Aalborg University Business School MSc International Business Dissertation

Investment Climate for Foreign & Domestic Companies at European Energy Sector

Roman Straska

Table of Content

Abstract

The European Climate and Energy policy framework 2030 was adapted by the European Council in 2018, and was revised and updated to meet more challenging climate goals. This includes increasing renewable energy (RE) targets from 32% to 42.5%, with potential to top-up to 45 percent energy consumption.

This will require massive investments into the energy sector. That's a trigger for FDI to contribute to the development of European Energy Market. For instance, foreign investments may contribute in the development of new energy infrastructure to guarantee an affordable and secure supply of energy. This infrastructure may link the EU members to one another, but it might also be built to make it easier to import energy from other nations. But in recent years, FDI in the EU's energy sector gained more attention because of fears of unfair competition and concerns to national security posed by foreign ownership and control of "critical" infrastructure.

In addition, cross-border deals in energy systems, energy technologies, and data-intensive technologies are likely to be affected by the changes in investment screening practises. Thesis aims to identify market barriers, drivers and opportunities and explain the paradigm behind them. While putting them into the relation between foreign-operated companies and domestic enterprises. It also try to provide several suggestions on how to balance barriers with investment opportunities. The thesis could serve for scientific readers in two ways:

- By adding more light to information about the usage of IB theories in Energy Market.
- And it could be very helpful for investors who are seeking to enter or expand their business in the energy market.

Keywords: Foreign Direct Investment, Liability of Foreignness, Foreign Investors, Domestic Companies, Drivers, Barriers, Opportunities, Energy Market, Energy Sector, Renewable Energy

1 Introduction

The European Climate and Energy policy framework 2030, was adapted by European Council firstly in 2018, as a result of the global climate agreement also many times referred to as “Paris Agreement” . (EU Commission, 2019) Then just about 5 years later, this framework was revised and updated to even to more challenging EU’s climate goals. As one of these goals, EU leaders decide to higher renewable energy (RE) targets, by increasing their initial target of having 32% of energy on the market coming from renewable sources, to 42,5% with potential to top-up to 45 percent energy consumption coming from renewable sources. (REUTERS, 2023). Researches agree, that these goals brings a lot of challenges to current market situation, mainly because the EU’s average it’s according to newest data from (EUROSTAT, 2023), just near to 22%. This means , that EU countries will need to boost their proportion of RE until 2030 by at least 20%. This makes RE implementation one of the greatest Continent’s environmental challenges today. This will required massive investments into energy sector, not mentioning many of the states are bellowed this average. Which illustrate great question : ”*who will be responsible for such quick and huge shift to the new power sources* ? “

A possible solution could be provide market with more foreign direct investment, in the energy segment. As some authors states, FDI is a driving force of growth for every developing economies. (Stančík J. ,2007). Those investments usually, comes in the form of new enterprise or in the form of capital inflow to an existing domestic companies. Unfortunately the global flows of foreign investment are increasingly curtailed by tightening investment screening policies, especially when comes to the strategic assets and national security. (Rajavuori, M., & Huhta, K., 2020) And with rising security issues in Europe after claiming gradual independence from Russian fuels, EU members will probably update their screening legislation even more often.

Therefore this thesis, will aim it’s research on identifying and explaining those market barriers along with the drivers and opportunities for investors deciding to enter or expand their business on energy market. Moreover, how to overcome those barriers is building another crucial question and this question will be answered at the end of the thesis. All in hand, with the fact that in Analysis paper will discuss those key determinants by putting them into the relation

between foreign-operated companies and domestic organizations. Although this concept is not new, the majority of FDI research has concentrated only on one aspect of this issue: the kinds and sources of benefits, such as intangible assets, that enable foreign investors to make up for the disadvantages of being a foreigner.

1.1 Research Background

In this chapter, the research background and research question, plus following sub-question of the project will be presented. Further, the choice of research approach will be explained as well.

Foreign direct investment is a driving force of growth for every developing economy. It brings in new capital, technology, and know-how. Countries in the European Energy market are no exception. Some researchers like (Keeley and Ikeda, 2017) even think, that that energy is now fastest-growing sector for FDI. However, with raising concerns over securitization issues and raising economic nationalism, many countries are reaching for protective mechanisms which could help to secure their strategic economic sectors. This, unfortunately, create more obstacles for firms that operating or trying to entry on one of the fastest-growing market nowadays.

On the other side, the presence of drivers and opportunities for investors who are seeking for new potential investments in energy market, it's rising up. Therefore, the aim of this research is to identify those market determinants and add certain knowledge to explain the paradigm behind it, while putting them into relation between foreign-operated companies and domestic organizations. Afterwards, in the end, suggestions on how can be overall barriers outbalanced by investment opportunities are provided, by using real-world data from semi-structured interviews.

1.2 Research Question

Based on the problematization above following research question was defined :

Main research question: "What are Drivers, Barriers, Opportunities for foreign & domestic companies on Europe's Energy Market,?"

The Author has also discovered the following sub-question:

Introduce the second sub-question: “How can those firms outbalanced current market barriers by investment opportunities?”

1.3 Limitations of research question

In the thesis, I decided to do the sectorial separation of markets, therefore the thesis solely concentrated on one market and that’s energy market and not on any other markets. Furthermore, from a geographical concern, even though the paper accumulates a lot of data from different sources, I tried to aim the findings from secondary data on European Energy Market. Even though some states might face minor differences comparing to other EU members. Generally, this market it’s basically facing the same market drivers or barriers because of the common European integration which was built for years across the EU.

Moving forward, another aspect of the research limitation is concentration on the research question’s aim to identify market determinants for future and current investments, meaning that those determinants were previously identified as drivers, barriers and opportunities. Foreign direct investment and Liability of foreignness were two theoretical concepts used to describe those patterns in energy market.

In terms of the data collection, the research design was lately classified as cross-sectional, meaning that were two types of data used that contributed to lit. review and creation of interviews. In addition, the access to data weren’t limited at least in case of secondary data however in term of primary sources of data the amount of information where somehow limited to the industry knowledge the interviewees possess and were willing to share. The analysis part, solely relate from data used in lit.review and interviews, therefore any other dataset wasn’t used to analyze initial findings. In terms of , the method for analyzing information only qualitative evaluation was used.

2 Methodology

This chapter will determine the methods applied to acquire and understand the data utilised in this study. To better appreciate how the selected methodologies are related to answering the

research question and how crucial they are in comprehending the phenomena, it is vital to define the reasoning and strategy of this study.

The procedure began with an in-depth analysis of foreign investments in the energy sector. Then the investigation for the variables affecting foreign investments was initiated. This was used to identify existing and new elements in the context of energy market practiced in real time. However, before the aiming and mastering the research question, actually many seeking-knowledge activities were made in order to understand specifications of the energy market, this helped significantly to build basis for this research. Thanks to that, I was able to identify the main determinants of this market, which help to shape his investment climate and those determinants happened to be Drivers, Barriers, and Opportunities. This offered me a first-hand knowledge of the area of research. Then, a missing link between the theoretical perspective of IB theories and real-world ground conditions was tried to be expressed. The data for this thesis were gathered from trustworthy and reliable sources. The author obtained information from two interviews with companies currently operating in Energy Market using primary data sources. The secondary data was collected from sources disponible at Google Schoolar, ProQuest, ScienceDirect, Research Gate, Aalborg University Library. In research design, terms as: FDI, FDI in Energy Sector, Determinants of FDI, Development of Foreign Investments in Europe's Energy Sector, Liability of Foreigners(LOF), Determinants of LOF, LOF in Energy Sector, Investment drivers, Investment barriers, Investment opportunities; Drivers, barriers ,opportunities at Energy Sector or Foreign vs Domestic investments and more were used to find suitable data.

Moreover, these secondary data findings was used to construct the literature review, and then they helped to build a semi-structured interviews. This literature review, was used to answer research questions, by adopting various frameworks and methods. A comparative study approach was adopted to address the research questions and research background. The findings from both primary sources and secondary sources was compared together, where data from primary sources are concentrating on using real-world examples to illustrate a research gap. Thanks to that a framework of key drivers, barriers and opportunities was developed and was put into the context of two selected firms representing foreign investors and domestic ones. The goal of the interviews was to gain more insight into how the drivers, barriers, and opportunities of these two categories of businesses can vary. This thesis attempts to explore the comparison to the literature, and the real-life experiences that are based on the assumption, that there are also differentiations between two types of companies(investors) .

Moreover, thesis also try to provide an answer on " how can those firms overcome current market barriers by new investment opportunities" ?

From another perspective it can be said that this thesis therefore research, the energy sector which is many times also referred by many researches as a "strategic economy sector" , and it's determinants of the investment environment. The transition from production of fossil fuels to production from renewable sources is creating a big investment potential on the market, however a many companies are resistant, as a result of substantial obstacles (barriers) while entering this market. Therefore, this research paper is focusing to explain not only the all the barriers, but also drivers and potential of this market, which can represent a positive outcomes for future investors. In this way, companies get overall picture of potential hidden in energy market with all the possible obstructions laying before them if they decide to do so. Nonetheless, the paper also discuss how to outbalance those obstacles so it sort of giving an hand-book information for future foreign, domestic investors to understand more this sector of economy. Thus, I think this may be also a useful case study for other organizations considering an investment into new segments/markets, and good additional literature international business.

2.1 Data Collection

Any analysis relies heavily on the collected data. Data collection in research may be divided into two broad categories: primary data and secondary data. Primary data, as the title indicates, is data that is obtained for the first time by the researcher, whereas secondary data refers to information that has previously been created by others. (Ajayi, V. O., 2017). Data were collected using a combination of a literature review and semi-structured interviews, thus making this study a cross-sectional research design. Those semi-structured interviews were, therefore, created in order to get a better inside into barriers, drivers, and opportunities that firms is facing in the real-time at energy market.

This information is offered on the basis of interviewee claims that may be accurate at the time of the interview but may change in the future. Adding that primary data was gathered by the author of the thesis, by conducting interviews. In term of secondary data, those include all information obtained by studying available literature, case studies, industry reports, reliable websites, and others.

2.2 Interview Selection

As research is concentrating on issues in the energy market, thus the selection of candidates was limited to those organizations who was part of this market in European Union. I was also meaningful to focus on companies which have direct experiences with an investment process on energy market, as obtaining data from companies concentrating on end-user- customers in energy market(e.g. households, small-size companies) won't be realy sufficient, therefore this group was then narrowed to investment groups like private equity companies, capital joint venture etc. and or large-size companies dealing on more levels of market, for instance: power production companies, power developer who is involved in more market activities - both selling & purchasing power. The search for this companies, was later narrowed down to representatives on Slovak's energy market. Author used different platforms for reaching out to companies such as- LinkedIn, official website or email contact. Two positive responses was received, each company have different size (SME & MNC), capital structure and was also presented on different markets. Later on I have decided to split the two companies into two different categories, where first company, with foreign capital in their structure, is described as a foreign company based in Slovak market, and the second company which is quite smaller(meaning not just in size but also have a smaller production portfolio) , plus it doesn't have international background it's categorized as a domestic company. The mentioned company and their brief background can be see below:

1. Slovenské Elektrárne a.s - Company is the largest electricity producer in Slovakia and one of the largest in Central Europe. It also produces and sells heat and provides support services for the electricity system. SE is joint-stock company and was founded in 2002. Therefore their capital structure consist from more owners, where Slovak Republic owns 34% and the rest 66% it's owned by foreign companies represented by 50% ownership of Enel Group and the other half by Energetický a průmyslový holding, a.s. (EPH). The company operates 37 power plants from which 31 are hydroelectric, two nuclear, two thermal and two photovoltaic power plants with a total installed capacity of 4144MW. The company also employs 3797 employees. Thanks to the balanced mix of production sources, in 2022 95 % of electricity supplied to the grid was free of local carbon dioxide emissions.

2. Janom s.r.o- Janom it's identifying it's-self as a private equity company with focus on investment and development of Renewable Energy. It was established in 2008, and since then built tens of Megawatts of power in RE. They are operating mainly in Slovakia, but have helped to build also some facilities in Czechia and Finland. They are focusing on private equity and venture capital investments, with the aim on innovative/technological companies, which are part of the Energy Market. In the past, the company has been, investing in companies such as, Greenway(major player on Slovak Market with electromobility),Voltia, Wattstor, Straightforwardcapital or Carbodeon.

In those businesses, more staff members were contacted to ensure that I would locate the appropriate individual to assist me in expanding their research. This appropriate individual could be also identified according to other researches as "Elite Informant". There are multiple definitions of elite informants, ranging from he highest-ranking executives to the most qualified professionals. Based on this literature, the following definition was offered: "*Elite informants are key decision-makers who have extensive and exclusive information and the ability to influence important firm outcomes, either alone or jointly with others*". (Solarino & Aguinis, 2020) At the end, two interviewees were found and the interview could be setted-up. The professional background of these "elite informants" can be seen in Appendix: Transcript of Records..

2.3 Semi-structured Interviews

It is crucial to comprehend what the researcher hopes to gain from data gathering since there are several benefits associated with various qualitative data collection techniques.This data were collected using a combination of a literature review and semi-structured interviews.

As (Barriball, L. et all. 1994) stated in his research, interviews that are semi-structured are appropriate for examining people's views on difficult and delicate subjects. This approach is

often used by researchers to learn more about the specifics of the issue at hand as well as participants' opinions, perspectives, and experiences related to a certain subject that a questionnaire is typically unable to provide. Therefore, clearly, the more unstructured the interview becomes, the more active thinking the interviewer has to do throughout the interview in relation to questioning.

By developing the semi-structure plan, the researcher was able to ensure that each one of the questions were addressed while also providing room for any off-script chances that may further expand the study. The interviews were conducted via online meetings(video call) on two platforms Zoom and Microsoft Teams. The length of the interview ranged from 1 to 2 hours. All interviews took place between April 2023 and end of the May 2023. The formulation of the questions was subordinated to objective of this thesis, therefore my formulation was divided into five divisions. Those divisions could be see in Interview Strategy placed in Appendix, at consists from Introductory questions, questions related to the drivers; barriers; opportunities and extra additional questions. Through the process of interviewing, feedback (information) have been recorded on purpose of data collection and data structuring, Also during the process author ask couple of supplementary questions, on purpose of gaining much deeper insight to the original questions.

Both interviews were transcribed, using manual transcription by following exact audio procedure from day of recording. After the transcription, the interviews were also translated to English, as the were originally conducted in the Slovak language.

3.0 Theoretical Perspective

3.1 Foreign Direct Investment Classification

In order to fully understand the concept of today’s Foreign Investments in the strategic economic sector, it is also important to briefly present the Foreign Direct Investment theory, from now on only (FDI). Most of the companies which are trying to invest abroad/overseas are still using or following the initial idea and patterns behind FDI concept.

Numerous theoretical articles analyse the matter of foreign direct investment (FDI), and the majority of the study on the motivations of FDI was created by J. Dunning, S. Hymer or R.Vernon. According to (John Dunning, 1993) investors choose FDI because of its three determinants: O - ownership, L - location, and I - internalization advantages. FDI will take place when these three advantages come together. MNEs are guided by OLI regarding investment questions, 'why',' where' and 'how'.

With an interesting opinion comes (Lipsey, 2001) who tried to explain FDI by looking at it from macroeconomic and microeconomic perspective… From a macroeconomic perspective, He states: *"FDI is a particular form of capital flows across borders, from countries of origin to host countries, which are found in the balance of payments. Where, the variable of interest is: capital flows and stocks, revenues obtained from investments"*. On the other hand, *"The microeconomic point of view, tries to explain the motivations for investment across national boundaries from the point of view of the investor"*. This perspective also examines the Rather than the flow of investments and stock prices, the implications of multinational corporations' activities to investors, the country of origin, and the host country. (Lipsey, 2001)

Buckley and Casson (1976) conceptualized the internalization theory. In the international business literature, the market imperfections approach to FDI, market imperfections created the opportunity to internalize transactions within a firm. Instead of conducting business externally between two firms- in separate countries, it made sense to instead maximize profits by doing business internally across national boundaries. Two things are essential at this point, firstly firms would choose the least cost location and secondly, firms would internalize until the cost outweighed the benefits.(Kastrati,S., 2013)

Despite the fact that various academics have attempted to explain the phenomena of FDI, we cannot say there is a widely accepted theory because each new piece of information adds some new features and critiques the previous ones. (Denisia V., 2010)

On the other hand, researchers are more clear when comes to the positive or negative prospects of FDI. (Caves, 1996) As one of the earliest, he thought in his Economic Analysis that the reason why different countries try to get foreign direct investments is because it could be good for their economies. FDI would increase output, the spread of technology, management skills, know-how, international production networks, the reduction of unemployed people, and access to markets outside of the country.

(Wes, M. &Lankes, H.P., 2001) states that FDI can contribute directly by supplying finance and raising employment. While doing so, investment for restructuring, combined with improved management and Western technology provides chances to increase part of the existing capital's yield. He also said, FDI can solidify and advance the process of change in Central and Eastern Europe and the Commonwealth of Independent States, and it could be crucial in assisting in the realization of the region's growth potential. The capital stock in economies in transition is large by the standards of middle-income countries. These ideas also support (Borensztein, 1998), considering FDI as a way of accomplishing technology spillovers, with a higher contribution to the economic growth than would have be a national investment.

3.1.2 Foreign Direct Investment and National Investment

During the past few years, FDI by Multinational Corporations has become the hub of international economic activity. Many academics have studied the impact of Inward FDI in terms of economic gain and domestic productivity in the host country. Besides these studies, in this sub-chapter, I mostly decided to look at FDI from host country's perspective and to what extent they affect domestic investment.

For instance, the empirical findings in (Wang M.'s, 2010) study suggest that due to the overall crowding-in effect (inward FDI encourages domestic investment in the host country), FDI might be advantageous to local investment, especially in less developed countries. The study also argues that Government policies should aim to help domestic businesses become more efficient so that the positive effect of FDI can take place after the entry of MNCs within a quite short length of time.

According to Stančik J., (2007) . It makes sense to believe that since foreign investors are usually one step ahead of domestic companies, these domestic firms need some time to advance their technology or efficiency. He is also stating in his paper : "*Horizontal & Vertical FDI Spillovers: Recent Evidence from the Czech Republic*", that foreign investors negatively affect performance of domestic companies.(Stančik J., 2007)

(Van Loo, 1977) is one of many experts who have looked at the real-world link between FDI and domestic investment in the host country. He have found a neutral or crowding-out effect (inward FDI discourages domestic investment in the host country) on Canadian domestic investment. (Ang J., 2008) comes with quite similar results from Malaysia, which happend between the years 1960-2003, and concludes that FDI is just simply complementary to private domestic investment.

Early findings by (Vernon, 1971; Dunning, 1973;Buckley & Casson, 1976 and others) of this productive research stream suggest that, MNCs compared to domestic companies are larger, more profitable, and spend more on advertising as well as research and development. In addition, they tend to have higher levels additionally they often have greater amounts of intangible assets (Mezias J.M, 2002).

3.1.3 FDI and Energy Sector

Some authors as (Sirin 2017; Gatzert and Kosub 2016) thinks that , developing countries must attract foreign direct investment to their energy sector, which also underlying (Keeley and Ikeda, 2017) by thinking that energy is now the fastest growing sector for FDI. In 2015, approximately eleven percent of total greenfield FDI was allocated into renewable energy placing it into the top five sectors for investment. (Gatzert and Kosub, 2016). While the energy sector attracts the bulk of FDI in less-developed countries, in developing countries FDI faces greater political uncertainty than experienced in developed countries (Keeley and Ikeda 2017).

However, energy transformation increases the likelihood that policies will change, as well as public engagement and criticism (Bondarev and Weigt 2018). Energy projects also have increasing reliance on emerging technology, longer operational durations, and higher capital needs, of course, all these factors make investors more sensitive to a host country's political climate than does general FDI (Christensen and Hain 2017; Liu and Zeng 2017;Jiang, W., & Martek I., 2021).

According to(Paramati, S. R. et all. 2017) across the world, FDI inflows are the main source of funding clean energy projects and still very little attention was received to this source of funding. He states that, FDI inflows can affect clean energy projects in multiple ways:

i) Businesses may access foreign cash more affordably and easily thanks to FDI, which can be utilized for the deployment of technology in clean energy projects,

ii) FDI inflows are projected to increase the host nations' energy efficiency and lower CO2 emissions since they transfer sophisticated technology to them

iii) Additionally to promoting sustainable energy investments by switching conventional energy investment incentives to clean energy projects, governments must also enhance domestic investment conditions.

Institutional Factors and the Business Environment, regarding type of the countries

Research from (Gorodnichenko, Y., Svejnar, J. et all., 2006), is taking on perspective, where FDI and their entry mode is related to the type of institutions in the host country. Meaning the difference between countries' spillovers gains(losses) might be caused by differences in institutional factors and business environment of the countries. For instance, Graham & Blomstrom (2005) suggest that country with exceptional property rights plus with more openness to market rivalry and FDI will attract FDI with a higher level of technology, because by being non-restricted or limited, firms will be able to optimize. Oppositely, countries that are imposing restrictions on ownership or require a technology sharing will bring FDI with a lower level of technology. Furthermore, some studies shown that foreign Investors prefer to transfer technology within totally owned networks of international subsidiaries than joint ventures, licences etc. Accordingly, Hence, these findings tends to suggest that wholly-owned foreign enterprises may have more favorable spillover effects than partially-owned foreign firms since they have a greater degree of technology., and that in better business conditions, such as more open economies with stronger rule of law, the beneficial spillovers should be much higher. (Gorodnichenko, Y., 2006)

3.1.4 Institutional environment

The empirical literature display that institutions are essential for attracting FDI. For illustration, (Baklouti & Boujelbene, 2014) research on what influences investment flows and what doesn't,

in the Middle Eastern and North African countries between the period 1996–2008, finding that the quality of institutions is a key factor in appealing FDI, although regulatory quality and corruption presume a little influence. Comparable, study from (Ahlquist, 2006), who studied 90 developing countries by using cross-sectional and time-series dataset between 1985-2002, shows that FDI is attracted to more democratic regimes.

Similarly, (Li and Resnick, 2003) investigate the role of democracy and property rights protection in attracting FDI, arguing that democracy has both positive and negative consequences on attracting FDI. Some other studies discuss governance and FDI, for instance, (Mahbub, T., et al., 2022) discover that bureaucratic red tape, political instability, corruption, and the quality of the legal system have a very little effect on where US businesses choose to locate.

Another factor that could impact spillovers is the nationality of foreign investors. (Javorcik, et al., 2004) argue that there are two reasons why we might see nationality matters:

1) FDI from farther away will have less spillovers because the proportion of intermediate inputs supplied by multinationals in a host country, is positively connected with the distance between the multinational's headquarters and the manufacturing plant in the host country.

2) Some host nations will be covered by preferential trading arrangements, but not others. The quality of FDI (degree of technology) may differ by origin, i.e., FDI from more developed nations may have a greater level of technology compared to FDI from less developed nations.

Thus we assume that FDI from the OECD countries may have higher technology than FDI from non-OECD countries and therefore we would see greater spillovers from FDI from OECD countries. (Gorodnichenko, Y., Svejnar, J.,et al.,2006).

3.2 Liability of foreignness

Despite the fact that multinational corporations might gain from expanding into other markets, such expansion also can be accompanied by competitive disadvantages, relative to deep-seated local businesses. As the previous chapter on FDI provided us with much knowledge which can be related to thesis research background, now I would like to concentrate on how can this issue be explained from the concept of Liability of foreignness. The concept of the liability of foreignness (LOF) is considered as a backbone of the fields of international strategy and

international business (IB). Therefore it is undoubtedly strongly rooted in the theories explaining foreign investments in Strategic Economic Sector of any country.

The first author who introduced the term:"costs of doing business abroad," was (Hymer , 1976), prompted that foreign subsidiaries would face specific disadvantages because: ''national firms have the general advantage of better information about their country: its economy, its language, its law, and its politics.'' Nevertheless, only later, when (Zaheer, S., 1995) introduced this phenomenon with the notion of "liabilities of foreignness", did the has attracted the attention of several academics who have developed its theoretical underpinnings.

Zaheer (1995), defined liabilities of foreignness as additional costs that firms from abroad face when operating and described four of these costs:

- costs closely correlated with the geographic separation between the parent and subsidiary;
- specific costs incurred solely by foreign subsidiaries as a result of being unfamiliar with host-country environments;
- costs due to economic nationalism and a lack of legitimacy in the host nation
- costs from sales restrictions imposed by the home country. While not all-inclusive, this list covers the major sources of additional costs that foreign businesses operating abroad must contend with.

In contrast, (Aliber, 1970) believes LOF represent significant variable costs, claiming that foreign investors could overcome supplementary variable costs posed by LOF because they have an advantage in the capital markets for both debt and equities. To overcome such a liability, authors like Buckley and Casson- TCE, Caves and "eclectic" Dunning, views emphasize the necessity for multinational firms to provide their foreign subsidiaries with particular company-specific advantages. (Peng, M.W, 2001)

All these studies also underline findings from a recent study done by (Francis et al., 2010) on Equity Markets, where studies conclude that companies face a number of challenges in foreign equity markets compared to their local counterparts. Firms boosting equity in a capital market of host nation, may have to "underprice" it's shares. They could also incur greater underwriting costs and professional expenses (e.g. costs of securitization for legal counsel, auditors, autonomous directors), or greater initial listing expenses compared to domestic firms.

3.2.1 LOF Costs (barriers)

There might be myriad implications of LOF in IB literature, however, the on from (Portes & Rey, 2005), provides very interesting perspective which extends traditional LOF research by integrating it with institutional theory. This market implication serves as a framework for identifying, describing the cost of LOF in international environment, and afterward trying to apply various overcoming strategies to solve this issue for international business in capital markets. He (Portes & Rey, 2005), clarify these costs as a :

I. Institutional distance

II. Difficulties in information gathering

III. Unfamiliarity

IV. Cultural Distance

In this chapter, I'm going to explain how can these costs be driven by institutional differences between home and the host country.

I. Institutional Distance

According to several authors, there are three main dimensions of Institutional Environment. First dimension is institutional distance by itself, which was described by (Xu & Shenkar, 2002) as the degree of separation or the extent to which institutions diverge from one another, among nations. Then Substantial Institutional distance creates difficulties for firms from abroad, seeking to achieve legitimacy in a host country (Kostova & Zaheer, 1999). The regulatory dimension is specialy notable for explaining LOF. The regulatory dimension includes governmental regulations and policies that shape transactions inside capital markets, as well as rules and laws which favour product and capital market players and promote enterprises' attempts to obtain resources. Nonetheless, it could be said that regulative distance outlines the distinctions in environments between home and host countries**.**

It is commonly accepted that investors prefer to retain their emphasis on local enterprises when they believe the risks and costs of purchasing and holding securities issued by foreign companies are sufficiently greater than they are for local companies. These risks and expenses

are principally caused by institutional disparities between the financial markets of the home and host countries.(Bell G., Filatotchev, I. et. All, 2012) For instance, There may be a reduction in minority investor protections in a foreign country compared to the investor's home country. Investors would thus anticipate receiving better returns to make up for their heightened risk.. Additionally, when a company originates from a nation that is institutionally distant, host country investors might not be familiar with informal institutional contexts, such as the extent of corruption and the value of informal networks, in the home nation. Once more, these elements raise the risks and unpredictability of a foreign firm's equity. There may be expenses associated with institutional barriers to trade assets.(Bell G., Filatotchev, I. et. All, 2012)

II. Information Costs

Information gaps or so-called "asymmetries" are what finance experts use to explain the mystery of home bias and the patterns of international portfolio investments in general. (Portes & Rey, 2005). When one side of a transaction has more or better knowledge than the other, there is an information imbalance**.** This situation especially occurs often in international markets, moreover, there is a bigger potential for an uneven distribution of information between national and foreign investors. Uncertainties about the codified norms governing the behaviour and actions of corporate insiders in foreign marketplaces are a significant cause of such asymmetry.

Furthermore, investors also need information about organizations practises and conventions, national cultures, and company cultures to assess the value of foreign financial assets properly. However, this kind of information is often hard to get and even harder to understand. (Bell G., Filatotchev, I. et. All, 2012). It has been discovered, for example, that information flows are a significant factor of cross-border equity transactions (Portes & Rey, 2005). According to these research, asymmetric knowledge between local and non-local investors is a crucial determinant in investment choices.

To summarise, local investors understand domestic enterprises better than their foreign rivals. This is because local investors have an advantage in this regard as they are more likely to have access to insider information and understand the nuances of the domestic market. This can give them an edge in making informed investment decisions and potentially outperforming foreign investors.

III. Unfamiliarity Costs

Along with information costs, according to studies, companies must also cope with the reality that investors do not invest in enterprises with whom they are unfamiliar. It has been shown that investors tend to invest in certain types of eligible assets with which they are familiar, a phenomenon known as a "habitat effect" (Barberis, Shleifer, & Wurgler, 2005).

Unfamiliarity costs are different from information costs because even if information costs are the same, buyers will choose the company they know more about if they have to choose between two firms with the same information costs. Familiarity could come from: proximity, patriotism, name recognition, or number of other factors. (Bell G., Filatotchev, I. et. All, 2012)

(Chan, Covrig, and Ng, 2005) for example, find strong evidence for unreasonable familiarity by showing that investors put too much money in their home markets and don't spread the money they have left over enough "familiar" international markets. The research also demonstrates that the familiarity bias, often known as the local bias, frequently emerges as a preference for geographic closeness (proximity) . These writers show that mutual fund managers like to put their money in companies with headquarters close to where they live. Because of this regional bias, investors are likely to be very cautious when it comes to getting shares from foreign companies. This absence knowledge can add to the costs of LOF. (Kang and Stulz, 1997) show that foreign investors in Japan prefer big production companies with a global reach. Managers' knowledge of foreign markets helps them decide whether or not to look for capital resources abroad and where they should look.. For example, (Sarkissian & Schill, 2004) discover that physical closeness to the foreign market is a major factor in picking overseas listing places.

Even though these results show that internationalization makes a company more visible and reduces investors' costs of being unfamiliar with it, research clearly backs up the idea that investors prefer companies they know, and that knowledge often comes from a company's size and location. Foreign enterprises are clearly at a major disadvantage in host nation capital markets as a result of these factors. (Bell G., Filatotchev, I. et. All, 2012)

IV. Cultural Differences

"Culture is often defined as a system of shared values, beliefs, and attitudes that influences individual perceptions and behaviours". In the past few years, more and more people have come to realize that culture affects both economic exchange and results by changing expectations and preferences(Guiso et al., 2009).

Indeed, from studies results the amount of trust and the form of financial agreements are influenced by culture. Given the significance of culture in economic interaction, cultural variations across countries are bound to have a considerable influence on a wide range of cross-border economic transactions. (Bell G., Filatotchev, I. et. All, 2012). More recently (Anderson et al.,2011) found that "culture impacts investor behavior directly" even when geographical distance and regulatory factors are taken into account. Likewise, he contend that cross-cultural disparities in individualism vs collectivism are connected to levels of trading activity and security pricing between nations.

(Bell G., Filatotchev, I. et. All, 2012), conclude in his study that, foreign investors are hesitant to invest in a country that is increasingly isolated from the rest of the globe and speaks a different language. Foreign investors, on the contrary, will put more investments in a nation that is more developed, has a greater market capitalization, and has fewer transaction costs. As a result, a growing amount of empirical data suggests that investor behaviour is not totally rational, as previously thought, and that cultural influences limit investor rationality.

3.3 Drivers for foreign and domestic companies in energy sector

In this chapter two major drivers were identified first one is Europe's climate and Energy goals, which create a number of incentives for national governments and market players (private companies). These incentives, help later to create a legislative framework for support mechanisms, which are described in second part of this chapter.

EU Energy policies and Climate Agreements

Decisions taken at the European Union level enhance interest in energy from renewable sources, i.e., energy generated from water, biomass, wind, solar radiation and geothermal sources. The Renewable energy sources have an advantage over traditional energy sources in that they are infinitely available, create no or just a tiny quantity of greenhouse emissions, and are more affordable.

Additionally, increased public knowledge of environmental protection, as well as the causes and magnitude of pollution from traditional energy generation, puts societal pressure on public authorities. As a result of this pressure, several state entities, are dynamizing operations to increase the percentage of energy produced from renewable sources in national energy consumption. (Standar A., et al., 2020)

In 2018, EU leaders established a target that by 2030, 32 percent of the Union's energy consumption will be generated from renewable sources. In addition, according to European Commission documents, the transformation to a competitive, low-carbon economy would imply that by 2050, the European Union should have reduced its emissions by 80% relative to their 1990 levels. (EU Commission, 2019). The application of the low-carbon economy is thus one of the key challenges that the economies of the EU Member States face.

Tu put it into the 2030 perspective, from a more detailed view from (Veum, K., & Bauknecht, D., 2019) the most important ones include.

- Lowering greenhouse gas emissions by at least 40% (in comparison to 1990 levels)
- increasing the proportion of renewable energy in total energy consumption to at least 32%
- And raising energy efficiency by a minimum of 32.5%

However, it seems EU didn’t finish with strategy decisions about EU’s climate goals. On March 2023, the European Union reached a provisional deal on higher renewable energy targets, by increasing its current target of 32% share of renewable energy sources to 42,5% with the potential to top-up to 45%, all due to climate change and dependence on Russian Fossil Fuels. Nonetheless, this deal still needs an approval from the EU Parliament and EU countries to become law, which is normally a formality.(REUTERS, 2023)

Now statistics from (EUROSTAT, 2023) tells us that The EU only got 22% of its energy from renewable sources, not mentioning that there is quite a huge deviation among the each member countries, where Sweden leads the scoreboard by 63% RE share, on the other end lays countries such as Luxemburg, Malta, but also Netherlands and Belgium which use just about 12% of total energy use. For instance, a major economy player in Central Eastern Europe - Poland belongs to the group of EU countries where the share of energy obtained from renewable sources constitutes less than 15 percent., another countries in Central Europe such as Czechia or Slovakia are roughly at 18%. (See Appendix, Figure A), (EUROSTAT, 2023)

Therefore, reaching a new will call for massive investment in RE sources, scaling up production of renewables, and reinforcing Europe's power grids to integrate more RE energy. It is estimated by European Commission that additional investments of 113 billion euros in renewable energy and hydrogen infrastructure will be needed by 2030, if EU countries are to end their reliance on Russian fossil fuels. (REUTERS, 2023)

Support Mechanisms

The engagement of large finances to support initiatives in this sector is obviously necessary to achieve such a developed strategic objective. EU funds, including those from the general budget and structural grants, serve as the main sources of funding for energy projects. (Standar A., et al., 2020) These support initiatives, which comes from the original goal presented in previous section was result of European plus national institutions, and market as entity to help countries implement strategies introduce by EU leaders.

There are different types of support mechanisms, which serve for development of RE are often introduced by various market players. For instance, Danish Energy Agency (DEA), develops their framework for support schemes or often refers as “subsidies”, where they assort mechanism into these groups: the form of a price supplement, a fixed settlement price, a contract for differences, a fixed yearly payment or construction aid.

1. The price supplement is a fixed amount given as an addition to the market price. This assistance may be granted with or without a maximum limit. If a maximum is reached, the price supplement totally ceases to exist. If the market price hits a specified level, the price supplement will also cease to exist.

2. With a fixed settlement price, this support changes with the market price, while the producer's price remains constant. It is computed by subtracting the current price of electricity from an established settlement price.
3. For auctioned offshore wind turbines, the support is founded on a "contract for differences" structure. Consequently, the wind turbines must sell their own power on the market. The subsidy is determined as the difference between the offered and spot market prices.
4. The fixed yearly payment is given as a fixed amount every year.
5. The support for construction will usually cover a certain percentage of the construction costs.(Danish Energy Agency, 2019)

Danish Energy Agency has counted the present support for electricity production from various RE Sources. The calculation illustrates the variations in real support per kWh over the lifespan of each technology for systems deployed prior to February 2018. (Danish Energy Agency, 2019) In (Appendix-Figure B), we can also see on which RES was Feed-in-Tarrif used mostly..

Among those five groups of support mechanisms, described by DEA are two which are widely used on the European market.:

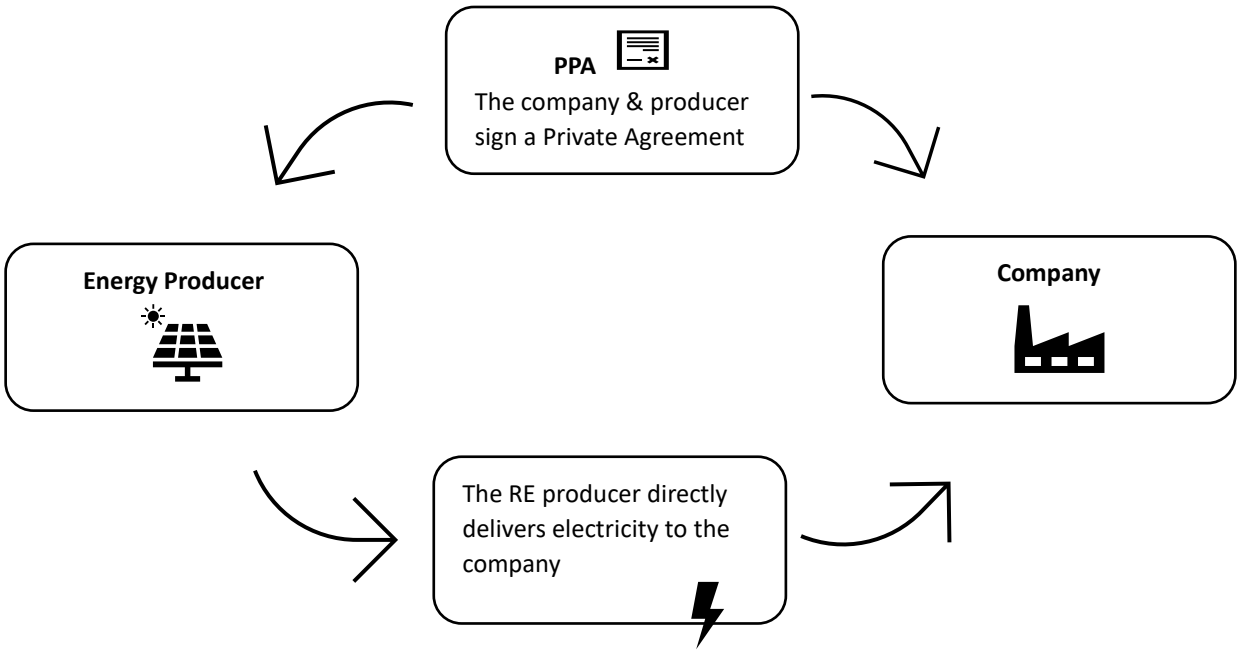
a) Feed-in-Tariffs (*type of fixed settlement price)
b) Power-purchase agreements (*basically created by the market)

For the purpose of this chapter, we only need to describe these two mechanisms for RE development, the rest of the data will be used in "Opportunities for foreign & domestic companies in the energy sector". As they are many times, also used as one of the dominant factors for investors seeking great investment return..

Feed-inTarrif schemes**,** work like this the government guarantees a fixed price for all production output under FiT schemes, and the producer is paid the difference between the fixed price per kWh produced and the spot price. The subsidy is effective because it provides long-term financial stability to RE investors. (Sandén,B., 2005).

A power purchase agreement (PPA) is a long-term agreement to purchase clean energy from a particular asset for an agreed-upon price between a renewable developer and a customer — often a firm, that requires huge quantities of power, or between a developer and a supplier who subsequently resells the energy. Physical framework of PPA can be seen below in Figure X:

Figure E: Physical on-site PPA



Source: Own processing, (Iberdrola, n.d.)

The signing of a PPA can be considered as the sale of a project and its environmental attributes (or so-called Assurances of Origin). It works basically as a promise or commitment, that allows an energy developer to make an investment choice based on profitability vs risk and get the financial backing required to complete the project (Iberdrola, n.d.)

3.4 Barriers for foreign and domestic companies in Energy Sector

Investment Screening policies

The global flows of foreign direct investment (FDI) are increasingly curtailed by tightening investment screening policies. Several countries, including main global economy players as

Australia, Germany, Japan and US, have recently updated their investment screening legislation to protect sectors deemed important to national security by extending coverage to additional industries, transactions, and purchasers or public security. (Sauvant, K. P.,2009).

The Concept of Critical Infrastructure

Also, the meanings of key terms in investment screening, like "critical infrastructure " are being expanded and re-defined, which increases the screening authorities' competence and presents new dangers for the energy sector.. (Rajavuori, M. et. Al. ,2020)

From a historical perspective**,** this concept is not new, for instance(Kudrle, 1993; Lenihan, 2018), argues that in to ensure the safety of vital infrastructures, government interventions in cross-border transactions have focused heavily on energy. In practical terms, the restrictions on energy investments have been influenced by efforts to ensure the availability and accessibility of for example-national petroleum products, energy affordability for end users, or national control over strategic energy organizations. Nowadays, the term Critical Infrastructure identifies the assets necessary for the proper functioning of a society. Critical Infrastructures offer the basic necessities that keep society functioning and act as the foundation of the international economy, the national security system, and the public health industry. (Moulos et al., 2018)

Furthermore, based on the comparative evaluation of regulatory and administrative changes in the European Union and the United States, (Rajavuori,M. et. Al. ,2020) in his study of: "Investment screening: Implications for the energy sector and energy security" identify the most significant policy adjustments and predicted effects on the energy industry. As stated in the research, new investment screening practices are projected to have an impact on cross-border transactions in energy infrastructures, energy innovations, and data-intensive technologies, including the energy sector's digitalization.(Rajavuori,M. et. Al. ,2020)

This data confirm also the United Nations, which says in 2018 alone, government interference focused on security caused almost 11 percent of all FDI failures in cross-border deals. (Kuc, O.,2019). Based on those data, I provided various opinions of authors who covered this topic in hand with actual press releases or official government documents which were available to the public.

Practise

In practise, the functioning of the investment screening system typically depends on either required or voluntary notifications, made by the parties to the transaction submitted to a government authority - usually a ministry. If a transaction appears to raise security issues, most national systems enable the government to ban it or place exceptional restrictions, such as forced divestitures or extra security measures, on the transaction. (Wehrlé and Pohl, 2016; Lenihan, 2018). The majority of screening systems are activated when a planned or completed investment exceeds specific financial levels, however law sometimes provides for retroactive action if the parties fail to submit the application. The intervention threshold is often predicated on purchasing a particular proportion of the target company's ownership, such as 10, 25, or 50 percent. (OECD, 2019).

As result of this activity- several deals in energy sector have been rejected in countries as different as Australia, Belgium, Germany, the United Kingdom, and the United States. Changes in legislation and policy have major repercussions for energy companies and governments. (Rajavuori,M. et. Al. ,2020) (See Appendix, Figure C)

European screening landscape

In terms of the European screening landscape, the FDI regulation, in essence, establishes a framework within which the European Commission and member states can share information and coordinate responses to a wide range of FDI, includes mergers and acquisitions and greenfield investments in which foreign investors aim to build new or develop existing companies under the jurisdiction of their home state (Reins, 2019). The authority to interfere in transaction then remains on national governments.

Table 1: Sectors Covered by new EU-wide Framework

Source: Own processing, retrieved from - (MERICS)-Hanemann T. et al. (2019).

The new pan-EU mechanism covers acquisitions with potential effects on, inter alia:	
Critical infrastructure	"Whether physical or virtual, including energy, transport, water, health, communications, media, data processing or storage, aerospace, defence, electoral or financial infrastructure, as well as sensitive facilities and investments in land and real estate, crucial for the use of such infrastructure"
Critical technologies and dual-use items	"Including artificial intelligence, robotics, semiconductors, cybersecurity, quantum, aerospace, defense, energy storage, nuclear technologies, nanotechnologies and biotechnologies"
Supply of critical inputs	including energy or raw materials, as well as food security"
Access to sensitive information	"including personal data, or the ability to control such information"
Media	"Freedom and pluralism of the media"

The new framework is a significant milestone that will change European inbound acquisition treatment. When screening for risks, the list of sectors is just suggestive, not complete, enabling for other sectors to be included in the future if they are deemed to have the potential damage to member states' "security". (MERICS, 2019)

The nationality of a foreign investor is a key determining factor in many national systems (OECD, 2019a, 19–20).The cross-sectoral screening mechanism, for example, exclusively targets non-EU investors in most EU member states, but many governments maintain the authority to interfere even in intra-EU transactions in some areas. Great examples could be seen in Australian, Canadian and U.S screening mechanisms, in the company of others, have been explicitly aimed on Chinese investors, and state-owned companies in precisely. We can just assume it might be because these countries are part of the same security community.

These information also confirm data from : report made by Rhodium Group (RHG) and the Mercator Institute for China Studies (MERICS). Where it is stated, that in the last decade, Chinese outbound investment has increased dramatically, prompting investment screening reforms in Australia, Canada, Japan, and the U.S.Europe caught up in the last two years. Many large European economies have revamped their screening procedures or are doing so. These developments led to the first Chinese transaction being stopped in Europe (Leifeld) and others being delayed by indirect involvement or regulatory demands. New EU-wide investor screening measures may accelerate this process. The EU created an EU-wide investment screening mechanism in 18 months, which might affect Chinese investments. (MERICS, 2019)

Screening Mechanism in Slovakia or / restrictions upon foreign Investment

The government of Slovakia owns shares in a number of energy firms. Energy assets that it views as being important to national security have typically been less available to private participation. Their Investment screening mechanism was developing basically since October 2020, from that date all new businesses upon establishing the firm must submit the national registration numbers of their partners, authorized representatives, directors and supervisory board members.

Moreover in February 2021, Slovak Parliament approved legislation, requires the government to assess ownership transactions of more than 10% of enterprises classified as "critical infrastructure" - which includes a number of companies with foreign control. The law was passed quickly because the Russian Sberbank was said to have asked Slovakia's power producer SE to pay back its debt to the bank with stock. The Economy Ministry has said that, from end of the 2021 more robust screening mechanism will be placed basically copying the new EU Investment Screening Regulation 2020/1298. (Slovakia - United States Department of State, 2021)

Apa: Slovakia - United States Department of State. (2021). United States Department of State. Retrieved May 10, 2023, from https://www.state.gov/reports/2021-investment-climate-statements/slovakia/

Barriers connected to the Renewable Energy

Another barriers according to literature are associated with development and implication of renewable energy. (Eleftheriadis and Anagnostopoulou. 2015) find that the following factors make it hard to start projects, that use green energy: weak financial resources, low grid capacity, await in getting work permits, the opposition of local community-especially connected wind energy, and an unstable legal system. For instance, another researcher (Kathuria et al., 2015) looked into how institutional variations at the state level affect FDI in wind energy and found that the state-specific policy score for green wind energy is important for drawing FDI. This study proves that a country's institutions are the most important factor in getting FDI.

This underline the importance of theoretical perspective of this issue, which is used FDI & institutional theory. For example (Djankov et al.,2002) research shows that long bureaucratic procedures and delays in creating companies raise the cost of foreign investment at initial cost, which makes FDI less likely to happen. They says that, findings support the institutional theory of entry and are in line with the empirical results of (Contractor et al., 2008), which say that the amount of bureaucracy processes, time, and cost of entry are barriers to foreign investments.

3.5 Opportunities for foreign and domestic companies in Energy Sector

Renewable energy targets have gained significance since Russia’s invasion of Ukraine as the EU has vowed to end its dependence on Russian fossil fuels by 2027 - and plans to do this mostly through locally produced, low-carbon energy, which they reflect to development of current targets for Renewable Energy., (REUTERS, 2023). As we can saw in (Figure A), current European average for share in production from this sources are somewhere at 22% , not mentioning that many member states are far behind. This means that, reaching the new goals will require enormous investment in solar and wind parks, increased production of renewable gases, and strengthening Europe's power systems (grid) to carry more clean energy.

This of course create a massive opportunity for new investments by local or foreign investors to engage in this development, this statement also support article from (Business Wire, 2011), that European countries are regarded as popular destinations for RE sources investments. Firms are interested because of the continually improving internal rates of return (IRR), which are projected to generate a 400 MW commercial potential every year.

Role of Solar Energy & Regional Instituions

Given that solar energy is seen as a significant source of energy for the future, evaluating its potential is a crucial field of research that demands attention.(Šály et all., 2006). This proclamation also suggest, (Carvalho et al. ,2011) who point out that the EU is not only the first, it is also the global leader in the photovoltaic (PV) industry. However, due to the high instalment cost, a smaller number of investors favour PV for RES generation. He is also mentioning that according to the report from European Photovoltaic Industry Association done in 2013, the world's total PV capacity in 2012 was 31.1 GW. And Europe represent portion of 17.2 GW, almost 55 percent of total PV installation in the world. With Germany being top member contributing by PV installation of 7.2 GW.

For instance, in conditions of Slovakia, according to statistics published by the Slovak Regulatory Office for Network Industries, the production of energy utilising current technologies based on the concept of photovoltaic systems (PV) placed mostly on buildings, has enormous potential. (Hofierka & Kanuk, 2014) . According to (Hofierka & Kanuk, 2014) and their study of Cebecauer's solar radiation, Cebecauer's solar radiation database showed a moderate correlation between solar resource potential and PV power plant location. From this data we can tell that, solar energy applications rely heavily on urban areas. In the future, metropolitan areas are expected to be the principal target of enormous thermal and photovoltaic (PV) installation.

Combined with the decentralized energy demand represented by households and business entities, the role of local self-government units- municipalities is substantially rising and will continue to do so in the future. They are the most likely to become an essential component since they have the finest understanding of local conditions and requirements of the energy market. (Voorn et al., 2020). This creates another opportunity for new investors, to engage with local businesses or households and more importantly with regional institutions/governments. Nonetheless, as was mention at the beginning of this paragraph it's not just investment to the new RE sources which is required, a huge amount of capital would need to be invest in the modernization of power grid. As it said in report from (Indar Energy,2015), renewable energy presents another issue, since the system must be enlarged and modified to deal with the growing renewable share.

Study concluded in 2016 and done on multiple support mechanisms and RE certificats, by (Sisodia et al., 2016), mentioned that Feed-in-tarrifs (FiT) has the best preconditions to attract RE investments. FiT schemes the government guarantees a fixed price for all production output under FiT schemes, and the producer is paid the difference between the fixed price per kWh produced and the spot price. FiT's main advantage is that independent private producers get a long-term minimum fixed price for the power they produce.. (Hamilton & Justice, 2009), argue that, when there is a guaranteed FIT is sufficient to pay for the initial cost of REP, market barriers are removed. As a result, investing in RE becomes more compelling from a business perspective. The accessibility of specified rules, agreements, and pricing has permitted the generation of reasonable returns on investments at a competitive cost, which has contributed to the success of FITs. (Branker et al., 2011).

According to (Sisodia et al., 2016), FITs are responsible for the effective installment of fifty percent of the world's solar photovoltaic systems and 2/3 of its wind energy systems..

Investments in solar projects achieved their greatest level since 2012 in 2019. The use of state-mandated feed-in tariffs, auctions, and power purchase agreements resulted in a substantial increase in the solar renewables capacity of nations such as Italy, Spain, and Germany. (Ajadi et. All., 2020) Because it guarantees a long-term investment with little risk for investors, independent of any future price variations in the energy market, the feed-in tariff appears to be the most effective strategy for increasing the spread of energy producing systems.(Tudisca, 2013)

Power Purchase Agreements

There are different types of PPA contracts on Energy Market, most used form is Corporate power purchase agreements (CPPA) .In the past, FiT regimes across the continent provided high fixed rates, recent subsidy reductions, however, are driving developers in such markets to acquire a desire for CPPAs. Comparing a case where the power producer would be fully exposed to market price, with the case where a CPPA contract exists, the CPPA would lower the risk and thereby reducing the WACC relative to 100 percent merchant pricing. This type of PPA, from the standard method of buying energy from companies that have to serve customers through the electricity grid.

Developers, equity investors, and financiers increasingly view CPPAs as fundamental part to realizing a "bankable" project as renewable energy subsidies are cut in many countries across the world. *(Danish Energy Agency, 2019).*

PPA's in Europe

By comparing European Economic area and Americas (mainly U.S),we will find they are generally a bit further when comes to CPPA RE deals. However, certain European nations have established a viable market for the application of CPPAs. Countries like the Netherlands, Norway, and Sweden are included. Recent years have seen increased action in all of those nations, as well as the United Kingdom and Ireland. (See in Appendix, Figure D)

For instance in Sweden, the costs associated with constructing wind farms are among the lowest in Europe, and there have been recent legislative actions aimed at creating additional incentives to invest in renewable energy sources. Another example can be seen in Italian market, recent action with the signature of CPPA between UK-based renewable energy investor Octopus and Shell Energy Europe. Next successful example we can see in the Netherlands, the local economy saw major players like Royal Philips, AkzoNobel, DSM and Google partnered up to purchase renewable electricity to develop part of their operations. According to DEA, one of the main reasons Norway and Sweden are leading Europe in terms of CPPAs is Northern Europe popularity with data centre owners. With cool weather and a strategic position (meaning also-low-risk area), the Nordic countries have attracted technology giants such as Facebook and Google, who are heavily investing into their goals of running fully on renewable energy.

VSB and Mercedes-Benz entered the country's first significant, long-term cross-border CPPA as a result of Poland's renewable energy scheme, which permits suppliers to either put their electricity on the market or sell it as part of a CPPA. (Danish Energy Agency, 2019). All of this data with particular examples are underlying increasing presence of corporate power purchase agreements in Europe and therefore represents opportunities for domestic or foreign Investors to use this type of support scheme and be able to secure their project returns.

4.Analysis

In this chapter the gathered information are processed, structured, analyze and presented, to enlighten the reader about the findings from research done on thesis topic. A qualitative approach was used, where both types of data (Primary and Secondary) were compared together, in order to identify full-scale of research findings. Afterwards, this data was used for further analysis where author tried to answer the main research question, by comparing drivers, barriers, opportunities with implications on domestic and international companies presented at Energy Market.

4.1 Primary vs. Secondary data

The purpose of this chapter is to get an overall glimpse of "which" type and "how" many data was founded in primary and secondary sources of data. The collected data are divided into three categories which are connected to the main research question: Drivers, Barriers, and Opportunities. Data are then compared to each other, to find possible point-of-differences and observe initial findings. Moreover, these two tables serve also as a database for next analysis which is comparing drivers, barriers, and opportunities of energy market from the perspective of Foreign and Domestic companies.

Table 1: Findings from secondary data

Drivers	**Barriers**	**Opportunities**
Transmission from conventional energy systems to clean energy (RE)	Crowding-out affect inward FDI discourages domestic investment in the host country	FDI might be advantageous to local investment(opportunity for local investor to engage collaboration with foreign investor)
Increase of Energy Efficiency in host country by FDI	Geographic Separation (between parent and subsidiary)	Opportunity to invest in domestic company, in order to avoid a major cost resulting from LOF

Macroeconomic Drivers - EU's leadership goals for climate policy	Technology Factor	Opportunity for domestic companies to invest in energy market and have an advantage over foreign companies; because of Institutional factors
Funding options -from different institutions	Unfamiliarity with host country's environment	Market Potential-Based on EU goals from Macroeconomic Driver
Price supplements	Economic Nationalism	Contracts of PPA's (or CPPA's)
Fixed settlement price	Lack of Legitimacy in host nation	Feed-in-tariffs
Contract for differences	Institutional Distance - Mainly governmental Regulations & Policies	Great Implications for Investment in Solar Energy
Fixed yearly payment	Cultural Difference	Opportunity for foreign and domestic companies to invest in modernization of power grid
Construction support	Screening Policy (Critical Infrastructure)	
Historical Improvement of IRR in RE Project across Europe Market	Screening Mechanism	
	Nationality of Foreign Investor	

	Barriers Connected with RE: -low grid capacity, - long permitting process, opposition of local community -unstable legal system	
	Institutional factors - bureaucracy processes, time and cost of entry	

Source: Own processing, data used from literature review

Findings from secondary data shows us wide-range of drivers, barriers and opportunities of foreign & domestic investors in the Energy Market, where most numerous factor was a barrier, followed up by drivers and opportunities. Nonetheless, factors in each segment have tendency to repeat especially on barriers side..

Data are basically confirming initial presumptions from IB theories, on the other hand, it seems researchers are parting away in question on FDI effects on host market, especially how they effect local investors. The reason is some studies shows positive effect on domestic companies, while others illustrate only negative effects, and there were some studies, which refer to this correlation as neutral and also some suggest they are simply additional.

Table 2:Findings from primary data

Drivers	**Barriers**	**Opportunities**
EU Support Mechanisms	Unbalanced demand & supply of RE	Huge investment in power Infrastructure will be required in future

Power Purchase Agreements	Regulations from Government & Legislative Process	Investments concentrated on energy mix
Feed-in-Tariffs	Inconsistent policies	Investments to the modernization of existing power sources
Main Strategic Investment Projects could be driven by FDI	Low level of power infrastructure	Opportunity to get long-term financing
Better proportion of Technology performance/Cost of technology compare to past	Technology Barrier (storage system-still considered as costly & inefficient)	Investments in De-centralization of production
	Permitting Issues (e.g long waiting response, environmental)	Ability of FDI's to make the market more flexible to domestic firms
	Negative public opinion towards foreign Investor (connected to times of crisis)	
	Screening mechanism	
	Energy Production fluctuations	

Source: Data from interviews, own processing

4.1.1 Findings & Points-of-difference

As was mentioned in a Methodology, primary Data was consisting by provided interviews. When we look on the data we will see five, drivers around 9 Barriers and six opportunities. Compare to findings from secondary data, it's obvious the number of observed drivers, barriers, opportunities is lower, however findings are in many ways very similar plus we can say this information have a tendency to be more concise and clear therefore many times are describing concrete measure or experience.

By comparing these two daset I found, the first difference between acquired data from primary sources and secondary sources in a column of drivers, actually secondary data provides some additional drivers as: Historical improvement of IRR in RE project, however, Macroeconomic drivers although interviews probably touch upon them indirectly in some conversations, therefore we can say the key drivers, remain basically the same. The accumulated for barriers, are the ones which provide the most information. While, in both cases, barriers are concentrated in many cases on Institutional Factors such as Regulations, permitting issues, inconsistent policies, legislative process etc. Data from primary sources suggest that in practice the foreign and domestic companies pay a slightly bigger attention to the technological challenges of new RE sources, eg. Insufficient level of current power grid, big fluctuations of RE energy production and the connected problem of unbalanced demand& supply. Data describing Opportunities for domestic & foreign companies showing basically the same result which were affected by previous findings of market's drivers & Barriers. Nonetheless, primary data suggest that more investment should be concentrated on Energy Mix and De-Centralization of energy production.

4.2 Drivers for Foreign & Domestic Companies in Energy Market

Table 3: Drivers for FC and DC companies in Energy Market

Key Drivers	**Foreign Companies**	**Domestic Companies**

Support Mechanisms (Feed-in tariffs PPA's construction support etc.)	✓	✓
Macroeconomic Drivers- Transmission from conventional energy systems to clean energy	✓	✓
Improvement of IRR in RE projects	✓	✓
Improvement of Technology and cost efficiency in Terms of RE	✓	✓
Increasement of Energy Efficiency in Host Country by FDI	✓	✗

In order to stop the multiplication of factors connected to drivers I decided to choose 5 key barriers, from the previous database which appear to be mostly recognized by sources from primary data or those from secondary data. After, structuring them down, I decided to compare them into context of Foreign & Domestic companies operating on market. In this part, I will also look on the interpretation of these drivers, to show possible connections and differences between. The first key driver present Support Mechanisms available for companies in energy market, as It was explained in the literature review the most used mechanisms on market FiT (tariffs) and PPA or Corporate PPA, those two was also identify in interviews. It can be also said that, the support mechanism are both present and available for foreign and domestic firms on market, meaning there isn't any limitation which will exclude either of them. Second driver "Macroeconomic Drivers" is representing group of incentive from overall transmission process of changing dependency on fossil fuels to renewable energy sometimes also referred as "Clean Energy". Improvement of Internal Rate Of Return was examined in lit.review by researches and it's providing additional motivation for new investors, considering investments in Renewable Energy. These drivers are present in both categories, as creating profit falls under the definition

of any company, without connection to either multinational or national market.

The improvement proportion of RE when comes to the contrast of Cost efficiency and Technology was noticeable mainly in primary data, this information comes from comparison of past & current state of investment incentives in RE. Where both companies stated that technology for RE today is both more efficient a more affordable then it was in past. Therefore, this driver is getting rid of his barrier shell. The only possible point of difference is showing last driver- Increased of Energy Efficiency in Host Country by FDI , this driver was found in lit.review and it is expressing certain findings from researches. As this driver is concentrating on foreign investments it's hard to approve his effectiveness on domestic companies, however, some researchers argue, that these FDI investments has also a positive impact on domestic investors, by creating their higher involvement in energy market.

4.3 Barriers for Foreign and Domestic Companies in Energy Market

Table 4: Barriers for FC snd DC companies in Energy Market

Key Barries	**Foreign Companies**	**Domestic Companies**
Screening Mechanisms	✓	✗
Geographic Distance (to target market)	✓	✗
Institutional Environment (Legislation, policies, regulations, inconsistent policies, bureaucracy processes, long permitting process etc.)	✓	✓
Economic Nationalism	✓	✗

Barriers Connected with RE implementation (low grid capacity, etc. production fluctuations)	✓	✓
Unfamiliarity with host country's environment	✓	✗

In this sub-chapter author will be focusing on barriers which apply to foreign and domestic companies in the energy market. Six key barriers was identified, which is the most among other market determinants, this result from the findings shown at beginning of the Analysis chapter it is also an underlying fact that researchers and also individual companies like to examine and express negative factors over positive when comes to evaluation of real state of the market. Screening mechanism portray new types of an obstacle for Foreign Companies Investing in new countries, this sort of state regulation is aimed on foreign companies with specific % of ownership in local companies, but many times even un-officially is considering in their decisions on nationality of foreign investor, more can be found in chapter Barriers for Foreign & domestic companies in energy sector. This barrier doesn't effect domestic companies without foreign ownership.. Geographic distance is another barrier factor that is not affecting domestic companies as it's concentrating on transactions between foreign(host) markets and headquarters. Institutional Environment/factors were most frequent aspects used when comes to the barriers for foreign & national investments in Energy Market, and are present both as in primary data so in secondary data. Economic Nationalism and lack of legitimacy which comes originally from concept of Liability of Foreigners, it's mainly affecting foreign firms pursuing internationalization in host market and it wasn't found as a barrier for domestic investors.

Other results was shown in next barrier which is "Barriers Connected to RE implementation", these type of barriers seems to impact both type of companies, however this barrier could be also presented as official challenge for companies to overcome this obstacle by investing more resources into this issues and multiple their revenues. This idea is described further in next subchapter. The last point of difference is describing unfamiliarity with host country

environment where foreign companies suffer by certain cost associated by value of informal network, information asymmetries etc.

4.4 Opportunities for Foreign and Domestic Companies in Energy Market

Five key opportunities was determine, to express potential on energy market for local and foreign organizations. Although, this part is the only one where there wasn't found any major difference between excess of opportunities to either foreign investors or domestic ones. Nonetheless, I think opportunities can differ from company to company. First opportunity describes generall market potential which lay in energy market and was many times referred in literature as a one of " fastest growing markets" nowadays, however main idea comes from the Macroeconomic drivers described lit.review (e.g Europe Climate goals, transmission to cleaner energy, decarbonization of certain sectors of economy etc.). The question of financial back-up when comes to the project financing it's important element for both foreign and domestic companies, therefore several options of support mechanisms are still accessible for firms to achieve, however, a certain amount of passion and resources are required o obtain such support.

Foreign Companies have opportunity to overcome so much mentioned barriers associated with LOF when trying to enter a new market by investing in local enterprise, even though it can still faced screening policies of host country depending on amount of involvement of course. From the perspective of local company this can be a direct opportunity to expand their business by cooperation with foreign investor. This collaboration could bring domestic company several benefits such as higher amount of disponible capital, advanced technology, more experienced management etc. Required investment to the modernization of existing power sources and more importantly to the power infrastructure was marked as a crucial factor by both respondents and was also mentioned by many lit.sources as a key barrier that needed to be overcome in order to implement more Renewables sources into the market. This is of course opportunity for both types of companies even maybe a one more incentive to initiate mutual cooperation. The last opportunity follow-up on previous opportunities while is trying to explain the importance of more concentrated and sophisticated investments in order to raise the country's energy efficiency. It is also part of the findings which appear during the interview process with respondents.

Table 5: Opportunities for Foreign and Domestic Firms in Energy Market

Key Opportunities	**Foreign Companies**	**Domestic Companies**
Market Potential (based on Macroeconomic drivers)	✓	✓
Opportunity to get long-term financing – for projects	✓	✓
Opportunity to invest in a domestic company, in order to avoid a major cost, and barriers resulting from LOF	✓	✓
Investment to the modernization of existing power sources and power grid	✓	✓
More concentrated investments to the energy mix & de-centralization of production	✓	✓

5. Discussion

In this chapter, author concentrate on answering the research sub-question: How can foreign & domestic firms outbalanced current market barriers by investment opportunities? Findings from analysis show that foreign & domestic firms face multiple barriers in European Energy Market. By examining the quantity of all three determinants, it could be said that number of barriers outweigh the market opportunities and therefore we can come to the conclusion where new investments in energy sector might have an overall negative effect rather than positive. However, in this section I will try to prove otherwise.

As it is mentioned in the previous chapter, table 5 there are numerous opportunities for both foreign and local companies on the market and some of them have their opposite side which is listed in the tables before as barriers, to Overcome these barriers requires a combination of technological advancements, supportive policies, and public engagement.

First example, is coming from LOF- as one of the Institutional factors, where Foreign subject might face additional cost because of major elements as the unfamiliarity of host country environment, value of informal networks or lack of legitimacy. However, foreign Investor can therefore change their approach and instead of entering the market with newly established subsidiary, will make acquisition in local company already present at the market (in form of equity investment, stock sharing etc.).

From perspective of domestic investor, as (Wang M.'s, 2010) shown FDI might be advantageous to local investment, in other words FDI's have ability to make market more flexible to domestic firms. Which means tha domestic investor should take the opportunity and engage collaboration with foreign investor on common market.

Another example can be found in primary data sources, where in interview with: Michal Sekáč (SE), he is stating: "However, I think these incentives should be supported by other steps in the process, for instance by backing additional modernization of existing RE sources somewhere in close connection, to outbalanced power fluctuations "(meaning for renewables). He was referring to support schemes and theirs usage in real-world. He is basically, saying that if the supported schemes were connected with more concentrated investments then the potential for efficiency in renewable sources would be much higher (which mean also returns for the investor will rise..)

One of the most frequent barriers mentioned in findings was legislation and overall problem with legislation process(e.g long waits, permitting issues). The interview with interviewee from Janom s.r.o reveald, that possible solution for this could be to have an approval mechanism, where if you as an investor would have additional storage system prepared for storing accumulated energy, you will going to get a sort fast-track option in permitting process- in order to get your source connected to the grid. Because storage systems could balance the fluctuations with renewable energy. And also storage system requires a high amount of investments, which could boost local market. So by this approval mechanism one of the barriers can be easly eliminated.

One of the biggest barriers mentioned during my research was, low level of power grid across Europe. From information stated in interviews and also from some sources founded while researching for lit.review it appears that this is one of the biggest challenges which need to be overcome, in order to see more energy efficiency on the market. This might be a case of “too much to handle”, because of the long construction process from side of national governments plus lack of financial resources to handle such complicated projects. Therefore different model could be implemented instead, as Radovan stated “you build where you consume”, which refer to ideology of de-centralization of energy production. Those examples can be already seen in photovoltaics, where firms purchase solar panels on their roof, so they directly consummate electricity which they produce otherwise they sell it back to the grid and lower their costs. Which is another good point of this model, where thanks to building on one place and consuming there you are avoiding fees for distribution and transmission-this can save firms a lot on returns.

6.Conclusion

At the beginning of the thesis, one main research question was identify, while a follow-up subquestion was added in order to provide some additional value for future readers. To conclude, nature of this research questions, it could be said that this thesis aims to identify and explain market barriers, drivers and opportunities for investors to enter or expand their business on the energy market, and how to overcome them. In this regard, I think thesis was successful as the main market determinants were identify in the chapter: Analysis. Also further explanation of these determinants was provided, moreover by narrowing them in four to six key determinants that foreign or domestic investors could face while entering an energy market, exclude the confusion factor.

Moreover the relation between market determinants and their affect on two types of companies was added in second part of the analysis. After this comparison we can say that, both types of firms on energy market face substantial challenges and barriers, especially in case of the foreign companies which would thanks to the theoretical assumption, need to overcome a bit more barriers then company operating on domestic market. Also current evolution of new screening mechanisms don't bring too much light for FDI's, however there are possibilities for this companies on how to outbalance these barriers. These recommendations could be found in part Discussion, where concrete examples are drawn.

Ideally, we can say Foreign and domestic firms face multiple barriers in the European Energy Market, but to overcome them, they need a combination of technological advancements, supportive policies, and public engagement.

However, if there can be one unanticipated conclusion found in this thesis it's form's to this: local companies can expand their business by cooperating with foreign investors. Therefore, a collaboration between foreign and domestic firms in the energy market it's highly recommended can bring various benefits, but mainly both sides can overcome tought barriers presented on energy market.

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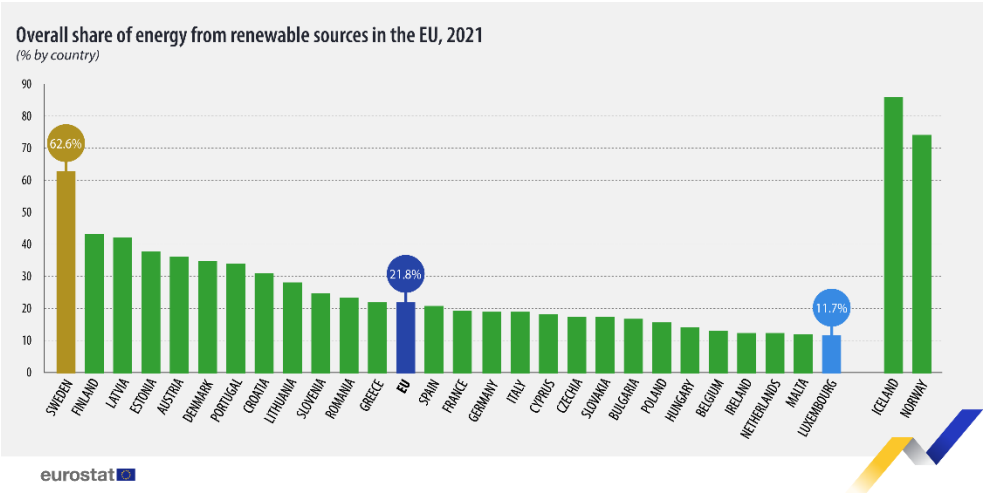
8.0 Appendix

Figure A: Overall share of Energy from RES in the EU-data from 2021



Source: EUROSTAT. (2023, January 19)

Figure B: (Feed-in-Tariffs)- Real Price Supplement

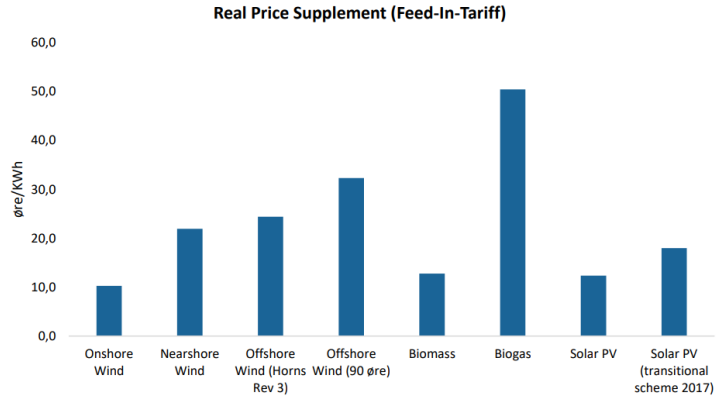


Figure 25: Real price supplement added to spot price as a feed-in-tariff, broken down by technology
Source: Danish Energy Agency, 2017

Danish Energy Agency (2019) .Analysis of the Potential for Corporate Power Purchasing Agreements for Renewable Energy Production in Denmark. Retrieved 18.05.2023. pdf version

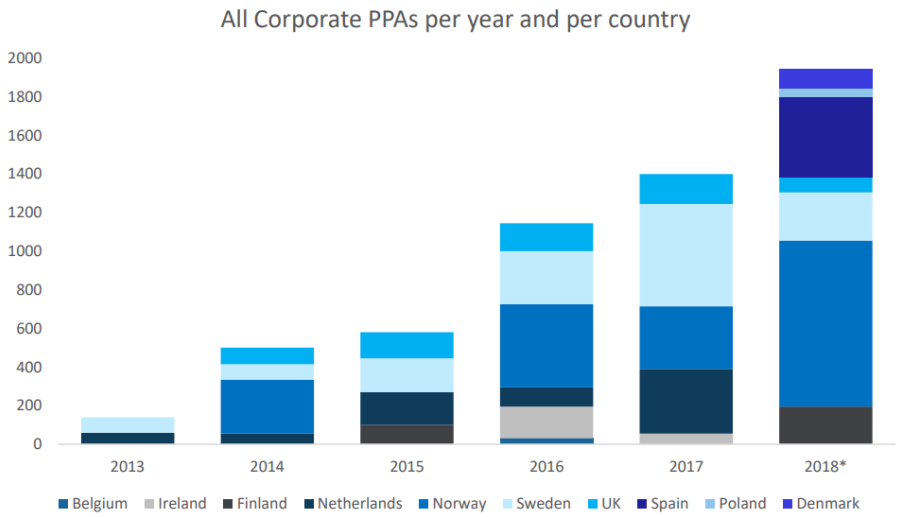
Figure C: Recent national screening decision in the energy sector

Table 2
Recent national investment screening ecisions in the energy sector.

Segment of the energy sector	Energy infrastructure				
Transaction (target-buyer)	First State SP (Italy) - Uniper Global Commodities SE (Germany)	APA Group (Australia) - CK Asset Holdings Ltd (China, Hong Kong)	50 Hz (Germany) - State Grid (China)	Ausgrid (Australia) - State Grid (China)	Eandis (Belgium) - State Grid (China)
Jurisdiction, Year	Italy, 2019	Australia, 2018	Germany, 2018	Australia, 2016	Belgium, 2016
Industry	Gas generation and distribution	Gas transmission	Energy grid	Energy grid	Energy grid
Security concern	Preservation of the infrastructure's strategic role, maintenance of a specific regasification plant	Long-term national interest implications of a dominant foreign operator in the gas and electricity sectors	National security	National security	Security of technology, energy supply and customer data
Outcome	Transaction cleared with mitigation measures	Transaction prohibited by the federal government	Transaction withdrawn after the federal government acquired the major position in the target company through state development fund	Transaction prohibited by the federal government	Transaction refused by the city of Antwerp, a major shareholder in the target company

Wehrlé, F., & Pohl, J. (2016). Investment policies related to national security: a survey of country practices.

Figure D: Power Purchase Agreements divide by year and per country



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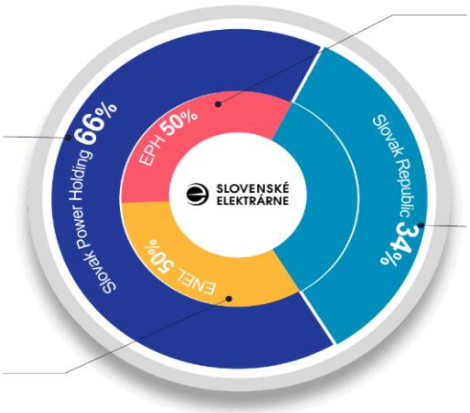
8.1 Interview Strategy - Slovenské Elektrárne a.s

For the beginning I would like to briefly introduce the Company -Slovenské Elektrárne(SE) . Company is the largest electricity producer in Slovakia and one of the largest in Central Europe. It also produces and sells heat and provides support services for the electricity system. SE is joint-stock company and was founded in 2002 as a new entity of the estate and the legal successor of the original Slovenské Elektrárne, a.s., of which the assets of the Slovak power grid operator SEPS and the heating company Tepláreň Košice were spun off. The company operates 37 power plants from which 31 are hydroelectric, two nuclear, two thermal and two photovoltaic power plants with a total installed capacity of 4144MW. The company also employs 3797 employees. Thanks to the balanced mix of production sources, the company supplied 95 % of electricity to the grid free of local carbon dioxide emissions in 2022. It was also awarded by Financial Times in 2021, 2022 as one of the Europe's Climate Leader.

The ownership structure of SE is the following: the Slovak Republic owns 34% (shareholder's rights are executed by the Ministry of Economy of the Slovak Republic) and the rest 66% it's owned by foreign companies represented by company Slovak Power Holding BV (SPH). However, This firm it's just a subsidiary of Energetický a průmyslový holding, a.s. (EPH), which in 2016 closed the first phase of buying into Slovenské elektrárne through EPH's subsidiary, SPH. Therefore, EP Slovakia became a 50% shareholder in SPH and the other 50% remains under other foreign investor Enel Group's ownership.



Both foreign investors are major players on European Energy Market. - **EPH** is a leading Central European energy group that owns and operates assets in the Czech Republic, the Slovak Republic, Germany, Italy, the UK and Hungary. The companies in the group employ more than 25,000 people and control over 50 companies.

-Enel is a multinational energy company and one of the world's leading integrated electricity and gas operators. It works in 30 countries across 4 continents, generating energy with a net installed capacity of around 83,000 MW and distributing electricity and gas across a network spanning about 2.1

million km. With more than 65 million end users around the world. The Enel Group is made up of nearly 66,000 (2021) people from around the world. Almost half of the energy generated by Enel is produced with zero carbon dioxide emissions, making the group one of the leading producers of clean energy.

Moreover, in next part I would like to explain, systemize and split my Interview according to type of questions I have been asking. They are divided into 4 categories: Drivers, Barriers, Opportunities plus extra & introductory questions.

Introductory Questions

These questions serve as a "opener" or an "Icebreaker" to ease the atmosphere and ensure responded that, there won't be any difficult questions asked, and therefore he can relax and pay attention to my questions. Plus responder by answering those questions help me to understand a his working environment and his professional background, so I won't miss any information that would be helpful to get an overall picture about the responder.

- Let's start with the first question, is pretty easy, can you please state your full occupation and perhaps projects you are/were recently working on?
- Supplementary question**:** With how many people you are currently working or how many persons are on your team ?
- Can you name the project, which was most significant for the company ? The one, which really breaks through?

Extra Questions

I prepared these questions if we have some time left to spent.

- When you look on the local energy market, do you see some specification or point-of-difference compared to other markets in Europe ?

- How positive is the contribution of foreign capital in Slovenské Elektrárne ?

Supplementary Question: What do you think is the advantage of this foreign capital . ?

-I wanted to know how they view a foreign Investor generally, if responder have positive experiences or a negative ones plus if he is familiar with benefits or downsizes of foreign investments. As I was studying at the beginning of this thesis, the theoretical approaches (FDI theory & LOF) and their connection to my research background.

- On the other hand, do you recognize some disadvantages in terms of foreign capital/foreign control ?

-this is basically a supplementary question to previous one, in order to be sure that responder will provide both positive and negative aspect of foreign investment/ control.

- So in terms of the private capital versus public capital, do you think without this big private investment the projects which SE was or is developing wouldn't be possible to achieve?

-This question is exactly aiming on this responder as I am basically describing in question, the company he represents and capital structure of this company. Also it is great, to know if he perceives this foreign acquisition done by ENEL in the past , as a positive resolution. Or perhaps what is he's overall opinion about this acquisition..

- The company also has an interesting mix of private and state capital, from this point of view, has the company a clearly defined strategy on how to proceed so there is no conflict of interests, and is this type of compromise also written down somewhere on paper (e.g. memorandum of cooperation)?

-Again I'm referring to the company's capital structure, to get some insights into mutual cooperation between investor and government representatives. This question also could be seen from two perspective: first one is potential barriers of Institutionalism between private company & public sector. The second one where we can find if this type of cooperation can bring some benefits(opportunities) for future investors to follow up a similar model..

- What is the firm strategy when it comes to projects exiting and how the sell of the actives works ..?

- What do you think different you apart from the competition (other private capital firms, etc.) ?

Drivers

- From the perception of potential Investor, do you think that Slovak Energy Market is adequately attractive? - By asking this question I wanted to know indirectly if there is Enough Drivers for future potential Investors who are considering investing their resources into Slovak Energy Market..

- We have, or had in the past, various support mechanisms on the market, such as Fedd in tarrifs, etc. "And are they sufficient ..?"

    - I'm basically directly asking on drivers for companies pursuing investment in energy market. And by providing them in the text below I ensuring that he is gonna give at least one examples, just in case he forgot or can't remember at that moment

- From these mentioned mechanisms, did you noticed some changes or do you think we going to see some in near future ?

-that is a question which directly follow-up a previous one, and trying to investigate drivers in more depth

Barriers

- In your opinion what are the major barriers preventing deployment of energy investments today? -I'm directly asking on barriers, and by providing some options again I'm trying to ensure that responder will be able to react and provide at least some examples ..

- Supplementary question: Can you choose one or two key factors, and tell why do you think those are the key factor preventing new investments in energy ?

-Again, I'm following-up previous question in order to expand the answer and perhaps get some concrete examples, from his experiences ..

- Slovak Energy Market is quite know for not-investing in Wind-Energy, how do you explain yourself this phenomen ?

-This question could also fall into category of additional questions on the end of the interview, as I was firstly planning to do so. However, I change my mind because by previously researching the literature and conditions on local market I found out that there are definitely a few barriers behind investments into wind parks in Slovakia, so decided to put this question under barriers category,even though in the question nature it doesn't seem like that, the answer is referring to barriers

Opportunities

- Can you tell me what are the latest planned projects, within the company ?

-I'm basically, asking about their vision of opportunities in the market, because I think, if the firm is trying to invest in a certain project she is definitely considering all aspects of investment, including the overall return on investment or payback period. And if company decided to move to the development it must have great results from such analysis and therefore this is indirectly showing which energy sources, locations are worth the investment. This can be crucial for future foreign or domestic investor.

- Supplementary question: Can you perhaps tell me, what is the overall scale of investment in those cases ?

-Here I'm trying to get answer on the question of what is the overall contribution of this firm, in terms of the amount of investment to the local market.

- Supplementary question: what about the storage systems is the same ?

- Supplementary question**:** What about wind energy it is something that SE is planning to invest in ?

- In what direction do you think the market will develop in the near future? Are we only going to see investments in RES?

-Here I'm also trying to get information about how future for this market will develop, so I would be able to identify if there are any opportunities for new investors at stake ..

- As we know, the production of electricity in Slovakia will soon exceed its total consumption, are you as a company preparing for this situation in some way, looking for new markets or expanding the network of customers, etc. ?

-With this question, I'm trying to identify current customers, who would be able to absorb the increasing electricity power production of the country. Thanks to this information domestic or foreign investors would be able to find out if there is new selling opportunities on consumption side..

8.2 Interview Strategy - Janom s.r.o

For the beginning, I would like to briefly introduce Interviewed Company-Janom s.r.o.

Janom it's identifying it's-self as a private equity company with focus on investment and development of Renewable Energy. It was established in 2008, and since then built tens of Megawatts of power in RE. They are operating mainly in Slovakia, but have helped to build also some facilities in Czechia and Finland. They are focusing on private equity and venture capital investments, with the aim on innovative/technological companies, which are part of the Energy Market. In the past, the company has been, investing in companies such as, Greenway(major player on Slovak Market with electromobility),Voltia, Wattstor, Straightforwardcapital or Carbodeon.

Moreover, in the next part I would like to explain, systemize and split my Interview according to type of questions I have been asking. They are divided into four categories: Drivers, Barriers, Opportunities plus extra & introductory questions.

Introductory Questions

These questions serve as a "opener" or an "Icebreaker" to ease the atmosphere and ensure responded that, there won't be any difficult questions asked, and therefore he can relax and pay attention to my questions. Plus responder by answering those questions help me to understand a his working environment and his professional background, so I won't miss any information that would be helpful to get an overall picture about the responder.

- Let's start with the first question, is pretty easy, can you please state your full occupation and perhaps projects you are/were recently working on?
- On which specific projects you had an opportunity to work on ?

Extra Questions:

- You already touch upon some market conditions, so what are the specifics regarding to Slovak Market in comparison with other International or EU energy markets ?

-I was trying to investigate if there is some additional barrier or oppositely gap on market which could be classified as opportunity for new investors

- How do you see relationship between private and public capital in terms of Investments in Energy Sector ? Do you see some disadvantages or advantages on either side ?

-I'm trying to find out his perception on this capital mix, as Energy Market it's getting more and more attention and questions about securitization of this market it's arising according to literature and government's implications, so this model might occur more often within the EU or Slovakia.

- Supplementary Question: Ok and what about foreign investments, do you think they have positive impact on Slovak Market ?
- Supplementary Question : So, what do you think are the disadvantages or advantages of foreign investors in our Market ?
- What do you think different you apart from the competition (other private capital firms, etc.) ?

Drivers

- You mentioned some support mechanisms such as Feed-in tariffs etc. We have or had in the past, various support mechanisms on the market "Do you think they are sufficient ..?"

-I'm basically directly asking about drivers for companies pursuing investment in the energy market. And even though I provide some examples, he already touches upon them in previous answers so I decided to go forward and ask if they are sufficient, which help me to investigate the nature of drivers on the energy market more in depth.

- From these mentioned mechanisms, did you notice some changes or do you think we going to see one in the near future?

-this question directly follow-up a previous one, and trying to investigate drivers if there is a possibility that some changes in this relation will occur at market in near future..

- From the perception of potential investors, do you think that Slovak Energy Market could be adequately attractive ?

- By asking this question I wanted to know indirectly if there is Enough Drivers for future potential Investors who are considering investing their resources into Slovak Energy Market..

-

Barriers

- In your opinion what are the major barriers preventing deployment of energy investments today?

-I'm directly asking about barriers, and by providing some options, I'm trying to ensure that the responder will have some choices in case he couldn't remember or think about some at that moment ..

- Can you choose one or two key factors, and tell why do you think those are the key factor preventing new investments in energy ?

Opportunities

- Now if you would be in a position, from where you can improve conditions for potential investors or generally business conditions in terms of RE what you will likely change/ do differently?

-With this question, I'm trying to explore how the ideal market according to the responder should looks like, which helps me to understand how current market barriers could be overcome and additionally find out other potential opportunities laying in the market from interviewee point of view.

- What is the firm strategy when it comes to projects exiting and how the sell of the actives works , perhaps can you gave me example of how they been financed ?

-This can give a pretty good picture for foreign &local companies of how the selling of active works at domestic markets. Which then they can illustrate to purchasing strategy for local energy market. As responder mentioned during the interview there are one of the company which not just develop project but also buy running ones.

- Had all those project you worked on, a financially positive outcome ?

-As responder have multiple experiences on working on varios investment departments he should be able easily identify financial outcome of the projects he worked on, therefore his answer should be reliable. But more importantly, he could provide answer, if current companies situated on Slovak Market, make appropriate profit levels. And Again this type of information could be very valuable for potential investors.

8.3 Interview Transcript: Michal Sekáč- Slovenské Elektrárne

- Analyst-Energy Market Development at SEPS, 2+years
- Strategy Management Development, Východoslovenská Energetika Holding a.s (2+ years)
- Member of the board in Slovak Smart City Cluster
- Project Manager for Development projects Slovenská Elektrárne
- Company Development Manager (from Aug, 2022)

“Quick Introduction of myself + project and asked for permission to record”

Interviewer: Me

Interviewee: Michal

Introductory Question

Me: Let’s start with the first question, is pretty easy, can you please state your full occupation and perhaps projects you are/were recently working on?

Michal: Well, currently I'm working as Manager of the Department for Strategic Development in Slovenské Elektrárne (SE). In my previous position, I worked as Project Manager for varios Development projects. Then before I was working in Vychodoslovenska Energetika Holding, a similar position as nowadays-Strategy Management Developer, and before at beginning of a carrier I worked as a Analyst at Energy Market Development at Slovak Electricity Transition System (SEPS).

Me: Supplementary question: With how many people you are currently working or how many persons are on your team ?

Michal: Well**,** with me it's five of us working on same department, but on our projects we are constantly cooperating with other teams across the organization.

Me: Supplementary question: Can you name the project, which was most significant for the company ? The one, which really break through?

Michal: Most significant one, was definitely nuclear power plant: Mochovce. In close future, I think most important one's will be to that flexibility and meaning mainly hydro power plants, so that way we can prepare our company on future market which will have more proportion of Renewables. So I think there lay a bigger potential for us than investing in additional new projects.

Drivers

Me: From perception of potential Investor, do you think that Slovak Energy Market is adequately attractive ?

Michal: It depends.., Slovak Market have a multiple interesting sources of energy, you can invest in flexibility where you have different prices trough out the day or then you have Renewable Sources of Energy, which EU is pushing, however the disadvantage of these sources is they create electricity but in very high unpredictable diagram, meaning you need to have a balanced demand & supply in every moment. So when you buying from this sources you basically need to have another source from which to buy for example hydro energy- which we have in our portfolio our having a strong storage system. When we take solar energy the moment that PV panels are producing more energy the market price of that energy can decrease by 50% , so that is something which you need to take in concern as an investor.

In my opinion, the future of RE is energy mix -with other sources of energy or with high performance energy accumulators.

Me: We have, or had in the past, various support mechanisms on the market, such as Fedd in tarrifs, etc. could you recall on some of them? "And are they sufficient ..?"

*Taking into consideration that one of these mechanisms could be.:

- Feed-in-tariff
- Two-sided contracts-for-difference (CFDs)
- Corporate PPA's
- Green Bonds
- Asset backed securities
- R&D Grants
- Mezzanine Debt; Senior Debt

Michal: Yes, we are recognizing that many of projects done in past or just recently, was able to be finished because of the EU's incentives and support mechanisms. However, I think these incentives should be supported by other steps in the process, for instance by backing additional modernization of existing RE sources somewhere in close connection and acccess to national Grid. So developers/or investors should be able to flexibly outbalance those power fluctuations.

So to wrap it up , I would say with every other Megawatt of Renewables, there should be equal investment continuity to balanced that variation. And this can be definitely seen as a opportunity for Foreign or local companies.. Our state department is not investing enough, at least according to us, in these mechanisms so we are trying supply these investment from our sources.

Me: From these mentioned mechanisms, did you noticed some changes or do you think we going to see some in near future ?

Michal: Well, in terms of feed-in tariffs, they have been widely used to incentivize renewable energy generation by providing long-term contracts and guaranteed prices for electricity. Unfortunately, I would say many countries have been transitioning away from FiTs towards more market-oriented mechanisms like PPA's. As they provide long-term revenue certainty for project developers and enable buyers to secure a stable and cost-effective supplies.

Barriers

Me: In your opinion what are the major barriers preventing deployment of energy investments today?

Taking into consideration that one of them could be :

- Awareness and commitment due to unfamiliarity and hassle among the public
- Financial resources are limited and/or unaffordable
- Technical expertise and solutions are insufficient
- Non-Economical barriers like grid access, permitting issues (rules & policies, administration, procedures, authorities etc.)

Michal : Hmm, I would exclude limitless financial resources, todays technology when comes to systems like Photovoltaics it's actually much cheaper than in the past or beginning of renewables implementation, and you can see it on that waste PV instalments around the country,

usually on the rooftops but many times stationary near the house or a factory as well. That is because, solar technology for instance, get much cheaper during the years so nowadays “even” households can afford it. Consequently, what is unfortunate, it’s regulations and legislative process, Some regions have inadequate or inconsistent policies that fail to provide long-term incentives for renewable energy development. We need clear and stable policies, for that they changing legislation in this connection too often I think, and in some cases it might be see, to the worst state than it was..

Of course, there are other factors, for example, if the technology around storage systems would be on an advanced level, the development of RE business would achieve different milestones by now.. Batteries and other storage devices are required to store surplus energy created during times of high output and release it during periods of low production. However, present energy storage technologies are sometimes costly and have efficiency and capacity constraints. Another question is about problems with power infrastructure, by working in (SEPS)in my previous carrier, I can say this represents a huge challenge in upcoming years. As we know renewables like wind and solar represents big fluctuations in their production (because of the weather conditions), therefore and with connection what I have said about non-efficient development in storage systems, makes more difficult to ensure consistent and reliable power supplies. It gonna require a huge investments to the overall grid integration, mainly here in Slovakia.

Me: Supplementary question: Can you choose one or two key factors, and tell why do you think those are the key factor preventing new investments in energy ?

Michal: Well, hard to pick one, anyway I would say those battery or storage systems, as I said we would have slightly different investment environment by now if there would be sufficient development energy storage systems plus of course it would help incrementally to use produced energy more efficiently.

Me: Slovak Energy Market is quite known for not-investing in Wind-Energy, how do you explain this phenomen?

This is a good question and I dont think I’m able to provide an answer, perhaps this might be question better suited for some government representative(laugh). But anyway, I mean there are of course some additional factors behind this issue then just a legislative or institutional barrier.

For instance, I don't know if you observed but when you look on the public awareness or their general knowledge of wind energy and how it works especially how this wind parks effect surrounding environment we will see most probably very negative perceptions. Plus a legislation from Ministry of Environment it's not really helpful and give a huge space for public to raise tricky and delicate questions..

Me: How positive is the contribution of foreign capital in Slovenské Elektrárne ?

Me: Supplementary Question: What do you think is the advantage of this foreign capital . ?

Michal : When I look on it from the combination of past- before privatization and present (now), when you have one capital owner the decision process is easier, because he would do whatever is within his interest. As it was in 2006, when state come to capital structure the new decisions was going more in hand-to-hand of state's energetic policy, of course there was also issues with state as a shareholder because they wanted to pay out dividends, plus there was a question of how much wanted the state represented by Ministry of Economy be involved in investments of new projects. After 2006, when Enel come as main shareholder, the important decision of full completition our nuclear power plant came to a positive end, which by the way is project who's initial construction is dating to 80's then in 90's was in frozen state. So and when comes this foreign investor, even the prices for materials which should be used in upcoming years was high they decided to approve this investment. Taking into account the current situation, my opinion is that Enel as a private equity investor have made a correct decision. Although, there were some negative issues mainly considering the management of this project, which was caused due to lack of experience with this type of project complexity in nuclear energy. I think .. without this strategic investor, state will probably don't go to this investment-in 2006 there wasn't really a demand for investing in nuclear energy, we had still nuclear power plant Jaslovske Bohunice at that time. So, if I could take it from this perspective, the finishing of our Main Strategic Investment was driven by new foreign investor(Enel) becoming a shareholder.

By the way great comparison is project „Nové Jadro" where state with his 100% controlled company JAVIS all together with ČEZ company (also state-owned company from Czechia)

trying to develop a new nuclear energy source in Bohunice, however, this is going for a years and they still didn't move too much.

Just to add something to that capital structure, with arrival of third investor into SE, the decision making process within the firm become a little bit harder. When comes to capital we had enough of it at this moment- taking into consideration ours running projects at least.

Me: On the other hand, do you recognize some disadvantages in terms of foreign capital/foreign control ?

Michal: Yeah, well great question.. The presence of foreign capital in the sectors of strategic infrastructure might be problematic.. In terms of literally blocking some decisions on a higher level from other shareholders, I can't give you examples because I'm not aware of any, which means I'm not saying that there weren't any issues in this in the past or would be in future. When comes to public opinion or just simply the way how public is looking on this topic, Yes I think we heard this kind of opinion even in recent events of energy shortages and during or after covid crisis, when we heard many times from politicians or public that money earned here are spilt in abroad ..

Next example could be in process when firm try to get loans to finance completition of Nuclear power plant, *which firm couldn't cover just from their own sources, but to go to the point at that time SE have some financial issues and those issues have been medialized which results to „raised finger" from the banks and there was possibility that acquired property would fall into creditors hands. Shortly after this situation but mainly also after geopolitical situation with war in Ukraine, Ministry of Economy introduce new law where subjects which is defined as a „Critical Infrastructure „ or even part of the capital which fall to this category need to be firstly approved by Government. It was very sensitive topic, because one of the creditors for this project was (Russian) Sberbank, so it could represent danger for our representatives that some part of this project would be in property of Russian Investor.

So this became a sensitive topic, I think, mainly when comes to the investors from outside of the EU. There is also example in Czech Republic, where in in project of completition of Dukovany (Nuclear Power Plant) they exclude Russian & Chinese potential investors from conversations. So I think, countries in context of critical infrastructure starts to pay a lot more attention.

Me: So in terms of the private capital versus public capital, do you think without this big private investment the projects which SE was or is developing wouldn't be possible to achieve?

Michal: I would try to divide it in a two sections. Firstly, other companies which are state-owned in recent didn't build anything.. For instance they build „Vodné dielo Gabčíkovo" but then 20 years didn't build anything again. Not because, there isn't a demand for electricity but because they usually look on those investments as a „Cash Cow", meaning they took (paid out) dividends but not really invest in future development. I'm going to give a another example from our energy market: ZSE (energy distributor in the western part of the country) is owned by e-on and Slovak Republic, they invested once in a slightly bigger project, however, that project braces a question if the project would be ready, if there won't be any private/foreign investment. So to wrap it up I think private investors help the cause, mainly because they look beyond one election period, that's how I see it.

From my point of view private investors in generally have a bigger motivation to invest in long-term and slightly more complex projects than the public institutions they tend to look on a projects from more short-term perspective. They also have bigger motivation to have a pay out than to invest financial resources.

Me: The company also has an interesting mix of private and state capital, from this point of view, has the company a clearly defined strategy on how to proceed so there is no conflict of interests, and is this type of compromise also written down somewhere on paper (e.g. memorandum of cooperation)?

Michal: Hard to say, I know there was some memorandum signed a couple of years ago, when Enel make the acquisition, about mutual and future cooperation and I think you should be able to find a some part of this document on the web, however these kind of decisions are made behind closed doors..

Opportunities

Me: Can you tell me what are the latest planned projects, within the company?

Yes, so .. Most advanced project for us at the moment, it's PV power plant EVO-phase 1, Located in Vojany, which would be used on un-used land of previous stabilizer storage. It's schedule to be build in 2023-2026 with output of 17MW, we have finished with all the process of approvement. We only waiting for some final call -subsidy call otherwise it's prepared for the procurement..

Second project worth mentioning is concentrating in the same location, but in different parcel, it's called PV power plant EVO phase 2. This project is in the stage of preparation for feasibility study as there are some issues with recultivation- afforestation could decrease the number of installed capacity..

However, power plant is planned to be build between 2025-2028, with estimated capacity up to 54 MW.

Then we have Nováky, a Lignite power plant commissioned in 1953, which has to be shut down in 2023, due to government policy so we are basically in phase of slowly ending operation and meanwhile planning a future for this object. We will need to start process of revitalization and repurposing, the alternatives for this project are either brown industrial park with hydrogen production or renewables(PV,

I can tell you more about the second option with 3 potential phases, first one- revitalized sludge bed (according to experts best for using Photovoltaics) would be replaced by 10MW of solar

panels, this project is fully prepared for realisation phase, all the permitting issues are completed,

Me.:Supplementary question: Can you perhaps tell me, what is the overall scale of investment in those cases ?

Well, in case of PV power plant Vojany 17MW, should costs as around 15mil.€, depending on current situation with materials- as you know they are going up in recent months/years.. For instance in past, before the crisis we was able to build a 1MW of power for 750 000€, now I assume we will be building for around 800 000€ -1000 000€ per 1 MW. Our biggest project-completition of Nuclear power plant Mochovce costs us around 6 mild. €.

Me: Supplementary question: what about the storage systems is the same ?

Storage systems.. I think it's very similar if I'm not mistaken, should be in one: one coefficient. Storage system in Dobšinná, should costs us around 4 mil.€, the price of battery storage it's more impacted by capacity of storage system than performance of that system.

Me: Supplementary question**:** What about wind energy it is something which SE is planning to invest in ?

Yeah that's, probably on broad discussion, we are concentrating on photovoltaics & hydro energy. Just to explain, the wind projects we know about the suitable locations, one sufficient location should be Vojany, nonetheless there is a problem with laws it is in the environmentally protected area which is a bit strange as it is near brown-coal power plant, however there should be a bird nester are near by, so there is huge probability for negative permission process. But I can tell you we have this project at least on paper, so I can tell you some details.. : "18MW with 3 turbines, with estimated costs of 20 mil.". We could also used our land in Novaky, however that place it's in valley so turbines wouldn't be that efficient. Next possibilities are lands near the hydro power plants but there isn't too much space for them. In terms of location where are our nuclear station, that could be effective as wind power in that region is pretty

strong so I'm not excluding this option in the future. Nevertheless, at the moment we tried to concentrate on projects which have for us higher payback return.

Me: In what direction do you think the market will develop in the near future? We only going to see investments in RES?

Michal: Yes, battery systems definitely belongs to the energy mix, but solely this storage systems are quite expensive, last year just in Europe around 40GW of new solar systems was installed so if you count a storage system to every solar source how many of them you going to need.. That's too much and probably from the technical perspective as well, we need to invest more in modernization of hydro energy powerplants, so we can increase overall flexibility. For instance, when the sun will not shine as much you expected you will turn up the performance of hydropower plant and save PV system on later period.

But in order to do that we need to modernize our Hydropower plants as I said, they were at least those SE owns been built long time ago and since then technology developed in we are now able to use them more efficient.

To sum it up, from investor's point of view you need to outbalanced the energy fluctuations when you investing in RES and always be very conscious about your decision.

Me: What is the firm strategy when it comes to projects exiting and how the sell of the actives works ..?

Michal: Yes,so in terms of another markets we are already doing this, with both selling and purchasing activities. As we known, European market tis connected.

Me:As we know, the production of electricity in Slovakia will soon exceed its total consumption, are you as a company preparing for this situation in some way, looking for new markets or expanding the network of customers, etc. ?

Yes, as you correctly mentioned with completition of Mochovce we are would be able to sell more energy to our European partners.. Although, it doesn't change a firm strategy too much as we had already doing this. Nevertheless, we still try to add more assets to our portfolio..

In terms, of our selling strategy we are using electronical power exchange. Many firms are buying from us in advance there, likely with hedging options..

Me: So, you are not using PPA's (power purchasing agreements) in your selling approach ?

They surely were and still are some, nonetheless we are talking about rather insignificant numbers.

Me: What do you think differentiates you apart from the competition (other private capital firms, etc.) ?

Michal : Hmm.. so if I look on the possible competition, depends on which market we are aiming, in Slovakia we are definitely the biggest in size, projects that are contributing to Slovak energy production, also probably capital. However, these factors might not be the case in broader European area. Also as you mentioned before, we have quite interesting mix of shared capital, state even though is minority shareholder is able to ensure that his interests are met, as it was in case of Mochovce ..

Me: When you look on the local energy market, do you see some specification or point-of-difference compared to other markets in Europe?

Michal : If I look on the proportion of RE energy production in our country, that's probably the first one which comes to my mind as you probably know we are somewhere under the EU's average, then the Energy mix of this country it's probably the next as our consumption of energy

comes mainly from nuclear power plant, on the other hand in the past many hydro power stations were constructed and I don't think that is the same in neighbouring countries, even though I need to say I don't really monitoring the situation in distant countries... Well, to add situation with the Slovak's wind energy wouldn't be the same in Northern Europe or Poland that's for sure.(Laugh)

8.4 Interview Transcript : Radovan Šavolt – Janom s.r.o

- Chief Investment officer
- Janom s.r.o
- Experienced M&A professional with 16+ experiences in finance, valuation & financing modelling (strategic investor, private equity/venture capital funds..)
- Skilled in leading teams and executing complex deals on behalf of various clients (strategic investors, private equity/venture capital funds). Strong technical background in corporate finance, valuations and financial modelling.

Interviewer: Me

Interviewee: Radovan

"Quick Introduction of Myself and my Thesis and asked for permission to record"

Introductory questions

Me: Let's start with the first question, is pretty easy, can you please state your full occupation and perhaps projects you are/were recently working on?

- Citibank- 2 years as Credit Risk Analyst

- Wood & Company Investment Banking Associate, over 4 years
- Deloitte Slovakia-Director over 10 years
- From 2022-Chief Investment Officer at Janom

Radovan: Well, in Janom I am relatively new, however with my 16+ years of experience mainly in the M&A sector, I came across different types of projects, of course, some of them were part of the renewable energy, and many were concentrated on transaction business plus in many of projects I served as a head consultant with various others responsibilities..

Currently, I'm working at Janom in the position of Chief Investment Officer, where I with our team are processing and evaluating different investment possibilities. My job is mainly trying to normalize this process and look at projects very objectively (from all perspectives), with line of our common strategy. After that, we are also maintaining all the other processes needed to close a deal.

Me: On which specific projects you had an opportunity to work on ?

Radovan: Well, from renewable sources I had an opportunity to work on solar projects, Biogas stations and some small hydro energy powerplants.

From Janom portfolio, I can mentioned:

- Solar**:** Plachtenice I,II ;Kosihy I,IV, Hrušovany II,III, Pískovina polom ,Veselka
- Hydroenergy**:** Kočkovce, Vodný Tekov, Ťahanovce bioplyn

Barriers

Me: In your opinion what are the major barriers preventing deployment of energy investments today?

***: Taking into consideration that one of them could be :

- Awareness and commitment due to unfamiliarity and hassle among the public
- Financial resources are limited and/or unaffordable
- Technical expertise and solutions are insufficient
- Non-Economical barriers like grid access, permitting issues (rules & policies, administration, procedures, authorities etc.)

Radovan: Yes, so nowadays at least when we talking about Slovak Market we basically have a limitation for installing a new solar power plants into the system (PowerGrid),because I don't know if you know but majority of the photovoltaic powerplants was build in 2010 & late 2012 , when legislation changes comes into effect. To make it short, government basically decide to allow a certain capacity(on a national level) of new sources of renewable energy to be built, while basically "anyone" would get a permission for building, and majority of applicants had also build those projects. After that period, this permission process had slowed and come a lot more difficult plus of course feed-in tariffs. At that time was guaranteed, price was higher than the price on spot market, I believe candidates get around 15 years of guarantee for a contract so overall it was on much more pleasable level for investors that it is now..

So there was a long gap between 2012 and 2022, until just recent year when all the situation with prices on the market went drastically high, plus it took some time till technology get a much cheaper, which I'm trying to explain that today it's again making sense to invest in these sources even without dotation mechanisms.

The issue is I think, government policy along with permission processing, it's customize to support smaller installations mostly on rooftops with performance of 500 kW and less, while before you would expect no problems with asking for permission of 2,0-2,5 MW PV power stations. So, one of these barriers I think it's this government policy/strategy. Second specification, again I'm not sure if you know but Slovakia have only one or two wind farms with really, really old technology, and that's I think what underline mine concerns that we actually must have some "you shall not pass" conditions for registering and building a new wind farms. I was personally, on some conferences where representatives trying to explain this situation and it was clear from their opinion that they do not have a positive attitude towards

these investments.. So again it is some sort of barrier, because we register some investors who have an intention and resources to invest in this technology, yet if you build this kind of projects nobody thanks to the processing process will approve your final documentation nor will connect it officially to the power grid.

So sum it up I think those are major barriers currently present on the market, because when comes to the price of technology which was a significant problem in the past, nowadays the price of a technology get much lower so you don't really need additional dotation from other institutions to cover building costs.

Me: Can you choose one or two key factors, and tell why do you think those are the key factor preventing new investments in energy ?

Radovan: Yeah, well I kind of sketch that already, I think after talking with people from Slovak electricity transmission system (SEPS), there is some sort of interest group inside the organization which are argumenting that wind plants as a source of energy is non-stable in the grid system and therefore they have additional expenditures when try to connect plants into the system.. I cannot approve or disapprove of this statement as I'm not a part of this organization or have enough inside knowledge the judge, however, this is sort of an official answer.

The possible solution for that, can be and I know some countries have it , is an approval mechanism where, when you want to your source to be connected to the grid with having also storage system (battery) as a part of it, you will going to get a sort of fast track option while processing your application for approval. As we know any storage systems have that feature to balance that non-stable part when comes to renewables so this could eliminate at least one of their argument when comes to the approval process for wind farms.

Opportunities

Me: What is the firm strategy when it comes to projects exiting and how the sell of the actives works, perhaps can you give me an example of how they have been financed?

Radovan: Well, re-purchasing was done through feed-in tariffs (customer-distribution company).

Most of the projects were financed through the "project financing", of course you need have a complete finance modelling prepared. Everything was detail-oriented there, it could count with different scenarios, basically the model needed to by on level that the bank could accept it. Which I guess was very attractive for a bank, because 15 years of guarantee for re-purchasing price, which means almost no risk for price fluctuation so you can imagine if you had enough documentation and guarantee it wasn't a problem to get financed at that time..

Me: Had all those project you worked on, a financially positive outcome ?

I think, all those projects were returnable, I don't think any of the investors loose money on them. Many have been sold to other investors, plus I remember that many of them had been re-financed -change the financing as interest rate decreased down, which of course affected the profits for investors. But I don't remember exact IRR numbers or other indicators that was made at the time..

Drivers

Me: You mentioned some support mechanisms such as Feed-in tariffs etc. That brings me to the question: „It's your professional feeling that these support mechanisms as they are currently set up aren't efficient enough ?

*Taking into consideration that one of these mechanisms could be.:

- Feed-in-tariff
- Two-sided contracts-for-difference (CFDs)
- Corporate PPA's
- Green Bonds
- Asset backed securities

- R&D Grants
- Mezzanine Debt; Senior Debt

Radovan: Well as I was, talking about feed-in-tariffs, I think that mechanism was attractive, at least at that time, because the quota was settled the right way, so many investors was drawn into system, if the quota would not be set up correctly we would not see that kind of interest or quota will simply not be used up.

Me: From these mentioned mechanisms, did you notice some changes or do you think we going to see one in the near future?

Radovan: If I compare the period which I just talk about (*referring to beginning of feed-in tariffs) with the one we had now, now market prices are somewhere else and again technology is much more cheaper.. From what I saw lastly, when we consider purely solar technology, 1/MW of installed capacity it's worth around 750 000€ (meaning CAPEX). Whereas, in the past it was in millions! So thanks to these factors, I don't really thinks that sector requires some additional dotation from governments. Note: "And I don't mean just a Slovak Market, but broader region."

Opportunities

Me: You already touch upon some market conditions, so what are the specifics regarding to Slovak Market in comparison with other International or EU energy markets ?

Radovan: That's what broad us to the beginning of this interview , again wind projects ..

I can give an example, very long time ago (around 12 years), we tried to develop wind power plant in Slovakia. At that time performance was around 1MW per turbine , today you can have 4MW/ turbine, technology drastically boost performance in other way. Which of course, change

the economics prospects, because it's difference if you built four turbines or ten turbines with 10MW in performance, or you built one to three turbines with same performance..

So, I think today's it's more about to develop that framework- have stable law environment, legislatively have defined correctly all the process of approval and construction for this type of source and then I don't think there are some support mechanisms needed to be placed.

Me: Now if you would be in a position, from where you can improve conditions for potential investors or generally business conditions in terms of RE what you will likely change/ or do differently ?

Radovan : Hmm, well I really like the concept of de-centralization in production and I'm not just meaning in power production but also in terms of heat efficiency. Instead of having one-two huge source of energy in the country or region, for instance, like we have in the west part of Slovakia (*hint for nuclear power plant in Mochovce), where then is a question how much energy from that source would be transferred to other parts of the country taking into consideration transmission system, which we know it's not in perfect condition and this can applies elsewhere..

Therefore, I like the ideology "you build where you consume"**.** One of the examples could also be when firms/organizations purchase photovoltaic's on their roof, so they directly consummate electricity which they produce or they sell it back to the grid and lower their costs. But main point is when you built on one place and also consume on that one place you are avoiding fees for distributing and transmission, which in Slovakia is almost half of the purchasing price.

Another good think is to look on it from municipality perspective.. For instance district could build photovoltaics on their frequently used properties such as schools, recreation, culture centres etc.

So far I only know about examples, where municipalities owned centralized heating(steam) plant which supplies neighbourhoods, however those was lately privatized. Or then in Bratislava there is city waste incinerator, which distribute energy to the city, nonetheless I think this is overall exception for rest of the country.

Me : How do you see relationship between private and public capital in terms of Investments in Energy Sector ? Do you see some disadvantages or advantages on either side ?

Radovan: Well, they definitely both plays an essential role in financing new energy projects, and I think the public-private cooperations it's increasingly important for the market. If for example cooperation between public institutions, research organizations and private companies work well, then things like innovation, proper amount of resources, clear market conditions and strategy would accelerate much more quickly.. Also, when I look on public capital from type of projects in which he is investing we could say that often looking for high-risk investments, therefore it basically fills gaps in financing capital-intensive projects, which other private investors are not comfortable investing in, so it can in many cases encourage other private companies to participate and supports by this way strategic development of energy market, or generally any other similar market..

Me: Ok and what about foreign investments, do you think they have positive impact on Slovak Market ?

Radovan: Hmm .. Hard to say, in this terms, we are basically small private equity company based inside Slovak Market. However, generally, I think foreign investors could bring a new wave into market by increasing expertise, amount of resources, advanced technologies or a new strategies. As you probably know major player at Slovak market when comes to the production are Slovenske Elektrarne, and they are financed or have been under control of foreign parent company, so we definitely have some examples and SE are those who developed probably most important project in history of this market (meaning nuclear power plant Mochovce). So, there is definitely a good question to ask : "would they be able to finish this project, without the help of foreign investor" ..

On the other hand, let's be honest it also took a very long time to built it so I guess that would be great question for them. And if we look on the projects outside of energy sector financed by the state we gonna see even more delayed or canceled projects which many of which are still not built..

So I'm not sure if I can say there is a just positive outcomes when comes to the foreign investments or investors but they definitely have a their crucial place in our energy market.

Me: Supplementary Question : So, what do you think are disadvantage or advantages of foreign investors in our Market ?

Radovan: Well, it's related to what I was talking about previously. By bringing more capital they can increase many things like overall international trade, create new jobs, and opportunities for new business, especially for local demand, so we can say it have that power to make market accessible for local business.

In terms of disadvantages, it's questionable that for example how much of their profits they repatriate back to their headquarters… This can affects those reinvestments into local market which I was describing previously. I think, generally our country have good experiences with foreign investors, the examples can be saw in Automotive Industry. There we can, see how the government is trying to develop constantly their relationship with foreign investors and maintain existing partnerships on a great level … . I just wish I could see, some sort of this collaboration in our sector ..(laugh).

Me: From perception of potential Investor, do you think that Slovak Energy Market could be adequately attractive ?

Radovan: It definitely could be, we just need to think about many factors.. For instance, regulatory environment it's not very stable I would say, we should have a transparent and clear regulatory framework so we can see the exact government's strategy and specific steps by how they want to get there, that's at least what we can do improve overall investment climate. Of course then there are other like market size & market potential, we definitely could not compete with countries like Spain, Germany, Italy, UK etc. So I think if we saw some other foreign investors in recent future it would be probably mid-size investment groups or "smaller" corporations. I don't think we would see another huge energy investor like Iberdrola, RWE or such was ENEL, but that's just my opinion, I could be mistaken..

Also, we going to see probably only investors within EU, perhaps U.S coming, because of the recent political changes, especially with new investor screening process would not be possible for companies from Russia, Belarus and maybe also China to become part of our market..

Me: What do you think differentiates you apart from the competition (other private capital firms, etc.) ?

Radovan: What I think, differentiates us from other private equity investors is that we are also a developer in many our projects, which means we not only buying already developed assets but also those which are in their development stages for instance if the project did not finished

their authorization (documentation) stage. In terms of the selling process, it is of course very opportunistic, some projects we keep for a years, while some of them we are “exiting” (selling) , when comes a good opportunity to do it, for example now we are “exiting” a Finland project (Tyrinselkä-wind farm)..