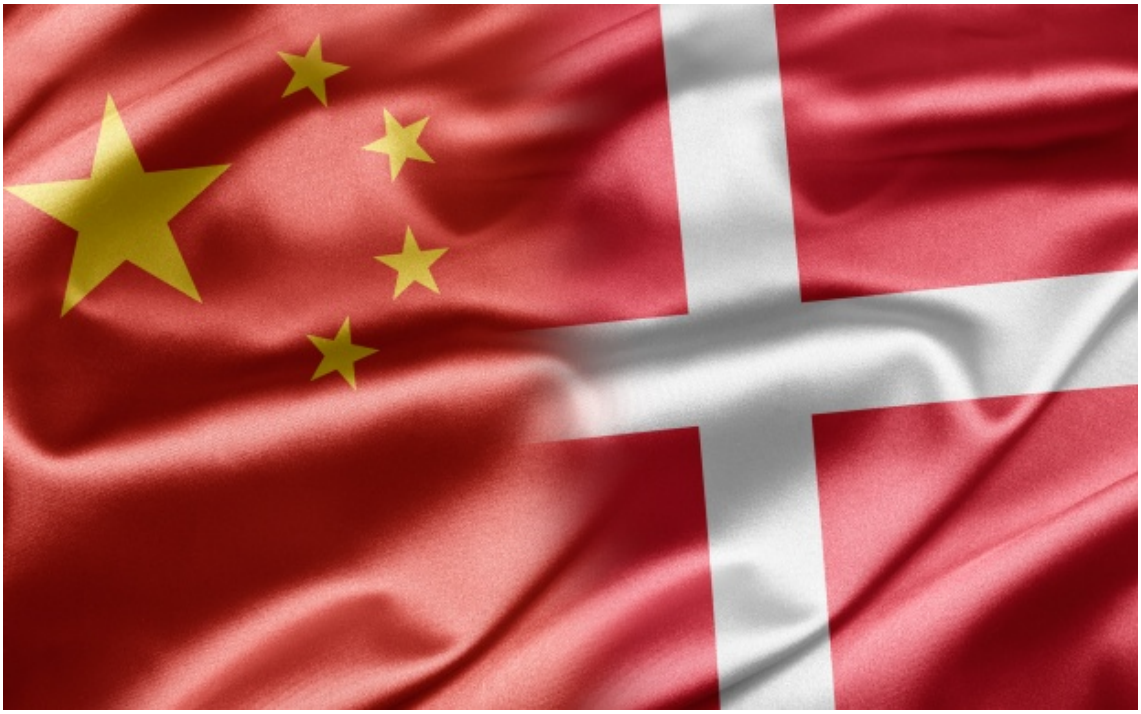
China and international relations (CIR)
Master thesis

The Influence of Political Structures in Cross-National Cooperation in the Renewable Energy Sector

-A Comparative Case Study of Sino-Danish Cooperation-



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Abstract

The fast economic growth and the growing middle class in China, and all around the world, has come with a price, where natural resources are disappearing and the environment is threatened by contamination. These consequences have lead many countries to work together to contribute to lowering the dangerous Carbon Dioxide emission and to implement renewable energy, the green energy. A few countries in the west have already come pretty for in their innovation for a greener future, such as Denmark. But other countries are having more difficulties keeping up with the economic growth as well as tacking the environmental burden, such as China. China has with their increasingly active position in the international community shown interests and willingness to participate in lowering the pollution and bad emissions. These motives are also visible in China's new legislations and future goals. The two countries, Denmark and China, have already established a relative a reliable cooperation going years back. This thesis aims at looking in to the question of "To what extent does governmental structure affect Sino-Danish energy Cooperation?". This relationship is a important cooperation where, Denmark as a pioneer I renewable energy field, can work together with China whose economic growth has stunned the world. To approach this question I have turned to a theory within the international relation field as well as looking at theories to explain the construction of political structures. By using different theories it has been possible to look at the reasoning of cooperation as well as at the political structures that could determine the cooperation's outcome. The study is further divided into different section starting by giving a contextual background working it's way though the understanding of the need for cooperation, and describe the mutual benefit for Sino-Danish cooperation. The outcome shows that national identity affects national interests in which can change over time. The Renewable energy cooperation between Denmark and China thus create a profitable situation for both countries, both political and economically. However the main problem formulation is asking how the different political structures affect cooperation. The conclusion shows that although they have different national approaches they both cooperate on a national level where then further structural development may or may not take place within the country.

Keywords: Political Structure, Sino-Danish Relation, Renewable Energy, Bilateral Cooperation, Constructivism,

1. Introduction

The need for alternative means of energy production has, along with the increased threat of global warming, rapidly increased. These are direct results of careless contamination from the worlds industries and other carbon dioxide emission. China has in the last decades gone through industrialization and become one of the worlds biggest exporter of goods (PTI, 2018). The country has undergone opening-up- as well as new market reforms, which has taken the country to reach new economic grounds. It is sure to say that China has done a remarkable growth. However, this fantastic economic upswing has consequently lead to an increased contribution of polluting the world. China is now, together with many of the other world nations, taking part in saving the planet by decreasing emission and by focusing on renewable energy (Huang and Huang, 2017). China has been showing its political ambition in this question, not only by making significant domestic efforts but also by cooperating internationally. One example of this is China's participation in 2015's Paris agreement where they signed and showed their willingness for international cooperation (United Nations, n.d.). A recent report from IEEFA (Institute for Energy Economics and Financial Analysis) shows that China is world leading in their financing and building of clean energy since 2017. The primary author of the report, Tim Buckley states that " The clean energy market is growing at a rapid pace and China is setting itself up as a global technology leader while the U.S. government looks the other way," (IEEFA, 2018, para. 4).

Just as China is a leader in one aspect of renewable energy, Denmark is also a "…widely recognized as a global leader in integrating variable renewable energy…" (IEA, 2017, para 4). Denmark is close to meet their target, in which by 2030, half of the country's energy consumption should come from renewable energy. Today, with around 12 years to go, Denmark has already reached 45%. Denmark's pioneering in the field has given them a good reputation and they are seen as a role model for other up coming nations striving for renewable energy.

These are two very different countries, not only regarding landmass and population size but also politically, but they are working towards the same goal. A relationship between these two leading countries' energy sector has great potential for

the continuous development of Renewable energy. Such relationship has in fact already established between the Danish Energy Agency (DEA) and China which has created China National Renewable Energy Center (CNREC).

By looking at the Sino-Danish relationship in the energy sector this paper aims to focus on the political structures in both countries, and how these two countries approach creation and implementation of renewable energy policies. This thesis further analyzes the way these two countries work together. By studying this relationship, the paper has taken the form of a comparative case study; First studying the two Countries separately and then bring them together for comparison.

1.1 Problem formulation

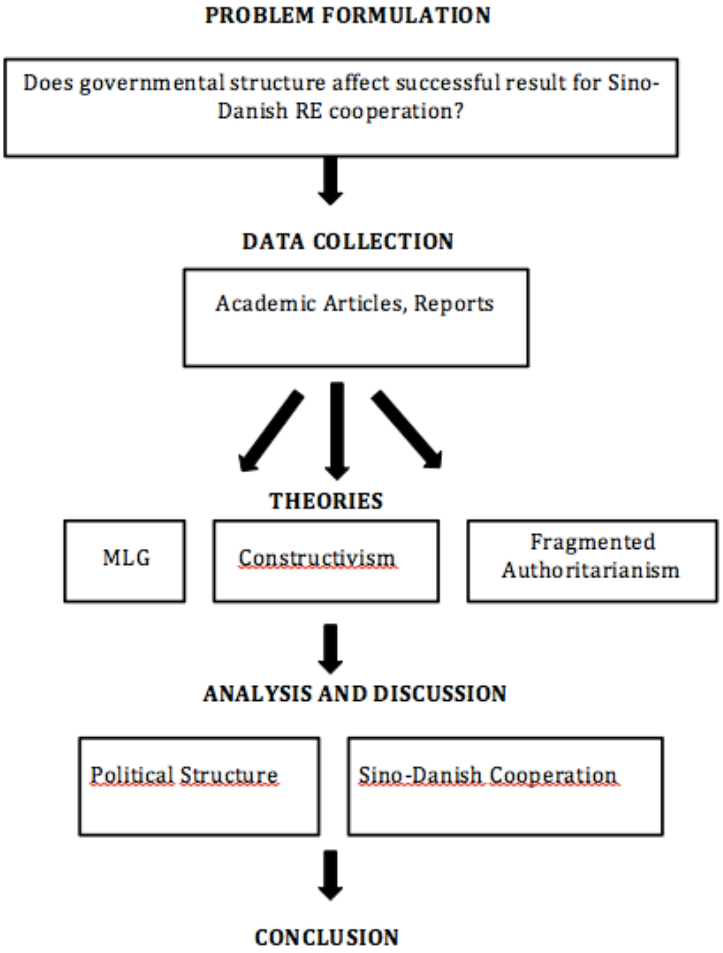
The following problem formulation has been formulated to guide and to narrow down this study. It puts focus on the political aspect of the cooperation, mostly taking into consideration domestic aspects, but it also looks reflects on the Sino-Danish cooperation with the national aspects in mind:

- ***To what extent does governmental structure affect Sino-Danish energy Cooperation?***

Answering this problem statement means to look into the political structure affecting the cross-national cooperation in the renewable energy (RE) sectors between Denmark and China. To answer such question, I also find it important to look at the underlying incentives, the reasons for cooperating. Therefore this thesis will also deal with the question of national incentives and motivation for Sino-Danish cooperation.

2.5 project structure

Below a model has been made to display a simplified structure of the thesis.



The second chapter of this thesis will first go through the methodological considerations taken when writing the thesis. The format of the paper is also explained as well as the reasoning being the cases. In the following section a brief overview of the topic is given to provide the reader with better insight of the topic, where renewable energy in Denmark and China will be explained. The firth chapter will describe the theoretical frameworks that are applied in the analysis. After the theoretical overview further explanation of the purpose of theories will be given. Afterwards the analysis and discussion is is divided into three sections where incentives and political structured are being analyzed. Finally in the last chapter the conclusion will be presented as well as suggestion for further research.

2. Methodology

The purpose of this chapter is to describe the methodological approach taken when writing this thesis. It aims to explain the decisions made in regards to the methodological process. Firstly, the scientific approach and chosen methods will be described followed by description of data collection, theoretical considerations and an overall outline of the project structure.

2.1 Research type

As a research methodology, this paper has taken the form of a literature-based research, using an international relations scientific approach from a constructivist point of departure. The specific characteristic for this thesis is that it holds a more deductive reasoning where the conclusion is draw from the theoretical premises. The study is moreover taken the form of a qualitative research. This study could also have taken the form of a combination of qualitative and qualitative research, but I had to move away from the idea due to time limit. As a research design the study has further taken comparative case study as a format for the thesis. By using such model it allows the study to become more in-depth and focused on the actual case. The concept of comparative case study will be described below.

2.2 Case study

I have chosen to do this comparative case study because the high relevance of the topic as well as the difference of countries, Denmark, a small European country and China, the middle kingdom of the East. The chosen research design for this thesis is a comparative case study. A case study can be used in a variety of ways. It can, for example, be used to research social, political, individual and organizational cases, which many times are associated with a particular location, to investigate different phenomena. By using this research design, it allows for a more in-depth, more detailed, investigation of real events through one or more cases (Bryman, 2013; Yin, 2009). A central aspect of this method is that it enables the researcher to enlighten, for example, how and why a decision was taken and its results or how for example processes have been undertaken (Yin, 2009). It is the case in itself that sets the focal point of the research, and the goal of the researcher is to highlight it's characteristics (Bryman, 2013).

In this thesis, two cases will be studied; one of Denmark and One of China, these two cases will thereafter be compared to each other, hence making a Comparative Case study. The two cases will be analyzed and looked into in the same way to get a deeper understanding of the similar and/or different social and political features. This comparative case study has the form of a secondary cross-cultural research where both qualitative and quantitative sources of information can be use. This paper is however only using the former (Bryman 2016). The goal of this thesis is to study the political structures that are involved in renewable energy cooperation. This comparative case study then uses the collected data and the theories as a guide to carrying out the analysis (Yin, 2009).

The reasoning behind choosing Denmark and China as the countries for the case study is because of my current bilateral Master Degree education where I've spent time both in Aalborg, Denmark and in Beijing, China. My experience from living in both countries, their society is built very differently as well as their noticeably different political point of departure. It therefore interested me to study the topic further.

2.3 Data collection

The data collected has been collected through both secondary and primary sources taken from academic and scholarly articles, governmental organizations, as well as journals and reports made from the instances involved in the Sino-Danish cooperation. The sources are moreover sources derived from the field of international relations, political science and from the field of environmental development. Many of the sources are also taken from governmental institutions or institutions with governmental association. When selecting data, considerations have been taken to keep the data as relevant (in time) to the topic as possible. .

2. 4 Limitation:

Because of time limitation and lack of response from possible interviewees, this paper does not include quantitative research, but I am pretty sure that such approach could have provided the study with more in sighting from a Sino-Danish cooperation point of view, where actors from the different sides could have been interviews , and

thus given me more first hand data. Another limitation of this paper is that it does not go in to debt in to the different kinds of renewable energy sectors, such study would also have had required more time and resources. This thesis does instead offer an overview of the different energy sources, but with a slightly more focus on energy from wind turbines. This decision was mainly due to Denmark's famous innovation of such energy.

Another limitation made for this thesis is the case that the very new policies and political changes in China, proposed only a few months ago, are not considered in this paper. This decision was made because since the political restructuring would not yet have shown any affect, if affecting at all.

4. Renewable Energy Development

This part serves as a contextual background, in order to show a general overview of the environmental polices conditions, for both Denmark and China, and how it lead up to today. First a description will be given of how Denmark evolved to one of the leading countries of renewable energy. Secondly a brief introduction will be given to the main renewable resources used and available in Denmark, then a brief outline of Denmark's future goals.

Afterwards an introduction will be given to China's energy consumption and energy developmental goals.

4.1 Danish development

Leading up to renewables

Today Denmark is a leading nation when it comes to renewable energy and the so-called "green transition". Denmark has now ventured out to do something which other countries haven't yet dared to, that is to aim at becoming totally free from fossil fuel by the year of 2050 and instead become a " green and resource efficient economy" (State Of Green[i], n.a., para .1) . The astounding Danish ambition of becoming world leading in green energy does not only grounded in the great concern for the environment, but also as it became a necessity to find new means of energy resources. Denmark's fairly long history of green transition has through the years worked its way in to the roots of the Danes mindsets, which they have shown in the way that

they have successfully combined environmental and economic policies. One can say that this ongoing trend started in the 1970s where the oil crisis had become a fact, and Denmark, whose main energy source came from oil imports, were then highly affected. This has continuously lead to Denmark's increased participation in questions of environmental protection, renewable energy and energy efficiency etc. (State Of Green, n.a.).

Today Denmark is a leading nation when it comes to renewable energy and the so-called "green transition". Denmark has now ventured out to do something which other countries haven't yet dared to, that is to aim at becoming totally free from fossil fuel by the year of 2050 and instead become a " green and resource efficient economy" (State Of Green[ii], n.a., para .1) . The astounding Danish ambition of becoming world leading in green energy does not only grounded in the great concern for the environment, but also as it became a necessity to find new means of energy resources. Denmark's fairly long history of green transition has through the years worked its way in to the roots of the Danes mindsets, which they have shown in the way that they have successfully combined environmental and economic policies. One can say that this ongoing trend started in the 1970s where the oil crisis had become a fact, and Denmark, whose main energy source came from oil imports, were then highly affected. This has continuously lead to Denmark's increased participation in questions of environmental protection, renewable energy and energy efficiency etc. (State Of Green, n.a.).

As in the majority of western countries, the demand and supply for oil and other energy resources had spiraled as a result of consumption growth. As Denmark had little or no such resources themselves[1] they were hence dependent on energy imports from other nations. In the en end of World War II, when the pursuit for fuel was high, Denmark made a transition from the high priced, somewhat restricted accessed coal to a more assessable, cheaper and easier to handle oil. The energy consumption continued to accelerate during the modernization era in the 50's and the 60's which followed after the Marshall plan. Industrialization was a fact and international trade productivity increased along with the standard of living (Rüdiger, 2014). This was also a fact for Denmark who had been an agricultural society until the end of the 50's and then quickly rose to become the country with the largest

[1] Denmark produced its first oil in the North Sea in by 1972 (as mentioned

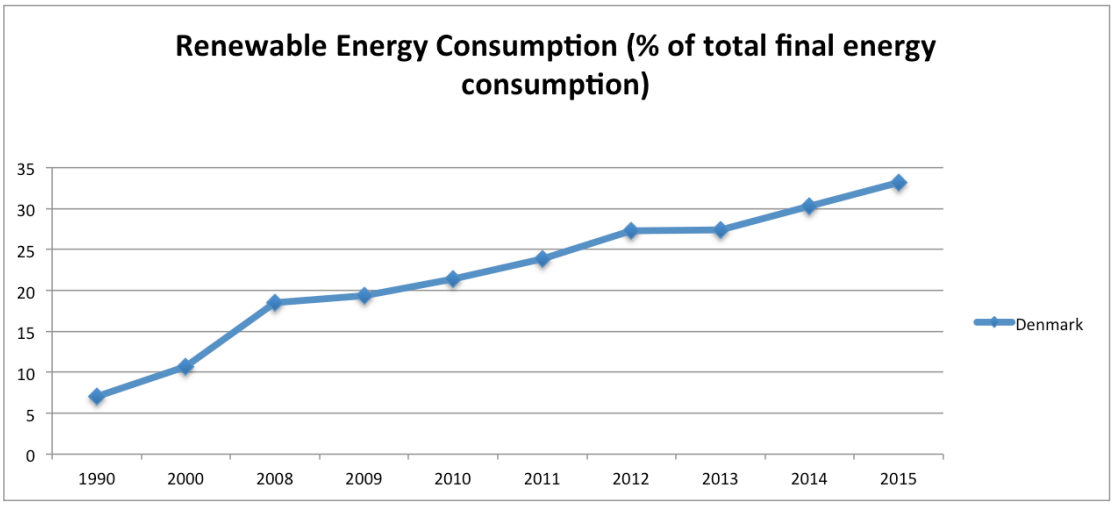
public sector in Europe. However, 1970's oil crisis had a severe effect on Denmark, who didn't yet have a national energy policy (State of green, N.a.; Rüdiger, 2014). Many countries had seen the crisis coming and had started to act on the reduced energy supply threat; this was unfortunately not, to the same extent, the case in Denmark. At a beginning Danish politicians put no emphasis on solving the issue with rising prices and decreasing supply of energy, the country faced other political transformation that overshadowed the energy problems. As things slowly started to, again, turn focus to the energy sources, a state owned company by name Danish Natural Gas Company Ltd. (DNG) was founded in 1972 to accumulation the knowledge of natural gas trade. When the crisis actually stroke down in 1973 Denmark's energy consumption was based on 90% oil of which almost all (90%) came from the Middle East. Denmark being in this situation surely made them susceptible to changes in the market. This vulnerability, and the oil crisis, consequently lead Denmark to establish national energy policy though a regulative and political regime which since then developed the energy sector for the purpose of supply security (Rüdiger, 2014). The political measures to secure energy supply occurred in the 70s and in the bigger part of the 80s, as also could be seen in other countries, such as the Netherlands. As a result of the crisis the Danish government responded in two ways to utilize energy; First, regulation of behaviors and second, energy saving campaigns along with increased housing insulation. These responses was all part of the state trying to change the Danes behavior as a measure of taking responsibility for the challenge of energy supply that they were now faced with. (Rüdiger, 1998 as mentioned in Rüdiger 2014).

In a report published in 1974 major weaknesses of Denmark's energy supply became evident. The first was the fact that it was the vulnerability of that the majority of the oil was imported from the idle east. Denmark was also ranked as one of having one of the highest energy consumptions in the world (measured per capita). Lastly the storage capacity was not large enough. As a result of this report it became clear that Denmark had to implement a more diverse energy strategy where supply security and price was highly valued. It was also important to continue on the path of regulating behaviors in order to reduce the energy consumption, thus also the importation. All while these measures were taking it became clear that Denmark had to continue looking for national means of energy, such as searching for gas in the North Sea. The general idea by the Department of Energy was to improve energy sufficient and for

the country to keep boost its economic growth. In only a few years the energy sector had become a system, which was policy- driven (Rüdiger 2014). In the 80s, new laws were made to better be able to regulate the production and exploration of hydrocarbons as a means of saving and influence the energy efficiency.

The target in Denmark was to diversify energy but only 4% was set to come from renewable energy in the 90's.The energy companies also showed resistance to implement wind power, arguing that it was too difficult to carry out and also that it was too costly. During this time new goals were set to lower CO_2 emission, making environmental sustainability a high political priority. This meant that Wind power and biomass energy was prioritized over energy security for a sustainable development (ibid).

Chart 1. Renewable Energy consumption(% of total final energy consumption) - Denmark



Data from The world Bank: Chart made by me in Excel

The chart above shows the renewable energy consumption between 1990, the time where renewables started to play a larger role as a mean for energy, and 2015 in Denmark. The chart show us that in 1990 the percentage of renewable energy of the total energy consumption only reached 7 percent compared to 2015's percentage of 33.2 percent. It is thus clear to see that Denmark has made a remarkable journey.

Below some of Denmark's renewable energy sources will be presented.
The goal of 2020 is that the biomass produced from straw, wood chips and pellets will

continue to constitute for the bigger part of the renewable energy consumption (State of Green, Bioenergy, n.a.).

Renewable energy

When we think about green or renewable energy that's associated with Denmark, many along with myself might quickly be thinking about wind power. This is in fact not surprising at all since Denmark is one of the leading countries in wind energy, and was the first country that installed wind turbines offshore going back as far as to more than 30 years. Wind power is an important attribute to renewable energy and in 2017 15% of the total European electricity came from wind power. In Denmark alone this number was nearly 40% of the total energy supply.

The windmill or as we know it today, the wind turbine was developed by a Danish physicist by name Paul la Cour in 1891 who transformed the mill into a source of electricity. The technology improved and developed but was in the earlier stages not able to contest the more tradition sources of power. Over time however, more exactly in the beginning of the 70s the wind energy expanded and in the early 80s, there was approximately 20 manufactures in the wind power industry in Denmark. It does now even account for the cheapest source of energy in Denmark (Mortensen, 2017).

Most of Denmark's renewables come from as wind power as well as bioenergy. Since the 1980 the use of biomass in Denmark, as a means for both power and heat quadrupled and today it counts for about 70% of the total renewable energy consumption. The Danes have been innovative in trying to reduce the greenhouse gas emission and has hence increased its utilization of biomass energy. Examples of this is how biomass and gas has been transformed into energy, not only in the agricultural sector but many other companies have seen this as a development opportunity for transport and production of heat and power. The goal of 2020 is that the biomass produced from straw, wood chips and pellets will continue to constitute for the bigger part of the renewable energy consumption (State of Green, Bioenergy, n.d.).

Apart from the for mentioned energy sources Denmark is also upcoming in the production of energy through thermal energy, that is energy produced through the use of solar panels. This method of energy production is very cost efficient and is

continually being installed through out Denmark. At this moment Denmark holds the record for the worlds largest district pat of thermal energy in the world. This power plant in Jutland constitutes of a total of 44,000 m^2 power plants. The energy produced, mostly during the summer months, covers about 61% of the energy all year around for the neighboring town. With it's low process it has become a big competitor to fossil fuels in the area. The production of solar power had a significant increase between 2012 and 2014 where the production rose with 107%, and made up for 4.2% of the total renewable energy in 2016 (State of Green, n.d.; Jacobsen and Jensen, 2017).

There are of course other up coming sources of renewable energy in Denmark such as Geothermal and wave energy, but those wont be further discussed in this paper.

Environmental goals

Many countries today have realized that we all need to take responsibility and action for the global climate change. Denmark has for many years been a part of this action the energy sector is a key player in this positive development. The main goal has been to reduce the green house gas emissions to tackle the climate changes. The energy sector plays a key role for climate policy. Denmark set up an energy agreement in 2012 that setup had as a target to make sure that the majority of energy consumption would come from renewable energy in 2020. This agreement also makes it possible to go through with the down cut of greenhouse gasses with 40 % in the same year. This goal was set up by the Danish government, as a part of the climate plan in august 2013. The aim of such plan is to increase the initiative for greener energy, which include the areas of transportation, agricultural and environment. One could say that a big goal for the agreement is to enhance the synergy between economic growth and environmental protection, here energy efficiency becomes a vital point (Regeringen, 2014). When it comes to energy efficiency the aim is to reduce energy consumption. One example of this is to build more energy efficient building, which actually make up for 40% of the total energy consumption in the world. Also in this area, Denmark has taken a prominent step globally by finding solutions to the wasteful energy consumption. By retrofitting buildings it is possible to save between 50-80% of the energy consumption with the existing technology of today. To globally increase energy efficiency, Denmark has

shares its technology so that it can start being applied in other parts of the world (State of Green. Energy- efficiency. n.d.).

As a part of EU's target of reduction of green house gas emission, the Danish government has set up t's own climate policy to create a society independent of fossil fuels by 2050. In Europe the EU has and is playing a vital part of tackling the global climate crisis by setting up targets for greenhouse gas emission reduction. The main objectives for these policy is the focus o both Emission trading system that includes energy-intensive companies (ETS) and the energy sector. It also target other doctors (non –ETS) which contain transport, waste, buildings and the agricultural sector. When it comes to the non-ETS sectors the goal has been set up to a reduction y 20% (percentage of 2005s level) before 2020. Other targets have also been set up in 2014 to be reached by 2030 in a so-called climate and energy framework. These targets for these include the following three points:

- "A 40% reduction in greenhouse gas emissions, compared to 1990 base levels.
- A 27% share of renewables within the energy sector
- A 27% improvement in energy efficiency" (Danish Ministry of Energy, Utilities And Climate, The Danish Climate initiative up to 2030, n.d. para 2.)

The goals seen above are set by the EU, Denmark has however decided to reach even higher and is aiming for that by the year of 2030, 50% of the national energy demand should come from renewable energy. Denmark has also set up it's on law on Climate which was passed in 2014. This law make up a climate policy framework for Denmark's goal to reach a low-emission society[iii] by 2050. The hopes are to by that time based all energy supply from renewables and to become more resource sufficient.((Danish Ministry of Energy, Utilities And Climate, The Danish Climate initiative up to 2030, n.d.)

Denmark has indeed made a name for itself in the way they are working for greener energy by innovation and development. The country has in fact since the 80s taken a leading international role, not surprisingly since the country has been able to grow its economy by nearly 80% (since the 1980s) and at the same time been able to dodge an increased gross energy consumption

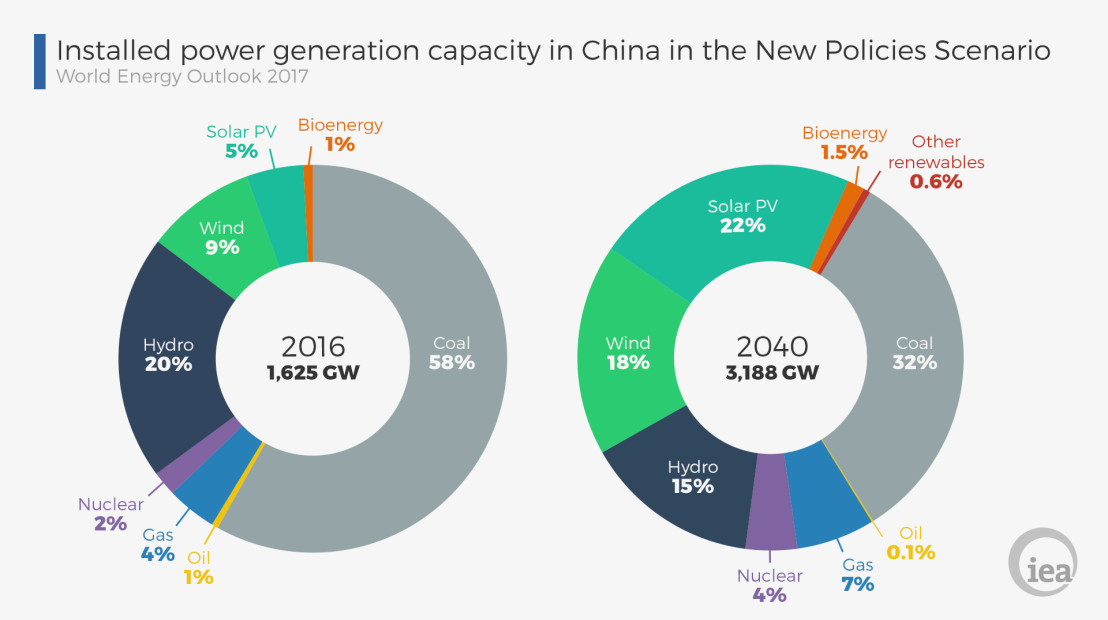
4.2 Chinese development

China's energy consumption

China has had a massive economic growth since the founding of the Peoples Republic of China in 1949. The decades that have followed have shown a massive growth per capita GDD, which has saved many people from poverty and created a new middle class. Along with the industrialization and improved life quality the demand for goods as well as energy has surged tremendously through the year. The energy demand in China has mostly been met by coal as an energy resource due to it's easy access.. To get a better understanding of China's coal consumption it is important to note that China make up for half of the global coal consumption. And the domestic market China is three times bigger than the total international trade. However, in resent time one can see a decline in both the economic growth as well as the demand for coal. Experts have argued that the global drop for coal demand (the first since the 1990's) in 2014 with a fall of 09% is preliminary due to China's decreasing demand (IEA, Coal, n.d.; State of Green, The History behind Denmark's Green transition, n.d.). One reason for such drop could be the increased awareness of global climate impact that did not exist in china in the beginning of its economic transition[2]. Data has shown that the energy demand has drastically dropped to an increase of 1% per year, which is only a sixth of the average since 2000. This shift is reportedly the result of a new awareness and establishment for energy efficiency policies and structural economical shifts. However, although this awareness for the climate has emerged the energy demand still has to be met in china for a continuous economic growth. This energy "shortage" demand has thus started to be filled by renewable energy. The goal is for renewable energy to increase such as bioenergy, thermal and biofuels, hoping to surpass coal consumption in the end of 2020.

[2] The first prominent signs of environmental pollution started to emerge in the 1970's China.

Chart 2. Power Generation - Capacity scenario – China

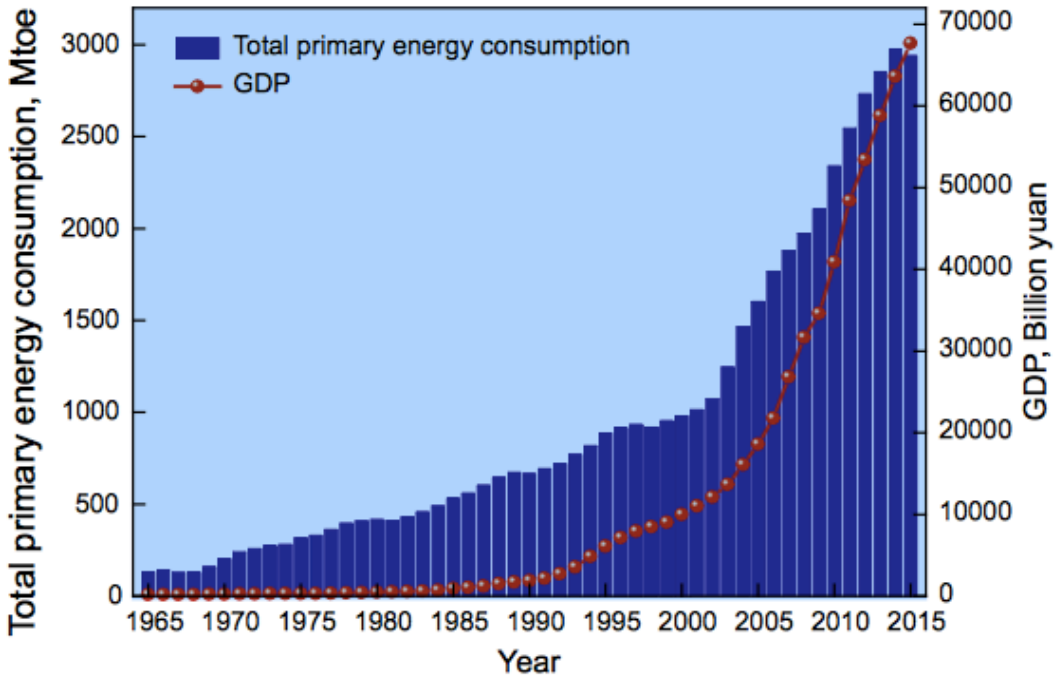


(IEA, 2017).

In chart 2 it is possible to see a future scenario if the prices for renewables will be lowered, or in fact if the supply and demand for them would increase .One can see that renewable energy indeed will start to take over their energy demand, and the coal consumption will drop from 58% in 2016 to 32% in 2040 of the total consumption even though the power capacity had doubled (IEA, 2017). The wind energy will rise from 9 to 18(, while the solar panels will meet a tremendous demand with a rise from only 5% to 22% in the year 2040.

The main issue today for expansion of e.g. wind and solar power is the lack of capability with existing power system. Up to about 15% of todays potential cannot be used due to this issue.

Graph 1. Total Primary Energy Consumption. Mtoe.



(IEA, 2017).

As can be seen in graph 1, the energy consumption has grown along with the GDP per capita as social and economic situations have been improved. From the graph we can see that the first upswing started around 1995. The consumption of energy has risen from 131 million tons of oil equivalent (Mtoe) to approximately 3014 in 2015. The GDP has hence also increased, from 172 billion Yuan in 1965 to 67.670 billion in 2015 (ibid.).

Energy Development Goals

The environment in China has consequentially been damaged due to it's increased focus on economic growth in the beginning of the 50s. However these problems rose caught governmental attention in the 70s where the former premier of the communist party highlighted the issue of industrial pollution and emphasized the importance of this issue. The environmental problems were officially recognized by the premier during China's 1973's first national conference of environment. (Bao 2006). Continuously as China opened up to the world, not the least as a new actor on the global market, the country started to have more interaction with other actors. As

mentioned by Man et al. (2013), China has integrated environmental protection in their constitution as early as 1982 where the aim was to prevent environmental threat and to control the pollution. The policies got further strengthened in that of international participation where EU strongly encouraged legislative improvements. As a sign of improvement, China founded the Ministry of Environmental Protection (previously State Environmental Protection Administration (SEPA) until 2008) in 1998 (Man et al, 2013). China has through the years shown a more prominent role when dealing with environmental protection, in 2007 they participated in the G8 meeting where international cooperation became a key role in handling the environmental crisis. Other such changes can be seen in the efforts made by China to make environmental protection laws more strict (January 2015).

Only recently , during the 19th National Congress of the Communist Party of China, a "New Normal" was proclaimed, a drop in economic development compared to previous years, as well as a focal points on environmental protection. What is evident after chins 13th five year plan is that China not only had to tackle the environmental issues but at the same time trying to develop a balanced in the Chinese society between the urban and rural areas (Mizuhobank,
2017).. what now can be seen as a challenge for china is the regional and economic imbalance which may hamper further economic ad environmental development improvements. As china has for a long time been depending on industry, which are high energy consuming, this need for shift in energy will become an obvious obstacle to keep up the same economic growth, but it is however a challenge for now. During such transition it will cost the country a lot in the short term when the energy system is being transformed.

4.3 Sino-Danish cooperation

The former primer of Denmark, Anders Fogh Rasmussen, initiated an action plan for Sino-Danish cooperation In October 2008. The aim for the action plan was to establish cooperation between the two countries with focus on the environment, energy and climate. Beyond those focal points was also the cross national political dialog and research to promote further environmental innovations. However, already in 2005 the first bilateral agreement was made and it focused on the development of wind energy (2006 to 2009) . The following year in 2009, a center was starting to

establish and in 2012 a university program created to further promote to cooperation, the China National Renewable Energy Center (CNREC).
(H. Lauritsen, 2014; Udenrigsministeriet, n.d.).

Between the year of 2009 and 2014 Denmark and China developed a joint program between the two governments to be called The Sino-Danish Renewable Energy Development Programme (RED). This five year program promoted technology innovation in the energy sector and was signed in Beijing 2008. The cooperation was consisting of two parts, the first to establish the chinese center for renewable energy, and the second was set to up 12 projects to for development and research for renewable energy sector by increasing the technical and institutional capacity(RED, n.d.; DEA, n.d.). The activities included to promote offshore is, solar cells, biomass, bioethanol as well as the way of implementation of these. Later on in 2012 an other cooperation was establish between the Danish Energy Agency (DEA) and the China National Renewable center in Beijing. They have been working on scenario for 2050 where Danish experience is used to be make a plan for future energy demand, and how to meet those challenges. Thus this cooperation makes it possible for China to further develop and implementation of renewable energy to meet the future demand (DEA, n.d.).

This Sino-Danish cooperation is important for the knowledge based transmission of implementation and activities that promote not only technological development but also as a mean to strengthen the two bilateral relationship for further development. Today approximately 500 Danish companies are present in china, some of them being energy technology companies, which can provide renewable energy equipment and solutions etc. Since the start of the relationship in 2008 many more agreements have been made to contribute to greener energy. Denmark also makes a great role model for energy efficiency, where they have proved that it is possible to both develop sustainable energy and at the same time have an economic growth (H. Lauritsen, 2014). This cooperation could already bee seen as a success just by looking at the 1600 local energy conservation centers spreading through China, in order to implement the new policies. DEA help China with provision of information which in turn are shared with the local offices. And just as mentioned earlier in this paper, coal consumption had dropped, and so also the CO_2 emission, this could be traced back to China's energy consumption as a result of the countries transformational efforts (Regan, et al., 2015).

Through the years of China's renewable energy transformation it has become the worlds largest market for wind turbines, having 26% of the total global market. China is working hard to reach its target for 15% of non-fossil energy by the year of 2020. However although there are great potential of integrating wind power challenges arises with , as mentioned before, the energy grid. After having lost (in 2012) a big amount of wind power production because of the fore mentioned problem, Denmark is collaborating with the chinese energy authorities by transferring their expertise in order optimize the production (H. Lauritsen, 2014). Informational exchanges like this could be seen as late as in march this year where the Danish embassy in China arranged a workshop focusing on off shore wind as a part of the Quality wind project. China having about 13 000 km of coastline has great potential for off shore wind turbines(State of Green, 2018).

5. Theory

This chapter serves the purpose of explaining the chosen theories to be used in the analysis and to answer the problem formulation. After the description of the three theories have been made, section 5.4 will further describe their relevance in this study and in the analysis.

5.1 Constructivism

Constructivism first emerged as an International relation theory in the end of the 1980s by Nicolas Onuf in his book called World of Our Making, which was published in 1989 (Ayukawa, 2011). Constructivists don't all emphasis on material attribute or interests of nations, but rather emphasize the ideas and norms behind the action of a country. Although they do look in to the concept of national interests, it is in fact the origin of such that is significant. The belief is that the actions of a country aren't solely a reaction of external factors and structures in the international sphere. To understand the underlying cause of influence, it is therefore important to look on the underlying social and historical context (Ayukawa, 2011). It is important to analyze the *sense making* behind the interests How and why are they defined the way they are? Meaning that also in political life there are social factors that and relations that influence what are produced. Just as they are produced they can also be reproduced and disputed in the social context (Pouliot, 2011).

This theoretical approach sheds light on three focal point when looking at world politics; intersubjectivity, the mutual constitution of agents and structures and the double hermeneutics. To get a better understanding of what these actually mean I will explain them one by one. The first focus lies on Intersubjectivity, this means that meanings are not depending on individual points of views but are created through social interaction. From this perspective it is not the opinions of a single individual that is substantial, but the intersubjective structures that have been built from interactions of many, such as values, rules, cultures, ideologies and identities, which all form politics and direct actions. The identity of a country thus subsequently shape the attitude of cross-national cooperation, foreign policy etc. (ibid.).

Secondly it focuses on The constitution of Structure and Agency, this refers to the dynamic development of which different contexts and actors evolve and finally determine each other. The structure is hence made up by the performance of agents, which in turn are formed by their context. Wendt (1987) describe this idea by simplifying in to two truths, one being that people and organizations constitute important actors which will transform and reproduce society with their actions, the second saying that the interaction between actors are structured by society which is in itself the result of social relationships (as mentioned by Pouliot (2011).

The third focal point is that of double hermeneutics, which basically is an interpretation of interpretations. The actors who have themselves acted apron their interpretation of the reality have created the actions of nations and political decisions in both international and domestic policies. Since Constructivism looks into the reasoning behind those events it is hence making an interpretation of an already existing interpretation. Simply said the second interpretation is the analysis which goal is to find the meaning of what is observed.

What also is important in constructivism is the concepts of identity and interests. These to concepts are interdependent variables who are closely liked to one another and the process. An Identity is what makes us “us” , it is how we identify ourselves as a group or a cultures. This identity further creates our interests. The interest is created by the needs of the actors sharing the same identity. An actor thus must know who they are before they know what they want (their interest). In order to analyze and explain actors behaviors it is important to understand both the identity and the interests. It is easiest explained by saying that the interests are determined y the identity and the interest determines the behavior. (Wendt, 1999). However by

adding the concept of "structural change" it thus makes it clear that both identity and interest can be changes because of this. Wendt (1999) describes it like this "Structural change occurs when actors redefine who they are and what they want." (p.336). Therefore may any structural change occur it will also change the collective identity, hence the interest will change too. One could continually say that structural (social and international system) change happens at a macro level while identity is on a micro level. (Wendt, 1999). Wendt does also point out that that it is factors like identities, cultures , values and ideas that has the power of influencing behaviors in social and political contexts. An example of this could be the highlighted attention on the environment, which has influenced the minds of both people and countries.

5.2 Multi level governance

Creation of MLG

Multi Level Governance (MLG) is a concept that was first introduced in the beginning of the 1990s by Gary Marks. The method stipulates a framework to gain an understanding of the "developing role of subnational governments in the emerging European polity" (McLean and McMillan, The Concise Oxford Dictionary of Politics (3 ed.), 2009). Ever since the introduction it has had a growing influence in policy-making-circles such as the European Union, and is has been established as a somewhat standard for the making and implementation of policies. Apart from a wide usage within the European Union, the concept has also had a growing usage in other forums such as international organization and federal politics etc. The concept " Multilevel governance" was invented to portray and interpret the different transformations within politics and institution in European integration. The previous models used, inter-governmentalism and neofunctionalism, could no longer serve as good tools to explain the new policy configurations. These new structures came about , as explained by Tortola (2017), by the single European act in 1986 and the Maastricht treaty in 1991. Further more, important structural changes were introduced in the late of the 80's and beginning of the 90's where regional policy were reformed which affected the structural funds budget, and the renewed decision making system of regional policy that enhanced the planning and competence power for implementation and programming structural policy. Mark then debated that a new method had to be introduced. He explained that with MLG it would be possible to

realize another political order, where the power moved centrifugally to Brussels from the different member states (When talking about the European Union) but that the power also would go back regionally, where regions also became and constituted as important actors for policy formation and implementation (Tortola 2017). The way power is distributed according to MLG is occasionally explained by the abbreviation "FOCJ (Functional, overlapping, and competing jurisdiction) (McLean and McMillan, The Concise Oxford Dictionary of Politics (3 ed.), 2009).). This simply means that the power is distributed over a broad scope in a complex, flexible and a somewhat overlapping of authorities (ibid.). Although the theory at first only applied to cohesion policy it later evolved to other fields such as, what this thesis is focusing on, environmental policy. Another important factor Marks et al, had brought forward (1996, as seen in Piattoni, 2010) is the important roles played by non governmental and non state organizations and authorities, which all had influence in the politics of EU and should therefore be allowed to attend and take part in European and international policy arenas. They then also Called attention to the non central state authorities' capability to go through or even remove the "center-periphery gate" (Piattoni, 2010, p. 18). and to be able to cross the foreign-domestic gate without having to ask for permission. This is in fact the characteristic for what "Multi-level " stands for in MLG. The "governance" aspect of MLG stands for the renewed attention people had towards the reconnaissance the non-governmental organizations has had on the politics in the EU, hence crossing the state-society gate. This concept thus show that the relevant influences are spread thought different level of authority, not only on a nation and cross-national level. The power hence goes both vertically and horizontally through the network. This is how Mark et al (1996) describes it: *"The point of departure for this multi-level governance is the existence of overlapping competencies among multiple levels of governments and the interaction of political actors across those levels. . . . The presumption of multi-level governance is that these actors participate in diverse policy networks and this may involve subnational actors—interest groups and subnational governments— dealing directly with supranational actors."* (as seen in Piattoni, 2010, p. 19)

The actors centered in MLG emphasize the linkage made by moving actors across different levels. The amount of different actors also enables the different linkages to be made thus which has formed the policy networks.

5.3 Fragmented Authoritarianism

This third theory is mentioned as it has very similar characteristics, or it is probably better to say that it was invented, just as the MLG framework, in order to understand the power balance, decision-making structures, in Fragmented Authoritarianism, in China.

In the late 1970's new reforms were made during the so-called Chinese reform era. As a result of the reforms, both policy and decision-making became more decentralized. To then better understand the Chinese politics, Fragmented Authoritarianism, (FA) was coined in the 80s, (Mertha, 2009). This theory argues that policies are subjected to a higher risk of flexibility and formation the further say it is implemented from the central government. Meaning that local officials etc. have the ability to influence the outcome of such policy. This consequently creates a diversity of policies and regulation in different part of the country (ibid.) As Liberthal (1992) explains it, local government and bureaucratic units become more like entrepreneurs in the way they are able to become more flexible in the decision making. The main focal point for this theory is the process of which policies are implemented and the decision making process is carried out, as well as the power distribution. When it comes to implementation of projects it is important to agree on equal benefits across the actors to strike a faire deal for the project to be successful, because, even though the authority is distributed equally the different actors may or may not have different incentives (Lieberthal, 1992; Lema, Ruby, 2007)

This fragmented distribution of power does not only make it possible for the already existing authorities to achieve power but it also makes it possible for new entrepreneurs enter "the market" of political policy making. Examples of such entrepreneurs are for example NGO's, activists and media (Merth, 2009).

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5.4 Theoretical Application

This part of the theory discussion aim to clarify the role that the above-mentioned theories serve in the analysis and in what way they will be used.

The first theory is the theory of Multi-Level Governance (MLG). This theory will together with support from Fragmented Authoritarianism (FA) analyze the political structure of the two countries and how they the political organs are working in the

renewable energy sector. Both of these theories are basically made to see who makes policy agendas. I will implement these theories to different part of the analysis, in order to see in what way/how and also why the policies regarding renewable energy have been made. These aspects of the analysis and discussion will be seen in section 6.1 and in 6.3.

The third used as a part of the analysis and discussion chapter is constructivism. This theory has been chosen to understand how domestic structures, or changes of those, influence the need and interests for green energy, it will as well be used as a tool to understand the incentives for the Sino- Danish Cooperation. By this theory I don't solely intend to look at the cooperation as such, but I also aim to, with the use of constructivism, show why this cooperation has become important and relevant for both parties.

6. Analysis and Discussion

In this section of analysis and discussion I will first start off by analyzing the political structures of both countries. To do so I will first use the concept of MLG as a theory to get a good understanding of the governmental structure by looking into three different areas: The dispersion of power, policy initiation, and regionalization. The second part of the analysis will focus on the incentives for Sino- Danish cooperation. The first part of the analysis will be a so called comparative case study while the second part will discuss what happens when these two system meet.

6.1 Multilevel Governance

6.1.1 Denmark

Denmark is one of the pioneering countries when it comes to renewable and sustainable energy. The policies for climate and energy are both covered in the industrial policy. Although the energy goals for Denmark are set at a national level together with the guidelines of the European Union, Denmark has many firms that contribute to the technology export to contribute to lower- carbon dioxide levels in the world. As a Democratic country I would further argue that Denmark is comparison to the stereotypical authoritarian country, not solely centered governed with a top to

bottom approach, but has a more fragmented political governance; In the sense that the municipalities are more or less self-propelled entities. This is particularly evident when it comes to energy governance, as local actors have been a vital part of the development for renewable energy, where a combination of both top-down and bottom up approach has been implemented to achieve best possible results (Jänicke and Quitzow, 2017). In the 1990's there were more than 3000 cooperative owned wind turbines that was installed. These cooperatives were in turn supported by the national policies for renewable energy as a top- down measure for further expansion. This trend had around then years later continues, when about 40% of the then installed wind turbines used still were owned by citizen cooperatives. Apart from the cooperatives individual farmers, among other individuals, owned their own wind turbine.

The power dispersion in Denmark is certainly diverse and the energy strategy is decentralized. Although different power has reached government position, changing the energy reform to the worse in the beginning of the 2000s, the policies and central governmental help has returned to the cooperatives (Jänicke and Quitzow, 2017).

Looking at these fact is makes it clear to me that the development in renewable energy in Denmark would not have been as successful with out such decentralization and diversity of power. However, the central government has played an important part allowing this transformation to materialize by allowing policy change and subsidies for development. They have, as mentioned before been working closely together with a top-down, down- up approach. Although the data is now ten years old, 63 out of 93 municipalities were active in activities related to climate in 2008. These numbers has most likely improved since then, as there has not been any major backlash of environmental policy since then.

To shortly summarize, what we can see in the Danish sector, it is that the green policies have has through time been developed from an individual citizen based market. We can clearly see that this model is still working in Denmark with, for example, the high amount of cooperatively owned turbines that almost counts for half of the total number. Along with the high rate of energy coming from wind turbines, the energy has also become cheaper for people to pay for. This has, a long with the long history , made the Danish people accumulate to the situation and taken the green initiative as a matter of course, and they therefore tend to push for improvement. This

strongly shows a top to bottom approach. However, although the state might be in need of public and private owners of wind turbines, they are on the other hand also very much in need for governmental support, such as policy improvement or other kind of subsidies to help them in the market of green energy. I would therefore say that there is a constant synergy that must be maintained in order for the "wheel" to continue to spin smoothly. It is thus discussed earlier in the theoretical section, functional and overlapping, It might not have that much competing authorities as one can see in the EU, but it does however have competing influences that impact decision making. This thus created the power distribution explained by the "FOCJ" McLean and McMillan, 2009).

6.1.2China

Dispersion of power is one of the most known characteristics of multilevel governance. The power is thus distributed though different levels of authority in an interconnectivity manner in a both vertical and horizontal way. This means that variety of actors work interdependently for the negotiations of power (vogel,.n.d.).

When thinking about China's way of ruling, one party state is probably what first comes to mind, and maybe one wouldn't think of China as having multilevel governance. China is divided into different administrative layers. First there is the central nation, then comes the autonomous regions followed by provincial –level municipalities, cities, country-level, township, village and finally small division groups. In this analysis of China's governing structure I will not be strictly be using MLG as, per se, one would for the multinational construction of the EU but as a means of using it as a tool as far as it goes to measure the political levels in China.

Although China is a one party state and most policy changes are being set on a national level, one can see that the fragmentation mentioned in the theory section make room for a more nuanced implementation trend when it comes to global governance. Many new programs, one could also call them experiments, are increasingly being tested in the lower level of governance. After one of these programs has proven successful they will be implemented elsewhere, and in best-case scenario even on a national level (Schreurs, 2017). In this particular area the before top- bottom implementation, mostly known to authoritarian regimes, has now gotten a bottom- up approach. This has together with the so called fragmented power made it

possible for lower level government to take their own green initiative. When it comes to implementation of policies in a multilayered authority system obstacles may occur if policies are introduces at the highest, national level if the policy is not properly explained or simply does not suit the local conditions. This may however also be the case for China in many respects.

As the environmental threat has become a reality in China, president Xi Jinping has made the environment a Chinese priority where all governmental layers should work for industrial development for a sustainable future. (Ibid.). It is however not at a national level that dissatisfaction is starting to occur, the public discontent has begun to erupt as the pollution and contamination has become a fact, affecting many of the country's inhabitants. And as complains have grown in numbers since the 1990s, people have started to demand environmental improvements, putting pressure on the policy makers. The Chinese government has not only responded to the critics by opting for policy regulations but also made restriction on foreign non-governmental organizations (Ibid.). Even though restrictions are being made other actors are seeing the possibility of innovation by following the green initiative, not only health benefits but also technological and economical profits.

Looking at the power distribution for China it is still being very centralized in the way that the major decisions regarding the environment are foremost taken, and should many times be approved by the central government. However, the power responsibility has now, more than ever been passed down to sub national-level governments where the multilevel cooperation has intensified to work on minimizing the environmental violations (Browaeys and Corne, 2017). To further take responsibility and to work for a sustainable energy China has recently decided to introduce other such as NGOs, although only a few selected ones, to "bring public interest environmental lawsuits" (Browaeys and Corne, 2017, para.12). These NGO's are also aimed at easing the policy process when it comes to implementation and decision-making. Because of the severity of the problems now facing the country new legislations have gone through which enables public participation fighting the environment (Hensengerth, Lu, 2018). It is however unclear what and to what extent they are able to do when it comes to decision making in environmental questions. While the Chinese government is making efforts to encourage participation to fight the pollution, by for example making certain information accessible, the public still find it hard to get their opinions heard (ibid.).

As I have already slightly touched upon above is that that policy implementation in China is no longer only implemented from a top to bottom approach but, especially in the energy sector, project are actually more frequently being implemented at the lower levels. This thus follows the "rules" of MLG where governmental and non-governmental actors at different levels (in this case, more or less) work together (ibid.). This has been made possible due to China's developed modernization program where environmental protection has become one vital policy on the way of realizing sustainable development through strategies covering the country. The Chinese authorities are enhancing the importance of multiple organizations under all level governments to create a so-called *" complete environmental control system"(*Permanent mission of the People's Republic of China to the United Nations Office at Geneva and Other International Organization in Switzerland, n.a, para. 10). I would say that this doesn't only show China's good intention but as well proves the fragmented power distribution. I would argue that with such fragmentation, implementation of energy programs gain efficiency because of this fact. As proposed by the multi-level governance model the dispersion of governance gives a more normative value as it better mirrors what is overall preferred to the citizens (Vogel, n.a).

This last section of the multilevel governance analysis will touch upon the topic of regionalization. I this case I decide to interpret regionalization as to further decentralize the central power mechanism. The importance of this aspect is that it encourage increased political, in this case of China renewable energy it might instead be the case of increased awareness, participation. As mentioned by Vogel (n.a.) the efficiency would increase while the obstacles for, in this case projects would decrease, as the decisions would become closer to the people. This could continually lead to a less polarized political sphere when the whole system turns more transparent (Hadenius, 2006, as mentioned in Vogel,n.a). The other side of the coin is that if local governments acts poorly it could higher the cost of the public sector and it if such intergovernmental relationship should be trouble some the macroeconomic stability could be affected (Wu, 2013).

As touched upon before China has in fact started to initiate it's environmental "trial- project" on local governmental levels to see if they turn out to be successful. In this way they have in shown a willingness to decentralize the power and put the actual change closer to the people. In my words they are hence in this way showing

willingness to create awareness. At the same time as they are making the information more transparent, they are also enabling local government to take their own initiatives. One could indeed call it a forthcoming decentralization with a centralized control (Wu, 2013).

Even though the decision-making, or more so the implementation of renewable energy has started to take on a more down-up approach, it is has not yet reached a full out synergy as described by the MLG. I very much find it to follow the Fragmented authoritarianism framework more. If one were to compare other sectors to renewable energy, I would say that China has gotten a little bit further there. My reasoning regarding this is on the assumption that the environmental pollution somewhat is rather "new" information, where not all people have been affected only just until quite recently. Despite China's fragmentation, the governing organ is still very centralized and has a big leverage when it comes to the question of change. Because why change something that seem to be working fine. In this way, China is very different from Denmark, where the people have been aware and have been for a long time made space for their involvement in many areas, not the least in renewables. It is however difficult to compare the two situations since the conditions have been different from the start. But it is obvious to see that there are similarities, although slight. China is just as Denmark have for a long time, started to vary the power distribution where lower level governments are given opportunity to make change which then can transfer upwards on the power ladder.

6.2. Sino-Danish Cooperation interests

During this part of the analysis I will put focus on the Sino-Danish cooperation by using a Constructivist approach I will therefore first look in to how identity and interest play a role in cooperation. Then I will continue to look at it from a political point of view. To start up this second part of the analysis, I will first state the very obvious reasons for Sino-Danish cooperation in the renewable energy sector. The first reason is of course the urgent need to lower the carbon gas emission and to globally work towards a greener future. And to work on that, there is no better option for China to chose Denmark to help, because the country's remarkable reputation in sustainable energy. Denmark on the other hand, why would they choose to work together with China apart from helping the global energy deployment. Denmark working together with china will of course enhance political ties as well as

economical. Following, this analysis will be divided into two parts; Identity interest and political interest.

6.2.1 Identity and Interest.

To understand China's current identity and interest it is important to actually remember where the society was back in time. This year it has in fact only been 40 years since China started it's reforms and opened up to the world. It is quite hard to believe that in only 40 years china has been able to step up as the second largest economy in the world. Every since the end of the 70s China has continues to surprised the global community with the continued growth (Xinhua, 2017). However the situation that they are now faced with is the reality of climate changed. Before, when China pretty much was secluded from the rest of the global community there was no need to think about sustainable energy. This was however also the case in most of the outside world too, as the threat hadn't become a reality yet. Looking at the development from a constructivist view the transformational change could actually not have happened earlier until China became one with the global community or increased it's international cooperation. This assumption is based on the constructivist argument that for a shift to occur, there must be a presence of multiple actors over time where information is crossing the national boarders. Only that way can analytical processes be created, in a way of changing knowledge, where the identities and political structures are different. This in turn would lead one another to learn from one another and accumulate new information, or as Haas (2004) describes if we become a " Transnational networks of scientists" (.p. 573), to bring with us and process nationally. This could therefore explain the attentional shift of China where new ideas and ideology is created. It is then not hard to understand why the changes haven't happened earlier and why China might have been more hesitant to follow foreign nations, when you think about the more than 100 years of humiliation that China suffered after foreign forces invaded the country. Afterwards China then started to rise from that period of humiliation by enhancing historical values structures (French et al, 2017).

Another important shift of interests happened along the realizations of the dangers that come with pollution, as mentioned in chapter 4. This shift of interest did not only submerge because of the government's agenda but because of popular concern. However one can, by looking at the constructivist view, understand why the

political transformation in China (policies regarding the environment) didn't happen prior to when it actually did. This is because of the one party state where there were no other influential policy making organs to influence the political instrument. The Chinese government did what, at the time, fit their own political model (Bao, 2006). As China has been utilized a top-bottom approach for policy implementation through the years, one could imagine that the political position might have had an effect on scientific considerations if they didn't fit the national plan. These are all thing that need to be considered when looking at the identity and how and only then interests will change. As a part of China's rising from times of foreign humiliation to the world second largest economy, it is evident that China want's to take a more prominent place in the world (French et al, 2017). This identity will then of course influence the interests of China, either it being in the sense of political or economic power.

China's increased interest in the environment has been increasing this last decade where the former president Mr. Hu Jintao talked to the 18th party congress about the Chinese incentives to

"work hard to build a beautiful country, and achieve lasting and sustainable development of the Chinese nation" (as mentioned by Ping, 2017, para 6).

The former president made this statement in connection to the first inclusion of green development in the Chinese communist party's constitution.

China's president Xi Jinping has continued in the same spirit of caring for the environment spoke above the China's modernization during the 19th national congress meeting last year: "The modernisation that we pursue is one characterised by harmonious co-existence between man and nature," (as mentioned by Ping, 2017, para 3). He has also at an earlier occasion talked about the governments responsibility for a sustainable development by saying: "*We will launch initiatives to make the party and government offices do better when it comes to conservation, and develop eco-friendly families, schools, communities and transport services,"* (as mentioned by Ping, 2017, para 17).

When it comes to the Danish And Chinese partnership, it actually goes way back till the 1950s when china was one of the first countries of the west to establish a diplomatic relationship with China. Through the years this partnership has developed and had by 2014 made Denmark the country in Europe with largest per capita investment in China. It is however not only the financial and diplomatic relationship

that is growing, but also cultural exchanges are increasing where students and other experts have created a platform in the research and education in Beijing(Yi, Lidegaard, 2015). Denmark and China has had a rather stable relationship and this can at the least be understood from the written article by the Chinese minister of Foreign Affairs Wan Yi and the Danish Minister of foreign affairs, Martin Lidegaard, as they write:

"We will stay committed to the principle of mutual respect, equality and mutual benefit, take account of each other's core interests and major concerns …… On the basis of the economic and social transition in each country, we will upgrade China-Denmark cooperation. According to a joint work programme, we will consolidate and expand bilateral cooperation in such traditional areas as maritime transportation, energy, clothes and pharmaceuticals. ….. We will share technologies and experiences in food and agriculture to promote sustainable and effective development of agriculture in the two countries, and provide quality and safe food to consumers. In green economy and ecological areas, we will learn from each other and continuously explore new growth areas and move towards the goal of innovation and manufacturing through bilateral cooperation" (2015, para 6.).

There is no question about why these two countries would not cooperate when it comes to renewable energy. First of all it goes back to mutual trust or a well-built relationship, which is also important in Chinese culture. As already stated many times, Denmark has a good reputation and has become a leading nation in renewables. Thus a continues relationship within this field would only be beneficial for China. For Denmark on the other hand, China does indeed make up to be a great trading partner. By trading with China, a big market opens for renewable energy and the small Danish nation. This cooperation sure has seen to be fruitful so far where both countries interests are met.

From a constructivist view the bilateral relationship between Denmark and China is clear to be driven by interests, which are mutually beneficial for both countries. Just as China want to become greener and increase it's global participation and position, Denmark wants to do there part as a the green state in promoting both renewable energy but also themselves as a nation. By getting more involved in renewable energy China shows their willingness to change and in a way disposition to adapt, but still in their own way and pace. Denmark can as well as helping to reduce

carbon hydroxides also increase their market place in renewable energy and in that way grow economically.

6.3 Formation of RE policies

6.3.1 Denmark

This last part of the analysis will look in to who or what institutions and lead to the formulation of the renewable energy policies and how they differentiates from each other, comparing the two countries. By doing so it will be possible to see if the different in political structure that I have found so far is as prominent in this aspect as well.

Starting off this analysis I will briefly discuss what different reasons that lead up to the initiation of renewable energy policies in the two countries. Denmark had, as talked about in chapter 4.1, suffered from the oil crisis in the beginning of the 1970s- As countries around Europe started to go through modernization, the energy consumption as well as the energy cost rose (State Of Green, n.a.). . In the end the situation was unstable when the majority of the energy consumption was based on oil in Denmark at that time which lead Denmark to create it's own national energy policy. To create stability the Danish government created policies and started campaigns to promote energy saving. At this time the environment in it's is not a priority but newly establish Department of energy tried to come up with policies I order to improve energy supply and to put Denmark in a better economic situation. So from the beginning, it is clear to see that the renewable energy policies came from a Top-bottom approach. It was however not just the state who tried to impose new sets of rules, but they also tried to change the mind-sets. One could also see this from a constructivist point of view where the identity first start to change and the change of interests will follow, as we can see today.

Today in Denmark it is the Danish Ministry of Energy, Utilities and Climate that is in charge or the national as well as the international policies around energy and climate change etc. Although Denmark has a ministry to handle these policies they also make the policy- making process together other parties by building consensus. It has also been successful to with cooperate through a broad field of actors, such as cooperatives, associations and both regional and local authorities. This way of formulating the

energy policies is stated by the IEA to be a "Danish Characteristics" (2017, p. 29). Also this show the fragmented, dispersion of power as described in the theories. This can continually be seen on the way that the government setup an national energy commission in 2016 for the preparation of the new energy agreements that were submitted in the late 2017. In this new National energy commission different stakeholders took part, such as businesses and academia, to discuss the new goals. These are the goals, that I mentioned earlier, that by 2050 Denmark's aim to become a low-emission society (IEA, 2017). Apart from meeting a national political consensus, Denmark also needs to as most European countries follow the targets set by the EU.

To summarize the Danish political journey of formulating Re policies, it first started as a strictly top – down approach. The Danish government had to find other energy sources and started to influence people's energy consumption. I would say that this was the start of the creation of the "green Danish mindset". This strictly top-down approach has later changed into a broader spectrum of authorities and levels where initiatives can come from businesses and individuals thus creating a bottom – up approach as well.

6.3.2 China

The opening up of China in the late 1970s along with the industrialization, lead to a higher energy demand. China is using about half of the worlds coal consumption but the demand has started to slow down in resent years. Environmental protection was considered already in the 1980s where pollution had started to become a concern and since then the regulations have been tightened along with increased Chinese international participation.

According to the National Renewable energy Laboratory the development of renewable energy policies can be categorized in to three different levels. The first two levels are established by the central government of China. At the first level general directions will be given by the state leaders, secondly goals, plans and objectives are given by the creation of policies where renewable energy is promotes. The third level, is handled by the local governments; such as provincial and country levels governments. Their job is to be consistent with practical incentives, which have been introduced in the upper levels by higher authority (NREL, 2004).

What was just describe is a very simplified overview of the power distribution, and it is most likely even more complex but it gives us a clear picture of a top- down approach. But as explained earlier, as the country and it's citizens become more aware of the bad effects from environmental contamination changes have been made and more proactive policies have been put in place. We have already touched upon some of these examples in the 13th five-year plan and as a result from international cooperation. One outcome is China national Renewable Energy Center (CNREC) that was established as a part of the bilateral Sino- Danish RED program. Some of its missions are, to first of all, support the governments decisions both regional and national, but also to conduct policies strategies and research for renewable energy (CNREC, n.d.). Although China is has created an institute that does research and international cooperation etc. This does however not necessarily mean that there are more players in the game since it's still state owned and under supervision of the central government. What it does do is that it created space for more information and input so that new ideas and research can be made and have a positive influence on the policy making. This can also be seen on the somehow loosening up of environmental NGO's participation in environmental participation (Browaeys and Corne, 2017).

One can clearly see a political top- down approach, where the power still is fragmented to some extent. The local government have been given encouragements to take part in fighting pollution, which can be seen is a good sign as people get more awareness of the situation.

6.3.3 Sino-Danish Comparison

From the very start the policies involving renewable energy came from a top-bottom approach, where the state was in charge over what had to be done, in both of the countries. However we can now see more synergy between up- down and down-up approach in Denmark more than we can see in China. One obvious difference that I can see ,for why China hasn't moved more into that direction, is because of the governmental structure. Denmark is a Democratic state where the political system is more transparent, while China is an authoritarian state (somehow fragmented) with not so much transparency. Another reason could however also be the basis on why these changes are/were starting to happen. To start off with, the Danish transformation of saving on energy did not come so much because of an international

pressure, or was the scare of global warming as big as it is today, as China has been and are still facing. In the case of Denmark the change happened because of lack of own national energy supply and the high prices of energy import (Rüdiger, 2014). Denmark found other sources of energy supply and had already started to change their identity early on of becoming more "green".

The similarities between the two is still in fact that the transformation started from above which influenced the people. And it of course helps to have a more transparent political system for the transition to go faster. But what we can see today is that China is starting to apply bottom-up approach in the energy sector. It is however quite restricted for now but, it has more MLG characteristics that it has had in the past, were now more governmental actors at different levels are starting to become more involved.

In Denmark there are a lot of actors that give input and are a part of the formation process, everything from business, intuitions and civil citizens can make their voices heard through media and though the public election of politicians. Although the Chinese citizens don't have quite the same gateways, the fragmented characteristics of China's political system has slowly made it possible, in the best case, for some media input and some public consideration when for example demonstrations break out etc. (Hensengerth and Lu, 2018).

8. Conclusion

The aim of this thesis has been to research what effect the different political and governmental structures have for the cooperation between China and Denmark in the Renewable energy sector. As a starting point of this thesis I came in with the assumption that there is indeed a difference between the two systems. I have been applying three theories; Constructivism, Multilevel Governance (MLG) and Fragmented Authoritarianism as approaches to study the problem statement. Constructivism was considered in order to understand the incentives for Sino-Danish cooperation from an identity and interest bound perspective. With the use of MLG I have been able to study the differences in terms of power dispersion and from where the decisions have been made. Fragmented Authoritarianism, is in fact very similar to MLG but was introduced as a way to

particularly understand the Chinese political structure, Whereas MLG has slightly been adapted to put the purpose. I have thereafter, with a deductive approach, been applying my chosen theories to study the following research question:

To what extent does governmental structure affect Sino-Danish renewable energy Cooperation?

To start off the conclusion, I will first answer the peripheral question as to what the underlying motivations for cooperation are. China's economy and standard of living has increased rapidly the last 50 years. But now they are faced with an economic deficit because and it won't be easier having to reestablish the energy system and supply while keeping the economy at a constant upward slop. There fore Denmark makes a perfect partner when it comes to China transition in to green energy. The relationship is already there and has been established for more than 60 years already. Apart from that, The Danes acquire valuable knowledge and technology of/for renewable energy. When it comes to Denmark and their interest in dealing with China there are also a much as it is a question with economic basis. China is a big country and is becoming more influential, but regional as well as global. This cooperation is a great opportunity for Denmark to be able to expand their business, values and reputation while it at the same time is economically profitable.

As much as the cooperation has economic value it also speak volumes about, not the least, China's willingness for international cooperation, which could possibly increase Chinas political influence in the long run. A constructivist look on the situation could imply that with continues cross-national cooperation and knowledge exchange; further identity and interest changes can be made. In this case the best outcome would be even more consciousness of global warming and the need for renewable energy.

When it comes to the approach of policy formation and policy implementation the two countries have different approaches. In Denmark there are many influencing actors who work together when new policies are made. Since a big part of the sector, especially when it comes to the wind turbines, Is privately owned by cooperatives, the government and the non-government organizations or institutions must work together

to get a successful result. In China however, although there are some non - governmental actors involved, such as investing companies etc., they don't have much to say when it comes to policy making. The situation has nevertheless changed during the years and new actors and implementation forms have take place in the renewable energy sector. More and more green energy project are implemented at lower governing levels where the authorities there get the main responsibility but report back to the central government. In Denmark the whole sector has mainly been driven by the public opinions and not bureaucratically.

Sino-Danish cooperation in the renewable energy field started in the early 2000 projects have continually been arranged for the two parties to work together on. There is of course obstacles that can occur when these two system meet, Denmark who is used to a down- up approach and China the opposite. However the cooperation's that have been made between the two have been between governmental institutions. I would therefore say that either way I this case of Sino-Danish Cooperation the initial process has, as it seems, mostly started with a top-down approach. Although the national Danish system is different, the way they approach China in there cooperations is first through a government-government relation.

What one could see is that China has increased it's down-up approach, one could suggest that this has to do because of outer influence or suggestions, Where Denmark could play a key role in further development and work as a gatekeeper for new possible solutions.

For further research within this topic it would be interesting to carry out a sort of field study where one could get first hand information and actually see how such policy implementation and cooperation develops until successful results. What one also could do is to continue the study and see if the outcome would be affected by China's very resent energy proposal.

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[i] State of green is a partly government (among other), Founded partnership

[ii] State of green is a partly government (among other), Founded partnership between the public and private sector.