Renewable Energy under Putin:

Why is he embracing RE through policy changes and sectorial development now?

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By

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1.0 Abstract

An inconsistency has been present in statements made by president Vladimir Putin, the leader of the Russian Federation and his government, in the regards to renewable energy, and their role on the energy sector's agenda. This inconsistency is the root of the title of my thesis - "Renewable energy under Putin: Why is he embracing RE through policy changes and sectorial development now?", and thus, the problem formulation is constructed in such a manner that I am able seek and answer "why are the Russian Federation, and in particular President Vladimir Putin now publicly stating the need to focus more on renewable energy sources when they previously distanced themselves for the possibility of renewables having a future in Russia?" The investigation of this, to a degree sudden and unexpected change is baselined around the theories of bureaucracy, as defined by Max Weber, then bureaucracy is the constant struggle to share and/or influence the distribution of power, either between different state, or between different groups within the same state (Beetham, 2013), as in this case. Therefore, the ultimate form of fragmentation is the appearance of divided authority in the very center of a bureaucratic institution (Alford & Friedland, 1985). The theory of authority, which "is the right to rule. Authority creates its own power so long as people accept that the person in authority has the right to make decisions" (Hague & Harrop, 2010, p. 12). And furthermore, the identification of the Russian Federation as being an illiberal democracy with authoritarian tendencies. This will be executed through a critical single-case study research design.

2.0 Introduction

The Russian Federation is placed as the world's fourth biggest greenhouse gas polluter, followed behind after China, the United States, and India. The Russian Federation is releasing more than 2 gigatons of greenhouse gases per year (Digges, 2015). Furthermore, Russia is one of the most carbon intensive nations globally when measuring emissions per unit gross domestic product (GDP). The above-mentioned nations, China, the United States and India who all are bigger emitter are not even in a top 20 (Digges, 2015). To cut down on the greenhouse gases, Russia needs to cut back on the utilization of fossil fuels, and thus, making the change in attitude towards renewables and cleaner energy even more critical. So, based on that knowledge, the first question that comes to mind, is what exactly is the current utilization of renewable energy sources in Russia?

In 2015, less than 1% of the power generation capacity in Russia stems from renewable

Sources;	Megawatt;	Percentage;
Thermal power generation ¹	160,233.28 MW	68.1%
Hydropower generation	47,855.18 MW	20.34%
Nuclear power generation	27,146 MW	11.53%
Solar energy	60.2 MW	0.03%
Wind energy	10.9 MW	0.005%

energy sources. Most of renewable energy sources in Russia energy mix stems from hydropower (Whitlock, 2016). Therefore, the abovementioned percentage rises significantly, if one were to

Figure 1. Adapted from Climate Scorecard

include hydropower, more specifically the number rises to an astonishing 17 % (Katona, 2016). That percentage is higher than some of the larger

economies in the European Union, such as France and the United Kingdom. Figure 1 above illustrates the energy sources upon which the total electricity was generated from in Russia in 2015 (Zaika, 2016), and also here it is visible that hydropower is the main source. However, in this paper, the focal point will be on renewable energy sources such as wind, solar and geothermal power, and those specific renewables are still highly underdeveloped when analyzing the case of the Russian Federation (Katona, 2016). Knowing that renewables such as wind, solar and geothermal energy are classified as underdeveloped in Russia makes me wonder, is Russia slowly starting to realize the need to focus more on renewables?

¹ Thermal power is power generated when heat energy is converted into electric power. Thermal power station can utilize different energy source, however, the most dominate is fossil fuels, such as coal, nuclear and gas (Zaika, 2016).



held a speech where he talked about the seriousness of climate change, and he pledged that the Russian Federation will cut 70-75 percent of their greenhouse gas emissions (of the 1990 levels²) by 2030 (Digges, 2015). This statement and promise showed the first



sign of a possible change to come, a willingness and acceptance of the current situation, not only within the borders of the Russian Federation, but globally as well. Furthermore, Putin gave a speech during the 70th

Figure 2. Figure is retrieved from CarbonBrief

session of the U.N. General Assembly in New York in 2015 where he again expressed the need to take climate change serious, look at appendix no. 4 (Putin, 2015).

However, these statements surprised most people. Less than 5 years earlier, the view on climate change, global warming and thus, the need to utilize greener and gleaner energy was quite different. "Global energy experts predict a steady growth in consumption. However, the structure of consumption will remain practically unchanged. There may be a very insignificant change despite all the efforts to develop alternative fuels. You can't convert large power plants to wind generators, although the idea is certainly tempting. You won't be able to do that for several decades because it's impossible. Impossible!" (Putin, 2010). This remark was a part of Russian President Vladimir Putin's speech which he gave at the VII annual Valdai Discussion Club in 2010, look at appendix no. 3. The event is a forum where foreign experts on the topic of Russia are invited to participate in a dialogue concerning a variety of issues such as the economic, political, cultural and social development in

 $^{^2}$ Cutting the greenhouse gases in Russia with 70-75% of 1990 levels by 2030 might be a long-term indicator. The greenhouse gas emissions already downsized after the Soviet fall in the early 1990's, as also illustrated in figure 2 above. Thus, the correct percentage is a reduction of 25-30% on 1990 levels (Digges, 2015).

Russia. In other words, Putin did not hide his skepticism concerning renewable energy sources and their future in Russia.

Thus, for those who read or listened to Putin's remarks during the annual Valdai Discussion Club in 2010 and his speeches from 2015 concerning climate change and renewable energy in Russia were therefore surprised by the sudden change in tone. During the 2010 annual meeting, Putin characterized renewable and alternative energy sources as impossible in the case of Russia, and he even claimed renewable research as being just for fun (Putin, 2010). And in one of his most recent statements concerning renewable energy, Putin stated that renewables would be a beneficial business for Russia, and that the mankind is moving towards 'green energy', and this is the main development path, even the proper path. The demand for renewable energy is growing at a priority rate as compared to energy from conventional sources (Tass, 2016). Therefore, Russian government officials are now revisiting the notion of renewables being a profitable business for Russia, the very idea which Vladimir Putin dismissed in his speech in 2010. Alexey Texler, Deputy Minister of Energy stated in January 2016, that renewable energy in Russia would be profitable for the nation's economy and has serious economy foundations (Digges, 2016). At the same event, Texler mentioned that within the following 20 years, the Russian government plans to boost the production of energy from renewables by 10 times, and by 2024, the government aspire to generate between 8 to 10 gigawatts of the power capacity from renewable energy sources (Meyers, 2016).

Another element that illustrates the Russian Federation realizing not only their potential within renewable sources, but also illustrates a willingness to develop that specific section in the energy sector further, is Russia's membership of IRENA (IRENA, 2017). IRENA stands for International Renewable Energy Agency, and the agency is an intergovernmental organization which assists countries in their transition towards a greener, cleaner and more renewable future. Furthermore, the organization functions as a platform for international cooperation, and the main focal point of the organization is to promote all forms of renewable energy sources, such as wind, solar, ocean, bioenergy, geothermal and hydropower (IRENA, 2017). The Russian Federation became a member of IRENA in July 2015 (Aquatherm, 2015). This will provide Russia will the cooperation, tools and access to knowledge concerning renewable energy policy and implementation, which will be a vital supporter for Russia in order to be successful in reaching their target of downsizing their greenhouse emissions by 2030 (Digges, 2015), and for them to be able to boost their production of energy from renewables by 10 times within a timeframe of the following 20 years (Digges, 2016).

According to President Vladimir Putin and Deputy Minister of Energy Alexey Texler a shift and change concerning renewable energy sources are slowly taking place in Russia. The Russian government has already introduced a subsidy program created with the intention to further the encouragement among Russian companies and businesses to think, act and trade greener (Whitlock, 2016). Thus, initiatives are being taken towards a greener and cleaner future by focusing more on developing renewable energy sources than previously. And furthermore, according to Russia Direct's article from February 2016 (Katona, 2016), then 2017 are going to be the year where Russia is going to realize its potential within renewable energy. Finally, some would even say. But that so-called change in tone leaves me wondering. Why now? As mentioned above, then in 2010 President Vladimir Putin stressed the fact that renewables would not be on the agenda of the Russian government for decades to come (Putin, 2010), and then in 2015, the very same person, President Vladimir Putin gave a speech about the necessity of focusing more on global warming, climate change and renewable energy sources (Putin, 2015), thus, this illustrates an inconsistency in Vladimir Putin's statements. What has changed so drastically in a timeframe of 5 short years? Based on that wonder, my problem formulation is as follows;

Why are the Russian Federation, and in particular President Vladimir Putin now publicly stating the need to focus more on renewable energy sources when they previously distanced themselves for the possibility of renewables having a future in Russia?

3.0 Literature Review

The purpose of created a literature review is to illustrate to the reader, the process of reading and understanding the general material that exist within the field of the topic of this specific paper. This review will be focused around the objective of my thesis, and thus, provide the framework for my further research on this specific topic. In creating a literature review, the author needs to illustrate an insight and awareness concerning the different theories, approaches and arguments of the relevant published work. Most of the material applied in this paper was collected during my internship in St. Petersburg, which means that I had time to familiarize myself with the data.

So how does one figure out how and why the attitude towards renewables has changed, or is slowly changing? This is mainly done through the media and the material collected. The media is one of the main sources of information concerning international politics, however, the media is often highly influenced based on the national origin of the media. This is one of the complexities of working with the topic of renewables, the Russian Federation, and government. The media does not always portray the most authentic and truthful side of things, thus, subjectivity is an important element to consider when applying literature. Furthermore, the media in the Russian Federation are known to be under the influence of President Vladimir Putin and the Russian government, some would even say controlled, therefore it is even more important to remain critical towards the material that stems from different Russian media outlets. The media which originally drew me towards this specific topic was the online news outlet - Russia Direct. They posted an article by journalist Viktor Katone, titled Realizing Russia's renewable energy potential in 2017. However, although the article mentions the different aspects where Russia would and could excel in renewables, and the untapped potential, Katone does not mention why 2017 are any different than the previous years, or what has changed (Katone, 2016). This immediately made me search further into a broad spectrum of materials. Vyacheslav Solomin, the acting CEO of EuroSibEnergo³ appeared in the 2016 spring addition of Renewable Energy Magazine. In that interview, Solomin stated that the Russian government have introduced a subsidy program in order to encourage companies to look for greener solutions, and that the government are currently playing a more active role in promoting cleaner and greener energy than previously (Whitlock, 2016). These statements cooperate with the general views that appeared in the

³ EuroSibEnergo is a private held energy company. The company is not only the largest privately held energy company in Russia, but it is one of the largest hydroelectric power producers globally (EuroSibEnergo, 2017).

article by Katone. This created another question, which were important to get answered in order to move further with the research - what is the current state of renewables in Russia? This question will be elaborated in depth in the analysis. As also touched upon in the introduction apart from hydroelectric power plants provided by companies such as EuroSibEnergo, less than 1 % of the power generation capacity stems from renewable energy sources (Meyers, 2016). When focusing on wind, solar and geothermal energy, as I do in this paper, Russia is highly underdeveloped according to the article by Glenn Meyers – Russia Renewable Energy Report, published on Planetsave in spring 2016. According to Renewable Energy World's article on Troubled Economy Dominates Russia Distributed Clean Energy Procurement for 2016-2019, then renewable energy sources are still unable to compete with the conventional power generators, when looking at the subject from an economic standpoint. Furthermore, due to the instability of the ruble, investors and the interest in renewables has weakened significantly (Jegelevicius, 2016b). Charles Digges from Bellona - a nonprofit organization targeted renewable energy, pollution and climate issues stated that the Russian government is revising the idea and notion that renewables, however could be a profitable business for the Russian nation and economy in his article Russia pushes for renewables, but entrenched power lobbies and poor organization remain foes (Digges, 2016).

So far the collected material has illustrated that generally there is a pattern of change concerning renewables in Russia. Several of the authors and media outlets has directly mentioned not only the underdevelopment of renewable energy sources within Russia, but also the vast potential that exist in the world's largest country, just waiting to be exploited. Another pattern formed is the incoming change mentioned by several authors with different origin and backgrounds. The Russian government has made some policy changes, such as the subsidy program in order to encourage the Russian business life to think and act greener. However, this still leaves me with my primary question, the problem formulation; *why are the Russian Federation, and in particular President Vladimir Putin now publicly stating the need to focus more on renewable energy sources when they previously distanced themselves for the possibility of renewables having a future in Russia?*

4.0 Methodology

The following chapter is intended to present the reader with the understanding and knowledge upon which means I intend to apply in order to answer my problem formulation. The problem formulation was stated clearly in chapter 2.0, and has been developed based on the notion that the Russian Federation has a vast untapped potential within renewable energy waiting to be exploited, however, President Vladimir Putin previously (in 2010) stated that the utilization of renewable energy has no place in Russia for the next decades, however, something has changed. Recently (in 2015 and 2016) President Vladimir Putin stated, that Russia will turn their attention towards their untapped potential of renewable energy sources, and that the energy sector will start developing greener and cleaner energies. My goal with this paper, is to investigate why the sudden change in views, and why are Russia now realizing the beneficial aspects of renewable energy sources. Hence, this chapter is intended to illustrate how I plan to answer that problem.

4.1 Synopsis

This part of the methodology focuses on the setup of this paper. To stress the development before and under the writing process, I have created a 'thinking map of dissertation' which is illustrated in appendix 1. The elements in the figure are described in more details in this section.

The first chapter in this paper is the *introduction*. This chapter includes the prologue to this paper, along with the problem formulation. This chapter provides the reader with an understanding and knowledge of the process of research and thinking that lead me to my problem, which leads us directly to the following chapter. The second chapter is the *literature review*. The purpose of this section is to illustrate and present the material which has been relevant in the construction of this paper, along with a general understanding about the published work concerning this specific subject. The third chapter is the *methodology*. This chapter consists of 3 main sections in order to provide the reader with the needed knowledge about the means upon which I intend to answer the problem formulation. The different sections are; *theoretical considerations, empirical data methods, and analytical processes*. The first section is the *theoretical considerations*, where the different theories which have been or potentially could have been used in this paper are introduced. Following that is the *empirical data methods*, which contains 2 subsections; the data collection, and the scope and limitations. These sections are intended to present the reader to the process of collecting material, and furthermore, what limitations has surfaced before and during the process of producing

this paper. The next section is the analytical processes containing 2 subsections; the case study methodology which is created in order to introduce the reader to the methods I will utilize in order to be able to answer my problem formulation. The method used is a critical single-case study. The data analysis is how I plan to analyze the collected material. This is done by applying elements from different analytical technique, thus, applying my own algorithm in order to customize the data analysis to fit this specific paper best possible. The third chapter is the theoretical framework. This chapter contains a description of the theoretical basis upon which this paper will be based around. The main theoretical approaches are Max Weber's theory of authority, and his theory of bureaucracy. Furthermore, fragmented bureaucracy will be described. The purpose is analyzing how those theories affect the process of development within the energy sector in Russia, and why the change is happening now, which will be the focal point of the fourth chapter; the analysis. This chapter is intended to join the previous chapter in order to answer the problem formulation. The structure of the analysis is separated in three subsections, the first is the more background oriented information which are essential in order to proceed with the analysis. This subsection introduces the reader to the current usage and potential within renewable energy in Russia, and a description of the energy sector. The second subsection analyses the identity of the Russian Federation under Vladimir Putin's rule. And the third and last subsection is centered around the different aspects of why there seem to be a sudden change in the Russian government regarding renewable energy. The fifth chapter is the conclusion, where the reader will be giving a brief summary of some of the core findings though this paper, and finally the problem formulation will be answered.

4.2 Theoretical Consideration

This section is intended to briefly present the various theoretical options, and thus, conclude by presenting the selected theoretical approaches for this paper. Numerous theoretical approaches are applicable when analyzing the topic of renewable energy and the topic of the Russian federation. Those theories could be institutionalism – both old and new, fragmented bureaucracy, interest groups, state capacity theory, authority, and theories of international relations such as realism, liberalism and constructivism. These are also theoretical approaches which I have researched and briefly studied during the process of gathering material for this paper.

Although many theories could be used when looking at the broader spectrum of my topic, only a few, however, are applicable when going into the specifics of my problem. Therefore, I

have chosen to utilize the theories of fragmented bureaucracy, the theory of bureaucracy according to Max Weber and the theory of authority to be successful in answering why the sudden change in attitude towards exploitation and utilization of renewable energy sources such as wind, solar and geothermal energy in Russia, and especially the change in views from President Vladimir Putin from his statements in 2010 to 2015. The theory of fragmented bureaucracy and Max Weber's views on bureaucracy will be applied to analyze and go into depth concerning the difficulties of bureaucratic development if and when fragmentation is present. The theory of authority, along with Max Weber's views will be utilized in analyzing the possible reasons behind Putin's sudden change in views concerning renewable energy sources. Hence, for me to be able to consider both the institutional and sectorial aspects of embracing renewable energy and furthermore, the reasons why the Russian government, and especially president Vladimir Putin are choosing to publicly embrace the notion of utilizing renewable energy in Russia the theoretical framework consist of bureaucracy and authority.

4.3 Empirical Data Methods

4.4 Data Collection

To be able to answer the problem formulation successfully, it is a necessity to collect material and conduct an analysis on the collected data. My aim throughout the process of collecting data was to locate and examine as credible and trustworthy sources as possible, thus, preferably primary sources to draw solid information from in order to support my research best possible and to ensure impartial and authentic information. Although there are a variety of sources to potentially draw information from, such as interviews, surveys, direct observation, etc., I chose to apply a variety of documents, books, archival records, reports and articles from institutions, organizations and the media related to the Russian Federation and the Russian energy sector. The majority of the gathered material was collected through online academic databases such as AAU library and Google Scholar by using search (buzz) words such as President Vladimir Putin, renewables, energy sources, Russian energy sector, and so on. This process was done to provide as reliable and trustworthy sources as possible. The majority of primary sources used in this paper are official Russian documents and website, such as material retrieved from Russian government's website, and organizations such as the International Renewable Energy Agency, Russian Association of Wind Power Industry, Sinomec, Solar Energy Holding and World Energy Council. However, when locating primary sources was not a possibility, secondary sources, such as books with a general overview of theories or articles and material I had to translate from Russian to English were used. The secondary sources were, however, carefully screened before used as sources. After the search for material, the data's reliability was attentively evaluated by assessing the sources and references in question, and sometimes even by the newness of the source.

Another element important to keep in mind when analyzing the collected material is objectivity and subjectivity. The information found from Russian authors, websites and news outlets are often more positive towards the current state of the Russian energy sector and the development within renewable energy. Whereas, material found from authors, news outlets and websites from nations such as the United States or the EU are often written in a more negative light and paint a bleak picture of the situation. These are important conclusions to keep in mind when applying data throughout the paper because although the material is viewed as credible, the material might be affected slightly by the author's origin.

4.5 Limitations

This section will briefly mention some of the challenges and limitation I had to deal with before and during the writing process. One of the first challenges I experienced when researching materials was the language barrier. Besides a single month of Russian lessons, I do not speak nor read Russian, thus, I was limited to English sources only, or Russian sources translated. Only a few local online newspapers, such as Russia Direct, Russia Beyond the Headlines, The Moscow Times and Tass publishes their material in English as well, but otherwise much of the material connected to domestic policy and energy development are either nearly impossible to locate or the material are published in their mother tongue. Finding and locating material can be categories as a minor limitation as well. Finding material concerning renewable energy in Russia has from the beginning of the process been challenging. And more specifically, material concerning what could be the cause behind why the sudden change in attitude towards renewables in Russia is extremely limited, if not almost nonexistent. Therefore, I originally became curious about this subject, and furthermore, why I decided to investigate this topic for my thesis. A limitation important to mention when focusing on the literature, is the general lack of data. The reason for the lack of material on the subject is due to it the timeframe of the subject and the subject itself. Renewable energy is still a foreign or new concept when talking about the Russian Federation and thus, it is not a widespread phenomenon. I also wanted to examine the websites of the institutions, ministries and companies relevant to this paper, hoping to find statements and/or material to apply. However, finding material in general from the Russian government has at times proved to be challenging since the Russian Federation can be very selective in the documents they publish.

So, despite a few challenges and limitations in the collection of data, I was successful in gathering a vast and academically reliable amount of material upon which I will conduct my analysis later in this paper. However, a vast amount of material is essentially useless without a method for analyzing the content found in the material. Because of the size and diversity of the collective material, I chose to apply a qualitative approach and compliant with my case study methodology, it was possible to extract the necessary and relevant information from the collected sources.

4.6 Analytical Process

4.7 Case Study Methodology

A case study is "an intensive analysis of an individual unit (as a community) stressing development factors in relation to environment" (Flyvbjerg, 2011, p. 301), and in order to investigate, why the Russian Federation is supposedly realizing their potential within renewable energy now, I have chosen to treat my research as a case study. Case studies combine a qualitative research of a specific subject, while applying appropriate techniques, and are linked to a broad spectrum in the study of politics (Hague & Harrop, 2010). Robert Yin defines a case study as "an empirical inquiry about a contemporary phenomenon, set within its real-world context, especially when the boundaries and phenomenon are not clearly evident" (Yin, 2009, p. 18). But what is a case exactly?

The most common utilization of the term, "associates the case study with a location, such as a community or organization" according to Alan Bryman (Bryman, 2012, p. 67). In this paper, the focus will be on what has changed or caused changes within one community (the dominating authority, i.e. Vladimir Putin and the Russian government) and how does those changes affect another community (renewables in the Russian energy sector). Thus, a case is constrained to a specific location, and that location can be defined as a single community.

In this paper, my case study will be defined as a singular case, due to the fact that the possibility of realizing the potential of renewables within the Russian Federation has not yet been seen before within the boundaries of the largest nation in the world, and it is not an everyday or common occurrence. Furthermore, this case will be categorized as a critical case, and based on that

notion, the case will be treated as such. According to Robert Yin, a critical case is acknowledged by testing the case on recognized and well-developed theory (Yin, 2009). In this paper, the established theory of authority and bureaucracy, will allow me to answer my problem formulation by providing the needed knowledge. However, I can only look into the most likely or most unlike reasons behind why the unexpected and sudden change towards renewables seems to be happening now. Hence, "no universal methodological principles exist by which one can with certainty identify a critical case" (Flybjerg, 2011, p. 307). However, based on the theoretical framework of authority and bureaucracy, it will assist me in locating the most likely reasons for the causes, and thus, answer my problem formulation. Therefore, based on the notion of a critical case, along with the timeframe of the problem formulation, it will not be possible to provide a certain and direct answer to the problem formulation in the concluding chapter. However, by utilizing the case study methodology in cooperation with the theoretical framework, this process will guide me closer to a calculated prediction and estimate.

But since a concrete answer is not a possibility, then some might ask, why do it? Based on notion that the majority of case studies are thorough research of a particular case, then the case automatically becomes limited in the use of any findings. Researchers such as Alan Bryman, Bent Flybjerg and Robert Yin therefore argue that there are rational grounds for generalization. Hence, "case study researchers tend to argue that they aim to generate an intensive examination of a single case, in relation to which they then engage in a theoretical analysis" (Bryman, 2012, p. 71). Based on that notion, I perceive a case study as highly compatible for not only theory testing, but also theory generating. One of the most common cases of criticism, when applying case study as methodology is that analytical research focused around a specific case cannot be generalized, and therefore case studies are a defective way of managing research (ibid.). However, although generalization is one of the aspects of case studies with receives criticisms, it is also seen as an advantage. Generalization becomes a disadvantage, if the researcher has a tendency to accept any result that matches the researchers own views. However, the element of generalization in case studies, becomes an advantage and strength because it allows the researcher to assemble, categorize and analyze material in a way where locating patterns or even parallels between different cases becomes easier.

Below is figure 3 which illustrates the strengths and weaknesses when working with case studies. The figure is created around Bent Flyvbjerg's notions on advantages and disadvantages of utilizing case studies.

Strengths/advantages	Weaknesses/disadvantages
Depth	Selection bias might overstate or understate
	relationships
Attention to context and process	Weak understanding of occurrence in
	population of phenomena under study
Conceptual validity	Statistical significance often unknown or
	unclear
Ability to create new hypotheses and new	
research questions	

Although case studies have received criticism, and some of those criticisms have merit, I believe that the

Figure 3. Figure is adopted from Flyvbjerg (Flyvbjerg, 2012, p. 314)

strengths of case studies outweigh them. The general strengths when utilizing case study methodology, also illustrated in the figure above, such as their depth, attention to context, conceptual validity, and ability to create new research questions, and this is highly helpful in the case of renewable energy in Russia. However, the narrow focus and the bias in the selection of a case, and/or the weak understanding of the specific case in relation to the given society can cause difficulties.

To sum up, the research design of this paper, I have chosen to utilize a single-case study research design. The *case* in this paper, is the realization of renewable energy potential in Russia which is defined as a critical case.

4.8 Data Analysis

The topic of this paper, along with time restraints prevented me from created my own original data, through surveys, interviews etc. That meant that locating a way of extracting relevant and needed information was necessary. And an important element when analyzing data, is to recognize whilst applying case study as research design, is that the researcher must locate its own study algorithm (Yin, 2013), because of the lack of a preset model. This is one of the advantages of utilizing qualitative analysis - it allows "the researcher to go back and refine questions, develop hypotheses, and pursue emerging avenues of inquiry in further depth" (Pope, 2000, p. 114). However, with that being said, there exist a variety of different approaches, and according to Robert Yin, there are five elementary analytical techniques (Yin, 2009).

There is the pattern matching technique, which is utilized if the case study is more explanatory, the patterns might be related to the variables of the case study, independent or dependent or even both (ibid.). Then there is the explanation building technique, which belongs in the same category as pattern matching, however, this technique is more difficult to utilize. This technique is commonly applied when constructing an explanatory case study (ibid.). The goal of explanatory building is not to conclude the study, but instead create a platform for further studies. The time series analysis is the third analytical technique. This technique is constructed around conducting experiments and quasi experiments (ibid.). Thus, this technique focuses on the match between the empirical study (the observed) and either some rival trends, or a theoretical significant trend. Both trends are to be specified before the commencement of the research (ibid.). Another technique is the *logic model*, which intentionally designate a complex sequence of events over an extended period of time (ibid.). The events are executed in cause-effect-cause-effect repeated patterns, by which an event (the dependent variable) at a previously stage becomes a causal event (the independent variable) for the following stage (ibid.). And lastly there is *the cross-case synthesis technique*, which is commonly utilized when analyzing multiple cases. Another technique important to mention is the framework approach (Bryman & Burgess, 1994). This technique allows the researcher to utilize a more systematic approach by dividing the analytical process into categories. This makes it possible for the researcher to pair the categories with the theoretical framework used to create a greater understanding of the theory and topic (Bryman & Burgess, 1994). The categories are concept, diagnostics, evaluation and strategy.

The above mentioned analytical techniques have all been utilized previously with great success. So the researcher must select the model and process of analysis which is the most applicable to the specific case study research design. To be successful in answering the problem formulation, which was stated in the introduction, I have chosen to apply elements from different analytical techniques to create the most the applicable method in regarding to this specific subject and paper. Thus, I will structure the analysis, so it is customized to this specific paper, hence creating my own algorithm. Therefore, the first section in the analysis will provide a more background orientated section. Following that, the Russian Federation under Vladimir Putin's rule will be analyzed. And lastly, the analysis will focus on why the changes towards renewable energy are happening now.

4.9 Final remarks

In this chapter, the methodological choices have been introduced to the reader, along with the reasons behind the different choices which has been made. Furthermore, the different strengths and weaknesses behind these choices were acknowledged. In the first part of this chapter, the synopsis was described. The synopsis functions as an outline of the entire paper, and illustrates how the paper has been constructed. The section after that, the theoretical considerations are briefly introduced to the reader. Following that, the data collection, and limitations are presented. These two sections address the more practical level, hence, the process of collecting data, and also the processing of the collected material, along with the different limitations and challenges which surfaced during this process. The final section in this chapter, describes the way upon which I plan to analyze my data. The single-case study research design was presented which in this paper, will be treated as a critical case. Also, the strengths and weaknesses of this approach were debated Furthermore, the analytical process is based on individual constructed analysis. This was chosen due to the lack of conventional approaches which were more applicable in this specific case study. The methodological choices made in this chapter are vital in order to be able to understand the final conclusion in the end of this paper, and therefore, the choices made has been presented in as clear a manner as possible.

5.0 Theoretical Framework

The following sections presents the theoretical framework which forms the foundation of this paper. This chapter is intended to provide the reader with the basic knowledge upon which I will utilized in conjunction with the case study research design, in the analysis later in this paper. And furthermore, the theoretical framework will lastly assist as a basis when answering the problem formulation which is stated in the introduction. The chapter consist of three different subsections, section 5.1, 5.2 and 5.3, and lastly, there will be a brief section with concluding remarks. The sections are intended to establish a basic knowledge of the main theory in this paper, which is Max Weber's theory of authority, his theory of bureaucracy, and lastly, a description of fragmented bureaucracy.

5.1 Max Weber's theory of Authority

Authority is a more extensive notion, then the concept of power. Where power is the actual capacity to act in a certain way and/or direction, whereas the concept of authority is the acknowledged right to do so. This is present when subordinates accept the capacity of their superiors to give them and others legitimate orders. Thus, "authority is the right to rule. Authority creates its own power so long as people accept that the person in authority has the right to make decisions" (Hague & Harrop, 2010, p. 12). This is known as the classical theory of authority.

According to the theory of the German sociologist (1864-1920) (Hague & Harrop, 2010) Max Weber, when investigating the so-called relationship of authority then the superior spontaneously implement the command as they have adapted it for its own sake (Hague & Harrop, 2010). However, authority continues to be more than simply voluntary obedience. The acknowledgement of the authority of one's superior does not automatically mean, that the individuals agree with the decisions made by the ruler. However, is means that the individuals accept, that the superior has the given right to make decisions, and thus, it is the duty of the individuals i.e. subordinates to obey the superior. Hence, the relationship of authority is still highly influenced by hierarchy (ibid.), which means that this is a top-down authority because is supports the principle of being constructed as an organizational hierarchy, while containing various levels of hierarchy within a society. As mentioned above, every subordinate in the given society accepts their superior's authority, and thus, obey the instructions given to them. However, if resistance and disobedience occur among the subordinate's, measures of forced and intimidating character is often present to redemand and insure obedience (ibid.). Furthermore, when the individual leaves an organization or

institution, he often loses the authority to give out instructions because the authority is most often connected to the position of the individual. In other words, if the Prime Minister of Denmark steps down or are being replaced, his level of authority automatically changes. Thus, the level of authority is governed by delegation, where each level of authority can only exercise the amount of authority provided to them by others. Based on that notion, Max Weber has constructed three variations of authority based on the level of political power present. There is the traditional authority, the charismatic authority and lastly, the legal-rational authority (ibid.). These classifications are crucial when identifying the nature of political authority in contemporary states, thus, when identifying President Vladimir Putin's political authority in the analysis.

The first authority type is the traditional. Superiors within the traditional type typically have no need to justify their authority and position in society, hence, obedience from the subordinates are an instinctive part of the natural societal order (Hague & Harrop, 2010). This type of authority has always existed. This could be the authority of the father in a family, the senior of the household, the King of Kingdom. Thus, traditional authority is often connected to patriarchy. The superiors rule because tradition dictates it. The traditional authority type is still present in today society, particularly in cases of authoritarian regimes. The Arabic term 'sheikh' refers both to the head of a kingdom and head of a family (ibid.).

The second type of authority is the charismatic which differs from the traditional authority type. Where traditional authority stems from tradition, from the past, charismatic authority disregard history and the past. The charismatic authority is focused on the future, and thus, convince their subordinates to look forward. The authority in its charismatic form, is often seen as a prophet, a redeemer or as a savior, and are therefore seen as individuals having exceptional qualities by their subordinates (ibid.). Thus, charismatic authority refers to how its subordinates perceive their superior. It could be as something or someone unique, inspirational, religious or heroic. Because of that, charismatic authorities often emerge in eras of crisis and downfall. Examples of that could be Martin Luther King, Mahtama Gandhi and Adolf Hitler (ibid.). Because these types often emerge in times of upheaval, they are often short-termed, they fade and thus, develop into a more permanent institutional structure.

The last and final type of authority is the legal-rational type. In this type of authority, obedience is owed through rules instead of by the ruler. Thus, a political system structured around regulations instead of tradition and charisma as in the two previous authority types (Weber, Gerth &

Mills, 2009). Furthermore, this authority type is the authority which exists in a position or in a role, and not in a specific individual. Legal-rational authority functions as a basis when concerning the rights of the individual, and thus, functions as a important tool in liberal democracies due to the fact that the extent of the authority of the officeholder reveals his or her's limitations. Examples of legal-rational authority could be a public servant, who operates in guidance to the given regulations and written laws, or a politician who are acting within the given constitution (Hague & Harrop, 2010). When applying authority as a part of the theoretical framework, the term - legitimacy is important to classify as well. Although authority and legitimacy are very similar in meaning, the latter is a broader concept (Lord & Magnette, 2001). The concept of authority refers to a specific role an individual can inherent, whereas legitimacy is the system constructed as a government where these offices exist within. In other words, "when a regime is widely accepted by those subject to it, we describe it as legitimate. Thus, we speak of the authority of an official but the legitimacy of a regime" (Hague & Harrop, 2010, p. 13). Another important aspect of Max Weber's theories is bureaucracy, which takes the reader directly to the following chapter.

5.2 Max Weber's theory of Bureaucracy

Because of information and globalization spreading amongst the world's nations, thoughts such as post-industrialism, post-modern, and others as well circulate, as the current complexity of public problems in present times surpass those in past traditional societies (Jinshan, 2012). And even though the growth of bureaucracies has accompanied modernization globally, this specific development has proven worrying in connection to democracies. Therefore, democratic governments have often adapted administrative guidelines and instructions to insure and promote accountability (West, 2016). Furthermore, this also ensures that the nation meets the sought-after quality in the decision-making processes, and in policy monitoring (West, 2016). Thus, managing control over public administration and political conflict.

Bureaucracies are the direct product of a nation's history, both politically and economically (Thun, 2006). And soon after a bureaucratic agency is established, the agency's process towards independence begins. The bureaucratic agency after creation has an instinctive drive and attraction towards rationalization, which points towards independence (Alford & Friedland, 1985, p. 202-209). This is also the case, if it is a subordinate department inside a larger organization, and in that case the bureaucratic agency seek independence from the subordinate department. Furthermore,

the bureaucratic agency seeks to monopolize resources without independence. This results in difficulties when the subordinate department seeks to gain control over resources due to the fact, that subordinate departments have more difficulties using manipulation to gain the required control (Alford & Friedland, 1985, p. 202-209). Since fragmentations and conflict are often present in cases such as politics and economy, thus, fragmented bureaucracies are a widespread phenomenon. In the majority of democracies, the law-making and decision-making process effected by conflicts (Thun, 2006). However, these processes also provide public agencies independence because of the fragmentation of entities with looming interests in the functioning of the agency (Alford & Friedland, 1985, p. 202-209).

Fragmentation within a government are rooted in the internal characteristics of the bureaucracy, and one of the starting point for Weber's theory of Bureaucratic Management is rationalization, division and specialization (Gay, 2000, p 1-9). Fragmentation amongst bureaucracies and governments rose in the late 20th century (Jinshan, 2012), and the phenomenon, fragmentation is regarding the gaps and possible conflicts which exist amongst and between the different departments which are, as mentioned above, a natural product and/or side effect some would even say, of bureaucracy. Problems related to social policy, city diseases, public crisis, and sustainable development are categories as wicked problems (Jinshan, 2012). According to John C. Camillus then "wicked problems can't be solved, but they can be tamed" (Camillus, 2008, p. 1), and these so-called problems expose the fact that inconsistencies between departments (the system of departments manage different affairs) and the need for cross-sectoral governance (handles complex public issues) are increasing and thus, becoming more severe (Jinshan, 2016). In order to be successful in taming wicked problems specific topics and questions within the practice and theory of public administration needs to be answered, such as how to overcome the unnecessary division in cross-sector governance, how to negotiate, to cooperate, to integrate policies between and in-between the different departments as effectively as possible (Jinshan, 2012).

Bureaucracy from the prospective of Max Weber can be categories as functional, where organizational members master specialized knowledge and thus, skills through education and training, with the intent to improve the efficiency of the tasks and work. Hence, "bureaucracy is built on the high degree of division and specialization. Each department has its stable and detailed requirement of skill norms to handle complex affairs and tackle various problems" (Jinshan, 2012). In other words, workers are prepared when executing a job to tackle whatever matter or problem that may appear. However, excessive division can cause conflict and problems concerning cross-sector

policy objectives. And because bureaucracies instinctively develop towards added division and specialization, internal gabs will therefore be created. Thus, Weber's theory, based on that line of thinking will undeniably lead to fragmentation, however, his theory explains how fragmentation are a direct result of absent coordination between cross-sectoral institutions, and that fragmentation cannot be used as a justification to deny and prevent division and specialization completely (Gay, 2000, p. 1-9). Issues, such as class and conflict between classes is an important element in order to understand Weber's theory in contrast to contemporary Russian politics. According to Weber the understanding and recognition of class is important in the understanding of capitalism, and control over poverty was "only one possible basis for the organization and exercise of political power" (Beetham, 2013, p. 7). As mentioned previously, rationality and rationalization has become the main focal point behind Weber's theories and because the diverse manifestations concerning rationalism, Weber has, therefore, identified four different types of rationality. There are the practical, the theoretical, the substantive, and the formal (Karlberg, 2010). The purpose of the four different types of rationality, is to introduce regularities of action which can master and regulate fragmentation.

Practical rationality is in relation to viewing the world and the activities in relation to the interests of the individual, which are often pragmatic and egoistic (Karlberg, 2010). Thus, practical rationalism. A practical way of life, instead of actively manipulate the routines which occur in one's daily life, the individual accepts the realities, and they deal with the possible difficulties and problems which are presented to them (ibid.). Though carefully weighing and calculating the acceptable means to managing the realities and problems which occur in one's daily life, then practical action in terms of interests is ascending and, thus, practical ends are attained. Hence, "this type of rationality exists as a manifestation of man's capacity for means-end rational action" (ibid., p. 1152). This type of rationalism implies a subordination of the individual. Individuals are presented with realities, and the associated feeling to prevent directions based on transcendence in their daily routine. These individuals therefore often have doubts and mistrust, and they strive towards more abstract and impractical viewed values, such as a religious and/or secular utopia (ibid.)

The second type of rationalism according to Weber, is the theoretical rationality. This type includes a more conscious mastering of the reality present to the individual (Karlberg, 2010). This happens by constructing gradually accurate abstracted concepts, instead of doing so through action. "Since a cognitive confrontation with one's experience prevails here, such thought processes as logical deduction and induction, the attribution of causality, and the formation of symbolic *meanings* are typical" (Karlberg, 2010, p. 1152). Thus, all abstract cognitive forms signify theoretical

rationality. The processes within theoretical rationalization are, unlike the practical rationality where action provides the basis for a virtuously adaptive rationality, reinforced and given their momentum through abstracted need, and the uncontrollable mission which surpass the routines in the daily life and thus, supply the everyday life events with a more coherent meaning (ibid.). According to Weber, confronting the theoretical rationality with reality can affect the individual's actions, and thus, present new regularities. However, this is not a guarantee (ibid.). Hence, the theoretical rationality controls the reality through thought, this rationality type has the potential to present patterns of action.

The third type according to Weber, is the substantive rationality type (Karlberg, 2010), and like the practical rationality type, although unlike the theoretical rationality type, the substantive rationality type directly orders action into patterns. This is done in relation to a past, a present or a potential value and calculated estimate, where in the practical rationality type, this is done purely on a basis of means-end calculation of solutions to routine based issues (ibid.). Hence, this rationality type occurs as a manifestation of the individual's inherent ability for value-rational action. In general, this rationality type is "considered to be a *valid canon*; that is, a unique *standard* against which reality's flow of unending empirical events may be selected, measured, and judged" (Karlberg, 2010, p. 1155).

The fourth and last type according to Weber, is the formal rationality. This rationality type is the direct opposite of substantive rationalities, and the continuing conflict between these two types of rationalities has been visible in the unfolding of rationalization processes in the western part of the globe (Karlberg, 2010). Characters such as epoch-transcending and inter-civilizational which are present in the practical, theoretical and substantive rationality types, the formal rationality more commonly relates to scopes of life, constructed with a structure of domination which acquires precise and outlined limitations. The most significant forms of dominations are the legal, scientific and economic sphere, and the bureaucratic form (ibid.). Formal rationalities consist of a similar means-end rational patterns of action like the practical rationality type. However, the formal rationality reference back to pragmatic self-interest. Bureaucratic domination is categorized a being formal rationalistic "because action oriented to intellectually analyzable general rules and statutes predominates here, as well as the selection of the most rational viewed type of domination is located within the bureaucracy, and the cause for that is mainly because bureaucracies aims to calculate the

most efficient and accurate way for solving and managing problems by handling those problem by applying universal and abstract regulations (ibid.).

Although the four different rationality types differ much in content, however, the mental processes which consciously attempt to manage reality is an element, they have in common. Bureaucracy, in the eyes of Weber, is not just a system constructed for administrational purposes, but instead he views it as a structure of power. The reasons for this lies in the bureaucracy's ability to organize and coordinate action over a vast area, its monopoly of expert expertise and know-how, its continuousness of operation, and its internal unity and morale (Beetham, 2013). Thus, an irresistible tendency which was confirmed under the Soviet rule, showed that a modern bureaucracy develops into being the dominant power in society, in other words, it develops from bureaucratic administration to bureaucratic rule. This occurred because the forces created to balance and counteract, and thus, where capable of checking it under capitalism, was removed (ibid.).

As defined by Max Weber, bureaucracy is a struggle to share and/or influence the distribution of power, either between different states, or between different groups within the same state (Beetham, 2013). And thus, the ultimate form of fragmentation is the appearance of divided authority in the very center of a bureaucratic institution (Alford & Friedland, 1985). Furthermore, when fragmentation is present in an institution, that presence hinders further development due to the fact that the structures in the bureaucratic institution are divided and multiple (Thun, 2006). The structure of the bureaucratic institution determines what and how resources are distributed. The structure, furthermore, determines who has the ownership. Thus, when fragmentation is affecting the bureaucratic structures, ownership (i.e. leadership) becomes divided between the different elements in the bureaucracy, where ownership and responsibilities are often overlapping, and thus, lacking a clear definition (Thun, 2006, p. 26-33). The opposite of fragmentation is centralization which is when the bureaucratic structures are united and thus, consist of a single faction. According to Alford and Friedland (1985, p. 202) then "fragmentation is the other side of state centralization, indicating a loss of elite capacity to rule and, in extreme situations, leading to revolutionary transformation of state power". Since it necessarily does not mean that the state, however, control the different resources in connection to carrying out important tasks, and because the state elites often seek to create a distance between themselves and the possible consequences from those tasks, the organizational groups within the state are therefore often decentralized (Alford & Friedland, 1985, p. 202-209). However, this circumstance is not a given. A state can be successful in defending against the decentralization process.

In the 21st century the practice of defragmentation became globally known (Jinshan, 2012), which paved the way for nation to become familiar with how a nation, a government and bureaucracy can limit the degree of fragmentation. Thus, different theories surfaced on order to figure out how a nation can be successful in the process of defragmentation. Firstly, organizational theory was thought to be the key (Jinshan, 2012). This theory was based on the notion that division of labor should be based singular on the worker's skills and knowledge which furthermore, would improve the efficiency of the work. However, extreme division of labor can lead to decentralization, and thus, scarcely creates a general effectiveness. However, theories such as both New Public Management⁴ and the more traditional Public Administration⁵, the role of governments and the division of their responsibilities are fragmented. These classical theories have failed in that way that they do not distinguish the fact that fragmentation is a governmental failure, which is the failure of cross-sector issues, and failure in handling the wicked problems, and the general failure in succeeding in meeting the needs of the citizens (Jinshan, 2012).

5.3 Final remarks

In the previous chapter, the main theoretical components were presented to the reader. The theoretical framework of this paper consists of Max Weber's theories of authority and bureaucracy, along with fragmented bureaucracy. The theoretical framework has provided background information which will be useful when attempting to answer the problem. This, therefore, leads us directly to the analytical chapter.

⁴ The theory of New Public Management is focused around a set of renewal ideas within marketization and managerialism. However, the theory restricts itself in analyzing single policy/sector, thus, the theory neglects the connection and relationship between different sectors (Jinshan, 2012).

⁵ The theory of Public Administration is a theory based upon Max Weber's notions concerning bureaucracy and Woodrow Wilsons' theory of Dichotomy of Politics and Administration. This theory focuses around the division of duties, hierarchy etc., however, ends up with departmentalism and disconnection regarding the different departments (Jinshan, 2012).

6.0 Analysis

The following chapter contains the analytical framework. This is based upon the set-up of elements from different analytical approaches which are all described and explained in the methodology chapter, and the structure of the analysis is based upon three subsections. The theory of bureaucracy consists of Max Weber's theory along with a detailed description of fragmented bureaucracy. Whereas the theory of authority is mostly constructed around the theories of Max Weber. The first part will consist of more background oriented information about the current and potential state of renewable energies i.e. solar, wind and geothermal energy in Russia. Following that, an introduction to the Russian energy sector is provided along with an analysis of the development of renewable energy within that sector. The second part of the analysis will identify and analyze the nature of the Russian federation, and thus, how that identification effect the development and outlook concerning renewables within Russia's borders. The final and last part of the analysis is concentrated around different theories and reasons why the sudden change towards renewables.

6.1 Background Information

To analyze the topic of renewables in Russia further, it is crucial to identify the actual potential currently existing in Russia within wind, solar and geothermal power, along with an account for the current usage and production of renewables in Russia. The objective with this section is to provide the reader with an in depth understanding of the renewable energy sources which are the main focal point in this paper. The renewables in focus are, as mentioned previously, wind, solar and geothermal energy in Russia. This will also function as the structure in this section; firstly, the current utilization of wind power will be described, along with the potential. Then the description of the current utilization and potential of solar energy will be provided, and lastly, the utilization and potential of geothermal power will be described. Furthermore, following the section concerning renewables in Russia, there will be a brief introduction to the Russian energy sector. This is another important element to uncover before being capable in analyzing and discussing not only the actual change towards renewable energy but furthermore, the possible reasons behind that change.

6.2 Wind, solar and geothermal power

Below is figure 4 which illustrates the renewable energy potential in Russia. The figure shows that wind energy is mostly situated at the coastal areas, thus, northern, southern and eastern parts of Russia. Solar energy is situated in the southern part of Russia, where generally the climate is warmer. And geothermal energy is mostly situated in the eastern part of Russia, in the more uninhabited areas of the vast nation. However, the Russian Federation has made a target regarding renewable energy,

as of 2020 4% of the nation's total energy generation has to generate from renewable energy sources (Jegelevicius, 2016a). Thus, in order for the Russian Federation to be successful in reaching the 2020 target, they need to take more active steps towards furthering the development of



the existing condition of renewables in Russia.

As mentioned above, the first part of this section will focus on wind energy. And the potential for wind energy is marked with the color; green on the figure above. The Arctic and Pacific Oceans, along with Azov, Black and Caspian Seas are the coastal areas where not only the potential for development of wind energy is situated, but also where Russia's current economically feasible wind production is located (Katona, 2016). However, most of the locations with most potential for wind production is situated in uninhabited parts of Russia, in so-called no man's land. As of 2016 there were no more than 4 wind power plants in all of Russia (ibid.). The combined capacity of the wind power plants in Russia is approximately around 15 MW (ibid.). However, development within the wind power industry in Russia are on the agenda in the energy sector. The government of the Russian republic of Karelia, a republic located in the Northwestern part of Russia has signed an agreement in cooperation with Sinomec⁶ (offshore WIND, 2016). The agreement is concerning the

⁶ Sinomec is a Chinese energy service provider (Sinomec, 2017). And the Kem offshore wind farm is valued at approximately 131 million EUR, and the financing of the project will be funded through the government of the Russian republic of Karelia, Sinomec and Russian Direct Investment fund (offshore WIND, 2016).

development of an offshore wind farm located in the Kemsky District. The wind farm is estimated to have a wind production capacity of 60 MW (offshore WIND, 2016). Besides the actual wind power production, the entire project is expected to create 200 new jobs during the construction phase and furthermore, 30 additional jobs during the operational phase. The wind farm project is expected to start the constructional phase in 2017, and should be operational in 2020 (offshore WIND, 2016). Furthermore, the Russian state-controlled nuclear energy company – Rosatom plans to play an active role in developing the wind energy sector in Russia during the next couple of years. Thus, making sure that the wind industry within the energy sector becomes a massive player when talking renewables in Russia. Rosatom are planning to install 150 MW by already next year (2018), install 200 MW by 2019, and furthermore, 260 MW in 2020 (Jegelevicius, 2016a). The locations where the wind farms will be situated are mainly in the Krasnodar, Rostov, and Stavropol region, and the republic of Adygea (Jegelevicius, 2016a). This current development is in line with the Russian government's intent and goal to improve the utilization of greener and cleaner energy (RAWI, 2017).

Another renewable energy source with potential for further development is solar power. And on the figure above, the potential for solar energy in Russia is marked with the color orange. As illustrated on figure 4, the potential for solar energy production is quite large, however, as of 2015 solar energy is still practically nonexistent in Russia (Katona, 2016). Solar energy has most of its potential located in the southern parts of Russia, such as the North Caucasus. And in 2015, the Russian Solar Energy Association (Katona, 2016) made a forecast predicting that the increasing capacity of solar power in Russia would climb to 1,500 MW of installed PV by the year of 2020 (Katona, 2016). However, projects concerning solar energy are often subject for skepticism due to the fact that several of proposed solar energy projects in Russia have never been completed in the past (PVmagazine, 2016). Nevertheless, solar energy is cautiously moving in the right direction in order to be successful in reaching the target of 2020. Solar Energy⁷ plans to invest approximately 12 billion rubles (around 185 million US dollars) in the development of 6 solar projects, which totally will have a capacity of 15 MW (Solar Energy Holding, 2017). Furthermore, the solar projects are estimated to complete this year (2017), and will consist of solar power station which will mainly be located in the southern regions of Russia (PVmagazine, 2016), exactly where the most potential for solar energy is situated

⁷ Solar Energy is an entity of Russian-based companies. The group created with the purpose of developing projects within Russia (Solar Energy Holding, 2017).

as shown on the figure above. Thus, these projects will aid the Russian Federation in reaching their target by 2020.

The last renewable to be described in this section is geothermal energy, which is marked on the figure above with the color purple. The areas in Russia which has the most potential for producing geothermal energy is areas such as Kamchatka, the Kuril Islands and Northern Caucasus, as shown on figure 4. Although the production of geothermal energy has tripled in capacity during the last decade, the current level (as of 2015) is still seen as being underdeveloped due to the vast amount of potential Russia has within geothermal energy (Crawford, 2016). As of 2015, the geothermal power capacity has risen to 82 MW (Katona, 2016). One of the main elements behind Russia's high potential within geothermal energy is the vast amount of high tempered thermal waters located as shown on the figure above which could be utilized for heat supply. Thus, in Dagestan, Krasnodar Krai and the Kuril-Kamchatka region. And as already mentioned, Russia's energy sector has previously, and are still to this day based on fossil fuels, and focused around the utilization of nuclear and hydroelectric power (World Energy Council, 2017). However, due to the enormous size of Russia, geothermal energy provides an opportunity not only to cut out the singular use of fossil fuels in the areas where the potential for geothermal power exists, but could also eliminate the logistics of fuel transportation in those areas (ibid.). The utilization of geothermal power is one of the more used renewables when discussing wind, solar and geothermal, and has been utilized since the first plant harvesting geothermal power was commissioned in 1966 (ibid.). Furthermore, there is still plenty of untapped potential to utilize in order to further the development within geothermal energy in the coming years, especially in the Kamchatka region. In the Russian Federation, approximately 45 % of total energy sources are utilized for supplying heat regarding the Russian cities, industries etc., and because of the vast potential of geothermal energy, approximately 30 % of those resources can be substituted with geothermal heat (Ritcher, 2015).

As described above and as illustrated on figure 4, there are so much potential within the field of renewables in Russia, so what has caused Russia to hold back on exploiting the full potential of the renewables previously? One of the elements which have been a contributing factor in the underdevelopment of wind, solar and geothermal energy in Russia is the lobbying of oil and gas, which has been a common phenomenon domestically and internationally, and furthermore, the economically factor. Renewables are, from the more economic standpoint unable to compete with the conventional power sources. Another element, according to Russia Direct is attitude towards climate change. Thus, a lack of awareness publicly (Katona, 2016). The Russian population ranged in the top

4 out of 40 different nations ranked based on the populations level of concerns in relation to climate changes, according to a survey made by Pew Global in 2015 (Katona, 2016). Another important factor to mention when discussing elements standing in the way of furthering the development of renewable energy in Russia is the current instability of the ruble. As mentioned previously in this paper, the instability of the Russian ruble has caused foreign investments and investors to hesitate when investing in the development of renewables within Russia. Thus, this has weakened the renewables in the energy sector significantly.

6.3 The Russian Energy Sector

As mentioned in the introduction to this section, then for me to be successful in answering the problem formulation about why the sudden change in attitude towards renewable energy has occurred in President Vladimir Putin's statements, and thus, how that change furthermore will affect the Russian energy sector, a brief introduction to the current state of the sector is needed.

Russia is a country known for being rich in natural resources, such as oil, coal, and natural gas. Therefore, is the Russian energy sector mostly composed by conventional energy sources. In other words, the energy sector is highly dependent on fossil fuels and thus, fossil fuels are still the main provider of power and energy (Wasilewski, 2015). The Russian energy sector underwent a major change during the past decade because the Russian government wanted to create a more competitive market in that sector, and thus, attract further investments. To make this happen, the energy sector was divided into three sections; generation, transmission and distribution. One part where the Russian government owns 75 % of the share, another part where the government has 50 % of the share and the final part, where the Russian government has less than 50 % of the share (Wasilewski, 2015), as shown in figure 5.

More than 75% share	More than 50% share	Less than 50% share
System Operation (SO) "System Operator of Intergrated energy system"(JSC)	Holding of inter-regional distribution companies "Holding IRDC" (JSC)	6 Heat Wholesale generation companies (WGC), 14 Territorial generation companies (TGC)
Federal grid company "Federal grid company of Integrated Energy Systems (JSC)	Hydro Wholesale Generation Companies (WGC) "RusHydro" (JSC)	Commercial operator "Market Council"
Nuclear power stations "Rosenergoatom"	Fareast energy company "Energy systems of East" (RAO)	Distribution companies, Service and repairing companies

Russian government

The Russian government are mostly involved in the transmission and distributional part of the energy sector, however, the generation part of the sector is the most competitive part of the

Figure 5; Adapted from Wasilewski (Wasilewski, 2015, p. 7).

Russian energy sector (Wasilewski, 2015). The sectorial divide is also visible in figure 5. As mentioned in the introduction to this paper, the Russian Federation has already taken certain steps to create more awareness around the subject of renewable energy sources, this is indicating that the nation could be serious about focusing more on alternative energy sources within renewables.

The Russian Ministry of Energy also known as 'minenergo' is the federal executive institutional body who are responsible for not only drafting but also implementing government policies and legal regulation within the sector of oil and fuel (Russian Government, 2017). Alexander Novak has been the Minister of Energy since 2012, where he was appointed minister by Presidential Executive Order (Gazprom, 2017). The Russian Ministry of Energy is furthermore responsible for projects and policies related to oil production, oil processing, electric power industry, gas and fuel, major pipelines and renewable energy sources, etc. (Russian Government, 2017). The Ministry of Energy has received over 20 applications concerning the construction of projects within the segment of renewable energy in a timeframe stretching from 2016 to 2019. These projects include

constructions of several solar power plants, a single wind power construction, and two hydro power projects (Vorotnikov, 2016). These numbers illustrate the increase in willingness and interest for investors within the energy sector. Furthermore, this illustrates that the main interest in present and near-future renewable energy projects are focused around solar energy, and thus, a low number of tenders within other renewable energies such as wind. But why such a difference in interest between the different renewables? According to representatives of the Ministry of Energy the development of renewable energy in Russia can be caused by geographical imbalance (Vorotnikov, 2016). As mentioned in the previous section, then the general interest and potential for solar energy are mainly located in the Far Eastern and southern parts of Russian Federation, and because the energy supply in those regions are highly depend on conventional energy sources due to the far distance to the main energy infrastructure. This acumen was furthermore confirmed by the head of the administration of the Russian President Vladimir Putin, Sergei Ivanov (Vorotnikov, 2016), when he addressed the issue. He mentioned the high amount of oil both diesel and for heating, the energy sector are currently delivering to those specific regions of Russia, and because of the economic and taxing resources tied to logistics behind those delivers, the production of solar energy could therefore prove to be economically feasible there.

As mentioned in the introduction to this paper, then the total power generation capacity in Russia which stems from renewables are less than 1 % (Whitlock, 2016), and Alexandr Novak the Russian Energy Minister previously estimated that until 2020, the renewable energy industry would receive investments which would result in the total share of renewable energy would rise from less than 1% to approximately 2.5 % by the year 2020 (Vorotnikov, 2016), however, this might be a bit of a stretch because of the economic situation currently existing in Russia. The Russian Federation has been highly affected by an economic crisis in recent years, and as a result of the level of economic crisis in 2015, many of the applications concerning renewable energy project implementation for 2015 and 2016 was cancelled by the investors. Therefore, the actual figure of the total power generation capacity by 2020 may develop quite differently that estimated,

Figure 6; retrieved from *Walsilewski, 2015*

General scheme of gas sector development for the period to 2030	
General scheme of allocation of electricity facilities for the period to 2020	
General scheme of oil sector development for the period to 2020	
Government program "Energy savings and energy efficiency improvement for the period till 2020"	
Etc.	

and might even be at least two times lower according to more resent forecasts (Vorotnikov, 2016).

Therefore, changes are a necessity in order to be successful in developing the energy sector to be more renewable energy conscious. The Russian governmental strategy concerning the further development of the Russian energy sector was approved in November 2009, and the main elements covered by the strategy are listed in figure 6 illustrated above. The main purpose behind the strategic changes in the energy sector is to insure a more innovative and effective sector by amongst others creating a more stable institutional environment within the energy sector, and creating a new and more up-to-date energy infrastructure, etc. (Walsilewski, 2015, p. 18). And this is done through 3 concepts or phases. The first phase is to ensure energy security, the second phase is to ensure energy efficiency of the Russian economy, and the last phase is to provide environmental energy security (ibid.). And this concept is the most relevant and interesting of phase in accordance with greener and cleaner energy.

Reduction of indicators of air pollution, water pollution and creation of wastes by energy sector		
at least 15%	at least 30 %	at least 50 %
Ensure level of GHG emission, in % to the level of 2005		
no more than 83,	no more than 92,	no more than 105
Coefficient of GHG disposal (in 2005 – 75%)		
95 %	95 %	95%

Figure 6; retrieved from Walsilewski, 2015 As illustrated on the figure above, then a part of the new energy strategy in the energy sector is to focus more on the environmental impacts of energy utilization, and thus, the energy sector has a target to decrease the

level of air and water pollution and waste by at least 30 % by 2020 (end of phase 2). Furthermore, as mentioned in the introduction, the Russian Federation is the fourth biggest greenhouse polluter in the world, and as part of the new strategy in the energy sector, the level of greenhouse gases emission must stay below the 1990 levels – see footnote on page 6 for further explanation.

However, the biggest enemy of the development of renewable energy in Russia, are still and will continue in the nearest future to be conventional energy. Alternative energy cannot compete with the low cost and cheap fossil fuels, and thus, renewable energy does not have the highest priority of development amongst non-fuel energies (ibid.). However, during the past couple of year's renewables are slowly findings its place on the agenda as future energy sources – visible in the sectorial modernization of the energy sector and also the Russian membership of IRENA.

6.4 The Russian Federation under Putin's Rule

This part of the analysis will focus on classifying what type of state the Russian Federation is under the rule of the nation's current president. This step can identify and assist in finding causes and reasons behind why the Russian Federation, and furthermore, Vladimir Putin acts and reacts the way it/he does. To be successful in analyzing the problem formulation, thus, the case of Russia and their attitude towards renewables, it is crucial to identify and classify the type of state the Russian Federation is, and thus, what it will be analyzed as being further on in this paper.

The Russian Federation is a vast country, the largest country in the world to be exact when focusing on sheer size and area, and the rulers throughout the history of Russia is highly influenced by imperial and authoritarian tendencies. However, what are the Russian Federation today under the rule of current President Vladimir Putin? And furthermore, how does his presidency influence the development of policy changes, and more especially renewable energy?

The president of Russia functions as head of state, and guarantor of the Russian Constitution, along with civil and human rights and freedom (Kremlin, 2017). The president of the Russian Federation is elected for a term lasting 6 years through elections. Vladimir Putin is originally from the former capital for Russia, St. Petersburg (Leningrad at the time), and he was appointed Prime Minister in 1999, and in 2000 he was elected president for the first time. Putin was re-elected in 2004, and after 4 years as Prime Minister (2008-2012), he was once again elected president of the Russian Federation in 2012 (Kremlin, 2017).

When identifying the nature of Russia, and thus, the Russian government it is important to stress that political regimes are not nor never constructed in a manner that makes it possible to categories the regimes completely or make them fit into intellectually defined boxes. Although political systems are constructed of borderline, ambiguous and different cases (Hague & Harrop, 2010, p. 3-23), it is still important and necessary to classify the nature of the nation in question, thus, the Russian Federation. When identifying political systems, there are mainly three overall

classifications of governments which are liberal democracies, illiberal democracies and authoritarian regimes (Hague & Harrop, 2010, p. 3-23).

In the modern society we live in today, can be classified as a democratic age (Zakaria, 2007), during the past century one trend has helped shape the world we know today – the rise of democracy. Furthermore, the case of liberal democracy is the most familiar (Hague & Harrop, 2010, p. 3-23). An element such as elections being fair and free and held regularly is one of the main trades of liberal democracies, where most of the population have the right to vote (Zakaria, 2007). Whereas nations who are influenced by societal issues such as low-income, post-colonial, post-communist and/or post-military countries are often classified as being illiberal democracies (Hague & Harrop, 2010, p. 3-23). These nations are known for being run by leaders which are selected through elections, however these elections are controlled, and have the opposite characteristics as liberal democracies, since the result of the elections held in illiberal democracies are often fabricated (Zakaria, 2007). Illiberal democracies can be describes as being the bridge between liberal democracies and authoritarian regimes since illiberal democracies consist of elements from both. The last political system to describe before identifying the nature of the Russian Federation is the authoritarian regime. This type is known for being neither liberal nor a democracy, thus, the population has no way of influencing or controlling the rulers of the nation. Elections are not held, and if they are, there are no or little choice in who the population votes for since the use of threats and violence are not uncommon in these nations (Hague & Harrop, 2010, p. 3-23).

As identified in the beginning of this section, we live in the age of democracy, and in more ways than one. The term democracy stems from Greek and it means the rule of the people (Zakaria, 2007). Thus, based on these brief but precise descriptions of the three main political systems existing in the world today, I classify the Russian Federation as being a illiberal democracy. Throughout the past couple of decades' illiberal democracies have become more and more common, where there are little regard concerning elements such as civil liberties and the rule of law (Rodrik & Mukand, 2015). Thus, the government may be elected in free and fair elections, however, the government frequently violates the basic rights of their citizens. This is often visible towards the treatments of the minority groups such as religious, ethnic and/or regional. Furthermore, the individuals, groups or organizations which publicly opponents the government often risk being exposed to persecution, wrongful imprisonment or censorship (Rodrik & Mukand, 2015), which are all elements taking place in the Russian Federation. In other words, if an individual, group or organization agree on Vladimir Putin and his government's politics, the Russian Federation might

seem as a liberal democracy, however, the illiberal tendencies become visible when people oppose. The re-election in Russia back in 2004 which Vladimir Putin won was a reflection on the popular support, and need for a strong leader in Russia after the years of Boris Jeltsin, and furthermore, that election portrayed Russia as an electoral democracy, however, still very few would classify the Russian Federation as being a liberal democracy under Vladimir Putin's rule (Hague & Harrop, 2010). Because of Putin's past in the KGB, he has an excellent understanding on applying power as an instrument. He dominates the media, he rewards his friends and the people who are loyal to him with resources and high positions. Furthermore, he is ruthless towards those how oppose him. Change and rotation in government rarely transpires through held elections in illiberal democracies, but instead turnovers occur because of resignation, as in the case of the Russian Federation because of constitutional limitations on re-elections (Hague & Harrop, 2010). Furthermore, one could argue that under the rule of Vladimir Putin, the Russian Federation is not only an illiberal democracy, as mentioned above, but furthermore an illiberal democracy with authoritarian tendencies because of the level and type of domination of the leading authority, i.e. President Vladimir Putin as mentioned above. This raises another question; how does this effect the progress of policy development and changes? This will be analyzed further in the following section.

This chapter has also provided the reader with a brief description of the main types of political systems, following the identification of the Russian Federation as being an illiberal democracy under the rule of President Vladimir Putin, however, with elements of authoritarian tendencies. Putin is a powerful man in Russia, and he not only understands how to utilize the power given to him, he furthermore takes full advantage of it. Power is the capacity to act, hence, to influence events in the desired direction. And authority is the acknowledged and given right to act in that manner (Hague & Harrop, 2010). And Vladimir Putin has both - both the authority and the power in Russia. This classification leads the reader automatically to the final part of the analysis - why the changes towards renewables. The previous sections have provided information concerning the importance of authority and how the different types of authority affect the nations and their development. Also, the challenges and fragmentations within a bureaucracy has been described and lastly, the sections within the analytical framework has provided a broad and in-depth knowledge concerning the elements within the problem formulation - renewable energy in the Russian Federation, the functioning and structure of the Russian energy sector, and the identification of what type of state the Russian Federation is.

6.5 Why the changes towards renewable energy now?

As mentioned previously, the Russian Federation has already taken steps towards furthering the utilization of greener and cleaner energies through sectorial development, public awareness, policy changes and membership of the International Renewable Energy Agency (IRENA). This development would not be unordinary or seen as anything but a natural step in any society, if it was not the case of the Russian Federation. Some would claim that furthering the development of renewable energy was an unavoidable step even for the Russian Federation, who previous and still to this day is highly depended on the utilization of fossil fuels. However, this development has happened sooner than expected, even by President Vladimir Putin himself. In 2010, he claimed that renewable energy had no future in Russia for the next (many) decades. Then only five years after that statement, in 2015, Putin stated that, it is the nation's responsibility to acknowledge the gravity and seriousness of climate change, and thus, focusing on greener and cleaner energy is a natural step in that process. This leaves me wondering, why now? What has changed in less than a half decade?

As touched upon in the previous section, the Russian Federation is an illiberal democracy with authoritarian tendencies which are detectable in the way President Vladimir Putin dominates varies parts of the Russian society. For instance, the Russian population mostly uses media or more specifically, they use their televisions as an outlet to learn about politics and to stay updated about current political issues and situations (Hague & Harrop, 2010). However, as mentioned in previous section, the media is under the influence of the Russian government, and thus, controlled by the leading authority i.e. President Vladimir Putin. Through this, Putin is therefore able to influence the population in a specific and/or desired direction by either limiting the information given to the public, or by spinning the information in such a way that he can 'control' the opinions of the population. Hence, the Russian population remains mostly subjects, and then secondly participants. This is not only proof of the Russian Federation being an illiberal democracy with authoritarian tendencies, furthermore, this is also a manifestation of the degree of authority Vladimir Putin exercises in Russia.

One of the elements which previously was a contributing factor in holding Russia back regarding utilizing the potential within renewable energy was the high level of lobbying of fossil fuels i.e. oil and gas. Furthermore, from a more economically oriented point of view, then renewable energies are still not able to compete against the economic advantages of the conventional power generations and fossil fuels. Another important factor is the constantly unstable and shaken ruble (the Russian currency). This has resulted in a decline in interest concerning investments in the renewable energy sector (Katone, 2016). As also mentioned previously in this paper, then another contributing factor behind the underdevelopment of renewable energy in Russia could be the public awareness. The population in Russia is one of the least concerned populations concerning climate change in the world (ibid.). This could, however be a direct result of the authority of President Vladimir Putin. Previously, he stated the unnecessity of green and clean energy very publicly, and furthermore, the media in Russia is still to this day under influence and control of the leading authority, i.e. the president and his government. For several of years, fossil fuels and state owned energy companies have played a significant role in the Russian Federation. They have been a contributing factor in the economic development and President Vladimir Putin has therefore not concealed his thoughts and feeling towards conventional energy for the population. This could be one of the reasons that the Russian population are 'unaware' and 'unconcerned' by the seriousness of climate change - they are being influenced and controlled by the leading authority, i.e. their own government and furthermore, by their own president – Mr. Vladimir Putin.

Concerning the policy-making process, then the Russian Federation as an illiberal democracy is a mixture of the policy process in a democratic democracy and authoritarian regimes. The Russian Federation lack some of the basic elements found in liberal democracies which makes the policy making process more likely to be successful. Weak institutions, lack of legal framework and lack of strong connections with society are all present within the Russian Federation and the energy sector, and furthermore, some of the trademarks of illiberal democracies (Hague & Harrop, 2010). An important aspect to consider when analyzing illiberal democracies is the fact that many of the current existing illiberal democracies has often emerged from authoritarian regimes, and the transition from one state to another is not a problem free process – this also applies to the case of the Russian Federation. After the Soviet fall, the post-communist Russia started the process of transitioning into an illiberal democracy. This happened through the rebuilding of the nation's capacity to rule over a more divergent and unequal society after a rather chaotic communist fall (ibid.). The process entailed structuring a body of law with the purpose to create a more foreseeable setting for future business investments. Furthermore, a recentralization of power emerged, and as accordingly to the theory of Max Weber, then the relationship of authority is highly influenced by hierarchy, thus, a top-down authority meaning that the Russian population accepts Putin's authority and power to make decisions on their behalf. This means that Vladimir Putin can only exercise the amount of authority given to him by his subordinates, i.e. the Russian population and fellow politicians. Along

with the recentralization of power came different reforms making the policy-making process in Russia highly influenced by the ruling authority (Rodrik & Mukand, 2015). Thus, the business environment although becoming more foreseeable was and are still affected by domination of the ruling elite. As mentioned in the previous section, then the illiberal and to some extent the authoritarian tendencies becomes highly visible in Russia if any of the subordinates oppose the Russian government, and especially if they pose as a political threat to the leading authority, i.e. Putin (ibid.). The Russian government has therefore disposed of varies enterprises during the rule of Putin (Hague & Harrop, 2010), and furthermore, Putin has rewarded the enterprises who are allies and loyal to him and his government. Back in 2006, the Russian government presented a bigger share of the Sakhalin-2⁸ oil field located in Siberia to some of its allies who are responsible for some of the state-owned oil companies by merely adjusting the existing contract with Shell. By doing so, the economic power therefore remained close and tightly knitted to the government (ibid.). This is a clear example of Russia being an illiberal democracy, as well as Vladimir Putin exercising the level of authority needed to create the desired result through policy change and implementation in the energy sector.

Another important element when analyzing the policy-making process is the lack of even-handed policy implementation due to corruption. When analyzing the case of the Russian Federation as an illiberal democracy with authoritarian tendencies, corruption is a present and influential factor amongst governmental employees. As already touched upon above, the ruling elite rewards people who stay loyal towards them, either through title, job, cash or contracts. Transparency may seem as the most obvious answer in lowering the level of corruption, however, transparency depends upon economic development, and that kind of development are dependent on a decrease in corruption (Hague & Harrop, 2010) – a societal dilemma and vicious circle.

As analyzed in the previous section, the Russian energy sector has and are undergoing a strategic development, and furthermore, how that modernization effects renewable energy in the Russian Federation. Max Weber's theory of bureaucracy and the theory of fragmented bureaucracy are useful when analyzing the practical aspect of focusing more on renewables, hence, the process of

⁸ Sakhalin-2 is an oil and gas project considered to be one of the largest integrated and export focused projects in the world. Furthermore, the project is also the first off-shore gas project for the Russian Federation. The main companies involved in the project are Gazprom, Shell, Mitsui and Mitsubishi (Shell, 2017).

policy change within Russia, which are a necessity to be successful in implementing further action towards renewable energies. The Russian energy sector are highly influenced by gaps and overlaps in the institutional set-up, thus, fragmentation. This makes the process of implementation even more difficult and complicated. However, the structural modernization in the energy sector (by dividing the sector into three sections) can prove a positive change regarding fragmentation, since the change in set-up can support in preventing further fragmentation, or even aid in lowering the existing level of fragmentation. According to Weber, the division of labor based on skills, talent and education could be an effective way to limit the degree of fragmentation in the Russian society, however this can prove to be challenging since the structure within the Russian government are highly influenced by the nature of the state – illiberal democracy. Thus, the ruling authority as in this case Vladimir Putin reward the people close to him, such as friends, allies, etc. with high-ranking and influential jobs and titles within the Russian government and the state-owned oil and gas companies. By being an illiberal democracy with authoritarian tendencies actively works against centralization, and thus, continually remains fragmented.

Furthermore, the policy-making process and sectorial development of the energy sector are also affected by this obvious fragmentation existing in the Russian government. Because fragmentation is present in the Russian bureaucracy the policy implementation within the energy sector is low in effectiveness or some would even say that the ineffectiveness exist amongst the leading state authority(ies), especially regarding implementation of renewable energy oriented policies (Ryavec, 2005). Max Weber identified therefore four notions of rationality which should identify the regularities of action to regulate and thus, master governmental and bureaucratic fragmentation. As stated above a practical way of life, instead of actively manipulate the routines which occur in one's daily life, the individual accepts the realities, and they deal with the difficulties and problems which are presented to them (Karlberg, 2010). As President Vladimir Putin stated in his address in 2015, then global warming and climate change are a serious issue concerning the entire world, and thus, everyone must act accordingly. Hence, renewable energy is a growing priority in Russia. So according to Max Weber's theory of rationality, Vladimir Putin and the Russian government acted based on the notion of practical rationality. Furthermore, this type of rationality implied a subordination of the individual, and thus, "this type of rationality exists as a manifestation of man's" i.e. Vladimir Putin's "capacity for means-end rational action" (Karlberg, 2010, p. 1152). The Russian government and President Vladimir Putin are aware of the constant and growing pressure from surrounding nations about the utilization of renewables instead of the high consumption of fossil fuels – so the Russian government are publicly stating the need to focus on lowering the greenhouse gas emissions and thus, making sectorial and policy changes within the energy sector could be a way of dealing with the current issues presented to them – practical rationality behavior.

Furthermore, according to Weber, then by confronting the theoretical rationality with the scopes of reality, can affect an individual's actions to a certain degree, and therefore present changes or new regularities. Hence, the reality of climate change and global warming, and furthermore, the constant pressure from the international community and COP21, can potentially cause patterns of action, and thus, accelerate the outlook on the utilization of renewable energies.

However, as stated in previous chapter *the formal rationality more commonly relates to the scope of life, constructed with a structure of domination, and the most significant forms of dominations are the legal, scientific and economic sphere, and the bureaucratic form* (Karlberg, 2010). As the practical rationality type, the formal rationality consists of means-end rational patterns of action which can aide in analyzing the reasons behind the sudden change towards a more positive outlook regarding renewables in Russia. This rationality type, however, are more controlled and limited by applying regulations, whereas the practical rationality type is more influenced and controlled in terms of interest.

It makes me wonder, who is the individual(s) that generally are pushing to embrace renewable energy in Russia, and thus, publicly show their support towards renewables? And how is Putin reacting to that publicly shown support? As mentioned in the introduction, then Deputy Energy Minister Alexei Texler has publicly been stating the need to focus on renewable energy solutions, and that renewables could prove to be a profitable business regarding the Russian economy (Digges, 2016). Furthermore, Texler has previously been quoted by various Russian news outlets when informing about the different targets and goals that he i.e. the Ministry of Energy has set for the future development of renewables within Russia's borders. Thus, he has publicly stated the need and the obvious benefits tied to utilizing renewables within the Russian energy sector. However, because the Russian Federation is a top-down bureaucratic society, the ministers and individuals within Vladimir Putin's government would not publicly show their support towards any subjects without receiving the approval from the leading authority.

The previous analyzed causes have been centered around mostly domestic related issues, and although this paper's focal point is on domestically oriented issues, it is impossible no to consider the more international oriented factors as well. Take the Paris Climate Change Conference

in November 2015 for instance (United Nations, 2015). The purpose of the Paris Conference is to gather the 196 participating nations so they can reach an agreement concerning a globally binding climate treaty. The treaty will become active and valid from 2020 when the current climate agreement i.e. the Kyoto Protocol expires (United Nations, 2015). The treaty will bind every nation legally to reduce their greenhouse gas emissions. Participating in COP21, meant that the Russian Federation, and furthermore President Vladimir Putin needed to show their support publicly towards utilizing greener and cleaner energies in order to lower their extreme high level of greenhouse gas emissions, thus, Putin's speech on appendix 3. Furthermore, the Minister of Foreign Affairs and International Development of France, Mr. Laurent Fabius was the President-Designate during COP219 and CMP11¹⁰ stated that ".... we, ministers and negotiators, must show ourselves equal to the challenges and to our responsibilities. Collectively, we must find the path to an ambitious compromise. Together, we can build hope" (United Nations, 2015). Thus, COP21 are pressuring the Russian government to publicly express and state their view on not only climate change and global warming but also renewable energy. In other words, international actors and organizations are indirectly and at time rather directly pressuring Russia and thus, President Vladimir Putin to become more aware about alternative energy sources such as solar, wind and geothermal energy or at least pressuring them to publicly state that the Russian Federation are aware of the need to focus more on renewables compared to previously. Thus, the sudden change regarding the views on utilization of renewable energy sources can be a result of either Putin giving in for the pressure coming from his international colleagues and other organization, or a simple way for Russia to keep international organizations off their backs so to speak by simply stating at the Paris Conference that climate change and global warming are serious threats, and it is every nation and every individual's responsibility to take this threat serious, and thus, do their part in lowering greenhouse gas emissions. In order words, Putin is saying what he knows organizations, nation leaders, etc. wants and expects to hear.

⁹ COP stands for Conference of Parties, while 21 indicates the number of Climate Change Conferences held (United Nations, 2015).

¹⁰ CMP11 refers to the eleventh session of the Conference of Parties i.e. COP, serving as the meeting of the Parties to the Kyoto Protocal (the current climate agreement made in 1992) (United Nations, 2015).

6.6 Final remarks

In this chapter, the analytical part of this paper was conducted. The first part of the analysis provides the reader with background oriented information, such as the current state and utilization of renewable energy in Russia, along with the potential existing within solar, wind and geothermal energy. Furthermore, the first section provides a description of the Russian energy sector, along with an analysis of the sectorial development currently happening within that specific sector. The next section analyses the nature of the Russian Federation as being an illiberal democracy with authoritarian tendencies visible especially in President Vladimir Putin's degree of domination and control over specific areas of the Russian society. The last section of the analysis focuses on what, how and why there seems to be a change in attitude towards utilizing renewable energy further in Russia, compared to previously. Furthermore, Max Weber's theory of authority and bureaucracy has assisted in analyzing the process of policy change, sectorial development in the energy sector, and different reasons behind the more positive change and outlook towards renewable energy, along with the identification of Russia being an illiberal democracy affects the outlook concerning renewable energy, and what consequences that identification has on furthering the development of the policymaking process regarding renewable energy which leads us to the final part of this paper, the conclusion.

7.0 Conclusion

Renewable energy sources are an enigmatic topic regarding the case of the Russian Federation. The Russian government and its bureaucratic leaders have, on one hand showed a strong political will to support further development of renewables which has sent rather positive signals to not only potential inventors but also to the international community. However, on the other hand, more concrete measures in order to reach the targets made by the Russian government and the energy sector has been slow in development and implementation. When investigating the case of renewables in Russia, there are clear benefits to consider within the sphere of economics, energy security and environment. During the past few years renewable energy have become a more noteworthy and serious contender regarding the energy agenda in Russia. Thus, the national policy agenda has given renewables more attention in recent years. Since the Russian Federation is the fourth biggest greenhouse gas polluter globally, and the country is one of the most carbon intensive nations in the world, Russia is in need of a modification and alteration in order for Russia to be successful in lowering those extremely high figures.

During COP21 President Vladimir Putin pledge that the Russian Federation will downsize their greenhouse gas emissions by 70-75 % (of the 1990 levels) by the year 2030 (Digges, 2015). Furthermore, the Deputy Minister of Energy, Alexey Texler was quoted in 2016 that within the following 20 years, the Russian Federation's goal is to boost the production of energy from renewables by 10 times, and furthermore, by 2024, the target is to generate around 8-10 gigawatts of the power capacity from renewables (Meyers, 2016). So, the Russian government is taking active steps towards more green and clean policies, however, they still seem to be hesitant towards developing renewable energy sources further, and implementing the projects that are required for the targets to be met within the set timeframe. Hence, any further delays regarding developing and implementing renewable energy projects will only result in elevated costs for the Russian government to be able to reach the targets set for the future development within renewable energy.

As mentioned in the introduction to this paper, then this inconsistency towards renewables has been the cause for researching this specific field further. The inconsistencies are not merely visible in the development and implementation of renewable energy projects, furthermore, in President Vladimir Putin's statements from 2010 and from 2015 - look at appendix 3 and 4. Based on that, my problem formulation is as follows;

Why are the Russian Federation, and in particular President Vladimir Putin now publicly stating the need to focus more on renewable energy sources when they previously distanced themselves for the possibility of renewables having a future in Russia?

It became obvious during the analysis, that finding a concrete answer to my problem was close to impossible. Concluding on, why the Russian government and especially Putin suddenly seems more positive towards utilizing renewables as sources of energy instead of relying completely on conventional energy as they previously utilized almost singularly, has proven even more challenging that first assumed. It is important to note that even though the Russia Federation will and are beginning to focus more on developing and implementing renewables, the utilization of fossil fuels i.e. conventional energy will never, or at least not in the nearest future be completely substituted by energies such as wind, solar and geothermal. However, the purpose of renewables in Russia are instead to downsize the usage of fossil fuels by replacing some of the conventional energy with alternative energy in areas where it is applicable and probable. As author of this paper, I am in no position to conclude on what is going on behind closed doors at the Kremlin in Moscow, and since the Russian Federation is still, to a certain degree a selectively closed society, and especially because of the identity of Russia - being an illiberal democracy with authoritarian tendencies, makes it even more difficult to make that kind of conclusion since the government are highly selective in what they inform the public about - both domestically and abroad. However, based on the Russian Federation being an illiberal democracy with authoritarian tendencies, and the theory of authority and bureaucracy, I can make qualified estimations about the reasons why the Russian government and its leader previously categorized renewables as an impossibility in Russia, and why they now gradually begin to seem more positive or maybe even realistic about the usage of renewable energy in Russia compared to previously.

According to Weber, bureaucracy is not simply a system created for administrational oriented purposes, but he instead views bureaucracy as a system created for power oriented purposes (Beetham, 2013). Thus, through the bureaucratic structure in Russia, Putin and his government can exercise the level of domination and power to influence the population in the direction most beneficial to their cause. Previously, they through statements and policies supported the utilization of conventional energies, due to economic benefits for the Russian government, and the state-owned energy companies. Currently, the Russian population are one of the nations in the world who are least concerned about climate change. This can be an indirect result of the level of influence the Russian

government has over the population. Presently, the Russian government and the country's president, Vladimir Putin are stating the need to focus on climate change, global warming and thus, the development of renewable energy within the Russian energy sector. How this will affect the Russian population's outlook on climate change, is still unknown. However, it is a possibility and highly likely that the before negative and skeptic outlook regarding the global threat of climate change will begin to change as the Russian government begin to change their statements and tone towards climate change, global warming and renewable energy.

According to Weber, then a way to minimize fragmentation within governmental and bureaucratic institutions is to structure the society based on the individual's abilities and competences. However, the Russian Federation as an illiberal democracy with authoritarian tendencies rewarding individuals with close ties to the leading authority, i.e. Vladimir Putin, and individuals the president knows he can trust to act on his behalf, in the way he wants it. This means, that the fact that Russia and President Vladimir Putin is known for this sort of behavior actively works against the theory of Weber. In other words, Weber says that to limit fragmentation, people should work within the field of their competences, however, the Russian government gives certain people specific jobs based on their loyalty towards the nation's president. Thus, fragmentation will continue to be a problem within the Russian government as long as President Vladimir Putin and his government remains an illiberal democracy with authoritarian tendencies, as they are now under Putin's rule. This creates a strong and almost unbreakable cycle within the Russian bureaucracy, as long as fragmentation is present in Russia, the development and implementational phase of renewable energy policies will remain a slow and conflictual process.

As mentioned in the beginning of this chapter, making a concrete, set in stone conclusion is not possible, however, based on the applied methodology, theory and knowledge gained through this process, there are two main factors which can aid in explaining my problem. The first factor is international oriented factors, where the international community are pressuring the Russian government into taking more active steps in the process of lowering their greenhouse gas emissions and air pollution, and in a faster pace than they otherwise would have- As Putin said in his speech during the Paris Conference in 2015, "we are all different, and we should respect that. Nations shouldn't be forced to all conform to the same development model that somebody has declared the only appropriate one" (Putin, 2015). The second factor is the national oriented factors, which are the economic benefits tied to utilizing renewables, and although the factors are listed separately, they are still high interconnected and interdependent.

The development of renewable energy sources is consistent with the nation's strategic policy objectives such as the modernization of the Russian economy, and the energy sector, and thus, improving energy efficiency in Russia, as also illustrated in section 6.3. As a part of the modernization of both the economy and the energy, the Russian Federation should encourage energy savings in order to make a general effort in creating a more energy efficient domestic economy. Thus, a more common and broader usage of renewables could replace fossil fuels and thus, decrease the high level of greenhouse gas emission and air pollution. Hence, this change would actively aid the Russian Federation in addressing the current environmental issues existing within the country, and furthermore, assist Russia in reaching the domestic and international energy targets. Thus, the energy sector has therefore an important role to play in reducing the Russia's impact on climate change. By actively developing their potential in renewable energy, the Russian Federation would be more successful in integrating their climate and energy policies. By doing so, Russia shows their pledge in the fight against climate change which are affecting the entire world. In addition, the Russian Federation would also attract investments that could help improve the country's economy positively. By showing such commitment from the largest fossil fuel exporter and producer in the world, it would send a forceful, strong and positive signal to the international community. Furthermore, extremely high greenhouse gas emissions and air pollution should be incentive enough for the Russian Federation to make a drastic change, and thus, replace some of the utilization of fossil fuels with renewable energy such as solar, wind and geothermal power. However, realistically when analyzing the case of the Russian Federation, then the strongest incentive for the bureaucratic authorities is the promise of economic prospers and power. Thus, renewable energy solutions are beginning to show signs of becoming more profitable and beneficial to the Russian economy, than they have previously.

Which are the explanation to why the Russian government and especially President Vladimir Putin now are stating the need to focus more on renewable energy when they previously distanced themselves for the possibility of renewables having a future in Russia.

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