of feed-in tariff (the "green" tariff) and direct fiscal incentives (VAT exemption), aimed at large-scale attraction of significant foreign investments into energy sector. However, the government is now actively reforming RE policies being motivated by pursuing the economic advantages in the future in the form of 3 main goals. Goal number one is achieving the targets of the New Energy Strategy of Ukraine-2035, aimed at the change of energy generation structure. In this structure the country needs to achieve 25 percent of RE by 2035, that becomes a quite ambitious goal and corresponds to the country's EU obligations. Goal number two is to keep the sector sustainable in long term perspective, keep the sector growing with simultaneous correspondence to the third main goal – reduction of financial burden on the budget, as the current system is unsustainable and too expensive for the country. This new path of smartness and sustainability lies in the transition to auction system of government support for RE in Ukraine.

Ukrainian RE policies are the main drivers for RE development in the country, aimed at attracting the investors with FIT scheme and pressing down the financial burden on the state in the future, while paying the guaranteed rates to investors with the renewable auctions.

Who are the other actors and their role in shaping the development of RE?

The stakeholder analysis of the study identified four main actors in Ukrainian RE sector: the government, MPs, investors and international organizations. I have learnt that in Ukraine MPs, investors and international organizations can affect the fourth stakeholder, the government and its decisions in choosing the mechanisms for RE support. The influence in the Ukrainian RE policy making process can be divided into direct and indirect in terms of the ability to push the actors' own interests into the laws contents. Foreign and national investors, MPs represent the direct stakeholders by having the strongest ability to affect the laws developing decision making. International organizations are indirect stakeholders, playing the

role of professional consultants, giving recommendations, and providing freedom to the government in following or not following them.

As we may see, the Ukrainian government is not free in decision making, it is constrained by the pinch of forces, the main driving factors of the reforming process, policy-making and governmental policy choices, factors that shape national renewable energy policies and energy transition pathways: government energy policy context in Ukraine (energy dependency on imported coal and gas; inability to financially provide guarantees to investors; inability of the national energy system to maintain such big volumes of capacities from RE production; power relations in the form of strong political lobby and corruption); international experience (international organizations' expert point of view, who are supportive actors of RE policy development in Ukraine; experience of other countries).

The role of each actor in shaping the support for RE is determined by their central logic, that motivates them to choose different policy schemes and instruments in terms of rational choice of their own economic advantage in the future, self-interest of fixed and maximized material well-being. Having an ability to choose among the alternative schemes, RE investors in Ukraine choose FITs. The companies prefer FITs to auctions, as they are satisfied with the current system of FITs, their central logics in receiving the profit, the guaranteed and fixed pricing by the state. On the other hand, associating auctions with instabilities in regulative and legislative framework and no guarantees from the state to buy out all the produced electricity on a fixed and stable rate.

Speaking about the central logic of the Ukrainian government and international organizations, regarding the alternatives and their results, it becomes clear why they are in favor of auction system. EBRD, for instance, is investor by itself, financing lots of RE projects in Ukraine. So, if everything left as it is, the government would be insolvent in repaying all its obligations and guarantees to investors, working under FIT system. Alternatively, by choosing auctions, the government's rational choice corresponds to pressing down the financial burden on itself, protecting the investors' money, as well as hedging itself from the responsibilities that may alter after the financial collapse of the FIT system.

As we may see, there is no quarrel in the schemes of RE support between the government and the investors. In any case, using FIT or auctions, the investors want clear guidelines, stability of the legislative framework protecting their rights and financial interests, guarantees from the government in purchasing the declared power, to be simply sure, that they will receive their money back. This kind of explanation of the investors' motives broadens the interpretation to the previously stated basis of the institutional logics framework

about the actors' central logics in rational choices, their self-interest and economic advantages and benefits in the future.

Despite being completely different in their logics, both the government and investors have a common goal – to reach the high level of domestic product development and the support for projects to happen, though for different reasons and in different ways. This defines mutual interdependencies on each other and the importance of interactions and dialogue between them. The clashing opinions of the investors and Ukrainian government push them both to negotiate towards the conditions of future transition changes.

The best way of interaction and negotiation processes in Ukraine, from the points of view of all the actors, is the dialogue. MP's appear as a new influential actor in the process of dialogue towards RE legislative framework development in Ukraine. Even if the negotiations result in the inclusion of foreign investors' requirement into the draft laws, all these requirements and changes would be only on the paper and would not be voted in the Parliament by the MPs.

What are the gaps in the government's actions to develop RE?

Highlighting the points of view of investors, state officials, Ukrainian and international RE experts towards the current policies in supporting RE in Ukraine, defines the main gaps in the state's actions as well as challenges for the government to provide the proper development of RE sector in Ukraine.

First of all, the public servants are threatened by an unlimited growth of market players using FITs that always results into the risk of electricity prices rise for end users. The country faces the absence of a single vision on targeted price definition, as well as an absence of the regulatory body, responsible for this. In Ukraine there is nobody evaluating the effect of FIT policy on the whole economy of the country, nothing is clear about what sums are shifted to be paid by the end users. The government may also face the risk of imbalances in the auction system, due to the incorrect definition of the quota sizes. Consequently, too large quota and too many participants may lead to the growth of prices.

At the same time, investors also struggle if they don't have proper legal protection for their business, explained by weak PPA and pre-PPA signing procedure, when PPAs are signed after the initial construction and without the international arbitrage for corporate lenders. Investors are also uncertain about instabilities of the government regulations and

around the pricing on power selling of the new auction system, they don't know how the law will look like, as it is still under the development.

Ukraine has set very short term state support (10 years) for RE and limited the period of validity of the feed-in-tariffs until December 31, 2029, while the world-wide practice is 15 - 20 years, being the minimum term, needed for the general projects planning in the corporate sector. Speaking about corruption and red tape, the investors face it in receiving the land permission and connection to the grid. Too low level of bank guarantee for the participation in auctions can cause lots of small companies to take part, resulting in the decrease of the guaranteed energy price.

7.2. Contributions

What is the role of the government in the process of RE development in Ukraine?

Answering my research questions helped me to explain the role of the Ukrainian government in RE development of the country. Eventually, the study proofs that RE development is policy driven one. The role of the government in RE is specified by a certain set of goals, the state pursues. The case of Ukraine has shown that in the process of RE development, the goals of the country are changing. In Ukraine different policies on different levels of RE development are explained by different goals on each stage.

When setting specific goals, the government has also a kind of central logic, responsible for the main priorities of the policy. The main role of the Ukrainian government is changing in relation to those goals, the country pursues to achieve on the different stages of RE deployment. The main goal of FITs was to give a push to RE emergence on a predevelopment phase of the technology development. The main role of the government was in attraction of investments into green energy and the mission was completed: FITs have done their job, and became too expensive tool for the country to attract investments, bringing the country to the edge of insolvency of repaying guarantees to investors. The present targeted goals of Ukraine are: correspondents to the EU obligations and to the New Energy Strategy of Ukraine-2035; keeping the sector sustainable in long term perspective; reduction the risk for investors, risk of the financial system and financial burden on the budget. From this moment and on, the central logic for Ukrainian authorities became the search for new policy principles. The choice of the government was made in favor of renewable auctions.

The key priority for the government, while introducing the new policy vector for the RE support is to balance the real capacity needs of national energy system and to demonstrate to the investors the stable interest of the state in continuation of RE support, but only in a smarter and more sustainable way. The government wants not only to reach the targeted levels of RE, but also to provide environment for further stabilization of the system and hedge itself from the responsibilities, that may occur in case of the financial collapse of the current FIT system.

Among the government, the stakeholder analysis of the study has also defined investors/ RE companies, MPs and international organizations, as the main actors in shaping the support for RE, each one with its own logic and motives on their economic advantage in the future, self-interest of fixed and maximized material well-being. The investors see it in FIT system, while the government and international organizations prefer auctions, resulting into the competing logics of different actors. For the investors the main stop signal to choose auctions is instability in regulatory and legislative frameworks of the auction design in Ukraine.

Being absolutely different to the Ukrainian state officials, in their approaches, the investors are rather supportive towards the intentions of transition to auctions. Both the actors have a common goal of reaching the high level of RE domestic production, that defines the next role of the government, as a regulatory institution and rule maker – to set clear and understandable auction guidelines and legislative framework, aimed at providing stability for investors and protecting their financial interests. The role of the Ukrainian government at this moment is in finding the appropriate way of new policy schemes, simultaneously not losing the positive dynamics of RE, the country has already reached.

All the above mentioned roles of the Ukrainian government define mutual dependencies between the state officials and investors in reaching their aims. The objective of the current policy reforming changes taking place in Ukrainian RE sector is to balance corporate and the country's interests. This defines the complexity of the role of the government in the process of RE support. In order to come up to the consensus with other actors, Ukrainian state officials are actively initiating negotiations towards the upcoming changes in RE support schemes, using such an instrument for interaction, as dialogue.

Despite Ukrainian state authorities clamming the investors', especially foreign ones, strong ability to influence decision making process during the phase of the laws and draft laws elaboration, there is still very limited influence-capacity of highly motivated stakeholders on the decision making. MP's appear here as a new influential actor in the

dialogue towards RE legislative framework development of the country. Unfortunately, the realities of Ukraine have shown that, until the powerful lobby exists from both the sides of strong national energy companies and MPs, the dialogue between the investors and government, though being named very strong, the discussed changes will stay only on the paper. The Ukrainian government confounds itself when playing a dual part: from one side the state claims to initiate the dialogue, from another side – the state officials are under the strong political lobby, capable of identifying the path for the future RE development, promoting and hindering RE initiatives at the same time.

7.3. Practical implications

Based on the findings of the study, the thesis concludes with some propositions derived from the analysis of ongoing changes in the RE field of Ukraine and some policy advices to public authorities and state officials. The practical implications can be used for the future adjustment of the current regulative frameworks to benefit both for the Ukrainian RE sector and market players.

First of all, the implementation of long-term stable policies will help the Ukrainian government to minimize uncertainties, which become vital for those, who want to invest in RESs. The state needs to clarify the final procedures for purchasing electric energy and PPA at an auction scheme conditions, provide the investors with enough guarantees for the future payments for the electricity generated, stability in pricing and volumes, according to which electricity will be sold.

The Ukrainian government authorities have to pay a significant attention on the pre-bidding stage, the participants' selection and definition of the proper amount of quotas. The participants need to know the clearly specified auction parameters, just what, where, when and how the auctions will be run.

What is more, the officials need to identify the state body that will be responsible for the calculations of the sums of money, shifted to be paid by the end users, as well as the optimal and targeted price for electricity, the country wants to reach.

To sum up, the study findings show that reforming of the Ukrainian renewable energy aimed at fast and steady growth of the sector is a question of political will. The Ukrainian government can accelerate the reforming process by implementing clear legislation frameworks aimed at sufficient flow of private investments.

7.4. Limitations and suggestions for further research

Regarding the limitations of this study, although my informants list was formed with the help of experts with different backgrounds, representatives of both the government and business, the scope of my research comprises only big national and international RE companies, neglecting points of view of the companies, dealing with small-scale RE projects. The same can be said about limited scope of international investors, who were taken for my research. The two companies of solar and wind power were the Norwegian enterprises.

These mean, that the limited origin and size scope of RE companies, could result in limited points of views towards the attitudes of investors to the current RE policies of the government, the future transition to new policies in RE and the barriers, the companies are facing now in Ukraine. That is why, it would therefore be appropriate in follow-up studies to include small-, middle-scale and other foreign RE companies in order to identify and assess the obstacles and problems of the current governmental RE development issues from other RE market players' point of view.

Moreover, the findings of the study cover only the wind and solar sector of RE in Ukraine. However, biomass is also actively developing and, as well as small solar generation projects, has its specific status conditions of support in the transition process to renewable auctions. As the Ukrainian government has chosen the new business model for the energy sector in the country, shifting from gas and coal to RE, the further studies can also cover the attitudes of conventional energy companies towards the sustainable development of the Ukrainian energy sector and the perspectives of such companies for the diversification of their activities and transition to RE.

What is more, the results of the empirical findings have shown the potential development of the state's financial tool for supporting RE projects, using the Fund of Energy Efficiency, which will be launched in the nearest future and will be financed partly by the Ukrainian government and partly by international organizations. That is why, the further research could also concentrate on the effectiveness of combining this financial tool with the current mechanisms of RE support in Ukraine.

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EUEA http://euea-energyagency.org

NBT http://www.nbtas.no/en

NIC Office https://m.facebook.com/nicoffice

SAEE http://saee.gov.ua

Scatec Solar https://scatecsolar.com

IX. APPENDIXES

Appendix A: Interview Guides

Interview Guide for the investors/ RE companies

This interview is aimed at gathering information for my Master's thesis project research. The aim of the study is to identify how does the government support RE projects by focusing on state's actions and RE policies, barriers that erase voids in the accomplishment of RE deployment and highlighting the main interests of stakeholders in shaping and influence on the RE sphere development in Ukraine.

Thank you for your time and help!

1. Why [the company] has decided to run business in Ukraine? What is the background of business relations in solar RE between [the company] and Ukraine? What has attracted [the company] in Ukraine: is green tariff the only reason?

2. The three solar power plants in Mykolaiv are currently on the stage of development? Has the construction process started? How much time does it take to finish the construction of the project from the beginning till the connection to the grid?

3. Are you facing difficulties during the construction process regarding the normative activities of the government? And if yes, how, in your point of view, these obstacles have to be solved?

4. What other projects [the company] is running in Ukraine or is planning to run ? Are they also on the stage of development now?

5. Who are the main project-affected stakeholders of Mykolaiv project?

6. Why EBRD has decided to finance the project? What is an amount of support granted by EBRD? What are the requirements to [the company] from EBRD? Has EBRD any influence on [the company] in RE policy?

7. In which way is [the company] affected by the government of Ukraine?

8. Do you believe in a dialogue between RE companies and the government? Should the state pay attention and promote the needs of the participants of RE market? Is Scatec is involved in such dialogues?

9. Now, as I have understood, the only support for solar energy from the government is green tariff. Without any doubt, this mechanism is effective. But, in your point of view, will it be effective in the future? What are the pros and cons of green tariff now for both Scatec and the government?

10. Has [the company] enough power to influence government's decisions in RE policy? If yes, in which way?

11. Is [the company] exempted from paying VAT for the imported machinery?

12. Lots of companies now are using green tariff. Do you think the excess of electricity produced from RES can have harmful effect on the country's economy or the electricity grid infrastructure?

13. In your point of view, what other mechanisms of government support could be effectively applicable now in solar energy in Ukraine?

14. Green tariff will expire in 2030? How RE will be supported than?

15. What will [the company], as a solar power producer, receive after signing of PPA? What should be done by [the company] in order to sign PPA (the requirements)? How PPA agreement will be implemented in [the company] (conditions)?

16. Speaking about the Ukrainian energy strategy 2035, do you believe the country could reach the point of 25% of RE generation in 2035? Do you think the government is doing its best to push the development of RE?

17. What do you think about the transition to auctions from 2020? Will it become beneficial for the producers of RE and for the market? In which way?

18. Are you satisfied with current RE policy of the government?

19. What other barriers [the company] is facing now in Ukraine? What should be done to overcome them?

20. What social benefits the project will bring to state/local community?

Interview Guide for the State Authorities/ NGOs

This interview is aimed at gathering information for my Master's thesis project research. The aim of the study is to identify how does the government support RE projects by focusing on state's actions and RE policies, barriers that erase voids in the accomplishment of RE deployment and highlighting the main interests of stakeholders in shaping and influence on the RE sphere development in Ukraine.

Thank you for your time and help!

1.Why is renewable energy of Ukraine interesting for development?

2.Why companies have decided to run business in Ukraine? What has attracted?

3.Now, as I have understood, the only support for solar energy from the government is green tariff. What do you think about this mechanism?

4.What are the pros and cons of green tariff now for both NBT and the government? In your point of view, what kind of mechanism of government support would be more relevant in the future?

5.Auction system vs. green tariff?

6.What do you think about green tariff expiring in 2030? How RE will be supported than?

7.What are the requirements of PPA signing for the companies and what should be done by investors in order to sign PPA?

8.What do you think about the law to transition to auctions from 2020? How it will influence the producers of RE and for the market? Is now a proper time to use this scheme?

9.What kind of interaction should be between RE companies and the government? What role should the state has at the RE market? In what ways NBT is involved in such interaction?

10. How companies are involved with government's decisions in RE policy? If yes, in what ways?

11. Lots of companies now are using green tariff. What do you think about the excess of electricity produced from RES?

12. Speaking about the Ukrainian energy strategy 2035, what do you think about its ambition of RE generation in 2035? What do you think the government should do?

13. What do you think about the current RE policy of the government? The main gaps of the current policy

14. Barriers companies are facing now in Ukraine? What can be done to overcome them. From company's side and government's side?

Appendix B: RE regulatory normative system in Ukraine

Title	Year	Policy Status	Policy Type	Policy Target
Ukraine's Electricity Market Law (Law no. 4493)	2017 (entering into force in 2019)	In force	Regulatory Instruments	Multiple RES
Law on simplification of procedures for land acquisition for the construction of the production of heat, electricity from renewable energy and biofuels	2016	Planned	Regulatory Instruments	Multiple RES
National Renewable Energy Action Plan	2014	In force	Policy Support Strategic planning Economic Instruments Fiscal/financial incentives Tax relief	Multiple RES
Corporate income tax exemptions in Ukraine available for renewable energy sector	2011	In force	Economic Instruments Fiscal/financial incentives Tax relief	Multiple RES
Green Tariff (Feed-in-Tariff)	2009 (amended in 2017)	In force	Economic Instruments Fiscal/financial incentives Feed-in tariffs/premiums	Solar photovoltaic, Wind, Hydropower, Bioenergy Biomass
Law on Promotion of Biological Fuels Production and Use (no. 1391-VI)	2009	In force	Regulatory Instruments Policy Support	Bioenergy Biofuels for transport
VAT and Customs Duties Exemptions	2008	In force	Economic Instruments Fiscal/financial incentives Tax relief	Multiple RES
Programme to develop biodiesel production	2005 (updated 2006)	In force	Economic Instruments Direct investment	Bioenergy Biofuels for transport
Law on Combined Heat and Power (cogeneration) and Waste Energy Potential	2005	In force	Policy Support Regulatory Instruments	Multiple RES

Title	Year	Policy Status	Policy Type	Policy Target
Law on Alternative Energy Sources	2003	In force	Policy Support Strategic planning	Multiple RES
Law on Alternative Liquid and Gaseous Fuels	2000 (amended in 2012)	In force	Policy Support Strategic planning	Bioenergy Biofuels for transport
Programme for State Support of Non-traditional and Renewable Energy Sources	1997	Unknown	Policy Support Strategic planning	Multiple RES
Law on Energy Savings	1994	In force	Policy Support Strategic planning Policy Support Research Development and Deployment (RD&D)	Multiple RES

Source: International Energy Agency (2019a)