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"Maritime Claims, Energy, and the South China Sea – An Analysis on the Role of Energy Security in the South China Sea Dispute between China, Malaysia, and Vietnam"

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1. Introduction

China and several ASEAN countries have over the past few decades experienced profound economic and social transformation (Zhao 2011, 1). The region's socioeconomic development has been driven by spectacular economic and GDP growth rates. However, this rapid economic growth has been fueled primarily by fossil fuels, which, in turn, has dramatic consequences for the Asian energy market and competition over energy. Asia's global share of GDP has been projected to double until 2050, when Asia will contribute over 50% of global GDP. However, Asian energy consumption will increase by over 200% in the same time, with China and ASEAN accounting for over 40% of this demand growth, mostly for fossil fuels such as oil and gas (IEA 2013a, 67). Especially ASEAN countries, home to some 600 million people with comparatively low energy use per capita and millions of people without electricity access, will have to deal with an unprecedented 200% growth in energy demand until 2035, more as three times as much as China (ADB 2013, 56). In general, the near-to-medium term energy future of Asia looks quite bleak. By 2035, almost all Asian countries will have become net importers of energy with most nations producing less than half of their energy needs themselves. At the same time, the flow of energy eastwards will continue as the Asian region will account for over two thirds of all global energy imports (ADB 2013, 58; BP 2014a, 21).

This trend, in consequence, incentivizes Asian countries, particularly China and Southeast Asian countries, to look for additional ways to enhance their energy security and, with it, their socioeconomic development. The South China Sea in particular has become the center of attraction. It is home to some of the busiest and most important shipping lanes in the world and is "vital for the economic prosperity of China and ASEAN countries" (Zhao 2011, 1). After World War II, the status of the South China Sea and its features was left open, which has resulted in several littoral states laying claims and occupying features. Especially during the 1990s, access to oil and gas resources has resulted in a competition over energy resources and with it a complication concerning claims (Buszynski 2012, 139). Rising energy demand, declining domestic production, and increasing energy imports have thus led several claimant nations to become engaged in a dispute involving maritime claims and energy resources. This, in turn, has led to rising tensions among China and ASEAN claimants in one of the world's most important areas for trade and commerce, where China's "peaceful rise" and ASEAN interests seem to clash with each other.

Among the claimant nations, China, Malaysia, and Vietnam are of particular interest, both from a claimant and energy security perspective. China is by far the most powerful claimant in the area, both militarily and economically. China's vast claims cover most of the South China Sea, making Beijing the central claimant within any dispute in the area. From an energy security perspective, China's continuously growing dependence on energy imports, especially oil, has made the country dependent on several key transport routes and foreign suppliers for its crucial imports. This dilemma is illustrated by China's already high oil import dependency of over 60%, which is very likely to increase to around 85% by 2035 (Odgaard and Delman 2014, 109). Malaysia, just like Brunei, has so far been one of the more silent and reserved claimants in the South China Sea. What makes its situation especially interesting is the fact that although China and Malaysia have overlapping claims, they are also connected

through a relationship characterized by cordial political and excellent economic relations. Having traditionally been a major energy exporting country in the region, high domestic demand and declining production will turn the country into a net energy importer rather soon. How Malaysia will handle this transition in lieu of its overlapping claims and cordial relationship with China makes it an interesting choice for further analysis. Vietnam has been one of the most vocal claimants asserting its claims against China, which has led to continuing maritime and diplomatic incidents involving both sides. What sets Vietnam apart from the other vocal claimant, the Philippines, is its energy security situation. The country's rapid economic growth has brought with it one of the highest annual growth rates for energy demand in Asia, bringing with it "unprecedented structural change" for Vietnam's energy sector and, consequently, energy security situation (ACE 2011, 87). Although still a net energy exporter, this status is very soon to change as especially oil production cannot keep up with rising domestic demand. To fuel its socioeconomic development, Vietnam desperately needs to exploit new energy reserves, which is where the country's claims come into play. However, how will Hanoi fare in its strained relationship with Beijing?

Research Questions

The concept of energy security has only seldom found its way into the broader discourse concerning the South China Sea dispute. Instead, territorial and maritime claims as well as the potential of rich oil- and gas reserves in the area are seen as the dominant factors contributing to tensions in the area. Such assumptions, however, do not factor in the more complex notion of energy security that influences political decision-making and strategies and is not exclusively focused on the availability of energy resources alone. As the energy security outlook for China, Malaysia, and Vietnam continues to worsen, the author is interested in the question of how energy security is connected to the South China Sea dispute between these countries.

Against this backdrop, the key question of this thesis is as follows:

- What role does energy security play in the South China Sea dispute between China, Malaysia, and Vietnam and what implications does it entail for the process of understanding the South China Sea dispute?

Furthermore, the author is also interested in the correlation between the domestic and international levels involving energy security. How does the domestic level influence and shape respective strategic approaches and overall state interaction in the South China Sea? Therefore, the author is also interested in and tries to answer the following sub-questions:

- What kind of energy governance is prevalent in each country and how does it relate to the state interaction between China, Malaysia, and Vietnam in the South China Sea?
- What kind of correlation can be observed between China, Malaysia, and Vietnam's energy security policies and their strategic approaches in the South China Sea?

In order to answer these questions, the author will use a framework consisting of three key elements. Defining and making energy security applicable in an analytical context is the first key element. In establishing sensible energy security dimensions and indicators, the framework will gain the ability to analyze and assess relevant energy security issues across China, Malaysia, and Vietnam. Besides the energy security framework, a governance analysis will be used to establish an understanding of the key interests, institutions, and information shaping energy security policy- and decision making in each country, as these domestic policies serve as the basis for further state interaction on the international level. The core of the analytical framework, however, is based around the theory of International Political Economy (IPE). Besides being an economic commodity, energy, due to its key function for economic growth and socioeconomic development, has also always been a highly political commodity. Consequently, the notion of energy security cannot be restricted to either the political or the economic realm. Energy and energy security have both a domestic and an international dimension, as both the domestic energy sector and the international flow of energy play an essential role for each state. Energy and energy security are thus both political and economic in nature. Centered on IPE, the framework is able to analyze how domestic factors shape and influence a country's energy security policies, which, in turn, play a pivotal role for its interaction on the international level with other states. On the other hand, the framework also takes into account how international factors influence the domestic level, with consequences for policy outcomes. Overall, the framework takes into account that the domestic and international levels are not separate and isolated from each other, but rather interact and influence each other, representing the realities of energy security and a guideline to analyze what role it plays in the context of state interaction.

State of the Art

Current literature on the South China Sea has so far only rarely incorporated the notion of energy security into a broader analysis of underlying causes and factors for disputes and rising tensions in the area. Only a few scholars and analysts have dealt with or identified energy security as a potentially crucial underlying factor for state interaction in the South China Sea. Buszynski and Sazlan (2007) as well as Schofield and Storey (2009) emphasize the crucial importance of the South China Sea and its key trade routes for Asian energy imports, in particular for China. On the other hand, Johnson (2013) and Owen and Schofield (2011) put the estimated oil- and gas resources into a broader energy security context. Owen and Schofield compile resource estimates and analyzed the benefit of South China Sea oil reserves for each claimant state. Lastly, Zhao (2011; 2013) analyzes China's claims and increasing assertiveness in the context of its increasing energy dependency on foreign suppliers and the increasingly important role of the South China Sea both as a key route for its energy imports and location to bolster its energy production. The majority of the scholarly literature, however, instead focuses on the potentially rich oil- and gas reserves in the South China Sea (see Creehan 2012, Klare 2002, Muscolino 2013, Rogers 2013, Zou 2012) and the aspect of territorial- and maritime claims in the area (see Beckman and Davenport 2010, Dutton 2011, Raine and Le Mière 2013, O'Rourke 2014). In particular, incidents in and around the South

China Sea between claimants have been in the focus, such as the 2011 incidents between China and Vietnam (see Amer 2014a, Thayer 2012a) or the recent incident involving a Chinese drilling rig in Vietnam's EEZ (Downs 2014, Poling 2014, Storey 2014a).

Structure

The following chapter (2) will elaborate on the theoretical framework necessary to analyze how the international level influences the domestic level, which, in turn, influences state interests and policies concerning state interaction in the South China Sea. To this end, the first part defines energy security from a scholarly and state-specific perspective, bringing them together in a working definition and energy security assessment framework. The second part brings together and energy and IPE and establishes the central theoretical and methodological part of the framework. The third part elaborates on the concept of governance, analyzing the key actors and drivers concerning energy security and policy outcomes. Consequently, the third chapter consists of the first analytical part of the thesis, analyzing how international factors influence the domestic level, which, in turn, determines the domestic and international energy security policies as the basis for state interaction in the South China Sea. Chapter 4 advances onto the second analytical part, the international interaction, showing in the first part how the domestic-international interaction influences state interest in the South China Sea. The second part analyzes the strategic setting in the South China Sea, focusing on the interaction structure between claimants as well as energy and strategic prospects. The third and fourth parts deal with cooperation and conflict in the South China Sea, determining the role uncertainty plays in the dispute between all three analyzed countries. By analyzing state interaction in the form of state interests, the strategic setting, and the role of uncertainty, it will be possible to assess and determine the role of energy security in the dispute between China, Malaysia, and Vietnam, which will be the topic of chapter 5. The chapter also summarizes the thesis, highlighting all relevant findings as well as answering the research questions.

2. Theoretical and Methodological Framework

This chapter will introduce the most important theoretical and methodological concepts used in this thesis. The quintessential 'building blocks' of this thesis, the terms 'energy' and 'security' as well as the amalgamation of both terms, 'energy security', will be the topic of the following section. Subsequent sections further examine the major theoretical approach and framework used in this thesis, IPE. In addition, a closer is taken at the theoretical concept of 'energy governance', bringing both terms together to determine the major actors concerning energy security. The section on energy security primarily focuses on establishing a sound understanding of the central term energy security by exploring its single components, energy and security, examining the academic literature on how to structure and eventually define energy security as well as consolidate the different elements into an energy security framework. Bringing together IPE and energy security is the theme of the second section. A look at the relevant academic literature is accompanied by illustrating the interplay between IPE and energy; how international and domestic factors work together in creating a dynamic environment in which energy security plays a pivotal role. The last section discusses energy governance in more detail, focusing on key actors and interests 'governing' energy.

2.1 Energy Security

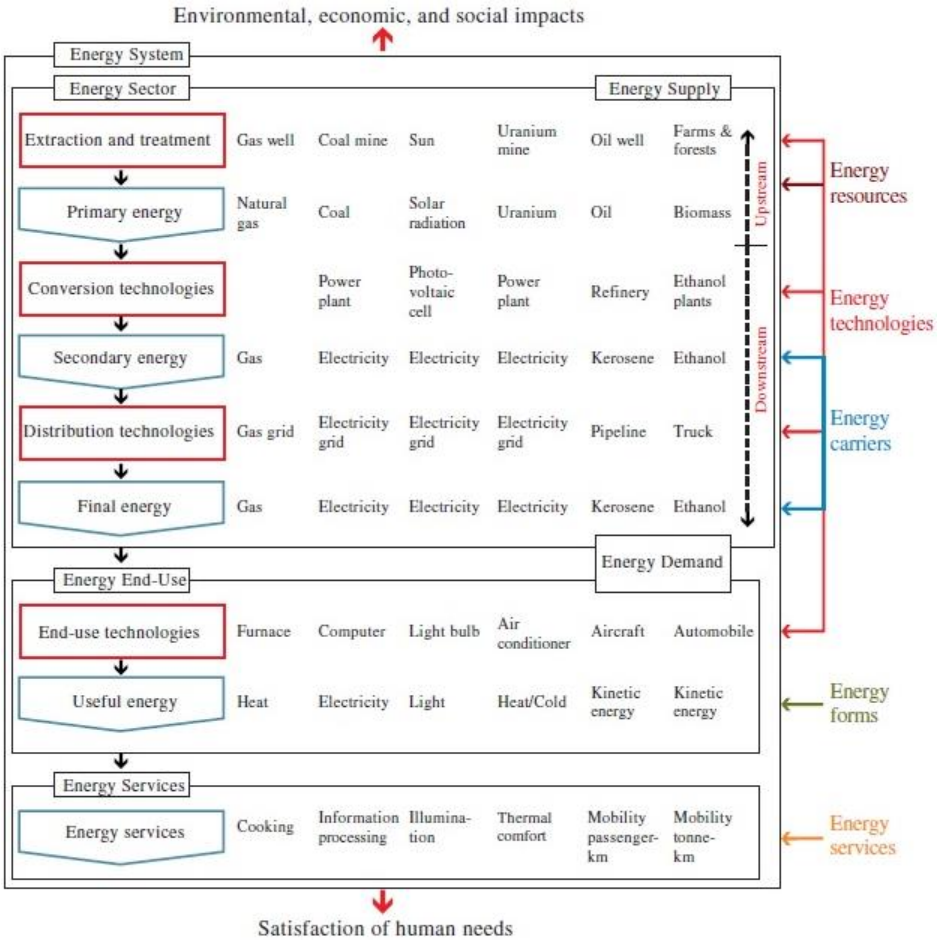
With energy security playing a pivotal role in this thesis, clarifying and consolidating the concept into a working, applicable framework is imperative. Starting at the bottom and 'dismantling' something into its separate parts in order to understand the concept as a whole is necessary to establish a sound foundation. In light of this, we can separate energy security into two terms, energy and security. In the first part of this section, both terms are first looked at separately. The aim is to establish a broader understanding of each term and its various dimensions and interpretations. Consequently, after having examined both terms, they are brought back together into the concept known as energy security, which makes visible the relationship between both aspects of the concept. Taking this step is essential in order to effectively transition to the second part of this section, defining energy security. Defining energy security in the second part of this section takes on two forms. The first form is examining the scholarly and academic side and their contemporary definitions of energy security. The second form, complementing the first one, focuses on definitions and perspectives from the three countries analyzed in this thesis. The goal is to establish a working definition with common denominators among different definitions of academic literature and governmental perspectives. With a working definition of energy security at hand, a more comprehensive framework of assessing energy security is required for the analytical part of this thesis. To create such a framework, it is important to first excavate all relevant elements of energy security to be able to further quantify energy security and make it applicable in the actual framework, which is done in the third and last part of the section on energy security.

2.1.1 Energy and Security

Energy

The U.S. Energy Information Administration (EIA) defines energy as "the ability to do work" (EIA 2014a). Simply put, energy is the means to an end, to achieve a specific goal with the means of 'energy'. What had been mostly manual labor in the not so distant past now comes in the form of other energy sources. However, what sources of energy exist today? Grubler et al. identify two basic types of energy: primary energy and final energy. Primary energy is the energy that is embodied in fossil fuels as well as in energy coming from water, biomass, the sun and nuclear reaction. Final energy, on the other hand, is the energy transported to the final users, such as firms, individuals or institutions (Grubler et al. 2012, 103). Primary energy would therefore consist of nonrenewable fossil fuels such as crude oil, natural gas and coal in addition to sources of renewable energy, like solar energy or hydropower. Final energy comes in the form such as electricity or oil products, such as gasoline. After having established a basic understanding of what energy is, it is crucial to identify its role in contemporary societies and economies. Johansson argues that energy has historically been a main factor contributing to economic and human development (2013, 199). Pascual and Elkind see energy as "[the] heart of economic development in every country" (2010, 1). Johansson et al. take this notion a step further and classify energy systems as "a crucial entry point for addressing the most pressing global challenges of the 21st century" (2012, 34). Other authors, such as Goldthau and Sovacool argue that energy is a mega-issue "more than just a sector, policy or field" and describe it as "the lifeblood of the economy and human existence", putting an emphasis on a more holistic, global approach (2012, 232). In the same vein, Schumacher sees energy not as a typical commodity but the "precondition of all commodities, a basic factor equal air, water, and earth" (Kirk 1977, 1-2). This obliviously leads to the question of the interconnectivity between energy and different levels of society and the economy. By looking at the energy system as a whole, this notion becomes more understandable:

Figure 1 The Energy System



Source: Grubler et al. 2012, 104.

The energy system can be divided into several subsystems. Key factors of the energy system are primary energy resources like oil and gas, which are then transformed into final energy. The upstream sector is responsible for the exploration and production (E&P) of energy resources, which will then be converted, transported and delivered by the downstream sector, like refineries or power companies. Recipient of converted energy is the energy-demanding sector, mostly in the form of companies and households. The delivered energy can then be used as energy services to power machines and other equipment. Ultimately, the purpose of this "socio-technical system" (Goldthau and Sovacool 2012, 233) is providing energy services in order to fulfill the needs of society and economy and further socioeconomic development.

Security

Nevertheless, what does that say about the interconnection between energy and security? Before going into more detail, a short examination of the term 'security' is in order. However, there is no commonly accepted definition of security. Ullman defines security as an action or sequence of events that threaten the quality of life and/or the range of policy choices within a state (1983, 133). Johansson takes a less specific approach on security and defines it simply as an absence of threats (2013, 200). Paleri, taking a similar approach, defines the term as being "untroubled by danger and fear (2008, 9). All three definitions have in common the notion of

a ubiquitous threat. However, what exactly is being endangered? The State has traditionally been the primary object of security, with the state possessing the monopoly of force and consequently being responsible for protecting its own security. This is prominently represented in the realist approach on International Relations (IR) theory. In this particular view, an anarchic system without higher authority leaves state to rely on their own capability to ensure their security. In this 'self-help' system, as Waltz calls it, the states only worry about their survival, which in turn conditions their behavior (Waltz 1979, 105). Security therefore is not only a theoretical concept, but connects with "real world political affairs since threats to the security of states have to be a priority for governments" (Hough 2004, 12). The concept of 'national security' reflects this realist paradigm. Paleri defines national security as "the capability of a nation to overcome the multi-dimensional threats to the apparent well-being of its people and its survival as a nation state at any given time" (2008, 57). Under this 'umbrella term', Paleri lists several distinct elements of national security, such as military economic, and ultimately energy security.

Connecting Energy and Security

One way to establish a connection between energy and security is by linking them both in the form of ""hard" national security strategies" due to energy's "complex interplay" with crucial domestic sectors (Goldthau 2013, 4). Combining energy with security in the form of 'grand strategies' – a country's overall strategy to shape the surrounding environment to its advantage – is one way to combine both terms, as energy is oftentimes a "key driver of each of the three components of grand strategy: ends, ways, means" (O'Sullivan 2013, 32). Applying this notion, energy can serve as an end or goal by pursuing it as the final objective of the strategy, such as Policies of Arctic littoral states in order to gain access to energy resources. Energy can also serve as a way or tool to achieve desirable security outcomes. Using energy as a 'weapon' targeted at neighboring countries in order to pressure for particular security outcomes would be an example. Finally, energy can serve a means or resource for security strategies. Exporting large quantities of energy resources to sustain the state budget comes to mind. This perspective on energy and security shows that energy has played and continues to play a key role in national security strategies, influencing policies beyond the domestic level.

The energy system itself is closely interwoven with the well-being of society. This, however, begs the question of how the energy system itself is linked with security. Imai and Miller identify three key question regarding security policy in general: 1) what to protect? 2) what risks to be protected from and 3) how to protect? (1998, 14). Johansson, in an attempt to link energy with security, analyzes the energy system from two perspectives. The first perspective displays the energy system as an object exposed to security threats, displaying it as an object which to protect. The second perspective shows the energy system as a subject generating or enhancing security threats, singling it out as a potential risk to be protected from (Johansson 2013, 200). Protecting the steady supply of energy into the energy system would be an example for the first, the negative environmental effects of energy usage an example for the second perspective. Johansson's typology draws a line between different security issues and how they relate to the energy system. It is important to note that this typology lets us further diversify the notion of the energy system either as an object of security threats or a sub-

ject generating such threats into further, smaller elements, such as security of supply to secure the energy system or security of demand as a threat generated from it. In conclusion, this section has shown two ways in which the terms energy and security come together. In the first way, energy plays a critical role in shaping national security strategies, which, in turn, have direct influences on the behavior of states. The second way has demonstrated an approach of how the energy system itself is linked to security aspects by identifying it as an object to be protected from or a subject generating security threats. Energy and security are therefore linked in a multitude of ways, both on the domestic as well as on the international level.

2.1.2 Definitions of Energy Security

State of the Art

Much like national security, the term 'energy security' has invoked a continuous debates in contemporary literature. In scholarly literature, energy security is often described as being "rather blurred" (Löschel et al. 2010, 1665), having an "elusive nature" (Kruyt et al. 2009, 2166; Sovacool et al. 2011, 5846), being "inherently slippery to define" (Chester 2010, 887), seen as having a "polysemic nature" (Vivoda 2010, 5258; Chester 2010, 887) and ultimately being an "umbrella term" (Winzer 2012, 36). The complex nature of energy security is also reflected within the debates on energy security itself. Cherp and Jewell outline the major energy security debates up until now and identify three major discourses (2011, 202-206). The first discourse highlights the importance of oil for modern warfare and economic development, culminating in the OPEC oil embargo in 1973 and a discourse shaped by geopolitical elements. The second major discourse, beginning in the 1980s, concerned itself with the vulnerability of energy systems. Unlike the first discourse, it focused on a technical perspective, dealing mainly with limited energy resources and the physical availability of energy. The last discourse emerged in the late 20th century and dealt mainly with the diversification of 'energy portfolios', highlighting a broader perspective in dealing with energy security and focusing on economic and technical issues like the diversification and emergence of new energy sources. The general debate concerning energy security has therefore turned to a more diversified, less politicized direction. In contemporary literature on energy security, the discourse is mainly divided into two different groups. The first group seeks to create a more integrated understanding of energy security by delineating and mapping different dimensions and aspects of energy security, taking on the form of different taxonomies or indices (Jansen and Seebregts 2010; Cherp and Jewell 2011; Sovacool et al. 2011, APERC 2007). The second major corpus on literature takes on energy security by using quantifying methods, such as metrics and indicators, for 'measuring' energy security and trying to make it more accessible and applicable (Kruyt et al. 2009, Sovacool 2011; Löschel et al. 2010; Sharifuddin 2014). As with the term itself, debates and approaches on energy security have been quite diversified with no commonly accepted or general approach towards energy security in sight with definitions of energy security being no exception to the rule.

Definitions of Energy Security

One of the most common and widespread definitions of energy security is "the availability of sufficient supplies at affordable prices" (Yergin 2006, 70). The definition of the International Energy Agency (IEA) similarly defines energy security as "the uninterrupted availability of energy sources at an affordable price" (IEA 2014a). This similarity can also be observed in several other definitions (Labandeira and Manzano 2012, 7; Stringer 2008, 123; APERC 2007, 6). Additionally, these definitions are often placed within the context of a secure supply of oil (Stringer 2008), with a trend towards including gas and even coal (APERC 2007). These "market-centric definitions", as Chester calls them, see energy security primarily as a market outcome, steering energy security policy towards "correcting" market failures (2009, 889). Furthermore, it is notable that these definitions mainly focus on the supply dimension of the energy system, with a continuous and affordable stream of energy supplies as the primary goal. Consequently, the demand dimension as well as impacts in the energy system are not represented within market-centric definitions of energy security. A more progressive and broader approach in defining energy security is taken by including other subsystem of the energy system into the equation. As the complexity of energy systems has advanced, problems and vulnerabilities resulting from energy systems have also advanced and attracted more attention. These new challenges to energy system are commonly grouped into environmental, economic, and social vulnerabilities (Chester 2010, von Hippel et al. 2011; Karekezi and McDade 2012; Emberson et al. 2012; Smith 2012). Increased CO^2 emissions, health problems, and the crucial role of energy in economic development are some of these new challenges. An earlier definition of energy security originating from a broader perspective comes from the European Commission, stating that energy security

> Must be geared to ensuring, for the well-being of its citizens and the proper functioning of the economy, the uninterrupted physical availability of energy products on the market, at a price which is affordable for all consumers, while respecting environmental concerns and looking towards sustainable development (European Commission 2000)

Goldthau and Sovacool, in an attempt to bring together existing with new aspects of energy security, define it as "the way of equitably providing available, affordable, reliable, efficient, environmental benign, proactively governed, and socially acceptable energy services to end-users", reflecting a plethora of additional energy subsystem besides the supply side (2011, 235). Another definition by von Hippel et al. describe that a state is energy secure when energy services are available to ensure the survival of the state, national welfare, and when risks associated from supply and use of energy services are minimized (2011, 6724). All three definitions have incorporated additional energy subsystems, adding to the market-centric definitions with their focus on the supply of energy. After having examined several definitions of energy security and outlined two different 'streams' of approaching energy security, the question now becomes what definition is best suited for assessing and analyzing energy security in China, Malaysia, and Vietnam. A wide variety of definitions exists, but outlining a working definition is dependent on the context in which it is ultimately used. As the goal is not to measure energy security, which Löschel et al. (2010, 1666) describe as noth-

ing less than "challenging, if not premature", but to give an energy security assessment for each country, looking at each country's definitions and perspectives on energy security is required as energy security has historically been articulated at the level of the nation state.

State-specific Perspectives on Energy Security

China

China's socio-economic development since the 1970s has been a story of great success. This development has therefore been at the top of the agenda of Chinese policymakers, or, as China puts it in the newest '12th 5-Year-Plan', "as the largest developing country in the world, development is the key to solving problems" (State Council 2010, 2). Although the plan mentions that China is confident in further boosting socioeconomic development, it points out several key elements constraining this development, in particular the constraint between economic growth on the one hand and resources and environment on the other hand (ibid.). In its 'Energy Policy 2012' whitepaper, China characterizes energy as "a major strategic issue as the country moves towards its goal of modernization and common prosperity for its people", highlighting the connection between socioeconomic development and energy (State Council 2012, 1). Lin et al. attribute this problematic to China's economic model, being one of "high input, low output, and low efficiency" (2013, 392). This is acknowledged by Chinese authorities, which view low domestic resources, high consumption, and inefficient use of energy resources as the main problems concerning energy development (State Council 2012, 1). The government has therefore issued several important environmental targets, like the reduction of CO^2 emissions and a decrease in energy consumption per unit of GDP, to combat this trend. The National Development and Reform Commission (NDRC) published a report on 'China's Policies and Actions for Addressing Climate Change' in 2012, highlighting that China is "one of the nations most vulnerable to climate change" and that addressing CO^2 emissions is essential for shifting the economic development of the country onto the next level (NDRC 2012, 2-3). Although demand-side and environmental concerns play important roles, energy supply is the key concern. China identifies several grave challenges to its energy security:

- an increasing dependence on foreign energy imports, especially petroleum products
- marine transportation of its petroleum and cross-border pipeline transportation of its oil and gas imports with even greater risks
- price fluctuations in the international energy market
- low domestic resources and emergency response capability (State Council 2012, 5)

China's stance on energy security therefore clearly prioritizes a stable supply of affordable energy resources, highlighting the focus on the supply-side of the energy system. China places high importance on energy self-sufficiency, as indicated by its energy policy whitepaper. Within this conceptualization of energy security, the security of oil and petroleum products as well as their supply chains play the central role for Beijing, equating energy security in large part to oil security. Although not explicitly listed as energy security concerns, demand- and sustainability concerns play an important role for China, as recent policies and

legislation regarding energy efficiency, CO^2 emissions, and renewable energy has shown. Giljum, taking into account China's socioeconomic development perspective and its energy security challenges outlined above, vaguely defines China' energy security as "the ability to acquire sufficient energy supplies at prices that do not undermine the government's core objectives, and to establish safe delivery of imports to China (2009, 14)."

Malaysia

The Malaysian government implemented its basic 'National Energy Policy' back in 1979, with a focus on energy supply, energy efficiency and environmental sustainability in energy production (KeTTHA 2014a). With its main purpose being the availability and affordability of energy, the National Energy Policy nevertheless incorporated environmental concerns into a binding framework for the energy sector. Consequent energy acts, however, had almost exclusively focused on the supply of energy resource up until the 1990s, when demand-side measures were extensively incorporated (Low et al. 2010, 5). The 'Tenth Malaysia Plan' for 2011-2015 introduces the 'New Energy Policy', augmenting the existing energy policy from 1979. The new approach places a greater role on the demand side by promoting energy-efficiency measures and strengthening environmental-friendly and low-carbon measures (EPU 2010, 113). Although the policy places strategic importance on the demand-side and environmental stewardship, energy security in Malaysia is still prominently seen from a supply-side perspective. In the Tenth Malaysia Plan, energy security is explicitly connected to the development of hydro energy, coal, and gas resources in conjunction with improved coal technology, coal-powered plants and the development of nuclear energy. The plan also states the fundamental importance of "a reliable, high-quality, and cost-effective supply of energy" (ibid., 112). Additionally, in Malaysia's comprehensive 'Economic Transformation Programme', eight out of thirteen projects for the Oil, Gas and Energy sector are dedicated supply-side projects (PM of Malaysia 2014, 49-59).

Nevertheless, Malaysia has also introduced a variety of policies towards a more sustainable energy future. The 'National Renewable Energy Policy & Action Plan' has its objective in enhancing domestic renewable energy sources "to contribute towards national electricity supply security and sustainable socio-economic development" (KeTTHA 2008, 41). Consecutive policies, such as the 'National Green Technology Policy', the 'Renewable Energy Act' and the 'Sustainable Energy Development Authority Act' – both introduced in 2011 – highlight Malaysia's commitment to enhance sustainability. Malaysia defined its position on energy security as "simultaneously improving the availability, affordability, efficiency, and stewardship of energy services for end-users" (Parliament of Malaysia 2013, 2), incorporating supply-side, demand-side and sustainability concerns. Supply of energy resources at affordable levels, however, is still the pivotal element of Malaysian energy security.

Vietnam

Socioeconomic development is also at the forefront for Vietnam's policymakers. This becomes evident by looking at the country's 'National Energy Development Strategy up to 2020, with 2050 Vision' and the 'National Master Plan for Power Development for the 2011-

2020 Period with a Vision to 2030'. The energy development strategy sees its primary developmental viewpoint in "quickly and sustainably developing energy in close association with the national socio-economic development strategy" (PM of Vietnam 2007, 1). The general objective of the power development strategy views the "efficient use of energy […] in combination with import of primary energy for power production, supplying adequate power with increasing quality and reasonable price for socioeconomic development" (PM of Vietnam 2011, 2) as imperative. However, how does Vietnam connect the socio-economic development objective with the energy sector? The energy development strategy specifies that, in order to successfully fulfill the government's development goals, "assuring national energy security, contributing to firmly maintaining security and defense and developing an independent and self-reliant economy" is needed (PM of Vietnam 2007, 2). Vietnam's new 'National Green Growth Strategy' defines the country's national energy security strategy as

> Developing simultaneously different energy sources, exploit and use economically domestic energy sources, reduce reliance on petroleum products, gradually decrease the volume of coal export and import an appropriate amount, while creating linkages with energy systems in neighboring countries (PM of Vietnam 2012, 4)

Vietnam's outlook on energy security relies heavily on the supply-side of the energy system, prioritizing the availability of energy resources. However, Vietnam also considers the demand-side of the energy system by mentioning the 'economic' use of resources. Albeit not explicitly listed as an energy security concern, sustainable development of energy resources is mentioned in both, the energy development- and the national green growth strategy. The 'Law on Economical and Efficient Utilization of Energy', introduced in 2010, gives Vietnam's demand-side strategy a legal framework, outlining policy measures to reduce energy intensity and increase the efficiency of energy use in the end-use sector (MOJ 2010). The Green Growth Strategy of Vietnam lays out several "essential targets" to reduce CO^2 emissions, promote renewable energies, and enhance sustainable production and consumption (PM of Vietnam 2012, 2-3). In this sense, "economically" using energy sources also reflects the sustainability dimension as to minimize future costs of economic and environmental concerns resulting from an energy sector relying exclusively on fossil fuels. In short, the Vietnamese outlook on energy security focuses primarily on the supply-side of the energy system, promoting especially the availability of energy resources. Demand-side measures are considered to be of high importance, with the sustainability of energy sources taking a minor role and mostly being incorporated into the energy sector by specific policy plans.

Working Definition of Energy Security

The examination of the Chinese, Malaysian, and Vietnamese perspectives on energy security has provided several insights into conceptualizing a working definition for energy security. First, all three countries put a considerable focus on a stable and steady supply of energy to guarantee their socioeconomic development. Second, curbing consumption and increasing energy efficiency is mentioned by all countries, although only Malaysia and Vietnam mentioned it explicitly in the context of energy security. Third, sustainability in the energy system plays a role for all countries, albeit it has more of a 'junior role' and is subordinated to sup-

ply- and demand-side considerations. Looking back at scholarly definitions on energy security, it becomes apparent that neither a solely 'market-centric', nor a 'broad' definition is sufficient in this case. For creating a working definition, an emphasis on the stable supply of energy needs to be considered without neglecting the role of demand or sustainability concerns. Therefore, the working definition of this thesis, considering the analysis of scholarly as well as country-specific definitions, defines energy security as follows:

- Focus on securing a stable, affordable supply of energy resources
- While also enhancing the efficiency and lowering the intensity of energy systems
- And trying to provide energy and energy services in more sustainable ways

This definition takes into account the focus on the supply-side while also placing great importance on enhancing the demand-side of the energy system, and incorporating the notion of energy sustainability as a minor priority.

2.1.3 Elements and Indicators of Energy Security

State of the Art

After having established a working definition of energy security, turning it into an applicable energy security assessment framework by equipping it with the necessary tools is necessary. But what forms can these tools take? In contemporary literature, emphasis is placed on elements and indicators of energy security, although a combination of both is more common in energy security assessment frameworks. One of the more common taxonomies in assessing energy security are the '4 A's' of energy security, analyzing availability, accessibility, affordability, and acceptability. Availability involves the physical availability of energy resources, accessibility targets questions of where resources are located and touches on the geopolitics of energy, whereas affordability deals with the economics and costs of energy and acceptability being concerned mainly with social and environmental considerations (APERC 2007, 7-41). Kruyt et al. enhances this taxonomy by incorporating a handful of indicators into each of the different dimensions, taking a more quantitative approach towards the four A's (2009, 2179). Sovacool and Brown take on an approach similar to the four A's by focusing more on the environmental side and emphasizing the demand-side (2010, 87). They also analyze the relevant energy security literature from 2003 to 2008 in an attempt to identify the relevance the different dimensions of energy security. In their analysis of nearly 100 texts on energy security, they found out that more than 80% of the analyzed literature regarded availability as important, whereas affordability came to roughly 50%, efficiency to 30%, and sustainability to approximately 25% (ibid., 81-84). Their analysis thus backs up the established energy security approach taken in this thesis.

Other assessment frameworks have also taken the four A's as their basic foundation and modified them further. Examples of this are Elkind's division into availability, reliability, affordability, and sustainability (2010, 122), Sovacool and Mukherjee's dimensions of availability, affordability, technology development and efficiency, environmental and social sus-

tainability, and regulation and governance (2011, 5345). Other scholars have formulated more elaborate assessment frameworks, highlighting the diverse nature of energy security. Such an approach includes an assessment of socio-cultural and military-security dimensions, favoring a more holistic approach that puts the survival of the nation and the protection of national welfare as a key component of energy security (von Hippel et al. 2011, 6724-6726). Vivoda refined von Hippel's framework by incorporating several more dimensions, such as human security, the international-, and the policy dimension of energy security (2010, 5261). Moreover, she also added 34 new attributes to the overall framework, further expanding and refining on the initial approach. Still other frameworks take approaches that are more unorthodox. The IEA developed a "Model of Short-Term Energy Security" which analyzes energy security from a risk and resilience perspective, looking at the domestic and external dimensions of each perspective and establishing fixed indicators for each energy source to assess the risks and resilience emerging from it (2011a, 3-13). Cherp and Jewell adopt a framework that emphasizes the historical roots of energy security – geopolitics, resource scarcity and energy stability, and diversifying energy – and identifies three perspectives of energy security, namely sovereignty, robustness, and resilience (2011, 207).

Most of the frameworks mentioned above have incorporated metrics and indicators for energy security to a certain degree. Cherp maps out energy subsystems like oil and gas and, based on these subsystems, creating a list of energy security indicators to evaluate short- to mid-term energy security (2012, 336). A similar approach was taken by Jewell et al., presenting long-term indicators for energy security by analyzing primary energy systems, energy carriers, and energy end-use sectors in a sovereignty and resilience perspective to produce more tailored results indicating the long-term energy security of each energy subsystem individually (2013, 8). Representing a more comprehensive approach, Sovacool presented 200 indicator and metrics to assess energy security. His quantitative approach is broken down into 20 overall dimensions of energy security, each represented by a different variety of metrics and indicators. Sovacool therefore presents one of the most comprehensive frameworks for quantitatively assessing energy security (2010, 7476). Indicators and metrics regarding energy security are usually being presented in two different forms in contemporary literature: simple and aggregated indicators. A good example can be found in Kruyt et al. as they use simple and aggregated indicators to complement their dimensions of energy security (2009, 2168-2171). The goal of simple indicators is to capture a single element of energy security, like reserves to production (R/P) ratios, and present an explicit message about this indicator. Aggregated indicators, on the other hand, take a more heuristic approach as they try to incorporate several elements of energy security and display it as a single metric that has more "weight" to it.

Energy Security Assessment Framework

Now, what kind of framework is best suited to assess energy security in the context of this thesis? The working definition of energy security emphasizes a stable and affordable supply in addition to including efficiency and sustainability in energy systems. Therefore, at least according to the four A's, the dimensions of availability and affordability are included in the definition. Sharifuddin developed an assessment framework that incorporates the elements of

availability and affordability and combines them with the aspects of stability, efficiency, and environmental impact (2013, 576). His framework covers all relevant aspects that are included in the working definition of energy security, a stable, affordable supply of energy that includes the elements of efficiency and sustainability. The framework, however, does not simply include all the elements of the working definition by chance. He tailors his framework towards Malaysia and other Southeast Asian countries. He argues that indicators and dimensions included in more comprehensive assessment frameworks and models "are of limited value for assessing the energy security of SEA countries", stemming from the fact that they are mostly still developing countries, adopting technologies instead of developing them and simply not being able to affect global political-military issues (ibid., 575). China, Malaysia, and Vietnam are still developing countries, hence putting the focus on elements of energy security that fuel economic development and dampen the negative effects of intense energy consumption, such as energy efficiency or environmental issues. Sharifuddin's framework therefore is excellent not only because of its selected elements of energy security, but also because of its basic theoretical assumption that any framework needs to be tailored towards domestic or regional characteristics. In this case, the decisive characteristic is the developing nature and strong commonality of elements present in China, Malaysia, and Vietnam's approaches towards energy security. The framework is divided into three parts: the general aspects of energy security, the elements included in each respective energy security aspects, and the indicators used to measure the different elements of energy security.

Table 1 Energy Security Assessment Framework

Aspect	Element	Indicator(s)
Availability	Volume	Primary energy supply
	Accessibility	Electrification level
		Access to modern cooking fuels level
	Independence	Net import-to-consumption ratio
Stability	Resource sustainability	Reserves-to-Production ratio
	Supply security	Reserves-to-consumption ratio
		Fuel supplier diversity
		Electricity production-to-demand ratio
	Fuel diversity	Structure of fuel mix
	Infrastructure adequacy	Refinery & electricity output-to-capacity ratio
		Electric power transmission & distribution losses
	Emergency response capability	Total stocks-to-annual consumption ratio
Affordability	Price levels	Electricity retail price
		Fuel retail price
	National accounts	Energy subsidies
		Energy import cost-to-total export revenue ratio
Efficiency	Energy consumption	Energy consumption per capita
		Energy consumption per sector
	Energy intensity	Energy intensity per unit GDP
Environmental impact	CO^2 emissions	CO^2 emissions per unit energy
		CO^2 emissions per capita

Source: modified by author after Sharifuddin 2014, 576

The framework used in this thesis therefore keeps Sharifuddin's general layout and most of the indicators. The author has slightly altered or merged some indicators with others to tailor the framework to the energy security approach taken in this thesis even further. The indicators

for supply security and fuel diversity have been simplified towards more comprehensible, structured, and specific indicators. Other modifications include decoupling fuel and electricity prices from the GDP ratio to make the data more comparable, consolidating the sectoral indicators of energy consumption, and including energy consumption per capita as a new indicator to represent rising consumption on a more general scale. Lastly, CO^2 emissions have also been changed away from energy-sector specific indicators to represent emissions on a national and more general scale. In conclusion, the emphasis on the stable, affordable supply of energy is well reflected by the focus on the availability, stability, and affordability aspects while also considering key indicators for efficiency and environmental impacts.

2.2 International Political Economy

After having established the analytical framework for assessing energy security, the aim of this section is to connect the still relatively isolated energy security framework with domestic and international dynamics surrounding energy policies, energy security approaches in general, and strategies regarding energy security in particular. Naturally, establishing a connection between energy and energy security on the one hand and international political economy on the other hand first requires a basic understanding of what IPE actually is. What are its core aspects, perspectives, and how does it relate to energy and energy security? The aim is to show how both parts can come together in a meaningful and analytical way. This is done mainly through examining academic literature on the topic of IPE and its connection to energy. Integrating the concept of energy security into the theoretical concept that is IPE to analyze the South China Sea dispute essentially amounts to mapping out the interplay between energy security and the different components of IPE: the international relations part as well as the political economy part. Factoring this into the overall equation means analyzing how each of these parts influences other parts in the context of energy security and the dispute in the South China Sea. How do international economic factors influence the domestic level and what kind of effect does this have on policies and strategies concerning energy security? The details of the framework that incorporates these aspects are discussed more extensively in the second and third part of this section. In the second part, the interaction between the domestic and international level is analyzed. Based on this, the third part will deal with the international level, putting the emphasis on the international interaction between states.

2.2.1 International Political Economy and Energy

The concept of International Political Economy

IPE is just as complex and hard to define as its name suggests. It provides ample terrain to work and analyze on and, not unlike energy security, is hard to narrow down into one specific, comprehensive definition (Phillips 2005, 11; Frieden and Martin 2003, 118). This notion is illustrated by contemporary definitions of IPE. Katzenstein et al. define IPE as “real-world connections between politics and economics”. This all-encompassing definition is directly

connected to the inception of IPE in the late 1960s and 70s. The rise of new economic powerhouses like West Germany and Japan, the dismantling of the Bretton-Woods System in 1971, and eventually the OPEC oil embargo starting in 1973 all contributed to more prominence of politics in international economics, "synthesizing" both fields (Katzenstein et al. 1998, 645-655; Phillips 2005, 7-8). This 'connectedness' of international economics and politics is well reflected in Veseth's definition of IPE, that he describes as "attempting to understand international and global problems using an eclectic interdisciplinary array of analytical tools and theoretical perspectives" (2002, 1). This interdisciplinary approach is seen in a politico-economic way, as Veseth describes it to be seemingly impossible to consider important questions of international politics or international economics without taking into account the "mutual interaction" between the political and economic spheres (ibid.).

Having established that politics and economics are both integral parts of IPE and that they interacting with each other, the question now turns to how this interconnectivity can be analyzed. Katzenstein et al. argue that two distinctive areas have been established to analyze the interplay between economics and politics: the international system and the interactions between domestic politics and international economics (1998, 647). Putnam, analyzing the entanglement between domestic politics, international politics, and economics, and which variable ultimately determines the other, describes the interplay basically as a two-way street in which they sometimes both determine each other (1988, 427). Keohane and Milner argue that, as a result of the close linkage between politics and economics, "profound political effects" are expected as "domestic politics […] should show signs of the impact of the world economy", identifying globalization of the rapid internationalization of economies as key features affecting domestic politics (1996, 3; 22). The uncertainty of how the domestic and international dimensions influence each other and what this entails for the interaction between states in the international system is at the core of IPE research. Frieden and Martin argue, "The most challenging questions in IPE have to do with the interaction of domestic and international factors as they affect economic policies and outcomes" (2003, 119). Because of domestic-international interaction, policy outcomes oftentimes play a dominant role in affecting the interaction between states on the international level, providing a link between the domestic-international interaction and the international interaction of states. Therefore,

> [the] principal challenge […] of international politics generally, and international political economy specifically, has been the need to take into account both the domestic political economy […] and the role of strategic interaction among nation-states […] (Frieden and Martin 2003, 120)

The research layout of IPE regarding the interconnection between economics and politics has therefore identified two separate, but connected levels. The 'domestic-international interaction' looks at how the international economy affects domestic politics, which, in turn, influence state policies and the 'international interaction'. However, how can this be applied to energy and energy security?

Energy in International Political Economy

One should assume that energy, with its vital importance for socioeconomic development and economic growth, would be one, if not the key dimension researched by scholars of IPE. This, however, is not the case. Goldthau even went so far as to describe the status of energy and its global role to be "neglected" (2011, 213). Only a few key scholars have included questions of energy, energy security, or the governance of energy as an important part of IPE (Keohane 1984; Strange 1988). In his book, Robert Keohane analyzes the effects international regimes have on politics and economics of international relations, effectively moving beyond the politics vs. economics divide (1984, 222-228). Similarly, Susan Strange, in her structural approach on IPE, argues for moving beyond theoretical obstacles and finding a framework that takes into account the impact of state actions on the international economy and, conversely, the impact the international economy has on state policies and actions (1988, 195).

From a policy field point of view, contemporary research and literature has shown that climate change and environmental concerns are oftentimes more present and considered relevant than the topic of energy itself (Carter 2007; Giddens 2009; Newell and Patterson 2010; Stubbs and Underhill 2006). Meanwhile, actual research and literature on energy and energy security has been preoccupied within a web of theoretical barriers and traditional approaches. This controversy takes place in the form of two different, almost opposing approaches: the realist or geopolitical approach that views the state as the central actor regarding energy, and the liberal market-based approach viewing markets as the central element (Keating et al. 2012; Goldthau and Witte 2010). This "market vs. geopolitics" debate, as Keating et al. call it, is evident in contemporary debates (2012, 2-3). Be it the re-emergence of a mercantilist approach towards energy that is associated with China's activities in Africa (Alden and Aves 2009; Taylor 2006), the "battle" over resource in frontier places like the Arctic (Borgerson 2008; Ingimundarson 2010), and even using energy as an alleged weapon to influence policy goals and security ambitions (Erixon 2008). Realist approaches emphasize a state-centric approach, with a focus on the supply of energy and the overall accessibility of energy resources in a global setting. Liberal approaches in turn naturally have turned their focus away from the state as the central actor and instead focus on the liberalization of energy markets and a more decentralized, market-based governance structure (Erixon 2008; Hayes and Victor 2005). The liberal approach defines two 'worlds' of energy markets: The "old world", in which the state dominates the trade and provision of energy and controls the energy sector and the "new world", where more efficient market institutions and the private sector take over the role of state (Hayes and Victor 2005, 10).

How does all of this relate to energy security and establishing an appropriate framework for the overall topic of this thesis? First, market-based and geopolitical approaches both show a negligence of thinking beyond traditional theoretical boundaries and analyzing energy and energy security in the way it needs to be analyzed. The "global interconnectedness" of energy challenges needs to take into account the interaction between politics and economics, the influence of international economic developments on domestic politics, and, conversely, the influence domestic politics have on the international level (Goldthau 2011, 214; Keating et al. 2012, 4). Keating et al. essentially summarize this by highlighting that bringing energy into IPE requires an interdisciplinary approach reflecting the "multiplicity of actors and institutions" engaged in it as well as "systematically identifying interlinked […] global, regional, and domestic influences on policy processes" (2012, 4-5). Incorporating the overall goal of

this thesis, namely analyzing the role of energy security in the South China Sea dispute, into an IPE framework therefore requires:

1. Looking at international energy developments and how they affect domestic structures relevant to energy security
2. Analyzing how the domestic structures in turn determine energy security policies
3. Consequently analyzing the behavior and actions of states in the South China Sea shaped by these policies

The next sections will go into more detail on both areas of analysis, the domestic-international interaction and the international interaction: What approaches are available in IPE regarding both levels of interaction? How are they structured and how can they be analyzed?

2.2.2 Domestic-International Interaction

Analysis of Domestic-International Interaction

In the previous section, it has already been established that the essence of the domestic-international interaction consists of analyzing the effects of the international on the domestic level and vice versa. However, what does this entail? Frieden and Martin, in a comprehensive assessment on the state of IPE and the interactions between the domestic and international level, describe that at the heart of the domestic-international interaction is "the impact of domestic institutions and interests on international interaction, and vice versa" and that the overall goal involves "a simultaneous understanding of this mutual causation" (2003, 120). Thus, Frieden and Martin not only point out the causal relationship between the domestic and the international level, but they mentioned two key indicators for the analysis of the domestic-international interaction: domestic institutions and interests. The structural analysis of the interaction requires but one key indicator more, that is the information shaping and influencing domestic institutions and interests. Frieden and Martin argued that not only the domestic-international interaction, but also the whole of IPE could be analyzed in terms of three factors or indicators: interests, institutions, and information. The complex interplay of all three factors begins at the interests of key actors that drive policy decisions, followed by institutions and information that play a key role in translating these interests into outcomes. Whereas institutions consolidate interests and play the role of an "aggregator", information decisively influences available policy choices and pathways as well as the bargaining- and negotiating process of policy-making (Frieden and Martin 2003, 120-121). Hence, the analysis of the domestic-international interaction in this thesis needs to take into account and examine these factors in order to assess the role of energy security for international interaction.

There is, however, no "right" approach to the structure of analyzing the domestic-international interaction. Over the years, a multitude of approaches has appeared, offering several ways and directions for analysis. One approach to analyze the domestic-international interaction looks at how interests, institutions, and information on the domestic level are affected by international economic trends and developments and how this creates feedback in

the form of domestic policies. Keohane and Nye, with their book 'Power and Interdependence', are popular forerunners regarding this approach. They conclude that "interdependence affects world politics and the behavior of states; but governmental actions also influence patterns of interdependence" (1977, 5). For Keohane and Nye, dependence means "a state of being determined or significantly affected by external forces" (ibid., 7). They analyze interdependence in the form of sensitivity and vulnerability and apply this approach to the interdependence of states and markets. One example is the oil crisis in the early 1970s, when western powers were vulnerable against disruptions in their oil supplies whereas the oil-producing Arab countries were in a position of power, significantly affecting domestic politics in the West. However, this resulted in a movement towards less oil-dependency and change in behavior towards Arab countries, demonstrating the interdependence between both variables.

Contemporary examples of this approach focus for example on analyzing how the international economy affects domestic trade policies (Alt and Gilligan 2003; Keohane and Milner 1996; Frieden and Rogowski 1996). These approaches argue that the internationalization of the world economy "seems to have profound effects on domestic politics worldwide" and view "exogenous changes in the costs or rewards of international economic exchange" as an independent, international variable influencing domestic politics (Keohane and Milner 1996, 22; Frieden and Rogowski 1996, 28). Besides international economic factors affecting domestic interests, other approaches highlight how international institutions affect domestic interests and information. Keohane, for example, describes how the IEA influenced domestic politics of its member states by providing a coordinated approach during and after the oil crisis by altering domestic information and policies (1984, 223-242). Another approach places the government as a 'mediator' between the domestic and international level, interacting with both levels. This 'Two-Level Game' approach by Putnam argues that at the domestic level, interest groups pressure the national government to consider their interests and governments use coalition building to consolidate a broad, domestic support base. On the other hand, as Putnam argues, national governments "need to maximize their own ability to satisfy domestic pressures, while minimizing the adverse consequences of foreign developments" on the international level. Therefore, a dynamic of two games falls into place, where both games, the domestic as well as the international, need to be played and both sides want to see their interests met (Putnam 1988, 434-436).

Incorporating Energy Security into Domestic-International Interaction

As the outlined approaches for analyzing the domestic-international interaction have shown, there exists a variety of different ways to analyze this interaction. However, none of these approaches can reflect the multitude of different dynamics behind it or, as Frieden and Martin put it, "the analysis of domestic-international interaction requires heroic assumptions and simplifications, such as to reduce domestic institutions to an executive or legislative" (2003, 125). What does this entail for incorporating energy into a domestic-international interaction framework? Interests, institutions, and information play the central role in analyzing domestic-international interaction. Hence, when putting energy into the equation, looking at these factors from an energy point-of-view is required. Therefore, incorporating these factors into the basic IPE framework offers the following domestic-international interaction framework:

1. International economic factors – in this case the global and Asian energy markets – influence domestic politics and economics in the form of making an impact on interests, information, and institutions concerned with energy security
2. Domestic energy security policymaking, shaped by interests, institutions, and information, in turn determines the country's energy security policies and strategies

The element of information will be reflected in two ways: as a look at the global and regional energy markets and as an assessment of energy security at the domestic level. Interests and institutions play a major role in the actual process of policy-making. Hence, a detailed assessment of interests and institutions in addition to analyzing energy security policies takes place. In summary, this first part of the framework takes into account the interdependence of domestic-regional interaction, in which both levels affect each other. This also illustrates the strong interconnection of domestic economics, domestic politics, international politics, and international economics, as energy security is both economic and political in nature. The domestic-international interaction therefore is the foundation and first major building block for any further assessment of the South China Sea dispute in an energy security context.

2.2.3 International Interaction

Analysis of International Interaction

The second major building block of the framework is the international interaction, analyzing how states interact on the international level with each other. The international environment does not exclusively determine how states interact with each other on the international level. Instead, domestic factors in the form of information, institutions, and interests influence state interests on the international level and bring together IPE with IR. Economic interests, in this case energy security and its key position in economic development, oftentimes transcend national boundaries in which case the domestic level plays a major role in influencing and shaping the international relations of states, connecting the realm of IR with that of IPE. Interaction of states on the international level, however, can also have important consequences for the domestic level. Hence, with the nation state as the primary unit of analysis, the overall 'goal' of the international interaction is to figure out "how the constraints and opportunities of the international system and the process of interaction with other states influence decisions and outcomes" (Frieden and Martin 2003, 137). Frieden and Martin developed a framework that analyzes international interaction by looking at three elements:

1. the identification of state interests
2. the specification of the strategic setting
3. and attention to the role of uncertainty in explaining policy choice (ibid.)

The first part of analyzing international interaction is identifying state interests, establishing a basic understanding of the aims and goals of states. These state interests are then put into a

strategic setting with a systemic nature. Identifying state interests is a key aspect of international interaction, which, in turn, means that identifying potential patterns and divergences in interests is crucial to determining the role energy security plays in overall interaction. One approach to identify such patterns and divergences is based on the domestic-international analysis and focuses on commonalities among the analyzed states. A higher degree of common interests can identify variations or patterns of state interests that contribute to cooperation or keep an even closer cooperation from happening. On the other hand, a lower degree can identify elements that keep cooperation from occurring and instead favor conflict and conflict-associated behavior (Frieden and Martin 2003, 137-138). An example of this approach can be found in Keohane's book "After Hegemony". He points out the interaction between the domestic and international level and that others regard the domestic policies and strategies of one state as "hindering the attainment of their goals", resulting in more conflict and discord, whereas commonalities in interests result in more cooperation (1984, 53-54). A second approach to analyze state interaction looks at how systemic influences of the international system and the state's position within it affect state interaction. Frieden and Martin's basic assumption is "that all states want to maximize their economic welfare. However, what policies allow a state to do so are heavily dependent on its position in the international political economy" (2003, 138). An example of this approach is Kenneth Waltz's "Theory of International Relations", in which Waltz describes states as units with the aim of maximizing their security to survive in an anarchical international system. Furthermore, he deducts that, due to a state's position in the international system and its relative capabilities when compared to others, policies and actions a state can take to balance against others are ultimately dependent on its role in the system (1979, 91-121).

Keohane describes two constraints, or variations, that need to be kept in mind when analyzing international interaction: environmental factors and powerful actors (1984, 71). The second and third elements of international interaction, the strategic setting and role of uncertainty, bring these constraints into the analysis. Frieden and Martin describe the strategic setting as "the structure of interaction, the form of the game", such the number of states involved in the particular interaction, the rule-set, or the legal environment surrounding it (2003, 138-139). A key aspect of the strategic setting is the role of uncertainty. Being aware of all information available and knowing about your opponent or partner's strategies is a key component influencing one's own strategy and actions. This is the first type of uncertainty, the "uncertainty about the preferences of others". The other type is the "uncertainty about causal relationships", the uncertainty about the impact of one's policies and strategies on the environment (Frieden and Martin 2003, 139-141). The key role of uncertainty in international interaction is prominent in analyses of international regimes (Keohane 1984, Gilpin 2001). For international regimes, defined as "sets of implicit or explicit principles, norms, rules, and decision-making procedures around which actors' expectations converge in a given area […]", minimizing this uncertainty is a key task (Gilpin 2001, 83-84). As communication is key to intergovernmental interaction, the disclosure of information international regimes provide is valuable to states as it counters the effects of information deficits (see Keohane 1984, 93-97).

Incorporating Energy Security into International Interaction

The overview on international interaction has presented two approaches to analyze state interaction on the international level: an "inside-out" approach, focusing on the domestic analysis and looking at commonalities among states to identify patterns and variations of state interests that can affect state interaction. The "outside-in" approach, on the other hand, emphasizes the international system and with it the position each states has in it that in turn determines policies and strategies as the basis of interaction with others. Additionally, the strategic setting and the role of uncertainty extensively affect the *modus operandi* of international interaction, which has to be taken into account. How can energy security be incorporated into all of this?

When analyzing the role of energy security in the South China Sea dispute, it is crucial to look at the domestic level to analyze each country's position and strategy towards energy and energy security, because it directly influences international interaction with energy security prominently featured in each country's socioeconomic development. However, systemic influences are also an important factor in the dispute as power differences among claimant states, external parties, and policy options for each claimant play key roles in analyzing state interaction in the area. This thesis uses the domestic-international interaction as its basis; looking at commonalities to identify patterns or variations across state interests. Systemic elements, however, are taken into account when analyzing the strategic setting in the South China Sea. Therefore, both systemic influences and domestic-international interaction are taken into consideration. Identifying the degree of common elements across China, Malaysia, and Vietnam's interests concerning the South China Sea is important because it ultimately allows drawing conclusions concerning potential patterns and variations affecting state interaction in the South China Sea. Tailoring the strategic setting element towards energy security in turn means looking at the strategic setting in which state interaction takes place in, focusing on energy- and security prospects linked to the South China Sea as well as systemic influences. Moreover, by looking at cooperation and conflict in the South China Sea, sources of uncertainty and their affects are identified and analyzed in the context of energy security. The framework for international interaction is therefore as follows:

1. By looking at energy security- and South China Sea interests, the degree of common elements as well as patterns and variations across states interests is identified
2. By taking a closer look at the structure of interaction as well as the energy- and strategic prospects in the South China Sea, the effects of the strategic setting affecting state interaction in the dispute is taken into account
3. By analyzing cooperation, the legal framework, institutions, and information in the South China Sea, the effects of uncertainty on state interaction are determined

The framework for international interaction takes into account the domestic-international interaction regarding energy security and expands on the analysis by including crucial elements of international interaction to identify the role of energy security in the South China Sea dispute. Thus, the domestic-international interaction of energy security is directly connected to state interests in the South China Sea, as energy security plays a key role for Chinese, Malaysian, and Vietnamese development.

2.3 Energy Governance

This section elaborates on interests and institutions in the domestic-international interaction. As the exact definitions of interests and institutions in an energy security setting have not yet been clarified, the central question thus is as simple as it is complex: "Who governs energy?" The first step to answer this question is to clarify what the term 'governance' exactly means. Establishing a basic understanding of the term is thus critical. Bringing together governance and energy is the second step. The IPE framework describes information, interests and institutions as the deciding factors in domestic-international interaction. Consequently, elaborating on these factors and making them applicable is the goal of the second part of this section. Information as a variable influencing interests and institutions is addressed through the energy assessment framework and global and regional energy market determinants. Interests and institutions, however, are not. Interests have their origin in actors, or stakeholders. Hence, it is crucial to first clarify what we understand under these terms. To identify key institutions and stakeholders concerned with energy security policymaking and strategies, a 'Governance Analysis' of energy is used. To summarize, this section will deal with the governance of energy by 1) taking a closer look at the concept of 'governance' itself and 2) establishing a framework for the governance analysis of energy to identify key institutions and stakeholders in the area of energy and energy security.

2.3.1 The Concept of 'Governance'

Introduction

Looking more closely at the governance of energy is crucial in identifying what kind of stakeholders and institutions play key roles for the energy security policies. However, what does governance actually mean? Over the years, the concept of governance has become increasingly popular and has even become one of the most commonly used terms in contemporary political science, even so far as to refer to it as a "fetish" (Peters 2010, 2). Van Kersbergen and van Waarden, for example, observe that the study of governance has become a "veritable growth industry" (2004, 144). A factor contributing to this popularity seems to be the ambiguity of the term, being highly modifiable to adapt to different uses. Governance is described as being "notoriously slippery" (Pierre and Peters 2000, 7), often referred to as a bridging concept between disciplines (Pierre and Peters 2000, 1; Van Kersbergen and van Waarden 2004, 143) and even deemed a "buzzword", which can mean anything or nothing (Jessop 1998, 30). The etymology of the term, however, helps to get a more firm grasp on it. Governance stems from the Greek word *kybernan* and means to pilot or steer, being translated into the Latin word *gubernare*, to which the modern concepts of governance and government are related to (Levi-Faur 2011, 4). Although overlapping, governance does not equal government. Bevir, elaborating on this distinction, refers to government as political institutions, whereas governance refers to the "processes of rule" and "all processes of governing" (Bevir 2012, 3). Nevertheless, what does it mean concretely and what is it about?

Governance relates to the changing relationship between the state and society and the policy instruments used in this relationship (Pierre and Peters 2000, 12). Francis Fukuyama represents a more traditional approach to this relationship, defining governance as "a government's ability to make and enforce rules" (2013, 350). Rhodes, on the other hand, emphasizes a more decentralized approach, describing it as "self-organizing, interorganizational networks" (1996, 652). A balance between the two can be found in the definition of the European Commission, defining governance as "the state's ability to serve the citizens and the rules, processes, and behavior by which interests are articulated, resources are managed, and power is exercised in society" (2003, 3). These definitions of governance demonstrate that there are several ways, or forms, of governance. Fukuyama and Rhode's definitions describe a structural model of governance, in which Fukuyama emphasizes a hierarchical and Fukuyama a decentralized, network-based structure. The definition of the European Commission, on the other hand, focuses on the interactive process of governance. In contemporary literature, four meanings or arrangements of governance are discussed: governance as a structure, a process, a mechanism, and a strategy (Levi-Faur 2011; Pierre and Peters 2000). As a structure, governance focuses on the institutions involved. As a process, it describes the dynamics involved in policymaking. Governance as a mechanism elaborates on the instruments used whereas governance as a strategy highlights actors' efforts to manipulate or govern institutions and mechanisms to shape preferences (Levi-Faur 2011, 9-11).

As governance is fundamentally also about the state-society relationship, the question remains of who it is that actually 'steers the ship' or, as Bevir put it: "Theories of governance typically open up the black box of the state" (2012, 4). In contemporary literature, much of research has focused on two perspectives on state-society relations. The first perspective sees a rise of societal actors influencing policymaking and a decline, or even a "hollowing out" of the state. They see the boundaries between public and private sectors blurring and policy outcomes "not as the product of actions by the central government" (Rhodes 1996, 660; Stoker 1998, 19). The second perspective does not deny the involvement of societal actors in policymaking, but emphasizes the prevalent role of the state in governance. Peters argues that efficient governance may be better provided by state actors and that tendencies trying to phase out the state of its central position "appear misguided" (2010, 4). Pierre and Peters, albeit recognizing other actors, describe the state to be the "key political actor in society and the predominant expression of collective interests" in addition to the state deciding who will be in involved making the ultimate decisions about policy (2000, 25; 36). Taken a step further, state-centric governance could even suggest, "that polities worldwide are and should be structured around states" (Levi-Faur 2011, 15).

Analyzing Perspective of Energy Governance

What approach would be suitable when analyzing energy governance in China, Vietnam, and Malaysia? Pierre and Peters argue that the role the state play in governance depends on the structure of the particular policy sector in which governance is to be analyzed, listing the pattern of regulation and control over the specific sector as key indicators (2000, 26). State intervention and the overall role of the state in the energy sector seems to be crucial, with energy

services often seen as integral to national security and national power (Florini and Sovacool 2009, 5239). However, is this the case for China, Malaysia, and Vietnam?

China

China is the world's largest energy consumer and producer. In 2012, the share of fuels and mining products in China's total exports was 2.7%, whereas the share of imports was at 29.4%. This means that almost one third of China's total import consists of energy, with its export of energy not even one tenth of that (WTO 2014). In China, the regulatory framework for the energy sector is fragmented. All three regulatory bodies – for the electricity-, the energy-, and overall economic sector – are state-controlled and give the state enough opportunities to influence prices and the overall regulatory framework for the energy sector. The most influential regulatory body for the Chinese economy and the energy sector is the 'National Development and Reform Commission' (NDRC), with considerable power and responsibilities. The ownership of the energy sector is similarly state-dominated. The two primary grid companies in China, monopolizing China's grid system, are completely state-owned and give the state control over China's vast electricity transmission network. Similarly, China's five greatest power companies are also in state hands, leaving the electricity sector fully state-owned. The oil and gas markets are also dominated by state-owned enterprises (SOEs), like the 'China National Petroleum Corporation' (CNPC) or the 'China National Offshore Oil Corporation' (CNOOC). The Chinese coal market on the other hand is largely fragmented into state-owned mines and mines operated by local authorities, towns, and villages (REEEP 2014a).

Malaysia

The share of Malaysia's fuel and mining imports in 2012 was at 22.7% of total imports, whereas exports thereof constituted for 19.2% (WTO 2014). The oil, gas, and energy sector in Malaysia plays a crucial role in the economy as it contributes approximately 20% to Malaysia's GDP (PM of Malaysia 2014, 46). Moreover, the energy sector also plays a critical role in terms of government revenue. In 2013, Malaysia's total government revenue amounted to 220.4 billion ringgit. Petronas' contribution in the form of dividends, taxes and other payments however amounted to 73.4 billion ringgit, more than one third of the government's total revenues that year (EPU 2013, 12; Petronas 2014, 43). The energy sector therefore is critical to both, overall economic development and governmental revenues. In Malaysia, regulation of the energy sector is divided between two institutions, the 'Ministry of Energy, Green Technology and Water' (KeTTHA) and the Energy Commission (ST). The ST consists of three government representatives and not more than six members with knowledge related to energy. Nevertheless, all members have to be appointed by the Minister of Energy and the government funds the Commission (ST 2013a; REEEP 2014b). In each of Malaysia's three regions – Sarawak, Sabah, and Peninsular Malaysia – a monopoly company controls the transmission and distribution of electricity. However, Independent Power Providers (IPPs) provide more than 50% of electricity in Sabah and a portion of electricity in Peninsular Malaysia (EIA 2014b). Moreover, the largest monopoly company, 'Tenaga Nasional' (TNB), is privately owned with the Government's Strategic Investment Fund owning slightly more than 30% of

the total shares. The monopoly company in Sabah, 'Sabah Electricity Berhad' (SESB) is also 80% owned by TNB, making for considerable private influence in the electricity sector (TNB 2013, 385; SESB 2012). The oil and gas sector in Malaysia is dominated by Petronas, a wholly state-owned company, owning all of Malaysia's crude oil and gas deposits and plays a dominant role in the upstream and downstream sectors (EIA 2014b; REEEP 2014b).

Vietnam

Fuels and mining products accounted for 10.9% and 15.4% of Vietnam's total exports and imports in 2012, respectively (WTO 2014). Vietnam is an exporter of oil, with oil revenue alone accounting for almost 20% of state revenue in 2012 (General Statistics Office 2013a, 62). PVN's revenue alone accounts for 20% of Vietnam's GDP and contributes up to 30% to the state budget (PVN 2011). Contrary to China and Malaysia's regulatory framework, regulatory power in Vietnam's energy sector in concentrated in one state ministry with extensive authority that is "in charge of all activities of the energy sector and other industries" (REEEP 2014c). 'Vietnam Electricity' (EVN) dominates Vietnam's electricity market. EVN is a vertically integrated enterprise engaged in the generation, transmission, and distribution of electricity. As the state holds the majority of shares, it is a state-owned enterprise, although EVN also has many private shareholders. In 2009, it was responsible for 68% of electricity generation. PVN, on the other hand, is the state-owned enterprise dominating the oil and gas sectors. It is primarily engaged in oil and gas upstream activities, but has also subsidiaries in the downstream and electricity sector (ibid.).

Conclusion

This brief overview on the relationship between government and key stakeholders in the energy sector has shown that the state, although to different degrees, is the dominant actor in the energy sector. State-influence is dominant in China and Vietnam. In Malaysia, the state still plays a pivotal role in the oil and gas sector and the regulation of the energy sector. Therefore, a state-centered approach with a more traditional, top-down model of government-stakeholder interaction is used in the upcoming governance analysis of energy. However, it is important to mention that this does not imply a "state-only" analysis, but an analysis that considers the state to be the central actor regarding energy security.

2.3.2 Governance Analysis of Energy

Establishing a Governance Framework

Interests, institutions, and information – all three of which have been identified as key elements in analyzing domestic-international interaction – now have to be defined and further specified in order to make them applicable towards an analysis of energy governance. Not only within the governance of the energy sector, but every economic sector, are interests articulated by stakeholders. The World Bank defines stakeholders as "individuals, communities,

groups, or organizations" that have "different levels of interests and influence in different stages of the policy process", meaning that some stakeholders are more powerful than others are (2008, 11). The European Commission, analyzing the governance of different sectors, describes 'actors' and their specific interests as central to the governance analysis of a sector, as these interests are the driving force behind policies. They further point out that the best way to map these actors is to focus on the ones that "really matter" and have the "strongest formal or informal say in governance" (European Commission 2008, 22-24). Institutions are described as the "rules of the game", shaping interaction and choices of stakeholders. Institutions can be of formal or informal nature. Formal institutions are sets of rules, such as the political system, the structure of the government, or laws. Informal institutions come in different forms, such as norms or cultural practices. Institutions thus provide the rules and influence how the game is played (World Bank 2008, 11). Information is the element shaping the interests of stakeholders, as the informational setting and environment determines which interests are feasible and which are not, providing the foundation for interests and policymaking. A governance framework for energy therefore needs to take into account interests, institutions, and information as the three key elements of domestic-international interaction, but also consider the structure of government-society interaction. Lapenu and Pierret, emphasizing the outcome of governance, summarize this notion nicely:

> All decisions are made based on information available, knowledge of the environment and how it evolves. Decisions make it possible to turn strategic guidelines into reality. Decision-making may be more or less centralized depending on the governance structure (2006, 24).

Now, how can this be incorporated into an applicable governance framework? Addressing governance in sectors, the European Commission uses a 'Governance Analysis Framework' with a focus on three dimensions: the context, the actors, and governance relations between actors and institutions. The framework identifies six different clusters of actors, namely non-state actors, checks and balances organizations that supervise the sector organization, the political system/government, core public agencies like sector ministries, frontline service providers, and regional and international institutions. For mapping key actors, the framework considers several key questions: What is the role and importance of the actor? What are its power and resources? Moreover, what interests does the actor pursue? (European Commission 2008, 19-24). This framework largely emphasizes the relationship between the actors within a given sector and focuses less on the outcomes of policymaking processes. A framework with a more outcome-oriented approach is the 'Governance and Political Economy Analysis' by Fritz et al., which has found a wider application in governance research. The framework first defines the problem, with the second layer of the analysis identifying institutional arrangements, and the third layer looking at political economy drivers. The problem is analyzed in terms of structural variables, presenting information about the environment. The institutional arrangement and the political economy drivers are analyzed in terms of institutions and stakeholders, respectively. The framework therefore clearly reflects the three key elements of domestic-international interaction due to the fact that it takes into account the critical influence information and structural variables in general have on interests, and the way interests are influenced by institutions and vice versa (Fritz et al. 2009, 7; 42). Within the

framework, structural factors are described as "deeper features that affect the political economy of the respective country", which tend to change only slowly and are beyond the direct control of stakeholders, such as resource endowments. Institutional variables are related to the "rules of the game", such as laws, regulations, or the setup of the political system. Finally, stakeholders are identified as influential individuals and groups, such as governmental bodies, enterprises, ministries or external ones like foreign investors or regional and international organizations (ibid.; 42-43). The framework by Fritz et al., in contrast to the framework devised by the European Commission, takes into account the implications and effects of the underlying political economy situation of the specific sector towards the policymaking process instead of only analyzing the context within the overall governance process itself. Moreover, the 'Governance and Political Economy Analysis' is problem-focused and designed to emphasize the influence all three analytical dimensions have on policies and policy implementation. Hence, the 'Governance and Political Economy Analysis' is used in the further analysis of institutions, interests, and information.

Incorporating Energy into the Framework

Having established a governance framework, the key question now becomes how energy can be incorporated and analyzed within this framework. Manghee and Poole apply the governance framework by Fritz et al. in an analysis of the water sector across five different countries. For structural variables, they identify several central factors, such as the endowment of water supplies or the affordability of water in urban areas. In terms of institutional variables, laws and the regulation of water, the political system, and the structure of ministries were deemed as key as they show how water responsibilities are divided among agencies. Finally, they map out ministries, regulatory agencies, water providers, and businesses among the key actors in the water sector (2012, 7-8). For the energy sector, determining key information, key interests, and key institutions will follow a similar pattern. Having said this, the focus will be on actors that really matter and that have the strongest say in the governance of energy.

Information

As Manghee and Poole's application on the water sector has shown, identifying the structural factors surrounding a sector is critical as they shape interests and policy outcomes. They represent the "deeper features" of the energy sector, the independent variables affecting the dependent variables in the energy sector, such as energy policies and energy security. For the energy sector, there are several levels of information to consider. Energy is a globally traded commodity and therefore global energy markets and their development play an important role in the informational setting of each country's energy sector as they influence energy prices and the global supply and demand of energy. Regional energy markets are also of particular importance. They represent a region's developmental trends in the energy sector and can point out distinct characteristics of the region's overall energy trends and developments. Thus, a look at the global and Asian energy market will provide important information regarding the overall state of energy affordability, supply, and demand as well as a perspective on the Asian energy market and its role within the global energy trade. For the domestic level, a detailed

assessment of energy security is necessary. This is where the energy security assessment framework based on Sharifuddin comes into play. The framework assesses the most critical variables regarding the availability, affordability, stability, efficiency, and environmental sustainability of energy with a focus on a stable and affordable supply of energy.

Interests

Interests are connected to specific actors, or stakeholders. Identifying the key actors in the energy sector is thus a key priority as the interests of these actors are the driving-force behind energy security policies. For the energy sector, state-based actors commonly play a key role throughout the sector. These actors usually come in the form of the government or governmental bodies, such as the Ministry of Energy or other ministries related to energy. Moreover, state agencies concerned with energy, such as developmental or planning agencies, often play a central role in devising energy security policies. Oftentimes, regulatory bodies are also considered key actors, which directly overlaps with institutional factors (Giroux and Matheson 2010, 29; IEA 2010, 72). Fritz et al. acknowledge this "clear overlap", but argue that a differentiation is necessary "in order to emphasize that institutional dimensions as well as stakeholders and their interests need to be explicitly considered" (2009, x).

For this thesis, governmental bodies as well as energy regulators will be considered as actors, although they clearly overlap with the institutional dimension. Other key actors in the energy sector are energy suppliers, such as electric utilities or oil and gas companies. As has already been shown, SOEs are prevalent in the energy sector of China, Malaysia, and Vietnam. Of particular interest are National Oil Companies (NOCs). NOCs control over 70% of global oil reserves and account for over 60% of global oil trade, with similar numbers for the gas sector, and can account for a large percentage of state revenues, as the example of Malaysia has demonstrated (McPherson 2013, 146). Although state-owned, NOCs "behave more and more like private companies" when engaged in global energy markets because just like private companies, they are subject to the same market rules (Cherp 2012, 367). Finally, as "investments in energy products and services are central to energy security", external actors in the form of foreign investors and regional organizations play an increasingly important role (Ghosh 2011, 1; 18). ASEAN, with its 'Centre for Energy' and the 'ASEAN Plan of Action for Energy Cooperation', in such an external actor. Florini and Sovacool also identify the 'Asian Development Bank' (ADB) as an important external actor that is "helping to shape Asia's rapidly growing energy infrastructure" (2009, 5244-5246). Global organizations 'governing' energy, like the 'Group of Eight' (G8) or the IEA, are fragmented and do not have the reach to bring all major energy players together.

Institutions

Institutions affect stakeholders as they specify the environment in which policymaking takes place. They reflect the restrictions actors and their respective interests face within the specific sector. For energy, these institutions come in different forms. The setup of the political system determines the power of the government and how much opposition it faces when in devising and implementing policies. As will be analyzed in more detail in the coming analysis, China,

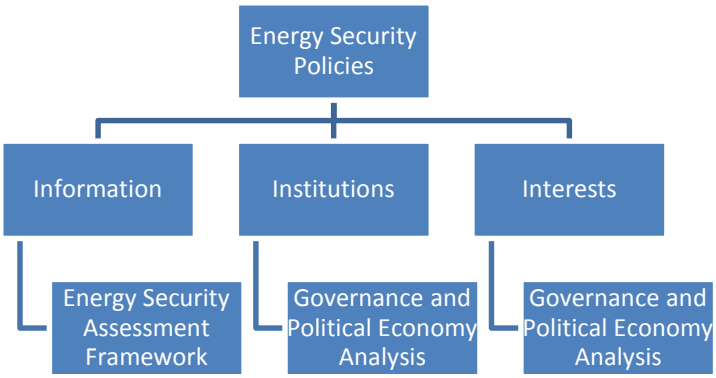
Vietnam, and, to a lesser degree, Malaysia all have in common an autocratic political system in which the governing party or party block is in control of the political system. Thus, albeit not being a very meaningful institutional "indicator" to distinguish differences in energy security policymaking, the political system is nevertheless important to mention as an otherwise important institutional variable. Other key institutions in the energy sector are the laws and regulations regarding energy. For example, long-term strategies with binding targets to reduce CO^2 emissions or achieve a certain level of energy output or efficiency standard clearly have effects on other policies and strategies. Regulations, such as the regulatory framework for the electricity sector, can also have direct impact on actors and their interests. For example, an inefficient regulation of the electricity sector and its actors could result in market failure with high power prices that needs to be addressed by policymakers.

2.4 Summary

The core of the analytical framework is based around the theoretical concept of IPE, in which the domestic level influences the international level, but in turn is also affected by it. The three key elements by which domestic-international is analyzed are:

1. **Information**, defining the setting in which policymaking takes place
2. **Interests** of key actors that are the driving force behind policies and strategies
3. **Institutions** that influence actors and interests by determining the "rules of the game"

These elements interact with each other and eventually lead towards policy. Domestic-international interaction determines the key elements in policymaking and implementation. These policies and strategies are the foundation on which states interact with each other. The domestic-regional interaction for energy security thus looks as follows:

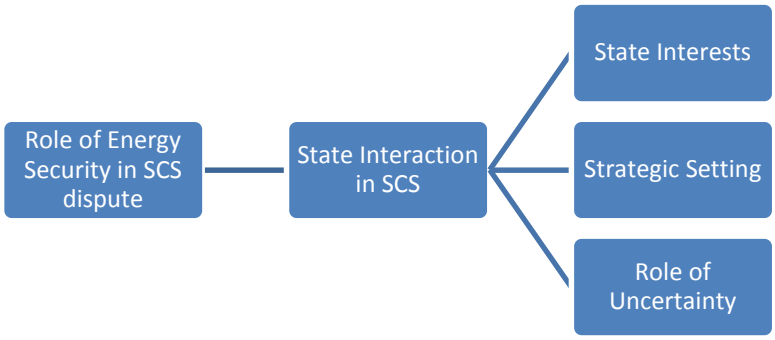


The energy security assessment framework based on Sharifuddin's indicators serves as the primary method to specify the informational setting, in addition to including a brief analysis of the global and Asian energy market. The 'Governance and Political Economy Analysis' determines key actors and institutions. The analysis of the domestic-international interaction is therefore intimately tied to the understanding of energy security, the energy security indicators based on Sharifuddin as well as the Governance Analysis, completing the framework for

the first analytical part. As the goal of this thesis is to assess the role of energy security in the South China Sea dispute, it is further imperative to analyze the international interaction between these countries. The following three elements are used to analyze this interaction:

1. the identification of **state interests**
2. the specification of the **strategic setting**
3. and attention to the **role of uncertainty**

All three elements are needed in order to analyze state interaction in the South China Sea and consequently specify the role of energy security in the South China Sea dispute:



The role of the domestic-international interaction and, consequently, the energy security framework consisting of the energy security indicators and the governance analysis, is essential as it explains and puts into context the interests of states, the central variable in the international interaction between states. By looking at state interests, a degree of commonalities or differences between all three states is established, which helps to explain the overall state interaction. The strategic setting the interaction takes place in and the role of uncertainty within this interaction also influence state interaction. Thus, establishing a basic degree of commonalities among Chinese, Malaysian, and Vietnamese state interests is important to gain insight into patterns and variations thereof to analyze state interaction. Taking a closer look at the strategic setting reflects systemic influences and their overall effects on international interaction. Uncertainty, just like patterns or variations of state interests, can influence and help explain state interaction. The goal of this thesis is to assess the role of energy security in this interaction by analyzing how it is connected to each of the elements that constitute the international interaction between China, Malaysia, and Vietnam in the South China Sea.

3. Domestic-International Interaction

To analyze state interaction in the South China Sea within the context of energy security in the disputes between China, Malaysia, and Vietnam, it is crucial to first look closely at the domestic level and the relevant policies regarding energy security. This is a crucial step within the overall analytical framework as these policies shape and influence a country's behavior and actions towards other countries in crucial ways. Energy security policies represent a country's stance and its overall aims and goals regarding the commodity most important for its socioeconomic development. These policies therefore represent a key variable in assessing the South China Sea dispute in the context of energy security. The three key elements in the domestic-international interaction are information, institutions, and interests. An in-depth assessment of each state's energy security as well as an overview of the global and Asian energy markets is necessary, as information is the central element which interests are based on. Actors and their respective interests are the driving forces behind policymaking. Hence, taking a closer look at the key actors in the energy sector and energy security policymaking becomes necessary in order to identify these key actors in the field of energy security. Institutions in the form of laws and regulations for the energy sector are the "rules of the game" and make up the framework in which information and interests come together to formulate policies and strategies which in turn influence state interaction on the international level. In summary, to analyze domestic-international interaction, developments and trends on the global and Asian energy markets are looked at, followed by an energy security assessment for each country. Afterwards, key actors and institutions are analyzed. Lastly, looking at energy security policies as the outcomes of the policymaking process is relevant as they represent the basis for state interaction on the international level.

3.1 Global and Regional Energy Markets

International information plays an important role in influencing the overall informational setting of energy security. For this analysis, the global and Asian energy markets play a vital role in analyzing the international informational factors influencing actors. Energy markets are indicators of global and regional trends and developments regarding energy flows and usage. Through shifts in the flow of energy, they highlight developments and changes in the demand structure of regional markets and countries. The global energy market as the general "trendsetter" in addition to the dynamic Asian energy market are the focus of this section.

3.1.1 Global Energy Market

General Trends and Developments

Energy production is dominated by fossil fuels. In 2012, fossil fuels accounted for almost 82% of all energy production with the production of coal growing by 2.4%, that of oil by

1.9%, and natural gas growing by 1.7% (IEA 2014b, IX). Energy demand is primarily driven by emerging economies in non-OECD areas, accounting for 80% of the global increase in energy consumption in 2013. On the other hand, consumption in Europe and Japan fell to levels last observed in the 1990s (BP 2014b, 2). From 2000 to 2011, global energy demand grew by approximately 30%. IEA projections show that demand could is likely to grow by an additional 30% until 2035 (IEA 2013a, 69). Considering different policy scenarios, the share of fossil fuels in total global energy demand will remain at around 80%, with two thirds of the demand coming from non-OECD countries. Within these projections, natural gas is taking a crucial role with demand growth rates over 20% (ibid., 58). Contemporary demand patterns of energy and projections up until 2035 highlight several key trends and developments. First, fossil fuels, with gas in particular, will continue to play the central role in the global energy market. Second, with energy demand primarily originating from emerging economies, trade flows have already begun to shift eastward. The third trend is the increasing role of the electricity sector. Whereas in 2012, 42% of primary energy was converted into electricity, this share will rise to 46% in 2035, with fuels for power generation accounting 57% of the growth in primary energy consumption from 2012 to 2035 (BP 2014a, 19).

This growing importance of the electricity sector as well as the prevalence of fossil fuels is reflected by the structure of investments into the energy sector. Around 70% of global energy supply investments are related to fossil fuels, amounting to over $1 trillion. Out of $1.6 trillion global annual investments into energy supply in 2013, $600 billion were each invested into power and oil supply, making up 75% of total investments (IEA 2014c, 20-21). The rapidly rising demand for electricity becomes clearer by the fact that out of the cumulative $744 billion investment for the power sector between 2014 and 2035, more than 60% will need to be used for meeting rising demand, compared to less than 20% for upstream oil and gas investments (ibid., 26). In summary, the global energy market is characterized by a continuing dominance and growing demand of fossil fuels. This is accompanied by a shift of energy demand towards emerging economies. Finally, the role of the electricity sector is becoming increasingly critical within the energy sector as most of the demand growth for primary energy stems from producing electricity to rapidly growing, emerging economies.

Coal

The IEA classifies coal as the "most abundant available fossil fuel worldwide" with its resource base easily able to meet any plausible level of demand for decades to come (2013a, 147). Production has been mostly stagnant or declining for most of the world, whereas coal production in the Asia-Pacific has grown by almost 60% since 2003. However, two thirds of global coal reserves are located in North America, Europe, and Eurasia (BP 2014b, 31-34). The five largest coal producers are China, the United States, India, Indonesia, and Australia. Nevertheless, China alone produces almost half of the global supply of coal (IEA 2014d, II.4). Similarly, Asia, and especially China, is by far the largest consumer of coal, accounting for 60% of global coal demand in 2012, thereby being the center of the global coal market. With China's "absolute dominance over coal markets", projections for the global market are "strongly subject to Chinese uncertainties" (IEA 2013b, 11-13). Coal was the fastest-growing fossil fuel in absolute and relative terms in 2012. A key trend for the global coal market is the

stagnant demand in OECD countries and market dependence on China. Coal will continue to play a pivotal role in the near future for the energy sector as it is affordable, widely available, and its supply long lasting. Trade flows of coal will also continue to move towards non-OECD, emerging economies, with particular high demand in India (IEA 2013a, 143).

Natural Gas

Since 2003, natural gas production in North America and Eurasia has increased only slightly, albeit these regions still account for roughly 60% of total gas production. Production in the Asia-Pacific and particularly in the rest of the world on the other hand has grown more substantially, making up approximately 40% of global production. By far the most natural gas reserves are located in the Middle East, making up 43% of total global reserves. In 2013, the five largest producers of natural gas were the United States, Russia, Iran, Qatar, and Canada. The United States are also the largest consumer, followed by Russia, Iran, China, and Japan (BP 2014b, 20-26). In terms of growing demand, however, the situation looks quite different. In 2013, China's demand for natural gas grew by 13.3%, by itself responsible for half the world's additional gas consumption (IEA 2014e, I.3). A crucial development for the global gas market is the emergence of North America as a major gas exporter. By 2019, the United States and Canada together will have replaced Russia and Central Asia as the largest gas-exporting region worldwide. A second key development is the rapid expansion of Liquefied Natural Gas (LNG) trade. Whereas natural gas trade will expand by 30% until 2019, LNG trade will expand by 40% until the end of the decade. With especially Asia improving its import facilities, accounting for two thirds of all regasification capacity under construction, rapidly growing LNG trade represents a key trend in the global gas market (IEA 2014f, 131). From 2013 to 2035, inter-regional gas trade will increase by 2% per year with LNG accounting for 60% of the overall trade increase (IEA 2013a, 78). Overall gas demand will grow by 44% until 2035 and the Asia-Pacific region will be responsible for 51% of inter-regional trade, more than tripling the region's imports (BP 2014a, 52-57).

Oil

Crude oil production has grown by roughly 10 million barrels per day (b/d) since 2003, particularly by increased production in North America and the Middle East. Consumption of crude oil has especially increased in Asia, absorbing the production increases in other parts of the world by consuming 10 million b/d more than it did in 2003. Half of the global oil reserves are located in the Middle East, with 20% being located in South America, 14% in North America, and the remainder in Africa and Eurasia. The five largest oil producers in 2013 were Saudi Arabia, the United States, China, and Canada. On the consumption side, the United States consumed the most, followed by China, India, Russia, and Saudi Arabia (BP 2014b, 6-12). A key development in the global oil market is the "non-conventional supply revolution" in North America through US shale and tight oil and Canadian oil sands. By 2019, North America overall will have become a net oil exporter. In contrast, Asian crude oil imports will reach a projected 22.1 mb/d, or 65% of internationally traded oil and 27% of global oil production (IEA 2014g, 11-19). Another key trend is the fact that in the next five

years, for the first time, non-OECD economies will consume more crude oil than OECD economies, with the Asia-Pacific region replacing the Americas as the world's largest consuming region in 2015. The unconventional production boom in North America accounts for approximately one third of total global liquids growth until 2019, signaling the rise of North America as a potential major oil exporter in the near future (ibid., 24; 58). The declining oil consumption of OECD economies, North America's emergence as a net oil exporter and rising consumption in non-OECD economies signals a dramatic shift in the global oil trade with the Asia-Pacific region accounting for roughly 75% of worldwide oil imports in 2035 (BP 2014a, 38). Oil, like gas, will continue to flow eastwards towards emerging Asian economies, fueling their development. Global trade flows of fossil fuels therefore will shift dramatically with the west-east discrepancy growing even further and interregional fossil fuel trade shifting towards Asia.

3.1.2 Asian Energy Market

General Trends and Developments

The brief overview on trends in the global energy market has shown that Asia plays a key role and will increasingly do so regarding fossil fuels and energy trade in general. Asia's rapid growth of energy consumption can be attributed to its unprecedented growth. In 2010, Asia accounted for 28% of global GDP with this share quadrupling to 44% in 2035. By 2050, Asia will most likely make up over half the world's GDP. However, in the same timeframe, Asian energy use will increase from 34% to 56%. This has dramatic consequences: Energy consumption will increase by over 200%, mostly coming from fossil fuels. Whereas China alone will account for 31% of net global energy demand growth in 2035, India will account for 18%, with Southeast Asia following by 11%. These regions alone will therefore account for 60% of demand growth (IEA 2013a, 67). East Asian primary energy demand will increase by over 60% until 2035, whereas South Asia's demand will increase by roughly 160%. Southeast Asia, however, will increase its energy demand by approximately 200% (ADB 2013, 56). ASEAN, consisting of most of Southeast Asia, is home to roughly 600 million people of which more than 20% have no access to electricity. Additionally, energy use per capita is only half the world's average (IEA 2013c, 16). Rapid economic growth and an increase in population therefore sets up ASEAN, and Southeast Asia in general, as a rapidly emerging, major energy consumer worldwide. ASEAN's energy demand is likely to increase by 2.5% annually until 2030, potentially cumulating in as much energy demand as Japan, Australia, South Korea, and New Zealand combined (Cherp 2012, 362).

Asia's rapid growth in energy demand coupled with its limited reserves of fossil fuels naturally has consequences for its energy trade. Currently, Asia's overall energy self-sufficiency is moderate. With the exception of Japan, South Korea, Singapore, and most of the smaller Pacific nations, self-sufficiency is at 100% for most nations, with some nations, such as India or China, being as low as 75% with only a couple being lower (UNESCAP 2013a, 42). By 2035, however, only three Asian nations will still be energy self-sufficient, with most of Asia producing less than 50% of their energy needs themselves and many pro-

ducing only a tiny friction (ADB 2013, 58). Thus, Asia's need for energy imports is going to increase exponentially. By 2035, Asia will account for 70% of inter-regional energy imports – and nearly all of the growth in trade (BP 2014a, 21). What does this mean for the Asian energy market? In the near future, almost all Asian energy exporters will become energy importers and overall consumption of fossil fuels is projected to increase at high levels. A closer look at the developments for fossil fuels in the Asian energy market is therefore in order.

Fossil Fuel Trends and Developments

In 2010, Asia's share of fossil fuels in its total primary energy demand was at 83%. By 2030, this share is projected to decrease only marginally, staying at a high 79%. Thus, in the world's fastest-growing energy-consuming region, fossil fuels will still dominate the energy sector in the near future (UNESCAP 2013a, 9). The electricity sector represents a major source for fossil fuel demand. By 2019, over 70% of the electricity produced in Asia will come from fossil fuels, particularly from coal and natural gas (IEA 2014f, 16). Overall, coal consumption is expected to increase by over 80% as oil consumption approximately doubles and natural gas use more than triples. However, Asia, despite becoming the largest energy-consuming region in the near future, being responsible for almost all growth in energy demand, and accounting for most of inter-regional energy trade, has a widely varying degree of fossil fuel reserves. Whereas approximately one third of global coal reserves are located in Asia, natural gas reserves with only 16% are far less abundant. Coal is widely available and gas trade is rapidly growing and diversified in terms of sources, making these fuels not as problematic to access. Oil, on the other hand, is a different story. Only 9% of global reserves are located in Asia, making the region extremely dependent on oil imports (ADB 2013, 56).

Although well endowed with coal, Asia still has to rely on imports to meet growing demand. International seaborne coal trade is almost exclusively focused on Asia. By as early as 2018, around 80% of the globally traded seaborne coal is destined for Asia, with Indian demand alone growing by 18% annually until 2018 (IEA 2013b, 95). Asia, already by far being the largest region for gas demand, will account for over 50% of global gas demand within five years. LNG trade is exceptionally concentrated, with Asia accounting for over 75% of global trade (IEA 2014f, 56; 134). Oil is Asia's most pressing problem. Asia's oil demand is likely going to increase by about 20% until 2019, growing by 4.3 mb/d, with China accounting for half of the growth (IEA 2014g, 34). In 2013, Asia's total oil imports were at approximately 12 mb/d. The demand for oil imports will rise rapidly and by 2035 Asia will import over 30 mb/d, an increase by about 250%, once again making obvious Asia's overwhelming supply-demand gap for oil (ADB 2013, 57). Increasing oil imports will make Asia the "global centre of inter-regional crude oil trade", accounting for 63% of trade by 2035. China will have surpassed the United States and the European Union (EU) in oil imports by 2020. India's oil imports will surpass those of Japan by 2020 while overtaking the EU by 2035, increasing its import dependence of oil to 90%. ASEAN also plays a crucial role regarding Asia's rapid demand growth for coal and oil. Demand for coal is predicted to triple in the next two decades due to the relative abundance of coal in the region. In terms of oil, by 2035, ASEAN will import 60% more oil than the United States, with its oil-import dependency rising from 44% in 2011 to 75% in 2035. Thus, ASEAN will become the world's fourth-largest oil importer be-

hind China, India, and the EU (IEA 2013a, 77; Shi 2014, 3-8). However, what consequences do these developments have for the domestic level? Due to rising demand and decreasing production of fossil fuels, almost all Asian energy exporters will turn into energy-importing countries. Competition over remaining fossil fuels in Asia is likely to grow fast as states try to reduce imports and the accompanying costs and vulnerabilities. This can already be observed by rising tensions in the East- and South China Sea. The rapidly growing demand also shows that Asia needs to reduce overall energy consumption levels by improving energy efficiency and reducing energy intensity. Lastly, the dominance of fossil fuels, especially of coal, leads to growing environmental concerns that need to be addressed in Asia. Energy security approaches by China, Malaysia, and Vietnam all reflect these pressing issues that have developed and will continue to intensify in the Asian energy market.

3.2 China

China is located in Northeast Asia, with extensive land borders and long coastlines. Its land area covers 9.6 million km², making it the second-largest country in the world by land area. Extending much across Northeast- and East Asia, China borders 14 nations, namely Vietnam, Laos, Myanmar, India, Bhutan, Nepal, Pakistan, Afghanistan, Tajikistan, Kyrgyzstan, Kazakhstan, Russia, Mongolia, and North Korea. With roughly one fifth of the world's total population, China's population of 1.355 billion makes it the world's most populous country. This number is expected to increase to about 1.39 billion by 2035 (World Factbook 2014; APEC 2013a, 43). China today is a crucial part of the global economy. It is the second-largest economy behind the United States. Its GDP increased from $2.3 trillion in 2005 to $7.2 trillion in 2011, more than tripling it. From 2001 to 2011, annual GDP growth rates were at over 10%, although this trend has cooled down a bit in recent years. GDP per capita was at $5.264 in 2011, approximately half of the world's average (UNESCAP 2013b, 221-222). In 2013, the primary sector contributed 10% to China's GDP, with the secondary and tertiary sector contributing 43.9% and 46.1%, respectively. Agriculture and industry therefore make up more than half of its GDP (ADB 2014a, 174). Since its economic reforms starting in 1978, China has experienced a period of high-speed growth and moved towards a market-capitalist economy, reflected by its acceptance into the WTO in 2001. In 2011, China's trade balance was at a positive $236 billion, indicating China's export-driven focus (APEC 2013b, 45). Its major export goods are machinery, textiles, and metals. For imports, machinery, mineral products, and chemical products were the main commodities (National Bureau of Statistics 2013). China describes itself as the "largest developing country in the world" and wants to move away from the resource-intensive status as the 'workbench of the world' towards a more knowledge-based, innovative economic structure more reliant on scientific progress, as formulated in its current 12th Five-Year-Plan (State Council 2010, 2-3).

3.2.1 Energy Security Assessment

Availability

Volume

China's primary energy supply – the entirety of all domestically produced coal, oil, gas, nuclear-, hydro-, geothermal-, solar-, and biofuel energy – amounted to 2.53 million tons of oil equivalent (Mtoe) in 2012. Overall, this contributed 18.75% to the world's production of primary energy, making China the largest energy-producing nation in the world (IEA 2014b, II. 40; II. 106). In terms of fossil fuels, China produced 1.84 Mtoe of coal, or 47.4% of all coal production. For oil, the production was at 208.1 million tons, which equaled 5% of global production. Finally, production of gas amounted to 117.1 billion m^3, or 3.5% of global production in 2013 (BP 2014b, 10-32). As the world's leading energy producers, the vast majority of China's produced energy comes from coal, with only small amounts from oil and gas. With an estimated global population of 7.15 billion, global per capita primary energy supply in 2012 was at 1.88 tons of oil equivalent (toe). With a population of 1.36 billion, this number was at 1.86 toe for China, almost meeting the average. Global coal supply was at 0.55 toe per capita, with China at 1.36 toe, more than double the global average. For oil, global supply per capita amounted to 0.59 toe and Chinese per capita supply at 0.15 toe, only a fourth of the global average. Per capita gas supply was at 0.4 toe globally, with China being at 0.07 toe, only 17.5% of the average global per capita supply of gas in 2012 (IEA 2014b, II. 40; II. 106).

Accessibility

In 2011, almost 100% of the population had access to electricity, with approximately four million people left without access (UNESCAP 2013b, 183). Access to modern cooking fuels, however, does not look as promising. According to the UN, 46% of the population in China were using solid cooking fuels such as coal or wood as fuel in 2011, meaning that only 54% of China's population had access to modern and clean cooking fuels (UN 2012). Over 30% of the urban population and more than 95% of China's rural population still used solid cooking fuels in 2010, mostly in the form of coal and wood (UNESCAP 2013b, 177).

Independence

China's overall net import-to-consumption ratio – calculated by looking at the share of net energy imports in a country's total supply of energy – stood at 16.16% in 2012, meaning that China had to import about 16% of all energy for its consumption. For coal, where China is the world's largest producer and consumer, the ratio was only at 7.37% (IEA 2014b, II. 327-340). The ratio for oil, however, is China's "real *Achilles heel*" (Odgaard and Delman 2014, 116). In 2012, net oil imports, consisting of crude oil as well as oil product imports, accounted for 63% of Chinese consumption. Looking at natural gas, net imports amounted to 34% of total consumption, almost half of China's oil import dependency (IEA 2014b, II. 330-345). Odgaard and Delman argue that these numbers are very likely to increase drastically, with import dependency for gas climbing to 40% within ten year and oil imports reaching as high as 85% of total consumption by 2035 (2014, 109).

Stability

Resource Sustainability

Coal makes up the vast majority of China's total energy reserves. Its reserves of coal amounted to 114.5 billion tons at the end of 2013, almost 13% of global reserves. The resource-to-production ratio, an indicator for projecting the sustainability of a resource, was at 31 years, leaving China with enough reserves to maintain current production levels for almost three decades. China's real problem, however, is oil. Its reserves totaled 18.1 billion barrel, with an R/P ratio of only 11.9 years at the end of 2013. Any increase in production levels would therefore decrease this already low ratio even further. For gas, China total reserves stood at 3.3 trillion m^3. At current production levels, these reserves are projected to last for another 28 years, leaving China with high coal, ample gas, and low oil reserves (BP 2014b, 6-30).

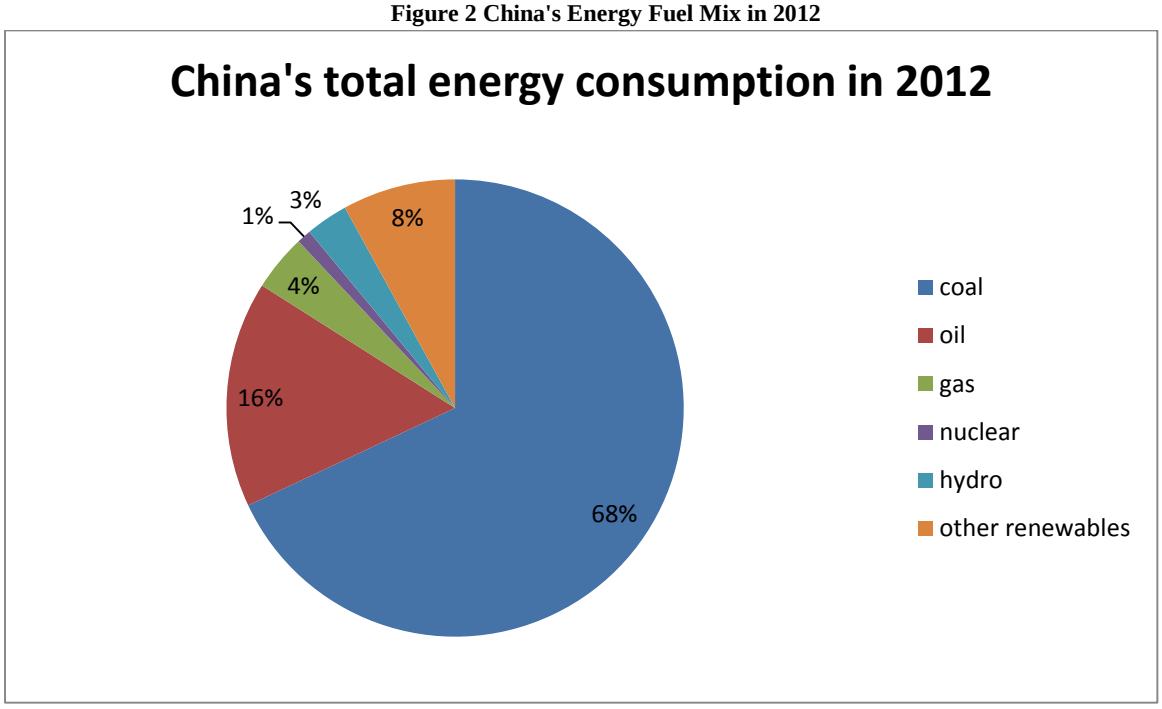
Supply Security

China consumed about 3.88 billion tons of coal in 2013. This means that, at current reserve levels, it could maintain consumption levels for almost 30 years if only relying on its domestic reserves (BP 2014b, 30; IEA 2014d, III. 21). With 10.76 million b/d, China consumed approximately a total of 3.9 billion barrel of oil in 2013. In relation to its reserves, this amounts only to 4.6 years. Thus, at current consumption levels, China's oil reserves would be exhausted in less than five years (BP 2014b, 6-9). However, consumption of oil products is steadily rising, as illustrated by the projected doubling of China's crude oil imports by 2020 from its 2010 rate (Kang 2014, 5). With 161.6 billion m^3 of consumption in 2013, domestic consumption levels of gas could be maintained for slightly more than 20 years (BP 2014b, 20-23). However, similarly to crude oil, gas consumption will likely increase rapidly with Kang projecting that gas demand will likely be three times larger by 2030 than it is today (2013, 11). Overall, this means that oil and, to a lesser degree, gas reserves cannot keep up with demand, leaving oil and in the near future gas as critical vulnerabilities in China's energy system.

However, what about China's import security? As China's is largely dependent on oil but also gas imports, it is important to look at the diversity of China's suppliers. China imports only a small amount of coal. For oil, 51% of China's imports come from the Middle East, 14% from Angola, 9% from Russia, 6% from Venezuela, and 4% from Kazakhstan. Thus, the vast majority of oil imports comes from potentially unstable regions with a long distance from China that all have to pass through the Straits of Malacca. Lastly, LNG imports come to 40% from the Middle East, although China has diversified its suppliers and imports 24% of its LNG from Australia, 16% from Indonesia, and 14% from Malaysia (EIA 2014c). Electricity supply security can be assessed by analyzing its production-to-demand ratio. In the year 2000, this ratio was at 1.08, meaning that China produced 8% more electricity than it consumed. This ration has since fallen to 1.06 in 2012, indicating that demand grew stronger than production. This can be attributed to that fact that China's projected annual electricity demand growth rates between 2010 and 2020 with 4.5% are the fourth highest in APEC. This rate, however, will be dropping below 3% in the period from 2020 onwards, putting less strain on China's electricity generation (IEA 2014b, II. 371-377; APEC 2013c, 99).

Fuel Diversity

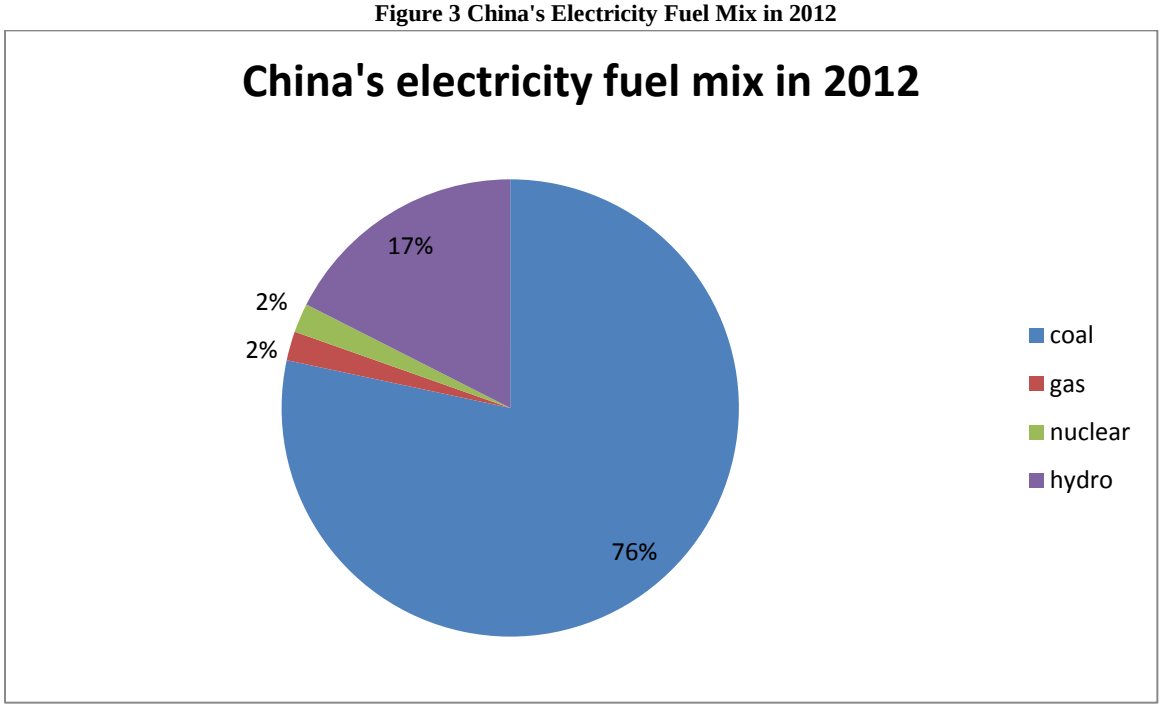
Figure 2 China's Energy Fuel Mix in 2012



Source: calculated by author after IEA 2014b, II. 106

China's fuel diversity in its overall energy consumption is heavily limited. Coal is the single most important fuel in its energy mix. However, China has vast reserves of coal with reliable suppliers in close proximity and can afford to base its energy mix primarily on coal.

Figure 3 China's Electricity Fuel Mix in 2012



Source: calculated by author after IEA 2014b, II. 359-394; IEA 2014h, III. 10

China also relies almost exclusively on coal for its electricity production. However, almost all electricity generation besides coal comes from renewable sources, making China's electricity fuel mix only reliant on coal, of which China has a secure and stable supply.

Infrastructure Adequacy

China has a refinery capacity of approximately 13 million b/d. With a consumption rate of 10.12 million b/d, China can potentially cover all of its oil product consumption through its domestic refining infrastructure. However, China is only self-sufficient in refining diesel fuel and can even export small quantities, albeit it remains a net petroleum product importer. Electricity infrastructure in China comes mainly in the form of thermal power plants powered by coal. The electricity output-to-generation ratio for China in 2011 was at 46.6%, meaning that not even 50% of potential output was reached (EIA 2013a; EIA 2014c). The prevalence of coal-powered thermal power could therefore indicate that a majority of power plants is not up-to-date with modern state-of-the-art coal power plants. In 2012, 289.6 TWh of electricity were lost due to distribution and transmission losses. This amounted to 6.3% of the overall electricity supply in China that year. Losses were relatively small, compared to 8.5% average distribution and transmission losses in Asia (IEA 2014h, III. 6).

Emergency Response Capability

China has begun to stockpile oil to establish a strategic petroleum reserve (SPR) since the early 2000s to enhance energy security and lessen the impact possible disruptions in oil supply (Kang 2014, 8). China's SPR strategy is divided into three phases. Phase 1 was completed at the end of 2008 and added stockpiles worth eleven days of consumption. Phase two is still under construction and is likely to be completed in 2015, with phase three being in the planning stage and set to finish by 2020 (Kang 2013, 13). The target is to be able to cover approximately 90 to 100 days of petroleum consumption by 2020. Current capacities, however, are still widely behind this target, only accounting for 36 days (Odgaard and Delman 2014, 110).

Affordability

Price Levels

Electricity prices in China have a relatively unusual structure. Although the price for industrial users with $111.26 per MWh ranges among the average for industrial consumers in OECD countries, household prices differ significantly. With $86.37 per MWh in 2011, they were 25% below US prices and lower than any household price in OECD countries. However, unusual is the fact that household prices in China are below prices for industrial consumers, whereas almost everywhere else electricity for industrial consumers are cheaper. Additionally, prices for households can differ depending on the region and social situation (OECD 2013, 132-133). Fuel prices, in contrast to electricity prices, are moderately high. The prices for diesel and gasoline in 2012 were at $1.28 and $1.37 per liter. They are over 25% higher than in the United States and among the highest in East- and Southeast Asia, especially for diesel

fuel. Overall, diesel and gasoline prices have increased by 26% and 38% since 2008, respectively (GIZ 2014, 30-32).

National Accounts

China subsidizes all major fuels, such as oil, gas, coal, and electricity. In 2012, the cost of all subsidies amounted to $26.9 billion or 0.3% of China's GDP that year. The two major subsidized fuels were oil with $12.9 billion and electricity with $10.2 billion, followed by coal with $3.3 billion and gas with $0.5 billion. The average subsidization rate in proportion to the full cost of supply across all fuels stood at 3.4% in 2012, with per capita subsidies amounting to $20 per person (IEA 2013d). Besides fuel subsidies, energy imports can also present a major strain on a country's economy. In the case of China, overall exports in 2012 totaled $2.05 trillion, with energy imports accounting for $313.1 billion or 15% of overall imports, a 0.5% increase from 2011 (National Bureau of Statistics 2013).

Efficiency

Energy Consumption

China's energy consumption per capita in 2011 stood at 1.08 toe per person, doubling its per capita consumption since 2000. This amounted to 64% of the APEC 1.69 toe per capita average, but almost twice the per capita consumption of the Southeast Asian average (APEC 2013c, 81). Out of a total final energy consumption (TFEC) of 1.55 Mtoe in 2012, the largest share with 1 Mtoe or 64% was consumed by the industrial sector, followed by residential and commercial with 236.8 Mtoe or 15% of total consumption, the transport sector with 202.7 Mtoe or 13%, and agriculture with 34.6 Mtoe or 2.2% of total energy consumption. These four major sectors thus made up about 94% of China's TFEC in 2011 (IEEJ 2014).

Energy Intensity

Energy intensity was very high in China up until the 1990s. In 2012, energy intensity was at 0.64 toe per thousand 2005 USD, meaning that China had to use 0.64 toe to generate $1,000 of GDP in 2005 prices. China therefore has successfully reduced its energy intensity by 22% since the year 2000. Nevertheless, it still exceeded the average Asian energy intensity of 0.46 by almost 40%, a sign that energy intensity is still comparatively high (IEA 2014b, II. 439).

Environmental Impact

CO^2 Emissions

China was the worldwide largest source of emissions with 7,954.5 million tons of CO^2 in 2011, a 254% increase from 1990 (IEA 2013e, II. 187). Its emissions per unit of energy reached 2.92 tons of CO^2 per toe, 22% higher than the global average of 2.39 tons. Per capita

emissions were at 5.92 tons of CO^2, over 30% higher than the worldwide 4.50 tons average (IEA 2013f, 49; 51).

3.2.2 Interests and Institutions

Interests

China does not have a single body that governs the energy sector on the national level since the Ministry of Energy was abolished in 1993 (Leung et al. 2014, 319). Far from being homogenous and centralized, China's energy policy governance has been described as "a battleground of negotiation among powerful actors with conflicting interests", which, in turn, "fueled an institutional evolution of energy oversight that has become an alphabet soup of line ministries built and destroyed and supra-institutional effectively still-born" (Cunningham 2007, 2). Going even further, Erica Downs sees China's energy governance as being impeded by a fractured energy bureaucracy and the lack of coordination authority in form of a designated energy ministry, leading to "turf battles" between among institutions and resulting in a general "energy paralysis" within the energy bureaucracy (Downs 2008, 42). However, who then are the key actors in governing China's energy sector?

With the absence of an energy ministry, other ministries play only minor roles in the energy sector. The 'Ministry of Land and Resources' oversees natural resources, the 'Ministry of Finance' is responsible for tax and fiscal policies, and the 'Ministry of Foreign Affairs' as well as the 'Ministry of Commerce' both play important roles in China's "resource diplomacy" (Alden and Alves 2009, 10). The most important governmental actor regarding energy is the NDRC. Like the ministries, the NDRC is a member of the State Council, China's highest executive organ, and can be called a "super-ministry" (Rosen and Hauser 2007, 18; Davies 2013, 40). The NDRC and its 26 bureaus and departments have broad administrative and planning control over the economy, focusing on sectors like industry, transportation, or energy. In terms of energy, it is responsible for planning China's long-term energy strategy, making it the primary institutions for energy policymaking in China (Burke et al. 2009, 8). Moreover, through its 'Department of Price' and 'Bureau of Price Supervision', the NDRC is also the major regulatory authority in the energy sector as it can set and regulate prices (Rosen and Houser 2007, 18). In 2008, the 'National Energy Administration' (NEA) was launched, replacing the NDRC's 'Energy Bureau'. The NEA took over responsibilities of other energy institutions, like formulating energy development and policy plans from the NDRC. It is also responsible for administrating the energy sector, including coal, oil, natural gas, power, renewable energy, and energy conservation. Furthermore, the responsibilities for planning and implementing national oil reserve strategies as well as deciding over important investments in the energy sector also falls into its portfolio (REEEP 2014a). Nevertheless, albeit officially independent, the NEA is overseen by the NDRC and only has the rank of vice-ministry, preventing it from effectively coordinating the interests of various ministries, commissions and SOEs. More importantly however is the fact the NDRC retained its control over prices, effectively rendering any major regulatory authority of the NEA over the energy sector ineffective. Although it is an important actor in the energy sector, a lack of authority, autonomy, and poli-

cy instruments dampen NEA's power, making it nothing more than a "transitional institution" (Downs 2008, 43-45). The third major governmental institution in the energy sector is the 'National Energy Committee' (NEC). Established in 2010 to "step up strategic decision-making, planning and coordination", it is responsible for the national energy development strategy, reviewing energy security as well as planning domestic energy development and international cooperation (REEEP 2014a). The NEC operates directly under the State Council and consists of 21 members, mainly from the ministries. Besides the NDRC, it is the second institution responsible for overseeing the NEA and delegates most of the day-to-day work to NEA while it focuses on policy formulation and deliberation. However, if compared to the super-ministry that is the NDRC, the NEC as an *ad hoc* body that meets only irregularly and has no budget or staff looks rather underpowered (Leung et al. 2014, 319).

China's energy security has so far been primarily focused on the security of oil, as it is the only energy resource of which China imports more than it produces. Hence, oil and petroleum products play a major role when analyzing key actors in China's energy sector. Responsible for China's oil supply routes and oil security are its NOCs. China's "three giants" consist of the 'China National Offshore Oil Corporation' (CNOOC), the 'China National Petroleum Corporation' (CNCP), and finally the 'China Petroleum and Chemical Corporation' (Sinopec). CNCP is the most powerful of the three, accounting for 60% and 80% of China's total oil and gas output, respectively (REEEP 2014a). Nominally, all three companies are owned by the 'State-owned Assets Supervision and Administration Commission' (SASAC) which supervises all SOEs. In reality, however, SASAC has only little control over investments and managerial staff of the NOCs and due to that fact that the NOCs do not have to pay dividends to SASAC in addition to their chairmen having the rank of vice-ministers, SASAC has virtually no real disciplinary power of the three major NOCs. The three major NOCs also possess internationally listed subsidiaries of which they are the majority shareholders and have inherited the expertise and personnel of the former ministries they were created from, giving them an additional edge over the institutions that should in theory control them. The NOC top managers have good connections to the 'Chinese Communist Party' (CCP) which exerts its influence through the 'Ministry of Personnel' to assign company directors for the major NOCs. However, the NOCs have also exerted their influence in the past through, such as through creating artificial shortages of petroleum and forcing the government to increase prices for petroleum products to accommodate the NOCs (Houser 2008, 145-152).

As Downs therefore rightfully notes, "Ownership does not always equal control" and that "influence is a two-way street", leaving China's NOCs not as a "supplicant arm of state policy" (2010, 75-96). Instead, they follow their own commercial interests when investing abroad, such as growing and diversifying oil and gas supplies, acquiring profits to offset domestic losses, transforming themselves into internationally competitive and world-class companies but also acquire foreign assets and shares thereof to supply more energy overall, easing domestic energy security concerns. Investment strategies and areas of operation are thus not dictated by the state, but dominated by business considerations. Overall, the major Chinese NOCs, through their ministerial level status, expertise, financial resources, excellent connections to the CCP, and dominance over China's oil- and gas sector, are well equipped to resist major oversight and control by China's splintered and comparatively weak governmental institutions (IEA 2011b, 25-27). In 2010, the ceiling for examination and approval of foreign

investments in the "permitted investment catalogue" was tripled to $300 million, making these sectors more accessible (Davies 2013, 20). Whereas onshore production is mostly limited to Chinese NOCs, investments into challenging offshore oil and gas projects have been more open with International Oil Companies (IOCs) such as Shell, Chevron, or BP operating in China. These projects, however, have to be conducted in production-sharing contracts or joint ventures in which Chinese NOCs must hold the majority participant interests and can become the operator once development costs have been recovered, limiting the operational freedom of IOCs (EIA 2014c). Although investments in mining- and quarrying industries, including coal, oil, and gas, is explicitly encouraged, the overall regulatory framework for FDI still remains relatively restrictive (Invest in China 2011; Davies 2013, 57). Similar to foreign investors, regional organizations play do not play a major role in China's energy sector. Lending and grants from the ADB for energy projects amounted to $4.3 billion from 1966 to 2013, or 14% of total ADB disbursements. Moreover, most of the projects have not been engaged with crucial fossil fuels (ADB 2014b, 1).

Institutions

China's political system is dominated by the single-party rule of the CCP. The CCP is China's foremost political authority and develops policies in accordance with party guidelines and the constitution of the PRC. The other crucial political institution for policymaking in China is the State Council. It is the "highest executive organ of state power and the highest organ of state administration", overseeing more than 80 ministries, bureaus and other institutions and is responsible for carrying out the policies devised by the CCP (Burke et al. 2009, 5). As there are no democratic elections, the party holds the uncontested monopoly for power and controls all policy processes. China's regulatory framework for the energy industry balances between two extremes, the market and state-control. This is most notable in terms of prices and competition. Although the state de facto does not control investments and strategies of its major NOCs, they are still state-owned. China's three major NOCs dominate the country's oil and gas markets, with CNCP alone accounting for 53% of oil and 75% of gas production in China, with almost no competition from foreign or private companies (EIA 2014c). However, competition between the three major NOCs has been increasing as they compete for oil and gas assets as well as political power (Downs 2007, 50). In the electricity sector, two state-owned power grid operators dominate the nation's power grid in addition to five large power companies generating about half of China's electricity with the other half generated by Independent Power Producers (IPPs) (EIA 2014c; REEEP 2014a). Price regulation in China differs greatly for oil, gas, and electricity. Electricity prices are determined and capped by the NDRC that also regulates prices coal companies receive from power producers for providing supplies. Oil prices, on the other hand, have been tied to international crude oil markets since pricing reforms in 2009 and revisions in 2013, with the NDRC adjusting oil product prices every ten working days to reflect market prices. Gas price regulation is somewhere in between. In recent years, China's first natural gas spot trading market was opened in addition to starting pilot programs in Southern China, in which gas prices are linked to imported oil prices. Although this reform has been expanded to the whole country only recently, gas prices are still

discounted and price regulation by the NDRC still indicates that gas prices are still in large part determined by the NDRC (EIA 2014c).

There is a series of laws in place in China that affect the energy sector, such as the 'Electricity Law', the 'Energy Conservation Law', or the 'Renewable Energy Law'. However, there is no general 'Energy Law', leaving China without a comprehensive legal basis for the energy sector. The law on renewable energy has influenced the energy sector in major ways. In effect since 2006, the law provides grid companies with all revenue created from the surcharge electricity customers pay on their tariffs and sets a minimum target of electricity grid companies have to buy from renewable energy projects (APEC 2014, 45-46). The law has generated annual wind capacity increases of over 10 GW for four consecutive years and greatly increased electricity from hydropower, solar, and biomass, with the last two expected to grow tenfold between 2010 and 2020 (Wu et al. 2014, 32). In terms of policy documents, China's Five-Year Plans are its "most significant government policy documents" (ibid., 31). In 2013, China released its '12th Five-Year Plan for Energy Development', introducing a range of binding targets. For example, until 2015, the proportion of non-fossil fuels in energy consumption is to be increased from 8.6% to 11.4%, energy intensity lowered by 16%, and carbon intensity lowered by 17% (State Council 2013a). These binding targets mean that the energy sector has to become more energy efficient, more environmental-friendly, and has to introduce more renewable energy projects.

3.2.3 Energy Security Policies

Domestic Policies

China's domestic energy security policies have been articulated mainly in the form of the country's five-year plans. The most recent '12th Five-Year Plan' has formulated several measures related to energy security. In terms of environmental protection, China wants to have decreased the CO^2 intensity per unit of GDP by 16% and reduced the emission of major pollutants by up to 10% by 2015 (State Council 2010, 4). In its 'Policies and Actions for Addressing Climate Change', China's aim is to adjust its industrial structure by releasing specific development plans for key industries, such as iron and steel, establishing a technological upgrading fund, and setting up 102 venture-capital funds for emerging industries, including environmental protection (NDRC 2012, 3-4). In its detailed '12th Five-Year Plan for Energy Development', China expects domestic energy production to increase by 4.3% annually between 2010 and 2015. Whereas oil production is expected to be stagnant, coal production is expected to increase by 4.8%, gas production by 10.5% and non-fossil fuel production by 10.9% per year in the same period (State Council 2013a). This reflects China's interest to increase the low utilization rate of gas as well as to emphasize energy from renewable sources. Coal dominates Chinese energy and electricity consumption and the country is the largest coal producer and consumer in the world. This informational setting has heavily influenced energy security policies in the 12th Five-Year Plan. As coal will continue to be the dominant factor in its energy mix, China has focused on technologies and measures to increase efficiency and decrease emissions from power plants using coal as fuel. Clean coal technology plays a "ma-

jor focus" in the current five-year plan, focusing on coal processing, high efficiency clean coal burning, coal conversion into gas liquid fuels, pollution control, and waste processing (Wu et al. 2014, 33; State Council 2010, 11). Additionally, in the '12th Five-Year Plan for the Coal Industry', China has capped coal production at 3.9 billion tons for 2015 and has plans to reduce the overall number of coal enterprises from 11,000 to about 4,000 to set up larger coal corporations with increased efficiency (APEC 2013a, 46).

Another key focus of China's domestic energy security policy is to strengthen E&P of oil and gas as well as to guarantee a stable supply overall. China's policy goal is to stabilize petroleum production, but the vast majority of China's largest oil fields in the northeast and north decline in production. China has therefore focuses on enhanced oil recovery (EOR) in addition to increasing offshore production to stabilize production (State Council 2010, 11; EIA 2014c). Despite the emphasis on domestic production and energy sovereignty, oil imports continue to rise. Thus, China has at least been trying to become self-sufficient in petroleum products. Recent policies push the refining sector towards modernization and consolidation, closing smaller refineries to introduce economies of scale and to increase energy efficiency. With a capacity of about 13 million b/d in 2013, China plans to add another 4.4 million b/d of capacity until 2020, a third of current capacity. This energy security policy has paid off, as China became a net diesel exporter in 2012, albeit remaining a net oil product importer (EIA 2014c). China also wants to establish a SPR. By 2020, the third and final stage of the project will be completed, establishing a 90-100 day reserve of petroleum products, further boosting energy security. China's goal for natural gas is to "promote the rapid growth of […] output", as natural gas has been relatively underused in the energy mix and the country sitting on the largest unconventional shale gas reserves in the world, wanting to "develop and utilize" these reserves (State Council 2010, 11; EIA 2014c). Strengthening existing and building new transmission channels of energy is also a key aspect of China's energy security strategy. The country has been actively pushing for further expansion of its domestic pipeline network, linking consumption centers on the coasts to production centers in the northwest.

Figure 4 Key Oil and Gas Pipelines in China

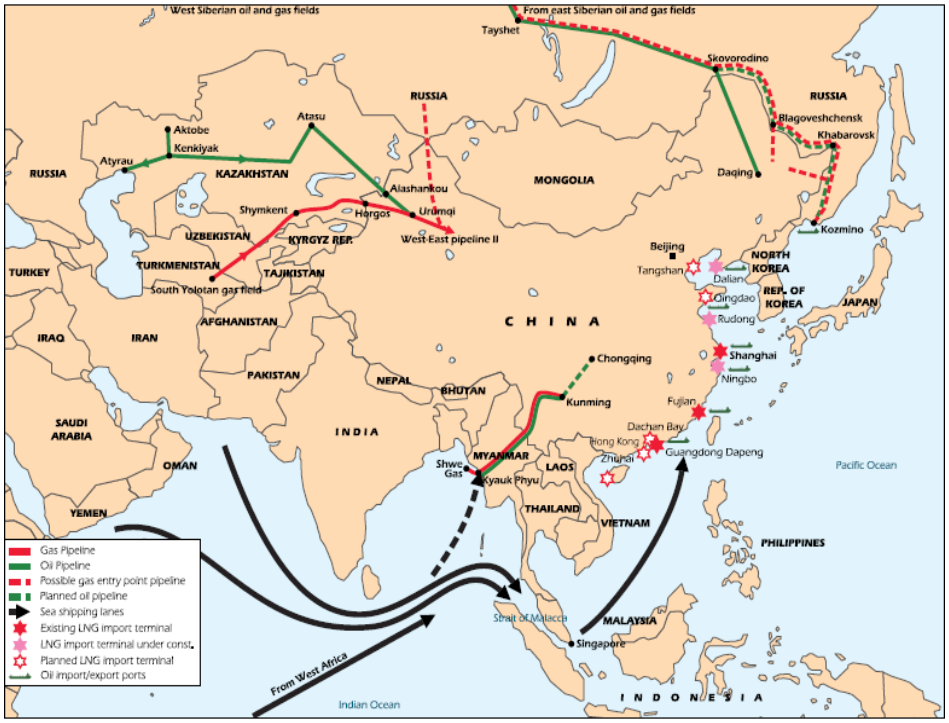
Source: EIA 2014c

The five-year plan also has the goal to increase LNG import capabilities. At the end of 2013, import capacity was at 4.1 billion m³, with another 2 billion m³ of capacity being constructed by 2016, more than doubling import capabilities (EIA 2014c).

International policies

China's international energy security policies directly tie in with its domestic policies and the focus on oil and energy sovereignty. The first major policy approach is Beijing's consequent development of its pipeline network beyond its borders. In terms of oil, China established its first transnational pipeline in 2006, when it began receiving Kazakh and Russian oil from its Kazakhstan-China pipeline. An expansion of the pipeline is nearly finished which almost doubles the capacity to 400,000 b/d of oil. China has also build a pipeline to link up with Russia's Eastern Siberia-Pacific Ocean Pipeline, with a capacity of up to 300,000 b/d. Rosneft already has plans to expand the pipeline's capacity to potentially deliver oil to China via sea route. For Southeast Asia, China has strategic interest and plans to construct an oil import pipeline going through Myanmar to its Yunnan province in the southwest. Circumventing the Straits of Malacca, this pipeline has a planned maximum capacity of 400,000 b/d and is expected to come online in late 2014 (EIA 2014c). Although China has expanded its transnational oil pipeline capacity rapidly, natural gas has been the real focus of the extensive build-up. As gas consumption is rising fast, China wants to cover much of its imports through pipelines rather than sea-based routes.

Figure 5 China's Current and Planned Oil and Gas Supply Lines



Source: IEA 2011b

The above map shows that China's pipeline network for natural gas is focused on Central- and Southeast Asia. The main pipeline for gas imports is the Central Asia-China gas pipeline

linking China with Kazakhstan, Uzbekistan and Turkmenistan. The pipeline was completed in 2013, currently delivering 45 billion m³ to China, which will approximately cover 25% of total natural gas imports in 2030. Shortly after coming online, it was agreed to launch the construction of the second phase of the Galkynysh gas field, the largest gas field in the world, greatly expanding the potential for pipeline exports to China. With an estimated completion in 2015, this additional expansion would bring the Central Asia-China gas pipeline to about 60 billion m³ or a third of China's natural gas imports in 2030. Overall, China has been very active in providing generous loans to Central Asian nations to construct and expand natural gas export capabilities, with Chinese NOCs being the on-the-ground operators and partners for transnational cooperation. The Myanmar-China gas pipeline came online in 2013, albeit it only delivers 10 billion m³ of natural gas to China that will amount to about 6% of total natural gas imports in 2030. What is so special about this pipeline is the fact that China has secured a majority share of 51% in it, effectively controlling a valuable import route circumventing the Straits of Malacca (Odgaard and Delman 2014, 111; IEA 2014i, 25). Although there is presently no direct gas pipeline connection between China and Russia, both countries managed to land a landmark deal in mid-2014. The $400 billion deal involves Russia delivering 38 billion m³ of natural gas to China starting in 2018. As China plans to double its gas consumption by 2020, it "now needs Russian gas more than ever" (Downs 2014). Therefore, China has now managed to secure a northern import route in addition to its already established western and southwestern import routes for natural gas.

China's second major international energy security approach takes on the form of the "Going out" strategy. This strategy includes actively investing in energy- and energy cooperation abroad to boost energy security at home. This strategy was first promulgated in a 1997 policy paper, which "blessed Chinese involvement in the exploration and development of international oil and gas resources and tied such projects specifically to the objective of stable, long-term supplies of oil and gas" (IEA 2000, 61). In its 12th Five-Year-Plan, China explicitly mentions its willingness to follow enterprises "to develop overseas investment cooperation in an orderly manner", stating that China will "deepen the development of international energy resources and mutually beneficial processing cooperation" (State Council 2010, 56). The strategy therefore consists of two elements. The first element is the on-the-ground direct cooperation between Chinese NOCs and the host country, leaving the government more or less out of the picture. However, foreign aid and government-sponsored investment activities (FAGIA) by Beijing aims to contribute to the NOCs and their operations. An indicator for increased FAGIA can be found by comparing outward and inward FDI in China. In 2008, inward FDI was 50% higher than outward FDI. In 2013, this number decreased to about 22% (UNCTAD 2014, 206). However, what form does this foreign aid and investment take and where is it invested? Most aid and investments comes in the form of loans, either interest-free or concessional. China ties these loans with its overall energy security objective in that the loan is securitized by natural resources of the recipient country. The resources are then used by the recipient country to pay China and carry out large infrastructure projects. Up until now, Central Asia and Africa have been major recipients of these resources-for-infrastructure deals, accounting for 80% of Chinese foreign infrastructure aid, with Angola alone receiving $20 billion in 2007 over a period of three years in oil-backed loans and general investment, eclipsing the World Bank's estimated $12 billion investment (Bracken et al. 2013, 7-24). In a com-

parison on China's FAGIA, Wolf et al. analyze that among all regions, most of the investment went to Latin America, Africa, and East Asia. However, when comparing sectors, the Middle East, Central Asia, and Latin America have all received the vast majority of FAGIA in the energy sectors, especially in the oil industry (2013, 25-46). China has thus established interdependence with major oil-exporting countries through large investments and loans, becoming the major investor for many countries, such as in Iran and Iraq's oil industry, where China is the major investor (Noreng 2013, 172-173).

The second element of China's "Going out" strategy are the country's NOCs and their overseas activities and investments. Although not state-controlled, the NOCs are interested in diversifying their portfolio and securing additional assets. In 2013 alone, upstream capital expenditure of Chinese NOCs outside China amounted to more than $18 billion, with the largest shares being spent in North America and the Middle East (IEA 2014j, 30). NOCs also secured over $100 billion in oil-for-loan deals with several countries at the end of 2012, the largest recipient being oil-rich Venezuela with about $40 billion (EIA 2014c). Besides investments into overseas oil production, China's NOCs have also been particularly interested in acquiring knowledge and expertise in offshore- and unconventional oil- and gas E&P. Although China has the largest shale gas reserves in the world, major technical barriers prevent the country from achieving large-scale production. CNOOC's acquisition of the Canadian company Nexen, well-versed in offshore- and unconventional E&P, marked a landmark deal in 2013 (IEA 2014i, 10-17). With $15.1 billion it was not only the forth-largest cross-border acquisition worldwide in 2013, but has also increased CNOOC's production and reserve base by 20% and 30%, respectively and lead China's NOCs into direct competition with IOCs, highlighting their own investments interests (IEA 2014i, 17; UNCTAD 2014, 217). Thus, China's NOCs play an integral role in the overall "Going out" strategy as they continuously increase overseas production and acquire new expertise to target difficult to access offshore and unconventional resource deposits, such as oil- and gas fields in the South China Sea.

3.3 Malaysia

Malaysia is unique in its location in Southeast Asia as one part of the country is located in mainland Southeast Asia and the other is located in maritime Southeast Asia. The western, mainland part contains Peninsular Malaysia and the eastern, maritime part contains the two states of Sarawak and Sabah. This distinctive position is both a strength and vulnerability at the same time. West of Peninsular Malaysia are the Straits of Malacca, the crucial trade route linking the Indian and Pacific Oceans. The South China Sea, however, represents a vulnerability, as the country is dependent on it to connect its two parts. The country covers 330.803 km², roughly the size of Germany. It borders Thailand and Singapore on its peninsular part as well as Indonesia and Brunei on its maritime part. Malaysia is home to 30.07 million people, with 2035 projections reaching it just below 40 million (World Factbook 2014; APEC 2013a, 97). Malaysia is one of the most developed and dynamic economies in Southeast Asia. In 2011, its GDP amounted to $288 billion, doubling it since 2005. GDP growth rates between 2001 and 2011 were at 5% per year and per capita GDP reached $10,012 in 2011, almost double the GDP per capita of China that year, effectively making Malaysia an upper-middle-

income country (UNESCAP 2013b, 221-222). The primary sector contributed 9.3% of Malaysia's GDP in 2013. The secondary sector contributed 40.5% and the tertiary sector 49.1% of total GDP (ADB 2014a, 174). In terms of trade, Malaysia, like China, is an export-driven economy. Its trade balance in 2011 was at almost $50 billion with the years before at similarly levels (APEC 2013b, 75). Electronics, refined petroleum products, and LNG were the three main export commodities in 2013, making up more than 50% (MATRADE 2013a). For imports, electronics, refined petroleum products, machinery, and chemicals in total made up 56% of imports in 2013 (MATRADE 2013b). In terms of development, Malaysia as an upper-middle-income developing economy tries to achieve developed status by 2020. The most comprehensive initiative yet to achieve this goal is the 'Economic Transformation Program' (ETP) launched in 2010, which has identified 131 entry point projects (EPPs) in twelve national key areas to provide focused growth (APEC 2013a, 97). The goal of the ETP is to create 3.3 million jobs, secure $444 billion, and raise Malaysia' GNI to $15.000 in 2020, raising it over the threshold for high-income economies (PM of Malaysia 2014, 7).

3.3.1 Energy Security Assessment

Availability

Volume

Malaysia's primary energy supply in 2012 reached 88.8 Mtoe, 0.66% of worldwide production. Looking at coal, Malaysia produced is only responsible for 1.86 thousand tons of oil equivalent (ktoe), 0.05% of global production (IEA 2014b, II. 40; II. 195). Malaysian oil production accumulated to 29.6 million tons in 2013, 0.7% of global share. As for gas, Malaysia's production amounted to 69.1 billion m^3, or 2% of global production that year (BP 2014b, 10-32). Although its coal production is negligible, Malaysia's oil production is among the largest in Asia and its gas production quite extensive. With a population of approximately 30 million, Malaysia's per capita primary energy supply amounts to 2.95 toe per capita, over 50% higher than the global average. Coal supply is very low, with only 0.06 toe per capita, roughly 10% of the average worldwide supply per capita. For oil, the per capita supply stands at 1.03 toe, over 70% higher than the global average of 0.59 toe. Per capita gas supply with 1.71 toe is even higher, with over four times the global average (IEA 2014b, II. 40; II. 195).

Accessibility

The electrification rate in Malaysia was at 99% in 2010 (UNESCAP 2013b, 183). Similarly, access to modern cooking fuels with over 95% was also very high (UN 2012). Almost all of Malaysia's urban population used liquefied petroleum gas (LPG) for cooking, whereas wood is the predominant fuel for a fraction of the rural population (UNESCAP 2013b, 183).

Independence

Malaysia has traditionally been an energy-exporting country. In 2012, its net exports of energy were at 6.17 Mtoe, albeit this only amounted to about 50% and not even 25% of its 2010 and 2005 net export volumes, respectively. Net energy export represented 7.6% of Malaysia total energy consumption. However, energy exports are highly unbalanced. Coal imports made up 90% of Malaysia's coal consumption. On the other hand, gas exports in 2012 went as far as amounting to 55% of total gas consumption. Oil is somewhere in between, as net oil exports accounted for only 3.7% of oil consumption. Malaysia therefore displays a stark contrast in its net import-to-consumption ratios for fossil fuels (IEA 2014b, II. 327-351).

Stability

Resource Sustainability

Malaysia has only marginal coal reserves, with 280.84 million tons proven in total (ST 2014a, 8). With a production of 3 million tons in 2012, its domestic reserves could last over 90 years at current production levels (IEA 2014d, III. 6). With 3.7 billion barrels of oil reserves at the end of 2012, production could continue for another 15.3 years. Natural gas shows a similar picture. The current reserves of 1.1 trillion m^3 would only last roughly 16 years with the production level at 69.1 billion m^3 per year (BP 2014b, 6-22).

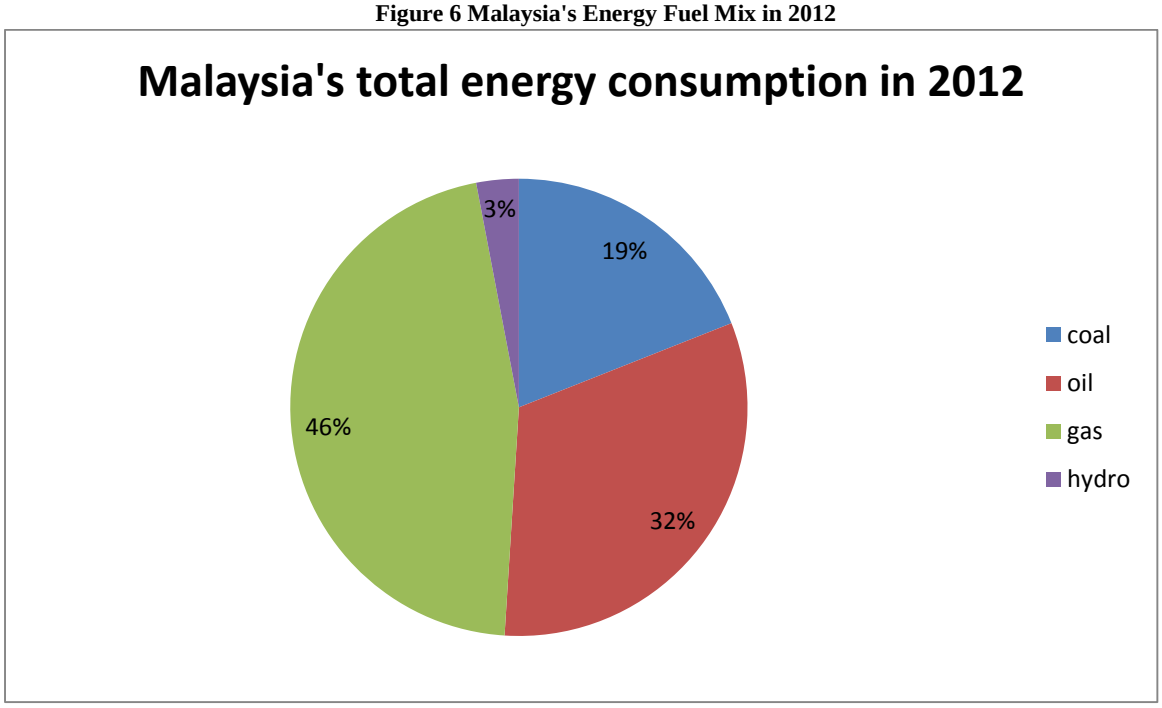
Supply Security

Malaysia's very high R/P ratio for coal shrinks to a short eleven years when analyzing its small reserves in relation to its consumption of 25.6 million tons of coal in 2013 (IEA 2014d, III. 20). Furthermore, Malaysia imports almost all of its coal, as it is cheaper and more accessible than domestic reserves, leaving the country very dependent on foreign imports (ST 2014a, 8). Having consumed approximately 264 million barrels of oil in 2013, the reserves-to-consumption ratio is at 14 years, slightly below the R/P ratio. Nevertheless, like China, oil demand is growing strongly in Malaysia and it is expected that the country becomes a net importer of oil by 2020, with its net import-dependency climbing to 50% within 20 years. Contrary to oil, Malaysia's reserves-to-consumption ratio for gas with 32.4 years is relatively high and indicates that Malaysia is producing far more gas than it consumes. However, projections see its gas exports declining by more than 40% between 2020 and 2035, indicating a strong increase in demand (IEA 2013c, 66; BP 2014b, 6-23). For its coal imports, Malaysia relies mostly on five suppliers to meet its demands. The overwhelming majority of imports comes from Indonesia, with 68%. Almost 19% is imported from Australia, followed by South Africa with 8.7%, 2.3% from Russia, and 1.6% from Vietnam. Although still a net exporter of oil, Malaysia has to increasingly rely on imports to meet domestic demand. Over 50% of these come from the Middle East, with 12.8% coming from Vietnam, 12.2% from Russia, and the rest mostly from South America (ITC 2014). Gas imports come almost exclusively in the form of pipeline imports from Indonesia, covering one third of Malaysia's total gas consumption (IEA 2014e, II. 9). Thus, coal and gas imports come mostly from nearby, Southeast Asian suppliers. Oil, however, has to be imported mostly from the Middle East, indicating the same dangers and vulnerabilities for oil supply as for China. In 2000, Malaysian electricity produc-

tion was 8.7% above consumption levels. However, like China, this margin decreased to 6.6% in 2012. Similarly, projected annual electricity growth rates of 3% between 2010 and 2020 are moderately high. Unlike China, whose growth rates are projected shrink by over 30% from 2020 onwards, Malaysian growth rates will decline only minimally, leaving Malaysia with higher annual electricity growth rates than China between 2020 and 2035, straining electricity generation even more (IEA 2014b, II. 371-377; APEC 2013c, 99).

Fuel Diversity

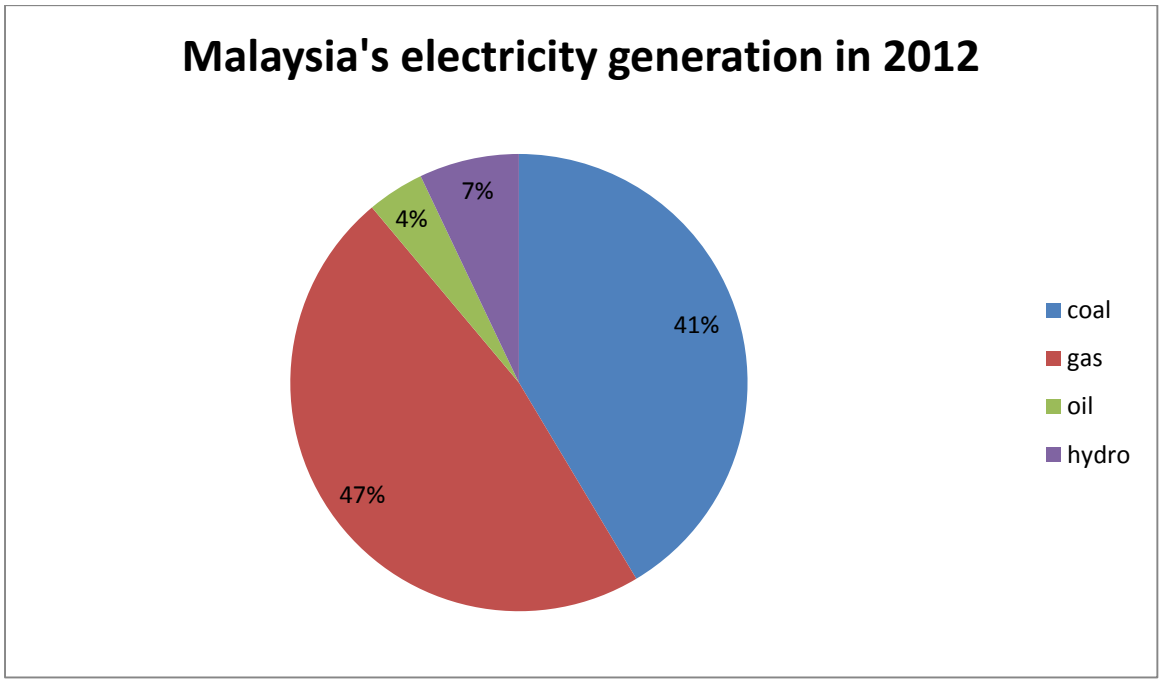
Figure 6 Malaysia's Energy Fuel Mix in 2012



Source: Energy Commission 2014, 24

Malaysia's energy fuel mix is relatively diversified. Almost half of it comes from gas, of which Malaysia has a sizeable reserve and no real supply security issues. For the other half, however, Malaysia is increasingly dependent on imports. As almost all of its coal is imported and poised to become a net oil importer in the very near future, the energy fuel mix, albeit diversified, is still quite prone to supply security risks.

Figure 7 Malaysia's Electricity Fuel Mix in 2012



Source: calculated by author after IEA 2014b, II. 359-394; IEA 2014h, III. 10

The electricity mix in Malaysia is dominated by coal and gas. As coal is nearly all imported, over 40% of Malaysia's electricity fuel mix is vulnerable to supply security risks.

Infrastructure Adequacy

Malaysia's refinery capacity of 591,000 b/d is very high when compared with its consumption. The country can cover over 90% of its total consumption of petroleum products through domestic refineries. However, its electricity output-to-generation ratio of only 49.6% in 2011 was only minimally higher than that of China, which indicates that its fossil-fuel powered power plants are not very efficient (EIA 2013b; EIA 2014b). Malaysia has below-average electricity transmission and distribution losses when compared to Asia. With 6.5%, it loses slightly more than China, but is still 2% under the Asian average (IEA 2014h, III. 6).

Emergency Response Capability

In contrast to Northeast Asia, Southeast Asian nations have so far not been very active in establishing petroleum stockpiles. Malaysia has "not subscribed to the idea of a national oil stockpile since production can still be easily increased to meet demand" (Nicolas 2009, 25-26). Therefore, Malaysia, at least on a national level, has not established a SPR.

Affordability

Price Levels

Electricity prices in Malaysia differ for Peninsular Malaysia, Sarawak, and Sabah. In Peninsular Malaysia, the average selling price for households and industrial consumer was at $83.2

and $87.2 per MWh, respectively. For Sarawak, the price ranged between $94.1 and $74.5. Finally, in Sabah, households had to pay $74.5 and industrial consumers a slightly lower $71.7. Prices in Sabah were the lowest, followed by Sarawak and Peninsular Malaysia. In perspective, electricity prices in Malaysia were very low in 2011. On average, they were lower than in China, especially for industrial consumers. Household prices were below OECD rates, with industrial prices among the lowest (ST 2014a, 64-65; OECD 2013, 133). Fuel prices were similarly low. With $0.59 for diesel and $0.62 for gasoline, both prices were over 50% lower than in China and considerably lower than US prices. Moreover, diesel and gasoline prices were even below the price of crude oil on the world market with $0.69 per liter at the time, indicating a high degree of subsidization for oil products (GIZ 2014, 30-32).

National Accounts

Energy subsidies in Malaysia reached $7.3 billion in 2012, amounting to more than 25% of China's overall subsidies in the same year. The vast majority of subsidies went into oil with $6 billion, followed by gas with $1.1 billion and electricity with $0.2 billion. Per capita, these subsidies amounted to $252.4 per capita, more than ten times the per capita value of Chinese subsidies. Moreover, the average subsidy rate was at 19.5%, meaning that Malaysia had to subsidize almost one fifth of the total supply cost for these fuels. Hence, it is no surprise that energy subsidies were equal to 2.4% of Malaysia's GDP in 2012 (IEA 2013d). In 2013, Malaysia exported commodities worth $228.5 billion. Energy imports in the same year were worth $33.4 billion or 14.6%, a share almost equal to that of China (UN 2013, 2).

Efficiency

Energy Consumption

Per capita energy consumption in Malaysia with 1.46 toe per person in 2011 was only slightly below the APEC average, but 250% over that of the average Southeast Asian per capita consumption. Contrary to China's decrease in per capita consumption of energy, Malaysia has increased its consumption since 2000 by 14% (APEC 2013c, 81). In 2012, Malaysia's TFEC amounted to 44.6 Mtoe, with the industrial sector consuming 21.4 Mtoe, or 47.9% of total. This is followed by the transport sector with 15.1 Mtoe or 34%, the residential and commercial sector totaling 7.1 Mtoe or 15.8%, and the agricultural sector with only 1 Mtoe, just over 2%. These sectors made up 99.8% of Malaysian TFEC (IEEJ 2014). In contrast to China, the industrial sector consumed less energy, whereas the transport sector accounted for more than twice the share it did in China.

Energy Intensity

Since the 1990s, energy intensity in Malaysia has been at a relatively stable level. In 2012, the Malaysian economy needed 0.41 toe to generate one thousand 2005 USD for its GDP. Since 2000, Malaysia's energy intensity has decreased by approximately 5% and was over 10% lower than the average Asian energy intensity in 2012, although it was still 70% higher than

the global average. Compared to China, Malaysia was about 35% less energy intensive in generating its GDP (IEA 2014b, II. 439).

Environmental Impact

CO^2 Emissions

Malaysia emitted 193.96 $MtCO^2$ in 2011, a 290% increase from its emissions in 1990 (IEA 2013e, II. 299). Emissions per toe went up to 2.56 tons of CO^2, 7% over the global average. Per capita emissions, on the other hand, were very high in 2011, with 6.72 tons of CO^2 per capita. This was almost 50% more than the global average that year (IEA 2013f, 49; 55).

3.3.2 Interests and Institutions

Interests

The Prime Minister (PM) of Malaysia takes on an important role in the energy sector. The central 'Economic Planning Unit' (EPU) directly reports to him, he directs Petronas, and he controls appointments to the company board (EIA 2014b). The PM therefore exerts great power over the country's energy policy through the EPU and ICU as well as energy operations through Petronas. In contrast to China's fragmented energy bureaucracy, Malaysia's 'Ministry of Energy, Green Technology and Water' (KeTTHA) manages and administers the energy sector as it is responsible for formulating energy policies and strategies, promoting energy efficiency and renewable energy and establishing a legal framework for the regulation of the energy sector (KeTTHA 2014b; APEC 2014, 114). Malaysia's 'Energy Commission' (ST) is the second governmental key player in the energy sector, although it retains some level of independence. Whereas KeTTHA is responsible for establishing a regulatory framework, ST has been tasked with carrying out the role as the regulator. Hence, it is the "statutory body responsible for regulating the energy sector, particularly the electricity supply and piped gas supply industries" and "ensures that the supply of electricity and piped gas to consumers is secure, reliable, safe and at reasonable prices" (ST 2013b). Since the 'Energy Commission Act' in 2001, the Energy Commission has also been responsible for the implementation, enforcement, and review of all energy supply laws (ST 2014b, 20). Besides the ST, the second key agency in the Malaysian energy sector is the EPU. It sets and oversees the energy policy in Malaysia, "providing the general direction and strategies for energy policy and determines the level of their implementation" (APEC 2014, 114). In effect, this leaves the EPU with the key power to determine the overall strategic direction and focus of energy policy, whereas KeTTHA provides specific policies building on the direction of the EPU. Specifically, the 'Energy Unit' of the EPU carries of the following key functions:

- formulating policies / strategies for the sustainable development of the energy sector
- promoting the development of the oil and gas industries
- ensuring adequate, secure, quality and cost-effective supply of energy

- promoting the increased utilization of renewable energy and energy efficiency
- providing allocation and evaluation for energy-related development programs and evaluate their achievements (EPU 2014)

This leaves Malaysia's strategic oil and gas industries and their development as well as overall energy policy planning and resource allocation in the hands of the EPU, making it the country's most influential body regarding energy policy.

Looking at Malaysia's energy suppliers, there are two key actors in the country's energy sector. The first is TNB, vested with electricity generation, transmission, and distribution activities in Peninsular Malaysia, effectively controlling most of the state's electricity sector (Shing and Tick 2010, 2919). TNB also supplies all four Malaysian coal power plants with supply and owns two of them, making it an indispensable stakeholder for coal that also owns 80% of SESB, Sabah's integrated monopoly company (Tick et al. 2010, 1244). The second key actor regarding energy supply is Petronas. Petronas is a key entity in the Malaysian energy sector due to a variety of facts. First, Petronas "holds exclusive ownership rights to all oil and gas exploration and production projects in Malaysia" and is "responsible for all licensing procedures" (Parliament of Malaysia 2013, 19-20). Therefore, Malaysia acts as both the owner and operator of all oil and gas resources. Second, Petronas dominates the oil as well as the gas sector in Malaysia, having a monopoly in upstream activities while also playing a leading role in downstream activities as well as LNG trade (EIA 2013b). Due to its integrated structure, Petronas also operates a large and diverse downstream business, ranging from LNG regasification and liquefaction to extensive refining capabilities (Petronas 2014, 2). The third reason for the importance of Petronas comes in the form of its contributions. Petronas contributed more than 30% of the government's budget in 2013, making the company an indispensable part for the country's finances. However, this has resulted in recent disagreements between Petronas and the government. Petronas wants to "find a balance between dividend payments and funding for growth" (Petronas 2013, 11). This resulted in capping the dividends at 30% of Petronas' net profit from 2013 onwards, hurting relations with the government that has been trying to interfere with Petronas through bureaucratic means and pressure (Malaysia Today 2014). This stems from the fact that, although state-owned, Petronas does not need government approval or funding for its operations and out of 16 board members, the President & Group CEO as well as almost all Executive Directors and Non-Executive Directors were independent members (Petronas 2013, 22; Petronas 2014, 26). This leaves the company nominally state-owned, but with de facto no real state control within the company itself.

Foreign investment has been increasing in Malaysia for the past years and is beginning to play a more important role in the energy sector. The Malaysian government is "strongly encouraging FDI […] and reaching out to targeted industries and negotiates incentive packages to attract FDI" (State Department 2013a, 1). In 2013, FDI inflows into Malaysia increased by 25% compared to 2012. Also interesting to note is the fact that almost 29% of FDI in 2013 went into the energy sector, slightly behind the manufacturing and service sectors (MITI 2014, 1-2). For the National Key Economic Area (NKEA) of Oil, Gas and Energy within Malaysia's ETP, the government has been actively promoting and targeting closer cooperating between Petronas and IOCs to "contribute considerable investments" and foster private investment (PM of Malaysia 2014, 46). Indeed, Petronas, for mobilizing capital for large capi-

tal-intensive undertakings in the upstream sector, has been engaged with Shell and ExxonMobil in what is called 'Production Sharing Contracts' (PSC). In these contracts, Petronas operates as the "commercial entity" with the private investor bearing the risk and funding of E&P operations, being compensated by profit from the developed resources (Petronas 2013, 11-18). An increasingly important external stakeholder in Malaysia's energy sector is ASEAN. Through its 'ASEAN Plan of Action for Energy' (APAEC), ASEAN is actively promoting closer energy cooperation and integration. The APAEC contains 26 strategies and 91 actions, with the key projects being the 'ASEAN Power Grid' (APG) and the 'Trans-ASEAN Gas Pipeline' (TAGP) (ACE 2009, 2). The APG is a "flagship program" mandated in 1997 by the heads of state/government of ASEAN to ensure regional energy security and promote "efficient utilization and sharing of resources" (ACE 2009, 12-17). The aim of the program is to connect power-rich countries with countries dependent on electricity imports. Malaysia profits immensely from the APG as several grid interconnection projects linking Peninsular Malaysia with Sarawak, Sabah, Sumatra, to the Philippines, and Brunei are planned. Similarly, the aim of the TAGP is the interconnection between gas importers and exports in the region, strengthening supply- and energy security amongst all ASEAN members. To this end, over 4,500 km of mainly underwater pipelines are planned, with many potential pipelines involving gas-rich Malaysia (ibid.). Due to its extensive natural gas infrastructure and strategic location within ASEAN, Malaysia is a "natural candidate to serve as a hub" in the TAGP project (Tick et al. 2010, 1244).

Institutions

Several factors dilute Malaysia's status as a democratic system. Since its independence in 1957, the country has been dominated by the 'Barisan Nasional' ruling coalition. Politically motivated accusations and trials as well as and a general tightening of the country has resulted in "the silencing of opposition voices, vote-shopping, and gerrymandering" in addition to state supervision in the media, making challenging the ruling coalition and its policies hard to achieve (Halvorssen and Gladstein 2011). The major policy guiding the development of the energy sector is Malaysia's 'National Energy Policy', first formulated in 1979. It stipulates three key objectives: the supply objective, aiming to "ensure adequate, secure and cost-effective energy supply […] diversifying away from oil dependence"; the utilization objective, promoting energy efficiency; and lastly the environmental objective, trying to "minimize the negative environmental impacts on the energy supply chain" (KeTTHA 2014a). Subsequent policies and laws have been designed to support these objectives, such as the 'National Depletion Policy', limiting total annual production of hydrocarbons to a maximum of 3% of total reserves, translating to 650,000 b/d of oil and 56.6 million m^3 of natural gas per day (APEC 2014, 113). Malaysia's 'National Renewable Energy Policy & Action Plan' is another part of the framework guiding the energy sector. The plan has set several specific, measurable, achievable, realistic and time-specific (SMART) targets for the energy sector. By 2015, 5% of all electricity has to be generated from renewable energies, with this number climbing to 9% and 11% for 2020 and 2030, respectively (KeTTHA 2008, 37). The regulatory framework is made up of several acts and bills, with the 'Electricity Supply Act' as the main legislation for the energy sector with provisions on the efficiency use of electricity. The 'Efficient

Management of Electrical Regulations' requires any installation with total electricity consumption of 3 million kWh or more over six months to appoint electrical energy managers and implement efficient electrical energy management measures (REEEP 2014b). Overall competition in the energy sector is diverse. In the oil and gas sector, Petronas is the dominating company, but has entered into PSC with many major IOCs in the upstream sector and is in competition with Shell and Esso in the downstream sector (KeTTHA 2014c). Competition is much more developed in the electricity sector, although a monopoly company produces most of the electricity in each of the three states. However, over 50% of electricity in Peninsular Malaysia and Sabah are generated by IPPs, leaving much more room for overall competition and diversity than in the oil and gas sectors (EIA 2014b).

3.3.3 Energy Security Policies

Domestic Policies

The current 10th Malaysia Plan introduced the New Energy Policy, emphasizing the role of new and alternative energy sources for supply. It also focuses on enhancing energy efficiency by strengthening existing and establishing new programs to productively use energy. Also noticeable is the government's effort to strengthen governance and reform the energy sector with the aim of a continuous liberalization of the gas sector and achieving market prices for energy by 2015 (EPU 2010, 112-114). The 'five pillars' of the New Energy Policy aim at improving the efficiency, environmental sustainability and to a lesser degree the availability of energy. Although Malaysia's has launched several programs and even a National Renewable Energy Policy with specific renewable energy targets, Malaysia acknowledges that "in planning for the electricity requirements of the country, the government, regulator (ST), and the utilities (TNB, SESB) presently do not consider RE to have any significant impact on power generation" (KeTTHA 2008, 29). Thus, the policies formulated within the New Energy Policy are not aimed at improving energy security through strengthening supply, but diversifying the energy and electricity mix, albeit this is also very questionable as renewable energy plays only a marginal role in the Malaysian energy sector. Therefore, the New Energy Policy emphasizes the utilization objective and environmental objective of the overall National Energy Policy of the country. The crucial supply objective, however, is realized through the ETP. The program has identified the Oil, Gas and Energy Sector as a NKEA that constitutes about 20% of the Malaysian economy. The 13 EPPs focus on two areas of the energy sector: 1) expanding the downstream sector and 2) increasing domestic production, and 3) pushing into renewable energy. The EPPs have the aim of "transforming Malaysia into an oil and gas hub […] to explore and develop marginal fields, adding more heft to the country's status as the second-largest oil producer in Southeast Asia" in addition to building a "sustainable energy platform that includes fuel subsidy rationalization and a greater push for renewable energy" (PM of Malaysia 2014, 46). Nevertheless, how do these EPPs look in detail and how do they correlate to the overall setting of Malaysia's energy sector explored earlier?

Malaysia has been experiencing a production decline in its large, mature oil fields, making it necessary to focus on smaller fields, fields in deepwater areas, and rely on EOR

activities in large, mature fields (IEA 2013c, 79). This is directly reflected in the first three EPPs of the ETP, namely EPP 1 "Rejuvenating Existing Fields through EOR", EPP 2 "Developing Marginal Fields through Innovative Solutions", and EPP 3 "Intensifying Exploration activities". Through EOR, Malaysia and Petronas will be able to recover 10-15% more oil compared to the industry's historical recovery rate. EOR activities conducted by Petronas and ExxonMobil in the Tapis oilfield, the largest EOR activity in Southeast Asia, aim to extend the field's life by another three decades. EPP 2 recognizes that the majority of Malaysia's oil reserves lie in marginal, technically challenging fields. In conjunction to attracting new investments for these fields, EPP 3 focuses on renewed E&P activities "to maintain Malaysia's oil and gas production", having brought forward Malaysia's first onshore oil and gas discovery in 24 years (PM of Malaysia 2014, 49-50). Malaysia has the second-largest LNG export and import facilities in Southeast Asia. While only slight capacity increases for LNG liquefaction are planned, regasification capacity is scheduled to more than double by 2017. Malaysia's first regasification terminal thus went online in 2013 with the strategy of "safeguarding the long-term security of domestic gas supplies and preparing for future increases in gas demand in Malaysia by supplementing domestic gas supplies with imported LNG" (IEA 2013c, 86; PM of Malaysia 2014, 52). Thus, EPP 5, "Unlocking Premium Gas Demand in Peninsular Malaysia" direct correlates with Malaysia's shift towards a net energy importer.

EPP 13, "Increase Petrochemical Outputs", is meant to further a two-prolonged strategy of Malaysia. On the one hand, Malaysia wants to establish itself as a "regional oil trading and storage hub", as indicated by EPP 4 "Building a Regional Storage and Trading Hub" and EPP 6 that targets to "transform Malaysia into an Asia-Pacific hub for oil and gas services and equipment" (EIA 2014b; PM of Malaysia 2014, 51-54). On the other hand, as Malaysia is turning into a net oil importer in the near future and has to import increasingly more petroleum products, the country wants to turn itself in to a net exporter of petroleum products. Petronas' development of the 'Refinery and Petrochemical Integrated Development' is the central project of this EPP. The facility is planned to go online in 2019 with a capacity of 300,000 b/d, increasing Malaysia's refinery capacity by 50% and instantly transforming the country into an important exporter of petroleum products "catering to the Asia-Pacific region's demand" (EIA 2014b; PM of Malaysia 2014, 59). Finally, EPP 9 and EPP 10 aim to improve energy efficiency and the use of renewable energy. Through EPP 9 "Improving Energy Efficiency", the government has launched five key government-led initiatives, such as encouraging sales of efficient cars. EPP 10 "Building up Renewable Energy and Solar Power Capacity" has set targets for the installed capacity of renewable energy. Although a feed-in tariff mechanism was introduced, the installed capacity only amounted to 80% of set targets in 2013, illustrating Malaysia's difficulties with establishing renewable energy as a realistic energy alternative (PM of Malaysia 2014, 56-58).

International Policies

Malaysia's international energy security policies are directly connected to its domestic policies and supplement the overall goal of stabilizing domestic production and establishing Malaysia as an important regional energy hub. Petronas is the central actor in Malaysia's international energy security policies. The company operates 332 offshore platforms worldwide and

has a presence in 23 countries, participating in 162 ventures (Petronas 2013, 6). Although Malaysian production has been in decline, Petronas managed to produce 2.1% more oil and gas in 2013 than in 2012. On the other hand, international production increased by 19% in 2013, equal to almost one third of total domestic production that year. In terms of regional activity, 42% of international production came from Africa, 35% from Southeast Asian and Oceania, 13% from the Middle East, and 10% from the Americas. Another indicator that manages to capture Malaysia's focus on international production of oil and gas is the number of Field Development Plans (FDP) and Final Investment Decisions (FID) made. Between 2010 and 2013, FID for international production doubled and FDP nearly doubled in 2013 when compared to 2012, indicating that Petronas has been focusing on international production for several years now. A testimony of this strategy can be found in the location of new discoveries of Petronas. In 2013, only five out of 15 discoveries were international discoveries. Nonetheless, they made up more than double of the actual resource amount that was discovered domestically (Petronas 2014, 48-51).

Another focus of Malaysia's international energy security strategy is to invite IOCs into Malaysia's upstream oil and gas sectors. As EOR and E&P activities in deeper offshore areas require more investment and technical knowledge, Petronas has been collaborating with IOCs to expand domestic production. ExxonMobil and Petronas began work on the Tapis EOR project in Malaysia's Tapis field in the second half of 2014. This is going to extend the fields life by about 30 years and add 25,000 b/d of production. Another example is the agreement between Petronas and Shell made in 2011 to invest $12 billion over 30 years in two EOR project in offshore Sarawak and Sabah, which is going to boost oil production by 90,000 b/d (EIA 2014b). Involvement of IOCs in offshore deepwater projects has also been increasing. Malaysia's Kikeh oil field, the country's only producing deepwater oil field, is operated by Murphy Oil in partnership with Petronas and tripled its production volume between 2007 and 2013 to 60,000 b/d and is expected to peak at double that amount. The Gumusut/Kakap project in offshore Sabah, which includes the region's first deepwater floating production system, is operated by Shell who also holds 33% of the shares. Similarly, the Malikai oil and gas field project, expected to come online in 2016, is also operated by Shell who owns 35% of the shares, with other partners including ConocoPhillips and Petronas with a share of 35% and 30% in the project, respectively (EIA 2014b). Even onshore E&P is increasingly carried out by IOCs. JX Nippon Oil & Gas Exploration discovered Malaysia first new onshore oil and gas field in 24 years in partnership with Petronas (PM of Malaysia 2014, 50).

In the oil downstream sector, the Malaysian-Dutch joint venture between Dialog and Royal Vopak has resulted in the establishment of Malaysia's largest commercial oil storage terminal with a storage capacity of more than 10 million barrels of crude oil and petroleum products, with a potential to expand to 41 million barrels for future demand. For the gas sector, the Malaysia-Thailand Joint Development Area (MTJDA) has been an increasingly important for gas E&P, with each country owning 50% of the resources located within the area. Production in block A started in 2005 and expanded in 2008 to include three more fields. Block B went online in 2009 with about one third of Block A's volume. In terms of offshore gas production, Shell is a major player in the sector and entered three PSCs with Petronas in 2012 to ramp up its E&P in offshore Sarawak. Murphy Oil has been active in developing smaller gas fields through the Sarawak Gas Project, containing a cluster of fields. Murphy Oil

holds the majority of the interest with 85%. Finally, Petronas is involved with Shell and ConocoPhillips in the 'Kebabangan Petroleum Operating Company', a consortium that is developing several gas fields in northeast Sabah in which Petronas holds a majority interest with 40%, followed by Shell and ConocoPhillips with a 30% interest each (EIA 2014b). This increased involvement of IOCs and foreign investor is explicitly welcomed by the Malaysian government, documented in EPP 6 "Encouraging Investment in the Oil & Gas Services and Equipment Industry" as well as EPP 8 "Attracting MNCs to set up Operations in Malaysia and Partner with Local Firms" (PM of Malaysia 2014, 54-56). As in its domestic energy strategy, the aim of the international energy security strategy is to increase domestic oil and gas production and improve Malaysia's position as regional energy hub.

3.4 Vietnam

Vietnam is located in the east of the Indochina Peninsula. With an extensive coastline along the South China Sea, its landmass covers 330.958 km², almost the same size as Malaysia. Vietnam boarders China in the north as well as Laos and Cambodia in the West and Southwest. Vietnam's population of 93.4 million makes it the fifteenth most populous country in the world and the third most-populous one in Southeast Asia (World Factbook 2014). By 2035, Vietnam's population is projected to grow by an additional seven million to then over 100 million people in total (APEC 2013a, 215). Vietnam's GDP was at $124 billion in 2011, growing by over 130% since 2005 and making it the sixth-largest economy within ASEAN. With an average 7.2% growth rate in recent years, Vietnam has been one of the faster-growing economies in the region. However, per capita GDP was still quite low with only $1.375 in 2011. This amounted to only 13% of the global average and was the fourth-lowest GDP per capita in ASEAN (UNESCAP 2013b, 221-222). The primary sector contributed 18.4% to Vietnam's GDP in 2013. For no other country other than Cambodia does the primary sector play a more important role in ASEAN. The secondary sector added 38.3% and the tertiary sector 43.3% to Vietnam's GDP (ADB 2014a, 174). Another difference to China and Malaysia is Vietnam's trade profile. Vietnam has focused on its large domestic market to fuel its growth, reflected by its trade deficit of $450 million in 2011 (APEC 2013b, 141). In 2012, miscellaneous manufactured articles, machinery, and foodstuffs were the major exports articles, amounting to over 70% of total exports (General Statistics Office 2013b). For imports, machinery, manufactured goods, and chemical products were the main import commodities with 71.5% in total (General Statistics Office 2013c). Vietnam has embarked on market-oriented reforms since 1986. Its current socio-economic development plan formulates the objective to become a "modernity-oriented industrial nation" by 2020. To achieve this, shifting towards rapid, but sustainable growth will be necessary by promoting more innovativeness, better quality, and higher competitiveness efficiency (Government of Vietnam 2011).

3.4.1 Energy Security Assessment

Availability

Volume

Primary energy supply reached 69.3 Mtoe in 2012, a global share of 0.52%. In terms of coal, Vietnam produced 23.1 Mtoe in 2013, a 0.6% share in global production. The production of oil amounted to 17 million tons, for a global share of 0.4%. Finally, gas production was at 9.8 billion m³ and equaled 0.3% of the worldwide production. Vietnam's small coal and gas production is accompanied by a sizeable oil production, equal to half of Indonesia's oil production, a former OPEC member (BP 2014b, 10-32). Per capita primary energy supply in 2012 was at 0.74 toe per capita, only about 40% of the global average. Coal supply with 0.25 toe per capita was similarly low, amounting only to 45.5% of the global average. For oil, this share dropped even further. With only 0.19 toe per capita, oil supply was only 32% that of the worldwide average per capita supply. Per capita gas supply, however, was the lowest with only 0.09 toe per capita, reaching not even 25% of the global average per capita supply of gas in 2012 (IEA 2014b, II. 40; II. 295).

Accessibility

The rate of electrification with 98% in 2010 still left approximately two million people in Vietnam without electricity access (UNESCAP 2013b, 183). Only a minority of 44% of the population had access to modern cooking fuels in 2010 (UN 2012). Although 75% of the urban population was using mostly LPG for cooking, about 80% of the rural population used solid fuels in 2010, mostly wood and coal (UNESCAP 2013b, 183). Similarly to China, this indicates a relatively low urbanization rate in comparison with Malaysia.

Independence

Similarly to Malaysia, Vietnam has been a net energy exporter for the past two decades. Also similar is its decline as an energy exporter, with exports having shrunk by more than 60% since 2005. Coal is being exported, and net coal exports in 2012 reached 47% of consumption levels. Although being an oil exporter, Vietnam's overall oil imports represented 5.8% of its consumption, indicating that Vietnam has to rely on large quantities of oil product imports due to lack of refining capacity. In terms of natural gas, Vietnam produced approximately eight Mtoe in 2012. However, gas is only imported and exported in very little quantities, leaving Vietnam mostly independent for gas supply (IEA 2014b, II. 327-351).

Stability

Resource Sustainability

Vietnam has only very little coal reserves. Its 150 million tons of coal only have a reserve-to-production ratio of four years, meaning that Vietnam has almost exhausted its reserves and will become a coal importer in the very near future. With 4.4 billion barrels, oil reserves are more plentiful. Under the 2013 production levels, reserves are estimated to last for an additional 34.5 years. Natural gas, however, is Vietnam's most untapped fossil fuel. With 600

billion m³, Vietnam could keep its current production levels for more than 60 years before reserves run out (BP 2014b, 6-30).

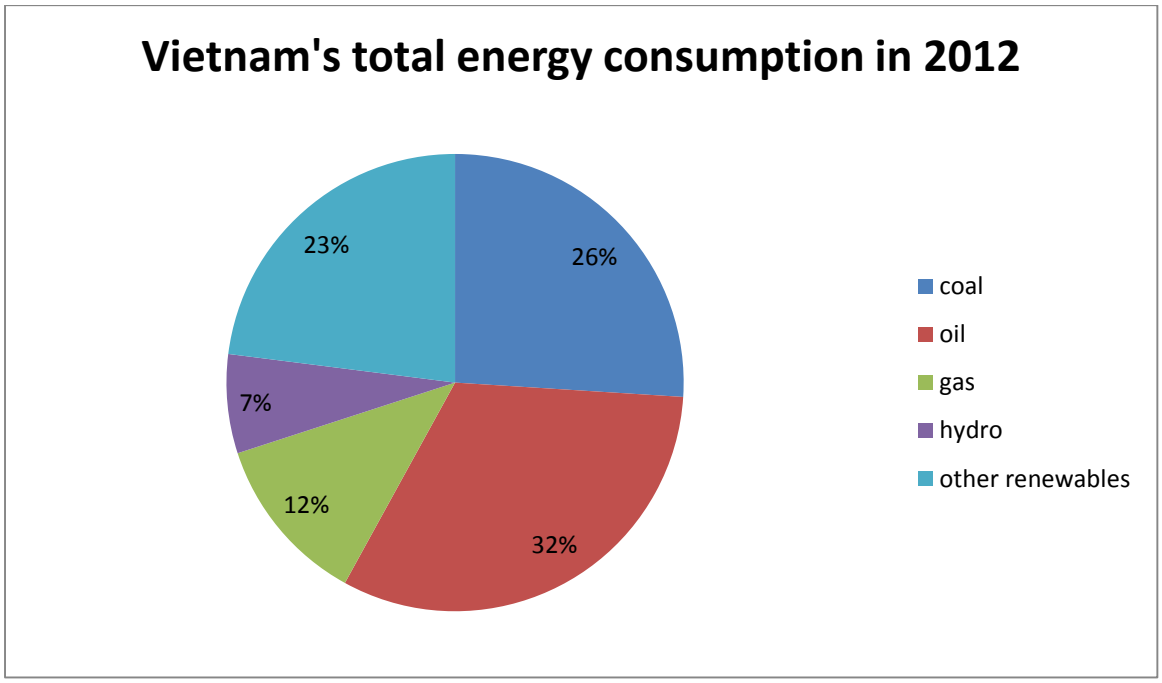
Supply Security

Vietnam has already indicated that it will decrease coal exports in the near future and instead import more coal to meet rising demand by the electricity sector (PM of Vietnam 2011, 3). With a consumption of approximately 138 million barrels of oil in 2013, Vietnam's oil reserves are projected to last for more than 30 years. Vietnam's oil reserves, however, only amount to 0.3% of global reserves. With three times the population of Malaysia, Vietnam only consumes 50% as much oil as Malaysia does. This means that in terms of consumption, Vietnam only consumes slightly more oil per year than Hong Kong does (BP 2014b, 9). The consumption level of oil is therefore very low when compared to other Asian countries. Moreover, Vietnam has one of the highest annual growth rates for energy demand in Asia, which will increase even more in the time between 2020 and 2035. Therefore, Vietnam has to deal with projected annual energy demand growth rates of almost 4% from 2020 onwards (APEC 2013c, 31). The 'ASEAN Center for Energy' thus sees Vietnam before an "unprecedented structural change" as the demand for energy rapidly grows and changes Vietnam from an export to a net importer (ACE 2011, 87). Vietnam's gas consumption with 9.8 billion m³ is lower than the annual consumption of Singapore. Although its reserves-to-consumption ratio with over 60 years is very high, the structural changes mentioned above will most likely lead to drastically increased production levels as demand rises, shrinking that number by a large margin (BP 2014b, 23).

Surging demand for coal has led Vietnam to increase its imports in recent years. With about 75%, most of coal imports come from Indonesia. Australia is the other major source of coal imports, with almost 18%. Gas imports, although very small in quantity, come with over 69% from China, followed by imports from Qatar with 27%. Making up only 4% of Vietnam's oil production, oil imports come almost exclusively from Brunei, amounting to 0.7 million tons in 2013 (ITC 2014; BP 2014b, 10). Vietnamese electricity production in 2000 was almost 16% above consumption levels, leaving the country with much leeway. Nevertheless, this margin decreased to only 8.7% in 2012. This decrease by almost 50% demonstrates Vietnam's extremely high annual demand growth for electricity and energy overall. Annual electricity growth rates between 2010 and 2020 of 6.5% are the highest in APEC and 30% higher than China and more than double the rate of Malaysia. Nevertheless, unlike China and Malaysia, whose growth rates are projected shrink to fewer than 3% from 2020 onwards, Vietnam's growth rates will stay at approximately 6%, leaving the country with unprecedented annual electricity growth rates and overall electricity supply security in a precarious situation (IEA 2014b, II. 371-377; APEC 2013c, 99).

Fuel Diversity

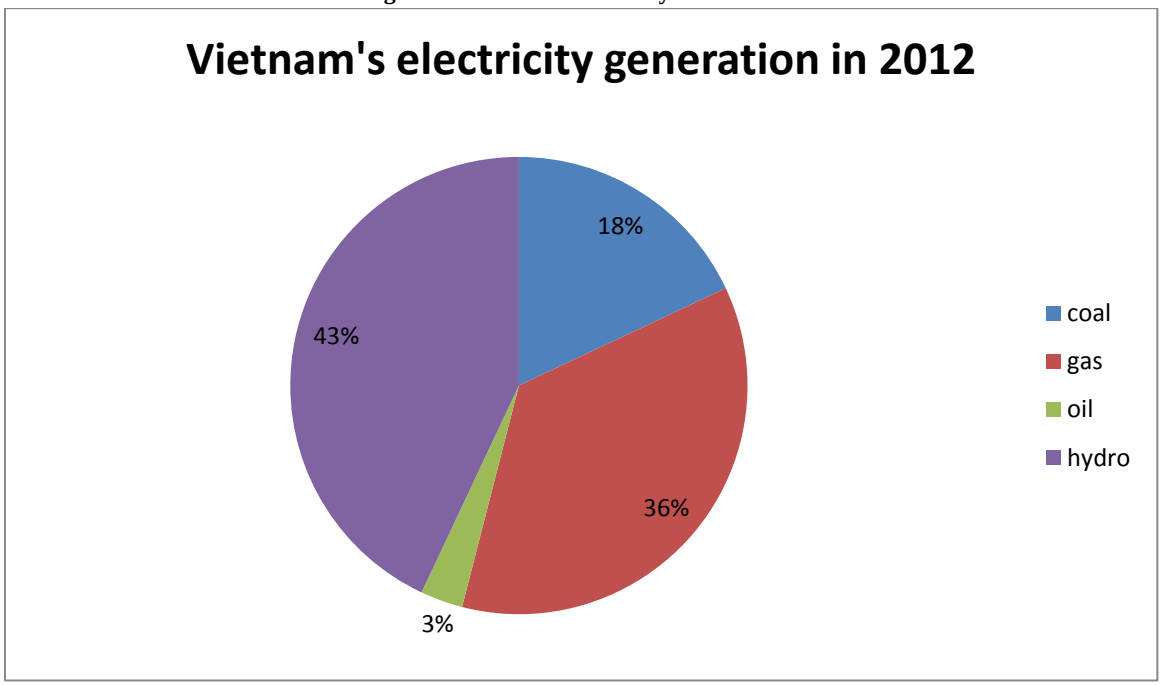
Figure 8 Vietnam's Energy Fuel Mix in 2012



Source: calculated by author after IEA 2014b, II. 106

Vietnam's energy mix is the most diversified when compared to China and Malaysia. Nevertheless, almost 60% is derived from fossil fuels, where Vietnam is undergoing a shift towards a net-importer in the immediate future, leaving the energy mix in a less desirable state.

Figure 9 Vietnam's Electricity Fuel Mix in 2012



Source: calculated by author after IEA 2014b, II. 359-394; IEA 2014h, III. 10

Vietnam's electricity mix is unique for the fact that it does mostly rely on renewable energy. On the other hand, besides Vietnam's upcoming shift towards a net coal importer, its comparatively very low gas consumption coupled with unprecedented electricity demand in the next

20 years will put a serious strain on gas supplies as production levels will undoubtedly increase and reserves shrink.

Infrastructure Adequacy

Vietnam has by far the lowest refinery capacity when compared to China and Malaysia. Although a net oil exporter, Vietnam is reliant on petroleum product imports. Its first and currently only refinery came online only in 2009, with a capacity of 140,000 b/d. In contrast to a petroleum products consumption of 413,000 b/d, this refinery can only supply Vietnam with 34% of its demand. Vietnam was, however, the country that had the highest generation-to-capacity ratio with 54.7% when compared to China and Malaysia (EIA 2013c). This could potentially stem from the fact that a large part of electricity in Vietnam is produced from hydro energy and is thus less reliant of coal-powered thermal power. Electricity transmission and distribution losses with 9.9% of total electricity supplied are over 3% higher than in China and Malaysia and exceed the average Asian loss rate by almost 1.5% (IEA 2014h, III. 6).

Emergency Response Capability

Unlike Malaysia, Vietnam is pursuing a strategy to build up its SPR. According to its 'Master Plan for Crude Oil and Petroleum Products Stockpiling of Viet Nam up to 2015 with Vision to 2025', the country aims for a total capacity of at least 90 days of net imports, roughly equal to 68 days of consumption. At the moment, however, national stockpiling capacity is still very low and "not sufficient to supply strategically for the economy when facing shortage and unstable price challenges" (Le Duong 2011, 2).

Affordability

Price Levels

Electricity prices in Vietnam are highly fractured. The official, average price for electricity was $71 per MWh in 2013. However, prices differentiate for households and industrial consumers. Additionally, all prices are further structured into by voltage and time of usage, with peak-hour tariffs higher than off-peak tariffs. For industrial consumers, normal prices ranged from $60.1 to $66.1 per MWh. Household prices ranged widely in 2013, with $46.7 for low-income household and between $66.7 and $113.8 based on total consumption, with most households falling into the $66.7 per MWh bracket (MOIT 2013, 2-6; OECD 2013, 133). If only by a small margin, electricity prices for industrial consumers were lower than prices for households. Compared to OECD as well as Chinese and Malaysian prices, electricity is quite cheap in Vietnam, especially for households. This is only partially true for fuels. In 2012, diesel and gasoline were at $1.06 and $1.15 per liter, respectively. Thus, they were slightly higher than US prices and almost double that of Malaysian prices, but still well below prices in China. Since 2008, fuel prices have risen by 38% for diesel and almost 44% for gasoline, resulting in even higher price increases than in China (GIZ 2014, 31-32).

National Accounts

Vietnam's energy subsidies totaled $3.4 billion in 2012. The largest share was for electricity, amounting to $2.9 billion. Oil and gas subsidies were minimal, amounting to only $0.5 billion in total. Like in Malaysia, no noteworthy coal subsidies were provided. Per capita subsides with $39.2 per person were twice as much as in China. The average subsidization rate with 12.2% was quite high, but not as high as Malaysia's 19.5% rate. Overall, total energy subsidies were equal to 2.5% of Vietnam's GDP in 2012, similar to Malaysia's share (IEA 2013d). In terms of the energy import cost-to-total export revenue, Vietnamese exports accounted for $114.5 billion in 2012, with energy imports totaling $11.5 billion. Therefore, the share of energy imports was only at 10%, 5% lower than in China and Malaysia (UN 2013, 2).

Efficiency

Energy Consumption

Vietnam's per capita energy consumption with 0.58 toe per person was almost four times higher than its per capita consumption in 2000 (APEC 2014, 246; IEA 2014b, II. 295). Its energy consumption per capita is only one third of APEC's and equal to Southeast Asia's per capita consumption in 2011 (APEC 2013c, 81). Similar to China and Malaysia, the industrial sector consumed the most in 2012, with 20.2 out of 49.2 Mtoe, or 41.1%. With 35.9% or 17.7 Mtoe, the residential and commercial sector came closely after. This is followed by the transport sector with 10.7 Mtoe or 21.8% and the agricultural sector with 0.6 Mtoe, or 1.25% of TFEC (IEEJ 2014). The residential and commercial sectors account for roughly one third of overall consumption, more than twice as much when compared to China and Malaysia.

Energy Intensity

Vietnam has traditionally been a highly energy-intensive economy. Although it had some success in lowering its energy intensity during the 1990s, the development has since reversed. In 2000, Vietnam's energy intensity stood at 0.7 toe per thousand 2005 USD. In 2012, this number increased to 0.74, increasing by almost 6%. In 2012, Vietnam was the most energy-intensive economy in Southeast Asia and among the most energy-intensive in Asia, with 60% above the average Asian over three times over the global average (IEA 2014b, II. 439).

Environmental Impact

CO^2 Emissions

In 2011, Vietnam produced 137.36 $MtCO^2$, an unprecedented increase of almost 700% since 1990, indicating an intensive use of fossil fuels (IEA 2013e, II. 411). Emissions per toe amounted to 2.24 tons of CO^2 in 2011, 6% below the global average. With only 1.56 tons of CO^2 per capita, Vietnam produced only 35% of the global average per capita CO^2 emissions (IEA 2013f, 49; 57).

3.4.2 Interests and Institutions

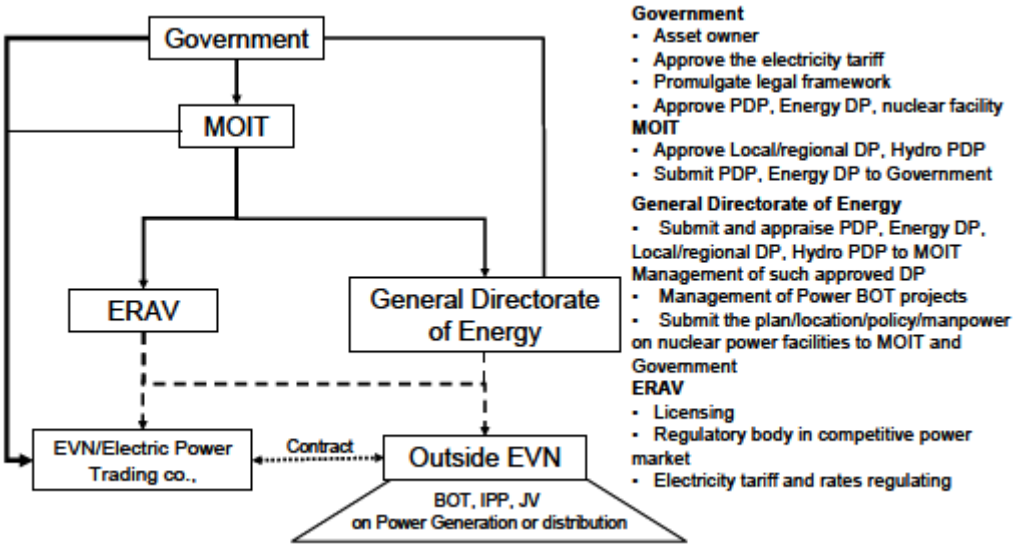
Interests

In terms of key actors in the energy sector, Vietnam displays similarities to both China and Malaysia but is distinctive in its own way. The PM of Vietnam plays an integral part in the energy sector, even more so than its counterpart in Malaysia does. The Vietnamese PM and the 'Ministry of Industry and Trade' (MOIT) control and administer the country's SOEs. For example, the PM is the supervising governmental agency responsible for the three largest and most important SOEs in the country, namely EVN, PVN, and Vinacomin. The crucial part that differentiates the power potential between the Malaysian and Vietnamese PM is the authority and power the PM of Vietnam holds over these SOEs. In Vietnam, the PM

> approves the mother company's charter; he appoints, dismisses, rewards, and disciplines board members including the chairman and senior executives; approves long-term corporate strategy; he approves charter capital investments in mother companies; and approves ownership change in mother company's subsidiaries (Woochan et al. 2010, 3-39)

The PM of Vietnam has thus far-reaching authority over key SOEs. Policy and energy prices are also linked to the PM. The pricing of most fuels and electricity is regulated directly by the PM, who has to approve any proposals from the ministries. Ratification and approval of energy policies in general, which also includes final authority to grant hydrocarbon rights, is also up to the Vietnamese PM (Tien and Sharma 2011, 5773; NRGI 2014). Lastly, the PM also takes on a regulatory role, as he is responsible for issuing regulations and conditions for forming and developing power markets (REEEP 2014c). Vietnam has no Energy Ministry. However, unlike China, its energy bureaucracy is not fragmented into several agencies that compete with one another and possess only limited authority. Similar to Malaysia, Vietnam has bundled the key functions of administering and regulating the energy sector into one ministry. The MOIT is the state agency responsible for the management of all energy industries, including electricity, coal, oil and gas, and renewable energy. The formulation of laws, policies, development strategies, master plans, and annual plans for the energy sector also falls under its jurisdiction. Lastly, it is responsible for directing and supervising the overall development of the energy sector and needs to report its findings to the PM. Within MOIT, the 'General Department of Energy' (DGE) is tasked with administering EVN, PVN, and Vinacomin in place for the Minister of Trade and Industry and the PM (APEC 2014, 248). The regulatory activities of MOIT are mostly carried out by the 'Electricity Regulatory Authority of Vietnam' (ERAV) under the roof of MOIT. Whereas the DGE is responsible for energy planning and policy, it is not involved in day-to-day regulatory activities. This is managed by ERAV, which is responsible for supervising the electricity market, electricity planning, tariff regulation, and licensing (Nguyen 2012, 4; REEEP 2014c). The following figure illustrates the role of government institutions:

Figure 10 Government Institutions in the Vietnamese Power Sector



Source: Nguyen 2012, 4

Three key energy suppliers dominate Vietnam's energy sector. PVN is the central company in the oil and gas sector and has a wide range of business activities, ranging from oil and gas E&P to petroleum services (PVN 2013a). PVN holds 100% shares of several of its subsidiaries, including the 'PetroVietnam Exploration Production Corporation' (PVEP). Additionally, PVN also owns Vietnam's only oil refinery and holds controlling shares of over one dozen other energy-related companies and entities (PVN 2013b). Within PVN, PVEP plays a crucial role, as it is responsible for upstream E&P activities. PVEP's strategic objectives are to "accelerate production, increase oil reserves, develop deepwater, off coastal, overlapping as well as disputed areas and expand the investment areas overseas" (PVEP 2014). PVN is Vietnam's largest SOE and completely state-controlled. Even bureaucratic micro-management has been conducted, such as the Vice-Minister of MOIT also serving as a board member of PVN, directly overseeing the company on site (Woochan et al. 2010, 10). As such, PVN's strategy equals the government's strategy, as PVN is required to implement "activities the government entrusts directly to PetroVietnam" (PVN 2010a). Overall, PVN almost completely monopolizes the oil and gas downstream sectors, while the upstream sector is open to competition (APEC 2014, 251). Vinacomin is the second key company in Vietnam's energy sector. Vinacomin's core business field is the coal industry, where it is responsible for E&P in the upstream sector and processing and sale in the downstream sector. Vinacomin completely dominates the mineral-metallurgical industry and has major business interests in energy engineering, shipbuilding, and the automobile industry (Vinacomin 2014a; APEC 2014, 251). EVN is the last of the three major energy suppliers and is similarly 100% state-owned and state-controlled. EVN is a vertically integrated company engaged in electricity generation, transmission, and distribution. Its primary responsibilities are to supply electricity for the country's socioeconomic development and ensure that investments in electricity generation and network expansion meet increasing demands (APEC 2014, 250).

Foreign investment is a key component of Vietnam's economy. Vietnam's total inward FDI stock has grown by over 550% since the year 2000, having increased even more than China's FDI stock (UNCTAD 2014, 206-210). FDI sector exports amounted to two thirds of Vietnam's overall exports in 2013 and foreign invested enterprises share of GDP

increased to 18%. Vietnam has gradually opened up its economy for foreign investment, but also maintains a 49% foreign ownership limit for listed companies (State Department 2013b, 1-4). Vietnam has explicitly welcomed foreign investment into the energy sector and considers "encouraging domestic and foreign economic sectors to invest in the energy domain" to directly supplement and facilitate the country's National Energy Development Strategy (PM of Vietnam 2007, 7). However, Vietnam's 'Law on Investment' lists "survey, prospecting, exploration and mining of natural resources" as a sector in which investment is "subject to conditions" (National Assembly 2005, 13). One such condition is that every investment project concerning mining, oil, and gas needs to be approved by Vietnam's PM (State Department 2013b, 5). Nevertheless, foreign investment into Vietnam's energy sector has been on the rise. PVN has increased the number of petroleum contracts signed with IOCs and other foreign oil and gas companies to 60. In 2012, several major oil and gas discoveries were direct results of foreign investment, such as the Russo-Vietnamese joint venture Vietsovpetro (PVN 2013a). The major companies active in E&P activities in the Vietnamese continental shelf are ExxonMobil, the joint venture Vietgazprom, Talisman, and Mitra Energy. However, Vietnam's upstream sector is not the only sector in need of foreign investment and expertise. PVN has listed five key energy projects, of which two are downstream projects. The other three projects are a LNG import terminal for the gas industry, a coal-fired power plant for power generation, and PVN's transportation company in the petroleum services sector, 'PV Trans' (PVN 2014a).

With almost $2.3 billion since 1993, the energy sector was the second-largest sector by cumulative lending share of the ADB to Vietnam. Vietnam has thus received more than 50% of the lending amount for the energy sector as China and about seven times the amount Malaysia has received so far, making ADB's lending to Vietnam quite significant with most of the projects have focused around improving rural infrastructure and electrification (ADB 2014, 1). Like for Malaysia, the APG and TAGP have been major sources of improvements in Vietnam's energy sector. The APG project has connected electricity-strained areas in Vietnam with Laos, a major source of electricity in the region. In terms of the TAGP, an interconnection between the MTJDA and Vietnam is planned to go online in 2016, linking together a dynamic gas-producing region with Vietnam as an increasing importer of gas. Additionally, Vietnam has already been linked with Malaysia through a 325km long pipeline with a 900km long pipeline connection to Indonesia in the planning phase (ACE 2009, 12-15).

Institutions

The Communist Part of Vietnam (CPV) has dominated Vietnam's political system for the past decades. The CPV holds the power monopoly in Vietnam and determines all policies. Competition in Vietnam's energy sector, apart from upstream E&P operations and the electricity market, is mostly missing. PVN, EVN, and Vinacomin are the three key energy suppliers in Vietnam's energy system, but in contrast to China, where the big state-owned energy SOEs are competing with each other, the contrary is the case in Vietnam. Endorsed and promoted by the PM and MOIT, Vietnam's three big energy SOEs signed a cooperation agreement in 2013 with the aim to enhance six areas of strategic cooperation, such as power generation and coal supply. The government views EVN, PVN, and Vinacomin as significant contributors to

national energy security. Vietnam's Minister of Industry and Trade stated that "Vietnam's three groups need to develop their key roles in energy development and national energy security", seeing cooperation between these companies as essential to overall energy security (Vinacomin 2014b). Vietnam has several laws and policy targets in place that regulate the energy sector. The 'Electricity Law' established the regulatory authority ERAV and set up three stages for power market development. The law regulates planning and development for the electricity sector, electricity markets, electricity saving, rights and obligations of market participants as well as safety (APEC 2013a, 218-219). The 'Law on Investment' lets the government and the PM decide on investments in the energy sector. Through the 'Law on Economical and Efficient Utilization of Energy', the government provides financial incentives and electricity price subsidies to encourage energy efficiency. Large electricity consumer have to establish five-year plans to strengthen energy efficiency and they have to report to local state agencies on the implementation of those plans. In addition, energy labeling has been introduced and tax incentives for purchasing and using energy-efficient products have been put in place (MOIT 2010, 2-19). Expanding on energy efficiency, the 'National Targeted Program on Energy Efficiency and Conservation' has put up a required energy saving target of 5% to 8% between 2012 and 2015. Vietnam has established an energy development target of 100-110 Mtoe of primary energy for 2020 and 310-320 Mtoe by 2050, effectively aiming to triple primary energy supply between 2020 and 2050 (PM of Vietnam 2007, 2). Between 2011 and 2020, the intensity of greenhouse gas emissions is to be reduced by 8-10% compared to the 2010 level. In addition, overall emissions will be reduced by at least 10% (PM of Vietnam 2012, 2).

3.4.3 Energy Security Policies

Domestic Policies

The 'National Energy Development Strategy up to 2020, with 2050 Vision' is the central plan regarding energy security policies. The plan maps out the following specific objectives:

- Ensuring sufficient supply of energy to meet the demands of socio-economic development, in which primary energy is expected to reach 47.5–47.9 Mtoe in 2010, 100–110 Mtoe in 2020 and 310–320 Mtoe in 2050;
- Developing power plants and power networks, ensuring sufficient supply of electricity for socio-economic development;
- Ensuring the phased development of refineries to meet domestic demand for petroleum products, and increasing the capacity of refineries to roughly 25–30 Mt of crude oil in 2020;
- Ensuring strategic oil stockpiling adequate for 45 days in 2010, 60 days in 2020 and 90 days in 2025;
- Achieving a share of renewable energy in the total commercial primary energy supply of 3% in 2010, 5% in 2025 and 11% in 2050;

- Completing the energy program for rural and mountainous areas, and increasing the proportion of rural households using commercial energy to 50% in 2010 and 80% in 2020
- Changing the electricity, coal and oil–gas sectors to operate in competitive markets with state regulation; establishing a competitive electricity retail market after 2022; in addition to establishing a coal and petroleum product business market by 2015;
- Actively preparing the conditions for putting the first unit of a nuclear power plant into operation in 2020, and then increasing the contribution of nuclear power to the economy's energy structure (by 2050, nuclear electricity will account for about 15%–20% of total commercial energy consumption) (PM of Vietnam 2007, 2-3).

The development plan emphasizes energy supply while also mentioning the planned transition towards competitive markets. Electricity plays a prominent role in the plan, indicating that the state of access, supply, and stability of electricity is not up to satisfactory levels. The plan also lists several development orientations for key energy industries in Vietnam. For the electricity industry, hydropower plants should be constructed while also developing coal- and natural gas- fired thermal power plants. For the coal industry, coal reserves at a deeper level should be explored and be made available. Coal exploitation is to increase with other economic sectors, investing into exploration and distribution activities. The official cooperation agreement between ENV, PVN, and Vinacomin formed in 2013 is certainly an implementation of this orientation objective. The coal industry is to develop in a stable and sustainable manner that meets coal demand. Similarly, it is important to for the gas industry to prioritize E&P activities to increase gas production. For the petroleum industry, Vietnam is set to distinguish between the state management and business operation level, which might indicate that SOEs in the oil sector might in the future still be state-owned, but less state-controlled. In addition, Vietnam wants to encourage, intensify, and speed up the exploration of oil (ibid., 3-5). PVEP, Vietnam's key upstream operator, has outlined its strategy to increase oil reserves by 110 Mtoe per year between 2011 and 2015 and 200 Mtoe in 2016 – 2025. PVEP will thus ramp up production in free blocks across most basins and where production contracts were signed. Through domestic production, PVEP expects to increase oil reserves by 30 Mtoe in the 2011 – 2015 and 50 Mtoe per year in the 2016 – 2025 timeframe (PVEP 2014).

Vietnam's current 'National Master Plan for Power Development' set several additional objectives for the electricity sector and electricity development in general. In detail, the country wants to drastically reduce its electricity elasticity coefficient from the current 2.0 average to 1.5 in 2015 and 1.0 in 2020, meaning that in 2020, to generate 1% of additional GDP, electricity consumption will rise by 1% instead of the current 2%. Furthermore, the plan sets an electricity production and import target of 194 to 210 billion kWh in 2015, 330 to 362 billion kWh in 2020, and 695 to 834 billion kWh in 2030, setting out to increase electricity production and import by about 400%. Ultimately, by 2020, electricity from gas will account for about 20% and electricity from coal for 47% of total electricity production. Electricity from renewable energy currently is planned to rise to 4.5% in 2015 and 6% in 2030 (PM of Vietnam 2011, 2-3). To curb increasing energy consumption, the 'National Energy Efficiency Programme' (VNEEP) was launched in 2006, the "most comprehensive and effective of a variety of initiatives undertaken in this area since 1995" (APEC 2013a, 218). The program

consists of six key components: strengthening state management on energy efficiency and conservation; strengthening public education, disseminating information, and enhancing public awareness of the issue; develop and popularize high-efficiency equipment; develop energy efficiency models in enterprises; organize training courses on energy efficiency; and develop detailed energy efficiency plans and measures for the transportation sector (MOIT 2009).

International Policies

Vietnam's international energy security policies closely resembles that of Malaysia. However, whereas Malaysia has put an emphasis on international production and has got Petronas with extensive know-how and expertise, for Vietnam "the participation of foreign energy firms in offshore exploration is critical" as PVN and PVEP possess neither the resources nor the know-how Petronas does and are thus far more reliant on IOCs and foreign investment (AsiaTimes 2012). Fully aware of this fact, the government has declared intensified international energy cooperation as one of the main goals of its strategy. To acquire much-needed investment for energy development, the strategy lists E&P of primary energy in offshore and overlapping areas between Vietnam and neighboring countries as a solution. Additionally, cooperating with neighboring countries is presented as an option in addition to efficiently use energy sources developed abroad (PM of Vietnam 2007, 3; 7). Explicitly encouraged to do so, PVN and PVEP have been very proactive in acquiring new licenses for overseas production. In July 2014, Deputy PM Hoang Trung Hai proposed that PVEP should "focus on mapping out strategies to boost its oil and gas exploration and exploitation overseas" (VOV 2014a). In January 2013, Hoang instructed PVEP's mother company PVN to "pursue an expansionary strategy with its international oil and gas activities, thereby preserving domestic resources and guaranteeing energy security", adding that "energy security will be one of the four most important issues [for Vietnam]" and that PVN thus should devise a long-term strategy for the sector (VOV 2013a). Indeed, PVEP has of recently been engaged in several overseas energy projects, such as in the West Desaru oil field offshore Malaysia, with an initial capacity of approximately 2,000 b/d and a planned capacity of 20,000 b/d, with PVEP holding a 15% interests in the project (VOV 2013b). As of April 1 2014, PVEP has also begun producing oil from Block 67 off the coast of Peru, PVN's second project in Peru after Block 39. Initial output from the project is at 6,000 b/d with PVEP holding a 50% stake (VOV 2014b). The overall aim is to increase reserves by 80 Mtoe annually in 2011 – 2015, and 150 Mtoe annually in the 2016 – 2025 timeframe (PVEP 2014).

IOCs, foreign oil- and gas companies, and foreign investment all play a major role in Vietnam's energy sector that requires a large amount of investments to develop new resources and to keep up with the country's rapidly growing energy demand. When analyzing E&P activities within Vietnam's continental shelf, it immediately stands out that the vast majority of projects are carried out in cooperation with various IOCs and other oil- and gas companies, especially in offshore areas. PVN has listed 15 upstream E&P projects that are open for investment, with twelve projects solely focused on domestic E&P. Almost all domestic projects open for investment are offshore projects that require considerably more technical expertise, knowledge, and especially investment. In addition, PVN offers a maximum transfer of 20-80% of total shares for each project to foreign investors, with 7 projects offering up to 80%

transfer and only 3 projects offering 40 or below 40%. Thus, PVN is offering a considerable large share of its projects to potential investors, with most of them even offering a majority share (PVN 2014b). Vietnam has also been actively engaged in energy diplomacy to attract new investment for the energy sector. In October 2014, a PVN delegation accompanied by PM Nguyen Tan Dung signed a cooperation agreement between PVEP and Indian 'Oil and Natural Gas Corporation' (ONGC). The contract includes cooperation to explore ONGC's NELP Lot offshore India and, more importantly, to cooperate on exploring Lots 102/10, 106/10, and 128 offshore Vietnam. This cooperation came into effect only one month after the Indian President visited Vietnam and an intent letter on cooperation in the energy sector was signed (Vietnam Energy 2014a). Shortly afterwards, on November 25th 2014, after talks between Russian President Vladimir Putin and the General Secretary of the CPV, nine cooperation agreements were signed between PVN, Zarubezhneft, and Gazprom Neft. The agreements include, amongst other things, a gas pricing mechanism for the Gazpromviet joint venture and agreement on long-term crude oil supply between PVN and Gazpromneft (Vietnam Energy 2014b). Vietnam has thus established a more in-depth cooperation with key players of the Russian energy sector, particularly in the areas of offshore joint ventures between Vietnam and Russia and securing additional oil supply.

3.5 Summary

The flow of energy is rapidly shifting east towards Asia, which will become the world's largest energy-consuming region within the next 30 – 40 years. Most of Asia, and particularly Southeast Asia, will turn from net energy exporters to importers in the very near future, signaling profound changes for energy security in the region. China has so far heavily relied on its large coal reserves for its energy mix. This, however, has resulted in environmental problems that have been met with an increased focus on developing renewable energy and strengthening energy efficiency. However, the informational setting with the most impact has been the rising reliance on oil imports. China's energy security strategy emphasizes self-reliance and sovereignty, visible in the ongoing attempts to increase gas consumption and the major build-up of its pipeline network to diversify energy imports away from more vulnerable seaborne imports. China's energy sector and policies are largely devised by the NDRC. Implementation and execution is mostly left to the bureaucracy and the major NOCs, which have become key actors within the country's energy sector. Interestingly enough, China's energy bureaucracy is comparatively weak and splintered, leaving NOCs enough room to devise their own strategies and act more or less independently. Overall, China has successfully reduced its energy intensity and has been relying more on gas as a substitute for scarce oil, while at the same time trying to maximize domestic energy output, secure more diversified import routes and reduce the environmental impact of the energy sector.

Malaysia has historically been relying almost exclusively on its large oil- and gas reserves to meet its energy needs. Rising demand and lower production levels, however, will turn the country into a net energy importer in the near future. Malaysia's energy security policies reflect this shift. Most of its policies are aimed to stabilize and expand domestic production and to decrease demand for oil and gas. On the other hand, Malaysia is in the process of

strengthening its energy infrastructure to be able to become self-sufficient in petroleum products while at the same time enhancing import capabilities. Malaysia's budget, constrained by high energy subsidies, is heavily reliant on Petronas' tax contributions and dividends. However, Petronas also has to shoulder increasingly high investments to sustain oil and gas production. Petronas and IOCs have thus consequently been developing more difficult and distant oil and gas fields. Malaysia's energy security strategy is of a twofold nature. First, it is trying to sustain and expand domestic production for as long as possible while energy efficiency policies and expanding international production aim to lessen the impact of the transition towards a net energy importer. Second, by transforming Malaysia into an energy hub, the country already has concrete plans for dealing with its upcoming change in status.

Vietnam is also turning into a net energy importing country in the very near future, with energy demand having rapidly risen in recent years and domestic energy reserves steadily declining. To fuel its socioeconomic development, Vietnam has been aggressively trying to enhance energy supply, mainly by focusing on E&P of existing and new petroleum fields and strengthening refining capabilities. Vietnam is the most energy inefficient country in Southeast Asia, amongst the most inefficient in Asia, and has so far not been able to curb either energy consumption or energy intensity. With primary energy supply planned to grow by about 600% between 2010 and 2050, oil and gas will play key roles in the country's energy mix. Vietnam's three major SOEs are state-controlled, leaving the state with the planning, administrative, and executive power to implement key parts of the energy security strategy. However, as Vietnam's SOEs have neither the financial resources nor the expertise to develop technically and financially challenging fields, foreign investors have been playing a central role in developing these fields and are indispensable for Vietnam's upstream sector. In conclusion, the informational setting has influenced all three countries in major ways, which, in turn has directly affected energy security policies and strategies. Although different areas of energy security have been stressed in some countries more so than in others, they all have emphasized the supply side of energy as the key factor for energy security. Nevertheless, they also all face the same "informational challenge" of declining domestic energy production that threatens their energy security.

4. International Interaction

The second analytical part focuses on analyzing the international interaction between China, Malaysia, and Vietnam. The domestic-international interaction serves as the basis for this analysis and is incorporated into a broader approach to identify the role of energy security in the South China Sea dispute between these countries. The analysis is based on three key elements of international interaction. In the first part, state interests regarding the South China Sea are identified by means of putting the energy security policies of each country within the context of the South China Sea to clarify each country's energy security interests in the area. Additionally, a closer look will be taken at the relevant territorial claims of each country and put both, energy security interests as well as territorial interests, in perspective of each other to get a clearer picture of what the state interests of all three countries might have in common and if patterns or variations can be identified. The second part of the analysis establishes a sound understanding of the strategic setting in the South China Sea. To accomplish this, it is first necessary to analyze the structure of interaction by looking at the actors involved, their interests, and the structural factors affecting state interaction. The other two parts of the analysis involve mapping out the energy- and strategic prospects in the South China Sea by breaking down what the it has to offer in terms of energy and how these resources relate the each country's energy security, with the he second part delving into what strategic value the South China Sea might hold. The third part of the analysis, the role of uncertainty, is looked at separately by first analyzing cooperation and confidence-building measures undertaken in the South China Sea in addition to an overview of the institutional and legal framework. The second part looks more closely at conflict in the South China Sea, discussing incidents, informality, institutional challenges, and information deficits surrounding the South China Sea. The goal of the second analytical part is to incorporate the domestic-international framework into a broader international framework by first analyzing state interests to get a clearer picture of what energy security interests states have in the South China Sea and how they relate to their territorial interests. Second, the framework analyzes the strategic setting and the role of energy security in it. Finally, by analyzing cooperation and conflict in the South China Sea, it is possible to see if energy security serves as a factor promoting or decreasing uncertainty in state interaction in the South China Sea.

4.1 State Interests and the South China Sea

The interests of states are the essential factor to consider when assessing the role of energy security in the South China Sea, as they represent a state's overall aims and goals regarding the South China Sea and lead each country in a specific direction that affects its relations with other claimants. In this section, the analysis of state interests focuses on two specific areas of interests, namely energy security and territorial interests in the South China Sea. The analysis of the domestic-international interaction for each country has shown the prevalent actors, institutions, and informational setting that have influenced energy security policy and strategies. The task now is to successfully connect the energy security strategies of China, Malaysia, and

Vietnam to the South China Sea and weave the foundation of the domestic-international interaction into the international interaction in the South China Sea dispute. The main question for the first part thus becomes the following: How do each country's energy security strategy and policies relate to the South China Sea? To accomplish this, it is necessary to examine the overall goals and aims regarding energy security in the context of actual capabilities and operations for each country. This leads to the second area of interests, namely that of territorial nature. All three countries analyzed in this thesis each have their own territorial interests and stakes in the South China Sea. Mapping out these interests is the first step. The second step is to put these interests into perspective by analyzing them in tandem with energy security interests. The goal is to identify a possible connection between energy security and territorial interests and see if patterns or variations across state interests become visible. These findings will then be put into a broader framework that includes the strategic setting and the role of uncertainty surrounding the South China Sea dispute.

4.1.1 China

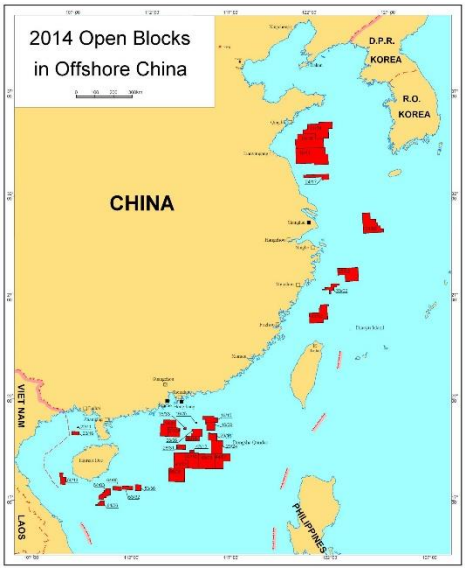
Energy Interests

China has to deal with declining domestic reserves and production, especially in the case of oil of which China has to import more than 60% of its consumption. Dominated by coal, China's energy mix has so far mostly neglected the use of natural gas as a viable alternative to oil and coal. Although the analysis has shown that China's energy security strategy as a whole particularly emphasizes oil as the foremost energy security challenge, Beijing has recognized the massive potential of natural gas to replace emission-intense coal and import-reliant oil to an extent. China's 12th Five-Year Plan lists the "rapid growth of natural gas output" as a central goal in diversifying its energy mix and simultaneously curb emissions (State Council 2010, 11). China's Energy Development Plan and Energy Policy further highlight the potential of gas. The former expects a 50% increase in the production of natural gas between 2010 and 2015 whereas the latter confirms China's commitment to accelerate natural gas production through "pushing forward the development of offshore oil-gas fields" and increasing the proportion of gas in the energy mix (State Council 2013a; State Council 2012, 16).

This is where the South China Sea comes into play. It is no coincidence that China's 12th Five-Year Plan for the Marine Economy has given out the goal for the maritime economy, including offshore E&P activities of oil and gas, to contribute 10% to the nation's GDP by 2015 and increase output value by 40% in the 2010-2015 timeframe (State Council 2013b). China's major offshore energy producer CNOOC has set its eyes on rapidly increasing offshore oil and gas production in the South China Sea, as demonstrated by acquiring the state of the art drilling rig 'Haiyang Shiyou 981' in 2012 or the landmark purchase of the Canadian offshore E&P company Nexen, dramatically increasing offshore know-how and capabilities (Manicom 2014, 9). China is Asia's largest offshore energy producer followed by Malaysia and Vietnam and produces roughly 15% of its total oil from offshore fields (Collins and Erickson 2011, 21). Currently, with about 250.000 b/d of oil and 17 billion m^3 of natural gas, China produces more than 6% of its domestic oil and roughly 15% of its domestic natural gas

in the South China Sea (EIA 2013a; EIA 2013d). CNOOC's vice president, Zhou Shouwei, has stated that "offshore and especially deep-water oil and gas discoveries have great significance for replenishing China's and the world's oil resources" (Dutton 2011, 56-57). Consequently, CNOOC began its first offshore deep-sea project with the arrival of its new drilling rig in May 2012 in an undisputed area southeast of Hong Kong. The South China Sea is set to become a crucial source for oil and gas as China has set out to double oil and gas production from its 2015 target of 500.000 to one million barrel of oil equivalent per day in 2020 (Zhao 2013, 32-33). In 2014, CNOOC has opened up new bids for blocks in the South China Sea.

Figure 11 Open Chinese Offshore Blocks in 2014/15



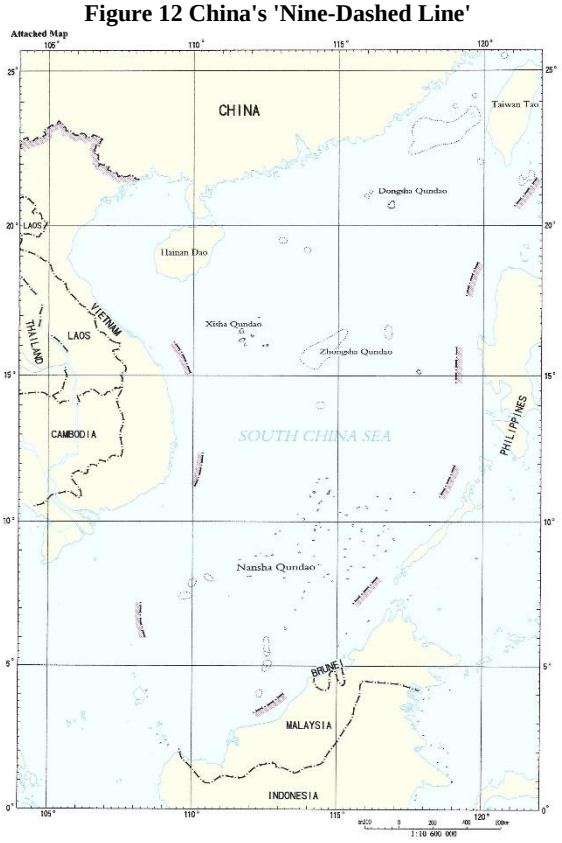
Source:
www.cnooc.com.cn/data/upload/month_201409/Appendix1LocationMapof2014OpenBlocksOffshoreChina_4fsm5F.jpg

With roughly half of the new blocks located in the South China Sea, it is clear that China plans to further advance into the South China Sea. In conclusion, increased oil and gas production from the South China Sea would enhance Chinese energy security in two major ways. First, increased gas production would diversify the country's energy mix further away from its heavy reliance on coal while also serving as a more environmental friendly energy source. Second, it would strengthen energy supply security by increasing domestic reserves and providing an alternative to sea-based imports.

Territorial Interests

China claims almost the whole South China Sea including the Paracel- and Spratly Islands. It asserts "indisputable sovereignty over the South China Sea islands and their adjacent waters" and bases her sovereignty claims on historical rights of "discovery, longstanding historical use and administrative control by successive Chinese governments stretching back to the Han Dynasty" (Storey 2012, 54). This explains why the claims of People's Republic of China in the South China Sea in large part overlap with the claims of the Republic of China on Taiwan as the Nationalist government formally established its claims in 1947 through a map showing a continuous line encompassing almost all of the South China Sea.

Figure 12 China's 'Nine-Dashed Line'



Source: https://southseaconversations.files.wordpress.com/2012/03/un-note-nine-dash-line.png

This 'nine-dashed line' was for the first time officially submitted to an international organization, in this case the United Nations Commission on the Limits of the Continental Shelf (CLCS), in 2009, attached to a protest note over a joint Malaysia-Vietnam submission (Storey 2012, 54). Although it is not clear what it symbolizes, Gao and Jia interpret the line as

> synonymous with a claim of sovereignty over the islands groups that always belonged to China and with an additional claim of historical rights of fishing, navigation, and other marine activities (including the exploration and exploitation of resources, minerals or otherwise) on the islands and in the adjacent waters (2013, 108)

So far, China has advanced its claims domestically through a series of laws. Passed in 1992, the 'Law on the Territorial Sea and Contiguous Zone' states that sovereignty over the South China Sea islands belongs to China and establishes that the extent of both the territorial sea and contiguous zone of these islands amounts to twelve nautical miles (nm). In 1998, the 'Law on the Exclusive Economic Zone and the Continental Shelf' was passed to exercise sovereign rights in its Exclusive Economic Zone (EEZ) and continental shelf without relinquishing China's 'historic rights' (Wu 2013, 53-54).

Energy Security and Territorial Interests

China is claiming by far the most territory in the South China Sea and has clearly strengthened its offshore E&P activities in the area. The greater question now becomes how China's

overall energy security strategy is connected to its vast claims. Although oil and gas resources in the South China Sea could surely benefit China to be less import-dependent and help stabilize domestic production, Peimani suggests that even with these new resources, China's energy security "will not significantly increase" (2012, 4). This is further supported by the fact that China's estimated proved and probable reserves in its South China Sea territory only amount to 1.3 billion barrels of oil and 425 billion m³ of gas, only about 10% of all oil and gas resources in the South China Sea (EIA 2013d). As has already been established in the energy security assessment and analysis of China's energy security policies, the country very much emphasizes self-reliance and has identified its growing import-dependency on oil as a "grave challenge to energy security" (State Council 2012, 6).

China has been suffering from a continuously increasing oil supply deficit and, as Collins and Erickson note, "rising oil supply deficits typically mean one thing in Asia: increasing seaborne oil imports" (2011, 18). This has been true for China, as it now has to import over 60% of its oil supply, with over 70% of it coming from the Middle East, Africa, and South America. Due to its rapidly growing oil imports from unstable regions to fuel its development, China suffers from "an acute vulnerability to external disruption of its energy supplies" (Buszynski and Sazlan 2007, 166). Given the fact that almost all of China's oil imports have to pass through the Straits of Malacca and the South China Sea to reach its economic centers, China has found itself confronted with an unwanted dependency on "marine transportation of petroleum […] that faces ever-greater security risks" (State Council 2012, 6). For Beijing, controlling its vital SLOC where most of its oil imports pass through is essential "given that oil is intimately related to China's economic development and sociopolitical stability" (Zhao 2011, 6). Control over the South China Sea would not only give China direct control over its immediate key Sea Line of Communication (SLOC), but also more control over other crucial checkpoints, such as the Straits of Malacca. China's energy security interests in the South China Sea therefore are of a two-fold nature. On the one hand, oil and gas resources in the South China Sea could help strengthen domestic production in light of rapidly growing domestic demand. On the other hand, realizing its claims would leave Beijing in control over its immediate key SLOC for oil imports. Considering China's heavy emphasis on self-reliance and view on oil as a "strategic geopolitical commodity", it is very likely that China pursues a dual strategy of exploiting the South China Sea's oil and gas resources and, more importantly, controlling its most immediate and crucial SLOC (Leung et al. 2014, 320).

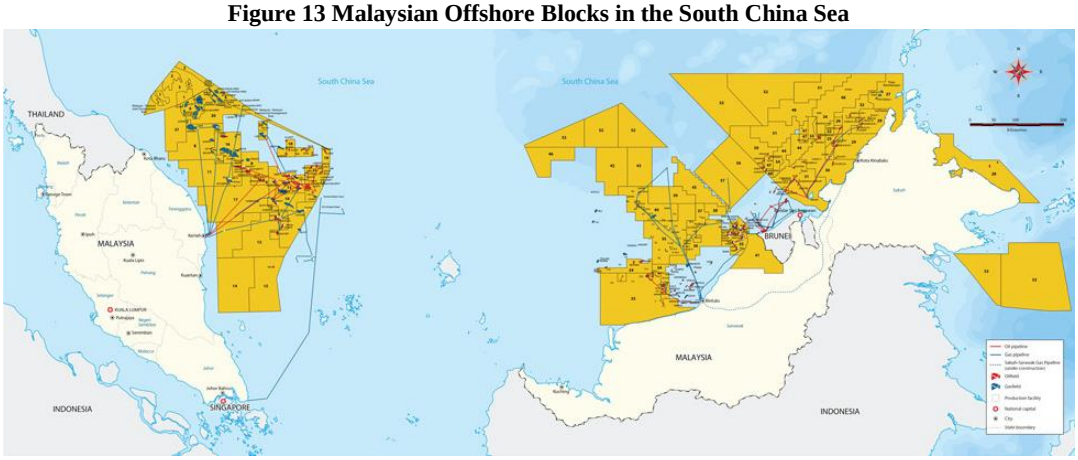
4.1.2 Malaysia

Energy Interests

For the past several decades, Malaysia has been a key energy producer in Asia and Southeast Asia in particular, with the country is a net exporter of oil and gas. However, whereas abundant gas reserves will leave Malaysia as a net exporter for the foreseeable future, high domestic demand and declining production in its major fields will transform Malaysia into a net importer of oil in the near future. Given that its large oil and gas reserves have given Malaysia a "distinctive advantage" in its socioeconomic development, its energy security policies aim

primarily at supply-side initiatives to stabilize existing fields and discover new reserves (EPU 2010, 123). Given that Malaysia has set out to achieve an annual growth rate of 5% for its Oil, Gas, and Energy Industry that already contributes 20% to Malaysia's GDP, it is not surprising that EOR on existing fields, developing smaller fields, and intensifying E&P activities are the top three projects listed by the ETP (PEMANDU 2013). The South China Sea holds the key position in Malaysia's energy security strategy. Currently, Malaysia produces about 500.000 b/d of oil and 51 billion m³ in the South China Sea, making up approximately 75% of its total oil and almost 83% of its total gas production (EIA 2013b; EIA 2013d). Additionally, Malaysia has by far the most estimated proved and probable reserves of oil and gas in the South China Sea. With 5 billion barrels of oil and 2.7 trillion m³ of gas, almost half of all current oil and over 40% of gas reserves in the area are located offshore Malaysia (EIA 2013d).

Figure 13 Malaysian Offshore Blocks in the South China Sea



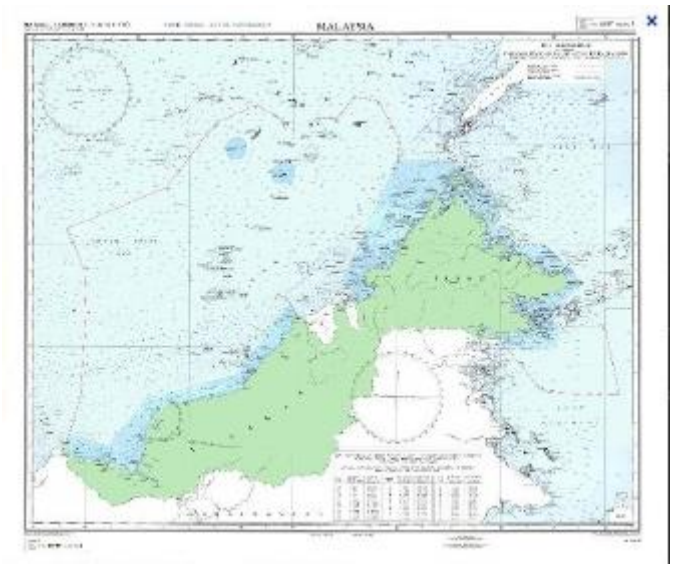
Source:
http://cdn1.bigcommerce.com/server4200/h98e3jtz/products/333/images/797/E_P_licensing_pull_out_MALAYSIA_2014_online__47582.1410901767.1280.1280.jpg?c=2

The above map shows Malaysia's current offshore oil and gas blocks in the South China Sea. Twelve blocks have been offered in the latest 2015 licensing round of Petronas, with ten blocks located offshore Sarawak and Sabah and only two offshore Peninsular Malaysia (Oil & Gas Asia 2014). In conclusion, Malaysia's energy interests in the South China Sea can be summed up by looking at the above map. As most of Malaysia's oil and gas reserves are located in the South China Sea, it is only natural for Malaysia to try to expand as much as possible into more deepwater oil and gas fields, as illustrated by the progress of its oil and gas blocks into deeper South China Sea oil- and gas fields.

Territorial Interests

Malaysia claims a total of twelve of the Spratly Islands in the South China Sea as well as a 200 nm EEZ off its coastline (Wu 2013, 139-140). Malaysia's first official claims to features in the South China Sea was in 1979, when the country published its '*Peta Baru*' map, defining the limits of its continental shelf and all twelve features falling within it.

Figure 14 Malaysian Claims in the South China Sea



Source: https://html2-f.scribdassets.com/4u6adui4qo2u1h6x/images/3-749a615388.jpg

Malaysia so far has undertaken two legal approaches in regards to its claims. The first was its 'Exclusive Economic Zone Act' in 1984 that defined Malaysia's EEZ. Only in 2009 did Malaysia officially publish to the UN geographical coordinates for its baselines, territorial seas, EEZ, and continental shelf (Beckman and Davenport 2010, 14-15). Together with Vietnam, Malaysia handed in a submission to the CLCS, detailing its EEZ as well as the limits on its continental shelf in the South China Sea. In contrast to China's territorial claims, Malaysia has so far not claimed any historical rights or undisputed sovereignty over its claims and operated according to the 'United Nations Convention on the Law of the Sea' (UNCLOS).

Energy Security and Territorial Interests

Malaysia's claims in the South China Sea focus mostly on the 200 nm EEZ off its Sarawak and Sabah states that also include several features in the Spratly Islands. Malaysia's energy security is intimately tied to the South China Sea, as almost all of its oil and gas E&P activities take place in these offshore areas. Malaysian energy E&P, however, had begun long before Malaysia first published its first claims in 1979. In 1968, Malaysia announced that several reefs and shoals in the Spratly Islands were in its mining zone and granted concessions to IOCs. Malaysia also has been drilling since 1970 in numerous features that are now claimed by the country (Wu 2013, 145). However, what does that entail for the connection between Malaysian energy security and its territorial claims? In addition to producing almost all of its oil and gas, Malaysia's territories in the South China Sea hold roughly half of all oil and gas reserves in the South China Sea. Nevertheless, declining oil production and high domestic demand push E&P activities of Petronas and IOCs continuously further into deeper waters and thus into contested areas of the South China Sea. In China's case, potential new oil- and gas fields would help domestic production but would not offset the rapidly rising oil import dependency. For Malaysia, however, new gas- and especially oil fields would revitalize domestic production and noticeably decrease import dependency. Similar to China, supply security therefore plays a dominant role when putting the country's claims into an energy security perspective. Malaysian claims over its 200 nm EEZ and the included features as well as its

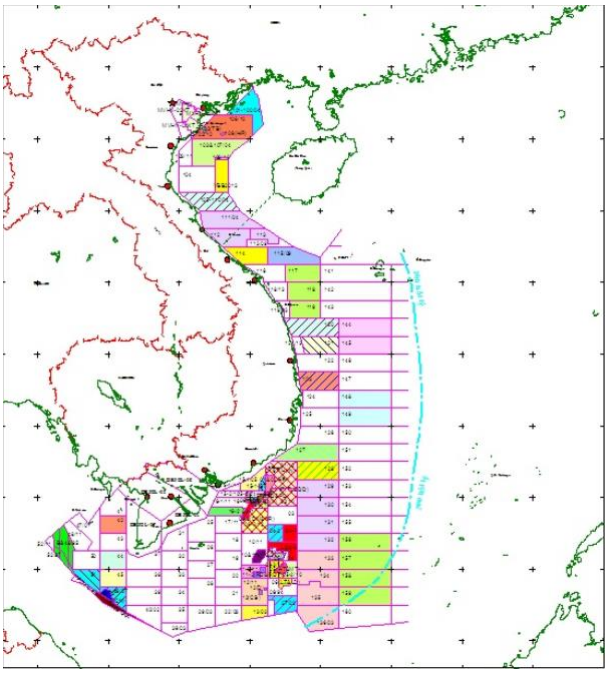
longstanding history of E&P in the area ultimately signal that the country is first and foremost interested in expanding oil and gas production as most of its current and potential future hydrocarbon E&P is located in the area.

4.1.3 Vietnam

Energy Interests

Behind Malaysia, Vietnam is Southeast Asia's second major offshore energy producer. So far, Vietnam has been a net exporter of oil and all produced gas is consumed domestically. However, Vietnam stands before unprecedented structural changes to its energy sector. While especially oil production has been constantly declining over the years, Vietnam's energy demand is set to triple in the next ten years that sets the country up to become a net energy importer possibly as early as 2015 (Raine and Le Mière 2013, 115). This is mainly due to the fact the Vietnam's rapidly growing emerging economy "proved to be inefficient, with wasteful use of physical and capital resources" that now presents the leadership in Hanoi with a new security challenge, namely "sustaining uninterrupted economic growth" (Tran and Nguyen 2013, 101). As energy is crucial to Vietnam's socioeconomic development, it is no wonder the country has decided to put as its first developmental viewpoint in its National Energy Development Strategy the notion "to quickly and sustainably develop energy in close association with the national economic development strategy" (PM of Vietnam 2007, 1). Just as for Malaysia, the South China Sea plays a key role for Vietnamese oil and gas production. The country produces about 300.000 b/d of oil and 8.5 billion m³ of gas in offshore fields in the South China Sea, making up over 90% of its total oil and all of its gas production (EIA 2013d, EIA 2013c). Vietnam's estimated proved and probable reserves of oil with 3 billion barrels are more than twice as much as potential Chinese reserve and only second to that of Malaysia. Potential gas reserves, although still relatively large, are only slightly greater than China's and only a fourth of probable Malaysian reserves (EIA 2013d). South China Sea reserves, in particular that of crude oil, could therefore potentially "play a key role in Vietnam's economic development" and could "significantly increase […] reserves to help meet growing energy demand or potentially create an export capacity" (ICG 2012, 13; Peimani 2012, 5). To this end, PVN and the Vietnamese government have invited a large number of IOCs and other oil and gas companies to E&P operations in Vietnam's offshore fields.

Figure 15 Petroleum Activities in Vietnam's Continental Shelf



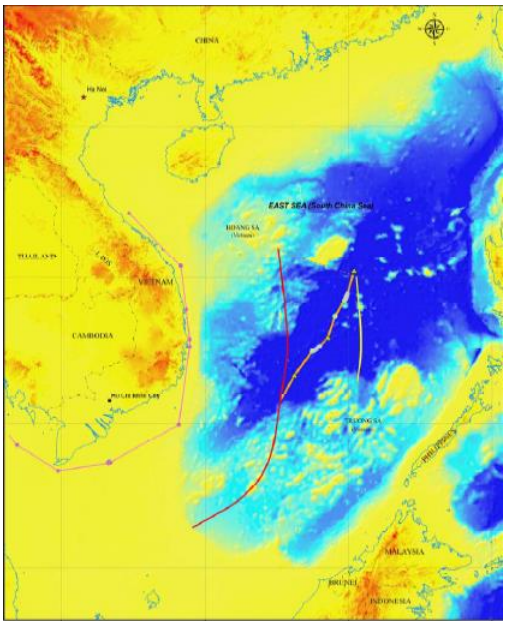
Source: PVN 2014b

The map shows that Vietnamese petroleum blocks have advanced in particular into the eastern and southeastern parts of the South China Sea. In a similar fashion as Malaysia, Vietnam has thus continuously advanced into more deepwater territory, especially in the Southeast. This shows that Vietnam is in need of discovering and exploiting new fields as soon as possible to make up for maturing and declining fields closer to its coastline.

Territorial Interests

Vietnam officially claims the Hoang Sa (Paracels) and Truong Sa (Spratlys) archipelagos as part of its territory and, just like China, claims "indisputable sovereignty over these archipelagos" (Government of Vietnam 2009). Vietnam further claims sovereignty over "more than 3000 islands and islets covering a large part of the East Sea" and is of the view that it is entitled to exercise sovereignty, sovereign rights, and national jurisdiction in maritime zones and the country's continental shelf according to UNCLOS (CLCS 2009, 2). In 2009, Vietnam handed in two submissions over its extended continental shelf to the CLCS; one over its north area and the other over its south area in a joint Malaysia-Vietnam submission.

Figure 16 Vietnam's Submission in Respect to its Continental Shelf



Source: CLCS 2009, 5

The red line shows the extent of the 200 nm EEZ Vietnam claims, with the orange line outlining the limits of the extended continental shelf and the yellow line representing Vietnam's claim of an 350 nm extended continental shelf. Only behind that of China, Vietnam's claims in the South China Sea are much bigger than those of any other claimant nation and, similar to China, are primarily based on historic rights (ICG 2012, 37). Vietnam was the first country in the region to claim an EEZ in 1977 and the country's 'Law of the Sea of Vietnam' promulgated in June 2012 encloses the Paracel- and Spratly Islands in Vietnam's territory by means of a domestic law; claiming sovereignty, sovereign rights, and jurisdiction over the islands (Wu 2013, 88).

Energy Security and Territorial Interests

For Vietnam, the South China Sea is the key element in its energy security strategy. Even more so than Malaysia, Vietnam is almost completely dependent on the South China Sea for its oil and gas production, which, in turn, fuels its socioeconomic development and high economic growth rates. Unlike Malaysia and China, however, Vietnam's energy consumption growth rate over the next 20 years is not predicted to decline in growth but instead increase dramatically, posing an enormous problem for the government. Coupled with high energy intensity and declining oil production, the country desperately needs to discover and exploit new fields to reduce energy imports, especially that of oil. Vietnam's claims in the South China Sea need to be considered in the context of these developments. As the map of current petroleum activities in Vietnam's continental shelf has shown, PVN and other oil companies are already operating on the edges of Vietnam's 200 nm EEZ, especially in the southeastern part of the South China Sea, slowly approaching the Spratlys. In the east, Vietnamese petroleum blocks, although currently not operating, already reach as far as the Paracels. Just like in Malaysia's case, Vietnamese claims therefore have a clear energy security background. However, unlike Malaysia, Vietnam's claims to the Spratlys go far beyond its claimed 200 nm

EEZ and even the 350 nm extended continental shelf. Moreover, like China, Vietnam also claims indisputable sovereignty over the Spratlys, which stands in stark contrast to its submissions to the CLCS in 2009. One scholar argues that one possible interpretation for Vietnam's submissions in 2009 is the possibility that Vietnam "might be willing to relinquish its claims, at least as regards the Spratlys, in return for recognition of wider resource rights in the South China Sea" (Dutton 2011, 44). Nevertheless, although the country has been pursuing a more aggressive basis of claims, it remains relatively clear that Vietnam, just like Malaysia, has an energy security perspective in mind when pursuing these claims, namely oil and gas E&P.

4.1.4 Patterns and Variations across State Interests

Patterns

After having briefly analyzed the state interests of China, Malaysia, and Vietnam in the South China Sea, several pattern were observed. China, Malaysia, and Vietnam all have in common a dynamic and fast-growing economy that relies on a steadily rising supply of hydrocarbons, especially oil, to further socioeconomic development. Moreover, although China is at the moment the only one of the three claimant nations that is a net importer of oil and heavily dependent on oil imports, oil plays the key role for all three claimants as production levels in Malaysia and Vietnam are declining and demand continuously rising. Therefore, all three countries, to varying degrees, face the same situation: strong economic growth coupled with rapidly increasing demand on the one hand and decreasing oil production on the other hand. For China, this means an even greater oil supply deficit and more dependence on oil imports while Malaysia and Vietnam are predicted to become net oil importing countries in the very near future. China and the ASEAN claimants Malaysia and Vietnam have thus a common interest in the exploitation of the oil and gas reserves located in the South China Sea (Buszynski and Sazlan 2007, 156). This is further supported by the fact that all three countries, but especially Malaysia and Vietnam, have begun to explore into deepwater territory and exploit resources in contested territory. China, Malaysia, and Vietnam all have profited from closer regional integration, generating higher economic growth rates. All three countries face the same challenge of declining oil production and have a common interest in exploiting the South China Sea's energy resources. Moreover, all three claimants desperately need oil but also gas reserves to fuel their socioeconomic development, which, in turn, also touches greater national- and national security interests. At least at a first look, "it is striking how much the South China Sea interests of China and its Southeast Asian neighbors overlap" (Dutton 2011, 58). But as Dutton further notes, "what is also striking, however, […] is that the chosen mechanisms for resolution are all win-lose – that is, exclusive state sovereignty and jurisdiction allow for only one winner and create many losers" (2011, 58-59).

Variations

This win-lose scenario is illustrated by Chinese, Malaysian, and Vietnamese claims in the South China Sea. China's claims drastically overlap with Malaysian and especially Vietnam-

ese claims in the region. Although each country has claimed certain features in the South China Sea, variations are visible in the nature and underlying premise of these claims in regards to energy security. China and Vietnam both claim indisputable sovereignty over the Paracel and Spratly Islands, whereas Malaysia has claimed several features of the Spratlys as part of its 200 nm EEZ but has never actually claimed indisputable sovereignty over them. For Malaysia, the nature of its claims are based on UNCLOS, under which it claims its EEZ as well as its extended continental shelf. Vietnam for the most part employs the same approach and bases claims for its EEZ as well as for its extended continental shelf on UNCLOS, although Hanoi's claims on the Spratlys do not confirm with UNCLOS. More importantly, however, is the nature of China's claims, as they are based on historical rights and not so much on international law, resulting in the fact that "a large part of the international community now views China's claims in the South China Sea as illegitimate" (Beckman and Davenport 2010, 28). The second major variation in state interests across the South China Sea is the underlying premise of the claims in regards to energy security. As the analysis on China, Malaysia, and Vietnam's energy security and territorial interests has shown, Malaysia and Vietnam are primarily interested in the actual resources itself whereas China is not only interested in resource E&P but even more so in the crucial SLOC its oil imports have to pass through. This fundamentally alters the negotiation position for China, as Beijing has to realize increasing oil and gas production in the South China Sea on the one hand and pushing its claims more assertively on the other hand. This is due to the simple fact that the country is the claimant nation that is by far the most dependent on the South China Sea as its primary SLOC for increasing oil imports. The South China Sea has therefore become "the fulcrum of energy competition in the Asia-Pacific region" (Klare 2002, 448) encompassing energy E&P as well as different perspectives on energy security in which on second look "the conflict of interests is stark and very real" (Shen 2014, 38).

4.2 Strategic Setting in the South China Sea

The strategic setting is the framework under which international interaction takes place, representing the surrounding conditions that affect interaction. The strategic setting for the South China Sea dispute in this thesis comes in the form of three central aspects. The first aspect deals with the structure of interaction. For analyzing the South China Sea dispute in the context of energy security, the structure is determined primarily by the littoral states with active claims in the dispute as well as external actors and stakeholders that support a particular outcome. The structure of interaction analyzed in this thesis therefore takes into consideration all countries engaged in the negotiation process in addition to major external actors not directly involved but exerting considerable influence affecting the overall negotiation process. The other two central aspects of the strategic setting are the possible energy- and strategic prospects offered by the area. In terms of energy prospects, it is crucial to understand what resources are located where and how they relate to each country's production- and consumption levels as well as energy reserves. Strategic prospects, on the other hand, reflect the possible aspects connected to territorial interests, such as control of strategically important SLOC and how strategic prospects in general might affect or even be based on energy security concerns.

4.2.1 Structure of Interaction

State of Claims

After having examined China, Malaysia, and Vietnam's claims separately, they now have to be put into perspective of each other to be able to understand the structure of interaction. Six nations claim features in the South China Sea, although claims from the People's Republic of China and Republic of China on Taiwan are mostly identical. Besides the Chinese claim, Brunei, Malaysia, the Philippines, and Vietnam all claim territory and features in the area.

Figure 17 Claims in the South China Sea

Source: http://cdn.static-economist.com/sites/default/files/imagecache/290-width/images/2012/08/blogs/analects/20120428_asm906.png

The map above illustrates the complicated situation between competing and overlapping claims. Brunei, although not having made any official claims to features in the Spratlys yet, claims an extended continental shelf from its baselines, overlapping with Malaysian, Chinese, and Vietnamese claims. The Philippines claim Scarborough shoal as well as most of the islands and features of the Spratlys. These claims overlap to a large degree with the claims of China, Vietnam, and, to a lesser degree, with Malaysia. Malaysia itself claims a 200 nm EEZ in addition to its claim to an extended continental shelf, overlapping extensively with Bruneian and Chinese and to a lesser degree with Vietnamese and Philippian claims. Vietnam has officially claimed the Paracel and Spratly Islands as well as an extended continental shelf. Vietnamese claims therefore do not represents Vietnam's official claims, but more of an educated assumption, as Vietnam's claims have so far "not been delineated in text or maps" (EIA 2013d). Vietnam is the only ASEAN claimant that claims the Paracel Islands and its overall claims overlap drastically with that of China and, to a lesser degree, that of the Philippines. Finally, China and Taiwan claim almost the entirety of the South China Sea, including all Paracel and Spratly Islands, overlapping with all other claims. However, as China took control over the Paracels in 1974 and established de facto control over Scarborough shoal in

2012, the Spratly Islands remain as the only dispute over actual territory in the South China Sea (McDevitt 2014, 1). Vietnam has so far occupied 27 features in the Spratlys, followed by the Philippines with nine, Malaysia with eight, China with seven, and Taiwan with one occupied feature (Raine and Le Mière 2013, 33). China's approach has been more assertive in recent years, unsettling ASEAN claimants. Beijing, however, "does not think it is expanding" as it merely "wants to restore its legitimate [historical] rights" (Asano 2012, 136). Thus, China's expansive claims are "really the crux of the problem" (Storey 2013, 4).

Negotiation Structure between China, Malaysia, and Vietnam

The negotiation structure between China, Malaysia, and Vietnam is dominated by China-Malaysia and China-Vietnam interactions, as all ASEAN nations with overlapping claims "have implicitly reached a common understanding in maintaining the status-quo of occupation, settling disputes by peaceful means, and refraining from activities that can negatively affect interests of other members" (Tran and Nguyen 2013, 96). In general, ASEAN claimants prefer a multilateral approach towards China, whereas China prefers direct bilateral negotiations, fearing that ASEAN as a whole would not accept its claims and that a negotiated settlement over the dispute would diminish Beijing's political and economic leverage over individual claimants (ICG 2012, 4). The negotiation structure between China and Vietnam is characterized by Chinese assertiveness to advance its claims. China forcefully evicted Vietnamese troops from the Paracel Islands in 1974 and has occupied the islands ever since. In 1988, another deadly clash occurred in the Spratlys, leaving the Sino-Vietnamese negotiation structure in the South China Sea with a bloody past (ibid., 2-3). Vietnam, however, is ready to assert its interests regarding resource E&P in the South China Sea with its energy demand growth rate projected to rise exponentially (Raine and Le Mière 2013, 115). The consequence is that Vietnam has simultaneously pushed forward its claims and increased E&P activities in Chinese-claimed waters. Resource exploitation has thus become "the most frequent source of tension between China and Vietnam" as Vietnam's assertive E&P of oil and gas into contested areas has been a thorn in Beijing's side (Tran and Nguyen 2013, 97). China is objecting E&P activities of foreign oil companies operating in Vietnamese waters, having issued 18 diplomatic objections from 2006-2007. However, as Vietnamese E&P operations have intensified, so has pressure from Beijing. China has begun to open up new oil and gas blocks in areas claimed by Vietnam, with some blocks only 80 nm away from the Vietnamese coast and overlapping with blocks already leased by Vietnam to foreign oil companies (Raine and Le Mière 2013, 75). Moreover, China also puts pressure on foreign companies involved in Vietnam's maritime sector to stop operations, warning them that their commercial operations in China would suffer if they continued operating in areas claimed by China (Thayer 2010, 401). Overall, Vietnam has thus been "ASEAN's 'front line' in sovereignty disputes in the South China Sea as tensions with China are more obvious and more politically charged, whilst clashes occur more regularly" (Raine and Le Mière 2013, 113).

Malaysia's official line is that it prefers a multilateral approach in engaging China. However, the negotiation structure between Kuala Lumpur and Beijing is fundamentally different from the interaction structure between Hanoi and Beijing. The dispute between Malaysia and China has not been confrontational and relations between the two countries remain

cordial (ICG 2012, 10). Malaysia was the first ASEAN country that established diplomatic relations with China in 1974, which Beijing has not forgotten. Moreover, China is Malaysia's largest trading partner and no other country in Southeast Asia trades as much with China as Malaysia does. Additionally, China has so far treated Malaysia "with kid gloves on overlapping territorial claims" and has not publicly objected to Malaysia's intensive oil and gas E&P in areas claimed by China (Lockman 2013). Besides excellent trading and cordial diplomatic relations, however, Malaysia's stance on territorial claims has positioned the country closer to Beijing than to its fellow ASEAN claimants. Malaysia's claims are the farthest from Beijing and no feature claimed by Malaysia is currently occupied by China. In general, Malaysia has been "considerable more reluctant to draw attention to its disputes with China" (Raine and Le Mière 2013, 120-121). Malaysia's energy interests are coupled with a "profit-seeking dimension" in its approach towards China, drawing closer to Beijing and not pushing its claims while simultaneously extracting oil and gas in Chinese-claimed waters (Liow 2009, 73). Due to its unique diplomatic and geographic position, Malaysia has acknowledged that improved bilateral relations with China benefits the country twofold, in terms of less opposition towards its claims as well as economically due to increased trade and energy production in the South China Sea. This is further illustrated by that fact that Malaysia, contrary to other ASEAN claimants, has chosen bilateral dialogue with China as the basis of its South China Sea dealings with Beijing (ibid., 73-74). Malaysia's accommodation towards China's position and China's 'overlooking' of increased Malaysian E&P activities in its claimed waters show that both countries have been very careful in not allowing their dispute in the South China Sea to define their relationship (Tang 2013, 42). Nevertheless, although some observers may see Malaysia's relationship with China as unique, or even "special", Malaysia is very careful not to become overwhelmed by China, deploying a hedging strategy to counter China's increasing influence in the region (Lockman 2013).

Rebalancing in the South China Sea

A major source of growing uneasiness amongst ASEAN claimants is China's ballooning defense budget and modernization of its maritime forces. China's defense budget is the second largest in the world although some estimates suggest that the overall budget is 10-50% higher, as expenditures are "hidden" or listed under "non-military" (Tang 2012, 27). China is using its massive budget to "change the strategic context of the dispute, increasingly placing China in a much stronger position to uphold its sovereignty claims and […] pressure other claimants" (Schofield et al. 2011, 22). China launched its first aircraft carrier in late 2012 and has added ten new submarines, five new destroyers, six frigates and new amphibious landing crafts to its South Sea Fleet since 2010 (Chang 2011, 23). This rising asymmetry has led Vietnam and Malaysia to increase their own efforts to upgrade their capabilities in order to balance against China. Since 2009, Vietnam has modernized its air force and placed fighters close to the Spratlys. Meanwhile, to counter Chinese surface ships, Vietnam has ordered six Kilo-class submarines from Russia, the first two of which were delivered in early 2014 (Chang 2011, 32; Poling 2014, 10). Amongst all ASEAN claimants, Malaysia has the most modernized air and naval forces, announcing in 2013 that it would create its first-ever marine corps to operate from a new base in Sabah. This new corps is considered vital to security in

eastern Malaysia and is located only 60 miles from the disputed James shoal, increasing Malaysian military capabilities in disputed areas (Poling 2014, 11). Malaysia and Vietnam also try to balance against China by intensifying cooperation with the US and other third parties not directly involved in the dispute. In light of increasing China-US rivalry, Southeast Asia "might be at the precipice of a major power rivalry" and the South China Sea the place "where the battle line is drawn" between Beijing and Washington (Tang 2012, 22). Whereas China sees US involvement as meddling and interference, the US is a "significant stakeholder" in the South China Sea as Washington sees the area as pivotal to regional security and has a "national interest in freedom of navigation, open access to Asia's maritime commons, and respect for international law in the South China Sea" (Storey 2014a, 7). The US is also regarded as an important counter-weight to China, especially by Vietnam, as US vessels have increasingly been docking in Vietnam and the first military agreement between the two countries was signed in 2011 (Zhao 2013, 35). Additionally, a US-Vietnam annual defense dialogue was launched in 2010, establishing further military cooperation (Raine and Le Mière 2013, 156). Malaysia has also intensified its cooperation with the US. Between 2008 and 2013, 132 US naval ships have visited Malaysian ports and in early 2014, Malaysia agreed to further step up US naval visits. Moreover, cooperation in submarine operations and maritime security issues were also discussed (Thayer 2014). India, through its 'Look East' policy, has also been interested in the South China Sea to counter China's assertiveness. India's state-owned oil and gas corporation ONGC has therefore been cooperating in joint ventures with PVN in Vietnamese offshore fields in the South China Sea. "ONGC's partnership with Vietnam", as Wu has noted, "can be seen as a highlight of the policy, and presents a legitimate reason for India to be involved in the region's affairs" (2013, 160).

4.2.2 Energy Prospects

Resource Estimates

Resource estimates for the South China Sea vary widely. There are two main reasons for this. The first reason is simply the fact that the area so far has been under-explored, mainly due to the ongoing territorial disputes between claimants. The second reason are geological uncertainties, as almost all offshore surveys have been conducted in waters less than 200 meters deep, rather than in waters deeper than 200 meters that so far have not been explored intensively (Johnson 2013, 36-37). As far as actual resource estimates go, the EIA estimates that the South China Sea contains proved and probable reserves of 11.2 billion barrels of crude oil and 5.4 trillion m^3 of natural gas. The United States Geological Survey, on the other hand, believes that the South China Sea hold between 5 and 22 billion barrels of oil and between 2 to 8 trillion m^3 of gas (EIA 2013d). Another recent US estimate suggests oil reserves of 15.6 billion barrels, of which only 1.6 billion barrels, or 10%, are recoverable by current technical means (Rogers 2012, 87). In a similar fashion, Owen and Schofield suggest that an estimated 6 billion barrels might be located in the South China Sea, and even consider this to be an optimistic estimate (2011, 815). Chinese estimates, however, tend to be on the more extreme side. One Chinese estimate projects that the region's wealth could amount to 125 billion bar-

rels of oil, placing a bet that the South China Sea could be a "second Persian Gulf" (Rogers 2013, 3). In 2012, CNOOC estimated that the area holds 125 billion barrels of oil and over 14 trillion m³ of gas, far exceeding EIA estimates (Storey 2013, 5). Chinese estimates range up to 213 billion barrels of oil, which would put the South China Sea in third place worldwide in terms of oil reserves, right behind Saudi Arabia (Sreeraman 2012). Nevertheless, as Schofield et al. note, Chinese assessments "deal in overall oil and gas reserves rather than in recoverable reserves – a vital distinction", as the industry rule of thumb is a 10% recovery rate for frontier provinces, which would put Chinese estimates between a still comparatively high 10.5-21.3 billion barrels of oil (2011, 12). Overall, the answer might be somewhere in the middle, although the EIA estimate seems to have taken into consideration both relatively high Chinese estimates as well as the more cautious estimates and thus seems to be a solid first indicator.

Location of Potential Resources

The EIA estimates that out of 11.2 billion barrels of oil, 5 billion barrels are located in Malaysian, 3 billion in Vietnamese, 1.5 billion in Bruneian, 1.3 billion in Chinese, 0.3 billion in Indonesian, and only 0.2 billion barrels in Philippine territory. This means that almost half of all oil reserves could potentially be located in Malaysian offshore areas in the South China Sea. The situation for gas looks similar. It is estimated that 42% of all natural gas is located in Malaysia's interest area, whereas 29% are located in Indonesia, 11% in Vietnam, 8% each in Brunei and China, and 2% in the Philippines (EIA 2013d). Another estimate suggests that even more of the oil and gas reserves, namely 64%, are located offshore Borneo, followed by offshore South Vietnam with 20%, offshore Southern China and Hainan with 12%, 3% in Philippine waters, and 1% in offshore Indonesia (Vagg 2012). The Paracel Islands have so far not yielded any conventional oil or gas field. Whereas the region around the Spratlys is estimated to have "virtually no proved or probable oil reserves", the Spratly Islands itself "may contain significant deposits of undiscovered hydrocarbons" anywhere between 0.8 and 5.4 billion barrels of oil as well as between 227 million and 1.5 billion m³ of gas (EIA 2013d). In summary, roughly half of all oil and gas reserves are estimated to be located offshore Sarawak and Sabah in Malaysian areas in the South China Sea. Additionally, the Spratly Islands in particular hold a significant potential for still undiscovered oil reserves.

Significance of Potential Resources

As Owen and Schofield point out, "it is insufficient to assess South China Sea hydrocarbons […] by simply considering a static reserve volume estimate alone", arguing that in order to assess if hydrocarbons are indeed a significant factor, "reserves must be assessed in terms of production rate" (2011, 812). In an effort to assess the potential significance of South China Sea hydrocarbons for claimant states, they analyze the additional benefit of 6 billion barrels of conventional crude oil reserves distributed over multiple fields for each country in the South China Sea. Their analysis for China shows that the "continuing divergence between demand and domestic production" will continue to grow, as Chinese oil production will have declined drastically by 2025 "and the capacity of South China Sea reserves to bridge this gap is negligible" (ibid., 817-818). Malaysia is going to become a net importer of oil in the very near fu-

ture. However, additional South China Sea oil reserves have the potential to slow declining domestic production after 2030 by reducing the country's import dependency by almost half. Finally, for Vietnam, additional oil reserves of 6 billion barrels "may represent a significant benefit to energy security after 2030, but would not offer the capacity to generate revenue from exports" (ibid.). Overall, China would benefit only marginally from an additional 6 billion barrels of oil, whereas Malaysia could potentially cut its import dependency in half, as its domestic demand grows not as strong as in China or Vietnam in addition to its domestic production still being comparatively high. Vietnam would also greatly benefit, although extremely high growth rates in domestic energy demand as well as declining production would diminish this benefit slightly. Nevertheless, in order to benefit from 6 billion barrel of additional oil reserves, China would need to realize an extensive part of its claims around and in the Spratlys as well as near Vietnam and Malaysia. Vietnam, on the other hand, would need to expand its area of operations in the East and Southeast, as the EIA estimates its current South China Sea reserves at "only" 3 billion barrels of oil. Malaysia, however, already endowed with an estimated 5 billion barrels in its vicinity, is in the best position to realize this potential benefit, as its claims already cover the potentially most resource rich region in the South China Sea.

4.2.3 Strategic Prospects

Sea Lanes of Communication

The South China Sea is home to SLOC crucial for both energy and trade in Asia. In terms of energy, the vast majority of energy imports travel by sea and have to pass through the Indian Ocean, the Malacca Straits, and, finally, the South China Sea to reach their destinations in East- and Southeast Asia. Overall, 80-90% of all Chinese, Japanese, and South Korean energy imports have to pass through the South China Sea (Henry et al. 2012, 6). The SLOC going through the South China Sea are therefore of key importance to China and its energy security. Concretely, Beijing is dependent on at least four key SLOC: First and most important is the route connecting the Middle East and Africa through the Malacca Strait and the South China Sea to China for tankers under 100,000 tons. Second, from the Middle East and Africa through the Sunda Strait and then the South China Sea to Chinese ports for crude oil carriers under 100,000 tons. Third, from Latin America and the South Pacific through the Philippine Sea and the South China Sea to China. Fourth, from the Middle East and Africa through the Lombok Strait to the Makassar Strait and then through the South China Sea (Zhao 2011, 5-6).

Figure 18 Critical SLOC from the Middle East to Asia

Source: Henry et al. 2012, 7

The above map shows the critical importance of the South China Sea and its SLOC to China's energy imports and, therefore, energy security. However, these SLOC are not only crucial for China. IEA figures suggest that surging oil demand coupled with maturing production will cause Southeast Asian oil imports to rise from 25% in 2008 to 74% in 2030 (Schofield et al. 2011, 8). This would drastically increase the importance of the South China Sea for the energy security of claimants like Malaysia and Vietnam. The South China Sea is essential for Asian trade and international trade flows. Through its geostrategic position, it links the most important trading countries in Asia, America, and Europe and serves as the "throat" between the Pacific and Indian Oceans (Wu 2013, 5). Accounting for more than 50% of the world's annual merchant-fleet tonnage and a third of all maritime traffic, the South China Sea plays a central role for imports into and exports out of Asia with $5.3 trillion in trade flowing through the area annually (Raine and Le Mière 2013, 12). Cronin and Kaplan argue that to the extent that the world economy has a geographical center, "it is the South China Sea" (2012, 7).

Security

The South China Sea also plays an important role from a security perspective. The Spratly Islands in particular are of key importance, as its land features stretch about 1,000 kilometers from the southeast to the northwest of the South China Sea. Theoretically, "occupation of the […] islands leads to direct or indirect control of most transits from the Straits of Malacca to Japan, from Singapore to Hong Kong, and from Guangzhou to Manila", leaving these features with a "strategic stranglehold over the entire South China Sea" (Wu 2013, 6). Henry et al. argue that potential state-to-state conflicts in the South China Sea could lead a state to deliberately disrupt the flow of oil and gas as a form of coercion or make it too dangerous for tanker to pass through the area. Furthermore, they suggest that given the historic and current geopolitical tensions in the region between great powers and ongoing disputes over claims and boundaries, "a confrontation between states is not outside the realm of possibility" (2012, 7). China has realized that possessing or denying others the ability to protect or disrupt the SLOC

and resource exploitation in the area has "weighty strategic implications" (deLisle 2012, 609). Beijing is especially concerned about its long-term access to the South China Sea's crucial SLOC that transport desperately needed energy imports, and fears a potential US blockade of the South China Sea in case of deteriorating relations of an escalation of the dispute (Peimani 2012, 7). It is therefore no coincidence that China's construction of the Yulin naval base, the most significant naval base constructed in China for decades, took place on Hainan Island in the early 2000s. Besides security for its energy imports, the South China Sea's strategic importance is illustrated by the fact that it "potentially offers one of the few sanctuaries for China's naval assets against attack, while also promising the access to the open seas required by larger vessels and submarines" (Raine and Le Mière 2013, 65-66).

4.3 Cooperation in the South China Sea

Uncertainty is influenced by cooperation and conflict, with the former reducing uncertainty among negotiating parties. Cooperation improves confidence in each other and the underlying governance mechanisms and frameworks, whereas conflict increases uncertainty among all parties by undermining trust and confidence in each other and the institutional and legal framework governing the negotiation process. The first part of analyzing the role of uncertainty is to look at cooperation and confidence-building measures taking place in the South China Sea. Taking a closer look at cooperation, it is possible to get a better picture in which areas cooperation has taken place and if energy security has played any meaningful role in it. Confidence among all parties involved plays a central part in strengthening cooperation in any negotiation process. It is thus important to look at measures that have aimed to facilitate a cooperative environment and confidence in bi- and multilateral negotiations and interstate relations. Confidence in the underlying governance mechanisms is just as important as confidence in overall interstate relations and the surrounding environment. Thus, examining this underlying framework is the theme of the third part of this section.

4.3.1 Cooperation and Confidence-Building Measures

Cooperation

Cooperation in the South China Sea, especially concerning energy, has been a rare phenomenon as China "sees any unilateral energy development by other countries as a challenge to its territorial claims", even when occurring in international waters beyond any EEZ (Rogers 2013, 8). Nevertheless, energy cooperation does in fact take place. In 2010, Malaysia transferred sovereignty of two blocks in the South China Sea to Brunei. In September 2010, Petronas and PetroleumBRUNEI signed a Production Sharing Agreement (PSA) for Block CA1, followed by a second PSA for Block CA2 in December, officially ending a border dispute between the two countries that had held up exploration activities since 2003. The agreement finally allows Malaysia and Brunei to begin E&P activities in the potentially oil-and-gas rich blocks, estimated to be worth over $100 billion and containing about 1 billion barrels of

oil (Brunei Times 2010). Malaysia also cooperates with Vietnam in offshore oil and gas production. A joint Malaysia-Vietnam zone was established in 1992, in which both countries conduct E&P activities together (Schofield et al. 2011, 16). Additionally, in the context of a broader cooperation agreement on petroleum E&P between Malaysia, Vietnam, and Indonesia, PVEP and Petronas have been jointly developing Block SK305 offshore Sarawak since 2010, with PVEP holding a 30%, Petronas a 40%, and Indonesian Petromina holding a 30% interest (PVN 2010b). Vietnam also cooperates with China in the Gulf of Tonkin, with PVN and CNOOC having renewed their agreement on the joint exploration of energy reserves in a joint statement in June 2013 (Amer 2014a, 27). In the statement, both parties agreed to expand the operation area to more than 4,000 kilometers, more than doubling it, and extending the joint exploration agreement to the end of 2016 (PVN 2013c). Energy cooperation between China and other claimants, however, has so far been mostly short-lived or has not manifested at all. The 'Joint Maritime Seismic Undertaking' was an agreement signed in 2005 by China, the Philippines, and Vietnam to jointly prospect for oil and gas in disputed waters. Exploration activities started in July of 2005 but were discontinued in 2008 due to a controversy in the Philippines over the location of the activities in its claimed EEZ (Storey 2009, 47-48). A failed attempt for a joint exploitation of energy reserves by all claimants came from the Philippines in 2011 in the form of a proposed 'Zone of Peace, Freedom, Friendship and Cooperation', in which a joint agency were to take over management of seabed resources and fisheries – a proposal China dismissed almost immediately (Storey 2014b, 8).

Confidence-Building Measures

As energy cooperation in the South China Sea has mostly occurred on a bilateral basis between ASEAN claimants, it is not surprising that most of the cooperation activities in the South China Sea come in the form of confidence-building measures (CBMs), trying to find multilateral approaches that try to involve Beijing. In this context, CBMs can be described as "measures or broader initiatives encompassing almost anything that builds confidence and promotes dialogue between countries" with the aim to "contribute to a reduction in misperceptions and uncertainty" (Bateman 2013, 7). The 'Regional Cooperation Agreement on Combating Piracy and Armed Robbery against Ships in Asia', after finalization in 2004, went into effect in 2006 and established a framework of cooperation for member states, including information sharing, capacity building, and operational cooperation, although Indonesia and Malaysia have so far not ratified the agreement (Storey 2008, 114-115). Similarly, the 'Code for Unplanned Encounters at Sea' (CUES), agreed upon in 2014 by 21 Pacific-region navies including all South China Sea claimants, has established a standardized protocol of safety procedures, basic communications, and basic maneuvering instructions for naval ships and aircraft during unplanned encounters at sea. Nevertheless, observers state that CUES is "non-binding, only regulates communication in 'unplanned encounters' and not behavior, and fails to address incidents involving non-naval vessels" (O'Rourke 2014, 8-9). In contrast to CBMs in the areas of maritime safety or communication at sea, projects involving environmental protection and marine scientific research have so far been the most successful in the South China Sea (Kao et al. 2012, 291). As part of the informal workshop process for the South China Sea started in 1989 by Indonesia, a multinational team of scientist from Indonesia, Ma-

laysia, Singapore, Thailand, the Philippines, Vietnam, China, and Taiwan engaged in a biodiversity mission in Indonesia in 2002, enhancing cooperation (Schofield et al. 2011, 17-18). A more recent approach was the 'Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand' project implemented by UNEP. The project lasted from 2002 until 2009 and included China, Malaysia, Vietnam, and other ASEAN nations. Due to a dual inter- and intra-country management structure in which each country had designated responsibilities and needed to interact with other participants, the project achieved success in joint project organization, transparency, and in communicating and networking with each other (Pernetta and Jiang 2013, 142-152; Bewers and Pernetta 2013, 269-273).

Communication is also a key element of CBMs involving China, Malaysia, and Vietnam. Vietnam became the second Southeast Asian nation to establish defense talks with China in April 2005. Defense and security consultations between China and Malaysia were first held in September 2012 (Storey 2012, 296). Communication CBMs are common between China and Vietnam, as both countries try to manage their disputes through "a highly structured and extensive system of talks and discussion", involving four tiers: high-level talks between presidents, prime ministers and secretary-generals of the Communist Parties; foreign minister talks; government-level talks involving deputy or vice ministers; and expert-level talks (Wu 2013, 117). For example, in October 2011, both countries bilaterally negotiated an agreement covering six basic principles for dispute management at sea, including the establishment of a defense hotline (Raine and Le Mière 2013, 119). Overall, environmental CBMs are clearly dominant and most successful in multilateral approaches, whereas bilaterally, communication CBMs are prevalent. Nevertheless, out of five cooperative areas suggested for CMBs in the Declaration of Conduct (DoC), only two areas, marine environmental protection and marine scientific research, have so far been implemented (Kao et al. 2012, 291).

4.3.2 Institutional and Legal Framework

ASEAN

China's insistence on bilateral negotiations to resolve any sovereignty disputes stands in stark contrast to ASEAN's approach to involve Beijing multilaterally through a variety of channels. This has produced "a lack of agreement on the appropriate institutional framework for discussion and negotiations in the South China Sea" (Beckman et al. 2013, 313). ASEAN and its established frameworks, however, have been crucial in providing a basis for institutionalizing the South China Sea dispute. ASEAN first became involved in the South China Sea dispute in 1992, when China and then non-member Vietnam had a dispute over E&P activities in disputed waters and has since then become very active in engaging Beijing (Thayer 2013, 76-77). Eventually, in November 2002, after two years of negotiation, ASEAN members and China signed the DoC, "the first political document jointly issued by ASEAN member countries and China on the South China Sea issue" (ASEAN 2015a). A joint ASEAN-China Working Group (JWG), tasked with implementing the DoC, had its first meeting in August 2005, in which guidelines were drafted to implement the DoC, although it should take more than seven years until the guidelines for implementing the DoC were finally adopted by all

parties in July 2011 (Thayer 2013, 77). Nevertheless, the JWG, despite setbacks, has served as an institutionalized way towards an eventual implementation of the DoC in the South China Sea. The 'East Asia Summit' (EAS) is an annual forums for leaders in which all ASEAN member states as well as China, Japan, and South Korea, amongst others, are members. As a forum for "strategic dialogue and cooperation on political, security, economic and social issues of common regional concern", the South China Sea is a key topic for discussion, with the ninth EAS statement explicitly mentioning that further progress on the implementation of the DoC and work towards a Code of Conduct (CoC) is encouraged (ASEAN 2014a, 1-7). ASEAN also engages China through ADMM-Plus, a meeting between all ASEAN defense ministers that also includes China, Japan, and South Korea. So far, the meeting has become "an effective platform for practical cooperation" and in 2013, a "historical milestone" was achieved when a joint military exercise was held of all ASEAN and Plus countries (ASEAN 2015b). Lastly, ASEAN has established the 'ASEAN Regional Forum' (ARF) as a "crucial channel for Southeast Asian nations to actively participate in the regional security management", becoming the "central security forum for the Asia-Pacific" (Vu and Thao 2014, 372; Hines 2013, 2). Hines argues that the ARF has influenced and "socialized" China to a certain degree, as Beijing has internalized some of the norms represented by the ARF. However, Hines also notes, however, that although China's relationship with the ARF is of normative nature on the one hand, it is also of instrumental nature, as China is motivated to shape and influence the ARF's norms to meet its own interests (2013, 3-10).

UNCLOS

UNCLOS is an important legal basis for claims and territorial disputes in the South China Sea, as it codifies "the 'bundle of rights' accruing to a state that has sovereignty over an island or a group of islands", of which "the most important is the exclusive right to exploit the resources […] surrounding the islands or archipelago" (Wu 2013, 11). Raine and Le Mière describe UNCLOS thus as "the foremost international legal instrument dedicated to maritime affairs, acting as a sort of constitution for the oceans" (2013, 215). A review of legal and institutional frameworks regarding international waters by the UNDP considers UNCLOS to be "the most relevant, legally-binding agreement governing the South China Sea" (2011, 283). The relevance of UNCLOS as the major regional legal framework is derived from two aspects. The first aspect is the fact that besides Taiwan, all five claimant states in the South China Sea are members of and have ratified UNCLOS. The second aspect goes back to what is actually covered in UNCLOS. Containing 320 articles in its main body and a further 116 in nine annexes, UNCLOS covers key areas such as maritime jurisdiction, rights, responsibilities, and resources. However, the "heart" of UNCLOS – and the aspect is the most important in regards to the South China Sea dispute – is a division of the sea and sub-sea area into zones that delimitate a particular state's sovereignty and rights of usage. What this basically means is that each state has a set of concentric areas in its adjacent waters that decrease in levels of sovereignty and rights as they extend outward from the shoreline (Raine and Le Mière 2013, 216). The first and closest zone to a state's shoreline is its territorial sea, a 12 nm zone measured from the state's baselines in which the country has sovereignty, rights to all resources and wide-ranging powers to control traffic (Articles 2 and 3). The second zone, the EEZ, ex-

tends beyond the territorial sea out to 200 nm. A state does not have sovereignty over this zone but instead has "sovereign rights for the purpose of exploring and exploiting […] natural resources" (Articles 56 and 57). The final zone is the continental shelf of a coastal state that extends beyond both the territorial sea and EEZ, with a maximum distance of 350 nm from its baselines. With no sovereignty or control rights over the area, a state exercises sovereign rights "for the purpose of exploring and exploiting its natural resources" (Articles 76 and 77). Besides the regulation of these zones, Article 121 is of particular interest to the South China Sea dispute, as it defines what an island is and it is not. This is crucial, as islands can theoretically generate their own EEZ of 200 nm, which would enable the controlling state to expand E&P of energy resources. Although UNCLOS does offer dispute resolution mechanisms, it is primarily "an attempt to codify the legal environment on the seas" and not the "legal panacea to dispute resolution in the South China Sea" (Raine and Le Mière 2013, 217; 223).

The DoC

In March 2000, China and ASEAN exchanged their respective drafts for a CoC in the South China Sea. However, after two years of negotiation, the result was the DoC as a compromise between both sides (Thayer 2013, 76-77). The DoC is insofar a key document, as it is the first significant regional document specifically applying to the South China Sea in which China and ASEAN acknowledge the existence of territorial and maritime disputes among each other, and that they pledge to resolve these disputes in a peaceful manner (Zou 2012, 24). One scholar even describes the DoC as "the most promising direction in the management of tensions in the South China Sea" (Womack 2011, 383). The overall purpose of the DoC is for ASEAN and China to reaffirm their determination "to consolidate and develop the friendship and cooperation existing between their people and governments with the view to promoting […] partnership of good neighborliness and trust" (ASEAN 2002). To build trust and confidence among all parties involved, the DoC suggests a range of measures. These include holding dialogues and exchange of views between defense and military officials; ensuring just and humane treatment of all persons who are either in danger or in distress; notifying, on a voluntary basis, other Parties concerned of any impending military exercise and exchanging, on a voluntary basis, relevant information. Furthermore, pending a comprehensive and durable settlement of the disputes, the DoC "may explore or undertake cooperative activities", such as marine environmental protection and research, search and rescue operations, safety of navigation and communication at sea, and activities combating transnational crime (ibid.). After nine years of negotiation, China and ASEAN in July 2011 agreed on guidelines to implement the DoC with the aim to decrease tensions and prevent any further escalation (Fravel 2012, 44). To this end, the guidelines specify several CBMs already included in the DoC, such as workshops on environmental protection, navigational safety, search and rescue operations, and transnational crime. Ultimately, the DoC is intended to be only the first step in managing the South China Dispute between China and ASEAN. The DoC reaffirms that "the adoption of a CoC in the South China Sea would further promote peace and stability in the region", being a first but crucial step to establish a permanent CoC as a framework to manage the South China Sea dispute (ASEAN 2002).

4.4 Conflict in the South China Sea

The second part analyzing the role of uncertainty in the South China Sea dispute are elements promoting conflict. Like with cooperation, the aim is to establish the overall role of energy security within these elements and classify their relevance in the South China Sea dispute. The analysis consists of three parts, with the first being an overview of key maritime and political incidents in and surrounding the dispute. The next part deals with information deficits surrounding the South China Sea disputes and the involved claimant states. What missing or incomplete information effectively factors into conflict potential among claimant states in the South China Sea and what role is energy security playing among these information deficits? Lastly, after having taken a more in-depth look at the institutional and legal framework in the previous section, the same mechanisms and regimes will be analyzed in terms of informality and the institutional challenges coming with them. The overall aim of this section is to analyze the latent and manifest conflicts surrounding the South China Sea and, ultimately, the role energy security plays in them.

4.4.1 Incidents in and Surrounding the South China Sea

China-Malaysia Incidents

The submissions of Malaysia and Vietnam to the CLCS in 2009 made the overall dispute more complicated and have worsened relations among claimant nations, making them "a major turning point for a new round of escalation of the dispute" (Wu 2013, 166). For the less vocal claimant Malaysia, the 2009 joint submission with Vietnam has triggered major diplomatic rows in its otherwise reluctant strategy regarding its South China Sea claims. After the initial submission, China objected the joint submission as it has "seriously infringed China's sovereignty, sovereign rights and jurisdiction in the South China Sea", claiming that China has "indisputable sovereignty" over the islands and adjacent waters (Espina 2013, 8). Malaysia, in turn, objected to the Chinese Note Verbale, declaring that the joint submission is a "legitimate undertaking", is without prejudice to the continental shelf delimitation between opposite or adjacent coastal states and to the position of states which are parties to a land or maritime dispute, stating that all claimants had been informed of the submission (ibid., 9-10). Malaysia, usually reluctant to discuss its dispute with China, has therefore openly strengthened its own claims and interests in the South China Sea, defying Chinese sovereignty claims in its waters. The years 2013 and 2014 saw increased Chinese assertiveness in Malaysian waters. In March of 2013, China held its first ever naval exercise near James Shoal, a submerged reef only 80 km off Malaysia's coast (De Padua 2013). On March 26, the Chinese flotilla, consisting of an advanced amphibious landing ship as well as a destroyer and two frigates, conducting simulated amphibious landings near the disputed James Shoal currently controlled by Malaysia (Storey 2013, 3). However, Beijing's assertive exercise was met with "a distinct lack of a visible public reaction from Malaysia", with neither the PM nor Foreign Minister making any statement on the matter, although the exercise was monitored by a Malaysian

naval patrol vessel that also issued orders for the Chinese navy to leave the area (Lockman 2013). Malaysia's strategy to accommodate Beijing, therefore, is not without its dangers, as a loss of James Shoal cold potentially shrink Malaysia's territorial boundary back to its shorelines and coastal waters, "resulting in the loss of all its existing oil and gas resources" (Borneo Post 2014). Not even one year later, in January 2014, a Chinese amphibious assault ships and two destroyers once again patrolled James Shoal while Chinese marines held a ceremony swearing to defend Chinese sovereignty (Poling 2014, 2).

China-Vietnam Incidents

Between 2001 and 2008, a variety of incidents mainly involving legislative actions, oil exploration and agreements, and fishing bans caused "limited periods of tension" between China and Vietnam (Amer 2014a, 20). As in the case of Malaysia, Vietnam's joint- and individual submission to the CLCS triggered diplomatic consequences, but much more intensive. Vietnam's answer to China's objection and claim to indisputable sovereignty was met with Hanoi reaffirming its own claims over the Spratlys and Paracels, calling China's claims "null and void" and without legal, historical, or factual basis (Espina 2013, 8-9). Reaction to China's objection to Vietnam's unilateral submission for the Northern South China Sea was likewise met by Hanoi stating it has "sufficient historical evidence and legal foundation" to support its claims, rebutting China's nine-dashed map Beijing had included in its objection (ibid., 10-12). Since 2009, Chinese assertiveness in the South China Sea has increased, especially against Vietnam with the issue of resource exploitation having been "the most frequent source of tensions between China and Vietnam" (Tran and Nguyen 2013, 97).

The first half of 2011 saw very assertive behavior on China's side. On 26 May, two Chinese maritime surveillance ships cut off the cable of a Vietnamese oil survey ship conducting seismic surveys about 120 km off Vietnam's southern coast (Zhao 2013, 31). On May 28, the Chinese Ministry of Foreign Affairs emphasized that it opposes Vietnam's oil and gas E&P activities within waters under Chinese jurisdiction, undermining China's rights and interests in the South China Sea. On May 29, Vietnam referred to the Chinese actions as the "May 26 incident" and "resolutely opposed" the damaging and hindrance of its normal survey and exploration activities within its continental shelf and EEZ, considering China's "act" as a "serious violation of the sovereign and jurisdiction rights of Vietnam" (Amer 2014a, 22). On 9 June, Vietnam reported that the Viking II, a survey vessel hired by PVN, was conducting seismic exploration activities in Block 136/03 located in Vietnam's continental shelf when a Chinese fishing vessel, supported by two fishery administration vessels, cut off and rammed the exploration cables of the Viking II. Vietnam stated that systematic acts by the Chinese side aim at disputing an undisputed area and that this was unacceptable for Vietnam. China, however, stressed that "Vietnam grossly infringed China's sovereignty as well as maritime rights and interests by exploring oil and gas illegally" and that the allegedly armed Vietnamese vessel initiated the chase and the Chinese vessels only defended themselves (ibid., 23).

In early May 2014, CNOOC dispatched its drilling rig HD-981 into waters west of the Paracel Islands, only 100 nm off Vietnam's eastern coast. In 2012, when the drilling rig was first launched, CNOOC's chairman described its deepwater drilling rigs as "our mobile national territory and a strategic weapon" (Rogers 2013, 7). Although CNOOC's interest might

be focused on energy security, Erica Downs argues that the deployment of the rig served as an "instrument of statecraft" to advance Beijing's interest in the South China Sea (2014, 8). More than 80 Chinese ships, including seven military vessels, initially escorted the rig. However, as Vietnam quickly dispatched 20 coast guard and surveillance ships, the overall numbers escalated quickly, with China having surrounded the rig with over 100 ships in June. Until the removal of the rig on July 16, a two-month standoff ensued which involved constant harassment of each other's ships, the use of water cannons, and direct ship-to-ship ramming which ultimately resulted in a capsized Vietnamese fishing boat on May 26 (Poling 2014, 4-5). Vietnam denounced China's drilling as illegal and demanded the rig's immediate removal, while Beijing's position was that the rig operated "totally within waters off China's Xisha [Paracel] Islands" (Amer 2014b, 1). Overall, the incident was a novelty. The deployment of the rig sparked "the most serious crisis in Vietnam-China relations since the two countries resumed diplomatic relations in 1991 – and arguably since their 1979 border war" (Storey 2014b, 1). It also drove anti-China sentiment in Vietnam "to the highest levels in recent memory", which led to violent protest that left four Chinese workers dead and forced China to evacuate more than 3,000 of its citizens from Vietnam (Poling 2014, 5).

4.4.2 'Information Deficits' and the South China Sea Dispute

Energy

As the initial analysis on energy prospects in the South China Sea has shown, resource estimates vary widely. There are several information deficits regarding energy currently present in the South China Sea dispute. First of all, there is no definite data on the energy reserves located in the South China Sea. As Johnson points out, even the more moderately optimistic estimates on proven and probable oil- and gas reserves in the South China Sea by the EIA have focused on surveys conducted in waters less than 200 meters deep, rather than surveys in actual deepwater areas (2013, 36-37). The second information deficit regarding energy in the South China Sea stems directly from the fact that surveys up until now have been restricted to more shallow waters. Although the most promising areas for energy resources – at least based on EIA estimates and actual oil- and gas production – seem to be in the South off Borneo and in the West and Southwest located off Vietnam's shorelines. Although there seem to be no relevant reserves located in the Paracel Islands, estimates for the Spratly Islands differ greatly and leave open the opportunity for the Spratlys to become a major oil- and gas rich set of features (EIA 2013d). The third major information deficit is in regards to the kind of energy resources located in the South China Sea. Although oil has been the primary factor to engage in E&P activities in the region, gas reserves, in particular unconventional gas reserves, are estimated to make up the majority of the hydrocarbons in the South China Sea (Owen and Schofield 2011, 813). As resource estimates are based only on a relatively small number of surveys in more shallow waters, however, this notion should be taken with a grain of salt. The question is nevertheless important, as oil- and gas reserves are defined through their recovery factor. Whereas gas resources have a recovery factor of up to 75%, meaning that 75% of all gas resource are technically recoverable, the recovery factor for oil is between 10% for fringe

and 35% for conventional fields, limiting recoverable reserves (ibid.). Therefore, deficits regarding the actual amount, location, and type of energy resources makes information deficits regarding energy a factor limiting E&P activities and potential cooperation.

Claims

South China Sea claims are a major source for information deficits. China has repeatedly used its nine-dashed line on their maps to indicate its claims, covering much of the South China Sea. These claims, however, lack specificity. Although Chinese claims are not the only claims in need of clarification, the nine-dashed line is "most important given its size and the fact that it has little basis in international law" (Raine and Le Mière 2013, 203). The crux of the problem is the fact that China has never clarified what the line actually denotes and how it is consistent with international law, especially with UNCLOS (Storey 2014b, 3). Although China claims indisputable sovereignty over the South China Sea, it has so far failed to declare which features it is claiming or marked them clearly with geographical coordinates (Beckman and Davenport 2010, 4). Besides Beijing's lack of specificity on its sovereignty claims, its jurisdictional claims add further ambiguity. China's jurisdictional claims, meaning its claims beyond territorial waters, involve 'historic rights' over almost all of the South China Sea.

However, a distinction is made between historic rights to title over territory, including islands, and historic rights over maritime spaces, with China not having clarified what it is actually claiming. Furthermore, the concept of historic rights or claims does not appear in UNCLOS at all, leaving it incompatible with the most important legal framework for the South China Sea (Schofield et al. 2011, 21). Thus, China's claims, lacking specificity in addition to being ambiguous in its nature, do not conform to UNCLOS and represent a major information deficit. Similarly, Vietnam's sovereignty claims involve all features of the Paracels and the Spratly Islands. Nevertheless, Vietnam has never officially declared which features of the Spratlys it is claiming sovereignty over and if this, for example, would also include James Shoal only 100 km off Malaysia's coast (Raine and Le Mière 2013, 204). In terms of its jurisdictional claims, however, Vietnam's claims "conform much more closely than China's assertions to international law" as Hanoi claims a 200 nm EEZ in addition to an extended continental shelf of 350 nm which both conform to UNCLOS (Dutton 2011, 53). Malaysia claims sovereignty over eleven features in the Spratly Archipelago, based on effective occupation and control as well as these features being on its extended continental shelf (Beckman and Davenport 2010, 13). Malaysia's submission for a 200 nm EEZ and a 350 nm extended continental shelf "makes a reasonable claim […] in accordance with UNCLOS Article 76", leaving its claims open, public, and in accordance with international law (Dutton 2011, 52).

4.4.3 Informality and Institutional Challenges

ASEAN

ASEAN is actively trying to engage China through a multilateral approach and institutionalize the South China Sea dispute in various ways. The main obstacle, however, for ASEAN to act

as a harmonized group to successfully employ institutionalization strategies to engage China, is its internal division (Vu and Thao 2014, 376). This became increasingly obvious during the 2012 ASEAN Minister's Meeting (AMM) in Phnom Penh, when Cambodia held the rotating chairmanship. During the final stages of the meeting, the foreign ministers of Vietnam and the Philippines wanted the final communiqué to reflect their "serious concerns" about China's assertiveness at Scarborough Shoal and CNOOC's tender of oil blocks overlapping with Vietnamese blocks (Storey 2012, 10). Their approach was supported by Singapore, Indonesia, Malaysia, and Thailand in an attempt to consolidate a unified ASEAN position on the issue. However, then chairman Cambodia, having close political and economic ties with China, objected because "ASEAN cannot be used as a tribunal for bilateral disputes" (ibid.). This marked the first time in ASEAN's 45-year history that the AMM did not issue a final communiqué. Shortly after the meeting, ASEAN issued a statement declaring its "Six-Point Principles on the South China Sea", reaffirming ASEAN's commitment to implement the DoC, the early conclusion of a CoC as well as reiterating the role of international law and self-restraint in the South China Sea dispute (ASEAN 2012). However, the damage was already done and only two years later, during Myanmar's chairmanship in 2014, was a communiqué issued in which ASEAN expressed their "serious concerns over the on-going developments in the South China Sea, which have increased tensions in the area" (ASEAN 2014b).

As Storey notes, ASEAN's internal division is not only based on history and geography, but also on each member state's relations with China and their perception and policies towards the South China Sea dispute in general (2014b, 10). Several groups within ASEAN can be identified. Whereas Vietnam and the Philippines stand at the "front lines" of the sovereignty dispute and see their national security threatened by an increasingly assertive China, Malaysia and Brunei tend to downplay tensions in order to advance their energy interests. As the third group, non-claimants Indonesia and Singapore have "significant economic and strategic interests in the South China Sea" and have called on China to clarify its claims and to "get more serious" about the DoC and CoC (ibid.). The fourth group, consisting of mainland member states Cambodia, Laos, Myanmar, and Thailand, has no direct stake in the South China Sea dispute and favors accommodating China. As the recent example with Cambodia has shown, China's "salami slicing" strategy of dividing and conquering ASEAN members through its economic and diplomatic power has borne fruit as China is growing fast and can afford to wait, whereas ASEAN cannot (Choong 2013).

DoC and CoC

The DoC, although being the first significant document specifically for the South China Sea in which all claimants acknowledge the existence of a dispute, is symptomatic for the informality surrounding the South China Sea dispute. ASEAN members had reached an agreement on a CoC draft in late 1999, but when China and ASEAN exchanged their respective CoC drafts, a formal China-ASEAN CoC "proved a bridge too far" as China "eschewed a legalistic approach", with the result being the non-binding DoC (Thayer 2012b, 1; Storey 2014c, 33). However, the DoC is an "essentially toothless agreement […] which has yet to be operationalized" and is even described as "stillborn" by some scholars (Storey 2013, 4; Thayer 2012b, 1). Although the DoC stipulates the implementation of CBMs in fields such as environmental

protection, expert dialogues, and Search and Rescue activities, it took over two years to establish the JWG and almost nine years to agree on guidelines to implement the DoC in the first place. The 2011 guidelines to implement the DoC specify only CBMs, which, as Fravel points out, limits the utility of the guidelines in three ways. First, the guidelines were designed to implement to DoC, which itself was only intended to be a first step towards a legally binding CoC. Second, the guidelines as well as the DoC do not address any territorial or maritime claims in the South China Sea. Lastly, they are "unimpressive", as they only mention vague and non-specific activities and guidelines (2012, 44). The DoC calls on all parties to negotiate a legally binding CoC to manage tensions in the South China Sea. In late 2011, China signaled that it was willing to begin consultations on a CoC for the South China Sea. However, just when ASEAN had drawn up its proposed elements for a binding CoC, China "firmly slammed on the brakes", suggesting that some ASEAN claimants were repeatedly violating the DoC and that the "time was not right" (Storey 2014c, 34). Additionally, Beijing rejected ASEAN's proposed elements when indicating that they could not be the basis for discussion. After blocking negotiations for over a year, China continued consultations for a CoC with ASEAN in 2013. Whereas ASEAN has called for an "early conclusion" of the CoC, the China has dismissed these calls as "unrealistic", mentioning that China is in "no rush" and prefers consultations in a "step by step" manner (ibid., 35). China' strategy therefore aims to slow down consultations and negotiations as much as possible and water down any eventual agreement to be merely symbolic and non-binding; a tactic that worked in 2002.

UNCLOS

UNCLOS, albeit being the key legal instrument in the South China Sea dispute, is faced with two crucial institutional challenges in regards to its capacity to provide a legal framework for all parties in the area. The first challenge goes back to the fact that different zones can be created from an island, which, in turn, can have crucial effects on sovereignty and jurisdiction. Whereas an island can potentially create a 200 nm EEZ or an extended continental shelf of 350 nm, features not classified as islands are only entitled to a 12 nm territorial zone. Herein lies the actual challenge: what can be classified as an island? Article 121 of UNCLOS defines an island as "a naturally formed area of land, surrounded by water, which is above water at high tide". The focus of the South China Sea dispute, the Spratlys, consist of over 170 named features scattered over about 240,000 km², with only 48 features rising above water at high tide (Owen and Schofield 2011, 810). In consequence, most features according to Article 121 identify as rocks, as they "cannot sustain human habitation or economic life of their own". However, as Wu notes, "Article 121 […] is difficult to apply to the South China Sea" as "provisions are ambiguous and so far lack authoritative interpretation" and "the exact number and geographic condition of South China Sea features remain unclear and may vary over time" (2013, 75). Whereas most claimants have implied that they consider most of the features in the South China Sea as rocks and not as actual islands, China has vehemently protested against this notion, as indicated by its strong objection to the joint Malaysia-Vietnam submission (Owen and Schofield 2011, 811). To generate an EEZ or extended continental shelf, it is in the interest of countries to claim that their occupations on fortified reefs and shoals are "natural islands rather than artificial constructions on submerged features" (Raine and Le

Mière 2013, 221). China in particular has applied this approach and, through land reclamation, is in the process of transforming the five reefs it controls into actual islands, with the aim to strengthen the international legal basis of its claims and claim an EEZ over these "islands" (Keck 2014). The second institutional challenge for UNCLOS is regarding its binding dispute resolution mechanism. UNCLOS offers four compulsory and binding options for arbitration: the International Tribunal for the Law of the Sea in Hamburg, the International Court of Justice in The Hague, a "special arbitral tribunal" for certain categories of disputes under Annex VIII, and ad hoc arbitration under Annex VII (Raine and Le Mière 2013, 218). Under Article 287, states have the opportunity to engage in dispute resolution mechanisms to settle their disputes. In 1996, however, China, under Article 298, opted out of all categories of dispute resolution mechanisms. This makes China the only claimant to have exercised its right to opt-out which, in practical terms, "renders the prospects for external dispute-arbitration moot" (ibid., 219). China has thus been trying to avoid the confines of international law by refusing any external arbitration and international courts and changing the status quo by slowly transforming its occupied features, strengthening its long-term position in bilateral negotiations.

4.5 Summary

State interests are the driving factor behind the international interaction of states. Beijing's interests in the South China Sea are fueled by its immense hunger for energy, in particular for oil. This is reflected in the country's expansive claims to the area, covering more than 80% of the South China Sea. However, whereas Malaysia and Vietnam's primary interest is regarding the actual oil and gas reserves, China is keenly aware that it is dependent on the South China Sea's SLOC for its oil, and, in China's eyes, overall energy security. Whereas on the first look, a seemingly convergence of interests is observable, variations among state interests are stark, as different outlooks on energy security collide between China, Malaysia, and Vietnam. Several key aspects characterize the strategic setting in the South China Sea. A variety of different power structures, such as the increasing China-US rivalry, bilateral structures between China and each claimant, China-ASEAN relations, and the involvement of third parties with strategic and economic interests, such as India, Russia, the US, or Japan, have emerged. Furthermore, sovereignty and jurisdictional claims have created a seemingly intractable net of competing claims, whereas resource estimates for the South China Sea vary widely and are not reliable at best. Nevertheless, in light of its strategic importance as a key SLOC for trade and energy imports as well as the proven and probable oil- and gas reserves at the western and southern edges, underlying assumptions and reasons for claims have become clearer. Malaysia and Vietnam are in dire need to expand their oil- and gas production further offshore, which in large part explains their claims for an EEZ and extended continental shelf. China's claim has as its basis Beijing's desire to control its seaborne energy import route through the South China Sea in fear of potential disruptions. Additionally, its expansive claim, if realized, would also cover the oil- and gas rich areas off Malaysia and Vietnam's coasts.

The role of uncertainty in the South China Sea dispute is substantial. Cooperation among claimants occurs mostly in the form of CBMs in "softer" areas, such as maritime environment and maritime research. Energy cooperation is a rare occurrence and mostly limited to

non-disputed areas or cooperation between ASEAN claimants. A legal and institutional framework exists, but is for the most part based on informal or ambiguous structures and leaves ample room for interpretation, further generating information deficits. After 13 years, the DoC, which in itself is only a symbolic, non-binding agreement, has still not been operationalized, and UNCLOS, albeit being a legally binding framework, does not provide a reliable method to solve territorial or maritime disputes either, as China has opted out of any dispute resolution mechanism in addition to crucial articles not being specific enough. Failure to clarify claims, especially on China's side, and deficits regarding accurate information of potential energy reserves provide only an unclear and vague setting for negotiations. More than anything, however, recent maritime and diplomatic incidents in and around the South China Sea have shown that the overall negotiation structure is still largely build on the premise of a win-lose approach, with win-win scenarios being less than likely.

5. Conclusion

Introduction

By analyzing the domestic-international and the international interaction, this thesis has so far concentrated on the factors and elements shaping and influencing domestic and, more importantly, international interaction between China, Malaysia, and Vietnam in the South China Sea from an energy security perspective. The aim of this chapter is to put things into perspective and answer the following key research question:

- What role does energy security play in the South China Sea Dispute between China, Malaysia, and Vietnam and what implications does it entail for the process of understanding the South China Sea Dispute?

After this, we will turn towards the sub-questions with the aim to answer how energy governance and energy security policies on the domestic level relate to state interaction and energy security policies on the international level as well as how each country's energy security policies are reflected in its approach on state interaction with other claimants in the area:

- What kind of energy governance is prevalent in each country and how does it relate to the state interaction between China, Malaysia, and Vietnam in the South China Sea?
- What kind of correlation can be observed between China, Malaysia, and Vietnam's energy security policies and their strategic approaches in the South China Sea?

A brief summary of all relevant findings concludes this chapter.

Role of Energy Security in Dispute

In the South China Sea dispute, energy security plays a prominent role with all factors shaping state interaction between China, Malaysia, and Vietnam. Energy security is an integral part of each country's state interest, with the predominant pattern being especially the interest for increased oil security. This is evident in each country's ongoing efforts to stabilize oil production and increase oil reserves by exploiting offshore fields located in deepwater locations. However, gas, mostly due to being much more environmental-friendly and less utilized than oil, plays an increasingly important part. Although energy security is most likely the most important interest of states in the South China Sea, there exist inherent deficits and flaws concerning energy and, consequently, energy security. Information regarding the more concise nature of the energy reserves, such as location, amount, and type, is lacking and does not present a clear picture of potential South China Sea oil- and gas reserves. Moreover, energy security has so far not been explicitly included in a legally binding, formal framework for any claimant state in the area. Even UNCLOS, which provides guidelines and mechanisms to ex-

ploit maritime energy reserves by means of an EEZ or extended continental shelf, has not been able to manage or even resolve any issues regarding energy security between China, Malaysia, and Vietnam. Energy security has thus been playing a key role not only regarding state interests, but also as a key factor generating a negotiation environment dominated mostly by uncertainty and informality. The analysis has shown that energy cooperation between China, Malaysia, and Vietnam is very uncommon, if not at all nonexistent. Although both Malaysia and Vietnam conduct joint E&P activities in a small and undisputed area in the South China Sea, energy cooperation with China has traditionally been very small in scale and mostly limited to cooperation between China and Vietnam in the Gulf of Tonkin, an area that is not disputed. State interaction resulting in maritime or diplomatic incidents shows a similar picture. In May and June 2011, two incidents between China and Vietnam had a clear energy security background, as Vietnamese survey vessels were interrupted and attacked by Chinese vessels during oil exploration missions. In May 2014, the arrival of a Chinese drilling rig in Vietnam's claimed EEZ west of the Paracel Islands caused the most serious crisis between both countries since decades. This incident, too, happened as a result of energy security interests. Even China's first and second naval exercises in Malaysia's immediate vicinity, James Shoal, have a clear, albeit less obvious energy security background. Even though Kuala Lumpur and Beijing are on cordial terms, Malaysian E&P activities encroaching deeper into disputed waters and James Shoal in particular have drawn China's attention. The naval exercises are thus of particular importance as James Shoal is of strategic importance to Malaysian oil and gas production in the South China Sea. A Chinese occupation or otherwise loss of the features would result in severe setbacks in overall energy production, as the South China Sea makes up most of the country's oil and gas production. Even the diplomatic fallout after Malaysia and Vietnam's submissions to the CLCS in 2009 can be seen in a primarily energy security context, as the underlying intent is for both countries to "legalize" their claims for an EEZ and extended continental shelf to significantly bolster their energy security situation.

What these incidents all have in common is not only the fact that they represent the most notable and grave incidents involving the three claimants in recent times, but also that they all have a very clear energy security component inciting conflict and raising tensions. This becomes especially clear when analyzing China's assertive behavior and actions and keeping in mind that the South China Sea is the focal point for Chinese energy imports. Beijing's assertive and offensive interaction with the vocal claimant Vietnam can be explained with its increasingly high reliance on the South China Sea both for the vast majority of its energy imports as well as expanding E&P activities to try to offset its large reliance on oil imports, even if by only a margin. Overall, energy security plays a dominant role in the South China Sea dispute between China, Malaysia, and Vietnam, as it occupies a key role in each state's interests, the strategic setting, and as a major factor for creating uncertainty. All of these factors, in turn, translate into state interaction that is heavily shaped by energy security, one, if not the most important element in the dispute.

Implications for Understanding the Dispute

The question now becomes what implications these findings entail for understanding the dispute between the analyzed countries. The South China Sea dispute is oftentimes portrayed as

a dispute primarily focused on energy reserves like oil and gas as well as a dispute about territorial and maritime claims. However, this point of view is only partially correct. The dispute, at least between China, Malaysia, and Vietnam, is in large part about energy security. For each of the three analyzed countries, energy security is directly related to overall socioeconomic development and well-being of the nation and its populace. China is not only confronted with the problem to switch towards more sustainable development of its economy away from coal, but also continuously increasing import reliance for oil and, to a lesser degree, gas, to meet rising domestic demand. Beijing is therefore increasingly reliant on external suppliers and import routes not under its control. Malaysia and Vietnam face a transition China had to undergo in the early 1990s, namely from a net exporter towards a net importer of oil. Both countries, however, are faced with rapidly rising demand for oil, especially Vietnam. Not only does the energy industry play an important role in the national economies of both countries, but it quite literally represent the fuel that drives forward the socioeconomic development towards being an industrialized nation. However, why is all of this important to mention? Energy security is the integral part for socioeconomic development in all three countries. Consequently, energy security directly touches on the notion of national security, as energy security is the essential component to advance overall socioeconomic developmental goals.

Taking this perspective into account, the relationship between territorial and maritime claims in the South China Sea on the one hand and energy security on the other hand becomes apparent. Energy resources and claims play a prominent role in the South China dispute between China, Malaysia, and Vietnam. However, the picture becomes only complete when the claims and actions undertaken by each claimant take into account the energy security context behind it. China needs the South China Sea as its primary SLOC for energy imports and way to try to offset declining domestic oil- and gas production. Beijing's vast claims reflect these aspects, as the country's aim is to gain control over the South China Sea, or at least determine outcomes in terms of E&P operations as well as sovereignty and jurisdictional claims. Malaysia and Vietnam's claims also correlate directly with their aim to increase energy security. Both countries already control the most oil- and gas rich regions of the South China Sea, and additional claims to an EEZ and extended continental shelf aim to further advance into potentially hydrocarbon-rich offshore waters in the southern, southwestern, and western parts of the area. Energy resources and claims on their own are thus only one part of the medal, with energy security being the other. It is important to understand that for China, Malaysia, and Vietnam, energy security is intimately interwoven with territorial and maritime claims in the South China Sea and vice versa. The claims are an instrument to advance energy security interests; but without claims, there is no real way to effectively push forward energy security interests in the South China Sea. Each country's base of claims and interaction with other claimants reflect this notion. China's assertive behavior and vast claims do not represent an aggressive expansion, but first and foremost its legitimate desire to gain increased control and security over the most important SLOC for its energy imports. Vietnam's proactive stance against China shows a country with one of the highest energy consumption growth rates in Asia and its dire need to quickly meet exploding demand for oil and gas as well as declining energy production by actively pushing deeper into the South China Sea. Malaysia's more reluctant attitude towards engaging China and the extend of its claims reflect the country's position as one of the region's most important energy exporters, with considerable more oil- and

gas reserves and slower demand growth than Vietnam. Malaysia is thus in the position to not have to actively push its claims forward and instead focus solely on E&P operations. Overall, it is essential to consider this dynamic in any attempt to understand state interaction between China, Malaysia, and Vietnam in the South China Sea. Without recognizing that claims and potential energy resources in the South China Sea are interwoven with broader energy security interests, any attempt to understand and potentially manage disputes in the South China Sea fails to see the bigger picture by not incorporating crucial, underlying dynamics.

Energy Governance and State Interaction

As the informational setting has decisive influence over a country's energy security strategy and, ultimately, the country's interaction on the international level with other states, the mode of how energy is governed in a country should also influence the way state interaction is conducted. However, is this really the case, and, if so, how does energy governance in China, Malaysia, and Vietnam relate to the South China Dispute between these countries? First, let us shortly summarize the key findings for each country in regards to their prevalent mode of energy governance before analyzing its relation to state interaction in the South China Sea. Energy governance in China has for the past two decades been very decentralized and characterized by the multitude of key actors with different interests vying for influence, mostly in the form of the major NOCs and the bureaucracy. The analysis has also shown that ownership do not always equal control and that influence is a two-way street. China's three major NOCs successfully evade rigorous government control and operate under market principles both domestically and globally, although the state retains a degree of influence, but, in turn, is also influenced by the NOCs. Lastly, external influences on energy governance are negligible and, although growing in recent years, foreign investment and IOCs play only a minor role in energy production. Energy governance in Malaysia is characterized by its strong centralization on only a few actors, primarily the government and governmental institutions as well as Petronas, the leading NOC of the country. Even more so than in China, Petronas, although nominally state owned, operates under market principles and de facto without any real state supervision over its strategy or business operations. IOCs have in the last years continued to play an increasingly important role for Malaysia, in particular by collaborating with Petronas to explore and exploit challenging deep-water blocks. Unlike in China or Malaysia, energy governance in Vietnam is overwhelmingly concentrated on the governmental level, which also directly controls and supervises the country's key NOCs. PVN, and its subsidiary PVEP, are responsible for offshore E&P and have only limited operational freedom as the state directs their strategies and business decisions. IOCs play a crucial role in the energy governance of Vietnam, as their knowledge and investment is desperately needed to develop further offshore fields and compensate for limited domestic expertise and financial resources.

Now, how does this relate to state interaction in the South China Sea? Interaction between China and Malaysia has traditionally been one of low tensions and very few incidents. Petronas, collaborating with IOCs, conducts oil- and gas E&P in offshore areas also claimed by China. However, both Petronas and its international partners operate on their own, commercially oriented strategies in an approach where the state has neither direct involvement nor influence on decision-making or general operations. So far, there has been no incident be-

tween China and Malaysia involving or threatening E&P operations in disputed blocks operated by Petronas. This can be attributed to the fact that Malaysia's government has not been actively involved in any E&P operations in disputed offshore areas, which produces less friction and tensions with Beijing, as the Chinese government is not hard-pressed into actively "defending" against state-led E&P activities encroaching on its claims. In turn, China perceives no direct threat to its claimed indisputable sovereignty in the South China Sea, leading to less friction and incidents between both countries. Interaction between China and Vietnam is characterized by rising tensions and an increase in incidents, such as the incidents in May and June 2011 involving direct Chinese actions against Vietnamese E&P activities. Although both Malaysia and Vietnam are primarily interested in the oil- and gas reserves, Vietnam, through its direct involvement and influence over PVN and PVEP, has employed a state-led approach in its E&P activities in disputed areas of the South China Sea. Furthermore, due to IOCs being a key component of its energy governance, Hanoi needs to provide attractive oil- and gas blocks for E&P as well as a relatively safe and controlled environment for foreign investment. Therefore, Vietnam, in contrast to Malaysia, is more vocal and ready to "defend" its claims against China, leading to rising tensions and an increase in maritime incidents between the two countries. China, in turn, perceives Vietnam's state-led E&P approach in its claimed waters as a direct threat to its sovereignty and jurisdiction, as opposed to a clear commerce-oriented approach by Petronas without state involvement. Chinese energy governance is reflected in its state interaction with Vietnam, especially when looking at the 2014 incident involving a Chinese drilling rig within Vietnam's EEZ. Although China's energy governance is decentralized with its major NOCs operating mostly independently from the state, commercial interests of NOCs and state interests did overlap during the incident. CNOOC, keenly aware that their drilling rig can be utilized as "mobile national territory", was incorporated into Beijing's strategy to advance its South China Sea objectives. However, CNOOC also has a strategic and commercial interest to diversify its oil- and gas reserves and advance its deepwater expertise, having a direct interests to operate and advance into disputed, potentially oil- and gas rich territory. In conclusion, energy governance is connected to state interaction between China, Malaysia, and Vietnam in the South China Sea by means of determining the type of actors present in offshore E&P projects conducted in disputed areas and by shaping state perceptions. Malaysian E&P activities excluding direct state involvement have so far provoked no direct incident, whereas Vietnam's state-led approach to E&P has resulted in Chinese assertiveness and maritime incidents, visible in 2011 and 2014.

Energy Security Policies and Strategic Approach in the South China Sea

The analysis has shown that energy security policies play a decisive role in shaping and influencing state interests for each claimant, which, in turn, has far-reaching impact on state interaction and the overall state of the dispute. However, what is the relationship between energy security policies in China, Malaysia, and Vietnam's and the strategic approach these countries take? China's domestic energy security policies focus primarily around two key elements. First, the government is trying to curb CO^2 emissions and decrease CO^2 intensity by a considerable amount. Beijing expects to increase consumption of gas in a major way, as it is utilized only sparsely. As oil production is expected to be stay stagnant and even decrease in the fu-

ture, China's second focus lies on stabilizing and expanding maturing fields. Similarly, the country's international energy security policies center on two defining elements. The first is the consequent development of a transnational pipeline network transporting oil and gas from Central Asia, Russia, and Myanmar towards China. Beijing's second key element is its "Going out" strategy. The country's major NOCs on the one hand try to gain expertise and assets through acquiring foreign energy companies. On the other hand, they acquire equity in oil- and gas fields abroad and provide oil-for-loan deals, in which the recipient's oil resources securitize Chinese loans. China's strategic approach in the South China Sea directly correlates with these energy security policies. To further sustainability, the potentially rich gas reserves of the South China Sea present a viable alternative to China's rich, but hard to extract unconventional gas deposits. The aim of increasing oil and gas production is complemented by the evolution of Chinese NOCs into internationally competitive companies able to operate in challenging deepwater areas. The continuous diversification of import routes away from maritime to land-based routes aims to reduce reliance on the South China Sea as China's key SLOC for energy imports in the medium term. However, China knows that its reliance on oil- and gas sea-based imports will continue to rise, and with it the importance of the South China Sea. China's energy security policies relate to its strategic approach in the way that the policies aim to improve China's short-to-medium term energy security by increasing gas and trying to prevent oil production from declining further, evident in China's increased drilling activities and pipeline deals. Its assertive behavior and vast claims are part of a long-term approach to secure the South China Sea as its primary "energy highway", as the area's oil reserves would only amount to a small percentage of China's actual demand. Overall, Chinese energy security policies represent the country's immediate and near future energy security goals. They complement, rather than directly correlate, Beijing's assertive, long-term strategy for the South China Sea, making it unique amongst all three analyzed claimants.

The domestic and international energy security policies of Malaysia focus for the most part on the supply of energy. In particular, the country's ETP maps out several key projects and activities to stabilize and enhance domestic oil and gas production in existing and maturing fields as well as to explore and exploit primarily new oil, but also increasingly new gas fields. In fact, the top three projects for the energy sector in the program solely focus on rejuvenating existing fields through EOR, developing small and marginal fields, and renewed E&P activities to maintain oil and gas production. Kuala Lumpur's international energy security policy comes mostly in the form of incentivizing increasing cooperation between Petronas and IORs in the upstream sector. These collaborations de facto implement domestic policies, as illustrated by recent successful EOR projects and discoveries of new oil fields resulting in a sizeable increase in Malaysia's oil production. The projects focus almost exclusively on Malaysian offshore areas off Sarawak and Sabah in the South China Sea, boosting oil production in these fields extensively. How does this correlate with its strategic approach in the South China Sea? In contrast to China, Malaysia is primarily interested in oil and gas E&P, as these resources would noticeably bolster reserves and decrease reliance on imports. The country pursues a "low-key" approach towards its claims and in engaging China, as a more assertive approach would most likely result in more friction and tensions between Beijing and Kuala Lumpur. This outcome, however, would inadvertently hinder or even prevent the successful continuation of Malaysia's energy security policies centered on oil and gas production in the

South China Sea. As long as its energy production and overall energy security goals are not directly threatened, Malaysia will refrain from disgruntling China by proactively pursuing or defending its claims. Therefore, Malaysia's strategic approach directly correlates with its energy security policies and overall energy security objective of strengthening its energy supply.

Similar to Malaysia, Vietnam's energy security policies are aimed at increasing energy supply for the developing country. However, Vietnam's policy targets are far more expansive than those in Malaysia are, especially because the country has to deal with extremely high energy demand growth rates that easily surpass those in Malaysia and even China. Coupled with one of the highest energy intensities in all of Asia, Vietnam's rapid economic growth and overall socioeconomic development needs to be fueled by an ever-growing amount of energy. The government in Hanoi therefore expects energy production to double by 2020 from its 2010 level and achieve an increase by about 600% until 2050. Furthermore, to cope with the dramatic increase for electricity, Vietnam has set a production targets with the aim to increase overall electricity production by approximately 400% until 2030. Vietnam's plans to put into operation its first nuclear reactor in 2020 further illustrate the country's dire need for energy and electricity, as oil reserves are decreasing and domestic gas production, all of which is consumed by electricity production, is not enough to cover domestic demand in the near future. The country's international energy security strategy is thus particularly aimed at bringing in IOCs to invest in E&P projects, illustrated by the unusually high percentage of shares Vietnam is willing to offer to foreign investors. Overall, Vietnam is exponentially more in need to increase energy production rapidly than Malaysia is, making the country more vulnerable and limited in its strategic approaches. Although both Malaysia and Vietnam view increasing energy supply as their primary energy security policy goal, Vietnam pursues a far more proactive and outspoken approach regarding its claims and interests in the South China Sea. Vietnam's strategic approach is owed to the fact the Hanoi desperately needs to secure more oil- and gas reserves to realize its energy security policies and, consequently, fuel its socioeconomic development. Besides the obvious need for oil, the region's potentially rich gas reserves could greatly benefit the country's electricity production that relies to a large part on gas. Hanoi's claims, the largest claims behind that of China, and its offensive approach in negotiations thus directly correlate with its energy security policies aiming at a massive increase in energy- and electricity production, as the country is the sole claimant faced by unprecedented structural changes in its energy sector in the very near future.

Summary

The results of this thesis show that energy security plays a major, if not the most important role in the South China Sea dispute between China, Malaysia, and Vietnam. Based on the domestic-international interaction, energy security goals and interests are prevalent in state interests regarding the South China Sea. Although state interests are the driving element behind the international interaction between states, the notion of energy security is also of key importance for the strategic setting in the area, with several outside actors such as India and Russia engaged in joint E&P operations with some claimant states. Furthermore, the value of the South China Sea comes mostly from the potentially rich oil- and gas reserves located in it in addition to the fact that the area is home to some of the busiest and most important SLOC

in the world, most of which are essential for the region's energy imports. Lastly, the role of energy security as a key factor in generating uncertainty and ultimately conflict in the area cannot be overstated. With a lack of energy cooperation between the three analyzed claimants, a legally binding and formal framework is missing that could regulate E&P activities in disputed territory and offer energy security a much-needed framework to be discussed in. Incidents between China and the two other claimants Malaysia and Vietnam have had a clear energy security background. Almost all major incidents between the three countries in recent years had a distinctive energy security background, such as China's assertiveness against Vietnamese survey ships or demonstrations of force in Malaysia's EEZ. The thesis further shows that it is imperative to understand that energy resources and claims are only one part of the medal, with energy security being the other. The desire for hydrocarbons and each country's claims in the South China Sea are expressions of their aims and goals regarding energy security. Whereas Malaysia and Vietnam have a key interest in the area's hydrocarbons, China wants to tighten its control over its most important SLOC for energy imports. Thus, energy resources and claims in the South China Sea are intimately interwoven with the notion of energy security; each part needs to be considered to fully understand state interaction in the area.

This thesis also shows that the domestic level is of significant importance in shaping and influencing state interaction in the South China Sea. The way energy is governed directly determines the key actors present in E&P operations, shaping state perceptions. Malaysia's largely non-state approach stands in stark contrast to Vietnam's state-led approach in energy production in the South China Sea. This combined with the fact that Hanoi is largely dependent on IOCs to successfully conduct operations and that it needs to provide an attractive and safe investment environment, has led to increased tensions with China, as Beijing perceives Hanoi's offensive approach as a direct threat to its interest. The other domestic element influencing state interaction are energy security policies. Malaysia and Vietnam's policies show a direct correlation with their respective strategic approaches, consisting of claims as well as the overall negotiation strategy. Malaysia's low-key approach towards China and its claims is owed to the fact that the country's immediate need for additional oil and gas reserves is not as high as it is for Vietnam. Vietnam's rapidly growing energy demand has resulted in very ambitious energy security policies and in a very proactive strategic approach towards claims. China's policies, on the other hand, represent its short-to-medium term goals that complement, rather than directly correlate to its long-term energy security strategy of securing the South China Sea as its primary "energy highway". This thesis therefore presents one possible approach to assess and understand the South China Sea dispute between China, Malaysia, and Vietnam. Energy security is but one possible approach to try to analyze state interaction in a meaningful way. Further research that might be of interests would involve domestic politics and, in particular, the role of nationalism in sparking and dealing with tensions. Overall, further research is much needed on the role of energy security in the dispute, as research in this direction is only slowly picking up and rarely involves all claimants in the dispute.

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List of Abbreviations

ADB	Asian Development Bank
ADMM	ASEAN Defense Ministers Meeting
APAEC	ASEAN Plan for Action on Energy
APEC	Asia Pacific Economic Cooperation
APG	ASEAN Power Grid
ARF	ASEAN Regional Forum
ASEAN	Association of Southeast Asian Nations
B/D	Barrels of Oil per Day
BP	British Petroleum
CBM	Confidence-building Measure
CCP	Chinese Communist Party
CLCS	Commission on the Limits of the Continental Shelf
CNOOC	China National Offshore Oil Corporation
CNPC	China National Petroleum Corporation
COC	Code of Conduct
DOC	Declaration of Conduct
E&P	Exploration and Production
EEZ	Exclusive Economic Zone
EIA	Energy Information Administration
EOR	Enhanced Oil Recovery
EPP	Entry Point Project
ETP	Economic Transformation Program
EVN	Vietnam Electricity
FAGIA	Foreign Aid and Government-sponsored Investment Activities
FDI	Foreign Direct Investment
GW	Gigawatt
IEA	International Energy Agency
IOC	International Oil Company
IPE	International Political Economy
IPP	Independent Power Provider
JWG	Joint Working Group
KeTTHA	Ministry of Energy, Green Technology and Water
LNG	Liquefied Natural Gas
Mtoe	Million Tons of Oil Equivalent
MWh	Megawatt hour
NEA	National Energy Administration
NEC	National Energy Committee
NDRC	National Development and Reform Commission
OECD	Organization for Economic Cooperation and Development
ONGC	Oil and Natural Gas Corporation
PM	Prime Minister

PSC	Production-Sharing Contract
PVEP	PetroVietnam Exploration Production Corporation
PVN	PetroVietnam
REEEP	Renewable Energy and Energy Efficiency Partnership
SESB	Sabah Electricity Berhad
SLOC	Sea Lines of Communication
SOE	State-owned Enterprise
SPR	Strategic Petroleum Reserve
ST	Suruhanjaya Tenaga Energy Commission
TAGP	Trans-ASEAN Gas Pipeline
TFEC	Total Final Energy Consumption
TNB	Tenega Nasional Berhad
TOE	Tons of oil equivalent
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
UNCTAD	United Nations Conference on Trade and Development
UNESCAP	United National Economic and Social Commission for Asia and the Pacific
WTO	World Trade Organization

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Appendix

Appendix 1: Abstract

Energy security has been at the hearth of socioeconomic development in East- and Southeast Asia. The South China Sea in particular plays a pivotal role for the region's energy security, including China, Malaysia, and Vietnam. Despite the essential role of energy security for socioeconomic development in these and other countries in the region, the South China Sea dispute between different claimant nations is predominantly displayed as a dispute primarily about energy resources and territorial and maritime claims. This thesis therefore tackles the concept of energy security and aims to find out what role energy security plays in the South China Sea dispute between China, Malaysia, and Vietnam and what implications it does entail for the process of understanding this dispute. Subsequently, a multi-level framework based around the concept of 'International Political Economy' is used the analyze first the role of energy security on a domestic level and, based on that, its role on state interaction in the South China Sea between the analyzed countries. It is found that energy security plays a key part on the domestic and international levels, affecting state interaction in crucial ways. Energy resources and territorial claims are only one part of the medal, with energy security being the other. Energy security has affected the South China Sea dispute by means of directly shaping state interests, the overall strategic setting as well as cooperation and conflict in the area.

Zusammenfassung

Energiesicherheit steht im Mittelpunkt sozialökonomischer Entwicklung in Ost- und Südostasien. Insbesondere das Südchinesische Meer spielt eine ausschlaggebende Rolle für die Energiesicherheit der Region, einschließlich derer Chinas, Malaysias und Vietnams. Trotz der entscheidenden Rolle von Energiesicherheit für die sozialökonomische Entwicklung in diesen und anderen Ländern der Region wird der Disput im Südchinesischen Meer überwiegend als ein Disput über Ressourcen und territoriale Ansprüche angesehen. Diese Arbeit wird daher das Konzept Energiesicherheit aufgreifen und fragen, welche Rolle dieses Konzept im Disput zwischen China, Malaysia und Vietnam im Südchinesischen Meer spielt und welche Implikationen darauf für den Prozess des Verstehens für diesen Disput gezogen werden können. In der Folge wird ein multi-level Framework basierend auf dem Konzept der ‚Internationalen Politischen Ökonomie' genutzt um erst die Rolle von Energiesicherheit auf nationaler- und darauffolgend auf internationalen Ebene im Südchinesischen Meer zu analysieren. Die Ergebnisse der Arbeit zeigen auf, dass Energiesicherheit eine Schlüsselstellung auf nationaler und internationaler Ebene zukommt, als Staatsinteressen auf kritische Weise beeinflusst werden. Energieressourcen und territoriale Ansprüche sind nur die eine Seite der Medaille, Energiesicherheit die andere. Durch direktes Formen von Staatsinteressen, der strategischen Situation sowie Kooperation und Konfrontation, Energiesicherheit hat den Disput im Südchinesischen Meer zwischen China, Malaysia und Vietnam maßgeblich geformt und bestimmt.

Appendix 2: Curriculum vitae

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EDUCATION

Baccalaureate, September 2006 – June 2008.
Technical College – Department of Economics.
Neustadt am Rübenberge, Germany.

Bachelor of Arts, Political Science. October 2008 – March 2012.
University of Marburg, Germany.

Master of Arts, East Asian Economy and Society. October 2012 – present.
University of Vienna, Austria.

SKILLS

Language skills

- German (Native Proficiency)
- English (Professional Proficiency)
- Japanese (Elementary Proficiency)

Computer skills

- Microsoft Word
- Microsoft Excel
- Microsoft PowerPoint

INTERESTS

- Table Tennis
- Videos Games
- Reading