

# MASTEROPPGAVE

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## China's 'Belt and Road Initiative' as an investment driver in the Yamal LNG Project

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## **Sammendrag**

Kina har opplevd en imponerende økonomisk vekst siden landet åpnet seg for utenlandske investeringer og ble med i Verdens Handelsorganisasjon. I 2013 lanserte den kinesiske presidenten Xi Jinping sitt «Belt and Road Initiative». Initiativet har utviklet seg til å bli et flaggskip i Kinas forhold til resten av verden. Det er Kinas gradvise åpningen mot verden, også på energifeltet, som ligger til grunn for oppgaven.

Oppgaven er en kvalitativ case-studie om Yamal LNG Prosjektet som er lokalisert på Yamal-halvøya i det russiske Arktis. Prosjektet har en stor kinesisk eierandel, sammen med russiske og franske selskaper. Oppgaven kombinerer data fra offentlige kinesiske utviklingsplaner, investorene i prosjektet, og fra intervjuer med kinesiske eksperter.

Ved å investere i energiprojekter som Yamal LNG ønsker Kina å oppnå en rekke mål. Oppgaven drøfter tre av disse og samspillet mellom dem. Hvordan kan deltakelse i prosjektet sikre Kinas energisikkerhet, geopolitiske stilling og økonomiske utvikling? Av disse legger jeg mest vekt på drøftingen av energisikkerhet som et overordnet mål for landet

Energisikkerhet-begrepet er bygd opp rundt fire dimensjoner: fysisk og økonomisk tilgjengelighet, pålitelighet og bærekraftighet. Oppgaven drøfter hver av disse både konseptuelt og med referanse til Yamal LNG investeringene. Et av de mest interessante funnene i denne oppgaven er hvordan bærekraftighet som er et relativt nytt tilskudd til diskusjonen rundt energisikkerhet har blitt vektlagt så tungt av kinesiske myndigheter. Hovedkonklusjonen i min oppgave er at Yamal LNG prosjektet gir et viktig bidrag til Kinas energisikkerhet.

Oppgaven identifiserer også tre kinesiske geopolitiske mål; å forbedre forholdet til nabolandene, motvirke den amerikanske satsingen i Asia, og å forbedre transportinfrastrukturen på land, og dermed redusere avhengigheten av maritime transportveier. De kinesiske investeringene i Yamal LNG Prosjektet er delvis i stand til å hjelpe Kina nå disse målene.

De kinesiske investeringene i Yamal LNG Prosjektet hjelper Kina å oppnå en rekke økonomiske målsettinger. De økonomiske driverne som jeg har identifisert i denne oppgaven er; å flytte reserver av utenlandsk valuta til mer profitable investeringer, redusere overkapasitet i den kinesiske økonomien, tilrettelegge for handel, samt utvikle kinesisk teknologi.

De kinesiske investeringene i Yamal LNG Prosjektet bidrar også å endre verdens transportruter for energi ved å bidra til å åpne nord-øst passasjen, noe som er i Kinas interesse.

**Key words**

Yamal LNG Project, Belt and Road Initiative, Energy Security, Russia, China, Geopolitics.

## **Preface**

This master thesis marks the end of the Master of Science program in Energy Management. The programme is a joint degree between Nord University in Bodø and Moscow State Institute of International Relations (MGIMO) in Russia. In addition, we were given the opportunity to study at the East China Normal University in Shanghai, China. We were in Shanghai for three months writing and conducting field work for our master thesis.

I would like to give thanks to my informants for their valuable contributions to my work. The interviews I conducted with them helped me discover new and interesting insights.

I would also like to give a huge thanks to my supervisor, Professor Petter Nore. His guidance and support were invaluable for writing my thesis.

A warm thanks goes to my family and friends for being there for me. For a long time, I have been busy with my thesis. During this period, I have received a lot of support, understanding and patience. Without the people I love, this would not have been possible.

Bodø 30.11.2018

Anders Christoffer Edstrøm

## **Abstract**

China has experienced impressive economic growth since opening itself up to foreign investment and joining the World Trade Organization. In 2013, the Chinese President Xi Jinping announced the Belt and Road Initiative. The initiative is enormous in scale and scope and has become one of the most important Chinese foreign policies. This strengthened outward focus of the Chinese government is the starting point of this thesis.

The thesis employs a qualitative case study methodology of central Chinese policy papers as well as critical analysis of interviews with Chinese experts. The central case for the thesis is the Yamal LNG Project located on the Yamal Peninsula in the Russian Arctic.

There are several strategic Chinese objectives driving the investment decisions behind projects such as the Yamal LNG project. The thesis identifies these drivers, and studies the interplay between them. How may participation in the project strengthen China's energy security, geopolitical situation and economic development? Out of these drivers, I emphasise the discussions of Chinese energy security the most, as energy security is identified as an overriding national goal.

Energy security was divided into four distinct constituent parts, namely: availability, affordability, reliability and sustainability. The Yamal LNG project seems to hold the potential to improve the energy security situation of China. One of the most interesting findings in this thesis was how sustainability, which is a late addition to the energy security discourse, is given such a strong emphasis by the Chinese government. My main conclusion in this thesis is that the Yamal LNG Project investments provide an important contribution to the energy security of China.

I identified three distinct Chinese geopolitical objectives, namely to; improve the relations with neighbouring countries, counter the US pivot to Asia, and to improve connectivity on land and thus reduce dependency on sea lanes. The Chinese investments in the Yamal LNG Project are in the opinion of this thesis partly able to help achieve these goals.

The Yamal LNG Project also helps the Chinese government achieve most of its economic goals. The economic investment drivers identified in this thesis are to move foreign currency to more profitable investments, reduce overcapacity, facilitate the ease of trade, and to develop Chinese technology.

The Chinese Yamal LNG investments will also alter international flows of energy, open new routes of transportation, and help improve the international relations between China and other nations. The thesis finds the Chinese Yamal LNG investments to be a good fit for fulfilling Chinese strategic policies and development goals.

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### List of abbreviations

|       |  |
|-------|--|
| AIIB  | Asian Infrastructure Investment Bank   |
| Bln   | Billion  |
| Boe   | Barrels of oil equivalent  |
| BP    | British Petroleum  |
| BRI   | Belt and Road Initiative   |
| BRICS | A group of countries consisting of Brazil, Russia, India, China and South Africa |
| CCP   | Chinese Communist Party  |
| CIA   | Central Intelligence Agency of the United States of America                      |
| CNBC  | A major business news agency   |
| CNOOC | China National Offshore Oil Corporation  |
| CNPC  | China National Petroleum Corporation   |

|            |   |
|------------|---|
| CO2        | Carbon Dioxide  |
| COFACE     | Compagnie Française d'Assurance pour le Commerce Extérieur - French credit export agency  |
| COOEC      | Offshore Oil Engineering Co., Ltd.  |
| EEU        | Eurasian Economic Union   |
| EIA        | Energy Information Administration   |
| EKN        | Exportkreditnämnden - Swedish export credit agency  |
| EU         | European Union  |
| EUR        | Euro - Currency of the European Union Euro Zone   |
| EURIBOR 6M | European interest rate on loans with six months maturity  |
| FID        | Final investment decision   |
| G7         | An exclusive group of countries consistent of the seven largest developed economies in the world. Currently: Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States |
| GDP        | Gross National Product  |
| GHG        | Greenhouse gas emissions  |
| HSBC       | A major UK-based bank   |
| IEA        | International Energy Agency   |
| IGU        | International Gas Union   |
| IPE        | International Political Economy   |
| JBIC       | Japan Bank for International Cooperation  |
| LNG        | Liquefied Natural Gas   |
| MMBtu      | million British Thermal Units   |
| MSRI       | Maritime Silk Road Initiative   |
| NDRC       | China National Development and Reform Commission  |
| NSR        | Northern Sea Route  |
| OBOR       | One Belt One Road Initiative  |
| OECD       | Organization for Economic Cooperation and Development   |
| OPEC       | Organization for Petroleum Exporting Countries  |
| RMB        | Chinese Renminbi - Currency of China  |
| SACE       | Servizi Assicurativi del Commercio Estero - Italian export credit agency  |
| SREB       | Silk Road Economic Belt   |
| SRF        | Silk Road Fund  |
| TPP        | Trans Pacific Partnership   |
| UK         | United Kingdom  |
| UN         | United Nations  |
| US         | United States   |
| USA        | United States of America  |
| USD        | United States Dollars - Currency of the United States   |
| USGS       | United States Geological Survey   |
| USSR       | Union of the Soviet Socialist Republics   |
| VAT        | Value Added Tax   |
| WTO        | World Trade Organization  |

## **1.0 Introduction**

### ***1.1 Problem statement:***

For China to go into the Yamal LNG project may at first glance appear as simply a move to secure direct foreign investments abroad. In this thesis, I claim that understanding the Chinese involvement in Yamal LNG should be understood in a multi-faceted way, and that there may be many drivers, energy security being one of them. I argue that strengthening Chinese energy security is a desired goal, and I try to investigate the importance of this driver in the interplay with other drivers.

In the speech of the Chinese President Xi Jinping to the 19<sup>th</sup> National Congress of the Chinese Communist Party (CCP) in October 2017, both challenges and possibilities for the future of China are being outlined. In this speech, the Belt and Road initiative (BRI) is being presented as a major part of the solution to these challenges (Xi, 2017).

Along the lines of the BRI, investment projects are being initiated. The two main lines of the BRI is the Economic Belt going through the Eurasian continent towards Europe, and the Maritime Silk Road going along the sea route from Asia, past Africa, and further to Europe. The aim of these projects is to develop hard and soft infrastructure to facilitate trade, transportation and cooperation. Several frameworks and institutions have been developed as funding vehicles to achieve the goals of these initiatives. Among them is the Asian Infrastructure Investment Bank (AIIB), the Silk Road Fund (SRF) and continued official encouragement for Chinese companies to go abroad.

China has recently launched its first white paper on its Arctic Policy, and it is clear that the Arctic is an area of interest to China and Chinese development. With the recent decision of China National Petroleum Corporation (CNPC) and the Chinese Silk Road Fund (SRF) to invest heavily in the Yamal LNG project, new possibilities of Arctic development may present themselves.

In this thesis, I will examine the documents of the BRI, the Chinese Energy Policy, the Arctic Policy of China, as well as interview researchers on these fields of expertise to provide an overview of the drivers that may be behind the decision of Chinese investment in the Yamal LNG Project. After this I will try to investigate the importance of energy security in the interplay between a mix of these drivers.

Problem Statement:

### **How does energy security concerns play a role in Chinese investment decisions in the Arctic Yamal LNG project?**

This problem statement will require me to collect information on the Belt and Road Initiative of China, its Arctic Policy and its energy situation. Since I claim that the development goals of China are diverse, I will look at the project investments from different perspectives. Energy security and perspectives within geopolitics are applied theories in my analysis.

#### ***1.2 Actualization***

In 2013, China launched the Belt and Road initiative, which has become one of its most important foreign policies. The initiative encompasses many countries and enjoys the full economic and political backing of the Chinese state. The message from the Chinese government has been one of inclusiveness, openness, cooperation, and joint development. The project has been well received by most countries, some others however see the initiative as a threat. This can be seen by the following quotes:

*“With few exceptions, however, these projects have been advertised by Beijing and recipient countries as economic opportunities.”* (Funaiole and Hillman, 2018: 2). The authors continue to say that *“within this broad and ever-expanding construct, Chinese investments have been especially active in the Indo-Pacific region, raising questions about whether it is China’s economic or strategic interests that are driving major port investments”* (Funaiole and Hillman, 2018: 2).

There has also recently been a growing concern among recipient countries regarding the heavy debt burden from received investment projects. As a stark example, according to a news article by the New York Times, Sri Lanka handed in 2017 its newly constructed Hambantota Port to China. Sri Lanka lost the control over its port for 99 years because it has defaulted on its debt to China. Thus, it has been argued that BRI projects may constitute debt traps for capital poor recipient countries (Abi-Habib, 2018). Following this, the government of Myanmar decided to scale down on its own Chinese-financed Kyaukpyu port construction. The project is a part of the Belt and Road Initiative, and a way for China to diversify Chinese energy supply routes (The Guardian, 2018). Despite such problems, it is certain that the initiative with time will influence the countries involved, and the world as a whole.

China has a vast economy and is as of today the largest consumer of energy in the world. Much of the energy consumed is imported, and due to domestic reasons, this external dependency on energy and resource sourcing is expected to increase.

As a central topic in this master thesis, we will see how China has looked to the north and invested in the Yamal LNG project in the Russian Arctic. The Yamal LNG Project is a major LNG project situated in the Russian Arctic on the Yamal Peninsula. With the latest developments between Russia and the West, relations are running cold, and the sanctions imposed on Russia largely forbid western companies wanting to invest in the Russian energy sector. In a search for investment, lending and new energy markets, Russia has worked to turn east, and to improve relations with China. Some academics have indicated a lack of studies covering the energy relations between China and Russia in the Arctic.

On this note, Bertelsen and Gallucci (2016: 243) say that *“In North Atlantic and Nordic Arctic research, there has been little attention to Sino-Russian relations concerning energy and raw materials in the enormous Russian Arctic or the Bering end of trans-Arctic shipping routes, which involves the USA, Japan, and South Korea”*. This view is partly reflected by in an article by Weidacher Hsiung (2016) where he argued that *“...China’s Arctic oil and gas interests remain understudied, especially as regards actual activities”* (Weidacher Hsiung, 2016: 244).

In this thesis, I have attempted to analyse the drivers behind the investment decision widely. Bertelsen and Gallucci (2016: 240) continue to say that *“The Arctic has received new outside attention for about a decade. Much of this attention – especially popular, but also academic – has focused on local factors in the Arctic. The focus has often been on energy, minerals and shipping lanes made accessible by climate change. There has been a lack of attention to the wider forces of globalization driving this attention to the Arctic”*. Therefore, the political drivers and international dynamics will be attempted implemented in this analysis of the Chinese Yamal LNG Project investments.

### ***1.3 Motivation***

During my studies at Nord University and at Moscow State Institute of International Relations, I have been presented with a range of topics covering the energy business, geopolitics, Arctic governance, as well as business development. In my opinion, these questions will only intensify in importance in the years to come.

At the end of my semester in Moscow, we were presented with the opportunity to write our master thesis at East China Normal University, Shanghai, China. Because of this, I began to

look at Chinese involvement in Arctic questions, and I was certain that I had found a topic of utmost relevance.

As a self-proclaimed Near-Arctic State, China has a long history of interests in the Arctic and is now launching BRI as a large-scale strategy of development. These developments are in my opinion capable of changing international dynamics, relations, and development patterns in the years to come. We all ought to see future possibilities, as well as the challenges emerging on the horizon. I hope that my review of the literature on the topic, a collection of data and a thorough examination of the Yamal LNG case will serve this purpose and contribute to our common knowledge.

#### ***1.4 The structure of my thesis***

My thesis is structured in the following way:

Chapter 2 is my methodology chapter. This chapter covers the treatment of data and discussions of my thesis. In this chapter, I cover the data sources, data collection, data treatment, validity and reliability of my data, as well as the weaknesses of my research.

Chapter 3 explains the background information relevant to the discussions later in the thesis. The energy situation of China is the starting point, then the Belt and Road Initiative, The Arctic Policy of China, the Sino-Russian relations, Sino-Norwegian relations will be covered.

Chapter 4 is the chapter describing the Yamal LNG Project, the central case of this thesis. In this chapter, I explain the historical background, the ownership structure, capital providers, and the economic justification for the project.

Chapter 5 is the chapter explaining the theoretical framework for my thesis. I have selected the theories and perspectives that will help answer the problem. In my thesis, these are theories of energy security and of the geopolitics of oil and gas.

Chapter 6 and 7 will be my main discussions chapters. In chapter 6, I try to assess the Yamal LNG Projects' fit with core Chinese strategic goals. In chapter 7, I comment on the consequences of the Chinese Yamal LNG Project investments on the Sino-Russian and Sino-Norwegian relations and the consequences for international flows of energy.

In chapter 8, I try to provide some concluding remarks on the drivers behind the investments. In addition, chapter 8 is the chapter in which I revisit the findings of my thesis.

## **2.0 Methodology**

I will in this chapter explain and justify the methodological choices regarding research design, data collection, interview guide, data analysis, validity and reliability as well as ethical considerations of the research. In the last section, the perceived weaknesses of the research are being described. Some of my methodological choices and, especially when it comes to data gathering and interviews, spring from the fact that I did fieldwork at the East China Normal University in Shanghai. As an example, being in China gave me valuable access to two Chinese scholars for interviews.

### ***2.1 Research Design***

I have decided that a case study design would be the best fit for my thesis. A case study design is according to the well-known authority on case studies Robert K. Yin the “*preferred strategy when ‘how’ or ‘why’ questions are being posed, when the investigator has little control over events, and when the focus is on a contemporary phenomenon within some real-life context*” (Yin, 1994: 1). The research problem “How does energy security concerns play a role in Chinese investment decisions in the Arctic Yamal LNG project?” is formulated in exactly this way, begging a deep understanding of underlying drivers and forces. The approach of my research is hence within the appropriate scope of a case study design.

Following this line of thought, Yin said that “*a case study is and empirical inquiry that a) investigates a contemporary phenomenon within its real-life context, especially when b) the boundaries between phenomenon and context are not clearly evident*” (Yin, 1994: 13). Yin adds that this contrasts with an experiment, where the phenomenon is supposed to be isolated from its natural context. Furthermore, in reference to the quote above, a case study method should be chosen deliberately when you think that the context is important to understand the phenomenon. In writing this thesis, I have tried to thoroughly describe the Yamal LNG project, collected public data on the Yamal LNG project as my case and tried to understand as many aspects of the drivers behind the Chinese investments as I could. While doing this, I wanted to understand the Yamal LNG project and the Chinese goals in relation to their context.

A case study design may include one or more units of analysis, as well as one or more cases (Yin, 1994). In this thesis, I have chosen the Yamal LNG project as my case. I have also collected data from multiple sources and interviewed academic experts on the issues. All these sources of data are my units of analysis. My thesis is hence built as a single-case case study with multiple units of analysis.

## **2.2 Data collection**

A case study may according to Yin (1994) be conducted using both quantitative or qualitative data. This thesis is built on qualitative data collection.

Qualitative research methods attempt to discover what people think and feel about a phenomenon, and what motives lie behind their actions. Said in a different way: “the *qualitative interview is particularly well suited for accessing the experiences, thoughts and feelings of an informant*” (Translated from Dalen, 2011: 13). Another characteristic of qualitative research is furthermore that the selection of respondents is smaller and that the qualitative methods provide a ‘softer’ dataset than quantitative methods do. The collected data are in the form of text or sound and can thus not be directly inserted into an analytical program.

This assignment aims to understand the drivers and mechanisms behind the actions of companies and nation-states in relation to the Yamal LNG project. In other words, I will have to explore how these actors experience the world. Since the goal of the research is to discover the underlying motivations rather than quantifying the extent of a phenomenon, qualitative data will be suitable for my thesis.

Options for data collection. Despite being in China, it has been very hard to interview authoritative sources for my thesis. On the other side, extensive strategy and policy documents have been published from the central Chinese government. The documents used are the speech of Chinese President Xi Jinping to the 19<sup>th</sup> National Congress of the Chinese Communist Party, China’s Energy Policy, China’s Arctic Policy, and the Belt and Road policy documents. They have been freely available, and highly valuable for my thesis. In addition, being in China gave me access to two knowledgeable academics<sup>1</sup>, and interviews with these combined with peer-reviewed research papers will form the second addition to my discussions.

## **2.3 Interview guide**

For this thesis, I chose to prepare a **semi-structures interview** guide (Johannessen, Christoffersen and Tufte, 2011: 145). I had ideas about the topics that would be the most interesting to my thesis. I also wanted to remember to cover all of the points during the interview. I, therefore, outlined a set of questions that I would attempt to cover, but other than that I allowed the interviewee to explain freely. The semi-structured interview format allowed

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<sup>1</sup> I have chosen to keep the identity of the two Chinese academics I interviewed secret and just denote their names as Professor L and Professor S. Their names have been shared with my supervisor who has confirmed the bona fide status of the two interviewees as reputable experts in their respective fields.

me to retain some level of control over the topics, but also allowed me the freedom to pursue any interesting remarks.

#### ***2.4 Data analysis***

The data of my thesis has been analysed by following the traditions of **meaning condensation**. Meaning condensation is a method to simplify the processing of long and complex texts and interviews (Kvale et al., 2015). The authors continue by clarifying that meaning condensation involves a condensation/shortening of the data material into shorter formulations.

During the interviews, I used electronic recording equipment. This was to be able to reproduce the data from the interview accurately and in an unbiased way. After this, I went through the same procedure as with the written documents. I listened through the interview once and subsequently wrote a short and concise version of the interview. The short versions of the interviews are also presented in the appendix at the end of this thesis. Direct quotes from these interviews are provided in my analysis to support my interpretations of what was said.

#### ***2.5 Validity and reliability***

To strengthen the quality of the research undertaken, it is important to consciously keep validity and reliability in mind. This sub-chapter is inspired by the validity and reliability discussions made by Sandberg (2000). The criteria used are communicative validity, pragmatic validity, and reliability as interpretive awareness.

Communicative validity is based on a common understanding. Sandberg sites Kvale, and says that: *“Establishing communicative validity involves an ongoing dialogue in which alternative knowledge claims are debated throughout the research process”* (Kvale 1989, from Sandberg, 2000: 14). For this thesis:

I attempted to build a common platform of mutual understanding. I presented myself and the project before we met and before the interviews begun. When pieces of the background information were unclear or unknown to the informant, I attempted to explain the unclear parts more thoroughly, and seek a common understanding on the matter.

I used only a few but relatively wide and open questions to encourage the interviewee to explain what he felt was important.

I was constantly provided follow-up questions when parts of the answers were unclear, or if I felt the assignment could benefit from even more information on the issue. These questions were important in order to avoid misunderstandings and to achieve clarity during the interviews.

Pragmatic validity “*involves testing the knowledge produced in action*” (Kvale, 1989, from Sandberg, 2000: 14). Pragmatic validity aims to find out whether what is being said actually takes place in the real world. To establish pragmatic validity, I did as Sandberg (2000):

Firstly, I asked follow-up questions requesting practical examples of what was being said. While reading the published Chinese documents I also attempted to simultaneously look at examples where what was being written also took place. Such an approach allowed me to read and perform interviews critically.

Secondly, I rephrased what the interviewees said and presented my interpretations back to the informants. I then asked for their opinions on my interpretations. If the feedback was negative or they appeared disagree with my interpretation, I asked the informants to correct my misunderstandings. During my interviews, misunderstandings occasionally happened. These misunderstandings were subsequently corrected as a part of the conversation.

Reliability as interpretative awareness “*means acknowledging that re- searchers cannot escape from their interpretations but must explicitly deal with them throughout the research process*” Sandberg (2000: 14). To do this, I:

Primarily asked questions posed with what and how to encourage the interviewees to explain what the topic of discussion means to them.

At the beginning, I tried to treat all statements as equally interesting. This was also done while reading the official documents from Chinese authorities. All sections relating to my topic were read thoroughly and treated as equally important initially. This was done in order not to miss out on important details during my analysis.

I asked follow-up questions to encourage the informant to more thoroughly express what they meant by their statements.

I worked to improve the validity and reliability of my research by adopting a conscious approach to these questions, and to undertake concrete actions. By following the actions of Sandberg (2000), I aimed to achieve two types of validity and one type of reliability.

## **2.6 Ethical considerations**

Ethical considerations of the research conducted should be considered to avoid any wrongdoings. According to Johannessen, Christoffersen and Tufte (2011: 93: translated) “*Ethics are about principles, rules, and guidelines for evaluations of whether actions are right or wrong. Such rules and guidelines are naturally valid for scientific research as for all other*

*activities in society*” For me, it is important that the research conducted is done in an ethically correct way. A series of recommendations for ethically correct conduct is described by Johannessen, Christoffersen and Tufte (2011). In doing my research I followed the relevant recommendations, and in this sub-chapter, I will present the measures I have undertaken to help mitigate ethical problems.

I presented the informants with information about the study before the interviews so that they were comfortable with the purpose of my research and what we would cover during the interview.

I asked for permission for recording the conversation electronically. This way no recordings were done without the explicit consent of the interviewees.

I informed the informants about their independence and right to stop the interview. I did this by telling the interviewees that they could stop the interview at any time and pull their statements at any time without any objections.

### ***2.7 Methodological limitations***

There are a couple of challenges and weaknesses facing this research. First, it is hard to directly access and interview official Chinese policymakers. My analysis, therefore, must rely on officially published and openly available information, as well as academic commentaries and newspaper articles.

Secondly, to create a holistic and comprehensive analysis of energy drivers within the China’s Arctic Policy and the Yamal LNG Project, I found it necessary to include a range of other dimensions of Chinese policy. In my opinion, no analysis of energy questions would be complete without discussing the various competing drivers. Nevertheless, including them all may make the thesis seem unfocused in its scope. To tackle this, I attempted to make a compromise between focus and completeness, but depending on the reader, my thesis may still be open for criticism in this aspect.

### **3.0 The backdrop**

This chapter will provide necessary background material for answering the research question presented in part 1.1 above. It consists of the following sub-sections; the Chinese energy situation; the Belt and Road Initiative (BRI); China's Arctic Policy and; Sino-Russian and Sino-Norwegian relations.

#### ***3.1 The Chinese energy situation***

- *Understanding the Chinese energy situation is important for understanding the Chinese view on its energy policies.*
- *China is increasingly concerned with the harmful environmental impact of coal consumption and is looking for substituting domestically produced coal with natural gas, both domestic and imported.*
- *Sourcing energy externally makes China dependent on foreign partners and long transportation routes. China is therefore concerned about its energy security.*

China is today the largest consumer of energy in the world (BP Energy Outlook 2018 Edition, 2018: 57) It is also a net importer of both oil and gas and will depend on sourcing these commodities from around the world. The continued sourcing of energy and raw materials is important for the continued economic growth of China.

In the energy strategy of (IOSCPRC, 2012), it is stated that China is experiencing a grave challenge to its energy security. As the economy of China grows, and the domestic resources of China are produced, the degree on import dependency on energy resources is increasing. As an example, petroleum import dependency has increased from 32% in the early 2000s to 57% in 2012 (IOSCPRC, 2012).

As we can see from the following illustration, China is highly dependent on the Middle East for its petroleum supply. The following chart shows the world oil transportation by sea. The estimates in this chart are in million barrels per day and include other petroleum products than crude oil as well.

## Daily transit volumes through world maritime oil chokepoints



All estimates in million barrels per day. Includes crude oil and petroleum products. Based on 2013 data.

Illustration 3.1: Daily transit volumes through world marine chokepoints per 2013 Source: Metelitsa and Mercer (2014).

Petroleum from the Middle East must pass through both Strait of Hormuz and the Strait of Malacca. In the Energy Strategy of China, it is written that “*marine transportation of petroleum and cross-border pipeline transmission of oil and gas face ever-greater security risks*” (IOSCPRC, 2012: Part I). This implies that China is growing concerned over its dependency on foreign supply of energy.

According to the strategy, it is especially important to work to ensure stability in the Middle East. The energy strategy of China claims that the stability of oil producing and exporting countries is a responsibility of the international community and should be ensured through dialogue and consultation. Trade routes should according to China be guarded against disruptions. Military means, geopolitical conflicts and politicizing energy issues should be avoided if possible (IOSCPRC, 2012: Part IX).

Not only petroleum but also gas is sourced across the oceans, as seen in the following chart:

## World LNG Trade (2015)

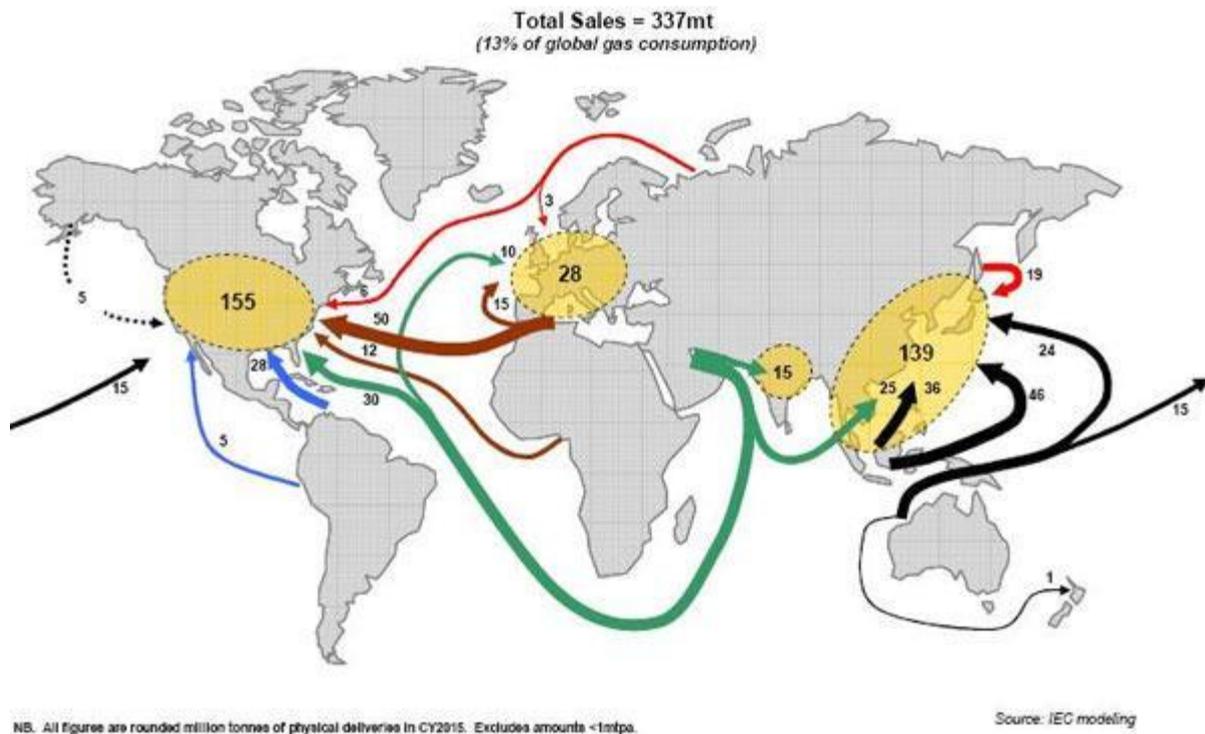


Illustration 3.2: World LNG trade of 2015 Source: IEC modelling (found in The Castlegar Source (2015)).

The gas sourced from the Middle East will be facing the same challenges as other petroleum products from the region. The South-Eastern Asian market is as we can see in the illustration above also dependent on Australia for its LNG. Australia is traditionally a US ally and may be holding some interests unaligned with Chinese interests. As an example of the latter, in early 2018 Australian warships navigated in the South China Sea, causing an encounter with the Chinese Navy (Wen and Sonali, 2018).

There has been growing unrest in Australia due to Chinese investments in Australian assets (Smyth, 2018). In addition, there is some level of distrust between Australia and China with regards to national security, as indicated by the recent Australian ban on both Huawei and ZTE on installing of 5G equipment in Australia (Kharpal, 2018).

Price fluctuations on the international markets are also mentioned as challenges to the domestic supply of energy. When prices change, so does the degree of the affordability dimension of energy security, which we will discuss on a later point.

The energy strategy of China from 2012 calls on China to “...continuously improve its energy policy, and strive to achieve a comprehensive, balanced and sustainable development of its energy, economy, society and eco-environment” (IOSCPRC, 2012: Part I). This quote and the

general tone in the energy strategy document of China implies that China is aware of energy security challenges and is taking actions to improve its energy security situation.

As a part of achieving eco-environmental sustainability, the Energy Strategy of China presents natural gas as a cleaner and more sustainable source of energy for the future, than coal is today. China is aiming at reducing the consumption of coal and increase the use of gas in its energy mix. This will according to the energy strategy be a more environmentally sustainable solution.

The BP Energy Outlook 2018 shows the predicted future energy consumption growth patterns of China, based on current policies and trends.

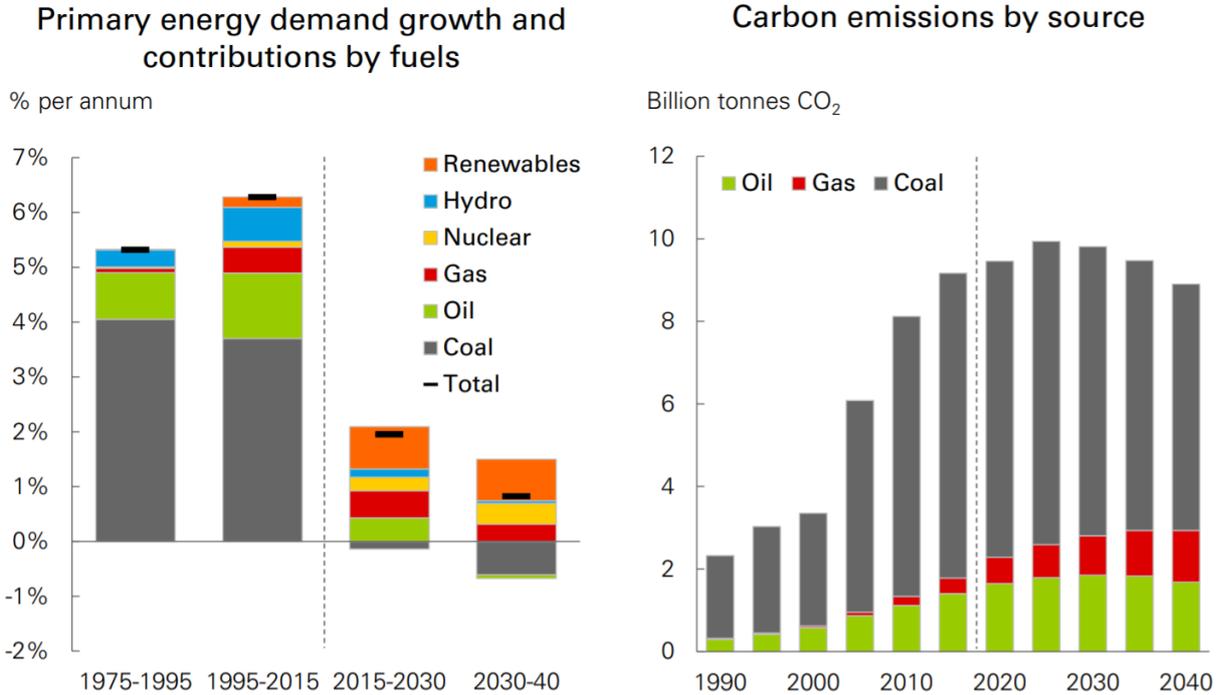


Illustration 3.3: Energy consumption growth of China. Source: (BP Energy Outlook 2018 Edition, 2018: 56).

The illustration to the left shows that energy demand in China will continue to grow, but at a lower rate than during the previous years. Unlike in the past, energy consumption growth is not driven by coal anymore. Rather, coal is likely to hit a period of decline. Furthermore, renewables will constitute the lion share of future growth, along with nuclear energy, oil and gas.

The illustration to the right captures the same picture but is given by emissions by the source of energy. The Chinese strategy of reducing coal in energy production and increasing the amount of energy produced with gas and alternative sources is expected to reduce the total emission of CO2 in the long perspective. During this same period, the production of energy will

be increased using non-pollutive energy sources as well as gas, and that total energy consumption thus is rising - as seen in the illustrations.

### **3.2 The “Belt and Road Initiative”**

- *The Belt and Road Initiative is a comprehensive investment initiative of the Chinese government which is massive in both scale and scope.*
- *The BRI has been proposed along the lines of the Northern Sea Route as well. Understanding the BRI is important for understanding the priorities of the Chinese government in relation to investment on the Eurasian continent.*
- *With a few noteworthy exceptions as the US and Japan, the BRI has enjoyed a high level of interest and support in prospective countries, even though there has been a higher degree of scepticism vis a vis the initiative especially in some South Asian Countries.*

The Belt and Road Initiative is one of the most important strategies of Chinese international policy today (Swaine, 2015: 3). BRI is aiming to encompass in excess of 60 countries along the routes and lines of the initiative (Swaine, 2015: 2). The AidData working paper number 46 (Dreher et al., 2017: 1) claims that the BRI is promising more than 1 trillion USD of investments to states included in the initiative. The initiative is not limited to an exclusive number or set of countries, it is self-proclaimed as being open and inclusive in its nature, inviting participation from all countries which could be interested. According to the BRI policy documents which were jointly published by the Chinese National Development and Reform Commission (CNCRC), Chinese Ministry of Foreign Affairs, and the Ministry of Commerce of the People's Republic of China, the *“The Initiative is open for cooperation. It covers, but is not limited to, the area of the ancient Silk Road. It is open to all countries, and international and regional organizations for engagement, so that the results of the concerted efforts will benefit wider areas.”* (NDRC 2015: part II - Principles).

A specific point of emphasis for the policy documents and the message of authoritative sources is the importance of mutual respect, common benefits and peaceful development. This can be observed in the following quotes from official sources:

*“It (BRI) upholds the Five Principles of Peaceful Coexistence: mutual respect for each other's sovereignty and territorial integrity, mutual non-aggression, mutual non-interference in each other's internal affairs, equality and mutual benefit, and peaceful coexistence”* (NDRC 2015: Part 2 - Principles).

With other words, the Chinese government envisions a future in which the interaction between states is harmonious, and states generally can operate freely within their own jurisdictions.

The Chinese wish of developing in close relation with other countries, as well as the Chinese ambition for the world to prosper may be seen in the following quote made by Chinese President Xi Jinping in front of the 19<sup>th</sup> CCP National Congress. He said that

*“We call on the people of all countries to work together to build a community with a shared future for mankind, to build an open, inclusive, clean, and beautiful world that enjoys lasting peace, universal security, and common”* (Xi, 2017: 52).

The official BRI policy outlines five major goals for cooperation:

- promote policy coordination.
- Promote facilities connectivity.
- Promote unimpeded trade.
- Promote financial integration.
- Promote people-to-people bonds.

As we can see in the following statement by Li (2015), the major goals may be divided into specific pieces of soft and hard infrastructure. He says that:

*“More specifically, the implementation of the initiative would involve trade and investment facilitation measures; infrastructure development (railways, highways, airports, ports, telecommunications, energy pipelines, and logistics hubs); industrial and sub-regional economic cooperation (primarily overseas industrial parks and economic corridors); financial cooperation; and the promotion of people-to-people relations”* Li (2015: 3).

Deriving from the policy areas presented in the policy documents, as well as the clarifications provided by Li (2015), one may say that the scope of the initiative is extensive. The implications will be seen in many sectors of the countries adjacent to the initiatives.

A warning on the scope of understanding of the initiatives is however voiced by Professor Blanchard and Professor Colin Flint with the East China Normal University and Utah State University respectively. They say that researchers often make the mistake of discussing the initiatives as if they were one single initiative. They are however two initiatives, namely the Silk Road Economic Belt, as well as the Maritime Silk Road of the 21<sup>st</sup> century – hence Belt and Road. They should also in many respects be understood as two different initiatives, as their geographical coverage and scopes are different. Continuing their lines of thought, they claim

that researchers in spite of their complexity discuss the initiative generally, and do not focus on a specific country or sector (Blanchard and Flint, 2017: 225).

Following is an illustration of the main paths for the initiative:

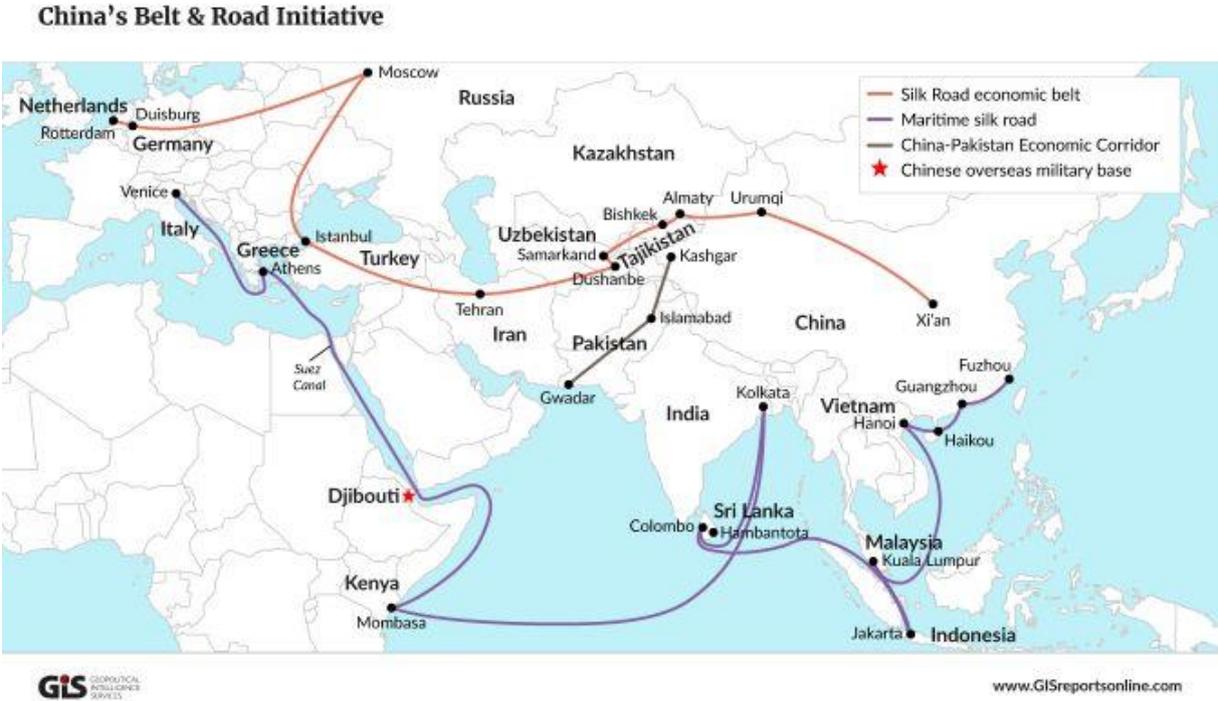


Illustration 3.4: The main lines of the BRI. Source: [gisreportsonline.com](http://gisreportsonline.com) (n.d).

The project primarily consists of two distinctive routes stretching from the east to the west, namely the Maritime Silk Road Initiative (MSRI) and the Silk Road Economic Belt (SREB). The MSRI is the purple route displayed in the illustration, stretching from South-East Asia to Western Africa and further to Europe. The Silk Road Economic Belt is the orange route showed in the illustration stretching from China through the Eurasian continent on its way to Western Europe. The project consists of a series of infrastructure projects along its way such as railways, roads, and power grids. Even though the initiative is presented as two main routes, the SREB creates prioritized economic corridors going in six geographic directions, increasing connectivity with adjacent countries and placing China at its very centre.

In addition to the two best-known and most central initiatives, a third route named the Ice Silk Road was proposed by Xi Jinping in July 2017. This route was envisioned to go north and above the Eurasian continent along the Northern Sea Route in the Arctic. Until now, however, Russia has remained slightly hesitant about those prospects (Lukin, 2018). The Northern Sea Route is depicted in the following illustration:



Illustration 3.5: The location of the proposed Polar Silk Road. Source: The Arctic Institute, found in The New Daily (2018)

The Yamal LNG which is the central case of this thesis is located at the port of Sabetta displayed close to the centre of the illustration above. The project is partly owned by the Silk Road Fund, and thus linked with the BRI. The fact that the Yamal LNG project is the single biggest Chinese investment in Russia does present an interesting point in the relations between the two countries (Lukin, 2018). The Yamal LNG project does not follow the two main lines of the BRI but is located along the proposed Ice Silk Road. This fact may also be taken as a piece of evidence on the evolving nature of the BRI and Chinese foreign relations.

In writing my thesis, I will take the warning of Blanchard and Flint into consideration, and strongly narrow the scope of my investigations. I will primarily focus on the interactions

between the strategies of China and the Russian energy sector, and the Yamal LNG case specifically.

### ***3.2.1 Historical background***

In his speech in Kazakhstan in 2013, the Chinese president Xi Jinping and the government of China presented the idea of the revival of the ancient Silk Road. Shortly after, in another speech during a state visit in Indonesia, the President presented the idea of launching a maritime silk road. Hence the idea and policy of the Belt and Road initiative were unveiled.

Following the initial proposal to launch the BRI, the National Development and Reform Commission, the Ministry of Foreign Affairs, and the Ministry of Commerce of the People's Republic of China went together in 2015 and published official BRI policy documents. These documents provide an overview of the initiatives and explained their overall purpose and philosophical orientation.

In December 2017, a clear intent to continue with the BRI as a high priority in international relations was once again shown with the signing of a participation agreement between the special administrative area of Hong Kong and mainland China. The agreement obligated Hong Kong to fully participate in the BRI and help its realization on six fields; financing, infrastructure and maritime services, trade and facilitation of foreign investment, people to people bonds, development of Hong Kong industries, and improve relations and communication between Hong Kong and Mainland China. (Hong Kong's Information Services Department, 2017).

During the time since its creation as an outspoken policy of the Chinese Government, a wide range of projects have been launched or pledged within the scope of the BRI. Examples of such projects could, for instance, be the opening of a train service linking Kouvola in Finland with Xi'an in China (Chinadaily.com.cn, 2017), construction of a high-speed railway linking Moscow and Kazan (Lu and Mo, 2017), and a railway line between Ethiopia and Djibouti was opened in 2018 (Li, 2018). According to (Marston, 2018), nearly 500 billion USD are reported to already have been pledged for investment within the framework of the BRI.

### ***3.2.2 Institutions and practical implementation:***

According to CNBC, the funding requirement in the Asia-Pacific region alone is massive. For BRI to come to fruition, estimates quoted by CNBC run from 4 to 8 trillion USD (CNBC, 2018). As tools to realize and fund the initiative, the Chinese government has founded a series of institutions. In this section, I will name the most central funding vehicles of the Belt and Road initiative. Several of these funding vehicles are directly or indirectly associated with the Yamal LNG project (See chapter 4.2).

The Silk Road fund is a 40 billion USD fund which was established in late 2014. The fund is directly controlled by the Chinese government, and its objective is to directly support the Belt and Road initiative (Silkroadfund.com.cn, n.d.).

The Asian Infrastructure Investment Bank (AIIB) is a financial institution created with the purpose of developing the BRI is the Asian Infrastructure Investment Bank (AIIB). The AIIB follows the lines of the BRI and has attracted a wide range of member countries. Prominent economies like the whole of BRICS, four of the G7, most of the European Union, Indonesia, and Australia are all members, in addition to a long list of others. As of now, and of special interest to this thesis, both Russia and Norway are members of the AIIB.

The New Development Bank is another financial institution which promotes international investment and cooperation. According to HSBC is working for many of the same goals as the BRI (CNBC, 2018). The bank has an initial capital of 100 bn USD and is controlled by Brazil, Russia, India, China and South Africa. The bank was fully operational by the beginning of 2016 (New Development Bank, n.d.).

The Export-Import Bank of China is another institution controlled and employed by the Chinese government to fulfil the objectives of the BRI. According to its own web-page, it is *“a bank directly under the leadership of the State Council and dedicated to supporting China’s foreign trade, investment and international economic cooperation”* As a part of its responsibilities, it declares that the bank is *“Pursuing win-win progress with other developing countries by fulfilling assistance pledges”* (English.eximbank.gov.cn, 2014). As we can see, the mission of the bank is very much in line with the policy of the Chinese government, and the idea behind the BRI.

Along with the Export-Import Bank of China, the China Development Bank has been encouraged to contribute with 200 bn USD to support the Belt and Road. This is in tandem with

a pledge by the four biggest non-commercial banks of China to contribute tens of billions of dollars (CNBC, 2018).

In addition, the Chinese Government encourages private business and capital owners to contribute to the projects and to help the development of the Belt and Road initiative. As we can see above, the Chinese Government has thus taken aim at supporting the project with real and compelling bodies of project financing and to some extent cover parts of the investment demand.

### ***3.2.3 Reception of the world to BRI***

In talking about the Belt and Road initiative, the Chinese Government generally emphasizes the commonly shared benefits expected from the initiative. In the speech of President Xi Jinping to the 19<sup>th</sup> national congress, the president said that China is committed to the common prosperity of mankind.

With the potential for other consequences of the initiative than just common development, various groups and countries may see the BRI in a different way than the official message made by the Chinese government. As an example of such questioning of the intentions behind the initiative, I offer the following quote found in an article about Chinese views on the BRI:

*“Although China has tried to downplay the strategic dimensions of the initiative, in private conversations many Chinese scholars would suggest that the plan is indeed partly a response to the strategic realignments that have been taking place in China’s neighbourhood in the past few years, particularly the US rebalance to Asia”* (Li 2015: 3).

In this quote, Li (2015) claims that some Chinese observers have observed the possibility that the BRI may have a function as strengthening the Chinese strategic grip on its neighbourhood. The author continues to say that it is an opinion in the foreign policy community of Beijing that China should have a clearer voice on the foreign policy stage than before. Whether these strategic observations run in counter to the Chinese message of common development, benefits and prosperity is however not covered in this thesis.

Along with the idea of China increasing its strategic importance in Asia and countering US activities, it is interesting to make a point of the relations between OECD countries and China. As we can see from for instance the membership list of the AIIB, both the US and Japan are uninterested in signing up with the bank. They appear to be unwilling to support the Chinese ambitions in this regard.

If we on the other side look to the long-standing strategic partners of the US, many of them are already members. This is true for many European countries, Canada, Australia, South Korea, Turkey and Saudi Arabia. This means that many of the traditional allies of the US are supporting the initiative and opening themselves for influence by the Chinese Government. According to Wilson (2016: 114), Rozman (2014) argued that both China and Russia see the USA as a hegemonic and existential threat.

For various reasons, **Russia** was initially slightly hesitant to support the BRI (Flake, 2013). Russia considers the Arctic region to be a clear national competitive advantage, and development of the region is a top priority. Russia has therefore been reluctant to allowing China too much leeway in the Arctic (Flake 2013).

In addition to the Arctic regions, development of the eastern regions is regarded as important for the development of the country and Russian prosperity. Furthermore, relations between Russia and China have been characterized by fundamental scepticism and uncertainty of intentions.

Russia has in the early 2010s seen Chinese rapid growth in importance in the Central Asian region and launched a series of measures designed to keep the Central Asian region as a traditional Russian sphere of influence close to Moscow (Freeman, 2017).

However, Chinese influence in the region continued to strengthen, and investment, trade and political contact expanded. With the stand-off with the West over Ukraine and Russian involvement in Syria, Russian influence in the Central-Asian region may be declining (Freeman, 2017). Russia has recently increasingly realigned its foreign policies and organizations with the Chinese ones and started participating in the BRI. An example would be the decision in 2015 to link the Eurasian Economic Union (EEU) with the BRI (Wilson, 2016).

An important example of Chinese investments in Russia put into fruition is the **Yamal LNG**. The importance of this BRI-linked project to the Russian development of the Arctic was as we saw above emphasized by president Vladimir Putin. With the Chinese Yamal LNG project involvement and Northern Sea Route Shipping, it could look like Beijing is developing the first small steps of its proposed Ice Silk Road. Even though Sino-Russian relations of today have been praised during dialogues, what the relations will be in the future, and what they amount to in practice, remains to be seen (Bennett, 2016).

**India** is another major regional Asian power, and it has been sceptical to certain elements of the Chinese BRI. Among the most questioned parts of the BRI is the China-Pakistan economic corridor and the debate over China's string of pearls. Pakistan and India are traditionally unfriendly in their relations, and the economic corridor would run through the disputed and Pakistani-occupied Kashmir region (Brewster, 2016).

India sees control over the Indian Ocean as very important for national security, and the Ocean has been hard to exercise control over for other powers. India is now cautious of China expanding their reach into the Indian Ocean by cooperating with surrounding states like Sri Lanka and Pakistan. The fear is that ports constructed by the Chinese in these countries may be used to impose military dominance in the region, and that improved Chinese connectivity with the Indian Ocean might breach the barriers of this relatively closed off ocean (Brewster, 2016).

### ***3.3 The Arctic Policy of China***

- *Understanding the Chinese interests in the Arctic is important for understanding its present and future actions in the region. The investments in the Yamal LNG project is an example of such an action.*
- *China has published an official policy paper on the Arctic, and China has clear interests to pursue in the region. Examples are scientific research, shipping, exploitation of fishery resources and other natural resources.*
- *Although China promises cooperative conduct in the Arctic, there are some questioning on how China would operate in the Arctic as a partner.*

Chinese interest in Arctic questions is higher than for any other non-Arctic state, and it is growing. In this regard, Flake (2013: 681) says that “*in the past decade, Chinese interest in the Arctic has steadily surpassed all other non-Arctic nations*”. He justifies this claim by counting the total number of published articles on the Arctic as well as levels of Arctic research funding of non-Arctic states.

A couple of years before the launching of the official White Paper on China's Arctic Policy, Bertelsen and Gallucci (2016) made an interesting remark on Chinese interests in the Arctic. The authors argue that even though the presence of China in Arctic questions and discourse is strongly felt by the relatively small Arctic community, the interest of the Arctic within China itself is rather low. China is interested in many prospective areas and regions. The interest that the Chinese harbour for the Arctic, is mostly explained in energy, resource and transport terms,

and as a contingency plan or a hedge against unwanted occurrences (Bertelsen and Gallucci, 2016: 3).

The first ever official White Paper on the Arctic Policy of China was published on the 26<sup>th</sup> of January 2018. In this white paper, China outlines the policy it makes in relation to the Arctic, as well as the expectation it holds on the development of the region. China would like for the Chinese view to be recognized by the Arctic states, and for China to be able to operate there on the basis of their interpretations of international laws and conventions. In the opening section of the Arctic Policy, the Chinese State Council states that China in accordance with international treaties and law has a multitude of rights in the Arctic area, in spite of having no territorial sovereignty in the Arctic. The listed rights include *“scientific research, navigation, overflight, fishing, laying of submarine cables and pipelines in the high seas and other relevant sea areas in the Arctic Ocean, and rights to resource exploration and exploitation in the Area”* (SCIO, 2018: Part I). Furthermore, the Policy continues to list the rights granted signatory states under the Spitsbergen treaty, namely freedom to enter and access the islands, as well as hunt, mine or fish on equal footing as other signatory states and in accordance with the local laws.

One of the arguments for the rights of China in the Arctic is that climate change research in the Arctic is of importance to China and that climate change will impact us all. China says that the retraction of Arctic ice already has led to changes in the environment, and that continued ice melting may lead to further adverse effects. However, in the same section, China points out how the retraction of the ice may lead to commercial benefits and possibilities for furthering development. Changes will according to the policy be felt strongly in global shipping, trade and energy supply. In relation to all of this, it is said that *“the international community faces the same threat and shares the same future in addressing global issues concerning the Arctic”* (SCIO, 2018: Part I). In other words, China will be affected by the governance and actions undertaken in the Arctic and has an interest in involving itself in the region.

As stated in the section on the Chinese energy situation, China is in great need to source energy for its economy. The amount of energy resources assumed to be located in the Arctic is impressive (USGS, 2008). This makes the region look attractive as a source of energy supplies. However, the estimates of the energy content of the Arctic do however carry some methodological limitations and uncertainties.

The Arctic is recognized by many as being vulnerable to external influence. This is according to China’s Arctic Policy also a part of Chinese awareness. Hence, political regulations may get

in the way of production of petroleum. Another obstacle is the physical characteristics of the Arctic themselves, as for instance temperature, ice and remoteness. The Technology and equipment required for production in these areas may prove to be very expensive (Jakobsen, Loe and Swanson, 2014). Otherwise highly attractive reservoirs may, therefore, prove to be economically unavailable. This all serves to reduce the Chinese interest in Arctic resources, even though it appears to be keeping its options open. This uncertainty about the region and the Chinese approach to that uncertainty can be seen in the following quote:

*“If production costs in the Arctic are significantly higher than elsewhere, there is little incentive for China to invest in infrastructure, besides supply diversification. The same goes for shipping and the Northern Sea Route: it will only be interesting if it can be scaled up and provides a distinct cost advantage compared to the Suez route”* (Jakobsen, Loe and Swanson, 2014: 18).

The Yamal LNG case production wells are located on land, and the project may turn out to be an example of an undertaking profitable for the Chinese Government.

Shipping is specifically covered by China’s Arctic Strategy. China would like access to the waters and navigate them in accordance with domestic and international laws and treaties. China sees the Arctic as a highly prospective region for improving their connectivity with the world and thus improving its competitiveness on the world stage. China says that it respects the rights and authorities of the Arctic states but upholds that the waters should be regulated by international laws, agreements and treaties, and thus be open to all states of the world. China would like for disputes to be settled under international frameworks.

On a similar notion, China’s Arctic Policy stresses hopes for joint cooperation on building a “Polar Silk Road”. China wants to work together with all parties to produce knowledge about the Arctic, work out procedures and navigational codes for the Arctic area, and to build the necessary facilitating infrastructure for the realization of the Polar Silk Road.

Along with shipping, access also includes access to the fisheries in the Arctic high seas. China sees the potential for Arctic waters to increase in importance in the future, as world waters get warmer and fish stocks migrate to the north. Along with a claim to utilize living resources, it would also like to work together with other nations to maintain them on a sustainable level and be a responsible partner in the Arctic.

In this regard, China envisions the development of an internationally binding legal agreement for the management of Arctic fisheries. China maintains that it is committed to preserving biodiversity in the Arctic oceans, as well as sharing the benefits from Arctic fisheries in a fair

way. The last point may be interesting for other fishery nations to take note of, considering the sheer size of the Chinese Fishery Fleet. In 2015, measured by the total catch of wild fish in metric tons, the Chinese ranks first with a staggering 17,59 million tons (Statista, 2018). By comparison, the second largest fishery nation would be Indonesia with only 6,49 million tons. The US ranks third with 5,04 million tons, Russia ranks 6<sup>th</sup> with 4,46 million tons, and Norway ranks 9<sup>th</sup> with 2,29 million tons (Statista, 2018). No other Arctic states make it to the top 10 list over fishery nations.

Relating to Arctic mineral, energy and other non-living resources as well as tourism, China aims to be a responsible partner working with the Arctic states for their development. China states that it respects the sovereignty of the Arctic states and is committed to following local laws and to maintaining good conduct.

As a last point discussed in China's Arctic Policy, China stresses the importance of peace and stability in the Arctic. It stresses its commitment to help preserve peace and stability, promote a peaceful settlement of disputes in accordance with international laws and to mitigate security concerns. Safety work is also interesting with regards to Chinese Arctic tourism. China has a lot of citizens with a desire to see the Arctic zone, and China would like to work together with other Arctic states to ensure their safety while travelling.

### Scepticism

In a recent briefing to the European Parliament, China's Arctic Policy is being commented on. On several issues, the briefing questions the Chinese message, as well as analyses the Chinese intentions. According to the European Parliament briefing, the Chinese government has a tendency to convey two slightly different messages to the internal and external audiences (Grieger, 2018). The message presented externally usually presents the Chinese objectives in a more favourable and desirable way for foreign stakeholders. As an example, it is mentioned that the environmental focus of the English version of China's Arctic Strategy differs slightly from the scholarly and political discussions being held within China, where the focus is on securing access to the abundance of Arctic resources. The emphasis on environmental protection and sustainability presented in China's Arctic Policy is thus one of the issues under questioning. It is stated that *"It remains to be seen what China's 'lawful and rational use of Arctic natural resources' will mean in practice"* (Grieger, 2018).

Another Chinese claim that is being challenged in the briefing of the European Parliament is the importance China places on the validity of international laws. The example employed to

drive this point home is how China disregarded the ruling in the dispute between China and the Philippines over shipping claims in the South China Sea. At the same note, it is said that China also ignored the ruling on the environmental impact of building the artificial islands in the South China Sea. Thus, it is suggested that China only will follow international laws and rulings when they are in line with their own national interests (Grieger, 2018).

With the publishing of China's Arctic Policy, it can be expected that China will continue to pay interest to Arctic developments and questions. China has attempted to portray itself in a favourable and responsible way, but its intentions are being questioned by some. As stated in the European Parliament briefing; "*China will be measured against its actions rather than its rhetoric*" (Grieger, 2018). The future relationship between Chinese words and actions in relation to the Arctic is thus put into question.

### **3.4 Sino-Russian relations**

- *The Sino-Russian relations have historically gone from good to bad in cycles. At the present the relations could be characterized as good but pragmatic. The partnership is as an example dubbed a 'marriage of convenience' by observers.*

According to Bennett (2016), the relationship between Russia and China has been changing throughout history. In the early 19<sup>th</sup> century, Russia supplied China with help and know-how in building its infrastructure, such as railways. The relations soured however during the Chinese Cultural Revolution and made cooperation practically impossible. With the normalization of relations after the fall of the Soviet Union and the recent world developments, relations are once again growing strong.

A sign of strategic cooperation between the two nations can be observed in the Russian Pivot to the East, and the number of Chinese projects recently launched in Russia. Among them are the construction of the Moscow-Kazan high-speed railway and the construction of the new natural gas pipeline 'Power of Siberia' from Russia to China (Tore, 2018) (Paraskova, 2018).

Not everything is, however, all good. According to Flake (2013) there are some tensions and differences in interest between the two countries. As an example, he describes the reluctance of Russia to allow China into the Arctic Council as an observer state. Russia finally agreed to grant China observer status in May 2013, but only after being pressured to do so by other Arctic states, and after major changes to the requirements for becoming an observer state.

Especially rights to shipping in the Arctic constitutes a point of division between the two countries. For Russia, the Arctic may be one of the only clear points in which Russia has an

advantage over China (Flake 2013). In terms of population, GDP and military, China has an upper hand. China on the other side is a major trading nation and may make substantial savings if it is allowed to navigate the Northern Sea Route along Arctic waters. It could also reduce its dependency on the supply routes going through the heavily trafficked and mostly US controlled Strait of Malacca. According to Flake in claiming indiscriminate navigational rights in the Arctic, China may have a strong economic incentive, as well as a sound claim in terms of international law.

Bertelsen and Gallucci (2016) argue that following the recent change in the political climate between Russia and the West following the conflict in Ukraine, Russia has been cut off from Western investment and technology for offshore oil and gas ventures. In addition, Europe has started looking into diversifying their supplies of energy resources, and thus strengthening its energy security. This leaves Russia with few other alternatives than to turn to China for funding, technology and new markets. According to the authors, China knew about the situation of Russia, and the disparity of dependence, and was able to make agreements on long-term gas deliveries with highly favourable terms. According to Wilson (2016), there was a hope or expectation in the Kremlin that the consequences from the Russian standoff with the West would be mitigated by the Chinese, but this has not happened. It is pointed out that the Chinese investment decisions are driven by objective profitability calculations and a desire to source resources. With the options of Russia being limited, the dependency and negotiation between Russia and China may have been hard to manage.

In addition, there seem to be tensions and especially Russian suspicions of the intentions of the Chinese in Eastern Russia. Chinese are interested in investing in resources and agricultural production on the eastern Russian territories, but Russia even though in need of the investment and development Chinese involvement would incur, is afraid of losing control over their territories following extensive Chinese activity. This may also be why very few projects of cooperation have been fully completed along the border between Russia and China

Bertelsen and Gallucci (2016) are nevertheless in the opinion that the continued growth and maintenance of the Chinese economy will make China get further into energy and resource extraction projects in Russia (Bertelsen, Gallucci, 2016). This trend will most likely be strengthened with the recent involvement and inclusion of Russia in the BRI, as well as the relatively recent exclusion of Russia from the Western community following their involvement in eastern Ukraine and Crimea.

### ***3.5 Sino-Norwegian relations***

- *The Sino-Norwegian relations have historically been good, up until a recent down-turn due to the awarding of the Nobel Peace Prize to the Chinese dissident Liu Xiaobo.*
- *As of 2018, the relations are improving rapidly with top state visits and signings of cooperative agreements.*

Relations between Norway and China have traditionally been good. According to Sverdrup-Thygeson (2016), Norway was in 1950 among the first countries to internationally acknowledge the new Chinese rule. It established its diplomatic mission in China in 1954, and on the background of the Cold War and some ideological differences, the relations developed to be relatively good. The researcher continues to explain how the relations survived the awarding of the Nobel Peace Prize to the Dalai Lama in the 80's, and how they were strengthened before and after the turn of the millennium. Both countries could offer something that the other party wanted, and Norway and China were engaged on high political levels (Sverdrup-Thygeson, 2016). This all ended with the awarding of another Nobel Piece Price, this time to the Chinese dissident Liu Xiaobo. Liu Xiaobo was an outspoken opponent to the Chinese government and was put under house arrest for his political views. China was therefore deeply upset by Norway awarding a Chinese dissident the Nobel Peace Prize.

Norway is an Arctic country, and during the time of cold relations between the two countries, China approached the Arctic states for a seat at the table of the Arctic Council. Flake (2013) says that China has been doing courtship with particularly Russia as a perceived gatekeeper to the Arctic, but also other Arctic countries than Russia to get this access to the Arctic Council. Russia was very sceptical about allowing China observer status in the Arctic Council, and the requirements for being allowed an observer seat was subsequently changed by the Arctic states. Despite diplomatic problems with Norway, and scepticism from Russia, it was allowed observer status with the Arctic Council in 2013.

The reasons why Sino-Norwegian relations are interesting to this thesis are several. One reason is that Norway is positioned along the Chinese proposed Polar Silk Road. Thus, cooperation between Russia and China in the Arctic may influence Norway as well. An increase in the flow of goods along this Arctic route may present opportunities and challenges for Norway as a shipping and coastal nation. Cooperation on port development or maritime technologies may be examples of potential future possibilities. The need for sufficiently developed emergency and rescue capacities may, on the other hand, constitute examples of potential challenges. Another reason for Norway to be interested in this relationship is that it may be possible to

follow the Russian example and consider increasing cooperation with China in the Arctic, thus deriving indirect advantages from a Russian Chinese partnership. Opposed to this would be the relative loss of importance of Norwegian Arctic offshore expertise against Chinese technologies. If the Sino-Russian cooperation develops further, the Russian desire for Norwegian expertise may decline.

In addition, Flake (2013) says that the Sino-Russian partnership may set the tone for the dialogue between the Arctic and non-Arctic countries in the years to come. As the relations between China and Russia are developing in the Arctic, other countries may want to seek opportunities in the Arctic as well and thus increase their diplomatic probing towards Arctic states.

#### **4.0 The Yamal LNG case**

The Yamal LNG project is the central case for this thesis. It is a major Liquefied Natural Gas project situated on the Yamal Peninsula in the Russian Arctic. The project includes the construction of an LNG production terminal, development of a gas field, construction of an airport, as well as construction of ice-class LNG tankers for transportation.

The investment made into the project was in 2015 estimated at a total of approximately 27 billion USD (OilPrice.com, 2018). The initiator and largest shareholder of the project is Novatek. The company was targeted by sanctions on finance and technology from the West which made the project harder to achieve. Despite of the sanctions, the project managed to remain afloat and was able to open initial production in 2017. The oil and gas giant Total is a major investor in the project. According to the Registration Documents, the company was exempted from the sanctions by the French government and authorized to continue its activities as an investor in Yamal LNG (TOTAL S. A, 2017: 84). This may be one reason that the project survived. Another reason may be that the Chinese stepped in with investment, technology and manufacturing. This will be explored on a later point.

The opening ceremony of the first part of the project was headed by the Russian president Vladimir Putin himself. This serves to signify the importance of the Yamal LNG project for Russia. In his opening speech, the president connected the importance of the project with securing the economic future of Russia, as well as developing the Northern Sea Route eastbound from the Yamal peninsula (Presidential Executive Office's Information Office, 2018).

#### **4.1 Historical background**

In October 2010, the Russian government adopted a Comprehensive Plan for opening LNG production on the Yamal Peninsula in the Russian Arctic. In addition, Russian legislatures developed a new set of laws designed specially to develop the Arctic. From December 2013, companies in possession of a license to liquify their gas, or companies more than 50% owned by the Russian government which produces offshore fields or produce gas under a production-sharing agreement are allowed to export LNG (Mitrova, 2013). In essence, the LNG export monopoly of Gazprom was lifted. In practice, export of LNG from Russia opened up for only a couple of large companies such as Novatek and Rosneft. According to Mitrova (2013: 28), other companies are effectively blocked to enter the international LNG markets without the involvement of Rosneft or Gazprom.

The same year as the plan for Yamal was adopted, Novatek had managed to send the first high-tonnage ship with stable gas condensate along the Northern Sea Route from Murmansk to the Asia-Pacific region and finally delivered to China National Offshore Oil Corporation (CNOOC) (Novatek, 2010). The current Yamal LNG project was chosen, and mainly owned and operated by Novatek.

In March 2013, the construction of the planned LNG production facilities was approved by the Russian government (Novatek, 2013). By the time of the Final Investment Decision (FID) made in December 2013, the French international oil major Total had a 20% stake in the project, and Novatek had the remaining 80%. Yamal LNG, Novatek and CNPC subsequently negotiated an agreement of a purchase of a 20% stake in the Yamal LNG project by CNPC. At this moment in time, the partners had already invested a total of 2,6 billion dollars – a little short of 10% of the total estimated capital expenditure. The new ownership structure at the completion of the deal was then 60% for Novatek, 20% for Total and 20% for CNPC (Novatek, b, 2013)

A new owner entered the project in September 2015, when the Chinese Silk Road Fund acquired a 9,9% stake of the project from the majority shareholder Novatek. The transaction was reported by Novatek to have a value of almost 1,1 billion Euro in 2016. Hence the ownership structure became as it is up to this day. Adding together the Chinese ownership shares means that China holds a total of 29,9% of the Yamal LNG project.

Along with the series of ownership transfers presented above, several agreements for capital lending have been signed between various actors – many of them were Russian and Chinese.

#### ***4.2 Owners and partners***

The Yamal LNG project is owned by Novatek PAO (50,1%), the French oil major Total SA (20%), CNPC (20%), and the Silk Road Fund (9,9%) (Yamallng.ru, 2018).

##### ***Novatek PAO***

Novatek is one of the largest publicly traded natural gas producing companies in Russia, holding 11% of the total Russian natural gas production. It is involved in all activities from exploration to marketing of hydrocarbons. It holds total reserves of 12,8 bln boe of hydrocarbons and is globally the third largest publicly traded natural gas company based on reserves. The main area of Novatek is the Yamal-Nenets Autonomous Region, the same region where Yamal LNG is operating (Novatek.ru, a, 2018).

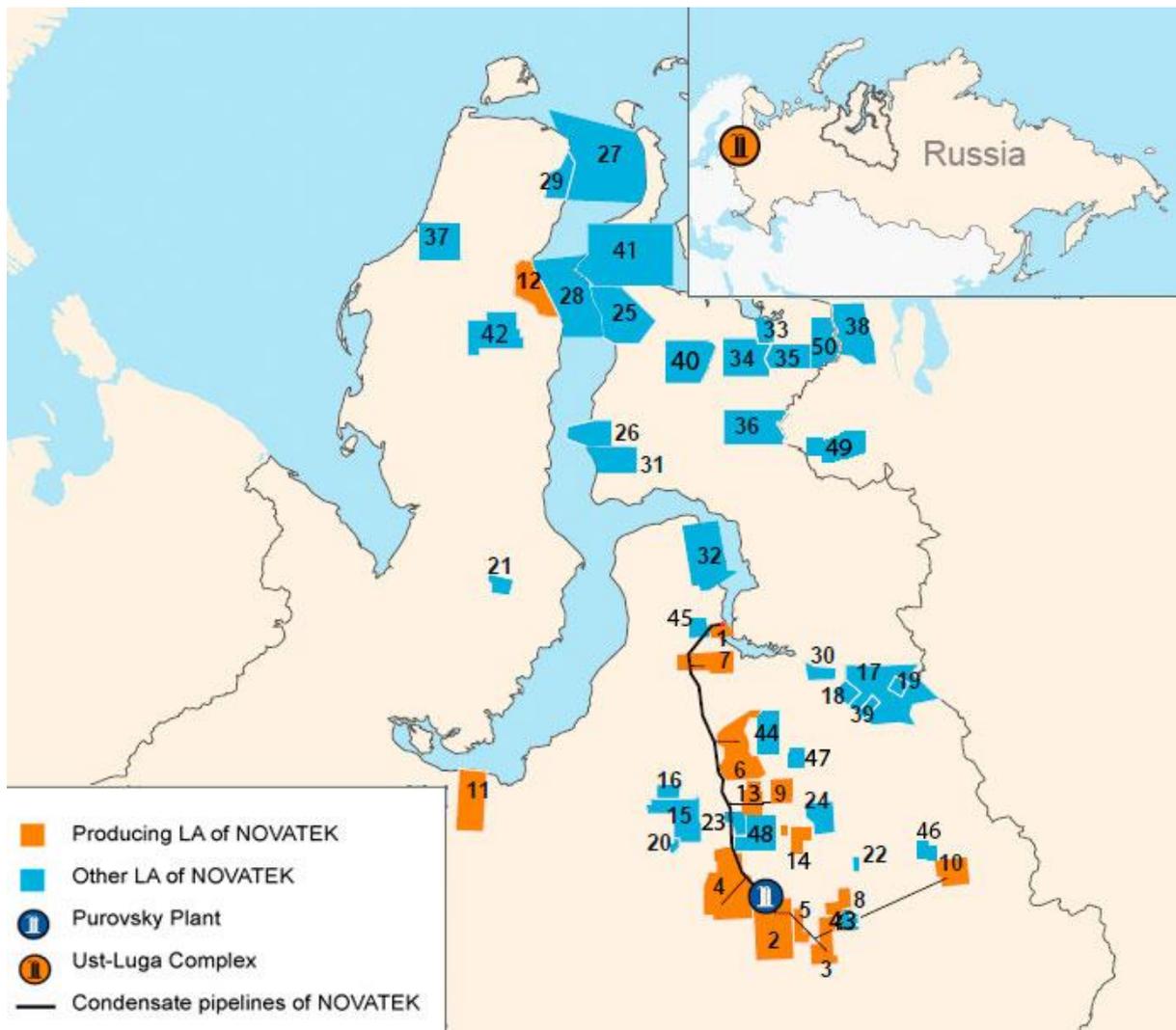


Illustration 3.6: The localization of Novatek assets in the Yamal-Nenets Autonomous Region. Source: Novatek.ru (n.d.).

The illustration above provides an overview of the Novatek areas of operation. The orange fields are producing areas, and the light blue fields are prospective areas belonging to Novatek.

### ***Total***

Total is a French international oil major with more than 98 000 employees and operations in more than 130 countries. According to the Total Registration Documents, the consolidated revenues of 2017 of 171 493 million USD make Total the 4<sup>th</sup> biggest international oil and gas major in the world (TOTAL S. A., 2017). In Russia, the company has 25 years of experience and approximately 180 employees (Total.com, 2017). It was one of the earliest owners of the Yamal LNG project and was present for the final investment decision. With the authorization received from the French government, as discussed above, it is allowed to continue cooperation with Novatek despite the current international sanctions regime aimed at Novatek and Russia. In addition to the direct interest in the Yamal LNG project, Total is according to its Registration

Documents also a minority shareholder of Novatek, with an ownership share of 18,9% per 31<sup>st</sup> of December 2017 (TOTAL S. A., 2017). French interests thus have an important share in the project.

### ***China National Petroleum Corporation***

China National Petroleum Corporation (CNPC) has a domestic annual output of 102,54 million tons of crude and 103,27 billion cubic meters of gas and is the largest oil and gas company of China. It is owned by the Chinese government and has interests in assets and production in over 30 countries (Cnpc.com.cn, 2017). The company is involved in exploration, production, engineering, marketing and refining of oil and gas products. The company controls 20% of the Yamal LNG project and is thus an equally big direct investor in the Yamal LNG project as French Total.

### ***Silk Road Fund of China***

The Silk Road Fund is a 40 billion USD fund created and controlled by the Chinese Government. The fund was officially established at the end of 2014 as an investment fund directly associated with the BRI. The fund was created with investment from the State Administration of Foreign Exchange, China Investment Corporation, Export-Import Bank of China and the China Development Bank. The objective of the fund is to “*promote common development and prosperity of China and other countries and regions involved in the Belt and Road initiative*” (Silkroadfund.com.cn, 2018). The involvement of 9,9% Silk Road Fund stake in the Yamal LNG project, therefore, suggests the project as being a part of the Belt and Road initiative. In addition to the ownership share of SRF, the fund has granted a 730 million EUR 15 years loan to the Yamal LNG project (Novatek.ru, a, 2015).

### ***Additional capital providers***

The National Wealth Fund of Russia provided a loan of 150 billion Russian Rubles to the Yamal LNG project in 2015. This loan was followed up by a loan from Gazprom Bank and Sberbank, which granted a loan totalling 3,6 billion USD in 2016 (Yamal LNG, a, 2016).

The Import Bank of China and the China development bank have together granted two major loans of 9,3 billion Euros and 9,8 billion RMB to the Yamal LNG project (Yamal LNG, b, 2016). Out of the expected cost of 27 Billion USD for the project these loans constitute a major part of the entire estimated expenses. In addition to this, China Insurance Investment Ltd, which is a group of Chinese insurance companies and asset managers, has promised to fund the project with an unspecified amount (Zhang, Miller and Meijer, 2016).

Another source of financing was added to the list with the signing of a loan agreement with the Japan Bank for International Cooperation (JBIC). The loan agreement commits 200 million EUR to the project financing and was concluded during a meeting in 2016 between the Russian President and the Japanese Prime Minister (Yamal LNG, c, 2016).

In addition, European banks have despite sanctions been active in providing financing to the project. The Italian bank Intesa Sanpaolo granted a loan amounting to a total of 750 million EUR. This loan was insured jointly by the French Export Credit Agency COFACE and the Italian Export Credit Agency SACE (Yamal LNG, d, 2016). In 2017, Yamal LNG signed yet another loan agreement with Intesa Sanpaolo, jointly with the Raiffeisen Bank International AG. The loan was at a total of 450 million EUR over 14 years. Furthermore, the loan was insured by the German export credit agency Euler Hermes and the Swedish export credit agency EKN (Yamal LNG, 2017). This signifies that the project has caught interest amongst European financial institution and could indicate that the investments are considered to be safe in Western countries.

Adding together the loans from the ‘additional capital providers’, the project has received a total of roughly 19,3 billion USD in loans (with exchange rates per 28.11.2018), in addition to the unspecified amount provided by China Insurance Investment Ltd. The capital has been lent from a multitude of Russian, Chinese, Western and Japanese banks over a short time span. In other words, it would appear that the project has had few problems raising the capital required.

#### ***4.3 Economic rationale***

The final investment decision was made in December 2013 (Novatek, 2013). The following chart displays the Global LNG prices up until this point and beyond:

# Global LNG Prices

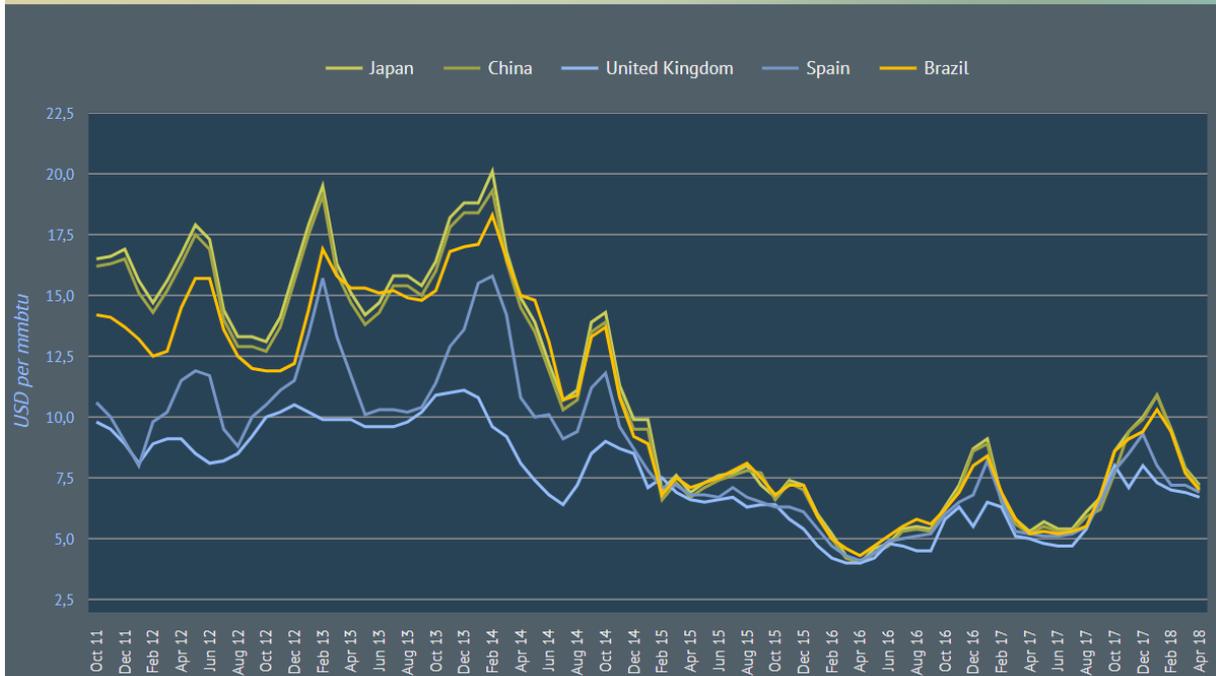


Illustration 3.7: Global LNG prices. Source: Bluegoldresearch.com (2018).

The chart is divided into five domestic LNG markets, and LNG prices in these markets have historically differed greatly. As we can see, for Japan, China, Brazil and to some degree Spain, the prices have been high, and volatile compared to the prices in the UK.

When the final investment decision was taken at the end of 2013, prices were high. Two months later, prices started to drop significantly during the 2014 energy market price surge. This drop of energy prices struck energy companies and energy export-dependent economies, as for instance the one of Russia. The following graph shows how income from the Russian oil and gas sector contributed to the Russian Federal Budget:

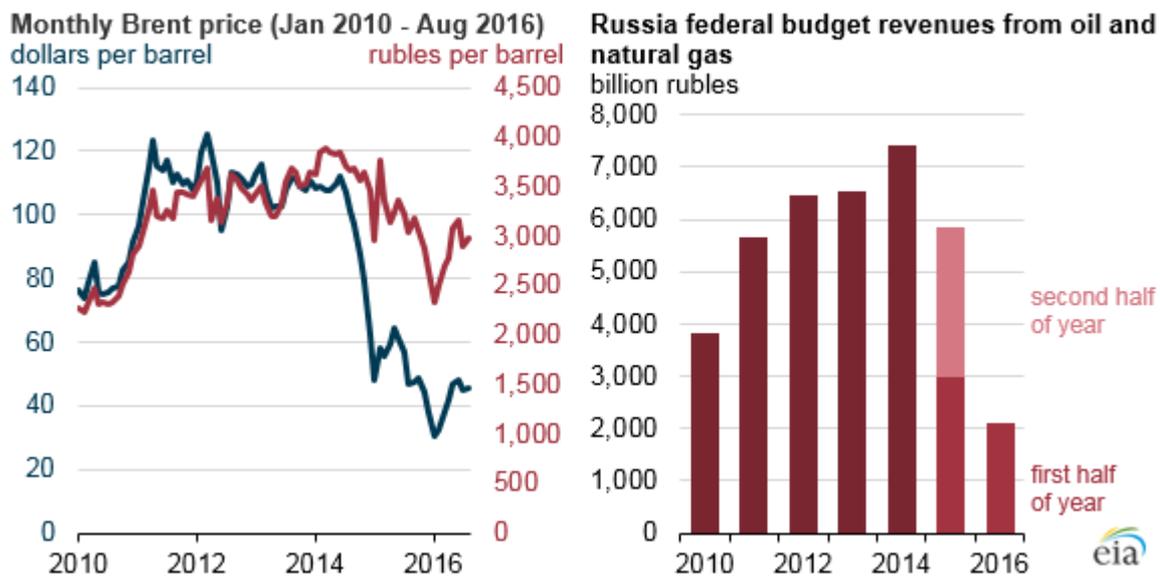


Illustration 3.8: Brent crude oil prices and Russian oil and gas revenues to the Federal Budget. Source: U.S. Energy Information Administration (Barden, 2016).

As we can see from the illustration, energy prices fell sharply in 2014. According to the U.S. Energy Information Administration (EIA), the decline in oil and gas sector Russian federal budgetary contributions were to some extent both mitigated and enhanced simultaneously. The Russian tax system is created to allow the oil and gas sector to retain a larger share of their revenues for themselves when energy prices are low, and to pay more in taxes when energy prices are high. This made the oil and gas income for the Russian Federal Budget drop sharply as energy prices fell. On the flip side, the budget is measured in Russian Rubles, and during this period, the Russian Ruble depreciated against the dollar, mitigating the loss in Ruble terms (Barden, 2016). This relative depreciation of the Russian Ruble against the US dollar can be seen in the illustration above to the left. The dark blue graph portrays the oil price measured in USD, while the red line displays the oil price per barrel measured in Russian Rubles. We can see because of the depreciation, the dollar price of a barrel of Brent oil fell further than the Ruble did at the same time. Thus, with a downturn in energy prices and economic conditions, energy companies could maintain at a strong financial level and devaluation of the Russian Ruble could make the financial situation easier to manage.

As another illustrative example, I find it interesting to mention how the Norwegian energy companies were hit. As a consequence of the sharp drop in energy prices, Statoil and other oil supply companies in Norway had to undertake extraordinary measures to cut costs and to save money. This included firing of excess staff and cutting of unnecessary spending. This stands to illustrate the severity of the decline in energy prices for the industry. Hence, I find it reasonable

to assume that the price shocks during the energy price downturn were large enough to influence the prospects for profitability and the margins of oil and gas projects. Since this was a period of a downturn in activity and prospects, the markets would normally be less inclined to be optimistic about new projects.

Alexander Kornilov, an analyst with Alfa Bank estimated back in 2013 when the FID was taken that Yamal LNG would break even at \$8.2/MMBtu (Golubkova and Vukmanovic, 2018). This is higher than the current levels of today, but as we can see from the chart above, the trend is once again increasing since April 2016.

When the Chinese Silk Road Fund acquired 9,9% stake in the Yamal LNG project in March 2016, the LNG prices were at the absolute lowest, as we once again can see from the graph in figure 2.5.1. At this point of time, the president of the SRF Wang Yangzhi stated that “*we consider Yamal LNG to be one of the most prospective and competitive LNG projects in the world* (Novatek.ru, b, 2015)”. On the web-pages of Total regarding the Yamal LNG project, the same message can be found. Total says that the Yamal LNG project is, in fact, one of the world’s largest and complex LNG projects but at the same time one of the most competitive, since it draws upon major onshore gas reserves (total.com, 2018).

As a part of the initial investment agreements, the main actors of the project have pledged to buy a certain amount of the produced LNG. CNPC has pledged to buy 3 million tons of LNG per year for 20 years, Total 4 million tons of LNG per year, Gas Natural of Spain will buy 2,5 million tons per year, Gazprom 3 million tons per year and Novatek 2,86 million tons per year (Weidacher Hsiung, 2016: 250-251). Adding the contracted gas together, 15,36 million metric tons of LNG/year has already been contracted in the years to come, out of the planned total yearly production of 16,5 million metric tons of LNG.

According to Novatek, the Yamal LNG project holds a series of key advantages, which are listed on their web-page (Novatek.ru, b, 2018). Firstly, the reserves are large. Large reserves may make production cost per unit lower due to economies of scale. Fixed costs will be distributed on a large number of units, lowering unit costs.

Secondly, the Arctic resources are located on land and not offshore. Russia has a lot of offshore Arctic resources as well, but these are harder to retrieve due to amongst others ice conditions, distances from land and the risk of petroleum spills. Onshore production may hence be more cost-effective than offshore production.

Thirdly, Russia has experience in developing oil and gas fields in the Arctic. Russia has for a long time produced oil and gas onshore in the Arctic. Hence, the geology of the reserves and the technologies involved in gas extraction are therefore well known to the operators. This may have a cost-reducing effect on production.

Fourthly, the efficiency factor of gas liquefaction is highly efficient because of the low temperatures in the Arctic. Producing LNG involves cooling gas to extremely low temperatures, and the lower the temperatures are, to begin with, the less energy is needed in production.

In addition to these advantages, the project enjoys the support of the Russian state. Developing the Arctic resources has been a priority of Russia. As a means of achieving Arctic development, the Russian government has created a favourable tax environment. The incentivized tax regime created by the Russian government includes an exemption from the Mineral Extraction Tax regarding natural gas and gas condensate, annulment of the LNG and stable gas condensate export duties, as well as VAT exemption for equipment imported when there are no Russian made equivalents (Pravo.gov.ru, 2013) (Yamal LNG, 2014). Again, the attendance of president Putin to the opening ceremony, as well as his words as the Russian head of state shows the level of official support and importance given to the project.

The markets for the LNG from the Yamal project are located in the East and to the West. The Northern Sea Route will be the transportation route for the LNG, but the passage is partly season-based. The westbound route to Europe is open year-round, while the eastbound route to Asia can be navigated during a seven months window in the summer season. Most of the LNG is according to (Weidacher Hsiung, 2016) destined for Asia – especially where it will not compete with Russian pipeline gas. It will follow the short eastbound route in the summer, and the long route via Europe and around the Eurasian continent in the winter.

Operating in the harsh and remote environment of the Arctic may be costly in itself. Transport along frozen sea lanes using ice-class LNG tankers and ice-breakers may add to project costs. Some level of flexibility derives from LNG as a product, and Yamal LNG will to some extent have the possibility to serve the best-paying markets to the east and to the west. As summers get warmer, and icebreakers get better, the route is planned to be open for a longer period of time eastbound as well (Putin, 2017).

Discussing the profitability of the Yamal LNG Project, it is highly interesting to look at the plans for a second Yamal LNG project, namely the Arctic LNG 2. The project is going to be located in proximity to the first LNG project of Novatek. In this project, the French oil and gas

major Total has already bought a 10% stake. As we saw in the Registration Documents of Total, it is also a significant shareholder in Novatek, and will thus hold additional indirect interest in the Arctic LNG 2 Project (Total S.A., 2018). In a press release made by Novatek, Total said that: *“Total is delighted to be part of this new world class LNG project alongside its partner Novatek, leveraging the positive experience acquired in the successful Yamal LNG project”* (Total S.A., 2018). The fact that the original partners are interested in being invested in another similar project is a good indication on the perceived success and economic profitability of the Yamal LNG Project. This is true even at this time, when LNG prices are comparably lower than when the FID for the first project was made.

In conclusion, the project has various important benefits on the cost-reducing side, among them generous tax incentives. The project also enjoys official support at the highest political level, which may open doors and mitigate problems in the future. Access to both the European and the Asian markets enables Yamal LNG to sell to the best-paying markets and provides flexibility. Some challenges and additional cost drivers will be incurred by the project as a consequence of its location in the Arctic. Whether the project will remain profitable for the investors and the stakeholders remains to be seen. As a last point in this regard, the current pricing trend of LNG (as of autumn 2018) on world markets is going upwards and is now approaching the breakeven point calculated by Alexander Kornilov of \$8.2/MMBtu.

## **5.0 Theoretical framework**

In this chapter, the central theoretical concept of Energy Security will be examined. Energy Security is crucial for understanding the drivers behind the Chinese Yamal LNG investments. This will be explored further throughout the thesis.

### ***5.1 Energy Security***

The theoretical term of energy security will be investigated in the following sub-chapter. After this, I will discuss various definitions of energy security and choose a definition for this thesis.

We all consume energy throughout our daily lives. We may heat a cup of tea in the morning, drive our car to work and turn on the projector for our important presentation on the latest operational numbers. Without energy to do these things, societal functioning as we know it today would be impossible. Imagine if the same shortage of energy would strike food production, food distribution, heating of homes, medical treatment or military capabilities. The consequences for a society would potentially be catastrophic, and thus, an understanding of energy security is important for national security.

Energy security has played different roles throughout history and is defined differently by various actors. In articles regarding the history of energy security, the decision of Churchill to change the primary fuel of the British Royal Navy is being frequently referred to as a starting point of the importance of the theoretical construct. At the outbreak of the First World War, he transformed the fleet from being fuelled by domestically produced coal over to foreign and more efficient oil. This example shows an early example of reliance on foreign energy supplies for the success and security of a nation.

Another instance in history with many implications for our understanding of energy security today is the 1973 OPEC oil embargo on the US and Netherlands over support of Israel. Prices went through the roof and countries had to rethink their approach to energy (Cherp and Jewell, 2011). Energy security remains highly relevant. As an example, with disruptions of gas supply, and the recent development of the situation between western countries, Russia and Ukraine, the energy security of the EU and Russia is a hot topic (European Commission, 2014).

## ***5.2 Definition of energy security***

A slightly traditional understanding of Energy security is offered by The International Energy Agency (IEA) which defines: “*Energy security as the uninterrupted availability of energy sources at an affordable price*” (Iea.org, n.d.).

IEA continues to explain that the long-term perspective of energy security is linked to sufficient investments made in future energy supply in line with economic development and environmental needs. The short-term perspective pertains to how well the energy system reacts to sudden shifts in the supply/demand balance (Iea.org, n.d.).

Reading other definitions and articles offered on energy security, it is possible to direct some criticism to the IEA definition. The definition of the IEA takes to a large extent as its point of departure the perspective of consumers, and not as much the perspective of energy producers. This can also be seen at the need for “affordable prices”, rather than reasonable prices for both sellers and buyers.

The focus of producers of energy will be largely the need for a sufficient demand for their energy, as well as fair market conditions and prices. Sellers may rely on getting their energy sold for supporting their own security. Russia is for instance in a situation of dependence with the EU in this respect. As a justification for this claim, about 70% of their crude oil and oil products exports in 2016 went to the European market. In turn, revenues from oil and gas activities make up 36% of the Russian federal budget (Eia.gov, 2017). A statement reflecting this perspective was made in the following sequence by OPEC delivered in a speech in 2008:

*“Energy security should be reciprocal. It is a two-way street. Security of demand is as important to producers, as security of supply is to consumers”* (El-Badri, 2008).

This assignment does, however, discuss the energy security of China, which is an energy import-dependent nation. My definition will, therefore, be one with a more consumer-oriented wording.

According to Leung (2011: 1331), the traditional definition of energy security made by Yergin (1988: 112) which says that the purpose of energy security is “*to assure adequate, reliable supplies of energy at reasonable prices and in ways that do not jeopardize major national values and objectives*”, fits the situation of China as an energy importer with clear national interests. According to Leung (2011), the national interests of China has been to create economic growth and maintaining stability.

In addition to this, it is argued that the traditional understanding of energy security may be outdated. Concerns over air pollution effects and climate change consequences of fossil fuels consumption make for a change of the traditional view on energy security. Sustainability has thus been introduced by scholars as a dimension of energy security, following the attention on the importance of environmental concerns in the consumption of energy (von Hippel et al., 2011). This is in convergence with the recent energy policy line of China. China signed in 2016 the Paris agreement on climate change as well as published a strategy aiming at reducing emissions from energy consumption to the air. China has been stating worries over global climate change, and the Chinese do now regard air pollution as a social problem (Yatsui, 2017).

Because of this, the definition of energy security applied for my analysis will consist of availability, affordability, reliability and sustainability of supply. In the following, each element will be explained and will in chapter 6 be linked to the Yamal LNG Project.

### **5.2.1 Availability**

Availability has traditionally been a central dimension in the definition of energy security, as seen in the official definition adopted by the IEA. This dimension implies that there are systems in place to ensure that the energy demanded is physically present at the market. Physical presence on the market and availability for the consumers may be secured in a wide range of ways. For ensuring availability, it is for instance necessary to invest sufficiently in the production of energy (Iea.org, a, n.d.). As in the case of natural gas or LNG, pipelines and LNG terminals will be necessary to physically supply the market.

According to the IEA, energy availability in the short-term could be challenged by shocks from sources as geopolitical conflicts, natural disasters and digital attacks (Iea.org, b, n.d.). It is therefore important for energy availability to prevent conflicts or acts of terrorism that could potentially threaten the energy supply to the market. In addition, it is important to ensure sufficient storages of energy as a backup.

In addition to the previous points, in the long-term perspective, availability of energy will rely on technological development within energy production. As technologies improve, more energy deposits will become profitable and more energy forms will be made possible. Efficiency of oil and gas field production, efficiency of LNG transport, and development of renewable technologies are examples of technology-based improvement of energy availability. As Yergin (2006: 80) said, *“there needs to be a continual flow of investment and technology in order for new resources to be developed”*. We need look no further than the shale gas revolution

in the United States the last few years to understand the impact of improving technologies on energy availability. Since 2005, US energy production has risen remarkably (Rapier, 2017), increasing the physical availability of energy resources.

### ***5.2.2 Affordability***

The term affordability covers the price of the energy for the end consumer. For consumers and the economy to enjoy the benefits of energy consumption, it is important that consumers can afford the energy. Thus, physical presence on the market is not enough alone, as can be seen in the IEA energy security definition.

As an example, according to The German Caritas Association, the affordability of energy across Europe is varying a lot. In a study, it is reported that as many as 47% of Bulgarian households find it too expensive to keep their houses sufficiently heated during the cold winter months. For reference and comparison, the number reported by Swedish households is as low as 1%. Inability to pay for the energy needed to stay warm has according to the article serious consequences on the general health of people in the European Union (Liddell, 2016).

The term affordable does however not necessarily imply cheap. Rather, prices should be at a level which enables consumers to buy it, and encourages future investments in energy projects, and thus uphold long-term availability of energy. Thus, a price level that encourage future energy production and supply, as well as allowing the consumers of energy to afford the energy they need, is important to achieve.

During my discussions in chapter 6.1.1, I will discuss the overall effects of the affordability of energy produced with coal vs gas supplied by the Yamal LNG project, as well as the overall effects of gas on the general price of energy.

### ***5.2.3 Reliability***

Reliability is the dimension captured by the word “uninterrupted” found in the IEA definition. This dimension appreciates the fact that disruptions of energy supplies may incur major consequences, and therefore ought to be avoided. Strengthening the resilience of distribution networks, diversifying sources of energy and creating emergency supplies of energy are all ways in which the reliability of energy security may be supported.

As an example of how countries work on strengthening the reliability of energy, I would like to mention the works of the IEA. The IEA is a membership organization for energy importing OECD countries. All members of the IEA are OECD countries, but not all OECD countries are members of the IEA. The OECD countries have to apply for membership in IEA, and the IEA

has a series of conditions that must be fulfilled for states being eligible as future members. One example is that each member country must be able to prove that it has a total reserve of crude oil or oil products equivalent to 90 days of the net imports of last year (Iea.org, c, n.d.). This is a measure that directly pertains to the availability and reliability of energy resources. If the imported energy would be interrupted for a period of time, the government would be able to at least provide the society with energy for 90 days. This measure is a concrete example of how nations work to improve their energy security.

#### **5.2.4 Sustainability**

Sustainability of energy supply and consumption is the fourth and final dimension of my energy security definition. This dimension of energy security is the newest addition to our understanding of the theoretical construct, and only to a varying degree emphasised. As we saw above, the Chinese government has voiced concerns over the environmental impact of fossil fuels. Because of this, the energy security definition ought to include sustainability considerations.

According to the Brundtland report named “Our Common Future”, “*sustainable development is development that meets the needs of the current generations without compromising the ability of future generations to meet their own needs*” (WCED, 1987: 41). This definition of sustainable development is today expressed slightly differently by the UN. On its webpage, the UN states that “*Consisting of three pillars, sustainable development seeks to achieve, in a balanced manner, economic development, social development, and environmental protection*” (Un.org, n.d.). Due to this clarification of the three specific dimensions of sustainable development, it will be possible to discuss the three consistent parts separately to say something about the concept of sustainable development as a whole. With other words, the balance of the interplay between these dimensions is important to consider when evaluating sustainability.

Following this reasoning, the sustainability of energy would be under threat if the energy sources of the country are causing significant harm to the environment, to the society or if the energy sources are unreasonably economically unviable compared to other sources.

### ***5.3 Geopolitics of oil and gas***

There are many definitions of the theoretical term geopolitics. Some of the definitions are general, others are more specific and sophisticated. In this section, I will attempt to offer and discuss definitions explaining geopolitics. A standard point of departure defines geopolitics as being “*concerned with politics and the way that geography affects politics or relations between countries*” (Collinsdictionary.com, n.d.). In other words, geopolitics tries to capture the interplay between states based on geographical features.

To add another dimension, I will offer a second definition of geopolitics as “*a combination of political and geographic factors relating to something (such as a state or particular resources)*” (Merriam-webster.com, n.d.). The fact that the geographical and political factors relate to something in particular, is important for the following discussions. In the case of this thesis, the interest lies with the particular relationship between geography, politics and fossil energy resources, particularly gas.

In addition, according to Leandro (2018: 83) “*Modern geopolitics examines international affairs comprehensively, combining historical facts, geographical characteristics and the quest for security*”. With the term ‘security’, both economic security and traditional security in the form of an absence of violence are included according to the author. Security is paramount for the prosperity of citizens and is the responsibility of the state. According to Leandro (2018), security is very important to human needs. He also says that the state is central in providing security for its citizens and plays a role on an international and domestic level.

In this thesis, I have undertaken discussions from a realist and a liberalist perspective. Both of these perspectives on geopolitics investigate how a state can provide security for its citizens, but the solutions for how to provide security for its population are different for realists and liberalists.

The dominant perspective in international relations has historically been that of **realism** (Kuzemko, Keating and Goldthau, 2016: 8). Realism is defined by the online dictionary Britannica in this way:

*“Realism, set of related theories of international relations that emphasizes the role of the state, national interest, and military power in world politics”* (Bell, 2018).

The idea of realism is that states in their pursuit of safety and prosperity ought to seek power and influence in relation to others. Realists view international politics as a zero-sum game in which states play (Kuzemko, Keating and Goldthau, 2016: 9). For a realist, there is anarchy in

international affairs, and it is no central power above the level of nation states (Bell, 2018). One way to play the game is to build economic wealth by for instance pursuing mercantilist policies of exporting more than you import. In other words, protect your own markets and penetrate the markets of others (Kuzemko, Keating and Goldthau, 2016: 10). Another way to play the game is to expand the military strength and thus bolster the capabilities of the country in relation to others.

From the perspective of a geopolitical realist, control over resources and desirable geographical features is important. Control over energy resources is one such example. The more you control, the stronger you will be in relation to other states. As we can see in the quote made by Blanchard and Flint (2017: 232) presented in the previous sub-chapter, we can see that they suggest that territorial control and capital accumulation are important for the MSRI. In the eyes of a realist, the world is insecure, and only a strong state acting in its own self-interest can play this zero-sum game (Kuzemko, Keating and Goldthau, 2016: 10).

There is a range of theories falling in the category of realist thinking. The most distinctive of these theories are Classical Realism and Neorealism (Bell, 2018).

As a counterpart to international relations realism is the perspective of international relations **liberalism**. This geopolitical perspective has emerged among the western countries after the Second World War and has established the current rule-based governance of international institutions and laws (Kuzemko, Keating and Goldthau, 2016: 11).

According to Cristol (2011: preview), there are a few basic concepts making liberal theories liberal. These are that “(1) states are the primary actors in the international system, but they are not unitary—domestic politics matters; (2) there are factors beyond capabilities that constrain state behavior; and (3) states’ interests are multiple and changing”

In other words, politics can be cooperative, states are constrained by morals and the goals of politics are diverse. The author continues to say that “the key concepts found in liberal theory are absolute gains, international institutions, free trade, and democracy” (Cristol 2011: preview).

Kuzemko, Keating and Goldthau (2016: 10-11) say that in the view of liberalists, the government will follow the will of the people, and people are generally cooperative in nature. Truly free markets will be able to distribute allocate and distribute resources effectively, and integrated economies and democracy will reduce the chance of conflicts.

According to Cristol (2011), international laws and organizations are seen by liberalists as important for limiting the actions of states. International institutions regulate international politics, and safety and development will follow (Kuzemko, Keating and Goldthau, 2016: 12). Following the thinking of liberalism, the rules of for instance the World Trade Organization may provide stability, cooperation and prosperity in the world.

Examples of theories existing within the category of International Relations Liberalism are for instance Neoliberal institutionalism, Commercial liberalism and Democratic peace theory (Cristol, 2011).

In this thesis, I will base my discussions on the general ideas behind both the realist and liberalist thinking. I will not go into discussing the more refined theories of realism and liberalism, although I have mentioned some of their names above. What I want to achieve doing this, is to evaluate some of the actions and choices of China and try to say whether they follow a realist or liberalist mindset.

#### ***4.4 Summary***

In this chapter, the theoretical framework of energy security has been explored and explained. Energy security has been defined as consisting of the availability, affordability, reliability, and sustainability of energy. I have further explained how the energy security of countries may be under threat, as well as how countries can work to strengthen their energy security.

In addition to this, I have presented the main ideas behind geopolitical realism and geopolitical liberalism. These two approaches will provide the geopolitical framework for my discussions in chapter 6.0 below.

## **6.0 Yamal LNG's fit with core Chinese strategic goals**

This chapter constitutes the main focus of my thesis and will investigate how well the Chinese investments in the Yamal LNG project answer the strategic goals of China and the BRI. I have singled out on three goals; energy security, geopolitical strength and economic return. These are discussed in subchapters 6.1 to 6.3 below.

The Chinese decision to invest in the Yamal LNG Project was clearly a government decision. Modern China was founded as a communist state and is governed by the Chinese Communist Party (CCP). Development goals for the state and the society are planned centrally in five-year plans and in a long-term perspective. The plans are then implemented and controlled by the government. Furthermore, public entities as both the China National Petroleum Corporation and the Silk Road Fund are governmentally owned and must act in accordance with the official will.

The goal of this chapter is to discover how well the Yamal LNG project investments fit the strategic goals of the Chinese government with regard to the BRI, the Arctic Policy, and the energy policy. After this, I will seek to identify the importance of energy security as a driver, in relation to the remaining drivers.

The initiative is from authoritative sources presented as being cooperative and mutually beneficial. The official Chinese message and line of argumentation is found in various public statements and articles. In his speech delivered at the 19<sup>th</sup> National Congress of the CCP, the Chinese president Xi Jinping said that the goal of the initiative is to create a prosperous common future as well as a shared future for mankind (Xi Jinping, 2017). He also said that:

*“The Communist Party of China strives for both the wellbeing of the Chinese people and human progress. To make new and greater contributions for mankind is our Party’s abiding mission”* (Xi, 2017: 52).

From this, we can see the Chinese message to other countries. The government says that China aspires to create a better world and wants to make a contribution to the well-being of other peoples.

The drivers behind the initiative may however still be many. Independent observers, researchers and analysts come up with alternative or complimentary narratives in addition to that offered by official China. It is argued by Wang (2016) that the initiative came to life due to especially

three major chains of events, as well as an international dependency on energy imports and maritime commercial sea lanes. He says that:

*“China’s Belt and Road initiative was actually decided when the Chinese new leadership faced the combined pressure of the economy slowing down, US Pivot to Asia and the deterioration of the relations with neighbouring countries after weathering the storm of the 2008 Global Financial Crisis”* (Wang 2016: 455).

Following the line of these arguments, Wang (2016) argues that the initiative may be labelled as a strategy of offensive for defensive. In another part of the speech by Xi Jinping quoted above, the following statement was made:

*“Never forget why you started, and you can accomplish your mission. The original aspiration and the mission of the Chinese Communists is to seek happiness for the Chinese people and rejuvenation for the Chinese nation”* (Xi, 2017: 1).

Whether it is purely Chinese interests and aspirations or the wellbeing of the whole of mankind that the Chinese government finds important is hard to know for certain. However, I believe that it could be wise to consider the possibility of yes, no and both. In this thesis, a series of BRI drivers will be identified. They are all in accordance with the perception of Chinese priorities.

Although the above-mentioned objectives and reasons for the Belt and Road initiative are grand, the initiative ought to address a series of smaller underlying challenges and desires held by China. Some of these challenges are according to Li (2015) challenges of overcapacity in certain sectors of the Chinese economy, the wish to more easily move low-cost production overseas, stimulate development and economic growth in the under-developed inner regions of China, and move foreign capital reserves into better investments abroad.

According to Wang (2016), by 2014 the foreign exchange reserves of China amounted to 4 trillion USD, of which 1,4 trillion USD was invested in US Treasury bonds. These bonds are relatively low yielding, and investments in projects in BRI countries may be more sensible for capitalizing on these funds.

In addition, during our interview, both Professor S and Professor L (see footnote no. 1 on page 6) stressed the importance for China to develop and export Chinese technology through investing.

The factors identified above as driving the Chinese BRI may be summarized in the following table:

| <b>Factors driving the Belt and Road initiative and China's grand strategy</b> |  |
|--|--|
| <i>Energy-related</i>  | Improve energy security  |
| <i>Geopolitical</i>  | Improve relations with neighbouring countries                                |
|  | Counter the US pivot to Asia   |
|  | Reduce dependency on traditional sea lanes                                   |
| <i>Economic</i>  | Move reserves of foreign currency to more profitable investments             |
|  | Reduce overcapacity and facilitate the development of inner regions of China |
|  | Facilitate the ease of trade   |
|  | Develop and export Chinese technology  |

Table 6.1. Factors driving BRI.

In the following sub-chapters, I will discuss the strategic fit of the Yamal LNG project investments with each of the identified drivers. In other words, to what degree are the Yamal LNG project investments able to achieve the strategic goals of the Chinese government?

**6.1 Yamal LNG strategic fit with energy security concerns**

Energy security concerns are identified as a driver of Chinese foreign investments in chapter 2.2.2. Energy security is the central driver specifically mentioned in the problem statement and will, therefore, be the starting point in this analysis. Energy security is a complex and extensive concept and is defined in different ways by different actors. In this thesis, energy security is defined in accordance with the perspective of an energy importing nation. In addition to the traditional definitions, the definition in this assignment has a dimension of sustainability. The four dimensions of energy security of this thesis are therefore **availability, affordability, reliability and sustainability** of energy supply.

In the Energy Policy of China, the Chinese government has the following to say about the Chinese energy development: “China's energy development must follow a path featuring high-tech content, low consumption of resources, less environmental pollution, satisfactory economic returns, as well as security” (IOSCPRC, 2012: Part II). In the following sections, we will see what these elements mean for China, and what role the Yamal LNG project can play in helping China on its way to achieving them.

During my interviews with professor S, she said that the legitimacy of the Chinese government relies on economic growth and political and societal stability. Energy Security is in turn underlying both economic growth and stability. In addition, she said that the sustainability dimension of natural gas was very important to the Chinese government. China has problems with air pollution especially in the cities, from its energy consumption. In addition, China is according to professor S conscious about climate change problematics. China has therefore decided that gas should constitute a higher share in the energy mix of China.

To discover whether Chinese investments in the Yamal LNG project hold the potential to improve the energy security of China, I will investigate to which degree the investments are able to answer concerns along the four dimensions of energy security; availability, affordability, reliability and sustainability.

### ***6.1.1 Availability of energy resources***

The availability of energy resources is one of the traditional dimensions of energy security. The dimension concerns whether the energy needed reaches the consumers in large enough quantities. For a large economy such as the Chinese, the energy demand is grand, and ensuring the availability of energy is essential. As seen in the theory chapter, availability may, for instance, be supported by building pipelines, energy terminals and discovering and developing ever new sources of energy.

According to the Financial Times, during the winter of 2017, as the temperatures went below zero degrees Celsius, consumers in some regions experienced a shortage of gas for heating (Ft.com, 2017). According to the newspaper, this happened at the same time as people were banned from burning coal domestically. This example stands to testify that availability and reliability of energy in China at times is under some pressure.

The political decisions of China and Russia to build hard and soft infrastructure and ensure gas deliveries by pipelines to China from Russia could be argued to increase the availability of energy. China has already managed to support the Yamal LNG project and receive Arctic LNG shipments.

The Yamal LNG Project is a major LNG project scaled to produce 16,5 million tons of LNG per year. As a scale of reference for readers with knowledge of the Norwegian production, the Snøhvit project shipping from the Melkøya facility in Northern Norway produces LNG for export with an annual capacity of 4,3 million tons (Hydrocarbons-Technology, n.d.). The Yamal LNG project is thus almost four times as big as the Snøhvit project. While this is true, it

is said that the Norwegian LNG export accounts for less than 5 per cent of the total Norwegian exports of gas (Norwegianpetroleum.no, 2018). Again, for giving an idea about the size of the project, the facts above imply that the Yamal LNG annual production amounts to almost 20% of the total Norwegian export of natural gas.

The total size of the global LNG trade in 2017 landed according to the International Gas Union at a record high of 293,1 million tons of LNG (IGU, 2018). The additional LNG deriving from the relatively competitive Yamal LNG may be increasing supply of LNG on world markets.

As said in the background information chapter, CNPC has pledged to buy 3 million tons of LNG per year. This is gas that if delivered may increase the availability of gas on the Chinese market, and thus prevent future shortages – much in the same way as the pipeline gas. It could be said that when this gas reaches the Chinese market, the availability dimension of energy security would improve. The investments in the Yamal LNG and the adherent agreements have therefore in the opinion of this thesis been **able to increase the availability of energy to the Chinese market.**

### ***6.1.2 Affordability***

As seen in the theory chapter about affordability, this dimension is about whether the consumers are able to pay for the energy. As we also saw previously, the consequences for the population and the economy if the price of energy is too high can potentially be severe. On this note, I will now explore the effects of the Yamal LNG Project on the affordability of energy.

The outset of the affordability discussion will be to compare the cost of electricity production from coal versus from natural gas. The policy of the Chinese government is to decrease the consumption of coal and increase the consumption of natural gas. The following illustration was found in the BP Energy Outlook of 2017:

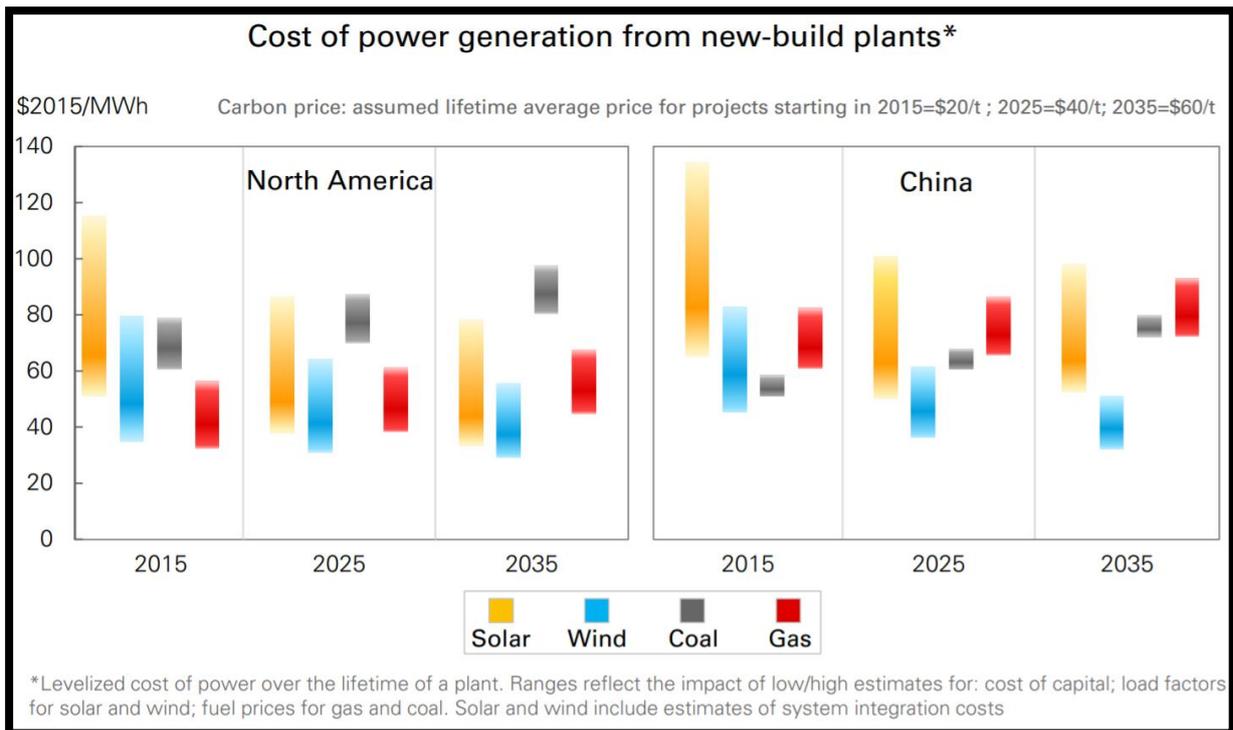


Figure 5.2: Cost of power generation from new-built plants. Source: (BP Energy Outlook - 2017 Edition, 2017: 42).

The illustration shows the predictions made by BP regarding present and future production costs of electricity from new-built plants. The cost predictions are presented for four different sources of energy; solar, wind, coal and gas (BP Energy Outlook - 2017 Edition, 2017).

- Cost of production from renewable sources as solar and wind is estimated to follow a downwards-facing development trend.
- The cost of fossil fuel-based electricity production from coal and gas is estimated to increasingly become more expensive in the future. This is partly due to the expected increases in carbon dioxide emission taxes applied on a per ton basis.
- The present situation where electricity production with gas is more expensive than with coal will even out slightly in the future in the view of BP. The price gap between coal and gas electricity production will with other words become narrower.

From the estimates of BP, we can read that production of electricity using natural gas in fact is more expensive than production of electricity using coal. In a pure affordability analysis, transferring electricity production from coal-based production to natural gas-based production will potentially increase the cost of energy for Chinese consumers. This is however only one isolated part of the discussion and excludes other factors.

As we saw under the discussions of availability of energy resources, the Yamal LNG Project will contribute with quantities of LNG totalling 20% of the total Norwegian gas exports. The additional supply of gas will thus help increase supply, and help lowering the global LNG prices. The LNG from this project may, therefore, lead to lower prices for Chinese consumers and higher returns for Chinese firms.

According to the IGU (2018), the demand for LNG, in fact, increased correspondingly with the production. The Asian region was the leader of the demand growth. China alone contributed with 12,7 million tons of LNG demand increase alone. The four next countries South Korea, Pakistan, Spain and Turkey aggregately contributed with 11,9 million tons of the demand growth (IGU, 2018).

The demand of China is in addition expected to increase in the years to come, as we can see in the graph shown in the section on the energy situation of China. This means that as Chinese demand increases for natural gas and LNG, the prices may increase as well. The dynamics behind the price developments of LNG in the future are however complex. Except for the fact that increased production and availability of LNG on the world markets may function to reduce LNG prices, the complexity of the dynamics behind the LNG price developments would, in my opinion, be slightly outside of the scope of my thesis.

An interesting point can be made with regards to the availability, reliability and affordability of LNG on the fast-growing Asian LNG markets. As we can see from illustration 2.5.1, the prices of LNG tend to increase drastically for Japan, China and Brazil during the winter season. This is a cold period and is associated with an increased demand for energy. Coincidentally, this is also the period of time that gas deliveries from the Yamal LNG project are impossible along the Northern Sea Route going eastward. This means that the LNG may have to travel the long way via Europe and through the Suez Canal in order to reach the Asian market during the winter months.

As I see it, this fact has implications for both the affordability for Chinese energy companies and consumers, as well as for the Yamal LNG project profitability. Increased supply may reduce the prices on the Asian market for LNG. This goes hand in hand with the fact that winter-prices on LNG on the Asian market may help cover the additional cost of transporting the LNG the long route.

Professor S made an interesting observation on energy security during our interview. She said that affordability is not a top concern of the Chinese government. “*China can invest a huge*

*sum in energy projects, and whether the project is affordable or not is not a top question for China's concern. What concerns China is the availability and reliability dimension of energy security".* On this notion, she says that in her opinion, this is both regarding the gas it purchases as well as the project it invests in. If China would have been allowed to, Professor S believes that China would have liked to have invested even more than the present percentage ownership in the Yamal LNG Project.

This is to a certain degree in agreement with the statements of professor L. He said that the state-owned corporations of China need to obey the instructions of the Chinese government. He also believed that the political motivations behind the investments were the most important to China and that it would be hard at this point to say whether the Yamal LNG Project would be a profitable investment or not.

Even though affordability of the gas and project investments is not a top concern for China, professor L made a remark saying that the state-owned companies are still corporations and that they have a requirement on making profits in addition to following governmental instructions. Questions about economic performance are thus still relevant in this regard.

As a conclusion on the discussions of the affordability dimension of energy security, I will say that increased supply of LNG on the world market, and the Asian market, in particular, may help decrease the cost of natural gas for Chinese companies and consumers. The additional energy from the LNG supplied may also increase the total amount of energy on the market, and thus help reduce overall energy prices. As for the cost of energy production from natural gas compared to energy production from coal, natural gas is more expensive. Thus, seen isolated, transferring the energy sector from coal to gas may work to increase the cost of energy for consumers in China.

I need to consider the cost-reducing effects of natural gas on the total energy consumption, as well as the cost-increasing effects of including relatively more expensive natural gas in the energy mix. Doing this, it is hard to say whether investing in the Yamal LNG project and purchasing an additional 3 million tons of LNG per year will help Chinese consumers with the affordability dimension of energy security. **I therefore remain undecided in this regard.**

### **6.1.3 Reliability of energy resources**

Reliability of energy resources is an important part of energy security, and an element included in the traditional definition given by the IEA. Reliability means that the gas will be available whenever it is needed and that disruptions will be limited.

As presented in China's Energy Policy, China is vulnerable to the effects of supply disruptions due to its small energy reserves and weak energy response capabilities. The policy says that "*it will not be easy for China to maintain its energy security since its energy reserves are small and its emergency response capability is weak*" (IOSCPRC, 2012: part I).

One point stressed by professor S is the effects on the reliability dimension of energy security deriving from the contractual nature of LNG trade. Gas is traded by contract while oil is traded in the spot market. If gas is traded by contract, it makes it more reliable than energy traded in the market. Most of the energy relations between China and Russia is done by contracts, which according to the professor is different from just purchasing from the market.

In addition, China is worried about its dependence on the Middle East as an oil and gas producing region rather prone to conflict. It is also concerned about its dependence on maritime sea routes, and on congested passageways as the strait of Hormuz and Malacca.

According to professor S, in relation to the Chinese energy dependence on Middle Eastern countries, the Yamal LNG project investments are very interesting. She repeats that the region is rather unstable. As an example, she mentions the fact that President Trump recently pulled the US out of the Iran Nuclear Deal.

However, on the positive side, she says that the diplomacy of China is able to operate in the Middle Eastern countries quite effectively because of the Chinese policy of not criticizing domestic policies of partner nations, has created an economic interdependence in trade, and having no colonial legacy. Nevertheless, China is aware of its dependence, and as of the previous year, Russia has overtaken from Saudi Arabia the first place of Chinese energy suppliers.

Winston Churchill once said that "*Safety and certainty in oil, lie in variety and variety alone*" (Yergin, 2006: Introduction). The author continues to explain that the term energy security today entails many more dimensions than when Churchill made this quote Yergin (2006). For both oil and gas, diversification will, however, remain a central principle. Some Arctic sources are geographically closer to China than some of the traditional origins. This line of thought is supported by the following statement: "*Overall it is clear that China has a deep strategic*

*interest in security of supply of energy, raw materials and sea-lanes, which is the framework for its Arctic interest*". (Bertelsen, Gallucci, 2016: 4). The supply lines from Arctic sources would go through the Northern regions and would be different from the traditional routes.

In the case of a major world disruption, it could be important for China to have diversified their channels of energy supply. This has been done and could be done in several ways. Russia and China have for instance in 2014 signed major agreements for delivery of pipeline gas from Russia.

Imports of gas from the US and Australia also offers a way of diversification of both shipping routes and country of origin. However, these sources of diversification carry with them some challenges. As we saw in the background information chapter, both the US and Australia have been challenging some Chinese interests, as for instance Chinese control over the South China Sea. On the notion of diversifying gas supply sourcing LNG from Australia, professor S mentions that Australia is not as friendly towards China as it once was. In addition, Australia has close relations with the US. This makes the Chinese government suspicious towards the Australian government's intentions.

From a liberalist perspective as described in the theory chapter, this dependence on Australian and US natural gas would not be a concern. This is because the gas supplied is priced and traded on the open market. Another point built on the liberalist thinking is that it is good for peace and development between countries to do business and trade together. This is due to the principles of economic interdependence. In other words, it will be hard for two economically interdependent countries to engage in conflicts with the other.

From a realist perspective on the other hand, the picture will be different. With territorial and military differences, relying on Australia and the US for gas could be a cause of national concern. From a realist perspective, China should try to diversify its supply of natural gas away from Australia and the US to avoid dependence on possible adversaries.

Future diversification of supply lines may be achieved by the establishment of the BRI economic corridor going through Pakistan, stretching from south-western China to the Indian Ocean. This corridor makes it possible for China to avoid the Indian Ocean and the South China Sea when transporting goods along the sea lanes from east to west.

The deliveries from Yamal LNG would be yet another way to diversify from the traditional sea lanes of transportation. The LNG and other goods would arrive from the north instead of the

south, going past a possibly friendly Russia. The deliveries of gas from the Yamal LNG will, however, be partly season-based.

This is according to professor L a way China views the NSR in terms of diversification and reliability of energy supply. *“In the south, the Malacca Strait and the Bosphorus Strait across Turkey are controlled by Turkey or the United States have very strong influence in these places. From this perspective, China thinks of energy security with these challenges”*.

*He continues to say that “This is such a problem already. This route in the north east... Let’s say that China can avoid the control of the straits in the south. That they are controlled by some other countries”*.

This perspective is also echoed by professor S. She says that the Hurmuz and Malacca Straits are open for traffic by all, but that American control over the sea lanes and transportation is the under-the-table concern of the Chinese government. At the moment China can take advantage of the safety provided by America, but the control over the lane is still in the hand of another country. The professor says that *“This is not a safe and comfortable situation for Chinas’ government. Because China is you know, a big country... It is not very... It is not safe if the security of your transportation is controlled by someone else than China. This is why China is improving its blue-sea (Naval – my comment) capability”*.

As it appears at this point, with relation to its energy supply lines, China is giving importance to both the **liberalist and the realist** perspective on geopolitics. China is trading with countries based on the rules of the market. This is happening at the same time as it is trying to develop alternative supply lines under its own influence and control. As stated by the professors above, China is uncomfortable having its supply lines under the control of other world powers.

During the summer months, the Northern Sea Route will be navigable, and transport of LNG and goods along the route will be possible towards the east, and towards the Asian market. As we have discussed before, the gas going east will also to a lesser degree compete with gas transported by Russian pipelines, as could be the case in the European gas market.

In the winter, the route going towards the east will, however, be closed for navigation, and the gas destined for the Asian market will have to be transported westwards. The route will then go along the Russian coast, past Norway, to Europe and possibly further to distant markets. This route would for China be substantially longer than the route from traditional sources. In addition to this, the diversification of sea routes previously achieved along the Northern Sea Route

during the summer months would be effectively gone. The deliveries in the winter months would be dependent on the congested straits along the way from Europe to Asia and exposed to foreign control.

**The reliability of supply is therefore due to the investments in the Yamal LNG project and adherent agreements increased. This increase is, however, only present in varying degrees and at certain seasons.** Simply due to the delivery contract of LNG, the reliability has been argued to be improved. In addition, due to the diversification of supply routes during certain times of the year, reliability could be argued to be improved during the summer months. During the winter months, however, direct supply of LNG from the Yamal LNG project to China may be rather limited and along the lines of traditional routes. Thus, the expected improvement in reliability of energy supply from transport route diversification may be effectively gone in the cold months of the year.

#### ***6.1.4 Sustainability of energy resource investments***

The sustainability of the energy source and investment is the last dimension of the theoretical concept of energy security, as defined in this thesis. As stated in the theory section, the three dimensions of social, economic and environmental protection all play in on the overall concept of sustainability. I will now attempt to investigate how Chinese investments in the Yamal LNG affects the three elements of sustainability of Chinese social development, environmental development, and economic development.

Firstly, **social elements** of sustainability of energy resources include the political acceptability of the energy source. Russia is a partner of China, as shown by their cross-border investments, and their participation in BRICS; an association including Brazil, Russia, India, China and South Africa aiming at coordinating systems and cooperate. Thus, Yamal LNG could be a way for China to deepen its relations with Russia – something which will be covered in the upcoming parts of the discussions. As China traditionally is heavily dependent on other sources for its energy resources than Russia, and China wants to improve its relations with Russia in some areas, it may be concluded that **Russia** as a source of energy is politically acceptable for China.

According to professor S, sustainability in energy security is not only of the energy supply but also the consequence of energy consumption. *“From a sustainability perspective, coal and oil are not as sustainable as natural gas”*. Natural gas has **according to the professor thus more energy security implications than other forms of fossil energy**. In the following paragraphs, I will elaborate further on this.

A large portion of the electricity produced in China is generated in coal-fired energy plants. Burning coal for energy is considered to emit high amounts of pollutants each year. One of these are the PM<sub>2.5</sub> particles, in the daily speech called smog, and have turned into a health concern in China (Stanway, 2018). Especially in the cities, the air quality has become so bad that it is damaging to the health of people. In fact, it is estimated that 1,6 million Chinese people today die prematurely from the air quality per year (Stanway, 2018). As a side note, while we were in China, we were told to be conscious about how much we were jogging along the streets of Shanghai. The poor air quality, we were told, could make jogging more damaging to health than whatever benefits we would get from exercising.

In addition to this, with the recently agreed upon Paris-Agreement, world Greenhouse gas emissions (GHG) is a hot topic of discussions and research. China has committed itself to reducing its environmental impact.

To tackle the pollution of the air, China has decided to limit the amount of coal, and use more gas in their overall energy mix. Gas is a cleaner source of energy than for instance coal and is by advocates mentioned as one of the components in a more sustainable energy mix (IOSCPRC, 2012). As an effect of Chinese policies, consumption of coal is expected to slowly decrease, and gas consumption is expected to increase in the years to come.

According to professor L, one of the greatest challenges in the field of energy is to transition from coal to natural gas. Especially in the winter, Chinese households burn coal for keeping warm, due to the cold winters of China. The Chinese president Xi Jinping is according to the professor highly concerned about the environment and the air quality of China. He is, therefore, determined to make the energy mix more environmentally friendly. Professor L said that:

*“China is such a country that can change domestic policy very easily. For if we decide to change fuel from coal to natural gas. If the central government has such a plan, the local government will have to obey very quickly”.*

As an example, to prevent severe pollution, the Chinese government recently in some regions banned household-burning of coal during the winter. This happened at the same time as the Chinese consumers experienced shortages of gas on the Chinese market, and people were unable to heat their homes. In the newspaper Financial Times, it is said that a Chinese hospital had to write a petition arguing that surgeries would effectively be impossible as a consequence (Ft.com, 2017). This stands to demonstrate the importance the Chinese government places on

improving the air quality for the people. It also shows exactly how harmful to air quality coal is considered to be when burned, in relation to gas.

From a social sustainability perspective, it is, however, important to remember the importance for people to meet their basic energy needs. The fact that people were left with shortages of gas and no other alternatives pertains to the availability, reliability and affordability dimension of energy security. If these three dimensions of energy security are not maintained, it is under question whether the transition is socially sustainable in its present form.

As an additional point, the international image of China is influenced by the pollution levels of China, and how it lives up to international responsibilities. Professor S said that *“It is very important for China to cooperate internationally, so the international image of China is also influenced by its energy sources”*. Thus, if China manages to reduce its emissions from burning fossil fuels, it may indirectly contribute to strengthening the political acceptability of the energy supply of China by improving Chinas image internationally.

Using more gas in the energy mix and at the same time using less coal may be said to be capable of improving the environmental impact of energy production. I would, therefore, argue that LNG from the Yamal LNG Project investment agreements improves the environmental acceptability of the sustainability dimension of energy security. It is however important that the policy of fuel transition is implemented in such a way that consumers of energy do not suffer unnecessarily. In addition to the environmental direct positive effects, the investments are indirectly able to improve the social acceptability of the sustainability dimension of energy security by improving the image of China internationally on the field of environmental protection.

Secondly, on the **economic** sustainability of the Chinese Yamal LNG Project investments, I will support myself on the discussions provided further below in the thesis. These discussions can be found in section 6.1.3 “Economic reasons for investing in Yamal LNG”. In section 6.1.3, I have discussed economic questions in detail. In this section, however, I will summarize some of my findings.

It appears that China as a capital lender can expect interest payments in excess of other options, as for instance American 10-year bonds. Secondly, the project enjoys a series of local advantages, as well as benefits from the Russian government and appears to have a special status. From my discussions on this point, it is therefore possible to say that the project is deemed competitive.

China has landed a production agreement for Yamal LNG Project equipment. For more detail, see the chapter on the economic reasons for the Yamal LNG investments. As a conclusion on economic sustainability; if China expects to receive dividends as an owner of the project, as well as interest as a capital lender in excess of other alternative investment options, the investments may be argued to be economically sustainable.

Economically, natural gas has on the other hand proven to be a more expensive option than coal. In addition to this, while coal is produced domestically in China, the additional natural gas must be imported from other countries. Thus, purely from an economic perspective, energy prices may overall increase for Chinese consumers, and the value added in energy production may now be created abroad instead of in the Chinese domestic energy production. It may, therefore, be said that the transition from coal to LNG may incur both positive and negative economic effects to China. Financial sectors may stand to gain while the coal production sector may stand to lose economically.

As long as the three first dimensions of energy security are fulfilled, I argue that the social, environmental and economic sustainability dimension of energy security will be improved by investing in the Yamal LNG project and increasing the share of natural gas in the energy mix. This is both an advantage for consumers as well as for producers.

#### ***6.1.5 Summary of the strategic fit of energy security as an investment driver***

In the previous sections, I have discussed how energy security has been an investment driver behind the Chinese investment decisions in the Yamal LNG project. The theoretical concept of energy security was divided into four distinct constituent parts. Following the discussions of each element, I concluded that investment in the Yamal LNG project may directly - or may hold the potential to - improve the energy security situation of China.

#### ***6.2 Strategic fit with geopolitical drivers***

In this sub-chapter, I will discuss each of the three identified geopolitical objectives; namely improve the relations with neighbouring countries, counter the US pivot to Asia, and to improve connectivity on land, and thus reduce dependency on sea lanes. I will then explore whether the Chinese Yamal LNG investments are capable of helping China achieve these objectives.

##### ***6.2.1 Improve relations with neighbouring countries***

Improving relations with neighbouring countries has been identified as a motive behind the Belt and Road Initiative. According to Wang (2016: 455), the financial crisis made China focus more on its own economy and development, and therefore lost some external influence. By

increasing connectivity and helping neighbouring countries develop and thrive, China hopes to create regional stability and to create future benefits.

During my interview with professor L, he said that some argue that one of the main reasons for China's going abroad with the Belt and Road initiative and for Sino-Russian relations, is that China needs energy from Russia – including Central Asia. He continues to say that China through the Shanghai Cooperation Organization has improved relations with Central Asian countries and participated in construction of energy pipelines going from Central Asian countries as Kazakhstan and Turkmenistan to China. Russia has however voiced concerns over the close relations between China and Central Asia, according to the professor.

The investments in the Russian Yamal LNG project were done in a financially hard time for Russia when it had to fight the consequences of a downturn in energy prices combined with the effects of western sanctions over Crimea. The Chinese investments, as well as the Chinese long-term deals to buy Russian gas, may, therefore, have been important to help the Russian economy. During our interview, professor L said that *“In 2014 China and Russia... both parties decided to push the strategic partnership into a new phase. The Yamal project is a concrete project to testify – To prove the China-Russia strategic partnership. To make a big success. This point is very clear”*.

By seeking to strengthen the relations during difficult times, cooperation has increased between the two countries at the same time as relations between China, Russia and the west have deteriorated.

According to (Overland and Kubayeva, 2017), the cooperation between China and Russia had started increasing even before western sanctions were imposed on Russia - perhaps even in expectation of western sanctions. The level of Chinese investment is nevertheless according to the researchers exaggerated by the media, and not reflected well by reported financial numbers. The Chinese foreign direct investment to Russia increased slightly before the time of the annexation of Crimea but fell to lower levels shortly after this. Since the investments from China increased already before the western sanctions on Russia were imposed, Overland and Kubayeva (2017) however find no reason to say that China bankrolled the annexation of Crimea.

The researchers continue to state that according to their analysis, the relationship has not reached a point where the two countries identify with one another. It is rather a ‘marriage of

convenience', and the two countries approach each other when they need something, as for instance money and markets for Russia, and resources at a good price for China.

This view may to some degree have been supported during my interview with professor L. He says that: *"China and Russia's strategic partnership is basically very positive. People in both Russia and China have a very positive attitude. A few people not only in China but also in Russia mistrust each other. This is for historical reasons"*. He explains how the relations between China and USSR and later Russia have been changing in cycles of ten years, with border wars in 1969. *"Before 1949, people would always say that 'Russia got almost one million square kilometres of territory from China. Still, some people bring up this point"*. Even though the relations have improved dramatically, he says that *"I always say that compared with China and Russia's strategic partnership, the problems exist between us just below... On the second level"*. According to the professor, this does not necessarily have that much to say, because the leaders of the two countries trust each other. *"This is why the relations improved so fast in the 90s"*.

During my interview with professor S, a similar perspective was emerging. On a question whether the energy cooperation and investments improve relations in other areas as well, or only in the energy sector, Professor S said that: *"I think its influence is very limited to other areas. Only for energy itself. Energy relations is influenced more by international politics"*. Russia had to increase its cooperation with China because of western sanctions. She said that *"The sanctions push Russia's government to cooperate more with China. Another reason is US competition on gas with Russia. The competition is not on the Chinese market but on the European market. The European market is the traditional market of Russia. Therefore, Russia had to explore new markets for its gas"*.

She continues this line of thought by saying that *"The energy relations between China and Russia have not so many relations with Russia's China's political relations. From my view, only up to Russia was sanctioned by western countries, the China-Russia energy cooperation began to improve in recent years. It is very interesting, from the Crimean crisis, the two countries' energy cooperation was making great progress"*.

As a concluding remark; *"We should put the Chinese-Russian energy cooperation in the recent years on the background of international politics"* She then clarified by saying that she meant the Crimean crisis, the US shale gas revolution and low international energy prices.

Some observers are in the opinion that the move by Beijing is not only done as an act of friendliness. Discussing two large-scale gas trade agreements negotiated between Russia and China in “*the shadow of the Ukraine crisis*” Bertelsen and Gallucci (2016: 243) say that “...*the advantageous terms of the agreement for China suggests the lack of options for Russia and therefore bargaining power of China*”. According to the authors, this holds truth for the agreements between Russian and Chinese companies in the Yamal LNG Project as well.

In other words, China exploited the weakness of the Russian bargaining position, and secured good terms for themselves in negotiations with the Russian side over gas deliveries. This is very much in line with the idea of a partnership of convenience, as well as what professor S said during our interviews: “*The investments will not influence the relations outside of the energy sector*”. She was negative to the idea that these investments made much difference in the cooperation between Russia and China in other sectors.

On the other side, Overland and Kubayeva (2017) are in the opinion that there is a possibility that the relations may develop and solidify over time if the efforts are maintained. Signals of the current state of the Sino-Russian relations were given when the Russian Foreign minister Quoted in a news article posed by The Diplomat, Sergey Lavrov said that “*China-Russian relations are in the best period of history*” (Shannon Tiezzi, 2018). There is with other words a political desire to build and strengthen the relations between the two countries at the present. Overland and Kubayeva (2017) raise the question whether this political desire will fade away as soon as the current tough economic conditions change once more.

As a conclusion, I would say that the investments are able to signal to Moscow that China may develop into being a source of investment and markets for Russia. At the same time, Sino-Russian relations have historically been changing rapidly, and both sides remain cautious of the other. Energy cooperation between the two countries will, in my opinion, be improved, but whether political relations between them will be improved in short to medium term because of the investments is rather questionable. Thus, the investments in the Yamal LNG project are only to a limited extent considered able to improve the neighbouring relations between China and Russia.

### ***6.2.2 Counter the US pivot to Asia***

As both Russia and China are facing problems in their relationship with the US, a necessity-driven partnership between Russia and China appeared to be a logical option. Russia has been met with rejection and sanctions over its involvement in Ukraine, and China has recently by the US under the Trump administration been met with extraordinary tariffs on their goods sold to the US.

The US has been building and nurturing relations with Asian nations as Japan, Singapore, Myanmar, Indonesia South Korea, Thailand, The Philippines and Vietnam. In addition to this, The United States has negotiated with Asian countries to create a comprehensive trading community named the Trans-Pacific Partnership (TPP) (Campbell and Andrews, 2013). However, Trump appears to have pulled slightly out of some of the Asian policies of Obama during his presidency. Trump pulled the US out of the TPP following his inauguration and may thus have lost some of the progress the US only years ago appeared to have achieved in involving itself in the region (B. Stewart, 2018).

As presented, the BRI has according to the published policy papers and observers an objective to link countries and economies together and to create and strengthen alliances and partnerships. Building a stronger relationship with Russia may give Russia an alternative to the partnership it had with the European Union and the United States. However, as shown during our discussions in the previous chapter, China has not yet offered investments and support capable of substituting European and American partnerships. Such an alternative would, however, make it possible for Russia to continue current policies in counter to the western interests, and at the same time makes it harder for the US to build its footing in the South Asian Region.

As for the Yamal LNG project, it is interesting to observe its ability to open doors for the Chinese last addition to Silk Road routes – The Ice Silk Road. As I concluded in the previous chapter, the Chinese investments in the Yamal LNG project serve to some extent the purpose of improving relations between China and Russia, especially in the energy sector. The western sanctions placed on the Russian energy sector excludes the west from involvement in this sector in Russia. They also make Russia seek alternatives and new partners. Chinese involvement and to some degree replacement of the West in the Russian energy sector may in the future weaken the US and western interests in the Russian energy sector. As professor S said during our interviews, China would probably have liked to invest more if it was allowed to.

The energy sector is one of the most important sectors of the Russian economy. Thus, a relative weakening of the western footing in the Russian energy sector compared to the Chinese could be said to be a relative weakening of western interests in Russia compared to Chinese interests. Thus, **I would argue that the Chinese investments in the Yamal LNG project are fit for countering US influence in Russia and countering the US pivot to the strategic areas of China.**

### ***6.2.3 Reduce dependency on traditional sea lanes***

The traditional sea-route from the South China Sea, through the Strait of Malacca, past the Indian sub-continent, the Horn of Africa, through the Suez Canal and to Europe is heavily trafficked, congested and vulnerable. Any disruptions along this stretch may have serious consequences for the nations involved. The Chinese realization of its dependence on the traditional trade routes and sea lanes has led China to try to find and develop alternatives.

The Economic Belt will create on-land transport links with the inner regions of China as well as all throughout the Eurasian continent to Europe. Thus, these links will alleviate some of the dependence on the sea-lanes. The China-Pakistan Economic Corridor may also reduce some of the dependence on the Strait of Malacca specifically, and the Indian Ocean generally. Thus, this is seen as yet another way to protect supply lines.

Professor S says that *“Before this route, China has also created a route by land from Myanmar to Chinas’ East – To the Yunnan Province of China”*. She explains that China has at least 3-4 gas routes – both LNG and gas pipeline routes before the Yamal LNG project. Now China has more gas diversification to the country. China is also importing shale gas LNG from the United States. These are ways to diversify supply.

The Northern Sea Route poses an opportunity for diversification of trade and supply lines. The route goes to the north rather than south, and it thus goes past a completely different set of countries on its way to Europe. Thus, this route will in the future harbour the possibility of a substantial diversification for China, reducing the dependence on the traditional sea routes.

During our interview, professor S said that: *“From the aspect of the diversity... It is safer to diversify a country’s energy access. Not only the type of energy but also the transportation route – the source of energy”*. This is also a meaning of the Northern Route from the Arctic. This statement is also supported by the theories presented earlier on energy security.

As I have written in a previous chapter, China has also suggested a future Silk Road on Ice going along the Northern Sea Route. According to professor L, China was in need to prove the

success of the Sino-Russian partnership and the Silk Road on Ice. The investments in a big project like the Yamal LNG project was thus one way for China to prove the success of the Silk road on Ice and the NSR.

Professor L also said that another wish of China is to increase its understanding of how to make use of the NSR. He continues to say that “*For China to bring back LNG from Yamal by ship, it will have to navigate the NSR. China has tried this many times, and the route is both available and safe*”. According to the professor, China could save some 15 days of transport and a lot of costs. Access to the NSR would also reduce dependency on congested straits controlled by other countries.

This view was also reflected during my interviews with professor S. According to her, these investments may be fit to push Chinese industries and companies to improve their technological level in long-way transportation. This has strategic implications for China in the sense of pushing the limits for how far it can go in the world.

For China to attain access to Arctic shipping, the Sino-Russian relations will be important for China. The investments in the Yamal LNG project may help Russia and China develop a joint understanding of the Arctic, and to bring the issue of Arctic shipping to the agenda in a natural way. Indirectly by investing, it may also be said that China already has gained some access to Arctic shipping and operation, considering that China is a major investor in the Arctic Yamal LNG project and a large customer of the LNG therefrom.

If this economic commitment will achieve the goal of increasing Chinese Arctic legitimacy and access is for now unclear. I may, however, conclude that these investments are appropriate to help achieve this goal, and thus the Chinese Yamal LNG project investments are in line with the geopolitical wish to reduce dependency on the traditional shipping lanes.

### ***6.3 Economic reasons for investing in Yamal LNG***

#### ***6.3.1 Move reserves of foreign currency to more profitable investments***

Discussions about the economic reasons for investing in the Yamal LNG will be the starting point of this chapter. As stated in the background information chapter, the Yamal LNG Project was by an analyst expected to be breaking even at LNG prices a little higher than today. Nevertheless, as reported in the same chapter, it has been expressed by both Total and SRF that even though the project is complex, it is highly competitive. All the economic advantages discussed in the background information chapter on the economic rationale of the Yamal LNG Project work to achieve this competitiveness. A quick summary of these economic advantages

would be: large reserves, on-land drilling, Arctic experience, efficient liquification process due to low temperatures and support from the Russian government, as for instance in the form of mineral extraction tax and VAT exemptions.

In addition, commercial actors such as Total and Novatek seek economic benefits and profits for their shareholders. Investing along with such commercial actors may establish a certain level of economic expectations in the investment project. If these economic expectations are not expected to be achieved, it will be rather uninteresting for a listed corporation as Total or Novatek to prolong the project.

In this regard, it is highly interesting to once more look at the plans for a second Yamal LNG project, namely the Arctic LNG 2. As explained in chapter 4.3 'Economic rationale', Total has already bought a 10% stake in the second project. Total therefore shows all intentions to continue cooperating on LNG production with Novatek.

China will also remain an important partner in the Arctic LNG 2. The SRF is expected to be the central financial partner, and it is stated that Chinese interest in the project could amount to as much as 49,9% (Nilsen, 2018). The article continues to say that CNPC is another potential partner for this project as well, and that the final investment decision is expected to be taken next year (Nilsen, 2018). This all stands to testify to how happy the partners are with the project, and that they would like to continue the cooperation in another major gas project.

In addition to the listed reasons for the possible profitability of the project, it can be claimed that China has had other objectives to gain on the economic side. China and Chinese companies and funds have contributed with investments as well as major loans. The loans with which China has contributed totals at least 11,75 billion USD. The interest charged on these loans is to me unknown, but the interest paid to the Russian lenders is publicly known. The two Russian banks Gazprombank and Sberbank granted a loan to Yamal LNG of 3,6 billion EUR, on which EURIBOR 6M plus 4,7% annual interest would be charged (Yamal LNG (a), 2016).

As of September 2015, when the SRF bought their 9,9% stake in the Yamal LNG Project, the American treasury 10-year bond interest rate was at 2,128% annually. As of today, the 26<sup>th</sup> of November 2018, this rate has increased to 3,024% annually (Cnbc.com, 2018). A lot of the foreign currency reserves of China are placed in such low yielding bonds (Wang, 2016: 457). If the lending of 11,75 billion USD is yielding similar interest rates as the loans of Sberbank and Gazprombank to Yamal LNG, the increase in the Yield on loans is significant.

Another economic reason for China to invest in the Yamal LNG is that it has managed to negotiate contracts of construction back to the Chinese mainland. In 2014, the Offshore Oil Engineering Co., Ltd. (COOEC) signed its largest ever foreign contract with the Yamal LNG Project as a part of the overall deal between the Yamal LNG Project and Chinese companies (China National Offshore Oil Corporation, 2017). COOEC is a listed company controlled by CNOOC, and has a total of 8000 employees (COOEC, n.d.). The agreement covered deliverance of 36 modules important to LNG production. The total value of the agreement was in excess of 1,6 billion USD (China National Offshore Oil Corporation, 2017).

Moving production back to China creates work in China and is thus a part of achieving one of the ultimate goals of the Chinese government – economic development.

Depending on the development of the world LNG prices, the project itself may very well be profitable in the future. This was however according to professor L hard to say for certain at this time, due to the scale and complexity of the project.

As lenders of money, the financial institutions contributing with money to the disposal of Yamal LNG are in a situation where they will receive their money before the owners. The large monetary contributions of Chinese banks to the project may, therefore, prove fruitful. In addition to this, with the protection enjoyed by the Yamal LNG project from the Russian government as well as the benefits derived therefrom, the project may be claimed to be relatively shielded and secure. China has thus apparently managed to move financial investments away from low yielding American state bonds over to higher yielding relatively secure investments.

As a conclusion on the economic objectives achieved by China by investing in Yamal LNG, I can say that some goals have already been achieved, and others may be achieved in the future. Thus, the Yamal LNG Project appears to be fit to serve the goal of placing financial means in a more profitable investment vehicle than US treasury bonds.

### ***6.3.2 Reduce overcapacity and facilitate the development of inner regions of China***

Internally in China, there are large economic differences. The coastal regions are generally more developed and economically important. For China, it is, however, important to develop the inner regions as well as the coastal regions. Thus, connecting the inner regions with world trade is important. The economic Belt may be instrumental in doing this.

The pipeline gas delivery agreements between China and Russia cross the Russian border into the eastern interior regions of China. These pipelines may, therefore, be logically be connected to the trade, economy and development of these regions due to geographic approximation.

The Yamal LNG project gas shipments do not appear to me to be logically connected with the interior regions of China in the same way as gas delivered by pipeline from Russia. The LNG shipments will be delivered by tankers via LNG terminals along the coastal areas of China.

Rather on the contrary, during my interview with professor S, she said that the domestically produced coal of China is produced in the interior regions, as for instance Inner Mongolia. During our interview, we discussed future flows of energy, and at this point, we discussed the possibility for natural gas replacing the demand for coal. If the gas delivered by tankers would work to replace the demand for domestically produced coal, employment in the mining sector could fall in the interior regions. However, the energy forecasts for China show that the total energy demand will increase in the future and that coal consumption will decline rather slowly. If the LNG shipments will have significant negative effects on employment and development in the interior regions is however hard to say.

Another point under this economic claim was the need to reduce overcapacity in the Chinese economy. Again, it is important to consider the large production agreement between the Yamal LNG Project and COOEC, signed in 2014 and completed in 2017. The agreement had as stated above a value in excess of 1,6 billion USD (China National Offshore Oil Corporation, 2017).

The headquarter of COOEC is located in Binhai New District in the coastal city of Tianjin. The company has large production facilities in Tianjin Municipality, Qingdao of Shandong Province and Zhuhai of Guangdong Province. All three regions are coastal regions. With other words, all of the construction is done along the coast, and not in the interior regions. The production is thus not helping to develop the interior regions.

As a conclusion, the Chinese investments in the Yamal LNG project may have adverse or neutral effects on the employment and development of the inner regions of China. As we have seen before, China will be dependent on maintaining a significant domestic coal production in

the future, despite growing imports of gas. The project investments are in my opinion fit for reducing overcapacity in the Chinese economy, considering the large production deals secured for the Chinese mainland.

### ***6.3.3 Facilitate the ease of trade***

Connectivity is important for the Chinese economy, both for the sourcing of its input resources as well for channelling its goods to world markets. Working long-term for improving relations with Russia and investing in the Yamal LNG project may eventually give China access to the Northern Sea Route. After all, by investing heavily in the Yamal LNG project, China has already to some extent indirectly gained access to Arctic shipping.

In the Arctic policy of China, the Chinese government outlined its desire to get access to Arctic shipping lanes. These shipping lanes may one day be a shorter and less congested alternative to the traditional shipping lanes going westwards. This point was stressed by both Professor L and Professor S during our interviews.

Another possibility following the improvement of Sino-Russian relations is that possibilities for better market access may open up. This is true for the Russian market directly, but also true for the Central Asian countries. These countries have traditionally been regarded as a special zone of influence for Russia, but if Russia accepts Chinese involvement in its neighbourhood and in its own country, development possibilities of the region itself may present themselves. This process is already going on, although at the beginning against the will of Russia.

Thus, the Chinese investments in the Yamal LNG project may be facilitating the ease of trade between the two countries, both by creating physical infrastructure along the trading routes, but also by improving the relationship between the two states.

### ***6.3.4 Develop the technological level of China***

The Arctic Policy of China outlines a clear desire for scientific research in the Arctic (SCIO, 2018). According to professor L, China has a limited understanding of the Arctic. As observers to the Arctic Council and responsible participants of the international community would like to help contribute to the common knowledge about the Arctic. To some extent as a joke, he said that Chinese people have an unclear understanding of the Arctic, just as Norwegians may have a vague understanding of Sanya (An area dubbed the Hawaii of China). As examples, Professor L mentions that China would like to understand the progression of climate change, as well as how best to exploit the resource base of the Arctic.

When China invests, it is according to professor S important for China that the projects include some level of technological development. According to the professor, China is not only interested in investing money in foreign projects, but also to export Chinese technology or to push its companies to develop strategic technologies further.

The professor says that *“If China just invests money, but with no Chinese portion of technology... With no Chinese technology... In other words, China has no advantage in technology, its investment in money outside has no meaning – it is not sustainable”*.

According to her, the Yamal LNG project is highly interesting in this respect. Long-distance transportation in challenging areas is one example of a field in which the investments in the Yamal LNG Project may help developing Chinese technologies.

As discussed in the chapter about “economic sustainability” and “interior development and reduction of overcapacity”, the COOEC landed a large production agreement for high-tech equipment for the Yamal LNG Project. In the press release offered in the occasion of project completion, the CNOOC said that:

*“Through the project, COOEC has successfully mastered the LNG core process module construction technology and entered the international high-end oil-gas equipment market. It has also made breakthroughs in key technologies, including welding, deep-cooling heat preservation, hoisting of huge and irregular equipment, and large-area fireproof paint coating”* (China National Offshore Oil Corporation, 2017).

As we can see from this quote, China has gained access to and tested a series of advanced technologies and capabilities it did not have from before the project investment. Being involved in the project, it has had to produce high end equipment capable of operating in Arctic conditions.

With the interest of the Chinese government to gain access to, and understanding of the Arctic area, this opportunity has been remarkable for China. They have produced equipment vital to the project, delivered successfully, and it is operating under these Arctic conditions.

According to professor S, the technological possibilities of the Chinese investments in the Yamal LNG Project makes them more interesting in this regard than the Chinese investments in energy projects in Africa and South America. Because of this, I will say that the Yamal LNG Project investments are fit for developing the technological level of China.

## **7.0 Sino-Russian and Sino-Norwegian relations and consequences for international flows of energy**

This chapter will examine the possible consequences for the international flows of energy following the Chinese investments in the Yamal LNG Project. It will then examine the investment's possible consequences for the Sino-Russian and Sino-Norwegian relations as well as for China's Arctic ambitions.

### ***7.1 Consequences for world flow of energy***

According to Professor S, the Northern Sea Route itself can influence energy flows. The Yamal LNG project will increase the gas volume (supply) on the gas markets, as well as it increases the routes to energy markets. By investing in the Yamal LNG project and purchasing a contracted annual amount of LNG from the project, China may increase its sourcing of gas and reduce its relative dependence on other sources.

*The professor says that: "it will also change other flows. If China imports more LNG from the Arctic, perhaps it will reduce... If the Chinese demand is stable – Not increasing. If China imports more from Yamal LNG, it will reduce its import from other areas. Maybe China could reduce its domestic gas production. This is a consequence of volume. If a new field is explored, it will change the energy flows".*

As an example of such a change in flows, the professor said that *"China could reduce its imports from Australia, which means that Australia may have to try to increase its exports to Japan or South Korea. It will mean a change of the flow"*.

Following a similar logic, Russia would also be able to diversify its customer base. As discussed earlier in the thesis, Russia is currently facing competition and turbulence on the traditional European market. With the new contracts on pipeline gas deliverance to China, as well as LNG from the Arctic, new markets are being opened up for Russia in the east.

For Norway, a change in energy flows may be felt as well. Norway is located on the European side of a long Trans-Arctic Shipping route. This route will especially during the winter months be an important transport line for Russian Arctic LNG on its way to world markets. Increased long-distance energy transport along the long coast of Norway may require the country to for instance increase emergency response capabilities or build additional ports. Another consequence for Norway deriving from additional LNG coming from the Arctic may be increased competition in the LNG markets already being served by Norwegian LNG, even if the volumes are low. On this notion, it is, however, important to keep in mind the fact that most

of the LNG from the Yamal LNG Project is contracted on long-term delivery contracts to mostly Asian markets.

China has a policy goal of increasing the share of natural gas in the energy mix and decreasing consumption of coal. Chinese coal could thus be replaced by imported gas, and coal production in inland China could be relatively less important. This would according to the conclusion of the interview with professor S mean that China would increase its dependence on external partners while reducing domestic production of coal.

### ***7.2 Sino-Russian relations***

According to Bennett (2016), the Chinese investments in the Yamal LNG Project may very well signify a change of Chinese investment policy in Russia. The author claims that previous Chinese business dealings with Russia were oriented towards viewing Russia as an energy supplier, and not a country for energy investments. According to the professor, the Yamal LNG Project is the first Russian energy project China has invested in, and the investments thus remind the observer about the Chinese investments in Central Asia, rather than previous business with Russia.

In the view of Bennett (2016), China is eyeing the possibility for other projects than only the Yamal LNG Project and the Moscow-Kazan railway. Concrete projects include two international transport corridors in Primorskiy Krai and a project connecting the city of Yakutsk with the national on-land rail or road system. This bears resemblance to the notions of Professor S who said, as we mentioned previously under affordability, that China would have liked to invest even more into the Russian energy sector, if it was allowed to. Comparing these two perspectives, both the transport infrastructure sector and the energy sector look attractive for Chinese investments.

These points are important seen in the light provided by the concluding remarks of Bennett (2016). Here she says that it has been a problem between China and Russia to finish large scale projects on the border between the two countries. Russia has a tendency to announce large scale projects, but not to finish them on schedule.

One exemplifying project mentioned in particular was the agreed construction of a bridge across the Amur river on the Chinese-Russian border. The Chinese side of the bridge was finished in July 2016 but is currently dangling in the air with no connection on the Russian side (Bennett 2016). This is seen as a real problem for investments between China and Russia according to Bennett (2016). In the same article, it was mentioned that a successful completion of the

Moscow-Kazan Railway may be necessary for further Chinese investments in Russian transport industry.

Professor L also had something to say about this. He said early on that the Chinese investments in the Yamal LNG Project were about proving the Sino-Russian partnership. A successful completion of such large-scale projects as both the high-speed railway linking Moscow and Kazan, as well as the Yamal LNG Project, may thus show an ability to operate successfully together as partners.

Another point is that Russia has a policy of pivoting to the east. The pivot was announced right before the time of the ongoing conflict between Russia, Ukraine and the West (Lo and Hill, 2013). A successful project completion able to prove the Sino-Russian partnership may work to encourage Russia to continue strengthening its partnership with China.

China has a desire to access the shipping lanes of the Northern Sea Route. According to the Arctic Policy of China, the Arctic shipping routes could become important for transportation of goods in the future. China therefore says that it “*encourages its enterprises to participate in the infrastructure construction for these routes and conduct commercial trial voyages in accordance with the law to pave the way for their commercial and regularized operation*” (SCIO, 2018: Part 3.1)

As we have seen before, Russia has been rather “*...disinclined to treat China as an equal in the Arctic*” (Flake 2013: 682). Development of the relations between China and Russia following joint successful Arctic project developments and deepening strategic partnership, may help on this situation sometime in the future. China, by investing in the Yamal LNG Project and purchasing LNG from the project may at least indirectly already have gained access to arctic shipping.

As we saw from the Arctic Policy of China, China is encouraging its companies to help develop the infrastructure in the region. Combined with the Russian desire to develop strategic infrastructure, there may be both leverage and interest between China and Russia to cooperate more in the Arctic in the future.

### ***7.3 Sino-Norwegian relations***

As explained in the background information chapter on the Sino-Norwegian relations, China and Norway have gone through a period of diplomatic troubles. These troubles seem to be over by this time, and the relations are warming up. As of today (16.10.2018), the Norwegian King and Queen are on an official state visit to China. Along with them are hundreds of representatives from Norwegian business and diplomacy, and a large number of agreements have been signed (Aass Kristiansen, Langsem and Gimse, 2018). In fact, a free trade agreement between China and Norway is expected signed as soon as during 2019 (Mo, 2018).

As for how the Chinese investments in the Yamal LNG Project may influence the Sino-Norwegian relations, Professor L had some interesting remarks. In his opinion, the possible consequences could be very positive. He said that *“It will be a good example of cooperation between China and other Arctic countries. We should learn from this project, so we can cooperate according to this model”*. He continues by saying *“I think the Yamal LNG project will cause a positive influence for all the Arctic countries. To find a chance to cooperate”*.

The Yamal LNG project investments could, therefore, represent a model for future economic cooperation between Arctic states and China in the future, according to Professor L. A successful major project could prove that China is a reliable partner, not just to Russia, but also to others.

“For China is highly attentive to its relations to northern European countries. Because Belt and Road initiative has the main purpose of connecting China with Europe. So of course, all European countries, especially arctic countries are in the European economic community”.

From his statement, we can see that China cares for its relations with Norway and the Nordic countries. Because of their participation in the European economic community, their location in the Arctic and their potential for project development, future relations with the northern European Countries would be interesting to China.

## 8.0 Concluding remarks

The Yamal LNG project investments may help China achieve a wide range of objectives. Which factors are the most important for the Chinese government in deciding on such a project?

In estimating the importance of the various drivers, professor L has some interesting remarks. On a question about the prospects for profitability, he says that: *“This is a big project. It is very hard to calculate profitability. The project is primarily politically motivated. Strategic partnership with Russia. Secondly, China really needs energy”*. Professor L is in the opinion that helping Russia through tough times and confirming the strategic partnership tough times is the most important drivers behind the investments in the project. Secondly for the professor is to satisfy the energy needs of China, and to strengthen its energy security. Economical questions as profitability are thus placed third in the ranking of relative importance to the Chinese government.

The professor continues his line of thought by saying that: *“CNPC and the SRF are not private. They are state-owned entities and are controlled by the government of China. State-owned corporations need to obey the instructions from the government. On the other hand, they also need to make a profit, because they are companies – corporations. For a short time period, we cannot say profitable or not. For a long time period, I think there will be a profit”*. Thus, the professor is not in the opinion that the government has made the investment primarily on behalf of political considerations, but that the Chinese still have placed their investments in an economically promising project. He says that *“Most important is the political driver plus we need natural gas. from this perspective, we can’t evaluate the project only from economic drivers”*.

From my interviews with Professor S, the much the same argument was presented. As stated above, Professor S said that in her opinion, affordability of the project or the gas purchased was not a top priority of the Chinese government. Professor S thought that availability, reliability and sustainability of energy supply were the most important to the Chinese government. The reason that she gave for listing these dimensions of energy security so high was that the legitimacy of the Chinese government is based on economic growth and social and political stability. These three factors supporting the legitimacy of the Chinese government are then inextricably supported directly by the consumption of energy, and a sufficient level of energy security. Economic growth, societal and political stability deriving from energy security thus seem to be more prioritized higher than economic considerations of the project investments and energy cost.

Comparing the views of Professor L and Professor S, there seems to be a difference in the investments' ability to improve the relationship with Russia, and also the relative importance of improving relations with Russia to the Chinese government. They are however both agreeing that economic considerations are of lesser importance, at the same time as a higher political objective is driving the investment decisions.

The Yamal LNG project appears to be a strategic fit with most of the strategic Chinese objectives identified in chapter 6.0 and summarized in table 6.1.

As a summary, the investments in the Yamal LNG project will be expected to answer energy security concerns of China by improving availability, strengthening reliability, bettering the affordability and increasing the level of sustainability of the Chinese energy supply.

In addition, the geopolitical consequences of the Yamal LNG project investments are likely to be positive for China. The project will strengthen the strategic partnership between Russia and China and will make it harder for the US to pressure Russia and thus get a firmer influence in the region. The project may at some point in the future contribute for China to opening up new transport lanes along the Northern Sea Route.

On the economic side, the investments may prove to be profitable for China, both as a capital owner and as an investor. In addition, it is likely that if the investments will help China gain access to the NSR in the future, China may potentially save significant amounts of money on the transport of goods to world markets. In addition, economic cooperation may lead to a better access to the Russian market.

As for the relative importance of the Chinese investment drivers behind the initiative, I have concluded that political motivations were assumed to be prioritized higher by the Chinese government than considerations of project profitability and energy affordability. As an example, in order to increase the sustainability of the energy supply, China was willing to import foreign natural gas instead of producing coal domestically at full capacity.

The drivers for investment highlighted as most important by my sources were the desire to prove the Sino-Russian strategic partnership and the viability of the NSR, as well as improving the energy security of China. Profitability and affordability were, however, not insignificant, as both of these concepts seem to be preserved by the project.

Development of such a large energy project as the Yamal LNG project may also hold the potential for dramatically altering international energy flows, as discussed above.

Chinas' increasing role in the Arctic and investment in a major Arctic energy project marks the entering of another major player in Arctic affairs and politics. It was suggested in the later parts of the discussion that a successful Arctic project with China as an important investor may prove to other Arctic states that China may be a good partner in the Arctic. It will be interesting to see in the future if the Chinese way of doing business will be embraced in the future by other Arctic states.

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## **Appendix**

### ***A.1 Interview guide***

These questions are aimed at creating a red thread throughout our interview. The hope is however to create a flowing conversation around these topics. The interviews are meant to give insight to the assignment. In addition to the data from the interviews conducted, I will use reports, papers and speeches to enlighten the problem.

In the beginning of the conversation I will make sure that we both agree on the treatment of the data. Full confidentiality if desired. In addition, I will ask for the permission to record.

I will then proceed to give the interviewee an understanding of my project.

The project is about the role energy concerns play in the Chinese decision to participate in the Yamal LNG project. I will look at the various drivers behind the project, and try to identify their importance and level of achievement through the investment. Energy security (Availability, affordability, reliability and sustainability of energy supplies), Geopolitical drivers and economic drivers.

My project also tries to capture the bigger picture behind these investments, and how the project may influence the relations between for instance Norway/China and Russia/China. How may this project and development and testing of the Northern Sea route influence the global energy flows? The second part of the project is however not supposed to be the main focus of my assignment.

\* What does energy security mean for China?

\* What is the most serious threat to energy security in peace time?

o Availability

o Affordability

o Reliability

o Sustainability

\* What are the most serious threats to energy security in times of conflict?

\* Does the Yamal LNG project do anything to improve energy security for China? In which ways would you say?

- \* What are in your opinion the objectives to be achieved for China when investing in the Yamal LNG project?
- \* How may the investment influence the Sino-Russian relations?
- \* How may the investment influence the Sino-Norwegian relations?
- \* What does this investment have to say for the world energy flows?
- \* What could the Yamal LNG investments have to say for the Chinese interests in the Arctic?
- \* Do you have anything interesting to add, or something that we have not covered in our conversation?

### ***A.2 Content condensed interview with Professor L***

In 2014 both China and Russia both parties decided to push the strategic partnership into a new stage. The Yamal project is a concrete project to testify – To prove China-Russia strategic partnership.

This point is very clear.

When the west imposed sanctions on Russia over Ukraine and Crimea, Russia needed help from China. Financial support and new markets for Russia's energy.

China needs clean energy – Russian gas. China wants to change the fuel from Coal to natural gas. Xi Jinping is highly attentional to the environment. Less coal and more natural gas. Coal is the main reason for emissions.

In the north of China, it is very cold. Domestic use of coal is highly polluting as well.

Silk Road on the Ice. How to prove the success of the Silk Road on the Ice? This is one way.

Profitability:

This is a big project. It is very hard to calculate the profitability. The project is primarily politically motivated. Strategic partnership with Russia. Secondly, China really needs energy. Energy security is therefore in second place.

All Yamal LNG gas has already been sold by contract. More than 50% will go to the Asian Market, and more than half of that will go to China.

CNPC and the SRF are not private. They are state owned entities, and are controlled by the government of China. State owned corporations need to obey the government. However, for a long period, I think they will achieve profit. Political plus economical private.

This is a big project and may create a lot of benefits for Chinese companies.

Explore the North East route. This may save a lot of costs.

In this way it is possible to avoid straits controlled by the US. In this perspective, energy security is thought about. China is facing such a problem already.

China is in a situation where it can solve problems very easily. If the central government makes a decision, the local governments need to enact the decision. To obey.

The BRI main reason, it is argued in Russia, is to source energy. China needs energy from Russia and central Asian countries. SCO.

The relations between China and Russia are very positive. But there is a level of mistrust. There are historic reasons. Cold war □ 1949-1959 good, then 1959-1969 quarrel and border fight, then 1979 reconciliation, 1989 normalization (Gorbetsjev). Russia took 1 million km<sup>2</sup> from China.

Relations improved very fast, but still some distrust. The problem is just below the surface. Some argue it is an alliance, others do not. There is a strategic cooperation with prospects, but it is made harder by distrust.

The leaders of the two countries trust each other. After 1991, the former Chinese president had personal experience of studying in Russia, and he felt it was sad that the SSSR fell.

The Yamal project is a good project to improve relations with Russia and improve economically.

The main reason for Chinese interest is scientific research. Chinese do not understand the Arctic, and they want to understand the region. Secondly, make use of the Arctic resources. China needs energy and resources to improve living standards.

China is thankful for the help it received from Norway in accessing the Arctic Council. As a member of the Arctic Council China feels that it needs to do some contribution to the Arctic.

It is easy to fall back into cold war thinking with geopolitics and strategies. China is very clear. It is not an Arctic country, just a country close to the Arctic. A member of the Arctic Council.

The five countries close to the Arctic should dominate the Arctic Council. But members of the Council should be involved, but they can not dominate. Just be involved within the frames of international law, and domestic law.

Consequences for Norway: No direct influence for other Arctic countries. This is just an economical project. The other ambitions.. It will be a good example for cooperation between China and other countries. We should learn from this project, so we can also cooperate according to this model.

China is highly attentive on its relations with countries as Norway, Sweden, Denmark. Because, the BRI main purpose is to connect Asia with Europe. So of course, European and especially Arctic countries are in the European Economic Community. Connect European and Asian countries.

It can create a possibility for the Arctic countries. Not only to export fish to China.

### ***A.3 Content condensed interview with Professor S***

Introduction: Explaining the Yamal LNG project and its ownership structure.

The interviewee found it interesting that there would be two routes from the Yamal LNG project to the Asian markets.

What does energy security mean for China?

The first implication is both domestic and international stability. Domestic stability is economic growth the other is political stability. Economic growth has many unique implications for the political communist party – the economic growth of China. Economic growth relies on sufficient energy supply.

Fossil energy makes a total of more than 60% of Chinese energy.

Sustainability in energy security is not only related to the sustainability of energy supply, but also to the consequences of energy consumption. Sustainability of the environment. Air pollution. Energy sensitive. Coal and oil are not as good as gas – LNG and natural gas.

Natural gas has more security implications than other fossil fuels of China – Not only economic growth, but also many other aspects for China – Including China's reputation on the international stage. International energy forum – Climate change. Wish to cooperate. Yamal LNG has more energy security implications than coal and oil.

Legitimacy of the Chinese government is linked with economic growth, political stability, and societal stability.

Reliability – If we just rely on the spot market for our energy, it is not reliable. The gas market is different than the gas market. Gas is traded by contract. Oil market is more volatile.

The gas market is more reliable. This is another implication for the energy security.

Affordability is not a top priority for Chinese concern. Availability and reliability is the most important for the Chinese.

If the gas can come from the Arctic by contracts of 20 years, it would be very available. Most of the cooperation between China and Russia is done by contract style. It is different than just spot purchases. Affordability for both the project and the energy they are buying.

Contract on the projects and on price.

If China was allowed to, it would invest more than it is currently allowed to LNG from the harsh Arctic environment to China. It is a challenge to Chinese shipping technology. This investment can push its industries to improve its long-way transportation. This has strategic implications for China in pushing the limits for how far it can go.

This leads to the technological implications if the BRI. The Chinese government doesn't only want to invest money outside of China, but also to invest technology to the outside world. This way, it is not just economical, but also a wish to improve its technological development.

From the Chinese point of view, exporting investments in projects without exporting and developing technologies is not considered to be sustainable. Just to invest money. If China has no advantages in technology, its investments are not sustainable and they have no meaning.

The level of technology is also improved in the area of long-distance transportation. The interviewee thinks the Yamal LNG projects have more implications than Chinese energy investments in Africa. For 30 years, China has invested in South America and Africa. For instance in Angola and in the Kongo. Those investments in Africa have now profits or low income for Chinese energy supply. China has to cooperate with middle eastern countries for energy access. But the geopolitical situation is not very stable in the ME. For instance Trump quit the Iran nuclear agreement. Russia is now a bigger exporter to China. Angola and Iran also used to be huge countries for energy deliverance.

China has a principle of not engaging in domestic political issues. This is a way to enable balanced diplomatic work with all parties in for instance the middle east. China has also created a mutual dependence with Middle-Eastern countries. China imports oil from them, and they import Chinese products. Economic interdependence. China has no colonial legacy, so it doesn't have a negative reputation. However, the instability is worrisome.

Australia is a LNG provider to China. The Sino-Australian relations are not that good anymore. Australia and the United States also have a strong military cooperation, and the Chinese government is suspicious towards Australia. Australia is however still a large LNG supplier to China.

US control over the Malacca Strait is the under-the-table concern of China. China can now take the free-ride of the strait security. But the control is in the hand of another country, so it is not a comfortable situation for China. China is a big country, and it is not safe if its security is supplied by another country. This is why China is expanding its Blue Sea capabilities.

This is why it is smart and safe to diversify not only the energy type, but also the route of transportation.

China has also diversified deliverance across land from Myanmar to Yunnan province. China also has pipelines from Russia. Before this, China only had one route for gas to China.

China also imports shale gas LNG. It makes the Chinese gas import more diversified. The trade in LNG between the US and China will not make much impact on the international relations between China and the US. Trading and economic relations are two different things.

Energy relations between China and Russia have not so much in relation to the political relations. In my view, only after the Russian sanctions, the Chinese Russian energy cooperation had to be improved. From the Georgia crisis and the Crimea crisis, the two countries made great progress.

The influence of energy cooperation is very limited to other areas. It is influencing only energy itself. Energy relations is influenced more by international politics. Because of the sanctions by western countries, Russia had to cooperate with China on energy. Russia wants more money from the Chinese side. There are few investments from western countries and less market.

She this that Russia has to approach China more than that Russia wants to approach China. Because of the sanctions, the Russian government is pushed to cooperate with the Chinese government. There is also a competition between the US and Russian gas market, and Russia

needs to explore new markets. The sino-Russian relations should be viewed on the background of international politics. The Crimean crisis the international background, the other is energy politics. The third one is low oil price in the world. The oil price can influence the gas prices. The low oil price has stopped in 2018, but for the last years Russia has really suffered from low oil prices.

It will cost a lot for the EU to diversify its gas supply, but it will be safer for it to do this in the long term. Eastern European countries are more suspicious towards Russia than Western European countries. China is a Russian point of access to the rest of the far-eastern market. Russia needs to cooperate with China to access the Asian markets. China holds this key.

The transportation routes are showing energy flows. This project increases the volume in the market and increases the transportation routes to new markets. It will also change other access – For example, if China imports more gas from the Arctic (and the demand is kept at a stable level), it will reduce the imports from other areas, or at least China reduces its domestic gas production. It is a consequence of the flow domestically and internationally. China could for instance reduce its imports from Australia, and then Australia would have to find new markets like Japan and Korea.

Chinese coal comes from the northern and interior regions of China. China will reduce its coal consumption and increase its gas reliance.

In the future, coal will go down, gas will go up and economic development will continue partly supported by renewables.